TUGAS AKHIR

ANALISIS INDEKS KEKERINGAN MENGGUNAKAN DATA HUJAN CLIMATE HAZARDS GROUP INFRARED PRECIPITATION WITH STATION DATA (CHIRPS) DI KABUPATEN LOMBOK TENGAH

Untuk Memenuhi Sebagian Persyaratan

Mencapai Derajat Sarjana S-1 Jurusan Teknik Sipil

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JURUSAN TEKNIK SIPIL

FAKULTAS TEKNIK

UNIVERSITAS MATARAM

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Dengan ini menyatakan bahwa tugas akhir yang telah saya buat dengan judul: "Analisis Indeks Kekeringan Menggunakan Data Hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* di Kabupaten Lombok Tengah" adalah asli (orisinil) atau tidak menjiplak dan belum pernah diterbitkan/dipublikasikan dimanapun dan dalam bentuk apapun.

Demikian surat pernyataan ini saya buat dengan sebenar-benarnya tanpa ada paksaan dari pihak manapun juga. Apabila di kemudian hari ternyata saya memberikan keterangan palsu dan/atau ada pihak lain yang mengklaim bahwa tugas akhir yang telah saya buat adalah hasil karya milik seseorang atau badan tertentu, saya bersedia diproses baik secara pidana maupun perdata dan kelulusan saya dari Universitas Mataram dicabut/dibatalkan.

Mataram, 2023

Yang membuat pernyataan,

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PRAKATA

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Penulis

DAFTAR ISI

DAFTAR TABEL

DAFTAR GAMBAR

DAFTAR LAMBANG DAN SINGKATAN

a	: Koefisien regresi
α	: Alpha
AMJ	: April-Mei-Juni
ARR	: *Automatic Rainfall Recorder*
ASB	: Amat Sangat Basah
ASK	: Amat Sangat Kering
b	: Koefisien yang merupakan titik potong dari garis regresi
β	: Beta
BMKG	: Badan Meteorologi, Klimatologi, dan Geofisika
BPBD	: Badan Penanggulangan Bencana Daerah
BPP	: Balai Penyuluhan Pertanian
BPTPH	: Balai Proteksi Tanaman Pangan dan Hortikultura
BWS	: Balai Wilayah Sungai
CFS	: *Climate Forecast System*
CHIRPS	: *Climate Hazards Group Infrared Precipitation with Station Data*
CK	: Cukup Kering
Dy	: Nilai statistik
f(x)	: Fungsi yang bergantung dengan variabel x
$G(x)$	: Gamma distribusi
H(x)	: Transfom gamma distribusi
IDW	: *Inverse Distance Weighted*
JAS	: Juli-Agustus-September
JFM	: Januari-Februari-Maret
N	: Normal
n	: Jumlah data hujan
NOAA	: *National Oceanic and Atmospheric Administration*
NSE	: *Nash-Sutcliffe Efficiency*
OND	: Oktober-November-Desember
P	: Hujan pada stasiun tertentu
$\bar{P}$	: Hujan rerata kawasan

PDAM : Perusahaan Daerah Air Minum

PDSI : *Palmer Drought Severity Index*

Q : Nilai statistik

R : Koefisien korelasi

RMSE : *Root Mean Square Error*

SB : Sangat Basah

Sd : Standar Deviasi

SK : Sangat Kering

Sk* : Nilai statistik

Sk** : Nilai statistik

SPI : *Standardized Precipitation Index*

TRMM : *Tropical Rainfall Measuring Mission*

WMO : *World Meteorological Organization*

$\hat{Y}_i$: Nilai dugaan

Yi : Data curah hujan ke- i

Yr : Rata – rata curah hujan

INTISARI

Analisis indeks kekeringan membutuhkan data yang cukup panjang. Umumnya, data yang digunakan adalah data curah hujan pengukuran. Namun, data pengukuran memiliki beberapa kelemahan pada panjang data tersedia, kelengkapan dan ketersebaran lokasi stasiun hujan, maka diperlukan alternatif lain yaitu data hujan satelit, salah satu nya satelit CHIRPS. Dalam menganalisis indeks kekeringan, metode yang dapat digunakan yaitu *Standardized Precipitation Index (SPI).* Sebelum menganalisis indeks kekeringan menggunakan metode *Standardized Precipitation Index (SPI)* perlu dilakukan pendekatan nilai curah hujan satelit terhadap nilai curah hujan pengukuran dengan uji akurasi, kalibrasi, dan validasi. Dalam uji akurasi didapatkan nilai NSE sebesar 0,281- 0,715 dimana nilai 0,281 tidak memenuhi. Selanjutnya, setelah uji kalibrasi didapatkan persamaan regresi dengan regresi polinomial orde 2, dimana nilai NSE terbaik sebesar 0,474 – 0,694 sehingga nilai tersebut memenuhi. Berdasarkan *Standardized Precipitation Index (SPI)* analisis kekeringan 3 bulanan didapatkan kekeringan terparah terjadi pada bulan AMJ (April, Mei, Juni) 2018 sebesar -2.952 s.d -4.202. Penggambaran menggunakan aplikasi *Arcgis* menunjukan gradasi warna merah dan merata di wilayah Lombok Tengah pada bulan AMJ (April, Mei, Juni) 2018, hal ini diperkuat dengan peta BMKG sebagai pembanding yang juga menunjukan pada bulan AMJ (April, Mei, Juni) 2018 sebagian besar wilayah Lombok Tengah mengalami kekeringan, namun setiap tahunnya di semua wilayah Lombok Tengah cenderung berinterpretasi normal.

Kata Kunci: Kekeringan, *Standardized Precipitation Index (SPI),* Satelit CHIRPS

ABSTRACT

Drought index analysis requires quite a long data. Generally, the data used is rainfall measurement data. However, data measurement has several weaknesses in the length of available data, completeness and dispersion of rain station locations, so another alternative is needed, namely satellite rain data, one of which is the CHIRPS satellite. In analyzing the drought index, the method that can be used is the Standardized Precipitation Index (SPI). Before analyzing the drought index using the Standardized Precipitation Index (SPI) method, it is necessary to approach the satellite rainfall value for measuring rainfall values with accuracy, calibration and validation tests. In the passing test, the NSE score was 0.281-0.715 where the value of 0.281 did not meet. Furthermore, after the calibration test, the regression equation is obtained with a second-order polynomial regression, where the best NSE value is 0.474 - 0.694 so that the value fulfills. Based on the Standardized Precipitation Index (SPI) 3-month drought analysis, the acquisition of directional drought occurred in AMJ 2018 of -2,952 to -4,202. The depiction using the Arcgis software shows red and even gradations in the Central Lombok region in AMJ 2018, this is reinforced by the BMKG map as a comparison which also shows that in AMJ 2018 most of the Central Lombok region is experiencing drought, but every year in all areas of Central Lombok tend to interpret normally.

Keywords: *Drought, Standardized Precipitation Index (SPI), CHIRPS Satellite*

BAB I
PENDAHULUAN

1.1. Latar Belakang

Kekeringan merupakan salah satu permasalahan yang ada di Indonesia, biasanya terjadi pada saat musim kemarau, hal ini dicirikan dengan curah hujan yang sangat rendah sehingga pasokan air terbatas. Terbatasnya pasokan air dikarenakan keringnya sumber air seperti waduk, sumur, sungai, dan sumber air lainnya.

Masalah kekeringan menjadi permasalahan yang umum terjadi pada saat musim kemarau tiba, tak terkecuali di Lombok, Pulau Lombok merupakan pulau yang terletak di bagian timur Kepulauan Indonesia, dengan diameter sekitar 80 km dari timur sampai barat dan dari utara ke selatan, dengan pemandangan hijau yang subur tetapi relatif kering sepanjang tahun. Musim kering dapat berlanjut sampai berbulan-bulan dan mengakibatkan gagal panen serta kelaparan. Perubahan iklim memperburuk kondisi ini karena mempengaruhi suhu rata-rata dan pola presipitasi, salah satu kabupaten di Lombok yang terdampak masalah kekeringan adalah Lombok Tengah (World Wild Fund, 2009).

Setiap kemarau, biasa mulai April sampai Oktober, daerah selatan Lombok Tengah jadi daerah langganan pengiriman air bersih dari Badan Penanggulangan Bencana Daerah (BPBD). Sumur-sumur warga mengering, jaringan pipa PDAM tak menjangkau seluruh wilayah. Debit air di hulu sumber air bersih PDAM berkurang, daerah dekat dengan sumber PDAM pun sering kesulitan mendapatkan air bersih.

Berdasarkan data yang dihimpun Badan Penanggulangan Bencana Daerah (BPBD) NTB ditahun 2020 delapan kecamatan di kabupaten Lombok Tengah mengalami kekeringan dengan jumlah terdampak mencapai 273,622 jiwa (BPBD, 2022). Bencana kekeringan bahkan pernah mengakibatkan bahaya kelaparan yang sangat serius. Berdasarkan laporan BPTPH VII (1999) tercatat telah pernah terjadi kekeringan dan kelaparan tahun 1954 dan 1966 dan dicatat sebagai peristiwa yang menyebabkan ribuan orang mati kelaparan di Lombok Tengah bagian Selatan. Kekeringan juga terjadi tahun 1997/1998 yang bertepatan dengan El Nino yang menyebabkan 8.400 Ha tanaman padi

mengalami kekeringan berat dan lebih kurang 1.400 Ha diantaranya mengalami puso yang pada gilirannya mengakibatkan penurunan produksi padi (Saidah et al., 2017).

Tingginya peluang terjadinya bencana kekeringan di wilayah Lombok Tengah mengakibatkan perlunya berbagai langkah antisipasi, salah satunya analisis indeks kekeringan. Analisis indeks kekeringan merupakan antisipasi dini terhadap kekeringan, dimana penentuan indeks kekeringan itu sendiri bertujuan untuk menganalisis tingkat kekeringan wilayah, mengatur kebutuhan irigasi, memonitor kekeringan secara spesifik dan melaporkan kekeringan secara berkala. Dengan adanya indeks kekeringan, pengetahuan dasar dan juga segala bentuk penanggulangan dan pencegahan kekeringan dapat dilakukan. Oleh sebab itu, mengetahui indeks kekeringan dapat dikatakan sebagai hal yang penting.

Sepanjang sejarah, indeks kekeringan telah mengalami perkembangan yang cukup pesat serta dapat dilakukan dengan berbagai metode, salah satunya adalah perhitungan nilai indeks kekeringan menggunakan metode *Standardized Precipitation Index* (SPI). Model SPI memiliki keunggulan yaitu sederhana, hanya memerlukan data hujan dan dapat menentukan tingkat keparahan kekeringan dengan cara mengukur kekurangan/deficit curah hujan pada berbagai periode berdasarkan kondisi normalnya (Saidah et al., 2018). Selain itu, metode SPI sudah banyak digunakan di seluruh dunia serta sudah di akui oleh WMO.

Dalam menganalisis indeks kekeringan metode SPI, input data yang digunakan hanya data curah hujan, umumnya informasi data hujan berasal dari hasil pengukuran pengamatan cuaca di lapangan. Data curah hujan dan cuaca dapat di peroleh dari Badan Meteorologi, Klimatologi, dan Geofisika (BMKG) maupun Balai Wilayah Sungai (BWS) setempat. Namun, 2 data tersebut memiliki kelemahan yaitu sebaran lokasi stasiun hujan yang tidak cukup baik, panjang data yang tidak cukup panjang serta beberapa data yang tidak cukup lengkap (Pratiwi et al., 2017).

Seiring dengan ditemukannya teknologi satelit cuaca, baru-baru ini banyak tulisan yang memuat curah hujan satelit, hal itu dilandasi karena curah hujan satelit memiliki beberapa keunggulan. Diantaranya, memungkinkan untuk melakukan pemantauan curah hujan pada wilayah yang luas bahkan tempat yang tidak dapat dijangkau oleh peralatan konvensional, memiliki data yang Panjang, dan data yang cukup lengkap.

Salah satu data hujan satelit yang cukup menarik adalah *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)*, karena CHIRPS memiliki resolusi

spasial hingga 0.05ox0.05o sejak tahun 1981, selain itu CHIPRS juga mengkombinasi tiga informasi curah hujan yaitu klimatologi global, estimasi curah hujan berbasis satelit, dan curah hujan hasil pengamatan in-situ (Funk et al., 2015).

Untuk itu dalam penelitian kali ini penulis tertarik untuk menganalisis indeks kekeringan menggunakan data hujan Climate Hazards Group InfraRed Precipitation with Station Data (CHIRPS) di Kabupaten Lombok Tengah.

1.2. Permasalahan

Adapun permasalahan pada penelitian "Analisis Indeks Kekeringan Menggunakan Data Hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* di Kabupaten Lombok Tengah" :

a) Bagaimana tingkat keakuratan data curah hujan bulanan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* terhadap data curah hujan bulanan pengukuran di lapangan?
b) Bagaimanakah kesesuaian peta kekeringan yang di analisis menggunakan data hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* dengan metode *Standardized Precipitation Index (SPI)* terhadap peta Kekeringan BMKG ?
c) Bagaimana peta sebaran indeks kekeringan di kabupaten Lombok Tengah yang di analisis menggunakan data hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* dengan metode *Standardized Precipitation Index (SPI)* berdasarkan pemetaan menggunakan software ArcGIS?

1.3. Tujuan Penelitian

Terkait dengan rumusan masalah di atas, maka tujuan yang ingin dicapai dari penelitian ini yaitu :

a) Untuk mengetahui tingkat keakuratan data curah hujan bulanan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* terhadap data curah hujan bulanan pengukuran di lapangan.
b) Untuk mengetahui kesesuaian peta kekeringan yang di analisis menggunakan data hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)*

dengan metode *Standardized Precipitation Index (SPI)* terhadap peta Kekeringan BMKG

c) Untuk mengetahui peta sebaran indeks kekeringan di kabupaten Lombok Tengah yang di analisis menggunakan data hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* dengan metode *Standardized Precipitation Index (SPI)* berdasarkan pemetaan menggunakan software ArcGIS

1.4. Batasan Masalah

Agar penelitian ini lebih terarah, maka dalam hal ini penulis membatasi pokok-pokok bahasan permasalahan sebagai berikut :

a) Penelitian dilakukan di Kabupaten Lombok Tengah
b) Data curah hujan yang digunakan adalah data hujan 20 tahun terakhir (2001-2021)
c) Digunakan data curah hujan pada stasiun Loang Make, Kopang, Rembitan dan Kabul.
d) Metode analisis indeks kekeringan yang digunakan adalah *Standardized Precipitation Index (SPI)*

1.5. Manfaat Penelitian

Adapun manfaat yang penulis inginkan dari penelitian ini yaitu :

a) Mahasiswa tertarik dan dapat mempelajari karakteristik data hujan satelit CHIRPS
b) Mahasisawa mampu menganalisis indeks kekeringan menggunakan data hujan *Climate Hazards Group Infrared Precipitation with Station Data (CHIRPS)* dengan metode *Standardized Precipitation Index (SPI)*
c) Memberikan pengetahuan tentang karakteristik kekeringan di suatu daerah/wilayah
d) Sebagai referensi terhadap penelitian selanjutnya yang serupa di wilayah yang berbeda.

BAB II
TINJAUAN PUSTAKA DAN DASAR TEORI

2.1 Tinjauan Pustaka

Putri (2020), melakukan penelitian "*Analisis Pola Kecenderungan Kekeringan dengan Metode Standardized Precipitation Index (SPI) dan Metode Palmer Drought Severity Index (PDSI) di Kabupaten Lombok Barat dan Lombok Tengah*". Dari analisis tersebut di dapatkan indeks kekeringan yang terjadi dengan metode *Standardized Precipitation Index (SPI)* selama periode 25 tahun terakhir di kabupaten Lombok Barat rata-rata berkisar antara -1.02 sampai -5.29 dan di Kabupaten Lombok Tengah rata-rata berkisar antara -1.08 sampai -4.58.

Maharani (2019), melakukan penelitian "*Pemodelan Bahaya Kekeringan Meteorologis di Provinsi Jawa Timur dengan Menggunakan Data CHIRPS* (*Climate Hazards Group Infrared Precipitation with Station Data*)". Dari penelitian tersebut Data CHIRPS bulanan terkoreksi periode 1988-2017 digunakan untuk analisis *Standardized Precipitation Index (SPI)* di Provinsi Jawa Timur dikarenakan kinerja yang baik pada skala multi waktu dan memiliki resolusi spasial yang tinggi dengan ketersediaan data yang cukup panjang untuk analisis kekeringan. Bahaya kekeringan meteorologis yang dilihat dari analisis durasi, kekuatan dan frekuensi kekeringan berdasarkan SPI pada data CHIRPS terkoreksi periode 1988-2017 menimpa seluruh wilayah Provinsi Jawa Timur dengan tingkat bahaya kekeringan rendah ($-1{,}43 \leq$ ADI $\leq -1{,}31$ dan $6 \leq$ DHI 10,33), tingkat bahaya kekeringan menengah ($-1{,}55 \leq$ ADI $\leq -1{,}43$ dan $10{,}33 \leq$ DHI $\leq 14{,}67$) dan tingkat bahaya kekeringan tinggi ($-1{,}67 \leq$ ADI $\leq -1{,}55$ dan $14{,}67 \leq$ DHI ≤ 19). Masalah kekeringan di Provinsi Jawa Timur dipengaruhi oleh fenomena iklim global yaitu El-Nino. Wilayah dengan bahaya kekeringan meteorologis tinggi dan terletak pada topografi curam dengan bentuk lahan asal proses struktural perlu diwaspadai akan berkembang menjadi kekeringan lahan karena kurangnya ketersediaan air tanah.

Astuti (2019) melakukan penelitian "*Analisis Pola Kecendrungan Kekeringan Dengan Metode Standardized Precipitation Index (SPI) dan Metode Palmer Drought Severity Index (PDSI) di Kabupaten Lombok Utara*". Dari penelitian tersebut di

dapatkan indeks kekeringan yang terjadi dengan metode *Standardized Precipitation Index (SPI)* selama periode 20 tahun (1999-2018) di Kabupaten Lombok Utara menghasilkan kekeringan tingkat amat sangat kering pada tahun 2004 paling banyak, yaitu sebanyak 2 kali dan puncak kekeringan dengan kategori amat sangat kering (terparah) pada bulan Desember tahun 2018 sebesar -2,866.

Solehawati (2019), melakukan penelitian "*Pemanfaatan Data CHIRPS Untuk Pemetaan Kekeringan Meteorologis Menggunakan Standardized Precipitation Index (SPI) di Pulau Jawa*" Sebagai hasil penelitian pertama dari penelitian ini, data CHIRPS dengan format raster dapat diperoleh dan diolah dengan mudah. Hasil kedua menunjukkan nilai korelasi secara keseluruhan sampel stasiun hujan yaitu 0,584 yang menunjukkan nilai yang cukup baik. Akan tetapi pada stasiun hujan yang berada di selatan jawa menghasilkan angka yang lebih besar yaitu 0,843. Hasil ketiga berupa hasil persebaran kategori kekeringan yang pada tahun 2005 menghasilkan empat kategori yaitu normal, agak basah, basah, dan sangat basah. Tahun 2010 menghasilkan satu kategori yaitu sangat basah, dan tahun 2015 menghasilkan dua kategori yaitu normal dan agak kering. Terakhir, perbandingan dengan peta agroklimat menunjukkan persentase kesamaan kategori kerawanan kekeringan tertinggi pada hasil SPI tahun 2010 dan terendah pada tahun 2015.

2.2 Landasan Teori

2.2.1. Hujan

Presipitasi adalah turunnya air dari atmosfer ke permukaan bumi, yang bisa berupa hujan, hujan salju, kabut, embun, dan hujan es. Di daerah tropis, termasuk indonesia, yang memberikan sumbangan paling besar adalah hujan, sehingga seringkali hujanlah yang dianggap sebagai presipitasi. Hujan merupakan sumber dari semua air yang mengalir di sungai dan dalam tampungan baik di atas maupun di bawah permukaan tanah. Hujan berasal dari uap air di atmosfer, sehingga bentuk dan jumlahnya dipengaruhi oleh faktor klimatologi seperti angin, temperatur dan tekanan atmosfer. Uap air tersebut akan naik ke atmosfer sehingga mendingin dan kemudian terjadi kondensasi menjadi butir-butir air dan kristal-kristal es yang akhirnya jatuh sebagai hujan (Triatmodjo, 2010).

2.2.2. Penyiapan data hujan

Data hujan biasanya disajikan dalam bentuk akumulatif dasarian atau pun bulanan.Data hujan biasanya disajikan dalam bentuk akumulatif dasarian atau pun bulanan. Idealnya kita memerlukan durasi data 30 tahun agar dapat menentukan tipe iklim dari wilayah. Namun ketidaktersediaan data dapat diatasi dengan menggunakan data dari stasiun meteorology BMKG, Balai Wilayah Sungai terdekat ataupun dengan data dari penakar hujan BPP sekitar.

Dalam penelitian kali ini, data hujan yang digunakan adalah :

1. Data hujan terukur di lapangan

Data hujan yang secara umum biasanya digunakan untuk analisis hidrologi adalah data hujan yang diperoleh dari pengamatan langsung di lapangan melalui stasiun-stasiun hujan yang dikelola oleh instansi tertentu. Data hujan biasanya bersumber dari penakar hujan tipe manual dan penakar hujan otomatis atau sering disebut dengan Automatic Rainfall Recorder (ARR). Data hujan penakar tipe manual hanya dapat menyediakan data hujan harian sedangkan ARR dapat menyediakan data hujan jam-jaman (Pratiwi et al., 2017)

Hujan di suatu daerah hanya dapat diukur di beberapa titik yang ditetapkan dengan alat pengukur hujan. Hujan yang terukur oleh alat tersebut mewakili suatu luasan daerah di sekitarnya. Hujan terukur dinyatakan dengan kedalaman hujan yang jatuh pada sutu interval tertentu (Triatmodjo, 2010).

2. Data hujan satelit

Selain data hujan terukur dilapangan, terdapat cara lain dalam mengestimasi curah hujan yakni menggunakan estimasi dengan data satelit. Salah satu data hujan berbasis satelit yakni CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*). CHIRPS adalah database curah hujan daratan yang merupakan kombinasi dari tiga informasi curah hujan yaitu klimatologi global, estimasi curah hujan berbasis satelit, dan curah hujan hasil pengamatan in-situ (Funk et al., 2015).

CHIRPS menggabungkan klimatologi curah hujan bulanan dari Climate Hazards Group Precipitation Climatology (CHP Clim), quasi-global geostationary thermal infrared satellite observations, produk Tropical Rainfall Measuring Mission (TRMM) 3B42, model atmosfer curah hujan dari NOAA CFS (Climate Forecast System), dan data curah hujan observasi dari berbagai sumber termasuk national or regional

Meteorological Services seperti Badan Meteorologi Klimatologi dan Geofisika di Indonesia (Fadholi & Adzani, 2018).

Data estimasi curah hujan dari Climate Hazard Grup Infra Red Precipitation with Station Data (CHIRPS) diperkenalkan oleh Funk et al (2015) sebagai data reanalysis dengan resolusi spasial 0.05ox0.05o sejak tahun 1981. Data CHIRPS dapat menjadi solusi kajian curah hujan esktrem dalam series panjang meskipun pada awalnya digunakan untuk memantau kekeringan khususnya di Afrika (Funk et al, 2014) dan telah dilakukan juga di Sulawesi Selatan oleh Setiawan et al (2017).

Dengan berbagai kelebihan diatas, maka dari itu dalam penelitian kali ini penulis tertarik menggunakan data hujan CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*) dalam menganalisis kekeringan di Kabupaten Lombok Tengah.

Adapun cara mendapatkan data dan mengekstraksi data CHIRPS tersebut adalah:

1) Cara mendapatkan data CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*)
   a) Akses data CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*) pada laman resmi https://data.chc.ucsb.edu/products/CHIRPS-2.0/
   b) Klik menu Global_daily/ pada laman satelit CHIRPS
   c) Klik netcdf/ setelah itu akan muncul menu P05 dan P25, pilih resolusi yang dibutuhkan dan download data CHIRPS sesuai tahun yang dibutuhkan.
2) Cara mengekstraksi data CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*)
   a) Download aplikasi Panoply
   b) Buka aplikasi Panoply, klik menu File lalu menu Open, cari data CHIRPS yang sudah di download setelah itu klik data tersebut.
   c) Setelah tampilan data CHIRPS di buka klik precip, Create Plot, Creat, lalu Array 1 maka akan muncul tampilan data hujan CHIRPS beserta titik koordinat.
   d) Sesuaikan dengan koordinat stasiun hujan yang diinginkan kemudian plot data yang di butuhkan ke aplikasi Microsoft Excel.

2.2.3. Analisis curah hujan rerata

Menurut Triatmodjo, (2010) untuk menghitung curah hujan rerata daerah dapat

dilakukan dengan Metode Aritmatika (Aljabar), Metode Poligon Thiessen, dan Metode Isohiet.

1. Metode Rerata Aritmatika (Aljabar)

   Dengan menggunakan metode aritmatika, curah hujan rata-rata daerah dapat ditentukan dengan menjumlahkan curah hujan dari semua titik pengukur untuk periode tertentu dan membaginya dengan banyak pos pengukuran.

   persamaannya sebagai berikut:

$$\bar{P} = \frac{P_1+P_2+P_3}{n} \qquad \textbf{(2-1)}$$

   Dengan :

   $\bar{P}$ = curah hujan rerata daerah (mm)

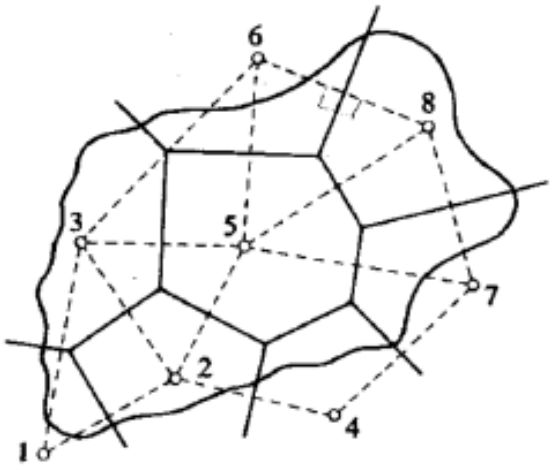
   $P_1 + P_2 + P_3$ ... Pn = curah hujan di stasiun 1,2,3,..n (mm)

   n = jumlah stasiun

2. Poligon Thiessen

Umumnya untuk menghitung curah hujan daerah dengan menggunakan luas daerah aliran sungai adalah sebagai berikut (Sosrodarsono & Takeda, 2006):

a. Daerah dengan luas 250 ha yang mempunyai variasi topografi yang kecil, dapat diwakili oleh sebuah alat pengukur hujan.
b. Untuk daerah antara 250-50.000 ha dengan dua alat atau tiga titik pengamatan, dapat digunakan dengan rata-rata aljabar.
c. Untuk daerah rata-rata antara 120.000-500.000 ha dengan dua atau tiga titik pengamatan yang tersebar cukup merata dan curah hujannya tidak terlalu dipengaruhi oleh faktor topografi, dapat digunakan cara rata-rata aljabar. Jika titik pengamatan itu tidak tersebar merata, maka akan digunakan cara polygon thiessen.
d. Untuk daerah lebih besar dari 500.000 ha, maka akan digunakan cara isohyet atau cara potongan antara *(inter section method).*Metode ini dikenal juga sebagai metode rata-rata timbang. Daerah pengaruh dibentuk dengan menggambarkan garis-garis sumbu tegak lurus terhadap garis penghubung antara dua pos penakar terdekat.



Gambar 2. 1 Metode poligon theissen

$$R = \frac{A1R1+A2R2+\cdots+AnRn}{A1+A2+\cdots+An} \quad \textbf{(2-2)}$$

Dimana :

Rn = Curah hujan yang tercatat di pos penakar hujan (mm)

An = luas areal polygon (km^2)

1,2,...,n = banyaknya pos penakar hujan

Metode Thiessen digunakan dengan mempertimbangkan luas daerah yang diwakili oleh stasiun yang bersangkutan (luas daerah pengaruh) untuk digunakan sebagai faktor dalam menghitung hujan rata-rata.

3. Metode Isohiet

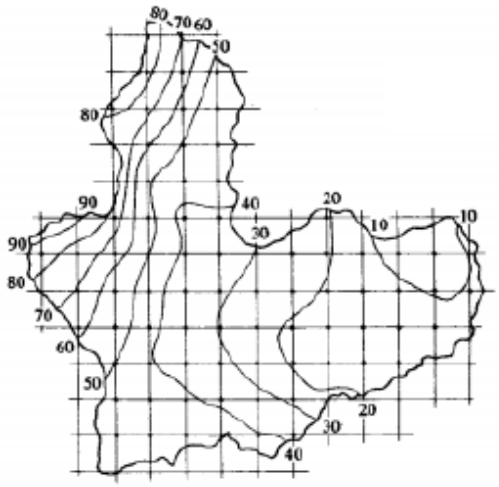
Metode ini merupakan metode yang paling akurat untuk menentukan hujan rata-rata, namun diperlukan keahlian dan pengalaman. Cara ini memperhitungkan secara aktual pengaruh tiap-tiap pos penakar hujan.

$$R = \frac{\frac{R0+R1}{2}A1+\frac{R1+R2}{2}+A2+\cdots+\frac{Rn-1+Rn}{2}An}{A1+A2+\cdots+An} \quad \textbf{(2-3)}$$

Dimana :

Rn = tinggi curah hujan pada isohyet ke-n (mm)

An = luas bagian antara garis isohyet (Km^2)



Gambar 2. 2 Metode poligon isohyet

2.2.4. Uji konsistensi data hujan

Data hujan tidak dapat langsung digunakan untuk analisa, suatu data hujan memungkinkan sifatnya tidak konsisten, untuk mendapatkan analisis yang baik, maka diperlukan uji konsistensi data hujan terlebih dahulu. Pengujian data hujan ada beberapa cara, salah satunya adalah metode RAPS *(Rescaled Adjusted Partial Sums).*

Persamaan yang digunakan adalah sebagai berikut (Harto, 2000) :

$$Sk^{*} = \sum_{i+1}^{k}(Yi - Yr) \quad \textbf{(2-4)}$$

k = 1,2,3,…n

$$Sk^{**} = \frac{sk^{*}}{Dy} \quad \textbf{(2-5)}$$

$$Dy^{2} = \frac{\sum_{i+1}^{k}(Yi-Yr)}{n} \quad \textbf{(2-6)}$$

Dimana :

n = banyak tahun

Yi = data curah hujan ke- i

Yr = rata – rata curah hujan

Sk* = nilai statistik

Sk** = nilai statistik

Dy = nilai statistik

Nilai statistik (Q)

Q = maks | Sk** | **(2-7)**

Nilai statistik *range* (R)

R = maks Sk** - min Sk** **(2-8)**

Dimana :

Q = nilai statistik

n = jumlah data hujan

Dengan melihat nilai statistik di atas maka dapat dicari nilai Q/$\sqrt{n}$ dan R/$\sqrt{n}$. Hasil yang didapat dibandingkan dengan nilai Q/$\sqrt{n}$ syarat dan R/$\sqrt{n}$ syarat.

Tabel 2. 1 Nilai kritis yang diizinkan untuk metode RAPS

N	Q/√n			R/√n		
	90%	95%	99%	90%	95%	99%
10	1.05	1.14	1.29	1.21	1.28	1.38
20	1.10	1.22	1.42	1.34	1.43	1.60
30	1.12	1.24	1.46	1.40	1.50	1.70
40	1.13	1.26	1.50	1.42	1.53	1.74
50	1.14	1.27	1.52	1.44	1.55	1.78
100	1.17	1.29	1.55	1.50	1.62	1.86
>100	1.22	1.36	1.62	1.62	1.72	2.00

(*Sumber: Harto, 2000*)

2.2.5. Kalibrasi

Analisis kalibrasi merupakan langkah yang bertujuan untuk mengkoreksi nilai curah hujan satelit agar sesuai mendekati dengan curah hujan terukur di lapangan. Analisis kalibrasi curah hujan menggunakan persamaan regresi y = f(x) yang terbentuk dari hubungan curah hujan satelit sebagai variabel x dan curah hujan pengamatan atau 13 terukur sebagai variabel y yang menghasilkan persamaan koreksi curah hujan satelit (Jarwanti et al., 2021)

Analisis regresi adalah analisis dimana hubungan antara dua variabel atau lebih. Bila analisis regresi sudah menghasilkan model dalam bentuk persamaan matematis yang cocok. Selanjutnya menentukan seberapa kuat hubungan yang terbentuk antara variabelvariabel atau harus ditentukan derajat hubungan (derajat asosiasi). Dalam analisis regresi, terdapat analisis yang membahas mengenai derajat asosiasi, analisis tersebut disebut analisis korelasi. Berikut persamaan yang digunakan dalam analisis regresi yaitu linear sederhana (*Linear Regression*) (Jarwanti et al., 2021)

$$\hat{Y} = a_1 X + b_1 \quad \textbf{(2-9)}$$

$$\hat{X} = a_2 Y + b_2 \quad \textbf{(2-10)}$$

dengan :

$\hat{Y}$ = persamaan garis lurus Y terhadap X.

$\hat{X}$ = persamaan garis lurus X terhadap Y.

a_1, a_2 = koefisien regresi (koefisien arah dari garis regresi).

b_1, b_2 = koefisien yang merupakan titik potong dari garis regresi.

2.2.6. Validasi model

Model dikatakan akurat apabila memenuhi kriteria sebagai berikut :

1. *Root Mean Square Error* (RMSE)

RMSE adalah nilai varians dari residual yang dapat menunjukkan keakuratan suatu model. RMSE mempunyai nilai minimal 0, semakin kecil nilai RMSE menunjukan bahwa perbedaan antara nilai dugaan dengan hasil pemodelan dengan data aktualnya semakin kecil pula. Sehingga model yang terbaik adalah model dengan nilai RMSE terkecil. Nilai RMSE diperoleh dengan menggunakan rumus dalam (Estiningtyas & Wigena, 2011) :

$$\text{RMSE} = \sqrt{\frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{n}} \quad \textbf{(2-11)}$$

dengan :

Y_i = data observasi.

$\hat{Y}_i$ = nilai dugaan (data perkiraan).

n = jumlah data

Pada beberapa kasus, nilai RMSE kurang cocok untuk membandingkan dua data dalam skala yang berbeda. Semakin besar data, maka akan menghasilkan selisih data yang lebih besar jika hanya dibandingkan dengan jumlah data. Normalisasi RMSE mamfasilitasi perbandingan antara data set atau model dengan skala yang berbeda.

2. *Nash-Sutcliffe Efficiency* (NSE)

Model dikatakan akurat jika nilai errornya kecil dan korelasinya tinggi. Selain dengan parameter tersebut, NSE menunjukkan keeratan hubungan antara data observasi dengan data simulasi (model). Suatu model yang sempurna akan sama dengan observasi dan kesempurnaan ini ditunjukkan dengan nilai NSE=1.

NSE memiliki nilai antara -∞ dan 1, dengan NSE=1 berarti optimal, nilai antara 0 dan 1 biasanya dilihat sebagai tingkat kinerja yang dapat diterima, sedangkan nilai <0

menunjukkan bahwa nilai rata-rata yang diamati lebih baik prediktor daripada nilai simulasi (model) yang mengindikasikan kinerja tidak dapat diterima.

Rumus untuk menghitung NSE adalah sebagai berikut (Moriasi et al., 2007) :

$$NSE = 1 - \frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{\sum_{i=1}^{n}(Y_i - Y_i^{mean})^2} \quad \textbf{(2-13)}$$

dengan :

Y_i = nilai observasi ke-i

$\hat{Y}_i$ = nilai estimasi ke-i

Y_i^{mean} = rata-rata nilai observasi dengan jumlah data n

N = jumlah data.

Tabel 2. 2 Kriteria nilai NSE

NSE	INTREPRETASI
NSE > 0.75	BAIK
0.36 < NSE < 0.75	MEMENUHI
NSE < 0.36	TIDAK MEMENUHI

(Sumber : Jarwanti et al., 2021)

3. Koefisien Korelasi (R)

Korelasi merupakan teknik statistik yang berguna menunjukkan seberapa kuat keeratan pasangan variabel. Rumus untuk menghitung koefisien korelasi adalah (Krisnayanti et al., 2020):

$$R = \frac{n\sum_{i=1}^{n} Y_i\hat{Y}_i - \sum_{i=1}^{n} Y_i x \sum_{i=1}^{n} \hat{Y}_i}{\sqrt{n\sum_{i=1}^{n} Y_i{}^2 - \left(\sum_{i=1}^{n} Y_i\right)^2}\sqrt{n\sum_{i=1}^{n} \hat{Y}_i{}^2 - \left(\sum_{i=1}^{n} \hat{Y}_i\right)^2}} \quad \textbf{(2-14)}$$

dengan :

Y_i = data observasi (data penakar hujan).

$\hat{Y}_i$ = data perkiraan (data satelit hasil estimasi).

n = jumlah data.

Hasil utama dari suatu korelasi disebut koefisien korelasi (atau “R”). Nilai koefisien korelasi berkisar dari -1 hingga +1. Semakin dekat R dengan +1 atau - 1, semakin erat hubungan kedua variabel tersebut. Jika R mendekati 0, berarti tidak ada hubungan antar variabel. Jika R positif, berarti dua variabel memiliki hubungan searah.

Sebaliknya, jika R negatif maka kedua variabel memiliki hubungan terbalik. Koefisien korelasi yang memuaskan tergantung pada tujuan yang akan digunakan, dan pada sifatnya dari data mentah. Berikut dijelaskan pada **Tabel 2.5** untuk mengevaluasi koefisien korelasi agar memberikan keeratan hubungan (Krisnayanti et al., 2020)

Tabel 2. 3 Tingkat keeratan hubungan

Koefisien Korelasi	Keeratan Hubungan
0	Tidak ada korelasi
>0 – 0.25	Korelasi sangat lemah
>0.25 – 0.50	Korelasi cukup tinggi
>0.50 – 0.75	Korelasi kuat
>0.75 – 0.99	Korelasi sangat kuat
1.00	Sempurna

(Sumber: Krisnayanti et al., 2020).

4. Faktor Koreksi

Bila analisis regresi sudah menghasilkan model persamaan matematis yang cocok, maka selanjutnya menentukan seberapa kuat hubungan yang terbentuk antara keduanya atau harus ditentukan dengan analisis korelasi. Dalam analisis ini nantinya akan bertujuan untuk menentukan faktor koreksi yang akan digunakan dalam koreksi data hujan satelit. Dalam penentuan faktor koreksi dilakukan dengan mengetahui besarnya parameter a dan b pada persamaan garis antara data hujan terukur di lapangan dengan data hujan satelit CHIRPS.

2.2.7. Kekeringan

Kekeringan adalah bencana alam yang ditandai dengan kurangnya pasokan air di suatu daerah dalam waktu yang lama (bulanan bahkan hingga bertahun-tahun). Kekurangan pasokan air dalam jangka panjang akan berdampak negatif pada kehidupan, pertanian, kegiatan ekonomi, lingkungan, dan lain sebagainnya (Puslitbang Sumber Daya Air, 2014).

Bappenas juga mengklasifikasikan kekeringan menjadi beberapa kriteria sebagai berikut (Jannah, 2015) :

1) Kekeringan Meteorologis

Berhubungan dengan tingkat curah hujan dibawah normal selama satu musim.

2) Kekeringan Hidrologis

Berhubungan dengan kekurangan persediaan air permukaan dan air tanah. Kekeringan ini diukur berdasarkan elevasi muka air sungai, waduk, danau dan elevasi muka air tanah. Ada jeda waktu dari mulai berkurangnya hujan sampai turunnya elevasi muka air sungai, waduk, danau dan elevasi muka air tanah.

3) Kekeringan Pertanian

Berhubungan dengan berkurangnya lengas tanah (kandungan air dalam tanah) sehingga tidak dapat memenuhi kebutuhan tanah tertentu pada periode waktu tertentu pada wilayah yang luas.

4) Kekeringan Sosial Ekonomi

Berhubungan dengan dampak terhadap kehidupan sosial ekonomi seperti rusaknya tanaman, peternakan, perikanan, berkurangnya tenaga listrik dari tenaga air, menurunnya pasokan air baku untuk industri, domestik, perkotaan, dan lain sebagainnya.

2.2.8. Indeks kekeringan

Indeks kekeringan adalah suatu perangkat utama untuk mendeteksi, memantau dan mengevaluasi kejadian kekeringan. Penentuan indeks kekeringan bertujuan untuk:

1. Mengevaluasi kecenderungan iklim menuju keadaan kering atau tingkat kekeringan pada suatu daerah.
2. Memperkirakan kebutuhan air irigasi pada suatu daerah tertentu.
3. Mengevaluasi kekeringan pada suatu tempat secara lokal.
4. Melaporkan secara berkala perkembangan kekeringan secara regional.

Dari ke empat point diatas dapat disimpulkan indeks kekeringan itu merupakan model untuk menganalisis perubahan iklim saat defisit curah hujan pada wilayah tertentu.

2.2.9. Metode indeks kekeringan

Untuk mendapatkan nilai indeks kekeringan pada suatu wilayah terdapat beberapa metode yang dimana dalam beberapa metode dapat memanfaatkan lebih dari satu data, baik data iklim, hujan, maupun kelegasan tanah. Pada **Tabel 2.1** dijelaskan

beberapa metode indeks kekeringan dengan masukan data yang dibutuhkan dalam perhitungan.

Tabel 2. 4 Metode indeks kekeringan dan masukan data yang dibutuhkan.

No	Metode Indeks Kekeringan	Masukan Data
1	*Palmer Drought Severity Index (PDSI)*	• Curah hujan • Kapasitas lengas tanah • Evapotranspirasi potensial
2	*Thornthwaite-Mather*	• Curah hujan • Kapasitas lengas tanah • Evapotranspirasi potensial • Suhu rata-rata bulanan
3	*Standardized Precipitation Index (SPI)*	• Curah hujan ≥ 20 tahun
4	Persentase terhadap normal	• Curah hujan ≥ 30 tahun
5	*Theory of Run*	• Curah hujan ≥ 20 tahun
6	*Desil*	• Curah hujan ≥ 25 tahun
7	*Crossing Theory*	• Curah hujan ≥ 50 tahun
8	Analisis Deret Hari Kering	• Curah hujan ≥ 30 tahun

(*Sumber*: *Ilmi, 2016*)

Analisis indeks kekeringan dapat dilakukan dengan berbagai metode, karena dalam penelitian kali ini penulis lebih fokus membahas data hujan satelit, maka metode yang dapat digunakan salah satunya adalah perhitungan nilai indeks kekeringan menggunakan metode *Standardized Precipitation Index* (SPI). Karena input data pada metode SPI adalah data curah hujan saja, Hal ini juga berarti SPI merupakan salah satu indeks kekeringan untuk menggambarkan tingkat kekeringan meteorologis. Model SPI memiliki keunggulan yaitu sederhana, hanya memerlukan data hujan dan dapat menentukan tingkat keparahan kekeringan dengan cara mengukur kekurangan/defisit curah hujan pada berbagai periode berdasarkan kondisi normalnya (Saidah et al., 2018). Selain itu, metode SPI sudah banyak digunakan di seluruh dunia serta sudah di akui oleh WMO.

Indikator kekeringan merupakan alat utama untuk membaca, meninjau, dan menilai terjadinya bahaya kekurangan air. Harga SPI negatif menandakan awal terjadinya suatu kekeringan dan nilai SPI positif menandakan telah berakhirnya kekeringan. Hasil yang diperoleh dengan metode SPI adalah kalender bulan yang terjadi kekeringan dan nilai indeksnya (Utami et al., 2013).

2.2.9.1 Indeks kekeringan metode Standardized Precipitation Index (SPI)

Metode Indeks kekeringan SPI adalah indeks yang digunakan untuk menentukan penyimpangan curah hujan terhadap normalnya dalam satu periode yang panjang (bulanan, dua bulanan, tiga bulanan dan seterusnya). Metode SPI ini dikembangkan oleh McKee et al tahun 1993. Metode ini merupakan model untuk mengukur defisit curah hujan pada berbagai periode berdasarkan kondisi normalnya (Saidah et al., 2017).

McKee et al (1993) menggunakan klasifikasi di bawah ini untuk mengidentifikasikan intensitas kekeringan, dan juga kriteria kejadian kekeringan untuk skala waktu tertentu. Kekeringan terjadi pada waktu SPI secara berkesinambungan negatif dan mencapai intensitas kekeringan dengan SPI bernilai -1 atau kurang,sedangkan kekeringan akan berakhir apabila nilai SPI menjadi positif.

Tabel 2. 5 Klasifikasi nilai SPI

Nilai SPI	Klasifikasi
≥ 2.00	Amat sangat basah
1.50 s.d 1.99	Sangat basah
1.00 s.d 1,49	Cukup basah
-0.99 s.d 0.99	Mendekati normal
-1,00 s.d -1,49	Cukup kering
-1,50 s.d -1,99	Sangat Kering
≤ -2.00	Amat sangat kering

(*Sumber : Hayes, 2000*)

Langkah-langkah pengerjaan metode SPI ini adalah :

1. Menghitung rata-rata :

$$\bar{x} = \frac{\sum x}{n} \qquad \textbf{(2-15)}$$

Dengan :

$\bar{x}$ = nilai rata-rata kejadian hujan

$\sum x$ = jumlah kejadian hujan (mm)

n = jumlah data hujan

Menghitung di Ms. Excel dengan fungsi = AVERAGE (awal : akhir)

2. Menghitung Standar Deviasi :

$$Sd = \sqrt{\frac{\sum(x-\bar{x})^2}{n}} \quad \textbf{(2-16)}$$

Dengan :

Sd = standar deviasi

Menghitung di Ms. Excel dengan fungsi = STDEV (awal : akhir)

3. Menghitung α :

$$\alpha = \frac{\bar{x}^2}{Sd^2} \quad \textbf{(2-17)}$$

Dengan :

$\bar{x}$ = nilai rata-rata kejadian hujan (mm)

Sd = standar deviasi

4. Menghitung β :

$$\beta = \frac{\bar{x}}{\alpha} \quad \textbf{(2-18)}$$

Dengan :

$\bar{x}$ = nilai rata-rata kejadian hujan

5. Menghitung gamma distribusi :

$$G(x) = \int_0^x g(x)\,dx = \frac{1}{\beta^{\alpha}\Gamma(a)} \int_0^x t^{a-1} e^{\frac{-x}{\beta}}\,dx \quad \textbf{(2-19)}$$

Menghitung di Ms. Excel dengan fungsi = GAMMADIST (x, β, α, true)

6. Menghitung transfom gamma distribusi :

$$t = \sqrt{ln\left[\frac{1}{H(x)^2}\right]} \text{ untuk } 0 < H(x) \leq 0.5 \quad \textbf{(2-20)}$$

$$t = \sqrt{\ln\left[\frac{1}{(1-H(x))^2}\right]} \text{ Untuk } 0.5 < H(x) \leq 1.0 \quad \textbf{(2-21)}$$

Dengan :

$$H(x) = q + (1-q)G(x) \quad \textbf{(2-22)}$$

7. Menghitung nilai SPI

$$Z = SPI = -\left(t - \frac{C_0 + C_1 t + C_2 t^2}{1 + d_1 t + d_2 t^2 + d_3 t^3}\right) \text{ untuk } 0 < H(x) \leq 0.5 \quad \textbf{(2-23)}$$

$$Z = SPI = +\left(t - \frac{C_0 + C_1 t + C_2 t^2}{1 + d_1 t + d_2 t^2 + d_3 t^3}\right) \text{ untuk } 0.5 < H(x) \leq 1.0 \quad \textbf{(2-24)}$$

Dengan :

c_0 = 2,515517	d_1 =1,432788
c_1 =0,802853	d_2 = 0,189269
c_2 =0,010328	d_3 = 0,001308

Nilai-nilai positif SPI menunjukkan curah hujan lebih besar dari curah hujan rata-ratanya sedangkan nilai negatif nilai menunjukkan curah hujan kurang dari curah hujan rata-rata. Setelah SPI dinormalisasi, iklim basah dan iklim kering dapat direpresentasikan dengan cara yang sama, dan periode basah bisa juga dipantau menggunakan SPI (Nelvi & Srigutomo, 2016).

2.2.10. Peta Sebaran Kekeringan

Peta sebaran kekeringan merupakan visualisasi dari hasil perhitungan indeks kekeringan yang telah dilakukan, dalam menggambarkan peta kekeringan dibutuhkan data yang mencakupi seluruh area yang diteliti. Sehingga, proses interpolasi perlu dilaksanakan untuk mendapatkan nilai diantara titik pos hujan. Pada pemetaan, interpolasi adalah proses estimasi nilai pada wilayah selain titik pos hujan, sehingga terbentuk peta atau sebaran nilai pada seluruh wilayah.

2.2.10.1 Interpolasi pada *Software* ArcGIS

Aplikasi yang digunakan untuk pemetaan kekeringan adalah Arcgis 10.8, dalam aplikasi Arcgis ada beberapa metode yang bisa digunakan untuk melakukan interpolasi seperti *Trend, Spline, Inverse Distance Weighted* (IDW) dan *Kriging*. Setiap metode ini akan memberikan hasil interpolasi yang berbeda.

Dalam penelitian ini metode interpolasi yang digunakan adalah metode IDW. Metode ini memiliki asumsi bahwa setiap titik input mempunyai pengaruh yang bersifat lokal yang berkurang terhadap jarak. Nilai power pada interpolasi IDW ini menentukan pengaruh terhadap titik-titik masukan (input), dimana pengaruh akan lebih besar pada titik-titik yang lebih dekat sehingga menghasilkan permukaan yang lebih detail.(Pasaribu & Suryo, 2012)

BAB III

METODE PENELITIAN

3.1 Lokasi Penelitian

Lokasi penelitian dilakukan di Kabupaten Lombok Tengah, Provinsi Nusa Tenggara Barat. Kabupaten Lombok Tengah terletak pada posisi 8° 24' - 8° 57' Lintang Selatan dan 116° 05' - 116° 24' Bujur Timur, membujur mulai dari kaki gunung Rinjani di sebelah Utara hingga ke pesisir pantai Kuta di sebelah Selatan dengan beberapa pulau kecil yang ada disekitarnya.

Gambar 3.1 Peta Kabupaten Lombok Tengah
(*sumber : Google Earth*)

Pada wilayah Lombok Tengah terdapat beberapa stasiun hujan, namun dalam penelitian kali ini pos hujan yang digunakan adalah pos hujan Loang make, pos hujan Kopang, Rembitan dan pos hujan Kabul (BWS NT I, 2021).

Tabel 3.1 Pos Stasiun Hujan Otomatis di Kabupaten Lombok Tengah.

No	Nama Pos hujan	UTM (X)	UTM (Y)	Letak Geografis		Panjang Data
				LS	BT	
1	Loang Make	434672	9036728	8˚42'50"	116˚24'22"	26 Tahun
2	Kopang	429094	9046485	8˚37'32"	116˚21'20"	26 Tahun
3	Kabul	410047	9029361	8˚46'48"	116˚10'56"	26 Tahun
4	Rembitan	421896	9022118	8˚50'45"	116˚17'23"	26 Tahun

(*sumber : BWS NT 1, 2021)*

Pos hujan pada **Tabel 3.1** tersebar pada jarak yang bervariasi. Pemilihan pos hujan pada penelitian ini diambil berdasarkan ketersediaan data hujan yang cukup panjang dan dapat mewakili dari kondisi wilayah di Kabupaten Lombok Tengah. Pos stasiun hujan otomatis (ARR) tersebut adalah Pos Stasiun Loang Make, Pos Stasiun kopang, Pos Stasiun Rembitan, dan Pos Stasiun Kabul.

3.2 Pelaksanaan Penelitian

3.2.1 Tahap persiapan

Tahap persiapan yang dimaksud adalah pengumpulan jurnal-jurnal ataupun literatur yang menjadi referensi yang dituangkan menjadi landasan teori, serta pembuatan proposal studi. Dengan adanya tahapan persiapan ini, langkah-langkah yang akan dilaksanakan selanjutnya dapat tergambarkan.

3.2.2 Pengumpulan data

Pengumpulan data dapat diperoleh dari observasi langsung (data primer) maupun juga dari instansi-instansi terkait (data sekunder). Jenis data yang digunakan pada penelitian ini berupa data-data sekunder yaitu :

1. Peta wilayah administrasi dan peta pos hujan Kabupaten Lombok Tengah. Tujuannya mengetahui batas wilayah yang berguna untuk analisis indeks kekeringan dan pembuatan peta sebarannya. Serta dapat untuk menentukan letak stasiun hujan yang dapat mewakilkan pengaruh hujan di kawasan Kabupaten Lombok Tengah. Peta ikhtisar pos hujan di Kabupaten Lombok Tengah yang

dimana terdapat empat pos stasiun hujan yang mewakili sebagai pembuatan poligon Thiessen dan penentuan titik untuk pengambilan data hujan dari satelit CHIRPS, yaitu Pos Stasiun Loang Make, Pos Stasiun Kopang, Pos Stasiun Rembitan dan Pos Stasiun Kabul.

2. Data curah hujan terukur di lapangan

   Data curah hujan terukur dalam penelitian ini digunakan untuk menguji keakuratan data dan diperoleh dari empat pos stasiun hujan yaitu Pos Stasiun Loang Make, Pos Stasiun Kopang dan Pos Stasiun Kabul. Data hujan bulanan hanya tercatat dan diperoleh dari Pos Stasiun Loang Make dengan waktu pencatatan selama 20 tahun (2001-2021).

3. Data curah hujan satelit CHIRPS

   Cara mendapatkan data CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*)

   1) Akses data CHIRPS (*Climate Hazards Group Infrared Precipitation with Station Data*) pada laman resmi https://data.chc.ucsb.edu/products/CHIRPS-2.0/
   2) Klik menu Global_daily/ pada laman satelit CHIRPS.
   3) Klik netcdf/ setelah itu akan muncul menu P05 dan P25, pilih resolusi yang dibutuhkan dan download data CHIRPS sesuai tahun yang dibutuhkan.

Proses download dan pengambilan data satelit CHIRPS memakan waktu yang lama, hal ini dikarenakan ukuran file data harian CHIRPS cukup besar, file CHIRPS P05 pertahunnya memiliki ukuran 1- 1,5 GB. Proses pengambilan data dilakukan dengan cara mengutip data harian satu persatu selama 20 tahun. Data hujan satelit CHIRPS berbentuk grid, titiknya belum sesuai dengan titik hujan pengukuran, sehingga perlu dilakukan interpolasi untuk menyamakan titik hujan pengukuran. Dalam hal ini, pengambilan sampai tahap interpolasi data hujan satelit selama 20 tahun memakan waktu 1,5 bulan.

3.2.3 Alat dan bahan

Adapun alat dan bahan yang digunakan dalam penelitian ini adalah :

a. PC (*Portable Computer)*

b. Alat Tulis

3.2.4 Perhitungan dan pengolahan data

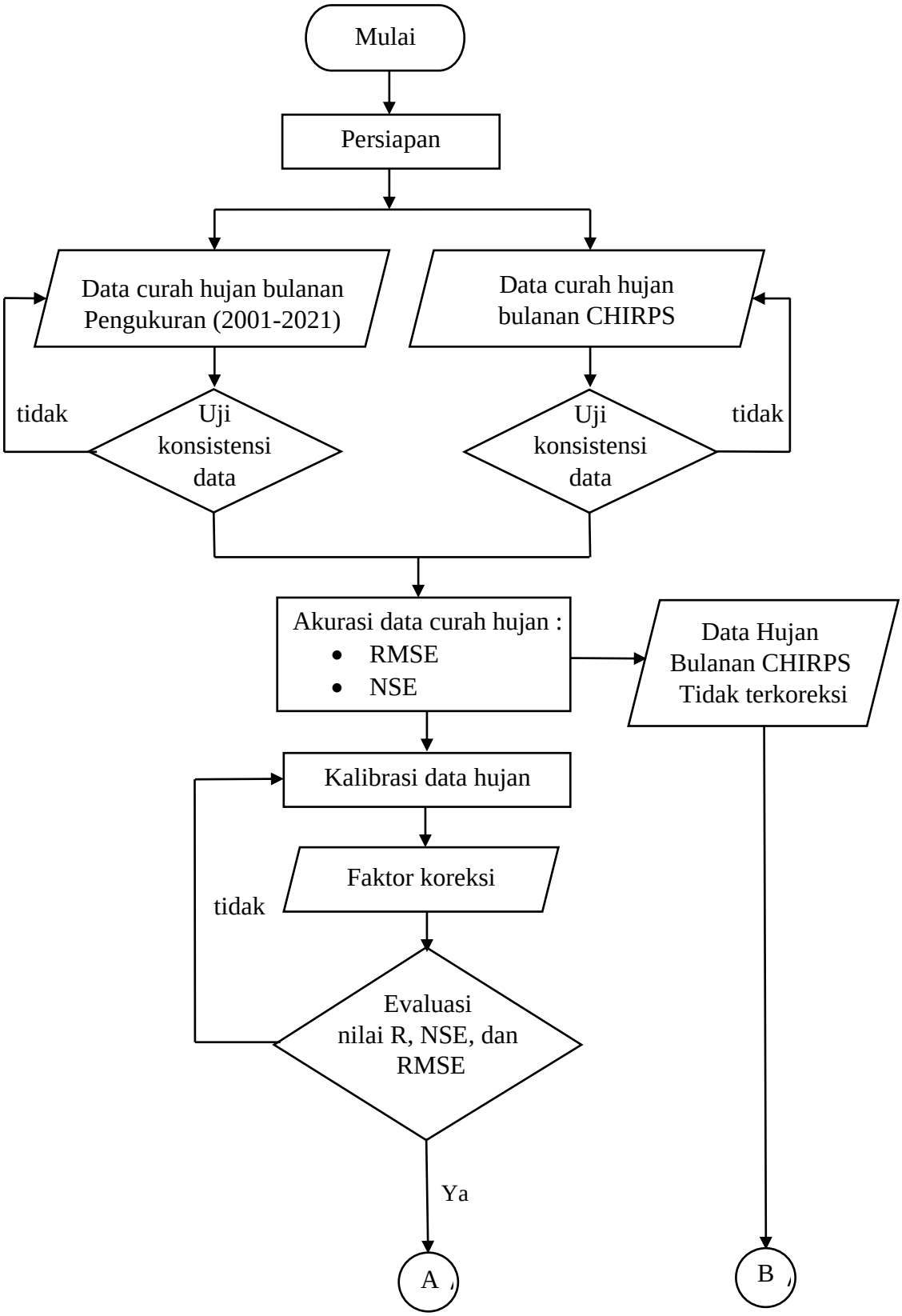
Tahapan-tahapan pengolahan data dan penarikan kesimpulan dalam Anaalisis indeks kekeringan di kabupaten Lombok Tengah ini yaitu :

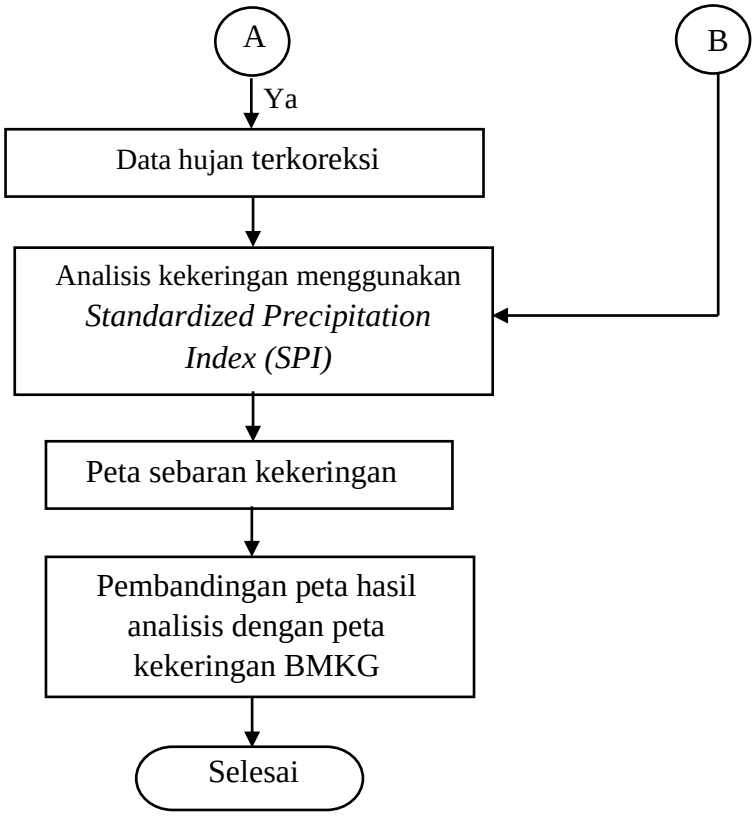
1. Mengumpulkan data curah hujan harian pada titik pos hujan terpilih, baik terukur di lapangan maupun data satelit CHIRPS.
2. Mentabulasikan data curah hujan harian ke dalam curah hujan bulanan, dimana kolom-kolom menyatakan curah hujan bulanan dan baris menyatakan tahun.
3. Uji konsistensi data curah hujan dengan *metode Rescaled Adjusted Partial Sums* (RAPS).
4. Perhitungan akan di lakukan 2 kali, yaitu dengan data hujan tidak terkoreksi dan data hujan terkoreksi, untuk proses mengkoreksi data hujan maka perhitungan dilanjutkan ke point 5 sampai point 8.
5. Jika data curah hujan konsisten, maka selanjutnya dilakukan analisis akurasi antara data hujan bulanan terukur di lapangan dengan data hujan bulanan satelit CHIRPS menggunakan metode *Root Mean Squared Error* (RMSE) dan *Nash-Sutcliffe Efficiency* (NSE). Tahap ini bertujuan mengetahui tingkat kesalahan (error) data hasil pengukuran satelit terhadap data curah hujan hasil pengukuran di lapangan.
6. Menganalisis kalibrasi data hujan satelit CHIRPS menggunakan analisis regresi linear, dimana pada tahap ini ditentukan variabel x sebagai data curah hujan hasil pengukuran satelit dan variabel y sebagai data curah hujan terukur di lapangan. Dilanjutkan kedua variabel dihitung nilai koefisien korelasi untuk mengetahui tingkat keeratan antara kedua variabel tersebut. Kemudian diperoleh persamaan regresi linear untuk digunakan mengoreksi data curah hujan hasil pengukuran satelit CHIRPS pada 4 pos hujan tersebut.
7. Uji validasi atau keakuratan data hujan bulanan satelit CHIRPS dengan metode koefisien korelasi, NSE dan RMSE. Jika kedua variabel tersebut memiliki korelasi yang kuat dan persen error yang rendah, maka angka koreksi yang diperoleh dari analisis regresi linear dapat digunakan untuk menghasilkan data curah hujan bulanan terkoreksi.

8. Berdasarkan hasil validasi data hujan bulanan tersebut didapat keakuratan data yang akan diambil kesimpulan data satelit CHIRPS apakah bisa digunakan untuk analisis kekeringan. Pembatasan cakupan wilayah digunakan metode poligon Thiessen dari 4 pos hujan tersebut yaitu Pos Stasiun Loang Make, Pos Stasiun Kopang, Pos Stasiun Rembitan dan Pos Stasiun Kabul yang kemudian diambil data curah hujan pengukuran satelit CHIRPS.
9. Menghitung analisis kekeringan dengan menggunakan data hujan bulanan satelit CHIRPS terkoreksi dan data hujan bulanan CHIRPS tidak terkoreksi tahun 2001 sampai dengan tahun 2021 menggunakan metode *Standardized Percipitation Index* (*SPI)*. Berikut langkah analisis perhitungannya sebagai berikut:
    a) Menghitung nilai rata-rata kejadian hujan dengan persamaan (**2-15**).
    b) Menghitung standar deviasi sepanjang tahun data pengamatan dengan persamaan (**2-16**).
    c) Menghitung nilai α dan β menggunakan persamaan (**2-17**) dan (**2-18**).
    d) Menghitung distribusi gamma (G(x)) dengan persamaan (**2-19**) pada *Microsoft Excel* rumus gamma menjadi "GAMMADIST (x, β, α, true).
    e) Dilakukan transformasi kedalam bentuk distribusi normal menggunakan persamaan (**2-20**) dan (**2-21**)
    f) Menghitung indeks kekeringan SPI menggunakan persamaan (**2-23**) dan (**2-24**)
10. Membuat peta sebaran indeks kekeringan.
11. Membandingkan output akhir kekeringan metode *Standardized Percipitation Index* (SPI) menggunakan data hujan CHIRPS terhadap data kekeringan BMKG.
12. Kesimpulan.

3.3 Bagan Alir Penelitian

Berikut bagan alir (*flow chart*) penelitian yang akan dilakukan :



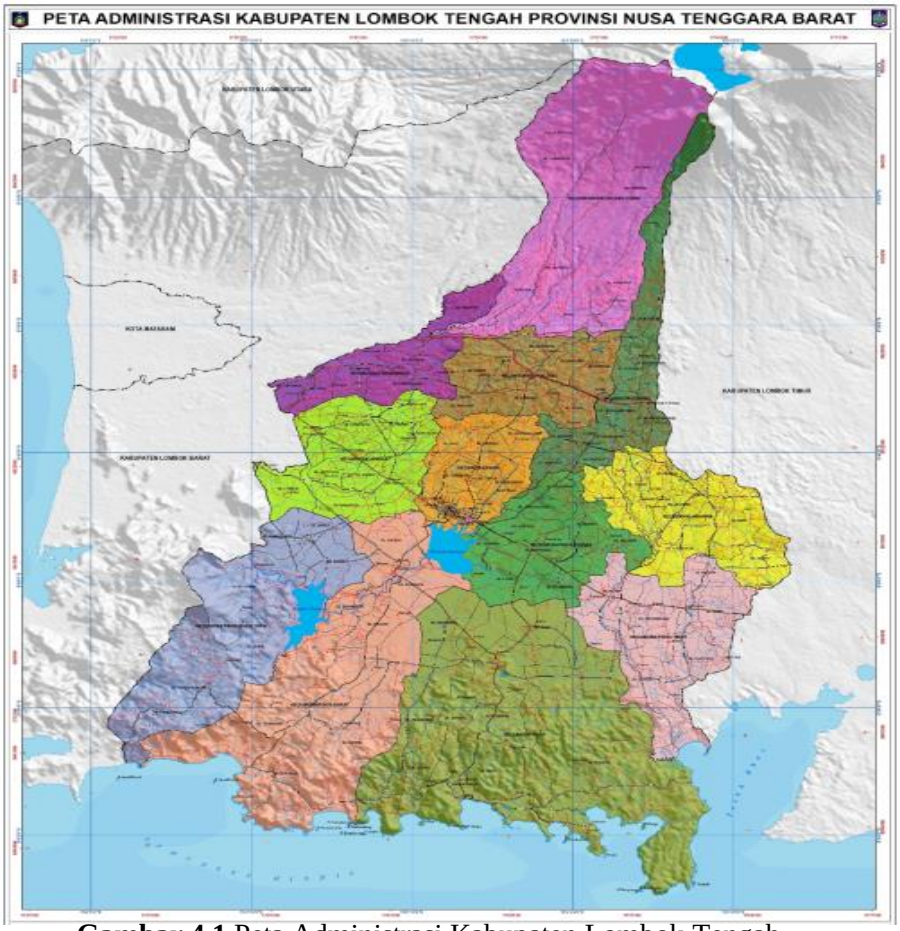

A
B
Ya
Data hujan terkoreksi
Analisis kekeringan menggunakan *Standardized Precipitation Index (SPI)*
Peta sebaran kekeringan
Pembandingan peta hasil analisis dengan peta kekeringan BMKG
Selesai

BAB IV

HASIL DAN PEMBAHASAN

4.1 Kondisi Umum Lokasi Penelitian

Lombok Tengah terletak pada 8° 24' - 8° 57' Lintang Selatan dan 116° 05' - 116° 24' Bujur Timur, membujur mulai dari kaki gunung Rinjani di sebelah Utara hingga ke pesisir pantai Kuta di sebelah selatan dengan beberapa pulau kecil yang berada di sekitarnya. Kabupaten Lombok Tengah berbatasan dengan Kabupaten Lombok Barat dan Lombok Timur di sebelah utara, Kabupaten Lombok Timur di sebelah timur dan Kabupaten Lombok Barat di sebelah barat. Secara administratif, Lombok Tengah terbagi menjadi 12 kecamatan, 127 desa dan 12 kelurahan serta memiliki luas 1208,39 km^2 (BPS Kabupaten Lombok Tengah, 2018).



Gambar 4.1 Peta Administrasi Kabupaten Lombok Tengah
(*Sumber : Peta Tematik Indonesia, 2015*)

Menurut Badan Penanggulangan Bencana Daerah (BPBD) NTB, mencatat sebanyak 74 desa di 8 kecamatan antara lain Kecamatan Praya, Janapria, Praya Timur, Pujut, Praya Barat, Praya Barat Daya, Praya Tengah, dan Jonggat menjadi kecamatan rawan kekeringan, hal ini di sebabkan Curah hujan rendah pada dasarian III (<10 mm/das) Bulan Juli tahun 2022 (ANTARA NTB, 2022).

4.2 Uji Konsistensi Data Curah Hujan

Pada penelitian kali ini dilakukan uji konsistensi data hujan menggunakan metode *Rescaled Adjusted Partial Sums* (RAPS). Data hujan yang digunakan adalah data hujan satelit dan data hujan pengukuran yang sudah di stabulasikan dari data harian ke data bulanan, dimana kolom menyatakan curah hujan bulanan sedangkan baris menyatakan tahun.

4.2.1 Uji Konsistensi Data Curah Hujan Pengukuran

Uji konsistensi dilakukan pada pos hujan pengukuran yang berasal dari 4 stasiun hujan di Lombok Tengah antara lain Pos Hujan Loang Make, Pos Hujan Kopang, Pos Hujan Kabul, dan Pos Hujan Rembitan. Perhitungan diuraikan dengan persamaan **(2-4)** sampai dengan **(2-8)**. Berikut adalah data curah hujan pos stasiun Loang Make yang dapat dilihat pada Tabel 4.1.

Tabel 4. 1 Data Curah Hujan Bulanan Pengukuran Pos Hujan Loang Make

TAHUN	BULAN											
	Jan	**Feb**	**Mar**	**Apr**	**Mei**	**Jun**	**Jul**	**Agust**	**Sept**	**Okt**	**Nov**	**Des**
2001	33	93	131	106	56	37	1	1	0	42	125	0
2002	16	0	8	0	0	10	0	7	11	13	206	234
2003	246	58	10	35	0	0	0	0	61	54	89	247
2004	114	41	98	39	13	0	1	3	4	6	287	231
2005	80	331	161	181	80	81	31	0	14	103	229	524
2006	634	347	181	98	25	7	0	0	0	0	10	175
2007	140	103	220	159	16	14	1	4	0	8	87	184
2008	254	247	160	128	3	0	0	0	39	24	100	54
2009	293	198	76	31	2	0	5	1	22	34	99	167
2010	124	168	54	75	92	126	52	33	74	0	110	34
2011	167	107	138	105	99	5	1	0	2	14	136	137
2012	386	130	208	76	81	0	34	0	0	0	155	362
2013	223	201	146	130	263	67	1	0	2	65	133	398
2014	240	64	137	77	0	1	16	10	0	6	131	295
2015	93	160	53	106	9	0	0	4	1	0	34	65
2016	138	123	142	51	10	165	17	9	74	9	30	62
2017	48	154	93	28	4	31	15	0	0	24	111	170
2018	108	76	24	0	0	0	0	0	17	2	173	0
2020	120	250	351	59	172	3	0	0	10	74	47	14
2021	219	282	287	74	3	22	1	7	13	64	295	191

(*Sumber : BIIW DPU PROV. NTB & BWS NUSA TENGGARA I*)

Contoh perhitungan uji konsistensi curah hujan pada Pos Hujan Loang Make pada tahun 2001 adalah sebagai berikut :

1. Curah hujan tahun 2001 (Yi) = 623,400 mm
2. Jumlah data hujan (n) = 20
3. Nilai rerata keseluruhan hujan (Yr) = 989,721 mm
4. Nilai statistik (Sk^*) = $(Yi - Yr)$
   = 623,400 – 989,721
   = -366,321 mm
5. Nilai statistik (Dy^2) = $\frac{(Yi-Yr)^2}{n}$
   = $\frac{(-366,321)^2}{20}$
   = 6709,535
6. Dy = $\sqrt{\Sigma Dy^2}$
   = $\sqrt{144157,895}$
   = 379,681
7. Nilai statistik (sk^{**}) = $\frac{sk^*}{Dy}$
   = $\frac{-366,321}{379,681}$
   = -0,965
8. Harga mutlak | Sk^{**} | = 0,965

Hasil perhitungan untuk tahun-tahun berikutnya pada Pos Hujan Loang Make dapat dilihat pada Tabel 4.2, sedangkan untuk Pos Hujan Kopang, Pos Hujan Kabul dan Pos Hujan Rembitan dapat dilihat pada Lampiran 1.

Tabel 4. 2 Uji RAPS data hujan pengukuran Pos Hujan Loang Make

No.	Tahun	Yi	$(Yi-Yr)^2$	sk*	Dy^2	sk**	|sk**|
1	2001	623,400	134190,709	-366,321	6709,535	-0,965	0,965
2	2002	504,300	235633,062	-851,741	11781,653	-2,243	2,243
3	2003	798,000	36756,750	-1043,462	1837,838	-2,748	2,748
4	2004	836,600	23445,888	-1196,582	1172,294	-3,152	3,152
5	2005	1813,200	678118,487	-373,103	33905,924	-0,983	0,983
6	2006	1475,800	236273,280	112,977	11813,664	0,298	0,298
7	2007	936,400	2843,076	59,656	142,154	0,157	0,157
8	2008	1007,900	330,494	77,836	16,525	0,205	0,205
9	2009	927,200	3908,813	15,315	195,441	0,040	0,040
10	2010	942,000	2277,246	-32,405	113,862	-0,085	0,085
11	2011	909,500	6435,329	-112,626	321,766	-0,297	0,297
12	2012	1431,210	194912,979	328,864	9745,649	0,866	0,866
13	2013	1628,900	408550,433	968,044	20427,522	2,550	2,550
14	2014	979,000	114,929	957,323	5,746	2,521	2,521
15	2015	522,500	218294,996	490,103	10914,750	1,291	1,291
16	2016	828,700	25927,601	329,082	1296,380	0,867	0,867
17	2017	676,400	98169,736	15,761	4908,487	0,042	0,042
18	2018	399,300	348596,367	-574,659	17429,818	-1,514	1,514
19	2020	1099,200	11985,761	-465,180	599,288	-1,225	1,225
20	2021	1454,900	216391,967	0,000	10819,598	0,000	0,000
Jumlah		19794,410	2883157,902		144157,895		
				Dy =	379,681		
Rata - rata		989,721	144157,895				
sk** maks.							2,550
sk** min.							-3,152
Q = |sk**| maks.							3,152
|sk**| min.							0,000
R = sk** maks. - sk** min.							5,701
Q/√n							0,705
R/√n							1,275

(*Sumber : Hasil Perhitungan*)

Berikut adalah rekapitulasi dari perhitungan uji konsistensi menggunakan metode *Rescaled Adjusted Partial Sums* (RAPS) dengan tingkat kepercayaan 99% di 4 (empat) pos hujan yang digunakan. Hasil perhitungan dapat dilihat pada Tabel 4.3.

Tabel 4.3 Rekapitulasi Uji RAPS data hujan pengukuran

Stasiun	Qy		Ry		Keterangan
	Qy Hitung	Qy Tabel	Ry Hitung	Ry Tabel	
Loang Make	0,705	1,4200	1,275	1,600	Konsisten
Kopang	0,894	1,4200	1,573	1,600	Konsisten
Kabul	1,211	1,4200	1,535	1,600	Konsisten
Rembitan	1,252	1,4200	1,265	1,600	Konsisten

(*Sumber : Hasil Perhitungan*)

Berdasarkan hasil rekapitulasi uji konsistensi data hujan menggunakan metode *Rescaled Adjusted Partial Sums* (RAPS) dengan tingkat kepercayaan 99% yang tertera pada Tabel 4.3, maka dapat disimpulkan data hujan pengukuran pada masing-masing pos hujan adalah konsisten dan memenuhi syarat untuk perhitungan selanjutnya.

4.2.2 Uji Konsistensi Data Hujan Satelit CHIRPS

Uji konsistensi data hujan tidak hanya di lakukan pada data hujan pengukuran saja, data hujan satelit juga harus di uji untuk mengetahui data tersebut konsisten dan memenuhi syarat. Titik koordinat yang digunakan dalam menentukan pos hujan satelit juga sama dengan pos hujan pengukuran, yaitu Pos Hujan Loang Make, Pos Hujan Kopang, Pos Hujan Kabul, dan Pos Hujan Rembitan. Sebagai contoh perhitungan di gunakan Pos Hujan Loang Make yang dapat dilihat pada Tabel 4.4.

Tabel 4. 4 Data Hujan Satelit CHIRPS pada Pos Hujan Loang Make

TAHUN	BULAN (mm)											
	Jan	Feb	Mar	Apr	Mei	Juni	Juli	Agt	Sep	Okt	Nov	Des
2001	191,745	104,682	175,511	80,636	63,562	138,993	20,446	5,160	9,022	48,174	188,215	91,802
2002	202,116	271,850	161,422	63,558	42,477	15,770	18,666	8,197	12,790	18,179	175,560	288,502
2003	258,711	206,044	112,574	63,987	65,554	44,910	12,168	5,354	28,810	16,343	174,235	225,107
2004	142,793	224,325	174,758	31,059	91,789	20,428	12,220	5,246	19,842	63,293	157,854	236,131
2005	70,512	128,964	167,771	97,258	20,569	32,642	25,324	8,975	26,623	96,435	142,283	295,417
2006	275,051	169,997	317,425	96,439	114,854	43,921	20,654	7,446	9,620	18,255	46,307	251,132
2007	87,934	183,123	341,684	116,167	63,257	43,609	14,187	6,092	8,196	32,295	102,410	343,930
2008	141,390	232,292	366,356	76,903	56,550	35,483	14,158	10,357	22,337	56,620	160,143	200,034
2009	334,577	255,636	172,682	60,787	143,868	24,022	20,438	5,237	30,440	35,998	50,081	187,585
2010	247,290	135,030	115,791	134,999	298,724	51,996	169,253	28,763	85,339	139,835	223,971	420,397
2011	265,762	153,183	233,054	195,424	112,104	21,803	16,383	5,354	9,266	38,962	129,333	240,335
2012	317,504	169,468	259,707	48,685	102,565	19,593	15,485	8,143	12,555	27,477	96,744	269,423
2013	335,110	179,459	114,109	85,225	135,770	128,165	38,576	8,123	10,896	37,653	151,372	354,007
2014	244,347	138,702	115,858	101,615	27,125	28,456	25,984	7,866	9,370	9,199	96,952	249,453
2015	161,500	153,589	155,929	136,645	41,396	56,053	12,086	8,322	8,708	8,363	51,939	243,773
2016	159,568	191,570	160,105	50,409	83,664	146,519	113,584	12,701	64,258	174,082	139,690	325,199
2017	257,975	207,896	177,770	84,781	41,763	97,690	24,620	8,571	13,152	74,694	238,799	255,221
2018	389,369	198,716	135,571	17,931	13,348	21,796	18,550	11,772	11,586	7,951	199,514	124,470
2020	137,155	135,105	211,476	56,783	150,295	25,495	18,229	12,567	17,293	104,792	109,223	280,430
2021	405,069	264,679	165,302	100,115	30,634	109,353	17,636	16,367	51,798	85,256	292,074	335,792

(*Sumber : CHIRPS Rainfall Estimates from Rain Gauge and Satellite Observations, 2022*)

Contoh perhitungan uji konsistensi curah hujan satelit CHIRPS pada Pos Hujan Loang Make pada tahun 2001 adalah sebagai berikut :

1. Curah hujan tahun 2001 (Yi) = 1117,948 mm
2. Jumlah data hujan (n) = 20
3. Nilai rerata keseluruhan hujan (Yr) = 1359,524 mm
4. Nilai statistik (Sk^*) = $(Yi - Yr)$
   = 1117,948 – 1359,524
   = -241,575 mm
5. Nilai statistik (Dy^2) = $\frac{(Yi-Yr)^2}{n}$
   = $\frac{(-241,575)^2}{20}$
   = 2917,935
6. Dy = $\sqrt{\Sigma Dy^2}$
   = $\sqrt{144157,895}$
   = 255,944
7. Nilai statistik (sk^{**}) = $\frac{sk^*}{Dy}$
   = $\frac{-241,575}{255,944}$
   = -0,944
8. Harga mutlak $|\ Sk^{**}\ |$ = 0,944

Hasil perhitungan tahun-tahun berikutnya untuk data hujan Satelit pada Pos Hujan Loang Make dapat dilihat pada Tabel 4.5, sedangkan untuk Pos Hujan Kopang, Pos Hujan Kabul dan Pos Hujan Rembitan dapat dilihat pada Lampiran 1.

Tabel 4. 5 Uji RAPS data hujan Satelit Pos Hujan Loang Make

No.	Tahun	Yi	$(Yi-\bar{Y})^2$	sk*	Dy^2	sk**	|sk**|
1	2001	1117,948	58358,710	-241,575	2917,935	-0,944	0,944
2	2002	1279,088	6469,930	-322,011	323,497	-1,258	1,258
3	2003	1213,795	21236,983	-467,740	1061,849	-1,828	1,828
4	2004	1179,738	32322,876	-647,526	1616,144	-2,530	2,530
5	2005	1112,774	60885,434	-894,276	3044,272	-3,494	3,494
6	2006	1371,101	134,031	-882,699	6,702	-3,449	3,449
7	2007	1342,884	276,892	-899,339	13,845	-3,514	3,514
8	2008	1372,624	171,628	-886,238	8,581	-3,463	3,463
9	2009	1321,352	1457,120	-924,410	72,856	-3,612	3,612
10	2010	2051,386	478673,817	-232,548	23933,691	-0,909	0,909
11	2011	1420,963	3774,762	-171,109	188,738	-0,669	0,669
12	2012	1347,351	148,188	-183,282	7,409	-0,716	0,716
13	2013	1578,468	47936,409	35,662	2396,820	0,139	0,139
14	2014	1054,927	92779,485	-268,935	4638,974	-1,051	1,051
15	2015	1038,303	103183,071	-590,157	5159,154	-2,306	2,306
16	2016	1621,348	68551,979	-328,332	3427,599	-1,283	1,283
17	2017	1482,934	15229,967	-204,922	761,498	-0,801	0,801
18	2018	1150,575	43659,793	-413,872	2182,990	-1,617	1,617
19	2020	1258,844	10136,503	-514,552	506,825	-2,010	2,010
20	2021	1874,076	264763,667	0,000	13238,183	0,000	0,000
Jumlah		27190,476	1310151,242		65507,562		
				Dy =	255,944		
Rata - rata		1359,524	65507,562				
sk** maks.							0,139
sk** min.							-3,612
Q = |sk**| maks.							3,612
|sk**| min.							0,000
R = sk** maks. - sk** min.							3,751
Q/√n							0,808
R/√n							0,839

(*Sumber : Hasil Perhitungan*)

Berikut adalah rekapitulasi dari perhitungan uji konsistensi data hujan satelit CHIRPS menggunakan metode *Rescaled Adjusted Partial Sums* (RAPS) dengan tingkat kepercayaan 99% di 4 (empat) pos hujan yang digunakan. Hasil perhitungan dapat dilihat pada Tabel 4.6.

Tabel 4. 6 Rekapitulasi Uji RAPS data hujan satelit CHIRPS

Stasiun	Qy		Ry		Keterangan
	Qy Hitung	Qy Tabel	Ry Hitung	Ry Tabel	
Loang Make	0,808	1,42	0,839	1,60	Konsisten
Kopang	0,823	1,42	1,228	1,60	Konsisten
Kabul	0,947	1,42	1,230	1,60	Konsisten
Rembitan	1,065	1,42	1,065	1,60	Konsisten

(*Sumber : Hasil Perhitungan*)

Berdasarkan hasil rekapitulasi uji konsistensi data hujan satelit CHIRPS menggunakan metode *Rescaled Adjusted Partial Sums* (RAPS) dengan tingkat kepercayaan 99% yang tertera pada Tabel 4.6, maka dapat disimpulkan data hujan satelit CHIRPS pada masing-masing pos hujan adalah konsisten dan memenuhi syarat untuk perhitungan selanjutnya.

4.3 Akurasi Data Curah Hujan Bulanan

Pembandingan antara data hujan pengukuran dan satelit perlu dilakukan untuk mengetahui akurasi dari data hujan satelit, pembandingan kedua data tersebut menunjukan bagaimana penggambaran data satelit terhadap data terukur dilapangan, apakah data satelit tersebut mendekati atau tidak. Dalam hal ini dilakukan pembandingan antara data curah hujan pengukuran dengan data curah hujan satelit CHIRPS yang tidak terkoreksi. Pada analisis ini digunakan rentan data 20 tahun. Analisis akurasi yang digunakan ada 2 (dua) yaitu metode RMSE (*Root Mean Square Error*) dan NSE (*Nash-Sutcliffe Efficiency*).

4.3.1 Perbandingan Curah Hujan Bulanan Terukur dan Curah Hujan Bulanan Satelit TRMM Tidak Terkoreksi Berdasarkan Nilai NSE dan RMSE

Metode RMSE (*Root Mean Square Error*) bertujuan untuk mengetahi tingkat kesalahan atau error antara kedua data, dalam hal ini antara data hujan terukur dan data hujan satelit CHIRPS tidak terkoreksi. Sedangkan metode NSE (*Nash-Sutcliffe Efficiency*) bertujuan untuk mengetahui tingkat ketelitian yang dihasilkan dari hubungan kedua variable/data (data hujan pengukuran dan data hujan satelit CHIRPS tidak terkoreksi). Nilai NSE menunjukkan apakah hasil plot data hujan satelit CHIRPS

semakin baik dari nilai observasi (curah hujan pengukuran) atau tidak, apakah sesuai dengan garis 1:1 atau tidak, dengan rentang nilai ∞ ke 1.

Untuk mengetahui nilai estimasi RMSE dilakukan perhitungan berdasarkan Persamaan **(2-11)**, sedangkan untuk mengetahui nilai estimasi NSE di lakukan perhitungan berdasarkan persamaan **(2-13).** Berikut adalah contoh perhitungan nilai RMSE dan NSE untuk data hujan Pos Hujan Loang Make yang dapat dilihat pada Tabel 4.7.

Tabel 4.7 Perhitungan Nilai RMSE dan NSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Hujan Loang Make.

No	Tanggal	Data Hujan ARR Loang Make (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	32,800	191,745	-158,945	25263,623	-49,677	2467,775
2	Feb-01	93,000	104,682	-11,682	136,471	10,523	110,740
3	Mar-01	130,700	175,511	-44,811	2008,032	48,223	2325,486
4	Apr-01	105,500	80,636	24,864	618,210	23,023	530,072
5	May-01	55,500	63,562	-8,062	65,003	-26,977	727,743
6	Jun-01	36,700	138,993	-102,293	10463,894	-45,777	2095,507
7	Jul-01	0,600	20,446	-19,846	393,856	-81,877	6703,795
8	Aug-01	0,500	5,160	-4,660	21,712	-81,977	6720,181
9	Sep-01	0,300	9,022	-8,722	76,069	-82,177	6753,011
10	Oct-01	42,200	48,174	-5,974	35,684	-40,277	1622,213
11	Nov-01	125,200	188,215	-63,015	3970,866	42,723	1825,280
12	Dec-01	0,400	91,802	-91,402	8354,412	-82,077	6736,586
13	Jan-02	16,400	202,116	-185,716	34490,557	-66,077	4366,131
14	Feb-02	0,000	271,850	-271,850	73902,548	-82,477	6802,407
15	Mar-02	8,000	161,422	-153,422	23538,256	-74,477	5546,780
16	Apr-02	0,000	63,558	-63,558	4039,623	-82,477	6802,407
17	May-02	0,000	42,477	-42,477	1804,295	-82,477	6802,407
18	Jun-02	10,000	15,770	-5,770	33,299	-72,477	5252,873
19	Jul-02	0,000	18,666	-18,666	348,407	-82,477	6802,407
20	Aug-02	6,500	8,197	-1,697	2,879	-75,977	5772,460
21	Sep-02	10,900	12,790	-1,890	3,573	-71,577	5123,225
22	Oct-02	12,500	18,179	-5,679	32,251	-69,977	4896,740
23	Nov-02	205,600	175,560	30,040	902,397	123,123	15159,345
24	Dec-02	234,400	288,502	-54,102	2927,061	151,923	23080,687
25	Jan-03	245,500	258,711	-13,211	174,518	163,023	26576,594

Lanjutan Tabel 4.7

No	Tanggal	Data Hujan ARR Loang Make (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
26	Feb-03	58,400	206,044	-147,644	21798,722	-24,077	579,688
27	Mar-03	9,600	112,574	-102,974	10603,554	-72,877	5311,015
28	Apr-03	34,600	63,987	-29,387	863,576	-47,877	2292,179
29	May-03	0,000	65,554	-65,554	4297,292	-82,477	6802,407
30	Jun-03	0,000	44,910	-44,910	2016,943	-82,477	6802,407
31	Jul-03	0,000	12,168	-12,168	148,069	-82,477	6802,407
32	Aug-03	0,000	5,354	-5,354	28,668	-82,477	6802,407
33	Sep-03	60,500	28,810	31,690	1004,281	-21,977	482,976
34	Oct-03	53,500	16,343	37,157	1380,670	-28,977	839,650
35	Nov-03	88,800	174,235	-85,435	7299,055	6,323	39,984
36	Dec-03	247,100	225,107	21,993	483,714	164,623	27100,828
37	Jan-04	114,300	142,793	-28,493	811,863	31,823	1012,722
38	Feb-04	41,400	224,325	-182,925	33461,636	-41,077	1687,296
39	Mar-04	98,100	174,758	-76,658	5876,421	15,623	244,087
40	Apr-04	38,700	31,059	7,641	58,379	-43,777	1916,400
41	May-04	12,900	91,789	-78,889	6223,504	-69,577	4840,918
42	Jun-04	0,000	20,428	-20,428	417,288	-82,477	6802,407
43	Jul-04	1,000	12,220	-11,220	125,892	-81,477	6638,454
44	Aug-04	3,300	5,246	-1,946	3,786	-79,177	6268,951
45	Sep-04	4,100	19,842	-15,742	247,812	-78,377	6142,908
46	Oct-04	5,700	63,293	-57,593	3316,922	-76,777	5894,663
47	Nov-04	286,600	157,854	128,746	16575,611	204,123	41666,318
48	Dec-04	230,500	236,131	-5,631	31,711	148,023	21910,895
49	Jan-05	79,500	70,512	8,988	80,784	-2,977	8,861
50	Feb-05	331,400	128,964	202,436	40980,249	248,923	61962,805
51	Mar-05	160,800	167,771	-6,971	48,600	78,323	6134,538
52	Apr-05	181,300	97,258	84,042	7063,115	98,823	9766,043
53	May-05	80,000	20,569	59,431	3532,047	-2,477	6,134
54	Jun-05	80,800	32,642	48,158	2319,146	-1,677	2,811
55	Jul-05	30,500	25,324	5,176	26,795	-51,977	2701,578
56	Aug-05	0,000	8,975	-8,975	80,553	-82,477	6802,407
57	Sep-05	13,700	26,623	-12,923	167,014	-68,777	4730,236
58	Oct-05	102,600	96,435	6,165	38,012	20,123	404,947
59	Nov-05	228,800	142,283	86,517	7485,135	146,323	21410,506
60	Dec-05	523,800	295,417	228,383	52158,648	441,323	194766,248
61	Jan-06	633,500	275,051	358,449	128485,845	551,023	303626,668
62	Feb-06	346,500	169,997	176,503	31153,459	264,023	69708,299
63	Mar-06	180,800	317,425	-136,625	18666,367	98,323	9667,470
64	Apr-06	97,800	96,439	1,361	1,854	15,323	234,803
65	May-06	25,100	114,854	-89,754	8055,860	-57,377	3292,087
66	Jun-06	6,700	43,921	-37,221	1385,412	-75,777	5742,110
67	Jul-06	0,000	20,654	-20,654	426,597	-82,477	6802,407
68	Aug-06	0,000	7,446	-7,446	55,445	-82,477	6802,407
69	Sep-06	0,000	9,620	-9,620	92,540	-82,477	6802,407
70	Oct-06	0,200	18,255	-18,055	325,992	-82,277	6769,457
71	Nov-06	10,000	46,307	-36,307	1318,185	-72,477	5252,873
72	Dec-06	175,200	251,132	-75,932	5765,715	92,723	8597,609
73	Jan-07	139,600	87,934	51,666	2669,333	57,123	3263,070
74	Feb-07	102,500	183,123	-80,623	6500,024	20,023	400,932
75	Mar-07	220,200	341,684	-121,484	14758,263	137,723	18967,705

Lanjutan Tabel 4.7

No	Tanggal	Data Hujan ARR Loang Make (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
76	Apr-07	158,600	116,167	42,433	1800,588	76,123	5794,756
77	May-07	16,300	63,257	-46,957	2204,977	-66,177	4379,357
78	Jun-07	14,300	43,609	-29,309	859,035	-68,177	4648,064
79	Jul-07	1,300	14,187	-12,887	166,071	-81,177	6589,658
80	Aug-07	4,000	6,092	-2,092	4,378	-78,477	6158,594
81	Sep-07	0,400	8,196	-7,796	60,774	-82,077	6736,586
82	Oct-07	8,300	32,295	-23,995	575,748	-74,177	5502,184
83	Nov-07	87,200	102,410	-15,210	231,350	4,723	22,309
84	Dec-07	183,700	343,930	-160,230	25673,589	101,223	10246,155
85	Jan-08	253,600	141,390	112,210	12591,103	171,123	29283,181
86	Feb-08	247,000	232,292	14,708	216,322	164,523	27067,914
87	Mar-08	160,300	366,356	-206,056	42459,216	77,823	6056,465
88	Apr-08	127,500	76,903	50,597	2560,043	45,023	2027,097
89	May-08	2,800	56,550	-53,750	2889,012	-79,677	6348,378
90	Jun-08	0,400	35,483	-35,083	1230,835	-82,077	6736,586
91	Jul-08	0,000	14,158	-14,158	200,459	-82,477	6802,407
92	Aug-08	0,000	10,357	-10,357	107,276	-82,477	6802,407
93	Sep-08	39,000	22,337	16,663	277,642	-43,477	1890,224
94	Oct-08	23,800	56,620	-32,820	1077,170	-58,677	3442,956
95	Nov-08	99,700	160,143	-60,443	3653,316	17,223	296,642
96	Dec-08	53,800	200,034	-146,234	21384,415	-28,677	822,354
97	Jan-09	292,900	334,577	-41,677	1736,955	210,423	44277,962
98	Feb-09	198,300	255,636	-57,336	3287,434	115,823	13415,035
99	Mar-09	75,700	172,682	-96,982	9405,554	-6,777	45,924
100	Apr-09	30,500	60,787	-30,287	917,317	-51,977	2701,578
101	May-09	2,100	143,868	-141,768	20098,172	-80,377	6460,415
102	Jun-09	0,000	24,022	-24,022	577,060	-82,477	6802,407
103	Jul-09	4,900	20,438	-15,538	241,433	-77,577	6018,146
104	Aug-09	0,600	5,237	-4,637	21,505	-81,877	6703,795
105	Sep-09	21,600	30,440	-8,840	78,137	-60,877	3705,974
106	Oct-09	34,200	35,998	-1,798	3,231	-48,277	2330,641
107	Nov-09	99,100	50,081	49,019	2402,815	16,623	276,334
108	Dec-09	167,300	187,585	-20,285	411,481	84,823	7194,991
109	Jan-10	124,300	247,290	-122,990	15126,634	41,823	1749,188
110	Feb-10	168,200	135,030	33,170	1100,279	85,723	7348,483
111	Mar-10	54,400	115,791	-61,391	3768,843	-28,077	788,302
112	Apr-10	75,000	134,999	-59,999	3599,870	-7,477	55,901
113	May-10	91,700	298,724	-207,024	42858,784	9,223	85,069
114	Jun-10	125,800	51,996	73,804	5446,981	43,323	1876,908
115	Jul-10	51,600	169,253	-117,653	13842,231	-30,877	953,371
116	Aug-10	33,200	28,763	4,437	19,690	-49,277	2428,194
117	Sep-10	74,000	85,339	-11,339	128,564	-8,477	71,855
118	Oct-10	0,000	139,835	-139,835	19553,756	-82,477	6802,407
119	Nov-10	110,000	223,971	-113,971	12989,415	27,523	757,532
120	Dec-10	33,800	420,397	-386,597	149456,900	-48,677	2369,422
121	Jan-11	167,400	265,762	-98,362	9675,095	84,923	7211,965
122	Feb-11	106,900	153,183	-46,283	2142,157	24,423	596,497
123	Mar-11	137,800	233,054	-95,254	9073,253	55,323	3060,667
124	Apr-11	105,300	195,424	-90,124	8122,255	22,823	520,903
125	May-11	98,800	112,104	-13,304	176,995	16,323	266,450

Lanjutan Tabel 4.7

No	Tanggal	Data Hujan ARR Loang Make (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
126	Jun-11	4,500	21,803	-17,303	299,408	-77,977	6080,367
127	Jul-11	0,600	16,383	-15,783	249,096	-81,877	6703,795
128	Aug-11	0,000	5,354	-5,354	28,668	-82,477	6802,407
129	Sep-11	1,900	9,266	-7,366	54,261	-80,577	6492,606
130	Oct-11	13,700	38,962	-25,262	638,157	-68,777	4730,236
131	Nov-11	136,100	129,333	6,767	45,788	53,623	2875,457
132	Dec-11	136,500	240,335	-103,835	10781,604	54,023	2918,516
133	Jan-12	385,500	317,504	67,996	4623,388	303,023	91823,115
134	Feb-12	130,000	169,468	-39,468	1557,715	47,523	2258,463
135	Mar-12	208,100	259,707	-51,607	2663,323	125,623	15781,211
136	Apr-12	76,100	48,685	27,415	751,556	-6,377	40,662
137	May-12	80,600	102,565	-21,965	482,454	-1,877	3,522
138	Jun-12	0,000	19,593	-19,593	383,893	-82,477	6802,407
139	Jul-12	33,810	15,485	18,325	335,817	-48,667	2368,449
140	Aug-12	0,200	8,143	-7,943	63,097	-82,277	6769,457
141	Sep-12	0,000	12,555	-12,555	157,627	-82,477	6802,407
142	Oct-12	0,000	27,477	-27,477	755,003	-82,477	6802,407
143	Nov-12	154,700	96,744	57,956	3358,902	72,223	5216,204
144	Dec-12	362,200	269,423	92,777	8607,582	279,723	78245,120
145	Jan-13	223,200	335,110	-111,910	12523,919	140,723	19803,045
146	Feb-13	200,700	179,459	21,241	451,189	118,223	13976,747
147	Mar-13	146,200	114,109	32,091	1029,803	63,723	4060,658
148	Apr-13	130,300	85,225	45,075	2031,760	47,823	2287,067
149	May-13	263,400	135,770	127,630	16289,397	180,923	32733,237
150	Jun-13	67,100	128,165	-61,065	3728,982	-15,377	236,443
151	Jul-13	1,200	38,576	-37,376	1397,002	-81,277	6605,903
152	Aug-13	0,000	8,123	-8,123	65,985	-82,477	6802,407
153	Sep-13	1,600	10,896	-9,296	86,422	-80,877	6541,042
154	Oct-13	64,600	37,653	26,947	726,125	-17,877	319,577
155	Nov-13	132,900	151,372	-18,472	341,213	50,423	2542,508
156	Dec-13	397,700	354,007	43,693	1909,042	315,223	99365,724
157	Jan-14	240,300	244,347	-4,047	16,377	157,823	24908,191
158	Feb-14	63,500	138,702	-75,202	5655,285	-18,977	360,115
159	Mar-14	137,200	115,858	21,342	455,500	54,723	2994,639
160	Apr-14	77,400	101,615	-24,215	586,386	-5,077	25,773
161	May-14	0,400	27,125	-26,725	714,239	-82,077	6736,586
162	Jun-14	0,700	28,456	-27,756	770,369	-81,777	6687,430
163	Jul-14	16,200	25,984	-9,784	95,729	-66,277	4392,602
164	Aug-14	10,000	7,866	2,134	4,552	-72,477	5252,873
165	Sep-14	0,200	9,370	-9,170	84,088	-82,277	6769,457
166	Oct-14	6,300	9,199	-2,899	8,406	-76,177	5802,891
167	Nov-14	131,400	96,952	34,448	1186,694	48,923	2393,488
168	Dec-14	295,400	249,453	45,947	2111,136	212,923	45336,328
169	Jan-15	92,500	161,500	-69,000	4760,974	10,023	100,466
170	Feb-15	159,700	153,589	6,111	37,349	77,223	5963,437
171	Mar-15	52,700	155,929	-103,229	10656,133	-29,777	886,652
172	Apr-15	105,600	136,645	-31,045	963,795	23,123	534,687
173	May-15	8,800	41,396	-32,596	1062,480	-73,677	5428,257
174	Jun-15	0,000	56,053	-56,053	3141,947	-82,477	6802,407
175	Jul-15	0,000	12,086	-12,086	146,080	-82,477	6802,407

Lanjutan Tabel 4.7

No	Tanggal	Data Hujan ARR Loang Make (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
176	Aug-15	3,600	8,322	-4,722	22,295	-78,877	6221,535
177	Sep-15	0,600	8,708	-8,108	65,739	-81,877	6703,795
178	Oct-15	0,000	8,363	-8,363	69,943	-82,477	6802,407
179	Nov-15	33,600	51,939	-18,339	336,323	-48,877	2388,933
180	Dec-15	65,400	243,773	-178,373	31817,059	-17,077	291,614
181	Jan-16	137,700	159,568	-21,868	478,211	55,223	3049,612
182	Feb-16	122,800	191,570	-68,770	4729,286	40,323	1625,968
183	Mar-16	142,200	160,105	-17,905	320,590	59,723	3566,872
184	Apr-16	50,800	50,409	0,391	0,153	-31,677	1003,414
185	May-16	9,900	83,664	-73,764	5441,055	-72,577	5267,379
186	Jun-16	164,800	146,519	18,281	334,199	82,323	6777,124
187	Jul-16	16,500	113,584	-97,084	9425,290	-65,977	4352,926
188	Aug-16	9,200	12,701	-3,501	12,255	-73,277	5369,476
189	Sep-16	74,000	64,258	9,742	94,908	-8,477	71,855
190	Oct-16	8,800	174,082	-165,282	27318,038	-73,677	5428,257
191	Nov-16	29,800	139,690	-109,890	12075,760	-52,677	2774,836
192	Dec-16	62,200	325,199	-262,999	69168,677	-20,277	411,145
193	Jan-17	47,800	257,975	-210,175	44173,655	-34,677	1202,474
194	Feb-17	154,000	207,896	-53,896	2904,813	71,523	5115,581
195	Mar-17	92,700	177,770	-85,070	7236,976	10,223	104,516
196	Apr-17	27,700	84,781	-57,081	3258,199	-54,777	3000,488
197	May-17	3,700	41,763	-38,063	1448,818	-78,777	6205,770
198	Jun-17	30,500	97,690	-67,190	4514,504	-51,977	2701,578
199	Jul-17	14,700	24,620	-9,920	98,410	-67,777	4593,682
200	Aug-17	0,300	8,571	-8,271	68,415	-82,177	6753,011
201	Sep-17	0,000	13,152	-13,152	172,988	-82,477	6802,407
202	Oct-17	23,800	74,694	-50,894	2590,202	-58,677	3442,956
203	Nov-17	110,900	238,799	-127,899	16358,142	28,423	807,884
204	Dec-17	170,300	255,221	-84,921	7211,492	87,823	7712,931
205	Jan-18	107,700	389,369	-281,669	79337,677	25,223	636,214
206	Feb-18	76,100	198,716	-122,616	15034,672	-6,377	40,662
207	Mar-18	24,100	135,571	-111,471	12425,714	-58,377	3407,840
208	Apr-18	0,000	17,931	-17,931	321,509	-82,477	6802,407
209	May-18	0,000	13,348	-13,348	178,158	-82,477	6802,407
210	Jun-18	0,000	21,796	-21,796	475,085	-82,477	6802,407
211	Jul-18	0,000	18,550	-18,550	344,103	-82,477	6802,407
212	Aug-18	0,000	11,772	-11,772	138,585	-82,477	6802,407
213	Sep-18	16,500	11,586	4,914	24,149	-65,977	4352,926
214	Oct-18	1,500	7,951	-6,451	41,612	-80,977	6557,227
215	Nov-18	173,400	199,514	-26,114	681,964	90,923	8267,045
216	Dec-18	0,000	124,470	-124,470	15492,888	-82,477	6802,407
217	Jan-20	120,000	137,155	-17,155	294,293	37,523	1407,997
218	Feb-20	249,900	135,105	114,795	13177,950	167,423	28030,559
219	Mar-20	350,600	211,476	139,124	19355,411	268,123	71890,100
220	Apr-20	59,300	56,783	2,517	6,335	-23,177	537,160
221	May-20	172,000	150,295	21,705	471,091	89,523	8014,420
222	Jun-20	3,100	25,495	-22,395	501,541	-79,377	6300,662
223	Jul-20	0,000	18,229	-18,229	332,293	-82,477	6802,407
224	Aug-20	0,000	12,567	-12,567	157,927	-82,477	6802,407
225	Sep-20	9,800	17,293	-7,493	56,146	-72,677	5281,904

Lanjutan Tabel 4.7

No	Tanggal	Data Hujan ARR Loang Make (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
226	Oct-20	73,500	104,792	-31,292	979,196	-8,977	80,581
227	Nov-20	47,000	109,223	-62,223	3871,669	-35,477	1258,597
228	Dec-20	14,000	280,430	-266,430	70985,136	-68,477	4689,060
229	Jan-21	218,900	405,069	-186,169	34658,975	136,423	18611,315
230	Feb-21	281,600	264,679	16,921	286,313	199,123	39650,085
231	Mar-21	286,600	165,302	121,298	14713,112	204,123	41666,318
232	Apr-21	74,000	100,115	-26,115	681,999	-8,477	71,855
233	May-21	2,500	30,634	-28,134	791,495	-79,977	6396,274
234	Jun-21	22,000	109,353	-87,353	7630,593	-60,477	3657,432
235	Jul-21	0,600	17,636	-17,036	290,226	-81,877	6703,795
236	Aug-21	6,700	16,367	-9,667	93,450	-75,777	5742,110
237	Sep-21	12,600	51,798	-39,198	1536,482	-69,877	4882,754
238	Oct-21	63,600	85,256	-21,656	468,990	-18,877	356,330
239	Nov-21	295,300	292,074	3,226	10,409	212,823	45293,753
240	Dec-21	190,500	335,792	-145,292	21109,824	108,023	11669,032
Jumlah		**19794,410**	**27190,476**	**-7396,066**	**1778389,037**	**0,000**	**2473036,376**
Rata-rata		**82,477**					

(*Sumber : Hasil Perhitungan*)

Berdasarkan Tabel 4.7 maka didapatkan nilai RMSE dari perhitungan berdasarkan persamaan **(2-11)** adalah :

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{n}}$$

$$= \sqrt{\frac{1778389,037}{240}}$$

=86,081

Diperoleh nilai RMSE pada Pos Hujan Loang Make sebesar 86,081 perhitungan untuk pos hujan lainnya dapat di lihat pada Lampiran II.

Selanjutnya yaitu didapatkan nilai NSE dari perhitungan berdasarkan persamaan **(2-13)** adalah :

$$NSE = 1 - \frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{\sum_{i=1}^{n}(Y_i - Y_i^{mean})^2}$$

$$=1- \frac{1778389,037}{2473036,376}$$

=0,280 (Tidak memenuhi)

Diperoleh nilai NSE pada Pos Hujan Loang Make sebesar 0,280 menunjukan nilai tersebut berdasarkan Tabel 2.4 tidak memenuhi kriteria Nilai NSE karena nilai tersebut kurang dari 0,36 yang artinya data hujan satelit CHIRPS tidak terkoreksi masih belum baik dari nilai observasi (data hujan pengukuran). Oleh karena itu, perlu

dilakukan koreksi terlebih dahulu sebelum data satelit CHIRPS digunakan untuk menganalisis indeks kekeringan. Perhitungan NSE untuk pos hujan lainnya dapat di lihat pada Lampiran II.

Hasil rekapitulasi perhitungan perbandingan data hujan bulanan pengukuran dan data hujan bulanan satelit CHIRPS tidak terkoreksi dengan metode RMSE pada Pos Hujan lainnya dapat dilihat pada Tabel 4.8, sedangkan rekapitulasi perhitungan nilai NSE pada pos hujan lainnya dapat dilihat pada tabel 4.9

Tabel 4. 8 Rekapitulasi nilai RMSE pada keempat pos hujan

Stasiun	Periode	RMSE
Loang Make	Bulanan selama 20 tahun	86,081
Kopang		107,869
Kabul		77,580
Rembitan		71,021

(*Sumber : Hasil Perhitungan*)

Tabel 4.9 Rekapitulasi nilai NSE pada keempat pos hujan

Stasiun	Periode	NSE	
		Nilai	Interpretasi
Loang Make	Bulanan selama 20 tahun	0,281	tidak memenuhi
Kopang		0,527	memenuhi
Kabul		0,547	memenuhi
Rembitan		0,715	memenuhi

(*Sumber : Hasil Perhitungan*)

Berdasarkan hasil rekapitulasi perhitungan nilai RMSE seperti yang terlihat pada Tabel 4.8, nilai RMSE pada keempat pos hujan masih menunjukkan tingkat kesalahan atau error yang cukup besar. Oleh karena itu, perlu dilakukan kalibrasi terhadap data curah hujan satelit CHIRPS agar semakin mendekati nilai observasi (data hujan pengukuran). Begitu pula dengan nilai NSE yang dapat dilihat pada Tabel 4.9, diketahui bahwa pada Pos Hujan Loang Make menghasilkan nilai NSE yang tidak memenuhi kriteria sesuai Tabel 2.4 dimana nilai NSE adalah minimal 0,36. Sehingga data hujan satelit CHIRPS yang tidak terkoreksi pada pos hujan tersebut dianggap masih belum baik menurut nilai NSE.

4.4 Kalibrasi Data Hujan Satelit CHIRPS

Kalibrasi adalah proses dalam mengoptimalkan parameter (data curah hujan satelit CHIRPS) agar semakin mendekati data hujan pengukuran. Kalibrasi disini bertujuan untuk mengetahui hubungan antara data hujan satelit dengan data hujan pengukuran. Kalibrasi data hujan dilakukan dengan metode Regresi Linier. Output dari analisis regresi linier ini sendiri adalah model persamaan matematis (faktor koreksi) untuk mengkoreksi data hujan tersebut. Setelah mendapatkan model matematis (faktor koreksi) yang cocok, maka selanjutnya adalah menentukan seberapa kuat hubungan yang terbentuk antara keduanya atau harus ditentukan dengan analisis korelasi.

Panjang data hujan yang digunakan adalah 17 tahun, yaitu dari rentang tahun 2001-2017. Pada analisis ini, digunakan persamaan regresi $y = f(x)$ yang terbentuk oleh hubungan data hujan satelit CHIRPS sebagai variabel x dan curah hujan pengukuran di lapangan sebagai variabel y yang nantinya akan menghasilkan faktor koreksi data hujan satelit CHIRPS. Sementara itu, karena nilai NSE pada Pos Hujan Loang Make tidak memenuhi, terdapat 4 jenis persamaan regresi yang akan dicoba, yaitu regresi linier, regresi linier intercept, regresi polinomial orde 2, dan regresi polinomial orde 2 intercept. Akan diambil 1 persamaan matematis yang pendekatan nya terbaik terhadap data hujan pengukuran di setiap pos hujan.

Untuk analisis regresi sendiri penulis memanafaatkan aplikasi Microsoft Excel. Berikut adalah langkah-langkah dalam melakukan analisis regresi menggunakan aplikasi Microsoft Excel :

1. Data hujan terlebih dahulu diuraikan dalam kolom spreadsheet (lembar kerja) Microsoft Excel. Kolom pertama adalah data hujan bulanan satelit CHIRPS sebagai variabel x, dan kolom kedua adalah data hujan bulanan terukur di lapangan sebagai variabel y.
2. Data hujan bulanan pada kedua kolom diblok, kemudian pada menu “insert” bagian “chart” dipilih ikon grafik scatter, setelah itu akan terbentuk sebuah grafik.
3. Selanjutnya menggambar garis regresi dengan cara mengklik kanan pada salah satu titik yang telah terbentuk di dalam grafik kemudian memilih “add trendline”. Akan muncul kotak dialog “format trendline”, pilih jenis persamaan regresi yang akan digunakan dengan mencentang “linear” atau “polynomial”. Untuk memilih jenis regresi linier intercept atau regresi polinomial orde 2 intercept, centang bagian “set intercept”.

4. Setelah jenis regresi ditentukan, untuk menampilkan persamaan regresi beserta nilai R (koefisien korelasi) secara otomatis adalah dengan mencentang “display equation on chart” dan “display r-squared value on chart”, selesai.

Berikut adalah contoh perhitungan analisis regresi pada Pos Hujan Loang Make yang dapat dilihat pada Tabel 4.10 perhitungan pos hujan lainnya dapat dilihat pada Lampiran III

Tabel 4. 10 Data hujan satelit CHIRPS tidak terkoreksi dan data hujan pengukuran pada pos hujan Loang Make

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Loang Make (Y) (mm)
1	Jan-01	191,745	32,800
2	Feb-01	104,682	93,000
3	Mar-01	175,511	130,700
4	Apr-01	80,636	105,500
5	May-01	63,562	55,500
6	Jun-01	138,993	36,700
7	Jul-01	20,446	0,600
8	Aug-01	5,160	0,500
9	Sep-01	9,022	0,300
10	Oct-01	48,174	42,200
11	Nov-01	188,215	125,200
12	Dec-01	91,802	0,400
13	Jan-02	202,116	16,400
14	Feb-02	271,850	0,000
15	Mar-02	161,422	8,000
16	Apr-02	63,558	0,000
17	May-02	42,477	0,000
18	Jun-02	15,770	10,000
19	Jul-02	18,666	0,000
20	Aug-02	8,197	6,500
21	Sep-02	12,790	10,900
22	Oct-02	18,179	12,500
23	Nov-02	175,560	205,600
24	Dec-02	288,502	234,400
25	Jan-03	258,711	245,500
26	Feb-03	206,044	58,400
27	Mar-03	112,574	9,600
28	Apr-03	63,987	34,600
29	May-03	65,554	0,000
30	Jun-03	44,910	0,000
31	Jul-03	12,168	0,000
32	Aug-03	5,354	0,000
33	Sep-03	28,810	60,500
34	Oct-03	16,343	53,500
35	Nov-03	174,235	88,800
36	Dec-03	225,107	247,100
37	Jan-04	142,793	114,300
38	Feb-04	224,325	41,400
39	Mar-04	174,758	98,100
40	Apr-04	31,059	38,700

Lanjutan Tabel 4.10

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Loang Make (Y) (mm)
41	May-04	91,789	12,900
42	Jun-04	20,428	0,000
43	Jul-04	12,220	1,000
44	Aug-04	5,246	3,300
45	Sep-04	19,842	4,100
46	Oct-04	63,293	5,700
47	Nov-04	157,854	286,600
48	Dec-04	236,131	230,500
49	Jan-05	70,512	79,500
50	Feb-05	128,964	331,400
51	Mar-05	167,771	160,800
52	Apr-05	97,258	181,300
53	May-05	20,569	80,000
54	Jun-05	32,642	80,800
55	Jul-05	25,324	30,500
56	Aug-05	8,975	0,000
57	Sep-05	26,623	13,700
58	Oct-05	96,435	102,600
59	Nov-05	142,283	228,800
60	Dec-05	295,417	523,800
61	Jan-06	275,051	633,500
62	Feb-06	169,997	346,500
63	Mar-06	317,425	180,800
64	Apr-06	96,439	97,800
65	May-06	114,854	25,100
66	Jun-06	43,921	6,700
67	Jul-06	20,654	0,000
68	Aug-06	7,446	0,000
69	Sep-06	9,620	0,000
70	Oct-06	18,255	0,200
71	Nov-06	46,307	10,000
72	Dec-06	251,132	175,200
73	Jan-07	87,934	139,600
74	Feb-07	183,123	102,500
75	Mar-07	341,684	220,200
76	Apr-07	116,167	158,600
77	May-07	63,257	16,300
78	Jun-07	43,609	14,300
79	Jul-07	14,187	1,300
80	Aug-07	6,092	4,000
81	Sep-07	8,196	0,400
82	Oct-07	32,295	8,300
83	Nov-07	102,410	87,200
84	Dec-07	343,930	183,700
85	Jan-08	141,390	253,600
86	Feb-08	232,292	247,000
87	Mar-08	366,356	160,300
88	Apr-08	76,903	127,500
89	May-08	56,550	2,800
90	Jun-08	35,483	0,400
91	Jul-08	14,158	0,000
92	Aug-08	10,357	0,000
93	Sep-08	22,337	39,000
94	Oct-08	56,620	23,800
95	Nov-08	160,143	99,700

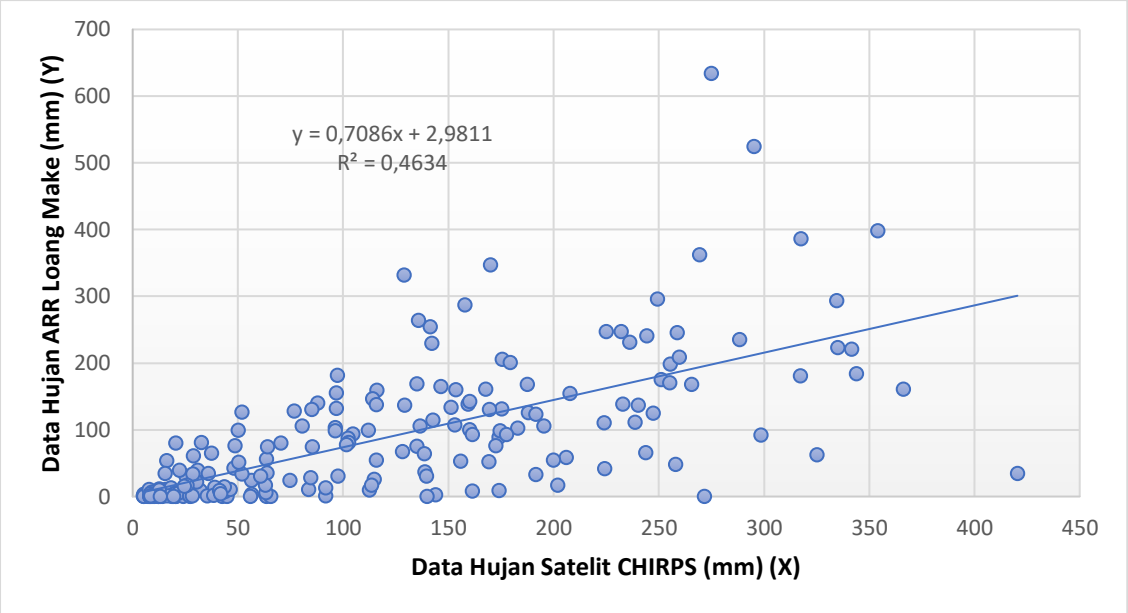
Lanjutan Tabel 4.10

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Loang Make (Y) (mm)
96	Dec-08	200,034	53,800
97	Jan-09	334,577	292,900
98	Feb-09	255,636	198,300
99	Mar-09	172,682	75,700
100	Apr-09	60,787	30,500
101	May-09	143,868	2,100
102	Jun-09	24,022	0,000
103	Jul-09	20,438	4,900
104	Aug-09	5,237	0,600
105	Sep-09	30,440	21,600
106	Oct-09	35,998	34,200
107	Nov-09	50,081	99,100
108	Dec-09	187,585	167,300
109	Jan-10	247,290	124,300
110	Feb-10	135,030	168,200
111	Mar-10	115,791	54,400
112	Apr-10	134,999	75,000
113	May-10	298,724	91,700
114	Jun-10	51,996	125,800
115	Jul-10	169,253	51,600
116	Aug-10	28,763	33,200
117	Sep-10	85,339	74,000
118	Oct-10	139,835	0,000
119	Nov-10	223,971	110,000
120	Dec-10	420,397	33,800
121	Jan-11	265,762	167,400
122	Feb-11	153,183	106,900
123	Mar-11	233,054	137,800
124	Apr-11	195,424	105,300
125	May-11	112,104	98,800
126	Jun-11	21,803	4,500
127	Jul-11	16,383	0,600
128	Aug-11	5,354	0,000
129	Sep-11	9,266	1,900
130	Oct-11	38,962	13,700
131	Nov-11	129,333	136,100
132	Dec-11	240,335	136,500
133	Jan-12	317,504	385,500
134	Feb-12	169,468	130,000
135	Mar-12	259,707	208,100
136	Apr-12	48,685	76,100
137	May-12	102,565	80,600
138	Jun-12	19,593	0,000
139	Jul-12	15,485	33,810
140	Aug-12	8,143	0,200
141	Sep-12	12,555	0,000
142	Oct-12	27,477	0,000
143	Nov-12	96,744	154,700
144	Dec-12	269,423	362,200
145	Jan-13	335,110	223,200
146	Feb-13	179,459	200,700
147	Mar-13	114,109	146,200
148	Apr-13	85,225	130,300
149	May-13	135,770	263,400
150	Jun-13	128,165	67,100

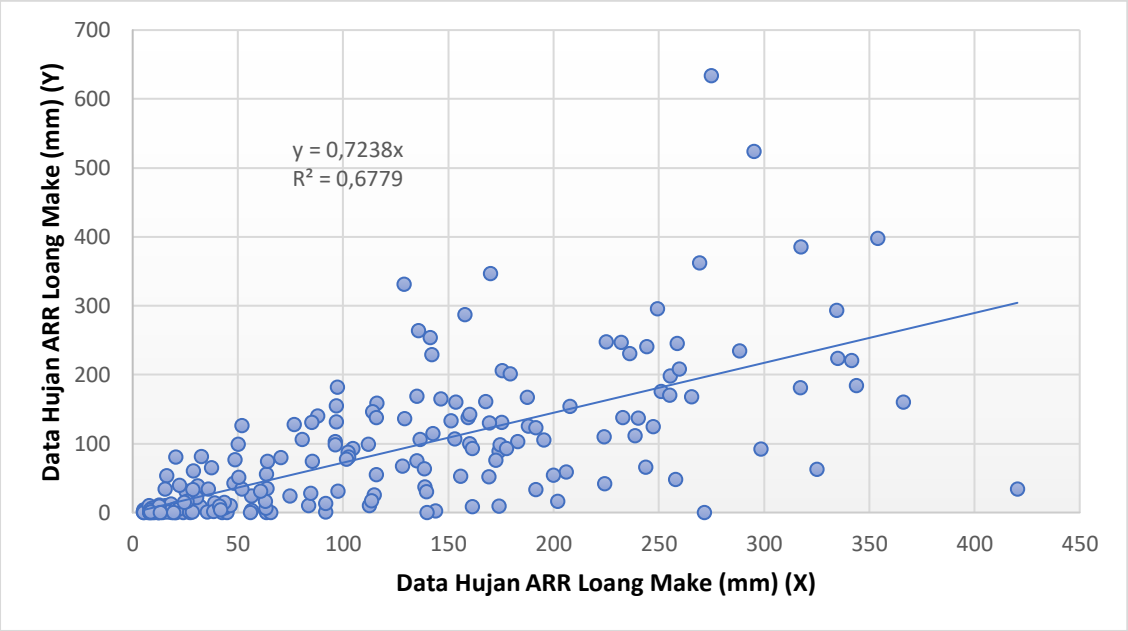
Lanjutan Tabel 4.10

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Loang Make (Y) (mm)
151	Jul-13	38,576	1,200
152	Aug-13	8,123	0,000
153	Sep-13	10,896	1,600
154	Oct-13	37,653	64,600
155	Nov-13	151,372	132,900
156	Dec-13	354,007	397,700
157	Jan-14	244,347	240,300
158	Feb-14	138,702	63,500
159	Mar-14	115,858	137,200
160	Apr-14	101,615	77,400
161	May-14	27,125	0,400
162	Jun-14	28,456	0,700
163	Jul-14	25,984	16,200
164	Aug-14	7,866	10,000
165	Sep-14	9,370	0,200
166	Oct-14	9,199	6,300
167	Nov-14	96,952	131,400
168	Dec-14	249,453	295,400
169	Jan-15	161,500	92,500
170	Feb-15	153,589	159,700
171	Mar-15	155,929	52,700
172	Apr-15	136,645	105,600
173	May-15	41,396	8,800
174	Jun-15	56,053	0,000
175	Jul-15	12,086	0,000
176	Aug-15	8,322	3,600
177	Sep-15	8,708	0,600
178	Oct-15	8,363	0,000
179	Nov-15	51,939	33,600
180	Dec-15	243,773	65,400
181	Jan-16	159,568	137,700
182	Feb-16	191,570	122,800
183	Mar-16	160,105	142,200
184	Apr-16	50,409	50,800
185	May-16	83,664	9,900
186	Jun-16	146,519	164,800
187	Jul-16	113,584	16,500
188	Aug-16	12,701	9,200
189	Sep-16	64,258	74,000
190	Oct-16	174,082	8,800
191	Nov-16	139,690	29,800
192	Dec-16	325,199	62,200
193	Jan-17	257,975	47,800
194	Feb-17	207,896	154,000
195	Mar-17	177,770	92,700
196	Apr-17	84,781	27,700
197	May-17	41,763	3,700
198	Jun-17	97,690	30,500
199	Jul-17	24,620	14,700
200	Aug-17	8,571	0,300
201	Sep-17	13,152	0,000
202	Oct-17	74,694	23,800
203	Nov-17	238,799	110,900
204	Dec-17	255,221	170,300

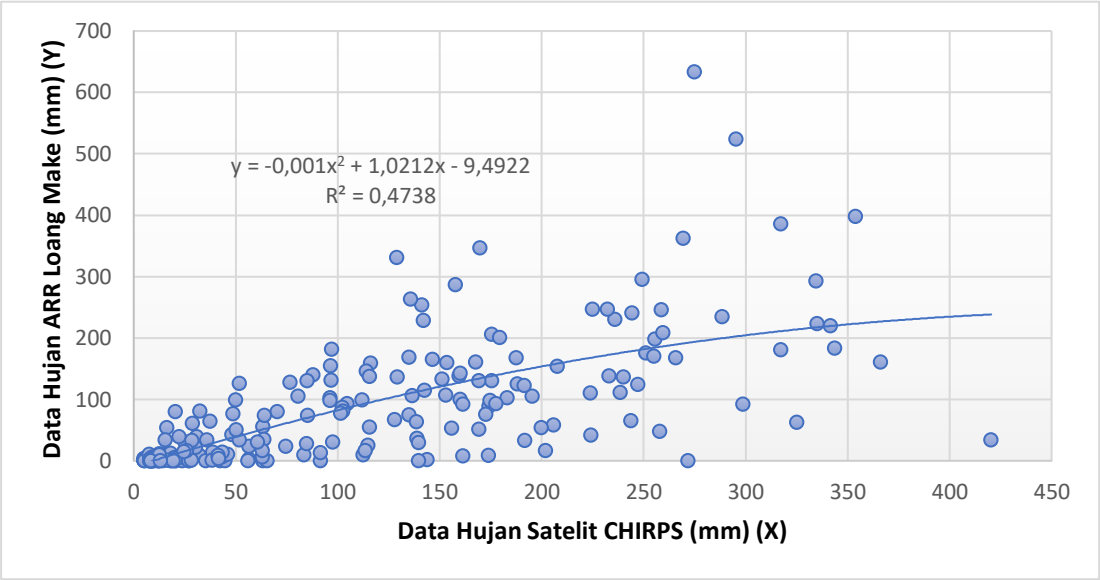
(*Sumber : Hasil Perhitungan*)



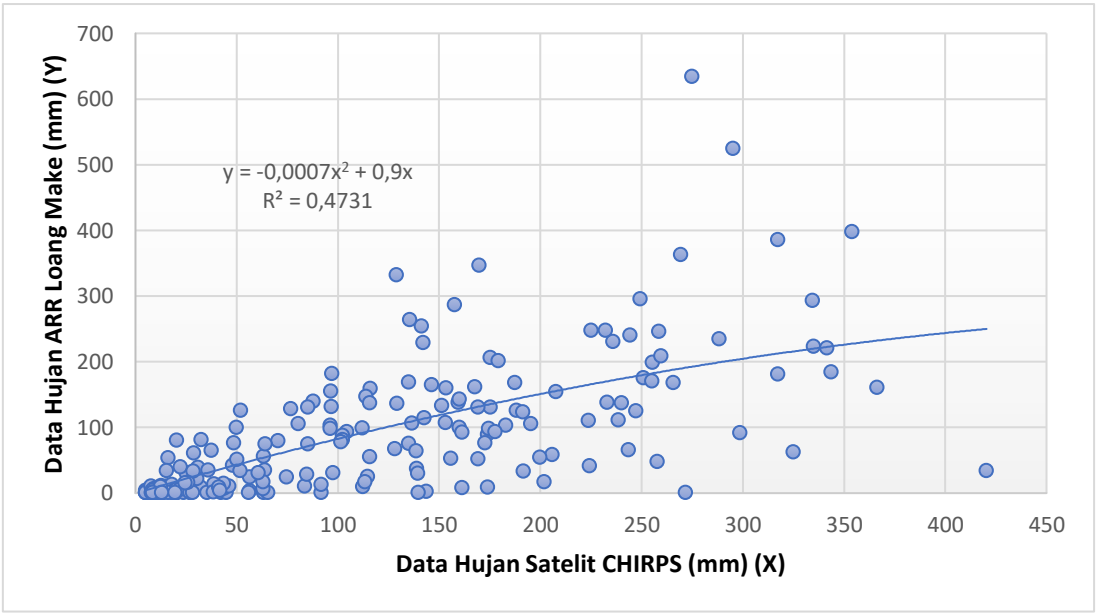
Gambar 4. 2 Grafik regresi linier sederhana data hujan ARR & CHIRPS pada stasiun Loang Make
(*Sumber : Hasil Perhitungan*)



Gambar 4.3 Grafik regresi linier *intercept* data hujan ARR & CHIRPS pada stasiun Loang Make
(*Sumber : Hasil Perhitungan*)



Gambar 4. 4 Grafik regresi polinomial orde 2 data hujan ARR & CHIRPS pada stasiun Loang Make
(*Sumber : Hasil Perhitungan*)



Gambar 4. 5 Grafik regresi polinomial orde 2 *Intercept* data hujan ARR & CHIRPS pada stasiun Loang Make
(*Sumber : Hasil Perhitungan*)

Untuk analisis regresi linier pada pos hujan lainnya dapat dilihat pada lampiran III.

Berikut adalah tabel rekapitulasi yang dapat dilihat pada Tabel 4.11.

Tabel 4. 11 Rekapitulasi analisis regresi dan koefisien korelasi data hujan bulanan satelit CHIRPS terhadap data curah hujan pengukuran

Sta Hujan	Periode	Tahun	Regresi		Koef. Korelasi	
			Jenis Regresi	Persamaan Regresi	Nilai	Interpretasi
Loang Make	Bulanan selama 17 tahun	2001-2017	Linier	$y = 0.7086x + 2.9811$	0,688	kuat
			Linier *Intercept*	$y = 0.7238x$	0,8233	sangat kuat
			Polinomial Orde 2	$y = -0.001x^2 + 1.0212x - 9.4922$	0,6883	kuat
			Polinomial Orde 2 *Intercept*	$y = -0.0007x^2 + 0.9x$	0,687	kuat
Kopang	Bulanan selama 17 tahun	2001-2017	Linier	$y = 0.961x + 13.957$	0,7	kuat
			Linier *Intercept*	$y = 1.0225x$	0,85	sangat kuat
			Polinomial Orde 2	$y = -0.0015x^2 + 1.4679x - 8.5506$	0,71	kuat
			Polinomial Orde 2 *Intercept*	$y = -0.0013x^2 + 1.3665x$	0,7099	kuat
Kabul	Bulanan selama 17 tahun	2001-2017	Linier	$y = 0.7616x - 1.1503$	0,7956	sangat kuat
			Linier *Intercept*	$y = 0.7566x$	0,8979	sangat kuat
			Polinomial Orde 2	$y = -0.0006x^2 + 0.9759x - 10.614$	0,7988	sangat kuat
			Polinomial Orde 2 *Intercept*	$y = -0.0004x^2 + 0.8548x$	0,7983	sangat kuat
Rembitan	Bulanan selama 17 tahun	2001-2017	Linier	$y = 1.0934x - 10.244$	0,832	sangat kuat
			Linier *Intercept*	$y = 1.0419x$	0,9118	sangat kuat
			Polinomial Orde 2	$y = -0.0005x^2 + 1.2379x - 16.469$	0,8329	sangat kuat
			Polinomial Orde 2 *Intercept*	$y = 0.00002\ x^2 + 1.0366x$	0,8319	sangat kuat

(*Sumber : Hasil Perhitungan*)

Berdasarkan hasil perhitungan analisis regresi pada Tabel 4.11 di atas, dapat dilihat bahwa masing-masing pos hujan memiliki 4 jenis persamaan regresi beserta nilai koefisien korelasi yang berbeda-beda. Nilai koefisien korelasi (R) menunjukkan tingkat keeratan hubungan kedua variabel (data bulanan satelit CHIRPS terhadap data curah hujan bulanan pengukuran), dengan melihat hasil analisis regresi dan koefisien korelasi yang "kuat" dan "sangat kuat" pada keempat pos hujan, maka dapat dikatakan bahwa data curah hujan bulanan satelit CHIRPS yang dikalibrasi dengan persamaan regresi dapat menghasilkan pemodelan yang cukup baik terhadap data pengukuran.

Berikut adalah contoh data hujan bulanan satelit CHIRPS yang sudah terkoreksi dengan keempat jenis persamaan regresi pada Pos Loang Make yang dapat dilihat pada Tabel 4.12.

Tabel 4. 12 Data hujan CHIRPS terkoreksi pada pos hujan Loang Make

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
1	Jan-01	191,745	138,852	138,785	149,552	146,834
2	Feb-01	104,682	77,159	75,769	86,451	86,543
3	Mar-01	175,511	127,348	127,035	138,936	136,397
4	Apr-01	80,636	60,120	58,364	66,351	68,021
5	May-01	63,562	48,021	46,006	51,378	54,378
6	Jun-01	138,993	101,472	100,603	113,129	111,570
7	Jul-01	20,446	17,469	14,799	10,969	18,109
8	Aug-01	5,160	6,637	3,735	-4,250	4,625
9	Sep-01	9,022	9,374	6,530	-0,361	8,063
10	Oct-01	48,174	37,117	34,868	37,382	41,732
11	Nov-01	188,215	136,350	136,230	147,288	144,596
12	Dec-01	91,802	68,032	66,447	75,829	76,723
13	Jan-02	202,116	146,201	146,292	156,058	153,309
14	Feb-02	271,850	195,614	196,765	194,219	192,933
15	Mar-02	161,422	117,365	116,837	129,295	127,040
16	Apr-02	63,558	48,018	46,003	51,374	54,374
17	May-02	42,477	33,080	30,745	32,081	36,966
18	Jun-02	15,770	14,156	11,415	6,364	14,019
19	Jul-02	18,666	16,208	13,510	9,221	16,555
20	Aug-02	8,197	8,789	5,933	-1,189	7,330
21	Sep-02	12,790	12,044	9,258	3,406	11,397
22	Oct-02	18,179	15,863	13,158	8,742	16,130
23	Nov-02	175,560	127,383	127,070	138,968	136,429
24	Dec-02	288,502	207,414	208,818	201,893	201,389
25	Jan-03	258,711	186,303	187,255	187,772	185,988
26	Feb-03	206,044	148,984	149,135	158,466	155,722
27	Mar-03	112,574	82,751	81,481	92,795	92,445
28	Apr-03	63,987	48,322	46,314	51,757	54,722
29	May-03	65,554	49,432	47,448	53,154	55,990
30	Jun-03	44,910	34,805	32,506	34,353	39,007
31	Jul-03	12,168	11,604	8,807	2,786	10,848
32	Aug-03	5,354	6,775	3,875	-4,053	4,799
33	Sep-03	28,810	23,396	20,852	19,098	25,348
34	Oct-03	16,343	14,561	11,829	6,930	14,521
35	Nov-03	174,235	126,444	126,111	138,078	135,561
36	Dec-03	225,107	162,492	162,932	169,714	167,125
37	Jan-04	142,793	104,164	103,354	115,938	114,241
38	Feb-04	224,325	161,938	162,367	169,267	166,667
39	Mar-04	174,758	126,814	126,490	138,430	135,904
40	Apr-04	31,059	24,990	22,481	21,261	27,278
41	May-04	91,789	68,023	66,437	75,818	76,713
42	Jun-04	20,428	17,456	14,786	10,951	18,093
43	Jul-04	12,220	11,640	8,845	2,838	10,894
44	Aug-04	5,246	6,698	3,797	-4,163	4,702
45	Sep-04	19,842	17,041	14,362	10,377	17,582
46	Oct-04	63,293	47,830	45,811	51,136	54,159
47	Nov-04	157,854	114,836	114,255	126,790	124,626
48	Dec-04	236,131	170,304	170,912	175,887	173,488
49	Jan-05	70,512	52,946	51,037	57,543	59,980
50	Feb-05	128,964	94,365	93,344	105,574	104,426

Lanjutan Tabel 4.12

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
51	Mar-05	167,771	121,864	121,433	133,689	131,291
52	Apr-05	97,258	71,898	70,395	80,368	80,911
53	May-05	20,569	17,556	14,888	11,090	18,216
54	Jun-05	32,642	26,112	23,627	22,777	28,632
55	Jul-05	25,324	20,925	18,329	15,727	22,342
56	Aug-05	8,975	9,341	6,496	-0,407	8,021
57	Sep-05	26,623	21,846	19,270	16,987	23,465
58	Oct-05	96,435	71,315	69,799	79,687	80,281
59	Nov-05	142,283	103,803	102,985	115,563	113,884
60	Dec-05	295,417	212,314	213,823	204,917	204,786
61	Jan-06	275,051	197,882	199,082	195,737	194,589
62	Feb-06	169,997	123,441	123,044	135,209	132,768
63	Mar-06	317,425	227,908	229,752	213,904	215,151
64	Apr-06	96,439	71,317	69,802	79,690	80,284
65	May-06	114,854	84,367	83,132	94,606	94,135
66	Jun-06	43,921	34,104	31,790	33,431	38,179
67	Jul-06	20,654	17,617	14,950	11,173	18,290
68	Aug-06	7,446	8,257	5,390	-1,944	6,663
69	Sep-06	9,620	9,798	6,963	0,239	8,593
70	Oct-06	18,255	15,917	13,213	8,817	16,196
71	Nov-06	46,307	35,794	33,517	35,652	40,175
72	Dec-06	251,132	180,933	181,770	183,897	181,872
73	Jan-07	87,934	65,291	63,647	72,574	73,728
74	Feb-07	183,123	132,742	132,544	143,979	141,337
75	Mar-07	341,684	245,098	247,311	222,687	225,792
76	Apr-07	116,167	85,297	84,081	95,643	95,104
77	May-07	63,257	47,805	45,786	51,105	54,130
78	Jun-07	43,609	33,883	31,564	33,140	37,917
79	Jul-07	14,187	13,034	10,268	4,794	12,627
80	Aug-07	6,092	7,298	4,410	-3,308	5,457
81	Sep-07	8,196	8,789	5,932	-1,190	7,329
82	Oct-07	32,295	25,865	23,375	22,444	28,335
83	Nov-07	102,410	75,549	74,124	84,601	84,828
84	Dec-07	343,930	246,690	248,936	223,441	226,735
85	Jan-08	141,390	103,170	102,338	114,904	113,257
86	Feb-08	232,292	167,583	168,133	173,765	171,291
87	Mar-08	366,356	262,581	265,169	230,414	235,769
88	Apr-08	76,903	57,475	55,662	63,127	65,073
89	May-08	56,550	43,052	40,931	45,058	48,656
90	Jun-08	35,483	28,125	25,683	25,484	31,054
91	Jul-08	14,158	13,014	10,248	4,766	12,602
92	Aug-08	10,357	10,320	7,497	0,978	9,247
93	Sep-08	22,337	18,809	16,168	12,820	19,754
94	Oct-08	56,620	43,102	40,982	45,123	48,714
95	Nov-08	160,143	116,458	115,911	128,400	126,176
96	Dec-08	200,034	144,725	144,785	154,769	152,021
97	Jan-09	334,577	240,062	242,167	220,236	222,760
98	Feb-09	255,636	184,125	185,029	186,214	184,328
99	Mar-09	172,682	125,344	124,987	137,032	134,541
100	Apr-09	60,787	46,055	43,998	48,889	52,122

Lanjutan Tabel 4.12

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
101	May-09	143,868	104,926	104,132	116,728	114,993
102	Jun-09	24,022	20,003	17,387	14,462	21,216
103	Jul-09	20,438	17,464	14,793	10,961	18,102
104	Aug-09	5,237	6,692	3,791	-4,171	4,694
105	Sep-09	30,440	24,551	22,032	20,666	26,747
106	Oct-09	35,998	28,489	26,055	25,973	31,491
107	Nov-09	50,081	38,469	36,249	39,143	43,318
108	Dec-09	187,585	135,904	135,774	146,881	144,195
109	Jan-10	247,290	178,211	178,989	181,888	179,755
110	Feb-10	135,030	98,663	97,734	110,167	108,764
111	Mar-10	115,791	85,031	83,809	95,346	94,827
112	Apr-10	134,999	98,641	97,712	110,144	108,742
113	May-10	298,724	214,657	216,216	206,329	206,386
114	Jun-10	51,996	39,826	37,635	40,903	44,904
115	Jul-10	169,253	122,914	122,505	134,702	132,275
116	Aug-10	28,763	23,362	20,818	19,053	25,307
117	Sep-10	85,339	63,452	61,768	70,373	71,707
118	Oct-10	139,835	102,068	101,212	113,753	112,164
119	Nov-10	223,971	161,687	162,110	169,064	166,460
120	Dec-10	420,397	300,874	304,283	243,083	254,644
121	Jan-11	265,762	191,300	192,359	191,275	189,745
122	Feb-11	153,183	111,527	110,874	123,474	121,439
123	Mar-11	233,054	168,123	168,684	174,188	171,728
124	Apr-11	195,424	141,458	141,448	151,884	149,148
125	May-11	112,104	82,418	81,141	92,421	92,096
126	Jun-11	21,803	18,431	15,781	12,298	19,290
127	Jul-11	16,383	14,590	11,858	6,969	14,557
128	Aug-11	5,354	6,775	3,875	-4,053	4,799
129	Sep-11	9,266	9,547	6,707	-0,115	8,280
130	Oct-11	38,962	30,589	28,201	28,778	34,003
131	Nov-11	129,333	94,627	93,611	105,856	104,691
132	Dec-11	240,335	173,282	173,954	178,177	175,869
133	Jan-12	317,504	227,965	229,810	213,934	215,188
134	Feb-12	169,468	123,066	122,661	134,849	132,418
135	Mar-12	259,707	187,010	187,976	188,273	186,523
136	Apr-12	48,685	37,480	35,239	37,855	42,158
137	May-12	102,565	75,659	74,236	84,727	84,945
138	Jun-12	19,593	16,865	14,182	10,132	17,365
139	Jul-12	15,485	13,954	11,208	6,081	13,768
140	Aug-12	8,143	8,752	5,894	-1,242	7,283
141	Sep-12	12,555	11,878	9,087	3,171	11,189
142	Oct-12	27,477	22,452	19,888	17,813	24,201
143	Nov-12	96,744	71,534	70,023	79,943	80,518
144	Dec-12	269,423	193,894	195,008	193,054	191,669
145	Jan-13	335,110	240,440	242,553	220,424	222,990
146	Feb-13	179,459	130,146	129,892	141,566	138,969
147	Mar-13	114,109	83,839	82,592	94,015	93,584
148	Apr-13	85,225	63,371	61,686	70,276	71,618
149	May-13	135,770	99,188	98,270	110,723	109,290
150	Jun-13	128,165	93,799	92,766	104,964	103,850

Lanjutan tabel 4.12

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
151	Jul-13	38,576	30,316	27,922	28,414	33,677
152	Aug-13	8,123	8,737	5,880	-1,263	7,265
153	Sep-13	10,896	10,702	7,887	1,516	9,724
154	Oct-13	37,653	29,662	27,253	27,542	32,896
155	Nov-13	151,372	110,243	109,563	122,175	120,195
156	Dec-13	354,007	253,831	256,231	226,699	230,882
157	Jan-14	244,347	176,125	176,858	180,329	178,118
158	Feb-14	138,702	101,265	100,392	112,912	111,365
159	Mar-14	115,858	85,078	83,858	95,399	94,876
160	Apr-14	101,615	74,986	73,549	83,952	84,226
161	May-14	27,125	22,202	19,633	17,472	23,898
162	Jun-14	28,456	23,145	20,596	18,757	25,043
163	Jul-14	25,984	21,393	18,807	16,368	22,913
164	Aug-14	7,866	8,555	5,694	-1,521	7,037
165	Sep-14	9,370	9,621	6,782	-0,011	8,372
166	Oct-14	9,199	9,500	6,659	-0,182	8,220
167	Nov-14	96,952	71,681	70,174	80,115	80,677
168	Dec-14	249,453	179,743	180,554	183,022	180,949
169	Jan-15	161,500	117,420	116,894	129,349	127,092
170	Feb-15	153,589	111,814	111,167	123,763	121,717
171	Mar-15	155,929	113,472	112,861	125,428	123,316
172	Apr-15	136,645	99,808	98,904	111,378	109,910
173	May-15	41,396	32,314	29,962	31,067	36,057
174	Jun-15	56,053	42,700	40,571	44,607	48,248
175	Jul-15	12,086	11,545	8,748	2,704	10,775
176	Aug-15	8,322	8,878	6,023	-1,063	7,441
177	Sep-15	8,708	9,152	6,303	-0,675	7,784
178	Oct-15	8,363	8,907	6,053	-1,022	7,478
179	Nov-15	51,939	39,785	37,594	40,850	44,857
180	Dec-15	243,773	175,719	176,443	180,024	177,798
181	Jan-16	159,568	116,051	115,495	127,997	125,788
182	Feb-16	191,570	138,727	138,658	149,440	146,724
183	Mar-16	160,105	116,432	115,884	128,373	126,151
184	Apr-16	50,409	38,701	36,486	39,445	43,590
185	May-16	83,664	62,265	60,556	68,945	70,397
186	Jun-16	146,519	106,804	106,050	118,665	116,840
187	Jul-16	113,584	83,467	82,212	93,598	93,195
188	Aug-16	12,701	11,981	9,193	3,316	11,318
189	Sep-16	64,258	48,514	46,510	51,999	54,942
190	Oct-16	174,082	126,335	126,000	137,976	135,460
191	Nov-16	139,690	101,965	101,107	113,646	112,062
192	Dec-16	325,199	233,417	235,379	216,847	218,651
193	Jan-17	257,975	185,782	186,723	187,401	185,592
194	Feb-17	207,896	150,296	150,475	159,591	156,852
195	Mar-17	177,770	128,949	128,670	140,445	137,872
196	Apr-17	84,781	63,057	61,364	69,898	71,271
197	May-17	41,763	32,575	30,228	31,412	36,366
198	Jun-17	97,690	72,204	70,708	80,726	81,241
199	Jul-17	24,620	20,427	17,820	15,044	21,734
200	Aug-17	8,571	9,055	6,204	-0,813	7,663
201	Sep-17	13,152	12,301	9,520	3,766	11,716
202	Oct-17	74,694	55,909	54,064	61,206	63,319
203	Nov-17	238,799	172,194	172,843	177,344	175,002
204	Dec-17	255,221	183,830	184,729	186,001	184,102

Hasil perhitungan data hujan satelit CHIRPS terkoreksi pada pos hujan lainnya dapat diliat pada lampiran III.

Selanjutnya dilakukan pengujian akurasi lagi dengan RMSE dan NSE pada data hujan bulanan satelit yang telah terkoreksi. Contoh perhitungan ditunjukan pada Tabel 4.13 pada Pos Hujan Loang Make.

Tabel 4. 13 Perhitungan nilai NSE dan RMSE data hujan bulanan satelit CHIRPS terkoreksi dengan regresi linier pada pos hujan Loang Make

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	32,800	138,852	-106,052	11246,996	-49,754	2475,458
2	Feb-01	93,000	77,159	15,841	250,943	10,446	109,120
3	Mar-01	130,700	127,348	3,352	11,234	48,146	2318,040
4	Apr-01	105,500	60,120	45,380	2059,355	22,946	526,520
5	May-01	55,500	48,021	7,479	55,929	-27,054	731,917
6	Jun-01	36,700	101,472	-64,772	4195,369	-45,854	2102,587
7	Jul-01	0,600	17,469	-16,869	284,563	-81,954	6716,453
8	Aug-01	0,500	6,637	-6,137	37,665	-82,054	6732,854
9	Sep-01	0,300	9,374	-9,074	82,336	-82,254	6765,716
10	Oct-01	42,200	37,117	5,083	25,838	-40,354	1628,443
11	Nov-01	125,200	136,350	-11,150	124,325	42,646	1818,684
12	Dec-01	0,400	68,032	-67,632	4574,132	-82,154	6749,275
13	Jan-02	16,400	146,201	-129,801	16848,231	-66,154	4376,348
14	Feb-02	0,000	195,614	-195,614	38264,905	-82,554	6815,158
15	Mar-02	8,000	117,365	-109,365	11960,617	-74,554	5558,295
16	Apr-02	0,000	48,018	-48,018	2305,759	-82,554	6815,158
17	May-02	0,000	33,080	-33,080	1094,306	-82,554	6815,158
18	Jun-02	10,000	14,156	-4,156	17,273	-72,554	5264,079
19	Jul-02	0,000	16,208	-16,208	262,686	-82,554	6815,158
20	Aug-02	6,500	8,789	-2,289	5,241	-76,054	5784,206
21	Sep-02	10,900	12,044	-1,144	1,309	-71,654	5134,292
22	Oct-02	12,500	15,863	-3,363	11,308	-70,054	4907,559
23	Nov-02	205,600	127,383	78,217	6117,903	123,046	15140,325
24	Dec-02	234,400	207,414	26,986	728,253	151,846	23057,217
25	Jan-03	245,500	186,303	59,197	3504,240	162,946	26551,409
26	Feb-03	58,400	148,984	-90,584	8205,427	-24,154	583,414
27	Mar-03	9,600	82,751	-73,151	5351,028	-72,954	5322,282
28	Apr-03	34,600	48,322	-13,722	188,295	-47,954	2299,583
29	May-03	0,000	49,432	-49,432	2443,570	-82,554	6815,158
30	Jun-03	0,000	34,805	-34,805	1211,361	-82,554	6815,158
31	Jul-03	0,000	11,604	-11,604	134,643	-82,554	6815,158
32	Aug-03	0,000	6,775	-6,775	45,902	-82,554	6815,158
33	Sep-03	60,500	23,396	37,104	1376,737	-22,054	486,378
34	Oct-03	53,500	14,561	38,939	1516,207	-29,054	844,133
35	Nov-03	88,800	126,444	-37,644	1417,046	6,246	39,013
36	Dec-03	247,100	162,492	84,608	7158,586	164,546	27075,396
37	Jan-04	114,300	104,164	10,136	102,731	31,746	1007,810
38	Feb-04	41,400	161,938	-120,538	14529,397	-41,154	1693,649
39	Mar-04	98,100	126,814	-28,714	824,522	15,546	241,679
40	Apr-04	38,700	24,990	13,710	187,970	-43,854	1923,171

Lanjutan tabel 4.13

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
41	May-04	12,900	68,023	-55,123	3038,536	-69,654	4851,676
42	Jun-04	0,000	17,456	-17,456	304,716	-82,554	6815,158
43	Jul-04	1,000	11,640	-10,640	113,216	-81,554	6651,050
44	Aug-04	3,300	6,698	-3,398	11,548	-79,254	6281,192
45	Sep-04	4,100	17,041	-12,941	167,474	-78,454	6155,026
46	Oct-04	5,700	47,830	-42,130	1774,964	-76,854	5906,533
47	Nov-04	286,600	114,836	171,764	29502,793	204,046	41634,782
48	Dec-04	230,500	170,304	60,196	3623,591	147,946	21888,028
49	Jan-05	79,500	52,946	26,554	705,121	-3,054	9,327
50	Feb-05	331,400	94,365	237,035	56185,525	248,846	61924,346
51	Mar-05	160,800	121,864	38,936	1516,019	78,246	6122,441
52	Apr-05	181,300	71,898	109,402	11968,825	98,746	9750,778
53	May-05	80,000	17,556	62,444	3899,219	-2,554	6,523
54	Jun-05	80,800	26,112	54,688	2990,825	-1,754	3,076
55	Jul-05	30,500	20,925	9,575	91,673	-52,054	2709,616
56	Aug-05	0,000	9,341	-9,341	87,252	-82,554	6815,158
57	Sep-05	13,700	21,846	-8,146	66,364	-68,854	4740,869
58	Oct-05	102,600	71,315	31,285	978,774	20,046	401,843
59	Nov-05	228,800	103,803	124,997	15624,233	146,246	21387,901
60	Dec-05	523,800	212,314	311,486	97023,644	441,246	194698,058
61	Jan-06	633,500	197,882	435,618	189762,971	550,946	303541,527
62	Feb-06	346,500	123,441	223,059	49755,463	263,946	69667,506
63	Mar-06	180,800	227,908	-47,108	2219,201	98,246	9652,282
64	Apr-06	97,800	71,317	26,483	701,324	15,246	232,441
65	May-06	25,100	84,367	-59,267	3512,572	-57,454	3300,959
66	Jun-06	6,700	34,104	-27,404	750,958	-75,854	5753,825
67	Jul-06	0,000	17,617	-17,617	310,348	-82,554	6815,158
68	Aug-06	0,000	8,257	-8,257	68,185	-82,554	6815,158
69	Sep-06	0,000	9,798	-9,798	95,995	-82,554	6815,158
70	Oct-06	0,200	15,917	-15,717	247,017	-82,354	6782,176
71	Nov-06	10,000	35,794	-25,794	665,336	-72,554	5264,079
72	Dec-06	175,200	180,933	-5,733	32,872	92,646	8583,287
73	Jan-07	139,600	65,291	74,309	5521,765	57,046	3254,249
74	Feb-07	102,500	132,742	-30,242	914,570	19,946	397,844
75	Mar-07	220,200	245,098	-24,898	619,915	137,646	18946,429
76	Apr-07	158,600	85,297	73,303	5373,359	76,046	5782,999
77	May-07	16,300	47,805	-31,505	992,574	-66,254	4389,589
78	Jun-07	14,300	33,883	-19,583	383,480	-68,254	4658,605
79	Jul-07	1,300	13,034	-11,734	137,684	-81,254	6602,208
80	Aug-07	4,000	7,298	-3,298	10,878	-78,554	6170,726
81	Sep-07	0,400	8,789	-8,389	70,369	-82,154	6749,275
82	Oct-07	8,300	25,865	-17,565	308,535	-74,254	5513,652
83	Nov-07	87,200	75,549	11,651	135,747	4,646	21,586
84	Dec-07	183,700	246,690	-62,990	3967,710	101,146	10230,519
85	Jan-08	253,600	103,170	150,430	22629,187	171,046	29256,744
86	Feb-08	247,000	167,583	79,417	6307,014	164,446	27042,497
87	Mar-08	160,300	262,581	-102,281	10461,445	77,746	6044,445
88	Apr-08	127,500	57,475	70,025	4903,549	44,946	2020,146
89	May-08	2,800	43,052	-40,252	1620,231	-79,754	6360,696
90	Jun-08	0,400	28,125	-27,725	768,650	-82,154	6749,275

Lanjutan tabel 4.13

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
91	Jul-08	0,000	13,014	-13,014	169,357	-82,554	6815,158
92	Aug-08	0,000	10,320	-10,320	106,510	-82,554	6815,158
93	Sep-08	39,000	18,809	20,191	407,661	-43,554	1896,948
94	Oct-08	23,800	43,102	-19,302	372,576	-58,754	3452,029
95	Nov-08	99,700	116,458	-16,758	280,837	17,146	293,986
96	Dec-08	53,800	144,725	-90,925	8267,405	-28,754	826,791
97	Jan-09	292,900	240,062	52,838	2791,831	210,346	44245,452
98	Feb-09	198,300	184,125	14,175	200,934	115,746	13397,143
99	Mar-09	75,700	125,344	-49,644	2464,500	-6,854	46,977
100	Apr-09	30,500	46,055	-15,555	241,956	-52,054	2709,616
101	May-09	2,100	104,926	-102,826	10573,182	-80,454	6472,841
102	Jun-09	0,000	20,003	-20,003	400,126	-82,554	6815,158
103	Jul-09	4,900	17,464	-12,564	157,842	-77,654	6030,139
104	Aug-09	0,600	6,692	-6,092	37,116	-81,954	6716,453
105	Sep-09	21,600	24,551	-2,951	8,706	-60,954	3715,387
106	Oct-09	34,200	28,489	5,711	32,616	-48,354	2338,106
107	Nov-09	99,100	38,469	60,631	3676,138	16,546	273,771
108	Dec-09	167,300	135,904	31,396	985,720	84,746	7181,890
109	Jan-10	124,300	178,211	-53,911	2906,403	41,746	1742,731
110	Feb-10	168,200	98,663	69,537	4835,390	85,646	7335,242
111	Mar-10	54,400	85,031	-30,631	938,229	-28,154	792,646
112	Apr-10	75,000	98,641	-23,641	558,913	-7,554	57,062
113	May-10	91,700	214,657	-122,957	15118,342	9,146	83,650
114	Jun-10	125,800	39,826	85,974	7391,580	43,246	1870,219
115	Jul-10	51,600	122,914	-71,314	5085,656	-30,954	958,148
116	Aug-10	33,200	23,362	9,838	96,780	-49,354	2435,814
117	Sep-10	74,000	63,452	10,548	111,260	-8,554	73,170
118	Oct-10	0,000	102,068	-102,068	10417,877	-82,554	6815,158
119	Nov-10	110,000	161,687	-51,687	2671,549	27,446	753,285
120	Dec-10	33,800	300,874	-267,074	71328,576	-48,754	2376,950
121	Jan-11	167,400	191,300	-23,900	571,215	84,846	7198,849
122	Feb-11	106,900	111,527	-4,627	21,408	24,346	592,729
123	Mar-11	137,800	168,123	-30,323	919,478	55,246	3052,124
124	Apr-11	105,300	141,458	-36,158	1307,418	22,746	517,382
125	May-11	98,800	82,418	16,382	268,372	16,246	263,933
126	Jun-11	4,500	18,431	-13,931	194,073	-78,054	6092,422
127	Jul-11	0,600	14,590	-13,990	195,718	-81,954	6716,453
128	Aug-11	0,000	6,775	-6,775	45,902	-82,554	6815,158
129	Sep-11	1,900	9,547	-7,647	58,479	-80,654	6505,063
130	Oct-11	13,700	30,589	-16,889	285,252	-68,854	4740,869
131	Nov-11	136,100	94,627	41,473	1720,036	53,546	2867,177
132	Dec-11	136,500	173,282	-36,782	1352,925	53,946	2910,174
133	Jan-12	385,500	227,965	157,535	24817,343	302,946	91776,297
134	Feb-12	130,000	123,066	6,934	48,080	47,446	2251,126
135	Mar-12	208,100	187,010	21,090	444,798	125,546	15761,806
136	Apr-12	76,100	37,480	38,620	1491,533	-6,454	41,654
137	May-12	80,600	75,659	4,941	24,418	-1,954	3,818
138	Jun-12	0,000	16,865	-16,865	284,423	-82,554	6815,158
139	Jul-12	33,810	13,954	19,856	394,279	-48,744	2375,975
140	Aug-12	0,200	8,752	-8,552	73,128	-82,354	6782,176

Lanjutan tabel 4.13

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
141	Sep-12	0,000	11,878	-11,878	141,076	-82,554	6815,158
142	Oct-12	0,000	22,452	-22,452	504,071	-82,554	6815,158
143	Nov-12	154,700	71,534	83,166	6916,604	72,146	5205,050
144	Dec-12	362,200	193,894	168,306	28326,843	279,646	78201,902
145	Jan-13	223,200	240,440	-17,240	297,227	140,646	19781,306
146	Feb-13	200,700	130,146	70,554	4977,924	118,146	13958,484
147	Mar-13	146,200	83,839	62,361	3888,887	63,646	4050,817
148	Apr-13	130,300	63,371	66,929	4479,424	47,746	2279,683
149	May-13	263,400	99,188	164,212	26965,654	180,846	32705,286
150	Jun-13	67,100	93,799	-26,699	712,842	-15,454	238,825
151	Jul-13	1,200	30,316	-29,116	847,765	-81,354	6618,469
152	Aug-13	0,000	8,737	-8,737	76,338	-82,554	6815,158
153	Sep-13	1,600	10,702	-9,102	82,851	-80,954	6553,545
154	Oct-13	64,600	29,662	34,938	1220,648	-17,954	322,345
155	Nov-13	132,900	110,243	22,657	513,327	50,346	2534,723
156	Dec-13	397,700	253,831	143,869	20698,359	315,146	99317,020
157	Jan-14	240,300	176,125	64,175	4118,400	157,746	24883,810
158	Feb-14	63,500	101,265	-37,765	1426,201	-19,054	363,054
159	Mar-14	137,200	85,078	52,122	2716,728	54,646	2986,189
160	Apr-14	77,400	74,986	2,414	5,828	-5,154	26,563
161	May-14	0,400	22,202	-21,802	475,329	-82,154	6749,275
162	Jun-14	0,700	23,145	-22,445	503,764	-81,854	6700,073
163	Jul-14	16,200	21,393	-5,193	26,972	-66,354	4402,849
164	Aug-14	10,000	8,555	1,445	2,087	-72,554	5264,079
165	Sep-14	0,200	9,621	-9,421	88,749	-82,354	6782,176
166	Oct-14	6,300	9,500	-3,200	10,239	-76,254	5814,668
167	Nov-14	131,400	71,681	59,719	3566,361	48,846	2385,935
168	Dec-14	295,400	179,743	115,657	13376,443	212,846	45303,432
169	Jan-15	92,500	117,420	-24,920	621,000	9,946	98,924
170	Feb-15	159,700	111,814	47,886	2293,069	77,146	5951,510
171	Mar-15	52,700	113,472	-60,772	3693,244	-29,854	891,260
172	Apr-15	105,600	99,808	5,792	33,550	23,046	531,119
173	May-15	8,800	32,314	-23,514	552,913	-73,754	5439,648
174	Jun-15	0,000	42,700	-42,700	1823,316	-82,554	6815,158
175	Jul-15	0,000	11,545	-11,545	133,298	-82,554	6815,158
176	Aug-15	3,600	8,878	-5,278	27,856	-78,954	6233,729
177	Sep-15	0,600	9,152	-8,552	73,129	-81,954	6716,453
178	Oct-15	0,000	8,907	-8,907	79,339	-82,554	6815,158
179	Nov-15	33,600	39,785	-6,185	38,256	-48,954	2396,491
180	Dec-15	65,400	175,719	-110,319	12170,262	-17,154	294,259
181	Jan-16	137,700	116,051	21,649	468,679	55,146	3041,085
182	Feb-16	122,800	138,727	-15,927	253,684	40,246	1619,743
183	Mar-16	142,200	116,432	25,768	664,015	59,646	3557,649
184	Apr-16	50,800	38,701	12,099	146,381	-31,754	1008,315
185	May-16	9,900	62,265	-52,365	2742,099	-72,654	5278,599
186	Jun-16	164,800	106,804	57,996	3363,492	82,246	6764,409
187	Jul-16	16,500	83,467	-66,967	4484,536	-66,054	4363,127
188	Aug-16	9,200	11,981	-2,781	7,733	-73,354	5380,805
189	Sep-16	74,000	48,514	25,486	649,522	-8,554	73,170
190	Oct-16	8,800	126,335	-117,535	13814,567	-73,754	5439,648

Lanjutan tabel 4.13

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
191	Nov-16	29,800	101,965	-72,165	5207,826	-52,754	2782,981
192	Dec-16	62,200	233,417	-171,217	29315,393	-20,354	414,284
193	Jan-17	47,800	185,782	-137,982	19039,141	-34,754	1207,838
194	Feb-17	154,000	150,296	3,704	13,716	71,446	5104,535
195	Mar-17	92,700	128,949	-36,249	1314,006	10,146	102,942
196	Apr-17	27,700	63,057	-35,357	1250,094	-54,854	3008,958
197	May-17	3,700	32,575	-28,875	833,743	-78,854	6217,949
198	Jun-17	30,500	72,204	-41,704	1739,247	-52,054	2709,616
199	Jul-17	14,700	20,427	-5,727	32,798	-67,854	4604,161
200	Aug-17	0,300	9,055	-8,755	76,646	-82,254	6765,716
201	Sep-17	0,000	12,301	-12,301	151,313	-82,554	6815,158
202	Oct-17	23,800	55,909	-32,109	1031,006	-58,754	3452,029
203	Nov-17	110,900	172,194	-61,294	3756,959	28,346	803,497
204	Dec-17	170,300	183,830	-13,530	183,070	87,746	7699,366
Jumlah		16841,010	16840,032	0,978	1117887,040	0,000	2083161,892
Rata-rata		82,554	82,549	0,005	5479,838	0,000	10211,578

(*Sumber : Hasil Perhitungan*)

Berdasarkan hitungan pada tabel diatas, didapatkan nilai RMSE untuk data hujan CHIRPS terkoreksi dengan persamaan **(2-11)** sebagai berikut.

$$\text{RMSE} = \sqrt{\frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{n}}$$

$$= \sqrt{\frac{1117887,040}{204}}$$

$$= 74,026 \text{ mm}$$

Sedangkan nilai NSE untuk data hujan CHIRPS terkoreksi dengan persamaan **(2-13)** di dapatkan sebagai berikut.

$$NSE = 1 - \frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{\sum_{i=1}^{n}(Y_i - Y_i^{mean})^2}$$

$$= 1 - \frac{1117887,040}{2083161,892}$$

$$= 0,463 \text{ (Memenuhi)}$$

Selanjutnya untuk hitungan RMSE dan NSE data hujan satelit CHIRPS terkoreksi dengan metode regresi lain (linier intercept, polinomial orde 2, dan polinomial orde 2 intercept) dapat dilihat pada Lampiran III.

Berdasarkan perhitungan pada Tabel 4.13, nilai NSE yang di dapatkan menggunakan data hujan satelit CHIRPS terkoreksi dengan regresi linier menghasilkan nilai sebesar NSE = 0,463 dimana nilai tersebut termasuk ke dalam kriteria yang

memenuhi karna nilai tersebut diatas nilai 0,36 (ketentuan tabel kriteria NSE). Artinya data hujan satelit tersebut telah menunjukkan hasil yang lebih baik dari data satelit sebelum dikoreksi dimana sebelumnya diperoleh nilai NSE = 0,280 (tidak memenuhi kriteria). Sedangkan nilai RMSE diperoleh sebesar 74,026 mm. Nilai ini juga menunjukkan hasil yang lebih baik dari data hujan bulanan satelit CHIRPS yang belum dikoreksi dimana sebelumnya diperoleh nilai RMSE = 86,081 mm. Dengan kedua nilai yang semakin baik (NSE dan RMSE), maka data hujan bulanan satelit CHIRPS yang sudah dikoreksi dengan persamaan regresi linier dapat memberikan nilai yang lebih baik.

Berikutnya adalah tabel rekapitulasi perhitungan RMSE dan NSE dengan keempat jenis persamaan regresi pada pos-pos hujan yang digunakan dapat dilihat pada Tabel 4.14.

Tabel 4. 14 Rekapitulasi nilai RMSE dan NSE data hujan satelit CHIRPS terkoreksi dengan berbagai metode regresi

Sta Hujan	Periode	Tahun	Regresi		NSE		RMSE
			Jenis Regresi	Persamaan Regresi	Nilai	Interpretasi	
Loang Make	Bulanan selama 17 tahun	2001-2017	Linier	$y = 0,7086x + 2,9811$	0,463	memenuhi	74,026
			Linier *Intercept*	$y = 0,7238x$	0,463	memenuhi	74,052
			Polinomial Orde 2	$y = -0,001x^2 + 1,0212x - 9,4922$	0,474	memenuhi	73,310
			Polinomial Orde 2 *Intercept*	$y = -0,0007x^2 + 0,9x$	0,471	memenuhi	73,471
Kopang	Bulanan selama 17 tahun	2001-2017	Linier	$y = 0,961x + 13,957$	0,491	memenuhi	109,469
			Linier *Intercept*	$y = 1,225x$	0,488	memenuhi	109,840
			Polinomial Orde 2	$y = -0,0015x^2 + 1,4679x - 8,5506$	0,504	memenuhi	108,082
			Polinomial Orde 2 *Intercept*	$y = -0,0013x^2 + 1,3665x$	0,503	memenuhi	108,189
Kabul	Bulanan selama 17 tahun	2001-2017	Linier	$y = 0,7616x - 1,1503$	0,633	memenuhi	65,522
			Linier *Intercept*	$y = 0,7566x$	0,633	memenuhi	65,526
			Polinomial Orde 2	$y = -0,0006x^2 + 0,9759x - 10,614$	0,638	memenuhi	65,092
			Polinomial Orde 2 *Intercept*	$y = -0,0004x^2 + 0,8548x$	0,635	memenuhi	65,329
Rembitan	Bulanan selama 17 tahun	2001-2017	Linier	$y = 1,0934x - 10,244$	0,692	memenuhi	71,374
			Linier *Intercept*	$y = 1,0419x$	0,690	memenuhi	71,675
			Polinomial Orde 2	$y = -0,0005x^2 + 1,2379x - 16,469$	0,694	memenuhi	71,222
			Polinomial Orde 2 *Intercept*	$y = 0,00002\ x^2 + 1,0366x$	0,690	memenuhi	71,675

(Sumber : Hasil Perhitungan)

Pada tabel rekapitulasi perhitungan nilai RMSE dan NSE di atas menunjukkan bahwa setiap persamaan regresi menghasilkan nilai RMSE dan NSE yang berbeda-beda. Oleh karena itu, pemilihan jenis regresi dilakukan dengan mempertimbangkan nilai NSE dan RMSE terbaik. Pada Pos Loang Make, nilai NSE terbesar dan RMSE terkecil terdapat pada analisis regresi polinomial orde 2, begitu pula pada pos hujan lainnya regresi polinomial orde 2 menghasilkan nilai RMSE dan NSE terbaik. Dengan demikian, dapat disimpulkan bahwa jenis persamaan regresi polinomial orde 2 dipilih untuk mengoreksi data hujan bulanan satelit CHIRPS

Selanjutnya pada Tabel 4.15 akan ditunjukan perbandingan nilai NSE dan RMSE data hujan bulanan satelit CHIRPS sebelum dan sesudah dikoreksi dengan persamaan regresi polinomial orde 2. Perbandingan dilakukan untuk melihat secara menyeluruh perbedaan antara data CHIRPS yang belum dikoreksi dengan yang sudah dikoreksi dan dilihat data

Tabel 4. 15 Rekapitulasi nilai RMSE dan NSE data hujan CHIRPS sebelum dan sesudah dikoreksi

Data Hujan Satelit CHIRPS Tidak Terkoreksi				Data Hujan Satelit CHIRPS Terkoreksi			
Pos Hujan	NSE		RMSE	Pos Hujan	NSE		RMSE
	nilai	keterangan			nilai	keterangan	
Loang Make	0,281	tidak memenuhi	86,081	Loang Make	0,474	memenuhi	73,310
Kopang	0,527	memenuhi	107,869	Kopang	0,504	memenuhi	108,082
Kabul	0,547	memenuhi	77,580	Kabul	0,638	memenuhi	65,092
Rembitan	0,715	memenuhi	71,021	Rembitan	0,694	memenuhi	71,222

(Sumber : Hasil Perhitungan)

Berdasarkan hasil perbandingan nilai NSE dan RMSE pada Tabel 4.15 di atas, nilai NSE sebelum dikoreksi pada Pos Hujan Loang Make awalnya berinterpretasi "tidak memenuhi" namun setelah dikoreksi interpretasinya menjadi "memenuhi". Dari ke 4 (empat) pos hujan yang digunakan 2 diantaranya yaitu Pos Hujan Kopang dan Pos Hujan Rembitan interpretasinya "memenuhi" tetapi nilainya tidak lebih baik dari data hujan sebelum di koreksi, sedangkan 2 pos hujan lainnya yaitu Loang Make dan Kabul nilai NSE nya meningkat,

Begitu pula dengan nilai RMSE, Dari ke 4 (empat) pos hujan yang digunakan 2 diantaranya yaitu Pos Hujan Kopang dan Pos Hujan Rembitan nilainya lebih tinggi setelah dikoreksi yang artinya nilainya semakin tidak mendekati data hujan pengukuran, sedangkan 2 pos hujan lainnya yaitu Loang Make dan Kabul nilai RMSE semakin kecil yang artinya nilai tersebut semakin bagus dan mendekati data hujan pengukuran. Jadi

data yang akan digunakan untuk perhitungan selanjutnya adalah data hujan yang nilainya terbaik, baik dari data hujan satelit CHIRPS tidak terkoreksi maupun data hujan satelit CHIRPS terkoreksi.

4.5 Validasi Nilai NSE, RMSE dan R

Dengan melihat nilai NSE (Nash-Sutcliffe Efficiency), RMSE (Root Mean Square Error), dan R (koefisien korelasi). Validasi bertujuan untuk memastikan tingkat keakuratan data curah hujan bulanan satelit CHIRPS terkoreksi terhadap data hujan bulanan pengukuran. Sebelumnya, telah dilakukan kalibrasi dengan analisis regresi dan persamaan regresi polinomial orde 2 yang nilai koreksinya paling baik untuk ke empat pos hujan yaitu Pos Hujan Loang Make, Pos Hujan Kopang, Pos Hujan Kabul, dan Pos Hujan Rembitan. Pada tahap evaluasi, digunakan data curah hujan yang rentang tahunnya berbeda dengan tahap kalibrasi. Jika pada tahap kalibrasi digunakan rentang 17 tahun yaitu pada tahun 2001-2021, maka pada tahap validasi digunakan rentang 3 tahun yaitu pada tahun 2018-2021. Berikut adalah contoh perhitungan nilai NSE, RMSE, dan R pada Pos Loang Make yang dapat dilihat pada Tabel 4.16.

Tabel 4. 16 Validasi data hujan satelit menggunakan nilai NSE, RMSE, dan R pada pos hujan Loang Make

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$	$(Y_i . \hat{Y}_i)$	$(Y_i)^2$	$(\hat{Y}_i)^2$
1	Jan-18	107,700	236,523	-128,823	16595,446	25,661	658,493	25473,561	11599,290	55943,278
2	Feb-18	76,100	153,949	-77,849	6060,389	-5,939	35,270	11715,481	5791,210	23700,141
3	Mar-18	24,100	110,573	-86,473	7477,610	-57,939	3356,915	2664,813	580,810	12226,427
4	Apr-18	0,000	8,497	-8,497	72,201	-82,039	6730,379	0,000	0,000	72,201
5	May-18	0,000	3,960	-3,960	15,683	-82,039	6730,379	0,000	0,000	15,683
6	Jun-18	0,000	12,291	-12,291	151,075	-82,039	6730,379	0,000	0,000	151,075
7	Jul-18	0,000	9,107	-9,107	82,937	-82,039	6730,379	0,000	0,000	82,937
8	Aug-18	0,000	2,391	-2,391	5,717	-82,039	6730,379	0,000	0,000	5,717
9	Sep-18	16,500	2,205	14,295	204,346	-65,539	4295,346	36,383	272,250	4,862
10	Oct-18	1,500	-1,436	2,936	8,621	-80,539	6486,513	-2,154	2,250	2,062
11	Nov-18	173,400	154,446	18,954	359,256	91,361	8346,853	26780,926	30067,560	23853,548
12	Dec-18	0,000	102,124	-102,124	10429,335	-82,039	6730,379	0,000	0,000	10429,335
13	Jan-20	120,000	111,759	8,241	67,915	37,961	1441,046	13411,075	14400,000	12490,065
14	Feb-20	249,900	110,223	139,677	19509,531	167,861	28177,353	27544,847	62450,010	12149,215
15	Mar-20	350,600	161,745	188,855	35666,152	268,561	72125,070	56707,852	122920,360	26161,496
16	Apr-20	59,300	45,270	14,030	196,832	-22,739	517,057	2684,530	3516,490	2049,402
17	May-20	172,000	121,401	50,599	2560,285	89,961	8093,002	20880,927	29584,000	14738,139
18	Jun-20	3,100	15,893	-12,793	163,671	-78,939	6231,348	49,270	9,610	252,600
19	Jul-20	0,000	8,791	-8,791	77,279	-82,039	6730,379	0,000	0,000	77,279
20	Aug-20	0,000	3,183	-3,183	10,133	-82,039	6730,379	0,000	0,000	10,133
21	Sep-20	9,800	7,868	1,932	3,731	-72,239	5218,457	77,111	96,040	61,912
22	Oct-20	73,500	86,540	-13,040	170,045	-8,539	72,913	6360,698	5402,250	7489,191
23	Nov-20	47,000	90,116	-43,116	1859,028	-35,039	1227,724	4235,473	2209,000	8120,975
24	Dec-20	14,000	198,242	-184,242	33945,150	-68,039	4629,290	2775,389	196,000	39299,929
25	Jan-21	218,900	240,083	-21,183	448,737	136,861	18730,964	52554,259	47917,210	57640,045
26	Feb-21	281,600	190,743	90,857	8254,971	199,561	39824,637	53713,265	79298,560	36382,941
27	Mar-21	286,600	131,990	154,610	23904,340	204,561	41845,248	37828,252	82139,560	17421,285
28	Apr-21	74,000	82,722	-8,722	76,079	-8,039	64,624	6121,452	5476,000	6842,983
29	May-21	2,500	20,852	-18,352	336,809	-79,539	6326,435	52,131	6,250	434,820
30	Jun-21	22,000	90,221	-68,221	4654,134	-60,039	3604,668	1984,867	484,000	8139,868
31	Jul-21	0,600	8,207	-7,607	57,861	-81,439	6632,293	4,924	0,360	67,349
32	Aug-21	6,700	6,954	-0,254	0,064	-75,339	5675,948	46,591	44,890	48,356
33	Sep-21	12,600	40,721	-28,121	790,784	-69,439	4821,759	513,083	158,760	1658,190
34	Oct-21	63,600	70,303	-6,703	44,927	-18,439	339,993	4471,258	4044,960	4942,483
35	Nov-21	295,300	203,466	91,834	8433,412	213,261	45480,302	60083,626	87202,090	41398,573
36	Dec-21	190,500	220,662	-30,162	909,770	108,461	11763,813	42036,186	36290,250	48691,892
Jumlah		2953,400	3062,589	-109,189	183604,257	0,000	389866,366	460806,075	632160,020	473056,386
Rata-rata		82,039								

(*Sumber : Hasil Perhitngan*)

Berdasarkan hasil perhitungan pada Tabel 4.16 didapatkan nilai NSE dengan persamaan **(2-23)** sebaga berikut.

$$NSE = 1 - \frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{\sum_{i=1}^{n}(Y_i - Y_i^{mean})^2}$$

$$=1-\frac{183604,257}{389866,366}$$

=0,529 (Memenuhi)

Berdasarkan hasil perhitungan pada Tabel 4.16, didapatkan nilai RMSE untuk data hujan CHIRPS terkoreksi dengan persamaan **(2-11)** sebagai berikut.

$$\text{RMSE} = \sqrt{\frac{\sum_{i=1}^{n}(Y_i - \hat{Y}_i)^2}{n}}$$

$$=\sqrt{\frac{183604,257}{36}}$$

=71,415 mm

Dan berdasarkan hasil perhitungan pada Tabel 4.16, didapatkan nilai R untuk data hujan CHIRPS terkoreksi dengan persamaan **(2-14)** sebagai berikut

$$R = \frac{n\sum_{i=1}^{n} Y_i\hat{Y}_i - \sum_{i=1}^{n} Y_i x \sum_{i=1}^{n}\hat{Y}_i}{\sqrt{n\sum_{i=1}^{n} Y_i{}^2 - \left(\sum_{i=1}^{n} Y_i\right)^2}\sqrt{n\sum_{i=1}^{n}\hat{Y}_i{}^2 - \left(\sum_{i=1}^{n}\hat{Y}_i\right)^2}}$$

$$R = \frac{36\,.\,460806,075 - 2953,400\,.\,3062,589}{\sqrt{36\,.\,632160,020 - (2953,400)^2}\sqrt{36\,.\,473056,386 - (3062,589)^2}}$$

R = 0,728 (korelasi kuat)

Berdasarkan hasil perhitungan nilai evaluasi didapatkan, nilai NSE Pos Hujan Loang Make pada Tabel 4.16 empat tahun terakhir menghasilkan nilai sebesar 0,529. Nilai ini menunjukkan nilai NSE yang memenuhi berdasarkan Tabel kriteria NSE. Sedangkan nilai RMSE menunjukkan hasil sebesar 71,415 mm yang menunjukkan tingkat error yang cukup kecil pada hujan bulanan satelit CHIRPS yang sudah terkoreksi. Kemudian nilai R yang dihasilkan sebesar 0,728 dimana menurut Tabel 2.6 nilai R = 0,728 menunjukkan keeratan hubungan yang sangat kuat antara data hujan bulanan satelit CHIRPS terkoreksi dengan data hujan bulanan pengukuran. Perhitungan nilai NSE, RMSE, dan R pada kedua pos lainnya dapat dilihat pada Lampiran IV.

Berikut rekapitulasi uji evaluasi berdasarkan nilai NSE, RMSE, dan R pada ketiga pos dapat dilihat pada Tabel 4.17.

Tabel 4. 17 Rekapitulasi nilai NSE, RMSE, dan R tahap validasi

Stasiun	Periode	NSE		RMSE	Koef. Korelasi	
		Nilai	Interpretasi		Nilai	Interpretasi
Loang Make	Bulanan selama 20 tahun	0,529	memenuhi	71,415	0,728	kuat
Kopang		0,693	memenuhi	95,937	0,865	sangat kuat
Kabul		0,708	memenuhi	79,975	0,867	sangat kuat
Rembitan		0,826	memenuhi	64,587	0,921	sangat kuat

(*Sumber : Hasil Perhitungan*)

Dari tabel rekapitulasi diatas, nilai NSE pada Pos Hujan Loang Make, Pos Hujan Kopang, Pos Hujan Kabul dan Pos Hujan Rembitan berturut-turut adalah 0,529; 0,693; 0,708; dan 0,826 yang semuanya berinterpretasi "memenuhi". Selanjutnya untuk nilai RMSE yang diperoleh berturut-turut sebesar 71,415 mm; 95,937 mm; 79,975 ; dan 64,587 mm. Nilai RMSE tersebut sudah menunjukkan tingkat kesalahan atau error yang cukup kecil. Sehingga dapat disimpulkan bahwa berdasarkan nilai NSE dan RMSE, data curah hujan bulanan satelit CHIRPS yang terkoreksi adalah valid dan cukup baik dalam memodelkan data curah hujan bulanan pengukuran, hal tersebut semakin diperkuat dengan nilai R, dimana nilainya berturut-turut pada Pos Hujan Loang Make, Pos Hujan Kopang, Pos Hujan Kabul dan Pos Hujan Rembitan sebesar 0,728 dengan korelasi kuat; 0,865 dengan korelasi sangat kuat; 0,867 dengan korekasi sangat kuat; dan 0,921 dengan korelasi sangat kuat dan mendekati 1.

Tabel Perbandingan Data Hujan pengukuran (ARR), Data Hujan Satelit Tidak Terkoreksi, dan Data Hujan Satelit Terkoreksi dapat dilihat pada tabel 4.18, untuk pos hujan lainnya dapat dilihat pada Lampiran V. Untuk lebih mempermudah pembacaan maka dibuat grafik untuk ke empat Pos Hujan Tersebut yang dapat dilihat pada Gambar 4.6 sampai Gambar 4.9.

Tabel 4. 18 Perbandingan data hujan pengukuran (ARR), data hujan satelit tidak terkoreksi, dan data hujan satelit terkoreksi pos hujan Loang Make

Tanggal	Data Hujan ARR Loang Make (mm)	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)
Jan-01	32,800	191,745	149,5518704
Feb-01	93,000	104,682	86,45080482
Mar-01	130,700	175,511	138,9355682
Apr-01	105,500	80,636	66,3512618
May-01	55,500	63,562	51,37755563
Jun-01	36,700	138,993	113,1285295
Jul-01	0,600	20,446	10,96903748
Aug-01	0,500	5,160	-4,249841187
Sep-01	0,300	9,022	-0,360570841
Oct-01	42,200	48,174	37,38197866
Nov-01	125,200	188,215	147,287949
Dec-01	0,400	91,802	75,82879188
Jan-02	16,400	202,116	156,057989
Feb-02	0,000	271,850	194,2187075
Mar-02	8,000	161,422	129,2947614
Apr-02	0,000	63,558	51,37363312
May-02	0,000	42,477	32,08100938
Jun-02	10,000	15,770	6,363918804
Jul-02	0,000	18,666	9,220781658
Aug-02	6,500	8,197	-1,188889324
Sep-02	10,900	12,790	3,405602849
Oct-02	12,500	18,179	8,741679365
Nov-02	205,600	175,560	138,968412
Dec-02	234,400	288,502	201,8927805
Jan-03	245,500	258,711	187,7718523
Feb-03	58,400	206,044	158,4657444
Mar-03	9,600	112,574	92,79511179
Apr-03	34,600	63,987	51,75668096
May-03	0,000	65,554	53,15398148
Jun-03	0,000	44,910	34,35335049
Jul-03	0,000	12,168	2,786052272
Aug-03	0,000	5,354	-4,053098597
Sep-03	60,500	28,810	19,09817663
Oct-03	53,500	16,343	6,929818923
Nov-03	88,800	174,235	138,0784142
Dec-03	247,100	225,107	169,7136265
Jan-04	114,300	142,793	115,9383273
Feb-04	41,400	224,325	169,2669099
Mar-04	98,100	174,758	138,4301907
Apr-04	38,700	31,059	21,26094073
May-04	12,900	91,789	75,81766308
Jun-04	0,000	20,428	10,9511971
Jul-04	1,000	12,220	2,837675944
Aug-04	3,300	5,246	-4,162699372
Sep-04	4,100	19,842	10,37680197
Oct-04	5,700	63,293	51,13636298
Nov-04	286,600	157,854	126,790205
Dec-04	230,500	236,131	175,8870853

Lanjutan tabel 4.18

Tanggal	Data Hujan ARR Loang Make (mm)	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)
Jan-05	79,500	70,512	57,54269817
Feb-05	331,400	128,964	105,5742847
Mar-05	160,800	167,771	133,6887121
Apr-05	181,300	97,258	80,36826798
May-05	80,000	20,569	11,08974925
Jun-05	80,800	32,642	22,77677213
Jul-05	30,500	25,324	15,72696629
Aug-05	0,000	8,975	-0,407360235
Sep-05	13,700	26,623	16,98680601
Oct-05	102,600	96,435	79,68716421
Nov-05	228,800	142,283	115,5629891
Dec-05	523,800	295,417	204,9165749
Jan-06	633,500	275,051	195,7367238
Feb-06	346,500	169,997	135,2094676
Mar-06	180,800	317,425	213,9035466
Apr-06	97,800	96,439	79,69046692
May-06	25,100	114,854	94,60561301
Jun-06	6,700	43,921	33,43099192
Jul-06	0,000	20,654	11,17329972
Aug-06	0,000	7,446	-1,943633147
Sep-06	0,000	9,620	0,238987986
Oct-06	0,200	18,255	8,816798876
Nov-06	10,000	46,307	35,65200226
Dec-06	175,200	251,132	183,8966764
Jan-07	139,600	87,934	72,57395869
Feb-07	102,500	183,123	143,9787953
Mar-07	220,200	341,684	222,6874066
Apr-07	158,600	116,167	95,64250471
May-07	16,300	63,257	51,10456497
Jun-07	14,300	43,609	33,13984238
Jul-07	1,300	14,187	4,79413299
Aug-07	4,000	6,092	-3,307687423
Sep-07	0,400	8,196	-1,189831431
Oct-07	8,300	32,295	22,44424974
Nov-07	87,200	102,410	84,60123542
Dec-07	183,700	343,930	223,441205
Jan-08	253,600	141,390	114,9040721
Feb-08	247,000	232,292	173,7648777
Mar-08	160,300	366,356	230,4139272
Apr-08	127,500	76,903	63,12718461
May-08	2,800	56,550	45,05832742
Jun-08	0,400	35,483	25,48423501
Jul-08	0,000	14,158	4,765850131
Aug-08	0,000	10,357	0,977505948
Sep-08	39,000	22,337	12,81978875
Oct-08	23,800	56,620	45,12256366
Nov-08	99,700	160,143	128,399819
Dec-08	53,800	200,034	154,7689872

Lanjutan tabel 4.18

Tanggal	Data Hujan ARR Loang Make (mm)	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)
Jan-09	292,900	334,577	220,2359919
Feb-09	198,300	255,636	186,2135938
Mar-09	75,700	172,682	137,0317432
Apr-09	30,500	60,787	48,88863662
May-09	2,100	143,868	116,7278166
Jun-09	0,000	24,022	14,46207843
Jul-09	4,900	20,438	10,961471
Aug-09	0,600	5,237	-4,171241142
Sep-09	21,600	30,440	20,66607037
Oct-09	34,200	35,998	25,9727128
Nov-09	99,100	50,081	39,14285716
Dec-09	167,300	187,585	146,8814584
Jan-10	124,300	247,290	181,8882044
Feb-10	168,200	135,030	110,166989
Mar-10	54,400	115,791	95,34593393
Apr-10	75,000	134,999	110,1439875
May-10	91,700	298,724	206,3285647
Jun-10	125,800	51,996	40,90283937
Jul-10	51,600	169,253	134,7023932
Aug-10	33,200	28,763	19,05290926
Sep-10	74,000	85,339	70,37288942
Oct-10	0,000	139,835	113,7532861
Nov-10	110,000	223,971	169,0640415
Dec-10	33,800	420,397	243,0834994
Jan-11	167,400	265,762	191,2745435
Feb-11	106,900	153,183	123,4735626
Mar-11	137,800	233,054	174,1881701
Apr-11	105,300	195,424	151,8839666
May-11	98,800	112,104	92,42104443
Jun-11	4,500	21,803	12,29805165
Jul-11	0,600	16,383	6,96949392
Aug-11	0,000	5,354	-4,053098597
Sep-11	1,900	9,266	-0,115378916
Oct-11	13,700	38,962	28,77753661
Nov-11	136,100	129,333	105,8558726
Dec-11	136,500	240,335	178,1767208
Jan-12	385,500	317,504	213,9342876
Feb-12	130,000	169,468	134,8490487
Mar-12	208,100	259,707	188,2730593
Apr-12	76,100	48,685	37,85514065
May-12	80,600	102,565	84,72746951
Jun-12	0,000	19,593	10,13247293
Jul-12	33,810	15,485	6,080978317
Aug-12	0,200	8,143	-1,242486139
Sep-12	0,000	12,555	3,171282194
Oct-12	0,000	27,477	17,81263143
Nov-12	154,700	96,744	79,94334478
Dec-12	362,200	269,423	193,0537877

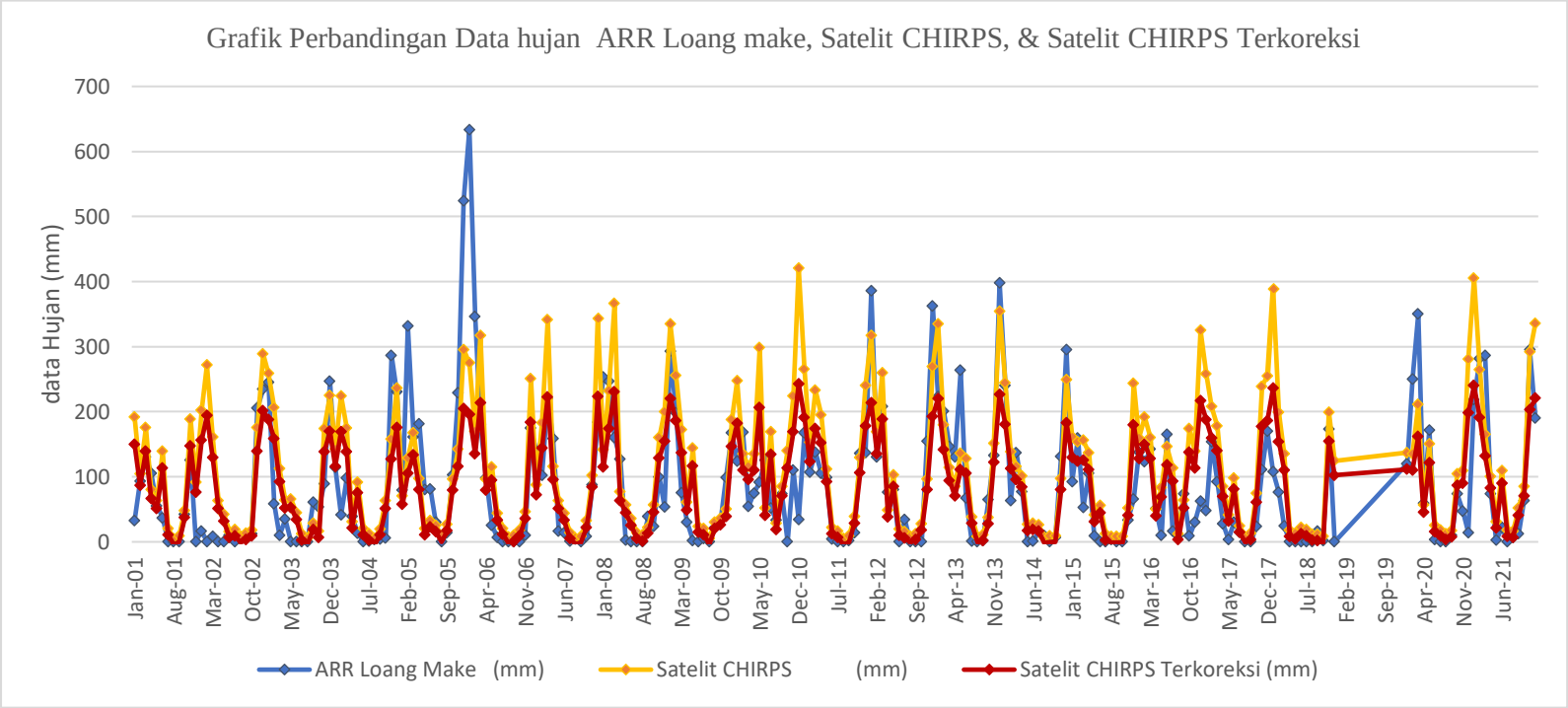
Lanjutan tabel 4.18

Tanggal	Data Hujan ARR Loang Make (mm)	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)
Jan-13	223,200	335,110	220,4235311
Feb-13	200,700	179,459	141,5656551
Mar-13	146,200	114,109	94,01540344
Apr-13	130,300	85,225	70,27622446
May-13	263,400	135,770	110,7226887
Jun-13	67,100	128,165	104,9639306
Jul-13	1,200	38,576	28,41397167
Aug-13	0,000	8,123	-1,262842071
Sep-13	1,600	10,896	1,516436968
Oct-13	64,600	37,653	27,54156912
Nov-13	132,900	151,372	122,1753764
Dec-13	397,700	354,007	226,6989231
Jan-14	240,300	244,347	180,3293918
Feb-14	63,500	138,702	112,9117639
Mar-14	137,200	115,858	95,39855469
Apr-14	77,400	101,615	83,95176089
May-14	0,400	27,125	17,47232418
Jun-14	0,700	28,456	18,75685732
Jul-14	16,200	25,984	16,367598
Aug-14	10,000	7,866	-1,520841784
Sep-14	0,200	9,370	-0,011381771
Oct-14	6,300	9,199	-0,182435374
Nov-14	131,400	96,952	80,11513735
Dec-14	295,400	249,453	183,0223517
Jan-15	92,500	161,500	129,3492159
Feb-15	159,700	153,589	123,7630374
Mar-15	52,700	155,929	125,4283206
Apr-15	105,600	136,645	111,3778551
May-15	8,800	41,396	31,06749312
Jun-15	0,000	56,053	44,60725315
Jul-15	0,000	12,086	2,704286805
Aug-15	3,600	8,322	-1,063254305
Sep-15	0,600	8,708	-0,675448573
Oct-15	0,000	8,363	-1,021659346
Nov-15	33,600	51,939	40,85035129
Dec-15	65,400	243,773	180,0237093
Jan-16	137,700	159,568	127,9967152
Feb-16	122,800	191,570	149,4398966
Mar-16	142,200	160,105	128,3734273
Apr-16	50,800	50,409	39,44477903
May-16	9,900	83,664	68,94538838
Jun-16	164,800	146,519	118,6650957
Jul-16	16,500	113,584	93,59840239
Aug-16	9,200	12,701	3,316498841
Sep-16	74,000	64,258	51,99892476
Oct-16	8,800	174,082	137,9755889
Nov-16	29,800	139,690	113,6457562
Dec-16	62,200	325,199	216,8467722

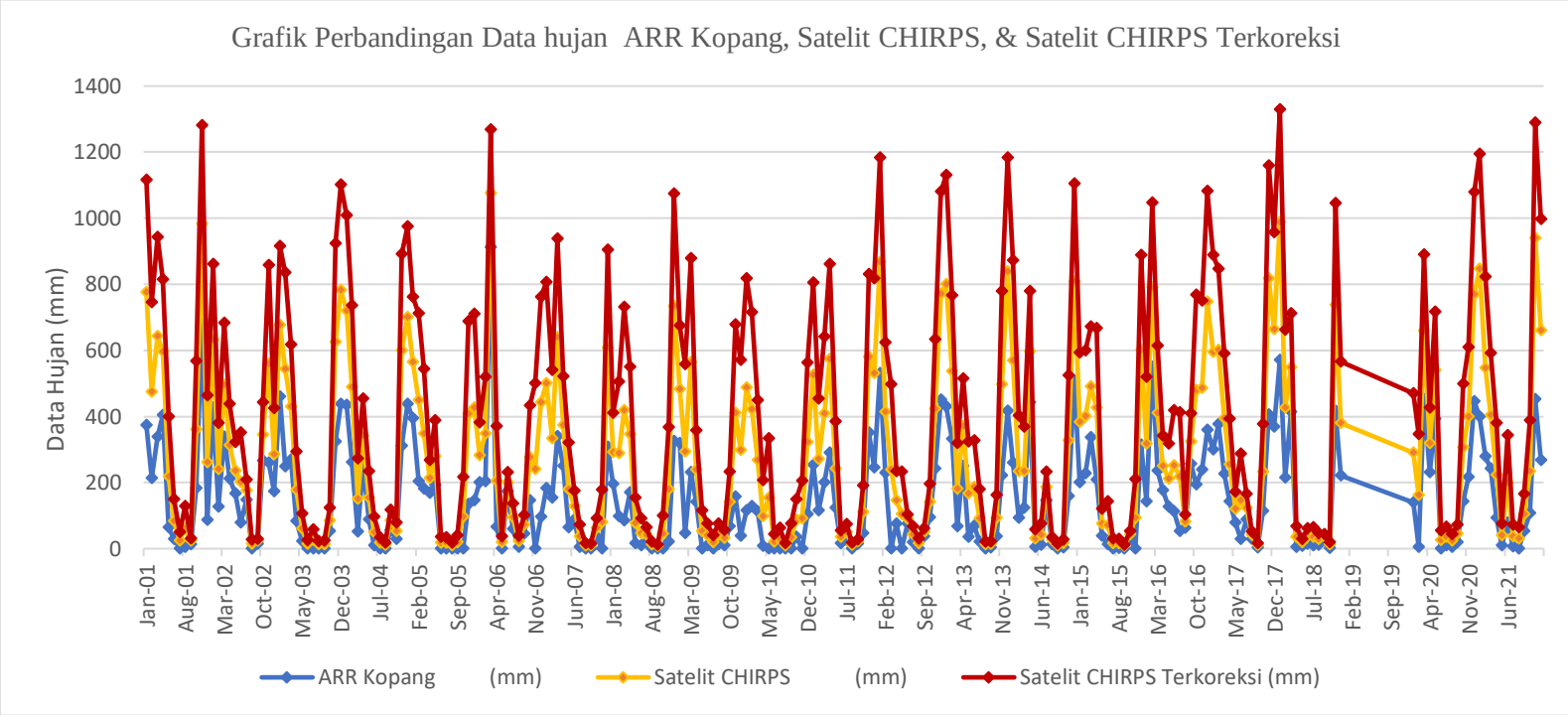
Lanjutan tabel 4.18

Tanggal	Data Hujan ARR Loang Make (mm)	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)
Jan-17	47,800	257,975	187,4009189
Feb-17	154,000	207,896	159,5906382
Mar-17	92,700	177,770	140,444628
Apr-17	27,700	84,781	69,89803265
May-17	3,700	41,763	31,41234999
Jun-17	30,500	97,690	80,72553947
Jul-17	14,700	24,620	15,04375822
Aug-17	0,300	8,571	-0,812611445
Sep-17	0,000	13,152	3,766118479
Oct-17	23,800	74,694	61,20614148
Nov-17	110,900	238,799	177,3443512
Dec-17	170,300	255,221	186,0014738
Jan-18	107,700	389,369	236,5233129
Feb-18	76,100	198,716	153,9485026
Mar-18	24,100	135,571	110,5731727
Apr-18	0,000	17,931	8,497099554
May-18	0,000	13,348	3,960210694
Jun-18	0,000	21,796	12,29125068
Jul-18	0,000	18,550	9,106966947
Aug-18	0,000	11,772	2,391019468
Sep-18	16,500	11,586	2,205040894
Oct-18	1,500	7,951	-1,436125817
Nov-18	173,400	199,514	154,4459373
Dec-18	0,000	124,470	102,1241167
Jan-20	120,000	137,155	111,7589597
Feb-20	249,900	135,105	110,2234763
Mar-20	350,600	211,476	161,7451573
Apr-20	59,300	56,783	45,27032682
May-20	172,000	150,295	121,4007379
Jun-20	3,100	25,495	15,89340298
Jul-20	0,000	18,229	8,790871702
Aug-20	0,000	12,567	3,18318732
Sep-20	9,800	17,293	7,86843163
Oct-20	73,500	104,792	86,54011284
Nov-20	47,000	109,223	90,11645194
Dec-20	14,000	280,430	198,2420961
Jan-21	218,900	405,069	240,0834123
Feb-21	281,600	264,679	190,743128
Mar-21	286,600	165,302	131,9897142
Apr-21	74,000	100,115	82,72232329
May-21	2,500	30,634	20,85234729
Jun-21	22,000	109,353	90,22121685
Jul-21	0,600	17,636	8,206664169
Aug-21	6,700	16,367	6,953846357
Sep-21	12,600	51,798	40,72087305
Oct-21	63,600	85,256	70,30279683
Nov-21	295,300	292,074	203,4663921
Dec-21	190,500	335,792	220,6623936

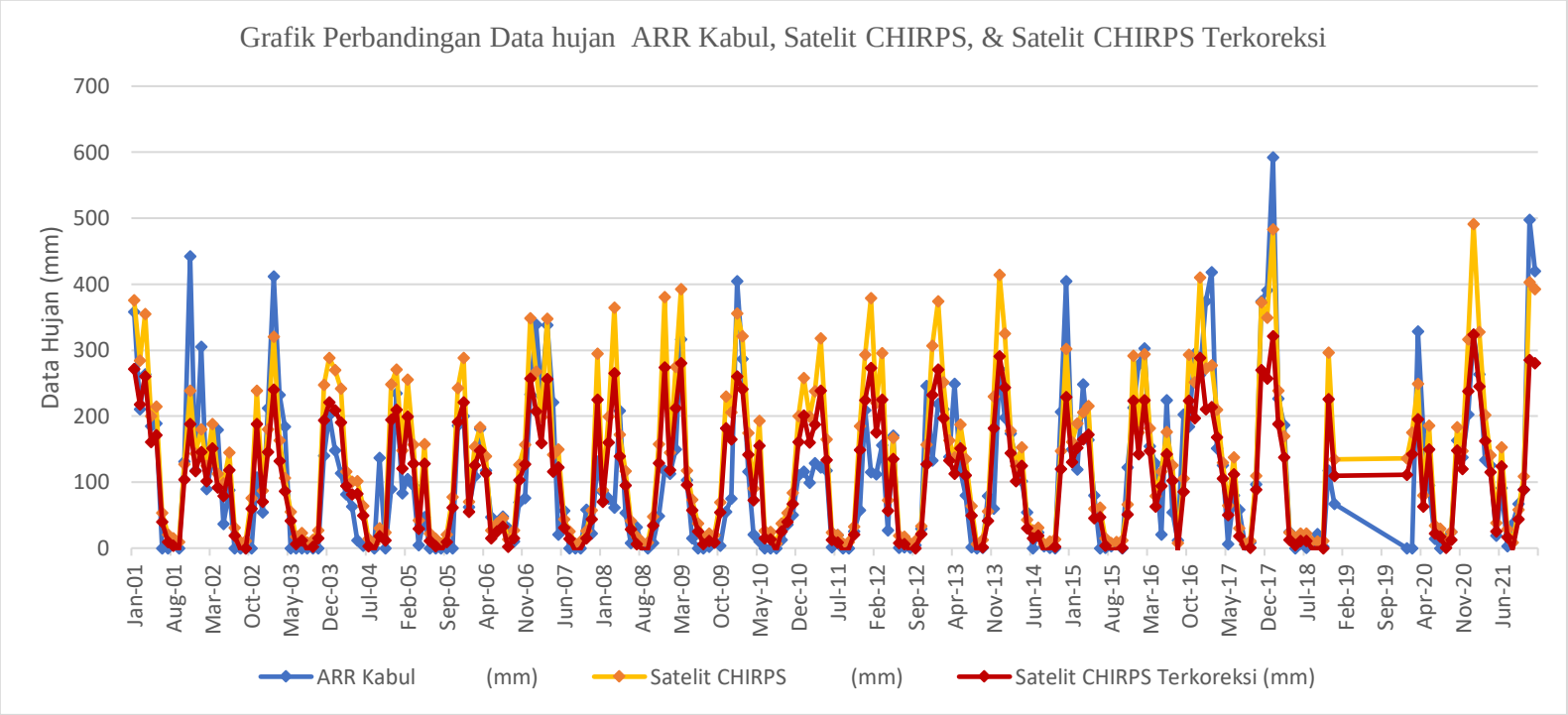
(*Sumber : Hasil Perhitungan*)



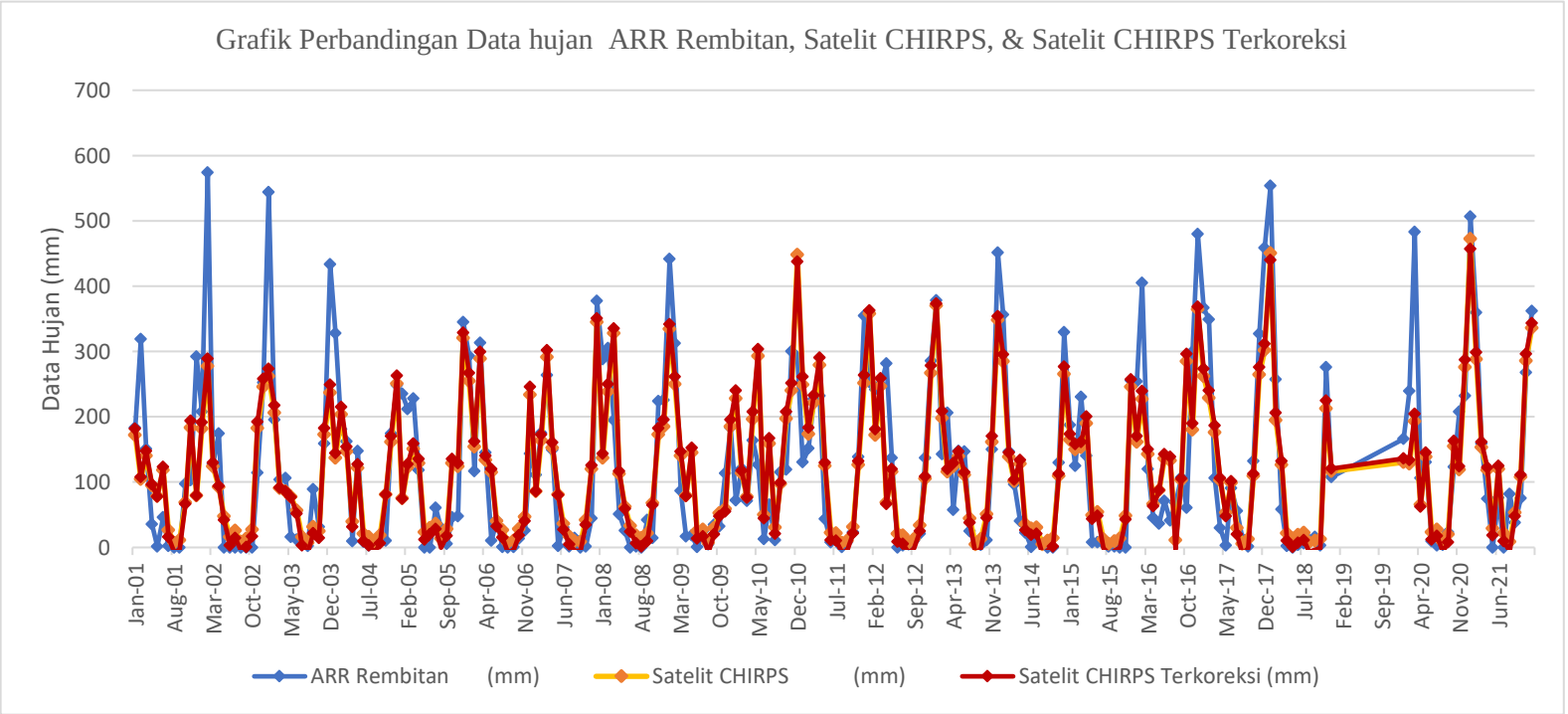
Gambar 4. 6 Grafik perbandingan data hujan pengukuran (ARR), data hujan satelit tidak terkoreksi, dan data hujan satelit terkoreksi pada pos hujan Loang Make
(*Sumber : Hasil Perhitungan*)



Gambar 4. 7 Grafik perbandingan data hujan pengukuran (ARR), data hujan satelit tidak terkoreksi, dan data hujan satelit terkoreksi pada pos hujan Kopang
(*Sumber : Hasil Perhitungan*)



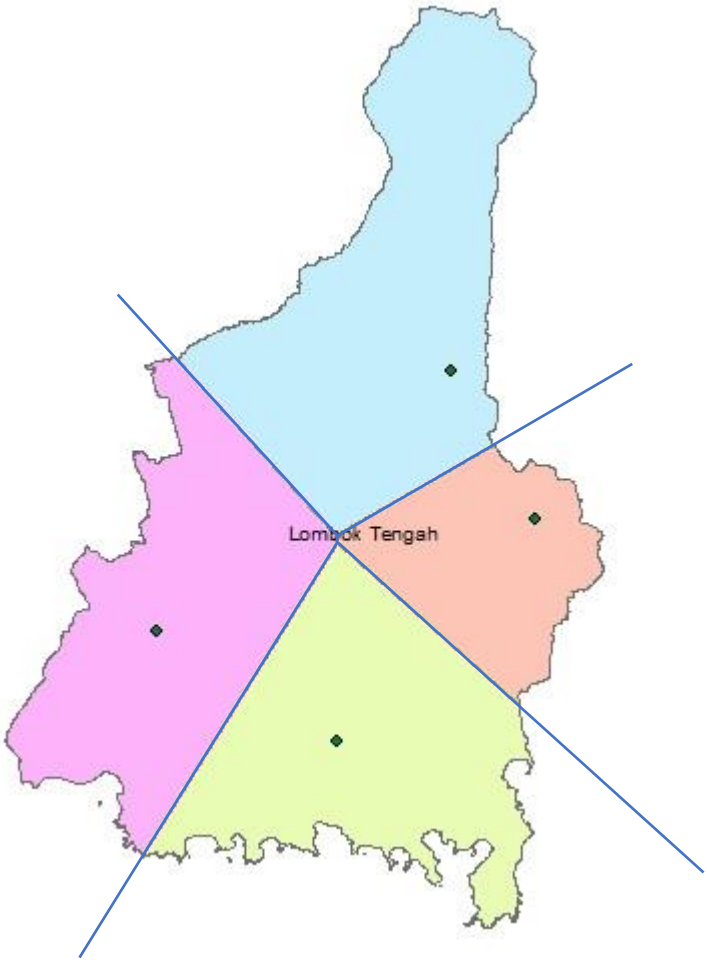
Gambar 4. 8 Grafik perbandingan data hujan pengukuran (ARR), data hujan satelit tidak terkoreksi, dan data hujan satelit terkoreksi pada pos hujan Kabul
(*Sumber : Hasil Perhitungan*)



Gambar 4. 9 Grafik perbandingan data hujan pengukuran (ARR), data hujan satelit tidak terkoreksi, dan data hujan satelit terkoreksi pada pos hujan Rembitan
(*Sumber : Hasil Perhitungan*)

4.6 Analisis Pembatasan Cakupan Wilayah

Pembatasan cakupan wilayah pada penelitian ini bertujuan untuk membagi wilayah Lombok Tengah, daerah-daerah yang sudah terbagi diharapkan bisa mewakili karakteristik geografis daerah tersebut, yang selanjutnya dapat digunakan untuk analisis indeks kekeringan. Pembatasan cakupan wilayah pada penelitian kali ini menggunakan metode poligon Thiessen dari 4 pos hujan yaitu Pos Hujan Loang Make, Pos Hujan Kopang, Pos Hujan Kabul, dan Pos Hujan Rembitan. Pembatasan 3 wilayah tersebut diwakili oleh persamaan dan angka koreksi yang telah diperoleh masing-masing pos hujan pada perhitungan di atas, penggambaran metode poligon Thiessen dapat dilihat pada Gambar 4.10. Adapun selanjutnya pembagian wilayah beserta persamaan regresi yang diperoleh dapat dilihat pada Tabel 4.19.



Gambar 4. 10 Pembatasan cakupan wilayah dengan metode Poligon Thiessen
(*Sumber : Hasil Perhitungan*)

Tabel 4. 19 Pembagian wilayah dan persamaan regresi

Nama Pos Hujan	UTM		Geografis		Persamaan Regresi
	X	Y	LS	BT	
Loang Make	434671.70	9036727.90	8˚42'50"	116˚24'22"	$y = -0.001x^2 + 1.0212x - 9.4922$
Kopang	429142.67	9046485.80	8˚37'32"	116˚21'20"	$y = -0.0015x^2 + 1.4679x - 8.5506$
Kabul	410033.76	9029372.20	8˚46'48"	116˚10'56"	$y = -0.0006x^2 + 0.9759x - 10.614$
Rembitan	421895.80	9022117.60	8˚50'45"	116˚17'23"	$y = -0.0005x^2 + 1.2379x - 16.469$

(*Sumber : Hasil Perhitungan*)

4.7 Analisis Indeks Kekeringan Metode Standardized Precipitation Index (SPI)

Penelitian kali ini berfokus kepada penerapan data hujan satelit untuk analisis kekeringan, oleh karena itu penggunaan metode *Standardized Precipitation Index* (SPI) sangat tepat karena dalam analisis kekeringan menggunakan metode SPI input data yang dibutuhkan hanya data curah hujan. Kekeringan yang diakibatkan karena defisit curah hujan selama periode waktu tertentu masuk dalam kriteria kekeringan meteorologi.

Standardized Precipitation Index (SPI) menggunakan rentang tahun hujan yang cukup tinggi, untuk itu dalam penelitian kali ini, data curah hujan yang digunakan adalah 20 tahun. SPI positif mengidentifikasi nilai curah hujan yang besar sedangkan SPI negatif mengidentifikasi nilai curah hujan yang rendah.

Pada perhitungan kekeringan metode *Standardized Precipitation Index* (SPI) kali ini, data hujan yang digunakan adalah data hujan terbaik yang dilihat dari parameter nilai NSE dan RMSE nya, yaitu data hujan Pos Hujan Loang Make & Pos Hujan Kabul (terkoreksi) serta Pos Hujan Kopang & Pos hujan Rembitan (tidak terkoreksi).

4.7.1 Perhitungan SPI bulanan

Berikut adalah contoh perhitungan SPI pada Pos Hujan Loang Make pada bulan Januari 2001 :

1. Menghitung rata-rata (persamaan **2-15**) :

$$\bar{x} = \frac{\Sigma x}{n} = \frac{\Sigma(Curah\ hujan\ Januari\ 2001{-}2021)}{20}$$

$$= \frac{3292{,}276}{20} = 164{,}564 \text{ mm}$$

2. Menghitung Standar Deviasi (persamaan **2-16**):

$$Sd = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{(149.552-164.564)^2+(156.058-164.564)^2+\cdots+(240.083-164.564)^2}{20-1}}$$

= 52,936

3. Menghitung nilai α (persamaan **2-17**) :

$$\alpha = \frac{\bar{x}^2}{Sd^2} = \frac{164.564^2}{52.936^2} = 9{,}664$$

4. Menghitung nilai β (persamaan **2-18**):

$$\beta = \frac{\bar{x}}{\alpha} = \frac{164.564}{9.664} = 17{,}028$$

Hasil perhitungan α dan β bulan selanjutnya pada Pos Hujan Loang Make dapat dilihat pada Tabel 4.20. Perhitungan α dan β untuk Pos Hujan lainnya dapat dilihat pada lampiran V.

5. Menghitung gamma distribusi (persamaan **2-19**) :

$$G(x) = \int_0^x g(x)\,dx = \frac{1}{\beta^{\alpha}\Gamma(a)} \int_0^x t^{a-1} e^{\frac{-x}{\beta}}\,dx$$

= dihitung dengan *Ms. Excel* dengan fungsi = GAMMADIST (x; α; β; true)

= GAMMADIST (149.552; 17.072, 9.664, true)

= 0.427

Hasil perhitungan distribusi gamma G(x) pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.21. Perhitungan distribusi gamma G(x) pada pos hujan lainnya dapat dilihat pada lampiran V.

6. Menghitung probabilitas kumulatif H(x) (persamaan **2-20**) :

H (x) = q + (1-q) . G(x)

= 0 + (1-0) x 0.427

= 0.427

Hasil perhitungan probabilitas kumulatif H(x) pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.22. Perhitungan probabilitas kumulatif H(x) pada pos hujan lainnya dapat dilihat pada lampiran V.

7. Menghitung transfom gamma distribusi :

$t = \sqrt{ln\left[\frac{1}{H(x)^2}\right]}$ untuk 0 < H (x) ≤ 0.5

$t = \sqrt{\ln\left[\frac{1}{(1-H(x))^2}\right]}$ Untuk 0.5 < H (x) ≤ 1.0

Contoh perhitungan dengan 0 < H (x) ≤ 0.5 yaitu pada bulan Januari 2001 :

$t = \sqrt{ln\left[\frac{1}{H(x)^2}\right]}$ untuk 0 < H (x) ≤ 0.5

$t = \sqrt{ln\left[\frac{1}{0.427^2}\right]}$ = 1.305

Contoh perhitungan dengan 0.5 < H (x) ≤ 1.0 yaitu pada bulan April 2001 :

$t = \sqrt{\ln\left[\frac{1}{(1-H(x))^2}\right]}$ Untuk 0.5 < H (x) ≤ 1.0

$t = \sqrt{\ln\left[\frac{1}{(1-0.539)^2}\right]}$ = 1.245

Hasil perhitungan transfom gamma distribusi pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.23. Perhitungan transfom gamma distribusi pada pos hujan lainnya dapat dilihat pada Lampiran V.

8. Menghitung nilai SPI

Keterangan :

c_0 = 2,515517 d_1 =1,432788

c_1 =0,802853 d_2 = 0,189269

c_2 =0,010328 d_3 = 0,001308

Z = SPI =$-(t - \frac{C_0+C_1t+C_2t^2}{1+d_1t+d_2t^2+d_3t^3})$ untuk 0 < H (x) ≤ 0.5

Z = SPI =$+(t - \frac{C_0+C_1t+C_2t^2}{1+d_1t+d_2t^2+d_3t^3})$ untuk 0.5 < H(x) ≤ 1.0

Contoh perhitungan dengan 0 < H (x) ≤ 0.5 yaitu pada bulan Januari 2001 :

Z = SPI =$-(t - \frac{C_0+C_1t+C_2t^2}{1+d_1t+d_2t^2+d_3t^3})$

= -$(1.305 - \frac{2,515517+0,802853(1.305)+0,010328(1.305)^2}{1+1,432788(1.305)+0,189269(1.305)^2+0,001308(1.305)^3}$

= -0.184

Contoh perhitungan dengan 0.5 < H(x) ≤ 1.0 yaitu pada bulan april 2001 :

Z = SPI =$+(t - \frac{C_0+C_1t+C_2t^2}{1+d_1t+d_2t^2+d_3t^3})$

= $(1.245 - \frac{2,515517+0,802853(1.245)+0,010328(1.245)^2}{1+1,432788(1.245)+0,189269(1.245)^2+0,001308(1.245)^3}$

= 0.098

Hasil perhitungan nilai SPI pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.24. Perhitungan nilai SPI pada pos hujan lainnya dapat dilihat pada Lampiran VI.

Tabel 4. 20 Perhitungann α dan β pada pos hujan Loang Make

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	149,552	86,451	138,936	66,351	51,378	113,129	10,969	0,000	0,000	37,382	147,288	75,829
2002	156,058	194,219	129,295	51,374	32,081	6,364	9,221	0,000	3,406	8,742	138,968	201,893
2003	187,772	158,466	92,795	51,757	53,154	34,353	2,786	0,000	19,098	6,930	138,078	169,714
2004	115,938	169,267	138,430	21,261	75,818	10,951	2,838	0,000	10,377	51,136	126,790	175,887
2005	57,543	105,574	133,689	80,368	11,090	22,777	15,727	0,000	16,987	79,687	115,563	204,917
2006	195,737	135,209	213,904	79,690	94,606	33,431	11,173	0,000	0,239	8,817	35,652	183,897
2007	72,574	143,979	222,687	95,643	51,105	33,140	4,794	0,000	0,000	22,444	84,601	223,441
2008	114,904	173,765	230,414	63,127	45,058	25,484	4,766	0,978	12,820	45,123	128,400	154,769
2009	220,236	186,214	137,032	48,889	116,728	14,462	10,961	0,000	20,666	25,973	39,143	146,881
2010	181,888	110,167	95,346	110,144	206,329	40,903	134,702	19,053	70,373	113,753	169,064	243,083
2011	191,275	123,474	174,188	151,884	92,421	12,298	6,969	0,000	0,000	28,778	105,856	178,177
2012	213,934	134,849	188,273	37,855	84,727	10,132	6,081	0,000	3,171	17,813	79,943	193,054
2013	220,424	141,566	94,015	70,276	110,723	104,964	28,414	0,000	1,516	27,542	122,175	226,699
2014	180,329	112,912	95,399	83,952	17,472	18,757	16,368	0,000	0,000	0,000	80,115	183,022
2015	129,349	123,763	125,428	111,378	31,067	44,607	2,704	0,000	0,000	0,000	40,850	180,024
2016	127,997	149,440	128,373	39,445	68,945	118,665	93,598	3,316	51,999	137,976	113,646	216,847
2017	187,401	159,591	140,445	69,898	31,412	80,726	15,044	0,000	3,766	61,206	177,344	186,001
2018	236,523	153,949	110,573	8,497	3,960	12,291	9,107	2,391	2,205	0,000	154,446	102,124
2020	111,759	110,223	161,745	45,270	121,401	15,893	8,791	3,183	7,868	86,540	90,116	198,242
2021	240,083	190,743	131,990	82,722	20,852	90,221	8,207	6,954	40,721	70,303	203,466	220,662
Jumlah	3291,276	2863,819	2882,957	1369,781	1320,327	843,549	403,221	35,875	265,212	830,143	2291,507	3665,163
Rerata	164,564	143,191	144,148	68,489	66,016	42,177	20,161	1,794	13,261	41,507	114,575	183,258
St Dev	52,936	30,452	42,223	33,341	48,759	37,403	33,370	4,442	19,541	39,324	46,073	40,579
n	20	20	20	20	20	20	20	20	20	20	20	20
m	0	0	0	0	0	0	0	14	5	3	0	0
q=m/n	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,700	0,250	0,150	0,000	0,000
Alpha (α)	9,664	22,110	11,655	4,220	1,833	1,272	0,365	0,163	0,461	1,114	6,184	20,396
Beta (β)	17,028	6,476	12,368	16,231	36,012	33,169	55,232	10,998	28,795	37,255	18,527	8,985

(*Sumber : Hasil Perhitungan)*

Tabel 4. 21 Perhitungan distribusi gamma G(x) pos hujan Loang Make

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0,427	0,017	0,489	0,539	0,471	0,945	0,592	0,000	0,000	0,584	0,783	0,000
2002	0,478	0,943	0,395	0,346	0,270	0,096	0,560	0,000	0,407	0,167	0,735	0,698
2003	0,700	0,711	0,097	0,351	0,488	0,532	0,373	0,000	0,772	0,132	0,730	0,394
2004	0,179	0,810	0,484	0,033	0,669	0,178	0,375	0,000	0,633	0,706	0,652	0,456
2005	0,004	0,098	0,438	0,691	0,055	0,375	0,661	0,000	0,746	0,859	0,562	0,721
2006	0,746	0,422	0,938	0,684	0,776	0,521	0,595	0,000	0,124	0,169	0,011	0,536
2007	0,017	0,539	0,955	0,812	0,468	0,517	0,450	0,000	0,000	0,399	0,281	0,841
2008	0,173	0,844	0,966	0,500	0,409	0,415	0,449	0,717	0,682	0,658	0,663	0,252
2009	0,855	0,913	0,471	0,313	0,862	0,239	0,592	0,000	0,790	0,448	0,017	0,187
2010	0,664	0,134	0,111	0,888	0,983	0,605	0,983	0,986	0,976	0,942	0,878	0,921
2011	0,721	0,272	0,777	0,979	0,766	0,202	0,511	0,000	0,000	0,485	0,477	0,479
2012	0,831	0,418	0,853	0,174	0,724	0,163	0,488	0,000	0,395	0,327	0,240	0,622
2013	0,855	0,507	0,104	0,585	0,842	0,931	0,777	0,000	0,286	0,469	0,616	0,857
2014	0,654	0,158	0,112	0,723	0,113	0,311	0,668	0,000	0,000	0,000	0,241	0,527
2015	0,271	0,275	0,357	0,893	0,259	0,641	0,369	0,000	0,000	0,000	0,020	0,498
2016	0,261	0,608	0,386	0,193	0,621	0,953	0,958	0,851	0,949	0,969	0,546	0,804
2017	0,698	0,722	0,504	0,581	0,263	0,865	0,652	0,000	0,425	0,773	0,903	0,556
2018	0,904	0,661	0,222	0,001	0,009	0,202	0,558	0,815	0,338	0,000	0,819	0,010
2020	0,154	0,134	0,691	0,265	0,876	0,264	0,551	0,846	0,572	0,882	0,331	0,668
2021	0,913	0,931	0,422	0,713	0,148	0,896	0,539	0,924	0,917	0,820	0,956	0,826

(*Sumber : Hasil Perhitungan*)

Tabel 4. 22 Perhitungan probabilitas kumulatif H(x) pos hujan Loang Make

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0,427	0,017	0,489	0,539	0,471	0,945	0,592	0,700	0,250	0,647	0,783	0,000
2002	0,478	0,943	0,395	0,346	0,270	0,096	0,560	0,700	0,555	0,292	0,735	0,698
2003	0,700	0,711	0,097	0,351	0,488	0,532	0,373	0,700	0,829	0,262	0,730	0,394
2004	0,179	0,810	0,484	0,033	0,669	0,178	0,375	0,700	0,725	0,750	0,652	0,456
2005	0,004	0,098	0,438	0,691	0,055	0,375	0,661	0,700	0,810	0,880	0,562	0,721
2006	0,746	0,422	0,938	0,684	0,776	0,521	0,595	0,700	0,343	0,293	0,011	0,536
2007	0,017	0,539	0,955	0,812	0,468	0,517	0,450	0,700	0,250	0,489	0,281	0,841
2008	0,173	0,844	0,966	0,500	0,409	0,415	0,449	0,915	0,761	0,709	0,663	0,252
2009	0,855	0,913	0,471	0,313	0,862	0,239	0,592	0,700	0,842	0,531	0,017	0,187
2010	0,664	0,134	0,111	0,888	0,983	0,605	0,983	0,996	0,982	0,950	0,878	0,921
2011	0,721	0,272	0,777	0,979	0,766	0,202	0,511	0,700	0,250	0,562	0,477	0,479
2012	0,831	0,418	0,853	0,174	0,724	0,163	0,488	0,700	0,546	0,428	0,240	0,622
2013	0,855	0,507	0,104	0,585	0,842	0,931	0,777	0,700	0,465	0,549	0,616	0,857
2014	0,654	0,158	0,112	0,723	0,113	0,311	0,668	0,700	0,250	0,150	0,241	0,527
2015	0,271	0,275	0,357	0,893	0,259	0,641	0,369	0,700	0,250	0,150	0,020	0,498
2016	0,261	0,608	0,386	0,193	0,621	0,953	0,958	0,955	0,962	0,974	0,546	0,804
2017	0,698	0,722	0,504	0,581	0,263	0,865	0,652	0,700	0,569	0,807	0,903	0,556
2018	0,904	0,661	0,222	0,001	0,009	0,202	0,558	0,945	0,503	0,150	0,819	0,010
2020	0,154	0,134	0,691	0,265	0,876	0,264	0,551	0,954	0,679	0,899	0,331	0,668
2021	0,913	0,931	0,422	0,713	0,148	0,896	0,539	0,977	0,938	0,847	0,956	0,826

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Tabel 4. 23 Perhitungan transfom gamma distribusi (t) pos hujan Loang Make

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	1,305	2,850	1,196	1,245	1,227	2,412	1,339	1,552	1,665	1,443	1,749	3,997
2002	1,215	2,392	1,363	1,458	1,618	2,165	1,281	1,552	1,273	1,569	1,630	1,547
2003	1,553	1,575	2,161	1,447	1,198	1,232	1,405	1,552	1,880	1,636	1,617	1,364
2004	1,854	1,823	1,204	2,612	1,487	1,859	1,400	1,552	1,607	1,666	1,452	1,253
2005	3,337	2,154	1,285	1,532	2,408	1,401	1,470	1,552	1,821	2,059	1,285	1,599
2006	1,655	1,313	2,357	1,519	1,730	1,213	1,345	1,552	1,463	1,566	3,002	1,239
2007	2,861	1,244	2,490	1,828	1,232	1,206	1,264	1,552	1,665	1,197	1,594	1,918
2008	1,874	1,927	2,605	1,178	1,338	1,327	1,265	2,220	1,693	1,572	1,476	1,660
2009	1,964	2,211	1,227	1,525	1,990	1,691	1,338	1,552	1,922	1,231	2,858	1,831
2010	1,477	2,006	2,095	2,093	2,857	1,362	2,857	3,299	2,838	2,451	2,051	2,252
2011	1,598	1,615	1,734	2,782	1,703	1,790	1,196	1,552	1,665	1,286	1,218	1,213
2012	1,886	1,322	1,959	1,870	1,606	1,904	1,198	1,552	1,257	1,303	1,689	1,395
2013	1,967	1,189	2,129	1,327	1,922	2,315	1,731	1,552	1,238	1,262	1,384	1,974
2014	1,456	1,921	2,094	1,603	2,087	1,528	1,486	1,552	1,665	1,948	1,686	1,224
2015	1,616	1,607	1,434	2,114	1,644	1,432	1,412	1,552	1,665	1,948	2,791	1,182
2016	1,639	1,368	1,380	1,815	1,392	2,476	2,515	2,493	2,555	2,696	1,256	1,804
2017	1,548	1,601	1,184	1,319	1,635	2,001	1,453	1,552	1,297	1,814	2,162	1,274
2018	2,165	1,471	1,736	3,651	3,054	1,790	1,277	2,405	1,183	1,948	1,850	3,038
2020	1,934	2,004	1,532	1,629	2,042	1,632	1,266	2,481	1,507	2,143	1,487	1,484
2021	2,208	2,314	1,314	1,579	1,955	2,129	1,245	2,748	2,357	1,938	2,500	1,870

(*Sumber: Hasil Perhitungan*)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Tabel 4. 24 Perhitungan nilai SPI pada pos hujan Loang Make

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	-0,184	-2,116	-0,027	0,098	-0,073	1,603	0,232	0,524	-0,674	0,376	0,783	-3,398
2002	-0,055	1,579	-0,266	-0,397	-0,612	-1,304	0,150	0,524	0,139	-0,547	0,628	0,517
2003	0,525	0,555	-1,300	-0,383	-0,031	0,079	-0,324	0,524	0,951	-0,636	0,611	-0,268
2004	-0,918	0,879	-0,039	-1,839	0,437	-0,924	-0,318	0,524	0,598	0,675	0,389	-0,110
2005	-2,668	-1,291	-0,155	0,498	-1,599	-0,319	0,414	0,524	0,876	1,175	0,155	0,587
2006	0,661	-0,195	1,537	0,480	0,759	0,051	0,240	0,524	-0,404	-0,543	-2,289	0,089
2007	-2,127	0,097	1,695	0,885	-0,079	0,042	-0,125	0,524	-0,674	-0,028	-0,580	0,999
2008	-0,943	1,010	1,831	-0,001	-0,231	-0,215	-0,127	1,372	0,710	0,551	0,422	-0,667
2009	1,057	1,361	-0,073	-0,488	1,089	-0,708	0,231	0,524	1,004	0,078	-2,124	-0,888
2010	0,423	-1,109	-1,219	1,216	2,123	0,265	2,123	2,626	2,101	1,649	1,165	1,411
2011	0,585	-0,608	0,763	2,037	0,724	-0,836	0,027	0,524	-0,674	0,157	-0,059	-0,052
2012	0,958	-0,208	1,050	-0,939	0,596	-0,981	-0,030	0,524	0,116	-0,181	-0,706	0,310
2013	1,060	0,017	-1,261	0,216	1,004	1,486	0,760	0,524	-0,088	0,123	0,295	1,069
2014	0,395	-1,002	-1,218	0,593	-1,209	-0,491	0,435	0,524	-0,674	-1,036	-0,701	0,068
2015	-0,610	-0,597	-0,365	1,243	-0,646	0,361	-0,334	0,524	-0,674	-1,036	-2,047	-0,006
2016	-0,640	0,273	-0,289	-0,868	0,306	1,679	1,725	1,698	1,772	1,937	0,114	0,855
2017	0,519	0,589	0,010	0,204	-0,634	1,103	0,390	0,524	0,173	0,866	1,301	0,141
2018	1,304	0,415	-0,767	-3,018	-2,348	-0,836	0,145	1,595	0,008	-1,036	0,912	-2,330
2020	-1,019	-1,107	0,497	-0,627	1,153	-0,631	0,129	1,685	0,464	1,278	-0,437	0,433
2021	1,357	1,485	-0,198	0,561	-1,045	1,261	0,098	1,997	1,537	1,024	1,707	0,938

(*Sumber : Hasil Perhitungan*)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Tabel 4. 25 Klasifikasi tingkat kekeringan SPI pos hujan Loang Make

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	N	ASK	N	N	N	SB	N	N	N	N	N	ASK
2002	N	SB	N	N	N	CK	N	N	N	N	N	N
2003	N	N	CK	N	N	N	N	N	N	N	N	N
2004	N	N	N	SK	N	N	N	N	N	N	N	N
2005	ASK	CK	N	N	SK	N	N	N	N	CB	N	N
2006	N	N	SB	N	N	N	N	N	N	N	ASK	N
2007	ASK	N	SB	N	N	N	N	N	N	N	N	N
2008	N	CB	SB	N	N	N	N	CB	N	N	N	N
2009	CB	CB	N	N	CB	N	N	N	CB	N	ASK	N
2010	N	CK	CK	CB	ASB	N	ASB	ASB	ASB	SB	CB	CB
2011	N	N	N	ASB	N	N	N	N	N	N	N	N
2012	N	N	CB	N	N	N	N	N	N	N	N	N
2013	CB	N	CK	N	CB	CB	N	N	N	N	N	CB
2014	N	CK	CK	N	CK	N	N	N	N	CK	N	N
2015	N	N	N	CB	N	N	N	N	N	CK	ASK	N
2016	N	N	N	N	N	SB	SB	SB	SB	SB	N	N
2017	N	N	N	N	N	CB	N	N	N	N	CB	N
2018	CB	N	N	ASK	ASK	N	N	SB	N	CK	N	ASK
2020	CK	CK	N	N	CB	N	N	SB	N	CB	N	N
2021	CB	CB	N	N	CK	CB	N	SB	SB	CB	SB	N

(*Sumber : Hasil Perhitungan*)

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Berdasarkan Tabel 4.25 dapat diketahui bahwa Pos Hujan Loang Make dari tahun 2001-2021 mengalami kekeringan dengan tingkat ASK sebesar 4,2% (10 bulan), kekeringan dengan tingkat SK sebesar 0,8 % (2 bulan), dan kekeringan dengan tingkat CK sebesar 6,25 %. Kekeringan tidak ada kecendrungan di bulan-bulan tertentu melainkan tersebar di sepanjang bulan kering dan bulan basah.

Tabel 4. 26 Klasifikasi tingkat kekeringan SPI pos hujan Kopang

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	CB	CB	CB	CB	CB	N	N	ASB	N	CB	N	SK
2002	N	ASK	N	N	N	CB	N	N	N	N	N	ASK
2003	N	SB	N	N	N	CK	N	N	N	N	N	N
2004	N	N	CK	N	N	N	N	N	N	N	N	N
2005	N	N	N	SK	N	N	N	N	N	N	N	N
2006	ASK	CK	N	N	SK	N	N	N	N	N	N	N
2007	N	N	CB	N	N	N	N	N	N	N	ASK	N
2008	SK	N	SB	N	N	N	N	N	N	N	N	CB
2009	N	N	SB	N	N	N	N	CB	N	N	N	N
2010	CB	SB	N	N	CB	N	N	N	CB	N	SK	N
2011	N	CK	N	ASB	N	N	N	N	N	N	N	N
2012	N	N	N	N	N	CK	N	N	N	N	N	N
2013	CB	N	CK	N	CB	CB	CB	N	N	N	N	CB
2014	N	CK	CK	N	CK	N	N	N	N	CK	N	N
2015	N	N	N	CB	N	N	N	N	N	CK	SK	N
2016	N	N	N	N	N	SB	ASB	N	ASB	ASB	N	CB
2017	N	N	N	N	N	CB	N	N	N	N	CB	N
2018	CB	N	N	ASK	ASK	N	N	N	N	CK	N	SK
2020	CK	N	N	N	CB	N	N	N	N	CB	N	N
2021	SB	CB	N	N	CK	CB	N	CB	SB	N	SB	CB

(*Sumber : Hasil Perhitungan*)

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Berdasarkan Tabel 4.26 dapat diketahui bahwa Pos Hujan kopang dari tahun 2001-2021 mengalami kekeringan dengan tingkat ASK sebesar 2,5% (6 bulan), kekeringan dengan tingkat SK sebesar 3 % (7 bulan), dan kekeringan dengan tingkat CK sebesar 5,8 % (14 bulan) . Kekeringan tidak ada kecendrungan di bulan-bulan tertentu melainkan tersebar di sepanjang bulan kering dan bulan basah.

Tabel 4. 27 Klasifikasi tingkat kekeringan SPI pos hujan Kabul

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	CB	N	CB	CB	CB	N	N	ASB	N	N	N	SK
2002	N	ASK	N	N	N	CB	N	N	N	N	N	ASK
2003	N	CB	N	N	N	CK	N	N	N	N	N	N
2004	N	N	SK	N	N	N	N	N	CB	N	N	N
2005	N	N	N	SK	N	N	N	N	N	N	N	N
2006	ASK	SK	N	N	ASK	N	N	ASB	CB	N	N	N
2007	N	N	CB	N	N	N	N	N	N	N	ASK	N
2008	SK	N	SB	N	N	N	N	N	N	N	N	N
2009	N	N	SB	N	N	N	N	ASB	N	N	N	N
2010	N	CB	N	N	CB	N	N	N	CB	N	SK	N
2011	N	N	N	ASB	N	N	N	N	N	N	N	N
2012	CB	N	N	N	N	CK	N	N	N	N	N	N
2013	CB	N	N	N	CB	CB	CB	N	N	N	N	CB
2014	N	CK	CK	N	CK	N	N	N	N	SK	N	N
2015	N	N	N	CB	N	N	N	N	N	ASK	ASK	CB
2016	N	N	N	N	N	SB	ASB	N	ASB	ASB	N	SB
2017	N	N	N	N	N	CB	N	N	N	N	SB	N
2018	CB	N	N	ASK	ASK	N	N	N	N	ASK	CB	ASK
2020	CK	CK	N	N	CB	N	N	SB	N	CB	N	N
2021	SB	CB	N	N	SK	CB	N	N	SB	N	SB	CB

(Sumber : Hasil Perhitungan)

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Berdasarkan Tabel 4.27 dapat diketahui bahwa Pos Hujan Kabul dari tahun 2001-2021 mengalami kekeringan dengan tingkat ASK sebesar 4,6% (11 bulan), kekeringan dengan tingkat SK sebesar 3,33 % (8 bulan), dan kekeringan dengan tingkat CK sebesar 3 % (7 bulan) . Kekeringan tidak ada kecendrungan di bulan-bulan tertentu melainkan tersebar di sepanjang bulan kering dan bulan basah.

Tabel 4. 28 Klasifikasi tingkat kekeringan SPI pos hujan Rembitan

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	N	SK	N	N	N	CB	N	N	N	N	N	ASK
2002	N	SB	N	N	N	CK	N	N	N	N	N	N
2003	N	N	CK	N	N	N	N	N	N	N	N	N
2004	N	N	N	SK	N	N	N	N	N	N	N	N
2005	SK	CK	N	N	CK	N	N	N	N	N	N	N
2006	N	N	SB	N	N	N	N	N	N	N	ASK	N
2007	SK	N	SB	N	N	N	N	N	N	N	N	N
2008	N	N	SB	N	N	N	N	CB	N	N	N	N
2009	N	CB	N	N	N	N	N	N	N	N	SK	N
2010	N	SK	SK	CB	ASB	N	ASB	ASB	SB	SB	CB	SB
2011	N	N	N	ASB	N	N	N	N	N	N	N	N
2012	CB	N	CB	N	N	N	N	N	N	N	N	N
2013	CB	N	N	N	N	CB	N	N	N	N	N	N
2014	N	N	CK	N	N	N	N	N	N	CK	N	N
2015	N	N	N	CB	N	N	N	N	N	CK	ASK	N
2016	N	N	N	N	N	SB	SB	N	SB	ASB	N	CB
2017	N	N	N	N	N	CB	N	N	N	N	SB	N
2018	SB	N	N	ASK	SK	N	N	N	N	CK	N	ASK
2020	N	CK	N	N	N	N	N	N	N	CB	N	N
2021	SB	SB	N	N	CK	CB	N	N	CB	N	SB	N

(*Sumber : Hasil Perhitungan*)

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Berdasarkan Tabel 4.28 dapat diketahui bahwa Pos Hujan Rembitan dari tahun 2001-2021 mengalami kekeringan dengan tingkat ASK sebesar 2 % (5 bulan), kekeringan dengan tingkat SK sebesar 3,33 % (8 bulan), dan kekeringan dengan tingkat CK sebesar 4,2 % (10 bulan) . Kekeringan tidak ada kecendrungan di bulan-bulan tertentu melainkan tersebar di sepanjang bulan kering dan bulan basah

4.7.2 Perhitungan SPI akumulasi curah hujan 3 bulanan

Berikut adalah contoh perhitungan SPI Pos Hujan Loang Make pada 3 bulan pertama, JFM (Januari, Februari, Maret):

1. Menghitung rata-rata (persamaan **2-15**) :

$$\bar{x} = \frac{\Sigma x}{n} = \frac{\Sigma(Curah\ hujan\ JFM\ 2001{-}2021)}{20}$$

$$= \frac{9038.051}{20} = 451.903 \text{ mm}$$

2. Menghitung Standar Deviasi (persamaan **2-16**):

$$Sd = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{(374.938-451.903)^2+(479.571-451.903)^2+\cdots+(562.816-451.903)^2}{20-1}}$$

$$= 71.944$$

3. Menghitung nilai α (persamaan **2-17**) :

$$\alpha = \frac{\bar{x}^2}{Sd^2} = \frac{451.903^2}{71.944^2} = 39.454$$

4. Menghitung nilai β (persamaan **2-18**):

$$\beta = \frac{\bar{x}}{\alpha} = \frac{451.903}{39.454} = 11.454$$

Hasil perhitungan α dan β 3 bulanan selanjutnya pada Pos Hujan Loang Make dapat dilihat pada Tabel 4.29. Perhitungan α dan β untuk Pos Hujan lainnya dapat dilihat pada lampiran VI

5. Menghitung gamma distribusi (persamaan **2-19**) :

$$G(x) = \int_0^x g(x)\,dx = \frac{1}{\beta^{\alpha}\Gamma(a)} \int_0^x t^{\alpha-1} e^{\frac{-x}{\beta}}\,dx$$

= dihitung dengan *Ms. Excel* dengan fungsi = GAMMADIST (x; α; β; true)

= GAMMADIST (374.938; 39.454, 11.454, true)

= 0.139

Hasil perhitungan distribusi gamma G(x) pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.30. Perhitungan distribusi gamma G(x) pada pos hujan lainnya dapat dilihat pada lampiran VI.

Tabel 4. 29 Perhitungann α dan β 3 bulanan pada pos hujan Loang Make

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	374,938	230,857	10,969	260,499
2002	479,571	89,819	12,626	349,603
2003	439,033	139,264	21,884	314,722
2004	423,635	108,030	13,214	353,814
2005	296,806	114,235	32,714	400,167
2006	544,850	207,727	11,412	228,365
2007	439,240	179,887	4,794	330,487
2008	519,083	133,670	18,563	328,291
2009	543,481	180,079	31,628	211,997
2010	387,401	357,375	224,128	525,901
2011	488,936	256,603	6,969	312,810
2012	537,056	132,715	9,252	290,810
2013	456,005	285,963	29,930	376,416
2014	388,640	120,181	16,368	263,137
2015	378,541	187,053	2,704	220,874
2016	405,810	227,055	148,914	468,468
2017	487,436	182,036	18,810	424,552
2018	501,045	24,749	13,703	256,570
2020	383,728	182,564	19,842	374,899
2021	562,816	193,796	55,881	494,432
Jumlah	9038,051	3533,657	704,308	6786,813
Rerata	451,903	176,683	35,215	339,341
St Dev	71,944	74,523	54,518	90,249
n	20	20	20	20
m	0	0	0	0
q=m/n	0,000	0,000	0,000	0,000
Alpha (α)	39,454	5,621	0,417	14,138
Beta (β)	11,454	31,433	84,400	24,002

(*Sumber : Hasil Perhitungan*)

Tabel 4. 30 Perhitungan distribusi gamma G(x) 3 bulanan pos hujan Loang Make

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0,139	0,789	0,464	0,194
2002	0,666	0,098	0,489	0,580
2003	0,449	0,345	0,597	0,425
2004	0,364	0,176	0,497	0,597
2005	0,008	0,207	0,682	0,766
2006	0,897	0,703	0,471	0,096
2007	0,450	0,573	0,335	0,496
2008	0,827	0,313	0,563	0,486
2009	0,894	0,574	0,675	0,061
2010	0,187	0,978	0,984	0,969
2011	0,710	0,860	0,389	0,416
2012	0,879	0,307	0,434	0,317
2013	0,544	0,916	0,663	0,686
2014	0,192	0,238	0,538	0,204
2015	0,152	0,609	0,266	0,079
2016	0,271	0,776	0,953	0,914
2017	0,703	0,584	0,566	0,832
2018	0,762	0,000	0,504	0,180
2020	0,172	0,587	0,577	0,680
2021	0,931	0,642	0,796	0,945

(*Sumber : Hasil Perhitungan*)

6. Menghitung probabilitas kumulatif H(x) (persamaan **2-20**) :

H (x) = q + (1-q) . G(x)

= 0 + (1-0) x 0.139

= 0.139

Hasil perhitungan probabilitas kumulatif H(x) pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.31. Perhitungan probabilitas kumulatif H(x) pada pos hujan lainnya dapat dilihat pada lampiran VI

Tabel 4. 31 Perhitungan probabilitas kumulatif H(x) 3 bulanan pos hujan Loang Make (*Sumber : Hasil Perhitungan*)

Keterangan : 0 < H (x) ≤ 0.5

0.5 < H (x) ≤ 1.0

7. Menghitung transfom gamma distribusi :

$t = \sqrt{ln\left[\frac{1}{H(x)^2}\right]}$ untuk 0 < H (x) ≤ 0.5

$t = \sqrt{\ln\left[\frac{1}{(1-H(x))^2}\right]}$ Untuk 0.5 < H (x) ≤ 1.0

Contoh perhitungan dengan 0 < H (x) ≤ 0.5 yaitu pada bulan JFM 2001:

$t = \sqrt{ln\left[\frac{1}{H(x)^2}\right]}$ untuk 0 < H (x) ≤ 0.5

$t = \sqrt{ln\left[\frac{1}{0.139^2}\right]}$ = 1.986

Contoh perhitungan dengan 0.5 < H (x) ≤ 1.0 yaitu pada bulan AMJ 2001 :

$t = \sqrt{\ln\left[\frac{1}{(1-H(x))^2}\right]}$ Untuk 0.5 < H (x) ≤ 1.0

$t = \sqrt{\ln\left[\frac{1}{(1-0.789)^2}\right]}$ = 1.763

Hasil perhitungan transfom gamma distribusi pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.32. Perhitungan transfom gamma distribusi pada pos hujan lainnya dapat dilihat pada Lampiran VI

Tabel 4. 32 Perhitungan transfom gamma distribusi (t) 3 bulanan pos hujan Loang Make

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	1,986	1,763	1,240	1,810
2002	1,482	2,156	1,196	1,317
2003	1,265	1,459	1,348	1,309
2004	1,422	1,865	1,182	1,349
2005	3,111	1,776	1,514	1,704
2006	2,132	1,559	1,227	2,166
2007	1,263	1,304	1,478	1,184
2008	1,874	1,525	1,287	1,201
2009	2,119	1,306	1,499	2,367
2010	1,832	2,771	2,877	2,632
2011	1,574	1,983	1,374	1,325
2012	2,054	1,536	1,291	1,516
2013	1,253	2,224	1,475	1,522
2014	1,817	1,695	1,243	1,783
2015	1,940	1,371	1,628	2,256
2016	1,616	1,730	2,476	2,217
2017	1,559	1,324	1,292	1,889
2018	1,694	3,972		1,851
2020	1,876	1,329	1,311	1,511
2021	2,312	1,433	1,782	2,406

(*Sumber : Hasil Perhitungan*)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

8. Menghitung nilai SPI

Keterangan :

$c_0 = 2{,}515517$ $d_1 = 1{,}432788$

$c_1 = 0{,}802853$ $d_2 = 0{,}189269$

$c_2 = 0{,}010328$ $d_3 = 0{,}001308$

$Z = SPI = -(t - \frac{C_0 + C_1 t + C_2 t^2}{1 + d_1 t + d_2 t^2 + d_3 t^3})$ untuk $0 < H(x) \leq 0.5$

$Z = SPI = +(t - \frac{C_0 + C_1 t + C_2 t^2}{1 + d_1 t + d_2 t^2 + d_3 t^3})$ untuk $0.5 < H(x) \leq 1.0$

Contoh perhitungan dengan $0 < H(x) \leq 0.5$ yaitu pada bulan JFM 2001 :

$Z = SPI = -(t - \frac{C_0 + C_1 t + C_2 t^2}{1 + d_1 t + d_2 t^2 + d_3 t^3})$

$$= -(1.986 - \frac{2{,}515517+0{,}802853(1.986)+0{,}010328(1.986)^2}{1+1{,}432788(1.986)+0{,}189269(1.986)^2+0{,}001308(1.986)^3}$$

$$= -1.084$$

Contoh perhitungan dengan 0.5 < H(x) ≤ 1.0 yaitu pada bulan AMJ 2001 :

$$Z = SPI = +(t - \frac{C_0+C_1t+C_2t^2}{1+d_1t+d_2t^2+d_3t^3})$$

$$= (1.763 - \frac{2{,}515517+0{,}802853(1.763)+0{,}010328(1.763)^2}{1+1{,}432788(1.763)+0{,}189269(1.763)^2+0{,}001308(1.763)^3}$$

$$= 0.801$$

Hasil perhitungan nilai SPI pada Pos Hujan Loang Make selanjutnya dapat dilihat pada Tabel 4.33. Perhitungan nilai SPI pada pos hujan lainnya dapat dilihat pada Lampiran VI.

Tabel 4. 33 Perhitungan nilai SPI 3 bulanan pada pos hujan Loang Make

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	-1,084	0,801	-0,091	-0,861
2002	0,429	-1,294	-0,027	0,201
2003	-0,127	-0,399	0,245	-0,190
2004	-0,348	-0,932	-0,006	0,246
2005	-2,413	-0,818	0,473	0,725
2006	1,265	0,533	-0,073	-1,306
2007	-0,124	0,183	-0,425	-0,010
2008	0,944	-0,487	0,159	-0,035
2009	1,248	0,186	0,452	-1,549
2010	-0,889	2,024	2,146	1,863
2011	0,554	1,080	-0,281	-0,212
2012	1,169	-0,503	-0,165	-0,475
2013	0,110	1,376	0,420	0,484
2014	-0,870	-0,713	0,096	-0,827
2015	-1,027	0,277	-0,625	-1,415
2016	-0,610	0,759	1,679	1,368
2017	0,534	0,212	0,166	0,962
2018	0,712	-3,371	-2,516	-0,914
2020	-0,946	0,218	0,193	0,469
2021	1,483	0,362	0,826	1,596

(*Sumber : Hasil Perhitungan*)

Keterangan : 0 < H (x) ≤ 0.5

0.5 < H (x) ≤ 1.0

Tabel 4. 34 Klasifikasi tingkat kekeringan SPI 3 bulanan pada pos hujan Loang Make

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	CK	N	N	N
2002	N	CK	N	N
2003	N	N	N	N
2004	N	N	N	N
2005	ASK	N	N	N
2006	CB	N	N	CK
2007	N	N	N	N
2008	N	N	N	N
2009	CB	N	N	SK
2010	N	ASB	ASB	SB
2011	N	ASK	N	N
2012	CB	N	N	N
2013	N	CB	N	N
2014	N	N	N	N
2015	CK	N	N	CK
2016	N	N	SB	CB
2017	N	N	N	N
2018	N	ASK	ASK	N
2020	N	N	N	N
2021	CB	N	N	SB

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Tabel 4. 35 Klasifikasi tingkat kekeringan SPI 3 bulanan pada pos hujan Kopang

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	SB	SB	N	N
2002	N	N	N	N
2003	ASB	CK	N	N
2004	ASB	N	N	N
2005	SB	CK	N	N
2006	N	N	N	N
2007	ASB	N	N	CK
2008	ASB	N	N	N
2009	ASB	N	N	N
2010	ASB	N	N	SK
2011	ASB	SB	N	N
2012	ASB	N	N	N
2013	ASB	CB	N	N
2014	CB	N	N	N
2015	N	N	N	CK
2016	SB	N	ASB	SB
2017	ASB	N	N	CB
2018	ASB	ASK	N	N
2020	N	N	N	N
2021	ASB	N	N	ASB

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Tabel 4. 36 Klasifikasi tingkat kekeringan SPI 3 bulanan pada pos hujan Kabul

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	SB	CB	N	N
2002	CK	N	N	N
2003	N	CK	N	N
2004	N	N	N	N
2005	N	N	N	N
2006	ASK	N	N	N
2007	N	N	N	CK
2008	N	N	N	N
2009	N	N	N	N
2010	N	N	N	CK
2011	N	SB	N	N
2012	CB	N	N	N
2013	N	CB	N	N
2014	N	N	N	N
2015	N	N	N	CK
2016	N	N	ASB	SB
2017	N	N	N	CB
2018	N	ASK	N	N
2020	N	N	N	N
2021	SB	N	CB	SB

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

Tabel 4. 37 Klasifikasi tingkat kekeringan SPI 3 bulanan pada pos hujan Rembitan

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	CK	N	N	N
2002	N	CK	N	N
2003	N	N	N	N
2004	N	N	N	N
2005	SK	N	N	N
2006	N	N	N	CK
2007	N	N	N	N
2008	N	N	N	N
2009	N	N	N	CK
2010	CK	ASB	ASB	SB
2011	N	CB	N	N
2012	CB	N	N	N
2013	N	CB	N	N
2014	N	N	N	N
2015	N	N	N	CK
2016	N	N	SB	SB
2017	N	N	N	CB
2018	CB	ASK	N	N
2020	N	N	N	N
2021	SB	N	N	CB

Keterangan :

ASK : Amat sangat kering

SK : Sangat kering

CK : Cukup kering

N : Normal

CB : Cukup basah

SB : Sangat basah

ASB : Amat sangat basah

4.8 Penggambaran Peta Sebaran Kekeringan

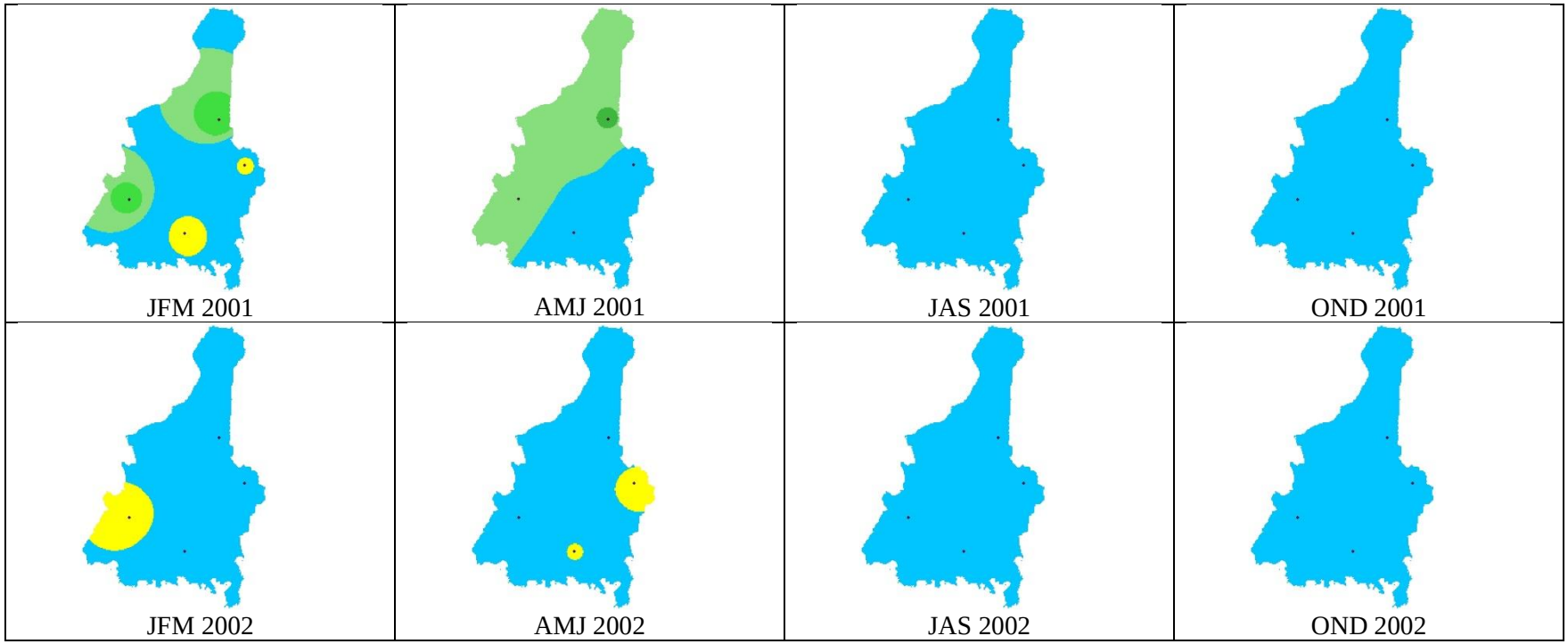
Pembuatan peta sebaran indeks kekeringan pada penelitian kali ini menggunakan aplikasi ArcGIS 10.8. Tujuan dari penggambaran ini yaitu melihat wilayah-wilayah mana saja di Kabupaten Lombok Tengah yang terdampak bencana kekeringan. Berikut sebagai contoh adalah sebaran kekeringan 3 bulanan pada tahun 2001-2002 dengan masukan data dari hasil perhitungan kekeringan metode SPI yang dapat dilihat pada Tabel 4.38 dan Tabel 4.39.

Tabel 4. 38 Hasil perhitungan kekeringan metode SPI tahun 2001

Stasiun	X	Y	Tahun	JFM	AMJ	JAS	OND
Loang Make	434671.7	9036727.9	2001	-1.084	0.801	-0.091	-0.861
Kopang	429142.7	9046485.8	2001	1.936	1.536	0.55	0.293
Kabul	410033.8	9029372.2	2001	1.681	1.424	-0.098	-0.107
Rembitan	421895.8	9022117.6	2001	-1.292	0.443	-0.14	-0.965

Tabel 4. 39 Hasil perhitungan kekeringan metode SPI tahun 2002

Stasiun	X	Y	Tahun	JFM	AMJ	JAS	OND
Loang Make	434671.7	9036727.9	2002	0.429	-1.294	-0.027	0.201
Kopang	429142.7	9046485.8	2002	0.407	0.565	-0.257	-0.719
Kabul	410033.8	9029372.2	2002	-1.442	0.658	0.127	-0.941
Rembitan	421895.8	9022117.6	2002	-0.004	-1.03	-0.066	-0.123



Gambar 4. 11 Peta sebaran kekeringan di Lombok Tengah tahun 2001 & 2002

Keterangan :

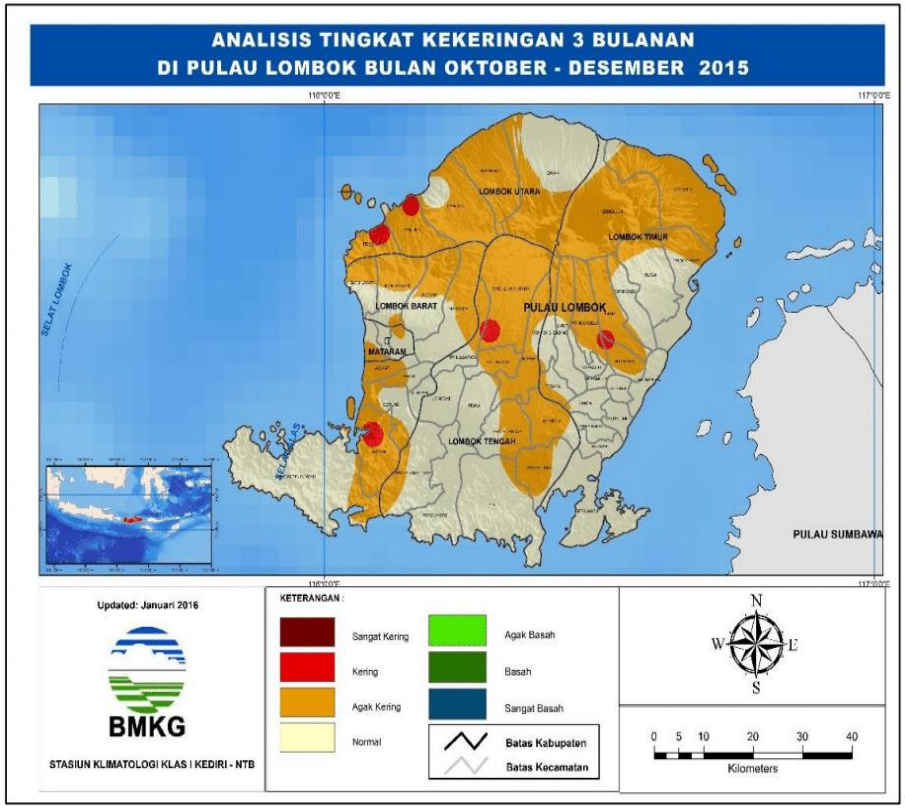
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

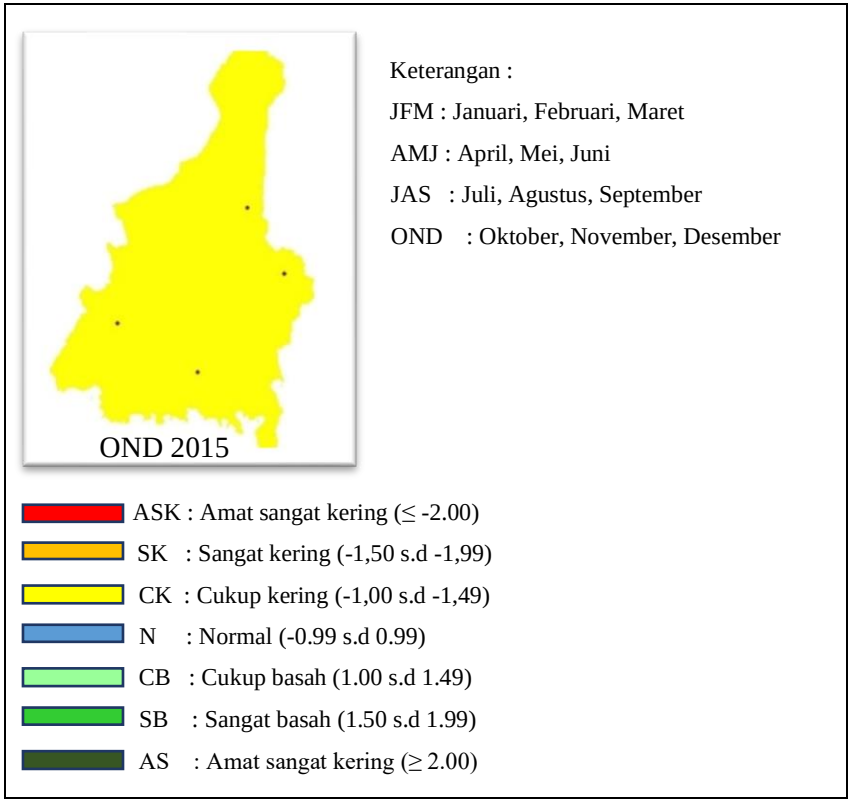
Berdasarkan hasil penggambaran peta sebaran kekeringan 3 bulanan pada tahun 2001-2002, beberapa wilayah kering di bulan JFM dan AMJ yang ditunjukkan dengan gradasi warna kuning, namun di beberapa wilayah lainnya terindikasi relatif normal sepanjang tahun. Untuk penggambaran peta sebaran dan tabel masukan data kekeringan di tahun-tahun berikutnya dapat dilihat pada lampiran VII.

4.9 Perbandingan Peta Hasil Analisis dengan Peta Kekeringan BMKG

Pembandingan peta hasil analisis dengan peta kekeringan BMKG (Badan Meteorologi, Klimatologi, dan Geofisika) dimaksudkan untuk melihat seberapa dekat peta kekeringan BMKG dengan hasil output peta yang dianalisis menggunakan data satelit CHIRPS (Climate Hazards Group Infrared Precipitation with Station Data). Peta yang dibandingkan merupakan peta kekeringan 3 bulanan selama 5 tahun terakhir, namun karena keterbatasan data ada beberapa peta yang tidak dapat di cantumkan.



Gambar 4. 12 Peta analisis kekeringan 3 bulanan (OND) BMKG 2015



Gambar 4. 13 Peta kekeringan 3 bulanan (OND) 2015 hasil analisis

Berdasarkan gambar 4.12 yaitu peta kekeringan BMKG dapat diketahui bahwa pada bulan OND 2015 hampir setengah dari daerah di Lombok Tengah terindikasi cukup kering yang ditunjukan dengan warna kuning gelap, sebagian lainnya terindikasi normal yang ditunjukan dengan warna abu muda, serta sebagian kecil mengalami kering yang ditunjukan dengan warna merah. Sedangkan hasil analisis dengan data hujan CHIRPS berdasarkan gambar 4.13 dapat diketahui bahwa semua daerah Lombok tengah terindikasi cukup kering yang ditunjukan dengan warna kuning cerah.

Hasil rekapitulasi pembandingan peta BMKG dengan peta hasil analisis dapat dilihat pada Tabel. 4.40. Untuk pembandingan peta BMKG dengan peta hasil analisis di bulan-bulan berikutnya dapat dilihat pada lampiran VII.

Tabel 4. 40 Rekapitulasi pembandingan peta BMKG dengan peta hasil analisis

No	Tahun	Periode	Peta Kekeringan BMKG		Peta Hasil Analisis		Kesesuaian
			Kategori	Cakupan	Kategori	Cakupan	
1	2015	OND	Agak Kering	utara & timur	Agak Kering	Semua Wilayah	Sebagian Sesuai
			normal	barat & selatan	-	-	
2	2016	JFM	normal	sebagian besar wilayah	normal	sebagian besar wilayah	Sebagian Besar Sesuai
			cukup basah	barat	cukup basah	utara	
			sangat kering	timur	-	-	
3	2016	AMJ	normal	sebagian besar wilayah	normal	Semua Wilayah	Sebagian Sesuai
			cukup basah	utara, barat & timur	-	-	
			Agak Kering	timur	-	-	
4	2016	OND	sangat basah	barat & timur	sangat basah	sebagian besar wilayah	Sebagian Kecil Sesuai
			cukup basah	sebagian besar wilayah	cukup basah	timur	
			amat sangat basah	timur	-	-	
			normal	selatan, barat, timur	-	-	
5	2017	JFM	normal	sebagian kecil wilayah	normal	sebagian besar wilayah	Sebagian Kecil Sesuai
			cukup basah	sebagian besar wilayah	cukup basah	sebagian kecil	
			sangat basah	sebagian kecil	sangat basah	sebagian kecil	
			-	amat sangat basah	amat sangat basah	sebagian kecil	
6	2017	AMJ	normal	sebagian besar wilayah	normal	Semua Wilayah	Sebagian Sesuai
			cukup basah	utara	-	-	
7	2017	OND	cukup basah	timur & barat	cukup basah	sebagian besar wilayah	Sebagian Sesuai
			normal	utara & selatan	normal	timur	

Lanjutan tabel 4.40

8	2018	JFM	sangat basah	barat	amat sangat basah	utara	Tidak Sesuai
			cukup basah	barat	sangat basah	utara	
			normal	Utara, selatan, timur	cukup basah	timur, barat, selatan	
			Agak Kering	timur	normal	timur, barat	
9	2018	AMJ	normal	sebagian kecil	-	-	Sebagian Besar Sesuai
			Agak Kering	utara,barat, timur	-	-	
			sangat kering	selatan	-	-	
			amat sangat kering	selatan	amat sangat kering	semua wilayah	
10	2018	JAS	normal	semua wilayah	normal	sebagian besar wilayah	Sebagian Besar Sesuai
			-	-	Agak Kering	sebagian kecil	
			-	-	sangat kering	sebagian kecil	
			-	-	amat sangat kering	sebagian kecil	
11	2018	OND	normal	sebagian besar wilayah	normal	semua wilayah	Sebagian Besar Sesuai
			Agak Kering	timur	-	-	
			sangat kering	sebagian kecil	-	-	
12	2020	JFM	normal	sebagian besar wilayah	normal	semua wilayah	Sebagian Besar Sesuai
			Agak Kering	sebagian kecil	-	-	
13	2020	AMJ	normal	sebagian besar wilayah	normal	semua wilayah	Sebagian Besar Sesuai
			Agak Kering	utara	-	-	
14	2020	JAS	normal	semua wilayah	normal	semua wilayah	Sesuai
15	2020	OND	normal	semua wilayah	normal	semua wilayah	Sesuai
16	2021	JFM	normal	sebagian besar wilayah	-	-	Tidak Sesuai
			agak basah	timur	sangat basah	timur, selatan	
			sangat basah	timur	amat sangat basah	sebagian besar wilayah	
17	2021	AMJ	normal	sebagian besar wilayah	normal	semua wilayah	Sebagian Besar Sesuai
			Agak Kering	utara	-	-	
18	2021	JAS	normal	semua wilayah	normal	sebagian besar wilayah	Sebagian Besar Sesuai
			-	-	agak basah	barat	
19	2021	OND	normal	utara, barat	agak basah	selatan	Sebagian Kecil Sesuai
			agak basah	timur, selatan	sangat basah	utara,timur, barat	
			-	-	amat sangat basah	sebagian kecil	

Tabel 4. 41 Nilai kategori kesesuaian

No	Jenis Kesesuaian	Nilai
1	Sesuai	4
2	Sebagian Besar Sesuai	3
3	Sebagian Sesuai	2
4	Sebagian Kecil Sesuai	1
5	Tidak Sesuai	0

Tabel 4. 42 Rekapitulasi nilai kategori kesesuaian peta analisis dengan peta BMKG

No	Tahun	Periode	Kesesuaian	Nilai
1	2015	OND	Sebagian Sesuai	2
2	2016	JFM	Sebagian Besar Sesuai	3
3	2016	AMJ	Sebagian Sesuai	2
4	2016	OND	Sebagian Kecil Sesuai	0
5	2017	JFM	Sebagian Kecil Sesuai	0
6	2017	AMJ	Sebagian Sesuai	2
7	2017	OND	Sebagian Sesuai	2
8	2018	JFM	Tidak Sesuai	0
9	2018	AMJ	Sebagian Besar Sesuai	3
10	2018	JAS	Sebagian Besar Sesuai	3
11	2018	OND	Sebagian Besar Sesuai	3
12	2020	JFM	Sebagian Besar Sesuai	3
13	2020	AMJ	Sebagian Besar Sesuai	3
14	2020	JAS	Sesuai	4
15	2020	OND	Sesuai	4
16	2021	JFM	Tidak Sesuai	0
17	2021	AMJ	Sebagian Besar Sesuai	2
18	2021	JAS	Sebagian Besar Sesuai	2
19	2021	OND	Sebagian Kecil Sesuai	0

Berdasarkan Tabel 4.42 diatas total kesesuaian nilai yang didapat adalah 41, total tersebut dibagi dengan jumlah data , yaitu :

Nilai kategori kesesuaian = $\frac{total\ nilai\ kesesuaian}{jumlah\ data}$

$= \frac{41}{19} = 2{,}16$

Maka dapat disimpulkan nilai 2,16 masuk kedalam kategori “Sebagian Sesuai”

BAB V
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Kesimpulan yang dapat diambil dari penelitian yang telah dilakukan :

1. Tingkat keakuratan data hujan satelit CHIRPS terhadap data hujan pengukuran di kabupaten Lombok Tengah berdasarkan nilai rata-rata NSE tidak terkoreksi dan terkoreksi adalah sebesar 0,517 jika data hujan satelit CHIRPS tidak terkoreksi, sedangkan data CHIRPS yang terkoreksi untuk beberapa jenis regresi menunjukkan nilai keakuratan yang meningkat, dimana nilai rata-rata NSE dengan jenis regresi linier, linier intercept, polinomial orde 2, polinomial orde 2 intercept, berturut-turut sebesar 0,569; 0,568; 0,577; 0,574. Nilai minimun NSE adalah 0,36 dan NSE akan semakin baik jika mendekati 1. Karena nilai NSE yang didapatkan sudah cukup jauh dari angka minimun, maka dapat disimpulkan data satelit CHIRPS berpotensi sebagai alternatif data hujan selain data pengukuran.
2. Dari perbandingan peta kekeringan BMKG dengan peta kekeringan hasil analisis selama 5 tahun terakhir, nilai kesesuaian peta masuk dalam kategori “sebagian sesuai” dan kekeringan terparah dan sebagian besar merata sama-sama terjadi pada bulan AMJ 2018.
3. Peta sebaran kekeringan yang dianalisis menggunakan data hujan CHIRPS dengan metode SPI berdasarkan pemetaan menggunakan software ArcGIS di Kabupaten Lombok Tengah dari tahun 2001- 2021 menunjukan kekeringan terjadi secara tidak merata di wilayah Lombok Tengah, kondisi kering tidak bisa ditentukan setiap tahunnya terjadi pada bulan ke berapa, namun setiap tahunnya di semua wilayah Lombok tengah cenderung berinterpretasi normal. Berdasarkan peta kekeringan 3 bulanan yang telah dibuat, kekeringan terparah dan merata di wilayah Lombok Tengah terjadi pada bulan AMJ tahun 2018 yang diperlihatkan dengan gradasi warna merah.

5.2 Saran

Saran yang penulis rangkum untuk penelitian selanjutnya agar medapatkan hasil lebih baik adalah :

1. Pengambilan data curah hujan baik pengukuran maupun satelit hanya dilakukan pada empat pos, yaitu Pos Loang Make, Pos Kopang, Pos Kabul dan Pos rembitan. Oleh karena itu, akan lebih baik apabila pos hujan yang digunakan semakin banyak.
2. Analisis kalibrasi menggunakan analisis regresi menghasilkan nilai yang kurang maksimal, oleh karena itu penggunaan metode lain untuk analisis kalibrasi sangat disarankan.
3. Data satelit yang digunakan adalah satelit CHIRPS, oleh karena itu dapat di kembangkan menggunakan data hujan satelit lainnya.
4. Analisis indeks kekeringan hanya menggunakan metode Standardized Precipitation Index (SPI), oleh karena itu dapat dikembangkan menggunakan metode lain.
5. Data satelit CHIRPS baik terkoreksi ataupun tidak terkoreksi hanya digunakan untuk analisis indeks kekeringan saja, oleh karena itu dapat dikembangkan untuk analisis hidrologi lainnya.

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LAMPIRAN I

Lampiran 1.1 Data ARR Pos Hujan Kopang

TAHUN	BULAN											
	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Agust	Sept	Okt	Nov	Des
2001	373	214	338	404	64	29	0	5	13	183	680	87
2002	426	126	338	212	166	78	147	0	15	267	259	173
2003	461	249	269	84	22	0	0	0	0	53	324	438
2004	435	262	52	251	89	9	0	0	55	28	310	437
2005	395	203	181	169	193	0	0	0	0	1	134	147
2006	201	203	912	66	0	173	59	5	45	146	0	96
2007	183	154	341	250	65	89	5	0	0	36	0	308
2008	195	99	86	169	16	10	20	0	0	0	20	325
2009	319	46	231	142	0	10	0	13	10	67	157	38
2010	115	129	112	9	0	0	0	0	0	36	0	104
2011	253	116	200	291	124	16	26	0	14	47	351	246
2012	531	230	0	75	0	75	20	0	37	95	242	450
2013	430	332	68	251	36	69	22	0	3	37	221	417
2014	260	93	124	442	5	11	146	14	0	4	158	509
2015	201	228	337	209	39	13	0	1	0	31	0	315
2016	143	551	236	176	126	112	53	62	257	194	238	360
2017	300	377	227	143	79	30	88	30	3	113	405	369
2018	571	215	413	5	8	14	9	12	27	2	417	221
2020	139	5	452	231	393	0	9	5	19	142	216	446
2021	399	279	243	93	9	79	7	0	54	107	452	268

(Sumber : BWS NT 1, 2022)

Lampiran 1.2 Data ARR Pos Hujan Kabul

TAHUN	BULAN											
	Jan	Feb	Mar	Apr	Mei	Jun	Jul	Agust	Sept	Okt	Nov	Des
2001	358	211	264	185	189	0	0	7	0	131	443	118
2002	306	90	133	179	37	88	0	0	0	0	108	54
2003	212	412	232	185	0	0	0	0	0	0	140	202
2004	148	113	81	63	12	4	9	0	137	0	90	235
2005	83	105	96	5	48	0	0	0	0	0	186	200
2006	62	109	181	118	48	38	48	30	11	69	76	233
2007	339	231	338	221	20	57	0	0	0	58	22	131
2008	85	75	62	209	54	8	32	6	0	8	49	118
2009	113	150	316	104	15	0	0	2	11	4	55	75
2010	405	287	116	21	10	0	0	0	13	36	51	110
2011	116	99	129	122	118	1	20	0	0	25	58	209
2012	115	112	156	27	171	1	2	1	5	29	246	133
2013	219	211	138	250	117	80	2	0	1	79	60	272
2014	198	174	132	102	55	0	24	3	1	0	206	405
2015	150	119	249	164	80	0	1	3	7	0	122	213
2016	278	303	154	128	20	225	55	12	203	185	295	262
2017	374	418	151	126	6	80	59	6	9	97	375	391
2018	592	227	187	25	0	7	1	7	22	2	118	67
2020	0	0	328	180	95	14	0	15	25	163	138	203
2021	324	263	134	125	19	91	3	36	67	89	498	420

(Sumber : BWS NT 1, 2022)

Lampiran 1.3 Data ARR Pos Hujan Rembitan

TAHUN	BULAN											
	Jan	**Feb**	**Mar**	**Apr**	**Mei**	**Jun**	**Jul**	**Agust**	**Sept**	**Okt**	**Nov**	**Des**
2001	183	319	151	35	1	46	2	0	0	97	103	292
2002	208	574	128	175	0	0	0	0	0	0	115	253
2003	544	195	104	106	16	12	10	2	89	32	159	433
2004	328	181	162	10	148	8	3	10	10	10	175	248
2005	235	212	228	118	0	0	61	30	5	46	47	345
2006	293	117	313	145	10	41	0	0	0	13	26	143
2007	111	175	264	149	2	31	2	14	0	1	45	377
2008	288	305	194	51	25	0	1	0	42	14	224	226
2009	441	313	87	16	18	1	24	4	34	32	113	183
2010	72	121	71	164	126	13	65	11	115	119	300	291
2011	131	152	227	232	44	8	11	0	8	23	138	355
2012	253	242	250	282	137	0	3	5	10	21	137	286
2013	378	142	206	57	148	147	25	4	4	11	150	451
2014	356	147	96	40	22	0	9	6	0	0	129	330
2015	187	124	230	140	8	8	6	1	1	0	0	256
2016	254	405	120	45	36	71	41	68	107	60	300	480
2017	367	349	106	30	3	91	56	13	1	132	327	459
2018	554	257	58	2	0	3	7	11	16	3	276	108
2020	166	239	483	106	130	9	3	4	23	123	208	232
2021	506	359	159	75	0	76	0	82	38	75	268	362

(Sumber : BWS NT 1, 2022)

Lampiran 1.4 Data Hujan Satelit Pos Hujan Kopang

TAHUN	BULAN (mm)											
	Jan	**Feb**	**Mar**	**Apr**	**Mei**	**Juni**	**Juli**	**Agt**	**Sep**	**Okt**	**Nov**	**Des**
2001	403.065	260.100	304.907	192.641	153.616	53.590	23.846	55.204	10.609	178.526	302.524	174.359
2002	205.396	114.172	158.325	101.004	69.510	123.453	29.052	14.721	8.840	78.743	300.923	113.088
2003	216.417	293.643	159.706	93.584	37.929	13.808	27.250	12.849	13.439	32.263	301.100	344.898
2004	285.657	226.805	98.952	90.576	64.885	40.141	17.184	10.587	28.962	24.223	289.661	263.368
2005	169.779	246.185	167.143	44.904	86.928	17.888	17.185	10.350	19.591	96.306	273.336	279.278
2006	80.798	144.383	164.029	138.211	18.814	27.578	35.421	17.114	26.687	130.128	241.264	345.752
2007	316.989	179.347	299.909	122.638	115.217	39.440	31.525	9.951	9.561	26.166	79.413	300.024
2008	96.135	190.273	332.464	176.891	61.578	37.222	21.618	12.112	8.102	45.041	159.770	408.860
2009	163.996	247.800	333.080	96.515	52.050	30.750	20.054	29.650	22.159	73.544	253.760	260.306
2010	372.534	293.518	154.634	88.558	153.077	21.089	29.431	10.250	34.493	51.251	91.424	218.699
2011	271.938	155.286	208.645	283.576	117.665	19.088	23.247	10.587	9.263	64.719	229.490	284.631
2012	336.045	182.975	239.432	70.958	104.655	14.917	22.931	16.122	13.039	45.530	181.791	321.758
2013	371.035	205.102	113.237	118.909	130.225	116.418	70.723	12.271	10.893	56.125	276.347	421.897
2014	309.743	141.251	109.713	154.644	25.584	30.601	39.890	11.896	8.941	12.753	168.975	298.775
2015	183.188	172.200	153.351	218.380	37.543	57.925	15.817	14.812	8.280	12.153	93.639	285.681
2016	174.746	238.985	175.084	74.024	85.352	139.114	165.481	20.355	67.869	286.308	248.119	387.375
2017	294.002	224.482	167.501	112.564	42.059	115.737	35.367	12.496	9.060	119.112	412.635	294.141
2018	416.588	211.553	135.869	29.374	12.003	23.056	26.429	17.824	10.606	10.765	320.551	158.578
2020	151.148	156.570	206.505	87.600	147.783	26.313	26.418	19.158	25.215	164.466	183.543	323.423
2021	447.453	267.781	160.769	129.982	31.056	119.410	30.812	29.977	50.162	127.271	486.913	392.351

(Sumber : CHIRPS, 2022)

Lampiran 1.5 Data Hujan Satelit Pos Hujan Kabul

TAHUN	BULAN (mm)											
	Jan	Feb	Mar	Apr	Mei	Juni	Juli	Agt	Sep	Okt	Nov	Des
2001	375.458	284.077	354.672	200.252	214.892	53.841	20.736	14.987	9.424	127.607	238.319	143.041
2002	180.159	124.860	187.813	112.624	98.244	144.791	31.130	9.411	11.065	75.891	238.505	87.335
2003	180.223	320.312	162.942	106.371	55.412	17.338	23.450	9.026	12.958	26.949	247.190	288.281
2004	270.112	242.117	116.180	100.801	101.910	64.300	14.394	7.209	30.416	23.566	248.323	270.730
2005	148.034	255.693	157.084	42.299	157.434	22.659	14.516	6.900	20.946	77.876	242.926	288.537
2006	70.407	153.858	183.512	139.261	26.838	37.606	45.575	13.468	26.788	126.394	156.759	348.786
2007	267.389	198.550	347.492	141.997	149.896	44.079	25.848	6.786	10.032	26.388	57.730	295.167
2008	87.726	199.556	364.591	172.248	117.163	41.351	17.111	9.594	8.558	47.699	158.108	380.905
2009	145.131	274.788	392.700	117.815	73.540	37.699	17.134	22.089	19.801	69.466	230.080	205.844
2010	355.466	321.132	174.689	90.587	193.391	26.480	24.778	6.987	37.749	53.251	83.724	200.349
2011	257.922	199.350	238.032	317.959	165.007	24.106	20.136	7.209	9.737	32.734	184.595	293.130
2012	378.715	220.614	295.463	72.658	167.028	19.451	17.206	6.886	11.169	33.193	156.592	306.883
2013	374.006	251.593	163.733	137.979	187.355	135.234	64.342	6.346	12.427	55.610	229.796	414.160
2014	325.085	177.991	124.702	153.103	43.181	26.829	31.336	6.081	10.062	13.410	147.650	302.118
2015	160.689	188.827	205.757	215.783	59.880	61.390	15.010	8.088	9.093	11.997	66.158	291.886
2016	175.606	293.642	181.890	79.492	115.795	176.156	125.842	7.988	105.262	292.977	251.799	410.223
2017	272.649	277.109	210.214	129.310	65.003	137.339	30.040	6.383	11.349	109.384	372.397	349.223
2018	483.284	238.679	170.036	24.093	15.622	22.436	22.157	10.366	10.558	11.126	296.082	134.330
2020	136.112	175.738	249.506	79.880	185.912	34.008	29.608	11.199	24.479	182.990	147.488	316.262
2021	491.252	327.880	202.176	140.913	38.132	152.698	28.829	8.960	58.240	109.107	403.040	392.764

(Sumber : CHIRPS, 2022)

Lampiran 1.6 Data Hujan Satelit Pos Hujan Rembitan

TAHUN	BULAN (mm)											
	Jan	Feb	Mar	Apr	Mei	Juni	Juli	Agt	Sep	Okt	Nov	Des
2001	171.619	104.454	140.178	94.505	78.714	118.552	26.363	6.890	10.657	68.476	183.406	79.529
2002	181.158	277.652	123.900	92.448	47.734	15.941	25.261	8.948	13.486	26.938	182.079	245.966
2003	262.009	205.913	90.624	85.793	77.936	56.197	15.719	7.232	31.416	25.030	172.368	236.787
2004	137.103	203.877	146.569	39.030	121.719	20.901	15.961	7.242	18.630	81.039	161.562	250.859
2005	75.377	122.245	150.623	129.103	23.112	29.760	36.496	13.166	28.062	129.008	123.622	320.127
2006	254.739	154.090	288.600	133.989	115.170	40.161	26.020	6.874	10.371	28.171	46.507	233.630
2007	85.623	163.439	291.276	152.153	80.657	35.855	17.053	9.062	8.844	41.666	120.214	344.551
2008	136.569	238.032	327.470	112.596	62.386	32.817	18.694	14.338	21.167	67.475	172.695	184.973
2009	334.065	249.598	139.961	78.859	144.883	24.589	26.892	7.074	29.700	52.546	59.166	184.625
2010	228.046	113.016	77.238	196.549	293.126	50.209	158.554	30.226	96.837	196.903	239.963	447.666
2011	249.121	173.061	221.365	279.017	124.476	22.089	21.782	7.232	10.043	31.073	126.085	251.638
2012	357.619	171.464	246.579	68.493	115.594	20.599	18.024	6.774	12.571	33.674	105.586	267.026
2013	370.216	197.617	115.609	123.656	139.510	110.854	44.641	4.776	12.267	50.882	161.118	348.159
2014	284.565	138.444	100.907	128.183	35.049	28.875	30.723	4.635	9.995	14.233	109.294	265.350
2015	164.318	149.935	153.221	189.736	49.296	53.859	12.294	5.473	9.153	13.223	48.550	245.325
2016	161.172	227.363	142.882	66.144	87.011	136.131	132.563	11.284	102.498	284.938	179.626	364.243
2017	262.103	228.400	176.111	103.159	53.024	99.067	29.579	5.030	12.665	108.947	264.411	301.779
2018	450.709	194.903	126.307	21.916	13.797	19.335	22.099	7.546	10.553	12.324	212.719	116.363
2020	130.222	128.112	193.291	65.419	138.228	23.277	27.487	7.776	19.630	154.737	118.955	276.130
2021	472.648	287.938	153.202	117.926	28.686	120.123	21.204	8.562	53.059	107.410	285.280	336.164

(Sumber : CHIRPS, 2022)

Lampiran 1.7 Perhitungan RAPS Data ARR Pos Hujan Kopang

No.	Tahun	Yi	$(Yi-Yr)^2$	sk*	Dy^2	sk**	|sk**|
1	2001	2389,800	425388,288	652,218	21269,414	1,344	1,344
2	2002	2206,700	220071,676	1121,336	11003,584	2,310	2,310
3	2003	1900,500	26542,267	1284,254	1327,113	2,646	2,646
4	2004	1928,400	36411,500	1475,072	1820,575	3,039	3,039
5	2005	1422,660	99175,881	1160,150	4958,794	2,390	2,390
6	2006	1906,250	28448,886	1328,818	1422,444	2,738	2,738
7	2007	1430,570	94256,383	1021,806	4712,819	2,105	2,105
8	2008	939,800	636456,158	224,024	31822,808	0,462	0,462
9	2009	1033,290	496027,255	-480,268	24801,363	-0,989	0,989
10	2010	504,010	1521699,938	-1713,840	76084,997	-3,531	3,531
11	2011	1683,400	2935,692	-1768,022	146,785	-3,642	3,642
12	2012	1755,200	310,393	-1750,404	15,520	-3,606	3,606
13	2013	1884,640	21626,188	-1603,346	1081,309	-3,303	3,303
14	2014	1765,010	752,294	-1575,918	37,615	-3,247	3,247
15	2015	1373,110	132839,856	-1940,390	6641,993	-3,997	3,997
16	2016	2507,500	592773,690	-1170,472	29638,685	-2,411	2,411
17	2017	2162,900	180895,381	-745,154	9044,769	-1,535	1,535
18	2018	1912,700	30666,306	-570,036	1533,315	-1,174	1,174
19	2020	2058,200	102795,887	-249,418	5139,794	-0,514	0,514
20	2021	1987,000	62209,327	0,000	3110,466	0,000	0,000
Jumlah		34751,640	4712283,245		235614,162		
				Dy =	485,401		
Rata - rata		1737,582	235614,162				
sk** maks.							3,039
sk** min.							-3,997
Q = |sk**| maks.							3,997
|sk**| min.							0,000
R = sk** maks. - sk** min.							7,036
Q/√n							0,894
R/√n							1,573

MENENTUKAN KONSISTENSI					
dicoba dengan kepercayaan 99% untuk Q/√n				=	1.420
dicoba dengan kepercayaan 99% untuk R/√n				=	1.600
Nilai Q/√n Hitungan	=	0.894	< NilaiQ/√n Tabel	=	1.420
Nilai R/√n Hitungan =	=	1.573	< Nilai R/√n Tabel	=	1.600
KONSISTEN					

(Sumber : Hasil Perhitungan)

Lampiran 1.8 Perhitungan RAPS Data ARR Pos Hujan Kabul

No.	Tahun	$(Yi-Yr)^2$	$(Yi-\bar{Y})^2$	sk*	Dy^2	sk**	|sk**|
1	2001	1904,800	406225,858	637,359	20311,293	1,447	1,447
2	2002	994,200	74660,917	364,117	3733,046	0,826	0,826
3	2003	1382,400	13215,457	479,076	660,773	1,087	1,087
4	2004	891,100	141632,925	102,734	7081,646	0,233	0,233
5	2005	721,900	297615,528	-442,808	14880,776	-1,005	1,005
6	2006	1021,300	60585,638	-688,949	3029,282	-1,564	1,564
7	2007	1417,500	22517,553	-538,891	1125,878	-1,223	1,223
8	2008	703,000	318594,207	-1103,332	15929,710	-2,504	2,504
9	2009	844,400	178964,111	-1526,374	8948,206	-3,464	3,464
10	2010	1048,600	47891,602	-1745,215	2394,580	-3,961	3,961
11	2011	896,400	137671,795	-2116,257	6883,590	-4,803	4,803
12	2012	996,800	73246,822	-2386,898	3662,341	-5,417	5,417
13	2013	1428,830	26046,248	-2225,510	1302,312	-5,051	5,051
14	2014	1298,200	946,085	-2194,751	47,304	-4,981	4,981
15	2015	1106,900	25773,573	-2355,293	1288,679	-5,346	5,346
16	2016	2118,900	724981,577	-1503,834	36249,079	-3,413	3,413
17	2017	2091,000	678248,603	-680,276	33912,430	-1,544	1,544
18	2018	1254,100	177,996	-693,617	8,900	-1,574	1,574
19	2020	1159,800	11586,693	-801,259	579,335	-1,819	1,819
20	2021	2068,700	642015,184	0,000	32100,759	0,000	0,000
Jumlah		25348,830	3882598,370		194129,919		
				Dy =	440,602		
Rata - rata		1267,442	194129,919				
sk** maks.							1,447
sk** min.							-5,417
Q = |sk**| maks.							5,417
|sk**| min.							0,000
R = sk** maks. - sk** min.							6,864
Q/√n							1,211
R/√n							1,535

MENENTUKAN KONSISTENSI					
dicoba dengan kepercayaan 99% untuk Q/√n				=	1.420
dicoba dengan kepercayaan 99% untuk R/√n				=	1.600
Nilai Q/√n Hitungan	=	1.211	< NilaiQ/√n Tabel	=	1.420
Nilai R/√n Hitungan	=	1.535	< Nilai R/√n Tabel	=	1.600
KONSISTEN					

(Sumber : Hasil Perhitungan)

Lampiran 1.9 Perhitungan RAPS Data ARR Pos Hujan Rembitan

No.	Tahun	Yi	$(Yi-Yr)^2$	sk*	Dy^2	sk**	|sk**|
1	2001	1228,300	50981,576	-225,791	2549,079	-0,759	0,759
2	2002	1450,000	16,736	-229,882	0,837	-0,772	0,772
3	2003	1701,000	60964,054	17,027	3048,203	0,057	0,057
4	2004	1291,600	26403,325	-145,464	1320,166	-0,489	0,489
5	2005	1326,000	16407,304	-273,555	820,365	-0,919	0,919
6	2006	1102,600	123545,923	-625,046	6177,296	-2,100	2,100
7	2007	1169,400	81048,965	-909,737	4052,448	-3,056	3,056
8	2008	1369,800	7104,973	-994,028	355,249	-3,340	3,340
9	2009	1267,200	34928,246	-1180,919	1746,412	-3,968	3,968
10	2010	1468,200	199,064	-1166,810	9,953	-3,920	3,920
11	2011	1327,180	16106,402	-1293,721	805,320	-4,347	4,347
12	2012	1623,600	28733,301	-1124,212	1436,665	-3,777	3,777
13	2013	1723,300	72473,486	-855,003	3623,674	-2,873	2,873
14	2014	1136,240	101029,258	-1172,854	5051,463	-3,940	3,940
15	2015	960,500	243632,075	-1666,445	12181,604	-5,599	5,599
16	2016	1986,300	283246,420	-1134,236	14162,321	-3,811	3,811
17	2017	1932,800	229162,307	-655,527	11458,115	-2,202	2,202
18	2018	1293,900	25661,156	-815,718	1283,058	-2,741	2,741
19	2020	1725,000	73391,686	-544,809	3669,584	-1,830	1,830
20	2021	1998,900	296816,846	0,000	14840,842	0,000	0,000
Jumlah		29081,820	1771853,104		88592,655		
				Dy =	297,645		
Rata - rata		1454,091	88592,655				
sk** maks.							0,057
sk** min.							-5,599
Q = |sk**| maks.							5,599
|sk**| min.							0,000
R = sk** maks. - sk** min.							5,656
Q/√n							1,252
R/√n							1,265

MENENTUKAN KONSISTENSI						
dicoba dengan kepercayaan 99% untuk Q/√n					=	1,420
dicoba dengan kepercayaan 99% untuk R/√n					=	1,600
Nilai Q/√n Hitungan	=	1,252	< NilaiQ/√n Tabel	=	1,420	
Nilai R/√n Hitungan	=	1,265	< Nilai R/√n Tabel	=	1,600	
KONSISTEN						

(Sumber : Hasil Perhitungan)

Lampiran 1.10 Perhitungan RAPS Data Satelit Pos Hujan Kopang

No.	Tahun	Yi	$(Yi-\bar{Y})^2$	sk*	Dy^2	sk**	|sk**|
1	2001	2112.988	254786.851	504.764	12739.343	1.811	1.811
2	2002	1317.227	84679.276	213.767	4233.964	0.767	0.767
3	2003	1546.886	3762.289	152.430	188.114	0.547	0.547
4	2004	1441.003	27962.682	-14.791	1398.134	-0.053	0.053
5	2005	1428.871	32167.322	-194.143	1608.366	-0.697	0.697
6	2006	1370.180	56664.858	-432.187	2833.243	-1.551	1.551
7	2007	1530.182	6090.544	-510.229	304.527	-1.831	1.831
8	2008	1550.064	3382.560	-568.389	169.128	-2.040	2.040
9	2009	1583.663	603.213	-592.949	30.161	-2.128	2.128
10	2010	1518.956	7968.744	-682.217	398.437	-2.448	2.448
11	2011	1678.137	4887.816	-612.304	244.391	-2.197	2.197
12	2012	1550.155	3371.931	-670.373	168.597	-2.405	2.405
13	2013	1903.183	87000.748	-375.414	4350.037	-1.347	1.347
14	2014	1312.766	87294.985	-670.871	4364.749	-2.407	2.407
15	2015	1252.968	126206.266	-1026.126	6310.313	-3.682	3.682
16	2016	2062.812	206650.286	-571.538	10332.514	-2.051	2.051
17	2017	1839.157	53330.447	-340.604	2666.522	-1.222	1.222
18	2018	1373.195	55238.326	-575.633	2761.916	-2.066	2.066
19	2020	1518.144	8114.335	-665.712	405.717	-2.389	2.389
20	2021	2273.936	443172.655	0.000	22158.633	0.000	0.000
Jumlah		32164.472	1553336.132		77666.807		
				Dy =	278.688		
Rata - rata		1608.224	77666.807				
sk** maks.							1.811
sk** min.							-3.682
Q = |sk**| maks.							3.682
|sk**| min.							0.000
R = sk** maks. - sk** min.							5.493
Q/√n							0.823
R/√n							1.228

MENENTUKAN KONSISTENSI					
dicoba dengan kepercayaan 99% untuk Q/√n				=	1.420
dicoba dengan kepercayaan 99% untuk R/√n				=	1.600
Nilai Q/√n Hitungan	=	0.823	< NilaiQ/√n Tabel	=	1.420
Nilai R/√n Hitungan	=	1.228	< Nilai R/√n Tabel	=	1.600
KONSISTEN					

(Sumber : Hasil Perhitungan)

Lampiran 1.11 Perhitungan RAPS Data Satelit Pos Hujan Kabul

No.	Tahun	Yi	$(Yi-\bar{Y})^2$	sk*	Dy^2	sk**	|sk**|
1	2001	2037.304	147232.420	383.709	7361.621	1.265	1.265
2	2002	1301.827	123741.028	31.940	6187.051	0.105	0.105
3	2003	1450.451	41267.416	-171.203	2063.371	-0.565	0.565
4	2004	1490.055	26745.211	-334.743	1337.261	-1.104	1.104
5	2005	1434.905	47825.417	-553.433	2391.271	-1.825	1.825
6	2006	1329.252	105198.401	-877.776	5259.920	-2.894	2.894
7	2007	1571.354	6763.587	-960.017	338.179	-3.166	3.166
8	2008	1604.610	2399.533	-1009.002	119.977	-3.327	3.327
9	2009	1606.086	2257.146	-1056.512	112.857	-3.484	3.484
10	2010	1568.584	7226.909	-1141.523	361.345	-3.764	3.764
11	2011	1749.915	9277.460	-1045.204	463.873	-3.447	3.447
12	2012	1685.858	1040.912	-1012.940	52.046	-3.340	3.340
13	2013	2032.581	143630.062	-633.955	7181.503	-2.090	2.090
14	2014	1361.548	85291.468	-926.002	4264.573	-3.053	3.053
15	2015	1294.558	128907.302	-1285.038	6445.365	-4.237	4.237
16	2016	2216.672	317055.224	-721.962	15852.761	-2.381	2.381
17	2017	1970.400	100365.389	-405.157	5018.269	-1.336	1.336
18	2018	1438.768	46150.739	-619.984	2307.537	-2.044	2.044
19	2020	1573.184	6465.998	-700.396	323.300	-2.310	2.310
20	2021	2353.991	490553.954	0.000	24527.698	0.000	0.000
Jumlah		33071.901	1839395.575		91969.779		
				Dy =	303.265		
Rata - rata		1653.595	91969.779				
sk** maks.							1.265
sk** min.							-4.237
Q = |sk**| maks.							4.237
|sk**| min.							0.000
R = sk** maks. - sk** min.							5.503
Q/√n							0.947
R/√n							1.230

MENENTUKAN KONSISTENSI						
dicoba dengan kepercayaan 99% untuk Q/√n					=	1.420
dicoba dengan kepercayaan 99% untuk R/√n					=	1.600
Nilai Q/√n Hitungan	=	0.947	< NilaiQ/√n Tabel	=	1.420	
Nilai R/√n Hitungan	=	1.230	< Nilai R/√n Tabel	=	1.600	
KONSISTEN						

(Sumber : Hasil Perhitungan)

Lampiran 1.12 Perhitungan RAPS Data Satelit Pos Hujan Rembitan

No.	Tahun	Yi	$(Yi-\bar{Y})^2$	sk*	Dy^2	sk**	|sk**|
1	2001	1083.342	113486.240	-336.877	5674.312	-1.150	1.150
2	2002	1241.514	31935.636	-515.583	1596.782	-1.760	1.760
3	2003	1267.023	23468.957	-668.778	1173.448	-2.282	2.282
4	2004	1204.491	46538.489	-884.506	2326.924	-3.019	3.019
5	2005	1180.701	57368.974	-1124.024	2868.449	-3.836	3.836
6	2006	1338.322	6707.129	-1205.922	335.356	-4.115	4.115
7	2007	1350.392	4875.834	-1275.749	243.792	-4.354	4.354
8	2008	1389.213	961.405	-1306.755	48.070	-4.460	4.460
9	2009	1331.957	7790.156	-1395.017	389.508	-4.761	4.761
10	2010	2128.334	501425.951	-686.903	25071.298	-2.344	2.344
11	2011	1516.982	9363.011	-590.140	468.151	-2.014	2.014
12	2012	1424.002	14.311	-586.357	0.716	-2.001	2.001
13	2013	1679.307	67126.540	-327.269	3356.327	-1.117	1.117
14	2014	1150.254	72881.410	-597.235	3644.071	-2.038	2.038
15	2015	1094.383	106169.039	-923.071	5308.452	-3.150	3.150
16	2016	1895.853	226227.926	-447.436	11311.396	-1.527	1.527
17	2017	1644.277	50201.849	-223.379	2510.092	-0.762	0.762
18	2018	1208.571	44794.837	-435.027	2239.742	-1.485	1.485
19	2020	1283.265	18756.378	-571.981	937.819	-1.952	1.952
20	2021	1992.200	327161.847	0.000	16358.092	0.000	0.000
Jumlah		28404.383	1717255.919		85862.796		
				Dy =	293.024		
Rata - rata		1420.219	85862.796				
sk** maks.							0.000
sk** min.							-4.761
Q = |sk**| maks.							4.761
|sk**| min.							0.000
R = sk** maks. - sk** min.							4.761
Q/√n							1.065
R/√n							1.065

MENENTUKAN KONSISTENSI							
dicoba dengan kepercayaan 99% untuk Q/√n						=	1.420
dicoba dengan kepercayaan 99% untuk R/√n						=	1.600
Nilai Q/√n Hitungan	=	1.065	<	NilaiQ/√n Tabe	=	1.420	
Nilai R/√n Hitungan	=	1.065	<	Nilai R/√n Tabe	=	1.600	
KONSISTEN							

(Sumber : Hasil Perhitungan)

LAMPIRAN II

Lampiran 2.1 Perhitungan Nilai RMSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Hujan Kopang.

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
1	Jan-01	373,000	403,065	-30,065	903,928
2	Feb-01	214,000	260,100	-46,100	2125,211
3	Mar-01	338,000	304,907	33,093	1095,161
4	Apr-01	404,000	192,641	211,359	44672,689
5	May-01	64,000	153,616	-89,616	8031,071
6	Jun-01	29,300	53,590	-24,290	590,016
7	Jul-01	0,000	23,846	-23,846	568,631
8	Aug-01	5,100	55,204	-50,104	2510,375
9	Sep-01	12,700	10,609	2,091	4,371
10	Oct-01	182,600	178,526	4,074	16,595
11	Nov-01	680,200	302,524	377,676	142638,959
12	Dec-01	86,900	174,359	-87,459	7649,055
13	Jan-02	426,100	205,396	220,704	48710,351
14	Feb-02	126,000	114,172	11,828	139,911
15	Mar-02	337,800	158,325	179,475	32211,243
16	Apr-02	211,900	101,004	110,896	12298,009
17	May-02	166,000	69,510	96,490	9310,278
18	Jun-02	77,900	123,453	-45,553	2075,108
19	Jul-02	147,300	29,052	118,248	13982,531
20	Aug-02	0,000	14,721	-14,721	216,719
21	Sep-02	15,200	8,840	6,360	40,454
22	Oct-02	266,500	78,743	187,757	35252,772
23	Nov-02	259,200	300,923	-41,723	1740,790
24	Dec-02	172,800	113,088	59,712	3565,511
25	Jan-03	460,500	216,417	244,083	59576,561
26	Feb-03	249,100	293,643	-44,543	1984,070
27	Mar-03	269,300	159,706	109,594	12010,876
28	Apr-03	83,900	93,584	-9,684	93,775
29	May-03	22,300	37,929	-15,629	244,262
30	Jun-03	0,000	13,808	-13,808	190,665
31	Jul-03	0,000	27,250	-27,250	742,567
32	Aug-03	0,000	12,849	-12,849	165,106
33	Sep-03	0,000	13,439	-13,439	180,619
34	Oct-03	53,300	32,263	21,037	442,559
35	Nov-03	324,400	301,100	23,300	542,900
36	Dec-03	437,700	344,898	92,802	8612,198
37	Jan-04	434,600	285,657	148,943	22184,035
38	Feb-04	261,700	226,805	34,895	1217,636
39	Mar-04	52,100	98,952	-46,852	2195,117
40	Apr-04	251,000	90,576	160,424	25735,792

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
41	May-04	88,900	64,885	24,015	576,715
42	Jun-04	8,900	40,141	-31,241	976,000
43	Jul-04	0,000	17,184	-17,184	295,285
44	Aug-04	0,000	10,587	-10,587	112,094
45	Sep-04	55,400	28,962	26,438	698,966
46	Oct-04	28,400	24,223	4,177	17,444
47	Nov-04	310,400	289,661	20,739	430,087
48	Dec-04	437,000	263,368	173,632	30147,971
49	Jan-05	394,900	169,779	225,121	50679,622
50	Feb-05	203,200	246,185	-42,985	1847,669
51	Mar-05	180,900	167,143	13,757	189,267
52	Apr-05	169,000	44,904	124,096	15399,868
53	May-05	192,600	86,928	105,672	11166,548
54	Jun-05	0,000	17,888	-17,888	319,974
55	Jul-05	0,000	17,185	-17,185	295,323
56	Aug-05	0,100	10,350	-10,250	105,060
57	Sep-05	0,400	19,591	-19,191	368,297
58	Oct-05	0,510	96,306	-95,796	9176,898
59	Nov-05	134,450	273,336	-138,886	19289,313
60	Dec-05	146,600	279,278	-132,678	17603,354
61	Jan-06	201,000	80,798	120,202	14448,426
62	Feb-06	202,900	144,383	58,517	3424,233
63	Mar-06	911,800	164,029	747,771	559160,754
64	Apr-06	66,300	138,211	-71,911	5171,206
65	May-06	0,000	18,814	-18,814	353,954
66	Jun-06	172,900	27,578	145,322	21118,515
67	Jul-06	58,600	35,421	23,179	537,280
68	Aug-06	5,000	17,114	-12,114	146,751
69	Sep-06	45,000	26,687	18,313	335,371
70	Oct-06	146,400	130,128	16,272	264,767
71	Nov-06	0,000	241,264	-241,264	58208,550
72	Dec-06	96,350	345,752	-249,402	62201,251
73	Jan-07	183,200	316,989	-133,789	17899,477
74	Feb-07	154,400	179,347	-24,947	622,339
75	Mar-07	340,500	299,909	40,591	1647,615
76	Apr-07	250,300	122,638	127,662	16297,481
77	May-07	64,900	115,217	-50,317	2531,788
78	Jun-07	88,800	39,440	49,360	2436,361
79	Jul-07	5,100	31,525	-26,425	698,280
80	Aug-07	0,000	9,951	-9,951	99,022
81	Sep-07	0,000	9,561	-9,561	91,421
82	Oct-07	35,800	26,166	9,634	92,806
83	Nov-07	0,000	79,413	-79,413	6306,417
84	Dec-07	307,570	300,024	7,546	56,937
85	Jan-08	195,200	96,135	99,065	9813,936
86	Feb-08	98,500	190,273	-91,773	8422,228
87	Mar-08	85,700	332,464	-246,764	60892,480
88	Apr-08	169,300	176,891	-7,591	57,622
89	May-08	16,000	61,578	-45,578	2077,326
90	Jun-08	10,000	37,222	-27,222	741,031

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
91	Jul-08	19,800	21,618	-1,818	3,303
92	Aug-08	0,000	12,112	-12,112	146,694
93	Sep-08	0,000	8,102	-8,102	65,636
94	Oct-08	0,000	45,041	-45,041	2028,688
95	Nov-08	20,200	159,770	-139,570	19479,788
96	Dec-08	325,100	408,860	-83,760	7015,745
97	Jan-09	318,500	163,996	154,504	23871,476
98	Feb-09	46,270	247,800	-201,530	40614,430
99	Mar-09	231,200	333,080	-101,880	10379,511
100	Apr-09	141,900	96,515	45,385	2059,813
101	May-09	0,200	52,050	-51,850	2688,389
102	Jun-09	10,000	30,750	-20,750	430,543
103	Jul-09	0,000	20,054	-20,054	402,161
104	Aug-09	12,500	29,650	-17,150	294,118
105	Sep-09	10,000	22,159	-12,159	147,846
106	Oct-09	67,200	73,544	-6,344	40,243
107	Nov-09	157,100	253,760	-96,660	9343,171
108	Dec-09	38,420	260,306	-221,886	49233,507
109	Jan-10	114,800	372,534	-257,734	66427,008
110	Feb-10	128,600	293,518	-164,918	27197,855
111	Mar-10	112,400	154,634	-42,234	1783,697
112	Apr-10	8,700	88,558	-79,858	6377,231
113	May-10	0,150	153,077	-152,927	23386,591
114	Jun-10	0,000	21,089	-21,089	444,747
115	Jul-10	0,000	29,431	-29,431	866,160
116	Aug-10	0,000	10,250	-10,250	105,060
117	Sep-10	0,000	34,493	-34,493	1189,742
118	Oct-10	35,500	51,251	-15,751	248,079
119	Nov-10	0,000	91,424	-91,424	8358,264
120	Dec-10	103,860	218,699	-114,839	13188,076
121	Jan-11	253,200	271,938	-18,738	351,121
122	Feb-11	115,500	155,286	-39,786	1582,963
123	Mar-11	199,700	208,645	-8,945	80,009
124	Apr-11	290,900	283,576	7,324	53,637
125	May-11	124,000	117,665	6,335	40,133
126	Jun-11	16,200	19,088	-2,888	8,341
127	Jul-11	26,200	23,247	2,953	8,720
128	Aug-11	0,300	10,587	-10,287	105,832
129	Sep-11	13,900	9,263	4,637	21,506
130	Oct-11	46,500	64,719	-18,219	331,934
131	Nov-11	351,400	229,490	121,910	14862,003
132	Dec-11	245,600	284,631	-39,031	1523,454
133	Jan-12	531,000	336,045	194,955	38007,468
134	Feb-12	230,100	182,975	47,125	2220,731
135	Mar-12	0,000	239,432	-239,432	57327,603
136	Apr-12	75,000	70,958	4,042	16,337
137	May-12	0,000	104,655	-104,655	10952,711
138	Jun-12	75,000	14,917	60,083	3609,913
139	Jul-12	19,900	22,931	-3,031	9,187
140	Aug-12	0,000	16,122	-16,122	259,928

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
141	Sep-12	37,000	13,039	23,961	574,132
142	Oct-12	95,000	45,530	49,470	2447,237
143	Nov-12	242,100	181,791	60,309	3637,134
144	Dec-12	450,100	321,758	128,342	16471,573
145	Jan-13	429,500	371,035	58,465	3418,109
146	Feb-13	331,900	205,102	126,798	16077,656
147	Mar-13	67,533	113,237	-45,704	2088,824
148	Apr-13	250,900	118,909	131,991	17421,653
149	May-13	36,107	130,225	-94,118	8858,152
150	Jun-13	69,000	116,418	-47,418	2248,446
151	Jul-13	21,500	70,723	-49,223	2422,944
152	Aug-13	0,000	12,271	-12,271	150,571
153	Sep-13	2,900	10,893	-7,993	63,894
154	Oct-13	37,400	56,125	-18,725	350,639
155	Nov-13	220,900	276,347	-55,447	3074,341
156	Dec-13	417,000	421,897	-4,897	23,977
157	Jan-14	259,910	309,743	-49,833	2483,373
158	Feb-14	92,800	141,251	-48,451	2347,457
159	Mar-14	123,900	109,713	14,187	201,272
160	Apr-14	442,200	154,644	287,556	82688,597
161	May-14	4,800	25,584	-20,784	431,990
162	Jun-14	10,600	30,601	-20,001	400,060
163	Jul-14	145,700	39,890	105,810	11195,705
164	Aug-14	13,500	11,896	1,604	2,574
165	Sep-14	0,400	8,941	-8,541	72,948
166	Oct-14	4,000	12,753	-8,753	76,615
167	Nov-14	158,200	168,975	-10,775	116,103
168	Dec-14	509,000	298,775	210,225	44194,626
169	Jan-15	200,710	183,188	17,522	307,008
170	Feb-15	228,000	172,200	55,800	3113,664
171	Mar-15	337,300	153,351	183,949	33837,138
172	Apr-15	208,700	218,380	-9,680	93,709
173	May-15	38,500	37,543	0,957	0,917
174	Jun-15	12,700	57,925	-45,225	2045,292
175	Jul-15	0,000	15,817	-15,817	250,179
176	Aug-15	1,300	14,812	-13,512	182,573
177	Sep-15	0,000	8,280	-8,280	68,553
178	Oct-15	31,100	12,153	18,947	359,004
179	Nov-15	0,000	93,639	-93,639	8768,241
180	Dec-15	314,800	285,681	29,119	847,911
181	Jan-16	142,800	174,746	-31,946	1020,571
182	Feb-16	550,700	238,985	311,715	97166,361
183	Mar-16	235,800	175,084	60,716	3686,486
184	Apr-16	176,100	74,024	102,076	10419,574
185	May-16	126,200	85,352	40,848	1668,579
186	Jun-16	112,300	139,114	-26,814	719,011
187	Jul-16	53,300	165,481	-112,181	12584,602
188	Aug-16	62,200	20,355	41,845	1751,002
189	Sep-16	256,600	67,869	188,731	35619,359
190	Oct-16	193,500	286,308	-92,808	8613,358

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
191	Nov-16	238,300	248,119	-9,819	96,404
192	Dec-16	359,700	387,375	-27,675	765,912
193	Jan-17	300,300	294,002	6,298	39,659
194	Feb-17	377,000	224,482	152,518	23261,645
195	Mar-17	226,700	167,501	59,199	3504,573
196	Apr-17	143,000	112,564	30,436	926,351
197	May-17	78,600	42,059	36,541	1335,256
198	Jun-17	29,600	115,737	-86,137	7419,661
199	Jul-17	87,800	35,367	52,433	2749,182
200	Aug-17	29,500	12,496	17,004	289,127
201	Sep-17	2,900	9,060	-6,160	37,948
202	Oct-17	113,300	119,112	-5,812	33,775
203	Nov-17	405,100	412,635	-7,535	56,777
204	Dec-17	369,100	294,141	74,959	5618,786
205	Jan-18	570,600	416,588	154,012	23719,757
206	Feb-18	215,100	211,553	3,547	12,580
207	Mar-18	413,100	135,869	277,231	76857,186
208	Apr-18	5,200	29,374	-24,174	584,401
209	May-18	8,000	12,003	-4,003	16,020
210	Jun-18	13,700	23,056	-9,356	87,539
211	Jul-18	8,900	26,429	-17,529	307,251
212	Aug-18	11,800	17,824	-6,024	36,293
213	Sep-18	26,500	10,606	15,894	252,632
214	Oct-18	1,900	10,765	-8,865	78,585
215	Nov-18	416,900	320,551	96,349	9283,150
216	Dec-18	221,000	158,578	62,422	3896,477
217	Jan-20	139,000	151,148	-12,148	147,586
218	Feb-20	5,300	156,570	-151,270	22882,689
219	Mar-20	452,200	206,505	245,695	60365,857
220	Apr-20	231,100	87,600	143,500	20592,119
221	May-20	392,700	147,783	244,917	59984,224
222	Jun-20	0,000	26,313	-26,313	692,386
223	Jul-20	9,400	26,418	-17,018	289,602
224	Aug-20	5,000	19,158	-14,158	200,448
225	Sep-20	19,200	25,215	-6,015	36,181
226	Oct-20	142,200	164,466	-22,266	495,762
227	Nov-20	215,900	183,543	32,357	1046,964
228	Dec-20	446,200	323,423	122,777	15074,112
229	Jan-21	398,500	447,453	-48,953	2396,426
230	Feb-21	278,500	267,781	10,719	114,905
231	Mar-21	242,500	160,769	81,731	6679,952
232	Apr-21	92,500	129,982	-37,482	1404,921
233	May-21	9,000	31,056	-22,056	486,463
234	Jun-21	79,000	119,410	-40,410	1632,941
235	Jul-21	6,500	30,812	-24,312	591,053
236	Aug-21	0,000	29,977	-29,977	898,613
237	Sep-21	53,500	50,162	3,338	11,145
238	Oct-21	107,000	127,271	-20,271	410,930
239	Nov-21	452,000	486,913	-34,913	1218,884
240	Dec-21	268,000	392,351	-124,351	15463,148
Jumlah		34751,640	32164,472	2587,168	2792558,894
RMSE =	107,869				

(Sumber : Hasil Perhitungan)

Lampiran 2.2 Perhitungan Nilai RMSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Hujan Kabul

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
1	Jan-01	358,000	375,458	-17,458	304,782
2	Feb-01	210,700	284,077	-73,377	5384,125
3	Mar-01	263,500	354,672	-91,172	8312,261
4	Apr-01	185,300	200,252	-14,952	223,568
5	May-01	189,300	214,892	-25,592	654,940
6	Jun-01	0,000	53,841	-53,841	2898,832
7	Jul-01	0,000	20,736	-20,736	429,965
8	Aug-01	7,000	14,987	-7,987	63,799
9	Sep-01	0,000	9,424	-9,424	88,808
10	Oct-01	131,000	127,607	3,393	11,515
11	Nov-01	442,500	238,319	204,181	41689,962
12	Dec-01	117,500	143,041	-25,541	652,322
13	Jan-02	305,500	180,159	125,341	15710,366
14	Feb-02	90,000	124,860	-34,860	1215,192
15	Mar-02	133,000	187,813	-54,813	3004,443
16	Apr-02	179,000	112,624	66,376	4405,720
17	May-02	37,000	98,244	-61,244	3750,779
18	Jun-02	88,000	144,791	-56,791	3225,240
19	Jul-02	0,000	31,130	-31,130	969,064
20	Aug-02	0,000	9,411	-9,411	88,559
21	Sep-02	0,000	11,065	-11,065	122,434
22	Oct-02	0,000	75,891	-75,891	5759,414
23	Nov-02	107,500	238,505	-131,005	17162,310
24	Dec-02	54,200	87,335	-33,135	1097,915
25	Jan-03	212,000	180,223	31,777	1009,778
26	Feb-03	411,500	320,312	91,188	8315,251
27	Mar-03	232,000	162,942	69,058	4768,952
28	Apr-03	184,500	106,371	78,129	6104,078
29	May-03	0,000	55,412	-55,412	3070,468
30	Jun-03	0,000	17,338	-17,338	300,592
31	Jul-03	0,000	23,450	-23,450	549,884
32	Aug-03	0,000	9,026	-9,026	81,469
33	Sep-03	0,000	12,958	-12,958	167,910
34	Oct-03	0,000	26,949	-26,949	726,249
35	Nov-03	140,300	247,190	-106,890	11425,429
36	Dec-03	202,100	288,281	-86,181	7427,096
37	Jan-04	147,900	270,112	-122,212	14935,724
38	Feb-04	113,400	242,117	-128,717	16568,066
39	Mar-04	81,300	116,180	-34,880	1216,628
40	Apr-04	63,000	100,801	-37,801	1428,900

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No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
41	May-04	12,000	101,910	-89,910	8083,772
42	Jun-04	4,000	64,300	-60,300	3636,090
43	Jul-04	9,000	14,394	-5,394	29,091
44	Aug-04	0,000	7,209	-7,209	51,964
45	Sep-04	136,500	30,416	106,084	11253,900
46	Oct-04	0,000	23,566	-23,566	555,338
47	Nov-04	89,500	248,323	-158,823	25224,618
48	Dec-04	234,500	270,730	-36,230	1312,598
49	Jan-05	83,000	148,034	-65,034	4229,447
50	Feb-05	104,500	255,693	-151,193	22859,444
51	Mar-05	95,500	157,084	-61,584	3792,638
52	Apr-05	5,000	42,299	-37,299	1391,200
53	May-05	47,500	157,434	-109,934	12085,572
54	Jun-05	0,000	22,659	-22,659	513,430
55	Jul-05	0,000	14,516	-14,516	210,720
56	Aug-05	0,000	6,900	-6,900	47,610
57	Sep-05	0,000	20,946	-20,946	438,718
58	Oct-05	0,000	77,876	-77,876	6064,640
59	Nov-05	186,000	242,926	-56,926	3240,524
60	Dec-05	200,400	288,537	-88,137	7768,201
61	Jan-06	62,000	70,407	-8,407	70,684
62	Feb-06	108,500	153,858	-45,358	2057,366
63	Mar-06	181,000	183,512	-2,512	6,310
64	Apr-06	118,000	139,261	-21,261	452,047
65	May-06	47,500	26,838	20,662	426,910
66	Jun-06	37,500	37,606	-0,106	0,011
67	Jul-06	48,000	45,575	2,425	5,882
68	Aug-06	30,000	13,468	16,532	273,307
69	Sep-06	10,500	26,788	-16,288	265,305
70	Oct-06	69,400	126,394	-56,994	3248,293
71	Nov-06	76,200	156,759	-80,559	6489,688
72	Dec-06	232,700	348,786	-116,086	13475,913
73	Jan-07	339,000	267,389	71,611	5128,107
74	Feb-07	230,600	198,550	32,050	1027,215
75	Mar-07	337,700	347,492	-9,792	95,887
76	Apr-07	221,100	141,997	79,103	6257,316
77	May-07	20,400	149,896	-129,496	16769,162
78	Jun-07	57,000	44,079	12,921	166,942
79	Jul-07	0,000	25,848	-25,848	668,129
80	Aug-07	0,000	6,786	-6,786	46,050
81	Sep-07	0,000	10,032	-10,032	100,633
82	Oct-07	58,200	26,388	31,812	1011,978
83	Nov-07	22,100	57,730	-35,630	1269,483
84	Dec-07	131,400	295,167	-163,767	26819,565
85	Jan-08	84,500	87,726	-3,226	10,406
86	Feb-08	75,100	199,556	-124,456	15489,346
87	Mar-08	61,900	364,591	-302,691	91621,720
88	Apr-08	208,500	172,248	36,252	1314,179
89	May-08	53,500	117,163	-63,663	4053,003
90	Jun-08	8,200	41,351	-33,151	1099,002

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
91	Jul-08	32,000	17,111	14,889	221,682
92	Aug-08	5,500	9,594	-4,094	16,761
93	Sep-08	0,000	8,558	-8,558	73,233
94	Oct-08	7,800	47,699	-39,899	1591,898
95	Nov-08	48,500	158,108	-109,608	12013,870
96	Dec-08	117,500	380,905	-263,405	69382,405
97	Jan-09	112,900	145,131	-32,231	1038,824
98	Feb-09	149,500	274,788	-125,288	15697,033
99	Mar-09	316,400	392,700	-76,300	5821,659
100	Apr-09	103,600	117,815	-14,215	202,066
101	May-09	15,100	73,540	-58,440	3415,257
102	Jun-09	0,000	37,699	-37,699	1421,215
103	Jul-09	0,000	17,134	-17,134	293,581
104	Aug-09	2,300	22,089	-19,789	391,605
105	Sep-09	11,100	19,801	-8,701	75,700
106	Oct-09	3,500	69,466	-65,966	4351,487
107	Nov-09	54,800	230,080	-175,280	30723,008
108	Dec-09	75,200	205,844	-130,644	17067,750
109	Jan-10	405,000	355,466	49,534	2453,578
110	Feb-10	286,800	321,132	-34,332	1178,659
111	Mar-10	116,400	174,689	-58,289	3397,631
112	Apr-10	20,500	90,587	-70,087	4912,131
113	May-10	10,000	193,391	-183,391	33632,259
114	Jun-10	0,000	26,480	-26,480	701,212
115	Jul-10	0,000	24,778	-24,778	613,929
116	Aug-10	0,000	6,987	-6,987	48,824
117	Sep-10	12,800	37,749	-24,949	622,463
118	Oct-10	36,200	53,251	-17,051	290,750
119	Nov-10	50,500	83,724	-33,224	1103,834
120	Dec-10	110,400	200,349	-89,949	8090,823
121	Jan-11	115,900	257,922	-142,022	20170,192
122	Feb-11	99,000	199,350	-100,350	10070,082
123	Mar-11	128,800	238,032	-109,232	11931,674
124	Apr-11	122,100	317,959	-195,859	38360,748
125	May-11	117,700	165,007	-47,307	2237,952
126	Jun-11	1,100	24,106	-23,006	529,258
127	Jul-11	19,700	20,136	-0,436	0,190
128	Aug-11	0,000	7,209	-7,209	51,964
129	Sep-11	0,000	9,737	-9,737	94,809
130	Oct-11	25,200	32,734	-7,534	56,755
131	Nov-11	57,500	184,595	-127,095	16153,037
132	Dec-11	209,400	293,130	-83,730	7010,679
133	Jan-12	115,300	378,715	-263,415	69387,357
134	Feb-12	111,900	220,614	-108,714	11818,690
135	Mar-12	156,300	295,463	-139,163	19366,452
136	Apr-12	27,300	72,658	-45,358	2057,348
137	May-12	170,700	167,028	3,672	13,482
138	Jun-12	0,500	19,451	-18,951	359,133
139	Jul-12	1,700	17,206	-15,506	240,442
140	Aug-12	0,700	6,886	-6,186	38,267

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
141	Sep-12	4,800	11,169	-6,369	40,567
142	Oct-12	29,200	33,193	-3,993	15,944
143	Nov-12	245,900	156,592	89,308	7975,990
144	Dec-12	132,500	306,883	-174,383	30409,500
145	Jan-13	219,000	374,006	-155,006	24026,736
146	Feb-13	211,000	251,593	-40,593	1647,775
147	Mar-13	138,300	163,733	-25,433	646,848
148	Apr-13	249,500	137,979	111,521	12436,889
149	May-13	117,300	187,355	-70,055	4907,703
150	Jun-13	80,000	135,234	-55,234	3050,817
151	Jul-13	1,700	64,342	-62,642	3924,020
152	Aug-13	0,000	6,346	-6,346	40,274
153	Sep-13	1,000	12,427	-11,427	130,581
154	Oct-13	78,900	55,610	23,290	542,443
155	Nov-13	60,300	229,796	-169,496	28728,826
156	Dec-13	271,830	414,160	-142,330	20257,772
157	Jan-14	197,500	325,085	-127,585	16277,983
158	Feb-14	173,900	177,991	-4,091	16,736
159	Mar-14	131,700	124,702	6,998	48,978
160	Apr-14	102,000	153,103	-51,103	2611,496
161	May-14	54,700	43,181	11,519	132,692
162	Jun-14	0,000	26,829	-26,829	719,785
163	Jul-14	24,100	31,336	-7,236	52,365
164	Aug-14	2,900	6,081	-3,181	10,121
165	Sep-14	0,500	10,062	-9,562	91,439
166	Oct-14	0,000	13,410	-13,410	179,839
167	Nov-14	206,400	147,650	58,750	3451,610
168	Dec-14	404,500	302,118	102,382	10482,156
169	Jan-15	149,800	160,689	-10,889	118,562
170	Feb-15	119,300	188,827	-69,527	4833,976
171	Mar-15	248,500	205,757	42,743	1826,930
172	Apr-15	163,800	215,783	-51,983	2702,211
173	May-15	79,900	59,880	20,020	400,800
174	Jun-15	0,000	61,390	-61,390	3768,732
175	Jul-15	0,600	15,010	-14,410	207,654
176	Aug-15	3,100	8,088	-4,988	24,884
177	Sep-15	6,700	9,093	-2,393	5,726
178	Oct-15	0,000	11,997	-11,997	143,928
179	Nov-15	122,400	66,158	56,242	3163,140
180	Dec-15	212,800	291,886	-79,086	6254,595
181	Jan-16	277,700	175,606	102,094	10423,226
182	Feb-16	302,700	293,642	9,058	82,047
183	Mar-16	154,400	181,890	-27,490	755,711
184	Apr-16	128,100	79,492	48,608	2362,777
185	May-16	20,300	115,795	-95,495	9119,333
186	Jun-16	224,600	176,156	48,444	2346,802
187	Jul-16	54,500	125,842	-71,342	5089,738
188	Aug-16	12,100	7,988	4,112	16,907
189	Sep-16	202,500	105,262	97,238	9455,306
190	Oct-16	184,500	292,977	-108,477	11767,303

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
191	Nov-16	295,100	251,799	43,301	1875,011
192	Dec-16	262,400	410,223	-147,823	21851,521
193	Jan-17	374,000	272,649	101,351	10272,066
194	Feb-17	418,200	277,109	141,091	19906,557
195	Mar-17	151,400	210,214	-58,814	3459,134
196	Apr-17	126,000	129,310	-3,310	10,957
197	May-17	5,900	65,003	-59,103	3493,165
198	Jun-17	80,000	137,339	-57,339	3287,738
199	Jul-17	58,600	30,040	28,560	815,651
200	Aug-17	5,700	6,383	-0,683	0,466
201	Sep-17	8,700	11,349	-2,649	7,015
202	Oct-17	97,200	109,384	-12,184	148,445
203	Nov-17	374,500	372,397	2,103	4,422
204	Dec-17	390,800	349,223	41,577	1728,680
205	Jan-18	592,100	483,284	108,816	11841,009
206	Feb-18	226,600	238,679	-12,079	145,902
207	Mar-18	186,600	170,036	16,564	274,379
208	Apr-18	25,000	24,093	0,907	0,823
209	May-18	0,000	15,622	-15,622	244,059
210	Jun-18	7,100	22,436	-15,336	235,187
211	Jul-18	0,900	22,157	-21,257	451,877
212	Aug-18	6,900	10,366	-3,466	12,012
213	Sep-18	21,800	10,558	11,242	126,374
214	Oct-18	2,400	11,126	-8,726	76,136
215	Nov-18	117,700	296,082	-178,382	31819,995
216	Dec-18	67,000	134,330	-67,330	4533,275
217	Jan-20	0,000	136,112	-136,112	18526,531
218	Feb-20	0,000	175,738	-175,738	30883,845
219	Mar-20	328,400	249,506	78,894	6224,263
220	Apr-20	179,800	79,880	99,920	9983,926
221	May-20	95,000	185,912	-90,912	8264,919
222	Jun-20	14,000	34,008	-20,008	400,336
223	Jul-20	0,000	29,608	-29,608	876,646
224	Aug-20	14,500	11,199	3,301	10,894
225	Sep-20	24,500	24,479	0,021	0,000
226	Oct-20	163,000	182,990	-19,990	399,608
227	Nov-20	137,700	147,488	-9,788	95,813
228	Dec-20	202,900	316,262	-113,362	12850,988
229	Jan-21	323,500	491,252	-167,752	28140,599
230	Feb-21	263,400	327,880	-64,480	4157,645
231	Mar-21	133,500	202,176	-68,676	4716,393
232	Apr-21	125,300	140,913	-15,613	243,753
233	May-21	19,000	38,132	-19,132	366,049
234	Jun-21	91,300	152,698	-61,398	3769,764
235	Jul-21	3,000	28,829	-25,829	667,117
236	Aug-21	36,300	8,960	27,340	747,487
237	Sep-21	67,300	58,240	9,060	82,076
238	Oct-21	88,600	109,107	-20,507	420,529
239	Nov-21	497,500	403,040	94,460	8922,692
240	Dec-21	420,000	392,764	27,236	741,789
Jumlah		25348,830	33071,901	-7723,071	1444469,477
RMSE =	77,580				

(Sumber : Hasil Perhitungan)

Lampiran 2.3 Perhitungan Nilai RMSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Hujan Rembitan

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
1	Jan-01	183,300	171,619	11,681	136,445
2	Feb-01	318,700	104,454	214,246	45901,259
3	Mar-01	150,800	140,178	10,622	112,822
4	Apr-01	35,300	94,505	-59,205	3505,231
5	May-01	0,900	78,714	-77,814	6055,026
6	Jun-01	45,900	118,552	-72,652	5278,322
7	Jul-01	1,900	26,363	-24,463	598,422
8	Aug-01	0,000	6,890	-6,890	47,471
9	Sep-01	0,000	10,657	-10,657	113,567
10	Oct-01	97,000	68,476	28,524	813,637
11	Nov-01	102,500	183,406	-80,906	6545,742
12	Dec-01	292,000	79,529	212,471	45144,120
13	Jan-02	207,500	181,158	26,342	693,895
14	Feb-02	573,500	277,652	295,848	87525,925
15	Mar-02	127,500	123,900	3,600	12,958
16	Apr-02	174,500	92,448	82,052	6732,510
17	May-02	0,000	47,734	-47,734	2278,536
18	Jun-02	0,000	15,941	-15,941	254,131
19	Jul-02	0,000	25,261	-25,261	638,126
20	Aug-02	0,000	8,948	-8,948	80,075
21	Sep-02	0,000	13,486	-13,486	181,880
22	Oct-02	0,000	26,938	-26,938	725,650
23	Nov-02	114,500	182,079	-67,579	4566,966
24	Dec-02	252,500	245,966	6,534	42,688
25	Jan-03	543,600	262,009	281,591	79293,298
26	Feb-03	195,200	205,913	-10,713	114,769
27	Mar-03	103,500	90,624	12,876	165,799
28	Apr-03	106,000	85,793	20,207	408,318
29	May-03	15,700	77,936	-62,236	3873,272
30	Jun-03	11,600	56,197	-44,597	1988,926
31	Jul-03	10,400	15,719	-5,319	28,289
32	Aug-03	2,200	7,232	-5,032	25,321
33	Sep-03	88,800	31,416	57,384	3292,883
34	Oct-03	31,500	25,030	6,470	41,867
35	Nov-03	159,200	172,368	-13,168	173,386
36	Dec-03	433,300	236,787	196,513	38617,394
37	Jan-04	328,000	137,103	190,897	36441,833
38	Feb-04	181,100	203,877	-22,777	518,809
39	Mar-04	162,000	146,569	15,431	238,128
40	Apr-04	9,500	39,030	-29,530	872,045

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
41	May-04	147,700	121,719	25,981	675,025
42	Jun-04	8,300	20,901	-12,601	158,795
43	Jul-04	3,000	15,961	-12,961	167,982
44	Aug-04	10,000	7,242	2,758	7,608
45	Sep-04	9,500	18,630	-9,130	83,350
46	Oct-04	10,000	81,039	-71,039	5046,477
47	Nov-04	174,500	161,562	12,938	167,380
48	Dec-04	248,000	250,859	-2,859	8,175
49	Jan-05	235,000	75,377	159,623	25479,546
50	Feb-05	211,500	122,245	89,255	7966,485
51	Mar-05	227,500	150,623	76,877	5910,087
52	Apr-05	118,000	129,103	-11,103	123,285
53	May-05	0,000	23,112	-23,112	534,148
54	Jun-05	0,000	29,760	-29,760	885,673
55	Jul-05	60,500	36,496	24,004	576,209
56	Aug-05	30,000	13,166	16,834	283,385
57	Sep-05	5,100	28,062	-22,962	527,235
58	Oct-05	46,000	129,008	-83,008	6890,371
59	Nov-05	47,200	123,622	-76,422	5840,393
60	Dec-05	345,200	320,127	25,073	628,649
61	Jan-06	293,200	254,739	38,461	1479,218
62	Feb-06	116,500	154,090	-37,590	1412,976
63	Mar-06	313,300	288,600	24,700	610,098
64	Apr-06	145,200	133,989	11,211	125,695
65	May-06	10,400	115,170	-104,770	10976,823
66	Jun-06	41,200	40,161	1,039	1,080
67	Jul-06	0,300	26,020	-25,720	661,538
68	Aug-06	0,000	6,874	-6,874	47,246
69	Sep-06	0,400	10,371	-9,971	99,424
70	Oct-06	13,400	28,171	-14,771	218,186
71	Nov-06	25,700	46,507	-20,807	432,948
72	Dec-06	143,000	233,630	-90,630	8213,759
73	Jan-07	110,600	85,623	24,977	623,865
74	Feb-07	174,700	163,439	11,261	126,819
75	Mar-07	263,900	291,276	-27,376	749,444
76	Apr-07	149,000	152,153	-3,153	9,944
77	May-07	2,200	80,657	-78,457	6155,525
78	Jun-07	30,500	35,855	-5,355	28,675
79	Jul-07	1,500	17,053	-15,553	241,909
80	Aug-07	14,400	9,062	5,338	28,499
81	Sep-07	0,000	8,844	-8,844	78,210
82	Oct-07	1,000	41,666	-40,666	1653,722
83	Nov-07	44,600	120,214	-75,614	5717,421
84	Dec-07	377,000	344,551	32,449	1052,939
85	Jan-08	287,800	136,569	151,231	22870,721
86	Feb-08	305,000	238,032	66,968	4484,726
87	Mar-08	194,300	327,470	-133,170	17734,176
88	Apr-08	50,700	112,596	-61,896	3831,150
89	May-08	25,300	62,386	-37,086	1375,365
90	Jun-08	0,000	32,817	-32,817	1076,957

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
91	Jul-08	1,100	18,694	-17,594	309,535
92	Aug-08	0,000	14,338	-14,338	205,590
93	Sep-08	42,100	21,167	20,933	438,193
94	Oct-08	14,000	67,475	-53,475	2859,600
95	Nov-08	223,800	172,695	51,105	2611,678
96	Dec-08	225,700	184,973	40,727	1658,702
97	Jan-09	441,100	334,065	107,035	11456,541
98	Feb-09	312,600	249,598	63,002	3969,226
99	Mar-09	86,900	139,961	-53,061	2815,459
100	Apr-09	16,400	78,859	-62,459	3901,072
101	May-09	18,200	144,883	-126,683	16048,706
102	Jun-09	0,600	24,589	-23,989	575,486
103	Jul-09	24,400	26,892	-2,492	6,208
104	Aug-09	4,400	7,074	-2,674	7,148
105	Sep-09	34,400	29,700	4,700	22,089
106	Oct-09	31,800	52,546	-20,746	430,379
107	Nov-09	113,300	59,166	54,134	2930,450
108	Dec-09	183,100	184,625	-1,525	2,325
109	Jan-10	72,100	228,046	-155,946	24319,110
110	Feb-10	121,000	113,016	7,984	63,743
111	Mar-10	71,100	77,238	-6,138	37,676
112	Apr-10	163,500	196,549	-33,049	1092,219
113	May-10	126,000	293,126	-167,126	27931,266
114	Jun-10	12,900	50,209	-37,309	1391,966
115	Jul-10	65,100	158,554	-93,454	8733,731
116	Aug-10	11,100	30,226	-19,126	365,785
117	Sep-10	115,200	96,837	18,363	337,185
118	Oct-10	118,800	196,903	-78,103	6100,135
119	Nov-10	300,000	239,963	60,037	3604,498
120	Dec-10	291,400	447,666	-156,266	24419,048
121	Jan-11	130,700	249,121	-118,421	14023,425
122	Feb-11	151,800	173,061	-21,261	452,028
123	Mar-11	226,780	221,365	5,415	29,318
124	Apr-11	231,600	279,017	-47,417	2248,380
125	May-11	43,700	124,476	-80,776	6524,695
126	Jun-11	8,000	22,089	-14,089	198,508
127	Jul-11	11,100	21,782	-10,682	114,106
128	Aug-11	0,200	7,232	-7,032	49,449
129	Sep-11	7,700	10,043	-2,343	5,490
130	Oct-11	22,800	31,073	-8,273	68,447
131	Nov-11	138,300	126,085	12,215	149,217
132	Dec-11	354,500	251,638	102,862	10580,614
133	Jan-12	252,700	357,619	-104,919	11007,998
134	Feb-12	241,900	171,464	70,436	4961,162
135	Mar-12	249,900	246,579	3,321	11,032
136	Apr-12	281,600	68,493	213,107	45414,679
137	May-12	137,000	115,594	21,406	458,212
138	Jun-12	0,000	20,599	-20,599	424,318
139	Jul-12	2,900	18,024	-15,124	228,722
140	Aug-12	4,600	6,774	-2,174	4,725

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
141	Sep-12	10,000	12,571	-2,571	6,609
142	Oct-12	20,900	33,674	-12,774	163,162
143	Nov-12	136,500	105,586	30,914	955,653
144	Dec-12	285,600	267,026	18,574	344,979
145	Jan-13	378,100	370,216	7,884	62,157
146	Feb-13	142,300	197,617	-55,317	3060,009
147	Mar-13	205,700	115,609	90,091	8116,419
148	Apr-13	57,400	123,656	-66,256	4389,887
149	May-13	147,800	139,510	8,290	68,724
150	Jun-13	146,800	110,854	35,946	1292,107
151	Jul-13	25,100	44,641	-19,541	381,855
152	Aug-13	4,200	4,776	-0,576	0,332
153	Sep-13	4,000	12,267	-8,267	68,349
154	Oct-13	10,700	50,882	-40,182	1614,605
155	Nov-13	150,000	161,118	-11,118	123,615
156	Dec-13	451,200	348,159	103,041	10617,347
157	Jan-14	356,400	284,565	71,835	5160,250
158	Feb-14	146,500	138,444	8,056	64,905
159	Mar-14	96,200	100,907	-4,707	22,154
160	Apr-14	40,400	128,183	-87,783	7705,913
161	May-14	22,300	35,049	-12,749	162,547
162	Jun-14	0,300	28,875	-28,575	816,533
163	Jul-14	9,140	30,723	-21,583	465,847
164	Aug-14	6,000	4,635	1,365	1,864
165	Sep-14	0,000	9,995	-9,995	99,898
166	Oct-14	0,000	14,233	-14,233	202,565
167	Nov-14	129,400	109,294	20,106	404,238
168	Dec-14	329,600	265,350	64,250	4127,999
169	Jan-15	186,900	164,318	22,582	509,933
170	Feb-15	124,300	149,935	-25,635	657,177
171	Mar-15	230,000	153,221	76,779	5895,011
172	Apr-15	140,000	189,736	-49,736	2473,654
173	May-15	7,500	49,296	-41,796	1746,882
174	Jun-15	7,600	53,859	-46,259	2139,896
175	Jul-15	6,200	12,294	-6,094	37,143
176	Aug-15	1,200	5,473	-4,273	18,256
177	Sep-15	1,000	9,153	-8,153	66,476
178	Oct-15	0,000	13,223	-13,223	174,853
179	Nov-15	0,000	48,550	-48,550	2357,070
180	Dec-15	255,800	245,325	10,475	109,736
181	Jan-16	254,000	161,172	92,828	8617,067
182	Feb-16	404,600	227,363	177,237	31413,019
183	Mar-16	119,600	142,882	-23,282	542,043
184	Apr-16	45,300	66,144	-20,844	434,467
185	May-16	35,800	87,011	-51,211	2622,525
186	Jun-16	70,900	136,131	-65,231	4255,076
187	Jul-16	41,400	132,563	-91,163	8310,607
188	Aug-16	68,000	11,284	56,716	3216,741
189	Sep-16	107,200	102,498	4,702	22,110
190	Oct-16	60,300	284,938	-224,638	50462,353

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$
191	Nov-16	299,500	179,626	119,874	14369,688
192	Dec-16	479,700	364,243	115,457	13330,369
193	Jan-17	366,600	262,103	104,497	10919,528
194	Feb-17	348,900	228,400	120,500	14520,173
195	Mar-17	105,700	176,111	-70,411	4957,679
196	Apr-17	30,000	103,159	-73,159	5352,222
197	May-17	2,700	53,024	-50,324	2532,511
198	Jun-17	90,900	99,067	-8,167	66,705
199	Jul-17	55,900	29,579	26,321	692,769
200	Aug-17	13,400	5,030	8,370	70,059
201	Sep-17	1,200	12,665	-11,465	131,456
202	Oct-17	131,600	108,947	22,653	513,164
203	Nov-17	327,100	264,411	62,689	3929,862
204	Dec-17	458,800	301,779	157,021	24655,612
205	Jan-18	553,900	450,709	103,191	10648,477
206	Feb-18	257,400	194,903	62,497	3905,834
207	Mar-18	58,000	126,307	-68,307	4665,830
208	Apr-18	2,100	21,916	-19,816	392,678
209	May-18	0,000	13,797	-13,797	190,348
210	Jun-18	3,300	19,335	-16,035	257,135
211	Jul-18	6,500	22,099	-15,599	243,319
212	Aug-18	10,900	7,546	3,354	11,249
213	Sep-18	15,500	10,553	4,947	24,474
214	Oct-18	2,800	12,324	-9,524	90,714
215	Nov-18	275,600	212,719	62,881	3953,959
216	Dec-18	107,900	116,363	-8,463	71,620
217	Jan-20	166,200	130,222	35,978	1294,427
218	Feb-20	239,400	128,112	111,288	12384,969
219	Mar-20	482,700	193,291	289,409	83757,491
220	Apr-20	106,000	65,419	40,581	1646,838
221	May-20	130,300	138,228	-7,928	62,860
222	Jun-20	9,200	23,277	-14,077	198,165
223	Jul-20	2,500	27,487	-24,987	624,362
224	Aug-20	3,700	7,776	-4,076	16,613
225	Sep-20	22,800	19,630	3,170	10,049
226	Oct-20	123,000	154,737	-31,737	1007,257
227	Nov-20	207,500	118,955	88,545	7840,187
228	Dec-20	231,700	276,130	-44,430	1974,032
229	Jan-21	506,400	472,648	33,752	1139,217
230	Feb-21	359,100	287,938	71,162	5064,083
231	Mar-21	158,700	153,202	5,498	30,231
232	Apr-21	74,500	117,926	-43,426	1885,774
233	May-21	0,000	28,686	-28,686	822,882
234	Jun-21	76,200	120,123	-43,923	1929,191
235	Jul-21	0,000	21,204	-21,204	449,603
236	Aug-21	81,500	8,562	72,938	5320,010
237	Sep-21	37,600	53,059	-15,459	238,974
238	Oct-21	75,000	107,410	-32,410	1050,409
239	Nov-21	268,000	285,280	-17,280	298,598
240	Dec-21	361,900	336,164	25,736	662,317
Jumlah		29081,820	28404,383	677,437	1210546,911
RMSE =	71,021				

(Sumber : Hasil Perhitungan)

Lampiran 2.4 Perhitungan Nilai NSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Kopang

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	373,000	403,065	-30,065	903,928	228,201	52075,924
2	Feb-01	214,000	260,100	-46,100	2125,211	69,201	4788,847
3	Mar-01	338,000	304,907	33,093	1095,161	193,201	37326,819
4	Apr-01	404,000	192,641	211,359	44672,689	259,201	67185,417
5	May-01	64,000	153,616	-89,616	8031,071	-80,799	6528,398
6	Jun-01	29,300	53,590	-24,290	590,016	-115,499	13339,904
7	Jul-01	0,000	23,846	-23,846	568,631	-144,799	20966,606
8	Aug-01	5,100	55,204	-50,104	2510,375	-139,699	19515,671
9	Sep-01	12,700	10,609	2,091	4,371	-132,099	17450,014
10	Oct-01	182,600	178,526	4,074	16,595	37,801	1428,953
11	Nov-01	680,200	302,524	377,676	142638,959	535,401	286654,764
12	Dec-01	86,900	174,359	-87,459	7649,055	-57,899	3352,237
13	Jan-02	426,100	205,396	220,704	48710,351	281,301	79130,533
14	Feb-02	126,000	114,172	11,828	139,911	-18,799	353,384
15	Mar-02	337,800	158,325	179,475	32211,243	193,001	37249,578
16	Apr-02	211,900	101,004	110,896	12298,009	67,101	4502,611
17	May-02	166,000	69,510	96,490	9310,278	21,201	449,504
18	Jun-02	77,900	123,453	-45,553	2075,108	-66,899	4475,410
19	Jul-02	147,300	29,052	118,248	13982,531	2,501	6,257
20	Aug-02	0,000	14,721	-14,721	216,719	-144,799	20966,606
21	Sep-02	15,200	8,840	6,360	40,454	-129,599	16795,772
22	Oct-02	266,500	78,743	187,757	35252,772	121,701	14811,255
23	Nov-02	259,200	300,923	-41,723	1740,790	114,401	13087,703
24	Dec-02	172,800	113,088	59,712	3565,511	28,001	784,084
25	Jan-03	460,500	216,417	244,083	59576,561	315,701	99667,436
26	Feb-03	249,100	293,643	-44,543	1984,070	104,301	10878,802
27	Mar-03	269,300	159,706	109,594	12010,876	124,501	15500,623
28	Apr-03	83,900	93,584	-9,684	93,775	-60,899	3708,628
29	May-03	22,300	37,929	-15,629	244,262	-122,499	15005,883
30	Jun-03	0,000	13,808	-13,808	190,665	-144,799	20966,606
31	Jul-03	0,000	27,250	-27,250	742,567	-144,799	20966,606
32	Aug-03	0,000	12,849	-12,849	165,106	-144,799	20966,606
33	Sep-03	0,000	13,439	-13,439	180,619	-144,799	20966,606
34	Oct-03	53,300	32,263	21,037	442,559	-91,499	8371,976
35	Nov-03	324,400	301,100	23,300	542,900	179,601	32256,698
36	Dec-03	437,700	344,898	92,802	8612,198	292,901	85791,288
37	Jan-04	434,600	285,657	148,943	22184,035	289,801	83984,908
38	Feb-04	261,700	226,805	34,895	1217,636	116,901	13665,960
39	Mar-04	52,100	98,952	-46,852	2195,117	-92,699	8593,012
40	Apr-04	251,000	90,576	160,424	25735,792	106,201	11278,758
41	May-04	88,900	64,885	24,015	576,715	-55,899	3124,643
42	Jun-04	8,900	40,141	-31,241	976,000	-135,899	18468,403
43	Jul-04	0,000	17,184	-17,184	295,285	-144,799	20966,606
44	Aug-04	0,000	10,587	-10,587	112,094	-144,799	20966,606
45	Sep-04	55,400	28,962	26,438	698,966	-89,399	7992,092
46	Oct-04	28,400	24,223	4,177	17,444	-116,399	13548,611
47	Nov-04	310,400	289,661	20,739	430,087	165,601	27423,856
48	Dec-04	437,000	263,368	173,632	30147,971	292,201	85381,715
49	Jan-05	394,900	169,779	225,121	50679,622	250,101	62550,759
50	Feb-05	203,200	246,185	-42,985	1847,669	58,401	3410,735

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	180,900	167,143	13,757	189,267	36,101	1303,318
52	Apr-05	169,000	44,904	124,096	15399,868	24,201	585,713
53	May-05	192,600	86,928	105,672	11166,548	47,801	2284,983
54	Jun-05	0,000	17,888	-17,888	319,974	-144,799	20966,606
55	Jul-05	0,000	17,185	-17,185	295,323	-144,799	20966,606
56	Aug-05	0,100	10,350	-10,250	105,060	-144,699	20937,656
57	Sep-05	0,400	19,591	-19,191	368,297	-144,399	20850,927
58	Oct-05	0,510	96,306	-95,796	9176,898	-144,289	20819,172
59	Nov-05	134,450	273,336	-138,886	19289,313	-10,349	107,091
60	Dec-05	146,600	279,278	-132,678	17603,354	1,801	3,245
61	Jan-06	201,000	80,798	120,202	14448,426	56,201	3158,608
62	Feb-06	202,900	144,383	58,517	3424,233	58,101	3375,784
63	Mar-06	911,800	164,029	747,771	559160,754	767,001	588291,298
64	Apr-06	66,300	138,211	-71,911	5171,206	-78,499	6162,015
65	May-06	0,000	18,814	-18,814	353,954	-144,799	20966,606
66	Jun-06	172,900	27,578	145,322	21118,515	28,101	789,694
67	Jul-06	58,600	35,421	23,179	537,280	-86,199	7430,182
68	Aug-06	5,000	17,114	-12,114	146,751	-139,799	19543,621
69	Sep-06	45,000	26,687	18,313	335,371	-99,799	9959,741
70	Oct-06	146,400	130,128	16,272	264,767	1,601	2,565
71	Nov-06	0,000	241,264	-241,264	58208,550	-144,799	20966,606
72	Dec-06	96,350	345,752	-249,402	62201,251	-48,449	2347,257
73	Jan-07	183,200	316,989	-133,789	17899,477	38,401	1474,675
74	Feb-07	154,400	179,347	-24,947	622,339	9,601	92,189
75	Mar-07	340,500	299,909	40,591	1647,615	195,701	38299,076
76	Apr-07	250,300	122,638	127,662	16297,481	105,501	11130,566
77	May-07	64,900	115,217	-50,317	2531,788	-79,899	6383,771
78	Jun-07	88,800	39,440	49,360	2436,361	-55,999	3135,832
79	Jul-07	5,100	31,525	-26,425	698,280	-139,699	19515,671
80	Aug-07	0,000	9,951	-9,951	99,022	-144,799	20966,606
81	Sep-07	0,000	9,561	-9,561	91,421	-144,799	20966,606
82	Oct-07	35,800	26,166	9,634	92,806	-108,999	11880,673
83	Nov-07	0,000	79,413	-79,413	6306,417	-144,799	20966,606
84	Dec-07	307,570	300,024	7,546	56,937	162,771	26494,561
85	Jan-08	195,200	96,135	99,065	9813,936	50,401	2540,311
86	Feb-08	98,500	190,273	-91,773	8422,228	-46,299	2143,551
87	Mar-08	85,700	332,464	-246,764	60892,480	-59,099	3492,633
88	Apr-08	169,300	176,891	-7,591	57,622	24,501	600,323
89	May-08	16,000	61,578	-45,578	2077,326	-128,799	16589,054
90	Jun-08	10,000	37,222	-27,222	741,031	-134,799	18170,636
91	Jul-08	19,800	21,618	-1,818	3,303	-124,999	15624,625
92	Aug-08	0,000	12,112	-12,112	146,694	-144,799	20966,606
93	Sep-08	0,000	8,102	-8,102	65,636	-144,799	20966,606
94	Oct-08	0,000	45,041	-45,041	2028,688	-144,799	20966,606
95	Nov-08	20,200	159,770	-139,570	19479,788	-124,599	15524,787
96	Dec-08	325,100	408,860	-83,760	7015,745	180,301	32508,630
97	Jan-09	318,500	163,996	154,504	23871,476	173,701	30172,210
98	Feb-09	46,270	247,800	-201,530	40614,430	-98,529	9707,866
99	Mar-09	231,200	333,080	-101,880	10379,511	86,401	7465,219
100	Apr-09	141,900	96,515	45,385	2059,813	-2,899	8,401

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	0,200	52,050	-51,850	2688,389	-144,599	20908,727
102	Jun-09	10,000	30,750	-20,750	430,543	-134,799	18170,636
103	Jul-09	0,000	20,054	-20,054	402,161	-144,799	20966,606
104	Aug-09	12,500	29,650	-17,150	294,118	-132,299	17502,894
105	Sep-09	10,000	22,159	-12,159	147,846	-134,799	18170,636
106	Oct-09	67,200	73,544	-6,344	40,243	-77,599	6021,528
107	Nov-09	157,100	253,760	-96,660	9343,171	12,301	151,327
108	Dec-09	38,420	260,306	-221,886	49233,507	-106,379	11316,386
109	Jan-10	114,800	372,534	-257,734	66427,008	-29,999	899,910
110	Feb-10	128,600	293,518	-164,918	27197,855	-16,199	262,391
111	Mar-10	112,400	154,634	-42,234	1783,697	-32,399	1049,663
112	Apr-10	8,700	88,558	-79,858	6377,231	-136,099	18522,802
113	May-10	0,150	153,077	-152,927	23386,591	-144,649	20923,189
114	Jun-10	0,000	21,089	-21,089	444,747	-144,799	20966,606
115	Jul-10	0,000	29,431	-29,431	866,160	-144,799	20966,606
116	Aug-10	0,000	10,250	-10,250	105,060	-144,799	20966,606
117	Sep-10	0,000	34,493	-34,493	1189,742	-144,799	20966,606
118	Oct-10	35,500	51,251	-15,751	248,079	-109,299	11946,163
119	Nov-10	0,000	91,424	-91,424	8358,264	-144,799	20966,606
120	Dec-10	103,860	218,699	-114,839	13188,076	-40,939	1675,961
121	Jan-11	253,200	271,938	-18,738	351,121	108,401	11750,885
122	Feb-11	115,500	155,286	-39,786	1582,963	-29,299	858,402
123	Mar-11	199,700	208,645	-8,945	80,009	54,901	3014,174
124	Apr-11	290,900	283,576	7,324	53,637	146,101	21345,648
125	May-11	124,000	117,665	6,335	40,133	-20,799	432,578
126	Jun-11	16,200	19,088	-2,888	8,341	-128,599	16537,575
127	Jul-11	26,200	23,247	2,953	8,720	-118,599	14065,605
128	Aug-11	0,300	10,587	-10,287	105,832	-144,499	20879,817
129	Sep-11	13,900	9,263	4,637	21,506	-130,899	17134,418
130	Oct-11	46,500	64,719	-18,219	331,934	-98,299	9662,595
131	Nov-11	351,400	229,490	121,910	14862,003	206,601	42684,179
132	Dec-11	245,600	284,631	-39,031	1523,454	100,801	10160,942
133	Jan-12	531,000	336,045	194,955	38007,468	386,201	149151,597
134	Feb-12	230,100	182,975	47,125	2220,731	85,301	7276,346
135	Mar-12	0,000	239,432	-239,432	57327,603	-144,799	20966,606
136	Apr-12	75,000	70,958	4,042	16,337	-69,799	4871,831
137	May-12	0,000	104,655	-104,655	10952,711	-144,799	20966,606
138	Jun-12	75,000	14,917	60,083	3609,913	-69,799	4871,831
139	Jul-12	19,900	22,931	-3,031	9,187	-124,899	15599,636
140	Aug-12	0,000	16,122	-16,122	259,928	-144,799	20966,606
141	Sep-12	37,000	13,039	23,961	574,132	-107,799	11620,517
142	Oct-12	95,000	45,530	49,470	2447,237	-49,799	2479,891
143	Nov-12	242,100	181,791	60,309	3637,134	97,301	9467,582
144	Dec-12	450,100	321,758	128,342	16471,573	305,301	93209,005
145	Jan-13	429,500	371,035	58,465	3418,109	284,701	81054,943
146	Feb-13	331,900	205,102	126,798	16077,656	187,101	35006,971
147	Mar-13	67,533	113,237	-45,704	2088,824	-77,265	5969,906
148	Apr-13	250,900	118,909	131,991	17421,653	106,101	11257,528
149	May-13	36,107	130,225	-94,118	8858,152	-108,691	11813,812
150	Jun-13	69,000	116,418	-47,418	2248,446	-75,799	5745,413

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	21,500	70,723	-49,223	2422,944	-123,299	15202,521
152	Aug-13	0,000	12,271	-12,271	150,571	-144,799	20966,606
153	Sep-13	2,900	10,893	-7,993	63,894	-141,899	20135,185
154	Oct-13	37,400	56,125	-18,725	350,639	-107,399	11534,438
155	Nov-13	220,900	276,347	-55,447	3074,341	76,101	5791,438
156	Dec-13	417,000	421,897	-4,897	23,977	272,201	74093,656
157	Jan-14	259,910	309,743	-49,833	2483,373	115,111	13250,657
158	Feb-14	92,800	141,251	-48,451	2347,457	-51,999	2703,844
159	Mar-14	123,900	109,713	14,187	201,272	-20,899	436,747
160	Apr-14	442,200	154,644	287,556	82688,597	297,401	88447,651
161	May-14	4,800	25,584	-20,784	431,990	-139,999	19599,581
162	Jun-14	10,600	30,601	-20,001	400,060	-134,199	18009,238
163	Jul-14	145,700	39,890	105,810	11195,705	0,901	0,813
164	Aug-14	13,500	11,896	1,604	2,574	-131,299	17239,297
165	Sep-14	0,400	8,941	-8,541	72,948	-144,399	20850,927
166	Oct-14	4,000	12,753	-8,753	76,615	-140,799	19824,218
167	Nov-14	158,200	168,975	-10,775	116,103	13,401	179,600
168	Dec-14	509,000	298,775	210,225	44194,626	364,201	132642,731
169	Jan-15	200,710	183,188	17,522	307,008	55,911	3126,096
170	Feb-15	228,000	172,200	55,800	3113,664	83,201	6922,489
171	Mar-15	337,300	153,351	183,949	33837,138	192,501	37056,827
172	Apr-15	208,700	218,380	-9,680	93,709	63,901	4083,401
173	May-15	38,500	37,543	0,957	0,917	-106,299	11299,372
174	Jun-15	12,700	57,925	-45,225	2045,292	-132,099	17450,014
175	Jul-15	0,000	15,817	-15,817	250,179	-144,799	20966,606
176	Aug-15	1,300	14,812	-13,512	182,573	-143,499	20591,820
177	Sep-15	0,000	8,280	-8,280	68,553	-144,799	20966,606
178	Oct-15	31,100	12,153	18,947	359,004	-113,699	12927,349
179	Nov-15	0,000	93,639	-93,639	8768,241	-144,799	20966,606
180	Dec-15	314,800	285,681	29,119	847,911	170,001	28900,509
181	Jan-16	142,800	174,746	-31,946	1020,571	-1,999	3,994
182	Feb-16	550,700	238,985	311,715	97166,361	405,901	164756,026
183	Mar-16	235,800	175,084	60,716	3686,486	91,001	8281,273
184	Apr-16	176,100	74,024	102,076	10419,574	31,301	979,784
185	May-16	126,200	85,352	40,848	1668,579	-18,599	345,904
186	Jun-16	112,300	139,114	-26,814	719,011	-32,499	1056,153
187	Jul-16	53,300	165,481	-112,181	12584,602	-91,499	8371,976
188	Aug-16	62,200	20,355	41,845	1751,002	-82,599	6822,513
189	Sep-16	256,600	67,869	188,731	35619,359	111,801	12499,575
190	Oct-16	193,500	286,308	-92,808	8613,358	48,701	2371,836
191	Nov-16	238,300	248,119	-9,819	96,404	93,501	8742,530
192	Dec-16	359,700	387,375	-27,675	765,912	214,901	46182,654
193	Jan-17	300,300	294,002	6,298	39,659	155,501	24180,716
194	Feb-17	377,000	224,482	152,518	23261,645	232,201	53917,536
195	Mar-17	226,700	167,501	59,199	3504,573	81,901	6707,855
196	Apr-17	143,000	112,564	30,436	926,351	-1,799	3,235
197	May-17	78,600	42,059	36,541	1335,256	-66,199	4382,242
198	Jun-17	29,600	115,737	-86,137	7419,661	-115,199	13270,695
199	Jul-17	87,800	35,367	52,433	2749,182	-56,999	3248,829
200	Aug-17	29,500	12,496	17,004	289,127	-115,299	13293,745

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data hujan Satelit $(\hat{Y}_i)$ (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
201	Sep-17	2,900	9,060	-6,160	37,948	-141,899	20135,185
202	Oct-17	113,300	119,112	-5,812	33,775	-31,499	992,156
203	Nov-17	405,100	412,635	-7,535	56,777	260,301	67756,870
204	Dec-17	369,100	294,141	74,959	5618,786	224,301	50311,162
205	Jan-18	570,600	416,588	154,012	23719,757	425,801	181306,916
206	Feb-18	215,100	211,553	3,547	12,580	70,301	4942,301
207	Mar-18	413,100	135,869	277,231	76857,186	268,301	71985,694
208	Apr-18	5,200	29,374	-24,174	584,401	-139,599	19487,742
209	May-18	8,000	12,003	-4,003	16,020	-136,799	18713,830
210	Jun-18	13,700	23,056	-9,356	87,539	-131,099	17186,817
211	Jul-18	8,900	26,429	-17,529	307,251	-135,899	18468,403
212	Aug-18	11,800	17,824	-6,024	36,293	-132,999	17688,602
213	Sep-18	26,500	10,606	15,894	252,632	-118,299	13994,536
214	Oct-18	1,900	10,765	-8,865	78,585	-142,899	20419,982
215	Nov-18	416,900	320,551	96,349	9283,150	272,101	74039,225
216	Dec-18	221,000	158,578	62,422	3896,477	76,201	5806,668
217	Jan-20	139,000	151,148	-12,148	147,586	-5,799	33,623
218	Feb-20	5,300	156,570	-151,270	22882,689	-139,499	19459,832
219	Mar-20	452,200	206,505	245,695	60365,857	307,401	94495,681
220	Apr-20	231,100	87,600	143,500	20592,119	86,301	7447,949
221	May-20	392,700	147,783	244,917	59984,224	247,901	61455,153
222	Jun-20	0,000	26,313	-26,313	692,386	-144,799	20966,606
223	Jul-20	9,400	26,418	-17,018	289,602	-135,399	18332,754
224	Aug-20	5,000	19,158	-14,158	200,448	-139,799	19543,621
225	Sep-20	19,200	25,215	-6,015	36,181	-125,599	15774,984
226	Oct-20	142,200	164,466	-22,266	495,762	-2,599	6,752
227	Nov-20	215,900	183,543	32,357	1046,964	71,101	5055,423
228	Dec-20	446,200	323,423	122,777	15074,112	301,401	90842,863
229	Jan-21	398,500	447,453	-48,953	2396,426	253,701	64364,450
230	Feb-21	278,500	267,781	10,719	114,905	133,701	17876,091
231	Mar-21	242,500	160,769	81,731	6679,952	97,701	9545,583
232	Apr-21	92,500	129,982	-37,482	1404,921	-52,299	2735,133
233	May-21	9,000	31,056	-22,056	486,463	-135,799	18441,233
234	Jun-21	79,000	119,410	-40,410	1632,941	-65,799	4329,443
235	Jul-21	6,500	30,812	-24,312	591,053	-138,299	19126,476
236	Aug-21	0,000	29,977	-29,977	898,613	-144,799	20966,606
237	Sep-21	53,500	50,162	3,338	11,145	-91,299	8335,416
238	Oct-21	107,000	127,271	-20,271	410,930	-37,799	1428,727
239	Nov-21	452,000	486,913	-34,913	1218,884	307,201	94372,760
240	Dec-21	268,000	392,351	-124,351	15463,148	123,201	15178,609
Jumlah		34751,640	32164,472	2587,168	2792558,894	0,000	5903287,928
		144,799	134,019	10,780	11635,662	0,000	24597,033
NSE =	0,526948553						

(Sumber : Hasil Perhitungan)

Lampiran 2.5 Perhitungan Nilai NSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Kabul

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	358,000	375,458	-17,458	304,782	252,380	63695,601
2	Feb-01	210,700	284,077	-73,377	5384,125	105,080	11041,780
3	Mar-01	263,500	354,672	-91,172	8312,261	157,880	24926,055
4	Apr-01	185,300	200,252	-14,952	223,568	79,680	6348,882
5	May-01	189,300	214,892	-25,592	654,940	83,680	7002,321
6	Jun-01	0,000	53,841	-53,841	2898,832	-105,620	11155,611
7	Jul-01	0,000	20,736	-20,736	429,965	-105,620	11155,611
8	Aug-01	7,000	14,987	-7,987	63,799	-98,620	9725,929
9	Sep-01	0,000	9,424	-9,424	88,808	-105,620	11155,611
10	Oct-01	131,000	127,607	3,393	11,515	25,380	644,138
11	Nov-01	442,500	238,319	204,181	41689,962	336,880	113488,050
12	Dec-01	117,500	143,041	-25,541	652,322	11,880	141,131
13	Jan-02	305,500	180,159	125,341	15710,366	199,880	39951,964
14	Feb-02	90,000	124,860	-34,860	1215,192	-15,620	243,988
15	Mar-02	133,000	187,813	-54,813	3004,443	27,380	749,658
16	Apr-02	179,000	112,624	66,376	4405,720	73,380	5384,606
17	May-02	37,000	98,244	-61,244	3750,779	-68,620	4708,722
18	Jun-02	88,000	144,791	-56,791	3225,240	-17,620	310,469
19	Jul-02	0,000	31,130	-31,130	969,064	-105,620	11155,611
20	Aug-02	0,000	9,411	-9,411	88,559	-105,620	11155,611
21	Sep-02	0,000	11,065	-11,065	122,434	-105,620	11155,611
22	Oct-02	0,000	75,891	-75,891	5759,414	-105,620	11155,611
23	Nov-02	107,500	238,505	-131,005	17162,310	1,880	3,534
24	Dec-02	54,200	87,335	-33,135	1097,915	-51,420	2644,029
25	Jan-03	212,000	180,223	31,777	1009,778	106,380	11316,678
26	Feb-03	411,500	320,312	91,188	8315,251	305,880	93562,498
27	Mar-03	232,000	162,942	69,058	4768,952	126,380	15971,873
28	Apr-03	184,500	106,371	78,129	6104,078	78,880	6222,035
29	May-03	0,000	55,412	-55,412	3070,468	-105,620	11155,611
30	Jun-03	0,000	17,338	-17,338	300,592	-105,620	11155,611
31	Jul-03	0,000	23,450	-23,450	549,884	-105,620	11155,611
32	Aug-03	0,000	9,026	-9,026	81,469	-105,620	11155,611
33	Sep-03	0,000	12,958	-12,958	167,910	-105,620	11155,611
34	Oct-03	0,000	26,949	-26,949	726,249	-105,620	11155,611
35	Nov-03	140,300	247,190	-106,890	11425,429	34,680	1202,694
36	Dec-03	202,100	288,281	-86,181	7427,096	96,480	9308,366
37	Jan-04	147,900	270,112	-122,212	14935,724	42,280	1787,588
38	Feb-04	113,400	242,117	-128,717	16568,066	7,780	60,526
39	Mar-04	81,300	116,180	-34,880	1216,628	-24,320	591,468
40	Apr-04	63,000	100,801	-37,801	1428,900	-42,620	1816,475
41	May-04	12,000	101,910	-89,910	8083,772	-93,620	8764,728
42	Jun-04	4,000	64,300	-60,300	3636,090	-101,620	10326,650
43	Jul-04	9,000	14,394	-5,394	29,091	-96,620	9335,449
44	Aug-04	0,000	7,209	-7,209	51,964	-105,620	11155,611
45	Sep-04	136,500	30,416	106,084	11253,900	30,880	953,567
46	Oct-04	0,000	23,566	-23,566	555,338	-105,620	11155,611
47	Nov-04	89,500	248,323	-158,823	25224,618	-16,120	259,858
48	Dec-04	234,500	270,730	-36,230	1312,598	128,880	16610,022
49	Jan-05	83,000	148,034	-65,034	4229,447	-22,620	511,670
50	Feb-05	104,500	255,693	-151,193	22859,444	-1,120	1,255

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	95,500	157,084	-61,584	3792,638	-10,120	102,417
52	Apr-05	5,000	42,299	-37,299	1391,200	-100,620	10124,410
53	May-05	47,500	157,434	-109,934	12085,572	-58,120	3377,949
54	Jun-05	0,000	22,659	-22,659	513,430	-105,620	11155,611
55	Jul-05	0,000	14,516	-14,516	210,720	-105,620	11155,611
56	Aug-05	0,000	6,900	-6,900	47,610	-105,620	11155,611
57	Sep-05	0,000	20,946	-20,946	438,718	-105,620	11155,611
58	Oct-05	0,000	77,876	-77,876	6064,640	-105,620	11155,611
59	Nov-05	186,000	242,926	-56,926	3240,524	80,380	6460,924
60	Dec-05	200,400	288,537	-88,137	7768,201	94,780	8983,225
61	Jan-06	62,000	70,407	-8,407	70,684	-43,620	1902,715
62	Feb-06	108,500	153,858	-45,358	2057,366	2,880	8,294
63	Mar-06	181,000	183,512	-2,512	6,310	75,380	5682,126
64	Apr-06	118,000	139,261	-21,261	452,047	12,380	153,261
65	May-06	47,500	26,838	20,662	426,910	-58,120	3377,949
66	Jun-06	37,500	37,606	-0,106	0,011	-68,120	4640,351
67	Jul-06	48,000	45,575	2,425	5,882	-57,620	3320,079
68	Aug-06	30,000	13,468	16,532	273,307	-75,620	5718,403
69	Sep-06	10,500	26,788	-16,288	265,305	-95,120	9047,838
70	Oct-06	69,400	126,394	-56,994	3248,293	-36,220	1311,897
71	Nov-06	76,200	156,759	-80,559	6489,688	-29,420	865,544
72	Dec-06	232,700	348,786	-116,086	13475,913	127,080	16149,295
73	Jan-07	339,000	267,389	71,611	5128,107	233,380	54466,166
74	Feb-07	230,600	198,550	32,050	1027,215	124,980	15619,969
75	Mar-07	337,700	347,492	-9,792	95,887	232,080	53861,068
76	Apr-07	221,100	141,997	79,103	6257,316	115,480	13335,602
77	May-07	20,400	149,896	-129,496	16769,162	-85,220	7262,470
78	Jun-07	57,000	44,079	12,921	166,942	-48,620	2363,917
79	Jul-07	0,000	25,848	-25,848	668,129	-105,620	11155,611
80	Aug-07	0,000	6,786	-6,786	46,050	-105,620	11155,611
81	Sep-07	0,000	10,032	-10,032	100,633	-105,620	11155,611
82	Oct-07	58,200	26,388	31,812	1011,978	-47,420	2248,668
83	Nov-07	22,100	57,730	-35,630	1269,483	-83,520	6975,611
84	Dec-07	131,400	295,167	-163,767	26819,565	25,780	664,602
85	Jan-08	84,500	87,726	-3,226	10,406	-21,120	446,060
86	Feb-08	75,100	199,556	-124,456	15489,346	-30,520	931,478
87	Mar-08	61,900	364,591	-302,691	91621,720	-43,720	1911,449
88	Apr-08	208,500	172,248	36,252	1314,179	102,880	10584,269
89	May-08	53,500	117,163	-63,663	4053,003	-52,120	2716,507
90	Jun-08	8,200	41,351	-33,151	1099,002	-97,420	9490,681
91	Jul-08	32,000	17,111	14,889	221,682	-73,620	5419,923
92	Aug-08	5,500	9,594	-4,094	16,761	-100,120	10024,039
93	Sep-08	0,000	8,558	-8,558	73,233	-105,620	11155,611
94	Oct-08	7,800	47,699	-39,899	1591,898	-97,820	9568,777
95	Nov-08	48,500	158,108	-109,608	12013,870	-57,120	3262,709
96	Dec-08	117,500	380,905	-263,405	69382,405	11,880	141,131
97	Jan-09	112,900	145,131	-32,231	1038,824	7,280	52,997
98	Feb-09	149,500	274,788	-125,288	15697,033	43,880	1925,443
99	Mar-09	316,400	392,700	-76,300	5821,659	210,780	44428,156
100	Apr-09	103,600	117,815	-14,215	202,066	-2,020	4,081

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	15,100	73,540	-58,440	3415,257	-90,520	8193,893
102	Jun-09	0,000	37,699	-37,699	1421,215	-105,620	11155,611
103	Jul-09	0,000	17,134	-17,134	293,581	-105,620	11155,611
104	Aug-09	2,300	22,089	-19,789	391,605	-103,320	10675,048
105	Sep-09	11,100	19,801	-8,701	75,700	-94,520	8934,054
106	Oct-09	3,500	69,466	-65,966	4351,487	-102,120	10428,520
107	Nov-09	54,800	230,080	-175,280	30723,008	-50,820	2582,685
108	Dec-09	75,200	205,844	-130,644	17067,750	-30,420	925,384
109	Jan-10	405,000	355,466	49,534	2453,578	299,380	89628,310
110	Feb-10	286,800	321,132	-34,332	1178,659	181,180	32826,147
111	Mar-10	116,400	174,689	-58,289	3397,631	10,780	116,206
112	Apr-10	20,500	90,587	-70,087	4912,131	-85,120	7245,436
113	May-10	10,000	193,391	-183,391	33632,259	-95,620	9143,208
114	Jun-10	0,000	26,480	-26,480	701,212	-105,620	11155,611
115	Jul-10	0,000	24,778	-24,778	613,929	-105,620	11155,611
116	Aug-10	0,000	6,987	-6,987	48,824	-105,620	11155,611
117	Sep-10	12,800	37,749	-24,949	622,463	-92,820	8615,576
118	Oct-10	36,200	53,251	-17,051	290,750	-69,420	4819,154
119	Nov-10	50,500	83,724	-33,224	1103,834	-55,120	3038,228
120	Dec-10	110,400	200,349	-89,949	8090,823	4,780	22,847
121	Jan-11	115,900	257,922	-142,022	20170,192	10,280	105,676
122	Feb-11	99,000	199,350	-100,350	10070,082	-6,620	43,826
123	Mar-11	128,800	238,032	-109,232	11931,674	23,180	537,307
124	Apr-11	122,100	317,959	-195,859	38360,748	16,480	271,586
125	May-11	117,700	165,007	-47,307	2237,952	12,080	145,923
126	Jun-11	1,100	24,106	-23,006	529,258	-104,520	10924,457
127	Jul-11	19,700	20,136	-0,436	0,190	-85,920	7382,268
128	Aug-11	0,000	7,209	-7,209	51,964	-105,620	11155,611
129	Sep-11	0,000	9,737	-9,737	94,809	-105,620	11155,611
130	Oct-11	25,200	32,734	-7,534	56,755	-80,420	6467,397
131	Nov-11	57,500	184,595	-127,095	16153,037	-48,120	2315,546
132	Dec-11	209,400	293,130	-83,730	7010,679	103,780	10770,262
133	Jan-12	115,300	378,715	-263,415	69387,357	9,680	93,700
134	Feb-12	111,900	220,614	-108,714	11818,690	6,280	39,437
135	Mar-12	156,300	295,463	-139,163	19366,452	50,680	2568,450
136	Apr-12	27,300	72,658	-45,358	2057,348	-78,320	6134,042
137	May-12	170,700	167,028	3,672	13,482	65,080	4235,390
138	Jun-12	0,500	19,451	-18,951	359,133	-105,120	11050,241
139	Jul-12	1,700	17,206	-15,506	240,442	-103,920	10799,392
140	Aug-12	0,700	6,886	-6,186	38,267	-104,920	11008,233
141	Sep-12	4,800	11,169	-6,369	40,567	-100,820	10164,698
142	Oct-12	29,200	33,193	-3,993	15,944	-76,420	5840,036
143	Nov-12	245,900	156,592	89,308	7975,990	140,280	19678,443
144	Dec-12	132,500	306,883	-174,383	30409,500	26,880	722,528
145	Jan-13	219,000	374,006	-155,006	24026,736	113,380	12854,996
146	Feb-13	211,000	251,593	-40,593	1647,775	105,380	11104,918
147	Mar-13	138,300	163,733	-25,433	646,848	32,680	1067,974
148	Apr-13	249,500	137,979	111,521	12436,889	143,880	20701,418
149	May-13	117,300	187,355	-70,055	4907,703	11,680	136,419
150	Jun-13	80,000	135,234	-55,234	3050,817	-25,620	656,391

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,700	64,342	-62,642	3924,020	-103,920	10799,392
152	Aug-13	0,000	6,346	-6,346	40,274	-105,620	11155,611
153	Sep-13	1,000	12,427	-11,427	130,581	-104,620	10945,371
154	Oct-13	78,900	55,610	23,290	542,443	-26,720	713,965
155	Nov-13	60,300	229,796	-169,496	28728,826	-45,320	2053,914
156	Dec-13	271,830	414,160	-142,330	20257,772	166,210	27625,723
157	Jan-14	197,500	325,085	-127,585	16277,983	91,880	8441,911
158	Feb-14	173,900	177,991	-4,091	16,736	68,280	4662,141
159	Mar-14	131,700	124,702	6,998	48,978	26,080	680,160
160	Apr-14	102,000	153,103	-51,103	2611,496	-3,620	13,105
161	May-14	54,700	43,181	11,519	132,692	-50,920	2592,859
162	Jun-14	0,000	26,829	-26,829	719,785	-105,620	11155,611
163	Jul-14	24,100	31,336	-7,236	52,365	-81,520	6645,531
164	Aug-14	2,900	6,081	-3,181	10,121	-102,720	10551,424
165	Sep-14	0,500	10,062	-9,562	91,439	-105,120	11050,241
166	Oct-14	0,000	13,410	-13,410	179,839	-105,620	11155,611
167	Nov-14	206,400	147,650	58,750	3451,610	100,780	10156,583
168	Dec-14	404,500	302,118	102,382	10482,156	298,880	89329,180
169	Jan-15	149,800	160,689	-10,889	118,562	44,180	1951,861
170	Feb-15	119,300	188,827	-69,527	4833,976	13,680	187,139
171	Mar-15	248,500	205,757	42,743	1826,930	142,880	20414,659
172	Apr-15	163,800	215,783	-51,983	2702,211	58,180	3384,898
173	May-15	79,900	59,880	20,020	400,800	-25,720	661,525
174	Jun-15	0,000	61,390	-61,390	3768,732	-105,620	11155,611
175	Jul-15	0,600	15,010	-14,410	207,654	-105,020	11029,227
176	Aug-15	3,100	8,088	-4,988	24,884	-102,520	10510,376
177	Sep-15	6,700	9,093	-2,393	5,726	-98,920	9785,191
178	Oct-15	0,000	11,997	-11,997	143,928	-105,620	11155,611
179	Nov-15	122,400	66,158	56,242	3163,140	16,780	281,564
180	Dec-15	212,800	291,886	-79,086	6254,595	107,180	11487,526
181	Jan-16	277,700	175,606	102,094	10423,226	172,080	29611,483
182	Feb-16	302,700	293,642	9,058	82,047	197,080	38840,477
183	Mar-16	154,400	181,890	-27,490	755,711	48,780	2379,476
184	Apr-16	128,100	79,492	48,608	2362,777	22,480	505,345
185	May-16	20,300	115,795	-95,495	9119,333	-85,320	7279,524
186	Jun-16	224,600	176,156	48,444	2346,802	118,980	14156,211
187	Jul-16	54,500	125,842	-71,342	5089,738	-51,120	2613,267
188	Aug-16	12,100	7,988	4,112	16,907	-93,520	8746,014
189	Sep-16	202,500	105,262	97,238	9455,306	96,880	9385,710
190	Oct-16	184,500	292,977	-108,477	11767,303	78,880	6222,035
191	Nov-16	295,100	251,799	43,301	1875,011	189,480	35902,623
192	Dec-16	262,400	410,223	-147,823	21851,521	156,780	24579,929
193	Jan-17	374,000	272,649	101,351	10272,066	268,380	72027,757
194	Feb-17	418,200	277,109	141,091	19906,557	312,580	97706,178
195	Mar-17	151,400	210,214	-58,814	3459,134	45,780	2095,797
196	Apr-17	126,000	129,310	-3,310	10,957	20,380	415,339
197	May-17	5,900	65,003	-59,103	3493,165	-99,720	9944,103
198	Jun-17	80,000	137,339	-57,339	3287,738	-25,620	656,391
199	Jul-17	58,600	30,040	28,560	815,651	-47,020	2210,892
200	Aug-17	5,700	6,383	-0,683	0,466	-99,920	9984,031

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
201	Sep-17	8,700	11,349	-2,649	7,015	-96,920	9393,511
202	Oct-17	97,200	109,384	-12,184	148,445	-8,420	70,899
203	Nov-17	374,500	372,397	2,103	4,422	268,880	72296,387
204	Dec-17	390,800	349,223	41,577	1728,680	285,180	81327,561
205	Jan-18	592,100	483,284	108,816	11841,009	486,480	236662,669
206	Feb-18	226,600	238,679	-12,079	145,902	120,980	14636,130
207	Mar-18	186,600	170,036	16,564	274,379	80,980	6557,740
208	Apr-18	25,000	24,093	0,907	0,823	-80,620	6499,605
209	May-18	0,000	15,622	-15,622	244,059	-105,620	11155,611
210	Jun-18	7,100	22,436	-15,336	235,187	-98,520	9706,215
211	Jul-18	0,900	22,157	-21,257	451,877	-104,720	10966,305
212	Aug-18	6,900	10,366	-3,466	12,012	-98,720	9745,663
213	Sep-18	21,800	10,558	11,242	126,374	-83,820	7025,813
214	Oct-18	2,400	11,126	-8,726	76,136	-103,220	10654,394
215	Nov-18	117,700	296,082	-178,382	31819,995	12,080	145,923
216	Dec-18	67,000	134,330	-67,330	4533,275	-38,620	1491,514
217	Jan-20	0,000	136,112	-136,112	18526,531	-105,620	11155,611
218	Feb-20	0,000	175,738	-175,738	30883,845	-105,620	11155,611
219	Mar-20	328,400	249,506	78,894	6224,263	222,780	49630,873
220	Apr-20	179,800	79,880	99,920	9983,926	74,180	5502,654
221	May-20	95,000	185,912	-90,912	8264,919	-10,620	112,787
222	Jun-20	14,000	34,008	-20,008	400,336	-91,620	8394,247
223	Jul-20	0,000	29,608	-29,608	876,646	-105,620	11155,611
224	Aug-20	14,500	11,199	3,301	10,894	-91,120	8302,877
225	Sep-20	24,500	24,479	0,021	0,000	-81,120	6580,475
226	Oct-20	163,000	182,990	-19,990	399,608	57,380	3292,450
227	Nov-20	137,700	147,488	-9,788	95,813	32,080	1029,118
228	Dec-20	202,900	316,262	-113,362	12850,988	97,280	9463,374
229	Jan-21	323,500	491,252	-167,752	28140,599	217,880	47471,640
230	Feb-21	263,400	327,880	-64,480	4157,645	157,780	24894,489
231	Mar-21	133,500	202,176	-68,676	4716,393	27,880	777,287
232	Apr-21	125,300	140,913	-15,613	243,753	19,680	387,297
233	May-21	19,000	38,132	-19,132	366,049	-86,620	7503,046
234	Jun-21	91,300	152,698	-61,398	3769,764	-14,320	205,066
235	Jul-21	3,000	28,829	-25,829	667,117	-102,620	10530,890
236	Aug-21	36,300	8,960	27,340	747,487	-69,320	4805,280
237	Sep-21	67,300	58,240	9,060	82,076	-38,320	1468,432
238	Oct-21	88,600	109,107	-20,507	420,529	-17,020	289,685
239	Nov-21	497,500	403,040	94,460	8922,692	391,880	153569,836
240	Dec-21	420,000	392,764	27,236	741,789	314,380	98834,706
Jumlah		25348,830	33071,901	-7723,071	1444469,477	0,000	3191231,676
Rata-rata		105,620	137,800	-32,179	6018,623	0,000	13296,799
NSE =	0,547						

(Sumber : Hasil Perhitungan)

Lampiran 2.6 Perhitungan Nilai NSE Data Hujan Satelit CHIRPS Tidak Terkoreksi terhadap Data Hujan Pengukuran Pos Rembitan

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	183,300	171,619	11,681	136,445	62,126	3859,609
2	Feb-01	318,700	104,454	214,246	45901,259	197,526	39016,422
3	Mar-01	150,800	140,178	10,622	112,822	29,626	877,685
4	Apr-01	35,300	94,505	-59,205	3505,231	-85,874	7374,387
5	May-01	0,900	78,714	-77,814	6055,026	-120,274	14465,895
6	Jun-01	45,900	118,552	-72,652	5278,322	-75,274	5666,213
7	Jul-01	1,900	26,363	-24,463	598,422	-119,274	14226,347
8	Aug-01	0,000	6,890	-6,890	47,471	-121,174	14683,199
9	Sep-01	0,000	10,657	-10,657	113,567	-121,174	14683,199
10	Oct-01	97,000	68,476	28,524	813,637	-24,174	584,394
11	Nov-01	102,500	183,406	-80,906	6545,742	-18,674	348,728
12	Dec-01	292,000	79,529	212,471	45144,120	170,826	29181,437
13	Jan-02	207,500	181,158	26,342	693,895	86,326	7452,135
14	Feb-02	573,500	277,652	295,848	87525,925	452,326	204598,584
15	Mar-02	127,500	123,900	3,600	12,958	6,326	40,015
16	Apr-02	174,500	92,448	82,052	6732,510	53,326	2843,636
17	May-02	0,000	47,734	-47,734	2278,536	-121,174	14683,199
18	Jun-02	0,000	15,941	-15,941	254,131	-121,174	14683,199
19	Jul-02	0,000	25,261	-25,261	638,126	-121,174	14683,199
20	Aug-02	0,000	8,948	-8,948	80,075	-121,174	14683,199
21	Sep-02	0,000	13,486	-13,486	181,880	-121,174	14683,199
22	Oct-02	0,000	26,938	-26,938	725,650	-121,174	14683,199
23	Nov-02	114,500	182,079	-67,579	4566,966	-6,674	44,546
24	Dec-02	252,500	245,966	6,534	42,688	131,326	17246,453
25	Jan-03	543,600	262,009	281,591	79293,298	422,426	178443,514
26	Feb-03	195,200	205,913	-10,713	114,769	74,026	5479,812
27	Mar-03	103,500	90,624	12,876	165,799	-17,674	312,379
28	Apr-03	106,000	85,793	20,207	408,318	-15,174	230,258
29	May-03	15,700	77,936	-62,236	3873,272	-105,474	11124,817
30	Jun-03	11,600	56,197	-44,597	1988,926	-109,574	12006,516
31	Jul-03	10,400	15,719	-5,319	28,289	-110,774	12270,934
32	Aug-03	2,200	7,232	-5,032	25,321	-118,974	14154,872
33	Sep-03	88,800	31,416	57,384	3292,883	-32,374	1048,092
34	Oct-03	31,500	25,030	6,470	41,867	-89,674	8041,471
35	Nov-03	159,200	172,368	-13,168	173,386	38,026	1445,958
36	Dec-03	433,300	236,787	196,513	38617,394	312,126	97422,484
37	Jan-04	328,000	137,103	190,897	36441,833	206,826	42776,891
38	Feb-04	181,100	203,877	-22,777	518,809	59,926	3591,096
39	Mar-04	162,000	146,569	15,431	238,128	40,826	1666,742
40	Apr-04	9,500	39,030	-29,530	872,045	-111,674	12471,138
41	May-04	147,700	121,719	25,981	675,025	26,526	703,615
42	Jun-04	8,300	20,901	-12,601	158,795	-112,874	12740,596
43	Jul-04	3,000	15,961	-12,961	167,982	-118,174	13965,153
44	Aug-04	10,000	7,242	2,758	7,608	-111,174	12359,714
45	Sep-04	9,500	18,630	-9,130	83,350	-111,674	12471,138
46	Oct-04	10,000	81,039	-71,039	5046,477	-111,174	12359,714
47	Nov-04	174,500	161,562	12,938	167,380	53,326	2843,636
48	Dec-04	248,000	250,859	-2,859	8,175	126,826	16084,771
49	Jan-05	235,000	75,377	159,623	25479,546	113,826	12956,301
50	Feb-05	211,500	122,245	89,255	7966,485	90,326	8158,741

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	227,500	150,623	76,877	5910,087	106,326	11305,165
52	Apr-05	118,000	129,103	-11,103	123,285	-3,174	10,076
53	May-05	0,000	23,112	-23,112	534,148	-121,174	14683,199
54	Jun-05	0,000	29,760	-29,760	885,673	-121,174	14683,199
55	Jul-05	60,500	36,496	24,004	576,209	-60,674	3681,365
56	Aug-05	30,000	13,166	16,834	283,385	-91,174	8312,744
57	Sep-05	5,100	28,062	-22,962	527,235	-116,074	13473,232
58	Oct-05	46,000	129,008	-83,008	6890,371	-75,174	5651,168
59	Nov-05	47,200	123,622	-76,422	5840,393	-73,974	5472,190
60	Dec-05	345,200	320,127	25,073	628,649	224,026	50187,537
61	Jan-06	293,200	254,739	38,461	1479,218	172,026	29592,859
62	Feb-06	116,500	154,090	-37,590	1412,976	-4,674	21,849
63	Mar-06	313,300	288,600	24,700	610,098	192,126	36912,304
64	Apr-06	145,200	133,989	11,211	125,695	24,026	577,237
65	May-06	10,400	115,170	-104,770	10976,823	-110,774	12270,934
66	Jun-06	41,200	40,161	1,039	1,080	-79,974	6395,881
67	Jul-06	0,300	26,020	-25,720	661,538	-120,874	14610,584
68	Aug-06	0,000	6,874	-6,874	47,246	-121,174	14683,199
69	Sep-06	0,400	10,371	-9,971	99,424	-120,774	14586,419
70	Oct-06	13,400	28,171	-14,771	218,186	-107,774	11615,289
71	Nov-06	25,700	46,507	-20,807	432,948	-95,474	9115,332
72	Dec-06	143,000	233,630	-90,630	8213,759	21,826	476,363
73	Jan-07	110,600	85,623	24,977	623,865	-10,574	111,815
74	Feb-07	174,700	163,439	11,261	126,819	53,526	2865,006
75	Mar-07	263,900	291,276	-27,376	749,444	142,726	20370,640
76	Apr-07	149,000	152,153	-3,153	9,944	27,826	774,272
77	May-07	2,200	80,657	-78,457	6155,525	-118,974	14154,872
78	Jun-07	30,500	35,855	-5,355	28,675	-90,674	8221,820
79	Jul-07	1,500	17,053	-15,553	241,909	-119,674	14321,926
80	Aug-07	14,400	9,062	5,338	28,499	-106,774	11400,740
81	Sep-07	0,000	8,844	-8,844	78,210	-121,174	14683,199
82	Oct-07	1,000	41,666	-40,666	1653,722	-120,174	14441,850
83	Nov-07	44,600	120,214	-75,614	5717,421	-76,574	5863,616
84	Dec-07	377,000	344,551	32,449	1052,939	255,826	65446,814
85	Jan-08	287,800	136,569	151,231	22870,721	166,626	27764,141
86	Feb-08	305,000	238,032	66,968	4484,726	183,826	33791,906
87	Mar-08	194,300	327,470	-133,170	17734,176	73,126	5347,375
88	Apr-08	50,700	112,596	-61,896	3831,150	-70,474	4966,620
89	May-08	25,300	62,386	-37,086	1375,365	-95,874	9191,872
90	Jun-08	0,000	32,817	-32,817	1076,957	-121,174	14683,199
91	Jul-08	1,100	18,694	-17,594	309,535	-120,074	14417,826
92	Aug-08	0,000	14,338	-14,338	205,590	-121,174	14683,199
93	Sep-08	42,100	21,167	20,933	438,193	-79,074	6252,737
94	Oct-08	14,000	67,475	-53,475	2859,600	-107,174	11486,320
95	Nov-08	223,800	172,695	51,105	2611,678	102,626	10532,045
96	Dec-08	225,700	184,973	40,727	1658,702	104,526	10925,632
97	Jan-09	441,100	334,065	107,035	11456,541	319,926	102352,486
98	Feb-09	312,600	249,598	63,002	3969,226	191,426	36643,818
99	Mar-09	86,900	139,961	-53,061	2815,459	-34,274	1174,724
100	Apr-09	16,400	78,859	-62,459	3901,072	-104,774	10977,643

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	18,200	144,883	-126,683	16048,706	-102,974	10603,696
102	Jun-09	0,600	24,589	-23,989	575,486	-120,574	14538,150
103	Jul-09	24,400	26,892	-2,492	6,208	-96,774	9365,255
104	Aug-09	4,400	7,074	-2,674	7,148	-116,774	13636,225
105	Sep-09	34,400	29,700	4,700	22,089	-86,774	7529,770
106	Oct-09	31,800	52,546	-20,746	430,379	-89,374	7987,757
107	Nov-09	113,300	59,166	54,134	2930,450	-7,874	62,004
108	Dec-09	183,100	184,625	-1,525	2,325	61,926	3834,799
109	Jan-10	72,100	228,046	-155,946	24319,110	-49,074	2408,282
110	Feb-10	121,000	113,016	7,984	63,743	-0,174	0,030
111	Mar-10	71,100	77,238	-6,138	37,676	-50,074	2507,431
112	Apr-10	163,500	196,549	-33,049	1092,219	42,326	1791,469
113	May-10	126,000	293,126	-167,126	27931,266	4,826	23,288
114	Jun-10	12,900	50,209	-37,309	1391,966	-108,274	11723,313
115	Jul-10	65,100	158,554	-93,454	8733,731	-56,074	3144,322
116	Aug-10	11,100	30,226	-19,126	365,785	-110,074	12116,341
117	Sep-10	115,200	96,837	18,363	337,185	-5,974	35,692
118	Oct-10	118,800	196,903	-78,103	6100,135	-2,374	5,637
119	Nov-10	300,000	239,963	60,037	3604,498	178,826	31978,649
120	Dec-10	291,400	447,666	-156,266	24419,048	170,226	28976,806
121	Jan-11	130,700	249,121	-118,421	14023,425	9,526	90,740
122	Feb-11	151,800	173,061	-21,261	452,028	30,626	937,937
123	Mar-11	226,780	221,365	5,415	29,318	105,606	11152,574
124	Apr-11	231,600	279,017	-47,417	2248,380	110,426	12193,846
125	May-11	43,700	124,476	-80,776	6524,695	-77,474	6002,259
126	Jun-11	8,000	22,089	-14,089	198,508	-113,174	12808,411
127	Jul-11	11,100	21,782	-10,682	114,106	-110,074	12116,341
128	Aug-11	0,200	7,232	-7,032	49,449	-120,974	14634,769
129	Sep-11	7,700	10,043	-2,343	5,490	-113,474	12876,405
130	Oct-11	22,800	31,073	-8,273	68,447	-98,374	9677,493
131	Nov-11	138,300	126,085	12,215	149,217	17,126	293,291
132	Dec-11	354,500	251,638	102,862	10580,614	233,326	54440,906
133	Jan-12	252,700	357,619	-104,919	11007,998	131,526	17299,023
134	Feb-12	241,900	171,464	70,436	4961,162	120,726	14574,707
135	Mar-12	249,900	246,579	3,321	11,032	128,726	16570,319
136	Apr-12	281,600	68,493	213,107	45414,679	160,426	25736,421
137	May-12	137,000	115,594	21,406	458,212	15,826	250,454
138	Jun-12	0,000	20,599	-20,599	424,318	-121,174	14683,199
139	Jul-12	2,900	18,024	-15,124	228,722	-118,274	13988,798
140	Aug-12	4,600	6,774	-2,174	4,725	-116,574	13589,556
141	Sep-12	10,000	12,571	-2,571	6,609	-111,174	12359,714
142	Oct-12	20,900	33,674	-12,774	163,162	-100,274	10054,925
143	Nov-12	136,500	105,586	30,914	955,653	15,326	234,879
144	Dec-12	285,600	267,026	18,574	344,979	164,426	27035,827
145	Jan-13	378,100	370,216	7,884	62,157	256,926	66010,841
146	Feb-13	142,300	197,617	-55,317	3060,009	21,126	446,297
147	Mar-13	205,700	115,609	90,091	8116,419	84,526	7144,602
148	Apr-13	57,400	123,656	-66,256	4389,887	-63,774	4067,155
149	May-13	147,800	139,510	8,290	68,724	26,626	708,931
150	Jun-13	146,800	110,854	35,946	1292,107	25,626	656,679

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	25,100	44,641	-19,541	381,855	-96,074	9230,262
152	Aug-13	4,200	4,776	-0,576	0,332	-116,974	13682,975
153	Sep-13	4,000	12,267	-8,267	68,349	-117,174	13729,805
154	Oct-13	10,700	50,882	-40,182	1614,605	-110,474	12204,560
155	Nov-13	150,000	161,118	-11,118	123,615	28,826	830,924
156	Dec-13	451,200	348,159	103,041	10617,347	330,026	108916,996
157	Jan-14	356,400	284,565	71,835	5160,250	235,226	55331,153
158	Feb-14	146,500	138,444	8,056	64,905	25,326	641,394
159	Mar-14	96,200	100,907	-4,707	22,154	-24,974	623,713
160	Apr-14	40,400	128,183	-87,783	7705,913	-80,774	6524,479
161	May-14	22,300	35,049	-12,749	162,547	-98,874	9776,117
162	Jun-14	0,300	28,875	-28,575	816,533	-120,874	14610,584
163	Jul-14	9,140	30,723	-21,583	465,847	-112,034	12551,673
164	Aug-14	6,000	4,635	1,365	1,864	-115,174	13265,108
165	Sep-14	0,000	9,995	-9,995	99,898	-121,174	14683,199
166	Oct-14	0,000	14,233	-14,233	202,565	-121,174	14683,199
167	Nov-14	129,400	109,294	20,106	404,238	8,226	67,663
168	Dec-14	329,600	265,350	64,250	4127,999	208,426	43441,293
169	Jan-15	186,900	164,318	22,582	509,933	65,726	4319,874
170	Feb-15	124,300	149,935	-25,635	657,177	3,126	9,770
171	Mar-15	230,000	153,221	76,779	5895,011	108,826	11843,044
172	Apr-15	140,000	189,736	-49,736	2473,654	18,826	354,409
173	May-15	7,500	49,296	-41,796	1746,882	-113,674	12921,835
174	Jun-15	7,600	53,859	-46,259	2139,896	-113,574	12899,110
175	Jul-15	6,200	12,294	-6,094	37,143	-114,974	13219,078
176	Aug-15	1,200	5,473	-4,273	18,256	-119,974	14393,821
177	Sep-15	1,000	9,153	-8,153	66,476	-120,174	14441,850
178	Oct-15	0,000	13,223	-13,223	174,853	-121,174	14683,199
179	Nov-15	0,000	48,550	-48,550	2357,070	-121,174	14683,199
180	Dec-15	255,800	245,325	10,475	109,736	134,626	18124,093
181	Jan-16	254,000	161,172	92,828	8617,067	132,826	17642,680
182	Feb-16	404,600	227,363	177,237	31413,019	283,426	80330,156
183	Mar-16	119,600	142,882	-23,282	542,043	-1,574	2,478
184	Apr-16	45,300	66,144	-20,844	434,467	-75,874	5756,902
185	May-16	35,800	87,011	-51,211	2622,525	-85,374	7288,763
186	Jun-16	70,900	136,131	-65,231	4255,076	-50,274	2527,500
187	Jul-16	41,400	132,563	-91,163	8310,607	-79,774	6363,931
188	Aug-16	68,000	11,284	56,716	3216,741	-53,174	2827,501
189	Sep-16	107,200	102,498	4,702	22,110	-13,974	195,280
190	Oct-16	60,300	284,938	-224,638	50462,353	-60,874	3705,674
191	Nov-16	299,500	179,626	119,874	14369,688	178,326	31800,073
192	Dec-16	479,700	364,243	115,457	13330,369	358,526	128540,713
193	Jan-17	366,600	262,103	104,497	10919,528	245,426	60233,799
194	Feb-17	348,900	228,400	120,500	14520,173	227,726	51859,017
195	Mar-17	105,700	176,111	-70,411	4957,679	-15,474	239,452
196	Apr-17	30,000	103,159	-73,159	5352,222	-91,174	8312,744
197	May-17	2,700	53,024	-50,324	2532,511	-118,474	14036,148
198	Jun-17	90,900	99,067	-8,167	66,705	-30,274	916,530
199	Jul-17	55,900	29,579	26,321	692,769	-65,274	4260,728
200	Aug-17	13,400	5,030	8,370	70,059	-107,774	11615,289

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
201	Sep-17	1,200	12,665	-11,465	131,456	-119,974	14393,821
202	Oct-17	131,600	108,947	22,653	513,164	10,426	108,696
203	Nov-17	327,100	264,411	62,689	3929,862	205,926	42405,415
204	Dec-17	458,800	301,779	157,021	24655,612	337,626	113991,147
205	Jan-18	553,900	450,709	103,191	10648,477	432,726	187251,575
206	Feb-18	257,400	194,903	62,497	3905,834	136,226	18557,455
207	Mar-18	58,000	126,307	-68,307	4665,830	-63,174	3990,986
208	Apr-18	2,100	21,916	-19,816	392,678	-119,074	14178,677
209	May-18	0,000	13,797	-13,797	190,348	-121,174	14683,199
210	Jun-18	3,300	19,335	-16,035	257,135	-117,874	13894,339
211	Jul-18	6,500	22,099	-15,599	243,319	-114,674	13150,184
212	Aug-18	10,900	7,546	3,354	11,249	-110,274	12160,410
213	Sep-18	15,500	10,553	4,947	24,474	-105,674	11167,047
214	Oct-18	2,800	12,324	-9,524	90,714	-118,374	14012,463
215	Nov-18	275,600	212,719	62,881	3953,959	154,426	23847,312
216	Dec-18	107,900	116,363	-8,463	71,620	-13,274	176,206
217	Jan-20	166,200	130,222	35,978	1294,427	45,026	2027,318
218	Feb-20	239,400	128,112	111,288	12384,969	118,226	13977,328
219	Mar-20	482,700	193,291	289,409	83757,491	361,526	130700,868
220	Apr-20	106,000	65,419	40,581	1646,838	-15,174	230,258
221	May-20	130,300	138,228	-7,928	62,860	9,126	83,279
222	Jun-20	9,200	23,277	-14,077	198,165	-111,974	12538,233
223	Jul-20	2,500	27,487	-24,987	624,362	-118,674	14083,578
224	Aug-20	3,700	7,776	-4,076	16,613	-117,474	13800,199
225	Sep-20	22,800	19,630	3,170	10,049	-98,374	9677,493
226	Oct-20	123,000	154,737	-31,737	1007,257	1,826	3,333
227	Nov-20	207,500	118,955	88,545	7840,187	86,326	7452,135
228	Dec-20	231,700	276,130	-44,430	1974,032	110,526	12215,941
229	Jan-21	506,400	472,648	33,752	1139,217	385,226	148398,878
230	Feb-21	359,100	287,938	71,162	5064,083	237,926	56608,663
231	Mar-21	158,700	153,202	5,498	30,231	37,526	1408,182
232	Apr-21	74,500	117,926	-43,426	1885,774	-46,674	2178,486
233	May-21	0,000	28,686	-28,686	822,882	-121,174	14683,199
234	Jun-21	76,200	120,123	-43,923	1929,191	-44,974	2022,683
235	Jul-21	0,000	21,204	-21,204	449,603	-121,174	14683,199
236	Aug-21	81,500	8,562	72,938	5320,010	-39,674	1574,046
237	Sep-21	37,600	53,059	-15,459	238,974	-83,574	6984,655
238	Oct-21	75,000	107,410	-32,410	1050,409	-46,174	2132,061
239	Nov-21	268,000	285,280	-17,280	298,598	146,826	21557,801
240	Dec-21	361,900	336,164	25,736	662,317	240,726	57948,887
Jumlah		29081,820	28404,383	677,437	1210546,911	0,000	4253578,251
		121,174	118,352	2,823	5043,945	0,000	17723,243
NSE =	0,715						

(Sumber : Hasil Perhitungan)

LAMPIRAN III

Lampiran 3.1 Data Hujan satelit CHIRPS tidak terkoreksi dan Data Hujan Pengukuran Pos Hujan Kopang pada Perhitungan Regresi Linier

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kopang (Y) (mm)
1	Jan-01	403,065	373,000
2	Feb-01	260,100	214,000
3	Mar-01	304,907	338,000
4	Apr-01	192,641	404,000
5	May-01	153,616	64,000
6	Jun-01	53,590	29,300
7	Jul-01	23,846	0,000
8	Aug-01	55,204	5,100
9	Sep-01	10,609	12,700
10	Oct-01	178,526	182,600
11	Nov-01	302,524	680,200
12	Dec-01	174,359	86,900
13	Jan-02	205,396	426,100
14	Feb-02	114,172	126,000
15	Mar-02	158,325	337,800
16	Apr-02	101,004	211,900
17	May-02	69,510	166,000
18	Jun-02	123,453	77,900
19	Jul-02	29,052	147,300
20	Aug-02	14,721	0,000
21	Sep-02	8,840	15,200
22	Oct-02	78,743	266,500
23	Nov-02	300,923	259,200
24	Dec-02	113,088	172,800
25	Jan-03	216,417	460,500
26	Feb-03	293,643	249,100
27	Mar-03	159,706	269,300
28	Apr-03	93,584	83,900
29	May-03	37,929	22,300
30	Jun-03	13,808	0,000
31	Jul-03	27,250	0,000
32	Aug-03	12,849	0,000
33	Sep-03	13,439	0,000
34	Oct-03	32,263	53,300
35	Nov-03	301,100	324,400
36	Dec-03	344,898	437,700
37	Jan-04	285,657	434,600
38	Feb-04	226,805	261,700
39	Mar-04	98,952	52,100
40	Apr-04	90,576	251,000
41	May-04	64,885	88,900
42	Jun-04	40,141	8,900
43	Jul-04	17,184	0,000
44	Aug-04	10,587	0,000
45	Sep-04	28,962	55,400
46	Oct-04	24,223	28,400
47	Nov-04	289,661	310,400
48	Dec-04	263,368	437,000
49	Jan-05	169,779	394,900
50	Feb-05	246,185	203,200

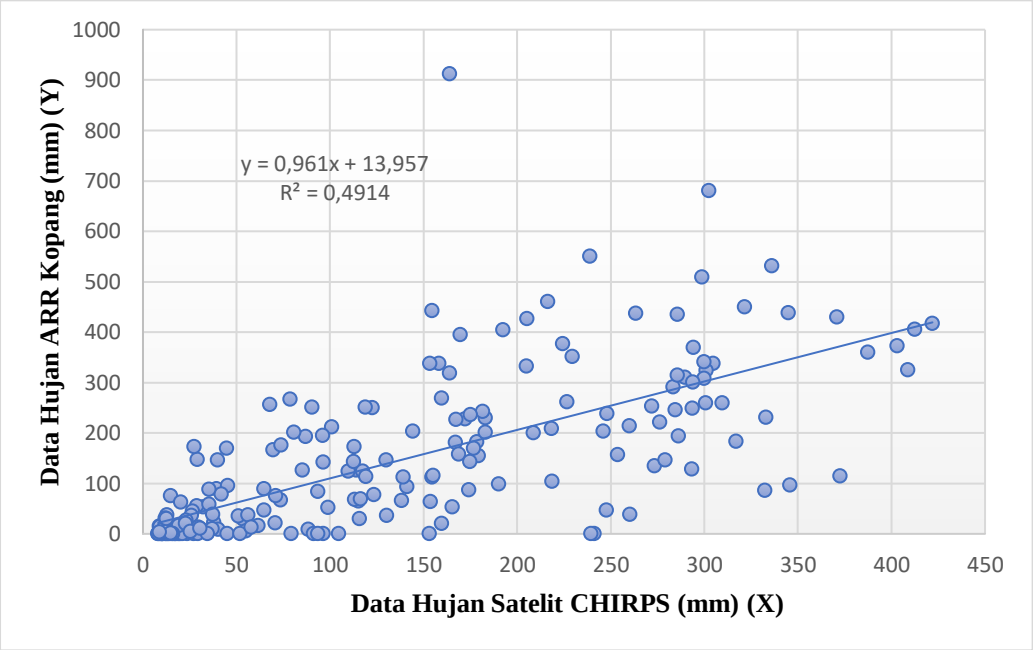
No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kopang (Y) (mm)
51	Mar-05	167,143	180,900
52	Apr-05	44,904	169,000
53	May-05	86,928	192,600
54	Jun-05	17,888	0,000
55	Jul-05	17,185	0,000
56	Aug-05	10,350	0,100
57	Sep-05	19,591	0,400
58	Oct-05	96,306	0,510
59	Nov-05	273,336	134,450
60	Dec-05	279,278	146,600
61	Jan-06	80,798	201,000
62	Feb-06	144,383	202,900
63	Mar-06	164,029	911,800
64	Apr-06	138,211	66,300
65	May-06	18,814	0,000
66	Jun-06	27,578	172,900
67	Jul-06	35,421	58,600
68	Aug-06	17,114	5,000
69	Sep-06	26,687	45,000
70	Oct-06	130,128	146,400
71	Nov-06	241,264	0,000
72	Dec-06	345,752	96,350
73	Jan-07	316,989	183,200
74	Feb-07	179,347	154,400
75	Mar-07	299,909	340,500
76	Apr-07	122,638	250,300
77	May-07	115,217	64,900
78	Jun-07	39,440	88,800
79	Jul-07	31,525	5,100
80	Aug-07	9,951	0,000
81	Sep-07	9,561	0,000
82	Oct-07	26,166	35,800
83	Nov-07	79,413	0,000
84	Dec-07	300,024	307,570
85	Jan-08	96,135	195,200
86	Feb-08	190,273	98,500
87	Mar-08	332,464	85,700
88	Apr-08	176,891	169,300
89	May-08	61,578	16,000
90	Jun-08	37,222	10,000
91	Jul-08	21,618	19,800
92	Aug-08	12,112	0,000
93	Sep-08	8,102	0,000
94	Oct-08	45,041	0,000
95	Nov-08	159,770	20,200
96	Dec-08	408,860	325,100
97	Jan-09	163,996	318,500
98	Feb-09	247,800	46,270
99	Mar-09	333,080	231,200
100	Apr-09	96,515	141,900

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kopang (Y) (mm)
101	May-09	52,050	0,200
102	Jun-09	30,750	10,000
103	Jul-09	20,054	0,000
104	Aug-09	29,650	12,500
105	Sep-09	22,159	10,000
106	Oct-09	73,544	67,200
107	Nov-09	253,760	157,100
108	Dec-09	260,306	38,420
109	Jan-10	372,534	114,800
110	Feb-10	293,518	128,600
111	Mar-10	154,634	112,400
112	Apr-10	88,558	8,700
113	May-10	153,077	0,150
114	Jun-10	21,089	0,000
115	Jul-10	29,431	0,000
116	Aug-10	10,250	0,000
117	Sep-10	34,493	0,000
118	Oct-10	51,251	35,500
119	Nov-10	91,424	0,000
120	Dec-10	218,699	103,860
121	Jan-11	271,938	253,200
122	Feb-11	155,286	115,500
123	Mar-11	208,645	199,700
124	Apr-11	283,576	290,900
125	May-11	117,665	124,000
126	Jun-11	19,088	16,200
127	Jul-11	23,247	26,200
128	Aug-11	10,587	0,300
129	Sep-11	9,263	13,900
130	Oct-11	64,719	46,500
131	Nov-11	229,490	351,400
132	Dec-11	284,631	245,600
133	Jan-12	336,045	531,000
134	Feb-12	182,975	230,100
135	Mar-12	239,432	0,000
136	Apr-12	70,958	75,000
137	May-12	104,655	0,000
138	Jun-12	14,917	75,000
139	Jul-12	22,931	19,900
140	Aug-12	16,122	0,000
141	Sep-12	13,039	37,000
142	Oct-12	45,530	95,000
143	Nov-12	181,791	242,100
144	Dec-12	321,758	450,100
145	Jan-13	371,035	429,500
146	Feb-13	205,102	331,900
147	Mar-13	113,237	67,533
148	Apr-13	118,909	250,900
149	May-13	130,225	36,107
150	Jun-13	116,418	69,000

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kopang (Y) (mm)
151	Jul-13	70,723	21,500
152	Aug-13	12,271	0,000
153	Sep-13	10,893	2,900
154	Oct-13	56,125	37,400
155	Nov-13	276,347	220,900
156	Dec-13	421,897	417,000
157	Jan-14	309,743	259,910
158	Feb-14	141,251	92,800
159	Mar-14	109,713	123,900
160	Apr-14	154,644	442,200
161	May-14	25,584	4,800
162	Jun-14	30,601	10,600
163	Jul-14	39,890	145,700
164	Aug-14	11,896	13,500
165	Sep-14	8,941	0,400
166	Oct-14	12,753	4,000
167	Nov-14	168,975	158,200
168	Dec-14	298,775	509,000
169	Jan-15	183,188	200,710
170	Feb-15	172,200	228,000
171	Mar-15	153,351	337,300
172	Apr-15	218,380	208,700
173	May-15	37,543	38,500
174	Jun-15	57,925	12,700
175	Jul-15	15,817	0,000
176	Aug-15	14,812	1,300
177	Sep-15	8,280	0,000
178	Oct-15	12,153	31,100
179	Nov-15	93,639	0,000
180	Dec-15	285,681	314,800
181	Jan-16	174,746	142,800
182	Feb-16	238,985	550,700
183	Mar-16	175,084	235,800
184	Apr-16	74,024	176,100
185	May-16	85,352	126,200
186	Jun-16	139,114	112,300
187	Jul-16	165,481	53,300
188	Aug-16	20,355	62,200
189	Sep-16	67,869	256,600
190	Oct-16	286,308	193,500
191	Nov-16	248,119	238,300
192	Dec-16	387,375	359,700
193	Jan-17	294,002	300,300
194	Feb-17	224,482	377,000
195	Mar-17	167,501	226,700
196	Apr-17	112,564	143,000
197	May-17	42,059	78,600
198	Jun-17	115,737	29,600
199	Jul-17	35,367	87,800
200	Aug-17	12,496	29,500
201	Sep-17	9,060	2,900
202	Oct-17	119,112	113,300
203	Nov-17	412,635	405,100
204	Dec-17	294,141	369,100

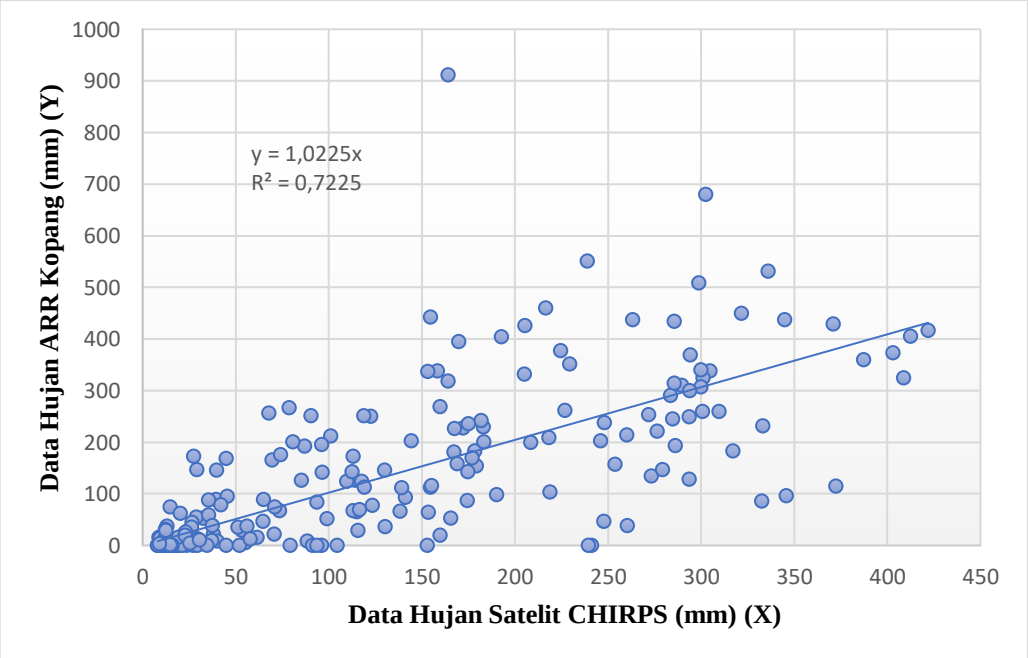
(Sumber : Hasil Perhitungan)

Lampiran 3.2 Grafik Regresi Linier Sederhana Data Hujan pada Pos Hujan Kopang



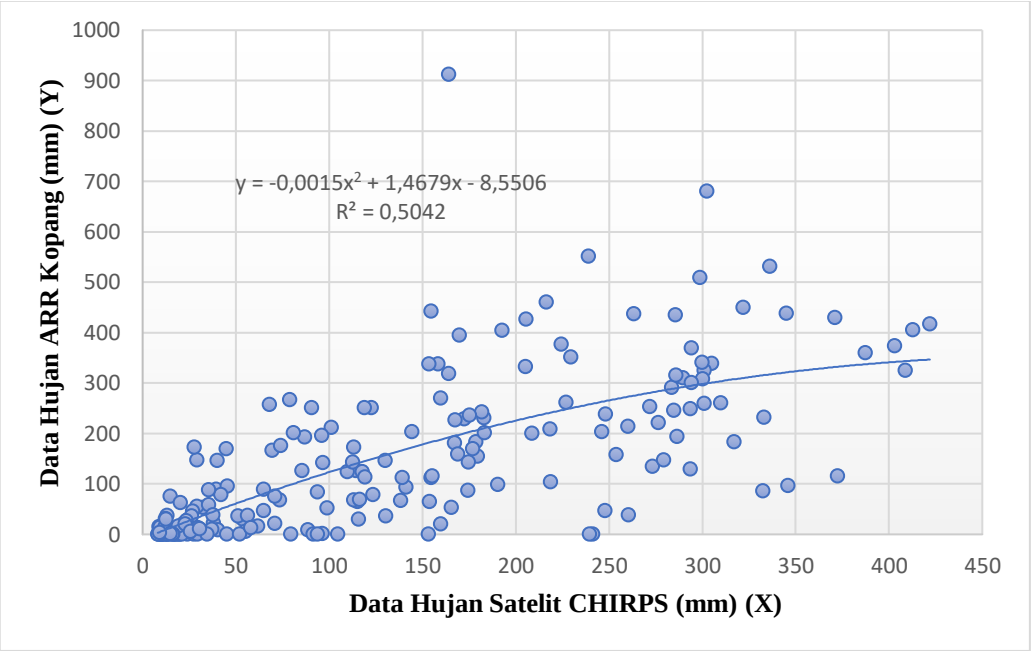
(*Sumber : Hasil Perhitungan*)

Lampiran 3.3 Grafik Regresi Linier *Intercept* Data Hujan pada Pos Hujan Kopang



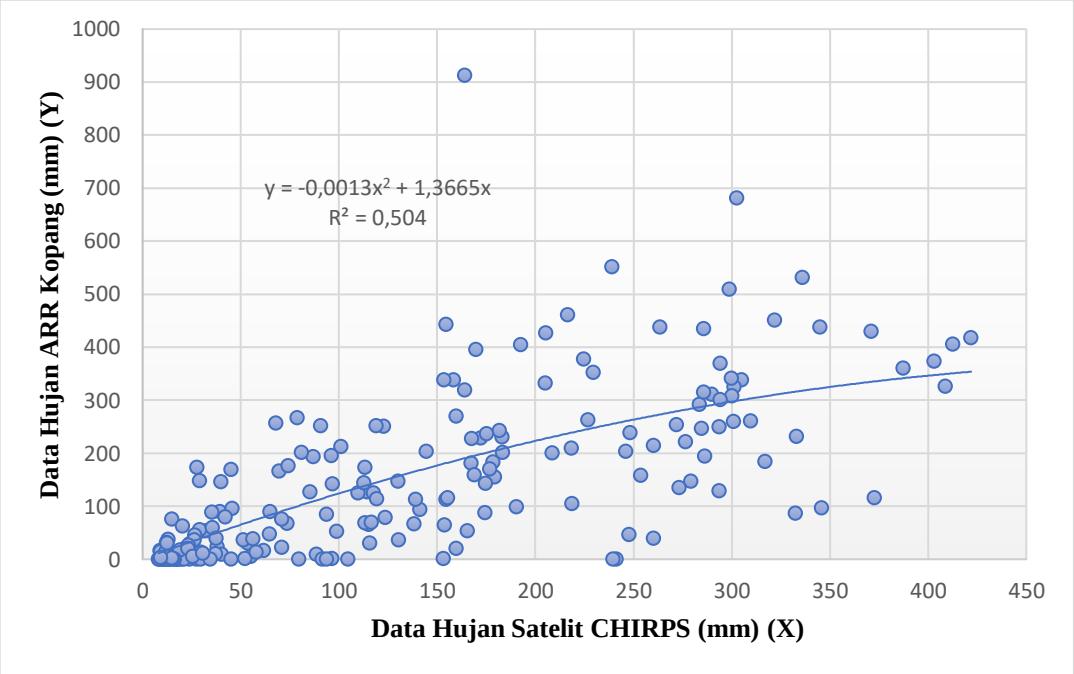
(*Sumber : Hasil Perhitungan*)

Lampiran 3.4 Grafik Regresi Polinomial Orde 2 Data Hujan pada Pos Hujan Kopang



(*Sumber : Hasil Perhitungan*)

Lampiran 3.5 Grafik Regresi Polinomial Orde 2 Data Hujan pada Pos Hujan Kopang



(*Sumber : Hasil Perhitungan*)

Lampiran 3.6 Data Hujan satelit CHIRPS tidak terkoreksi dan Data Hujan Pengukuran Pos Hujan Kabul pada Perhitungan Regresi Linier

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kabul (Y) (mm)
1	Jan-01	375,458	358,000
2	Feb-01	284,077	210,700
3	Mar-01	354,672	263,500
4	Apr-01	200,252	185,300
5	May-01	214,892	189,300
6	Jun-01	53,841	0,000
7	Jul-01	20,736	0,000
8	Aug-01	14,987	7,000
9	Sep-01	9,424	0,000
10	Oct-01	127,607	131,000
11	Nov-01	238,319	442,500
12	Dec-01	143,041	117,500
13	Jan-02	180,159	305,500
14	Feb-02	124,860	90,000
15	Mar-02	187,813	133,000
16	Apr-02	112,624	179,000
17	May-02	98,244	37,000
18	Jun-02	144,791	88,000
19	Jul-02	31,130	0,000
20	Aug-02	9,411	0,000
21	Sep-02	11,065	0,000
22	Oct-02	75,891	0,000
23	Nov-02	238,505	107,500
24	Dec-02	87,335	54,200
25	Jan-03	180,223	212,000
26	Feb-03	320,312	411,500
27	Mar-03	162,942	232,000
28	Apr-03	106,371	184,500
29	May-03	55,412	0,000
30	Jun-03	17,338	0,000
31	Jul-03	23,450	0,000
32	Aug-03	9,026	0,000
33	Sep-03	12,958	0,000
34	Oct-03	26,949	0,000
35	Nov-03	247,190	140,300
36	Dec-03	288,281	202,100
37	Jan-04	270,112	147,900
38	Feb-04	242,117	113,400
39	Mar-04	116,180	81,300
40	Apr-04	100,801	63,000
41	May-04	101,910	12,000
42	Jun-04	64,300	4,000
43	Jul-04	14,394	9,000
44	Aug-04	7,209	0,000
45	Sep-04	30,416	136,500
46	Oct-04	23,566	0,000
47	Nov-04	248,323	89,500
48	Dec-04	270,730	234,500
49	Jan-05	148,034	83,000
50	Feb-05	255,693	104,500

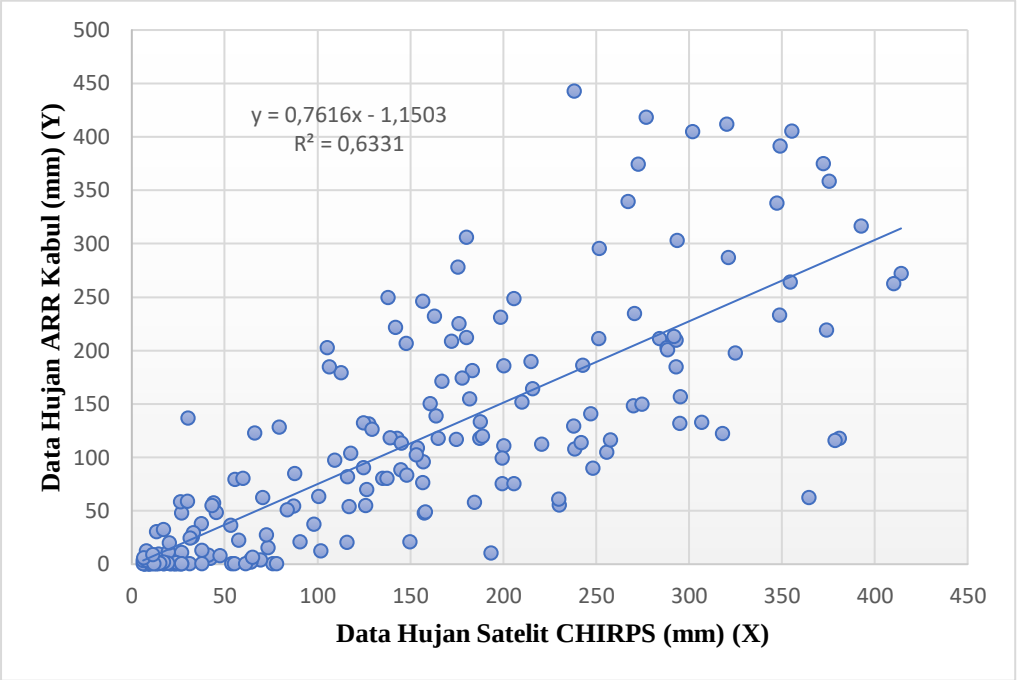
No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kabul (Y) (mm)
51	Mar-05	157,084	95,500
52	Apr-05	42,299	5,000
53	May-05	157,434	47,500
54	Jun-05	22,659	0,000
55	Jul-05	14,516	0,000
56	Aug-05	6,900	0,000
57	Sep-05	20,946	0,000
58	Oct-05	77,876	0,000
59	Nov-05	242,926	186,000
60	Dec-05	288,537	200,400
61	Jan-06	70,407	62,000
62	Feb-06	153,858	108,500
63	Mar-06	183,512	181,000
64	Apr-06	139,261	118,000
65	May-06	26,838	47,500
66	Jun-06	37,606	37,500
67	Jul-06	45,575	48,000
68	Aug-06	13,468	30,000
69	Sep-06	26,788	10,500
70	Oct-06	126,394	69,400
71	Nov-06	156,759	76,200
72	Dec-06	348,786	232,700
73	Jan-07	267,389	339,000
74	Feb-07	198,550	230,600
75	Mar-07	347,492	337,700
76	Apr-07	141,997	221,100
77	May-07	149,896	20,400
78	Jun-07	44,079	57,000
79	Jul-07	25,848	0,000
80	Aug-07	6,786	0,000
81	Sep-07	10,032	0,000
82	Oct-07	26,388	58,200
83	Nov-07	57,730	22,100
84	Dec-07	295,167	131,400
85	Jan-08	87,726	84,500
86	Feb-08	199,556	75,100
87	Mar-08	364,591	61,900
88	Apr-08	172,248	208,500
89	May-08	117,163	53,500
90	Jun-08	41,351	8,200
91	Jul-08	17,111	32,000
92	Aug-08	9,594	5,500
93	Sep-08	8,558	0,000
94	Oct-08	47,699	7,800
95	Nov-08	158,108	48,500
96	Dec-08	380,905	117,500
97	Jan-09	145,131	112,900
98	Feb-09	274,788	149,500
99	Mar-09	392,700	316,400
100	Apr-09	117,815	103,600

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kabul (Y) (mm)
101	May-09	73,540	15,100
102	Jun-09	37,699	0,000
103	Jul-09	17,134	0,000
104	Aug-09	22,089	2,300
105	Sep-09	19,801	11,100
106	Oct-09	69,466	3,500
107	Nov-09	230,080	54,800
108	Dec-09	205,844	75,200
109	Jan-10	355,466	405,000
110	Feb-10	321,132	286,800
111	Mar-10	174,689	116,400
112	Apr-10	90,587	20,500
113	May-10	193,391	10,000
114	Jun-10	26,480	0,000
115	Jul-10	24,778	0,000
116	Aug-10	6,987	0,000
117	Sep-10	37,749	12,800
118	Oct-10	53,251	36,200
119	Nov-10	83,724	50,500
120	Dec-10	200,349	110,400
121	Jan-11	257,922	115,900
122	Feb-11	199,350	99,000
123	Mar-11	238,032	128,800
124	Apr-11	317,959	122,100
125	May-11	165,007	117,700
126	Jun-11	24,106	1,100
127	Jul-11	20,136	19,700
128	Aug-11	7,209	0,000
129	Sep-11	9,737	0,000
130	Oct-11	32,734	25,200
131	Nov-11	184,595	57,500
132	Dec-11	293,130	209,400
133	Jan-12	378,715	115,300
134	Feb-12	220,614	111,900
135	Mar-12	295,463	156,300
136	Apr-12	72,658	27,300
137	May-12	167,028	170,700
138	Jun-12	19,451	0,500
139	Jul-12	17,206	1,700
140	Aug-12	6,886	0,700
141	Sep-12	11,169	4,800
142	Oct-12	33,193	29,200
143	Nov-12	156,592	245,900
144	Dec-12	306,883	132,500
145	Jan-13	374,006	219,000
146	Feb-13	251,593	211,000
147	Mar-13	163,733	138,300
148	Apr-13	137,979	249,500
149	May-13	187,355	117,300
150	Jun-13	135,234	80,000

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Kabul (Y) (mm)
151	Jul-13	64,342	1,700
152	Aug-13	6,346	0,000
153	Sep-13	12,427	1,000
154	Oct-13	55,610	78,900
155	Nov-13	229,796	60,300
156	Dec-13	414,160	271,830
157	Jan-14	325,085	197,500
158	Feb-14	177,991	173,900
159	Mar-14	124,702	131,700
160	Apr-14	153,103	102,000
161	May-14	43,181	54,700
162	Jun-14	26,829	0,000
163	Jul-14	31,336	24,100
164	Aug-14	6,081	2,900
165	Sep-14	10,062	0,500
166	Oct-14	13,410	0,000
167	Nov-14	147,650	206,400
168	Dec-14	302,118	404,500
169	Jan-15	160,689	149,800
170	Feb-15	188,827	119,300
171	Mar-15	205,757	248,500
172	Apr-15	215,783	163,800
173	May-15	59,880	79,900
174	Jun-15	61,390	0,000
175	Jul-15	15,010	0,600
176	Aug-15	8,088	3,100
177	Sep-15	9,093	6,700
178	Oct-15	11,997	0,000
179	Nov-15	66,158	122,400
180	Dec-15	291,886	212,800
181	Jan-16	175,606	277,700
182	Feb-16	293,642	302,700
183	Mar-16	181,890	154,400
184	Apr-16	79,492	128,100
185	May-16	115,795	20,300
186	Jun-16	176,156	224,600
187	Jul-16	125,842	54,500
188	Aug-16	7,988	12,100
189	Sep-16	105,262	202,500
190	Oct-16	292,977	184,500
191	Nov-16	251,799	295,100
192	Dec-16	410,223	262,400
193	Jan-17	272,649	374,000
194	Feb-17	277,109	418,200
195	Mar-17	210,214	151,400
196	Apr-17	129,310	126,000
197	May-17	65,003	5,900
198	Jun-17	137,339	80,000
199	Jul-17	30,040	58,600
200	Aug-17	6,383	5,700
201	Sep-17	11,349	8,700
202	Oct-17	109,384	97,200
203	Nov-17	372,397	374,500
204	Dec-17	349,223	390,800

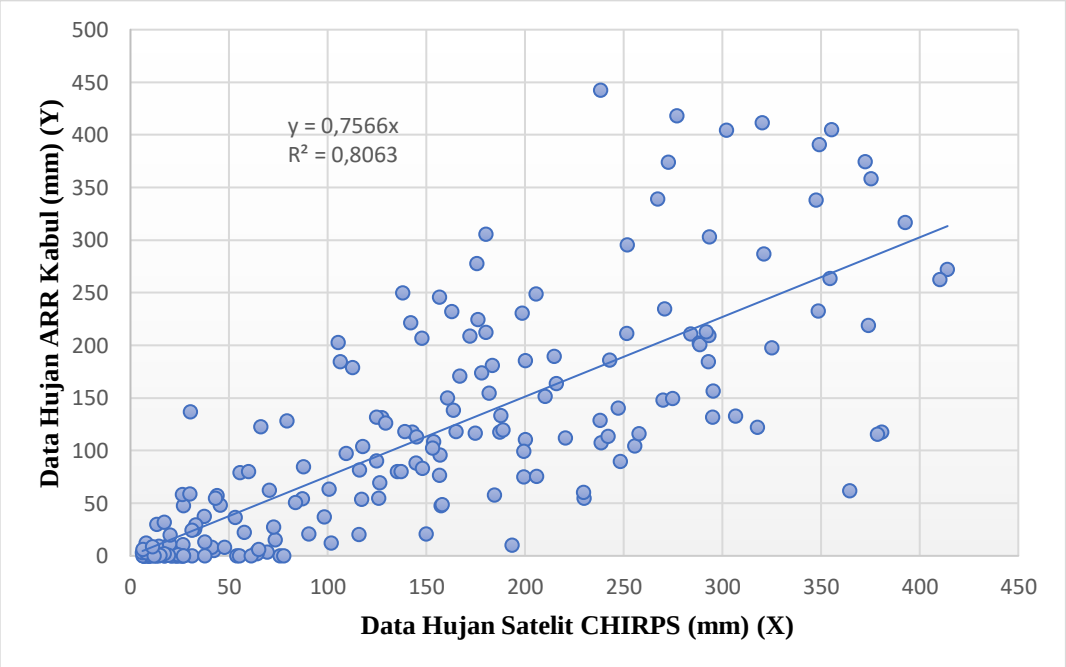
(Sumber : Hasil Perhitungan)

Lampiran 3.7 Grafik Regresi Linier Sederhana Data Hujan pada Pos Hujan Kabul



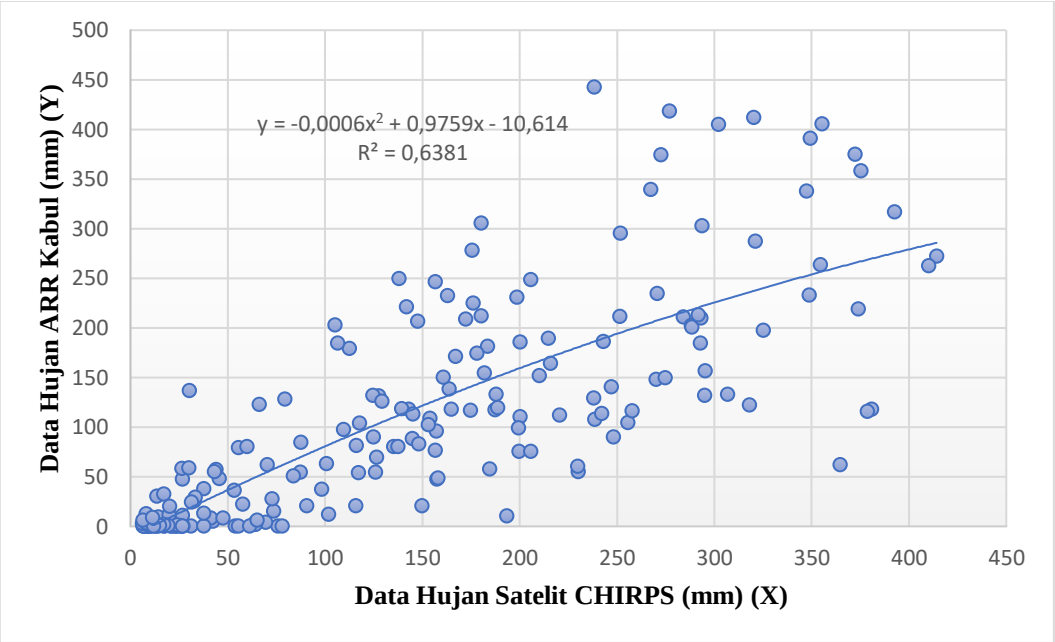
(Sumber : Hasil Perhitungan)

Lampiran 3.8 Grafik Regresi Linier *Intercept* Data Hujan pada Pos Hujan Kabul



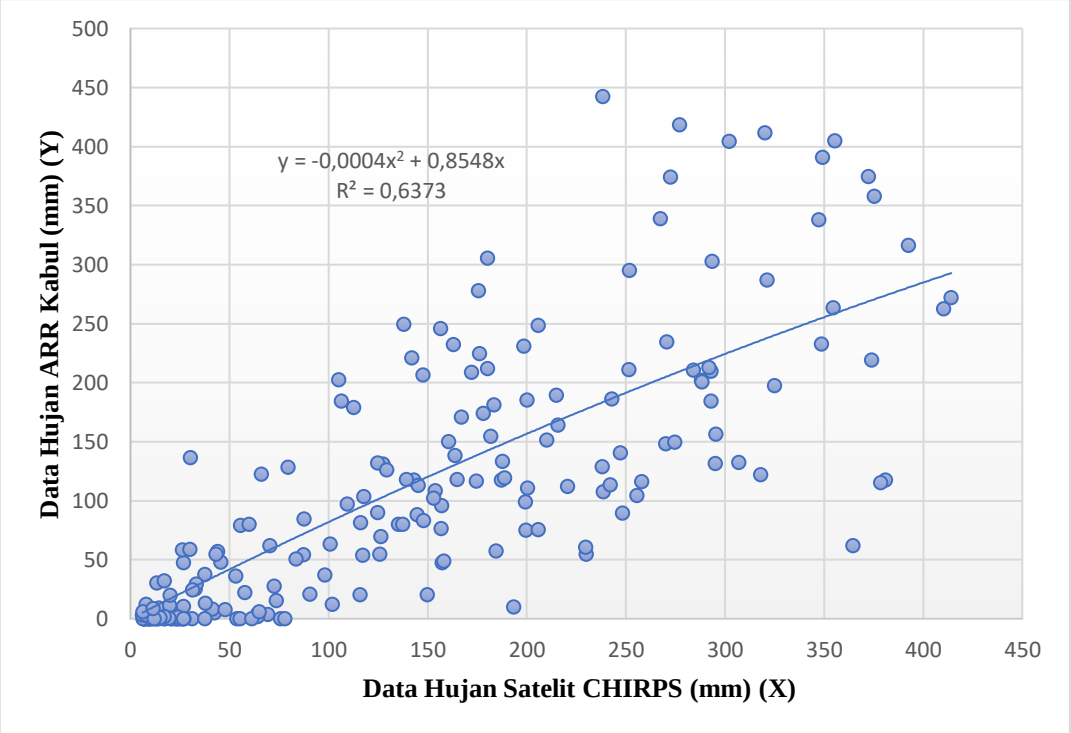
(Sumber : Hasil Perhitungan)

Lampiran 3.9 Grafik Regresi Polinomial Orde 2 Data Hujan pada Pos Hujan Kabul



(Sumber : Hasil Perhitungan)

Lampiran 3.10 Grafik Regresi Polinomial Orde 2 *Intercept* Data Hujan pada Pos Hujan Kabul



(Sumber : Hasil Perhitungan)

Lampiran 3.11 Data Hujan satelit CHIRPS tidak terkoreksi dan Data Hujan Pengukuran Pos Hujan Rembitan pada Perhitungan Regresi Linier

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Rembitan (Y) (mm)
1	Jan-01	171,619	183,300
2	Feb-01	104,454	318,700
3	Mar-01	140,178	150,800
4	Apr-01	94,505	35,300
5	May-01	78,714	0,900
6	Jun-01	118,552	45,900
7	Jul-01	26,363	1,900
8	Aug-01	6,890	0,000
9	Sep-01	10,657	0,000
10	Oct-01	68,476	97,000
11	Nov-01	183,406	102,500
12	Dec-01	79,529	292,000
13	Jan-02	181,158	207,500
14	Feb-02	277,652	573,500
15	Mar-02	123,900	127,500
16	Apr-02	92,448	174,500
17	May-02	47,734	0,000
18	Jun-02	15,941	0,000
19	Jul-02	25,261	0,000
20	Aug-02	8,948	0,000
21	Sep-02	13,486	0,000
22	Oct-02	26,938	0,000
23	Nov-02	182,079	114,500
24	Dec-02	245,966	252,500
25	Jan-03	262,009	543,600
26	Feb-03	205,913	195,200
27	Mar-03	90,624	103,500
28	Apr-03	85,793	106,000
29	May-03	77,936	15,700
30	Jun-03	56,197	11,600
31	Jul-03	15,719	10,400
32	Aug-03	7,232	2,200
33	Sep-03	31,416	88,800
34	Oct-03	25,030	31,500
35	Nov-03	172,368	159,200
36	Dec-03	236,787	433,300
37	Jan-04	137,103	328,000
38	Feb-04	203,877	181,100
39	Mar-04	146,569	162,000
40	Apr-04	39,030	9,500
41	May-04	121,719	147,700
42	Jun-04	20,901	8,300
43	Jul-04	15,961	3,000
44	Aug-04	7,242	10,000
45	Sep-04	18,630	9,500
46	Oct-04	81,039	10,000
47	Nov-04	161,562	174,500
48	Dec-04	250,859	248,000
49	Jan-05	75,377	235,000
50	Feb-05	122,245	211,500

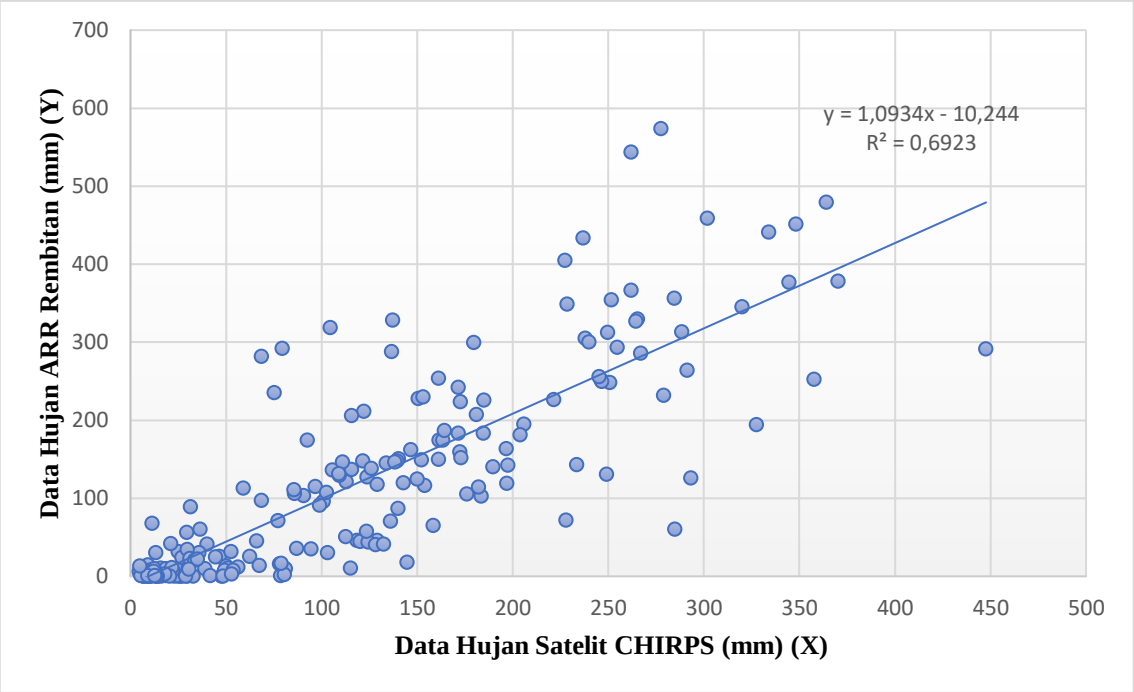
No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Rembitan (Y) (mm)
51	Mar-05	150,623	227,500
52	Apr-05	129,103	118,000
53	May-05	23,112	0,000
54	Jun-05	29,760	0,000
55	Jul-05	36,496	60,500
56	Aug-05	13,166	30,000
57	Sep-05	28,062	5,100
58	Oct-05	129,008	46,000
59	Nov-05	123,622	47,200
60	Dec-05	320,127	345,200
61	Jan-06	254,739	293,200
62	Feb-06	154,090	116,500
63	Mar-06	288,600	313,300
64	Apr-06	133,989	145,200
65	May-06	115,170	10,400
66	Jun-06	40,161	41,200
67	Jul-06	26,020	0,300
68	Aug-06	6,874	0,000
69	Sep-06	10,371	0,400
70	Oct-06	28,171	13,400
71	Nov-06	46,507	25,700
72	Dec-06	233,630	143,000
73	Jan-07	85,623	110,600
74	Feb-07	163,439	174,700
75	Mar-07	291,276	263,900
76	Apr-07	152,153	149,000
77	May-07	80,657	2,200
78	Jun-07	35,855	30,500
79	Jul-07	17,053	1,500
80	Aug-07	9,062	14,400
81	Sep-07	8,844	0,000
82	Oct-07	41,666	1,000
83	Nov-07	120,214	44,600
84	Dec-07	344,551	377,000
85	Jan-08	136,569	287,800
86	Feb-08	238,032	305,000
87	Mar-08	327,470	194,300
88	Apr-08	112,596	50,700
89	May-08	62,386	25,300
90	Jun-08	32,817	0,000
91	Jul-08	18,694	1,100
92	Aug-08	14,338	0,000
93	Sep-08	21,167	42,100
94	Oct-08	67,475	14,000
95	Nov-08	172,695	223,800
96	Dec-08	184,973	225,700
97	Jan-09	334,065	441,100
98	Feb-09	249,598	312,600
99	Mar-09	139,961	86,900
100	Apr-09	78,859	16,400

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Rembitan (Y) (mm)
101	May-09	144,883	18,200
102	Jun-09	24,589	0,600
103	Jul-09	26,892	24,400
104	Aug-09	7,074	4,400
105	Sep-09	29,700	34,400
106	Oct-09	52,546	31,800
107	Nov-09	59,166	113,300
108	Dec-09	184,625	183,100
109	Jan-10	228,046	72,100
110	Feb-10	113,016	121,000
111	Mar-10	77,238	71,100
112	Apr-10	196,549	163,500
113	May-10	293,126	126,000
114	Jun-10	50,209	12,900
115	Jul-10	158,554	65,100
116	Aug-10	30,226	11,100
117	Sep-10	96,837	115,200
118	Oct-10	196,903	118,800
119	Nov-10	239,963	300,000
120	Dec-10	447,666	291,400
121	Jan-11	249,121	130,700
122	Feb-11	173,061	151,800
123	Mar-11	221,365	226,780
124	Apr-11	279,017	231,600
125	May-11	124,476	43,700
126	Jun-11	22,089	8,000
127	Jul-11	21,782	11,100
128	Aug-11	7,232	0,200
129	Sep-11	10,043	7,700
130	Oct-11	31,073	22,800
131	Nov-11	126,085	138,300
132	Dec-11	251,638	354,500
133	Jan-12	357,619	252,700
134	Feb-12	171,464	241,900
135	Mar-12	246,579	249,900
136	Apr-12	68,493	281,600
137	May-12	115,594	137,000
138	Jun-12	20,599	0,000
139	Jul-12	18,024	2,900
140	Aug-12	6,774	4,600
141	Sep-12	12,571	10,000
142	Oct-12	33,674	20,900
143	Nov-12	105,586	136,500
144	Dec-12	267,026	285,600
145	Jan-13	370,216	378,100
146	Feb-13	197,617	142,300
147	Mar-13	115,609	205,700
148	Apr-13	123,656	57,400
149	May-13	139,510	147,800
150	Jun-13	110,854	146,800

No	Tanggal	Data Hujan Satelit CHIRPS (X) (mm)	Data Hujan ARR Rembitan (Y) (mm)
151	Jul-13	44,641	25,100
152	Aug-13	4,776	4,200
153	Sep-13	12,267	4,000
154	Oct-13	50,882	10,700
155	Nov-13	161,118	150,000
156	Dec-13	348,159	451,200
157	Jan-14	284,565	356,400
158	Feb-14	138,444	146,500
159	Mar-14	100,907	96,200
160	Apr-14	128,183	40,400
161	May-14	35,049	22,300
162	Jun-14	28,875	0,300
163	Jul-14	30,723	9,140
164	Aug-14	4,635	6,000
165	Sep-14	9,995	0,000
166	Oct-14	14,233	0,000
167	Nov-14	109,294	129,400
168	Dec-14	265,350	329,600
169	Jan-15	164,318	186,900
170	Feb-15	149,935	124,300
171	Mar-15	153,221	230,000
172	Apr-15	189,736	140,000
173	May-15	49,296	7,500
174	Jun-15	53,859	7,600
175	Jul-15	12,294	6,200
176	Aug-15	5,473	1,200
177	Sep-15	9,153	1,000
178	Oct-15	13,223	0,000
179	Nov-15	48,550	0,000
180	Dec-15	245,325	255,800
181	Jan-16	161,172	254,000
182	Feb-16	227,363	404,600
183	Mar-16	142,882	119,600
184	Apr-16	66,144	45,300
185	May-16	87,011	35,800
186	Jun-16	136,131	70,900
187	Jul-16	132,563	41,400
188	Aug-16	11,284	68,000
189	Sep-16	102,498	107,200
190	Oct-16	284,938	60,300
191	Nov-16	179,626	299,500
192	Dec-16	364,243	479,700
193	Jan-17	262,103	366,600
194	Feb-17	228,400	348,900
195	Mar-17	176,111	105,700
196	Apr-17	103,159	30,000
197	May-17	53,024	2,700
198	Jun-17	99,067	90,900
199	Jul-17	29,579	55,900
200	Aug-17	5,030	13,400
201	Sep-17	12,665	1,200
202	Oct-17	108,947	131,600
203	Nov-17	264,411	327,100
204	Dec-17	301,779	458,800

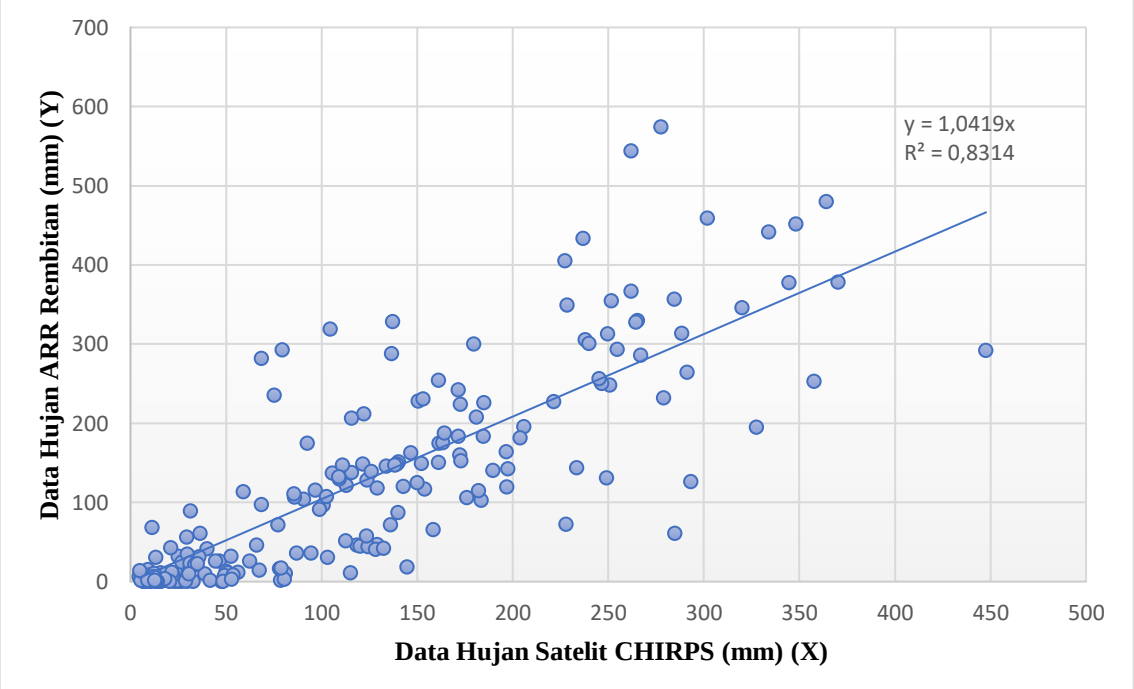
(Sumber : Hasil Perhitungan)

Lampiran 3.12 Grafik Regresi Linier Sederhana Data Hujan pada Pos Hujan Rembitan



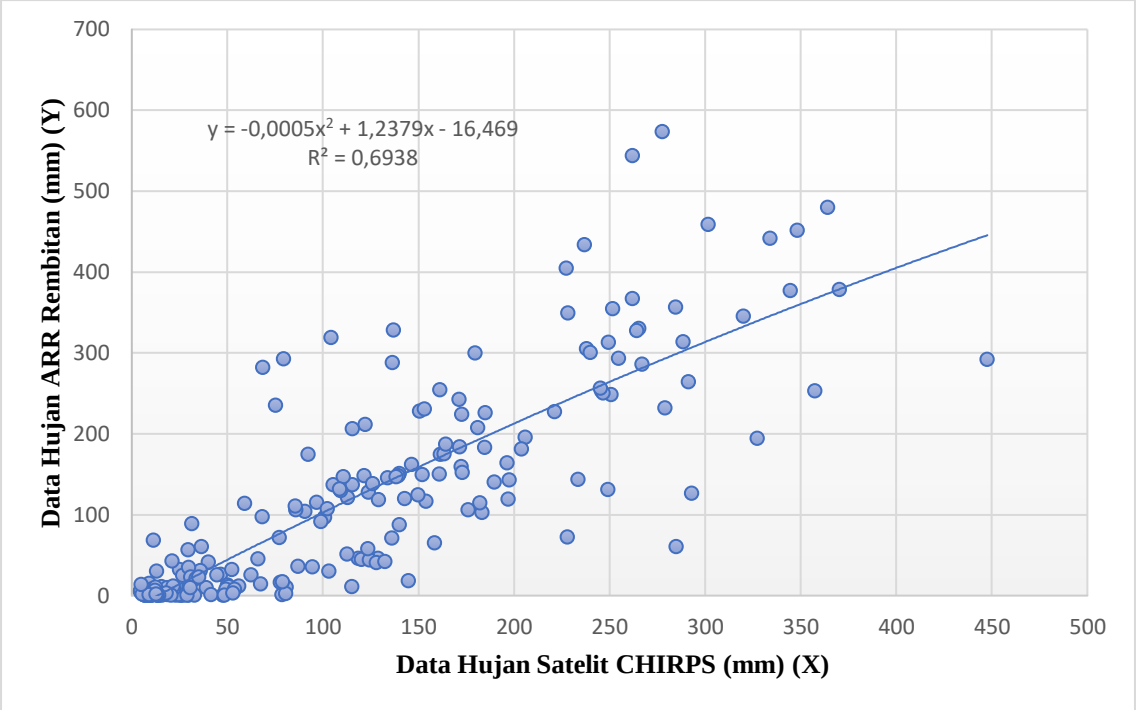
(Sumber : Hasil Perhitungan)

Lampiran 3.13 Grafik Regresi Linier *Intercept* Data Hujan pada Pos Hujan Rembitan



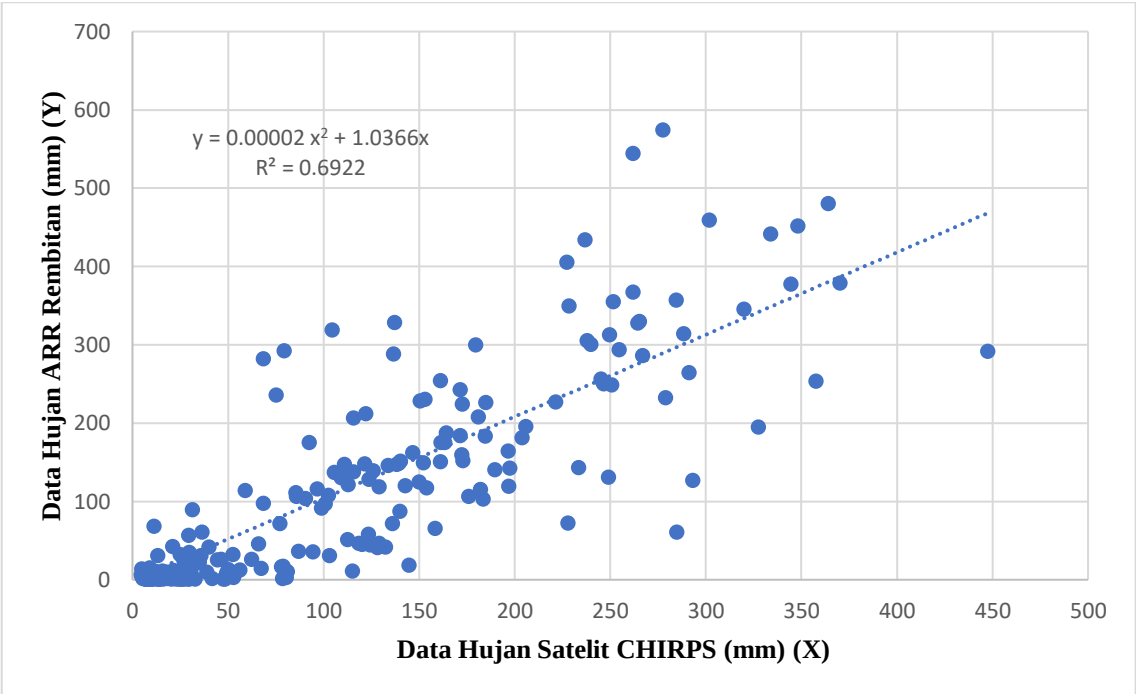
(Sumber : Hasil Perhitungan)

Lampiran 3.14 Grafik Regresi Polinomial Orde 2 Data Hujan pada Pos Hujan Rembitan



(Sumber : Hasil Perhitungan)

Lampiran 3.15 Grafik Regresi Polinomial Orde 2 *Intercept* Data Hujan pada Pos Hujan Rembitan



(Sumber : Hasil Perhitungan)

Lampiran 3.16 Data Hujan CHIRPS Terkoreksi pada pos hujan Kopang

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
1	Jan-01	403,065	401,303	412,134	339,417	339,589
2	Feb-01	260,100	263,913	265,952	271,772	267,479
3	Mar-01	304,907	306,972	311,767	299,570	295,797
4	Apr-01	192,641	199,085	196,975	218,561	215,000
5	May-01	153,616	161,582	157,073	181,546	179,239
6	Jun-01	53,590	65,457	54,796	65,807	69,498
7	Jul-01	23,846	36,873	24,383	25,600	31,846
8	Aug-01	55,204	67,008	56,446	67,912	71,474
9	Sep-01	10,609	24,152	10,848	6,854	14,351
10	Oct-01	178,526	185,521	182,543	205,701	202,523
11	Nov-01	302,524	304,683	309,331	298,243	294,422
12	Dec-01	174,359	181,516	178,282	201,789	198,740
13	Jan-02	205,396	211,342	210,017	229,669	225,830
14	Feb-02	114,172	123,676	116,740	139,489	139,070
15	Mar-02	158,325	166,107	161,887	186,255	183,764
16	Apr-02	101,004	111,021	103,276	124,410	124,759
17	May-02	69,510	80,756	71,074	86,236	88,705
18	Jun-02	123,453	132,596	126,231	149,805	148,886
19	Jul-02	29,052	41,876	29,706	32,829	38,603
20	Aug-02	14,721	28,104	15,053	12,734	19,835
21	Sep-02	8,840	22,452	9,039	4,308	11,978
22	Oct-02	78,743	89,629	80,514	97,735	99,541
23	Nov-02	300,923	303,144	307,694	297,342	293,490
24	Dec-02	113,088	122,635	115,633	138,268	137,909
25	Jan-03	216,417	221,934	221,286	238,873	234,847
26	Feb-03	293,643	296,148	300,250	293,149	289,169
27	Mar-03	159,706	167,434	163,299	187,623	185,080
28	Apr-03	93,584	103,891	95,689	115,684	116,497
29	May-03	37,929	50,407	38,782	44,967	49,960
30	Jun-03	13,808	27,227	14,119	11,432	18,621
31	Jul-03	27,250	40,144	27,863	30,336	36,272
32	Aug-03	12,849	26,305	13,138	10,063	17,344
33	Sep-03	13,439	26,872	13,742	10,906	18,130
34	Oct-03	32,263	44,962	32,989	37,247	42,734
35	Nov-03	301,100	303,314	307,875	297,442	293,593
36	Dec-03	344,898	345,404	352,658	319,293	316,662
37	Jan-04	285,657	288,473	292,084	288,365	284,270
38	Feb-04	226,805	231,917	231,908	247,216	243,057
39	Mar-04	98,952	109,050	101,178	122,014	122,489
40	Apr-04	90,576	101,001	92,614	112,100	113,107
41	May-04	64,885	76,312	66,345	80,379	83,192
42	Jun-04	40,141	52,533	41,044	47,955	52,758
43	Jul-04	17,184	30,471	17,571	16,231	23,098
44	Aug-04	10,587	24,132	10,826	6,823	14,322
45	Sep-04	28,962	41,790	29,614	32,705	38,486
46	Oct-04	24,223	37,236	24,768	26,127	32,338
47	Nov-04	289,661	292,322	296,179	290,788	286,747
48	Dec-04	263,368	267,054	269,294	274,003	269,721
49	Jan-05	169,779	177,114	173,599	197,430	194,530
50	Feb-05	246,185	250,540	251,724	261,913	257,622

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
51	Mar-05	167,143	174,581	170,903	194,893	192,083
52	Apr-05	44,904	57,110	45,914	54,339	58,740
53	May-05	86,928	97,495	88,884	107,716	108,964
54	Jun-05	17,888	31,147	18,290	17,227	24,028
55	Jul-05	17,185	30,472	17,572	16,232	23,099
56	Aug-05	10,350	23,903	10,583	6,481	14,004
57	Sep-05	19,591	32,784	20,032	19,631	26,272
58	Oct-05	96,306	106,507	98,473	118,905	119,545
59	Nov-05	273,336	276,633	279,486	280,610	276,387
60	Dec-05	279,278	282,343	285,561	284,407	280,238
61	Jan-06	80,798	91,604	82,616	100,261	101,924
62	Feb-06	144,383	152,709	147,632	172,120	170,199
63	Mar-06	164,029	171,589	167,720	191,870	189,169
64	Apr-06	138,211	146,778	141,321	165,676	164,032
65	May-06	18,814	32,037	19,237	18,535	25,249
66	Jun-06	27,578	40,459	28,198	30,790	36,696
67	Jul-06	35,421	47,996	36,218	41,561	46,771
68	Aug-06	17,114	30,404	17,499	16,132	23,006
69	Sep-06	26,687	39,603	27,287	29,555	35,542
70	Oct-06	130,128	139,010	133,056	157,065	155,807
71	Nov-06	241,264	245,812	246,693	258,289	254,017
72	Dec-06	345,752	346,224	353,531	319,662	317,062
73	Jan-07	316,989	318,583	324,121	306,034	302,539
74	Feb-07	179,347	186,309	183,382	206,465	203,262
75	Mar-07	299,909	302,170	306,657	296,768	292,897
76	Apr-07	122,638	131,813	125,398	148,910	148,033
77	May-07	115,217	124,680	117,809	140,664	140,186
78	Jun-07	39,440	51,859	40,328	47,011	51,873
79	Jul-07	31,525	44,253	32,234	36,234	41,787
80	Aug-07	9,951	23,520	10,175	5,908	13,469
81	Sep-07	9,561	23,146	9,777	5,347	12,947
82	Oct-07	26,166	39,103	26,755	28,832	34,866
83	Nov-07	79,413	90,273	81,200	98,560	100,319
84	Dec-07	300,024	302,280	306,775	296,833	292,964
85	Jan-08	96,135	106,342	98,298	118,703	119,354
86	Feb-08	190,273	196,809	194,554	216,445	212,943
87	Mar-08	332,464	333,455	339,944	313,675	310,620
88	Apr-08	176,891	183,949	180,871	204,172	201,044
89	May-08	61,578	73,133	62,963	76,152	79,217
90	Jun-08	37,222	49,727	38,059	44,009	49,063
91	Jul-08	21,618	34,731	22,104	22,481	28,933
92	Aug-08	12,112	25,596	12,384	9,008	16,360
93	Sep-08	8,102	21,743	8,284	3,243	10,986
94	Oct-08	45,041	57,241	46,054	54,522	58,911
95	Nov-08	159,770	167,496	163,365	187,686	185,141
96	Dec-08	408,860	406,872	418,059	340,865	341,391
97	Jan-09	163,996	171,557	167,686	191,837	189,137
98	Feb-09	247,800	252,093	253,376	263,088	258,793
99	Mar-09	333,080	334,047	340,574	313,964	310,929
100	Apr-09	96,515	106,708	98,686	119,151	119,778

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
101	May-09	52,050	63,977	53,221	63,789	67,604
102	Jun-09	30,750	43,507	31,441	35,168	40,790
103	Jul-09	20,054	33,229	20,505	20,283	26,881
104	Aug-09	29,650	42,451	30,317	33,654	39,374
105	Sep-09	22,159	35,252	22,658	23,240	29,642
106	Oct-09	73,544	84,633	75,198	91,291	93,466
107	Nov-09	253,760	257,820	259,470	267,353	263,051
108	Dec-09	260,306	264,111	266,163	271,914	267,621
109	Jan-10	372,534	371,963	380,916	330,120	328,652
110	Feb-10	293,518	296,028	300,122	293,075	289,094
111	Mar-10	154,634	162,560	158,113	182,569	180,222
112	Apr-10	88,558	99,061	90,550	109,679	110,819
113	May-10	153,077	161,064	156,521	181,002	178,717
114	Jun-10	21,089	34,224	21,564	21,739	28,240
115	Jul-10	29,431	42,240	30,093	33,351	39,091
116	Aug-10	10,250	23,807	10,481	6,338	13,870
117	Sep-10	34,493	47,104	35,269	40,297	45,588
118	Oct-10	51,251	63,209	52,404	62,740	66,619
119	Nov-10	91,424	101,815	93,481	113,113	114,065
120	Dec-10	218,699	224,127	223,620	240,734	236,674
121	Jan-11	271,938	275,290	278,057	279,702	275,468
122	Feb-11	155,286	163,187	158,780	183,224	180,851
123	Mar-11	208,645	214,465	213,339	232,420	228,521
124	Apr-11	283,576	286,474	289,957	287,088	282,967
125	May-11	117,665	127,033	120,312	143,402	142,791
126	Jun-11	19,088	32,301	19,518	18,922	25,610
127	Jul-11	23,247	36,297	23,770	24,763	31,065
128	Aug-11	10,587	24,132	10,826	6,823	14,322
129	Sep-11	9,263	22,858	9,471	4,917	12,546
130	Oct-11	64,719	76,152	66,175	80,168	82,993
131	Nov-11	229,490	234,497	234,654	249,319	245,133
132	Dec-11	284,631	287,488	291,036	287,737	283,629
133	Jan-12	336,045	336,896	343,606	315,340	312,401
134	Feb-12	182,975	189,796	187,092	209,819	206,512
135	Mar-12	239,432	244,051	244,819	256,920	252,658
136	Apr-12	70,958	82,148	72,555	88,056	90,419
137	May-12	104,655	114,531	107,010	128,644	128,773
138	Jun-12	14,917	28,293	15,253	13,013	20,095
139	Jul-12	22,931	35,994	23,447	24,321	30,652
140	Aug-12	16,122	29,451	16,485	14,725	21,693
141	Sep-12	13,039	26,487	13,332	10,334	17,597
142	Oct-12	45,530	57,712	46,555	55,174	59,522
143	Nov-12	181,791	188,658	185,882	208,729	205,455
144	Dec-12	321,758	323,167	328,998	308,466	305,096
145	Jan-13	371,035	370,522	379,384	329,591	328,052
146	Feb-13	205,102	211,060	209,717	229,419	225,585
147	Mar-13	113,237	122,778	115,785	138,436	138,069
148	Apr-13	118,909	128,228	121,584	144,787	144,108
149	May-13	130,225	139,103	133,155	157,169	155,906
150	Jun-13	116,418	125,834	119,037	142,009	141,466

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
151	Jul-13	70,723	81,922	72,315	87,762	90,141
152	Aug-13	12,271	25,749	12,547	9,236	16,572
153	Sep-13	10,893	24,426	11,139	7,262	14,732
154	Oct-13	56,125	67,893	57,388	69,111	72,600
155	Nov-13	276,347	279,526	282,565	282,547	278,350
156	Dec-13	421,897	419,400	431,389	343,756	345,126
157	Jan-14	309,743	311,620	316,713	302,210	298,541
158	Feb-14	141,251	149,699	144,429	168,864	167,082
159	Mar-14	109,713	119,391	112,182	134,442	134,275
160	Apr-14	154,644	162,570	158,123	182,579	180,232
161	May-14	25,584	38,544	26,160	28,023	34,110
162	Jun-14	30,601	43,365	31,290	34,965	40,600
163	Jul-14	39,890	52,292	40,788	47,617	52,441
164	Aug-14	11,896	25,389	12,163	8,699	16,071
165	Sep-14	8,941	22,549	9,142	4,454	12,114
166	Oct-14	12,753	26,213	13,040	9,926	17,216
167	Nov-14	168,975	176,342	172,777	196,659	193,786
168	Dec-14	298,775	301,080	305,497	296,121	292,229
169	Jan-15	183,188	190,001	187,310	210,015	206,702
170	Feb-15	172,200	179,441	176,074	199,742	196,762
171	Mar-15	153,351	161,328	156,802	181,279	178,983
172	Apr-15	218,380	223,821	223,294	240,475	236,420
173	May-15	37,543	50,035	38,387	44,444	49,470
174	Jun-15	57,925	69,623	59,228	71,444	74,793
175	Jul-15	15,817	29,157	16,173	14,292	21,289
176	Aug-15	14,812	28,191	15,145	12,863	19,955
177	Sep-15	8,280	21,914	8,466	3,500	11,225
178	Oct-15	12,153	25,636	12,426	9,067	16,415
179	Nov-15	93,639	103,944	95,746	115,750	116,559
180	Dec-15	285,681	288,497	292,109	288,380	284,285
181	Jan-16	174,746	181,888	178,678	202,155	199,094
182	Feb-16	238,985	243,621	244,362	256,585	252,325
183	Mar-16	175,084	182,212	179,023	202,473	199,401
184	Apr-16	74,024	85,094	75,689	91,890	94,030
185	May-16	85,352	95,980	87,272	105,810	107,163
186	Jun-16	139,114	147,646	142,244	166,626	164,941
187	Jul-16	165,481	172,984	169,204	193,283	190,531
188	Aug-16	20,355	33,518	20,813	20,707	27,277
189	Sep-16	67,869	79,179	69,396	84,165	86,755
190	Oct-16	286,308	289,099	292,750	288,763	284,676
191	Nov-16	248,119	252,399	253,701	263,318	259,022
192	Dec-16	387,375	386,224	396,091	334,988	334,271
193	Jan-17	294,002	296,493	300,617	293,359	289,386
194	Feb-17	224,482	229,685	229,533	245,379	241,245
195	Mar-17	167,501	174,925	171,269	195,239	192,416
196	Apr-17	112,564	122,131	115,097	137,676	137,347
197	May-17	42,059	54,376	43,005	50,534	55,174
198	Jun-17	115,737	125,181	118,342	141,248	140,742
199	Jul-17	35,367	47,945	36,163	41,489	46,703
200	Aug-17	12,496	25,966	12,777	9,558	16,873
201	Sep-17	9,060	22,664	9,264	4,626	12,274
202	Oct-17	119,112	128,423	121,792	145,012	144,322
203	Nov-17	412,635	410,499	421,919	341,755	342,518
204	Dec-17	294,141	296,627	300,760	293,441	289,469

(Sumber : Hasil Perhitungan)

Lampiran 3.17 Data Hujan CHIRPS Terkoreksi pada pos hujan Kabul

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
1	Jan-01	375,458	284,799	284,072	271,214	264,554
2	Feb-01	284,077	215,202	214,932	218,197	210,549
3	Mar-01	354,672	268,968	268,345	260,035	252,857
4	Apr-01	200,252	151,362	151,511	160,752	155,135
5	May-01	214,892	162,511	162,587	171,392	165,218
6	Jun-01	53,841	39,855	40,736	40,190	44,864
7	Jul-01	20,736	14,642	15,689	9,364	17,553
8	Aug-01	14,987	10,264	11,339	3,877	12,721
9	Sep-01	9,424	6,027	7,130	-1,471	8,020
10	Oct-01	127,607	96,035	96,547	104,147	102,565
11	Nov-01	238,319	180,353	180,312	187,884	180,997
12	Dec-01	143,041	107,789	108,225	116,703	114,087
13	Jan-02	180,159	136,059	136,308	145,729	141,017
14	Feb-02	124,860	93,943	94,469	101,883	100,494
15	Mar-02	187,813	141,888	142,099	151,508	146,433
16	Apr-02	112,624	84,624	85,212	91,686	91,198
17	May-02	98,244	73,672	74,331	79,471	80,118
18	Jun-02	144,791	109,123	109,549	118,109	115,382
19	Jul-02	31,130	22,558	23,553	19,184	26,222
20	Aug-02	9,411	6,017	7,120	-1,483	8,009
21	Sep-02	11,065	7,277	8,372	0,111	9,409
22	Oct-02	75,891	56,648	57,419	59,992	62,568
23	Nov-02	238,505	180,495	180,453	188,012	181,120
24	Dec-02	87,335	65,364	66,078	70,040	71,603
25	Jan-03	180,223	136,108	136,357	145,777	141,062
26	Feb-03	320,312	242,799	242,348	240,419	232,763
27	Mar-03	162,942	122,947	123,282	132,471	128,663
28	Apr-03	106,371	79,862	80,481	86,405	86,400
29	May-03	55,412	41,051	41,925	41,620	46,138
30	Jun-03	17,338	12,054	13,118	6,125	14,700
31	Jul-03	23,450	16,709	17,742	11,941	19,825
32	Aug-03	9,026	5,724	6,829	-1,854	7,683
33	Sep-03	12,958	8,719	9,804	1,931	11,009
34	Oct-03	26,949	19,374	20,390	15,250	22,746
35	Nov-03	247,190	187,109	187,024	193,957	186,857
36	Dec-03	288,281	218,404	218,113	220,856	213,180
37	Jan-04	270,112	204,567	204,367	209,212	201,707
38	Feb-04	242,117	183,246	183,186	190,496	183,513
39	Mar-04	116,180	87,333	87,902	94,668	93,912
40	Apr-04	100,801	75,620	76,266	81,661	82,100
41	May-04	101,910	76,464	77,105	82,608	82,958
42	Jun-04	64,300	47,821	48,649	49,656	53,310
43	Jul-04	14,394	9,812	10,890	3,308	12,221
44	Aug-04	7,209	4,340	5,454	-3,610	6,141
45	Sep-04	30,416	22,014	23,012	18,514	25,629
46	Oct-04	23,566	16,797	17,830	12,050	19,922
47	Nov-04	248,323	187,972	187,881	194,726	187,601
48	Dec-04	270,730	205,038	204,834	209,614	202,102
49	Jan-05	148,034	111,593	112,003	120,704	117,774
50	Feb-05	255,693	193,586	193,458	199,690	192,415

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
51	Mar-05	157,084	118,485	118,850	127,879	124,406
52	Apr-05	42,299	31,064	32,003	29,592	35,441
53	May-05	157,434	118,752	119,115	128,155	124,661
54	Jun-05	22,659	16,107	17,144	11,191	19,164
55	Jul-05	14,516	9,905	10,983	3,426	12,324
56	Aug-05	6,900	4,105	5,221	-3,909	5,879
57	Sep-05	20,946	14,802	15,847	9,564	17,729
58	Oct-05	77,876	58,160	58,921	61,746	64,142
59	Nov-05	242,926	183,862	183,798	191,049	184,048
60	Dec-05	288,537	218,600	218,307	221,017	213,340
61	Jan-06	70,407	52,472	53,270	55,122	58,201
62	Feb-06	153,858	116,028	116,409	125,333	122,049
63	Mar-06	183,512	138,612	138,845	148,269	143,395
64	Apr-06	139,261	104,911	105,365	113,655	111,283
65	May-06	26,838	19,290	20,306	15,145	22,653
66	Jun-06	37,606	27,490	28,452	25,237	31,580
67	Jul-06	45,575	33,559	34,482	32,616	38,127
68	Aug-06	13,468	9,107	10,190	2,421	11,440
69	Sep-06	26,788	19,252	20,268	15,098	22,612
70	Oct-06	126,394	95,111	95,630	103,148	101,651
71	Nov-06	156,759	118,237	118,604	127,623	124,168
72	Dec-06	348,786	264,485	263,891	256,775	249,481
73	Jan-07	267,389	202,493	202,307	207,433	199,965
74	Feb-07	198,550	150,065	150,223	159,498	153,952
75	Mar-07	347,492	263,500	262,913	256,053	248,736
76	Apr-07	141,997	106,994	107,435	115,863	113,314
77	May-07	149,896	113,010	113,411	122,188	119,143
78	Jun-07	44,079	32,421	33,350	31,237	36,902
79	Jul-07	25,848	18,536	19,557	14,210	21,828
80	Aug-07	6,786	4,018	5,134	-4,019	5,782
81	Sep-07	10,032	6,490	7,590	-0,885	8,535
82	Oct-07	26,388	18,947	19,965	14,721	22,278
83	Nov-07	57,730	42,817	43,678	43,725	48,014
84	Dec-07	295,167	223,649	223,323	225,165	217,459
85	Jan-08	87,726	65,662	66,373	70,380	71,910
86	Feb-08	199,556	150,832	150,984	160,239	154,652
87	Mar-08	364,591	276,522	275,849	265,434	258,482
88	Apr-08	172,248	130,034	130,323	139,682	135,370
89	May-08	117,163	88,081	88,646	95,489	94,660
90	Jun-08	41,351	30,343	31,286	28,715	34,663
91	Jul-08	17,111	11,881	12,946	5,909	14,509
92	Aug-08	9,594	6,156	7,259	-1,306	8,164
93	Sep-08	8,558	5,367	6,475	-2,307	7,286
94	Oct-08	47,699	35,177	36,089	34,570	39,863
95	Nov-08	158,108	119,265	119,624	128,685	125,151
96	Dec-08	380,905	288,947	288,193	274,058	267,562
97	Jan-09	145,131	109,381	109,806	118,381	115,633
98	Feb-09	274,788	208,128	207,904	212,246	204,685
99	Mar-09	392,700	297,930	297,117	280,094	273,995
100	Apr-09	117,815	88,578	89,139	96,033	95,156

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
100	Apr-09	117,815	88,578	89,139	96,033	95,156
101	May-09	73,540	54,858	55,641	57,909	60,699
102	Jun-09	37,699	27,561	28,523	25,324	31,657
103	Jul-09	17,134	11,899	12,964	5,931	14,529
104	Aug-09	22,089	15,673	16,713	10,650	18,687
105	Sep-09	19,801	13,930	14,981	8,474	16,769
106	Oct-09	69,466	51,755	52,558	54,282	57,449
107	Nov-09	230,080	174,078	174,078	182,159	175,498
108	Dec-09	205,844	155,620	155,741	164,846	159,006
109	Jan-10	355,466	269,573	268,946	260,472	253,310
110	Feb-10	321,132	243,424	242,968	240,903	233,253
111	Mar-10	174,689	131,893	132,170	141,555	137,118
112	Apr-10	90,587	67,840	68,538	72,866	74,151
113	May-10	193,391	146,136	146,320	155,676	150,351
114	Jun-10	26,480	19,017	20,035	14,807	22,355
115	Jul-10	24,778	17,720	18,747	13,198	20,934
116	Aug-10	6,987	4,171	5,287	-3,824	5,953
117	Sep-10	37,749	27,599	28,561	25,370	31,698
118	Oct-10	53,251	39,406	40,290	39,653	44,385
119	Nov-10	83,724	62,614	63,346	66,886	68,763
120	Dec-10	200,349	151,435	151,584	160,823	155,202
121	Jan-11	257,922	195,283	195,144	201,178	193,862
122	Feb-11	199,350	150,675	150,828	160,087	154,508
123	Mar-11	238,032	180,135	180,095	187,686	180,806
124	Apr-11	317,959	241,007	240,568	239,023	231,352
125	May-11	165,007	124,519	124,844	134,080	130,157
126	Jun-11	24,106	17,209	18,238	12,562	20,373
127	Jul-11	20,136	14,185	15,235	8,793	17,050
128	Aug-11	7,209	4,340	5,454	-3,610	6,141
129	Sep-11	9,737	6,265	7,367	-1,169	8,285
130	Oct-11	32,734	23,780	24,766	20,688	27,552
131	Nov-11	184,595	139,437	139,664	149,087	144,161
132	Dec-11	293,130	222,097	221,782	223,896	216,197
133	Jan-12	378,715	287,279	286,536	272,919	266,355
134	Feb-12	220,614	166,869	166,916	175,481	169,112
135	Mar-12	295,463	223,875	223,548	225,350	217,643
136	Apr-12	72,658	54,186	54,973	57,125	59,996
137	May-12	167,028	126,058	126,374	135,650	131,616
138	Jun-12	19,451	13,663	14,716	8,141	16,475
139	Jul-12	17,206	11,954	13,018	6,000	14,589
140	Aug-12	6,886	4,094	5,210	-3,922	5,867
141	Sep-12	11,169	7,356	8,451	0,211	9,498
142	Oct-12	33,193	24,129	25,114	21,118	27,933
143	Nov-12	156,592	118,110	118,477	127,491	124,046
144	Dec-12	306,883	232,572	232,188	232,367	224,653
145	Jan-13	374,006	283,692	282,973	270,450	263,748
146	Feb-13	251,593	190,463	190,355	196,936	189,742
147	Mar-13	163,733	123,549	123,881	133,088	129,236
148	Apr-13	137,979	103,935	104,395	112,617	110,329
149	May-13	187,355	141,539	141,753	151,165	146,110
150	Jun-13	135,234	101,844	102,318	110,388	108,283

No	Tanggal	Data Hujan Satelit CHIRPS (mm)	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
151	Jul-13	64,342	47,853	48,681	49,693	53,344
152	Aug-13	6,346	3,683	4,802	-4,445	5,409
153	Sep-13	12,427	8,314	9,402	1,421	10,561
154	Oct-13	55,610	41,202	42,074	41,800	46,298
155	Nov-13	229,796	173,862	173,864	181,960	175,307
156	Dec-13	414,160	314,274	313,353	290,648	285,412
157	Jan-14	325,085	246,435	245,959	243,228	235,611
158	Feb-14	177,991	134,408	134,668	144,079	139,474
159	Mar-14	124,702	93,822	94,349	101,752	100,375
160	Apr-14	153,103	115,453	115,838	124,735	121,496
161	May-14	43,181	31,736	32,671	30,407	36,165
162	Jun-14	26,829	19,283	20,299	15,136	22,645
163	Jul-14	31,336	22,716	23,709	19,378	26,394
164	Aug-14	6,081	3,481	4,601	-4,701	5,184
165	Sep-14	10,062	6,513	7,613	-0,855	8,561
166	Oct-14	13,410	9,063	10,146	2,365	11,391
167	Nov-14	147,650	111,300	111,712	120,397	117,491
168	Dec-14	302,118	228,942	228,582	229,458	221,740
169	Jan-15	160,689	121,230	121,577	130,710	127,028
170	Feb-15	188,827	142,660	142,866	152,269	147,147
171	Mar-15	205,757	155,555	155,676	164,783	158,947
172	Apr-15	215,783	163,190	163,261	172,031	165,826
173	May-15	59,880	44,454	45,305	45,672	49,751
174	Jun-15	61,390	45,604	46,448	47,035	50,969
175	Jul-15	15,010	10,281	11,357	3,899	12,741
176	Aug-15	8,088	5,010	6,120	-2,760	6,888
177	Sep-15	9,093	5,775	6,880	-1,790	7,740
178	Oct-15	11,997	7,987	9,077	1,008	10,197
179	Nov-15	66,158	49,236	50,055	51,324	54,801
180	Dec-15	291,886	221,150	220,841	223,119	215,425
181	Jan-16	175,606	132,591	132,863	142,257	137,773
182	Feb-16	293,642	222,487	222,170	224,216	216,515
183	Mar-16	181,890	137,377	137,618	147,042	142,246
184	Apr-16	79,492	59,391	60,143	63,171	65,422
185	May-16	115,795	87,039	87,611	94,345	93,618
186	Jun-16	176,156	133,010	133,280	142,678	138,166
187	Jul-16	125,842	94,691	95,212	102,694	101,236
188	Aug-16	7,988	4,934	6,044	-2,857	6,803
189	Sep-16	105,262	79,017	79,641	85,463	85,546
190	Oct-16	292,977	221,981	221,667	223,801	216,103
191	Nov-16	251,799	190,620	190,511	197,075	189,876
192	Dec-16	410,223	311,275	310,374	288,753	283,345
193	Jan-17	272,649	206,499	206,286	210,862	203,325
194	Feb-17	277,109	209,896	209,661	213,743	206,157
195	Mar-17	210,214	158,949	159,048	168,020	162,015
196	Apr-17	129,310	97,332	97,836	105,547	103,846
197	May-17	65,003	48,356	49,181	50,287	53,874
198	Jun-17	137,339	103,447	103,911	112,098	109,852
199	Jul-17	30,040	21,728	22,729	18,161	25,318
200	Aug-17	6,383	3,711	4,829	-4,409	5,440
201	Sep-17	11,349	7,493	8,586	0,384	9,649
202	Oct-17	109,384	82,156	82,760	88,955	88,715
203	Nov-17	372,397	282,467	281,756	269,601	262,853
204	Dec-17	349,223	264,818	264,222	257,018	249,733

(Sumber : Hasil Perhitungan)

Lampiran 3.18 Data Hujan CHIRPS Terkoreksi pada pos hujan Rembitan

No	Tanggal	Data Hujan Satelit CHIRPS	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
1	Jan-01	171,619	177,404	178,810	181,252	178,489
2	Feb-01	104,454	103,966	108,831	107,380	108,495
3	Mar-01	140,178	143,027	146,052	147,233	145,702
4	Apr-01	94,505	93,088	98,465	96,053	98,142
5	May-01	78,714	75,822	82,012	77,873	81,719
6	Jun-01	118,552	119,381	123,519	123,259	123,172
7	Jul-01	26,363	18,581	27,467	15,818	27,341
8	Aug-01	6,890	-2,711	7,179	-7,964	7,143
9	Sep-01	10,657	1,408	11,103	-3,334	11,049
10	Oct-01	68,476	64,627	71,345	65,953	71,076
11	Nov-01	183,406	190,292	191,090	193,750	190,791
12	Dec-01	79,529	76,713	82,861	78,817	82,566
13	Jan-02	181,158	187,834	188,749	191,377	188,445
14	Feb-02	277,652	293,341	289,286	288,691	289,356
15	Mar-02	123,900	125,229	129,092	129,232	128,742
16	Apr-02	92,448	90,839	96,322	93,699	96,003
17	May-02	47,734	41,948	49,734	41,482	49,527
18	Jun-02	15,941	7,186	16,609	3,138	16,530
19	Jul-02	25,261	17,377	26,320	14,483	26,198
20	Aug-02	8,948	-0,460	9,323	-5,432	9,278
21	Sep-02	13,486	4,502	14,051	0,135	13,984
22	Oct-02	26,938	19,210	28,067	16,515	27,938
23	Nov-02	182,079	188,842	189,708	192,351	189,406
24	Dec-02	245,966	258,696	256,272	257,763	256,179
25	Jan-03	262,009	276,237	272,988	273,548	272,972
26	Feb-03	205,913	214,901	214,541	217,231	214,297
27	Mar-03	90,624	88,844	94,421	91,608	94,105
28	Apr-03	85,793	83,562	89,388	86,054	89,080
29	May-03	77,936	74,971	81,201	76,971	80,910
30	Jun-03	56,197	51,202	58,552	51,519	58,317
31	Jul-03	15,719	6,943	16,377	2,866	16,299
32	Aug-03	7,232	-2,337	7,535	-7,543	7,498
33	Sep-03	31,416	24,107	32,733	21,928	32,586
34	Oct-03	25,030	17,123	26,078	14,202	25,958
35	Nov-03	172,368	178,223	179,590	182,050	179,270
36	Dec-03	236,787	248,659	246,708	248,615	246,575
37	Jan-04	137,103	139,664	142,847	143,852	142,496
38	Feb-04	203,877	212,676	212,420	215,128	212,171
39	Mar-04	146,569	150,014	152,710	154,227	152,363
40	Apr-04	39,030	32,432	40,666	31,085	40,489
41	May-04	121,719	122,843	126,819	126,799	126,470
42	Jun-04	20,901	12,610	21,777	9,186	21,675
43	Jul-04	15,961	7,208	16,630	3,162	16,550
44	Aug-04	7,242	-2,326	7,545	-7,531	7,508
45	Sep-04	18,630	10,126	19,410	6,419	19,318
46	Oct-04	81,039	78,364	84,434	80,565	84,136
47	Nov-04	161,562	166,408	168,332	170,478	167,998
48	Dec-04	250,859	264,045	261,370	262,604	261,299
49	Jan-05	75,377	72,173	78,535	73,999	78,249
50	Feb-05	122,245	123,418	127,367	127,386	127,018

No	Tanggal	Data Hujan Satelit CHIRPS	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
51	Mar-05	150,623	154,447	156,934	158,643	156,589
52	Apr-05	129,103	130,918	134,513	135,014	134,162
53	May-05	23,112	15,026	24,080	11,874	23,968
54	Jun-05	29,760	22,296	31,007	19,928	30,867
55	Jul-05	36,496	29,660	38,025	28,043	37,858
56	Aug-05	13,166	4,152	13,718	-0,258	13,651
57	Sep-05	28,062	20,439	29,237	17,875	29,104
58	Oct-05	129,008	130,814	134,414	134,909	134,063
59	Nov-05	123,622	124,925	128,802	128,922	128,453
60	Dec-05	320,127	339,783	333,540	328,576	333,893
61	Jan-06	254,739	268,288	265,413	266,427	265,361
62	Feb-06	154,090	158,238	160,546	162,407	160,204
63	Mar-06	288,600	305,311	300,692	299,144	300,828
64	Apr-06	133,989	136,259	139,603	140,419	139,252
65	May-06	115,170	115,683	119,996	119,468	119,651
66	Jun-06	40,161	33,668	41,844	32,440	41,663
67	Jul-06	26,020	18,207	27,111	15,403	26,986
68	Aug-06	6,874	-2,728	7,162	-7,984	7,126
69	Sep-06	10,371	1,096	10,806	-3,684	10,753
70	Oct-06	28,171	20,558	29,351	18,007	29,218
71	Nov-06	46,507	40,607	48,456	40,021	48,253
72	Dec-06	233,630	245,207	243,419	245,450	243,272
73	Jan-07	85,623	83,376	89,210	85,858	88,903
74	Feb-07	163,439	168,460	170,287	172,496	169,955
75	Mar-07	291,276	308,237	303,480	301,681	303,634
76	Apr-07	152,153	156,121	158,529	160,306	158,185
77	May-07	80,657	77,947	84,037	80,124	83,739
78	Jun-07	35,855	28,960	37,357	27,273	37,193
79	Jul-07	17,053	8,402	17,768	4,496	17,683
80	Aug-07	9,062	-0,336	9,441	-5,293	9,395
81	Sep-07	8,844	-0,574	9,214	-5,561	9,169
82	Oct-07	41,666	35,314	43,412	34,241	43,226
83	Nov-07	120,214	121,198	125,251	125,118	124,902
84	Dec-07	344,551	366,488	358,988	350,693	359,536
85	Jan-08	136,569	139,081	142,292	143,265	141,941
86	Feb-08	238,032	250,020	248,005	249,861	247,877
87	Mar-08	327,470	347,811	341,191	335,288	341,600
88	Apr-08	112,596	112,869	117,314	116,575	116,971
89	May-08	62,386	57,969	65,000	58,813	64,747
90	Jun-08	32,817	25,638	34,192	23,617	34,040
91	Jul-08	18,694	10,196	19,477	6,497	19,385
92	Aug-08	14,338	5,434	14,939	1,178	14,867
93	Sep-08	21,167	12,900	22,054	9,510	21,951
94	Oct-08	67,475	63,533	70,302	64,782	70,036
95	Nov-08	172,695	178,581	179,931	182,399	179,613
96	Dec-08	184,973	192,005	192,723	195,401	192,427
97	Jan-09	334,065	355,022	348,062	341,270	348,524
98	Feb-09	249,598	262,667	260,056	261,359	259,979
99	Mar-09	139,961	142,789	145,825	146,994	145,475
100	Apr-09	78,859	75,980	82,163	78,041	81,869

No	Tanggal	Data Hujan Satelit CHIRPS	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
101	May-09	144,883	148,172	150,954	152,387	150,606
102	Jun-09	24,589	16,642	25,620	13,668	25,501
103	Jul-09	26,892	19,159	28,018	16,458	27,890
104	Aug-09	7,074	-2,510	7,370	-7,738	7,333
105	Sep-09	29,700	22,230	30,944	19,856	30,805
106	Oct-09	52,546	47,209	54,747	47,197	54,524
107	Nov-09	59,166	54,449	61,645	55,023	61,402
108	Dec-09	184,625	191,625	192,361	195,035	192,064
109	Jan-10	228,046	239,101	237,601	239,827	237,432
110	Feb-10	113,016	113,328	117,751	117,047	117,408
111	Mar-10	77,238	74,208	80,474	76,161	80,184
112	Apr-10	196,549	204,662	204,784	207,523	204,515
113	May-10	293,126	310,261	305,408	303,431	305,573
114	Jun-10	50,209	44,655	52,313	44,424	52,097
115	Jul-10	158,554	163,119	165,198	167,236	164,860
116	Aug-10	30,226	22,805	31,492	20,490	31,350
117	Sep-10	96,837	95,638	100,895	98,717	100,569
118	Oct-10	196,903	205,050	205,154	207,892	204,885
119	Nov-10	239,963	252,131	250,017	251,790	249,897
120	Dec-10	447,666	479,234	466,423	437,494	468,059
121	Jan-11	249,121	262,144	259,559	260,887	259,480
122	Feb-11	173,061	178,981	180,312	182,788	179,994
123	Mar-11	221,365	231,797	230,641	233,058	230,447
124	Apr-11	279,017	294,833	290,708	290,001	290,786
125	May-11	124,476	125,858	129,691	129,872	129,341
126	Jun-11	22,089	13,908	23,015	10,631	22,908
127	Jul-11	21,782	13,572	22,695	10,258	22,589
128	Aug-11	7,232	-2,337	7,535	-7,543	7,498
129	Sep-11	10,043	0,737	10,464	-4,087	10,413
130	Oct-11	31,073	23,731	32,375	21,514	32,230
131	Nov-11	126,085	127,617	131,368	131,662	131,017
132	Dec-11	251,638	264,897	262,182	263,373	262,114
133	Jan-12	357,619	380,777	372,603	362,282	373,266
134	Feb-12	171,464	177,235	178,649	181,087	178,328
135	Mar-12	246,579	259,365	256,910	258,370	256,819
136	Apr-12	68,493	64,646	71,363	65,973	71,093
137	May-12	115,594	116,147	120,438	119,944	120,092
138	Jun-12	20,599	12,279	21,462	8,818	21,361
139	Jul-12	18,024	9,463	18,779	5,680	18,690
140	Aug-12	6,774	-2,838	7,057	-8,107	7,022
141	Sep-12	12,571	3,501	13,097	-0,987	13,034
142	Oct-12	33,674	26,575	35,084	24,648	34,929
143	Nov-12	105,586	105,204	110,010	108,662	109,674
144	Dec-12	267,026	281,723	278,215	278,431	278,226
145	Jan-13	370,216	394,550	385,728	373,291	386,507
146	Feb-13	197,617	205,831	205,898	208,635	205,631
147	Mar-13	115,609	116,163	120,453	119,960	120,107
148	Apr-13	123,656	124,962	128,837	128,960	128,488
149	May-13	139,510	142,296	145,355	146,499	145,005
150	Jun-13	110,854	110,964	115,499	114,613	115,157

No	Tanggal	Data Hujan Satelit CHIRPS	Data Hujan Satelit CHIRPS Terkoreksi (mm)			
			Linier	Linier *Intercept*	Polinomial Orde 2	Polinomial Orde 2 *Intercept*
151	Jul-13	44,641	38,567	46,512	37,796	46,315
152	Aug-13	4,776	-5,022	4,976	-10,568	4,951
153	Sep-13	12,267	3,169	12,781	-1,358	12,719
154	Oct-13	50,882	45,391	53,014	45,224	52,796
155	Nov-13	161,118	165,923	167,869	170,000	167,534
156	Dec-13	348,159	370,434	362,747	353,910	363,326
157	Jan-14	284,565	300,900	296,488	295,306	296,600
158	Feb-14	138,444	141,130	144,244	145,327	143,894
159	Mar-14	100,907	100,087	105,135	103,352	104,804
160	Apr-14	128,183	129,912	133,554	133,994	133,203
161	May-14	35,049	28,079	36,518	26,304	36,357
162	Jun-14	28,875	21,328	30,085	18,859	29,949
163	Jul-14	30,723	23,349	32,011	21,092	31,867
164	Aug-14	4,635	-5,177	4,829	-10,743	4,805
165	Sep-14	9,995	0,684	10,414	-4,146	10,363
166	Oct-14	14,233	5,318	14,829	1,048	14,758
167	Nov-14	109,294	109,258	113,874	112,854	113,533
168	Dec-14	265,350	279,890	276,469	276,803	276,471
169	Jan-15	164,318	169,422	171,203	173,440	170,872
170	Feb-15	149,935	153,695	156,218	157,896	155,873
171	Mar-15	153,221	157,288	159,641	161,465	159,298
172	Apr-15	189,736	197,213	197,686	200,405	197,400
173	May-15	49,296	43,656	51,361	43,339	51,149
174	Jun-15	53,859	48,645	56,116	48,753	55,888
175	Jul-15	12,294	3,199	12,810	-1,325	12,747
176	Aug-15	5,473	-4,260	5,702	-9,709	5,674
177	Sep-15	9,153	-0,236	9,537	-5,180	9,490
178	Oct-15	13,223	4,214	13,777	-0,187	13,711
179	Nov-15	48,550	42,840	50,584	42,452	50,374
180	Dec-15	245,325	257,994	255,604	257,126	255,507
181	Jan-16	161,172	165,981	167,925	170,057	167,590
182	Feb-16	227,363	238,355	236,889	239,137	236,718
183	Mar-16	142,882	145,983	148,869	150,197	148,520
184	Apr-16	66,144	62,078	68,915	63,223	68,652
185	May-16	87,011	84,893	90,656	87,456	90,347
186	Jun-16	136,131	138,602	141,835	142,782	141,484
187	Jul-16	132,563	134,700	138,117	138,844	137,766
188	Aug-16	11,284	2,094	11,756	-2,565	11,699
189	Sep-16	102,498	101,827	106,793	105,160	106,459
190	Oct-16	284,938	301,308	296,877	295,661	296,991
191	Nov-16	179,626	186,159	187,153	189,758	186,846
192	Dec-16	364,243	388,019	379,505	368,091	380,228
193	Jan-17	262,103	276,340	273,086	273,640	273,070
194	Feb-17	228,400	239,489	237,970	240,184	237,803
195	Mar-17	176,111	182,316	183,490	186,031	183,177
196	Apr-17	103,159	102,550	107,481	105,911	107,147
197	May-17	53,024	47,733	55,246	47,764	55,021
198	Jun-17	99,067	98,076	103,218	101,259	102,889
199	Jul-17	29,579	22,098	30,819	19,710	30,680
200	Aug-17	5,030	-4,744	5,241	-10,255	5,214
201	Sep-17	12,665	3,604	13,196	-0,871	13,132
202	Oct-17	108,947	108,879	113,512	112,462	113,172
203	Nov-17	264,411	278,863	275,490	275,889	275,487
204	Dec-17	301,779	319,721	314,423	311,568	314,645

(Sumber : Hasil Perhitungan)

`**Lampiran 3.19** Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier *Intercept* pada Pos Hujan Loang Make

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	32,800	138,785	-105,985	11232,880	-49,754	2475,458
2	Feb-01	93,000	75,769	17,231	296,911	10,446	109,120
3	Mar-01	130,700	127,035	3,665	13,433	48,146	2318,040
4	Apr-01	105,500	58,364	47,136	2221,759	22,946	526,520
5	May-01	55,500	46,006	9,494	90,127	-27,054	731,917
6	Jun-01	36,700	100,603	-63,903	4083,627	-45,854	2102,587
7	Jul-01	0,600	14,799	-14,199	201,603	-81,954	6716,453
8	Aug-01	0,500	3,735	-3,235	10,462	-82,054	6732,854
9	Sep-01	0,300	6,530	-6,230	38,812	-82,254	6765,716
10	Oct-01	42,200	34,868	7,332	53,758	-40,354	1628,443
11	Nov-01	125,200	136,230	-11,030	121,658	42,646	1818,684
12	Dec-01	0,400	66,447	-66,047	4362,157	-82,154	6749,275
13	Jan-02	16,400	146,292	-129,892	16871,881	-66,154	4376,348
14	Feb-02	0,000	196,765	-196,765	38716,543	-82,554	6815,158
15	Mar-02	8,000	116,837	-108,837	11845,518	-74,554	5558,295
16	Apr-02	0,000	46,003	-46,003	2116,304	-82,554	6815,158
17	May-02	0,000	30,745	-30,745	945,246	-82,554	6815,158
18	Jun-02	10,000	11,415	-1,415	2,001	-72,554	5264,079
19	Jul-02	0,000	13,510	-13,510	182,526	-82,554	6815,158
20	Aug-02	6,500	5,933	0,567	0,322	-76,054	5784,206
21	Sep-02	10,900	9,258	1,642	2,698	-71,654	5134,292
22	Oct-02	12,500	13,158	-0,658	0,433	-70,054	4907,559
23	Nov-02	205,600	127,070	78,530	6166,900	123,046	15140,325
24	Dec-02	234,400	208,818	25,582	654,440	151,846	23057,217
25	Jan-03	245,500	187,255	58,245	3392,518	162,946	26551,409
26	Feb-03	58,400	149,135	-90,735	8232,764	-24,154	583,414
27	Mar-03	9,600	81,481	-71,881	5166,841	-72,954	5322,282
28	Apr-03	34,600	46,314	-11,714	137,207	-47,954	2299,583
29	May-03	0,000	47,448	-47,448	2251,293	-82,554	6815,158
30	Jun-03	0,000	32,506	-32,506	1056,649	-82,554	6815,158
31	Jul-03	0,000	8,807	-8,807	77,571	-82,554	6815,158
32	Aug-03	0,000	3,875	-3,875	15,019	-82,554	6815,158
33	Sep-03	60,500	20,852	39,648	1571,933	-22,054	486,378
34	Oct-03	53,500	11,829	41,671	1736,489	-29,054	844,133
35	Nov-03	88,800	126,111	-37,311	1392,106	6,246	39,013
36	Dec-03	247,100	162,932	84,168	7084,237	164,546	27075,396
37	Jan-04	114,300	103,354	10,946	119,821	31,746	1007,810
38	Feb-04	41,400	162,367	-120,967	14632,917	-41,154	1693,649
39	Mar-04	98,100	126,490	-28,390	805,976	15,546	241,679
40	Apr-04	38,700	22,481	16,219	263,063	-43,854	1923,171
41	May-04	12,900	66,437	-53,537	2866,212	-69,654	4851,676
42	Jun-04	0,000	14,786	-14,786	218,611	-82,554	6815,158
43	Jul-04	1,000	8,845	-7,845	61,543	-81,554	6651,050
44	Aug-04	3,300	3,797	-0,497	0,247	-79,254	6281,192
45	Sep-04	4,100	14,362	-10,262	105,302	-78,454	6155,026
46	Oct-04	5,700	45,811	-40,111	1608,914	-76,854	5906,533
47	Nov-04	286,600	114,255	172,345	29702,970	204,046	41634,782
48	Dec-04	230,500	170,912	59,588	3550,751	147,946	21888,028
49	Jan-05	79,500	51,037	28,463	810,167	-3,054	9,327
50	Feb-05	331,400	93,344	238,056	56670,518	248,846	61924,346

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
50	Feb-05	331,400	93,344	238,056	56670,518	248,846	61924,346
51	Mar-05	160,800	121,433	39,367	1549,765	78,246	6122,441
52	Apr-05	181,300	70,395	110,905	12299,898	98,746	9750,778
53	May-05	80,000	14,888	65,112	4239,596	-2,554	6,523
54	Jun-05	80,800	23,627	57,173	3268,794	-1,754	3,076
55	Jul-05	30,500	18,329	12,171	148,128	-52,054	2709,616
56	Aug-05	0,000	6,496	-6,496	42,201	-82,554	6815,158
57	Sep-05	13,700	19,270	-5,570	31,025	-68,854	4740,869
58	Oct-05	102,600	69,799	32,801	1075,883	20,046	401,843
59	Nov-05	228,800	102,985	125,815	15829,497	146,246	21387,901
60	Dec-05	523,800	213,823	309,977	96085,705	441,246	194698,058
61	Jan-06	633,500	199,082	434,418	188719,213	550,946	303541,527
62	Feb-06	346,500	123,044	223,456	49932,798	263,946	69667,506
63	Mar-06	180,800	229,752	-48,952	2396,313	98,246	9652,282
64	Apr-06	97,800	69,802	27,998	783,875	15,246	232,441
65	May-06	25,100	83,132	-58,032	3367,672	-57,454	3300,959
66	Jun-06	6,700	31,790	-25,090	629,514	-75,854	5753,825
67	Jul-06	0,000	14,950	-14,950	223,488	-82,554	6815,158
68	Aug-06	0,000	5,390	-5,390	29,047	-82,554	6815,158
69	Sep-06	0,000	6,963	-6,963	48,481	-82,554	6815,158
70	Oct-06	0,200	13,213	-13,013	169,342	-82,354	6782,176
71	Nov-06	10,000	33,517	-23,517	553,043	-72,554	5264,079
72	Dec-06	175,200	181,770	-6,570	43,159	92,646	8583,287
73	Jan-07	139,600	63,647	75,953	5768,870	57,046	3254,249
74	Feb-07	102,500	132,544	-30,044	902,656	19,946	397,844
75	Mar-07	220,200	247,311	-27,111	734,984	137,646	18946,429
76	Apr-07	158,600	84,081	74,519	5553,017	76,046	5782,999
77	May-07	16,300	45,786	-29,486	869,398	-66,254	4389,589
78	Jun-07	14,300	31,564	-17,264	298,060	-68,254	4658,605
79	Jul-07	1,300	10,268	-8,968	80,433	-81,254	6602,208
80	Aug-07	4,000	4,410	-0,410	0,168	-78,554	6170,726
81	Sep-07	0,400	5,932	-5,532	30,604	-82,154	6749,275
82	Oct-07	8,300	23,375	-15,075	227,254	-74,254	5513,652
83	Nov-07	87,200	74,124	13,076	170,969	4,646	21,586
84	Dec-07	183,700	248,936	-65,236	4255,787	101,146	10230,519
85	Jan-08	253,600	102,338	151,262	22880,187	171,046	29256,744
86	Feb-08	247,000	168,133	78,867	6219,999	164,446	27042,497
87	Mar-08	160,300	265,169	-104,869	10997,449	77,746	6044,445
88	Apr-08	127,500	55,662	71,838	5160,629	44,946	2020,146
89	May-08	2,800	40,931	-38,131	1453,939	-79,754	6360,696
90	Jun-08	0,400	25,683	-25,283	639,219	-82,154	6749,275
91	Jul-08	0,000	10,248	-10,248	105,018	-82,554	6815,158
92	Aug-08	0,000	7,497	-7,497	56,200	-82,554	6815,158
93	Sep-08	39,000	16,168	22,832	521,309	-43,554	1896,948
94	Oct-08	23,800	40,982	-17,182	295,213	-58,754	3452,029
95	Nov-08	99,700	115,911	-16,211	262,805	17,146	293,986
96	Dec-08	53,800	144,785	-90,985	8278,213	-28,754	826,791
97	Jan-09	292,900	242,167	50,733	2573,869	210,346	44245,452
98	Feb-09	198,300	185,029	13,271	176,108	115,746	13397,143
99	Mar-09	75,700	124,987	-49,287	2429,248	-6,854	46,977
100	Apr-09	30,500	43,998	-13,498	182,191	-52,054	2709,616

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	2,100	104,132	-102,032	10410,463	-80,454	6472,841
102	Jun-09	0,000	17,387	-17,387	302,314	-82,554	6815,158
103	Jul-09	4,900	14,793	-9,893	97,873	-77,654	6030,139
104	Aug-09	0,600	3,791	-3,191	10,181	-81,954	6716,453
105	Sep-09	21,600	22,032	-0,432	0,187	-60,954	3715,387
106	Oct-09	34,200	26,055	8,145	66,340	-48,354	2338,106
107	Nov-09	99,100	36,249	62,851	3950,251	16,546	273,771
108	Dec-09	167,300	135,774	31,526	993,888	84,746	7181,890
109	Jan-10	124,300	178,989	-54,689	2990,862	41,746	1742,731
110	Feb-10	168,200	97,734	70,466	4965,404	85,646	7335,242
111	Mar-10	54,400	83,809	-29,409	864,916	-28,154	792,646
112	Apr-10	75,000	97,712	-22,712	515,845	-7,554	57,062
113	May-10	91,700	216,216	-124,516	15504,275	9,146	83,650
114	Jun-10	125,800	37,635	88,165	7773,076	43,246	1870,219
115	Jul-10	51,600	122,505	-70,905	5027,566	-30,954	958,148
116	Aug-10	33,200	20,818	12,382	153,304	-49,354	2435,814
117	Sep-10	74,000	61,768	12,232	149,620	-8,554	73,170
118	Oct-10	0,000	101,212	-101,212	10243,948	-82,554	6815,158
119	Nov-10	110,000	162,110	-52,110	2715,483	27,446	753,285
120	Dec-10	33,800	304,283	-270,483	73161,070	-48,754	2376,950
121	Jan-11	167,400	192,359	-24,959	622,931	84,846	7198,849
122	Feb-11	106,900	110,874	-3,974	15,794	24,346	592,729
123	Mar-11	137,800	168,684	-30,884	953,835	55,246	3052,124
124	Apr-11	105,300	141,448	-36,148	1306,647	22,746	517,382
125	May-11	98,800	81,141	17,659	311,846	16,246	263,933
126	Jun-11	4,500	15,781	-11,281	127,268	-78,054	6092,422
127	Jul-11	0,600	11,858	-11,258	126,739	-81,954	6716,453
128	Aug-11	0,000	3,875	-3,875	15,019	-82,554	6815,158
129	Sep-11	1,900	6,707	-4,807	23,106	-80,654	6505,063
130	Oct-11	13,700	28,201	-14,501	210,265	-68,854	4740,869
131	Nov-11	136,100	93,611	42,489	1805,277	53,546	2867,177
132	Dec-11	136,500	173,954	-37,454	1402,811	53,946	2910,174
133	Jan-12	385,500	229,810	155,690	24239,452	302,946	91776,297
134	Feb-12	130,000	122,661	7,339	53,863	47,446	2251,126
135	Mar-12	208,100	187,976	20,124	404,967	125,546	15761,806
136	Apr-12	76,100	35,239	40,861	1669,658	-6,454	41,654
137	May-12	80,600	74,236	6,364	40,495	-1,954	3,818
138	Jun-12	0,000	14,182	-14,182	201,116	-82,554	6815,158
139	Jul-12	33,810	11,208	22,602	510,859	-48,744	2375,975
140	Aug-12	0,200	5,894	-5,694	32,424	-82,354	6782,176
141	Sep-12	0,000	9,087	-9,087	82,578	-82,554	6815,158
142	Oct-12	0,000	19,888	-19,888	395,536	-82,554	6815,158
143	Nov-12	154,700	70,023	84,677	7170,146	72,146	5205,050
144	Dec-12	362,200	195,008	167,192	27953,056	279,646	78201,902
145	Jan-13	223,200	242,553	-19,353	374,533	140,646	19781,306
146	Feb-13	200,700	129,892	70,808	5013,735	118,146	13958,484
147	Mar-13	146,200	82,592	63,608	4045,924	63,646	4050,817
148	Apr-13	130,300	61,686	68,614	4707,906	47,746	2279,683
149	May-13	263,400	98,270	165,130	27267,791	180,846	32705,286
150	Jun-13	67,100	92,766	-25,666	658,749	-15,454	238,825

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit $(\hat{Y}_i)$	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,200	27,922	-26,722	714,048	-81,354	6618,469
152	Aug-13	0,000	5,880	-5,880	34,569	-82,554	6815,158
153	Sep-13	1,600	7,887	-6,287	39,524	-80,954	6553,545
154	Oct-13	64,600	27,253	37,347	1394,765	-17,954	322,345
155	Nov-13	132,900	109,563	23,337	544,614	50,346	2534,723
156	Dec-13	397,700	256,231	141,469	20013,600	315,146	99317,020
157	Jan-14	240,300	176,858	63,442	4024,861	157,746	24883,810
158	Feb-14	63,500	100,392	-36,892	1361,037	-19,054	363,054
159	Mar-14	137,200	83,858	53,342	2845,402	54,646	2986,189
160	Apr-14	77,400	73,549	3,851	14,828	-5,154	26,563
161	May-14	0,400	19,633	-19,233	369,918	-82,154	6749,275
162	Jun-14	0,700	20,596	-19,896	395,855	-81,854	6700,073
163	Jul-14	16,200	18,807	-2,607	6,798	-66,354	4402,849
164	Aug-14	10,000	5,694	4,306	18,544	-72,554	5264,079
165	Sep-14	0,200	6,782	-6,582	43,323	-82,354	6782,176
166	Oct-14	6,300	6,659	-0,359	0,129	-76,254	5814,668
167	Nov-14	131,400	70,174	61,226	3748,679	48,846	2385,935
168	Dec-14	295,400	180,554	114,846	13189,602	212,846	45303,432
169	Jan-15	92,500	116,894	-24,394	595,046	9,946	98,924
170	Feb-15	159,700	111,167	48,533	2355,409	77,146	5951,510
171	Mar-15	52,700	112,861	-60,161	3619,356	-29,854	891,260
172	Apr-15	105,600	98,904	6,696	44,841	23,046	531,119
173	May-15	8,800	29,962	-21,162	447,839	-73,754	5439,648
174	Jun-15	0,000	40,571	-40,571	1646,024	-82,554	6815,158
175	Jul-15	0,000	8,748	-8,748	76,529	-82,554	6815,158
176	Aug-15	3,600	6,023	-2,423	5,872	-78,954	6233,729
177	Sep-15	0,600	6,303	-5,703	32,522	-81,954	6716,453
178	Oct-15	0,000	6,053	-6,053	36,642	-82,554	6815,158
179	Nov-15	33,600	37,594	-3,994	15,948	-48,954	2396,491
180	Dec-15	65,400	176,443	-111,043	12330,584	-17,154	294,259
181	Jan-16	137,700	115,495	22,205	493,047	55,146	3041,085
182	Feb-16	122,800	138,658	-15,858	251,483	40,246	1619,743
183	Mar-16	142,200	115,884	26,316	692,531	59,646	3557,649
184	Apr-16	50,800	36,486	14,314	204,881	-31,754	1008,315
185	May-16	9,900	60,556	-50,656	2565,994	-72,654	5278,599
186	Jun-16	164,800	106,050	58,750	3451,520	82,246	6764,409
187	Jul-16	16,500	82,212	-65,712	4318,074	-66,054	4363,127
188	Aug-16	9,200	9,193	0,007	0,000	-73,354	5380,805
189	Sep-16	74,000	46,510	27,490	755,706	-8,554	73,170
190	Oct-16	8,800	126,000	-117,200	13735,917	-73,754	5439,648
191	Nov-16	29,800	101,107	-71,307	5084,753	-52,754	2782,981
192	Dec-16	62,200	235,379	-173,179	29991,075	-20,354	414,284
193	Jan-17	47,800	186,723	-138,923	19299,466	-34,754	1207,838
194	Feb-17	154,000	150,475	3,525	12,423	71,446	5104,535
195	Mar-17	92,700	128,670	-35,970	1293,857	10,146	102,942
196	Apr-17	27,700	61,364	-33,664	1133,280	-54,854	3008,958
197	May-17	3,700	30,228	-26,528	703,751	-78,854	6217,949
198	Jun-17	30,500	70,708	-40,208	1616,688	-52,054	2709,616
199	Jul-17	14,700	17,820	-3,120	9,735	-67,854	4604,161
200	Aug-17	0,300	6,204	-5,904	34,856	-82,254	6765,716
201	Sep-17	0,000	9,520	-9,520	90,626	-82,554	6815,158
202	Oct-17	23,800	54,064	-30,264	915,882	-58,754	3452,029
203	Nov-17	110,900	172,843	-61,943	3836,896	28,346	803,497
204	Dec-17	170,300	184,729	-14,429	208,185	87,746	7699,366
Jumlah		16841,010	16580,073	260,937	1118662,387	0,000	2083161,892
Rata-rata		82,554	81,275	1,279	5483,639	0,000	10211,578
NSE =	0,463						
RMSEP =	74,052						

(Sumber : Hasil Perhitungan)

`**Lampiran 3.20** Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 pada Pos Hujan Loang Make

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	32,800	149,552	-116,752	13630,999	-49,754	2475,458
2	Feb-01	93,000	86,451	6,549	42,892	10,446	109,120
3	Mar-01	130,700	138,936	-8,236	67,825	48,146	2318,040
4	Apr-01	105,500	66,351	39,149	1532,624	22,946	526,520
5	May-01	55,500	51,378	4,122	16,995	-27,054	731,917
6	Jun-01	36,700	113,129	-76,429	5841,320	-45,854	2102,587
7	Jul-01	0,600	10,969	-10,369	107,517	-81,954	6716,453
8	Aug-01	0,500	-4,250	4,750	22,561	-82,054	6732,854
9	Sep-01	0,300	-0,361	0,661	0,436	-82,254	6765,716
10	Oct-01	42,200	37,382	4,818	23,213	-40,354	1628,443
11	Nov-01	125,200	147,288	-22,088	487,877	42,646	1818,684
12	Dec-01	0,400	75,829	-75,429	5689,503	-82,154	6749,275
13	Jan-02	16,400	156,058	-139,658	19504,354	-66,154	4376,348
14	Feb-02	0,000	194,219	-194,219	37720,906	-82,554	6815,158
15	Mar-02	8,000	129,295	-121,295	14712,419	-74,554	5558,295
16	Apr-02	0,000	51,374	-51,374	2639,250	-82,554	6815,158
17	May-02	0,000	32,081	-32,081	1029,191	-82,554	6815,158
18	Jun-02	10,000	6,364	3,636	13,221	-72,554	5264,079
19	Jul-02	0,000	9,221	-9,221	85,023	-82,554	6815,158
20	Aug-02	6,500	-1,189	7,689	59,119	-76,054	5784,206
21	Sep-02	10,900	3,406	7,494	56,166	-71,654	5134,292
22	Oct-02	12,500	8,742	3,758	14,125	-70,054	4907,559
23	Nov-02	205,600	138,968	66,632	4439,769	123,046	15140,325
24	Dec-02	234,400	201,893	32,507	1056,719	151,846	23057,217
25	Jan-03	245,500	187,772	57,728	3332,539	162,946	26551,409
26	Feb-03	58,400	158,466	-100,066	10013,153	-24,154	583,414
27	Mar-03	9,600	92,795	-83,195	6921,427	-72,954	5322,282
28	Apr-03	34,600	51,757	-17,157	294,352	-47,954	2299,583
29	May-03	0,000	53,154	-53,154	2825,346	-82,554	6815,158
30	Jun-03	0,000	34,353	-34,353	1180,153	-82,554	6815,158
31	Jul-03	0,000	2,786	-2,786	7,762	-82,554	6815,158
32	Aug-03	0,000	-4,053	4,053	16,428	-82,554	6815,158
33	Sep-03	60,500	19,098	41,402	1714,111	-22,054	486,378
34	Oct-03	53,500	6,930	46,570	2168,782	-29,054	844,133
35	Nov-03	88,800	138,078	-49,278	2428,362	6,246	39,013
36	Dec-03	247,100	169,714	77,386	5988,651	164,546	27075,396
37	Jan-04	114,300	115,938	-1,638	2,684	31,746	1007,810
38	Feb-04	41,400	169,267	-127,867	16349,947	-41,154	1693,649
39	Mar-04	98,100	138,430	-40,330	1626,524	15,546	241,679
40	Apr-04	38,700	21,261	17,439	304,121	-43,854	1923,171
41	May-04	12,900	75,818	-62,918	3958,632	-69,654	4851,676
42	Jun-04	0,000	10,951	-10,951	119,929	-82,554	6815,158
43	Jul-04	1,000	2,838	-1,838	3,377	-81,554	6651,050
44	Aug-04	3,300	-4,163	7,463	55,692	-79,254	6281,192
45	Sep-04	4,100	10,377	-6,277	39,398	-78,454	6155,026
46	Oct-04	5,700	51,136	-45,436	2064,463	-76,854	5906,533
47	Nov-04	286,600	126,790	159,810	25539,171	204,046	41634,782
48	Dec-04	230,500	175,887	54,613	2982,570	147,946	21888,028
49	Jan-05	79,500	57,543	21,957	482,123	-3,054	9,327
50	Feb-05	331,400	105,574	225,826	50997,254	248,846	61924,346

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	160,800	133,689	27,111	735,022	78,246	6122,441
52	Apr-05	181,300	80,368	100,932	10187,215	98,746	9750,778
53	May-05	80,000	11,090	68,910	4748,623	-2,554	6,523
54	Jun-05	80,800	22,777	58,023	3366,695	-1,754	3,076
55	Jul-05	30,500	15,727	14,773	218,243	-52,054	2709,616
56	Aug-05	0,000	-0,407	0,407	0,166	-82,554	6815,158
57	Sep-05	13,700	16,987	-3,287	10,803	-68,854	4740,869
58	Oct-05	102,600	79,687	22,913	524,998	20,046	401,843
59	Nov-05	228,800	115,563	113,237	12822,621	146,246	21387,901
60	Dec-05	523,800	204,917	318,883	101686,639	441,246	194698,058
61	Jan-06	633,500	195,737	437,763	191636,686	550,946	303541,527
62	Feb-06	346,500	135,209	211,291	44643,689	263,946	69667,506
63	Mar-06	180,800	213,904	-33,104	1095,845	98,246	9652,282
64	Apr-06	97,800	79,690	18,110	327,955	15,246	232,441
65	May-06	25,100	94,606	-69,506	4831,030	-57,454	3300,959
66	Jun-06	6,700	33,431	-26,731	714,546	-75,854	5753,825
67	Jul-06	0,000	11,173	-11,173	124,843	-82,554	6815,158
68	Aug-06	0,000	-1,944	1,944	3,778	-82,554	6815,158
69	Sep-06	0,000	0,239	-0,239	0,057	-82,554	6815,158
70	Oct-06	0,200	8,817	-8,617	74,249	-82,354	6782,176
71	Nov-06	10,000	35,652	-25,652	658,025	-72,554	5264,079
72	Dec-06	175,200	183,897	-8,697	75,632	92,646	8583,287
73	Jan-07	139,600	72,574	67,026	4492,490	57,046	3254,249
74	Feb-07	102,500	143,979	-41,479	1720,490	19,946	397,844
75	Mar-07	220,200	222,687	-2,487	6,187	137,646	18946,429
76	Apr-07	158,600	95,643	62,957	3963,646	76,046	5782,999
77	May-07	16,300	51,105	-34,805	1211,358	-66,254	4389,589
78	Jun-07	14,300	33,140	-18,840	354,940	-68,254	4658,605
79	Jul-07	1,300	4,794	-3,494	12,209	-81,254	6602,208
80	Aug-07	4,000	-3,308	7,308	53,402	-78,554	6170,726
81	Sep-07	0,400	-1,190	1,590	2,528	-82,154	6749,275
82	Oct-07	8,300	22,444	-14,144	200,060	-74,254	5513,652
83	Nov-07	87,200	84,601	2,599	6,754	4,646	21,586
84	Dec-07	183,700	223,441	-39,741	1579,363	101,146	10230,519
85	Jan-08	253,600	114,904	138,696	19236,560	171,046	29256,744
86	Feb-08	247,000	173,765	73,235	5363,383	164,446	27042,497
87	Mar-08	160,300	230,414	-70,114	4915,963	77,746	6044,445
88	Apr-08	127,500	63,127	64,373	4143,859	44,946	2020,146
89	May-08	2,800	45,058	-42,258	1785,766	-79,754	6360,696
90	Jun-08	0,400	25,484	-25,084	629,219	-82,154	6749,275
91	Jul-08	0,000	4,766	-4,766	22,713	-82,554	6815,158
92	Aug-08	0,000	0,978	-0,978	0,956	-82,554	6815,158
93	Sep-08	39,000	12,820	26,180	685,403	-43,554	1896,948
94	Oct-08	23,800	45,123	-21,323	454,652	-58,754	3452,029
95	Nov-08	99,700	128,400	-28,700	823,680	17,146	293,986
96	Dec-08	53,800	154,769	-100,969	10194,736	-28,754	826,791
97	Jan-09	292,900	220,236	72,664	5280,058	210,346	44245,452
98	Feb-09	198,300	186,214	12,086	146,081	115,746	13397,143
99	Mar-09	75,700	137,032	-61,332	3761,583	-6,854	46,977
100	Apr-09	30,500	48,889	-18,389	338,142	-52,054	2709,616

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	2,100	116,728	-114,628	13139,536	-80,454	6472,841
102	Jun-09	0,000	14,462	-14,462	209,152	-82,554	6815,158
103	Jul-09	4,900	10,961	-6,061	36,741	-77,654	6030,139
104	Aug-09	0,600	-4,171	4,771	22,765	-81,954	6716,453
105	Sep-09	21,600	20,666	0,934	0,872	-60,954	3715,387
106	Oct-09	34,200	25,973	8,227	67,688	-48,354	2338,106
107	Nov-09	99,100	39,143	59,957	3594,859	16,546	273,771
108	Dec-09	167,300	146,881	20,419	416,917	84,746	7181,890
109	Jan-10	124,300	181,888	-57,588	3316,401	41,746	1742,731
110	Feb-10	168,200	110,167	58,033	3367,830	85,646	7335,242
111	Mar-10	54,400	95,346	-40,946	1676,570	-28,154	792,646
112	Apr-10	75,000	110,144	-35,144	1235,100	-7,554	57,062
113	May-10	91,700	206,329	-114,629	13139,708	9,146	83,650
114	Jun-10	125,800	40,903	84,897	7207,528	43,246	1870,219
115	Jul-10	51,600	134,702	-83,102	6906,008	-30,954	958,148
116	Aug-10	33,200	19,053	14,147	200,140	-49,354	2435,814
117	Sep-10	74,000	70,373	3,627	13,156	-8,554	73,170
118	Oct-10	0,000	113,753	-113,753	12939,810	-82,554	6815,158
119	Nov-10	110,000	169,064	-59,064	3488,561	27,446	753,285
120	Dec-10	33,800	243,083	-209,283	43799,583	-48,754	2376,950
121	Jan-11	167,400	191,275	-23,875	569,994	84,846	7198,849
122	Feb-11	106,900	123,474	-16,574	274,683	24,346	592,729
123	Mar-11	137,800	174,188	-36,388	1324,099	55,246	3052,124
124	Apr-11	105,300	151,884	-46,584	2170,066	22,746	517,382
125	May-11	98,800	92,421	6,379	40,691	16,246	263,933
126	Jun-11	4,500	12,298	-7,798	60,810	-78,054	6092,422
127	Jul-11	0,600	6,969	-6,369	40,570	-81,954	6716,453
128	Aug-11	0,000	-4,053	4,053	16,428	-82,554	6815,158
129	Sep-11	1,900	-0,115	2,015	4,062	-80,654	6505,063
130	Oct-11	13,700	28,778	-15,078	227,332	-68,854	4740,869
131	Nov-11	136,100	105,856	30,244	914,707	53,546	2867,177
132	Dec-11	136,500	178,177	-41,677	1736,949	53,946	2910,174
133	Jan-12	385,500	213,934	171,566	29434,794	302,946	91776,297
134	Feb-12	130,000	134,849	-4,849	23,513	47,446	2251,126
135	Mar-12	208,100	188,273	19,827	393,108	125,546	15761,806
136	Apr-12	76,100	37,855	38,245	1462,669	-6,454	41,654
137	May-12	80,600	84,727	-4,127	17,036	-1,954	3,818
138	Jun-12	0,000	10,132	-10,132	102,667	-82,554	6815,158
139	Jul-12	33,810	6,081	27,729	768,899	-48,744	2375,975
140	Aug-12	0,200	-1,242	1,442	2,081	-82,354	6782,176
141	Sep-12	0,000	3,171	-3,171	10,057	-82,554	6815,158
142	Oct-12	0,000	17,813	-17,813	317,290	-82,554	6815,158
143	Nov-12	154,700	79,943	74,757	5588,558	72,146	5205,050
144	Dec-12	362,200	193,054	169,146	28610,441	279,646	78201,902
145	Jan-13	223,200	220,424	2,776	7,709	140,646	19781,306
146	Feb-13	200,700	141,566	59,134	3496,871	118,146	13958,484
147	Mar-13	146,200	94,015	52,185	2723,232	63,646	4050,817
148	Apr-13	130,300	70,276	60,024	3602,854	47,746	2279,683
149	May-13	263,400	110,723	152,677	23310,361	180,846	32705,286
150	Jun-13	67,100	104,964	-37,864	1433,677	-15,454	238,825
151	Jul-13	1,200	28,414	-27,214	740,600	-81,354	6618,469

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,200	28,414	-27,214	740,600	-81,354	6618,469
152	Aug-13	0,000	-1,263	1,263	1,595	-82,554	6815,158
153	Sep-13	1,600	1,516	0,084	0,007	-80,954	6553,545
154	Oct-13	64,600	27,542	37,058	1373,327	-17,954	322,345
155	Nov-13	132,900	122,175	10,725	115,018	50,346	2534,723
156	Dec-13	397,700	226,699	171,001	29241,368	315,146	99317,020
157	Jan-14	240,300	180,329	59,971	3596,474	157,746	24883,810
158	Feb-14	63,500	112,912	-49,412	2441,522	-19,054	363,054
159	Mar-14	137,200	95,399	41,801	1747,361	54,646	2986,189
160	Apr-14	77,400	83,952	-6,552	42,926	-5,154	26,563
161	May-14	0,400	17,472	-17,072	291,464	-82,154	6749,275
162	Jun-14	0,700	18,757	-18,057	326,050	-81,854	6700,073
163	Jul-14	16,200	16,368	-0,168	0,028	-66,354	4402,849
164	Aug-14	10,000	-1,521	11,521	132,730	-72,554	5264,079
165	Sep-14	0,200	-0,011	0,211	0,045	-82,354	6782,176
166	Oct-14	6,300	-0,182	6,482	42,022	-76,254	5814,668
167	Nov-14	131,400	80,115	51,285	2630,137	48,846	2385,935
168	Dec-14	295,400	183,022	112,378	12628,736	212,846	45303,432
169	Jan-15	92,500	129,349	-36,849	1357,865	9,946	98,924
170	Feb-15	159,700	123,763	35,937	1291,465	77,146	5951,510
171	Mar-15	52,700	125,428	-72,728	5289,409	-29,854	891,260
172	Apr-15	105,600	111,378	-5,778	33,384	23,046	531,119
173	May-15	8,800	31,067	-22,267	495,841	-73,754	5439,648
174	Jun-15	0,000	44,607	-44,607	1989,807	-82,554	6815,158
175	Jul-15	0,000	2,704	-2,704	7,313	-82,554	6815,158
176	Aug-15	3,600	-1,063	4,663	21,746	-78,954	6233,729
177	Sep-15	0,600	-0,675	1,275	1,627	-81,954	6716,453
178	Oct-15	0,000	-1,022	1,022	1,044	-82,554	6815,158
179	Nov-15	33,600	40,850	-7,250	52,568	-48,954	2396,491
180	Dec-15	65,400	180,024	-114,624	13138,595	-17,154	294,259
181	Jan-16	137,700	127,997	9,703	94,154	55,146	3041,085
182	Feb-16	122,800	149,440	-26,640	709,684	40,246	1619,743
183	Mar-16	142,200	128,373	13,827	191,174	59,646	3557,649
184	Apr-16	50,800	39,445	11,355	128,941	-31,754	1008,315
185	May-16	9,900	68,945	-59,045	3486,358	-72,654	5278,599
186	Jun-16	164,800	118,665	46,135	2128,429	82,246	6764,409
187	Jul-16	16,500	93,598	-77,098	5944,164	-66,054	4363,127
188	Aug-16	9,200	3,316	5,884	34,616	-73,354	5380,805
189	Sep-16	74,000	51,999	22,001	484,047	-8,554	73,170
190	Oct-16	8,800	137,976	-129,176	16686,333	-73,754	5439,648
191	Nov-16	29,800	113,646	-83,846	7030,111	-52,754	2782,981
192	Dec-16	62,200	216,847	-154,647	23915,624	-20,354	414,284
193	Jan-17	47,800	187,401	-139,601	19488,417	-34,754	1207,838
194	Feb-17	154,000	159,591	-5,591	31,255	71,446	5104,535
195	Mar-17	92,700	140,445	-47,745	2279,550	10,146	102,942
196	Apr-17	27,700	69,898	-42,198	1780,674	-54,854	3008,958
197	May-17	3,700	31,412	-27,712	767,974	-78,854	6217,949
198	Jun-17	30,500	80,726	-50,226	2522,605	-52,054	2709,616
199	Jul-17	14,700	15,044	-0,344	0,118	-67,854	4604,161
200	Aug-17	0,300	-0,813	1,113	1,238	-82,254	6765,716
201	Sep-17	0,000	3,766	-3,766	14,184	-82,554	6815,158
202	Oct-17	23,800	61,206	-37,406	1399,219	-58,754	3452,029
203	Nov-17	110,900	177,344	-66,444	4414,852	28,346	803,497
204	Dec-17	170,300	186,001	-15,701	246,536	87,746	7699,366
Jumlah		16841,010	16961,808	-120,798	1096361,974	0,000	2083161,892
Rata-rata		82,554	83,146	-0,592	5374,323	0,000	10211,578
NSE =	0,474						
RMSEP =	73,310						

(Sumber : Hasil Perhitungan)

Lampiran 3.21 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 *Intercept* pada Pos Hujan Loang Make

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	32,800	146,834	-114,034	13003,848	-49,754	2475,458
2	Feb-01	93,000	86,543	6,457	41,692	10,446	109,120
3	Mar-01	130,700	136,397	-5,697	32,457	48,146	2318,040
4	Apr-01	105,500	68,021	37,479	1404,674	22,946	526,520
5	May-01	55,500	54,378	1,122	1,259	-27,054	731,917
6	Jun-01	36,700	111,570	-74,870	5605,590	-45,854	2102,587
7	Jul-01	0,600	18,109	-17,509	306,552	-81,954	6716,453
8	Aug-01	0,500	4,625	-4,125	17,016	-82,054	6732,854
9	Sep-01	0,300	8,063	-7,763	60,258	-82,254	6765,716
10	Oct-01	42,200	41,732	0,468	0,219	-40,354	1628,443
11	Nov-01	125,200	144,596	-19,396	376,203	42,646	1818,684
12	Dec-01	0,400	76,723	-76,323	5825,176	-82,154	6749,275
13	Jan-02	16,400	153,309	-136,909	18744,072	-66,154	4376,348
14	Feb-02	0,000	192,933	-192,933	37223,306	-82,554	6815,158
15	Mar-02	8,000	127,040	-119,040	14170,459	-74,554	5558,295
16	Apr-02	0,000	54,374	-54,374	2956,585	-82,554	6815,158
17	May-02	0,000	36,966	-36,966	1366,506	-82,554	6815,158
18	Jun-02	10,000	14,019	-4,019	16,155	-72,554	5264,079
19	Jul-02	0,000	16,555	-16,555	274,075	-82,554	6815,158
20	Aug-02	6,500	7,330	-0,830	0,689	-76,054	5784,206
21	Sep-02	10,900	11,397	-0,497	0,247	-71,654	5134,292
22	Oct-02	12,500	16,130	-3,630	13,175	-70,054	4907,559
23	Nov-02	205,600	136,429	69,171	4784,609	123,046	15140,325
24	Dec-02	234,400	201,389	33,011	1089,754	151,846	23057,217
25	Jan-03	245,500	185,988	59,512	3541,717	162,946	26551,409
26	Feb-03	58,400	155,722	-97,322	9471,504	-24,154	583,414
27	Mar-03	9,600	92,445	-82,845	6863,334	-72,954	5322,282
28	Apr-03	34,600	54,722	-20,122	404,894	-47,954	2299,583
29	May-03	0,000	55,990	-55,990	3134,909	-82,554	6815,158
30	Jun-03	0,000	39,007	-39,007	1521,585	-82,554	6815,158
31	Jul-03	0,000	10,848	-10,848	117,676	-82,554	6815,158
32	Aug-03	0,000	4,799	-4,799	23,028	-82,554	6815,158
33	Sep-03	60,500	25,348	35,152	1235,688	-22,054	486,378
34	Oct-03	53,500	14,521	38,979	1519,330	-29,054	844,133
35	Nov-03	88,800	135,561	-46,761	2186,562	6,246	39,013
36	Dec-03	247,100	167,125	79,975	6396,033	164,546	27075,396
37	Jan-04	114,300	114,241	0,059	0,003	31,746	1007,810
38	Feb-04	41,400	166,667	-125,267	15691,930	-41,154	1693,649
39	Mar-04	98,100	135,904	-37,804	1429,130	15,546	241,679
40	Apr-04	38,700	27,278	11,422	130,459	-43,854	1923,171
41	May-04	12,900	76,713	-63,813	4072,047	-69,654	4851,676
42	Jun-04	0,000	18,093	-18,093	327,348	-82,554	6815,158
43	Jul-04	1,000	10,894	-9,894	97,883	-81,554	6651,050
44	Aug-04	3,300	4,702	-1,402	1,966	-79,254	6281,192
45	Sep-04	4,100	17,582	-13,482	181,771	-78,454	6155,026
46	Oct-04	5,700	54,159	-48,459	2348,301	-76,854	5906,533
47	Nov-04	286,600	124,626	161,974	26235,618	204,046	41634,782
48	Dec-04	230,500	173,488	57,012	3250,417	147,946	21888,028
49	Jan-05	79,500	59,980	19,520	381,014	-3,054	9,327
50	Feb-05	331,400	104,426	226,974	51517,400	248,846	61924,346

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	160,800	131,291	29,509	870,770	78,246	6122,441
52	Apr-05	181,300	80,911	100,389	10078,041	98,746	9750,778
53	May-05	80,000	18,216	61,784	3817,273	-2,554	6,523
54	Jun-05	80,800	28,632	52,168	2721,462	-1,754	3,076
55	Jul-05	30,500	22,342	8,158	66,548	-52,054	2709,616
56	Aug-05	0,000	8,021	-8,021	64,340	-82,554	6815,158
57	Sep-05	13,700	23,465	-9,765	95,353	-68,854	4740,869
58	Oct-05	102,600	80,281	22,319	498,121	20,046	401,843
59	Nov-05	228,800	113,884	114,916	13205,730	146,246	21387,901
60	Dec-05	523,800	204,786	319,014	101770,179	441,246	194698,058
61	Jan-06	633,500	194,589	438,911	192643,174	550,946	303541,527
62	Feb-06	346,500	132,768	213,732	45681,482	263,946	69667,506
63	Mar-06	180,800	215,151	-34,351	1180,020	98,246	9652,282
64	Apr-06	97,800	80,284	17,516	306,795	15,246	232,441
65	May-06	25,100	94,135	-69,035	4765,820	-57,454	3300,959
66	Jun-06	6,700	38,179	-31,479	990,907	-75,854	5753,825
67	Jul-06	0,000	18,290	-18,290	334,531	-82,554	6815,158
68	Aug-06	0,000	6,663	-6,663	44,392	-82,554	6815,158
69	Sep-06	0,000	8,593	-8,593	73,840	-82,554	6815,158
70	Oct-06	0,200	16,196	-15,996	255,886	-82,354	6782,176
71	Nov-06	10,000	40,175	-30,175	910,537	-72,554	5264,079
72	Dec-06	175,200	181,872	-6,672	44,514	92,646	8583,287
73	Jan-07	139,600	73,728	65,872	4339,088	57,046	3254,249
74	Feb-07	102,500	141,337	-38,837	1508,289	19,946	397,844
75	Mar-07	220,200	225,792	-5,592	31,269	137,646	18946,429
76	Apr-07	158,600	95,104	63,496	4031,778	76,046	5782,999
77	May-07	16,300	54,130	-37,830	1431,142	-66,254	4389,589
78	Jun-07	14,300	37,917	-23,617	557,769	-68,254	4658,605
79	Jul-07	1,300	12,627	-11,327	128,307	-81,254	6602,208
80	Aug-07	4,000	5,457	-1,457	2,124	-78,554	6170,726
81	Sep-07	0,400	7,329	-6,929	48,014	-82,154	6749,275
82	Oct-07	8,300	28,335	-20,035	401,410	-74,254	5513,652
83	Nov-07	87,200	84,828	2,372	5,628	4,646	21,586
84	Dec-07	183,700	226,735	-43,035	1852,048	101,146	10230,519
85	Jan-08	253,600	113,257	140,343	19696,116	171,046	29256,744
86	Feb-08	247,000	171,291	75,709	5731,828	164,446	27042,497
87	Mar-08	160,300	235,769	-75,469	5695,544	77,746	6044,445
88	Apr-08	127,500	65,073	62,427	3897,136	44,946	2020,146
89	May-08	2,800	48,656	-45,856	2102,780	-79,754	6360,696
90	Jun-08	0,400	31,054	-30,654	939,642	-82,154	6749,275
91	Jul-08	0,000	12,602	-12,602	158,815	-82,554	6815,158
92	Aug-08	0,000	9,247	-9,247	85,499	-82,554	6815,158
93	Sep-08	39,000	19,754	19,246	370,394	-43,554	1896,948
94	Oct-08	23,800	48,714	-24,914	620,715	-58,754	3452,029
95	Nov-08	99,700	126,176	-26,476	701,001	17,146	293,986
96	Dec-08	53,800	152,021	-98,221	9647,394	-28,754	826,791
97	Jan-09	292,900	222,760	70,140	4919,623	210,346	44245,452
98	Feb-09	198,300	184,328	13,972	195,227	115,746	13397,143
99	Mar-09	75,700	134,541	-58,841	3462,217	-6,854	46,977
100	Apr-09	30,500	52,122	-21,622	467,509	-52,054	2709,616

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	2,100	114,993	-112,893	12744,742	-80,454	6472,841
102	Jun-09	0,000	21,216	-21,216	450,115	-82,554	6815,158
103	Jul-09	4,900	18,102	-13,202	174,290	-77,654	6030,139
104	Aug-09	0,600	4,694	-4,094	16,764	-81,954	6716,453
105	Sep-09	21,600	26,747	-5,147	26,491	-60,954	3715,387
106	Oct-09	34,200	31,491	2,709	7,340	-48,354	2338,106
107	Nov-09	99,100	43,318	55,782	3111,673	16,546	273,771
108	Dec-09	167,300	144,195	23,105	533,850	84,746	7181,890
109	Jan-10	124,300	179,755	-55,455	3075,209	41,746	1742,731
110	Feb-10	168,200	108,764	59,436	3532,697	85,646	7335,242
111	Mar-10	54,400	94,827	-40,427	1634,305	-28,154	792,646
112	Apr-10	75,000	108,742	-33,742	1138,504	-7,554	57,062
113	May-10	91,700	206,386	-114,686	13152,925	9,146	83,650
114	Jun-10	125,800	44,904	80,896	6544,135	43,246	1870,219
115	Jul-10	51,600	132,275	-80,675	6508,472	-30,954	958,148
116	Aug-10	33,200	25,307	7,893	62,295	-49,354	2435,814
117	Sep-10	74,000	71,707	2,293	5,259	-8,554	73,170
118	Oct-10	0,000	112,164	-112,164	12580,683	-82,554	6815,158
119	Nov-10	110,000	166,460	-56,460	3187,716	27,446	753,285
120	Dec-10	33,800	254,644	-220,844	48771,903	-48,754	2376,950
121	Jan-11	167,400	189,745	-22,345	499,309	84,846	7198,849
122	Feb-11	106,900	121,439	-14,539	211,396	24,346	592,729
123	Mar-11	137,800	171,728	-33,928	1151,141	55,246	3052,124
124	Apr-11	105,300	149,148	-43,848	1922,642	22,746	517,382
125	May-11	98,800	92,096	6,704	44,938	16,246	263,933
126	Jun-11	4,500	19,290	-14,790	218,753	-78,054	6092,422
127	Jul-11	0,600	14,557	-13,957	194,787	-81,954	6716,453
128	Aug-11	0,000	4,799	-4,799	23,028	-82,554	6815,158
129	Sep-11	1,900	8,280	-6,380	40,698	-80,654	6505,063
130	Oct-11	13,700	34,003	-20,303	412,211	-68,854	4740,869
131	Nov-11	136,100	104,691	31,409	986,525	53,546	2867,177
132	Dec-11	136,500	175,869	-39,369	1549,885	53,946	2910,174
133	Jan-12	385,500	215,188	170,312	29006,288	302,946	91776,297
134	Feb-12	130,000	132,418	-2,418	5,845	47,446	2251,126
135	Mar-12	208,100	186,523	21,577	465,563	125,546	15761,806
136	Apr-12	76,100	42,158	33,942	1152,077	-6,454	41,654
137	May-12	80,600	84,945	-4,345	18,876	-1,954	3,818
138	Jun-12	0,000	17,365	-17,365	301,548	-82,554	6815,158
139	Jul-12	33,810	13,768	20,042	401,667	-48,744	2375,975
140	Aug-12	0,200	7,283	-7,083	50,164	-82,354	6782,176
141	Sep-12	0,000	11,189	-11,189	125,196	-82,554	6815,158
142	Oct-12	0,000	24,201	-24,201	585,692	-82,554	6815,158
143	Nov-12	154,700	80,518	74,182	5502,970	72,146	5205,050
144	Dec-12	362,200	191,669	170,531	29080,978	279,646	78201,902
145	Jan-13	223,200	222,990	0,210	0,044	140,646	19781,306
146	Feb-13	200,700	138,969	61,731	3810,706	118,146	13958,484
147	Mar-13	146,200	93,584	52,616	2768,462	63,646	4050,817
148	Apr-13	130,300	71,618	58,682	3443,560	47,746	2279,683
149	May-13	263,400	109,290	154,110	23750,012	180,846	32705,286
150	Jun-13	67,100	103,850	-36,750	1350,592	-15,454	238,825

No	Tanggal	Data Hujan ARR Loang Make (Y_i)	Data Hujan Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,200	33,677	-32,477	1054,765	-81,354	6618,469
152	Aug-13	0,000	7,265	-7,265	52,775	-82,554	6815,158
153	Sep-13	1,600	9,724	-8,124	65,993	-80,954	6553,545
154	Oct-13	64,600	32,896	31,704	1005,174	-17,954	322,345
155	Nov-13	132,900	120,195	12,705	161,408	50,346	2534,723
156	Dec-13	397,700	230,882	166,818	27828,312	315,146	99317,020
157	Jan-14	240,300	178,118	62,182	3866,555	157,746	24883,810
158	Feb-14	63,500	111,365	-47,865	2291,036	-19,054	363,054
159	Mar-14	137,200	94,876	42,324	1791,345	54,646	2986,189
160	Apr-14	77,400	84,226	-6,826	46,593	-5,154	26,563
161	May-14	0,400	23,898	-23,498	552,141	-82,154	6749,275
162	Jun-14	0,700	25,043	-24,343	592,590	-81,854	6700,073
163	Jul-14	16,200	22,913	-6,713	45,065	-66,354	4402,849
164	Aug-14	10,000	7,037	2,963	8,782	-72,554	5264,079
165	Sep-14	0,200	8,372	-8,172	66,774	-82,354	6782,176
166	Oct-14	6,300	8,220	-1,920	3,687	-76,254	5814,668
167	Nov-14	131,400	80,677	50,723	2572,854	48,846	2385,935
168	Dec-14	295,400	180,949	114,451	13099,058	212,846	45303,432
169	Jan-15	92,500	127,092	-34,592	1196,627	9,946	98,924
170	Feb-15	159,700	121,717	37,983	1442,698	77,146	5951,510
171	Mar-15	52,700	123,316	-70,616	4986,633	-29,854	891,260
172	Apr-15	105,600	109,910	-4,310	18,578	23,046	531,119
173	May-15	8,800	36,057	-27,257	742,923	-73,754	5439,648
174	Jun-15	0,000	48,248	-48,248	2327,909	-82,554	6815,158
175	Jul-15	0,000	10,775	-10,775	116,110	-82,554	6815,158
176	Aug-15	3,600	7,441	-3,841	14,754	-78,954	6233,729
177	Sep-15	0,600	7,784	-7,184	51,611	-81,954	6716,453
178	Oct-15	0,000	7,478	-7,478	55,919	-82,554	6815,158
179	Nov-15	33,600	44,857	-11,257	126,716	-48,954	2396,491
180	Dec-15	65,400	177,798	-112,398	12633,358	-17,154	294,259
181	Jan-16	137,700	125,788	11,912	141,899	55,146	3041,085
182	Feb-16	122,800	146,724	-23,924	572,335	40,246	1619,743
183	Mar-16	142,200	126,151	16,049	257,571	59,646	3557,649
184	Apr-16	50,800	43,590	7,210	51,989	-31,754	1008,315
185	May-16	9,900	70,397	-60,497	3659,941	-72,654	5278,599
186	Jun-16	164,800	116,840	47,960	2300,206	82,246	6764,409
187	Jul-16	16,500	93,195	-76,695	5882,065	-66,054	4363,127
188	Aug-16	9,200	11,318	-2,118	4,485	-73,354	5380,805
189	Sep-16	74,000	54,942	19,058	363,215	-8,554	73,170
190	Oct-16	8,800	135,460	-126,660	16042,862	-73,754	5439,648
191	Nov-16	29,800	112,062	-82,262	6766,959	-52,754	2782,981
192	Dec-16	62,200	218,651	-156,451	24476,978	-20,354	414,284
193	Jan-17	47,800	185,592	-137,792	18986,605	-34,754	1207,838
194	Feb-17	154,000	156,852	-2,852	8,134	71,446	5104,535
195	Mar-17	92,700	137,872	-45,172	2040,487	10,146	102,942
196	Apr-17	27,700	71,271	-43,571	1898,445	-54,854	3008,958
197	May-17	3,700	36,366	-32,666	1067,073	-78,854	6217,949
198	Jun-17	30,500	81,241	-50,741	2574,620	-52,054	2709,616
199	Jul-17	14,700	21,734	-7,034	49,475	-67,854	4604,161
200	Aug-17	0,300	7,663	-7,363	54,211	-82,254	6765,716
201	Sep-17	0,000	11,716	-11,716	137,268	-82,554	6815,158
202	Oct-17	23,800	63,319	-39,519	1561,766	-58,754	3452,029
203	Nov-17	110,900	175,002	-64,102	4109,015	28,346	803,497
204	Dec-17	170,300	184,102	-13,802	190,501	87,746	7699,366
Jumlah		16841,010	17470,208	-629,198	1101195,910	0,000	2083161,892
Rata-rata		82,554	85,638	-3,084	5398,019	0,000	10211,578
NSE =	0,471						
RMSEP =	73,471						

(Sumber : Hasil Perhitungan)

Lampiran 3.22 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier pada Pos Hujan Kopang

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	373,000	401,303	-28,303	801,051	231,854	53756,376
2	Feb-01	214,000	263,913	-49,913	2491,319	72,854	5307,736
3	Mar-01	338,000	306,972	31,028	962,711	196,854	38751,581
4	Apr-01	404,000	199,085	204,915	41990,215	262,854	69092,337
5	May-01	64,000	161,582	-97,582	9522,288	-77,146	5951,472
6	Jun-01	29,300	65,457	-36,157	1307,345	-111,846	12509,480
7	Jul-01	0,000	36,873	-36,873	1359,618	-141,146	19922,133
8	Aug-01	5,100	67,008	-61,908	3832,564	-136,046	18508,456
9	Sep-01	12,700	24,152	-11,452	131,158	-128,446	16498,320
10	Oct-01	182,600	185,521	-2,921	8,531	41,454	1718,452
11	Nov-01	680,200	304,683	375,517	141013,151	539,054	290579,445
12	Dec-01	86,900	181,516	-94,616	8952,165	-54,246	2942,605
13	Jan-02	426,100	211,342	214,758	46120,849	284,954	81198,904
14	Feb-02	126,000	123,676	2,324	5,401	-15,146	229,395
15	Mar-02	337,800	166,107	171,693	29478,345	196,654	38672,880
16	Apr-02	211,900	111,021	100,879	10176,478	70,754	5006,159
17	May-02	166,000	80,756	85,244	7266,485	24,854	617,732
18	Jun-02	77,900	132,596	-54,696	2991,616	-63,246	4000,030
19	Jul-02	147,300	41,876	105,424	11114,176	6,154	37,874
20	Aug-02	0,000	28,104	-28,104	789,849	-141,146	19922,133
21	Sep-02	15,200	22,452	-7,252	52,590	-125,946	15862,341
22	Oct-02	266,500	89,629	176,871	31283,416	125,354	15713,679
23	Nov-02	259,200	303,144	-43,944	1931,056	118,054	13936,797
24	Dec-02	172,800	122,635	50,165	2516,561	31,654	1001,989
25	Jan-03	460,500	221,934	238,566	56913,909	319,354	101987,114
26	Feb-03	249,100	296,148	-47,048	2213,498	107,954	11654,112
27	Mar-03	269,300	167,434	101,866	10376,615	128,154	16423,502
28	Apr-03	83,900	103,891	-19,991	399,639	-57,246	3277,080
29	May-03	22,300	50,407	-28,107	789,984	-118,846	14124,321
30	Jun-03	0,000	27,227	-27,227	741,289	-141,146	19922,133
31	Jul-03	0,000	40,144	-40,144	1611,568	-141,146	19922,133
32	Aug-03	0,000	26,305	-26,305	691,966	-141,146	19922,133
33	Sep-03	0,000	26,872	-26,872	722,121	-141,146	19922,133
34	Oct-03	53,300	44,962	8,338	69,528	-87,846	7716,882
35	Nov-03	324,400	303,314	21,086	444,624	183,254	33582,107
36	Dec-03	437,700	345,404	92,296	8518,543	296,554	87944,401
37	Jan-04	434,600	288,473	146,127	21353,007	293,454	86115,375
38	Feb-04	261,700	231,917	29,783	887,030	120,554	14533,318
39	Mar-04	52,100	109,050	-56,950	3243,296	-89,046	7929,152
40	Apr-04	251,000	101,001	149,999	22499,779	109,854	12067,948
41	May-04	88,900	76,312	12,588	158,468	-52,246	2729,622
42	Jun-04	8,900	52,533	-43,633	1903,796	-132,246	17488,948
43	Jul-04	0,000	30,471	-30,471	928,464	-141,146	19922,133
44	Aug-04	0,000	24,132	-24,132	582,332	-141,146	19922,133
45	Sep-04	55,400	41,790	13,610	185,245	-85,746	7352,340
46	Oct-04	28,400	37,236	-8,836	78,068	-112,746	12711,612
47	Nov-04	310,400	292,322	18,078	326,827	169,254	28646,989
48	Dec-04	437,000	267,054	169,946	28881,668	295,854	87529,716
49	Jan-05	394,900	177,114	217,786	47430,619	253,754	64391,201
50	Feb-05	203,200	250,540	-47,340	2241,107	62,054	3850,725

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	180,900	174,581	6,319	39,930	39,754	1580,397
52	Apr-05	169,000	57,110	111,890	12519,474	27,854	775,857
53	May-05	192,600	97,495	95,105	9044,977	51,454	2647,536
54	Jun-05	0,000	31,147	-31,147	970,147	-141,146	19922,133
55	Jul-05	0,000	30,472	-30,472	928,528	-141,146	19922,133
56	Aug-05	0,100	23,903	-23,803	566,594	-141,046	19893,914
57	Sep-05	0,400	32,784	-32,384	1048,725	-140,746	19809,376
58	Oct-05	0,510	106,507	-105,997	11235,404	-140,636	19778,424
59	Nov-05	134,450	276,633	-142,183	20215,968	-6,696	44,834
60	Dec-05	146,600	282,343	-135,743	18426,109	5,454	29,748
61	Jan-06	201,000	91,604	109,396	11967,428	59,854	3582,527
62	Feb-06	202,900	152,709	50,191	2519,125	61,754	3813,583
63	Mar-06	911,800	171,589	740,211	547911,838	770,654	593907,917
64	Apr-06	66,300	146,778	-80,478	6476,687	-74,846	5601,892
65	May-06	0,000	32,037	-32,037	1026,364	-141,146	19922,133
66	Jun-06	172,900	40,459	132,441	17540,525	31,754	1008,330
67	Jul-06	58,600	47,996	10,604	112,439	-82,546	6813,807
68	Aug-06	5,000	30,404	-25,404	645,344	-136,146	18535,675
69	Sep-06	45,000	39,603	5,397	29,127	-96,146	9244,012
70	Oct-06	146,400	139,010	7,390	54,607	5,254	27,607
71	Nov-06	0,000	245,812	-245,812	60423,622	-141,146	19922,133
72	Dec-06	96,350	346,224	-249,874	62437,249	-44,796	2006,663
73	Jan-07	183,200	318,583	-135,383	18328,654	42,054	1768,557
74	Feb-07	154,400	186,309	-31,909	1018,197	13,254	175,674
75	Mar-07	340,500	302,170	38,330	1469,211	199,354	39742,102
76	Apr-07	250,300	131,813	118,487	14039,284	109,154	11914,642
77	May-07	64,900	124,680	-59,780	3573,698	-76,246	5813,420
78	Jun-07	88,800	51,859	36,941	1364,614	-52,346	2740,081
79	Jul-07	5,100	44,253	-39,153	1532,920	-136,046	18508,456
80	Aug-07	0,000	23,520	-23,520	553,185	-141,146	19922,133
81	Sep-07	0,000	23,146	-23,146	535,715	-141,146	19922,133
82	Oct-07	35,800	39,103	-3,303	10,909	-105,346	11097,735
83	Nov-07	0,000	90,273	-90,273	8149,187	-141,146	19922,133
84	Dec-07	307,570	302,280	5,290	27,980	166,424	27697,019
85	Jan-08	195,200	106,342	88,858	7895,666	54,054	2921,858
86	Feb-08	98,500	196,809	-98,309	9664,672	-42,646	1818,663
87	Mar-08	85,700	333,455	-247,755	61382,500	-55,446	3074,235
88	Apr-08	169,300	183,949	-14,649	214,599	28,154	792,660
89	May-08	16,000	73,133	-57,133	3264,198	-125,146	15661,468
90	Jun-08	10,000	49,727	-39,727	1578,253	-131,146	17199,217
91	Jul-08	19,800	34,731	-14,931	222,948	-121,346	14724,800
92	Aug-08	0,000	25,596	-25,596	655,175	-141,146	19922,133
93	Sep-08	0,000	21,743	-21,743	472,743	-141,146	19922,133
94	Oct-08	0,000	57,241	-57,241	3276,574	-141,146	19922,133
95	Nov-08	20,200	167,496	-147,296	21696,106	-120,946	14627,883
96	Dec-08	325,100	406,872	-81,772	6686,579	183,954	33839,153
97	Jan-09	318,500	171,557	146,943	21592,190	177,354	31454,517
98	Feb-09	46,270	252,093	-205,823	42363,112	-94,876	9001,415
99	Mar-09	231,200	334,047	-102,847	10577,458	90,054	8109,761
100	Apr-09	141,900	106,708	35,192	1238,494	0,754	0,569

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	0,200	63,977	-63,777	4067,473	-140,946	19865,715
102	Jun-09	10,000	43,507	-33,507	1122,739	-131,146	17199,217
103	Jul-09	0,000	33,229	-33,229	1104,156	-141,146	19922,133
104	Aug-09	12,500	42,451	-29,951	897,034	-128,646	16549,738
105	Sep-09	10,000	35,252	-25,252	637,662	-131,146	17199,217
106	Oct-09	67,200	84,633	-17,433	303,892	-73,946	5467,979
107	Nov-09	157,100	257,820	-100,720	10144,607	15,954	254,537
108	Dec-09	38,420	264,111	-225,691	50936,565	-102,726	10552,587
109	Jan-10	114,800	371,963	-257,163	66132,569	-26,346	694,100
110	Feb-10	128,600	296,028	-167,428	28031,978	-12,546	157,397
111	Mar-10	112,400	162,560	-50,160	2516,037	-28,746	826,320
112	Apr-10	8,700	99,061	-90,361	8165,078	-132,446	17541,886
113	May-10	0,150	161,064	-160,914	25893,237	-140,996	19879,812
114	Jun-10	0,000	34,224	-34,224	1171,252	-141,146	19922,133
115	Jul-10	0,000	42,240	-42,240	1784,200	-141,146	19922,133
116	Aug-10	0,000	23,807	-23,807	566,780	-141,146	19922,133
117	Sep-10	0,000	47,104	-47,104	2218,827	-141,146	19922,133
118	Oct-10	35,500	63,209	-27,709	767,775	-105,646	11161,032
119	Nov-10	0,000	101,815	-101,815	10366,299	-141,146	19922,133
120	Dec-10	103,860	224,127	-120,267	14464,169	-37,286	1390,230
121	Jan-11	253,200	275,290	-22,090	487,952	112,054	12556,147
122	Feb-11	115,500	163,187	-47,687	2274,078	-25,646	657,706
123	Mar-11	199,700	214,465	-14,765	217,995	58,554	3428,596
124	Apr-11	290,900	286,474	4,426	19,591	149,754	22426,324
125	May-11	124,000	127,033	-3,033	9,199	-17,146	293,978
126	Jun-11	16,200	32,301	-16,101	259,231	-124,946	15611,450
127	Jul-11	26,200	36,297	-10,097	101,959	-114,946	13212,534
128	Aug-11	0,300	24,132	-23,832	567,943	-140,846	19837,536
129	Sep-11	13,900	22,858	-8,958	80,251	-127,246	16191,490
130	Oct-11	46,500	76,152	-29,652	879,242	-94,646	8957,825
131	Nov-11	351,400	234,497	116,903	13666,295	210,254	44206,834
132	Dec-11	245,600	287,488	-41,888	1754,589	104,454	10910,683
133	Jan-12	531,000	336,896	194,104	37676,283	389,854	151986,308
134	Feb-12	230,100	189,796	40,304	1624,386	88,954	7912,852
135	Mar-12	0,000	244,051	-244,051	59560,887	-141,146	19922,133
136	Apr-12	75,000	82,148	-7,148	51,090	-66,146	4375,265
137	May-12	0,000	114,531	-114,531	13117,270	-141,146	19922,133
138	Jun-12	75,000	28,293	46,707	2181,575	-66,146	4375,265
139	Jul-12	19,900	35,994	-16,094	259,006	-121,246	14700,541
140	Aug-12	0,000	29,451	-29,451	867,333	-141,146	19922,133
141	Sep-12	37,000	26,487	10,513	110,514	-104,146	10846,345
142	Oct-12	95,000	57,712	37,288	1390,413	-46,146	2129,434
143	Nov-12	242,100	188,658	53,442	2855,996	100,954	10191,753
144	Dec-12	450,100	323,167	126,933	16112,038	308,954	95452,706
145	Jan-13	429,500	370,522	58,978	3478,402	288,354	83148,152
146	Feb-13	331,900	211,060	120,840	14602,230	190,754	36387,170
147	Mar-13	67,533	122,778	-55,244	3051,945	-73,612	5418,793
148	Apr-13	250,900	128,228	122,672	15048,311	109,754	12045,987
149	May-13	36,107	139,103	-102,996	10608,173	-105,039	11033,117
150	Jun-13	69,000	125,834	-56,834	3230,159	-72,146	5205,015

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	21,500	81,922	-60,422	3650,842	-119,646	14315,114
152	Aug-13	0,000	25,749	-25,749	663,020	-141,146	19922,133
153	Sep-13	2,900	24,426	-21,526	463,350	-138,246	19111,898
154	Oct-13	37,400	67,893	-30,493	929,852	-103,746	10763,188
155	Nov-13	220,900	279,526	-58,626	3437,033	79,754	6360,735
156	Dec-13	417,000	419,400	-2,400	5,758	275,854	76095,547
157	Jan-14	259,910	311,620	-51,710	2673,971	118,764	14104,938
158	Feb-14	92,800	149,699	-56,899	3237,472	-48,346	2337,315
159	Mar-14	123,900	119,391	4,509	20,330	-17,246	297,417
160	Apr-14	442,200	162,570	279,630	78193,136	301,054	90633,639
161	May-14	4,800	38,544	-33,744	1138,630	-136,346	18590,174
162	Jun-14	10,600	43,365	-32,765	1073,548	-130,546	17042,202
163	Jul-14	145,700	52,292	93,408	8725,144	4,554	20,741
164	Aug-14	13,500	25,389	-11,889	141,340	-127,646	16293,447
165	Sep-14	0,400	22,549	-22,149	490,591	-140,746	19809,376
166	Oct-14	4,000	26,213	-22,213	493,402	-137,146	18808,967
167	Nov-14	158,200	176,342	-18,142	329,136	17,054	290,846
168	Dec-14	509,000	301,080	207,920	43230,892	367,854	135316,722
169	Jan-15	200,710	190,001	10,709	114,682	59,564	3547,896
170	Feb-15	228,000	179,441	48,559	2357,977	86,854	7543,654
171	Mar-15	337,300	161,328	175,972	30966,299	196,154	38476,475
172	Apr-15	208,700	223,821	-15,121	228,630	67,554	4563,572
173	May-15	38,500	50,035	-11,535	133,064	-102,646	10536,158
174	Jun-15	12,700	69,623	-56,923	3240,209	-128,446	16498,320
175	Jul-15	0,000	29,157	-29,157	850,141	-141,146	19922,133
176	Aug-15	1,300	28,191	-26,891	723,141	-139,846	19556,844
177	Sep-15	0,000	21,914	-21,914	480,213	-141,146	19922,133
178	Oct-15	31,100	25,636	5,464	29,859	-110,046	12110,075
179	Nov-15	0,000	103,944	-103,944	10804,349	-141,146	19922,133
180	Dec-15	314,800	288,497	26,303	691,873	173,654	30155,786
181	Jan-16	142,800	181,888	-39,088	1527,893	1,654	2,736
182	Feb-16	550,700	243,621	307,079	94297,266	409,554	167734,654
183	Mar-16	235,800	182,212	53,588	2871,641	94,654	8959,420
184	Apr-16	176,100	85,094	91,006	8282,135	34,954	1221,797
185	May-16	126,200	95,980	30,220	913,246	-14,946	223,377
186	Jun-16	112,300	147,646	-35,346	1249,334	-28,846	832,079
187	Jul-16	53,300	172,984	-119,684	14324,343	-87,846	7716,882
188	Aug-16	62,200	33,518	28,682	822,647	-78,946	6232,437
189	Sep-16	256,600	79,179	177,421	31478,144	115,454	13329,675
190	Oct-16	193,500	289,099	-95,599	9139,199	52,354	2740,964
191	Nov-16	238,300	252,399	-14,099	198,780	97,154	9438,941
192	Dec-16	359,700	386,224	-26,524	703,548	218,554	47765,944
193	Jan-17	300,300	296,493	3,807	14,491	159,154	25330,064
194	Feb-17	377,000	229,685	147,315	21701,856	235,854	55627,210
195	Mar-17	226,700	174,925	51,775	2680,646	85,554	7319,523
196	Apr-17	143,000	122,131	20,869	435,515	1,854	3,438
197	May-17	78,600	54,376	24,224	586,824	-62,546	3911,975
198	Jun-17	29,600	125,181	-95,581	9135,669	-111,546	12442,463
199	Jul-17	87,800	47,945	39,855	1588,418	-53,346	2845,773
200	Aug-17	29,500	25,966	3,534	12,490	-111,646	12464,782
201	Sep-17	2,900	22,664	-19,764	390,609	-138,246	19111,898
202	Oct-17	113,300	128,423	-15,123	228,713	-27,846	775,388
203	Nov-17	405,100	410,499	-5,399	29,152	263,954	69671,827
204	Dec-17	369,100	296,627	72,473	5252,347	227,954	51963,123
Jumlah		28793,740	28793,457	0,284	2444636,410	0,000	4806409,610
Rata-rata		141,146	141,144	0,001	11983,512	0,000	23560,831
NSE =	0,491						
RMSE =	109,469						

(Sumber : Hasil Perhitungan)

Lampiran 3.23 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier *Intercept* pada Pos Hujan Kopang

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	373,000	412,134	-39,134	1531,498	231,854	53756,376
2	Feb-01	214,000	265,952	-51,952	2699,038	72,854	5307,736
3	Mar-01	338,000	311,767	26,233	688,161	196,854	38751,581
4	Apr-01	404,000	196,975	207,025	42859,238	262,854	69092,337
5	May-01	64,000	157,073	-93,073	8662,511	-77,146	5951,472
6	Jun-01	29,300	54,796	-25,496	650,047	-111,846	12509,480
7	Jul-01	0,000	24,383	-24,383	594,508	-141,146	19922,133
8	Aug-01	5,100	56,446	-51,346	2636,384	-136,046	18508,456
9	Sep-01	12,700	10,848	1,852	3,430	-128,446	16498,320
10	Oct-01	182,600	182,543	0,057	0,003	41,454	1718,452
11	Nov-01	680,200	309,331	370,869	137543,768	539,054	290579,445
12	Dec-01	86,900	178,282	-91,382	8350,661	-54,246	2942,605
13	Jan-02	426,100	210,017	216,083	46691,781	284,954	81198,904
14	Feb-02	126,000	116,740	9,260	85,739	-15,146	229,395
15	Mar-02	337,800	161,887	175,913	30945,241	196,654	38672,880
16	Apr-02	211,900	103,276	108,624	11799,131	70,754	5006,159
17	May-02	166,000	71,074	94,926	9010,908	24,854	617,732
18	Jun-02	77,900	126,231	-48,331	2335,891	-63,246	4000,030
19	Jul-02	147,300	29,706	117,594	13828,367	6,154	37,874
20	Aug-02	0,000	15,053	-15,053	226,582	-141,146	19922,133
21	Sep-02	15,200	9,039	6,161	37,964	-125,946	15862,341
22	Oct-02	266,500	80,514	185,986	34590,607	125,354	15713,679
23	Nov-02	259,200	307,694	-48,494	2351,623	118,054	13936,797
24	Dec-02	172,800	115,633	57,167	3268,114	31,654	1001,989
25	Jan-03	460,500	221,286	239,214	57223,205	319,354	101987,114
26	Feb-03	249,100	300,250	-51,150	2616,309	107,954	11654,112
27	Mar-03	269,300	163,299	106,001	11236,161	128,154	16423,502
28	Apr-03	83,900	95,689	-11,789	138,990	-57,246	3277,080
29	May-03	22,300	38,782	-16,482	271,665	-118,846	14124,321
30	Jun-03	0,000	14,119	-14,119	199,341	-141,146	19922,133
31	Jul-03	0,000	27,863	-27,863	776,359	-141,146	19922,133
32	Aug-03	0,000	13,138	-13,138	172,620	-141,146	19922,133
33	Sep-03	0,000	13,742	-13,742	188,838	-141,146	19922,133
34	Oct-03	53,300	32,989	20,311	412,543	-87,846	7716,882
35	Nov-03	324,400	307,875	16,525	273,091	183,254	33582,107
36	Dec-03	437,700	352,658	85,042	7232,094	296,554	87944,401
37	Jan-04	434,600	292,084	142,516	20310,747	293,454	86115,375
38	Feb-04	261,700	231,908	29,792	887,535	120,554	14533,318
39	Mar-04	52,100	101,178	-49,078	2408,699	-89,046	7929,152
40	Apr-04	251,000	92,614	158,386	25086,070	109,854	12067,948
41	May-04	88,900	66,345	22,555	508,727	-52,246	2729,622
42	Jun-04	8,900	41,044	-32,144	1033,248	-132,246	17488,948
43	Jul-04	0,000	17,571	-17,571	308,723	-141,146	19922,133
44	Aug-04	0,000	10,826	-10,826	117,195	-141,146	19922,133
45	Sep-04	55,400	29,614	25,786	664,934	-85,746	7352,340
46	Oct-04	28,400	24,768	3,632	13,189	-112,746	12711,612
47	Nov-04	310,400	296,179	14,221	202,242	169,254	28646,989
48	Dec-04	437,000	269,294	167,706	28125,277	295,854	87529,716
49	Jan-05	394,900	173,599	221,301	48974,279	253,754	64391,201
50	Feb-05	203,200	251,724	-48,524	2354,547	62,054	3850,725

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	180,900	170,903	9,997	99,935	39,754	1580,397
52	Apr-05	169,000	45,914	123,086	15150,132	27,854	775,857
53	May-05	192,600	88,884	103,716	10757,010	51,454	2647,536
54	Jun-05	0,000	18,290	-18,290	334,535	-141,146	19922,133
55	Jul-05	0,000	17,572	-17,572	308,762	-141,146	19922,133
56	Aug-05	0,100	10,583	-10,483	109,888	-141,046	19893,914
57	Sep-05	0,400	20,032	-19,632	385,410	-140,746	19809,376
58	Oct-05	0,510	98,473	-97,963	9596,752	-140,636	19778,424
59	Nov-05	134,450	279,486	-145,036	21035,450	-6,696	44,834
60	Dec-05	146,600	285,561	-138,961	19310,265	5,454	29,748
61	Jan-06	201,000	82,616	118,384	14014,686	59,854	3582,527
62	Feb-06	202,900	147,632	55,268	3054,588	61,754	3813,583
63	Mar-06	911,800	167,720	744,080	553654,836	770,654	593907,917
64	Apr-06	66,300	141,321	-75,021	5628,128	-74,846	5601,892
65	May-06	0,000	19,237	-19,237	370,061	-141,146	19922,133
66	Jun-06	172,900	28,198	144,702	20938,555	31,754	1008,330
67	Jul-06	58,600	36,218	22,382	500,969	-82,546	6813,807
68	Aug-06	5,000	17,499	-12,499	156,228	-136,146	18535,675
69	Sep-06	45,000	27,287	17,713	313,739	-96,146	9244,012
70	Oct-06	146,400	133,056	13,344	178,056	5,254	27,607
71	Nov-06	0,000	246,693	-246,693	60857,403	-141,146	19922,133
72	Dec-06	96,350	353,531	-257,181	66142,170	-44,796	2006,663
73	Jan-07	183,200	324,121	-140,921	19858,779	42,054	1768,557
74	Feb-07	154,400	183,382	-28,982	839,957	13,254	175,674
75	Mar-07	340,500	306,657	33,843	1145,340	199,354	39742,102
76	Apr-07	250,300	125,398	124,902	15600,565	109,154	11914,642
77	May-07	64,900	117,809	-52,909	2799,389	-76,246	5813,420
78	Jun-07	88,800	40,328	48,472	2349,544	-52,346	2740,081
79	Jul-07	5,100	32,234	-27,134	736,271	-136,046	18508,456
80	Aug-07	0,000	10,175	-10,175	103,528	-141,146	19922,133
81	Sep-07	0,000	9,777	-9,777	95,581	-141,146	19922,133
82	Oct-07	35,800	26,755	9,045	81,809	-105,346	11097,735
83	Nov-07	0,000	81,200	-81,200	6593,398	-141,146	19922,133
84	Dec-07	307,570	306,775	0,795	0,632	166,424	27697,019
85	Jan-08	195,200	98,298	96,902	9390,052	54,054	2921,858
86	Feb-08	98,500	194,554	-96,054	9226,339	-42,646	1818,663
87	Mar-08	85,700	339,944	-254,244	64640,244	-55,446	3074,235
88	Apr-08	169,300	180,871	-11,571	133,888	28,154	792,660
89	May-08	16,000	62,963	-46,963	2205,541	-125,146	15661,468
90	Jun-08	10,000	38,059	-28,059	787,328	-131,146	17199,217
91	Jul-08	19,800	22,104	-2,304	5,308	-121,346	14724,800
92	Aug-08	0,000	12,384	-12,384	153,370	-141,146	19922,133
93	Sep-08	0,000	8,284	-8,284	68,623	-141,146	19922,133
94	Oct-08	0,000	46,054	-46,054	2121,006	-141,146	19922,133
95	Nov-08	20,200	163,365	-143,165	20496,171	-120,946	14627,883
96	Dec-08	325,100	418,059	-92,959	8641,449	183,954	33839,153
97	Jan-09	318,500	167,686	150,814	22744,880	177,354	31454,517
98	Feb-09	46,270	253,376	-207,106	42892,781	-94,876	9001,415
99	Mar-09	231,200	340,574	-109,374	11962,712	90,054	8109,761
100	Apr-09	141,900	98,686	43,214	1867,413	0,754	0,569

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	0,200	53,221	-53,021	2811,205	-140,946	19865,715
102	Jun-09	10,000	31,441	-21,441	459,733	-131,146	17199,217
103	Jul-09	0,000	20,505	-20,505	420,462	-141,146	19922,133
104	Aug-09	12,500	30,317	-17,817	317,445	-128,646	16549,738
105	Sep-09	10,000	22,658	-12,658	160,219	-131,146	17199,217
106	Oct-09	67,200	75,198	-7,998	63,975	-73,946	5467,979
107	Nov-09	157,100	259,470	-102,370	10479,552	15,954	254,537
108	Dec-09	38,420	266,163	-227,743	51866,937	-102,726	10552,587
109	Jan-10	114,800	380,916	-266,116	70817,937	-26,346	694,100
110	Feb-10	128,600	300,122	-171,522	29419,752	-12,546	157,397
111	Mar-10	112,400	158,113	-45,713	2089,687	-28,746	826,320
112	Apr-10	8,700	90,550	-81,850	6699,441	-132,446	17541,886
113	May-10	0,150	156,521	-156,371	24451,882	-140,996	19879,812
114	Jun-10	0,000	21,564	-21,564	464,986	-141,146	19922,133
115	Jul-10	0,000	30,093	-30,093	905,575	-141,146	19922,133
116	Aug-10	0,000	10,481	-10,481	109,841	-141,146	19922,133
117	Sep-10	0,000	35,269	-35,269	1243,882	-141,146	19922,133
118	Oct-10	35,500	52,404	-16,904	285,734	-105,646	11161,032
119	Nov-10	0,000	93,481	-93,481	8738,618	-141,146	19922,133
120	Dec-10	103,860	223,620	-119,760	14342,478	-37,286	1390,230
121	Jan-11	253,200	278,057	-24,857	617,863	112,054	12556,147
122	Feb-11	115,500	158,780	-43,280	1873,194	-25,646	657,706
123	Mar-11	199,700	213,339	-13,639	186,030	58,554	3428,596
124	Apr-11	290,900	289,957	0,943	0,890	149,754	22426,324
125	May-11	124,000	120,312	3,688	13,599	-17,146	293,978
126	Jun-11	16,200	19,518	-3,318	11,006	-124,946	15611,450
127	Jul-11	26,200	23,770	2,430	5,904	-114,946	13212,534
128	Aug-11	0,300	10,826	-10,526	110,790	-140,846	19837,536
129	Sep-11	13,900	9,471	4,429	19,617	-127,246	16191,490
130	Oct-11	46,500	66,175	-19,675	387,115	-94,646	8957,825
131	Nov-11	351,400	234,654	116,746	13629,695	210,254	44206,834
132	Dec-11	245,600	291,036	-45,436	2064,398	104,454	10910,683
133	Jan-12	531,000	343,606	187,394	35116,522	389,854	151986,308
134	Feb-12	230,100	187,092	43,008	1849,661	88,954	7912,852
135	Mar-12	0,000	244,819	-244,819	59936,367	-141,146	19922,133
136	Apr-12	75,000	72,555	2,445	5,980	-66,146	4375,265
137	May-12	0,000	107,010	-107,010	11451,128	-141,146	19922,133
138	Jun-12	75,000	15,253	59,747	3569,693	-66,146	4375,265
139	Jul-12	19,900	23,447	-3,547	12,581	-121,246	14700,541
140	Aug-12	0,000	16,485	-16,485	271,756	-141,146	19922,133
141	Sep-12	37,000	13,332	23,668	560,159	-104,146	10846,345
142	Oct-12	95,000	46,555	48,445	2346,929	-46,146	2129,434
143	Nov-12	242,100	185,882	56,218	3160,503	100,954	10191,753
144	Dec-12	450,100	328,998	121,102	14665,710	308,954	95452,706
145	Jan-13	429,500	379,384	50,116	2511,643	288,354	83148,152
146	Feb-13	331,900	209,717	122,183	14928,660	190,754	36387,170
147	Mar-13	67,533	115,785	-48,251	2328,206	-73,612	5418,793
148	Apr-13	250,900	121,584	129,316	16722,540	109,754	12045,987
149	May-13	36,107	133,155	-97,048	9418,278	-105,039	11033,117
150	Jun-13	69,000	119,037	-50,037	2503,719	-72,146	5205,015

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	21,500	72,315	-50,815	2582,133	-119,646	14315,114
152	Aug-13	0,000	12,547	-12,547	157,423	-141,146	19922,133
153	Sep-13	2,900	11,139	-8,239	67,873	-138,246	19111,898
154	Oct-13	37,400	57,388	-19,988	399,527	-103,746	10763,188
155	Nov-13	220,900	282,565	-61,665	3802,515	79,754	6360,735
156	Dec-13	417,000	431,389	-14,389	207,051	275,854	76095,547
157	Jan-14	259,910	316,713	-56,803	3226,544	118,764	14104,938
158	Feb-14	92,800	144,429	-51,629	2665,523	-48,346	2337,315
159	Mar-14	123,900	112,182	11,718	137,323	-17,246	297,417
160	Apr-14	442,200	158,123	284,077	80699,609	301,054	90633,639
161	May-14	4,800	26,160	-21,360	456,251	-136,346	18590,174
162	Jun-14	10,600	31,290	-20,690	428,077	-130,546	17042,202
163	Jul-14	145,700	40,788	104,912	11006,575	4,554	20,741
164	Aug-14	13,500	12,163	1,337	1,787	-127,646	16293,447
165	Sep-14	0,400	9,142	-8,742	76,425	-140,746	19809,376
166	Oct-14	4,000	13,040	-9,040	81,721	-137,146	18808,967
167	Nov-14	158,200	172,777	-14,577	212,491	17,054	290,846
168	Dec-14	509,000	305,497	203,503	41413,368	367,854	135316,722
169	Jan-15	200,710	187,310	13,400	179,557	59,564	3547,896
170	Feb-15	228,000	176,074	51,926	2696,281	86,854	7543,654
171	Mar-15	337,300	156,802	180,498	32579,649	196,154	38476,475
172	Apr-15	208,700	223,294	-14,594	212,982	67,554	4563,572
173	May-15	38,500	38,387	0,113	0,013	-102,646	10536,158
174	Jun-15	12,700	59,228	-46,528	2164,875	-128,446	16498,320
175	Jul-15	0,000	16,173	-16,173	261,564	-141,146	19922,133
176	Aug-15	1,300	15,145	-13,845	191,690	-139,846	19556,844
177	Sep-15	0,000	8,466	-8,466	71,672	-141,146	19922,133
178	Oct-15	31,100	12,426	18,674	348,717	-110,046	12110,075
179	Nov-15	0,000	95,746	-95,746	9167,251	-141,146	19922,133
180	Dec-15	314,800	292,109	22,691	514,885	173,654	30155,786
181	Jan-16	142,800	178,678	-35,878	1287,244	1,654	2,736
182	Feb-16	550,700	244,362	306,338	93842,991	409,554	167734,654
183	Mar-16	235,800	179,023	56,777	3223,635	94,654	8959,420
184	Apr-16	176,100	75,689	100,411	10082,325	34,954	1221,797
185	May-16	126,200	87,272	38,928	1515,376	-14,946	223,377
186	Jun-16	112,300	142,244	-29,944	896,670	-28,846	832,079
187	Jul-16	53,300	169,204	-115,904	13433,839	-87,846	7716,882
188	Aug-16	62,200	20,813	41,387	1712,882	-78,946	6232,437
189	Sep-16	256,600	69,396	187,204	35045,286	115,454	13329,675
190	Oct-16	193,500	292,750	-99,250	9850,585	52,354	2740,964
191	Nov-16	238,300	253,701	-15,401	237,198	97,154	9438,941
192	Dec-16	359,700	396,091	-36,391	1324,309	218,554	47765,944
193	Jan-17	300,300	300,617	-0,317	0,101	159,154	25330,064
194	Feb-17	377,000	229,533	147,467	21746,468	235,854	55627,210
195	Mar-17	226,700	171,269	55,431	3072,559	85,554	7319,523
196	Apr-17	143,000	115,097	27,903	778,595	1,854	3,438
197	May-17	78,600	43,005	35,595	1266,992	-62,546	3911,975
198	Jun-17	29,600	118,342	-88,742	7875,062	-111,546	12442,463
199	Jul-17	87,800	36,163	51,637	2666,367	-53,346	2845,773
200	Aug-17	29,500	12,777	16,723	279,645	-111,646	12464,782
201	Sep-17	2,900	9,264	-6,364	40,501	-138,246	19111,898
202	Oct-17	113,300	121,792	-8,492	72,108	-27,846	775,388
203	Nov-17	405,100	421,919	-16,819	282,890	263,954	69671,827
204	Dec-17	369,100	300,760	68,340	4670,407	227,954	51963,123
Jumlah		28793,740	27606,679	1187,061	2461212,143	0,000	4806409,610
Rata-rata		141,146	135,327	5,819	12064,765	0,000	23560,831
NSE	0,488						
RMSE	109,840						

(Sumber : Hasil Perhitungan)

Lampiran 3.24 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 pada Pos Hujan Kopang

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	373,000	339,417	33,583	1.127,850	231,854	53.756,376
2	Feb-01	214,000	271,772	-57,772	3.337,625	72,854	5.307,736
3	Mar-01	338,000	299,570	38,430	1.476,877	196,854	38.751,581
4	Apr-01	404,000	218,561	185,439	34.387,563	262,854	69.092,337
5	May-01	64,000	181,546	-117,546	13.817,005	-77,146	5.951,472
6	Jun-01	29,300	65,807	-36,507	1.332,736	-111,846	12.509,480
7	Jul-01	0,000	25,600	-25,600	655,359	-141,146	19.922,133
8	Aug-01	5,100	67,912	-62,812	3.945,305	-136,046	18.508,456
9	Sep-01	12,700	6,854	5,846	34,178	-128,446	16.498,320
10	Oct-01	182,600	205,701	-23,101	533,640	41,454	1.718,452
11	Nov-01	680,200	298,243	381,957	145.890,864	539,054	290.579,445
12	Dec-01	86,900	201,789	-114,889	13.199,544	-54,246	2.942,605
13	Jan-02	426,100	229,669	196,431	38.585,244	284,954	81.198,904
14	Feb-02	126,000	139,489	-13,489	181,958	-15,146	229,395
15	Mar-02	337,800	186,255	151,545	22.966,024	196,654	38.672,880
16	Apr-02	211,900	124,410	87,490	7.654,499	70,754	5.006,159
17	May-02	166,000	86,236	79,764	6.362,304	24,854	617,732
18	Jun-02	77,900	149,805	-71,905	5.170,398	-63,246	4.000,030
19	Jul-02	147,300	32,829	114,471	13.103,577	6,154	37,874
20	Aug-02	0,000	12,734	-12,734	162,151	-141,146	19.922,133
21	Sep-02	15,200	4,308	10,892	118,639	-125,946	15.862,341
22	Oct-02	266,500	97,735	168,765	28.481,526	125,354	15.713,679
23	Nov-02	259,200	297,342	-38,142	1.454,825	118,054	13.936,797
24	Dec-02	172,800	138,268	34,532	1.192,456	31,654	1.001,989
25	Jan-03	460,500	238,873	221,627	49.118,370	319,354	101.987,114
26	Feb-03	249,100	293,149	-44,049	1.940,278	107,954	11.654,112
27	Mar-03	269,300	187,623	81,677	6.671,183	128,154	16.423,502
28	Apr-03	83,900	115,684	-31,784	1.010,230	-57,246	3.277,080
29	May-03	22,300	44,967	-22,667	513,806	-118,846	14.124,321
30	Jun-03	0,000	11,432	-11,432	130,699	-141,146	19.922,133
31	Jul-03	0,000	30,336	-30,336	920,270	-141,146	19.922,133
32	Aug-03	0,000	10,063	-10,063	101,271	-141,146	19.922,133
33	Sep-03	0,000	10,906	-10,906	118,946	-141,146	19.922,133
34	Oct-03	53,300	37,247	16,053	257,705	-87,846	7.716,882
35	Nov-03	324,400	297,442	26,958	726,725	183,254	33.582,107
36	Dec-03	437,700	319,293	118,407	14.020,156	296,554	87.944,401
37	Jan-04	434,600	288,365	146,235	21.384,561	293,454	86.115,375
38	Feb-04	261,700	247,216	14,484	209,787	120,554	14.533,318
39	Mar-04	52,100	122,014	-69,914	4.887,951	-89,046	7.929,152
40	Apr-04	251,000	112,100	138,900	19.293,170	109,854	12.067,948
41	May-04	88,900	80,379	8,521	72,605	-52,246	2.729,622
42	Jun-04	8,900	47,955	-39,055	1.525,327	-132,246	17.488,948
43	Jul-04	0,000	16,231	-16,231	263,435	-141,146	19.922,133
44	Aug-04	0,000	6,823	-6,823	46,548	-141,146	19.922,133
45	Sep-04	55,400	32,705	22,695	515,082	-85,746	7.352,340
46	Oct-04	28,400	26,127	2,273	5,168	-112,746	12.711,612
47	Nov-04	310,400	290,788	19,612	384,638	169,254	28.646,989
48	Dec-04	437,000	274,003	162,997	26.567,882	295,854	87.529,716
49	Jan-05	394,900	197,430	197,470	38.994,284	253,754	64.391,201
50	Feb-05	203,200	261,913	-58,713	3.447,267	62,054	3.850,725

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	180,900	194,893	-13,993	195,804	39,754	1.580,397
52	Apr-05	169,000	54,339	114,661	13.147,110	27,854	775,857
53	May-05	192,600	107,716	84,884	7.205,221	51,454	2.647,536
54	Jun-05	0,000	17,227	-17,227	296,768	-141,146	19.922,133
55	Jul-05	0,000	16,232	-16,232	263,485	-141,146	19.922,133
56	Aug-05	0,100	6,481	-6,381	40,721	-141,046	19.893,914
57	Sep-05	0,400	19,631	-19,231	369,847	-140,746	19.809,376
58	Oct-05	0,510	118,905	-118,395	14.017,343	-140,636	19.778,424
59	Nov-05	134,450	280,610	-146,160	21.362,875	-6,696	44,834
60	Dec-05	146,600	284,407	-137,807	18.990,781	5,454	29,748
61	Jan-06	201,000	100,261	100,739	10.148,388	59,854	3.582,527
62	Feb-06	202,900	172,120	30,780	947,434	61,754	3.813,583
63	Mar-06	911,800	191,870	719,930	518.299,541	770,654	593.907,917
64	Apr-06	66,300	165,676	-99,376	9.875,592	-74,846	5.601,892
65	May-06	0,000	18,535	-18,535	343,547	-141,146	19.922,133
66	Jun-06	172,900	30,790	142,110	20.195,202	31,754	1.008,330
67	Jul-06	58,600	41,561	17,039	290,311	-82,546	6.813,807
68	Aug-06	5,000	16,132	-11,132	123,917	-136,146	18.535,675
69	Sep-06	45,000	29,555	15,445	238,555	-96,146	9.244,012
70	Oct-06	146,400	157,065	-10,665	113,736	5,254	27,607
71	Nov-06	0,000	258,289	-258,289	66.713,057	-141,146	19.922,133
72	Dec-06	96,350	319,662	-223,312	49.868,250	-44,796	2.006,663
73	Jan-07	183,200	306,034	-122,834	15.088,309	42,054	1.768,557
74	Feb-07	154,400	206,465	-52,065	2.710,720	13,254	175,674
75	Mar-07	340,500	296,768	43,732	1.912,505	199,354	39.742,102
76	Apr-07	250,300	148,910	101,390	10.279,921	109,154	11.914,642
77	May-07	64,900	140,664	-75,764	5.740,162	-76,246	5.813,420
78	Jun-07	88,800	47,011	41,789	1.746,339	-52,346	2.740,081
79	Jul-07	5,100	36,234	-31,134	969,339	-136,046	18.508,456
80	Aug-07	0,000	5,908	-5,908	34,903	-141,146	19.922,133
81	Sep-07	0,000	5,347	-5,347	28,595	-141,146	19.922,133
82	Oct-07	35,800	28,832	6,968	48,553	-105,346	11.097,735
83	Nov-07	0,000	98,560	-98,560	9.714,083	-141,146	19.922,133
84	Dec-07	307,570	296,833	10,737	115,279	166,424	27.697,019
85	Jan-08	195,200	118,703	76,497	5.851,838	54,054	2.921,858
86	Feb-08	98,500	216,445	-117,945	13.911,057	-42,646	1.818,663
87	Mar-08	85,700	313,675	-227,975	51.972,530	-55,446	3.074,235
88	Apr-08	169,300	204,172	-34,872	1.216,057	28,154	792,660
89	May-08	16,000	76,152	-60,152	3.618,212	-125,146	15.661,468
90	Jun-08	10,000	44,009	-34,009	1.156,625	-131,146	17.199,217
91	Jul-08	19,800	22,481	-2,681	7,187	-121,346	14.724,800
92	Aug-08	0,000	9,008	-9,008	81,147	-141,146	19.922,133
93	Sep-08	0,000	3,243	-3,243	10,519	-141,146	19.922,133
94	Oct-08	0,000	54,522	-54,522	2.972,648	-141,146	19.922,133
95	Nov-08	20,200	187,686	-167,486	28.051,599	-120,946	14.627,883
96	Dec-08	325,100	340,865	-15,765	248,543	183,954	33.839,153
97	Jan-09	318,500	191,837	126,663	16.043,483	177,354	31.454,517
98	Feb-09	46,270	263,088	-216,818	47.010,010	-94,876	9.001,415
99	Mar-09	231,200	313,964	-82,764	6.849,888	90,054	8.109,761
100	Apr-09	141,900	119,151	22,749	517,523	0,754	0,569

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	0,200	63,789	-63,589	4.043,608	-140,946	19.865,715
102	Jun-09	10,000	35,168	-25,168	633,445	-131,146	17.199,217
103	Jul-09	0,000	20,283	-20,283	411,415	-141,146	19.922,133
104	Aug-09	12,500	33,654	-21,154	447,482	-128,646	16.549,738
105	Sep-09	10,000	23,240	-13,240	175,306	-131,146	17.199,217
106	Oct-09	67,200	91,291	-24,091	580,386	-73,946	5.467,979
107	Nov-09	157,100	267,353	-110,253	12.155,626	15,954	254,537
108	Dec-09	38,420	271,914	-233,494	54.519,414	-102,726	10.552,587
109	Jan-10	114,800	330,120	-215,320	46.362,624	-26,346	694,100
110	Feb-10	128,600	293,075	-164,475	27.052,053	-12,546	157,397
111	Mar-10	112,400	182,569	-70,169	4.923,684	-28,746	826,320
112	Apr-10	8,700	109,679	-100,979	10.196,837	-132,446	17.541,886
113	May-10	0,150	181,002	-180,852	32.707,455	-140,996	19.879,812
114	Jun-10	0,000	21,739	-21,739	472,578	-141,146	19.922,133
115	Jul-10	0,000	33,351	-33,351	1.112,311	-141,146	19.922,133
116	Aug-10	0,000	6,338	-6,338	40,165	-141,146	19.922,133
117	Sep-10	0,000	40,297	-40,297	1.623,810	-141,146	19.922,133
118	Oct-10	35,500	62,740	-27,240	742,024	-105,646	11.161,032
119	Nov-10	0,000	113,113	-113,113	12.794,466	-141,146	19.922,133
120	Dec-10	103,860	240,734	-136,874	18.734,510	-37,286	1.390,230
121	Jan-11	253,200	279,702	-26,502	702,352	112,054	12.556,147
122	Feb-11	115,500	183,224	-67,724	4.586,482	-25,646	657,706
123	Mar-11	199,700	232,420	-32,720	1.070,606	58,554	3.428,596
124	Apr-11	290,900	287,088	3,812	14,533	149,754	22.426,324
125	May-11	124,000	143,402	-19,402	376,445	-17,146	293,978
126	Jun-11	16,200	18,922	-2,722	7,411	-124,946	15.611,450
127	Jul-11	26,200	24,763	1,437	2,065	-114,946	13.212,534
128	Aug-11	0,300	6,823	-6,523	42,544	-140,846	19.837,536
129	Sep-11	13,900	4,917	8,983	80,691	-127,246	16.191,490
130	Oct-11	46,500	80,168	-33,668	1.133,511	-94,646	8.957,825
131	Nov-11	351,400	249,319	102,081	10.420,444	210,254	44.206,834
132	Dec-11	245,600	287,737	-42,137	1.775,553	104,454	10.910,683
133	Jan-12	531,000	315,340	215,660	46.509,031	389,854	151.986,308
134	Feb-12	230,100	209,819	20,281	411,320	88,954	7.912,852
135	Mar-12	0,000	256,920	-256,920	66.007,878	-141,146	19.922,133
136	Apr-12	75,000	88,056	-13,056	170,464	-66,146	4.375,265
137	May-12	0,000	128,644	-128,644	16.549,203	-141,146	19.922,133
138	Jun-12	75,000	13,013	61,987	3.842,397	-66,146	4.375,265
139	Jul-12	19,900	24,321	-4,421	19,546	-121,246	14.700,541
140	Aug-12	0,000	14,725	-14,725	216,838	-141,146	19.922,133
141	Sep-12	37,000	10,334	26,666	711,062	-104,146	10.846,345
142	Oct-12	95,000	55,174	39,826	1.586,109	-46,146	2.129,434
143	Nov-12	242,100	208,729	33,371	1.113,639	100,954	10.191,753
144	Dec-12	450,100	308,466	141,634	20.060,235	308,954	95.452,706
145	Jan-13	429,500	329,591	99,909	9.981,736	288,354	83.148,152
146	Feb-13	331,900	229,419	102,481	10.502,430	190,754	36.387,170
147	Mar-13	67,533	138,436	-70,903	5.027,196	-73,612	5.418,793
148	Apr-13	250,900	144,787	106,113	11.260,017	109,754	12.045,987
149	May-13	36,107	157,169	-121,062	14.655,911	-105,039	11.033,117
150	Jun-13	69,000	142,009	-73,009	5.330,374	-72,146	5.205,015

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	21,500	87,762	-66,262	4.390,599	-119,646	14.315,114
152	Aug-13	0,000	9,236	-9,236	85,299	-141,146	19.922,133
153	Sep-13	2,900	7,262	-4,362	19,025	-138,246	19.111,898
154	Oct-13	37,400	69,111	-31,711	1.005,571	-103,746	10.763,188
155	Nov-13	220,900	282,547	-61,647	3.800,414	79,754	6.360,735
156	Dec-13	417,000	343,756	73,244	5.364,639	275,854	76.095,547
157	Jan-14	259,910	302,210	-42,300	1.789,316	118,764	14.104,938
158	Feb-14	92,800	168,864	-76,064	5.785,659	-48,346	2.337,315
159	Mar-14	123,900	134,442	-10,542	111,127	-17,246	297,417
160	Apr-14	442,200	182,579	259,621	67.403,102	301,054	90.633,639
161	May-14	4,800	28,023	-23,223	539,301	-136,346	18.590,174
162	Jun-14	10,600	34,965	-24,365	593,636	-130,546	17.042,202
163	Jul-14	145,700	47,617	98,083	9.620,189	4,554	20,741
164	Aug-14	13,500	8,699	4,801	23,053	-127,646	16.293,447
165	Sep-14	0,400	4,454	-4,054	16,435	-140,746	19.809,376
166	Oct-14	4,000	9,926	-5,926	35,113	-137,146	18.808,967
167	Nov-14	158,200	196,659	-38,459	1.479,102	17,054	290,846
168	Dec-14	509,000	296,121	212,879	45.317,312	367,854	135.316,722
169	Jan-15	200,710	210,015	-9,305	86,576	59,564	3.547,896
170	Feb-15	228,000	199,742	28,258	798,497	86,854	7.543,654
171	Mar-15	337,300	181,279	156,021	24.342,614	196,154	38.476,475
172	Apr-15	208,700	240,475	-31,775	1.009,647	67,554	4.563,572
173	May-15	38,500	44,444	-5,944	35,330	-102,646	10.536,158
174	Jun-15	12,700	71,444	-58,744	3.450,908	-128,446	16.498,320
175	Jul-15	0,000	14,292	-14,292	204,261	-141,146	19.922,133
176	Aug-15	1,300	12,863	-11,563	133,698	-139,846	19.556,844
177	Sep-15	0,000	3,500	-3,500	12,252	-141,146	19.922,133
178	Oct-15	31,100	9,067	22,033	485,467	-110,046	12.110,075
179	Nov-15	0,000	115,750	-115,750	13.397,961	-141,146	19.922,133
180	Dec-15	314,800	288,380	26,420	698,009	173,654	30.155,786
181	Jan-16	142,800	202,155	-59,355	3.523,036	1,654	2,736
182	Feb-16	550,700	256,585	294,115	86.503,873	409,554	167.734,654
183	Mar-16	235,800	202,473	33,327	1.110,677	94,654	8.959,420
184	Apr-16	176,100	91,890	84,210	7.091,407	34,954	1.221,797
185	May-16	126,200	105,810	20,390	415,758	-14,946	223,377
186	Jun-16	112,300	166,626	-54,326	2.951,334	-28,846	832,079
187	Jul-16	53,300	193,283	-139,983	19.595,276	-87,846	7.716,882
188	Aug-16	62,200	20,707	41,493	1.721,664	-78,946	6.232,437
189	Sep-16	256,600	84,165	172,435	29.733,791	115,454	13.329,675
190	Oct-16	193,500	288,763	-95,263	9.074,966	52,354	2.740,964
191	Nov-16	238,300	263,318	-25,018	625,921	97,154	9.438,941
192	Dec-16	359,700	334,988	24,712	610,677	218,554	47.765,944
193	Jan-17	300,300	293,359	6,941	48,172	159,154	25.330,064
194	Feb-17	377,000	245,379	131,621	17.324,213	235,854	55.627,210
195	Mar-17	226,700	195,239	31,461	989,806	85,554	7.319,523
196	Apr-17	143,000	137,676	5,324	28,344	1,854	3,438
197	May-17	78,600	50,534	28,066	787,692	-62,546	3.911,975
198	Jun-17	29,600	141,248	-111,648	12.465,203	-111,546	12.442,463
199	Jul-17	87,800	41,489	46,311	2.144,721	-53,346	2.845,773
200	Aug-17	29,500	9,558	19,942	397,667	-111,646	12.464,782
201	Sep-17	2,900	4,626	-1,726	2,978	-138,246	19.111,898
202	Oct-17	113,300	145,012	-31,712	1.005,649	-27,846	775,388
203	Nov-17	405,100	341,755	63,345	4.012,606	263,954	69.671,827
204	Dec-17	369,100	293,441	75,659	5.724,309	227,954	51.963,123
Jumlah		28793,740	28691,889	101,851	##########	0,000	4.806.409,610
Rata-rata		141,146	140,647	0,499	11.681,743	0,000	23.560,831
NSE	0,504						
RMSE	108,082						

(Sumber : Hasil Perhitungan)

Lampiran 3.25 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 *Intercept* pada Pos Hujan Kopang

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	373,000	339,589	33,411	1.116,319	231,854	53756,376
2	Feb-01	214,000	267,479	-53,479	2.860,009	72,854	5307,736
3	Mar-01	338,000	295,797	42,203	1.781,133	196,854	38751,581
4	Apr-01	404,000	215,000	189,000	35.720,971	262,854	69092,337
5	May-01	64,000	179,239	-115,239	13.280,087	-77,146	5951,472
6	Jun-01	29,300	69,498	-40,198	1.615,846	-111,846	12509,480
7	Jul-01	0,000	31,846	-31,846	1.014,188	-141,146	19922,133
8	Aug-01	5,100	71,474	-66,374	4.405,522	-136,046	18508,456
9	Sep-01	12,700	14,351	-1,651	2,726	-128,446	16498,320
10	Oct-01	182,600	202,523	-19,923	396,927	41,454	1718,452
11	Nov-01	680,200	294,422	385,778	148.824,511	539,054	290579,445
12	Dec-01	86,900	198,740	-111,840	12.508,204	-54,246	2942,605
13	Jan-02	426,100	225,830	200,270	40.108,200	284,954	81198,904
14	Feb-02	126,000	139,070	-13,070	170,820	-15,146	229,395
15	Mar-02	337,800	183,764	154,036	23.726,981	196,654	38672,880
16	Apr-02	211,900	124,759	87,141	7.593,521	70,754	5006,159
17	May-02	166,000	88,705	77,295	5.974,588	24,854	617,732
18	Jun-02	77,900	148,886	-70,986	5.039,020	-63,246	4000,030
19	Jul-02	147,300	38,603	108,697	11.815,114	6,154	37,874
20	Aug-02	0,000	19,835	-19,835	393,429	-141,146	19922,133
21	Sep-02	15,200	11,978	3,222	10,383	-125,946	15862,341
22	Oct-02	266,500	99,541	166,959	27.875,154	125,354	15713,679
23	Nov-02	259,200	293,490	-34,290	1.175,811	118,054	13936,797
24	Dec-02	172,800	137,909	34,891	1.217,361	31,654	1001,989
25	Jan-03	460,500	234,847	225,653	50.919,486	319,354	101987,114
26	Feb-03	249,100	289,169	-40,069	1.605,527	107,954	11654,112
27	Mar-03	269,300	185,080	84,220	7.092,957	128,154	16423,502
28	Apr-03	83,900	116,497	-32,597	1.062,558	-57,246	3277,080
29	May-03	22,300	49,960	-27,660	765,055	-118,846	14124,321
30	Jun-03	0,000	18,621	-18,621	346,740	-141,146	19922,133
31	Jul-03	0,000	36,272	-36,272	1.315,651	-141,146	19922,133
32	Aug-03	0,000	17,344	-17,344	300,815	-141,146	19922,133
33	Sep-03	0,000	18,130	-18,130	328,704	-141,146	19922,133
34	Oct-03	53,300	42,734	10,566	111,638	-87,846	7716,882
35	Nov-03	324,400	293,593	30,807	949,043	183,254	33582,107
36	Dec-03	437,700	316,662	121,038	14.650,166	296,554	87944,401
37	Jan-04	434,600	284,270	150,330	22.599,002	293,454	86115,375
38	Feb-04	261,700	243,057	18,643	347,575	120,554	14533,318
39	Mar-04	52,100	122,489	-70,389	4.954,617	-89,046	7929,152
40	Apr-04	251,000	113,107	137,893	19.014,445	109,854	12067,948
41	May-04	88,900	83,192	5,708	32,577	-52,246	2729,622
42	Jun-04	8,900	52,758	-43,858	1.923,524	-132,246	17488,948
43	Jul-04	0,000	23,098	-23,098	533,513	-141,146	19922,133
44	Aug-04	0,000	14,322	-14,322	205,121	-141,146	19922,133
45	Sep-04	55,400	38,486	16,914	286,077	-85,746	7352,340
46	Oct-04	28,400	32,338	-3,938	15,511	-112,746	12711,612
47	Nov-04	310,400	286,747	23,653	559,441	169,254	28646,989
48	Dec-04	437,000	269,721	167,279	27.982,245	295,854	87529,716
49	Jan-05	394,900	194,530	200,370	40.148,017	253,754	64391,201
50	Feb-05	203,200	257,622	-54,422	2.961,785	62,054	3850,725

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	180,900	192,083	-11,183	125,052	39,754	1580,397
52	Apr-05	169,000	58,740	110,260	12.157,316	27,854	775,857
53	May-05	192,600	108,964	83,636	6.995,011	51,454	2647,536
54	Jun-05	0,000	24,028	-24,028	577,332	-141,146	19922,133
55	Jul-05	0,000	23,099	-23,099	533,580	-141,146	19922,133
56	Aug-05	0,100	14,004	-13,904	193,317	-141,046	19893,914
57	Sep-05	0,400	26,272	-25,872	669,373	-140,746	19809,376
58	Oct-05	0,510	119,545	-119,035	14.169,329	-140,636	19778,424
59	Nov-05	134,450	276,387	-141,937	20.146,193	-6,696	44,834
60	Dec-05	146,600	280,238	-133,638	17.859,139	5,454	29,748
61	Jan-06	201,000	101,924	99,076	9.816,031	59,854	3582,527
62	Feb-06	202,900	170,199	32,701	1.069,353	61,754	3813,583
63	Mar-06	911,800	189,169	722,631	522.195,691	770,654	593907,917
64	Apr-06	66,300	164,032	-97,732	9.551,635	-74,846	5601,892
65	May-06	0,000	25,249	-25,249	637,498	-141,146	19922,133
66	Jun-06	172,900	36,696	136,204	18.551,397	31,754	1008,330
67	Jul-06	58,600	46,771	11,829	139,917	-82,546	6813,807
68	Aug-06	5,000	23,006	-18,006	324,202	-136,146	18535,675
69	Sep-06	45,000	35,542	9,458	89,458	-96,146	9244,012
70	Oct-06	146,400	155,807	-9,407	88,491	5,254	27,607
71	Nov-06	0,000	254,017	-254,017	64.524,534	-141,146	19922,133
72	Dec-06	96,350	317,062	-220,712	48.713,888	-44,796	2006,663
73	Jan-07	183,200	302,539	-119,339	14.241,748	42,054	1768,557
74	Feb-07	154,400	203,262	-48,862	2.387,541	13,254	175,674
75	Mar-07	340,500	292,897	47,603	2.266,072	199,354	39742,102
76	Apr-07	250,300	148,033	102,267	10.458,507	109,154	11914,642
77	May-07	64,900	140,186	-75,286	5.668,050	-76,246	5813,420
78	Jun-07	88,800	51,873	36,927	1.363,587	-52,346	2740,081
79	Jul-07	5,100	41,787	-36,687	1.345,931	-136,046	18508,456
80	Aug-07	0,000	13,469	-13,469	181,422	-141,146	19922,133
81	Sep-07	0,000	12,947	-12,947	167,620	-141,146	19922,133
82	Oct-07	35,800	34,866	0,934	0,872	-105,346	11097,735
83	Nov-07	0,000	100,319	-100,319	10.063,993	-141,146	19922,133
84	Dec-07	307,570	292,964	14,606	213,327	166,424	27697,019
85	Jan-08	195,200	119,354	75,846	5.752,675	54,054	2921,858
86	Feb-08	98,500	212,943	-114,443	13.097,162	-42,646	1818,663
87	Mar-08	85,700	310,620	-224,920	50.589,033	-55,446	3074,235
88	Apr-08	169,300	201,044	-31,744	1.007,678	28,154	792,660
89	May-08	16,000	79,217	-63,217	3.996,334	-125,146	15661,468
90	Jun-08	10,000	49,063	-39,063	1.525,886	-131,146	17199,217
91	Jul-08	19,800	28,933	-9,133	83,409	-121,346	14724,800
92	Aug-08	0,000	16,360	-16,360	267,650	-141,146	19922,133
93	Sep-08	0,000	10,986	-10,986	120,682	-141,146	19922,133
94	Oct-08	0,000	58,911	-58,911	3.470,527	-141,146	19922,133
95	Nov-08	20,200	185,141	-164,941	27.205,642	-120,946	14627,883
96	Dec-08	325,100	341,391	-16,291	265,389	183,954	33839,153
97	Jan-09	318,500	189,137	129,363	16.734,664	177,354	31454,517
98	Feb-09	46,270	258,793	-212,523	45.165,841	-94,876	9001,415
99	Mar-09	231,200	310,929	-79,729	6.356,680	90,054	8109,761
100	Apr-09	141,900	119,778	22,122	489,388	0,754	0,569

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	0,200	67,604	-67,404	4.543,295	-140,946	19865,715
102	Jun-09	10,000	40,790	-30,790	948,026	-131,146	17199,217
103	Jul-09	0,000	26,881	-26,881	722,584	-141,146	19922,133
104	Aug-09	12,500	39,374	-26,874	722,195	-128,646	16549,738
105	Sep-09	10,000	29,642	-19,642	385,815	-131,146	17199,217
106	Oct-09	67,200	93,466	-26,266	689,913	-73,946	5467,979
107	Nov-09	157,100	263,051	-105,951	11.225,555	15,954	254,537
108	Dec-09	38,420	267,621	-229,201	52.533,255	-102,726	10552,587
109	Jan-10	114,800	328,652	-213,852	45.732,594	-26,346	694,100
110	Feb-10	128,600	289,094	-160,494	25.758,169	-12,546	157,397
111	Mar-10	112,400	180,222	-67,822	4.599,827	-28,746	826,320
112	Apr-10	8,700	110,819	-102,119	10.428,237	-132,446	17541,886
113	May-10	0,150	178,717	-178,567	31.886,224	-140,996	19879,812
114	Jun-10	0,000	28,240	-28,240	797,496	-141,146	19922,133
115	Jul-10	0,000	39,091	-39,091	1.528,098	-141,146	19922,133
116	Aug-10	0,000	13,870	-13,870	192,374	-141,146	19922,133
117	Sep-10	0,000	45,588	-45,588	2.078,222	-141,146	19922,133
118	Oct-10	35,500	66,619	-31,119	968,407	-105,646	11161,032
119	Nov-10	0,000	114,065	-114,065	13.010,717	-141,146	19922,133
120	Dec-10	103,860	236,674	-132,814	17.639,674	-37,286	1390,230
121	Jan-11	253,200	275,468	-22,268	495,867	112,054	12556,147
122	Feb-11	115,500	180,851	-65,351	4.270,741	-25,646	657,706
123	Mar-11	199,700	228,521	-28,821	830,630	58,554	3428,596
124	Apr-11	290,900	282,967	7,933	62,935	149,754	22426,324
125	May-11	124,000	142,791	-18,791	353,086	-17,146	293,978
126	Jun-11	16,200	25,610	-9,410	88,552	-124,946	15611,450
127	Jul-11	26,200	31,065	-4,865	23,664	-114,946	13212,534
128	Aug-11	0,300	14,322	-14,022	196,618	-140,846	19837,536
129	Sep-11	13,900	12,546	1,354	1,834	-127,246	16191,490
130	Oct-11	46,500	82,993	-36,493	1.331,773	-94,646	8957,825
131	Nov-11	351,400	245,133	106,267	11.292,703	210,254	44206,834
132	Dec-11	245,600	283,629	-38,029	1.446,227	104,454	10910,683
133	Jan-12	531,000	312,401	218,599	47.785,366	389,854	151986,308
134	Feb-12	230,100	206,512	23,588	556,400	88,954	7912,852
135	Mar-12	0,000	252,658	-252,658	63.835,922	-141,146	19922,133
136	Apr-12	75,000	90,419	-15,419	237,735	-66,146	4375,265
137	May-12	0,000	128,773	-128,773	16.582,436	-141,146	19922,133
138	Jun-12	75,000	20,095	54,905	3.014,514	-66,146	4375,265
139	Jul-12	19,900	30,652	-10,752	115,597	-121,246	14700,541
140	Aug-12	0,000	21,693	-21,693	470,595	-141,146	19922,133
141	Sep-12	37,000	17,597	19,403	376,488	-104,146	10846,345
142	Oct-12	95,000	59,522	35,478	1.258,658	-46,146	2129,434
143	Nov-12	242,100	205,455	36,645	1.342,830	100,954	10191,753
144	Dec-12	450,100	305,096	145,004	21.026,209	308,954	95452,706
145	Jan-13	429,500	328,052	101,448	10.291,610	288,354	83148,152
146	Feb-13	331,900	225,585	106,315	11.302,825	190,754	36387,170
147	Mar-13	67,533	138,069	-70,536	4.975,273	-73,612	5418,793
148	Apr-13	250,900	144,108	106,792	11.404,558	109,754	12045,987
149	May-13	36,107	155,906	-119,799	14.351,824	-105,039	11033,117
150	Jun-13	69,000	141,466	-72,466	5.251,302	-72,146	5205,015

No	Tanggal	Data Hujan ARR Kopang (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	21,500	90,141	-68,641	4.711,615	-119,646	14315,114
152	Aug-13	0,000	16,572	-16,572	274,638	-141,146	19922,133
153	Sep-13	2,900	14,732	-11,832	139,986	-138,246	19111,898
154	Oct-13	37,400	72,600	-35,200	1.239,056	-103,746	10763,188
155	Nov-13	220,900	278,350	-57,450	3.300,507	79,754	6360,735
156	Dec-13	417,000	345,126	71,874	5.165,881	275,854	76095,547
157	Jan-14	259,910	298,541	-38,631	1.492,363	118,764	14104,938
158	Feb-14	92,800	167,082	-74,282	5.517,764	-48,346	2337,315
159	Mar-14	123,900	134,275	-10,375	107,636	-17,246	297,417
160	Apr-14	442,200	180,232	261,968	68.627,449	301,054	90633,639
161	May-14	4,800	34,110	-29,310	859,083	-136,346	18590,174
162	Jun-14	10,600	40,600	-30,000	899,973	-130,546	17042,202
163	Jul-14	145,700	52,441	93,259	8.697,164	4,554	20,741
164	Aug-14	13,500	16,071	-2,571	6,612	-127,646	16293,447
165	Sep-14	0,400	12,114	-11,714	137,216	-140,746	19809,376
166	Oct-14	4,000	17,216	-13,216	174,652	-137,146	18808,967
167	Nov-14	158,200	193,786	-35,586	1.266,373	17,054	290,846
168	Dec-14	509,000	292,229	216,771	46.989,458	367,854	135316,722
169	Jan-15	200,710	206,702	-5,992	35,898	59,564	3547,896
170	Feb-15	228,000	196,762	31,238	975,787	86,854	7543,654
171	Mar-15	337,300	178,983	158,317	25.064,302	196,154	38476,475
172	Apr-15	208,700	236,420	-27,720	768,385	67,554	4563,572
173	May-15	38,500	49,470	-10,970	120,331	-102,646	10536,158
174	Jun-15	12,700	74,793	-62,093	3.855,479	-128,446	16498,320
175	Jul-15	0,000	21,289	-21,289	453,211	-141,146	19922,133
176	Aug-15	1,300	19,955	-18,655	348,021	-139,846	19556,844
177	Sep-15	0,000	11,225	-11,225	126,002	-141,146	19922,133
178	Oct-15	31,100	16,415	14,685	215,663	-110,046	12110,075
179	Nov-15	0,000	116,559	-116,559	13.585,960	-141,146	19922,133
180	Dec-15	314,800	284,285	30,515	931,140	173,654	30155,786
181	Jan-16	142,800	199,094	-56,294	3.168,986	1,654	2,736
182	Feb-16	550,700	252,325	298,375	89.027,712	409,554	167734,654
183	Mar-16	235,800	199,401	36,399	1.324,876	94,654	8959,420
184	Apr-16	176,100	94,030	82,070	6.735,483	34,954	1221,797
185	May-16	126,200	107,163	19,037	362,416	-14,946	223,377
186	Jun-16	112,300	164,941	-52,641	2.771,090	-28,846	832,079
187	Jul-16	53,300	190,531	-137,231	18.832,276	-87,846	7716,882
188	Aug-16	62,200	27,277	34,923	1.219,649	-78,946	6232,437
189	Sep-16	256,600	86,755	169,845	28.847,315	115,454	13329,675
190	Oct-16	193,500	284,676	-91,176	8.313,070	52,354	2740,964
191	Nov-16	238,300	259,022	-20,722	429,416	97,154	9438,941
192	Dec-16	359,700	334,271	25,429	646,646	218,554	47765,944
193	Jan-17	300,300	289,386	10,914	119,123	159,154	25330,064
194	Feb-17	377,000	241,245	135,755	18.429,399	235,854	55627,210
195	Mar-17	226,700	192,416	34,284	1.175,382	85,554	7319,523
196	Apr-17	143,000	137,347	5,653	31,958	1,854	3,438
197	May-17	78,600	55,174	23,426	548,788	-62,546	3911,975
198	Jun-17	29,600	140,742	-111,142	12.352,439	-111,546	12442,463
199	Jul-17	87,800	46,703	41,097	1.688,931	-53,346	2845,773
200	Aug-17	29,500	16,873	12,627	159,438	-111,646	12464,782
201	Sep-17	2,900	12,274	-9,374	87,872	-138,246	19111,898
202	Oct-17	113,300	144,322	-31,022	962,375	-27,846	775,388
203	Nov-17	405,100	342,518	62,582	3.916,531	263,954	69671,827
204	Dec-17	369,100	289,469	79,631	6.341,043	227,954	51963,123
Jumlah		28793,740	28924,614	-130,874	2.387.798,932	0,000	4806409,610
Rata-rata		141,146	141,787	-0,642	11.704,897	0,000	23560,831
NSE =	0,503						
RMSE =	108,189						

(Sumber : Hasil Perhitungan)

Lampiran 3.26 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier pada Pos Hujan Kabul

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	358,000	284,799	73,201	5358,458	255,715	65389,936
2	Feb-01	210,700	215,202	-4,502	20,272	108,415	11753,717
3	Mar-01	263,500	268,968	-5,468	29,895	161,215	25990,134
4	Apr-01	185,300	151,362	33,938	1151,803	83,015	6891,417
5	May-01	189,300	162,511	26,789	717,635	87,015	7571,533
6	Jun-01	0,000	39,855	-39,855	1588,409	-102,285	10462,311
7	Jul-01	0,000	14,642	-14,642	214,386	-102,285	10462,311
8	Aug-01	7,000	10,264	-3,264	10,654	-95,285	9079,315
9	Sep-01	0,000	6,027	-6,027	36,323	-102,285	10462,311
10	Oct-01	131,000	96,035	34,965	1222,559	28,715	824,526
11	Nov-01	442,500	180,353	262,147	68720,893	340,215	115745,946
12	Dec-01	117,500	107,789	9,711	94,295	15,215	231,483
13	Jan-02	305,500	136,059	169,441	28710,322	203,215	41296,157
14	Feb-02	90,000	93,943	-3,943	15,545	-12,285	150,932
15	Mar-02	133,000	141,888	-8,888	78,995	30,715	943,384
16	Apr-02	179,000	84,624	94,376	8906,746	76,715	5885,124
17	May-02	37,000	73,672	-36,672	1344,837	-65,285	4262,189
18	Jun-02	88,000	109,123	-21,123	446,168	-14,285	204,074
19	Jul-02	0,000	22,558	-22,558	508,870	-102,285	10462,311
20	Aug-02	0,000	6,017	-6,017	36,202	-102,285	10462,311
21	Sep-02	0,000	7,277	-7,277	52,952	-102,285	10462,311
22	Oct-02	0,000	56,648	-56,648	3209,011	-102,285	10462,311
23	Nov-02	107,500	180,495	-72,995	5328,286	5,215	27,192
24	Dec-02	54,200	65,364	-11,164	124,632	-48,085	2312,210
25	Jan-03	212,000	136,108	75,892	5759,666	109,715	12037,284
26	Feb-03	411,500	242,799	168,701	28459,920	309,215	95613,643
27	Mar-03	232,000	122,947	109,053	11892,637	129,715	16825,867
28	Apr-03	184,500	79,862	104,638	10949,078	82,215	6759,234
29	May-03	0,000	41,051	-41,051	1685,211	-102,285	10462,311
30	Jun-03	0,000	12,054	-12,054	145,299	-102,285	10462,311
31	Jul-03	0,000	16,709	-16,709	279,188	-102,285	10462,311
32	Aug-03	0,000	5,724	-5,724	32,763	-102,285	10462,311
33	Sep-03	0,000	8,719	-8,719	76,012	-102,285	10462,311
34	Oct-03	0,000	19,374	-19,374	375,354	-102,285	10462,311
35	Nov-03	140,300	187,109	-46,809	2191,125	38,015	1445,107
36	Dec-03	202,100	218,404	-16,304	265,827	99,815	9962,946
37	Jan-04	147,900	204,567	-56,667	3211,132	45,615	2080,688
38	Feb-04	113,400	183,246	-69,846	4878,465	11,115	123,533
39	Mar-04	81,300	87,333	-6,033	36,392	-20,985	440,389
40	Apr-04	63,000	75,620	-12,620	159,254	-39,285	1543,346
41	May-04	12,000	76,464	-64,464	4155,634	-90,285	8151,461
42	Jun-04	4,000	47,821	-43,821	1920,243	-98,285	9660,028
43	Jul-04	9,000	9,812	-0,812	0,659	-93,285	8702,174
44	Aug-04	0,000	4,340	-4,340	18,834	-102,285	10462,311
45	Sep-04	136,500	22,014	114,486	13106,994	34,215	1170,636
46	Oct-04	0,000	16,797	-16,797	282,148	-102,285	10462,311
47	Nov-04	89,500	187,972	-98,472	9696,773	-12,785	163,468
48	Dec-04	234,500	205,038	29,462	868,038	132,215	17480,690
49	Jan-05	83,000	111,593	-28,593	817,534	-19,285	371,928
50	Feb-05	104,500	193,586	-89,086	7936,279	2,215	4,904

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	95,500	118,485	-22,985	528,318	-6,785	46,042
52	Apr-05	5,000	31,064	-26,064	679,356	-97,285	9464,457
53	May-05	47,500	118,752	-71,252	5076,810	-54,785	3001,445
54	Jun-05	0,000	16,107	-16,107	259,429	-102,285	10462,311
55	Jul-05	0,000	9,905	-9,905	98,114	-102,285	10462,311
56	Aug-05	0,000	4,105	-4,105	16,849	-102,285	10462,311
57	Sep-05	0,000	14,802	-14,802	219,095	-102,285	10462,311
58	Oct-05	0,000	58,160	-58,160	3382,575	-102,285	10462,311
59	Nov-05	186,000	183,862	2,138	4,572	83,715	7008,127
60	Dec-05	200,400	218,600	-18,200	331,232	98,115	9626,467
61	Jan-06	62,000	52,472	9,528	90,783	-40,285	1622,917
62	Feb-06	108,500	116,028	-7,528	56,672	6,215	38,621
63	Mar-06	181,000	138,612	42,388	1796,705	78,715	6195,982
64	Apr-06	118,000	104,911	13,089	171,317	15,715	246,947
65	May-06	47,500	19,290	28,210	795,823	-54,785	3001,445
66	Jun-06	37,500	27,490	10,010	100,198	-64,785	4197,153
67	Jul-06	48,000	33,559	14,441	208,529	-54,285	2946,909
68	Aug-06	30,000	9,107	20,893	436,520	-72,285	5225,185
69	Sep-06	10,500	19,252	-8,752	76,590	-91,785	8424,567
70	Oct-06	69,400	95,111	-25,711	661,067	-32,885	1081,452
71	Nov-06	76,200	118,237	-42,037	1767,114	-26,085	680,450
72	Dec-06	232,700	264,485	-31,785	1010,284	130,415	17007,957
73	Jan-07	339,000	202,493	136,507	18634,075	236,715	56033,782
74	Feb-07	230,600	150,065	80,535	6485,850	128,315	16464,626
75	Mar-07	337,700	263,500	74,200	5505,676	235,415	55420,015
76	Apr-07	221,100	106,994	114,106	13020,074	118,815	14116,899
77	May-07	20,400	113,010	-92,610	8576,675	-81,885	6705,225
78	Jun-07	57,000	32,421	24,579	604,148	-45,285	2050,771
79	Jul-07	0,000	18,536	-18,536	343,572	-102,285	10462,311
80	Aug-07	0,000	4,018	-4,018	16,144	-102,285	10462,311
81	Sep-07	0,000	6,490	-6,490	42,117	-102,285	10462,311
82	Oct-07	58,200	18,947	39,253	1540,790	-44,085	1943,526
83	Nov-07	22,100	42,817	-20,717	429,182	-80,185	6429,705
84	Dec-07	131,400	223,649	-92,249	8509,829	29,115	847,658
85	Jan-08	84,500	65,662	18,838	354,883	-17,785	316,322
86	Feb-08	75,100	150,832	-75,732	5735,291	-27,185	739,048
87	Mar-08	61,900	276,522	-214,622	46062,626	-40,385	1630,984
88	Apr-08	208,500	130,034	78,466	6156,900	106,215	11281,533
89	May-08	53,500	88,081	-34,581	1195,859	-48,785	2380,019
90	Jun-08	8,200	30,343	-22,143	490,302	-94,085	8852,070
91	Jul-08	32,000	11,881	20,119	404,757	-70,285	4940,043
92	Aug-08	5,500	6,156	-0,656	0,431	-96,785	9367,422
93	Sep-08	0,000	5,367	-5,367	28,806	-102,285	10462,311
94	Oct-08	7,800	35,177	-27,377	749,498	-94,485	8927,499
95	Nov-08	48,500	119,265	-70,765	5007,629	-53,785	2892,874
96	Dec-08	117,500	288,947	-171,447	29394,160	15,215	231,483
97	Jan-09	112,900	109,381	3,519	12,381	10,615	112,669
98	Feb-09	149,500	208,128	-58,628	3437,253	47,215	2229,215
99	Mar-09	316,400	297,930	18,470	341,146	214,115	45845,044
100	Apr-09	103,600	88,578	15,022	225,672	1,315	1,728

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	15,100	54,858	-39,758	1580,692	-87,185	7601,301
102	Jun-09	0,000	27,561	-27,561	759,623	-102,285	10462,311
103	Jul-09	0,000	11,899	-11,899	141,589	-102,285	10462,311
104	Aug-09	2,300	15,673	-13,373	178,829	-99,985	9997,088
105	Sep-09	11,100	13,930	-2,830	8,008	-91,185	8314,785
106	Oct-09	3,500	51,755	-48,255	2328,531	-98,785	9758,563
107	Nov-09	54,800	174,078	-119,278	14227,355	-47,485	2254,867
108	Dec-09	75,200	155,620	-80,420	6467,406	-27,085	733,621
109	Jan-10	405,000	269,573	135,427	18340,497	302,715	91636,104
110	Feb-10	286,800	243,424	43,376	1881,518	184,515	34045,622
111	Mar-10	116,400	131,893	-15,493	240,033	14,115	199,221
112	Apr-10	20,500	67,840	-47,340	2241,119	-81,785	6688,858
113	May-10	10,000	146,136	-136,136	18533,088	-92,285	8516,603
114	Jun-10	0,000	19,017	-19,017	361,653	-102,285	10462,311
115	Jul-10	0,000	17,720	-17,720	314,010	-102,285	10462,311
116	Aug-10	0,000	4,171	-4,171	17,400	-102,285	10462,311
117	Sep-10	12,800	27,599	-14,799	219,025	-89,485	8007,644
118	Oct-10	36,200	39,406	-3,206	10,278	-66,085	4367,286
119	Nov-10	50,500	62,614	-12,114	146,747	-51,785	2681,732
120	Dec-10	110,400	151,435	-41,035	1683,912	8,115	65,846
121	Jan-11	115,900	195,283	-79,383	6301,652	13,615	185,356
122	Feb-11	99,000	150,675	-51,675	2670,255	-3,285	10,794
123	Mar-11	128,800	180,135	-51,335	2635,285	26,515	703,022
124	Apr-11	122,100	241,007	-118,907	14138,940	19,815	392,617
125	May-11	117,700	124,519	-6,819	46,499	15,415	237,609
126	Jun-11	1,100	17,209	-16,109	259,485	-101,185	10238,494
127	Jul-11	19,700	14,185	5,515	30,416	-82,585	6820,355
128	Aug-11	0,000	4,340	-4,340	18,834	-102,285	10462,311
129	Sep-11	0,000	6,265	-6,265	39,255	-102,285	10462,311
130	Oct-11	25,200	23,780	1,420	2,018	-77,085	5942,165
131	Nov-11	57,500	139,437	-81,937	6713,663	-44,785	2005,736
132	Dec-11	209,400	222,097	-12,697	161,223	107,115	11473,529
133	Jan-12	115,300	287,279	-171,979	29576,739	13,015	169,379
134	Feb-12	111,900	166,869	-54,969	3021,610	9,615	92,440
135	Mar-12	156,300	223,875	-67,575	4566,330	54,015	2917,573
136	Apr-12	27,300	54,186	-26,886	722,859	-74,985	5622,816
137	May-12	170,700	126,058	44,642	1992,874	68,415	4680,552
138	Jun-12	0,500	13,663	-13,163	173,276	-101,785	10360,276
139	Jul-12	1,700	11,954	-10,254	105,143	-100,585	10117,431
140	Aug-12	0,700	4,094	-3,394	11,520	-101,585	10319,602
141	Sep-12	4,800	7,356	-2,556	6,534	-97,485	9503,411
142	Oct-12	29,200	24,129	5,071	25,710	-73,085	5341,482
143	Nov-12	245,900	118,110	127,790	16330,319	143,615	20625,142
144	Dec-12	132,500	232,572	-100,072	10014,394	30,215	912,920
145	Jan-13	219,000	283,692	-64,692	4185,102	116,715	13622,288
146	Feb-13	211,000	190,463	20,537	421,778	108,715	11818,855
147	Mar-13	138,300	123,549	14,751	217,595	36,015	1297,048
148	Apr-13	249,500	103,935	145,565	21189,269	147,215	21672,126
149	May-13	117,300	141,539	-24,239	587,542	15,015	225,437
150	Jun-13	80,000	101,844	-21,844	477,163	-22,285	496,641

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,700	47,853	-46,153	2130,059	-100,585	10117,431
152	Aug-13	0,000	3,683	-3,683	13,564	-102,285	10462,311
153	Sep-13	1,000	8,314	-7,314	53,498	-101,285	10258,741
154	Oct-13	78,900	41,202	37,698	1421,141	-23,385	546,879
155	Nov-13	60,300	173,862	-113,562	12896,369	-41,985	1762,777
156	Dec-13	271,830	314,274	-42,444	1801,476	169,545	28745,357
157	Jan-14	197,500	246,435	-48,935	2394,594	95,215	9065,812
158	Feb-14	173,900	134,408	39,492	1559,646	71,615	5128,645
159	Mar-14	131,700	93,822	37,878	1434,710	29,415	865,216
160	Apr-14	102,000	115,453	-13,453	180,978	-0,285	0,081
161	May-14	54,700	31,736	22,964	527,336	-47,585	2264,374
162	Jun-14	0,000	19,283	-19,283	371,815	-102,285	10462,311
163	Jul-14	24,100	22,716	1,384	1,917	-78,185	6112,963
164	Aug-14	2,900	3,481	-0,581	0,338	-99,385	9877,466
165	Sep-14	0,500	6,513	-6,013	36,159	-101,785	10360,276
166	Oct-14	0,000	9,063	-9,063	82,139	-102,285	10462,311
167	Nov-14	206,400	111,300	95,100	9044,079	104,115	10839,841
168	Dec-14	404,500	228,942	175,558	30820,448	302,215	91333,640
169	Jan-15	149,800	121,230	28,570	816,237	47,515	2257,633
170	Feb-15	119,300	142,660	-23,360	545,699	17,015	289,495
171	Mar-15	248,500	155,555	92,945	8638,859	146,215	21378,697
172	Apr-15	163,800	163,190	0,610	0,372	61,515	3784,041
173	May-15	79,900	44,454	35,446	1256,397	-22,385	501,108
174	Jun-15	0,000	45,604	-45,604	2079,754	-102,285	10462,311
175	Jul-15	0,600	10,281	-9,681	93,731	-101,685	10339,929
176	Aug-15	3,100	5,010	-1,910	3,647	-99,185	9837,752
177	Sep-15	6,700	5,775	0,925	0,856	-95,585	9136,577
178	Oct-15	0,000	7,987	-7,987	63,786	-102,285	10462,311
179	Nov-15	122,400	49,236	73,164	5353,002	20,115	404,595
180	Dec-15	212,800	221,150	-8,350	69,724	110,515	12213,468
181	Jan-16	277,700	132,591	145,109	21056,599	175,415	30770,267
182	Feb-16	302,700	222,487	80,213	6434,054	200,415	40165,995
183	Mar-16	154,400	137,377	17,023	289,773	52,115	2715,927
184	Apr-16	128,100	59,391	68,709	4720,995	25,815	666,391
185	May-16	20,300	87,039	-66,739	4454,137	-81,985	6721,613
186	Jun-16	224,600	133,010	91,590	8388,680	122,315	14960,851
187	Jul-16	54,500	94,691	-40,191	1615,338	-47,785	2283,448
188	Aug-16	12,100	4,934	7,166	51,359	-90,185	8133,414
189	Sep-16	202,500	79,017	123,483	15248,067	100,215	10042,958
190	Oct-16	184,500	221,981	-37,481	1404,836	82,215	6759,234
191	Nov-16	295,100	190,620	104,480	10916,172	192,815	37177,454
192	Dec-16	262,400	311,275	-48,875	2388,788	160,115	25636,672
193	Jan-17	374,000	206,499	167,501	28056,576	271,715	73828,801
194	Feb-17	418,200	209,896	208,304	43390,465	315,915	99802,008
195	Mar-17	151,400	158,949	-7,549	56,987	49,115	2412,240
196	Apr-17	126,000	97,332	28,668	821,834	23,715	562,380
197	May-17	5,900	48,356	-42,456	1802,511	-96,385	9290,153
198	Jun-17	80,000	103,447	-23,447	549,759	-22,285	496,641
199	Jul-17	58,600	21,728	36,872	1359,510	-43,685	1908,418
200	Aug-17	5,700	3,711	1,989	3,957	-96,585	9328,747
201	Sep-17	8,700	7,493	1,207	1,457	-93,585	8758,235
202	Oct-17	97,200	82,156	15,044	226,310	-5,085	25,862
203	Nov-17	374,500	282,467	92,033	8469,998	272,215	74100,766
204	Dec-17	390,800	264,818	125,982	15871,557	288,515	83240,651
Jumlah		20866,230	20866,197	0,033	875798,928	0,000	2387202,248
Rata-rata		102,285	102,285	0,000	4293,132	0,000	11701,972
NSE	0,633						
RMSE	65,522						

(Sumber : Hasil Perhitungan)

Lampiran 3.27 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier *Intercept* pada Pos Hujan Kabul

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	358,000	284,072	73,928	5465,420	255,715	65389,936
2	Feb-01	210,700	214,932	-4,232	17,913	108,415	11753,717
3	Mar-01	263,500	268,345	-4,845	23,469	161,215	25990,134
4	Apr-01	185,300	151,511	33,789	1141,709	83,015	6891,417
5	May-01	189,300	162,587	26,713	713,577	87,015	7571,533
6	Jun-01	0,000	40,736	-40,736	1659,418	-102,285	10462,311
7	Jul-01	0,000	15,689	-15,689	246,131	-102,285	10462,311
8	Aug-01	7,000	11,339	-4,339	18,831	-95,285	9079,315
9	Sep-01	0,000	7,130	-7,130	50,838	-102,285	10462,311
10	Oct-01	131,000	96,547	34,453	1186,999	28,715	824,526
11	Nov-01	442,500	180,312	262,188	68742,545	340,215	115745,946
12	Dec-01	117,500	108,225	9,275	86,035	15,215	231,483
13	Jan-02	305,500	136,308	169,192	28625,832	203,215	41296,157
14	Feb-02	90,000	94,469	-4,469	19,970	-12,285	150,932
15	Mar-02	133,000	142,099	-9,099	82,795	30,715	943,384
16	Apr-02	179,000	85,212	93,788	8796,260	76,715	5885,124
17	May-02	37,000	74,331	-37,331	1393,612	-65,285	4262,189
18	Jun-02	88,000	109,549	-21,549	464,360	-14,285	204,074
19	Jul-02	0,000	23,553	-23,553	554,735	-102,285	10462,311
20	Aug-02	0,000	7,120	-7,120	50,695	-102,285	10462,311
21	Sep-02	0,000	8,372	-8,372	70,087	-102,285	10462,311
22	Oct-02	0,000	57,419	-57,419	3296,939	-102,285	10462,311
23	Nov-02	107,500	180,453	-72,953	5322,123	5,215	27,192
24	Dec-02	54,200	66,078	-11,878	141,075	-48,085	2312,210
25	Jan-03	212,000	136,357	75,643	5721,906	109,715	12037,284
26	Feb-03	411,500	242,348	169,152	28612,379	309,215	95613,643
27	Mar-03	232,000	123,282	108,718	11819,556	129,715	16825,867
28	Apr-03	184,500	80,481	104,019	10820,035	82,215	6759,234
29	May-03	0,000	41,925	-41,925	1757,669	-102,285	10462,311
30	Jun-03	0,000	13,118	-13,118	172,072	-102,285	10462,311
31	Jul-03	0,000	17,742	-17,742	314,777	-102,285	10462,311
32	Aug-03	0,000	6,829	-6,829	46,636	-102,285	10462,311
33	Sep-03	0,000	9,804	-9,804	96,119	-102,285	10462,311
34	Oct-03	0,000	20,390	-20,390	415,736	-102,285	10462,311
35	Nov-03	140,300	187,024	-46,724	2183,114	38,015	1445,107
36	Dec-03	202,100	218,113	-16,013	256,419	99,815	9962,946
37	Jan-04	147,900	204,367	-56,467	3188,476	45,615	2080,688
38	Feb-04	113,400	183,186	-69,786	4870,047	11,115	123,533
39	Mar-04	81,300	87,902	-6,602	43,586	-20,985	440,389
40	Apr-04	63,000	76,266	-13,266	175,984	-39,285	1543,346
41	May-04	12,000	77,105	-65,105	4238,655	-90,285	8151,461
42	Jun-04	4,000	48,649	-44,649	1993,567	-98,285	9660,028
43	Jul-04	9,000	10,890	-1,890	3,573	-93,285	8702,174
44	Aug-04	0,000	5,454	-5,454	29,746	-102,285	10462,311
45	Sep-04	136,500	23,012	113,488	12879,426	34,215	1170,636
46	Oct-04	0,000	17,830	-17,830	317,899	-102,285	10462,311
47	Nov-04	89,500	187,881	-98,381	9678,797	-12,785	163,468
48	Dec-04	234,500	204,834	29,666	880,062	132,215	17480,690
49	Jan-05	83,000	112,003	-29,003	841,155	-19,285	371,928
50	Feb-05	104,500	193,458	-88,958	7913,459	2,215	4,904

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	95,500	118,850	-23,350	545,225	-6,785	46,042
52	Apr-05	5,000	32,003	-27,003	729,177	-97,285	9464,457
53	May-05	47,500	119,115	-71,615	5128,689	-54,785	3001,445
54	Jun-05	0,000	17,144	-17,144	293,910	-102,285	10462,311
55	Jul-05	0,000	10,983	-10,983	120,625	-102,285	10462,311
56	Aug-05	0,000	5,221	-5,221	27,254	-102,285	10462,311
57	Sep-05	0,000	15,847	-15,847	251,141	-102,285	10462,311
58	Oct-05	0,000	58,921	-58,921	3471,664	-102,285	10462,311
59	Nov-05	186,000	183,798	2,202	4,851	83,715	7008,127
60	Dec-05	200,400	218,307	-17,907	320,675	98,115	9626,467
61	Jan-06	62,000	53,270	8,730	76,209	-40,285	1622,917
62	Feb-06	108,500	116,409	-7,909	62,554	6,215	38,621
63	Mar-06	181,000	138,845	42,155	1777,029	78,715	6195,982
64	Apr-06	118,000	105,365	12,635	159,639	15,715	246,947
65	May-06	47,500	20,306	27,194	739,525	-54,785	3001,445
66	Jun-06	37,500	28,452	9,048	81,859	-64,785	4197,153
67	Jul-06	48,000	34,482	13,518	182,739	-54,285	2946,909
68	Aug-06	30,000	10,190	19,810	392,441	-72,285	5225,185
69	Sep-06	10,500	20,268	-9,768	95,413	-91,785	8424,567
70	Oct-06	69,400	95,630	-26,230	687,989	-32,885	1081,452
71	Nov-06	76,200	118,604	-42,404	1798,062	-26,085	680,450
72	Dec-06	232,700	263,891	-31,191	972,899	130,415	17007,957
73	Jan-07	339,000	202,307	136,693	18685,067	236,715	56033,782
74	Feb-07	230,600	150,223	80,377	6460,498	128,315	16464,626
75	Mar-07	337,700	262,913	74,787	5593,155	235,415	55420,015
76	Apr-07	221,100	107,435	113,665	12919,782	118,815	14116,899
77	May-07	20,400	113,411	-93,011	8651,076	-81,885	6705,225
78	Jun-07	57,000	33,350	23,650	559,300	-45,285	2050,771
79	Jul-07	0,000	19,557	-19,557	382,466	-102,285	10462,311
80	Aug-07	0,000	5,134	-5,134	26,361	-102,285	10462,311
81	Sep-07	0,000	7,590	-7,590	57,607	-102,285	10462,311
82	Oct-07	58,200	19,965	38,235	1461,880	-44,085	1943,526
83	Nov-07	22,100	43,678	-21,578	465,626	-80,185	6429,705
84	Dec-07	131,400	223,323	-91,923	8449,875	29,115	847,658
85	Jan-08	84,500	66,373	18,127	328,576	-17,785	316,322
86	Feb-08	75,100	150,984	-75,884	5758,415	-27,185	739,048
87	Mar-08	61,900	275,849	-213,949	45774,345	-40,385	1630,984
88	Apr-08	208,500	130,323	78,177	6111,622	106,215	11281,533
89	May-08	53,500	88,646	-35,146	1235,219	-48,785	2380,019
90	Jun-08	8,200	31,286	-23,086	532,978	-94,085	8852,070
91	Jul-08	32,000	12,946	19,054	363,048	-70,285	4940,043
92	Aug-08	5,500	7,259	-1,759	3,093	-96,785	9367,422
93	Sep-08	0,000	6,475	-6,475	41,921	-102,285	10462,311
94	Oct-08	7,800	36,089	-28,289	800,254	-94,485	8927,499
95	Nov-08	48,500	119,624	-71,124	5058,675	-53,785	2892,874
96	Dec-08	117,500	288,193	-170,693	29136,109	15,215	231,483
97	Jan-09	112,900	109,806	3,094	9,573	10,615	112,669
98	Feb-09	149,500	207,904	-58,404	3411,080	47,215	2229,215
99	Mar-09	316,400	297,117	19,283	371,847	214,115	45845,044
100	Apr-09	103,600	89,139	14,461	209,125	1,315	1,728

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	15,100	55,641	-40,541	1643,533	-87,185	7601,301
102	Jun-09	0,000	28,523	-28,523	813,565	-102,285	10462,311
103	Jul-09	0,000	12,964	-12,964	168,058	-102,285	10462,311
104	Aug-09	2,300	16,713	-14,413	207,721	-99,985	9997,088
105	Sep-09	11,100	14,981	-3,881	15,063	-91,185	8314,785
106	Oct-09	3,500	52,558	-49,058	2406,670	-98,785	9758,563
107	Nov-09	54,800	174,078	-119,278	14227,331	-47,485	2254,867
108	Dec-09	75,200	155,741	-80,541	6486,896	-27,085	733,621
109	Jan-10	405,000	268,946	136,054	18510,724	302,715	91636,104
110	Feb-10	286,800	242,968	43,832	1921,229	184,515	34045,622
111	Mar-10	116,400	132,170	-15,770	248,688	14,115	199,221
112	Apr-10	20,500	68,538	-48,038	2307,632	-81,785	6688,858
113	May-10	10,000	146,320	-136,320	18583,042	-92,285	8516,603
114	Jun-10	0,000	20,035	-20,035	401,404	-102,285	10462,311
115	Jul-10	0,000	18,747	-18,747	351,440	-102,285	10462,311
116	Aug-10	0,000	5,287	-5,287	27,949	-102,285	10462,311
117	Sep-10	12,800	28,561	-15,761	248,411	-89,485	8007,644
118	Oct-10	36,200	40,290	-4,090	16,728	-66,085	4367,286
119	Nov-10	50,500	63,346	-12,846	165,009	-51,785	2681,732
120	Dec-10	110,400	151,584	-41,184	1696,126	8,115	65,846
121	Jan-11	115,900	195,144	-79,244	6279,554	13,615	185,356
122	Feb-11	99,000	150,828	-51,828	2686,148	-3,285	10,794
123	Mar-11	128,800	180,095	-51,295	2631,194	26,515	703,022
124	Apr-11	122,100	240,568	-118,468	14034,615	19,815	392,617
125	May-11	117,700	124,844	-7,144	51,041	15,415	237,609
126	Jun-11	1,100	18,238	-17,138	293,721	-101,185	10238,494
127	Jul-11	19,700	15,235	4,465	19,940	-82,585	6820,355
128	Aug-11	0,000	5,454	-5,454	29,746	-102,285	10462,311
129	Sep-11	0,000	7,367	-7,367	54,273	-102,285	10462,311
130	Oct-11	25,200	24,766	0,434	0,188	-77,085	5942,165
131	Nov-11	57,500	139,664	-82,164	6750,968	-44,785	2005,736
132	Dec-11	209,400	221,782	-12,382	153,314	107,115	11473,529
133	Jan-12	115,300	286,536	-171,236	29321,637	13,015	169,379
134	Feb-12	111,900	166,916	-55,016	3026,804	9,615	92,440
135	Mar-12	156,300	223,548	-67,248	4522,241	54,015	2917,573
136	Apr-12	27,300	54,973	-27,673	765,797	-74,985	5622,816
137	May-12	170,700	126,374	44,326	1964,835	68,415	4680,552
138	Jun-12	0,500	14,716	-14,216	202,108	-101,785	10360,276
139	Jul-12	1,700	13,018	-11,318	128,102	-100,585	10117,431
140	Aug-12	0,700	5,210	-4,510	20,340	-101,585	10319,602
141	Sep-12	4,800	8,451	-3,651	13,327	-97,485	9503,411
142	Oct-12	29,200	25,114	4,086	16,697	-73,085	5341,482
143	Nov-12	245,900	118,477	127,423	16236,569	143,615	20625,142
144	Dec-12	132,500	232,188	-99,688	9937,663	30,215	912,920
145	Jan-13	219,000	282,973	-63,973	4092,498	116,715	13622,288
146	Feb-13	211,000	190,355	20,645	426,211	108,715	11818,855
147	Mar-13	138,300	123,881	14,419	207,921	36,015	1297,048
148	Apr-13	249,500	104,395	145,105	21055,443	147,215	21672,126
149	May-13	117,300	141,753	-24,453	597,939	15,015	225,437
150	Jun-13	80,000	102,318	-22,318	498,102	-22,285	496,641

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,700	48,681	-46,981	2207,229	-100,585	10117,431
152	Aug-13	0,000	4,802	-4,802	23,055	-102,285	10462,311
153	Sep-13	1,000	9,402	-8,402	70,601	-101,285	10258,741
154	Oct-13	78,900	42,074	36,826	1356,138	-23,385	546,879
155	Nov-13	60,300	173,864	-113,564	12896,669	-41,985	1762,777
156	Dec-13	271,830	313,353	-41,523	1724,185	169,545	28745,357
157	Jan-14	197,500	245,959	-48,459	2348,319	95,215	9065,812
158	Feb-14	173,900	134,668	39,232	1539,151	71,615	5128,645
159	Mar-14	131,700	94,349	37,351	1395,080	29,415	865,216
160	Apr-14	102,000	115,838	-13,838	191,479	-0,285	0,081
161	May-14	54,700	32,671	22,029	485,295	-47,585	2264,374
162	Jun-14	0,000	20,299	-20,299	412,036	-102,285	10462,311
163	Jul-14	24,100	23,709	0,391	0,153	-78,185	6112,963
164	Aug-14	2,900	4,601	-1,701	2,894	-99,385	9877,466
165	Sep-14	0,500	7,613	-7,113	50,598	-101,785	10360,276
166	Oct-14	0,000	10,146	-10,146	102,948	-102,285	10462,311
167	Nov-14	206,400	111,712	94,688	8965,877	104,115	10839,841
168	Dec-14	404,500	228,582	175,918	30947,081	302,215	91333,640
169	Jan-15	149,800	121,577	28,223	796,538	47,515	2257,633
170	Feb-15	119,300	142,866	-23,566	555,373	17,015	289,495
171	Mar-15	248,500	155,676	92,824	8616,286	146,215	21378,697
172	Apr-15	163,800	163,261	0,539	0,290	61,515	3784,041
173	May-15	79,900	45,305	34,595	1196,800	-22,385	501,108
174	Jun-15	0,000	46,448	-46,448	2157,386	-102,285	10462,311
175	Jul-15	0,600	11,357	-10,757	115,707	-101,685	10339,929
176	Aug-15	3,100	6,120	-3,020	9,118	-99,185	9837,752
177	Sep-15	6,700	6,880	-0,180	0,032	-95,585	9136,577
178	Oct-15	0,000	9,077	-9,077	82,391	-102,285	10462,311
179	Nov-15	122,400	50,055	72,345	5233,756	20,115	404,595
180	Dec-15	212,800	220,841	-8,041	64,657	110,515	12213,468
181	Jan-16	277,700	132,863	144,837	20977,656	175,415	30770,267
182	Feb-16	302,700	222,170	80,530	6485,155	200,415	40165,995
183	Mar-16	154,400	137,618	16,782	281,631	52,115	2715,927
184	Apr-16	128,100	60,143	67,957	4618,107	25,815	666,391
185	May-16	20,300	87,611	-67,311	4530,723	-81,985	6721,613
186	Jun-16	224,600	133,280	91,320	8339,382	122,315	14960,851
187	Jul-16	54,500	95,212	-40,712	1657,496	-47,785	2283,448
188	Aug-16	12,100	6,044	6,056	36,677	-90,185	8133,414
189	Sep-16	202,500	79,641	122,859	15094,352	100,215	10042,958
190	Oct-16	184,500	221,667	-37,167	1381,352	82,215	6759,234
191	Nov-16	295,100	190,511	104,589	10938,896	192,815	37177,454
192	Dec-16	262,400	310,374	-47,974	2301,545	160,115	25636,672
193	Jan-17	374,000	206,286	167,714	28127,958	271,715	73828,801
194	Feb-17	418,200	209,661	208,539	43488,526	315,915	99802,008
195	Mar-17	151,400	159,048	-7,648	58,495	49,115	2412,240
196	Apr-17	126,000	97,836	28,164	793,205	23,715	562,380
197	May-17	5,900	49,181	-43,281	1873,268	-96,385	9290,153
198	Jun-17	80,000	103,911	-23,911	571,714	-22,285	496,641
199	Jul-17	58,600	22,729	35,871	1286,760	-43,685	1908,418
200	Aug-17	5,700	4,829	0,871	0,758	-96,585	9328,747
201	Sep-17	8,700	8,586	0,114	0,013	-93,585	8758,235
202	Oct-17	97,200	82,760	14,440	208,520	-5,085	25,862
203	Nov-17	374,500	281,756	92,744	8601,501	272,215	74100,766
204	Dec-17	390,800	264,222	126,578	16022,036	288,515	83240,651
Jumlah		20866,230	20962,328	-96,098	875909,366	0,000	2387202,248
Rata-rata		102,285	102,757	-0,471	4293,673	0,000	11701,972
NSE	0,633						
RMSE	65,526						

(Sumber : Hasil Perhitungan)

Lampiran 3.28 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 pada Pos Hujan Kabul

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	358,000	271,214	86,786	7531,769	255,715	65389,936
2	Feb-01	210,700	218,197	-7,497	56,200	108,415	11753,717
3	Mar-01	263,500	260,035	3,465	12,007	161,215	25990,134
4	Apr-01	185,300	160,752	24,548	602,626	83,015	6891,417
5	May-01	189,300	171,392	17,908	320,703	87,015	7571,533
6	Jun-01	0,000	40,190	-40,190	1615,231	-102,285	10462,311
7	Jul-01	0,000	9,364	-9,364	87,682	-102,285	10462,311
8	Aug-01	7,000	3,877	3,123	9,750	-95,285	9079,315
9	Sep-01	0,000	-1,471	1,471	2,163	-102,285	10462,311
10	Oct-01	131,000	104,147	26,853	721,072	28,715	824,526
11	Nov-01	442,500	187,884	254,616	64829,406	340,215	115745,946
12	Dec-01	117,500	116,703	0,797	0,635	15,215	231,483
13	Jan-02	305,500	145,729	159,771	25526,833	203,215	41296,157
14	Feb-02	90,000	101,883	-11,883	141,195	-12,285	150,932
15	Mar-02	133,000	151,508	-18,508	342,558	30,715	943,384
16	Apr-02	179,000	91,686	87,314	7623,805	76,715	5885,124
17	May-02	37,000	79,471	-42,471	1803,773	-65,285	4262,189
18	Jun-02	88,000	118,109	-30,109	906,554	-14,285	204,074
19	Jul-02	0,000	19,184	-19,184	368,031	-102,285	10462,311
20	Aug-02	0,000	-1,483	1,483	2,200	-102,285	10462,311
21	Sep-02	0,000	0,111	-0,111	0,012	-102,285	10462,311
22	Oct-02	0,000	59,992	-59,992	3599,062	-102,285	10462,311
23	Nov-02	107,500	188,012	-80,512	6482,222	5,215	27,192
24	Dec-02	54,200	70,040	-15,840	250,893	-48,085	2312,210
25	Jan-03	212,000	145,777	66,223	4385,429	109,715	12037,284
26	Feb-03	411,500	240,419	171,081	29268,841	309,215	95613,643
27	Mar-03	232,000	132,471	99,529	9905,952	129,715	16825,867
28	Apr-03	184,500	86,405	98,095	9622,644	82,215	6759,234
29	May-03	0,000	41,620	-41,620	1732,232	-102,285	10462,311
30	Jun-03	0,000	6,125	-6,125	37,521	-102,285	10462,311
31	Jul-03	0,000	11,941	-11,941	142,576	-102,285	10462,311
32	Aug-03	0,000	-1,854	1,854	3,439	-102,285	10462,311
33	Sep-03	0,000	1,931	-1,931	3,729	-102,285	10462,311
34	Oct-03	0,000	15,250	-15,250	232,556	-102,285	10462,311
35	Nov-03	140,300	193,957	-53,657	2879,057	38,015	1445,107
36	Dec-03	202,100	220,856	-18,756	351,773	99,815	9962,946
37	Jan-04	147,900	209,212	-61,312	3759,146	45,615	2080,688
38	Feb-04	113,400	190,496	-77,096	5943,731	11,115	123,533
39	Mar-04	81,300	94,668	-13,368	178,691	-20,985	440,389
40	Apr-04	63,000	81,661	-18,661	348,234	-39,285	1543,346
41	May-04	12,000	82,608	-70,608	4985,547	-90,285	8151,461
42	Jun-04	4,000	49,656	-45,656	2084,441	-98,285	9660,028
43	Jul-04	9,000	3,308	5,692	32,394	-93,285	8702,174
44	Aug-04	0,000	-3,610	3,610	13,034	-102,285	10462,311
45	Sep-04	136,500	18,514	117,986	13920,810	34,215	1170,636
46	Oct-04	0,000	12,050	-12,050	145,214	-102,285	10462,311
47	Nov-04	89,500	194,726	-105,226	11072,418	-12,785	163,468
48	Dec-04	234,500	209,614	24,886	619,291	132,215	17480,690
49	Jan-05	83,000	120,704	-37,704	1421,599	-19,285	371,928
50	Feb-05	104,500	199,690	-95,190	9061,083	2,215	4,904

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	95,500	127,879	-32,379	1048,423	-6,785	46,042
52	Apr-05	5,000	29,592	-24,592	604,761	-97,285	9464,457
53	May-05	47,500	128,155	-80,655	6505,209	-54,785	3001,445
54	Jun-05	0,000	11,191	-11,191	125,235	-102,285	10462,311
55	Jul-05	0,000	3,426	-3,426	11,737	-102,285	10462,311
56	Aug-05	0,000	-3,909	3,909	15,279	-102,285	10462,311
57	Sep-05	0,000	9,564	-9,564	91,462	-102,285	10462,311
58	Oct-05	0,000	61,746	-61,746	3812,594	-102,285	10462,311
59	Nov-05	186,000	191,049	-5,049	25,496	83,715	7008,127
60	Dec-05	200,400	221,017	-20,617	425,075	98,115	9626,467
61	Jan-06	62,000	55,122	6,878	47,303	-40,285	1622,917
62	Feb-06	108,500	125,333	-16,833	283,343	6,215	38,621
63	Mar-06	181,000	148,269	32,731	1071,294	78,715	6195,982
64	Apr-06	118,000	113,655	4,345	18,879	15,715	246,947
65	May-06	47,500	15,145	32,355	1046,831	-54,785	3001,445
66	Jun-06	37,500	25,237	12,263	150,386	-64,785	4197,153
67	Jul-06	48,000	32,616	15,384	236,661	-54,285	2946,909
68	Aug-06	30,000	2,421	27,579	760,624	-72,285	5225,185
69	Sep-06	10,500	15,098	-4,598	21,142	-91,785	8424,567
70	Oct-06	69,400	103,148	-33,748	1138,959	-32,885	1081,452
71	Nov-06	76,200	127,623	-51,423	2644,301	-26,085	680,450
72	Dec-06	232,700	256,775	-24,075	579,612	130,415	17007,957
73	Jan-07	339,000	207,433	131,567	17309,894	236,715	56033,782
74	Feb-07	230,600	159,498	71,102	5055,560	128,315	16464,626
75	Mar-07	337,700	256,053	81,647	6666,210	235,415	55420,015
76	Apr-07	221,100	115,863	105,237	11074,864	118,815	14116,899
77	May-07	20,400	122,188	-101,788	10360,809	-81,885	6705,225
78	Jun-07	57,000	31,237	25,763	663,717	-45,285	2050,771
79	Jul-07	0,000	14,210	-14,210	201,935	-102,285	10462,311
80	Aug-07	0,000	-4,019	4,019	16,154	-102,285	10462,311
81	Sep-07	0,000	-0,885	0,885	0,782	-102,285	10462,311
82	Oct-07	58,200	14,721	43,479	1890,456	-44,085	1943,526
83	Nov-07	22,100	43,725	-21,625	467,635	-80,185	6429,705
84	Dec-07	131,400	225,165	-93,765	8791,916	29,115	847,658
85	Jan-08	84,500	70,380	14,120	199,371	-17,785	316,322
86	Feb-08	75,100	160,239	-85,139	7248,699	-27,185	739,048
87	Mar-08	61,900	265,434	-203,534	41426,208	-40,385	1630,984
88	Apr-08	208,500	139,682	68,818	4735,985	106,215	11281,533
89	May-08	53,500	95,489	-41,989	1763,096	-48,785	2380,019
90	Jun-08	8,200	28,715	-20,515	420,852	-94,085	8852,070
91	Jul-08	32,000	5,909	26,091	680,743	-70,285	4940,043
92	Aug-08	5,500	-1,306	6,806	46,328	-96,785	9367,422
93	Sep-08	0,000	-2,307	2,307	5,320	-102,285	10462,311
94	Oct-08	7,800	34,570	-26,770	716,631	-94,485	8927,499
95	Nov-08	48,500	128,685	-80,185	6429,563	-53,785	2892,874
96	Dec-08	117,500	274,058	-156,558	24510,478	15,215	231,483
97	Jan-09	112,900	118,381	-5,481	30,046	10,615	112,669
98	Feb-09	149,500	212,246	-62,746	3937,112	47,215	2229,215
99	Mar-09	316,400	280,094	36,306	1318,136	214,115	45845,044
100	Apr-09	103,600	96,033	7,567	57,253	1,315	1,728

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	15,100	57,909	-42,809	1832,609	-87,185	7601,301
102	Jun-09	0,000	25,324	-25,324	641,291	-102,285	10462,311
103	Jul-09	0,000	5,931	-5,931	35,178	-102,285	10462,311
104	Aug-09	2,300	10,650	-8,350	69,721	-99,985	9997,088
105	Sep-09	11,100	8,474	2,626	6,895	-91,185	8314,785
106	Oct-09	3,500	54,282	-50,782	2578,850	-98,785	9758,563
107	Nov-09	54,800	182,159	-127,359	16220,276	-47,485	2254,867
108	Dec-09	75,200	164,846	-89,646	8036,372	-27,085	733,621
109	Jan-10	405,000	260,472	144,528	20888,388	302,715	91636,104
110	Feb-10	286,800	240,903	45,897	2106,532	184,515	34045,622
111	Mar-10	116,400	141,555	-25,155	632,794	14,115	199,221
112	Apr-10	20,500	72,866	-52,366	2742,188	-81,785	6688,858
113	May-10	10,000	155,676	-145,676	21221,564	-92,285	8516,603
114	Jun-10	0,000	14,807	-14,807	219,262	-102,285	10462,311
115	Jul-10	0,000	13,198	-13,198	174,190	-102,285	10462,311
116	Aug-10	0,000	-3,824	3,824	14,625	-102,285	10462,311
117	Sep-10	12,800	25,370	-12,570	158,016	-89,485	8007,644
118	Oct-10	36,200	39,653	-3,453	11,921	-66,085	4367,286
119	Nov-10	50,500	66,886	-16,386	268,515	-51,785	2681,732
120	Dec-10	110,400	160,823	-50,423	2542,454	8,115	65,846
121	Jan-11	115,900	201,178	-85,278	7272,285	13,615	185,356
122	Feb-11	99,000	160,087	-61,087	3731,654	-3,285	10,794
123	Mar-11	128,800	187,686	-58,886	3467,564	26,515	703,022
124	Apr-11	122,100	239,023	-116,923	13671,089	19,815	392,617
125	May-11	117,700	134,080	-16,380	268,303	15,415	237,609
126	Jun-11	1,100	12,562	-11,462	131,378	-101,185	10238,494
127	Jul-11	19,700	8,793	10,907	118,961	-82,585	6820,355
128	Aug-11	0,000	-3,610	3,610	13,034	-102,285	10462,311
129	Sep-11	0,000	-1,169	1,169	1,366	-102,285	10462,311
130	Oct-11	25,200	20,688	4,512	20,360	-77,085	5942,165
131	Nov-11	57,500	149,087	-91,587	8388,136	-44,785	2005,736
132	Dec-11	209,400	223,896	-14,496	210,143	107,115	11473,529
133	Jan-12	115,300	272,919	-157,619	24843,697	13,015	169,379
134	Feb-12	111,900	175,481	-63,581	4042,510	9,615	92,440
135	Mar-12	156,300	225,350	-69,050	4767,842	54,015	2917,573
136	Apr-12	27,300	57,125	-29,825	889,556	-74,985	5622,816
137	May-12	170,700	135,650	35,050	1228,519	68,415	4680,552
138	Jun-12	0,500	8,141	-7,641	58,385	-101,785	10360,276
139	Jul-12	1,700	6,000	-4,300	18,489	-100,585	10117,431
140	Aug-12	0,700	-3,922	4,622	21,367	-101,585	10319,602
141	Sep-12	4,800	0,211	4,589	21,057	-97,485	9503,411
142	Oct-12	29,200	21,118	8,082	65,319	-73,085	5341,482
143	Nov-12	245,900	127,491	118,409	14020,647	143,615	20625,142
144	Dec-12	132,500	232,367	-99,867	9973,405	30,215	912,920
145	Jan-13	219,000	270,450	-51,450	2647,098	116,715	13622,288
146	Feb-13	211,000	196,936	14,064	197,795	108,715	11818,855
147	Mar-13	138,300	133,088	5,212	27,164	36,015	1297,048
148	Apr-13	249,500	112,617	136,883	18736,971	147,215	21672,126
149	May-13	117,300	151,165	-33,865	1146,812	15,015	225,437
150	Jun-13	80,000	110,388	-30,388	923,436	-22,285	496,641

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,700	49,693	-47,993	2303,369	-100,585	10117,431
152	Aug-13	0,000	-4,445	4,445	19,757	-102,285	10462,311
153	Sep-13	1,000	1,421	-0,421	0,177	-101,285	10258,741
154	Oct-13	78,900	41,800	37,100	1376,414	-23,385	546,879
155	Nov-13	60,300	181,960	-121,660	14801,169	-41,985	1762,777
156	Dec-13	271,830	290,648	-18,818	354,100	169,545	28745,357
157	Jan-14	197,500	243,228	-45,728	2091,088	95,215	9065,812
158	Feb-14	173,900	144,079	29,821	889,296	71,615	5128,645
159	Mar-14	131,700	101,752	29,948	896,883	29,415	865,216
160	Apr-14	102,000	124,735	-22,735	516,868	-0,285	0,081
161	May-14	54,700	30,407	24,293	590,131	-47,585	2264,374
162	Jun-14	0,000	15,136	-15,136	229,109	-102,285	10462,311
163	Jul-14	24,100	19,378	4,722	22,297	-78,185	6112,963
164	Aug-14	2,900	-4,701	7,601	57,781	-99,385	9877,466
165	Sep-14	0,500	-0,855	1,355	1,836	-101,785	10360,276
166	Oct-14	0,000	2,365	-2,365	5,595	-102,285	10462,311
167	Nov-14	206,400	120,397	86,003	7396,516	104,115	10839,841
168	Dec-14	404,500	229,458	175,042	30639,863	302,215	91333,640
169	Jan-15	149,800	130,710	19,090	364,447	47,515	2257,633
170	Feb-15	119,300	152,269	-32,969	1086,938	17,015	289,495
171	Mar-15	248,500	164,783	83,717	7008,539	146,215	21378,697
172	Apr-15	163,800	172,031	-8,231	67,751	61,515	3784,041
173	May-15	79,900	45,672	34,228	1171,589	-22,385	501,108
174	Jun-15	0,000	47,035	-47,035	2212,316	-102,285	10462,311
175	Jul-15	0,600	3,899	-3,299	10,885	-101,685	10339,929
176	Aug-15	3,100	-2,760	5,860	34,337	-99,185	9837,752
177	Sep-15	6,700	-1,790	8,490	72,076	-95,585	9136,577
178	Oct-15	0,000	1,008	-1,008	1,015	-102,285	10462,311
179	Nov-15	122,400	51,324	71,076	5051,849	20,115	404,595
180	Dec-15	212,800	223,119	-10,319	106,484	110,515	12213,468
181	Jan-16	277,700	142,257	135,443	18344,735	175,415	30770,267
182	Feb-16	302,700	224,216	78,484	6159,761	200,415	40165,995
183	Mar-16	154,400	147,042	7,358	54,137	52,115	2715,927
184	Apr-16	128,100	63,171	64,929	4215,839	25,815	666,391
185	May-16	20,300	94,345	-74,045	5482,724	-81,985	6721,613
186	Jun-16	224,600	142,678	81,922	6711,176	122,315	14960,851
187	Jul-16	54,500	102,694	-48,194	2322,644	-47,785	2283,448
188	Aug-16	12,100	-2,857	14,957	223,700	-90,185	8133,414
189	Sep-16	202,500	85,463	117,037	13697,708	100,215	10042,958
190	Oct-16	184,500	223,801	-39,301	1544,574	82,215	6759,234
191	Nov-16	295,100	197,075	98,025	9608,953	192,815	37177,454
192	Dec-16	262,400	288,753	-26,353	694,464	160,115	25636,672
193	Jan-17	374,000	210,862	163,138	26614,156	271,715	73828,801
194	Feb-17	418,200	213,743	204,457	41802,546	315,915	99802,008
195	Mar-17	151,400	168,020	-16,620	276,230	49,115	2412,240
196	Apr-17	126,000	105,547	20,453	418,319	23,715	562,380
197	May-17	5,900	50,287	-44,387	1970,223	-96,385	9290,153
198	Jun-17	80,000	112,098	-32,098	1030,267	-22,285	496,641
199	Jul-17	58,600	18,161	40,439	1635,315	-43,685	1908,418
200	Aug-17	5,700	-4,409	10,109	102,201	-96,585	9328,747
201	Sep-17	8,700	0,384	8,316	69,159	-93,585	8758,235
202	Oct-17	97,200	88,955	8,245	67,984	-5,085	25,862
203	Nov-17	374,500	269,601	104,899	11003,879	272,215	74100,766
204	Dec-17	390,800	257,018	133,782	17897,495	288,515	83240,651
Jumlah		20866,230	21051,859	-185,629	864332,770	0,000	2387202,248
Rata-rata		102,285	103,195	-0,910	4236,925	0,000	11701,972
NSE =	0,638						
RMSE =	65,092						

(Sumber : Hasil Perhitungan)

Lampiran 3.29 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 *Intercept* pada Pos Hujan Kabul

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	358,000	264,554	93,446	8732,152	255,715	65389,936
2	Feb-01	210,700	210,549	0,151	0,023	108,415	11753,717
3	Mar-01	263,500	252,857	10,643	113,284	161,215	25990,134
4	Apr-01	185,300	155,135	30,165	909,915	83,015	6891,417
5	May-01	189,300	165,218	24,082	579,937	87,015	7571,533
6	Jun-01	0,000	44,864	-44,864	2012,741	-102,285	10462,311
7	Jul-01	0,000	17,553	-17,553	308,101	-102,285	10462,311
8	Aug-01	7,000	12,721	-5,721	32,734	-95,285	9079,315
9	Sep-01	0,000	8,020	-8,020	64,319	-102,285	10462,311
10	Oct-01	131,000	102,565	28,435	808,564	28,715	824,526
11	Nov-01	442,500	180,997	261,503	68384,044	340,215	115745,946
12	Dec-01	117,500	114,087	3,413	11,650	15,215	231,483
13	Jan-02	305,500	141,017	164,483	27054,655	203,215	41296,157
14	Feb-02	90,000	100,494	-10,494	110,124	-12,285	150,932
15	Mar-02	133,000	146,433	-13,433	180,443	30,715	943,384
16	Apr-02	179,000	91,198	87,802	7709,255	76,715	5885,124
17	May-02	37,000	80,118	-43,118	1859,154	-65,285	4262,189
18	Jun-02	88,000	115,382	-27,382	749,759	-14,285	204,074
19	Jul-02	0,000	26,222	-26,222	687,600	-102,285	10462,311
20	Aug-02	0,000	8,009	-8,009	64,140	-102,285	10462,311
21	Sep-02	0,000	9,409	-9,409	88,537	-102,285	10462,311
22	Oct-02	0,000	62,568	-62,568	3914,716	-102,285	10462,311
23	Nov-02	107,500	181,120	-73,620	5419,937	5,215	27,192
24	Dec-02	54,200	71,603	-17,403	302,859	-48,085	2312,210
25	Jan-03	212,000	141,062	70,938	5032,131	109,715	12037,284
26	Feb-03	411,500	232,763	178,737	31946,991	309,215	95613,643
27	Mar-03	232,000	128,663	103,337	10678,520	129,715	16825,867
28	Apr-03	184,500	86,400	98,100	9623,547	82,215	6759,234
29	May-03	0,000	46,138	-46,138	2128,698	-102,285	10462,311
30	Jun-03	0,000	14,700	-14,700	216,088	-102,285	10462,311
31	Jul-03	0,000	19,825	-19,825	393,021	-102,285	10462,311
32	Aug-03	0,000	7,683	-7,683	59,026	-102,285	10462,311
33	Sep-03	0,000	11,009	-11,009	121,205	-102,285	10462,311
34	Oct-03	0,000	22,746	-22,746	517,358	-102,285	10462,311
35	Nov-03	140,300	186,857	-46,557	2167,528	38,015	1445,107
36	Dec-03	202,100	213,180	-11,080	122,766	99,815	9962,946
37	Jan-04	147,900	201,707	-53,807	2895,238	45,615	2080,688
38	Feb-04	113,400	183,513	-70,113	4915,883	11,115	123,533
39	Mar-04	81,300	93,912	-12,612	159,055	-20,985	440,389
40	Apr-04	63,000	82,100	-19,100	364,818	-39,285	1543,346
41	May-04	12,000	82,958	-70,958	5035,074	-90,285	8151,461
42	Jun-04	4,000	53,310	-49,310	2431,461	-98,285	9660,028
43	Jul-04	9,000	12,221	-3,221	10,373	-93,285	8702,174
44	Aug-04	0,000	6,141	-6,141	37,713	-102,285	10462,311
45	Sep-04	136,500	25,629	110,871	12292,332	34,215	1170,636
46	Oct-04	0,000	19,922	-19,922	396,876	-102,285	10462,311
47	Nov-04	89,500	187,601	-98,101	9623,711	-12,785	163,468
48	Dec-04	234,500	202,102	32,398	1049,631	132,215	17480,690
49	Jan-05	83,000	117,774	-34,774	1209,230	-19,285	371,928
50	Feb-05	104,500	192,415	-87,915	7729,060	2,215	4,904

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	95,500	124,406	-28,906	835,530	-6,785	46,042
52	Apr-05	5,000	35,441	-30,441	926,675	-97,285	9464,457
53	May-05	47,500	124,661	-77,161	5953,772	-54,785	3001,445
54	Jun-05	0,000	19,164	-19,164	367,241	-102,285	10462,311
55	Jul-05	0,000	12,324	-12,324	151,885	-102,285	10462,311
56	Aug-05	0,000	5,879	-5,879	34,564	-102,285	10462,311
57	Sep-05	0,000	17,729	-17,729	314,311	-102,285	10462,311
58	Oct-05	0,000	64,142	-64,142	4114,245	-102,285	10462,311
59	Nov-05	186,000	184,048	1,952	3,812	83,715	7008,127
60	Dec-05	200,400	213,340	-12,940	167,450	98,115	9626,467
61	Jan-06	62,000	58,201	3,799	14,430	-40,285	1622,917
62	Feb-06	108,500	122,049	-13,549	183,577	6,215	38,621
63	Mar-06	181,000	143,395	37,605	1414,106	78,715	6195,982
64	Apr-06	118,000	111,283	6,717	45,116	15,715	246,947
65	May-06	47,500	22,653	24,847	617,365	-54,785	3001,445
66	Jun-06	37,500	31,580	5,920	35,051	-64,785	4197,153
67	Jul-06	48,000	38,127	9,873	97,486	-54,285	2946,909
68	Aug-06	30,000	11,440	18,560	344,478	-72,285	5225,185
69	Sep-06	10,500	22,612	-12,112	146,689	-91,785	8424,567
70	Oct-06	69,400	101,651	-32,251	1040,144	-32,885	1081,452
71	Nov-06	76,200	124,168	-47,968	2300,924	-26,085	680,450
72	Dec-06	232,700	249,481	-16,781	281,618	130,415	17007,957
73	Jan-07	339,000	199,965	139,035	19330,594	236,715	56033,782
74	Feb-07	230,600	153,952	76,648	5874,983	128,315	16464,626
75	Mar-07	337,700	248,736	88,964	7914,593	235,415	55420,015
76	Apr-07	221,100	113,314	107,786	11617,902	118,815	14116,899
77	May-07	20,400	119,143	-98,743	9750,265	-81,885	6705,225
78	Jun-07	57,000	36,902	20,098	403,935	-45,285	2050,771
79	Jul-07	0,000	21,828	-21,828	476,452	-102,285	10462,311
80	Aug-07	0,000	5,782	-5,782	33,434	-102,285	10462,311
81	Sep-07	0,000	8,535	-8,535	72,842	-102,285	10462,311
82	Oct-07	58,200	22,278	35,922	1290,371	-44,085	1943,526
83	Nov-07	22,100	48,014	-25,914	671,553	-80,185	6429,705
84	Dec-07	131,400	217,459	-86,059	7406,187	29,115	847,658
85	Jan-08	84,500	71,910	12,590	158,516	-17,785	316,322
86	Feb-08	75,100	154,652	-79,552	6328,452	-27,185	739,048
87	Mar-08	61,900	258,482	-196,582	38644,339	-40,385	1630,984
88	Apr-08	208,500	135,370	73,130	5347,978	106,215	11281,533
89	May-08	53,500	94,660	-41,160	1694,163	-48,785	2380,019
90	Jun-08	8,200	34,663	-26,463	700,292	-94,085	8852,070
91	Jul-08	32,000	14,509	17,491	305,922	-70,285	4940,043
92	Aug-08	5,500	8,164	-2,664	7,098	-96,785	9367,422
93	Sep-08	0,000	7,286	-7,286	53,082	-102,285	10462,311
94	Oct-08	7,800	39,863	-32,063	1028,017	-94,485	8927,499
95	Nov-08	48,500	125,151	-76,651	5875,424	-53,785	2892,874
96	Dec-08	117,500	267,562	-150,062	22518,714	15,215	231,483
97	Jan-09	112,900	115,633	-2,733	7,467	10,615	112,669
98	Feb-09	149,500	204,685	-55,185	3045,415	47,215	2229,215
99	Mar-09	316,400	273,995	42,405	1798,223	214,115	45845,044
100	Apr-09	103,600	95,156	8,444	71,299	1,315	1,728

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	15,100	60,699	-45,599	2079,260	-87,185	7601,301
102	Jun-09	0,000	31,657	-31,657	1002,142	-102,285	10462,311
103	Jul-09	0,000	14,529	-14,529	211,088	-102,285	10462,311
104	Aug-09	2,300	18,687	-16,387	268,518	-99,985	9997,088
105	Sep-09	11,100	16,769	-5,669	32,134	-91,185	8314,785
106	Oct-09	3,500	57,449	-53,949	2910,513	-98,785	9758,563
107	Nov-09	54,800	175,498	-120,698	14567,893	-47,485	2254,867
108	Dec-09	75,200	159,006	-83,806	7023,525	-27,085	733,621
109	Jan-10	405,000	253,310	151,690	23009,815	302,715	91636,104
110	Feb-10	286,800	233,253	53,547	2867,272	184,515	34045,622
111	Mar-10	116,400	137,118	-20,718	429,227	14,115	199,221
112	Apr-10	20,500	74,151	-53,651	2878,435	-81,785	6688,858
113	May-10	10,000	150,351	-140,351	19698,290	-92,285	8516,603
114	Jun-10	0,000	22,355	-22,355	499,744	-102,285	10462,311
115	Jul-10	0,000	20,934	-20,934	438,246	-102,285	10462,311
116	Aug-10	0,000	5,953	-5,953	35,442	-102,285	10462,311
117	Sep-10	12,800	31,698	-18,898	357,135	-89,485	8007,644
118	Oct-10	36,200	44,385	-8,185	66,994	-66,085	4367,286
119	Nov-10	50,500	68,763	-18,263	333,551	-51,785	2681,732
120	Dec-10	110,400	155,202	-44,802	2007,258	8,115	65,846
121	Jan-11	115,900	193,862	-77,962	6078,088	13,615	185,356
122	Feb-11	99,000	154,508	-55,508	3081,146	-3,285	10,794
123	Mar-11	128,800	180,806	-52,006	2704,644	26,515	703,022
124	Apr-11	122,100	231,352	-109,252	11936,039	19,815	392,617
125	May-11	117,700	130,157	-12,457	155,178	15,415	237,609
126	Jun-11	1,100	20,373	-19,273	371,450	-101,185	10238,494
127	Jul-11	19,700	17,050	2,650	7,024	-82,585	6820,355
128	Aug-11	0,000	6,141	-6,141	37,713	-102,285	10462,311
129	Sep-11	0,000	8,285	-8,285	68,646	-102,285	10462,311
130	Oct-11	25,200	27,552	-2,352	5,532	-77,085	5942,165
131	Nov-11	57,500	144,161	-86,661	7510,198	-44,785	2005,736
132	Dec-11	209,400	216,197	-6,797	46,204	107,115	11473,529
133	Jan-12	115,300	266,355	-151,055	22817,749	13,015	169,379
134	Feb-12	111,900	169,112	-57,212	3273,270	9,615	92,440
135	Mar-12	156,300	217,643	-61,343	3762,923	54,015	2917,573
136	Apr-12	27,300	59,996	-32,696	1069,054	-74,985	5622,816
137	May-12	170,700	131,616	39,084	1527,533	68,415	4680,552
138	Jun-12	0,500	16,475	-15,975	255,207	-101,785	10360,276
139	Jul-12	1,700	14,589	-12,889	166,138	-100,585	10117,431
140	Aug-12	0,700	5,867	-5,167	26,700	-101,585	10319,602
141	Sep-12	4,800	9,498	-4,698	22,067	-97,485	9503,411
142	Oct-12	29,200	27,933	1,267	1,606	-73,085	5341,482
143	Nov-12	245,900	124,046	121,854	14848,366	143,615	20625,142
144	Dec-12	132,500	224,653	-92,153	8492,146	30,215	912,920
145	Jan-13	219,000	263,748	-44,748	2002,376	116,715	13622,288
146	Feb-13	211,000	189,742	21,258	451,905	108,715	11818,855
147	Mar-13	138,300	129,236	9,064	82,161	36,015	1297,048
148	Apr-13	249,500	110,329	139,171	19368,479	147,215	21672,126
149	May-13	117,300	146,110	-28,810	830,033	15,015	225,437
150	Jun-13	80,000	108,283	-28,283	799,921	-22,285	496,641

No	Tanggal	Data Hujan ARR Kabul (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	1,700	53,344	-51,644	2667,060	-100,585	10117,431
152	Aug-13	0,000	5,409	-5,409	29,253	-102,285	10462,311
153	Sep-13	1,000	10,561	-9,561	91,413	-101,285	10258,741
154	Oct-13	78,900	46,298	32,602	1062,883	-23,385	546,879
155	Nov-13	60,300	175,307	-115,007	13226,611	-41,985	1762,777
156	Dec-13	271,830	285,412	-13,582	184,483	169,545	28745,357
157	Jan-14	197,500	235,611	-38,111	1452,423	95,215	9065,812
158	Feb-14	173,900	139,474	34,426	1185,123	71,615	5128,645
159	Mar-14	131,700	100,375	31,325	981,272	29,415	865,216
160	Apr-14	102,000	121,496	-19,496	380,097	-0,285	0,081
161	May-14	54,700	36,165	18,535	343,542	-47,585	2264,374
162	Jun-14	0,000	22,645	-22,645	512,812	-102,285	10462,311
163	Jul-14	24,100	26,394	-2,294	5,260	-78,185	6112,963
164	Aug-14	2,900	5,184	-2,284	5,215	-99,385	9877,466
165	Sep-14	0,500	8,561	-8,061	64,977	-101,785	10360,276
166	Oct-14	0,000	11,391	-11,391	129,761	-102,285	10462,311
167	Nov-14	206,400	117,491	88,909	7904,861	104,115	10839,841
168	Dec-14	404,500	221,740	182,760	33401,179	302,215	91333,640
169	Jan-15	149,800	127,028	22,772	518,551	47,515	2257,633
170	Feb-15	119,300	147,147	-27,847	775,451	17,015	289,495
171	Mar-15	248,500	158,947	89,553	8019,743	146,215	21378,697
172	Apr-15	163,800	165,826	-2,026	4,106	61,515	3784,041
173	May-15	79,900	49,751	30,149	908,951	-22,385	501,108
174	Jun-15	0,000	50,969	-50,969	2597,806	-102,285	10462,311
175	Jul-15	0,600	12,741	-12,141	147,394	-101,685	10339,929
176	Aug-15	3,100	6,888	-3,788	14,347	-99,185	9837,752
177	Sep-15	6,700	7,740	-1,040	1,081	-95,585	9136,577
178	Oct-15	0,000	10,197	-10,197	103,988	-102,285	10462,311
179	Nov-15	122,400	54,801	67,599	4569,589	20,115	404,595
180	Dec-15	212,800	215,425	-2,625	6,892	110,515	12213,468
181	Jan-16	277,700	137,773	139,927	19579,599	175,415	30770,267
182	Feb-16	302,700	216,515	86,185	7427,866	200,415	40165,995
183	Mar-16	154,400	142,246	12,154	147,717	52,115	2715,927
184	Apr-16	128,100	65,422	62,678	3928,550	25,815	666,391
185	May-16	20,300	93,618	-73,318	5375,577	-81,985	6721,613
186	Jun-16	224,600	138,166	86,434	7470,851	122,315	14960,851
187	Jul-16	54,500	101,236	-46,736	2184,213	-47,785	2283,448
188	Aug-16	12,100	6,803	5,297	28,060	-90,185	8133,414
189	Sep-16	202,500	85,546	116,954	13678,328	100,215	10042,958
190	Oct-16	184,500	216,103	-31,603	998,728	82,215	6759,234
191	Nov-16	295,100	189,876	105,224	11072,000	192,815	37177,454
192	Dec-16	262,400	283,345	-20,945	438,703	160,115	25636,672
193	Jan-17	374,000	203,325	170,675	29129,871	271,715	73828,801
194	Feb-17	418,200	206,157	212,043	44962,120	315,915	99802,008
195	Mar-17	151,400	162,015	-10,615	112,683	49,115	2412,240
196	Apr-17	126,000	103,846	22,154	490,804	23,715	562,380
197	May-17	5,900	53,874	-47,974	2301,544	-96,385	9290,153
198	Jun-17	80,000	109,852	-29,852	891,167	-22,285	496,641
199	Jul-17	58,600	25,318	33,282	1107,721	-43,685	1908,418
200	Aug-17	5,700	5,440	0,260	0,068	-96,585	9328,747
201	Sep-17	8,700	9,649	-0,949	0,901	-93,585	8758,235
202	Oct-17	97,200	88,715	8,485	71,989	-5,085	25,862
203	Nov-17	374,500	262,853	111,647	12464,995	272,215	74100,766
204	Dec-17	390,800	249,733	141,067	19899,924	288,515	83240,651
Jumlah		20866,230	21135,634	-269,404	870650,042	0,000	2387202,248
Rata-rata		102,285	103,606	-1,321	4267,892	0,000	11701,972
NSE	0,635						
RMSE	65,329						

(Sumber : Hasil Perhitungan)

Lampiran 3.30 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier pada Pos Hujan Rembitan

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	183,300	177,404	5,896	34,760	65,339	4269,200
2	Feb-01	318,700	103,966	214,734	46110,592	200,739	40296,193
3	Mar-01	150,800	143,027	7,773	60,421	32,839	1078,408
4	Apr-01	35,300	93,088	-57,788	3339,425	-82,661	6832,821
5	May-01	0,900	75,822	-74,922	5613,297	-117,061	13703,250
6	Jun-01	45,900	119,381	-73,481	5399,432	-72,061	5192,771
7	Jul-01	1,900	18,581	-16,681	278,253	-116,061	13470,128
8	Aug-01	0,000	-2,711	2,711	7,347	-117,961	13914,770
9	Sep-01	0,000	1,408	-1,408	1,983	-117,961	13914,770
10	Oct-01	97,000	64,627	32,373	1047,991	-20,961	439,359
11	Nov-01	102,500	190,292	-87,792	7707,410	-15,461	239,039
12	Dec-01	292,000	76,713	215,287	46348,703	174,039	30289,614
13	Jan-02	207,500	187,834	19,666	386,741	89,539	8017,254
14	Feb-02	573,500	293,341	280,159	78489,118	455,539	207515,888
15	Mar-02	127,500	125,229	2,271	5,159	9,539	90,995
16	Apr-02	174,500	90,839	83,661	6999,199	56,539	3196,672
17	May-02	0,000	41,948	-41,948	1759,666	-117,961	13914,770
18	Jun-02	0,000	7,186	-7,186	51,644	-117,961	13914,770
19	Jul-02	0,000	17,377	-17,377	301,944	-117,961	13914,770
20	Aug-02	0,000	-0,460	0,460	0,211	-117,961	13914,770
21	Sep-02	0,000	4,502	-4,502	20,267	-117,961	13914,770
22	Oct-02	0,000	19,210	-19,210	369,020	-117,961	13914,770
23	Nov-02	114,500	188,842	-74,342	5526,664	-3,461	11,978
24	Dec-02	252,500	258,696	-6,196	38,386	134,539	18100,774
25	Jan-03	543,600	276,237	267,363	71482,965	425,639	181168,658
26	Feb-03	195,200	214,901	-19,701	388,141	77,239	5965,881
27	Mar-03	103,500	88,844	14,656	214,799	-14,461	209,117
28	Apr-03	106,000	83,562	22,438	503,455	-11,961	143,063
29	May-03	15,700	74,971	-59,271	3513,028	-102,261	10457,288
30	Jun-03	11,600	51,202	-39,602	1568,335	-106,361	11312,637
31	Jul-03	10,400	6,943	3,457	11,952	-107,561	11569,343
32	Aug-03	2,200	-2,337	4,537	20,580	-115,761	13400,582
33	Sep-03	88,800	24,107	64,693	4185,231	-29,161	850,357
34	Oct-03	31,500	17,123	14,377	206,691	-86,461	7475,484
35	Nov-03	159,200	178,223	-19,023	361,865	41,239	1700,665
36	Dec-03	433,300	248,659	184,641	34092,369	315,339	99438,759
37	Jan-04	328,000	139,664	188,336	35470,472	210,039	44116,431
38	Feb-04	181,100	212,676	-31,576	997,014	63,139	3986,548
39	Mar-04	162,000	150,014	11,986	143,661	44,039	1939,444
40	Apr-04	9,500	32,432	-22,932	525,869	-108,461	11763,763
41	May-04	147,700	122,843	24,857	617,856	29,739	884,415
42	Jun-04	8,300	12,610	-4,310	18,572	-109,661	12025,509
43	Jul-04	3,000	7,208	-4,208	17,703	-114,961	13216,004
44	Aug-04	10,000	-2,326	12,326	151,929	-107,961	11655,552
45	Sep-04	9,500	10,126	-0,626	0,391	-108,461	11763,763
46	Oct-04	10,000	78,364	-68,364	4673,577	-107,961	11655,552
47	Nov-04	174,500	166,408	8,092	65,474	56,539	3196,672
48	Dec-04	248,000	264,045	-16,045	257,454	130,039	16910,172
49	Jan-05	235,000	72,173	162,827	26512,611	117,039	13698,155
50	Feb-05	211,500	123,418	88,082	7758,351	93,539	8749,567

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	227,500	154,447	73,053	5336,727	109,539	11998,818
52	Apr-05	118,000	130,918	-12,918	166,865	0,039	0,002
53	May-05	0,000	15,026	-15,026	225,789	-117,961	13914,770
54	Jun-05	0,000	22,296	-22,296	497,106	-117,961	13914,770
55	Jul-05	60,500	29,660	30,840	951,085	-57,461	3301,753
56	Aug-05	30,000	4,152	25,848	668,137	-87,961	7737,117
57	Sep-05	5,100	20,439	-15,339	235,271	-112,861	12737,579
58	Oct-05	46,000	130,814	-84,814	7193,351	-71,961	5178,369
59	Nov-05	47,200	124,925	-77,725	6041,145	-70,761	5007,102
60	Dec-05	345,200	339,783	5,417	29,344	227,239	51637,617
61	Jan-06	293,200	268,288	24,912	620,605	175,239	30708,748
62	Feb-06	116,500	158,238	-41,738	1742,022	-1,461	2,134
63	Mar-06	313,300	305,311	7,989	63,823	195,339	38157,371
64	Apr-06	145,200	136,259	8,941	79,939	27,239	741,970
65	May-06	10,400	115,683	-105,283	11084,562	-107,561	11569,343
66	Jun-06	41,200	33,668	7,532	56,732	-76,761	5892,233
67	Jul-06	0,300	18,207	-17,907	320,649	-117,661	13844,083
68	Aug-06	0,000	-2,728	2,728	7,444	-117,961	13914,770
69	Sep-06	0,400	1,096	-0,696	0,484	-117,561	13820,561
70	Oct-06	13,400	20,558	-7,158	51,241	-104,561	10932,978
71	Nov-06	25,700	40,607	-14,907	222,224	-92,261	8512,070
72	Dec-06	143,000	245,207	-102,207	10446,233	25,039	626,957
73	Jan-07	110,600	83,376	27,224	741,153	-7,361	54,183
74	Feb-07	174,700	168,460	6,240	38,941	56,739	3219,327
75	Mar-07	263,900	308,237	-44,337	1965,782	145,939	21298,226
76	Apr-07	149,000	156,121	-7,121	50,702	31,039	963,427
77	May-07	2,200	77,947	-75,747	5737,537	-115,761	13400,582
78	Jun-07	30,500	28,960	1,540	2,372	-87,461	7649,406
79	Jul-07	1,500	8,402	-6,902	47,640	-116,461	13563,137
80	Aug-07	14,400	-0,336	14,736	217,151	-103,561	10724,856
81	Sep-07	0,000	-0,574	0,574	0,330	-117,961	13914,770
82	Oct-07	1,000	35,314	-34,314	1177,422	-116,961	13679,848
83	Nov-07	44,600	121,198	-76,598	5867,190	-73,361	5381,819
84	Dec-07	377,000	366,488	10,512	110,501	259,039	67101,264
85	Jan-08	287,800	139,081	148,719	22117,375	169,839	28845,326
86	Feb-08	305,000	250,020	54,980	3022,791	187,039	34983,632
87	Mar-08	194,300	347,811	-153,511	23565,750	76,339	5827,661
88	Apr-08	50,700	112,869	-62,169	3864,957	-67,261	4524,026
89	May-08	25,300	57,969	-32,669	1067,248	-92,661	8586,039
90	Jun-08	0,000	25,638	-25,638	657,314	-117,961	13914,770
91	Jul-08	1,100	10,196	-9,096	82,730	-116,861	13656,466
92	Aug-08	0,000	5,434	-5,434	29,524	-117,961	13914,770
93	Sep-08	42,100	12,900	29,200	852,644	-75,861	5754,873
94	Oct-08	14,000	63,533	-49,533	2453,560	-103,961	10807,865
95	Nov-08	223,800	178,581	45,219	2044,742	105,839	11201,919
96	Dec-08	225,700	192,005	33,695	1135,333	107,739	11607,717
97	Jan-09	441,100	355,022	86,078	7409,350	323,139	104418,889
98	Feb-09	312,600	262,667	49,933	2493,336	194,639	37884,386
99	Mar-09	86,900	142,789	-55,889	3123,608	-31,061	964,778
100	Apr-09	16,400	75,980	-59,580	3549,770	-101,561	10314,613

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	18,200	148,172	-129,972	16892,618	-99,761	9952,234
102	Jun-09	0,600	16,642	-16,042	257,343	-117,361	13773,577
103	Jul-09	24,400	19,159	5,241	27,466	-93,561	8753,639
104	Aug-09	4,400	-2,510	6,910	47,744	-113,561	12896,074
105	Sep-09	34,400	22,230	12,170	148,108	-83,561	6982,421
106	Oct-09	31,800	47,209	-15,409	237,447	-86,161	7423,698
107	Nov-09	113,300	54,449	58,851	3463,498	-4,661	21,724
108	Dec-09	183,100	191,625	-8,525	72,674	65,139	4243,105
109	Jan-10	72,100	239,101	-167,001	27889,447	-45,861	2103,221
110	Feb-10	121,000	113,328	7,672	58,863	3,039	9,236
111	Mar-10	71,100	74,208	-3,108	9,660	-46,861	2195,942
112	Apr-10	163,500	204,662	-41,162	1694,342	45,539	2073,811
113	May-10	126,000	310,261	-184,261	33951,936	8,039	64,627
114	Jun-10	12,900	44,655	-31,755	1008,353	-105,061	11037,789
115	Jul-10	65,100	163,119	-98,019	9607,806	-52,861	2794,273
116	Aug-10	11,100	22,805	-11,705	136,997	-106,861	11419,248
117	Sep-10	115,200	95,638	19,562	382,671	-2,761	7,622
118	Oct-10	118,800	205,050	-86,250	7439,086	0,839	0,704
119	Nov-10	300,000	252,131	47,869	2291,438	182,039	33138,240
120	Dec-10	291,400	479,234	-187,834	35281,593	173,439	30081,128
121	Jan-11	130,700	262,144	-131,444	17277,631	12,739	162,285
122	Feb-11	151,800	178,981	-27,181	738,799	33,839	1145,086
123	Mar-11	226,780	231,797	-5,017	25,170	108,819	11841,600
124	Apr-11	231,600	294,833	-63,233	3998,448	113,639	12913,849
125	May-11	43,700	125,858	-82,158	6749,872	-74,261	5514,679
126	Jun-11	8,000	13,908	-5,908	34,909	-109,961	12091,396
127	Jul-11	11,100	13,572	-2,472	6,113	-106,861	11419,248
128	Aug-11	0,200	-2,337	2,537	6,434	-117,761	13867,625
129	Sep-11	7,700	0,737	6,963	48,481	-110,261	12157,462
130	Oct-11	22,800	23,731	-0,931	0,868	-95,161	9055,594
131	Nov-11	138,300	127,617	10,683	114,129	20,339	413,680
132	Dec-11	354,500	264,897	89,603	8028,721	236,539	55950,754
133	Jan-12	252,700	380,777	-128,077	16403,621	134,739	18154,630
134	Feb-12	241,900	177,235	64,665	4181,528	123,939	15360,905
135	Mar-12	249,900	259,365	-9,465	89,586	131,939	17407,931
136	Apr-12	281,600	64,646	216,954	47069,026	163,639	26777,761
137	May-12	137,000	116,147	20,853	434,864	19,039	362,488
138	Jun-12	0,000	12,279	-12,279	150,772	-117,961	13914,770
139	Jul-12	2,900	9,463	-6,563	43,072	-115,061	13239,007
140	Aug-12	4,600	-2,838	7,438	55,320	-113,361	12850,690
141	Sep-12	10,000	3,501	6,499	42,239	-107,961	11655,552
142	Oct-12	20,900	26,575	-5,675	32,201	-97,061	9420,815
143	Nov-12	136,500	105,204	31,296	979,431	18,539	343,699
144	Dec-12	285,600	281,723	3,877	15,034	167,639	28102,874
145	Jan-13	378,100	394,550	-16,450	270,609	260,139	67672,361
146	Feb-13	142,300	205,831	-63,531	4036,163	24,339	592,393
147	Mar-13	205,700	116,163	89,537	8016,929	87,739	7698,153
148	Apr-13	57,400	124,962	-67,562	4564,585	-60,561	3667,620
149	May-13	147,800	142,296	5,504	30,292	29,839	890,373
150	Jun-13	146,800	110,964	35,836	1284,227	28,839	831,695

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	25,100	38,567	-13,467	181,349	-92,861	8623,143
152	Aug-13	4,200	-5,022	9,222	85,041	-113,761	12941,538
153	Sep-13	4,000	3,169	0,831	0,690	-113,961	12987,083
154	Oct-13	10,700	45,391	-34,691	1203,433	-107,261	11504,897
155	Nov-13	150,000	165,923	-15,923	253,532	32,039	1026,505
156	Dec-13	451,200	370,434	80,766	6523,214	333,239	111048,310
157	Jan-14	356,400	300,900	55,500	3080,305	238,439	56853,213
158	Feb-14	146,500	141,130	5,370	28,834	28,539	814,481
159	Mar-14	96,200	100,087	-3,887	15,112	-21,761	473,536
160	Apr-14	40,400	129,912	-89,512	8012,336	-77,561	6015,690
161	May-14	22,300	28,079	-5,779	33,397	-95,661	9151,004
162	Jun-14	0,300	21,328	-21,028	442,175	-117,661	13844,083
163	Jul-14	9,140	23,349	-14,209	201,897	-108,821	11841,984
164	Aug-14	6,000	-5,177	11,177	124,916	-111,961	12535,239
165	Sep-14	0,000	0,684	-0,684	0,468	-117,961	13914,770
166	Oct-14	0,000	5,318	-5,318	28,280	-117,961	13914,770
167	Nov-14	129,400	109,258	20,142	405,683	11,439	130,853
168	Dec-14	329,600	279,890	49,710	2471,061	211,639	44791,116
169	Jan-15	186,900	169,422	17,478	305,493	68,939	4752,602
170	Feb-15	124,300	153,695	-29,395	864,091	6,339	40,184
171	Mar-15	230,000	157,288	72,712	5287,054	112,039	12552,764
172	Apr-15	140,000	197,213	-57,213	3273,347	22,039	485,723
173	May-15	7,500	43,656	-36,156	1307,251	-110,461	12201,607
174	Jun-15	7,600	48,645	-41,045	1684,728	-110,361	12179,524
175	Jul-15	6,200	3,199	3,001	9,007	-111,761	12490,495
176	Aug-15	1,200	-4,260	5,460	29,813	-116,761	13633,104
177	Sep-15	1,000	-0,236	1,236	1,527	-116,961	13679,848
178	Oct-15	0,000	4,214	-4,214	17,760	-117,961	13914,770
179	Nov-15	0,000	42,840	-42,840	1835,283	-117,961	13914,770
180	Dec-15	255,800	257,994	-2,194	4,813	137,839	18999,622
181	Jan-16	254,000	165,981	88,019	7747,293	136,039	18506,642
182	Feb-16	404,600	238,355	166,245	27637,565	286,639	82161,984
183	Mar-16	119,600	145,983	-26,383	696,062	1,639	2,687
184	Apr-16	45,300	62,078	-16,778	281,492	-72,661	5279,604
185	May-16	35,800	84,893	-49,093	2410,160	-82,161	6750,411
186	Jun-16	70,900	138,602	-67,702	4583,503	-47,061	2214,727
187	Jul-16	41,400	134,700	-93,300	8704,865	-76,561	5861,569
188	Aug-16	68,000	2,094	65,906	4343,657	-49,961	2496,090
189	Sep-16	107,200	101,827	5,373	28,867	-10,761	115,797
190	Oct-16	60,300	301,308	-241,008	58084,618	-57,661	3324,777
191	Nov-16	299,500	186,159	113,341	12846,076	181,539	32956,451
192	Dec-16	479,700	388,019	91,681	8405,395	361,739	130855,189
193	Jan-17	366,600	276,340	90,260	8146,882	248,639	61821,411
194	Feb-17	348,900	239,489	109,411	11970,787	230,939	53332,876
195	Mar-17	105,700	182,316	-76,616	5869,940	-12,261	150,329
196	Apr-17	30,000	102,550	-72,550	5263,491	-87,961	7737,117
197	May-17	2,700	47,733	-45,033	2027,927	-115,261	13285,071
198	Jun-17	90,900	98,076	-7,176	51,498	-27,061	732,291
199	Jul-17	55,900	22,098	33,802	1142,561	-62,061	3851,553
200	Aug-17	13,400	-4,744	18,144	329,218	-104,561	10932,978
201	Sep-17	1,200	3,604	-2,404	5,781	-116,761	13633,104
202	Oct-17	131,600	108,879	22,721	516,266	13,639	186,026
203	Nov-17	327,100	278,863	48,237	2326,768	209,139	43739,171
204	Dec-17	458,800	319,721	139,079	19342,941	340,839	116171,304
Jumlah		24064,020	24064,731	-0,711	1039229,185	0,000	3377431,246
		117,961	117,964	-0,003	5094,261	0,000	16556,036
NSE	0,692						
RMSE	71,374						

(Sumber : Hasil Perhitungan)

Lampiran 3.31 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier *Intercept* pada Pos Hujan Rembitan

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	183,300	178,810	4,490	20,161	65,339	4269,200
2	Feb-01	318,700	108,831	209,869	44045,065	200,739	40296,193
3	Mar-01	150,800	146,052	4,748	22,546	32,839	1078,408
4	Apr-01	35,300	98,465	-63,165	3989,786	-82,661	6832,821
5	May-01	0,900	82,012	-81,112	6579,184	-117,061	13703,250
6	Jun-01	45,900	123,519	-77,619	6024,771	-72,061	5192,771
7	Jul-01	1,900	27,467	-25,567	653,684	-116,061	13470,128
8	Aug-01	0,000	7,179	-7,179	51,533	-117,961	13914,770
9	Sep-01	0,000	11,103	-11,103	123,283	-117,961	13914,770
10	Oct-01	97,000	71,345	25,655	658,189	-20,961	439,359
11	Nov-01	102,500	191,090	-88,590	7848,270	-15,461	239,039
12	Dec-01	292,000	82,861	209,139	43739,209	174,039	30289,614
13	Jan-02	207,500	188,749	18,751	351,614	89,539	8017,254
14	Feb-02	573,500	289,286	284,214	80777,701	455,539	207515,888
15	Mar-02	127,500	129,092	-1,592	2,534	9,539	90,995
16	Apr-02	174,500	96,322	78,178	6111,846	56,539	3196,672
17	May-02	0,000	49,734	-49,734	2473,478	-117,961	13914,770
18	Jun-02	0,000	16,609	-16,609	275,873	-117,961	13914,770
19	Jul-02	0,000	26,320	-26,320	692,721	-117,961	13914,770
20	Aug-02	0,000	9,323	-9,323	86,926	-117,961	13914,770
21	Sep-02	0,000	14,051	-14,051	197,440	-117,961	13914,770
22	Oct-02	0,000	28,067	-28,067	787,733	-117,961	13914,770
23	Nov-02	114,500	189,708	-75,208	5656,311	-3,461	11,978
24	Dec-02	252,500	256,272	-3,772	14,231	134,539	18100,774
25	Jan-03	543,600	272,988	270,612	73231,106	425,639	181168,658
26	Feb-03	195,200	214,541	-19,341	374,066	77,239	5965,881
27	Mar-03	103,500	94,421	9,079	82,431	-14,461	209,117
28	Apr-03	106,000	89,388	16,612	275,963	-11,961	143,063
29	May-03	15,700	81,201	-65,501	4290,396	-102,261	10457,288
30	Jun-03	11,600	58,552	-46,952	2204,495	-106,361	11312,637
31	Jul-03	10,400	16,377	-5,977	35,729	-107,561	11569,343
32	Aug-03	2,200	7,535	-5,335	28,462	-115,761	13400,582
33	Sep-03	88,800	32,733	56,067	3143,542	-29,161	850,357
34	Oct-03	31,500	26,078	5,422	29,395	-86,461	7475,484
35	Nov-03	159,200	179,590	-20,390	415,745	41,239	1700,665
36	Dec-03	433,300	246,708	186,592	34816,469	315,339	99438,759
37	Jan-04	328,000	142,847	185,153	34281,575	210,039	44116,431
38	Feb-04	181,100	212,420	-31,320	980,932	63,139	3986,548
39	Mar-04	162,000	152,710	9,290	86,307	44,039	1939,444
40	Apr-04	9,500	40,666	-31,166	971,305	-108,461	11763,763
41	May-04	147,700	126,819	20,881	436,026	29,739	884,415
42	Jun-04	8,300	21,777	-13,477	181,633	-109,661	12025,509
43	Jul-04	3,000	16,630	-13,630	185,765	-114,961	13216,004
44	Aug-04	10,000	7,545	2,455	6,027	-107,961	11655,552
45	Sep-04	9,500	19,410	-9,910	98,212	-108,461	11763,763
46	Oct-04	10,000	84,434	-74,434	5540,432	-107,961	11655,552
47	Nov-04	174,500	168,332	6,168	38,045	56,539	3196,672
48	Dec-04	248,000	261,370	-13,370	178,760	130,039	16910,172
49	Jan-05	235,000	78,535	156,465	24481,248	117,039	13698,155
50	Feb-05	211,500	127,367	84,133	7078,380	93,539	8749,567

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	227,500	156,934	70,566	4979,559	109,539	11998,818
52	Apr-05	118,000	134,513	-16,513	272,672	0,039	0,002
53	May-05	0,000	24,080	-24,080	579,848	-117,961	13914,770
54	Jun-05	0,000	31,007	-31,007	961,447	-117,961	13914,770
55	Jul-05	60,500	38,025	22,475	505,134	-57,461	3301,753
56	Aug-05	30,000	13,718	16,282	265,116	-87,961	7737,117
57	Sep-05	5,100	29,237	-24,137	582,613	-112,861	12737,579
58	Oct-05	46,000	134,414	-88,414	7816,983	-71,961	5178,369
59	Nov-05	47,200	128,802	-81,602	6658,926	-70,761	5007,102
60	Dec-05	345,200	333,540	11,660	135,945	227,239	51637,617
61	Jan-06	293,200	265,413	27,787	772,119	175,239	30708,748
62	Feb-06	116,500	160,546	-44,046	1940,043	-1,461	2,134
63	Mar-06	313,300	300,692	12,608	158,957	195,339	38157,371
64	Apr-06	145,200	139,603	5,597	31,329	27,239	741,970
65	May-06	10,400	119,996	-109,596	12011,277	-107,561	11569,343
66	Jun-06	41,200	41,844	-0,644	0,414	-76,761	5892,233
67	Jul-06	0,300	27,111	-26,811	718,810	-117,661	13844,083
68	Aug-06	0,000	7,162	-7,162	51,289	-117,961	13914,770
69	Sep-06	0,400	10,806	-10,406	108,279	-117,561	13820,561
70	Oct-06	13,400	29,351	-15,951	254,449	-104,561	10932,978
71	Nov-06	25,700	48,456	-22,756	517,838	-92,261	8512,070
72	Dec-06	143,000	243,419	-100,419	10083,952	25,039	626,957
73	Jan-07	110,600	89,210	21,390	457,519	-7,361	54,183
74	Feb-07	174,700	170,287	4,413	19,477	56,739	3219,327
75	Mar-07	263,900	303,480	-39,580	1566,611	145,939	21298,226
76	Apr-07	149,000	158,529	-9,529	90,794	31,039	963,427
77	May-07	2,200	84,037	-81,837	6697,243	-115,761	13400,582
78	Jun-07	30,500	37,357	-6,857	47,022	-87,461	7649,406
79	Jul-07	1,500	17,768	-16,268	264,646	-116,461	13563,137
80	Aug-07	14,400	9,441	4,959	24,589	-103,561	10724,856
81	Sep-07	0,000	9,214	-9,214	84,901	-117,961	13914,770
82	Oct-07	1,000	43,412	-42,412	1798,760	-116,961	13679,848
83	Nov-07	44,600	125,251	-80,651	6504,517	-73,361	5381,819
84	Dec-07	377,000	358,988	18,012	324,444	259,039	67101,264
85	Jan-08	287,800	142,292	145,508	21172,704	169,839	28845,326
86	Feb-08	305,000	248,005	56,995	3248,380	187,039	34983,632
87	Mar-08	194,300	341,191	-146,891	21576,881	76,339	5827,661
88	Apr-08	50,700	117,314	-66,614	4437,435	-67,261	4524,026
89	May-08	25,300	65,000	-39,700	1576,081	-92,661	8586,039
90	Jun-08	0,000	34,192	-34,192	1169,097	-117,961	13914,770
91	Jul-08	1,100	19,477	-18,377	337,709	-116,861	13656,466
92	Aug-08	0,000	14,939	-14,939	223,179	-117,961	13914,770
93	Sep-08	42,100	22,054	20,046	401,849	-75,861	5754,873
94	Oct-08	14,000	70,302	-56,302	3169,965	-103,961	10807,865
95	Nov-08	223,800	179,931	43,869	1924,457	105,839	11201,919
96	Dec-08	225,700	192,723	32,977	1087,470	107,739	11607,717
97	Jan-09	441,100	348,062	93,038	8656,054	323,139	104418,889
98	Feb-09	312,600	260,056	52,544	2760,833	194,639	37884,386
99	Mar-09	86,900	145,825	-58,925	3472,186	-31,061	964,778
100	Apr-09	16,400	82,163	-65,763	4324,737	-101,561	10314,613

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	18,200	150,954	-132,754	17623,653	-99,761	9952,234
102	Jun-09	0,600	25,620	-25,020	625,979	-117,361	13773,577
103	Jul-09	24,400	28,018	-3,618	13,092	-93,561	8753,639
104	Aug-09	4,400	7,370	-2,970	8,821	-113,561	12896,074
105	Sep-09	34,400	30,944	3,456	11,941	-83,561	6982,421
106	Oct-09	31,800	54,747	-22,947	526,575	-86,161	7423,698
107	Nov-09	113,300	61,645	51,655	2668,194	-4,661	21,724
108	Dec-09	183,100	192,361	-9,261	85,761	65,139	4243,105
109	Jan-10	72,100	237,601	-165,501	27390,574	-45,861	2103,221
110	Feb-10	121,000	117,751	3,249	10,553	3,039	9,236
111	Mar-10	71,100	80,474	-9,374	87,879	-46,861	2195,942
112	Apr-10	163,500	204,784	-41,284	1704,379	45,539	2073,811
113	May-10	126,000	305,408	-179,408	32187,409	8,039	64,627
114	Jun-10	12,900	52,313	-39,413	1553,370	-105,061	11037,789
115	Jul-10	65,100	165,198	-100,098	10019,582	-52,861	2794,273
116	Aug-10	11,100	31,492	-20,392	415,832	-106,861	11419,248
117	Sep-10	115,200	100,895	14,305	204,636	-2,761	7,622
118	Oct-10	118,800	205,154	-86,354	7456,946	0,839	0,704
119	Nov-10	300,000	250,017	49,983	2498,304	182,039	33138,240
120	Dec-10	291,400	466,423	-175,023	30633,105	173,439	30081,128
121	Jan-11	130,700	259,559	-128,859	16604,563	12,739	162,285
122	Feb-11	151,800	180,312	-28,512	812,946	33,839	1145,086
123	Mar-11	226,780	230,641	-3,861	14,904	108,819	11841,600
124	Apr-11	231,600	290,708	-59,108	3493,744	113,639	12913,849
125	May-11	43,700	129,691	-85,991	7394,471	-74,261	5514,679
126	Jun-11	8,000	23,015	-15,015	225,445	-109,961	12091,396
127	Jul-11	11,100	22,695	-11,595	134,437	-106,861	11419,248
128	Aug-11	0,200	7,535	-7,335	53,803	-117,761	13867,625
129	Sep-11	7,700	10,464	-2,764	7,640	-110,261	12157,462
130	Oct-11	22,800	32,375	-9,575	91,685	-95,161	9055,594
131	Nov-11	138,300	131,368	6,932	48,059	20,339	413,680
132	Dec-11	354,500	262,182	92,318	8522,703	236,539	55950,754
133	Jan-12	252,700	372,603	-119,903	14376,788	134,739	18154,630
134	Feb-12	241,900	178,649	63,251	4000,709	123,939	15360,905
135	Mar-12	249,900	256,910	-7,010	49,143	131,939	17407,931
136	Apr-12	281,600	71,363	210,237	44199,744	163,639	26777,761
137	May-12	137,000	120,438	16,562	274,316	19,039	362,488
138	Jun-12	0,000	21,462	-21,462	460,621	-117,961	13914,770
139	Jul-12	2,900	18,779	-15,879	252,134	-115,061	13239,007
140	Aug-12	4,600	7,057	-2,457	6,039	-113,361	12850,690
141	Sep-12	10,000	13,097	-3,097	9,594	-107,961	11655,552
142	Oct-12	20,900	35,084	-14,184	201,198	-97,061	9420,815
143	Nov-12	136,500	110,010	26,490	701,697	18,539	343,699
144	Dec-12	285,600	278,215	7,385	54,541	167,639	28102,874
145	Jan-13	378,100	385,728	-7,628	58,188	260,139	67672,361
146	Feb-13	142,300	205,898	-63,598	4044,643	24,339	592,393
147	Mar-13	205,700	120,453	85,247	7267,078	87,739	7698,153
148	Apr-13	57,400	128,837	-71,437	5103,305	-60,561	3667,620
149	May-13	147,800	145,355	2,445	5,976	29,839	890,373
150	Jun-13	146,800	115,499	31,301	979,759	28,839	831,695

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	25,100	46,512	-21,412	458,456	-92,861	8623,143
152	Aug-13	4,200	4,976	-0,776	0,603	-113,761	12941,538
153	Sep-13	4,000	12,781	-8,781	77,112	-113,961	12987,083
154	Oct-13	10,700	53,014	-42,314	1790,484	-107,261	11504,897
155	Nov-13	150,000	167,869	-17,869	319,305	32,039	1026,505
156	Dec-13	451,200	362,747	88,453	7823,868	333,239	111048,310
157	Jan-14	356,400	296,488	59,912	3589,400	238,439	56853,213
158	Feb-14	146,500	144,244	2,256	5,088	28,539	814,481
159	Mar-14	96,200	105,135	-8,935	79,830	-21,761	473,536
160	Apr-14	40,400	133,554	-93,154	8677,707	-77,561	6015,690
161	May-14	22,300	36,518	-14,218	202,150	-95,661	9151,004
162	Jun-14	0,300	30,085	-29,785	887,141	-117,661	13844,083
163	Jul-14	9,140	32,011	-22,871	523,074	-108,821	11841,984
164	Aug-14	6,000	4,829	1,171	1,372	-111,961	12535,239
165	Sep-14	0,000	10,414	-10,414	108,445	-117,961	13914,770
166	Oct-14	0,000	14,829	-14,829	219,896	-117,961	13914,770
167	Nov-14	129,400	113,874	15,526	241,064	11,439	130,853
168	Dec-14	329,600	276,469	53,131	2822,937	211,639	44791,116
169	Jan-15	186,900	171,203	15,697	246,388	68,939	4752,602
170	Feb-15	124,300	156,218	-31,918	1018,743	6,339	40,184
171	Mar-15	230,000	159,641	70,359	4950,391	112,039	12552,764
172	Apr-15	140,000	197,686	-57,686	3327,648	22,039	485,723
173	May-15	7,500	51,361	-43,861	1923,805	-110,461	12201,607
174	Jun-15	7,600	56,116	-48,516	2353,773	-110,361	12179,524
175	Jul-15	6,200	12,810	-6,610	43,687	-111,761	12490,495
176	Aug-15	1,200	5,702	-4,502	20,268	-116,761	13633,104
177	Sep-15	1,000	9,537	-8,537	72,878	-116,961	13679,848
178	Oct-15	0,000	13,777	-13,777	189,813	-117,961	13914,770
179	Nov-15	0,000	50,584	-50,584	2558,730	-117,961	13914,770
180	Dec-15	255,800	255,604	0,196	0,039	137,839	18999,622
181	Jan-16	254,000	167,925	86,075	7408,916	136,039	18506,642
182	Feb-16	404,600	236,889	167,711	28126,873	286,639	82161,984
183	Mar-16	119,600	148,869	-29,269	856,649	1,639	2,687
184	Apr-16	45,300	68,915	-23,615	557,682	-72,661	5279,604
185	May-16	35,800	90,656	-54,856	3009,218	-82,161	6750,411
186	Jun-16	70,900	141,835	-70,935	5031,750	-47,061	2214,727
187	Jul-16	41,400	138,117	-96,717	9354,158	-76,561	5861,569
188	Aug-16	68,000	11,756	56,244	3163,335	-49,961	2496,090
189	Sep-16	107,200	106,793	0,407	0,166	-10,761	115,797
190	Oct-16	60,300	296,877	-236,577	55968,765	-57,661	3324,777
191	Nov-16	299,500	187,153	112,347	12621,913	181,539	32956,451
192	Dec-16	479,700	379,505	100,195	10039,127	361,739	130855,189
193	Jan-17	366,600	273,086	93,514	8744,945	248,639	61821,411
194	Feb-17	348,900	237,970	110,930	12305,400	230,939	53332,876
195	Mar-17	105,700	183,490	-77,790	6051,257	-12,261	150,329
196	Apr-17	30,000	107,481	-77,481	6003,342	-87,961	7737,117
197	May-17	2,700	55,246	-52,546	2761,058	-115,261	13285,071
198	Jun-17	90,900	103,218	-12,318	151,739	-27,061	732,291
199	Jul-17	55,900	30,819	25,081	629,063	-62,061	3851,553
200	Aug-17	13,400	5,241	8,159	66,576	-104,561	10932,978
201	Sep-17	1,200	13,196	-11,996	143,907	-116,761	13633,104
202	Oct-17	131,600	113,512	18,088	327,185	13,639	186,026
203	Nov-17	327,100	275,490	51,610	2663,568	209,139	43739,171
204	Dec-17	458,800	314,423	144,377	20844,579	340,839	116171,304
Jumlah		24064,020	24922,609	-858,589	1048024,794	0,000	3377431,246
		117,961	122,170	-4,209	5137,376	0,000	16556,036
NSE =	0,690						
RMSE =	71,675						

(Sumber : Hasil Perhitungan)

Lampiran 3.32 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Polinomial Orde 2pada Pos Hujan Rembitan

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	183,300	181,252	2,048	4,196	65,339	4269,200
2	Feb-01	318,700	107,380	211,320	44656,344	200,739	40296,193
3	Mar-01	150,800	147,233	3,567	12,726	32,839	1078,408
4	Apr-01	35,300	96,053	-60,753	3690,943	-82,661	6832,821
5	May-01	0,900	77,873	-76,973	5924,869	-117,061	13703,250
6	Jun-01	45,900	123,259	-77,359	5984,462	-72,061	5192,771
7	Jul-01	1,900	15,818	-13,918	193,706	-116,061	13470,128
8	Aug-01	0,000	-7,964	7,964	63,420	-117,961	13914,770
9	Sep-01	0,000	-3,334	3,334	11,114	-117,961	13914,770
10	Oct-01	97,000	65,953	31,047	963,942	-20,961	439,359
11	Nov-01	102,500	193,750	-91,250	8326,591	-15,461	239,039
12	Dec-01	292,000	78,817	213,183	45446,996	174,039	30289,614
13	Jan-02	207,500	191,377	16,123	259,935	89,539	8017,254
14	Feb-02	573,500	288,691	284,809	81116,008	455,539	207515,888
15	Mar-02	127,500	129,232	-1,732	2,998	9,539	90,995
16	Apr-02	174,500	93,699	80,801	6528,768	56,539	3196,672
17	May-02	0,000	41,482	-41,482	1720,729	-117,961	13914,770
18	Jun-02	0,000	3,138	-3,138	9,846	-117,961	13914,770
19	Jul-02	0,000	14,483	-14,483	209,749	-117,961	13914,770
20	Aug-02	0,000	-5,432	5,432	29,504	-117,961	13914,770
21	Sep-02	0,000	0,135	-0,135	0,018	-117,961	13914,770
22	Oct-02	0,000	16,515	-16,515	272,732	-117,961	13914,770
23	Nov-02	114,500	192,351	-77,851	6060,710	-3,461	11,978
24	Dec-02	252,500	257,763	-5,263	27,700	134,539	18100,774
25	Jan-03	543,600	273,548	270,052	72928,127	425,639	181168,658
26	Feb-03	195,200	217,231	-22,031	485,349	77,239	5965,881
27	Mar-03	103,500	91,608	11,892	141,425	-14,461	209,117
28	Apr-03	106,000	86,054	19,946	397,840	-11,961	143,063
29	May-03	15,700	76,971	-61,271	3754,076	-102,261	10457,288
30	Jun-03	11,600	51,519	-39,919	1593,499	-106,361	11312,637
31	Jul-03	10,400	2,866	7,534	56,766	-107,561	11569,343
32	Aug-03	2,200	-7,543	9,743	94,919	-115,761	13400,582
33	Sep-03	88,800	21,928	66,872	4471,890	-29,161	850,357
34	Oct-03	31,500	14,202	17,298	299,228	-86,461	7475,484
35	Nov-03	159,200	182,050	-22,850	522,103	41,239	1700,665
36	Dec-03	433,300	248,615	184,685	34108,365	315,339	99438,759
37	Jan-04	328,000	143,852	184,148	33910,595	210,039	44116,431
38	Feb-04	181,100	215,128	-34,028	1157,892	63,139	3986,548
39	Mar-04	162,000	154,227	7,773	60,418	44,039	1939,444
40	Apr-04	9,500	31,085	-21,585	465,914	-108,461	11763,763
41	May-04	147,700	126,799	20,901	436,855	29,739	884,415
42	Jun-04	8,300	9,186	-0,886	0,786	-109,661	12025,509
43	Jul-04	3,000	3,162	-0,162	0,026	-114,961	13216,004
44	Aug-04	10,000	-7,531	17,531	307,328	-107,961	11655,552
45	Sep-04	9,500	6,419	3,081	9,492	-108,461	11763,763
46	Oct-04	10,000	80,565	-70,565	4979,421	-107,961	11655,552
47	Nov-04	174,500	170,478	4,022	16,177	56,539	3196,672
48	Dec-04	248,000	262,604	-14,604	213,288	130,039	16910,172
49	Jan-05	235,000	73,999	161,001	25921,263	117,039	13698,155
50	Feb-05	211,500	127,386	84,114	7075,169	93,539	8749,567

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	227,500	158,643	68,857	4741,221	109,539	11998,818
52	Apr-05	118,000	135,014	-17,014	289,483	0,039	0,002
53	May-05	0,000	11,874	-11,874	140,988	-117,961	13914,770
54	Jun-05	0,000	19,928	-19,928	397,141	-117,961	13914,770
55	Jul-05	60,500	28,043	32,457	1053,457	-57,461	3301,753
56	Aug-05	30,000	-0,258	30,258	915,519	-87,961	7737,117
57	Sep-05	5,100	17,875	-12,775	163,194	-112,861	12737,579
58	Oct-05	46,000	134,909	-88,909	7904,767	-71,961	5178,369
59	Nov-05	47,200	128,922	-81,722	6678,484	-70,761	5007,102
60	Dec-05	345,200	328,576	16,624	276,368	227,239	51637,617
61	Jan-06	293,200	266,427	26,773	716,803	175,239	30708,748
62	Feb-06	116,500	162,407	-45,907	2107,423	-1,461	2,134
63	Mar-06	313,300	299,144	14,156	200,398	195,339	38157,371
64	Apr-06	145,200	140,419	4,781	22,858	27,239	741,970
65	May-06	10,400	119,468	-109,068	11895,884	-107,561	11569,343
66	Jun-06	41,200	32,440	8,760	76,742	-76,761	5892,233
67	Jul-06	0,300	15,403	-15,103	228,104	-117,661	13844,083
68	Aug-06	0,000	-7,984	7,984	63,741	-117,961	13914,770
69	Sep-06	0,400	-3,684	4,084	16,682	-117,561	13820,561
70	Oct-06	13,400	18,007	-4,607	21,226	-104,561	10932,978
71	Nov-06	25,700	40,021	-14,321	205,092	-92,261	8512,070
72	Dec-06	143,000	245,450	-102,450	10495,978	25,039	626,957
73	Jan-07	110,600	85,858	24,742	612,179	-7,361	54,183
74	Feb-07	174,700	172,496	2,204	4,860	56,739	3219,327
75	Mar-07	263,900	301,681	-37,781	1427,379	145,939	21298,226
76	Apr-07	149,000	160,306	-11,306	127,833	31,039	963,427
77	May-07	2,200	80,124	-77,924	6072,103	-115,761	13400,582
78	Jun-07	30,500	27,273	3,227	10,413	-87,461	7649,406
79	Jul-07	1,500	4,496	-2,996	8,976	-116,461	13563,137
80	Aug-07	14,400	-5,293	19,693	387,802	-103,561	10724,856
81	Sep-07	0,000	-5,561	5,561	30,920	-117,961	13914,770
82	Oct-07	1,000	34,241	-33,241	1104,984	-116,961	13679,848
83	Nov-07	44,600	125,118	-80,518	6483,116	-73,361	5381,819
84	Dec-07	377,000	350,693	26,307	692,060	259,039	67101,264
85	Jan-08	287,800	143,265	144,535	20890,493	169,839	28845,326
86	Feb-08	305,000	249,861	55,139	3040,298	187,039	34983,632
87	Mar-08	194,300	335,288	-140,988	19877,493	76,339	5827,661
88	Apr-08	50,700	116,575	-65,875	4339,513	-67,261	4524,026
89	May-08	25,300	58,813	-33,513	1123,090	-92,661	8586,039
90	Jun-08	0,000	23,617	-23,617	557,749	-117,961	13914,770
91	Jul-08	1,100	6,497	-5,397	29,128	-116,861	13656,466
92	Aug-08	0,000	1,178	-1,178	1,387	-117,961	13914,770
93	Sep-08	42,100	9,510	32,590	1062,138	-75,861	5754,873
94	Oct-08	14,000	64,782	-50,782	2578,825	-103,961	10807,865
95	Nov-08	223,800	182,399	41,401	1714,058	105,839	11201,919
96	Dec-08	225,700	195,401	30,299	918,005	107,739	11607,717
97	Jan-09	441,100	341,270	99,830	9966,001	323,139	104418,889
98	Feb-09	312,600	261,359	51,241	2625,641	194,639	37884,386
99	Mar-09	86,900	146,994	-60,094	3611,297	-31,061	964,778
100	Apr-09	16,400	78,041	-61,641	3799,573	-101,561	10314,613

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	18,200	152,387	-134,187	18006,059	-99,761	9952,234
102	Jun-09	0,600	13,668	-13,068	170,766	-117,361	13773,577
103	Jul-09	24,400	16,458	7,942	63,068	-93,561	8753,639
104	Aug-09	4,400	-7,738	12,138	147,322	-113,561	12896,074
105	Sep-09	34,400	19,856	14,544	211,538	-83,561	6982,421
106	Oct-09	31,800	47,197	-15,397	237,057	-86,161	7423,698
107	Nov-09	113,300	55,023	58,277	3396,242	-4,661	21,724
108	Dec-09	183,100	195,035	-11,935	142,445	65,139	4243,105
109	Jan-10	72,100	239,827	-167,727	28132,182	-45,861	2103,221
110	Feb-10	121,000	117,047	3,953	15,624	3,039	9,236
111	Mar-10	71,100	76,161	-5,061	25,615	-46,861	2195,942
112	Apr-10	163,500	207,523	-44,023	1938,023	45,539	2073,811
113	May-10	126,000	303,431	-177,431	31481,660	8,039	64,627
114	Jun-10	12,900	44,424	-31,524	993,782	-105,061	11037,789
115	Jul-10	65,100	167,236	-102,136	10431,717	-52,861	2794,273
116	Aug-10	11,100	20,490	-9,390	88,179	-106,861	11419,248
117	Sep-10	115,200	98,717	16,483	271,680	-2,761	7,622
118	Oct-10	118,800	207,892	-89,092	7937,421	0,839	0,704
119	Nov-10	300,000	251,790	48,210	2324,242	182,039	33138,240
120	Dec-10	291,400	437,494	-146,094	21343,539	173,439	30081,128
121	Jan-11	130,700	260,887	-130,187	16948,603	12,739	162,285
122	Feb-11	151,800	182,788	-30,988	960,263	33,839	1145,086
123	Mar-11	226,780	233,058	-6,278	39,412	108,819	11841,600
124	Apr-11	231,600	290,001	-58,401	3410,675	113,639	12913,849
125	May-11	43,700	129,872	-86,172	7425,655	-74,261	5514,679
126	Jun-11	8,000	10,631	-2,631	6,924	-109,961	12091,396
127	Jul-11	11,100	10,258	0,842	0,709	-106,861	11419,248
128	Aug-11	0,200	-7,543	7,743	59,949	-117,761	13867,625
129	Sep-11	7,700	-4,087	11,787	138,933	-110,261	12157,462
130	Oct-11	22,800	21,514	1,286	1,654	-95,161	9055,594
131	Nov-11	138,300	131,662	6,638	44,057	20,339	413,680
132	Dec-11	354,500	263,373	91,127	8304,180	236,539	55950,754
133	Jan-12	252,700	362,282	-109,582	12008,191	134,739	18154,630
134	Feb-12	241,900	181,087	60,813	3698,240	123,939	15360,905
135	Mar-12	249,900	258,370	-8,470	71,743	131,939	17407,931
136	Apr-12	281,600	65,973	215,627	46495,173	163,639	26777,761
137	May-12	137,000	119,944	17,056	290,909	19,039	362,488
138	Jun-12	0,000	8,818	-8,818	77,763	-117,961	13914,770
139	Jul-12	2,900	5,680	-2,780	7,728	-115,061	13239,007
140	Aug-12	4,600	-8,107	12,707	161,465	-113,361	12850,690
141	Sep-12	10,000	-0,987	10,987	120,708	-107,961	11655,552
142	Oct-12	20,900	24,648	-3,748	14,051	-97,061	9420,815
143	Nov-12	136,500	108,662	27,838	774,947	18,539	343,699
144	Dec-12	285,600	278,431	7,169	51,388	167,639	28102,874
145	Jan-13	378,100	373,291	4,809	23,122	260,139	67672,361
146	Feb-13	142,300	208,635	-66,335	4400,359	24,339	592,393
147	Mar-13	205,700	119,960	85,740	7351,267	87,739	7698,153
148	Apr-13	57,400	128,960	-71,560	5120,778	-60,561	3667,620
149	May-13	147,800	146,499	1,301	1,693	29,839	890,373
150	Jun-13	146,800	114,613	32,187	1036,004	28,839	831,695

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	25,100	37,796	-12,696	161,184	-92,861	8623,143
152	Aug-13	4,200	-10,568	14,768	218,094	-113,761	12941,538
153	Sep-13	4,000	-1,358	5,358	28,713	-113,961	12987,083
154	Oct-13	10,700	45,224	-34,524	1191,873	-107,261	11504,897
155	Nov-13	150,000	170,000	-20,000	399,989	32,039	1026,505
156	Dec-13	451,200	353,910	97,290	9465,322	333,239	111048,310
157	Jan-14	356,400	295,306	61,094	3732,537	238,439	56853,213
158	Feb-14	146,500	145,327	1,173	1,376	28,539	814,481
159	Mar-14	96,200	103,352	-7,152	51,157	-21,761	473,536
160	Apr-14	40,400	133,994	-93,594	8759,773	-77,561	6015,690
161	May-14	22,300	26,304	-4,004	16,035	-95,661	9151,004
162	Jun-14	0,300	18,859	-18,559	344,419	-117,661	13844,083
163	Jul-14	9,140	21,092	-11,952	142,842	-108,821	11841,984
164	Aug-14	6,000	-10,743	16,743	280,315	-111,961	12535,239
165	Sep-14	0,000	-4,146	4,146	17,191	-117,961	13914,770
166	Oct-14	0,000	1,048	-1,048	1,099	-117,961	13914,770
167	Nov-14	129,400	112,854	16,546	273,776	11,439	130,853
168	Dec-14	329,600	276,803	52,797	2787,530	211,639	44791,116
169	Jan-15	186,900	173,440	13,460	181,161	68,939	4752,602
170	Feb-15	124,300	157,896	-33,596	1128,676	6,339	40,184
171	Mar-15	230,000	161,465	68,535	4697,051	112,039	12552,764
172	Apr-15	140,000	200,405	-60,405	3648,782	22,039	485,723
173	May-15	7,500	43,339	-35,839	1284,443	-110,461	12201,607
174	Jun-15	7,600	48,753	-41,153	1693,542	-110,361	12179,524
175	Jul-15	6,200	-1,325	7,525	56,629	-111,761	12490,495
176	Aug-15	1,200	-9,709	10,909	119,013	-116,761	13633,104
177	Sep-15	1,000	-5,180	6,180	38,192	-116,961	13679,848
178	Oct-15	0,000	-0,187	0,187	0,035	-117,961	13914,770
179	Nov-15	0,000	42,452	-42,452	1802,180	-117,961	13914,770
180	Dec-15	255,800	257,126	-1,326	1,759	137,839	18999,622
181	Jan-16	254,000	170,057	83,943	7046,353	136,039	18506,642
182	Feb-16	404,600	239,137	165,463	27378,168	286,639	82161,984
183	Mar-16	119,600	150,197	-30,597	936,164	1,639	2,687
184	Apr-16	45,300	63,223	-17,923	321,234	-72,661	5279,604
185	May-16	35,800	87,456	-51,656	2668,341	-82,161	6750,411
186	Jun-16	70,900	142,782	-71,882	5166,976	-47,061	2214,727
187	Jul-16	41,400	138,844	-97,444	9495,283	-76,561	5861,569
188	Aug-16	68,000	-2,565	70,565	4979,362	-49,961	2496,090
189	Sep-16	107,200	105,160	2,040	4,161	-10,761	115,797
190	Oct-16	60,300	295,661	-235,361	55394,884	-57,661	3324,777
191	Nov-16	299,500	189,758	109,742	12043,380	181,539	32956,451
192	Dec-16	479,700	368,091	111,609	12456,627	361,739	130855,189
193	Jan-17	366,600	273,640	92,960	8641,607	248,639	61821,411
194	Feb-17	348,900	240,184	108,716	11819,081	230,939	53332,876
195	Mar-17	105,700	186,031	-80,331	6453,075	-12,261	150,329
196	Apr-17	30,000	105,911	-75,911	5762,404	-87,961	7737,117
197	May-17	2,700	47,764	-45,064	2030,738	-115,261	13285,071
198	Jun-17	90,900	101,259	-10,359	107,315	-27,061	732,291
199	Jul-17	55,900	19,710	36,190	1309,718	-62,061	3851,553
200	Aug-17	13,400	-10,255	23,655	559,568	-104,561	10932,978
201	Sep-17	1,200	-0,871	2,071	4,288	-116,761	13633,104
202	Oct-17	131,600	112,462	19,138	366,277	13,639	186,026
203	Nov-17	327,100	275,889	51,211	2622,549	209,139	43739,171
204	Dec-17	458,800	311,568	147,232	21677,294	340,839	116171,304
Jumlah		24064,020	23870,964	193,056	1034809,322	0,000	3377431,246
		117,961	117,015	0,946	5072,595	0,000	16556,036

NSE	0,694
RMSE	71,222

(Sumber : Hasil Perhitungan)

Lampiran 3.33 Perhitungan Nilai NSE dan RMSE Data Hujan Bulanan Satelit CHIRPS Terkoreksi dengan Regresi Linier Polinomial Orde 2 *Intercept* pada Pos Hujan Rembitan

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
1	Jan-01	183,300	178,489	4,811	23,142	65,339	4269,200
2	Feb-01	318,700	108,495	210,205	44185,955	200,739	40296,193
3	Mar-01	150,800	145,702	5,098	25,992	32,839	1078,408
4	Apr-01	35,300	98,142	-62,842	3949,180	-82,661	6832,821
5	May-01	0,900	81,719	-80,819	6531,695	-117,061	13703,250
6	Jun-01	45,900	123,172	-77,272	5970,987	-72,061	5192,771
7	Jul-01	1,900	27,341	-25,441	647,266	-116,061	13470,128
8	Aug-01	0,000	7,143	-7,143	51,024	-117,961	13914,770
9	Sep-01	0,000	11,049	-11,049	122,082	-117,961	13914,770
10	Oct-01	97,000	71,076	25,924	672,071	-20,961	439,359
11	Nov-01	102,500	190,791	-88,291	7795,330	-15,461	239,039
12	Dec-01	292,000	82,566	209,434	43862,691	174,039	30289,614
13	Jan-02	207,500	188,445	19,055	363,098	89,539	8017,254
14	Feb-02	573,500	289,356	284,144	80737,769	455,539	207515,888
15	Mar-02	127,500	128,742	-1,242	1,543	9,539	90,995
16	Apr-02	174,500	96,003	78,497	6161,832	56,539	3196,672
17	May-02	0,000	49,527	-49,527	2452,889	-117,961	13914,770
18	Jun-02	0,000	16,530	-16,530	273,241	-117,961	13914,770
19	Jul-02	0,000	26,198	-26,198	686,360	-117,961	13914,770
20	Aug-02	0,000	9,278	-9,278	86,073	-117,961	13914,770
21	Sep-02	0,000	13,984	-13,984	195,538	-117,961	13914,770
22	Oct-02	0,000	27,938	-27,938	780,550	-117,961	13914,770
23	Nov-02	114,500	189,406	-74,906	5610,982	-3,461	11,978
24	Dec-02	252,500	256,179	-3,679	13,533	134,539	18100,774
25	Jan-03	543,600	272,972	270,628	73239,588	425,639	181168,658
26	Feb-03	195,200	214,297	-19,097	364,712	77,239	5965,881
27	Mar-03	103,500	94,105	9,395	88,270	-14,461	209,117
28	Apr-03	106,000	89,080	16,920	286,274	-11,961	143,063
29	May-03	15,700	80,910	-65,210	4252,284	-102,261	10457,288
30	Jun-03	11,600	58,317	-46,717	2182,512	-106,361	11312,637
31	Jul-03	10,400	16,299	-5,899	34,798	-107,561	11569,343
32	Aug-03	2,200	7,498	-5,298	28,066	-115,761	13400,582
33	Sep-03	88,800	32,586	56,214	3160,022	-29,161	850,357
34	Oct-03	31,500	25,958	5,542	30,713	-86,461	7475,484
35	Nov-03	159,200	179,270	-20,070	402,824	41,239	1700,665
36	Dec-03	433,300	246,575	186,725	34866,347	315,339	99438,759
37	Jan-04	328,000	142,496	185,504	34411,565	210,039	44116,431
38	Feb-04	181,100	212,171	-31,071	965,383	63,139	3986,548
39	Mar-04	162,000	152,363	9,637	92,878	44,039	1939,444
40	Apr-04	9,500	40,489	-30,989	960,342	-108,461	11763,763
41	May-04	147,700	126,470	21,230	450,714	29,739	884,415
42	Jun-04	8,300	21,675	-13,375	178,893	-109,661	12025,509
43	Jul-04	3,000	16,550	-13,550	183,604	-114,961	13216,004
44	Aug-04	10,000	7,508	2,492	6,211	-107,961	11655,552
45	Sep-04	9,500	19,318	-9,818	96,401	-108,461	11763,763
46	Oct-04	10,000	84,136	-74,136	5496,134	-107,961	11655,552
47	Nov-04	174,500	167,998	6,502	42,280	56,539	3196,672
48	Dec-04	248,000	261,299	-13,299	176,868	130,039	16910,172
49	Jan-05	235,000	78,249	156,751	24570,785	117,039	13698,155
50	Feb-05	211,500	127,018	84,482	7137,230	93,539	8749,567

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
51	Mar-05	227,500	156,589	70,911	5028,305	109,539	11998,818
52	Apr-05	118,000	134,162	-16,162	261,207	0,039	0,002
53	May-05	0,000	23,968	-23,968	574,475	-117,961	13914,770
54	Jun-05	0,000	30,867	-30,867	952,784	-117,961	13914,770
55	Jul-05	60,500	37,858	22,642	512,659	-57,461	3301,753
56	Aug-05	30,000	13,651	16,349	267,280	-87,961	7737,117
57	Sep-05	5,100	29,104	-24,004	576,211	-112,861	12737,579
58	Oct-05	46,000	134,063	-88,063	7755,060	-71,961	5178,369
59	Nov-05	47,200	128,453	-81,253	6602,001	-70,761	5007,102
60	Dec-05	345,200	333,893	11,307	127,839	227,239	51637,617
61	Jan-06	293,200	265,361	27,839	775,027	175,239	30708,748
62	Feb-06	116,500	160,204	-43,704	1910,050	-1,461	2,134
63	Mar-06	313,300	300,828	12,472	155,541	195,339	38157,371
64	Apr-06	145,200	139,252	5,948	35,383	27,239	741,970
65	May-06	10,400	119,651	-109,251	11935,749	-107,561	11569,343
66	Jun-06	41,200	41,663	-0,463	0,214	-76,761	5892,233
67	Jul-06	0,300	26,986	-26,686	712,157	-117,661	13844,083
68	Aug-06	0,000	7,126	-7,126	50,782	-117,961	13914,770
69	Sep-06	0,400	10,753	-10,353	107,183	-117,561	13820,561
70	Oct-06	13,400	29,218	-15,818	250,210	-104,561	10932,978
71	Nov-06	25,700	48,253	-22,553	508,630	-92,261	8512,070
72	Dec-06	143,000	243,272	-100,272	10054,534	25,039	626,957
73	Jan-07	110,600	88,903	21,697	470,754	-7,361	54,183
74	Feb-07	174,700	169,955	4,745	22,518	56,739	3219,327
75	Mar-07	263,900	303,634	-39,734	1578,751	145,939	21298,226
76	Apr-07	149,000	158,185	-9,185	84,368	31,039	963,427
77	May-07	2,200	83,739	-81,539	6648,660	-115,761	13400,582
78	Jun-07	30,500	37,193	-6,693	44,796	-87,461	7649,406
79	Jul-07	1,500	17,683	-16,183	261,902	-116,461	13563,137
80	Aug-07	14,400	9,395	5,005	25,051	-103,561	10724,856
81	Sep-07	0,000	9,169	-9,169	84,068	-117,961	13914,770
82	Oct-07	1,000	43,226	-42,226	1783,008	-116,961	13679,848
83	Nov-07	44,600	124,902	-80,302	6448,488	-73,361	5381,819
84	Dec-07	377,000	359,536	17,464	304,997	259,039	67101,264
85	Jan-08	287,800	141,941	145,859	21274,914	169,839	28845,326
86	Feb-08	305,000	247,877	57,123	3263,031	187,039	34983,632
87	Mar-08	194,300	341,600	-147,300	21697,245	76,339	5827,661
88	Apr-08	50,700	116,971	-66,271	4391,828	-67,261	4524,026
89	May-08	25,300	64,747	-39,447	1556,072	-92,661	8586,039
90	Jun-08	0,000	34,040	-34,040	1158,699	-117,961	13914,770
91	Jul-08	1,100	19,385	-18,285	334,333	-116,861	13656,466
92	Aug-08	0,000	14,867	-14,867	221,037	-117,961	13914,770
93	Sep-08	42,100	21,951	20,149	405,998	-75,861	5754,873
94	Oct-08	14,000	70,036	-56,036	3140,020	-103,961	10807,865
95	Nov-08	223,800	179,613	44,187	1952,531	105,839	11201,919
96	Dec-08	225,700	192,427	33,273	1107,083	107,739	11607,717
97	Jan-09	441,100	348,524	92,576	8570,404	323,139	104418,889
98	Feb-09	312,600	259,979	52,621	2768,918	194,639	37884,386
99	Mar-09	86,900	145,475	-58,575	3431,059	-31,061	964,778
100	Apr-09	16,400	81,869	-65,469	4286,210	-101,561	10314,613

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
101	May-09	18,200	150,606	-132,406	17531,362	-99,761	9952,234
102	Jun-09	0,600	25,501	-24,901	620,077	-117,361	13773,577
103	Jul-09	24,400	27,890	-3,490	12,182	-93,561	8753,639
104	Aug-09	4,400	7,333	-2,933	8,605	-113,561	12896,074
105	Sep-09	34,400	30,805	3,595	12,926	-83,561	6982,421
106	Oct-09	31,800	54,524	-22,724	516,378	-86,161	7423,698
107	Nov-09	113,300	61,402	51,898	2693,416	-4,661	21,724
108	Dec-09	183,100	192,064	-8,964	80,352	65,139	4243,105
109	Jan-10	72,100	237,432	-165,332	27334,813	-45,861	2103,221
110	Feb-10	121,000	117,408	3,592	12,903	3,039	9,236
111	Mar-10	71,100	80,184	-9,084	82,525	-46,861	2195,942
112	Apr-10	163,500	204,515	-41,015	1682,234	45,539	2073,811
113	May-10	126,000	305,573	-179,573	32246,602	8,039	64,627
114	Jun-10	12,900	52,097	-39,197	1536,415	-105,061	11037,789
115	Jul-10	65,100	164,860	-99,760	9952,120	-52,861	2794,273
116	Aug-10	11,100	31,350	-20,250	410,064	-106,861	11419,248
117	Sep-10	115,200	100,569	14,631	214,060	-2,761	7,622
118	Oct-10	118,800	204,885	-86,085	7410,703	0,839	0,704
119	Nov-10	300,000	249,897	50,103	2510,331	182,039	33138,240
120	Dec-10	291,400	468,059	-176,659	31208,269	173,439	30081,128
121	Jan-11	130,700	259,480	-128,780	16584,179	12,739	162,285
122	Feb-11	151,800	179,994	-28,194	794,901	33,839	1145,086
123	Mar-11	226,780	230,447	-3,667	13,450	108,819	11841,600
124	Apr-11	231,600	290,786	-59,186	3502,997	113,639	12913,849
125	May-11	43,700	129,341	-85,641	7334,428	-74,261	5514,679
126	Jun-11	8,000	22,908	-14,908	222,234	-109,961	12091,396
127	Jul-11	11,100	22,589	-11,489	131,992	-106,861	11419,248
128	Aug-11	0,200	7,498	-7,298	53,257	-117,761	13867,625
129	Sep-11	7,700	10,413	-2,713	7,359	-110,261	12157,462
130	Oct-11	22,800	32,230	-9,430	88,922	-95,161	9055,594
131	Nov-11	138,300	131,017	7,283	53,039	20,339	413,680
132	Dec-11	354,500	262,114	92,386	8535,124	236,539	55950,754
133	Jan-12	252,700	373,266	-120,566	14536,086	134,739	18154,630
134	Feb-12	241,900	178,328	63,572	4041,389	123,939	15360,905
135	Mar-12	249,900	256,819	-6,919	47,877	131,939	17407,931
136	Apr-12	281,600	71,093	210,507	44313,003	163,639	26777,761
137	May-12	137,000	120,092	16,908	285,877	19,039	362,488
138	Jun-12	0,000	21,361	-21,361	456,309	-117,961	13914,770
139	Jul-12	2,900	18,690	-15,790	249,315	-115,061	13239,007
140	Aug-12	4,600	7,022	-2,422	5,868	-113,361	12850,690
141	Sep-12	10,000	13,034	-3,034	9,205	-107,961	11655,552
142	Oct-12	20,900	34,929	-14,029	196,803	-97,061	9420,815
143	Nov-12	136,500	109,674	26,826	719,645	18,539	343,699
144	Dec-12	285,600	278,226	7,374	54,381	167,639	28102,874
145	Jan-13	378,100	386,507	-8,407	70,680	260,139	67672,361
146	Feb-13	142,300	205,631	-63,331	4010,840	24,339	592,393
147	Mar-13	205,700	120,107	85,593	7326,089	87,739	7698,153
148	Apr-13	57,400	128,488	-71,088	5053,484	-60,561	3667,620
149	May-13	147,800	145,005	2,795	7,810	29,839	890,373
150	Jun-13	146,800	115,157	31,643	1001,270	28,839	831,695

No	Tanggal	Data Hujan ARR Rembitan (Y_i) (mm)	Data Hujan Satelit ($\hat{Y}_i$) (mm)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$
151	Jul-13	25,100	46,315	-21,215	450,070	-92,861	8623,143
152	Aug-13	4,200	4,951	-0,751	0,565	-113,761	12941,538
153	Sep-13	4,000	12,719	-8,719	76,027	-113,961	12987,083
154	Oct-13	10,700	52,796	-42,096	1772,091	-107,261	11504,897
155	Nov-13	150,000	167,534	-17,534	307,453	32,039	1026,505
156	Dec-13	451,200	363,326	87,874	7721,765	333,239	111048,310
157	Jan-14	356,400	296,600	59,800	3576,070	238,439	56853,213
158	Feb-14	146,500	143,894	2,606	6,791	28,539	814,481
159	Mar-14	96,200	104,804	-8,604	74,022	-21,761	473,536
160	Apr-14	40,400	133,203	-92,803	8612,482	-77,561	6015,690
161	May-14	22,300	36,357	-14,057	197,592	-95,661	9151,004
162	Jun-14	0,300	29,949	-29,649	879,036	-117,661	13844,083
163	Jul-14	9,140	31,867	-22,727	516,510	-108,821	11841,984
164	Aug-14	6,000	4,805	1,195	1,429	-111,961	12535,239
165	Sep-14	0,000	10,363	-10,363	107,386	-117,961	13914,770
166	Oct-14	0,000	14,758	-14,758	217,784	-117,961	13914,770
167	Nov-14	129,400	113,533	15,867	251,749	11,439	130,853
168	Dec-14	329,600	276,471	53,129	2822,739	211,639	44791,116
169	Jan-15	186,900	170,872	16,028	256,885	68,939	4752,602
170	Feb-15	124,300	155,873	-31,573	996,836	6,339	40,184
171	Mar-15	230,000	159,298	70,702	4998,710	112,039	12552,764
172	Apr-15	140,000	197,400	-57,400	3294,779	22,039	485,723
173	May-15	7,500	51,149	-43,649	1905,195	-110,461	12201,607
174	Jun-15	7,600	55,888	-48,288	2331,756	-110,361	12179,524
175	Jul-15	6,200	12,747	-6,547	42,870	-111,761	12490,495
176	Aug-15	1,200	5,674	-4,474	20,013	-116,761	13633,104
177	Sep-15	1,000	9,490	-8,490	72,080	-116,961	13679,848
178	Oct-15	0,000	13,711	-13,711	187,982	-117,961	13914,770
179	Nov-15	0,000	50,374	-50,374	2537,512	-117,961	13914,770
180	Dec-15	255,800	255,507	0,293	0,086	137,839	18999,622
181	Jan-16	254,000	167,590	86,410	7466,644	136,039	18506,642
182	Feb-16	404,600	236,718	167,882	28184,308	286,639	82161,984
183	Mar-16	119,600	148,520	-28,920	836,343	1,639	2,687
184	Apr-16	45,300	68,652	-23,352	545,327	-72,661	5279,604
185	May-16	35,800	90,347	-54,547	2975,331	-82,161	6750,411
186	Jun-16	70,900	141,484	-70,584	4982,097	-47,061	2214,727
187	Jul-16	41,400	137,766	-96,366	9286,362	-76,561	5861,569
188	Aug-16	68,000	11,699	56,301	3169,779	-49,961	2496,090
189	Sep-16	107,200	106,459	0,741	0,548	-10,761	115,797
190	Oct-16	60,300	296,991	-236,691	56022,539	-57,661	3324,777
191	Nov-16	299,500	186,846	112,654	12690,922	181,539	32956,451
192	Dec-16	479,700	380,228	99,472	9894,773	361,739	130855,189
193	Jan-17	366,600	273,070	93,530	8747,785	248,639	61821,411
194	Feb-17	348,900	237,803	111,097	12342,520	230,939	53332,876
195	Mar-17	105,700	183,177	-77,477	6002,645	-12,261	150,329
196	Apr-17	30,000	107,147	-77,147	5951,711	-87,961	7737,117
197	May-17	2,700	55,021	-52,321	2737,485	-115,261	13285,071
198	Jun-17	90,900	102,889	-11,989	143,748	-27,061	732,291
199	Jul-17	55,900	30,680	25,220	636,069	-62,061	3851,553
200	Aug-17	13,400	5,214	8,186	67,003	-104,561	10932,978
201	Sep-17	1,200	13,132	-11,932	142,377	-116,761	13633,104
202	Oct-17	131,600	113,172	18,428	339,601	13,639	186,026
203	Nov-17	327,100	275,487	51,613	2663,890	209,139	43739,171
204	Dec-17	458,800	314,645	144,155	20780,530	340,839	116171,304
Jumlah		24064,020	24891,046	-827,026	1048007,298	0,000	3377431,246
		117,961	122,015	-4,054	5137,291	0,000	16556,036
NSE	0,690						
RMSE	71,675						

(Sumber : Hasil Perhitungan)

LAMPIRAN IV

Lampiran 4.1 Validasi Data Hujan Satelit Menggunakan Nilai NSE, RMSE, dan R pada Pos Hujan Kopang

No	Tanggal	ARR Kopang (Y_i)	Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$	$(Y_i . \hat{Y}_i)$	$(Y_i)^2$	$(\hat{Y}_i)^2$
1	Jan-18	570.600	342.641	227.959	51965.515	405.103	164108.261	195510.692	325584.360	117402.540
2	Feb-18	215.100	234.856	-19.756	390.305	49.603	2460.436	50517.555	46268.010	55157.405
3	Mar-18	413.100	163.201	249.899	62449.698	247.603	61307.136	67418.178	170651.610	26634.444
4	Apr-18	5.200	33.274	-28.074	788.136	-160.297	25695.199	173.024	27.040	1107.144
5	May-18	8.000	8.852	-0.852	0.726	-157.497	24805.375	70.815	64.000	78.355
6	Jun-18	13.700	24.496	-10.796	116.559	-151.797	23042.397	335.599	187.690	600.066
7	Jul-18	8.900	29.196	-20.296	411.935	-156.597	24522.690	259.846	79.210	852.418
8	Aug-18	11.800	17.137	-5.337	28.486	-153.697	23622.836	202.219	139.240	293.685
9	Sep-18	26.500	6.849	19.651	386.176	-138.997	19320.228	181.489	702.250	46.904
10	Oct-18	1.900	7.077	-5.177	26.804	-163.597	26764.051	13.447	3.610	50.087
11	Nov-18	416.900	307.857	109.043	11890.431	251.403	63203.357	128345.477	173805.610	94775.775
12	Dec-18	221.000	186.506	34.494	1189.849	55.503	3080.558	41217.783	48841.000	34784.415
13	Jan-20	139.000	179.051	-40.051	1604.121	-26.497	702.103	24888.155	19321.000	32059.432
14	Feb-20	5.300	184.508	-179.208	32115.330	-160.197	25663.150	977.890	28.090	34043.019
15	Mar-20	452.200	230.612	221.588	49101.277	286.703	82198.483	104282.711	204484.840	53181.858
16	Apr-20	231.100	108.527	122.573	15024.054	65.603	4303.724	25080.671	53407.210	11778.186
17	May-20	392.700	175.621	217.079	47123.475	227.203	51621.102	68966.201	154213.290	30842.588
18	Jun-20	0.000	29.036	-29.036	843.090	-165.497	27389.331	0.000	0.000	843.090
19	Jul-20	9.400	29.181	-19.781	391.291	-156.097	24366.343	274.302	88.360	851.535
20	Aug-20	5.000	19.021	-14.021	196.584	-160.497	25759.358	95.104	25.000	361.793
21	Sep-20	19.200	27.509	-8.309	69.039	-146.297	21402.877	528.172	368.640	756.742
22	Oct-20	142.200	192.295	-50.095	2509.526	-23.297	542.761	27344.372	20220.840	36977.430
23	Nov-20	215.900	210.340	5.560	30.910	50.403	2540.440	45412.468	46612.810	44243.037
24	Dec-20	446.200	309.299	136.901	18742.013	280.703	78794.049	138009.003	199094.440	95665.580
25	Jan-21	398.500	347.944	50.556	2555.867	233.003	54290.294	138655.850	158802.250	121065.317
26	Feb-21	278.500	276.965	1.535	2.357	113.003	12769.628	77134.723	77562.250	76709.553
27	Mar-21	242.500	188.672	53.828	2897.428	77.003	5929.428	45753.017	58806.250	35597.213
28	Apr-21	92.500	156.907	-64.407	4148.299	-72.997	5328.594	14513.925	8556.250	24619.898
29	May-21	9.000	35.590	-26.590	707.010	-156.497	24491.381	320.307	81.000	1266.624
30	Jun-21	79.000	145.343	-66.343	4401.373	-86.497	7481.769	11482.085	6241.000	21124.543
31	Jul-21	6.500	35.254	-28.754	826.775	-158.997	25280.117	229.149	42.250	1242.823
32	Aug-21	0.000	34.105	-34.105	1163.120	-165.497	27389.331	0.000	0.000	1163.120
33	Sep-21	53.500	61.307	-7.807	60.955	-111.997	12543.378	3279.945	2862.250	3758.594
34	Oct-21	107.000	153.974	-46.974	2206.565	-58.497	3421.925	16475.227	11449.000	23708.020
35	Nov-21	452.000	350.563	101.437	10289.549	286.503	82083.842	158454.288	204304.000	122894.126
36	Dec-21	268.000	336.472	-68.472	4688.476	102.503	10506.819	90174.615	71824.000	113213.706
Jumlah		5957.900	5180.037	777.863	331343.105	0.000	1078732.750	1476578.304	2064748.650	1219751.064
Rata-rata		165.497	143.890	21.607	9203.975	0.000	29964.799	41016.064	57354.129	33881.974
NSE		0.693								
RMSE		95.937								
R		0.865								

(Sumber : Hasil Perhitungan)

Lampiran 4.2 Evaluasi Data Hujan Satelit Menggunakan Nilai NSE, RMSE, dan R pada Pos Hujan Kabul

No	Tanggal	ARR Kabul (Y_i)	Satelit ($\hat{Y}_i$)	$(Y_i - \hat{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$	$(Y_i . \hat{Y}_i)$	$(Y_i)^2$	$(\hat{Y}_i)^2$
1	Jan-18	592.100	320.885	271.215	73557.770	467.583	218634.174	189995.7968	350,582.41	102,966.95
2	Feb-18	226.600	188.132	38.468	1479.769	102.083	10421.007	42630.76492	51,347.56	35,393.74
3	Mar-18	186.600	137.976	48.624	2364.247	62.083	3854.340	25746.41096	34,819.56	19,037.51
4	Apr-18	25.000	12.550	12.450	155.001	-99.517	9903.567	313.7518778	625.00	157.50
5	May-18	0.000	4.485	-4.485	20.119	-124.517	15504.400	0	0.00	20.12
6	Jun-18	7.100	10.979	-3.879	15.047	-117.417	13786.674	77.95145484	50.41	120.54
7	Jul-18	0.900	10.715	-9.815	96.331	-123.617	15281.080	9.643352792	0.81	114.81
8	Aug-18	6.900	-0.562	7.462	55.689	-117.617	13833.680	-3.881151094	47.61	0.32
9	Sep-18	21.800	-0.377	22.177	491.817	-102.717	10550.714	-8.217408114	475.24	0.14
10	Oct-18	2.400	0.169	2.231	4.976	-122.117	14912.480	0.406093571	5.76	0.03
11	Nov-18	117.700	225.733	-108.033	11671.225	-6.817	46.467	26568.82649	13,853.29	50,955.59
12	Dec-18	67.000	109.652	-42.652	1819.158	-57.517	3308.167	7346.656649	4,489.00	12,023.47
13	Jan-20	0.000	111.102	-111.102	12343.649	-124.517	15504.400	0	0.00	12,343.65
14	Feb-20	0.000	142.358	-142.358	20265.916	-124.517	15504.400	0	0.00	20,265.92
15	Mar-20	328.400	195.527	132.873	17655.245	203.883	41568.414	64211.05333	107,846.56	38,230.79
16	Apr-20	179.800	63.513	116.287	13522.723	55.283	3056.247	11419.59342	32,328.04	4,033.87
17	May-20	95.000	150.079	-55.079	3033.725	-29.517	871.234	14257.52938	9,025.00	22,523.78
18	Jun-20	14.000	21.881	-7.881	62.108	-110.517	12213.934	306.3319672	196.00	478.77
19	Jul-20	0.000	17.755	-17.755	315.228	-124.517	15504.400	0	0.00	315.23
20	Aug-20	14.500	0.240	14.260	203.341	-110.017	12103.667	3.483458595	210.25	0.06
21	Sep-20	24.500	12.915	11.585	134.209	-100.017	10003.334	316.4210433	600.25	166.80
22	Oct-20	163.000	147.875	15.125	228.769	38.483	1480.967	24103.60678	26,569.00	21,866.98
23	Nov-20	137.700	120.268	17.432	303.867	13.183	173.800	16560.93564	18,961.29	14,464.45
24	Dec-20	202.900	238.013	-35.113	1232.938	78.383	6143.947	48292.88102	41,168.41	56,650.29
25	Jan-21	323.500	324.002	-0.502	0.252	198.983	39594.367	104814.5033	104,652.25	104,977.01
26	Feb-21	263.400	244.861	18.539	343.702	138.883	19288.580	64496.33442	69,379.56	59,956.81
27	Mar-21	133.500	162.164	-28.664	821.652	8.983	80.700	21648.95773	17,822.25	26,297.32
28	Apr-21	125.300	114.989	10.311	106.321	0.783	0.614	14408.09537	15,700.09	13,222.42
29	May-21	19.000	25.727	-6.727	45.252	-105.517	11133.767	488.8122628	361.00	661.88
30	Jun-21	91.300	124.414	-33.114	1096.556	-33.217	1103.347	11359.02447	8,335.69	15,478.91
31	Jul-21	3.000	17.021	-14.021	196.593	-121.517	14766.300	51.0635335	9.00	289.72
32	Aug-21	36.300	-1.918	38.218	1460.638	-88.217	7782.180	-69.63421702	1,317.69	3.68
33	Sep-21	67.300	44.188	23.112	534.181	-57.217	3273.747	2973.828162	4,529.29	1,952.55
34	Oct-21	88.600	88.721	-0.121	0.015	-35.917	1290.007	7860.658435	7,849.96	7,871.37
35	Nov-21	497.500	285.248	212.252	45050.915	372.983	139116.567	141910.8755	247,506.25	81,366.42
36	Dec-21	420.000	280.126	139.874	19564.637	295.483	87310.400	117653.0681	176,400.00	78,470.77
Jumlah		4482.600	3951.407	531.193	230253.582	0.000	788906.070	959745.533	1347064.480	802680.168
Rata-rata		124.517	109.761	14.755	6395.933	0.000	21914.058	26659.598	37418.458	22296.671
NSE		0.708								
RMSE		79.975								
R		0.867								

(Sumber : Hasil Perhitungan)

Lampiran 4.3 Evaluasi Data Hujan Satelit Menggunakan Nilai NSE, RMSE, dan R pada Pos Hujan Rembitan

No	Tanggal	ARR Rembitan (Y_i)	Satelit $(\hat{Y}_i)$	$(Y_i - \bar{Y}_i)$	$(Y_i - \hat{Y}_i)^2$	$(Y_i - Y_i^{mean})$	$(Y_i - Y_i^{mean})^2$	$(Y_i . \bar{Y}_i)$	$(Y_i)^2$	$(\hat{Y}_i)^2$
1	Jan-18	553.900	439.894	114.006	12997.366	414.517	171824.067	243657.293	306805.210	193506.741
2	Feb-18	257.400	205.808	51.592	2661.716	118.017	13927.934	52975.025	66254.760	42357.005
3	Mar-18	58.000	131.910	-73.910	5462.625	-81.383	6623.247	7650.755	3364.000	17400.135
4	Apr-18	2.100	10.421	-8.321	69.235	-137.283	18846.714	21.884	4.410	108.593
5	May-18	0.000	0.515	-0.515	0.265	-139.383	19427.714	0.000	0.000	0.265
6	Jun-18	3.300	7.279	-3.979	15.836	-136.083	18518.674	24.022	10.890	52.990
7	Jul-18	6.500	10.643	-4.143	17.163	-132.883	17657.980	69.178	42.250	113.269
8	Aug-18	10.900	-7.156	18.056	326.030	-128.483	16507.967	-78.004	118.810	51.213
9	Sep-18	15.500	-3.461	18.961	359.531	-123.883	15347.080	-53.650	240.250	11.981
10	Oct-18	2.800	-1.289	4.089	16.717	-136.583	18655.007	-3.608	7.840	1.660
11	Nov-18	275.600	224.232	51.368	2638.706	136.217	18554.980	61798.247	75955.360	50279.839
12	Dec-18	107.900	120.806	-12.906	166.576	-31.483	991.200	13035.016	11642.410	14594.198
13	Jan-20	166.200	136.254	29.946	896.777	26.817	719.134	22645.377	27622.440	18565.090
14	Feb-20	239.400	133.915	105.485	11127.138	100.017	10003.334	32059.191	57312.360	17933.161
15	Mar-20	482.700	204.125	278.575	77603.827	343.317	117866.334	98531.314	232999.290	41667.165
16	Apr-20	106.000	62.373	43.627	1903.309	-33.383	1114.447	6611.545	11236.000	3890.399
17	May-20	130.300	145.090	-14.790	218.756	-9.083	82.507	18905.280	16978.090	21051.227
18	Jun-20	9.200	12.075	-2.875	8.265	-130.183	16947.700	111.088	84.640	145.802
19	Jul-20	2.500	17.180	-14.680	215.493	-136.883	18737.047	42.949	6.250	295.141
20	Aug-20	3.700	-6.873	10.573	111.797	-135.683	18409.967	-25.432	13.690	47.244
21	Sep-20	22.800	7.638	15.162	229.877	-116.583	13591.674	174.153	519.840	58.343
22	Oct-20	123.000	163.109	-40.109	1608.692	-16.383	268.414	20062.346	15129.000	26604.383
23	Nov-20	207.500	123.710	83.790	7020.691	68.117	4639.880	25669.916	43056.250	15304.272
24	Dec-20	231.700	287.229	-55.529	3083.416	92.317	8522.367	66550.847	53684.890	82500.220
25	Jan-21	506.400	456.924	49.476	2447.907	367.017	134701.234	231386.148	256440.960	208779.243
26	Feb-21	359.100	298.515	60.585	3670.548	219.717	48275.414	107196.720	128952.810	89111.178
27	Mar-21	158.700	161.444	-2.744	7.530	19.317	373.134	25621.168	25185.690	26064.176
28	Apr-21	74.500	122.558	-48.058	2309.549	-64.883	4209.847	9130.554	5550.250	15020.407
29	May-21	0.000	18.630	-18.630	347.072	-139.383	19427.714	0.000	0.000	347.072
30	Jun-21	76.200	125.016	-48.816	2383.002	-63.183	3992.134	9526.219	5806.440	15629.001
31	Jul-21	0.000	9.554	-9.554	91.287	-139.383	19427.714	0.000	0.000	91.287
32	Aug-21	81.500	-5.907	87.407	7640.027	-57.883	3350.480	-481.441	6642.250	34.896
33	Sep-21	37.600	47.805	-10.205	104.139	-101.783	10359.847	1797.462	1413.760	2285.304
34	Oct-21	75.000	110.725	-35.725	1276.304	-64.383	4145.214	8304.405	5625.000	12260.115
35	Nov-21	268.000	295.987	-27.987	783.259	128.617	16542.247	79324.455	71824.000	87608.170
36	Dec-21	361.900	343.166	18.734	350.973	222.517	49513.667	124191.678	130971.610	117762.719
Jumlah		5017.800	4409.842	607.958	150171.399	0.000	862104.010	1266432.101	1561501.700	1121533.901
Rata-rata		139.383	122.496	16.888	4171.428	0.000	23947.334	35178.669	43375.047	31153.719
NSE		0.826								
RMSE		64.587								
R		0.921								

(Sumber : Hasil Perhitungan)

LAMPIRAN V

Lampiran 5.1 Perbandingan Data Hujan pengukuran (ARR), Data Hujan Satelit Tidak Terkoreksi, dan Data Hujan Satelit Terkoreksi Pos Hujan Kopang

Tanggal	ARR Kopang (mm)	Satelit CHIRPS (mm)	Satelit CHIRPS Terkoreksi (mm)
Jan-01	373.000	403.065	339.4165236
Feb-01	214.000	260.100	271.772186
Mar-01	338.000	304.907	299.5698456
Apr-01	404.000	192.641	218.5611599
May-01	64.000	153.616	181.5457589
Jun-01	29.300	53.590	65.8066504
Jul-01	0.000	23.846	25.59998186
Aug-01	5.100	55.204	67.91166556
Sep-01	12.700	10.609	6.853811993
Oct-01	182.600	178.526	205.7006551
Nov-01	680.200	302.524	298.2433739
Dec-01	86.900	174.359	201.7892695
Jan-02	426.100	205.396	229.6687292
Feb-02	126.000	114.172	139.489167
Mar-02	337.800	158.325	186.2545484
Apr-02	211.900	101.004	124.4100076
May-02	166.000	69.510	86.23594591
Jun-02	77.900	123.453	149.8054802
Jul-02	147.300	29.052	32.82914241
Aug-02	0.000	14.721	12.73385509
Sep-02	15.200	8.840	4.307866993
Oct-02	266.500	78.743	97.73529359
Nov-02	259.200	300.923	297.3421638
Dec-02	172.800	113.088	138.2680422
Jan-03	460.500	216.417	238.873354
Feb-03	249.100	293.643	293.1485827
Mar-03	269.300	159.706	187.6226873
Apr-03	83.900	93.584	115.6841092
May-03	22.300	37.929	44.96729492
Jun-03	0.000	13.808	11.43237161
Jul-03	0.000	27.250	30.335956
Aug-03	0.000	12.849	10.06333076
Sep-03	0.000	13.439	10.90624614
Oct-03	53.300	32.263	37.24679352
Nov-03	324.400	301.100	297.4421542
Dec-03	437.700	344.898	319.2932598
Jan-04	434.600	285.657	288.3653912
Feb-04	261.700	226.805	247.2159747
Mar-04	52.100	98.952	122.01388
Apr-04	251.000	90.576	112.1001439

May-04	88.900	64.885	80.37914691
Jun-04	8.900	40.141	47.95543216
Jul-04	0.000	17.184	16.23067752
Aug-04	0.000	10.587	6.822596815
Sep-04	55.400	28.962	32.70457335
Oct-04	28.400	24.223	26.12668828
Nov-04	310.400	289.661	290.787809
Dec-04	437.000	263.368	274.0034286
Jan-05	394.900	169.779	197.4302953
Feb-05	203.200	246.185	261.9134345
Mar-05	180.900	167.143	194.893005
Apr-05	169.000	44.904	54.33915314
May-05	192.600	86.928	107.7164282
Jun-05	0.000	17.888	17.22696134
Jul-05	0.000	17.185	16.2322355
Aug-05	0.100	10.350	6.481311702
Sep-05	0.400	19.591	19.63141944
Oct-05	0.510	96.306	118.9048599
Nov-05	134.450	273.336	280.6104416
Dec-05	146.600	279.278	284.4070424
Jan-06	201.000	80.798	100.2607943
Feb-06	202.900	144.383	172.1195814
Mar-06	911.800	164.029	191.8697663
Apr-06	66.300	138.211	165.6760114
May-06	0.000	18.814	18.53502952
Jun-06	172.900	27.578	30.79017748
Jul-06	58.600	35.421	41.56149293
Aug-06	5.000	17.114	16.13179777
Sep-06	45.000	26.687	29.5547757
Oct-06	146.400	130.128	157.0647087
Nov-06	0.000	241.264	258.2887077
Dec-06	96.350	345.752	319.6620004
Jan-07	183.200	316.989	306.0344767
Feb-07	154.400	179.347	206.4645795
Mar-07	340.500	299.909	296.7678075
Apr-07	250.300	122.638	148.9100548
May-07	64.900	115.217	140.6638573
Jun-07	88.800	39.440	47.01077499
Jul-07	5.100	31.525	36.23420357
Aug-07	0.000	9.951	5.907913414
Sep-07	0.000	9.561	5.347474411
Oct-07	35.800	26.166	28.83203227
Nov-07	0.000	79.413	98.56004682
Dec-07	307.570	300.024	296.8332138

Jan-08	195.200	96.135	118.7026935
Feb-08	98.500	190.273	216.4451458
Mar-08	85.700	332.464	313.6748462
Apr-08	169.300	176.891	204.1720113
May-08	16.000	61.578	76.15157843
Jun-08	10.000	37.222	44.00919513
Jul-08	19.800	21.618	22.48078185
Aug-08	0.000	12.112	9.008190367
Sep-08	0.000	8.102	3.243310741
Oct-08	0.000	45.041	54.52199307
Nov-08	20.200	159.770	187.6861155
Dec-08	325.100	408.860	340.8652557
Jan-09	318.500	163.996	191.8371276
Feb-09	46.270	247.800	263.0879194
Mar-09	231.200	333.080	313.964049
Apr-09	141.900	96.515	119.1508645
May-09	0.200	52.050	63.78937149
Jun-09	10.000	30.750	35.16832644
Jul-09	0.000	20.054	20.28335747
Aug-09	12.500	29.650	33.65376647
Sep-09	10.000	22.159	23.24031083
Oct-09	67.200	73.544	91.29120098
Nov-09	157.100	253.760	267.3525555
Dec-09	38.420	260.306	271.9139273
Jan-10	114.800	372.534	330.1198179
Feb-10	128.600	293.518	293.0750844
Mar-10	112.400	154.634	182.568969
Apr-10	8.700	88.558	109.6793874
May-10	0.150	153.077	181.0020242
Jun-10	0.000	21.089	21.73885793
Jul-10	0.000	29.431	33.35132362
Aug-10	0.000	10.250	6.337611666
Sep-10	0.000	34.493	40.29652475
Oct-10	35.500	51.251	62.74011986
Nov-10	0.000	91.424	113.1126236
Dec-10	103.860	218.699	240.7340657
Jan-11	253.200	271.938	279.7019303
Feb-11	115.500	155.286	183.2235737
Mar-11	199.700	208.645	232.4201096
Apr-11	290.900	283.576	287.0877677
May-11	124.000	117.665	143.4021882
Jun-11	16.200	19.088	18.92225761
Jul-11	26.200	23.247	24.76316262
Aug-11	0.300	10.587	6.822596815
Sep-11	13.900	9.263	4.917158813
Oct-11	46.500	64.719	80.16766035
Nov-11	351.400	229.490	249.3194258
Dec-11	245.600	284.631	287.7373083

Jan-12	531.000	336.045	315.3404741
Feb-12	230.100	182.975	209.8189629
Mar-12	0.000	239.432	256.9199844
Apr-12	75.000	70.958	88.05619698
May-12	0.000	104.655	128.6437041
Jun-12	75.000	14.917	13.01292938
Jul-12	19.900	22.931	24.32104917
Aug-12	0.000	16.122	14.72540578
Sep-12	37.000	13.039	10.33425909
Oct-12	95.000	45.530	55.17401208
Nov-12	242.100	181.791	208.7287766
Dec-12	450.100	321.758	308.4658393
Jan-13	429.500	371.035	329.5913637
Feb-13	331.900	205.102	229.4186377
Mar-13	67.533	113.237	138.4360538
Apr-13	250.900	118.909	144.7867734
May-13	36.107	130.225	157.1687417
Jun-13	69.000	116.418	142.0094078
Jul-13	21.500	70.723	87.76159748
Aug-13	0.000	12.271	9.235756931
Sep-13	2.900	10.893	7.261822615
Oct-13	37.400	56.125	69.11073189
Nov-13	220.900	276.347	282.547496
Dec-13	417.000	421.897	343.7563063
Jan-14	259.910	309.743	302.210302
Feb-14	92.800	141.251	168.8635181
Mar-14	123.900	109.713	134.441665
Apr-14	442.200	154.644	182.5789265
May-14	4.800	25.584	28.02286509
Jun-14	10.600	30.601	34.96465589
Jul-14	145.700	39.890	47.61743912
Aug-14	13.500	11.896	8.698653189
Sep-14	0.400	8.941	4.453955739
Oct-14	4.000	12.753	9.925607357
Nov-14	158.200	168.975	196.6590957
Dec-14	509.000	298.775	296.1213687
Jan-15	200.710	183.188	210.0146289
Feb-15	228.000	172.200	199.7423126
Mar-15	337.300	153.351	181.2788032
Apr-15	208.700	218.380	240.4749385
May-15	38.500	37.543	44.44389034
Jun-15	12.700	57.925	71.44442741
Jul-15	0.000	15.817	14.29197625
Aug-15	1.300	14.812	12.86276492
Sep-15	0.000	8.280	3.500289532
Oct-15	31.100	12.153	9.066684461
Nov-15	0.000	93.639	115.7495617
Dec-15	314.800	285.681	288.3801455

Jan-16	142.800	174.746	202.155169
Feb-16	550.700	238.985	256.584592
Mar-16	235.800	175.084	202.4731783
Apr-16	176.100	74.024	91.88950955
May-16	126.200	85.352	105.8098641
Jun-16	112.300	139.114	166.6261781
Jul-16	53.300	165.481	193.2831267
Aug-16	62.200	20.355	20.70705485
Sep-16	256.600	67.869	84.16510956
Oct-16	193.500	286.308	288.7626153
Nov-16	238.300	248.119	263.3184074
Dec-16	359.700	387.375	334.9881108
Jan-17	300.300	294.002	293.359419
Feb-17	377.000	224.482	245.3785232
Mar-17	226.700	167.501	195.2388214
Apr-17	143.000	112.564	137.6761054
May-17	78.600	42.059	50.5341522
Jun-17	29.600	115.737	141.2476713
Jul-17	87.800	35.367	41.48887251
Aug-17	29.500	12.496	9.558416701
Sep-17	2.900	9.060	4.625687759
Oct-17	113.300	119.112	145.0119689
Nov-17	405.100	412.635	341.7548645
Dec-17	369.100	294.141	293.4408385
Jan-18	570.600	416.588	342.6405398
Feb-18	215.100	211.553	234.856136
Mar-18	413.100	135.869	163.2006241
Apr-18	5.200	29.374	33.27376834
May-18	8.000	12.003	8.85183988
Jun-18	13.700	23.056	24.49624701
Jul-18	8.900	26.429	29.19619393
Aug-18	11.800	17.824	17.1372333
Sep-18	26.500	10.606	6.848650729
Oct-18	1.900	10.765	7.077240026
Nov-18	416.900	320.551	307.8567448
Dec-18	221.000	158.578	186.5058052
Jan-20	139.000	151.148	179.0514775
Feb-20	5.300	156.570	184.5075052
Mar-20	452.200	206.505	230.6119207
Apr-20	231.100	87.600	108.5273519
May-20	392.700	147.783	175.6205787
Jun-20	0.000	26.313	29.03601954
Jul-20	9.400	26.418	29.18107452
Aug-20	5.000	19.158	19.02084526
Sep-20	19.200	25.215	27.50894617
Oct-20	142.200	164.466	192.295165
Nov-20	215.900	183.543	210.3402892

Dec-20	446.200	323.423	309.2985285
Jan-21	398.500	447.453	347.9444163
Feb-21	278.500	267.781	276.9648947
Mar-21	242.500	160.769	188.6722357
Apr-21	92.500	129.982	156.9072927
May-21	9.000	31.056	35.58966322
Jun-21	79.000	119.410	145.3428462
Jul-21	6.500	30.812	35.25369634
Aug-21	0.000	29.977	34.10454215
Sep-21	53.500	50.162	61.30737563
Oct-21	107.000	127.271	153.9740872
Nov-21	452.000	486.913	350.5625849
Dec-21	268.000	392.351	336.4724448

(Sumber : Hasil Perhitungan)

Lampiran 5.2 Perbandingan Data Hujan pengukuran (ARR), Data Hujan Satelit Tidak Terkoreksi, dan Data Hujan Satelit Terkoreksi Pos Hujan Kabul

Tanggal	ARR Kabul (mm)	Satelit CHIRPS (mm)	Satelit CHIRPS Terkoreksi (mm)
Jan-01	358.000	375.458	271.2142363
Feb-01	210.700	284.077	218.1966451
Mar-01	263.500	354.672	260.0348481
Apr-01	185.300	200.252	160.7515558
May-01	189.300	214.892	171.3918162
Jun-01	0.000	53.841	40.18993767
Jul-01	0.000	20.736	9.363892976
Aug-01	7.000	14.987	3.877430365
Sep-01	0.000	9.424	-1.470598384
Oct-01	131.000	127.607	104.1472143
Nov-01	442.500	238.319	187.8838067
Dec-01	117.500	143.041	116.7029536
Jan-02	305.500	180.159	145.7288089
Feb-02	90.000	124.860	101.8825318
Mar-02	133.000	187.813	151.5083228
Apr-02	179.000	112.624	91.68559867
May-02	37.000	98.244	79.47084628
Jun-02	88.000	144.791	118.1090371
Jul-02	0.000	31.130	19.18413315
Aug-02	0.000	9.411	-1.483331095
Sep-02	0.000	11.065	0.110872965
Oct-02	0.000	75.891	59.99218361
Nov-02	107.500	238.505	188.0122485
Dec-02	54.200	87.335	70.03961095
Jan-03	212.000	180.223	145.7774279
Feb-03	411.500	320.312	240.4186144
Mar-03	232.000	162.942	132.4713527
Apr-03	184.500	106.371	86.40492442
May-03	0.000	55.412	41.62009507
Jun-03	0.000	17.338	6.125408416
Jul-03	0.000	23.450	11.9405344
Aug-03	0.000	9.026	-1.854407806
Sep-03	0.000	12.958	1.930966342
Oct-03	0.000	26.949	15.24977994
Nov-03	140.300	247.190	193.9568475
Dec-03	202.100	288.281	220.8556149
Jan-04	147.900	270.112	209.2118749
Feb-04	113.400	242.117	190.4955953
Mar-04	81.300	116.180	94.66755386
Apr-04	63.000	100.801	81.66101995
May-04	12.000	101.910	82.60840942

Jun-04	4.000	64.300	49.655676
Jul-04	9.000	14.394	3.308408807
Aug-04	0.000	7.209	-3.610305608
Sep-04	136.500	30.416	18.51351881
Oct-04	0.000	23.566	12.05046654
Nov-04	89.500	248.323	194.7255571
Dec-04	234.500	270.730	209.6144371
Jan-05	83.000	148.034	120.7041012
Feb-05	104.500	255.693	199.6897202
Mar-05	95.500	157.084	127.8793607
Apr-05	5.000	42.299	29.59188583
May-05	47.500	157.434	128.1548768
Jun-05	0.000	22.659	11.19085993
Jul-05	0.000	14.516	3.425927543
Aug-05	0.000	6.900	-3.908856
Sep-05	0.000	20.946	9.563580144
Oct-05	0.000	77.876	61.74620908
Nov-05	186.000	242.926	191.0493848
Dec-05	200.400	288.537	221.0173499
Jan-06	62.000	70.407	55.12226048
Feb-06	108.500	153.858	125.33281
Mar-06	181.000	183.512	148.2693683
Apr-06	118.000	139.261	113.6549577
May-06	47.500	26.838	15.14522599
Jun-06	37.500	37.606	25.23679635
Jul-06	48.000	45.575	32.61620988
Aug-06	30.000	13.468	2.420588986
Sep-06	10.500	26.788	15.09803978
Oct-06	69.400	126.394	103.1484738
Nov-06	76.200	156.759	127.6227625
Dec-06	232.700	348.786	256.7751417
Jan-07	339.000	267.389	207.4329297
Feb-07	230.600	198.550	159.497536
Mar-07	337.700	347.492	256.0531405
Apr-07	221.100	141.997	115.8628224
May-07	20.400	149.896	122.1880607
Jun-07	57.000	44.079	31.23729036
Jul-07	0.000	25.848	14.21038071
Aug-07	0.000	6.786	-4.019172478
Sep-07	0.000	10.032	-0.884541359
Oct-07	58.200	26.388	14.72063097
Nov-07	22.100	57.730	43.72487394
Dec-07	131.400	295.167	225.1652162
Jan-08	84.500	87.726	70.38011863
Feb-08	75.100	199.556	160.2392894
Mar-08	61.900	364.591	265.4342909
Apr-08	208.500	172.248	139.6815068
May-08	53.500	117.163	95.48923762

Jun-08	8.200	41.351	28.71468304
Jul-08	32.000	17.111	5.908953107
Aug-08	5.500	9.594	-1.306442302
Sep-08	0.000	8.558	-2.306577671
Oct-08	7.800	47.699	34.56996987
Nov-08	48.500	158.108	128.6845562
Dec-08	117.500	380.905	274.0582256
Jan-09	112.900	145.131	118.3813783
Feb-09	149.500	274.788	212.246413
Mar-09	316.400	392.700	280.0938551
Apr-09	103.600	117.815	96.03343397
May-09	15.100	73.540	57.90898457
Jun-09	0.000	37.699	25.32372534
Jul-09	0.000	17.134	5.931117294
Aug-09	2.300	22.089	10.64990075
Sep-09	11.100	19.801	8.474167284
Oct-09	3.500	69.466	54.2823758
Nov-09	54.800	230.080	182.1588482
Dec-09	75.200	205.844	164.8458166
Jan-10	405.000	355.466	260.4718428
Feb-10	286.800	321.132	240.9030257
Mar-10	116.400	174.689	141.5554003
Apr-10	20.500	90.587	72.86590368
May-10	10.000	193.391	155.6762296
Jun-10	0.000	26.480	14.80749541
Jul-10	0.000	24.778	13.19810216
Aug-10	0.000	6.987	-3.824290595
Sep-10	12.800	37.749	25.37044302
Oct-10	36.200	53.251	39.6526143
Nov-10	50.500	83.724	66.88642669
Dec-10	110.400	200.349	160.822756
Jan-11	115.900	257.922	201.1776917
Feb-11	99.000	199.350	160.0872642
Mar-11	128.800	238.032	187.686027
Apr-11	122.100	317.959	239.0234327
May-11	117.700	165.007	134.0799453
Jun-11	1.100	24.106	12.56200707
Jul-11	19.700	20.136	8.793066608
Aug-11	0.000	7.209	-3.610305608
Sep-11	0.000	9.737	-1.168547201
Oct-11	25.200	32.734	20.6878271
Nov-11	57.500	184.595	149.0867703
Dec-11	209.400	293.130	223.896324
Jan-12	115.300	378.715	272.9188335
Feb-12	111.900	220.614	175.4807382
Mar-12	156.300	295.463	225.3495596
Apr-12	27.300	72.658	57.12543122
May-12	170.700	167.028	135.6497686

Jun-12	0.500	19.451	8.141035548
Jul-12	1.700	17.206	5.999898589
Aug-12	0.700	6.886	-3.922402798
Sep-12	4.800	11.169	0.211171663
Oct-12	29.200	33.193	21.11798355
Nov-12	245.900	156.592	127.4911849
Dec-12	132.500	306.883	232.3669358
Jan-13	219.000	374.006	270.4499517
Feb-13	211.000	251.593	196.9360513
Mar-13	138.300	163.733	133.0880934
Apr-13	249.500	137.979	112.6169455
May-13	117.300	187.355	151.1646069
Jun-13	80.000	135.234	110.3880825
Jul-13	1.700	64.342	49.69342202
Aug-13	0.000	6.346	-4.444907973
Sep-13	1.000	12.427	1.4210433
Oct-13	78.900	55.610	41.79995207
Nov-13	60.300	229.796	181.9600554
Dec-13	271.830	414.160	290.6475449
Jan-14	197.500	325.085	243.2284143
Feb-14	173.900	177.991	144.0789393
Mar-14	131.700	124.702	101.751998
Apr-14	102.000	153.103	124.7347421
May-14	54.700	43.181	30.40739383
Jun-14	0.000	26.829	15.13635521
Jul-14	24.100	31.336	19.37801078
Aug-14	2.900	6.081	-4.701351796
Sep-14	0.500	10.062	-0.854854976
Oct-14	0.000	13.410	2.365306063
Nov-14	206.400	147.650	120.397002
Dec-14	404.500	302.118	229.4575393
Jan-15	149.800	160.689	130.709509
Feb-15	119.300	188.827	152.2687379
Mar-15	248.500	205.757	164.7829821
Apr-15	163.800	215.783	172.0311045
May-15	79.900	59.880	45.67152336
Jun-15	0.000	61.390	47.03526174
Jul-15	0.600	15.010	3.899270518
Aug-15	3.100	8.088	-2.759783769
Sep-15	6.700	9.093	-1.789750889
Oct-15	0.000	11.997	1.007515495
Nov-15	122.400	66.158	51.32364292
Dec-15	212.800	291.886	223.1190852
Jan-16	277.700	175.606	142.257262
Feb-16	302.700	293.642	224.2158533

Mar-16	154.400	181.890	147.0422193
Apr-16	128.100	79.492	63.17050376
May-16	20.300	115.795	94.34541867
Jun-16	224.600	176.156	142.6782315
Jul-16	54.500	125.842	102.6938124
Aug-16	12.100	7.988	-2.856602424
Sep-16	202.500	105.262	85.46279278
Oct-16	184.500	292.977	223.8010656
Nov-16	295.100	251.799	197.0747328
Dec-16	262.400	410.223	288.7526864
Jan-17	374.000	272.649	210.861543
Feb-17	418.200	277.109	213.7432917
Mar-17	151.400	210.214	168.0201766
Apr-17	126.000	129.310	105.5471475
May-17	5.900	65.003	50.28719369
Jun-17	80.000	137.339	112.0977673
Jul-17	58.600	30.040	18.16097098
Aug-17	5.700	6.383	-4.409469562
Sep-17	8.700	11.349	0.383824307
Oct-17	97.200	109.384	88.954761
Nov-17	374.500	372.397	269.6006227
Dec-17	390.800	349.223	257.0184807
Jan-18	592.100	483.284	320.8846424
Feb-18	226.600	238.679	188.1322371
Mar-18	186.600	170.036	137.9764789
Apr-18	25.000	24.093	12.55007511
May-18	0.000	15.622	4.485464531
Jun-18	7.100	22.436	10.97907815
Jul-18	0.900	22.157	10.71483644
Aug-18	6.900	10.366	-0.562485666
Sep-18	21.800	10.558	-0.376945326
Oct-18	2.400	11.126	0.169205655
Nov-18	117.700	296.082	225.7334451
Dec-18	67.000	134.330	109.6515918
Jan-20	0.000	136.112	111.1019774
Feb-20	0.000	175.738	142.3584074
Mar-20	328.400	249.506	195.526959
Apr-20	179.800	79.880	63.51275538
May-20	95.000	185.912	150.0792566
Jun-20	14.000	34.008	21.8808548
Jul-20	0.000	29.608	17.75465508
Aug-20	14.500	11.199	0.240238524
Sep-20	24.500	24.479	12.91514463
Oct-20	163.000	182.990	147.8748882
Nov-20	137.700	147.488	120.2682327
Dec-20	202.900	316.262	238.0132135
Jan-21	323.500	491.252	324.0015557
Feb-21	263.400	327.880	244.8607989
Mar-21	133.500	202.176	162.1644774
Apr-21	125.300	140.913	114.9887898
May-21	19.000	38.132	25.7269612
Jun-21	91.300	152.698	124.4142877
Jul-21	3.000	28.829	17.02117783
Aug-21	36.300	8.960	-1.91829799
Sep-21	67.300	58.240	44.18763984
Oct-21	88.600	109.107	88.72074984
Nov-21	497.500	403.040	285.247991
Dec-21	420.000	392.764	280.1263527

(Sumber : Hasil Perhitungan)

Lampiran 5.3 Perbandingan Data Hujan pengukuran (ARR), Data Hujan Satelit Tidak Terkoreksi, dan Data Hujan Satelit Terkoreksi Pos Hujan Rembitan

Tanggal	ARR Rembitan (mm)	Satelit CHIRPS (mm)	Satelit CHIRPS Terkoreksi (mm)
Jan-01	183.300	171.619	181.2516622
Feb-01	318.700	104.454	107.3795233
Mar-01	150.800	140.178	147.2326738
Apr-01	35.300	94.505	96.05313284
May-01	0.900	78.714	77.87316934
Jun-01	45.900	118.552	123.2593041
Jul-01	1.900	26.363	15.81783705
Aug-01	0.000	6.890	-7.963664138
Sep-01	0.000	10.657	-3.333770245
Oct-01	97.000	68.476	65.9525849
Nov-01	102.500	183.406	193.7501539
Dec-01	292.000	79.529	78.81698996
Jan-02	207.500	181.158	191.3774961
Feb-02	573.500	277.652	288.6912786
Mar-02	127.500	123.900	129.2315615
Apr-02	174.500	92.448	93.69920947
May-02	0.000	47.734	41.48167026
Jun-02	0.000	15.941	3.137882924
Jul-02	0.000	25.261	14.48271716
Aug-02	0.000	8.948	-5.431753582
Sep-02	0.000	13.486	0.134716343
Oct-02	0.000	26.938	16.51458665
Nov-02	114.500	182.079	192.3505593
Dec-02	252.500	245.966	257.7630399
Jan-03	543.600	262.009	273.5479188
Feb-03	195.200	205.913	217.2306457
Mar-03	103.500	90.624	91.6077645
Apr-03	106.000	85.793	86.05407353
May-03	15.700	77.936	76.97051893
Jun-03	11.600	56.197	51.51865922
Jul-03	10.400	15.719	2.865703519
Aug-03	2.200	7.232	-7.542658112
Sep-03	88.800	31.416	21.92780855
Oct-03	31.500	25.030	14.20178497
Nov-03	159.200	172.368	182.0495743
Dec-03	433.300	236.787	248.6154975
Jan-04	328.000	137.103	143.851703

Feb-04	181.100	203.877	215.1278115
Mar-04	162.000	146.569	154.2271014
Apr-04	9.500	39.030	31.0850461
May-04	147.700	121.719	126.7989158
Jun-04	8.300	20.901	9.186379591
Jul-04	3.000	15.961	3.161500752
Aug-04	10.000	7.242	-7.530764983
Sep-04	9.500	18.630	6.419089859
Oct-04	10.000	81.039	80.56500932
Nov-04	174.500	161.562	170.4779593
Dec-04	248.000	250.859	262.6043714
Jan-05	235.000	75.377	73.99918413
Feb-05	211.500	122.245	127.3859781
Mar-05	227.500	150.623	158.643472
Apr-05	118.000	129.103	135.0142106
May-05	0.000	23.112	11.87383492
Jun-05	0.000	29.760	19.92838448
Jul-05	60.500	36.496	28.0429965
Aug-05	30.000	13.166	-0.257539165
Sep-05	5.100	28.062	17.87472794
Oct-05	46.000	129.008	134.908755
Nov-05	47.200	123.622	128.9219914
Dec-05	345.200	320.127	328.5756901
Jan-06	293.200	254.739	266.4268144
Feb-06	116.500	154.090	162.4066787
Mar-06	313.300	288.600	299.1438081
Apr-06	145.200	133.989	140.4190243
May-06	10.400	115.170	119.4682558
Jun-06	41.200	40.161	32.43972437
Jul-06	0.300	26.020	15.40310316
Aug-06	0.000	6.874	-7.983793748
Sep-06	0.400	10.371	-3.684311696
Oct-06	13.400	28.171	18.00720409
Nov-06	25.700	46.507	40.0210318
Dec-06	143.000	233.630	245.4498797
Jan-07	110.600	85.623	85.85774
Feb-07	174.700	163.439	172.4955464
Mar-07	263.900	291.276	301.680676
Apr-07	149.000	152.153	160.3063392
May-07	2.200	80.657	80.12370038
Jun-07	30.500	35.855	27.27304667
Jul-07	1.500	17.053	4.496004401
Aug-07	14.400	9.062	-5.292701657
Sep-07	0.000	8.844	-5.560592526
Oct-07	1.000	41.666	34.24129448
Nov-07	44.600	120.214	125.1177964
Dec-07	377.000	344.551	350.6929657
Jan-08	287.800	136.569	143.2645628
Feb-08	305.000	238.032	249.8611003
Mar-08	194.300	327.470	335.2875649

Apr-08	50.700	112.596	116.5749829
May-08	25.300	62.386	58.81252886
Jun-08	0.000	32.817	23.61671548
Jul-08	1.100	18.694	6.4970821
Aug-08	0.000	14.338	1.177710503
Sep-08	42.100	21.167	9.509540218
Oct-08	14.000	67.475	64.78213623
Nov-08	223.800	172.695	182.3988106
Dec-08	225.700	184.973	195.4013944
Jan-09	441.100	334.065	341.2701417
Feb-09	312.600	249.598	261.358989
Mar-09	86.900	139.961	146.994067
Apr-09	16.400	78.859	78.04067518
May-09	18.200	144.883	152.3866572
Jun-09	0.600	24.589	13.66775337
Jul-09	24.400	26.892	16.45847444
Aug-09	4.400	7.074	-7.737608468
Sep-09	34.400	29.700	19.85566232
Oct-09	31.800	52.546	47.19664027
Nov-09	113.300	59.166	55.0227174
Dec-09	183.100	184.625	195.0350164
Jan-10	72.100	228.046	239.8265089
Feb-10	121.000	113.016	117.0473063
Mar-10	71.100	77.238	76.16115873
Apr-10	163.500	196.549	207.5229775
May-10	126.000	293.126	303.4307181
Jun-10	12.900	50.209	44.42431577
Jul-10	65.100	158.554	167.2357774
Aug-10	11.100	30.226	20.49036086
Sep-10	115.200	96.837	98.71728557
Oct-10	118.800	196.903	207.8922028
Nov-10	300.000	239.963	251.789606
Dec-10	291.400	447.666	437.4942797
Jan-11	130.700	249.121	260.8867987
Feb-11	151.800	173.061	182.7881144
Mar-11	226.780	221.365	233.0579166
Apr-11	231.600	279.017	290.0009855
May-11	43.700	124.476	129.8722399
Jun-11	8.000	22.089	10.63135157
Jul-11	11.100	21.782	10.25776841
Aug-11	0.200	7.232	-7.542658112
Sep-11	7.700	10.043	-4.086994945
Oct-11	22.800	31.073	21.51380033
Nov-11	138.300	126.085	131.6624365
Dec-11	354.500	251.638	263.3727282
Jan-12	252.700	357.619	362.2818926
Feb-12	241.900	171.464	181.0868458
Mar-12	249.900	246.579	258.3701063
Apr-12	281.600	68.493	65.97260529
May-12	137.000	115.594	119.9439519

Jun-12	0.000	20.599	8.818313484
Jul-12	2.900	18.024	5.679930807
Aug-12	4.600	6.774	-8.106901388
Sep-12	10.000	12.571	-0.986717213
Oct-12	20.900	33.674	24.64847817
Nov-12	136.500	105.586	108.6621244
Dec-12	285.600	267.026	278.4314314
Jan-13	378.100	370.216	373.2914708
Feb-13	142.300	197.617	208.6352028
Mar-13	205.700	115.609	119.9604721
Apr-13	57.400	123.656	128.9596088
May-13	147.800	139.510	146.4988914
Jun-13	146.800	110.854	114.6129882
Jul-13	25.100	44.641	37.79582765
Aug-13	4.200	4.776	-10.56799739
Sep-13	4.000	12.267	-1.358479117
Oct-13	10.700	50.882	45.22350977
Nov-13	150.000	161.118	169.9997257
Dec-13	451.200	348.159	353.9101157
Jan-14	356.400	284.565	295.3055083
Feb-14	146.500	138.444	145.3270348
Mar-14	96.200	100.907	103.352382
Apr-14	40.400	128.183	133.9936589
May-14	22.300	35.049	26.30439317
Jun-14	0.300	28.875	18.85852805
Jul-14	9.140	30.723	21.09163944
Aug-14	6.000	4.635	-10.74261775
Sep-14	0.000	9.995	-4.146247568
Oct-14	0.000	14.233	1.048183563
Nov-14	129.400	109.294	112.8538326
Dec-14	329.600	265.350	276.8029361
Jan-15	186.900	164.318	173.440376
Feb-15	124.300	149.935	157.8957805
Mar-15	230.000	153.221	161.4649645
Apr-15	140.000	189.736	200.4051518
May-15	7.500	49.296	43.33912827
Jun-15	7.600	53.859	48.75266963
Jul-15	6.200	12.294	-1.325220718
Aug-15	1.200	5.473	-9.709314963
Sep-15	1.000	9.153	-5.180006635
Oct-15	0.000	13.223	-0.187427229
Nov-15	0.000	48.550	42.45209413
Dec-15	255.800	245.325	257.1261553
Jan-16	254.000	161.172	170.0574397
Feb-16	404.600	227.363	239.1365049
Mar-16	119.600	142.882	150.1968021
Apr-16	45.300	66.144	63.22299325
May-16	35.800	87.011	87.45599028
Jun-16	70.900	136.131	142.7816786
Jul-16	41.400	132.563	138.8437415

Aug-16	68.000	11.284	-2.564593245
Sep-16	107.200	102.498	105.1601907
Oct-16	60.300	284.938	295.6611775
Nov-16	299.500	179.626	189.7576649
Dec-16	479.700	364.243	368.0907395
Jan-17	366.600	262.103	273.6397574
Feb-17	348.900	228.400	240.184403
Mar-17	105.700	176.111	186.0310354
Apr-17	30.000	103.159	105.9105003
May-17	2.700	53.024	47.76371314
Jun-17	90.900	99.067	101.2592776
Jul-17	55.900	29.579	19.70997514
Aug-17	13.400	5.030	-10.25519098
Sep-17	1.200	12.665	-0.870658509
Oct-17	131.600	108.947	112.4616314
Nov-17	327.100	264.411	275.88917
Dec-17	458.800	301.779	311.5678893
Jan-18	553.900	450.709	439.8940108
Feb-18	257.400	194.903	205.8081761
Mar-18	58.000	126.307	131.9095728
Apr-18	2.100	21.916	10.42077761
May-18	0.000	13.797	0.51472619
Jun-18	3.300	19.335	7.279392059
Jul-18	6.500	22.099	10.64278987
Aug-18	10.900	7.546	-7.156297344
Sep-18	15.500	10.553	-3.461291124
Oct-18	2.800	12.324	-1.288590267
Nov-18	275.600	212.719	224.2316639
Dec-18	107.900	116.363	120.8064492
Jan-20	166.200	130.222	136.2537697
Feb-20	239.400	128.112	133.9147511
Mar-20	482.700	193.291	204.1253656
Apr-20	106.000	65.419	62.37306654
May-20	130.300	138.228	145.0904087
Jun-20	9.200	23.277	12.07483469
Jul-20	2.500	27.487	17.17967053
Aug-20	3.700	7.776	-6.873401416
Sep-20	22.800	19.630	7.638289058
Oct-20	123.000	154.737	163.1085007
Nov-20	207.500	118.955	123.7104365
Dec-20	231.700	276.130	287.2285155
Jan-21	506.400	472.648	456.9236729
Feb-21	359.100	287.938	298.5149547
Mar-21	158.700	153.202	161.4440344
Apr-21	74.500	117.926	122.5577692
May-21	0.000	28.686	18.62985936
Jun-21	76.200	120.123	125.0160023
Jul-21	0.000	21.204	9.554432121
Aug-21	81.500	8.562	-5.907245857
Sep-21	37.600	53.059	47.80485143
Oct-21	75.000	107.410	110.725403
Nov-21	268.000	285.280	295.9867728
Dec-21	361.900	336.164	343.165731

(Sumber : Hasil Perhitungan)

LAMPIRAN VI

Lampiran 6.1 Perhitungan Nilai α dan β pada Pos Hujan Kopang

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	403.065	260.100	304.907	192.641	153.616	53.590	23.846	55.204	10.609	178.526	302.524	174.359
2002	205.396	114.172	158.325	101.004	69.510	123.453	29.052	14.721	8.840	78.743	300.923	113.088
2003	216.417	293.643	159.706	93.584	37.929	13.808	27.250	12.849	13.439	32.263	301.100	344.898
2004	285.657	226.805	98.952	90.576	64.885	40.141	17.184	10.587	28.962	24.223	289.661	263.368
2005	169.779	246.185	167.143	44.904	86.928	17.888	17.185	10.350	19.591	96.306	273.336	279.278
2006	80.798	144.383	164.029	138.211	18.814	27.578	35.421	17.114	26.687	130.128	241.264	345.752
2007	316.989	179.347	299.909	122.638	115.217	39.440	31.525	9.951	9.561	26.166	79.413	300.024
2008	96.135	190.273	332.464	176.891	61.578	37.222	21.618	12.112	8.102	45.041	159.770	408.860
2009	163.996	247.800	333.080	96.515	52.050	30.750	20.054	29.650	22.159	73.544	253.760	260.306
2010	372.534	293.518	154.634	88.558	153.077	21.089	29.431	10.250	34.493	51.251	91.424	218.699
2011	271.938	155.286	208.645	283.576	117.665	19.088	23.247	10.587	9.263	64.719	229.490	284.631
2012	336.045	182.975	239.432	70.958	104.655	14.917	22.931	16.122	13.039	45.530	181.791	321.758
2013	371.035	205.102	113.237	118.909	130.225	116.418	70.723	12.271	10.893	56.125	276.347	421.897
2014	309.743	141.251	109.713	154.644	25.584	30.601	39.890	11.896	8.941	12.753	168.975	298.775
2015	183.188	172.200	153.351	218.380	37.543	57.925	15.817	14.812	8.280	12.153	93.639	285.681
2016	174.746	238.985	175.084	74.024	85.352	139.114	165.481	20.355	67.869	286.308	248.119	387.375
2017	294.002	224.482	167.501	112.564	42.059	115.737	35.367	12.496	9.060	119.112	412.635	294.141
2018	416.588	211.553	135.869	29.374	12.003	23.056	26.429	17.824	10.606	10.765	320.551	158.578
2020	151.148	156.570	206.505	87.600	147.783	26.313	26.418	19.158	25.215	164.466	183.543	323.423
2021	447.453	267.781	160.769	129.982	31.056	119.410	30.812	29.977	50.162	127.271	486.913	392.351
Jumlah	5266.655	4152.410	3843.254	2425.533	1547.527	1067.540	709.680	348.287	395.770	######	4895.178	5877.244
Rerata	263.333	207.621	192.163	121.277	77.376	53.377	35.484	17.414	19.789	81.770	244.759	293.862
St Dev	108.719	51.989	72.502	60.479	46.610	42.924	32.797	10.621	15.874	69.652	102.794	82.208
n	20	20	20	20	20	20	20	20	20	20	20	20
m	0	0	0	0	0	0	0	0	0	0	0	0
q=m/n	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alpha (α	5.867	15.948	7.025	4.021	2.756	1.546	1.171	2.688	1.554	1.378	5.669	12.778
Beta (β)	44.886	13.018	27.355	30.160	28.077	34.518	30.314	6.478	12.735	59.330	43.172	22.998

(Sumber : Hasil Perhitungan)

Lampiran 6.2 Perhitungan Distribusi Gamma G(x) Pos Hujan Kopang

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0.893	0.845	0.926	0.878	0.930	0.609	0.467	0.994	0.336	0.907	0.746	0.053
2002	0.331	0.019	0.356	0.426	0.512	0.928	0.542	0.476	0.273	0.596	0.741	0.002
2003	0.375	0.939	0.364	0.372	0.199	0.139	0.517	0.395	0.430	0.260	0.742	0.752
2004	0.632	0.670	0.073	0.349	0.469	0.475	0.354	0.294	0.779	0.189	0.709	0.386
2005	0.198	0.783	0.408	0.063	0.654	0.194	0.354	0.283	0.602	0.685	0.658	0.465
2006	0.012	0.100	0.389	0.668	0.046	0.324	0.622	0.570	0.744	0.807	0.542	0.755
2007	0.726	0.313	0.919	0.575	0.817	0.467	0.575	0.265	0.299	0.206	0.017	0.567
2008	0.026	0.398	0.957	0.834	0.437	0.442	0.431	0.363	0.247	0.367	0.211	0.910
2009	0.179	0.791	0.958	0.393	0.341	0.364	0.405	0.875	0.660	0.566	0.590	0.371
2010	0.847	0.939	0.335	0.334	0.929	0.237	0.548	0.279	0.846	0.416	0.031	0.181
2011	0.586	0.154	0.635	0.984	0.827	0.210	0.457	0.294	0.289	0.511	0.496	0.492
2012	0.774	0.341	0.767	0.208	0.766	0.154	0.452	0.532	0.417	0.371	0.298	0.663
2013	0.845	0.514	0.124	0.551	0.873	0.914	0.872	0.370	0.346	0.452	0.668	0.929
2014	0.706	0.087	0.110	0.749	0.091	0.362	0.669	0.353	0.277	0.087	0.246	0.561
2015	0.246	0.261	0.327	0.929	0.195	0.645	0.328	0.480	0.253	0.082	0.034	0.497
2016	0.216	0.745	0.454	0.229	0.643	0.952	0.994	0.679	0.985	0.982	0.569	0.870
2017	0.659	0.655	0.410	0.508	0.239	0.913	0.621	0.380	0.281	0.773	0.933	0.539
2018	0.909	0.563	0.230	0.017	0.016	0.264	0.506	0.596	0.336	0.070	0.791	0.029
2020	0.138	0.161	0.625	0.327	0.918	0.307	0.505	0.641	0.719	0.885	0.305	0.670
2021	0.938	0.873	0.370	0.621	0.135	0.920	0.566	0.880	0.947	0.799	0.976	0.880

(Sumber : Hasil Perhitungan)

Lampiran 6.3 Perhitungan Probabilitas Kumulatif H(x) Pos Hujan Kopang

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0.893	0.845	0.926	0.878	0.930	0.609	0.467	0.994	0.336	0.907	0.746	0.053
2002	0.331	0.019	0.356	0.426	0.512	0.928	0.542	0.476	0.273	0.596	0.741	0.002
2003	0.375	0.939	0.364	0.372	0.199	0.139	0.517	0.395	0.430	0.260	0.742	0.752
2004	0.632	0.670	0.073	0.349	0.469	0.475	0.354	0.294	0.779	0.189	0.709	0.386
2005	0.198	0.783	0.408	0.063	0.654	0.194	0.354	0.283	0.602	0.685	0.658	0.465
2006	0.012	0.100	0.389	0.668	0.046	0.324	0.622	0.570	0.744	0.807	0.542	0.755
2007	0.726	0.313	0.919	0.575	0.817	0.467	0.575	0.265	0.299	0.206	0.017	0.567
2008	0.026	0.398	0.957	0.834	0.437	0.442	0.431	0.363	0.247	0.367	0.211	0.910
2009	0.179	0.791	0.958	0.393	0.341	0.364	0.405	0.875	0.660	0.566	0.590	0.371
2010	0.847	0.939	0.335	0.334	0.929	0.237	0.548	0.279	0.846	0.416	0.031	0.181
2011	0.586	0.154	0.635	0.984	0.827	0.210	0.457	0.294	0.289	0.511	0.496	0.492
2012	0.774	0.341	0.767	0.208	0.766	0.154	0.452	0.532	0.417	0.371	0.298	0.663
2013	0.845	0.514	0.124	0.551	0.873	0.914	0.872	0.370	0.346	0.452	0.668	0.929
2014	0.706	0.087	0.110	0.749	0.091	0.362	0.669	0.353	0.277	0.087	0.246	0.561
2015	0.246	0.261	0.327	0.929	0.195	0.645	0.328	0.480	0.253	0.082	0.034	0.497
2016	0.216	0.745	0.454	0.229	0.643	0.952	0.994	0.679	0.985	0.982	0.569	0.870
2017	0.659	0.655	0.410	0.508	0.239	0.913	0.621	0.380	0.281	0.773	0.933	0.539
2018	0.909	0.563	0.230	0.017	0.016	0.264	0.506	0.596	0.336	0.070	0.791	0.029
2020	0.138	0.161	0.625	0.327	0.918	0.307	0.505	0.641	0.719	0.885	0.305	0.670
2021	0.938	0.873	0.370	0.621	0.135	0.920	0.566	0.880	0.947	0.799	0.976	0.880

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.4 Perhitungan Transfom Gamma Distribusi (t) Pos Hujan Kopang

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	2.114	1.932	2.282	2.052	2.305	1.370	1.234	3.205	1.477	2.178	1.655	0.329
2002	1.487	2.824	1.437	1.306	1.197	2.295	1.251	1.219	1.610	1.347	1.645	3.498
2003	1.402	2.368	1.422	1.407	1.798	1.986	1.207	1.362	1.299	1.641	1.646	1.670
2004	1.414	1.490	2.287	1.451	1.231	1.220	1.441	1.565	1.738	1.826	1.572	1.380
2005	1.799	1.748	1.340	2.354	1.458	1.811	1.441	1.588	1.357	1.519	1.465	1.237
2006	2.964	2.146	1.374	1.484	2.482	1.502	1.394	1.299	1.651	1.814	1.250	1.677
2007	1.608	1.523	2.240	1.308	1.842	1.233	1.308	1.629	1.553	1.777	2.845	1.293
2008	2.703	1.358	2.510	1.895	1.287	1.277	1.297	1.424	1.673	1.415	1.764	2.194
2009	1.856	1.770	2.515	1.366	1.467	1.421	1.345	2.041	1.468	1.293	1.335	1.409
2010	1.939	2.367	1.480	1.480	2.299	1.696	1.259	1.598	1.935	1.325	2.636	1.848
2011	1.327	1.935	1.421	2.869	1.874	1.766	1.251	1.565	1.576	1.196	1.185	1.191
2012	1.724	1.467	1.707	1.772	1.704	1.935	1.260	1.233	1.322	1.408	1.557	1.476
2013	1.931	1.201	2.045	1.265	2.030	2.215	2.028	1.410	1.457	1.261	1.485	2.298
2014	1.564	2.210	2.102	1.663	2.191	1.425	1.488	1.443	1.602	2.211	1.674	1.283
2015	1.675	1.639	1.495	2.298	1.808	1.439	1.492	1.212	1.657	2.238	2.600	1.182
2016	1.752	1.652	1.257	1.717	1.435	2.463	3.183	1.507	2.896	2.844	1.297	2.020
2017	1.466	1.459	1.336	1.191	1.691	2.208	1.393	1.391	1.592	1.723	2.323	1.244
2018	2.190	1.287	1.715	2.858	2.879	1.632	1.187	1.346	1.477	2.306	1.769	2.667
2020	1.989	1.912	1.401	1.495	2.239	1.537	1.187	1.432	1.593	2.078	1.541	1.490
2021	2.360	2.033	1.410	1.392	2.000	2.249	1.292	2.058	2.425	1.791	2.734	2.061

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.5 Perhitungan Nilai SPI pada Pos Hujan Kopang

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	1.243	1.017	1.447	1.166	1.475	0.275	-0.083	2.520	-0.423	1.321	0.661	-1.535
2002	-0.437	-2.085	-0.369	-0.186	0.029	1.462	0.106	-0.060	-0.602	0.243	0.647	-2.848
2003	-0.320	1.551	-0.347	-0.327	-0.846	-1.084	0.044	-0.265	-0.175	-0.643	0.649	0.680
2004	0.337	0.441	-1.452	-0.387	-0.079	-0.062	-0.374	-0.541	0.769	-0.883	0.551	-0.290
2005	-0.848	0.782	-0.233	-1.533	0.397	-0.863	-0.374	-0.572	0.258	0.481	0.407	-0.086
2006	-2.246	-1.282	-0.281	0.433	-1.685	-0.457	0.309	0.176	0.656	0.867	0.106	0.689
2007	0.599	-0.486	1.396	0.189	0.903	-0.081	0.188	-0.626	-0.526	-0.820	-2.109	0.167
2008	-1.945	-0.259	1.719	0.969	-0.159	-0.145	-0.173	-0.351	-0.684	-0.338	-0.803	1.340
2009	-0.920	0.810	1.725	-0.271	-0.409	-0.347	-0.241	1.153	0.411	0.167	0.226	-0.330
2010	1.026	1.549	-0.427	-0.428	1.468	-0.714	0.119	-0.586	1.021	-0.213	-1.866	-0.911
2011	0.216	-1.021	0.346	2.137	0.943	-0.805	-0.107	-0.541	-0.557	0.028	-0.010	-0.020
2012	0.751	-0.409	0.729	-0.813	0.725	-1.020	-0.119	0.081	-0.208	-0.328	-0.531	0.421
2013	1.015	0.035	-1.157	0.128	1.139	1.366	1.137	-0.332	-0.396	-0.121	0.434	1.466
2014	0.540	-1.360	-1.228	0.671	-1.337	-0.352	0.438	-0.377	-0.591	-1.361	-0.686	0.152
2015	-0.687	-0.639	-0.447	1.466	-0.860	0.372	-0.444	-0.051	-0.664	-1.394	-1.824	-0.007
2016	-0.787	0.658	-0.116	-0.741	0.366	1.664	2.495	0.464	2.168	2.108	0.173	1.126
2017	0.408	0.399	-0.228	0.020	-0.708	1.357	0.308	-0.305	-0.578	0.749	1.496	0.097
2018	1.336	0.158	-0.739	-2.124	-2.149	-0.631	0.014	0.242	-0.423	-1.476	0.810	-1.903
2020	-1.087	-0.991	0.318	-0.447	1.394	-0.504	0.014	0.362	0.579	1.198	-0.510	0.440
2021	1.540	1.143	-0.331	0.306	-1.102	1.408	0.165	1.174	1.619	0.837	1.981	1.177

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.6 Perhitungan Nilai α dan β pada Pos Hujan Kabul

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	271.214	218.197	260.035	160.752	171.392	40.190	9.364	3.877	0.000	104.147	187.884	116.703
2002	145.729	101.883	151.508	91.686	79.471	118.109	19.184	0.000	0.111	59.992	188.012	70.040
2003	145.777	240.419	132.471	86.405	41.620	6.125	11.941	0.000	1.931	15.250	193.957	220.856
2004	209.212	190.496	94.668	81.661	82.608	49.656	3.308	0.000	18.514	12.050	194.726	209.614
2005	120.704	199.690	127.879	29.592	128.155	11.191	3.426	0.000	9.564	61.746	191.049	221.017
2006	55.122	125.333	148.269	113.655	15.145	25.237	32.616	2.421	15.098	103.148	127.623	256.775
2007	207.433	159.498	256.053	115.863	122.188	31.237	14.210	0.000	0.000	14.721	43.725	225.165
2008	70.380	160.239	265.434	139.682	95.489	28.715	5.909	0.000	0.000	34.570	128.685	274.058
2009	118.381	212.246	280.094	96.033	57.909	25.324	5.931	10.650	8.474	54.282	182.159	164.846
2010	260.472	240.903	141.555	72.866	155.676	14.807	13.198	0.000	25.370	39.653	66.886	160.823
2011	201.178	160.087	187.686	239.023	134.080	12.562	8.793	0.000	0.000	20.688	149.087	223.896
2012	272.919	175.481	225.350	57.125	135.650	8.141	6.000	0.000	0.211	21.118	127.491	232.367
2013	270.450	196.936	133.088	112.617	151.165	110.388	49.693	0.000	1.421	41.800	181.960	290.648
2014	243.228	144.079	101.752	124.735	30.407	15.136	19.378	0.000	0.000	2.365	120.397	229.458
2015	130.710	152.269	164.783	172.031	45.672	47.035	3.899	0.000	0.000	1.008	51.324	223.119
2016	142.257	224.216	147.042	63.171	94.345	142.678	102.694	0.000	85.463	223.801	197.075	288.753
2017	210.862	213.743	168.020	105.547	50.287	112.098	18.161	0.000	0.384	88.955	269.601	257.018
2018	320.885	188.132	137.976	12.550	4.485	10.979	10.715	0.000	0.000	0.169	225.733	109.652
2020	111.102	142.358	195.527	63.513	150.079	21.881	17.755	0.240	12.915	147.875	120.268	238.013
2021	324.002	244.861	162.164	114.989	25.727	124.414	17.021	0.000	44.188	88.721	285.248	280.126
Jumlah	######	######	######	######	1771.551	955.904	373.197	17.188	223.643	######	######	######
Rerata	191.601	184.553	174.068	102.675	88.578	47.795	18.660	0.859	11.182	56.803	161.644	214.647
St Dev	80.256	40.646	55.528	51.081	52.562	45.685	22.637	2.509	20.908	56.680	64.706	61.135
n	20	20	20	20	20	20	20	20	20	20	20	20.000
m	0	0	0	0	0	0	0	16	7	0	0	0.000
q=m/n	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.350	0.000	0.000	0.000
Alpha (α	5.700	20.616	9.827	4.040	2.840	1.094	0.679	0.117	0.286	1.004	6.241	12.327
Beta (β)	33.617	8.952	17.713	25.413	31.190	43.669	27.462	7.325	39.094	56.558	25.902	17.412

(Sumber : Hasil Perhitungan)

Lampiran 6.7 Perhitungan Distribusi Gamma G(x) Pos Hujan Kabul

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0.845	0.804	0.927	0.872	0.925	0.560	0.466	0.935	0.000	0.840	0.698	0.033
2002	0.315	0.009	0.375	0.478	0.508	0.921	0.667	0.000	0.208	0.652	0.698	0.001
2003	0.315	0.908	0.239	0.433	0.178	0.104	0.531	0.000	0.465	0.235	0.726	0.577
2004	0.638	0.586	0.052	0.392	0.533	0.641	0.250	0.000	0.814	0.190	0.730	0.505
2005	0.190	0.668	0.209	0.029	0.804	0.189	0.256	0.000	0.705	0.663	0.713	0.579
2006	0.010	0.058	0.351	0.645	0.018	0.394	0.816	0.900	0.781	0.837	0.333	0.771
2007	0.630	0.284	0.919	0.660	0.778	0.466	0.580	0.000	0.000	0.227	0.006	0.604
2008	0.029	0.290	0.936	0.792	0.628	0.437	0.357	0.000	0.000	0.455	0.340	0.838
2009	0.179	0.765	0.957	0.514	0.321	0.395	0.358	0.985	0.685	0.615	0.669	0.215
2010	0.818	0.910	0.302	0.315	0.892	0.247	0.559	0.000	0.863	0.502	0.037	0.192
2011	0.601	0.289	0.635	0.983	0.827	0.212	0.450	0.000	0.000	0.304	0.474	0.596
2012	0.849	0.439	0.829	0.184	0.833	0.138	0.361	0.000	0.249	0.310	0.332	0.647
2013	0.843	0.645	0.243	0.638	0.881	0.906	0.910	0.000	0.427	0.520	0.668	0.888
2014	0.767	0.158	0.076	0.715	0.094	0.252	0.670	0.000	0.000	0.040	0.286	0.630
2015	0.238	0.220	0.475	0.902	0.213	0.620	0.277	0.000	0.000	0.017	0.012	0.592
2016	0.297	0.838	0.342	0.232	0.620	0.954	0.989	0.000	0.984	0.981	0.740	0.883
2017	0.645	0.775	0.499	0.588	0.253	0.909	0.651	0.000	0.296	0.791	0.936	0.772
2018	0.931	0.564	0.277	0.002	0.001	0.186	0.501	0.000	0.000	0.003	0.845	0.022
2020	0.148	0.146	0.683	0.235	0.878	0.350	0.644	0.707	0.755	0.926	0.285	0.678
2021	0.934	0.922	0.455	0.654	0.065	0.931	0.632	0.000	0.934	0.790	0.955	0.858

(Sumber : Hasil Perhitungan)

Lampiran 6.8 Perhitungan Probabilitas Kumulatif H(x) Pos Hujan Kabul

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0.845	0.804	0.927	0.872	0.925	0.560	0.466	0.987	0.350	0.840	0.698	0.033
2002	0.315	0.009	0.375	0.478	0.508	0.921	0.667	0.800	0.485	0.652	0.698	0.001
2003	0.315	0.908	0.239	0.433	0.178	0.104	0.531	0.800	0.652	0.235	0.726	0.577
2004	0.638	0.586	0.052	0.392	0.533	0.641	0.250	0.800	0.879	0.190	0.730	0.505
2005	0.190	0.668	0.209	0.029	0.804	0.189	0.256	0.800	0.808	0.663	0.713	0.579
2006	0.010	0.058	0.351	0.645	0.018	0.394	0.816	0.980	0.858	0.837	0.333	0.771
2007	0.630	0.284	0.919	0.660	0.778	0.466	0.580	0.800	0.350	0.227	0.006	0.604
2008	0.029	0.290	0.936	0.792	0.628	0.437	0.357	0.800	0.350	0.455	0.340	0.838
2009	0.179	0.765	0.957	0.514	0.321	0.395	0.358	0.997	0.795	0.615	0.669	0.215
2010	0.818	0.910	0.302	0.315	0.892	0.247	0.559	0.800	0.911	0.502	0.037	0.192
2011	0.601	0.289	0.635	0.983	0.827	0.212	0.450	0.800	0.350	0.304	0.474	0.596
2012	0.849	0.439	0.829	0.184	0.833	0.138	0.361	0.800	0.512	0.310	0.332	0.647
2013	0.843	0.645	0.243	0.638	0.881	0.906	0.910	0.800	0.628	0.520	0.668	0.888
2014	0.767	0.158	0.076	0.715	0.094	0.252	0.670	0.800	0.350	0.040	0.286	0.630
2015	0.238	0.220	0.475	0.902	0.213	0.620	0.277	0.800	0.350	0.017	0.012	0.592
2016	0.297	0.838	0.342	0.232	0.620	0.954	0.989	0.800	0.989	0.981	0.740	0.883
2017	0.645	0.775	0.499	0.588	0.253	0.909	0.651	0.800	0.542	0.791	0.936	0.772
2018	0.931	0.564	0.277	0.002	0.001	0.186	0.501	0.800	0.350	0.003	0.845	0.022
2020	0.148	0.146	0.683	0.235	0.878	0.350	0.644	0.941	0.841	0.926	0.285	0.678
2021	0.934	0.922	0.455	0.654	0.065	0.931	0.632	0.800	0.957	0.790	0.955	0.858

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.9 Perhitungan Transfom Gamma Distribusi (t) Pos Hujan Kabul

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	1.932	1.804	2.286	2.026	2.274	1.281	1.236	2.946	1.449	1.916	1.547	2.616
2002	1.520	3.080	1.400	1.215	1.192	2.252	1.483	1.794	1.203	1.453	1.548	3.830
2003	1.519	2.184	1.692	1.293	1.857	2.128	1.230	1.794	1.454	1.703	1.610	1.313
2004	1.425	1.329	2.429	1.368	1.235	1.432	1.665	1.794	2.056	1.822	1.617	1.186
2005	1.824	1.486	1.770	2.660	1.805	1.824	1.652	1.794	1.818	1.474	1.580	1.314
2006	3.025	2.389	1.446	1.440	2.829	1.365	1.839	2.797	1.975	1.906	1.483	1.717
2007	1.410	1.588	2.240	1.469	1.736	1.235	1.317	1.794	1.449	1.721	3.225	1.361
2008	2.666	1.573	2.347	1.773	1.406	1.287	1.435	1.794	1.449	1.255	1.469	1.909
2009	1.855	1.702	2.512	1.201	1.507	1.363	1.433	3.418	1.781	1.382	1.487	1.755
2010	1.847	2.192	1.547	1.520	2.110	1.673	1.279	1.794	2.199	1.181	2.563	1.816
2011	1.356	1.576	1.420	2.862	1.873	1.763	1.264	1.794	1.449	1.542	1.221	1.347
2012	1.945	1.283	1.879	1.840	1.891	1.989	1.428	1.794	1.198	1.531	1.485	1.443
2013	1.926	1.439	1.682	1.426	2.062	2.174	2.194	1.794	1.406	1.212	1.485	2.090
2014	1.708	1.923	2.272	1.585	2.176	1.661	1.489	1.794	1.449	2.534	1.582	1.410
2015	1.695	1.740	1.221	2.156	1.760	1.392	1.602	1.794	1.449	2.848	2.981	1.338
2016	1.559	1.908	1.464	1.708	1.391	2.484	3.006	1.794	3.015	2.810	1.642	2.070
2017	1.439	1.728	1.180	1.331	1.658	2.192	1.451	1.794	1.250	1.770	2.347	1.720
2018	2.310	1.288	1.603	3.601	3.797	1.835	1.179	1.794	1.449	3.418	1.930	2.769
2020	1.956	1.963	1.517	1.701	2.050	1.450	1.438	2.381	1.918	2.283	1.584	1.506
2021	2.333	2.259	1.254	1.458	2.340	2.314	1.414	1.794	2.510	1.768	2.489	1.976

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.10 Perhitungan Nilai SPI pada Pos Hujan Kabul

TAHUN	DATA HUJAN BULANAN CHIRPS TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	1.016	0.854	1.451	1.134	1.437	0.150	-0.086	2.225	-0.385	0.996	0.517	-1.844
2002	-0.481	-2.379	-0.317	-0.055	0.021	1.411	0.431	0.841	-0.038	0.390	0.519	-3.215
2003	-0.481	1.328	-0.710	-0.168	-0.922	-1.260	0.077	0.841	0.391	-0.724	0.601	0.195
2004	0.352	0.218	-1.623	-0.273	0.084	0.361	-0.674	0.841	1.172	-0.877	0.611	0.012
2005	-0.879	0.435	-0.810	-1.895	0.856	-0.880	-0.657	0.841	0.872	0.419	0.561	0.198
2006	-2.316	-1.575	-0.381	0.373	-2.090	-0.269	0.899	2.054	1.070	0.984	-0.431	0.742
2007	0.331	-0.572	1.396	0.412	0.766	-0.084	0.201	0.841	-0.385	-0.747	-2.542	0.264
2008	-1.902	-0.552	1.525	0.814	0.326	-0.158	-0.365	0.841	-0.385	-0.112	-0.412	0.987
2009	-0.919	0.722	1.722	0.035	-0.463	-0.266	-0.363	2.759	0.825	0.292	0.437	-0.791
2010	0.909	1.338	-0.518	-0.481	1.238	-0.684	0.147	0.841	1.346	0.005	-1.781	-0.870
2011	0.257	-0.556	0.345	2.129	0.942	-0.801	-0.126	0.841	-0.385	-0.512	-0.064	0.244
2012	1.033	-0.153	0.950	-0.900	0.965	-1.087	-0.356	0.841	0.030	-0.497	-0.434	0.376
2013	1.009	0.371	-0.696	0.354	1.179	1.316	1.340	0.841	0.325	0.051	0.434	1.214
2014	0.730	-1.005	-1.435	0.568	-1.319	-0.668	0.439	0.841	-0.385	-1.747	-0.564	0.331
2015	-0.714	-0.771	-0.063	1.294	-0.797	0.306	-0.591	0.841	-0.385	-2.113	-2.265	0.231
2016	-0.534	0.986	-0.406	-0.730	0.305	1.688	2.294	0.841	2.304	2.069	0.643	1.188
2017	0.371	0.756	-0.003	0.222	-0.665	1.338	0.387	0.841	0.105	0.810	1.525	0.746
2018	1.481	0.161	-0.592	-2.962	-3.178	-0.893	0.003	0.841	-0.385	-2.758	1.013	-2.022
2020	-1.047	-1.055	0.477	-0.721	1.164	-0.386	0.369	1.566	0.998	1.448	-0.567	0.463
2021	1.508	1.419	-0.112	0.397	-1.516	1.485	0.336	0.841	1.719	0.807	1.694	1.071

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.11 Perhitungan Nilai α dan β pada Pos Hujan Rembitan

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	171.619	104.454	140.178	94.505	78.714	118.552	26.363	6.890	10.657	68.476	183.406	79.529
2002	181.158	277.652	123.900	92.448	47.734	15.941	25.261	8.948	13.486	26.938	182.079	245.966
2003	262.009	205.913	90.624	85.793	77.936	56.197	15.719	7.232	31.416	25.030	172.368	236.787
2004	137.103	203.877	146.569	39.030	121.719	20.901	15.961	7.242	18.630	81.039	161.562	250.859
2005	75.377	122.245	150.623	129.103	23.112	29.760	36.496	13.166	28.062	129.008	123.622	320.127
2006	254.739	154.090	288.600	133.989	115.170	40.161	26.020	6.874	10.371	28.171	46.507	233.630
2007	85.623	163.439	291.276	152.153	80.657	35.855	17.053	9.062	8.844	41.666	120.214	344.551
2008	136.569	238.032	327.470	112.596	62.386	32.817	18.694	14.338	21.167	67.475	172.695	184.973
2009	334.065	249.598	139.961	78.859	144.883	24.589	26.892	7.074	29.700	52.546	59.166	184.625
2010	228.046	113.016	77.238	196.549	293.126	50.209	158.554	30.226	96.837	196.903	239.963	447.666
2011	249.121	173.061	221.365	279.017	124.476	22.089	21.782	7.232	10.043	31.073	126.085	251.638
2012	357.619	171.464	246.579	68.493	115.594	20.599	18.024	6.774	12.571	33.674	105.586	267.026
2013	370.216	197.617	115.609	123.656	139.510	110.854	44.641	4.776	12.267	50.882	161.118	348.159
2014	284.565	138.444	100.907	128.183	35.049	28.875	30.723	4.635	9.995	14.233	109.294	265.350
2015	164.318	149.935	153.221	189.736	49.296	53.859	12.294	5.473	9.153	13.223	48.550	245.325
2016	161.172	227.363	142.882	66.144	87.011	136.131	132.563	11.284	102.498	284.938	179.626	364.243
2017	262.103	228.400	176.111	103.159	53.024	99.067	29.579	5.030	12.665	108.947	264.411	301.779
2018	450.709	194.903	126.307	21.916	13.797	19.335	22.099	7.546	10.553	12.324	212.719	116.363
2020	130.222	128.112	193.291	65.419	138.228	23.277	27.487	7.776	19.630	154.737	118.955	276.130
2021	472.648	287.938	153.202	117.926	28.686	120.123	21.204	8.562	53.059	107.410	285.280	336.164
Jumlah	4769.000	3729.554	3405.911	2278.674	1830.108	1059.194	727.409	180.137	521.604	1528.693	3073.209	5300.891
Rerata	238.450	186.478	170.296	113.934	91.505	52.960	36.370	9.007	26.080	76.435	153.660	265.045
St Dev	113.756	53.724	70.090	58.933	63.033	40.015	38.333	5.608	27.413	70.628	66.272	85.320
n	20	20	20	20	20	20	20	20	20	20	20	20.000
m	0	0	0	0	0	0	0	0	0	0	0	0.000
q=m/n	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Alpha (α)	4.394	12.048	5.903	3.738	2.107	1.752	0.900	2.580	0.905	1.171	5.376	9.650
Beta (β)	54.268	15.478	28.847	30.484	43.420	30.234	40.402	3.491	28.814	65.263	28.582	27.465

(Sumber : Hasil Perhitungan)

Lampiran 6.12 Perhitungan Distribusi Gamma G(x) Pos Hujan Rembitan

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0.312	0.041	0.375	0.431	0.508	0.929	0.529	0.421	0.356	0.578	0.714	0.001
2002	0.349	0.942	0.277	0.415	0.271	0.146	0.515	0.579	0.422	0.263	0.708	0.452
2003	0.640	0.672	0.107	0.364	0.503	0.630	0.372	0.449	0.703	0.245	0.661	0.407
2004	0.185	0.659	0.414	0.058	0.746	0.213	0.376	0.450	0.524	0.646	0.603	0.476
2005	0.032	0.102	0.439	0.662	0.084	0.333	0.640	0.803	0.664	0.821	0.367	0.762
2006	0.618	0.293	0.938	0.689	0.717	0.464	0.525	0.420	0.349	0.275	0.015	0.392
2007	0.048	0.363	0.941	0.775	0.522	0.412	0.395	0.587	0.309	0.392	0.345	0.831
2008	0.183	0.836	0.972	0.560	0.388	0.373	0.421	0.844	0.567	0.572	0.662	0.173
2009	0.817	0.876	0.374	0.311	0.828	0.263	0.536	0.436	0.684	0.475	0.039	0.171
2010	0.527	0.066	0.060	0.907	0.989	0.574	0.984	0.996	0.972	0.933	0.895	0.970
2011	0.599	0.437	0.788	0.986	0.757	0.229	0.468	0.449	0.341	0.302	0.383	0.479
2012	0.857	0.424	0.863	0.234	0.719	0.209	0.410	0.412	0.401	0.325	0.251	0.552
2013	0.875	0.618	0.229	0.630	0.811	0.912	0.709	0.241	0.394	0.463	0.600	0.840
2014	0.705	0.188	0.152	0.657	0.169	0.321	0.581	0.229	0.339	0.138	0.274	0.544
2015	0.284	0.263	0.455	0.893	0.283	0.609	0.310	0.301	0.317	0.128	0.018	0.449
2016	0.272	0.790	0.392	0.217	0.564	0.957	0.969	0.719	0.977	0.982	0.696	0.874
2017	0.641	0.795	0.587	0.494	0.314	0.878	0.568	0.263	0.404	0.761	0.936	0.698
2018	0.950	0.599	0.291	0.010	0.033	0.191	0.472	0.474	0.353	0.118	0.826	0.016
2020	0.162	0.130	0.674	0.211	0.807	0.245	0.543	0.492	0.541	0.877	0.336	0.593
2021	0.961	0.957	0.455	0.595	0.122	0.932	0.459	0.551	0.864	0.756	0.959	0.809

(Sumber : Hasil Perhitungan)

Lampiran 6.13 Perhitungan Probabilitas Kumulatif H(x) Pos Hujan Rembitan

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	0.312	0.041	0.375	0.431	0.508	0.929	0.529	0.421	0.356	0.578	0.714	0.001
2002	0.349	0.942	0.277	0.415	0.271	0.146	0.515	0.579	0.422	0.263	0.708	0.452
2003	0.640	0.672	0.107	0.364	0.503	0.630	0.372	0.449	0.703	0.245	0.661	0.407
2004	0.185	0.659	0.414	0.058	0.746	0.213	0.376	0.450	0.524	0.646	0.603	0.476
2005	0.032	0.102	0.439	0.662	0.084	0.333	0.640	0.803	0.664	0.821	0.367	0.762
2006	0.618	0.293	0.938	0.689	0.717	0.464	0.525	0.420	0.349	0.275	0.015	0.392
2007	0.048	0.363	0.941	0.775	0.522	0.412	0.395	0.587	0.309	0.392	0.345	0.831
2008	0.183	0.836	0.972	0.560	0.388	0.373	0.421	0.844	0.567	0.572	0.662	0.173
2009	0.817	0.876	0.374	0.311	0.828	0.263	0.536	0.436	0.684	0.475	0.039	0.171
2010	0.527	0.066	0.060	0.907	0.989	0.574	0.984	0.996	0.972	0.933	0.895	0.970
2011	0.599	0.437	0.788	0.986	0.757	0.229	0.468	0.449	0.341	0.302	0.383	0.479
2012	0.857	0.424	0.863	0.234	0.719	0.209	0.410	0.412	0.401	0.325	0.251	0.552
2013	0.875	0.618	0.229	0.630	0.811	0.912	0.709	0.241	0.394	0.463	0.600	0.840
2014	0.705	0.188	0.152	0.657	0.169	0.321	0.581	0.229	0.339	0.138	0.274	0.544
2015	0.284	0.263	0.455	0.893	0.283	0.609	0.310	0.301	0.317	0.128	0.018	0.449
2016	0.272	0.790	0.392	0.217	0.564	0.957	0.969	0.719	0.977	0.982	0.696	0.874
2017	0.641	0.795	0.587	0.494	0.314	0.878	0.568	0.263	0.404	0.761	0.936	0.698
2018	0.950	0.599	0.291	0.010	0.033	0.191	0.472	0.474	0.353	0.118	0.826	0.016
2020	0.162	0.130	0.674	0.211	0.807	0.245	0.543	0.492	0.541	0.877	0.336	0.593
2021	0.961	0.957	0.455	0.595	0.122	0.932	0.459	0.551	0.864	0.756	0.959	0.809

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.14 Perhitungan Transfom Gamma Distribusi (t) Pos Hujan Rembitan

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	1.526	2.524	1.400	1.298	1.192	2.299	1.227	1.315	1.437	1.314	1.582	3.638
2002	1.451	2.387	1.603	1.326	1.617	1.962	1.203	1.315	1.314	1.633	1.569	1.260
2003	1.430	1.493	2.115	1.421	1.182	1.411	1.406	1.265	1.558	1.676	1.470	1.341
2004	1.837	1.467	1.327	2.388	1.655	1.760	1.398	1.264	1.218	1.441	1.359	1.219
2005	2.627	2.137	1.283	1.473	2.226	1.483	1.430	1.803	1.477	1.855	1.416	1.693
2006	1.386	1.567	2.357	1.529	1.589	1.239	1.220	1.317	1.451	1.607	2.888	1.369
2007	2.465	1.424	2.379	1.728	1.214	1.332	1.364	1.329	1.532	1.368	1.460	1.885
2008	1.842	1.901	2.675	1.281	1.376	1.404	1.315	1.927	1.293	1.303	1.474	1.874
2009	1.843	2.045	1.403	1.528	1.875	1.634	1.239	1.288	1.517	1.220	2.543	1.878
2010	1.224	2.330	2.370	2.181	3.010	1.306	2.880	3.290	2.669	2.326	2.124	2.653
2011	1.353	1.287	1.763	2.918	1.682	1.717	1.233	1.265	1.468	1.548	1.385	1.213
2012	1.971	1.309	1.992	1.706	1.594	1.771	1.335	1.332	1.351	1.500	1.662	1.267
2013	2.038	1.387	1.717	1.411	1.826	2.204	1.572	1.687	1.364	1.241	1.355	1.913
2014	1.563	1.829	1.940	1.463	1.884	1.507	1.319	1.717	1.470	1.990	1.608	1.254
2015	1.586	1.633	1.255	2.115	1.588	1.370	1.531	1.550	1.515	2.029	2.827	1.266
2016	1.613	1.767	1.369	1.749	1.288	2.506	2.642	1.594	2.743	2.830	1.544	2.037
2017	1.431	1.780	1.330	1.187	1.523	2.052	1.295	1.635	1.347	1.693	2.344	1.547
2018	2.446	1.352	1.571	3.028	2.617	1.819	1.225	1.221	1.442	2.066	1.869	2.868
2020	1.907	2.021	1.497	1.763	1.814	1.677	1.252	1.190	1.248	2.045	1.476	1.341
2021	2.552	2.510	1.255	1.344	2.051	2.318	1.248	1.266	1.999	1.680	2.524	1.820

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.15 Perhitungan Nilai SPI pada Pos Hujan Rembitan

TAHUN	DATA HUJAN BULANAN CHIRPS TIDAK TERKOREKSI											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	-0.489	-1.735	-0.318	-0.174	0.021	1.467	0.073	-0.198	-0.369	0.197	0.565	-3.003
2002	-0.387	1.573	-0.592	-0.214	-0.610	-1.054	0.038	0.198	-0.197	-0.632	0.547	-0.121
2003	0.359	0.445	-1.243	-0.346	0.007	0.332	-0.326	-0.127	0.532	-0.689	0.414	-0.235
2004	-0.896	0.409	-0.216	-1.574	0.661	-0.797	-0.315	-0.125	0.059	0.374	0.261	-0.061
2005	-1.857	-1.270	-0.153	0.418	-1.379	-0.432	0.358	0.853	0.423	0.919	-0.339	0.711
2006	0.299	-0.544	1.536	0.493	0.574	-0.090	0.062	-0.202	-0.388	-0.597	-2.159	-0.275
2007	-1.665	-0.350	1.563	0.756	0.054	-0.223	-0.267	0.218	-0.498	-0.273	-0.399	0.957
2008	-0.903	0.977	1.912	0.150	-0.284	-0.324	-0.199	1.010	0.167	0.182	0.419	-0.944
2009	0.904	1.157	-0.321	-0.492	0.945	-0.634	0.090	-0.160	0.477	-0.062	-1.757	-0.949
2010	0.067	-1.505	-1.553	1.325	2.299	0.185	2.150	2.615	1.905	1.500	1.255	1.887
2011	0.251	-0.159	0.801	2.193	0.696	-0.742	-0.081	-0.127	-0.411	-0.519	-0.297	-0.052
2012	1.065	-0.190	1.092	-0.727	0.580	-0.811	-0.226	-0.223	-0.249	-0.454	-0.670	0.130
2013	1.149	0.299	-0.742	0.332	0.882	1.352	0.551	-0.703	-0.267	-0.092	0.254	0.993
2014	0.539	-0.886	-1.027	0.404	-0.956	-0.464	0.204	-0.742	-0.414	-1.090	-0.599	0.111
2015	-0.570	-0.632	-0.113	1.243	-0.573	0.276	-0.496	-0.522	-0.474	-1.138	-2.089	-0.129
2016	-0.606	0.806	-0.274	-0.784	0.160	1.714	1.874	0.581	1.991	2.092	0.514	1.148
2017	0.360	0.823	0.219	-0.014	-0.486	1.166	0.171	-0.635	-0.244	0.710	1.521	0.518
2018	1.643	0.250	-0.550	-2.319	-1.844	-0.873	-0.070	-0.064	-0.376	-1.183	0.937	-2.136
2020	-0.985	-1.127	0.450	-0.802	0.866	-0.690	0.108	-0.019	0.103	1.158	-0.422	0.235
2021	1.768	1.718	-0.113	0.239	-1.165	1.490	-0.102	0.129	1.100	0.693	1.736	0.874

(Sumber : Hasil Perhitungan)

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.16 Perhitungan Nilai α dan β 3 bulanan pada Pos Hujan Kopang

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	968.072	399.847	89.659	655.409
2002	477.892	293.967	52.613	492.754
2003	669.766	145.321	53.539	678.261
2004	611.414	195.602	56.733	577.253
2005	583.106	149.720	47.126	648.920
2006	389.211	184.603	79.222	717.145
2007	796.245	277.296	51.037	405.604
2008	618.871	275.691	41.831	613.671
2009	744.876	179.314	71.863	587.610
2010	820.686	262.723	74.173	361.373
2011	635.869	420.329	43.097	578.841
2012	758.452	190.531	52.092	549.080
2013	689.375	365.552	93.888	754.369
2014	560.707	210.830	60.727	480.503
2015	508.739	313.848	38.909	391.473
2016	588.815	298.490	253.705	921.802
2017	685.985	270.360	56.924	825.888
2018	764.010	64.433	54.859	489.894
2020	514.224	261.697	70.791	671.432
2021	876.003	280.448	110.950	1006.535
Jumlah	13262.319	5040.601	1453.737	12407.815
Rerata	663.116	252.030	72.687	620.391
St Dev	143.490	88.524	46.604	169.488
n	20	20	20	20
m	0	0	0	0
q=m/n	0.000	0.000	0.000	0.000
Alpha (α)	21.357	8.105	2.433	13.398
Beta (β)	31.049	31.094	29.881	46.304

Lampiran 6.17 Perhitungan Distribusi Gamma G(x) Pos Hujan Kopang

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0.974	0.938	0.709	0.615
2002	0.658	0.714	0.398	0.236
2003	0.996	0.094	0.408	0.663
2004	0.980	0.283	0.440	0.433
2005	0.958	0.107	0.342	0.601
2006	0.194	0.235	0.637	0.737
2007	1.000	0.653	0.382	0.087
2008	0.984	0.646	0.286	0.521
2009	1.000	0.213	0.578	0.458
2010	1.000	0.593	0.597	0.043
2011	0.990	0.956	0.299	0.437
2012	1.000	0.261	0.393	0.365
2013	0.998	0.893	0.735	0.797
2014	0.928	0.354	0.479	0.211
2015	0.792	0.777	0.255	0.071
2016	0.963	0.730	0.996	0.949
2017	0.998	0.625	0.442	0.883
2018	1.000	0.001	0.421	0.230
2020	0.811	0.589	0.569	0.649
2021	1.000	0.665	0.820	0.978

Lampiran 6.18 Perhitungan Probabilitas Kumulatif H(x) Pos Hujan Kopang

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0.974	0.938	0.709	0.615
2002	0.658	0.714	0.398	0.236
2003	0.996	0.094	0.408	0.663
2004	0.980	0.283	0.440	0.433
2005	0.958	0.107	0.342	0.601
2006	0.194	0.235	0.637	0.737
2007	1.000	0.653	0.382	0.087
2008	0.984	0.646	0.286	0.521
2009	1.000	0.213	0.578	0.458
2010	1.000	0.593	0.597	0.043
2011	0.990	0.956	0.299	0.437
2012	1.000	0.261	0.393	0.365
2013	0.998	0.893	0.735	0.797
2014	0.928	0.354	0.479	0.211
2015	0.792	0.777	0.255	0.071
2016	0.963	0.730	0.996	0.949
2017	0.998	0.625	0.442	0.883
2018	1.000	0.001	0.421	0.230
2020	0.811	0.589	0.569	0.649
2021	1.000	0.665	0.820	0.978

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.19 Perhitungan Transfom Gamma Distribusi (t) Pos Hujan Kopang

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	2.695	2.356	1.572	1.383
2002	1.465	1.583	1.357	1.699
2003	3.362	2.172	1.340	1.476
2004	2.795	1.588	1.282	1.294
2005	2.515	2.114	1.466	1.356
2006	1.810	1.702	1.423	1.634
2007	4.532	1.455	1.387	2.209
2008	2.868	1.442	1.583	1.213
2009	4.067	1.759	1.314	1.250
2010	4.748	1.341	1.349	2.511
2011	3.035	2.497	1.554	1.287
2012	4.191	1.640	1.367	1.420
2013	3.549	2.114	1.630	1.785
2014	2.291	1.441	1.214	1.765
2015	1.771	1.733	1.653	2.302
2016	2.571	1.617	3.317	2.443
2017	3.517	1.401	1.279	2.070
2018	4.242	3.673	1.315	1.714
2020	1.826	1.333	1.298	1.448
2021	5.226	1.479	1.853	2.763

Lampiran 6.20 Perhitungan Nilai SPI pada Pos Hujan Kopang

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	1.936	1.536	0.550	0.293
2002	0.407	0.565	-0.257	-0.719
2003	2.696	-1.314	-0.233	0.421
2004	2.052	-0.572	-0.151	-0.169
2005	1.724	-1.243	-0.408	0.256
2006	-0.861	-0.722	0.350	0.633
2007	3.978	0.392	-0.299	-1.359
2008	2.136	0.375	-0.565	0.051
2009	3.475	-0.796	0.197	-0.105
2010	4.211	0.236	0.246	-1.720
2011	2.327	1.704	-0.526	-0.159
2012	3.610	-0.641	-0.271	-0.345
2013	2.905	1.242	0.627	0.829
2014	1.458	-0.374	-0.054	-0.804
2015	0.812	0.763	-0.658	-1.471
2016	1.791	0.611	2.646	1.640
2017	2.869	0.319	-0.147	1.189
2018	3.665	-3.042	-0.199	-0.739
2020	0.882	0.224	0.174	0.383
2021	4.721	0.426	0.917	2.014

Lampiran 6.21 Perhitungan Nilai α dan β 3 bulanan pada Pos Hujan Kabul

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	749.446	372.333	13.241	408.734
2002	399.120	289.265	19.295	318.044
2003	518.667	134.150	13.872	430.062
2004	494.375	213.925	21.822	416.390
2005	448.273	168.938	12.990	473.813
2006	328.724	154.037	50.135	487.546
2007	622.984	269.288	14.210	283.611
2008	496.054	263.885	5.909	437.313
2009	610.722	179.266	25.055	401.287
2010	642.930	243.350	38.569	267.362
2011	548.951	385.665	8.793	393.671
2012	673.749	200.916	6.211	380.976
2013	600.474	374.170	51.114	514.408
2014	489.059	170.278	19.378	352.220
2015	447.761	264.738	3.899	275.450
2016	513.515	300.194	188.157	709.628
2017	592.625	267.932	18.545	615.574
2018	646.993	28.015	10.715	335.554
2020	448.987	235.473	30.910	506.156
2021	731.027	265.130	61.209	654.095
Jumlah	11004.437	4780.950	614.028	8661.895
Rerata	550.222	239.047	30.701	433.095
St Dev	110.988	87.535	40.446	122.544
n	20	20	20	20
m	0	0	0	0
q=m/n	0.000	0.000	0.000	0.000
Alpha (α)	24.577	7.458	0.576	12.491
Beta (β)	22.388	32.054	53.284	34.674

Lampiran 6.22 Perhitungan Distribusi Gamma G(x) 3 bulanan Pos Hujan Kabul

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0.954	0.923	0.461	0.457
2002	0.075	0.745	0.551	0.173
2003	0.412	0.095	0.471	0.528
2004	0.325	0.431	0.582	0.483
2005	0.180	0.221	0.456	0.661
2006	0.011	0.161	0.798	0.699
2007	0.757	0.675	0.477	0.097
2008	0.331	0.654	0.304	0.551
2009	0.723	0.266	0.618	0.432
2010	0.805	0.568	0.731	0.069
2011	0.522	0.938	0.375	0.406
2012	0.865	0.368	0.312	0.364
2013	0.694	0.925	0.802	0.764
2014	0.307	0.226	0.552	0.271
2015	0.179	0.657	0.242	0.082
2016	0.393	0.778	0.990	0.977
2017	0.670	0.670	0.541	0.921
2018	0.814	0.000	0.415	0.221
2020	0.182	0.532	0.673	0.745
2021	0.939	0.659	0.844	0.951

Lampiran 6.23 Perhitungan Probabilitas Kumulatif H(x) 3 bulanan Pos Hujan Kabul

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0.954	0.923	0.461	0.457
2002	0.075	0.745	0.551	0.173
2003	0.412	0.095	0.471	0.528
2004	0.325	0.431	0.582	0.483
2005	0.180	0.221	0.456	0.661
2006	0.011	0.161	0.798	0.699
2007	0.757	0.675	0.477	0.097
2008	0.331	0.654	0.304	0.551
2009	0.723	0.266	0.618	0.432
2010	0.805	0.568	0.731	0.069
2011	0.522	0.938	0.375	0.406
2012	0.865	0.368	0.312	0.364
2013	0.694	0.925	0.802	0.764
2014	0.307	0.226	0.552	0.271
2015	0.179	0.657	0.242	0.082
2016	0.393	0.778	0.990	0.977
2017	0.670	0.670	0.541	0.921
2018	0.814	0.000	0.415	0.221
2020	0.182	0.532	0.673	0.745
2021	0.939	0.659	0.844	0.951

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.24 Perhitungan Transfom Gamma Distribusi (t) 3 bulanan Pos Hujan Kabul

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	2.478	2.263	1.245	1.251
2002	2.278	1.653	1.265	1.872
2003	1.332	2.171	1.227	1.225
2004	1.499	1.298	1.321	1.207
2005	1.851	1.739	1.253	1.472
2006	2.996	1.912	1.788	1.549
2007	1.681	1.499	1.217	2.161
2008	1.487	1.457	1.544	1.266
2009	1.603	1.627	1.387	1.296
2010	1.808	1.296	1.621	2.310
2011	1.215	2.357	1.401	1.342
2012	2.003	1.414	1.526	1.422
2013	1.538	2.276	1.801	1.699
2014	1.537	1.724	1.267	1.616
2015	1.855	1.463	1.684	2.235
2016	1.366	1.736	3.032	2.744
2017	1.489	1.488	1.248	2.253
2018	1.833	4.740	1.327	1.737
2020	1.845	1.233	1.495	1.653
2021	2.363	1.466	1.929	2.457

Lampiran 6.25 Perhitungan Nilai SPI 3 bulanan pada Pos Hujan Kabul

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	1.681	1.424	-0.098	-0.107
2002	-1.442	0.658	0.127	-0.941
2003	-0.222	-1.312	-0.072	0.070
2004	-0.453	-0.174	0.207	-0.043
2005	-0.914	-0.770	-0.109	0.416
2006	-2.283	-0.992	0.833	0.520
2007	0.695	0.453	-0.058	-1.300
2008	-0.437	0.395	-0.513	0.128
2009	0.593	-0.624	0.299	-0.171
2010	0.859	0.171	0.617	-1.480
2011	0.056	1.537	-0.319	-0.236
2012	1.105	-0.337	-0.490	-0.348
2013	0.506	1.440	0.850	0.719
2014	-0.505	-0.751	0.130	-0.610
2015	-0.919	0.405	-0.699	-1.390
2016	-0.270	0.766	2.323	1.992
2017	0.439	0.438	0.102	1.412
2018	0.892	-4.202	-0.215	-0.768
2020	-0.906	0.081	0.448	0.659
2021	1.544	0.409	1.012	1.656

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.26 Perhitungan Nilai α dan β 3 bulanan pada Pos Hujan Rembitan

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	416.251	291.771	43.909	331.410
2002	582.711	156.124	47.696	454.984
2003	558.546	219.926	54.367	434.184
2004	487.549	181.651	41.832	493.460
2005	348.245	181.975	77.723	572.758
2006	697.429	289.320	43.265	308.308
2007	540.337	268.665	34.959	506.431
2008	702.071	207.799	54.199	425.143
2009	723.624	248.331	63.665	296.337
2010	418.300	539.884	285.617	884.532
2011	643.547	425.582	39.057	408.796
2012	775.662	204.686	37.368	406.286
2013	683.442	374.020	61.685	560.160
2014	523.915	192.108	45.353	388.877
2015	467.475	292.891	26.921	307.097
2016	531.416	289.285	246.344	828.807
2017	666.615	255.250	47.275	675.137
2018	771.919	55.048	40.198	341.407
2020	451.625	226.924	54.893	549.823
2021	913.787	266.734	82.824	728.854
Jumlah	11904.466	5167.975	1429.150	9902.792
Rerata	595.223	258.399	71.457	495.140
St Dev	146.064	102.830	68.212	171.749
n	20	20	20	20
m	0	0	0	0
q=m/n	0.000	0.000	0.000	0.000
Alpha (α)	16.606	6.315	1.097	8.311
Beta (β)	35.843	40.921	65.115	59.574

Lampiran 6.27 Perhitungan Distribusi Gamma G(x) 3 bulanan Pos Hujan Rembitan

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0.098	0.671	0.444	0.167
2002	0.498	0.151	0.474	0.451
2003	0.431	0.398	0.522	0.400
2004	0.241	0.242	0.428	0.542
2005	0.027	0.243	0.659	0.707
2006	0.772	0.663	0.439	0.126
2007	0.380	0.591	0.369	0.572
2008	0.780	0.347	0.520	0.378
2009	0.817	0.514	0.582	0.107
2010	0.101	0.987	0.985	0.975
2011	0.657	0.932	0.405	0.338
2012	0.887	0.334	0.390	0.332
2013	0.745	0.868	0.569	0.684
2014	0.335	0.283	0.456	0.291
2015	0.194	0.675	0.294	0.124
2016	0.355	0.663	0.972	0.959
2017	0.709	0.541	0.470	0.854
2018	0.882	0.002	0.414	0.187
2020	0.161	0.427	0.525	0.664
2021	0.975	0.584	0.683	0.904

Lampiran 6.28 Perhitungan Probabilitas Kumulatif H(x) 3 bulanan Pos Hujan Rembitan

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	0.098	0.671	0.444	0.167
2002	0.498	0.151	0.474	0.451
2003	0.431	0.398	0.522	0.400
2004	0.241	0.242	0.428	0.542
2005	0.027	0.243	0.659	0.707
2006	0.772	0.663	0.439	0.126
2007	0.380	0.591	0.369	0.572
2008	0.780	0.347	0.520	0.378
2009	0.817	0.514	0.582	0.107
2010	0.101	0.987	0.985	0.975
2011	0.657	0.932	0.405	0.338
2012	0.887	0.334	0.390	0.332
2013	0.745	0.868	0.569	0.684
2014	0.335	0.283	0.456	0.291
2015	0.194	0.675	0.294	0.124
2016	0.355	0.663	0.972	0.959
2017	0.709	0.541	0.470	0.854
2018	0.882	0.002	0.414	0.187
2020	0.161	0.427	0.525	0.664
2021	0.975	0.584	0.683	0.904

Keterangan : $0 < H(x) \leq 0.5$

$0.5 < H(x) \leq 1.0$

Lampiran 6.29 Perhitungan Transfom Gamma Distribusi (t) 3 bulanan Pos Hujan Rembitan

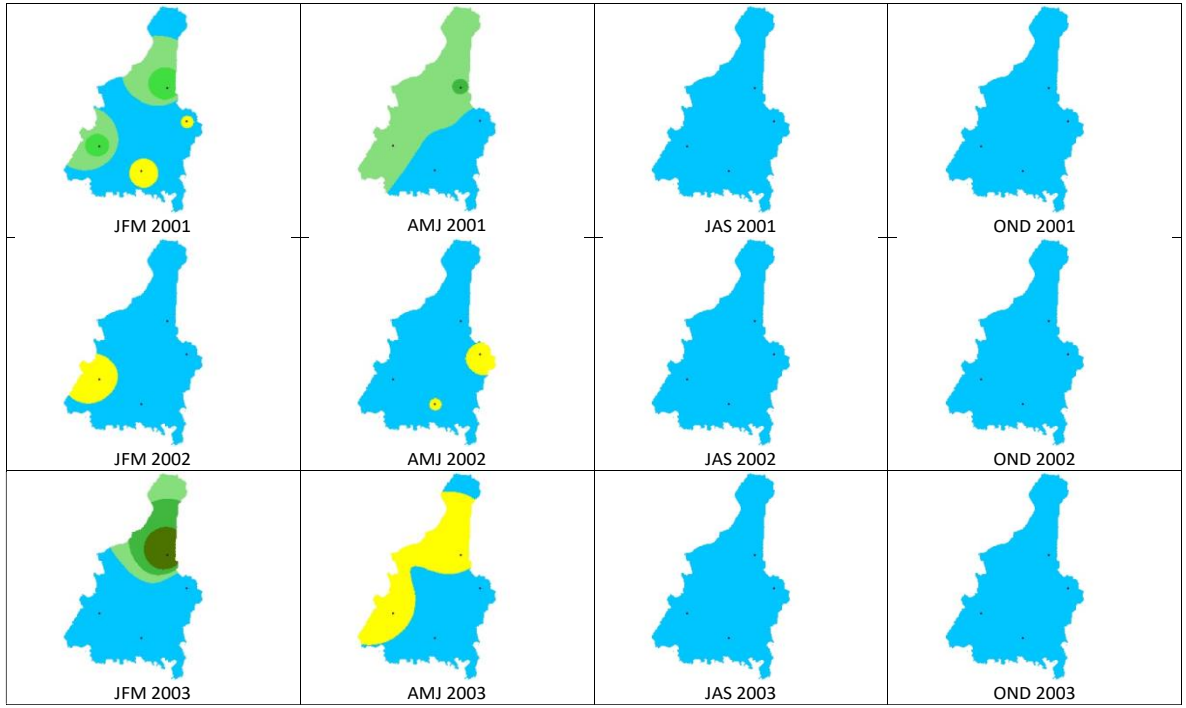
TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	2.154	1.492	1.274	1.891
2002	1.180	1.943	1.223	1.262
2003	1.298	1.358	1.214	1.354
2004	1.688	1.684	1.303	1.250
2005	2.682	1.681	1.467	1.567
2006	1.718	1.475	1.283	2.036
2007	1.391	1.338	1.411	1.302
2008	1.740	1.455	1.212	1.395
2009	1.842	1.201	1.320	2.115
2010	2.139	2.954	2.890	2.717
2011	1.462	2.322	1.345	1.473
2012	2.087	1.480	1.372	1.485
2013	1.652	2.014	1.298	1.517
2014	1.479	1.589	1.254	1.572
2015	1.811	1.499	1.564	2.044
2016	1.438	1.475	2.677	2.524
2017	1.572	1.248	1.228	1.963
2018	2.069	3.592	1.328	1.832
2020	1.912	1.305	1.220	1.476
2021	2.716	1.325	1.517	2.164

Lampiran 6.30 Perhitungan Nilai SPI 3 bulanan pada Pos Hujan Rembitan

TAHUN	DATA HUJAN 3 BULANAN CHIRPS TIDAK TERKOREKSI			
	JFM	AMJ	JAS	OND
2001	-1.292	0.443	-0.140	-0.965
2002	-0.004	-1.030	-0.066	-0.123
2003	-0.174	-0.259	0.054	-0.253
2004	-0.704	-0.700	-0.182	0.106
2005	-1.921	-0.696	0.409	0.544
2006	0.744	0.421	-0.153	-1.146
2007	-0.305	0.231	-0.333	0.181
2008	0.772	-0.393	0.051	-0.311
2009	0.903	0.034	0.206	-1.243
2010	-1.274	2.234	2.161	1.962
2011	0.403	1.495	-0.241	-0.417
2012	1.209	-0.428	-0.278	-0.434
2013	0.657	1.119	0.175	0.477
2014	-0.426	-0.573	-0.111	-0.551
2015	-0.863	0.453	-0.540	-1.156
2016	-0.370	0.421	1.915	1.735
2017	0.551	0.102	-0.074	1.055
2018	1.187	-2.952	-0.216	-0.890
2020	-0.992	-0.185	0.063	0.422
2021	1.960	0.213	0.477	1.304

LAMPIRAN VII

Peta kekeringan 3 bulanan metode SPI



Lampiran 7.1 peta kekeringan 3 bulanan 2001-2003

Keterangan :

JFM : Januari, Februari, Maret

AMJ : April, Mei, Juni

JAS : Juli, Agustus, September

OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)

SK : Sangat kering (-1,50 s.d -1,99)

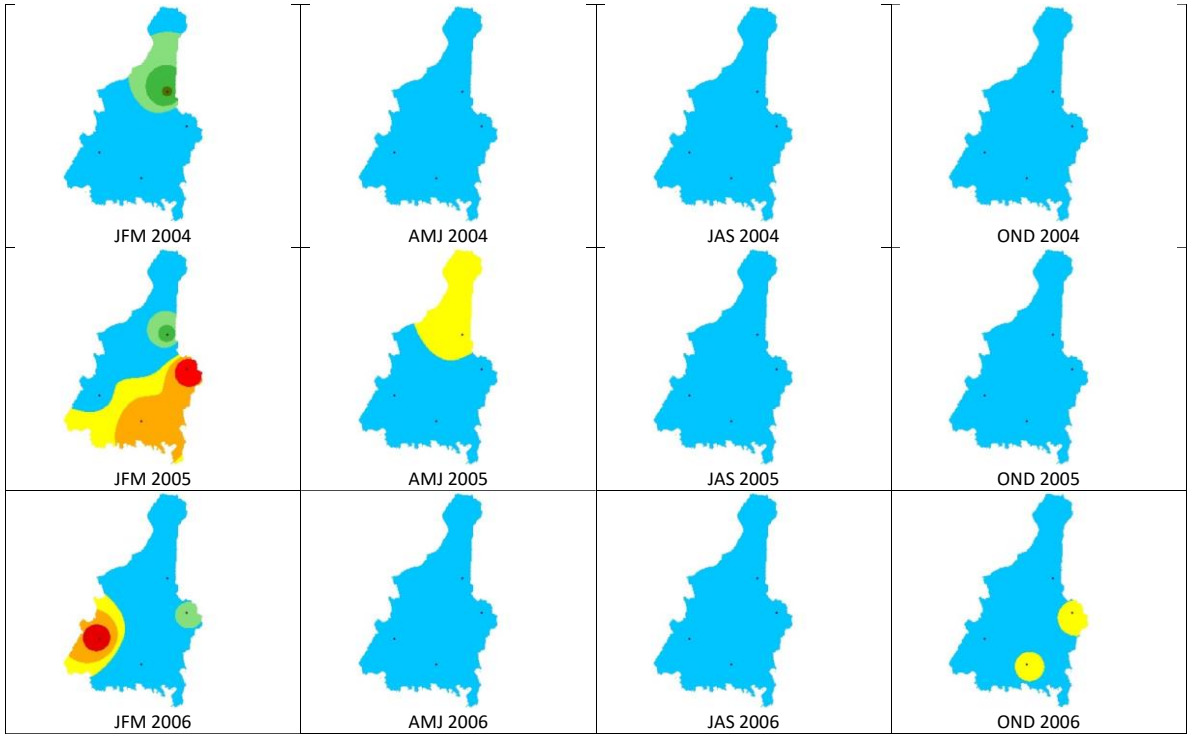
CK : Cukup kering (-1,00 s.d -1,49)

N : Normal (-0.99 s.d 0.99)

CB : Cukup basah (1.00 s.d 1.49)

SB : Sangat basah (1.50 s.d 1.99)

ASB : Amat sangat basah (≥ 2.00)

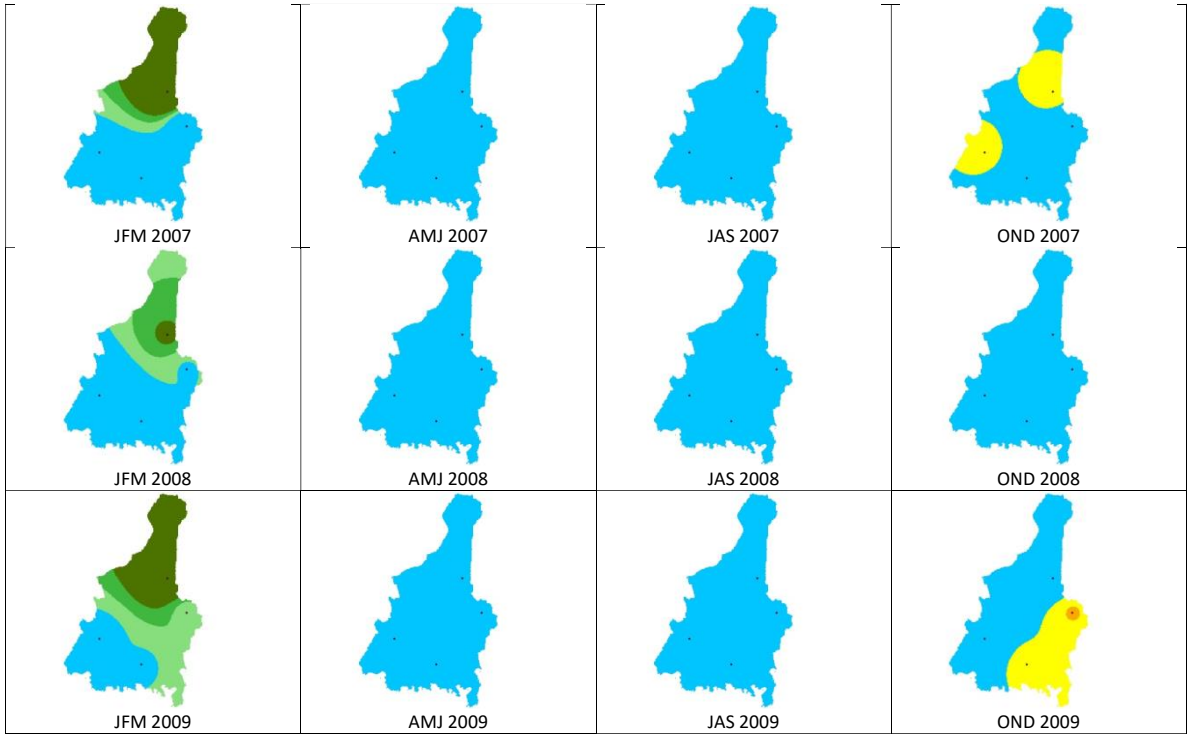


Lampiran 7.2 peta kekeringan 3 bulanan 2004-2006

Keterangan :

JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)



Lampiran 7.3 peta kekeringan 3 bulanan 2007-2009

Keterangan :

JFM : Januari, Februari, Maret

AMJ : April, Mei, Juni

JAS : Juli, Agustus, September

OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)

SK : Sangat kering (-1,50 s.d -1,99)

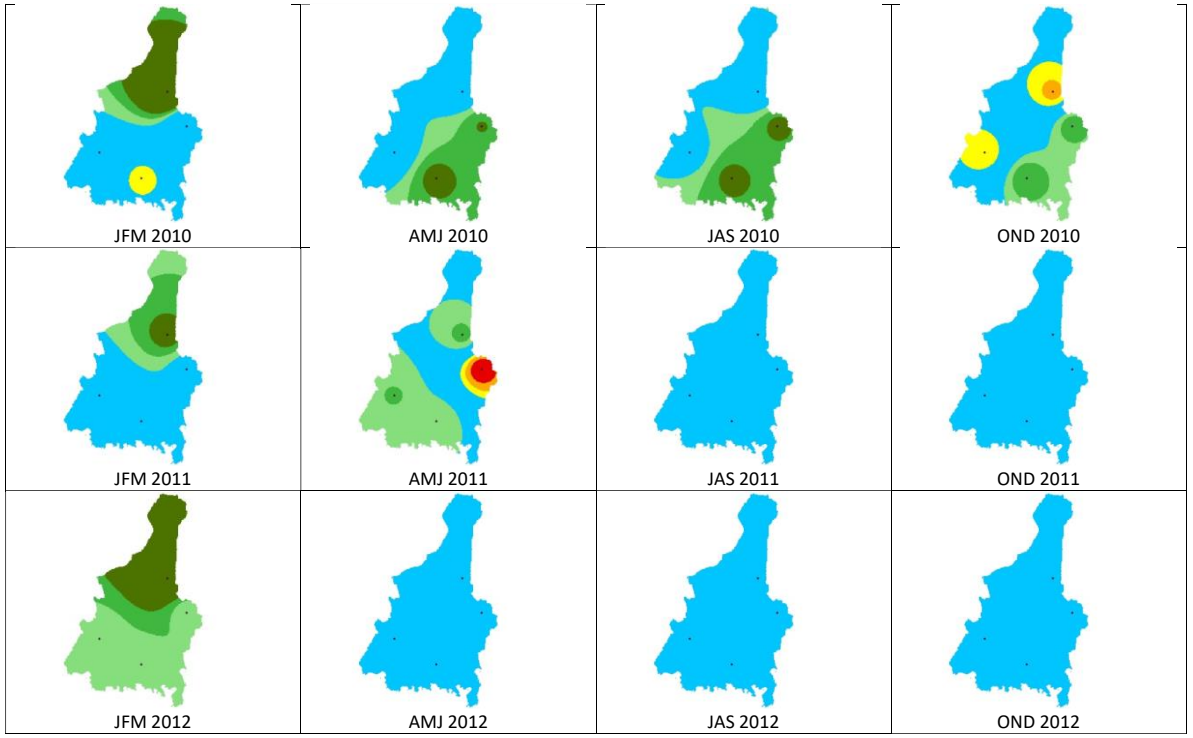
CK : Cukup kering (-1,00 s.d -1,49)

N : Normal (-0.99 s.d 0.99)

CB : Cukup basah (1.00 s.d 1.49)

SB : Sangat basah (1.50 s.d 1.99)

ASB : Amat sangat basah (≥ 2.00)



Lampiran 7.4 peta kekeringan 3 bulanan 2010-2012

Keterangan :

JFM : Januari, Februari, Maret

AMJ : April, Mei, Juni

JAS : Juli, Agustus, September

OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)

SK : Sangat kering (-1,50 s.d -1,99)

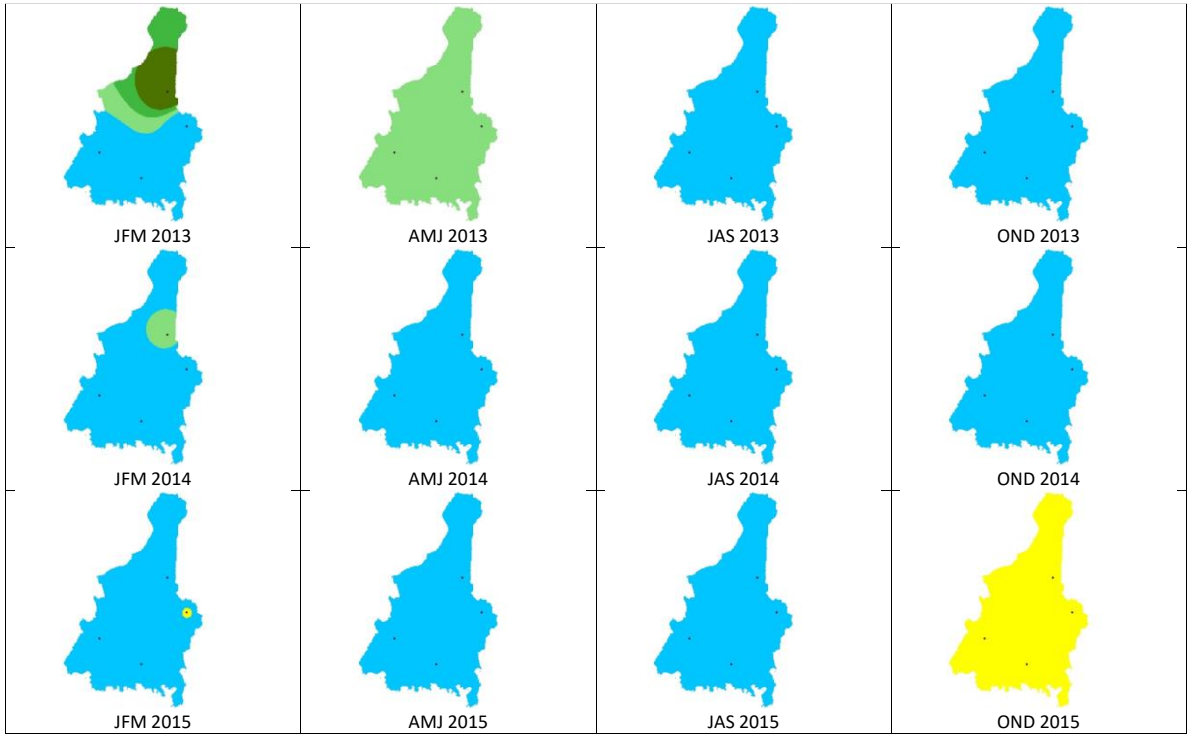
CK : Cukup kering (-1,00 s.d -1,49)

N : Normal (-0.99 s.d 0.99)

CB : Cukup basah (1.00 s.d 1.49)

SB : Sangat basah (1.50 s.d 1.99)

ASB : Amat sangat basah (≥ 2.00)



Lampiran 7.5 peta kekeringan 3 bulanan 2013-2015

Keterangan :

JFM : Januari, Februari, Maret JAS : Juli, Agustus, September

AMJ : April, Mei, Juni OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)

SK : Sangat kering (-1,50 s.d -1,99)

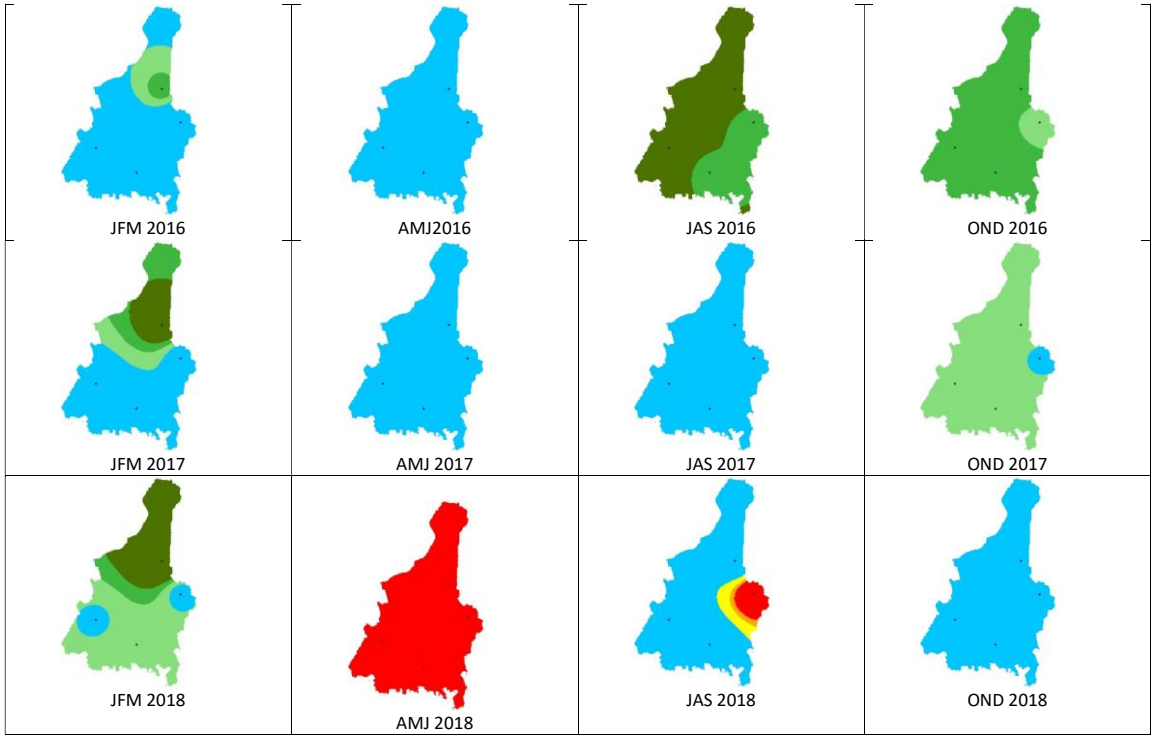
CK : Cukup kering (-1,00 s.d -1,49)

N : Normal (-0.99 s.d 0.99)

CB : Cukup basah (1.00 s.d 1.49)

SB : Sangat basah (1.50 s.d 1.99)

ASB : Amat sangat basah (≥ 2.00)

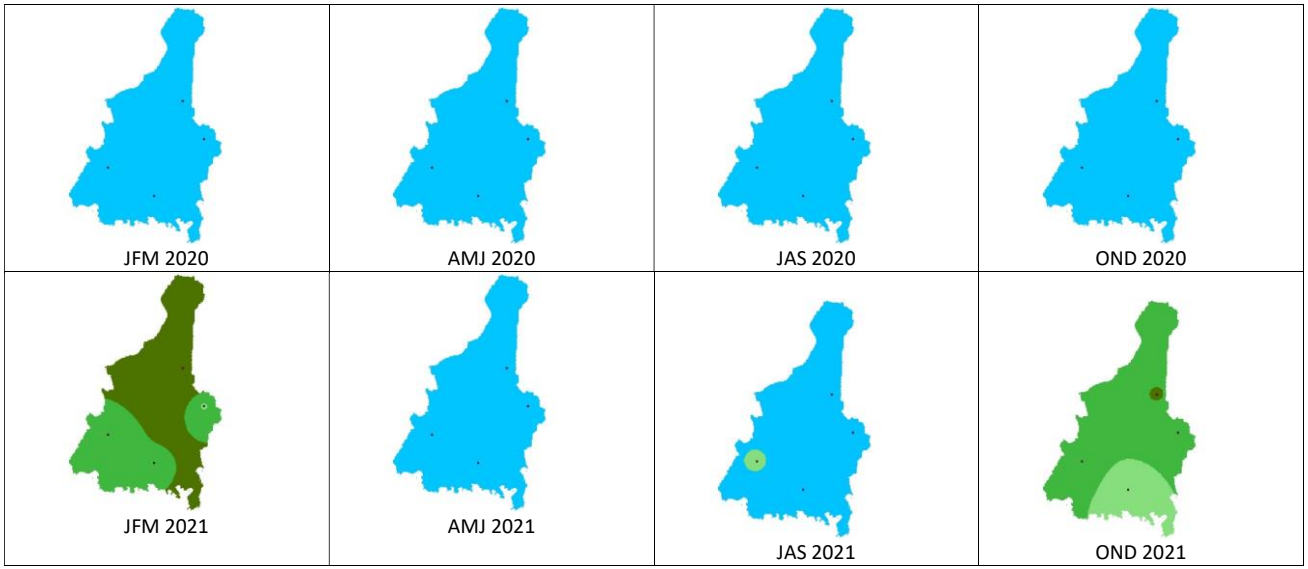


Lampiran 7.6 peta kekeringan 3 bulanan 2016-2018

Keterangan :

JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)



Lampiran 7.7 peta kekeringan 3 bulanan 2020-2021

Keterangan :

JFM : Januari, Februari, Maret

AMJ : April, Mei, Juni

JAS : Juli, Agustus, September

OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)

SK : Sangat kering (-1,50 s.d -1,99)

CK : Cukup kering (-1,00 s.d -1,49)

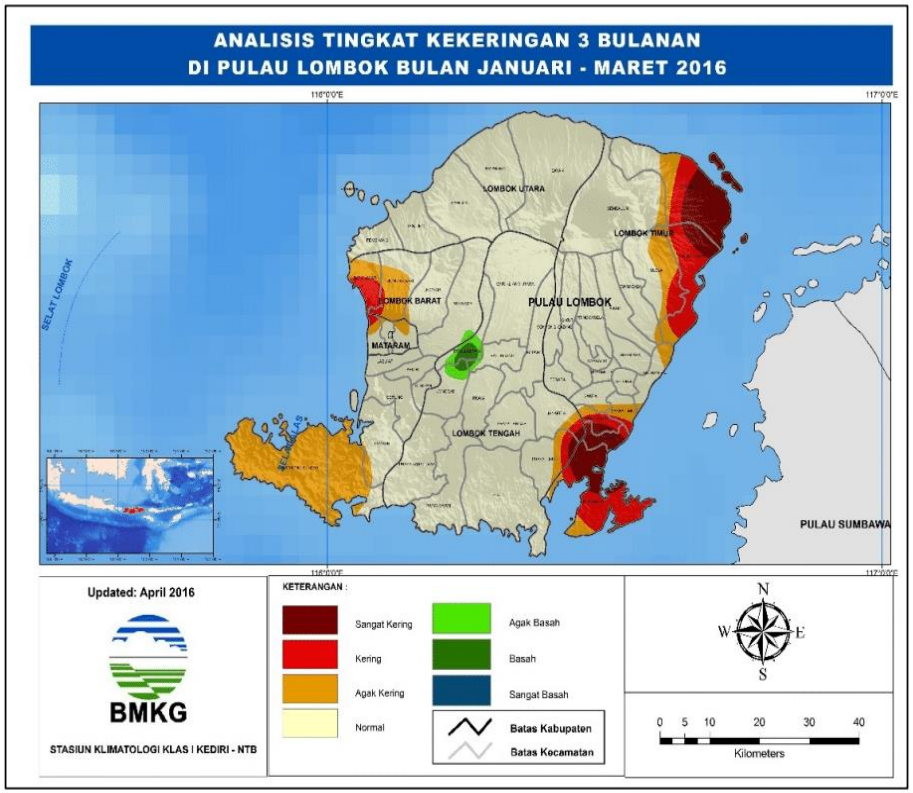
N : Normal (-0.99 s.d 0.99)

CB : Cukup basah (1.00 s.d 1.49)

SB : Sangat basah (1.50 s.d 1.99)

ASB : Amat sangat basah (≥ 2.00)

Perbandingan peta hasil analisis dengan peta kekeringan BMKG

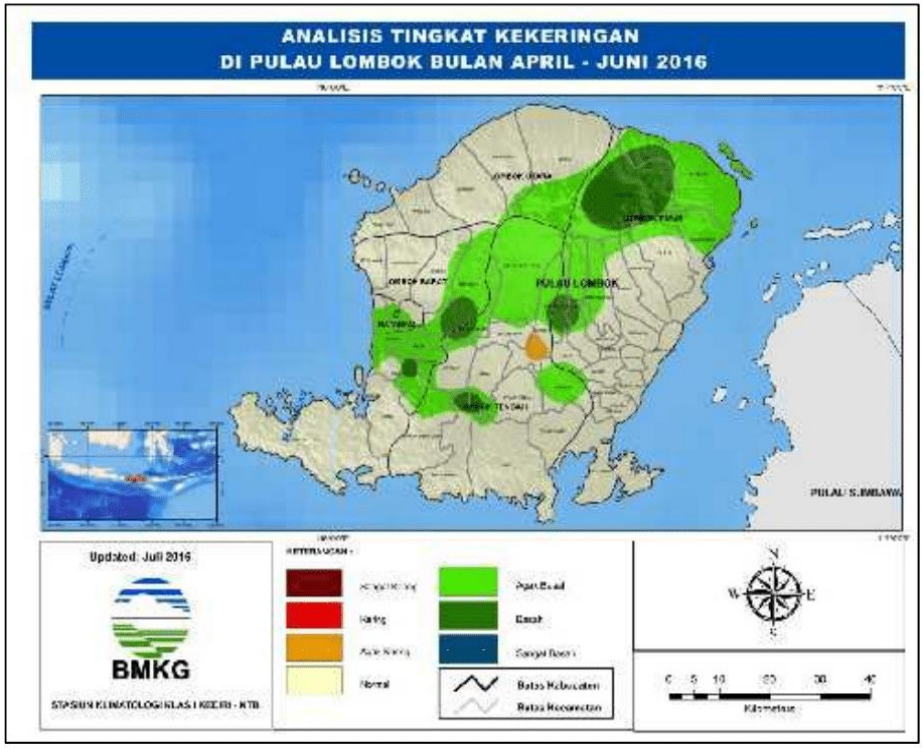


Lampiran 7. 8 Peta analisis kekeringan 3 bulanan (JFM) BMKG 2016

Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7. 9 Peta kekeringan 3 bulanan (JFM) 2016 hasil analisis

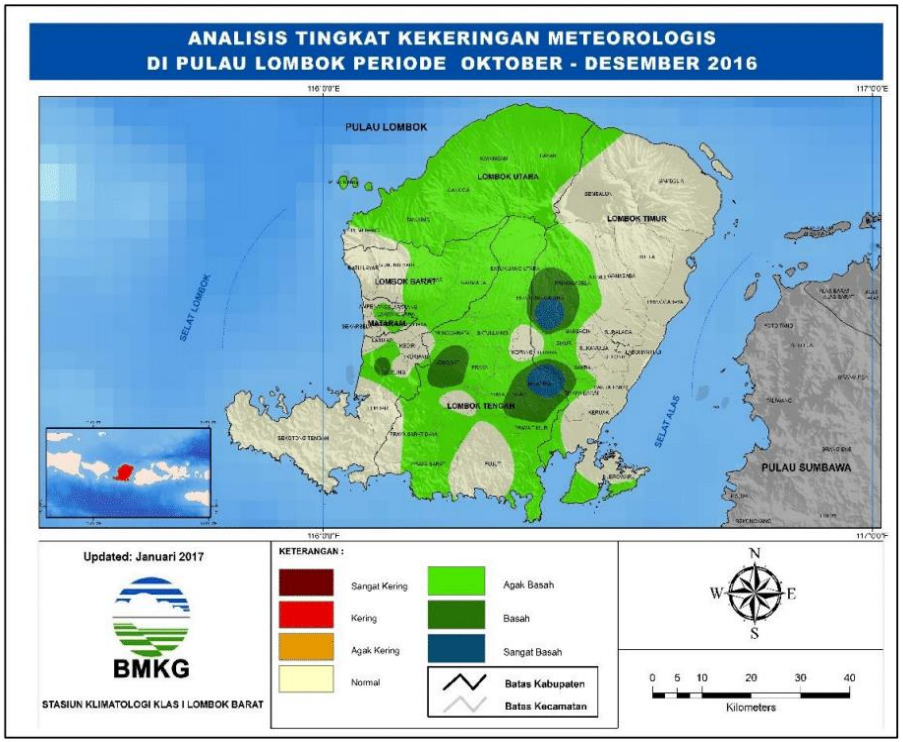


Lampiran 7. 10 Peta analisis kekeringan 3 bulanan (AMJ) BMKG 2016

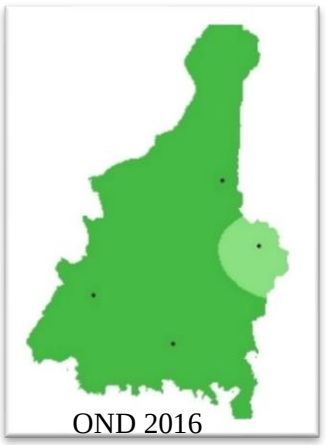
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7. 11 Peta kekeringan 3 bulanan (AMJ) 2016 hasil analisis



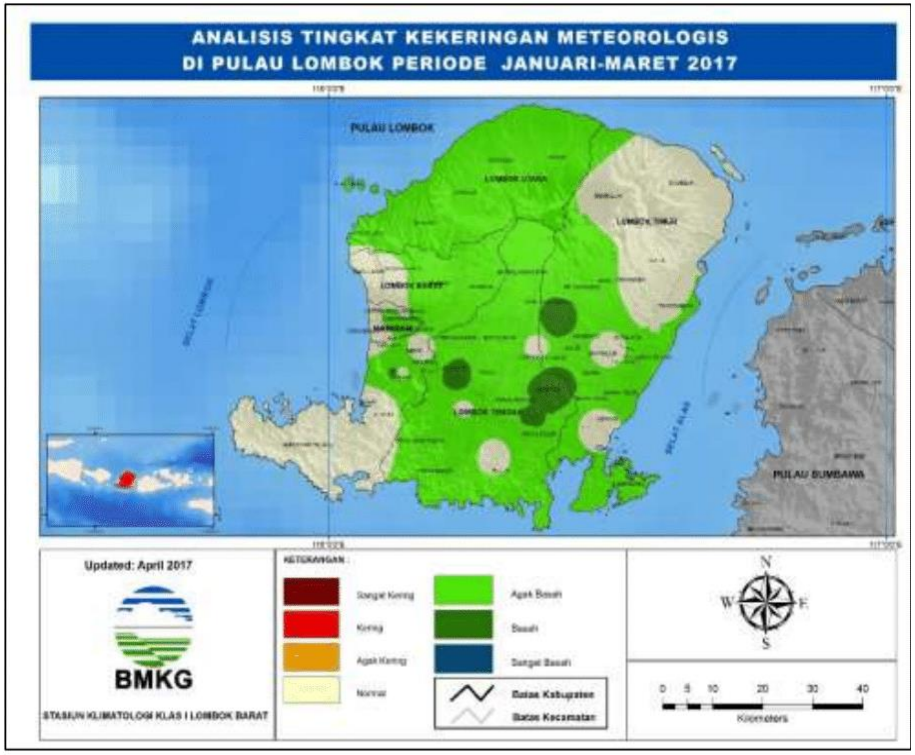
Lampiran 7. 12 Peta analisis kekeringan 3 bulanan (OND) BMKG 2016



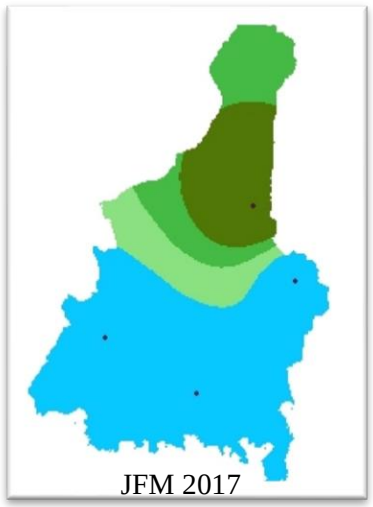
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7. 13 Peta kekeringan 3 bulanan (OND) 2016 hasil analisis



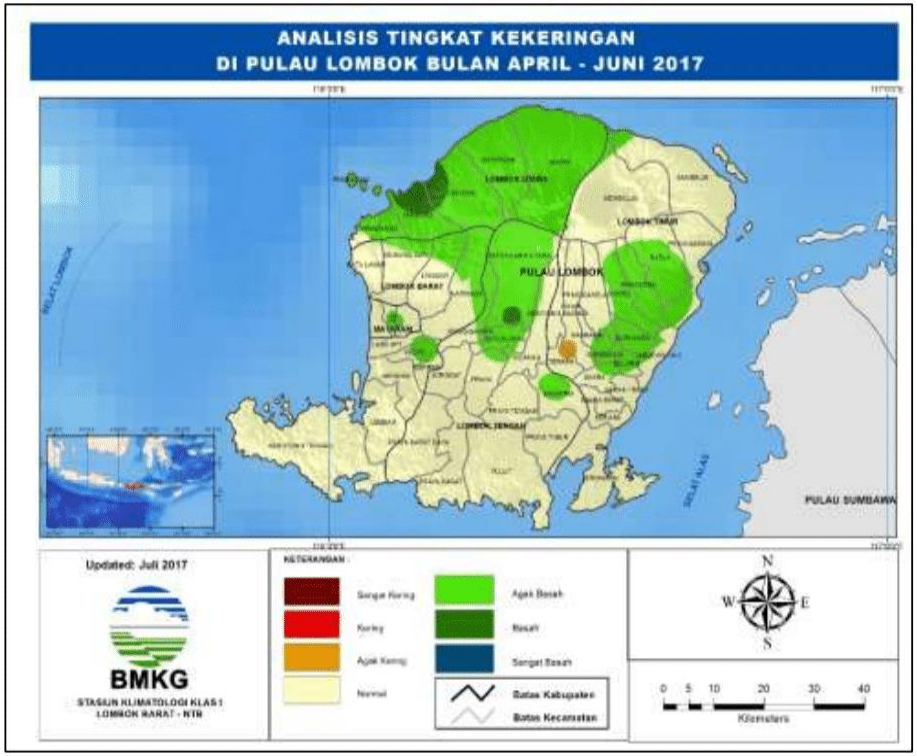
Lampiran 7.14 Peta analisis kekeringan 3 bulanan (FJM) BMKG 2017



Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.15 Peta kekeringan 3 bulanan (FJM) 2017 hasil analisis

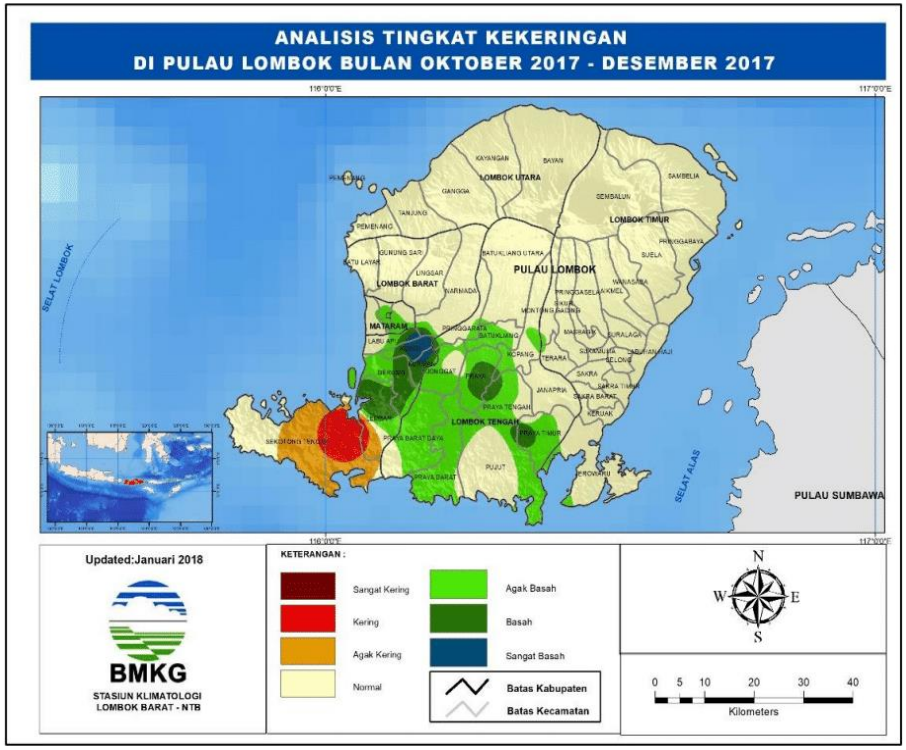


Lampiran 7.16 Peta analisis kekeringan 3 bulanan (AMJ) BMKG 2017

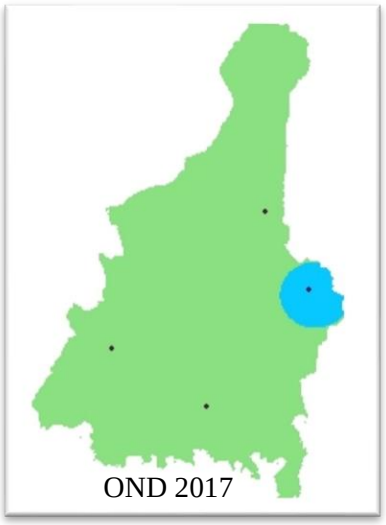
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.17 Peta kekeringan 3 bulanan (AMJ) 2017 hasil analisis



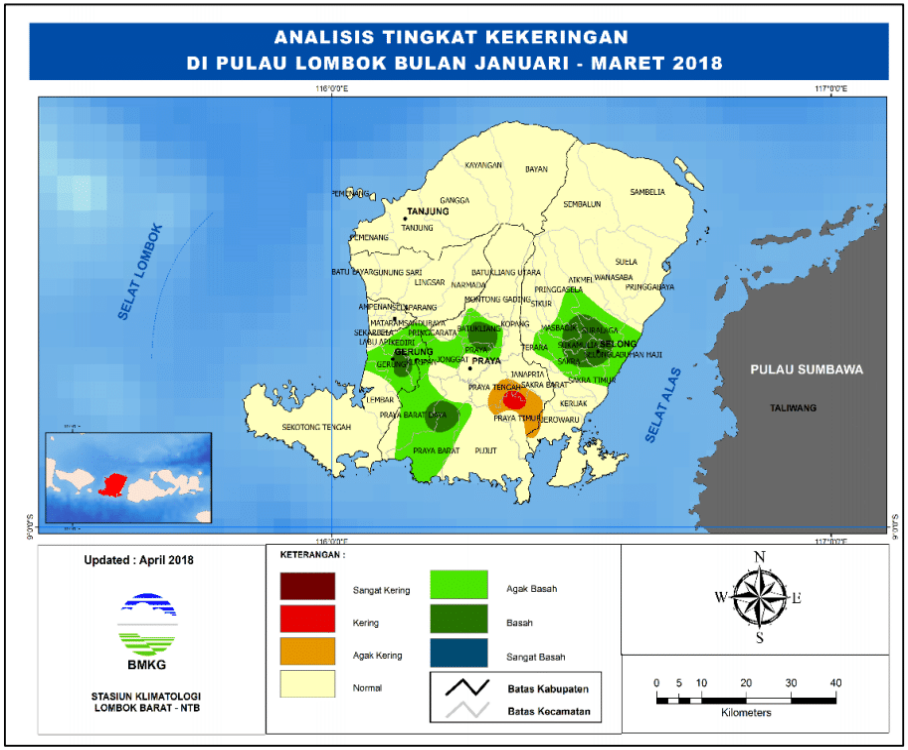
Lampiran 7.18 Peta analisis kekeringan 3 bulanan (OND) BMKG 2017



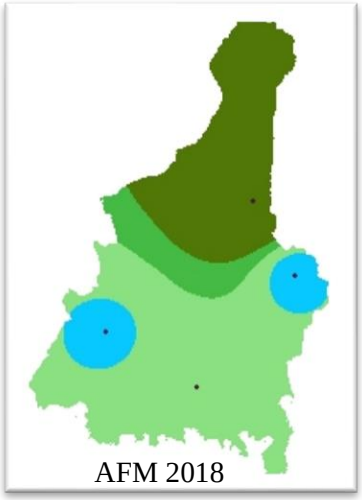
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.19 Peta kekeringan 3 bulanan (OND) 2017 hasil analisis



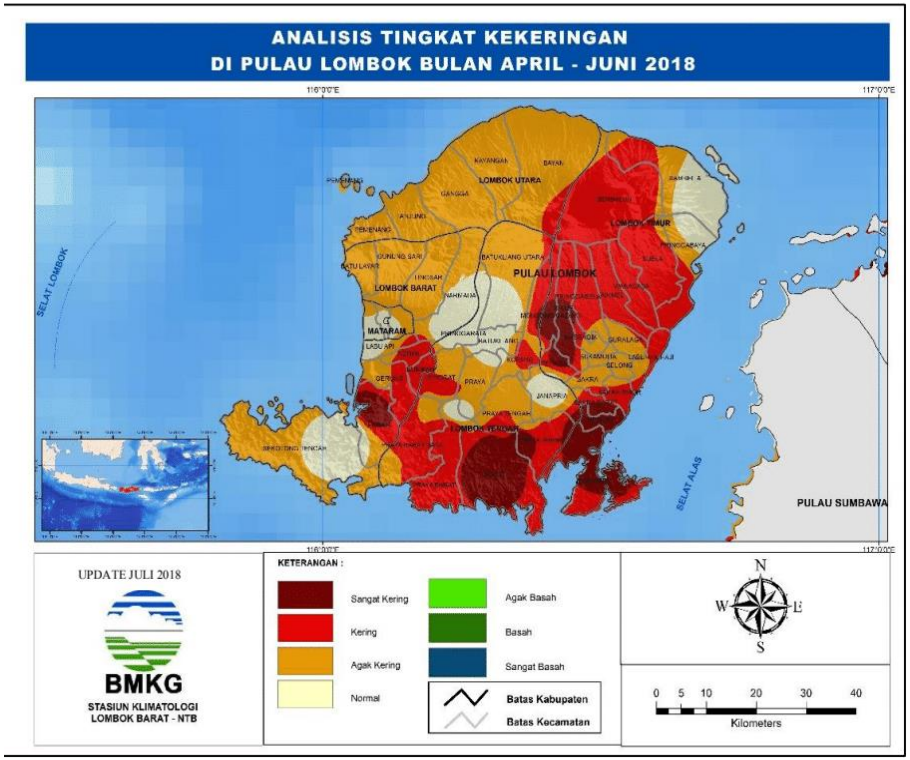
Lampiran 7.20 Peta analisis kekeringan 3 bulanan (JFM) BMKG 2018



Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.21 Peta kekeringan 3 bulanan (JFM) 2018 hasil analisis

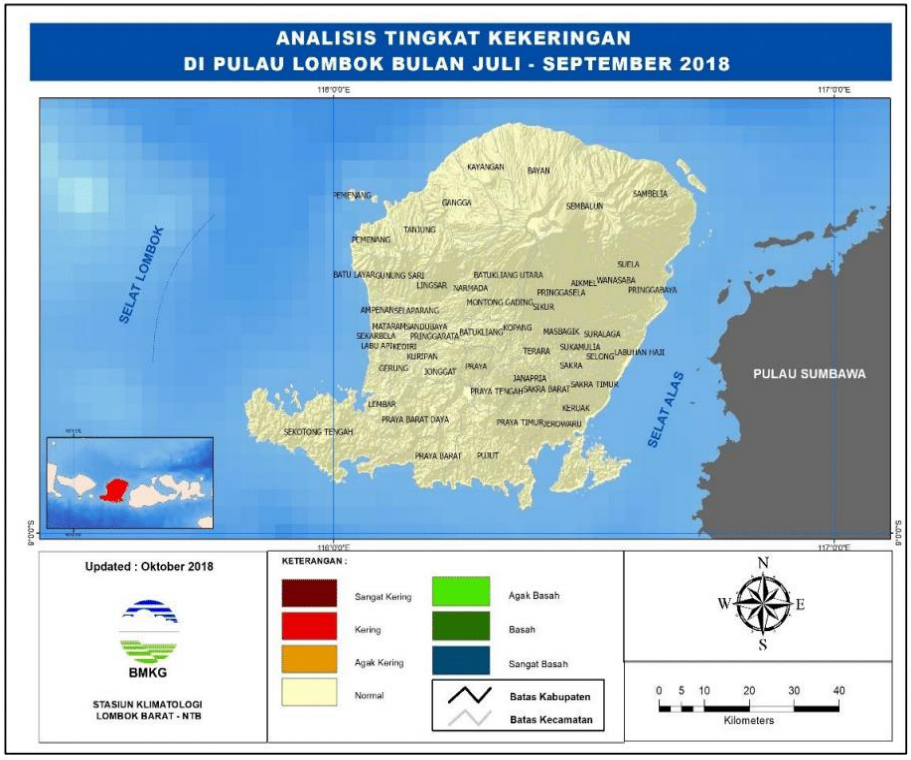


Lampiran 7.22 Peta analisis kekeringan 3 bulanan (AMJ) BMKG 2018

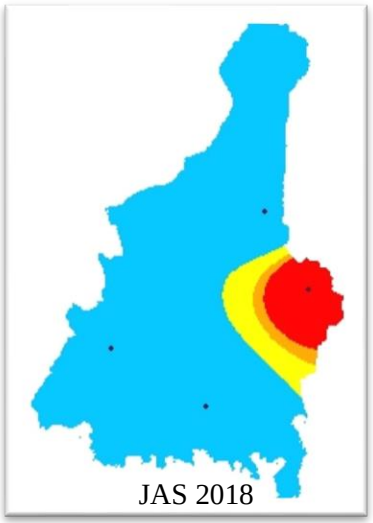
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.23 Peta kekeringan 3 bulanan (AMJ) 2018 hasil analisis



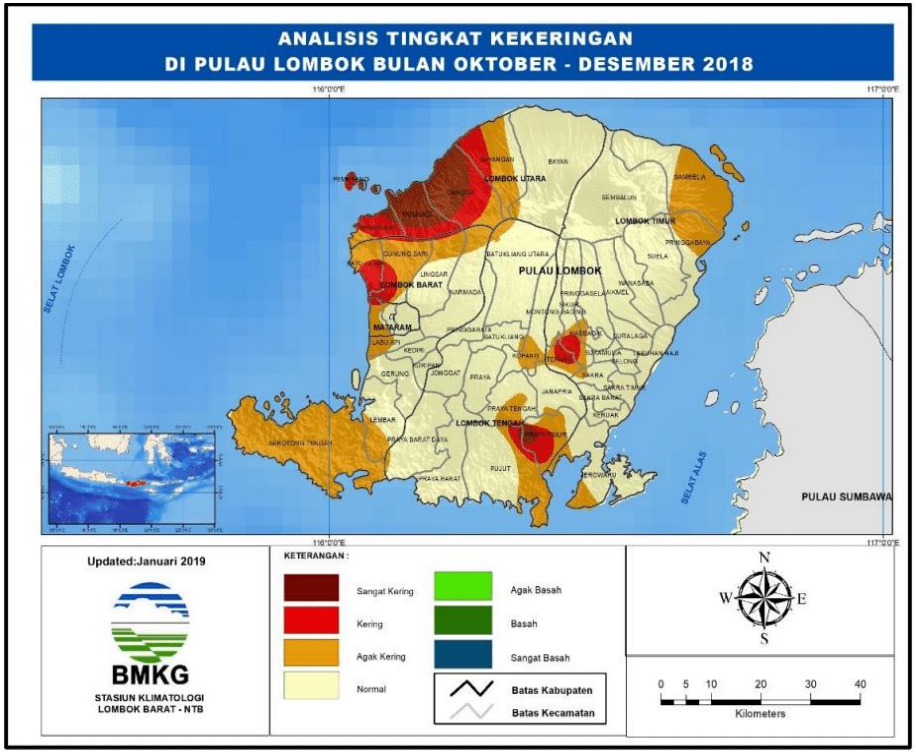
Lampiran 7.24 Peta analisis kekeringan 3 bulanan (JAS) BMKG 2018



Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.25 Peta kekeringan 3 bulanan (JAS) 2018 hasil analisis

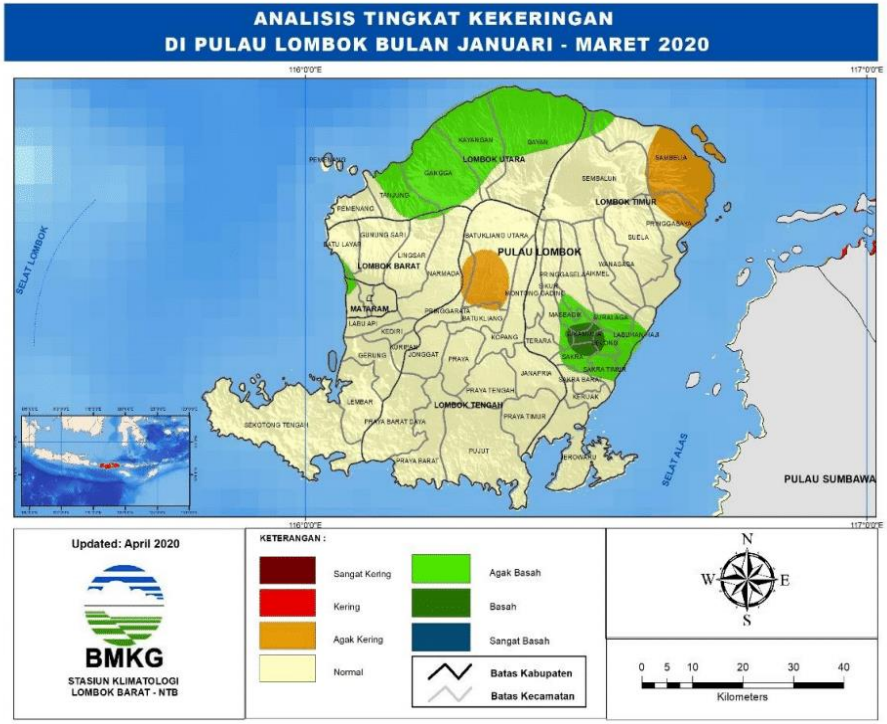


Lampiran 7.26 Peta analisis kekeringan 3 bulanan (OND) BMKG 2018

Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.27 Peta kekeringan 3 bulanan (OND) 2018 hasil analisis

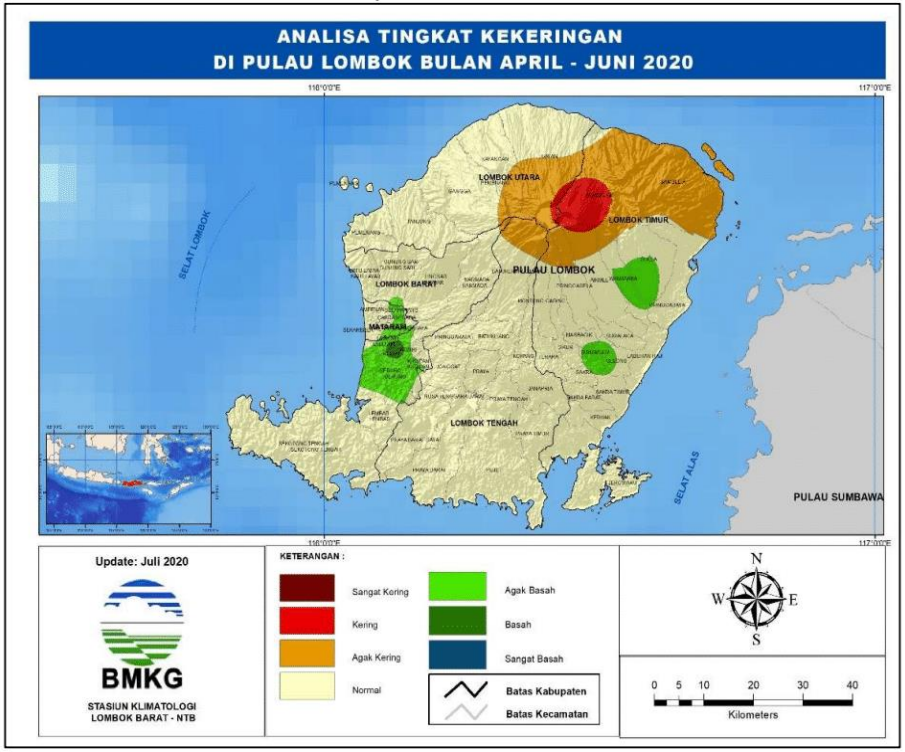


Lampiran 7.28 Peta analisis kekeringan 3 bulanan (JFM) BMKG 2020

Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.29 Peta kekeringan 3 bulanan (JFM) 2020 hasil analisis

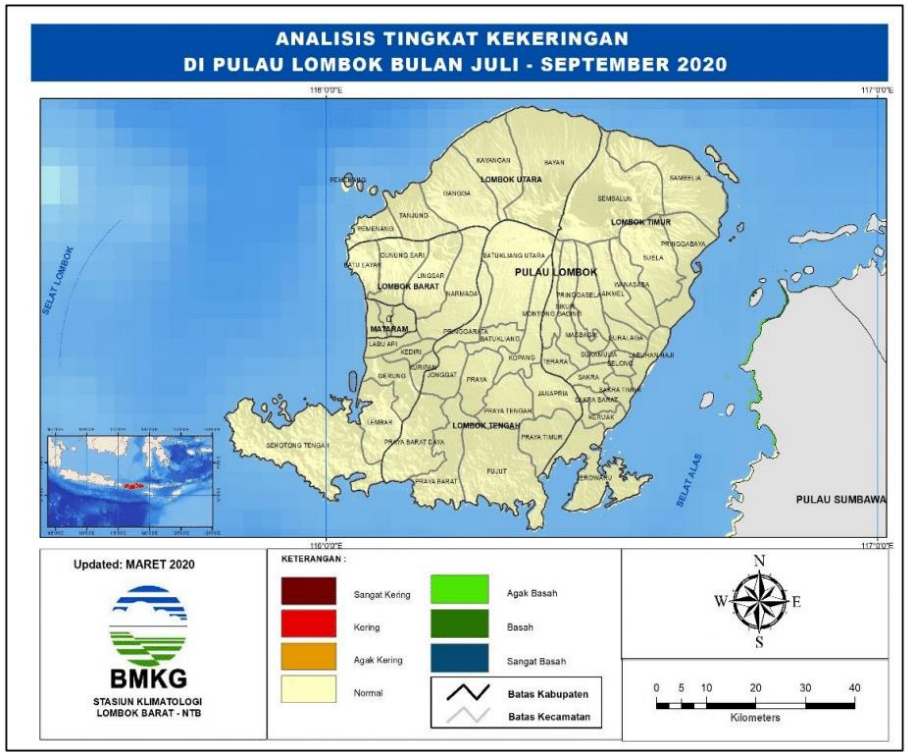


Lampiran 7.30 Peta analisis kekeringan 3 bulanan (AMJ) BMKG 2020

Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.31 Peta kekeringan 3 bulanan (AMJ) 2020 hasil analisis

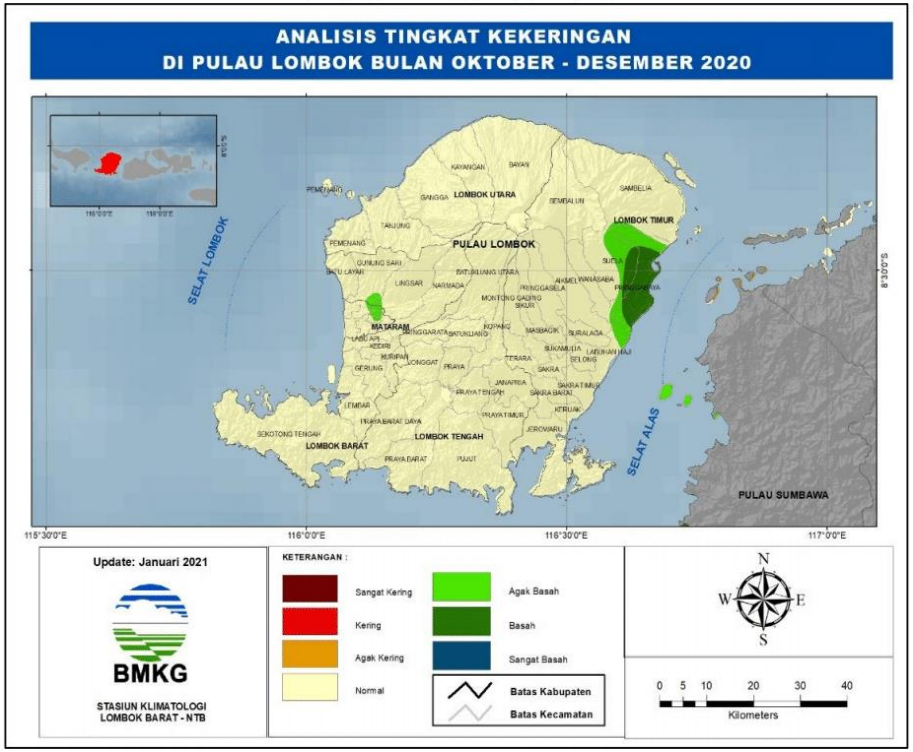


Lampiran 7.32 Peta analisis kekeringan 3 bulanan (JAS) BMKG 2020

Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.33 Peta kekeringan 3 bulanan (JAS) 2020 hasil analisis

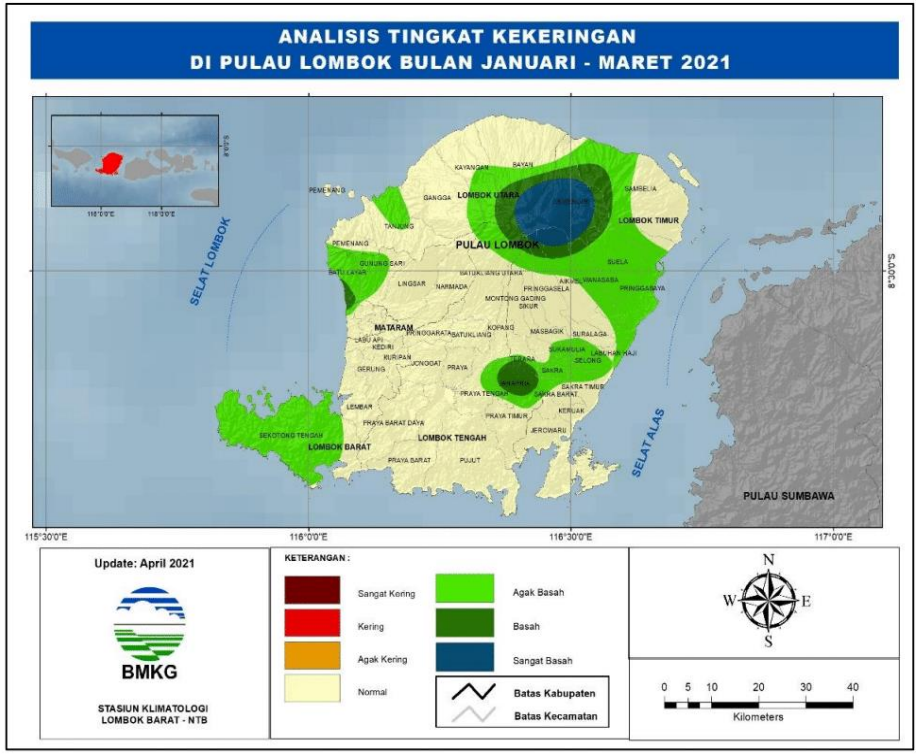


Lampiran 7.34 Peta analisis kekeringan 3 bulanan (OND) BMKG 2020

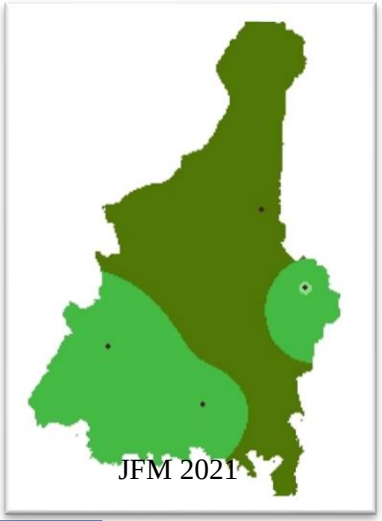
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.35 Peta kekeringan 3 bulanan (OND) 2020 hasil analisis



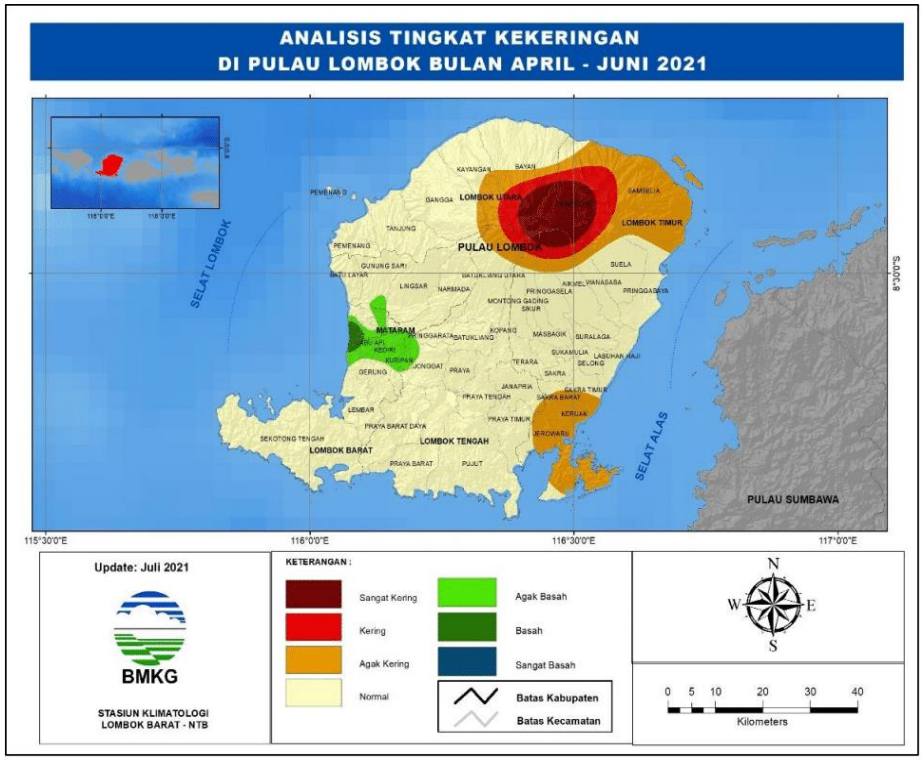
Lampiran 7.36 Peta analisis kekeringan 3 bulanan (JFM) BMKG 2021



Keterangan :
JFM : Januari, Februari, Maret
AM : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.37 Peta kekeringan 3 bulanan (JFM) 2021 hasil analisis

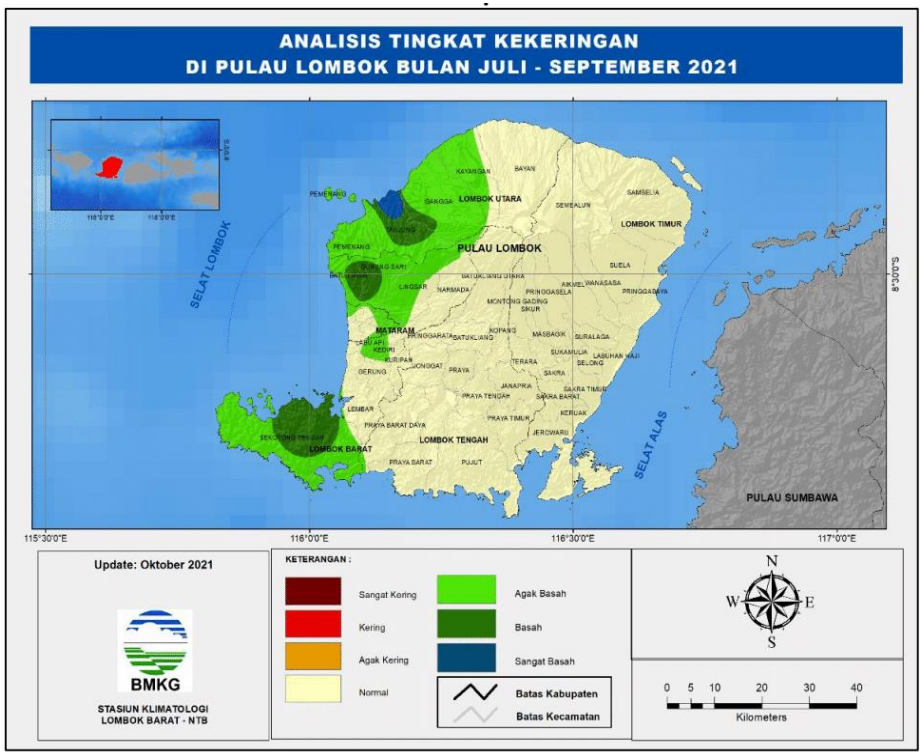


Lampiran 7.38 Peta analisis kekeringan 3 bulanan (AMJ) BMKG 2021

Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.39 Peta kekeringan 3 bulanan (AMJ) 2021 hasil analisis

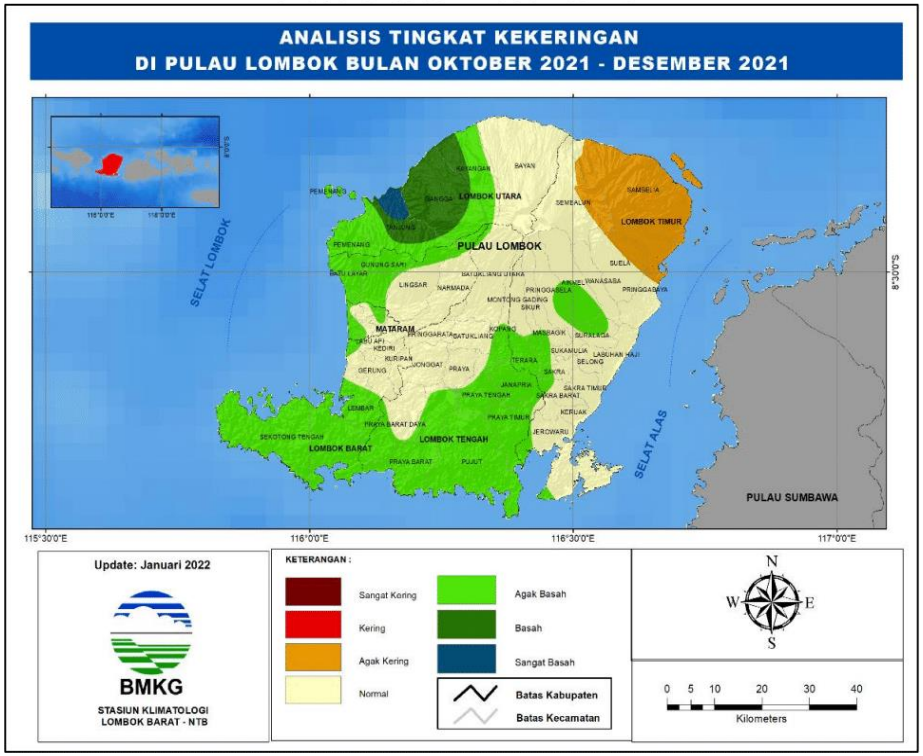


Lampiran 7.40 Peta analisis kekeringan 3 bulanan (JAS) BMKG 2021

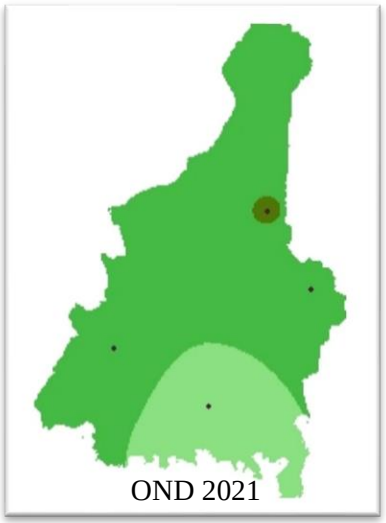
Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.41 Peta kekeringan 3 bulanan (JAS) 2021 hasil analisis



Lampiran 7.42 Peta analisis kekeringan 3 bulanan (OND) BMKG 2021



Keterangan :
JFM : Januari, Februari, Maret
AMJ : April, Mei, Juni
JAS : Juli, Agustus, September
OND : Oktober, November, Desember

ASK : Amat sangat kering (≤ -2.00)
SK : Sangat kering (-1,50 s.d -1,99)
CK : Cukup kering (-1,00 s.d -1,49)
N : Normal (-0.99 s.d 0.99)
CB : Cukup basah (1.00 s.d 1.49)
SB : Sangat basah (1.50 s.d 1.99)
ASB : Amat sangat basah (≥ 2.00)

Lampiran 7.43 Peta kekeringan 3 bulanan (OND) 2021 hasil analisis