

Data Management in BMKG

Database Center, BMKG

July 11, 2017

Let's think about 4

- **Everlasting** used data
- The **biggest data** producer in Indonesia
- Many data resources
- Forecaster may false but **Data** can't!



STATION NETWORK

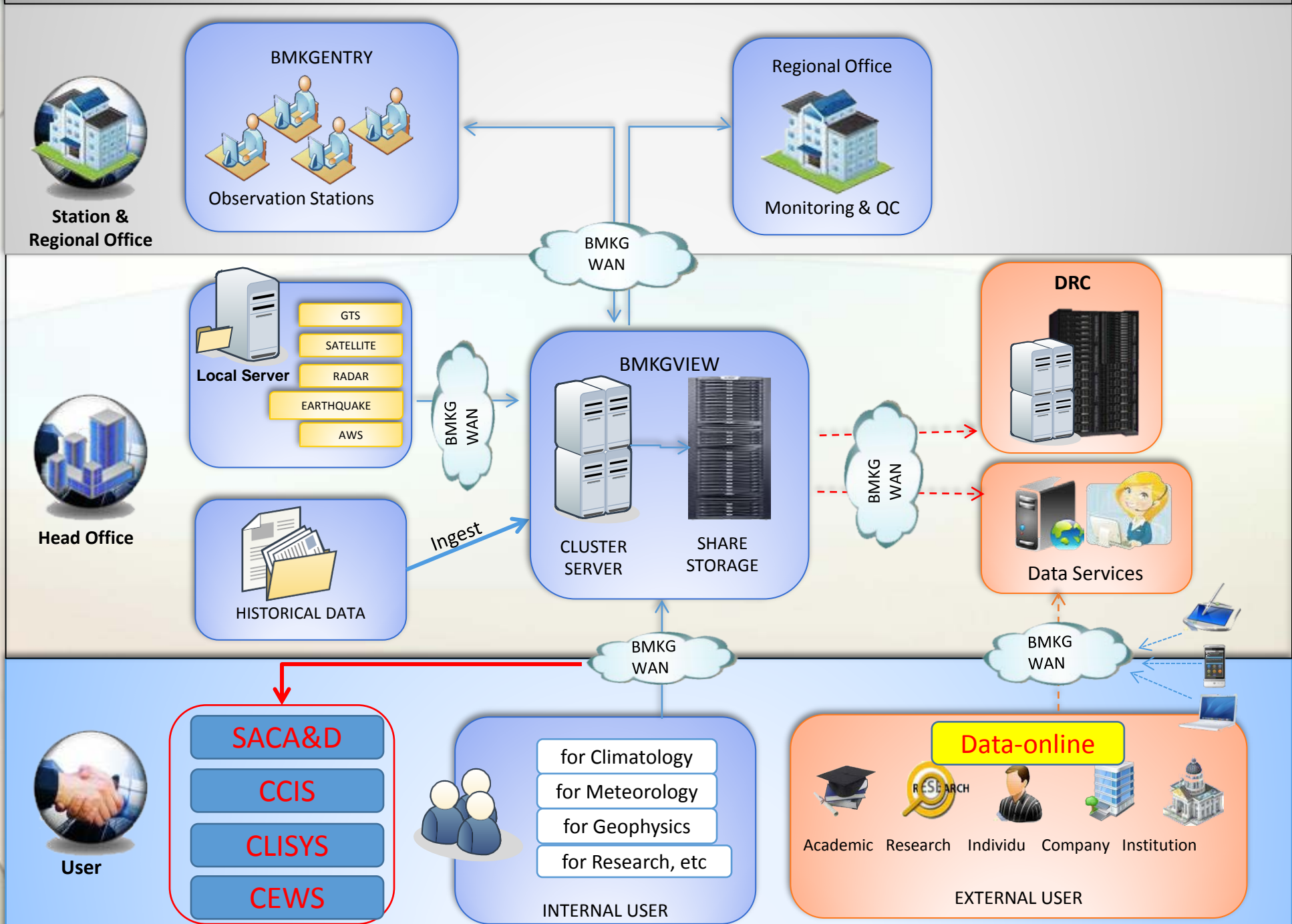


ARG/AWS/AAWS NETWORK

BMKGSoft

***(Integrated MKG Database Management System
to provide complete, valid and accessible
database)***

DATA INTEGRATION ON **BMKGSoft**



Data leveling

- **Level #1 data** : observed data from many parameters with many time-step (10 minutes, hourly, daily), many forms, and many instruments.
- **Level #2 data** : derived data into hourly, daily, weekly, ten-days, monthly.
- **Level #3 data** : processed data i.e. average, normal, maximum, minimum, extreme, indices, etc.

FOCUSING OF BMKG-DBMS

- ◀ Historical climate *data rescue* (1860-1960)
- ◀ Climate *data recovery* (1961-2013)
- ◀ Online climate data transfer “*single data entry concept*” (2013→)
- ◀ Data integration (one management)
- ◀ Quality check and homogenization
- ◀ *Metadata* collection

BMKG-DBMS function

Historical data ingest

Manual data entry at all stations and transmission to Headquarter

Automatic data download from various instruments (AWS, ARG, AAWS, Radar, Satellite)

Data integration from various data server

Quality check

Generate derived data (max, min, daily, five-days, ten-days, monthly, normal)

Data services for internal and external user



MegaView

Badan Meteorologi Klimatologi dan Geofisika, Indonesia

administrator

Station Profile Details - CUT BAU (1)

- Navigation
- Geofisika
 - Gempabumi
- GTS Data
 - GTS
- Quality Control
 - Rule Sets
 - QC Monitor
- Station Metadata
 - Metadata
 - Station Report
 - Usage Report
 - Instrument Report
- Admin
 - Region
 - Propinsi
 - Kabupaten
 - Manage Station
 - Users
 - Manage Users

- General
- Historical Notes
- Geography
- Photos
- Local Map
- Elements
- MKG
- AAWS
- MegaEntry

Region:	Region I
Propinsi:	Nanggroe Aceh Darussalam
Kabupaten:	Kota Sabang
Station ID:	1
Name:	CUT BAU
Latitude:	5.867
Longitude:	95.32
Elevation (m):	126
Soil:	Tanah organik
Exposure:	2. Arah utara terhalang obstacle
Land Use:	Alang-alang dan semak belukar
Time Zone:	+07:00

Add Usage:

METADATA



DATA MONITORING



MegaView
 Badan Meteorologi Klimatologi dan Geofisika, Indonesia

- administrator
- Navigation
- Data - Level 1
 - Export
 - Monitor
 - Reports
- Data - Level 2
 - Visualise/Extra
 - Availability
 - Fdim Report
 - CLIMAT
- Satellite
 - Satellite (netCDF)
- Radar
 - Radar
 - Radar (netCDF)
- Geofisika
 - Gempabumi
- GTS Data
 - GTS
- Quality Control
 - Rule Sets
 - QC Monitor
- Station
 - Metadata

Monitor

Resource: FKLIM Region: - Propinsi: - Kabupaten: - Date: 2012-05-13 Filter

id	Name	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
96001	CUT BAU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96009	MALIKUSSALEH LHKSEUMAWE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96011	BLANG BINTANG BANDA ACEH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96013	STAGEOF MATA IE	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
96015	CUT NYAK DIEN MEULABOH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96017	INDRAPURI BANDA ACEH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96031	SAMPALI MEDAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96033	STAMAR BELAWAN	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
96035	POLONIA MEDAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96037	TUNTUNGAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96039	PARAPAT	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
96041	BALAI I	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96071	AEK GODANG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96073	PINANGSORI SIBOLGA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96075	BINAKA GUNUNG SITOLI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96077	GUNUNG SITOLI	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
96087	HANG NADIM BATAM	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
96089	TANJUNG BALAI KARIMUN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

DATA EXTRACT

MegaView
Badan Meteorologi Klimatologi dan Geofisika, Indonesia

administrator

Navigation

- Data - Level 1
 - Export
 - Monitor
 - Reports
- Data - Level 2
 - Visualise/Extra
 - Availability
 - Fdim Report
 - CLIMAT
- Satellite
 - Satellite (netCDF)
- Radar
 - Radar
 - Radar (netCDF)
- Geofisika
 - Gempabumi
- GTS Data
 - GTS
- Quality Control
 - Rule Sets
 - QC Monitor
- Station
 - Metadata

Visualise/Extract

Date: 2012-01-01 - 2012-12-31 Customer category: Internal BMKG

Element: Temperature Tx C (Daily) Choose station

Remove Remove all

ID	Name	Latitude	Longitude
<input type="checkbox"/> 87	MET. MARITIM PERAK II	-7.20937	112.74

Page 1 of 1

Data format: CSV

Opening chart.csv

You have chosen to open:

chart.csv
which is a: Microsoft Office Excel Comma Separated Values File
from: http://202.90.199.105

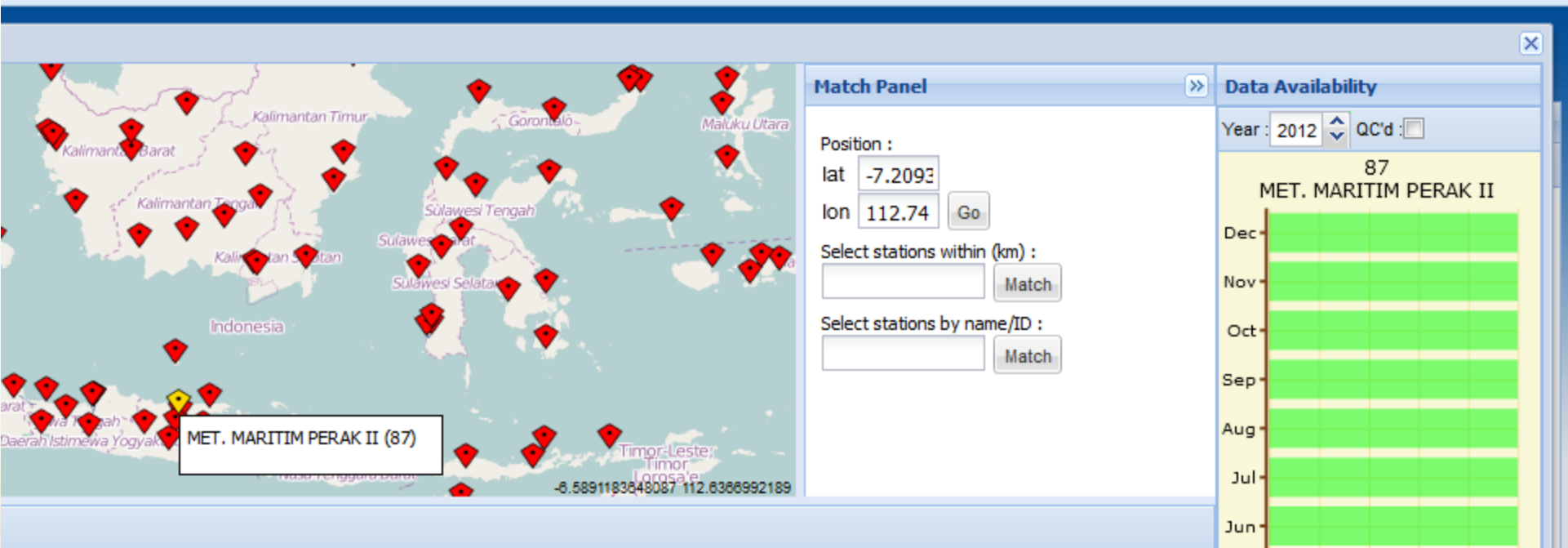
What should Firefox do with this file?

Open with: Microsoft Office Excel (default)

Save File

Do this automatically for files like this from now on.

OK Cancel

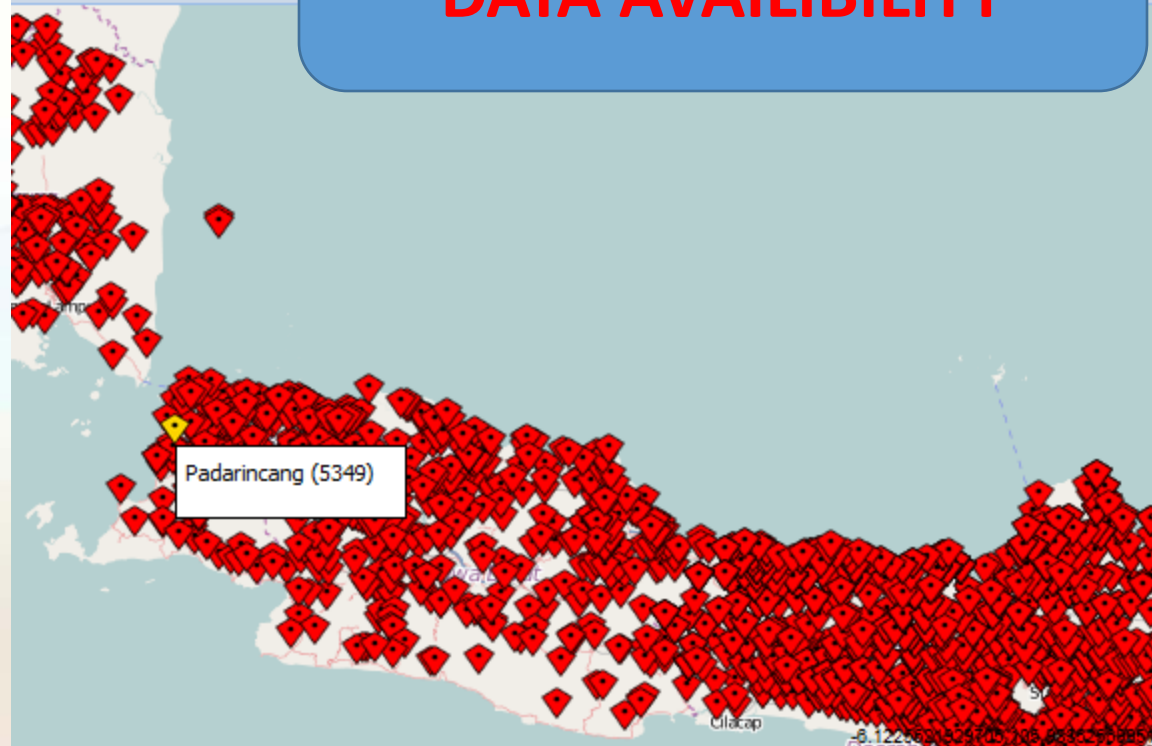


**T-max
DATA AVAILABILITY**

Latitude	Longitude	Elevation (m)

No data to display

DAILY RAINFALL DATA AVAILABILITY

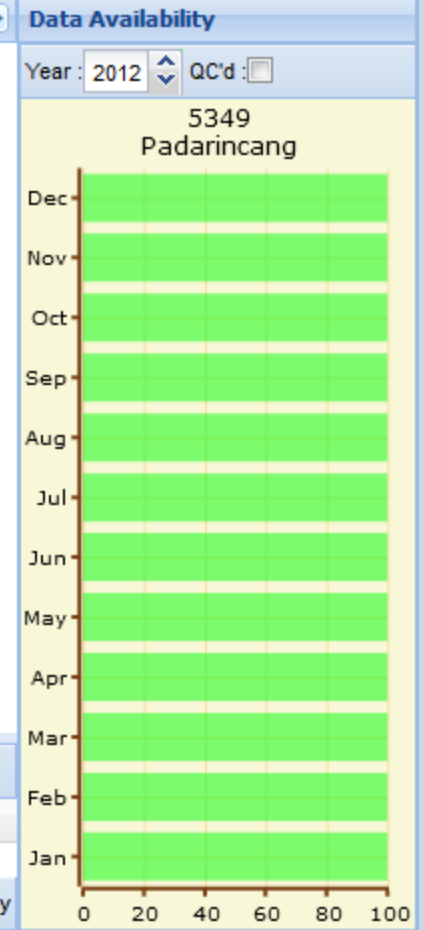


Match Panel

Position :
lat
lon

Select stations within (km) :

Select stations by name/ID :

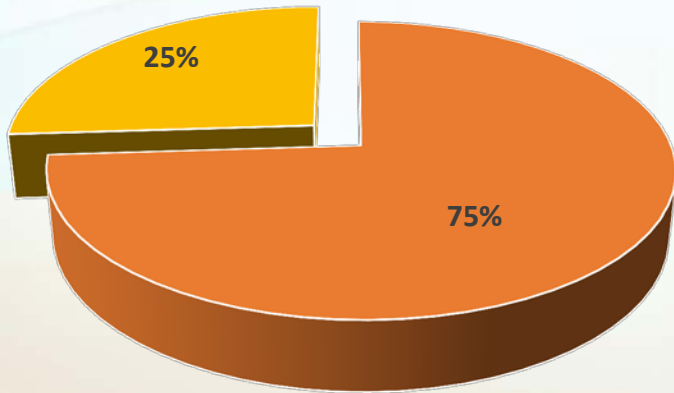


Latitude	Longitude	Elevation (m)
----------	-----------	---------------

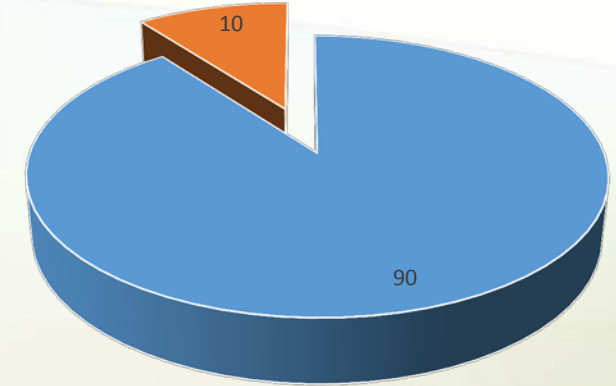
No data to display

Availability Data Hourly for BMKG Station

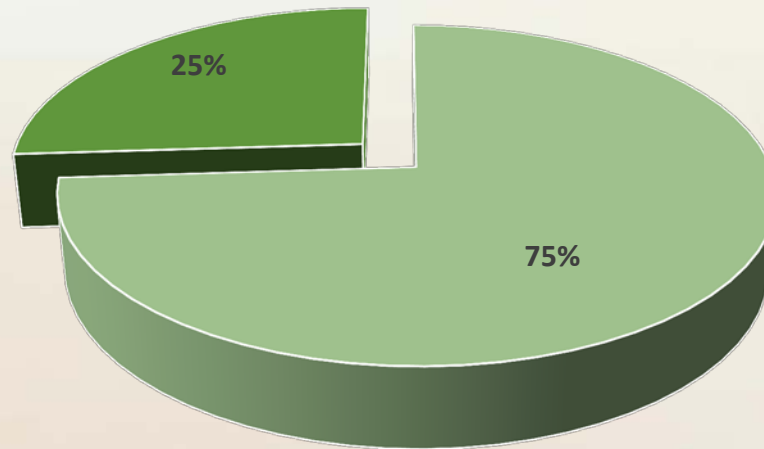
Hourly data availability
2015



Hourly data availability
2016



Hourly data availability
2014





BMKG

SOUTHEAST ASIAN CLIMATE ASSESSMENT AND DATASET (SACA&D)

Aris Suwondo

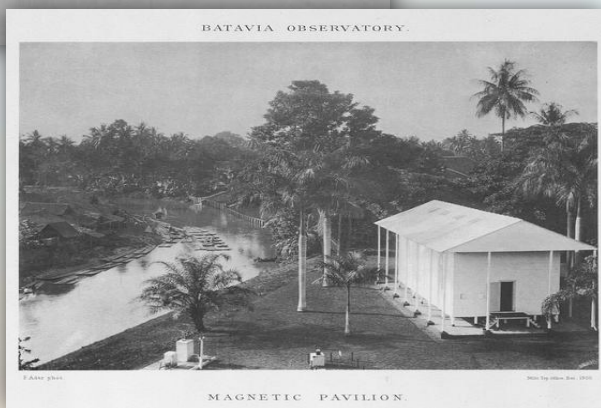
BMKG



BMKG



DIDAH Digitasi Data Historis

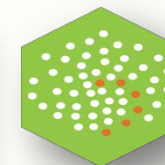


Results of data rescue (resume):

- Hourly observation of 7 parameters in the Batavia Observatory since 1866
- Daily and monthly values of ~ 300 precipitation stations since 1879

DIDAH and SACA&D

sacad.database.bmkg.go.id



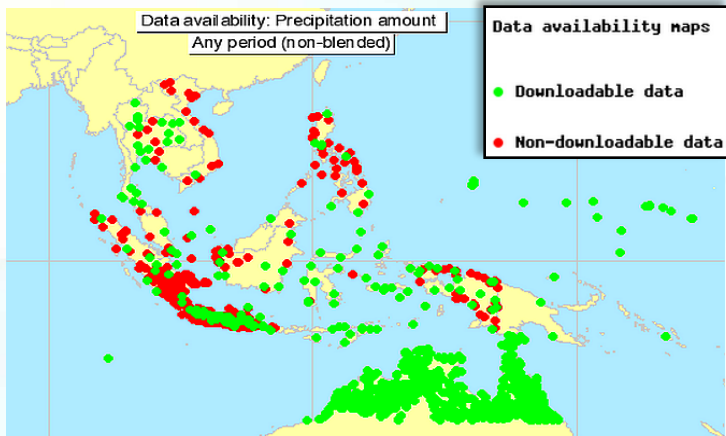
The screenshot shows the homepage of the SACA&D website. At the top, there is a navigation bar with a language selector for 'Bahasa Indonesia' and the title 'Southeast Asian Climate Assessment & Dataset'. Below this is a main menu with links for 'Home', 'FAQ', 'Daily data', 'Indices of extremes', and 'Project info'. A secondary menu includes 'See also:' with links to 'SICA&D' and 'KNMI Climate Explorer'. The main content area features a 'Home' section with a welcome message, a 'What's new?' section with a news item about database updates, a 'Participants and data' section with a map of Southeast Asia, and a 'DiDaH project' section explaining the project's goals. A 'Contact us' section at the bottom lists the project team and staff members from BMKG and KNMI.

SACA&D Website operate since 2012



BMKG

Present status SACA&D



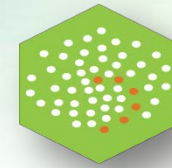
Collaboration between **15** countries

- **6.000** daily data series (+metadata) of ca. **4.100** stations,
- **34%** downloadable
- **10** elements: TX, TN, TG, RR, SS, HU, FX, FG, and DD
- **21** global ETCCDI indices + **22** regional indices.
- Daily gridded datasets

Could serve as a Climate Data node for an RCC Network in RA-V
Address: <http://sacad.database.bmkg.go.id>

Country	Name	Affiliation
AUSTRALIA	Blair Trewin	Bureau of Meteorology
INDONESIA	Adi Rachman	Bogor Agricultural University
INDONESIA	Agus Sudaryatno	Semarang Climatological Station
INDONESIA	Dhenok Sulistyorini	Karangploso- Malang Climatological Station
INDONESIA	Dr. Ir. Wanny K. Adidarma	Kementerian Pekerjaan Umum
INDONESIA	Heron Tarigan	BMKG Regional Office I - Medan
INDONESIA	Miftahul Munir	Banjarbaru Climatological Station
INDONESIA	R. Theodorius Agus Heru R	Darmaga Bogor Climatological Station
INDONESIA	Sri Murniati	BMKG Regional Office IV - Makassar
INDONESIA	Sugeng Nugroho	Bukit kototabang Global Atmosphere Watch(GAW) Station
INDONESIA	Umara Firman	Badan Meteorologi, Klimatologi dan Geofisika (BMKG)
INDONESIA	Umi Farida	BMKG Regional Office II - Ciputat, Jakarta
INDONESIA	Ummi Almunawwaroh	BMKG Regional Office III - Denpasar
INDONESIA	Wandayan Tolis	Climatology Station BMKG Kayuwatu (Region IV)
INDONESIA	Yunus S. Swarinoto	BMKG Headquarter
JAPAN	JAMSTEC	Japan Agency for Marine-Earth Science and Technology
MALAYSIA	Dyana Hani Binti Kamarudin	Malaysian Meteorological Department
NETHERLANDS	Theo Brandsma	Royal Netherlands Meteorological Institute (KNMI)
PHILIPPINES	Maria Cristina C. Uson	Philippine Atmospheric, Geophysical, and Astronomical Services Administration
SINGAPORE	NG Jin Zheng	Meteorological Service Singapore
THAILAND	Adisorn Somwang	Thailand Meteorological Department
UNITED STATES	GHCND	National Climatic Data Center
VIET NAM	Tran Dinh Trong	Vietnam Institute of Meteorology, Hydrology and Environment

- SACA&D Data Contributor
- Indonesia follows WMO Data Policy (Resolution 40,60) to provide on a free and unrestricted basis essential data and products

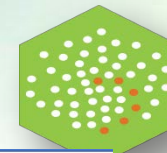


1. Maximum Temperature Max, TX
2. Minimum Temperature, TN
3. Average Temperature, TG
4. Precipitation amount, RR
5. Pressure (PP)
6. Sunshine duration, SS
7. Mean Humidity, HU
8. Wind gust, FG
9. Wind speed, FX
10. Wind direction, DD



BMKG

Data Availability maps



[Bahasa Indonesia](#)

SACA&D Southeast Asian Climate Assessment & Dataset

Home [FAQ](#) [Daily data](#) [Indices of extremes](#) [Project info](#)

See also: [ICA&D](#) [KNMI Climate Explorer](#)

[Daily data](#) > Data dictionary

Data dictionary

The SACA dataset contains 6477 series of observations for 10 elements at 4090 meteorological stations throughout Southeast Asia.

Both **blended** and **non-blended** SACA series are available. **Blended** series are series that are near-complete by infilling from nearby stations. They are also updated using synoptical messages. Only these **blended** series are further analysed in SACA&D and used for gridding. Details of the blend and update proces are given in the [specific FAQ](#) or in Project info > [ATBD](#).

Meteorological observations are taken at many stations across Southeast Asia, each day. To minimize the effects of changes over time in the way the measurements were made, rigorous quality control is applied before the data is used to analyse extremes. Meta data describing the observation site and instrumentation guides this process. Improving the dataset requires continuous effort

Meta information for the daily series is provided below, both for the **blended** and **non-blended** series. The **blended** series have been tested for homogeneity, which is relevant to assess the quality of each series for climate change research. Meta information for the stations is also provided, including site pictures and land use data if available (first meta item).

[All series available in the SACA dataset](#)

[Table or map of all available stations](#)

[All available elements](#)

[Plots of available number of stations per year/element](#)

[Data availability maps](#)

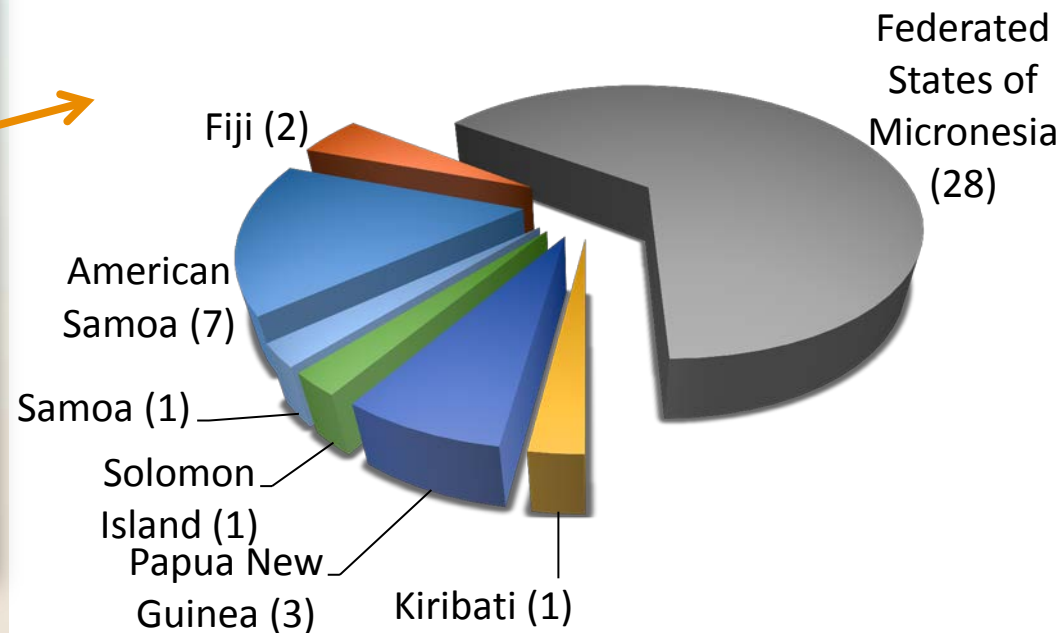
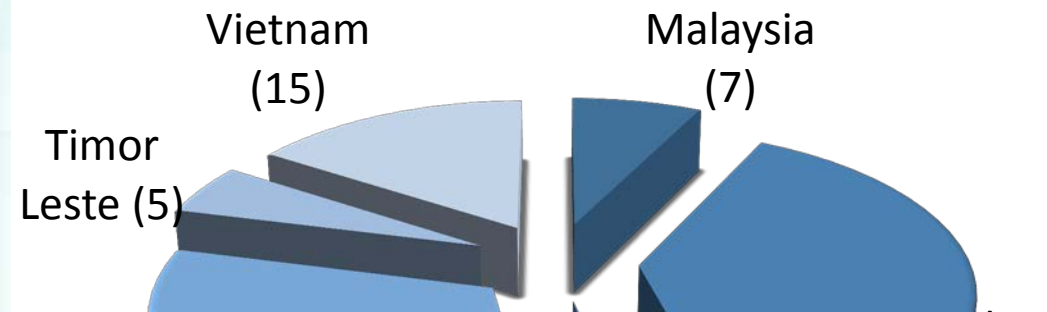
[Homogeneity maps](#) (only blended series)

Data Dictionary

[sacad.database.bmkg.go.id/dailydata/countryquery.php?optionSelected=participant&processtext1=Your+query+is+be](#)

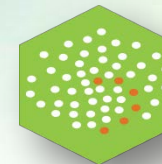
[Bahasa Indonesia](#)

SACA&D Southeast Asian Climate Assessment & Dataset





BMKG



Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ Daily data Indices of extremes

See also: ICA&D KNMI Climate Explorer

Home

Home

Welcome to the website of the Southeast Asian Climate Assessment & Dataset. Presented is information on changes in weather and climate extremes, as well as needed to monitor and analyse these extremes.

What's new?

 The database is updated until: Dec 30, 2014. March 2011 - Website online. January 2011 - Logo included and website colours updated. [All news items](#)

Participants and data

 Today, SACA&D is receiving data from [24 participants](#) from SACA dataset contains 6477 series of observations for [meteorological stations](#) throughout Southeast Asia. 311 which means downloadable from this website for non-commercial use. Daily data > [Data dictionary](#) for an overview of all available SACA&D is open to anyone maintaining daily station data. please contact us. See our [Data Policy](#) for more details.

DiDAH project

 SACA&D is developed as part of the Digital Data History project. This project is focusing on the digitization and use of high-resolution data from Indonesia and other Southeast Asian countries between the National Meteorological Services of [Indonesia](#) and [Netherlands \(KNMI\)](#).

The results on this website contribute to the work of the climate extremes ([APN](#)).

Contact us

Project team SACA&D: Sunardi, Jaumil, Noer Hidayat, Iqbal, Aris, Aryan, Theo

Badan Meteorologi Klimatologi dan Geofisika (BMKG)
Royal Netherlands Meteorological Institute (KNMI)

[Contact email](#)

Homepage

Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ **Daily data** Indices of extremes

See also: ICA&D KNMI Climate Explorer

Home

Daily data

[Daily data](#) > Data dictionary

Data dictionary

The SACA dataset contains 6477 series of observations for 10 elements at 4090 meteorological stations throughout Southeast Asia.

Both **blended** and **non-blended** SACA series are available. **Blended** series are series that are complete by infilling from nearby stations. They are also updated using synoptical messages. On these **blended** series are further analysed in SACA&D and used for gridding. Details of the blending process are given in the [specific FAQ](#) or in Project info > [ATBD](#).

Meteorological observations are taken at many stations across Southeast Asia, each day. To minimize the effects of changes over time in the way the measurements were made, rigorous control is applied before the data is used to analyse extremes. Meta data describing the observations and instrumentation guides this process. Improving the dataset requires continuous effort.

Meta information for the daily series is provided below, both for the **blended** and **non-blended** series. The **blended** series have been tested for homogeneity, which is relevant to assess the quality of series for climate change research. Meta information for the stations is also provided, including pictures and land use data if available (first menu item).

- [All series available in the SACA dataset](#)
- [Table or map](#) of all available stations
- [All available elements](#)
- [Plots of available number of stations per year/element](#)
- [Data availability maps](#)
- [Homogeneity maps](#) (only blended series)

Data Dictionary

Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ Daily data **Indices of extremes** Project info

See also: ICA&D KNMI Climate Explorer

Home

Indices of extremes

Indices of extremes

Indices of extremes

For every SACA&D station, a total of 45 indices have been calculated. Each index describes a particular characteristic of climate change (both changes in the mean and the extremes). A core set of 21 indices follows the definitions recommended by the CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices ([ETCCDI](#)). These indices are calculated in a similar way for other regions of the world. An additional set of 24 indices highlights particular characteristics of climate change in Southeast Asia.

To learn more about the meaning and the way each index is calculated see the [Indices dictionary](#).

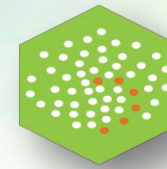
The menu below allows you to view time series plots for each index and station, to view maps of trends over Southeast Asia for each index, to view maps of index anomalies (with respect to the normal period 1961-1990) for a particular year or season, or to view climatology maps. Every item of the menu offers the option to download the results; the last item is for bulk download.

Time series plots (all available series)	updated until: 2014
Trend maps (all available series)	updated until: 2014
Anomaly maps (all available series)	updated until: 2014
Climatology maps (all available series)	
Download indices data (ASCII) (all available series)	updated until: Dec 30, 2014

Indices of Extremes

Indonesian Stations

BMKG



Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ **Daily data** Indices of extremes Project info

See also: ICA&D KNMI Climate Explorer

Daily data > Data dictionary

Data dictionary

The SACA dataset contains 6477 series of observations for 10 elements at 4090 meteorological stations throughout Southeast Asia.

Both **blended** and **non-blended** SACA series are available. **Blended** series are series that are near-complete by infilling from nearby stations. They are also updated using synoptical messages. Only these **blended** series are further analysed in SACA&D and used for gridding. Details of the blend and update proces are given in the [specific FAQ](#) or in Project info > [ATBD](#).

Meteorological observations are taken at many stations across Southeast Asia, each day. To minimize the effects of changes over time in the way the measurements were made, rigorous quality control is applied before the data is used to analyse extremes. Meta data describing the observation site and instrumentation guides this process. Improving the dataset requires continuous effort

Meta information for the daily series is provided below, both for the **blended** and **non-blended** series. The **blended** series have been tested for homogeneity, which is relevant to assess the quality of each series for climate change research. Meta information for the stations is also provided, including site pictures and land use data if available (first menu item).

- [All series available in the SACA dataset](#)
- [Table or map of all available stations](#)
- [All available elements](#)
- [Plots of available number of stations per year/element](#)
- [Data availability maps](#)
- [Homogeneity maps](#) (only blended series)

Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ Daily data Indices of extremes Project info

See also: ICA&D KNMI Climate Explorer

Daily data > Data dictionary > Country query

Country query

Choose whether you want **non-blended** or **blended** series and select country and/or participant. Participant option is only available with non-blended series.

Your selection now yields 147 stations in 1 countries. Proceed with the **Next**-button.

Reset all Next

Type of series: non-blend

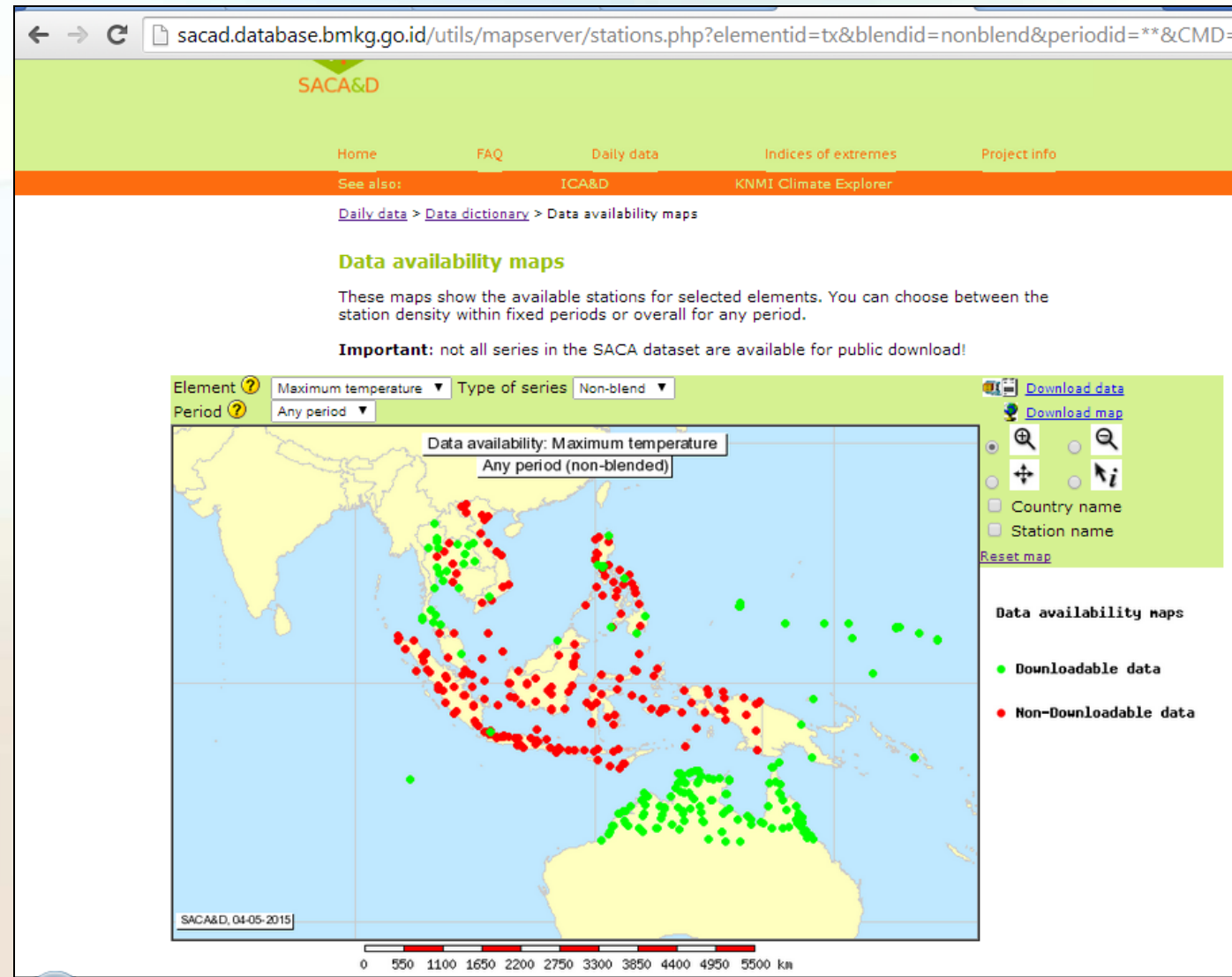
Country: INDONESIA
1 countries selected

Participant: BMKGSOFT
1 participants selected

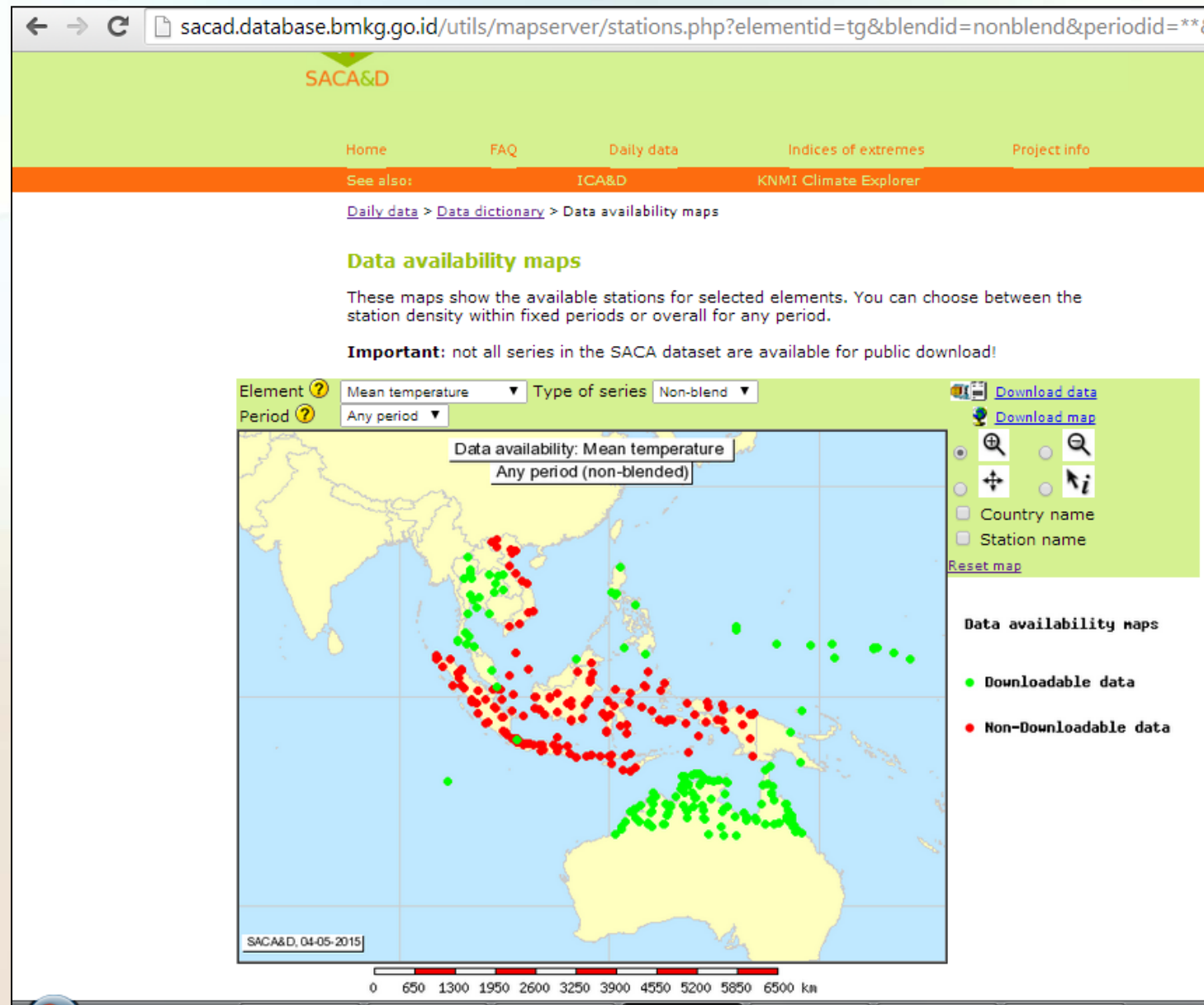
147 Stations

Data Dictionary

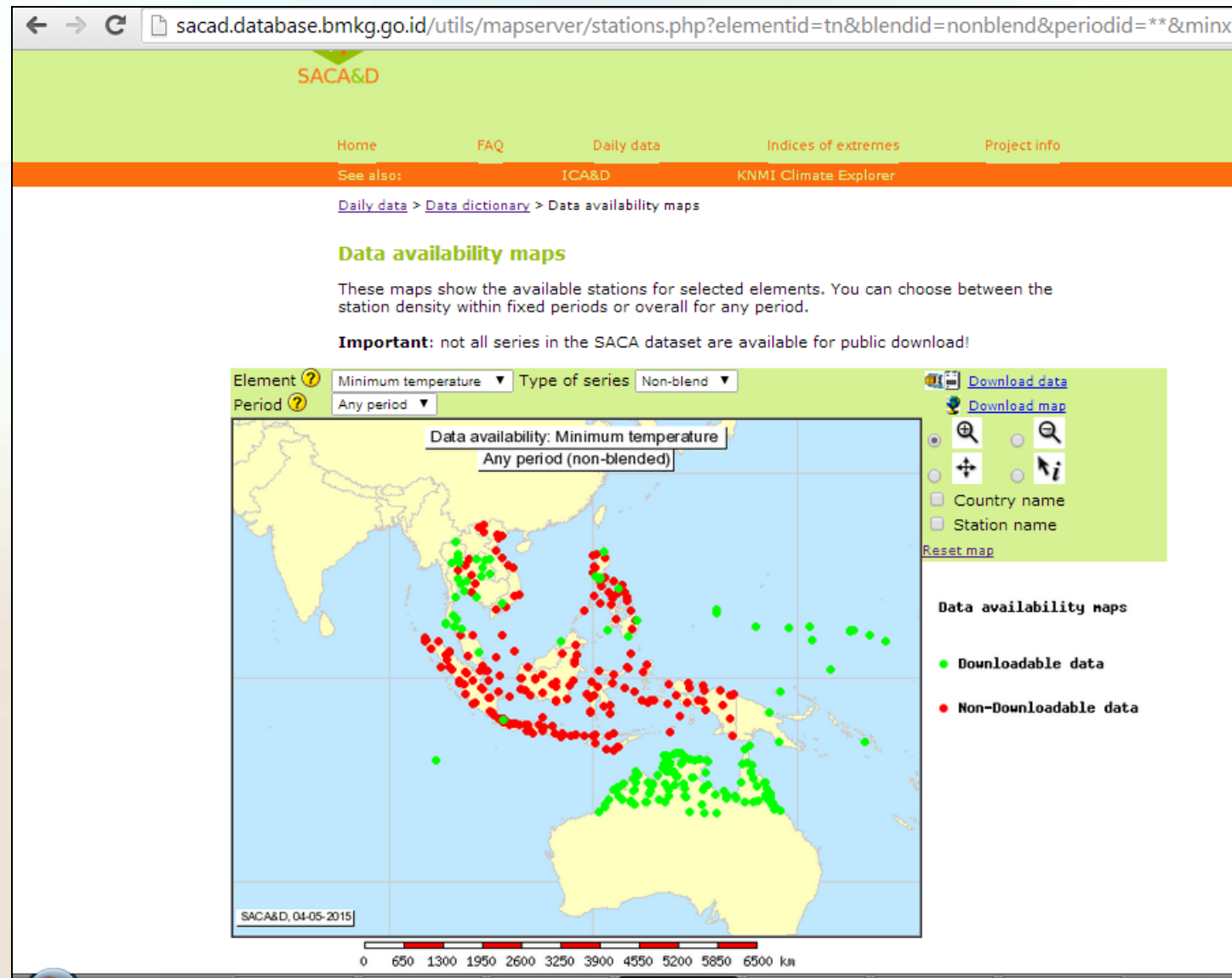
Maximum Temperature



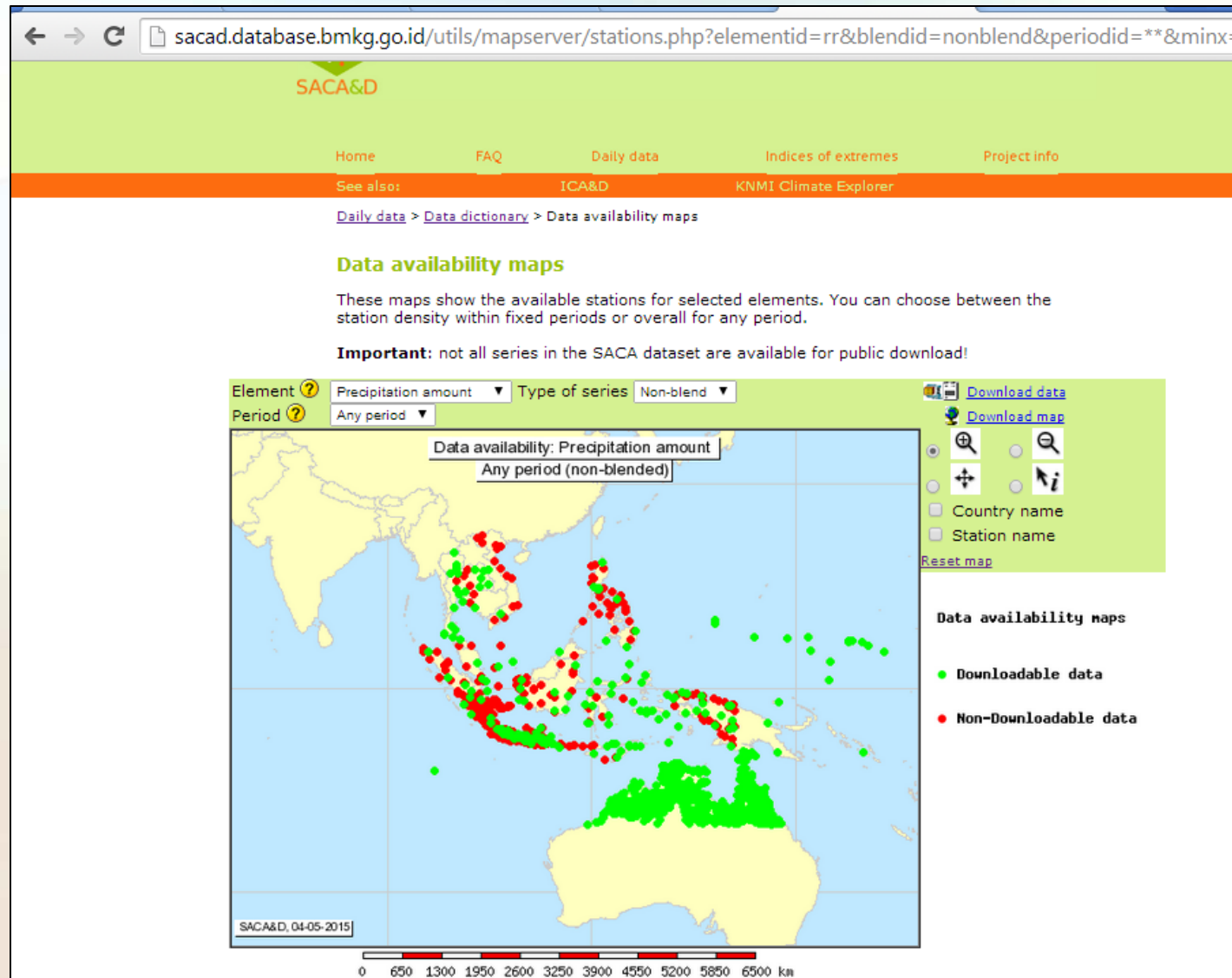
Mean Temperature



Minimum Temperature



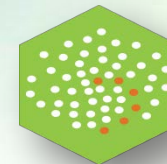
Precipitation





BMKG

Homogeneity maps



Bahasa Indonesia

Southeast Asian Climate Assessment & Dataset

SACA&D

Home [FAQ](#) **Daily data** [Indices of extremes](#) [Project info](#)

See also: [ICA&D](#) [KNMI Climate Explorer](#)

[Daily data](#) > [Data dictionary](#)

Data dictionary

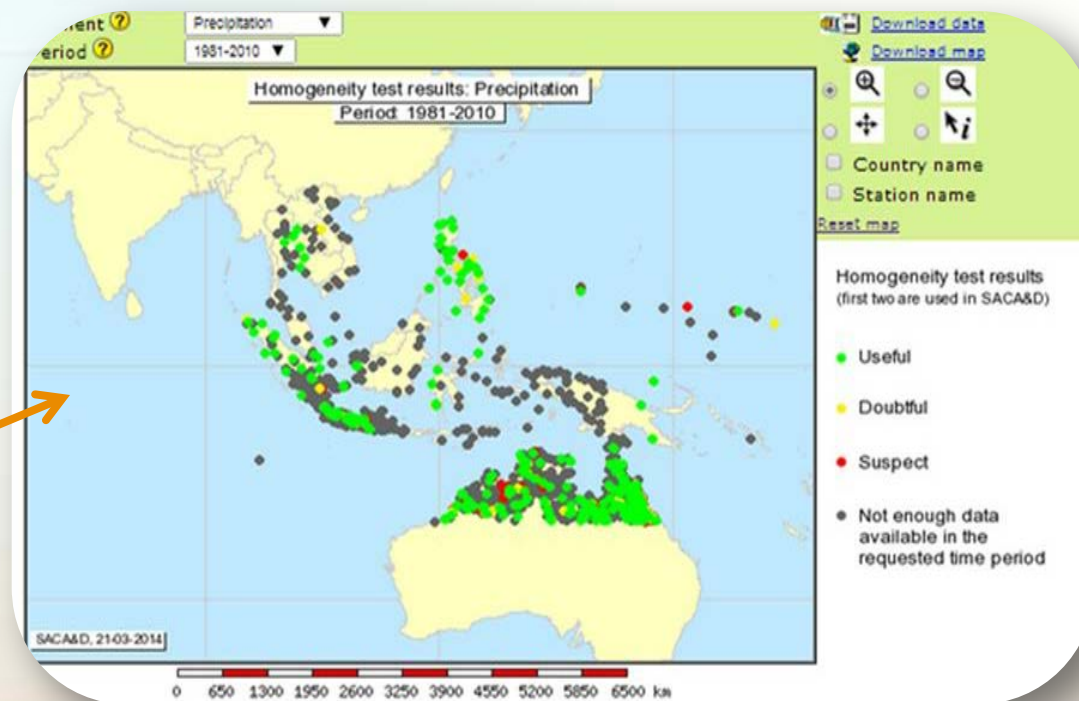
The SACA dataset contains 6477 series of observations for 10 elements at 4090 meteorological stations throughout Southeast Asia.

Both **blended** and **non-blended** SACA series are available. **Blended** series are series that are near-complete by infilling from nearby stations. They are also updated using synoptical messages. Only these **blended** series are further analysed in SACA&D and used for gridding. Details of the blend and update proces are given in the [specific FAQ](#) or in Project info > [ATBD](#).

Meteorological observations are taken at many stations across Southeast Asia, each day. To minimize the effects of changes over time in the way the measurements were made, rigorous quality control is applied before the data is used to analyse extremes. Meta data describing the observation site and instrumentation guides this process. Improving the dataset requires continuous effort.

Meta information for the daily series is provided below, both for the **blended** and **non-blended** series. The **blended** series have been tested for homogeneity, which is relevant to assess the quality of each series for climate change research. Meta information for the stations is also provided, including site pictures and land use data if available (first menu item).

- [All series available in the SACA dataset](#)
- [Table or map of all available stations](#)
- [All available elements](#)
- [Plots of available number of stations per year/element](#)
- [Data availability maps](#)
- [Homogeneity maps](#)** (only blended series)



Data Dictionary

Time Series Plot

BMKG

Bahasa Indonesia

Southeast Asian Climate Assessment & Dataset

SACA&D

Home FAQ Daily data **Indices of extremes** Project info

See also: ICA&D KNMI Climate Explorer

Indices of extremes

Indices of extremes

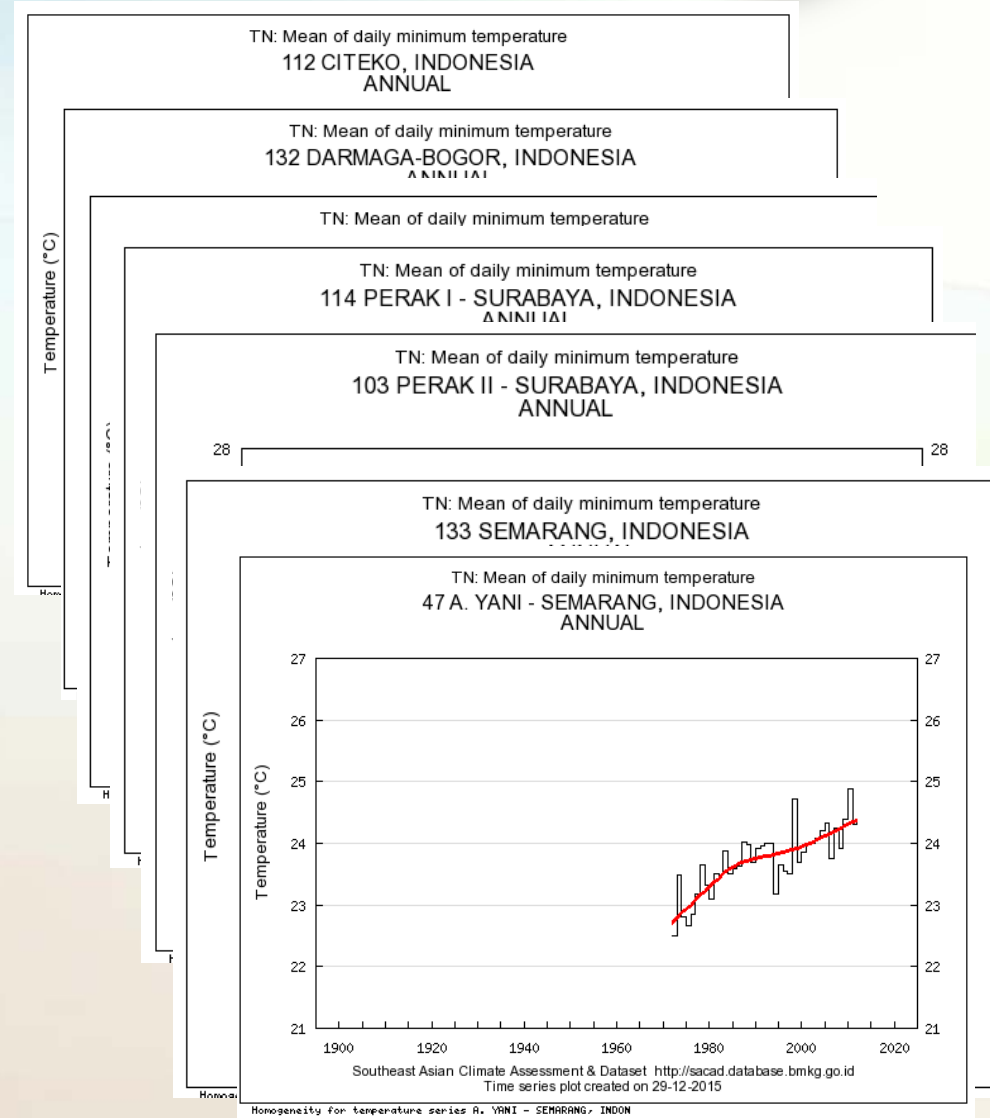
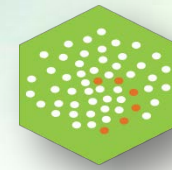
For every SACA&D station, a total of 45 indices have been calculated. Each index describes a particular characteristic of climate change (both changes in the mean and the extremes). A core set of 24 indices follows the definitions recommended by the CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI). These indices are calculated in a similar way for other regions of the world. An additional set of 24 indices highlights particular characteristics of climate change in Southeast Asia.

To learn more about the meaning and the way each index is calculated see the [Indices dictionary](#).

The menu below allows you to view time series plots for each index and station, to view maps of trends over Southeast Asia for each index, to view maps of index anomalies (with respect to the normal period 1961-1990) for a particular year, season, or to view climatology maps. Every item of the menu offers the option to download the results; the last item is for bulk download.

Time series plots (all available series)	updated until: 2014
Trend maps (all available series)	updated until: 2014
Anomaly maps (all available series)	updated until: 2014
Climatology maps (all available series)	
Download indices data (ASCII) (all available series)	updated until: Dec 30, 2014

Indices of Extremes



Trend Maps

BMKG

Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ Daily data **Indices of extremes** Project info

See also: ICA&D KNMI Climate Explorer

Indices of extremes

Indices of extremes

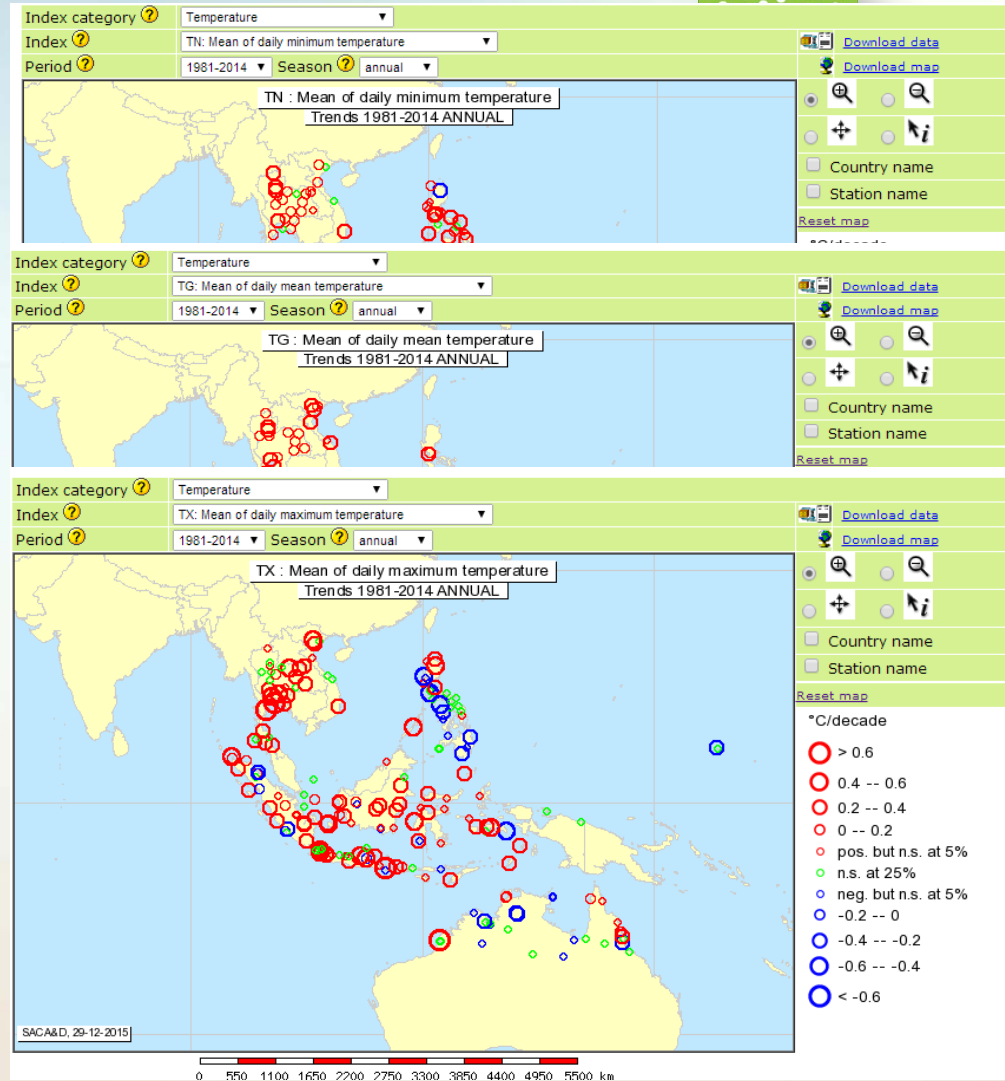
For every SACA&D station, a total of 45 indices have been calculated. Each index describes a particular characteristic of climate change (both changes in the mean and the extremes). A core set of 21 indices follows the definitions recommended by the CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI). These indices are calculated in a similar way for other regions of the world. An additional set of 24 indices highlights particular characteristics of climate change in Southeast Asia.

To learn more about the meaning and the way each index is calculated, see the [Indices dictionary](#).

The menu below allows you to view time series plots for each index and station, to view maps of trends over Southeast Asia for each index, to view maps of index anomalies (with respect to the normal period 1961-1990) for a particular year or season, or to view climatology maps. Every item of the menu offers the option to download the results, the last item is for bulk download.

Time series plots (all available series)	updated until: 2014
Trend maps (all available series)	updated until: 2014
Anomaly maps (all available series)	updated until: 2014
Climatology maps (all available series)	
Download indices data (ASCII) (all available series)	updated until: Dec 30, 2014

Indices of Extremes



Anomaly Maps

BMKG

Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ Daily data **Indices of extremes** Project info

See also: ICA&D KNMI Climate Explorer

Indices of extremes

Indices of extremes

For every SACA&D station, a total of 45 indices have been calculated. Each index describes a particular characteristic of climate change (both changes in the mean and the extremes). A core set of 21 indices follows the definitions recommended by the CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI). These indices are calculated in a similar way for other regions of the world. An additional set of 24 indices highlights particular characteristics of climate change in Southeast Asia.

To learn more about the meaning and the way each index is calculated see the [Indices dictionary](#).

The menu below allows you to view time series plots for each index and station, to view maps of trends over Southeast Asia for each index, to view maps of index anomalies (with respect to the normal period 1961-1990) for a particular year or season, or to view climatology maps. Every item of the menu offers the option to download the results; the last item is for bulk download.

Time series plots (all available series)	updated until: 2014
Trend maps (all available series)	updated until: 2014
Anomaly maps (all available series)	updated until: 2014
Climatology maps (all available series)	
Download indices data (ASCII) (all available series)	updated until: Dec 30, 2014

Indices of Extremes

Index category: Temperature

Index: TN: Mean of daily minimum temperature

Year: 2010 Season: annual

TN: Mean of daily minimum temperature
Anomaly 2010, ANNUAL

Index category: Temperature

Index: TG: Mean of daily mean temperature

Year: 2010 Season: annual

TG: Mean of daily mean temperature
Anomaly 2010, ANNUAL

Index category: Temperature

Index: TX: Mean of daily maximum temperature

Year: 2010 Season: annual

TG: Mean of daily mean temperature
Anomaly 2010, ANNUAL

°C deviation from 1981-2000 average

- > 1.5
- 1 -- 1.5
- 0.5 -- 1
- 0 -- 0.5
- 0.5 -- 0
- 1 -- -0.5
- 1.5 -- -1
- < -1.5

SACA&D, 29-12-2015

0 2600 3250 3900 4550 5200 5850 6500 km



BMKG

Bahasa Indonesia

SACA&D Southeast Asian Climate Assessment & Dataset

Home FAQ Daily data **Indices of extremes** Project info

See also: ICA&D KNMI Climate Explorer

Indices of extremes

Indices of extremes

For every SACA&D station, a total of 45 indices have been calculated. Each index describes a particular characteristic of climate change (both changes in the mean and the extremes). A core set of 21 indices follows the definitions recommended by the CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI). These indices are calculated in a similar way for other regions of the world. An additional set of 24 indices highlights particular characteristics of climate change in Southeast Asia.

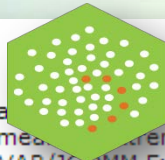
To learn more about the meaning and the way each index is calculated see the [Indices dictionary](#).

The menu below allows you to view time series plots for each index and station, to view maps of trends over Southeast Asia for each index, to view maps of index anomalies (with respect to the normal period 1961-1990) for a particular year or season, or to view climatology maps. Every item of the menu offers the option to download the results; the last item is for bulk download.

Time series plots (all available series)	updated until: 2014
Trend maps (all available series)	updated until: 2014
Anomaly maps (all available series)	updated until: 2014
Climatology maps (all available series)	
Download indices data (ASCII) (all available series)	updated until: Dec 30, 2014

Indices of Extremes

Indices data




This is the download page for aggregated station indices data for all stations in SACA&D. For each station 45 indices are calculated, each describing changes in the mean and extremes of climate. 21 indices follow the definitions recommended by the CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI, marked with *). To learn more about the indices and the way they are calculated see the [Indices dictionary](#). The 45 indices have been grouped in different categories corresponding with different aspects of


Pressure


 [Mean of daily surface air pressure \(PP\)](#)

Rain


 [Precipitation sum \(RR\)](#)

 [Simple daily intensity index \(SDII\)*](#)

 [Heavy precipitation days \(> 10mm\) \(R10mm\)*](#)


 [Highest 1-day precipitation amount \(RX1day\)*](#)


 [No. of moderate wet days \(R75p\)](#)

 [No. of very wet days \(R95p\)](#)


 [No. of extremely wet days \(R99p\)](#)


 [Onset of rainy season \(definition 1, ORS1\)](#)


 [Onset of rainy season \(BMKG, ORS2\)](#)


 [Precipitation amount due to wet days \(PRCPTOT\)*](#)


 [No. of wet days \(RR1\)](#)


 [Maximum no. of consecutive wet days \(CWD\)*](#)


 [Very heavy precipitation days \(> 20mm\) \(R20mm\)*](#)

 [Highest 5-day precipitation amount \(RX5day\)*](#)

 [Precipitation fraction due to moderate wet days \(R75pTOT\)](#)

 [Precipitation fraction due to very wet days \(R95pTOT\)*](#)

 [Precipitation fraction due to extremely wet days \(R99pTOT\)*](#)


 [End of rainy season \(definition 1, ERS1\)](#)

 [End of rainy season \(BMKG definition, ERS2\)](#)

Temperature


 [Mean of daily mean temperature \(TG\)](#)

 [Mean of daily maximum temperature \(TX\)](#)

 [Intra-period extreme temperature range \(ETR\)](#)

 [Mean of daily minimum temperature \(TN\)](#)

 [Mean of diurnal temperature range \(DTR\)*](#)

 [Mean absolute day-to-day difference in DTR \(vDTR\)](#)

Project Info

BMKG



SACA&D

Southeast Asian Climate Assessment & Dataset

[Home](#)

[FAQ](#)

[Daily data](#)

[Indices of extremes](#)

[Project info](#)

[See also:](#)

[ICA&D](#)

[KNMI Climate Explorer](#)

Project info

Project info

Full project documentation as well as papers in peer reviewed journals and other publications are presented below. In each document, one or more staff members of the [SACA&D project team](#) is involved. Together, these documents provide an overview of the project history, the present status and our future plans. Furthermore, links to related activities and organizations and links to additional sources of daily data and analysis tools are presented below.

[SACA&D documents](#)

[Journal papers](#)

[Other publications](#)

[Tools](#)

[Indices](#)

SACA&D Flyers

Flyer with Information about SACA&D

[SACA&D Flyers](#)

SACA&D documents

Algorithm Theoretical Basis Document (ATBD)

Document describing the methods used for producing blended series and indices, and showing the quality control and homogeneity checks.

[ATBD](#)

Appendix to ATBD for SACA&D

Additions and changes for SACA&D w.r.t. the ECA&D Algorithm Theoretical Basis Document (ATBD)

[Appendix](#)



BMKG

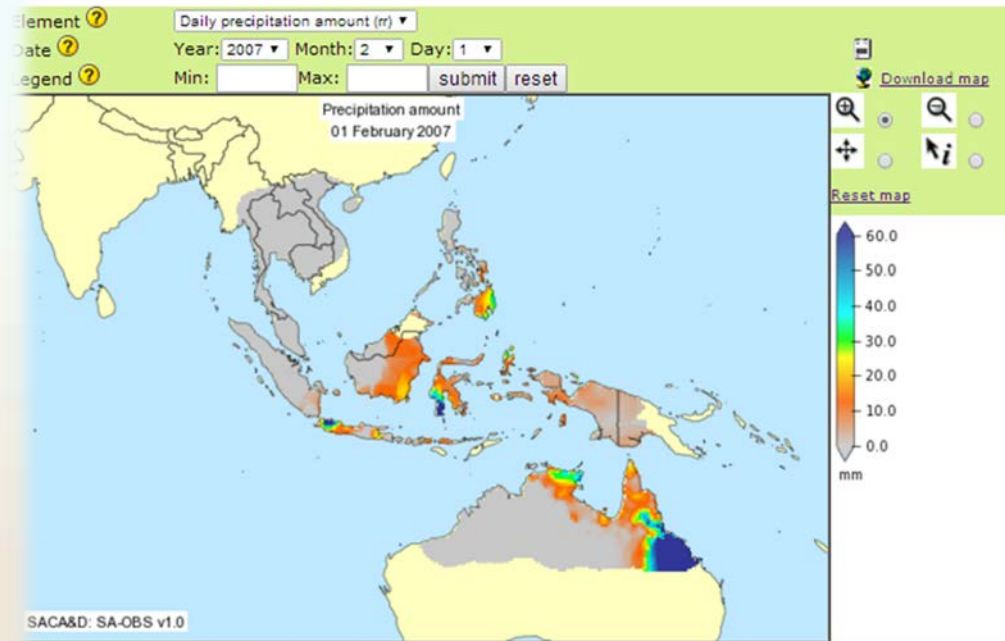
SA-OBS

- Blended SACA&D station series
- Daily values for TN, TG, TX, RR
- Includes ASEAN countries
- 0.25 and 0.50° regular grid
- 25 N – 25 S x 80 E – 180 E
- 1 Jan 1981 – 31 Dec 2015
- available in NetCDF format

SA-OBS daily maps

Select the *element*, *year*, *month* and *day* for which you want to view the map. The data shown is from SA-OBS v1.0.

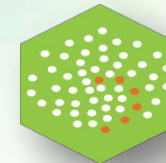
- [Help on how to use the interactive map.](#)



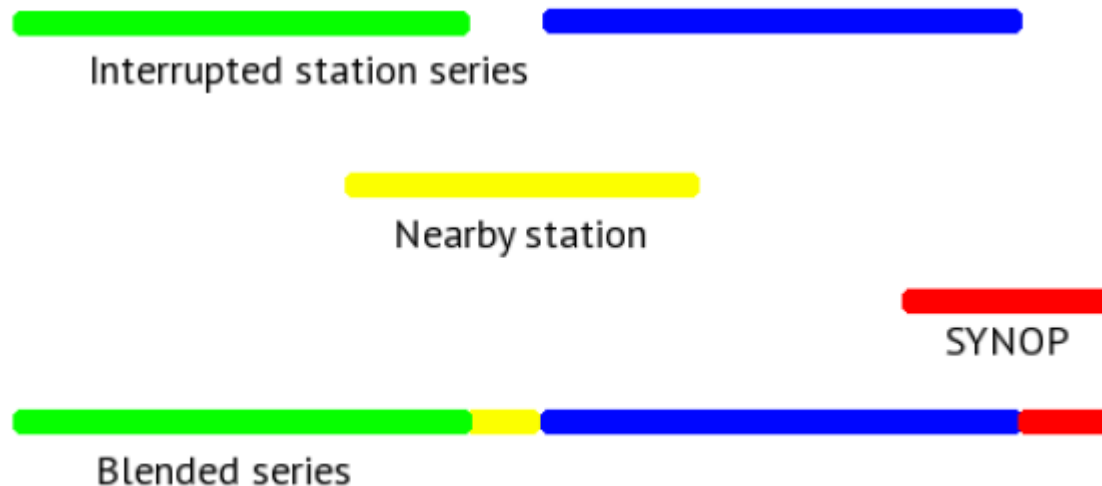


BMKG

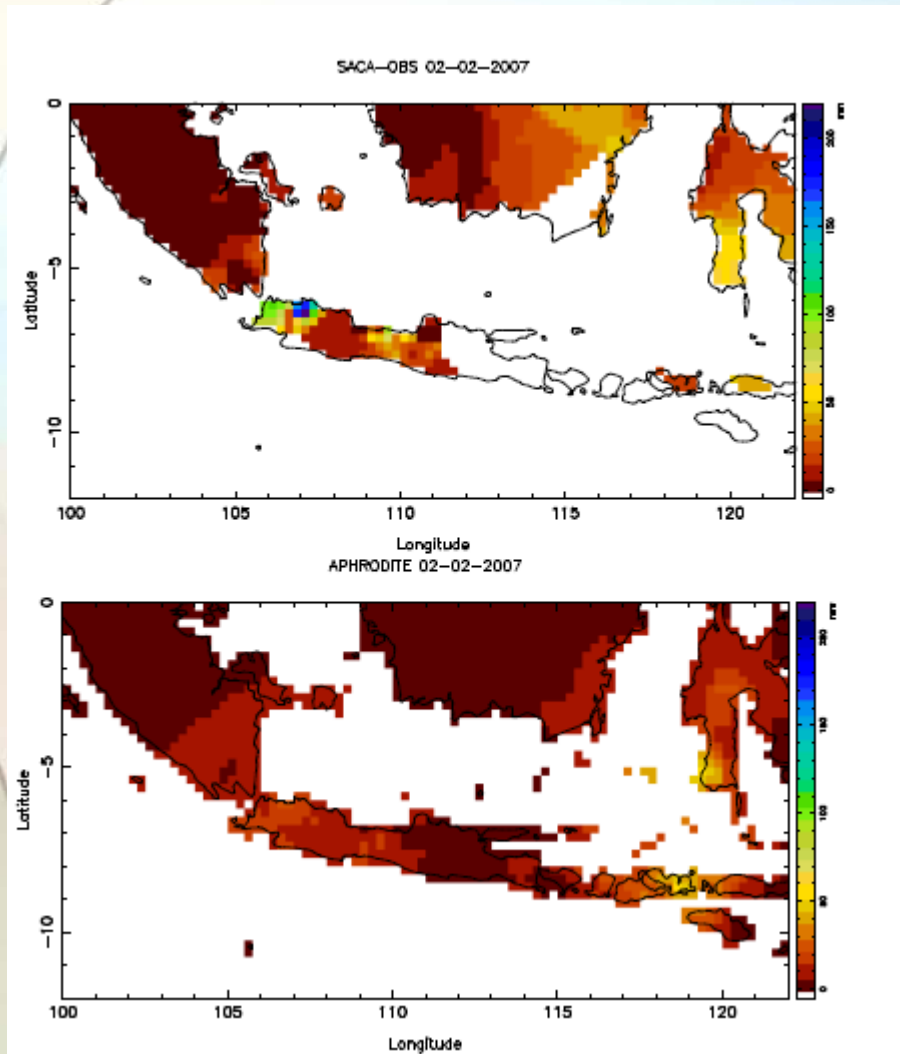
Blending



- Infill and extend with other series and nearby stations
- Nearby stations: within 25 km and 50 m height difference



Extreme event 2 Feb 2007



Extreme event: 2 Feb 2007





BMKG

THANK
YOU

