TITLE

CEOP_AP_W-Indonesia_Kototabang_20070101_20071231.sfc

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1. 0 DATASET OVERVIEW

1.1 Introduction

Meteorological (atmospheric RADAR) observations at Bukit Kototabang in Sumatera Island, Indonesia have been conducted since 1998 by Research Institute for Sustainable Humanosphere (RISH), Kyoto University. An Automatic Weather Station (AWS) has also been established in 1999. Observational station is located on the mountainous range of steep mountains along to the western coast of Sumatera Island (Renggono et al., 2001; Widiyatmi et al., 2001; Murata et al., 2002).

Research Institute for Global Change (RIGC) of Japan Agency for Marine-Earth Science and Technology (JAMSTEC) has been conducted surface and upper air observations to examine the distribution and the transportation processes of water vapour over the Indonesian maritime continent since 2001 under the research collaborations with the Indonesian Agency for the Assessment and Application of Technology (BPPT) and RISH, Kyoto University (Wu et al., 2003; Mori et al., 2004; Sasaki et al., 2004; Sakurai et al., 2005; Mori et al., 2006; Wu et al., 2008; Yamanaka et al., 2008; Hamada et al., 2008; Wu et al., 2009; Sakurai et al., 2009).

1.2 Time period covered by the data

Start: 1 January 2007, 00:00

End: 31 December 2007, 23:30

1.3 Temporal characteristics of the data

All parameters are recoded every minute.

1.4 Physical location of the measurement

Latitude: 0.20° S
Longitude: 100.32° E
Elevation: 865m a.s.l.

1.5 Data source

Original data provided by the Research Institute for Global Change (RIGC), Japan Agency for Marine-Earth Science and Technology (JAMSTEC) under the research collaboration with Research Institute for Sustainable Humanosphere (RISH), Kyoto University.

1.6 WWW address references

2.0 INSTRUMENTATION DESCRIPTION

2.1 Platform

The sensors are mounted on a 1.5-m height arms and a 2-m height mast.

2.2 Description of the instrumentation

Parameter	Model	Manufacturer
Air Temperature	HMP45D	VAISALA (Finland)
Precipitation	Rain-O-Matic Professional	Pronamic
Relative Humidity	HMP45D	VAISALA (Finland)
Atmospheric Pressure	PMT16A	VAISALA (Finland)
Wind Speed	WMS302	VAISALA (Finland)
Wind Direction	WMS302	VAISALA (Finland)
Global Solar Radiation	SP Lite	Kipp&Zonen (The Netherlands)

2.3 Instrumentation specification

Parameter	Sensor Type	Height of sensor (m)	Accuracy	Resolution
Air Temperature	Resistive platinum 100Ω	1.5	0.3°C	0.1°C
Precipitation	Tipping Spoon	1.5	5% (<24mm/h); 10% (<120 mm/h)	0.2 mm
Relative Humidity	Capacitive thin film polymer	1.5	2% (0-90%); 3% (90-100%)	1%
Atmospheric Pressure	Silicon capacitive pressure sensor	1.5	0.3 hPa	0.1 hPa
Wind Speed	Rotating cup anemometer	2	0.3 m/s (<10m/s); 2% (>10m/s)	0.1 m/s
Wind Direction	Vane	2	3°	1°
Global Solar	Photodiode	1.5	1% up to	$1W/m^2$

Radiation			2000W/m^2	

3.0 DATA COLLECTION AND PROCESSING

3.1 Description of data collection

Data are downloaded from the AWS every week. Then, data are sent to Japan, where they are processed.

3.2 Description of derived parameters and processing techniques used

The original data are recoded by minute. The temperature, relative humidity, pressure and solar radiation, wind speed and wind direction are averaged 30 minutes. The “00” data is averaged by the previous 30 minutes (from 31 to 60), and the “30” data is averaged by previous 30 minutes (from 01 to 30). Precipitation is accumulated on the previous 30 minutes.

4.0 QUALITY CONTROL PROCEDURES

For all parameters, the data has been visually checked, looking for extremely and unusual low/high values and/or periods with constant values.

And the Four parameters indicated below were computed by using “CEOP Derived Parameter Equations: http://www.joss.ucar.edu/ghp/ceopdm/refdata_report/eqns.html” . also put the data flag “I”, In the case of calculated by using dubious value fagged “D”, the computed data flag was put “D”.

Dew Point Temperature is computed by using (Bolton 1980):
es = 6.112 * exp((17.67 * T)/(T + 243.5));
e = es * (RH/100.0);
Td = log(e/6.112)*243.5/(17.67-log(e/6.112));
where:
T = temperature in deg C;
es = saturation vapor pressure in mb;
e = vapor pressure in mb;
RH = Relative Humidity in percent;
Td = dew point in deg C

Specific Humidity is computed by using (Bolton 1980):
e = 6.112*exp((17.67*Td)/(Td + 243.5));
q = (0.622 * e)/(p - (0.378 * e));
where:
e = vapor pressure in mb;
Td = dew point in deg C;
p = surface pressure in mb;
q = specific humidity in kg/kg.

U and V Components were computed by using (GEMPAK):
U = -sin(direction) * wind_speed;

V = -cos(direction) * wind_speed;

5.0 GAP FILLING PROCEDURES

No gap filling procedure was applied.

6.0 DATA REMARKS

6.1 PI's assessment of the data

6.1.1 Instruments problems

None.

6.1.2 Quality issues

6.2 Missing data periods

The missing data period are listed in chapter 9.0.

7.0 REFERENCE REQUIREMENTS

Original data was collected and is provided within the framework of the research collaboration between Research Institute for Global Change (RIGC) of Japan Agency for Marine-Earth Science and Technology (JAMSTEC) and Research Institute for Sustainable Humanosphere (RISH), Kyoto University, financially supported by the Japanese Ministry of Education, Science and Culture.

8.0 REFERENCES

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9.0 Missing Data Periods

File Name : CEOP_AP_W-Indonesia_Kototabang_20070101_20071231.sfc

Data Period : 2007/01/01 00:00 - 2007/12/31 23:30

Station Pressure

2007/01/01 00:00 - 2007/02/26 00:00 (2689)
2007/03/07 00:30 - 2007/03/21 00:00 (672)
2007/04/26 00:30 - 2007/04/27 00:00 (48)
2007/05/11 00:30 - 2007/05/12 00:00 (48)
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Air Temperature

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Dew Point Temperature
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Relative Humidity
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2007/06/05 13:00
2007/07/04 06:30 - 2007/07/05 00:00 (36)
2007/07/09 00:30 - 2007/07/10 00:00 (48)
2007/08/12 00:30 - 2007/08/13 00:00 (48)
2007/08/19 00:30 - 2007/08/20 00:00 (48)
2007/08/21 00:30 - 2007/08/22 00:00 (48)
2007/08/23 00:30 - 2007/08/26 00:00 (144)
2007/08/28 07:30
2007/08/31 00:30 - 2007/09/01 00:00 (48)
2007/09/04 00:30 - 2007/09/06 00:00 (96)
2007/09/07 00:30 - 2007/09/08 00:00 (48)
2007/09/13 00:30 - 2007/09/16 00:00 (144)
2007/10/11 00:30 - 2007/10/12 00:00 (48)
2007/10/14 00:30 - 2007/10/15 00:00 (48)
2007/10/17 00:30 - 2007/10/18 00:00 (48)
2007/10/19 12:30 - 2007/10/19 13:00 (2)
2007/10/28 00:30 - 2007/10/29 00:00 (48)
2007/11/06 04:30
2007/11/15 00:30 - 2007/11/16 00:00 (48)
2007/11/18 00:30 - 2007/11/19 00:00 (48)
2007/12/15 00:30 - 2007/12/16 00:00 (48)
2007/12/20 00:30 - 2007/12/21 00:00 (48)
2007/12/22 00:30 - 2007/12/23 00:00 (48)

Precipitation
2007/01/01 00:00 - 2007/02/26 00:00 (2689)
2007/03/07 00:30 - 2007/03/21 00:00 (672)
2007/04/26 00:30 - 2007/04/27 00:00 (48)
2007/05/11 00:30 - 2007/05/12 00:00 (48)

2007/05/24 00:30 - 2007/05/25 00:00 (48)
2007/07/04 06:30 - 2007/07/05 00:00 (36)
2007/07/09 00:30 - 2007/07/10 00:00 (48)
2007/08/12 00:30 - 2007/08/13 00:00 (48)
2007/08/19 00:30 - 2007/08/20 00:00 (48)
2007/08/21 00:30 - 2007/08/22 00:00 (48)
2007/08/23 00:30 - 2007/08/26 00:00 (144)
2007/08/28 07:30
2007/08/31 00:30 - 2007/09/01 00:00 (48)
2007/09/04 00:30 - 2007/09/06 00:00 (96)
2007/09/07 00:30 - 2007/09/08 00:00 (48)
2007/09/13 00:30 - 2007/09/16 00:00 (144)
2007/10/11 00:30 - 2007/10/12 00:00 (48)
2007/10/14 00:30 - 2007/10/15 00:00 (48)
2007/10/17 00:30 - 2007/10/18 00:00 (48)
2007/10/28 00:30 - 2007/10/29 00:00 (48)
2007/11/06 04:30
2007/11/15 00:30 - 2007/11/16 00:00 (48)
2007/11/18 00:30 - 2007/11/19 00:00 (48)
2007/12/15 00:30 - 2007/12/16 00:00 (48)
2007/12/20 00:30 - 2007/12/21 00:00 (48)
2007/12/22 00:30 - 2007/12/23 00:00 (48)

Snow Depth
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Incoming Shortwave
2007/01/01 00:00 - 2007/02/26 00:00 (2689)
2007/03/07 00:30 - 2007/03/21 00:00 (672)
2007/04/26 00:30 - 2007/04/27 00:00 (48)
2007/05/11 00:30 - 2007/05/12 00:00 (48)
2007/05/24 00:30 - 2007/05/25 00:00 (48)
2007/07/04 06:30 - 2007/07/05 00:00 (36)
2007/07/09 00:30 - 2007/07/10 00:00 (48)
2007/08/12 00:30 - 2007/08/13 00:00 (48)
2007/08/19 00:30 - 2007/08/20 00:00 (48)
2007/08/21 00:30 - 2007/08/22 00:00 (48)
2007/08/23 00:30 - 2007/08/26 00:00 (144)
2007/08/28 07:30
2007/08/31 00:30 - 2007/09/01 00:00 (48)
2007/09/04 00:30 - 2007/09/06 00:00 (96)
2007/09/07 00:30 - 2007/09/08 00:00 (48)
2007/09/13 00:30 - 2007/09/16 00:00 (144)
2007/10/11 00:30 - 2007/10/12 00:00 (48)
2007/10/14 00:30 - 2007/10/15 00:00 (48)
2007/10/17 00:30 - 2007/10/18 00:00 (48)
2007/10/28 00:30 - 2007/10/29 00:00 (48)
2007/11/06 04:30
2007/11/15 00:30 - 2007/11/16 00:00 (48)
2007/11/18 00:30 - 2007/11/19 00:00 (48)
2007/12/15 00:30 - 2007/12/16 00:00 (48)
2007/12/20 00:30 - 2007/12/21 00:00 (48)
2007/12/22 00:30 - 2007/12/23 00:00 (48)

Outgoing Shortwave
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Incoming Longwave
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Outgoing Longwave
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Net Radiation
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Skin Temperature
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Incoming PAR
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)

Outgoing PAR
2007/01/01 00:00 - 2007/12/31 23:30 (ALL)