QWECI.Met_Owabi - Automatic Weather Station, Owabi, Ghana

General information

Dataset name:	QWECI.Met_Owabi - Automatic Weather Station, Owabi, Ghana
Created on:	2012-09-07

Contact(s)

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Period

Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Project(s)

QWECI

Data description

Abstract

The OwabiAWS data includes observations from an Automatic Weather Station (AWS), which is located at the Owabi hydrometeorological weather station in the Kumasi region of Ghana. The weather station but not the AWS is maintained by the Ghanaian meteorological agency. The AWS is situated within a rural area, in the vicinity of an artificial lake. The surface around the AWS is covered by seasonally varying grass. For some periods the grass was cut by the staff of the weather station.

The station was installed by the Institute of Geophysics and Meteorology of the University of Cologne/Germany. The station was put in operation on 01 May 2010. Currently, data is available until May 2012. The AWS has been donated to the Kwame Nkrumah University of Science and Technology (KNUST) and was operated by staff from KNUST.

The OwabiAWS data comprises various observed meteorological variables from the AWS. Included are the ten-minutely rainfall amount (measured with a tipping bucket pluviometer), heat flux (two heat flux plates at 20 cm below surface), temperature (platinum resistance thermometer, PT100), relative humidity (capacitive humidity sensor), matrix potential (equitensiometer; information about soil moisture), three dimensional wind vector (ultrasonic anemometer at a height of about 4.5 m, including further related information, e.g. standard deviations), shortwave (pyranometer) and longwave (pyrgeometer) radiation, and pressure (barometer) data. Temperature and humidity are measured in both 2 m and 4 m height above ground.

Unfortunately, large data gaps are present in the temperature and humidity time series. Note that the ventilation of the temperature and humidity sensors broke down partly. The user therefore should carefully use the temperature and relative humidity values! The pyranometers are upward and downward directed, which allows the calculation of the radiation balance at the ground. Note that the radiation measurements suffer partly from contaminations of

the glass dome (shortwave radiation) and solar blind silicon window (longwave radiation). The upward shortwave radiation measurement suffers from the end of March 2012 from technical problems (defective contact). This data was therefore deleted.

The original temporal resolution of the data was one second and was aggregated or averaged to a time resolution of ten minutes. Rainfall amounts are automatically summed up and the other parameters are automatically averaged to the time interval by the AWS.

Observing strategy

The automatic weather station (AWS) located at Owabi in Ghana is equipped with sensors to measure the rain amount, heat flux, temperature, relative humidity, matrix potential, wind speed, shortwave and longwave radiation, and pressure. Currently, the data is available for the period 01 May 2010 to May 2012. The original temporal resolution was one second, but the data is summed up (for rain amounts) or averaged (for the other parameters included in the dataset) at a ten minute interval.

Geographic information

OWABI

Location name:	OWABI
Plateform type:	GROUND STATIONS
West bounding coordinate (°):	-1.7029
East bounding coordinate (°):	-1.7029
North bounding coordinate (°):	6.748
South bounding coordinate (°):	6.748

Measured parameters

Wind Speed

Parameter name:	Wind Speed
Parameter keyword:	Atmosphere > Atmospheric Winds > Wind Speed
Unit:	meter per second - m/s
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Relative humidity

Parameter name:	Relative humidity
Parameter keyword:	Atmosphere > Atmospheric Water Vapor
Unit:	percent - %
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Outgoing Longwave Radiation

Parameter name:	Outgoing Longwave Radiation
Parameter keyword:	Atmosphere > Atmospheric Radiation > Outgoing Longwave Radiation
Unit:	Watt per square meter - W.m-2
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Outgoing Shortwave Radiation

Parameter name:	Outgoing Shortwave Radiation
Parameter keyword:	Atmosphere > Atmospheric Radiation
Unit:	Watt per square meter - W.m-2
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

U Wind component

Parameter name:	U Wind component
Parameter keyword:	Atmosphere > Atmospheric Winds
Unit:	meter per second - m/s
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

V Wind component

Parameter name:	V Wind component
Parameter keyword:	Atmosphere > Atmospheric Winds
Unit:	meter per second - m/s
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

W wind component

Parameter name:	W wind component
Parameter keyword:	Atmosphere > Atmospheric Winds
Unit:	meter per second - m/s
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Air Pressure

Parameter name:	Air Pressure
Parameter keyword:	Atmosphere > Atmospheric Pressure
Unit:	hecto Pascal - hPa
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Air Temperature

Parameter name:	Air Temperature
Parameter keyword:	Atmosphere > Atmospheric Temperature > Surface Temperature > Air Temperature
Unit:	Kelvin - K
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Wind Direction

Parameter name:	Wind Direction
Parameter keyword:	Atmosphere > Atmospheric Winds > Wind Direction
Unit:	degrees - degrees
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Precipitation Amount

Parameter name:	Precipitation Amount
Parameter keyword:	Atmosphere > Precipitation
Unit:	pH unit
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Incoming Longwave Radiation

Parameter name:	Incoming Longwave Radiation
Parameter keyword:	Atmosphere > Atmospheric Radiation
Unit:	Watt per square meter - W.m-2
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Incoming Shortwave Radiation

Parameter name:	Incoming Shortwave Radiation
Parameter keyword:	Atmosphere > Atmospheric Radiation
Unit:	Watt per square meter - W.m-2
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Heat Flux

Parameter name:	Heat Flux
Parameter keyword:	Land Surface > Soils
Unit:	Watt per square meter - W.m-2
Date begin (yyyy-mm-jj):	2010-05-01
Date end (yyyy-mm-jj):	2012-05-17

Data use information

Use constraints:	AMMA data chart
Database:	AMMA database
Original data format(s):	csv file (comma separated values)