KIT_EnergyBalance_Save

General information

Dataset name:	KIT_EnergyBalance_Save
Dataset DOI:	10.6096/DACCIWA.1690
Created on:	2016-12-07

Contact(s)

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Period

Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Project(s)

DACCIWA > WP1 - Boundary Layer Dynamics

Data description

Abstract

Energy balance components measured during the DACCIWA campaign at Savé, Benin. The temporal resolution is 30 min.

Net radiation, soil heat flux and air density have been calculated from 10 min averages. Variances, friction velocity, Obukhov length and turbulent fluxes have been calculated with TK311 from University of Bayreuth, Germany.

Observing strategy

Energy balance components and turbulence parameters are derived from in situ measurements of meteorologic variables at Save

References

References for Software package TK311:https://zenodo.org/record/20349#.WEgg5PDhAUE

Instrument information

Sensor

Instrument type:	Chemical Meters/Analyzers

Geographic information

Savé

Location name:	Savé
Plateform type:	GROUND-BASED OBSERVATIONS
West bounding coordinate (°):	2.4281
East bounding coordinate (°):	2.4281
North bounding coordinate (°):	8.001
South bounding coordinate (°):	8.001
Altitude min:	166
Altitude max:	166

Measured parameter

Soil heat flux

Parameter name:	soil heat flux
Parameter keyword:	Land Surface > Soils
Unit:	Watt per square meter - W.m-2
Acquisition methodology and quality:	Sensor: Hukseflux HFP01SC-05. Sampling rate: 1 Hz, Aggregation period: 30 min
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Derived parameters

Net Radiation

Parameter keyword:	Atmosphere > Atmospheric Radiation > Net Radiation
Unit:	Watt per square meter - W.m-2
Acquisition methodology and quality:	Net radiation calculated from radiotion balance components (s. KIT_MetData_Save).
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Turbulence

Parameter keyword:	Atmosphere > Atmospheric Winds > Wind Dynamics > Turbulence
Unit:	square meters per square second - m2/s2
Acquisition methodology and quality:	Sensor: Gill Instruments Solent R1012. Sampling rate 21 Hz, aggregation period 30 min, measuring height 4 m Variance of the eastward wind, northward and vertical wind
Date begin (yyyy-mm-jj):	2016-06-13

Date end (yyyy-mm-jj):	2016-07-30

Atmospheric Water Vapor

Parameter keyword:	Atmosphere > Atmospheric Water Vapor
Acquisition methodology and quality:	Sensor: LICOR LI-7500. Sampling rate 20 Hz, aggregation period 30 min, measuring height 4 m. Variance of the absolute humidity
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Virtual Temperature

Parameter keyword:	Atmosphere > Atmospheric Temperature > Virtual Temperature
Unit:	square Kelvin - K^2
Acquisition methodology and quality:	Sensor: Gill Instruments Solent R1012. Sampling rate 20 Hz, aggregation period 30 min, measuring height 4 m. Variance of the virtual temperature.
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Friction velocity

Parameter name:	friction velocity
Parameter keyword:	Atmosphere > Atmospheric Winds > Wind Dynamics > Turbulence
Unit:	meters per second - m/s
Acquisition methodology and quality:	Sensor: Gill Instruments Solent R1012. Sampling rate 20 Hz, aggregation period 30 min, measuring height 4 m. Friction velocity.
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Wind Direction

Parameter keyword:	Atmosphere > Atmospheric Winds > Wind Direction
Unit:	degrees - degrees
Acquisition methodology and quality:	Sensor: Gill Instruments Solent R1012. Sampling rate 20 Hz, aggregation period 30 min, measuring height 4 m
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Energy balance

Parameter name:	Energy balance
Parameter keyword:	Atmosphere
Unit:	Watt per square meter - W.m-2
Acquisition methodology and quality:	Sensor: Gill Instruments Solent R1012 and LICOR LI7500. Sampling rate 20 Hz, aggregation period 30 min, measuring height 4 m. Sensible and latent heat flux

Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Air density

Parameter name:	Air density
Parameter keyword:	Atmosphere
Unit:	kilogramms per cubic meter - kg/m3
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Atmospheric stability

Parameter name:	Atmospheric stability
Parameter keyword:	Atmosphere
Acquisition methodology and quality:	Calculated with software package TK311. z/L dimensionless Obukhovparameter
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Data quality flag

Parameter name:	Data quality flag
Parameter keyword:	Atmosphere
Acquisition methodology and quality:	Data quality flags for friction velocity, sensible and latent heat flux according to Foken et al. 2004 (1 (very good)-9 (very bad)). Flag are determined by software package TK311. Foken T, Göckede M, Mauder M, Mahrt L, Amiro BD and Munger JW (2004) Post-field data quality ontrol. In: Lee Xet al (eds.), Handbook of Micrometeorology: A Guide for Surface Flux Measurement and Analysis. Kluwer, Dordrecht, 181-208
Date begin (yyyy-mm-jj):	2016-06-13
Date end (yyyy-mm-jj):	2016-07-30

Data use information

Use constraints:	The research leading to these results have received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 603502
Data policy:	CC-by
Database:	Dacciwa database
Original data format(s):	NetCDF