KIT_Sun Photometer_Save

General information

Dataset name:	KIT_Sun Photometer_Save
Dataset DOI:	10.6096/DACCIWA.1659
Created on:	2016-12-09

Contact(s)

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Period

Date begin (yyyy-mm-jj):	2016-06-08
Date end (yyyy-mm-jj):	2016-07-30

Project(s)

DACCIWA > WP1 - Boundary Layer Dynamics

Data description

Abstract

Sun photometer measurements of the direct (collimated) solar radiation provide information to calculate the columnar aerosol optical depth (AOD). AOD can be used to compute columnar water vapor (Precipitable Water) and estimate the aerosol size using the Angstrom parameter relationship.

Sun photometer radiance measurements can be inverted to produce aerosol optical properties such as size distribution, single scattering albedo, phase functions, and the complex index of refraction. Sun photometers measure the radiance at four or more wavelengths using almucantar and principle plane scenarios. The almucantar scenario measures radiance at azimuthal angles relative to the sun. For at least single-scattering approximation, sky radiances in the almucantar are not sensitive to aerosol vertical variations. The principle plane scenario measures radiance at scattering angles away from the sun. These radiance data in combination with aerosol optical depth measurements and estimations of land and water surface reflectance are inverted to estimate aerosol optical properties.

Detailed information at http://aeronet.gsfc.nasa.gov/.

The current version of the uploaded data are processed with AERONET Version 3 for AOD and with Almucantar Retrievals Version 2 and are quality level 1.5.

Observing strategy

Continuous operation.

References

http://aeronet.gsfc.nasa.gov/

Instrument information

Sensor

Instrument type:	Photometers
Manufacturer:	CIMEL
Model:	CE 318 TP9

Sensor location

Longitude (°):	2.4281
Latitude (°):	8.001
Height above ground (m):	166

Geographic information

Save

Location name:	Save
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

Derived parameters

Aerosol Optical Depth

Parameter name:	Aerosol Optical Depth
Parameter keyword:	Atmosphere > Atmospheric Radiation > Optical Depth/Thickness
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_AODPWAP.dat.

Precipitable Water

Parameter keyword:	Atmosphere > Atmospheric Water Vapor > Precipitable Water
Unit:	centimeters - cm
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_AODPWAP.dat.

Angstrom parameter

Parameter name:	Angstrom parameter
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_AODPWAP.dat.

Size distribution

Parameter name:	Size distribution
Parameter keyword:	Atmosphere > Atmospheric Radiation
Unit:	µm3 µm-2 - µm3 µm-2
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_SIZ.dat.

Refractive Index

Parameter name:	Refractive Index
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_RIN.dat.

AOD absorption

Parameter name:	AOD absorption
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_TAB.dat.

AOD extinction

Parameter name:	AOD extinction
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_EOT.dat.

Single scattering albedo

Parameter name:	Single scattering albedo
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_SSA.dat.

Asymmetry factor

Parameter name:	Asymmetry factor
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_ASY.dat.

Phase functions

Parameter name:	Phase functions
Parameter keyword:	Atmosphere > Atmospheric Radiation
Acquisition methodology and quality:	Data are processed at http://aeronet.gsfc.nasa.gov/. Data can be found in file SAVE_KIT_SUN_PFN.dat.

Data use information

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