A Big Earth Data Platform for Three Poles

**WATER: Dataset of sun photometer observations in the Yingke oasis and Huazhaizi desert steppe foci experimental areas**

1、Description

The dataset of sun photometer observations was obtained in the Yingke oasis and Huazhaizi desert steppe foci experimental areas.  
 24 times observations were carried out by CE318 from BNU (at 1020nm, 936nm, 870nm, 670nm and 440nm, and column water vapor by 936 nm data) and from Institute of Remote Sensing Applications, CAS (at 1640nm, 1020nm, 936nm, 870nm, 670nm, 550nm, 440nm, 380nm and 340nm, and column water vapor by 936 nm data) on May 20, 23, 25 and 27, Jun. 4, 6, 16, 20, 22, 23, 27 and 29, Jul. 1, 7 and 11, 2008. Those atmospheric measurements synchronized with airborne (i.e. WiDAS, OMIS) and spaceborne sensors (i.e. TM, ASTER,CHRIS and Hyperion)  
 Accuracy of CE318 could be influenced by local air pressure, instrument calibration parameters, and convertion factors.   
 (1) Most air pressure was derived from elevation-related empiricism, which was not reliable. For more accurate result, simultaneous data from the weather station are needed.  
 (2) Errors from instrument calibration parameters. Field calibration based on Langly or interior instrument calibrationcin the standard light is required.  
 (3) Convertion factors for retrieval of aerosol optical depth and the water vapor of the water vapor channel were also from empiricism, and need further checking.   
 Raw data were archived in k7 format and can be opened by ASTPWin. ReadMe.txt is attached for details. Preprocessed data (after retrieval of the raw data) in Excel format are on optical depth, Rayleigh scattering, aerosol optical depth, the horizontal visibility, the near surface air temperature, the solar azimuth, zenith, solar distance correlation factors, and air column mass number. Langley was used for the instrument calibration.  
 Two parts are included in CE318 result data (see Geometric Positions and the Total Optical Depth of Each Channel and Rayleigh Scattering and Aerosol Optical Depth of Each Channel).

2、Keywords

Theme：Aerosol,Remote Sensing Technology,Aerosol optical depth/Thickness,Wide-angle infrared dual-mode line/Area array scanner,Solar spectrophotometer,Atmospheric Water Vapor  
Discipline：Atmosphere,Remote Sensing Technology  
Places：Heihe River Basin, Arid Region Hydrology in the Middle Reaches, Zhangye City Foci Experimental Area,   
Time：2008-06-27, 2008-05-25,

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：2.98MB

4.Data format：

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.951 | - |
| west：100.289 | - | east：100.482 |
| - | south：38.734 | - |

5、Time frame:2008-11-27 08:00:00+00:00--2009-01-18 08:00:00+00:00

6、Reference method

References to data:

ZHOU Chunyan, YAN Guangkuo, GUANG Jie. WATER: Dataset of sun photometer observations in the Yingke oasis and Huazhaizi desert steppe foci experimental areas. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0210.db2015

References to articles:

Wang Y, Xue Y, Li Y, Guang J, Mei L, Xu H, Ai J. Prior knowledge-supported aerosol optical depth retrieval over land surfaces at 500 m spatial resolution with MODIS data. International Journal of Remote Sensing, 2012, 33(3): 674-691, doi:10.1080/01431161.2011.577832.

7、Supporting project information

The CAS (Chinese Academy of Sciences) Action Plan for West Development Project  
National Program on Key Basic Research Project (973 Program

8、Data resource provider

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