A Big Earth Data Platform for Three Poles

**WATER: Dataset of ground truth measurement synchronizing with the airborne imaging spectrometer (OMIS-II) mission in the Yingke oasis and Huazhaizi desert steppe foci experimental areas on Jun. 4, 2008**

1、Description

The dataset of ground truth measurement synchronizing with the airborne imaging spectrometer (OMIS-II) mission was obtained in the Yingke oasis and Huazhaizi desert steppe foci experimental areas on Jun. 4, 2008. Observation items included:
 (1) ground object reflectance spectra of maize and wheat in Yingke oasis maize field by ASD FieldSpec (350~2500 nm, the vertical canopy observation and the transect observation) from Institute of Remote Sensing Applications (CAS); and of the black and white cloth, the water body, vegetation and the cement floor in the resort calibration site by ASD (350-2500nm, fixed points observation) from BNU. Raw data were binary files direct from ASD (by ViewSpecPro), and pre-processed data on reflectance were in Excel format.
 (2) The radiative temperature in Yingke oasis maize field (the transect observation), Yingke oasis wheat field (the transect observation), the maize field (intensive) near the resort (the transect observation) and Huazhaizi desert No. 1 plot (the diagonal and the fixed point observation) by the handheld infrared thermometer (emissivity: 1.00). As for the fixed point observation, 25 corner points were chosen in the plot of 30m×30m, and at each point, the bare land was measured twice and the vegetation once. Raw data (in Word format), blackbody calibrated data and processed data (in Excel format) were all archived.
 (3) Atmospheric parameters on the ICBC resort office roof by CE318 (produced by CIMEL in France) from Institute of Remote Sensing Applications. The total optical depth, aerosol optical depth, Rayleigh scattering coefficient, column water vapor in 936 nm, particle size spectrum and phase function were then retrieved from these observations. The optical depth in 1640nm, 1020nm, 936nm, 870nm, 670nm, 550nm, 440nm, 380nm and 340nm were all acquired by CE318. Those data include the raw data in .k7 format and can be opened by ASTPWin. ReadMe.txt is attached for detail. Processed 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.
 (4) Photosynthesis of wheat and maize by LI6400 in Yingke oasis maize field, carried out according to WATER specifications. Raw data were archived in the user-defined format (by notepat.exe) and processed data were in Excel format.
 (5) the radiative temperature vegetation (Reaumuria soongorica) and the bare land in Huazhaizi desert No. 1 plot by ThermaCAM SC2000 ( (1.2m above the ground, FOV = 24°×18°),. The data included raw data (read by ThermaCAM Researcher 2001), recorded data and the blackbody calibrated data (archived in Excel format).
 (6) the radiative temperature by the automatic thermometer at nadir in Yingke oasis maize field (2 from BNU, FOV: 10°; emissivity: 0.95, at intervals of 1s, set above the maize canopy and the bare land between ridges and the third from Institute of Remote Sensing Applications, emissivity: 1.0, at intervals of 0.05s, set above the maize canopy), Yingke wheat field (one set above the wheat canopy), Huazhaizi desert No. 1 plot (one set above the barley canopy), and in the resort calibration site (one for the cement floor). Raw data, blackbody calibrated data and processed data were all archived in Excel format.
 (7) Wheat albedo by the shortwave radiometer in Yingke oasis maize field. R =10H (R for FOV radius; H for the probe height). Data were archived in Excel format.
 (8) Wheat FPAR (Fraction of Photosynthetically Active Radiation) by SUNSACN and the digital camera in Yingke oasis maize field. FPAR= (canopyPAR－surface transmissionPAR－canopy reflection PAR+surface reflectionPAR) /canopy PAR; APAR=FPAR\* canopy PAR. Data were archived in the table format of Word.
 (9) LAI in Yingke oasis maize field. The maximum leaf length and width of each maize and wheat were measured. Data were from Jun. 6, 2008, archived in Excel format.

2、Keywords

Theme：Photosynthetically active radiation,Photosynthesis,Radiation,Canopy spectrum,Vegetation,Aerosol,Albedo,Aerosol optical depth/Thickness,Terrestrial Surface Remote Sensing,Ground verification information
Discipline：Atmosphere,Terrestrial Surface
Places：Heihe River Basin, Arid Region Hydrology in the Middle Reaches,
Time：

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：349.5MB

4.Data format：

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.88 | - |
| west：100.289 | - | east：100.46 |
| - | south：38.734 | - |

5、Time frame:2008-06-12 08:00:00+00:00--2008-06-12 08:00:00+00:00

6、Reference method

References to data:

XIN Xiaozhou, CAO Yongpan, ZHOU Hongmin, FAN Wenjie, ZHOU Mengwei, YANG Guijun, ZHOU Chunyan, WU Yueru, LIANG Wenguang, XIA Chuanfu, REN Huazhong, XU Zhen, WANG Dacheng, FENG Lei, LI Li, CHEN Ling, LI Xiaoyu, LIU Sihan, YU Fan, Liu Liangyun, SHU Lele, TAO Xin. WATER: Dataset of ground truth measurement synchronizing with the airborne imaging spectrometer (OMIS-II) mission in the Yingke oasis and Huazhaizi desert steppe foci experimental areas on Jun. 4, 2008. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0126.db2013

References to articles:

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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