A Big Earth Data Platform for Three Poles

**WATER: Dataset of ground truth measurement synchronizing with Envisat ASAR in the arid region hydrological experimental area during the pre-observation period on Sep. 19, 2007**

1、Description

The dataset of ground truth measurement synchronizing with Envisat ASAR was obtained in the arid region hydrological experimental area on Sep. 19, 2007 during the pre-observation period. One scene of Envisat ASAR image was captured on Sep. 19.
 The data were in AP mode and VV/VH polarization combinations, and the overpass time was approximately at 11:29 BJT. Those provide reliable ground data for remote sensing retrieval and validation of soil moisture from Envisat ASAR image.
 Observation items included:
 (1) soil moisture measured by the cutting ring method in Linze reed land, Zhangye farmland, Zhangye gobi, Linze maize land, Linze alfalfa land, Zhangye weather station, and Linze wetland.
 (2) GPS measured by GARMIN GPS 76
 (3) vegetation measurements including the vegetation height, the green weight, the dry weight, the sampling method, and descriptions on the land type, uniformity and dry and wet conditions
 (4) atmospheric parameters at Daman Water Management office measured by CE318 (produced by CIMEL in France). 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 1020nm, 936nm, 870nm, 670nm and 440nm were all acquired by CE318. Those data include the raw data in .k7 and can be opened by ASTPWin. ReadMetext files (.txt) is attached for detail. Processed data (after retrieval of the raw data) archived as Excel files 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.
 (5) roughness measured by the roughness plate together with the digital camera. The coordinates of the sample would be got with the help of ArcView; and after geometric correction, surface height standard deviation (cm) and correlation length (cm) could be acquired based on the formula listed on pages 234-236, Microwave Remote Sensing (Vol. II).
 The roughness data were initialized by the sample name, which was followed by the serial number, the name of the file, standard deviation and correlation length. Each text files (.txt) file is matched with one sample photo and standard deviation and correlation length represent the roughness. In addition, the length of 101 radius is also included for further checking.

2、Keywords

Theme：Soil,Microwave remote sensing,Radiation,Aerosol,Scattering,Surface Freeze-thaw Cycle/state Remote Sensing,Aerosol optical depth/Thickness,Soil moisture/Water content
Discipline：Atmosphere,Terrestrial Surface,Cryosphere
Places：Heihe River Basin, Arid Region Hydrology in the Middle Reaches, Closed observation area of Linze station,
Time：2007,

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：1999.3MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：39.24 | - |
| west：100.02 | - | east：100.3 |
| - | south：38.4 | - |

5、Time frame:2007-10-01 08:00:00+00:00--2007-10-01 08:00:00+00:00

6、Reference method

References to data:

LI Hua, FANG Li, BAI Yunjie, PAN Xiaoduo, WU Yueru, YAN Yeqing, DING Songchuang, LI Zhe, CHE Tao, Liu Qiang, GAO Song, LIANG Ji, Wen Jianguang, HAN Xujun, ZHANG Lingmei, YAN Qiaodi, MA Hongwei, RAN Youhua, WANG Xufeng, LI Xin, YUAN Xiaolong, LI Hongyi, QIN Chun, HAO Xiaohua. WATER: Dataset of ground truth measurement synchronizing with Envisat ASAR in the arid region hydrological experimental area during the pre-observation period on Sep. 19, 2007. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0192.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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