A Big Earth Data Platform for Three Poles

**WATER: Dataset of ground truth measurements synchronizing with Envisat ASAR in the A'rou foci experimental areas on Mar. 15, 2008**

1、Description

The dataset of ground truth measurements synchronizing with Envisat ASAR was obtained in in No. 2 and 3 quadrates of the A'rou foci experimental areas on Mar. 15, 2008.   
 The Envisat ASAR data were in AP mode and VV/VH polarization combinations, and the overpass time was approximately at 11:35 BJT. The quadrates were divided into 4×4 subsites, with each one spanning a 30×30 m2 plot. Only corner points of each subsite were chosen for observations.  
 In No. 2 quadrate, simultaneous with the satellite overpass, numerous ground data were collected, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity by the POGO soil sensor, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3).   
 In No. 3 quadrate, simultaneous with the satellite overpass, numerous ground data were collected, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity by the POGO soil sensor, soil volumetric moisture by ML2X, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3). Surface roughness was detailed in the "WATER: Surface roughness dataset in the A'rou foci experimental area". Besides, GPR (Ground Penetration Radar) observations were also carried out in No. 1 quadrate of A'rou. Those provide reliable ground data for retrieval and validation of soil moisture and freeze/thaw status from active remote sensing approaches.

2、Keywords

Theme：Electrical conductivity,Soil,Microwave remote sensing,Soil temperature,Surface Freeze-thaw Cycle/state Remote Sensing,Soil moisture/Water content  
Discipline：Terrestrial Surface,Cryosphere  
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, A'rou flight zone  
Time：2008,

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：531.8MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.078 | - |
| west：100.411 | - | east：100.55 |
| - | south：38.015 | - |

5、Time frame:2008-04-04 00:00:00+00:00--2008-04-04 00:00:00+00:00

6、Reference method

References to data:

WU Yueru. WATER: Dataset of ground truth measurements synchronizing with Envisat ASAR in the A'rou foci experimental areas on Mar. 15, 2008. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0006.db2013

References to articles:

吴月茹, 王维真, 晋锐, 王建, 车涛. TDR测定土壤含水量的标定研究. 冰川冻土, 2009, 31(2): 262-267.  
  
王维真, 吴月茹, 晋锐, 王建, 车涛. 冻融期土壤水盐变化特征分析――以黑河上游祁连县阿柔草场为例. 冰川冻土, 2009, 31(2): 268-274.

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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