A Big Earth Data Platform for Three Poles

**WATER: Dataset of the ground-based microwave radiometers and ground truth observations for soil freeze/thaw cycle in the A'rou foci experimental during the pre-observation period**

1、Description

The dataset of the ground-based microwave radiometers and ground truth observations (multi-frequency, multi-polar multi-angle) for soil freeze/thaw cycle in the A'rou foci experimental area from Oct. 19 to 25, 2007, during the pre-observation period, X-band from Oct. 20 to 25, S-band from Oct. 20 to 25, K-band from Oct. 19 to 24, and Ka-band from Oct. 20 to 24, to be specific. The aims of the measurements were the effects of the soil freeze/thaw status on the microwave brightness temperatures. Those provide reliable ground data for improving and verifying microwave radiative transfer models and parameters retrieval of soil freeze/thaw status.  
 Time-continuous ground observations synchronizing with the ground-based microwave radiometers including self-recording and manual measurements, were carried out in No. 1 quadrate of A'rou with dry natural grassland as the landscape.  
 (1) self-recording observations: the soil temperatures at 0cm, 5cm, 10cm, 15cm and 20cm by the temperature probe from Oct. 21 to 25, 2007, and shallow layer soil moisture at 0-5cm, 5cm, 10cm, 15cm and 20cm by TDR from Oct. 19 to 21 2007. Both time interval of the observations were 5 minutes.  
 (2) manual observations: the surface radiative temperature by the handheld infrared thermometer, the soil temperature at 0cm, 5cm, 10cm, 15cm and 20cm by the glass geothermometer, and the mean soil temperature from 0-5cm by the probe thermometer. The time interval of observations was 30 minutes from Oct. 19-21, 2007.

2、Keywords

Theme：Soil,Depth of soil freezing,Soil temperature,Soil moisture/Water content,Terrestrial Surface Remote Sensing,Ground verification information  
Discipline：Terrestrial Surface  
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, A'rou flight zone  
Time：

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：180.4MB

4.Data format：EXCEL

4、Space scope

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

5、Time frame:2007-11-03 14:04:00+00:00--2007-11-09 14:05:00+00:00

6、Reference method

References to data:

Wang Weizhen. WATER: Dataset of the ground-based microwave radiometers and ground truth observations for soil freeze/thaw cycle in the A'rou foci experimental during the pre-observation period. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0001.db2015

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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