A Big Earth Data Platform for Three Poles

**WATER: Dataset of ground truth measurement synchronizing with the airborne microwave radiometers (L&K bands) mission in the A'rou foci experimental area (Mar. 19, 2008)**

1、Description

The dataset of ground truth measurement synchronizing with the airborne microwave radiometers (L&K bands) mission was obtained in L2, L4 and L5 of the A'rou foci experimental area on Mar. 19, 2008. The samples were collected every 100 m along the strip from south to north.
 In L2, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity were acquired by the POGO soil sensor, the mean soil temperature from 0-5cm by the probe thermometer, and soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3).
 In L4, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity were acquired 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, and soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm^3).
 In L5, soil volumetric moisture was acquired by ML2X, the mean soil temperature from 0-5cm by the probe thermometer, and 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 L6 and the handheld thermal imager observations in L4. 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,Surface radiation temperature,Thermal imager,Earth SurFace Processes,Soil temperature,Remote Sensing Technology,Soil bulk density,Microwave radiometer,Soil moisture/Water content
Discipline：Terrestrial Surface,Remote Sensing Technology
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：84.2MB

4.Data format：EXCEL

4、Space scope

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

5、Time frame:2008-04-01 16:00:00+00:00--2008-04-01 16:00:00+00:00

6、Reference method

References to data:

ZHOU Hongmin, LI Hua, WU Yueru, SUN Jicheng, YAN Yeqing, PATRICK Klenk, YU Meiyan, ZHAO Jin, CHANG Cun. WATER: Dataset of ground truth measurement synchronizing with the airborne microwave radiometers (L&K bands) mission in the A'rou foci experimental area (Mar. 19, 2008). A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0014.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

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