A Big Earth Data Platform for Three Poles

**WATER: Dateset of the ground-based RPG-8CH-DP microwave radiometer observations in the Biandukou foci experimental area**

1、Description

The dateset of the ground-based RPG-8CH-DP microwave radiometer observations was obtained in the Biandukou foci experimental area from Mar. 14 to 17, 2008. Observation items included the brightness temperature by the ground-based microwave radiometer (18.7GHz and 36.5GHz), the soil temperature by the thermal resistor, the gravimetric soil moisture by the microwave drying method, and the surface roughness by the grid board.  
 The wheat stubble land (38°15'44.13"N, 100°55'35.34"E) was chosen for continuous observations from 11:00 to 24:00 on Mar. 14, with the incidence 20°-70° and the step length 5°.   
 The rape stubble land (38°15'23.17"N, 100°58'37.84"E) was chosen for continuous observations from 10:00 to 21:30 on Mar. 16, with the incidence 20°-70° and the step length 5°.   
 The deep plowed land (38°18'8.28"N, 101° 3'27.22"E) was chosen for short time observations from 17:26 to 19:20 on Mar. 17, with the azimuth angle 240°-300° and the step length 10°, the incidence 40°-70° and the step length 5°.   
 The brightness temperature was archived as .BRT and .txt files (the ASCII format). Each row in .txt was listed by year, month, date, hour, minute, second, 6.925GHz (h), 6.925GHz (v), 10.65GHz (h), 10.65GHz (v) , 18.7GHz (h), 18.7GHz (v), 36.5GHz (h), 36.5GHz (v), the elevation angle, and the azimuth angle. Values for 6.925GHz and 10.65GHz were zero due to malfunction.  
 The roughness data were obtained by the grid board and the camera and the RMS height (cm) and correlation length (cm) were also calculated and archived, which could be opened by Notepad or Microsoft Office Word. Those provide reliable reference for the roughness of the same land cover type.  
 The gravimetric soil moisture (soil samples from 0-1cm, 1-3cm and 3-5cm) was measured by the microwave drying method. The file can be opened by Microsoft Office Word.  
 The shallow layer soil moisture was measured by hydra prob from 12:00 to 17:00 on 14 and by the Hydra probe (straight downward for 0-5cm) and HH2 (level into the soil surface) on 16. The surface temperature was measured by the thermal resistor. The file can be opened by Microsoft Office Word.  
 Four data files were included, the brightness temperature, the surface temperature, the soil moisture and the surface roughness.

2、Keywords

Theme：Gravity,Soil,Surface radiation temperature,Surface Roughness,Earth SurFace Processes,Soil temperature,Remote Sensing Technology,Soil moisture/Water content,Ground-based microwave radiometer  
Discipline：Terrestrial Surface,Remote Sensing Technology,Solid earth  
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, closed observation area of Biandoukou  
Time：2008,

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：3.4MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.312 | - |
| west：100.881 | - | east：101.036 |
| - | south：38.192 | - |

5、Time frame:2008-03-26 16:00:00+00:00--2008-03-29 16:00:00+00:00

6、Reference method

References to data:

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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

name: Zhao Tianjie  
unit: Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences  
email: zhaotj@radi.ac.cn  
  
name: ZHAO Shaojie  
unit:   
email: geo\_zhao@126.com  
  
name: ZHANG Zhiyu  
unit: Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences  
email:   
  
name: CHANG Sheng  
unit:   
email:   
  
name: PAN Jinmei  
unit:   
email:   
  
name: PENG Danqing  
unit:   
email:   
  
name: ZHENG Yue  
unit:   
email:   
  
name: YIN Xiaojun  
unit:   
email:   
  
name: LIANG Xingtao  
unit:   
email:   
  
name: ZHANG Yongpan  
unit:   
email: