A Big Earth Data Platform for Three Poles

**WATER: Dataset of airborne L-band microwave radiometer and thermal imager mission in the Binggou-A'rou flight zone in the afternoon of Apr. 1, 2008**

1、Description

The dataset of airborne L-band microwave radiometer and thermal imager mission was obtained in the Binggou-A'rou flight zone in the afternoon of Apr. 1, 2008.
 The frequency of L bands was 1.4 GHz with back sight of 35 degree and dual polarization (H&V) was acquired. The plane took off at Zhangye airport at 12:48 (BJT) and landed at 16:35 along the scheduled lines at the altitude about 5000m and speed about 260km/hr..
 The raw data include microwave radiometer (L) data, thermal imager data (7.5-13 um; FOV: 24×18º) and GPS data; the first were instantaneous non-imaging observation recorded in text, which could be converted into brightness temperatures according to the caliberation coefficients (filed with raw data together), and the third are aircraft longitude, latitude and attitude. Moreover, based on the respective real-time clock log, observations by the microwave radiometer and GPS can be integrated to offer coordinates matching for the former. Yaw, flip, and pitch motions of aircraft were ignored due to the low resolution of microwave radiometer observations. Observation information can also be rasterized, as required, after calibration and coordinates matching. L band resolution (x) and footprint can be approximately estimated as x=0.3H (H is relative flight height). The thermal imager was 320\*240 pixels and with FOV of 24×18º. The thermal imager data were stored in binary format with a text header file. The recorded value was brightness temperature at sensor with scale and gain parameter recorded in the header file. And the thermal images were not geometrically corrected because there were gaps between sequential images.

2、Keywords

Theme：Gravity,differential global position system,Thermal imager,Remote Sensing Technology,Microwave radiometer
Discipline：Remote Sensing Technology,Solid earth
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, A'rou flight zone
Time：2008-04-01, 2008

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：8898.5MB

4.Data format：

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.15 | - |
| west：100.15 | - | east：100.65 |
| - | south：38.0 | - |

5、Time frame:2018-11-30 02:47:14.328522+00:00--2018-11-30 02:47:14.328526+00:00

6、Reference method

References to data:

CHE Tao, JIN Jinan, Liu Qiang. WATER: Dataset of airborne L-band microwave radiometer and thermal imager mission in the Binggou-A'rou flight zone in the afternoon of Apr. 1, 2008. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0212.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.

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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