A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of ground truth measurements synchronizing with airborne PLMR mission in the Daman irrigation district (July 26, 2012)**

1、Description

On July 26, 2012, the airborne ground synchronous observation was carried out in the plmr quadrat in the dense observation area of Daman. Plmr (polarimetric L-band multibeam radiometer) is a dual polarized (H / V) L-band microwave radiometer, with a center frequency of 1.413 GHz, a bandwidth of 24 MHz, a resolution of 1 km (relative altitude of 3 km), six beam simultaneous observations, an incidence angle of ± 7 °, ± 21.5 °, ± 38.5 °, and a sensitivity of < 1K. The flight mainly covers the middle reaches of the artificial oasis eco hydrological experimental area. The local synchronous data set can provide the basic ground data set for the development and verification of passive microwave remote sensing soil moisture inversion algorithm.   
Quadrat and sampling strategy:   
The observation area is located in the matrix of the dense observation area of Daman, and the detailed plan with an area of 3.0KM × 2.4km is selected to carry out synchronous observation on the underlying surface of oasis. The selection of the sample is mainly based on the representativeness of the surface coverage, accessibility and observation (road consumption) time, so as to obtain the comparison of brightness and temperature with plmr observation.   
Considering the resolution of plmr observation, 5 splines (east-west distribution) were collected at an interval of 450 m in the east-west direction. Each line has 31 points (north-south direction) at an interval of 100 m, and 5 hydraprobe data acquisition systems (HDAS, reference 2) were used for simultaneous measurement. Measurement content:   
About 150 points on the quadrat were obtained, each point was observed twice, that is to say, two times were observed at each sampling point, one time was inside the film (marked as a in the data record) and one time was outside the film (marked as B in the data record). As the HDAS system uses pogo portable soil sensor, the soil temperature, soil moisture (volume moisture content), loss tangent, soil conductivity, real part and imaginary part of soil complex dielectric are observed. Because the vegetation in this area has been sampled and observed once every five days, no special vegetation synchronous sampling has been carried out on that day.   
Data:   
This data set consists of two parts: soil moisture observation and vegetation observation. The former saves data in vector file format, and the spatial location is the location of each sampling point (WGS84 + UTM 47N). Soil moisture and other measurement information are recorded in attribute file.

2、Keywords

Theme：Soil,Soil temperature,Remote Sensing Technology,Microwave radiometer,Soil moisture/Water content  
Discipline：Terrestrial Surface,Remote Sensing Technology  
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches  
Time：2012, 2012-07-26

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：1.0MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.884 | - |
| west：100.34 | - | east：100.383 |
| - | south：38.85 | - |

5、Time frame:2018-11-21 18:48:16+00:00--2018-11-21 18:48:16+00:00

6、Reference method

References to data:

MA Mingguo, LI Xin, WANG Shuguo. HiWATER: Dataset of ground truth measurements synchronizing with airborne PLMR mission in the Daman irrigation district (July 26, 2012). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.055.2013.db2017

References to articles:

Li, X., Liu, S.M., Xiao, Q., Ma, M.G., Jin, R., Che, T., Wang, W.Z., Hu, X.L., Xu, Z.W., Wen, J.G., Wang, L.X. (2017). A multiscale dataset for understanding complex eco-hydrological processes in a heterogeneous oasis system. Scientific Data, 4, 170083. doi:10.1038/sdata.2017.83.

7、Supporting project information

"Heihe Watershed Allied Telemetry Experimental Research (HiWATER)  
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8、Data resource provider

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