A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of ground truth measurements synchronizing with airborne PLMR mission in the Linze Inland River Basin Comprehensive Research Station on July 3, 2012**

1、Description

On July 3, 2012, airborne ground synchronous observation was carried out in plmr sample belt near Linze station. 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 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:   
According to the typical ground surface type represented by three points near Linze station and taking part of neutron tube observation into account, the three routes from northwest to southeast are designed, with an interval of 200 m, a design altitude of about 300 m and a plmr ground resolution of 100 m. According to the observation characteristics of the route and plmr, three observation transects are designed on both sides of the route, each of which is about 6 km long. From west to East are L1, L2 and L3 respectively. Among them, L1 and L2 are centered on the middle route, 80 m apart; L2 and L3 are 200 m apart. Four hydroprobe data acquisition systems (HDAS, ref. 2) were used to measure at the same time.   
Measurement content:   
About 4500 points on the sample belt were obtained, each point was observed twice, that is to say, in each sampling point, once in the film (marked as a in the data record) and once out of 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 virtual part of soil complex dielectric are observed. Vegetation parameter observation was carried out in some representative soil water sampling points, and the measurement of plant height and biomass (vegetation water content) was completed. Note: the observation date coincides with the irrigation of large area of farmland in this area, which makes it difficult for the observer to move forward, the field block is difficult to enter, and the observation point position deviates from the preset point position.   
Data:   
This data set includes two parts: soil moisture observation and vegetation observation. The former saves the data format as a vector file, the spatial location is the location of each sampling point (WGS84 + UTM 47N), and the measurement information of soil moisture is recorded in the attribute file; the vegetation sampling information is recorded in the excel table.

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, Linze Inland River Basin Comprehensive Research Station  
Time：2012, 2012-07-03

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：24.8MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：39.41 | - |
| west：100.112 | - | east：100.117 |
| - | south：39.35 | - |

5、Time frame:2018-11-23 10:49:06+00:00--2018-11-23 10:49:06+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 Linze Inland River Basin Comprehensive Research Station on July 3, 2012. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.051.2013.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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