A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of ground truth measurements synchronizing with airborne PLMR mission in the upper reaches of the Heihe River Basin on August 1, 2012**

1、Description

The dataset of ground truth measurements synchronizing with airborne Polarimetric L-band Multibeam Radiometer (PLMR) mission was obtained in upper reaches of the Heihe River Basin on 1 August, 2012. PLMR is a dual-polarization (H/V) airborne microwave radiometer with a frequency of 1.413 GHz, which can provide multi-angular observations with 6 beams at ±7º, ±21.5º and ±38.5º. The PLMR spatial resolution (beam spot size) is approximately 0.3 times the altitude, and the swath width is about twice the altitude.
The measurements were conducted along two transects respectively located at the west and east branches of the Babaohe River and two sampling plots in the A’rou foci experimental area. Along the transects, soil moisture was sampled at every 50 m in the west-east direction. In order to keep the ground measurements following the airborne mission as synchronous as possible in temporal, measurements were made discontinuously. In the A’rou foci experimental area, two sampling plots were identified with areas of 1.5 km × 0.6 km and 0.85 km × 0.6 km. In each plot, soil moisture was sampled at every 50 m in the west-east direction and 100 m in the north-south direction. Steven Hydro probes were used to collect soil moisture and other measurements. Concurrently with soil moisture sampling, vegetation properties were measured at some typical sampling plots.

Observation items included:
Soil parameters: volumetric soil moisture (inherently converted from measured soil dielectric constant), soil temperature, soil dielectric constant, soil electric conductivity.
Vegetation parameters: biomass, vegetation water content, canopy height.

Data and data format:
This dataset includes two parts of measurements, i.e. soil and vegetation parameters. The former is as shapefile, with measured items stored in its attribute table. The measured vegetation parameters are recorded in an Excel file.

2、Keywords

Theme：Soil,Vegetation,Biomass,Soil temperature,Vegetation cover,Soil moisture/Water content
Discipline：Terrestrial Surface
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches
Time：2012, 2012-08-01

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：1.4MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.851 | - |
| west：98.9 | - | east：101.15 |
| - | south：37.833 | - |

5、Time frame:2018-11-26 18:50:34+00:00--2018-11-26 18:50:34+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 upper reaches of the Heihe River Basin on August 1, 2012. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.050.2013.db2013

References to articles:

Che, T., Li, X., Liu, S., Li, H., Xu, Z., Tan, J., Zhang, Y., Ren, Z., Xiao, L., Deng, J., Jin, R., Ma, M., Wang, J., & Yang, X. (2019). Integrated hydrometeorological, snow and frozen-ground observations in the alpine region of the Heihe River Basin, China. Earth System Science Data, 11, 1483-1499

7、Supporting project information

"Heihe Watershed Allied Telemetry Experimental Research (HiWATER)
Heihe Watershed Allied Telemetry Experimental Research (HiWATER)

8、Data resource provider

name: MA Mingguo
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
email: mmg@lzb.ac.cn

name: LI Xin
unit:
email: xinli@itpcas.ac.cn

name: WANG Shuguo
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
email: sgwang@lzb.ac.cn