A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (automatic weather station of A’rou shady slope station, 2014)**

1、Description

This data set contains meteorological element observation data from January 1, 2014 to December 31, 2014 at the aruyinpo station, upstream of heihe hydrometeorological observation network.The station is located in the south of ahrou township, qilian county, qinghai province.The longitude and latitude of the observation point are 100.4108E, 37.9841N and 3536m above sea level.The air temperature and relative humidity sensors are located at 5m, facing due north.The barometer is installed in the anti-skid box on the ground;The tilting bucket rain gauge is installed at 10m;The wind speed and direction sensor is set at 10m, facing due north;The four-component radiometer is installed at 6m, facing due south;Two infrared surface thermometers were installed at 6m, facing due south, and the probe facing vertically downward;Two photosynthetically active radiators were installed at 6m, facing due south, and one probe was vertically upward and downward.The soil temperature probe is buried at 0cm on the surface and 4cm underground, 10cm, 20cm, 40cm, 80cm, 120cm, 160cm, 2m to the south of the meteorological tower.The soil water probe is buried at 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm underground, 2m to the south of the meteorological tower.The soil heat flow plates (3 pieces) are buried in the ground 6cm underground, 2m to the south of the meteorological tower.
Observation projects are: air temperature and humidity (Ta\_5m, RH\_5m) (unit: c, percentage), pressure (Press) (unit: hundred mpa), precipitation (Rain) (unit: mm), wind speed (WS\_10m) (unit: m/s), wind (WD\_10m) (unit: degrees), the radiation of four component (DR, UR, DLR\_Cor, ULR\_Cor, Rn) (unit: watts per square meter), the surface radiation temperature (IRT\_1, IRT\_2) (unit:(unit: Ts\_0cm, Ts\_4cm, Ts\_10cm, Ts\_20cm, Ts\_40cm, Ts\_80cm, Ts\_120cm, Ts\_160cm) (unit: Celsius), soil moisture (Ms\_4cm, Ms\_10cm, Ms\_20cm, Ms\_40cm, Ms\_80cm, Ms\_120cm, Ms\_160cm) (unit:Volumetric water content, percentage), upward and downward photosynthetically active radiation (PAR\_up, PAR\_down) (in micromol/m2 seconds).
Processing and quality control of observed data :(1) ensure 144 pieces of data every day (every 10min), and mark by -6999 in case of data missing;The air temperature was between June 24, 2014 to June 28, 2014 and July 7, 2014 to August 24, 2014.Surface radiation temperature was between June 24, 2014 and July 4, 2014. Due to sensor problems, data was missing.The soil temperature was between June 24, 2014 and July 1, 2014. Due to the problem of the extension board of collector, data was missing.Due to problems in the power supply system, data was missing between December 3, 2014 and December 31, 2014.(2) excluding the time with duplicate records;(3) data that obviously exceeds the physical significance or the range of the instrument is deleted;(4) the part marked with red letter in the data is the data in question;(5) date and time have the same format, and date and time are in the same column.For example, the time is: September 10, 2014, 10:30;(6) the naming rule is: AWS+ site name.
For information of hydrometeorological network or station, please refer to Liu et al.(2018), and for observation data processing, please refer to Liu et al.(2011).

2、Keywords

Theme：Precipitation,Meteorological element
Discipline：Atmosphere
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, A’rou shady slope station
Time：2014, 2014-01-01 to 2014-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：4.99MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：37.9841 | - |
| west：100.4108 | - | east：100.4108 |
| - | south：37.9841 | - |

5、Time frame:2014-01-13 00:00:00+00:00--2015-01-12 00:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, LIU Shaomin, XU Ziwei, CHE Tao, ZHANG Yang. HiWATER: Dataset of hydrometeorological observation network (automatic weather station of A’rou shady slope station, 2014). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.250.2015.db2016

References to articles:

Liu, S.M., Xu, Z.W., Wang, W.Z., Bai, J., Jia, Z., Zhu, M., & Wang, J.M. (2011). A comparison of eddy-covariance and large aperture scintillometer measurements with respect to the energy balance closure problem. Hydrology and Earth System Sciences, 15(4), 1291-1306.

Liu, S.M., Li, X., Xu, Z.W., Che, T., Xiao, Q., Ma, M.G., Liu, Q.H., Jin, R., Guo, J.W., Wang, L.X., Wang, W.Z., Qi, Y., Li, H.Y., Xu, T.R., Ran, Y.H., Hu, X.L., Shi, S.J., Zhu, Z.L., Tan, J.L., Zhang, Y., & Ren, Z.G. (2018). The Heihe Integrated Observatory Network: A Basin-Scale Land Surface Processes Observatory in China. Vadose Zone Journal, 17(1), 180072. doi:10.2136/vzj2018.04.0072.

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

National Natural Science Foundation of China

8、Data resource provider

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