A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (an automatic weather station of Sidaoqiao mixed forest station, 2016)**

1、Description

This data set contains meteorological element observation data from January 1, 2016 to December 31, 2016 at the downstream mixed forest station of heihe hydrometeorological observation network.The station is located at sidao bridge, dalaihubu town, ejin banner, Inner Mongolia.The longitude and latitude of the observation point are 101.1335e, 41.9903n and 874m above sea level.The air temperature and relative humidity sensors are located at 28m, facing due north.The barometer is installed in the anti-skid box on the ground;Tilting bucket rain gauge installed at 28m;The wind speed and direction sensor is located at 28m, facing due north.The four-component radiometer is installed at 24m, facing due south;Two infrared thermometers are installed at 24m, facing due south and the probe facing vertically downward.Two photosynthetically active radiators were installed at a position of 24m, facing due south, with one probe vertically upward and one probe vertically downward.The soil temperature probe is buried at 0cm of the surface and 2cm, 4cm, 10cm, 20cm, 40cm, 60cm and 100cm underground (observation at depths of 160cm,200cm and 240cm were increased on April 22), 2m to the south of the meteorological tower.The soil water probe was buried 2cm, 4cm, 10cm, 20cm, 40cm, 60cm and 100cm underground (observation at depths of 160cm,200cm and 240cm were increased on April 22), 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 items are: air temperature and humidity (Ta\_28m, RH\_28m) (unit: c, percentage), pressure (Press) (unit: hundred mpa), precipitation (Rain) (unit: mm), wind speed (WS\_28m) (unit: m/s), wind (WD\_28m) (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:C), soil heat flux (Gs\_1, Gs\_2, Gs\_3) (in watts/m2), soil temperature (Ts\_0cm, Ts\_2cm, Ts\_4cm, Ts\_10cm, Ts\_20cm, Ts\_40cm, Ts\_60cm, Ts\_100cm, Ts\_160cm, Ts\_200cm, Ts\_240cm) (in:C), soil moisture (Ms\_2cm, Ms\_4cm, Ms\_10cm, Ms\_20cm, Ms\_40cm, Ms\_60cm, Ms\_100cm, Ms\_160cm, Ms\_200cm, Ms\_240cm) (unit: volumetric water content, percentage), upward and downward photosynthetically active radiation (PAR\_up, PAR\_down) (unit: micromole/sq.s).
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;Due to the sensor problem, the wind direction was partly missing between April and April 21, 2016;The soil heat flux G1 is between 2.21-3.15, G2 is between 1.24-3.15, 4.4-4.22 and 12.1-12.21.(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: 2016-9-1010:30;(6) the naming rule is: AWS+ site name.
For information of hydrometeorological network or station, please refer to Li et al. (2013), and for observation data processing, please refer to Liu et al. (2011).

2、Keywords

Theme：Precipitation,Meteorological element
Discipline：Atmosphere
Places：Heihe River Basin, mixed forest station, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2016-01-01 to 2016-12-31, 2016

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：18.4MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：41.9903 | - |
| west：101.1335 | - | east：101.1335 |
| - | south：41.9903 | - |

5、Time frame:2016-01-12 00:00:00+00:00--2017-01-11 00:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, LIU Shaomin, XU Ziwei, CHE Tao, REN Zhiguo. HiWATER: Dataset of hydrometeorological observation network (an automatic weather station of Sidaoqiao mixed forest station, 2016). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.461.2017.db2017

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.

7、Supporting project information

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