A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of Hydro-meteorological observation network (an automatic weather station of Sidaoqiao populus forest station, 2015)**

1、Description

The data set contains the observation data of meteorological elements from the Huyanglin Station, which is located along the lower reaches of the Heihe Hydro-meteorological Observation Network, and the data set covers data from January 1, 2015 to December 31, 2015. The station is located in Sidaoqiao, Dalaihubu Town, Ejina Banner, Inner Mongolia, the underlying surface is Populus euphratica forest and Tamarisk. The latitude and longitude of the observation point is 101.1239E, 41.9932N, and the altitude is 876m. The air temperature and relative humidity sensor s are erected 28 meters above the ground, facing North; the wind speed sensor is set at 28m, facing north; the four-component radiometer is installed 24 meters above the ground, facing South; two infrared thermometers are installed 24 meters above the ground, facing South, and the probe orientation is vertical downward; two photosynthetically active radiometers are installed 24 meters above the ground, facing South, and the two probes are vertically upward and downward respectively; the soil temperature probes are buried respectively at 0cm on the ground surface, 2cm and 4cm under the ground, they are located 2 meters from the meteorological tower in the North. The soil moisture sensors are buried 2cm and 4cm under the ground, 2 meters from the meteorological tower in the South. The soil heat flow boards (3 pieces) are buried 6cm under the ground, 2 meters from the meteorological tower in the South.
Observed items include: air temperature and humidity (Ta\_28m, RH\_28m) (unit: Celsius, percentage), wind speed (WS\_28m) (unit: m/s), four-component radiation (DR, UR, DLR\_Cor, ULR\_Cor, Rn) (unit: watt / square meter), surface radiation temperature (IRT\_1, IRT\_2) (unit: Celsius), soil heat flux (Gs\_1, Gs\_2, Gs\_3) (unit: watts / square meter), soil temperature (Ts\_0cm, Ts\_2cm, Ts\_4cm) (unit : Celsius), soil moisture (Ms\_2cm, Ms\_4cm) (unit: volumetric water content, percentage), up and down photosynthetically active radiation (PAR\_up, PAR\_down) (unit: micromoles / square meter second).
Processing and quality control of observation data: (1) Ensure 144 data per day (every 10 minutes), if there is missing data, it is marked as -6999. Due to instrument adjustment, data between April 22 to April 27 of 2015 is missing. Soil heat flux data between June 19 to September 5 is missing due to sensor failure. (2) Eliminate moments with duplicate records; (3) Remove data that is significantly beyond physical meaning or beyond the measuring range of the instrument; (4) Data marked by red is debatable; (5) The formats of the date and time are uniform, and the date and time are in the same column. For example, the time is: 2015-9-10 10:30; (6) The naming rule is: AWS + site name.
For hydro-meteorological network or site information, please refer to Li et al. (2013). For observation data processing, please refer to Liu et al. (2011).

2、Keywords

Theme：Precipitation,Meteorological element
Discipline：Atmosphere
Places：Heihe River Basin, populus forest station, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2015, 2015-01-01 to 2015-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：10.6MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：41.9932 | - |
| west：101.1239 | - | east：101.1239 |
| - | south：41.9932 | - |

5、Time frame:2015-07-11 00:00:00+00:00--2016-07-09 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 Hydro-meteorological observation network (an automatic weather station of Sidaoqiao populus forest station, 2015). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.316.2016.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.

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