A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (an automatic weather station of desert station, 2017)**

1、Description

The data set includes observation data of meteorological elements in the downstream desert station of Heihe Hydrometeorological Observation Network from January 1, 2017 to December 31, 2017. The site is located in the desert beach of Ejin Banner, Inner Mongolia, and the underlying surface is red sand desert. The latitude and longitude of the observation point is 100.9872E, 42.1135N, and the altitude is 1054m.The air temperature and relative humidity sensors are installed at 5m and 10m, facing the north; the barometer is installed at 2m; the tipping bucket rain gauge is installed at 10m; the wind speed sensor is set at 5m, 10m, and the wind direction sensor is set at 10m, facing the north; the four-component radiometer is installed at 6m, facing south; two infrared thermometers are installed at 6m, facing south, the probe orientation is vertically downward; the soil temperature probe is buried in the ground surface 0cm and underground 2cm, 4cm, 10cm, 20cm 40cm, 60cm and 100cm, in the south of the 2m from the meteorological tower; soil moisture sensors are buried in the underground 2cm, 4cm, 10cm, 20cm, 40cm, 60cm and 100cm, in the south of the 2m from the meteorological tower; soil heat flux plates (3 pieces) are buried in the ground 6 cm in order.
Observation items include: air temperature and humidity (Ta\_5m, RH\_5m, Ta\_10m, RH\_10m) (unit: centigrade, percentage), air pressure (Press) (unit: hectopascal), precipitation (Rain) (unit: mm), wind speed (WS\_5m, WS\_10m) (unit: m / s), wind direction (WD\_10m) (unit: degree), four-component radiation (DR, UR, DLR\_Cor, ULR\_Cor, Rn) (unit: watts / square meter), surface radiation temperature (IRT\_1, IRT\_2 ) (unit: centigrade), soil heat flux (Gs\_1, Gs\_2, Gs\_3) (unit: watts/square meter), soil moisture (Ms\_2cm, Ms\_4cm, Ms\_10cm, Ms\_20cm, Ms\_40cm, Ms\_60cm, Ms\_100cm) (unit: volumetric water content, percentage) and soil temperature (Ts\_0cm, Ts\_2cm, Ts\_4cm, Ts\_10cm, Ts\_20cm, Ts\_40cm, Ts\_60cm, Ts\_100cm) (unit: centigrade).
Processing and quality control of the observation data: (1) ensure 144 data per day (every 10 minutes), when there is missing data, it is marked by -6999; From September 17, 2017 to September 23, due to the re-enhancement of the observation tower, the data is missing (the four-component radiation missing period is from September 9 to September 23); (2) eliminate the moment with duplicate records; (3) delete the data that is obviously beyond the physical meaning or the range of the instrument; (5) the format of date and time is uniform, and the date and time are in the same column. For example, the time is: 2016-6-10 10:30; (6) the naming rules are: AWS+ site name.
For hydrometeorological 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, Desert Station, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2017, 2017-01-01 to 2017-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：13.5MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.1135 | - |
| west：100.9872 | - | east：100.9872 |
| - | south：42.1135 | - |

5、Time frame:2017-01-12 00:00:00+00:00--2018-01-11 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 desert station, 2017). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.20.2018.db2018

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., Li, X., Xu, Z., Che, T., Xiao, Q., Ma, M., Liu, Q., Jin, R., Guo, J., Wang, L., Wang, W., Qi, Y., Li, H., Xu, T., Ran, Y., Hu, X., Shi, S., Zhu, Z., Tan, J., Zhang, Y., Ren, Z. (2018). The Heihe Integrated Observatory Network: A basin‐scale land surface processes observatory in China. Vadose Zone Journal, 17,180072. https://doi.org/10.2136/vzj2018.04.0072.

7、Supporting project information

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