A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydro-meteorological observation network (automatic weather station of Bajitan Gobi Desert Station, 2014)**

1、Description

The data set contains the observation data of meteorological elements from the Bajitan Gobi Desert Station, which is located along the middle reaches of the Heihe Hydro-meteorological Observation Network, and the data set covers data from January 1, 2014 to December 31, 2014. The station is located in Bajitan, West Zhangye City, Gansu Province, the underlying surface is Gobi. The latitude and longitude of the observation point is 100.3042E, 38.9150N, and the altitude is 1562m. The air temperature and relative humidity sensors are erected 5 and 10 meters above the ground, facing North; the barometer is installed 2 meters above the ground; tipping bucket rain gauge is installed 10 meters above the ground; the wind speed sensors are set 5 and 10 meters above the ground, facing North; the four-component radiometer is installed 6 meters above the ground, facing South; two infrared thermometers are installed 6 meters above the ground, facing South, and the probe orientation is vertical downward; the soil temperature probes are buried respectively at 0cm on the ground surface, 2cm, 4cm, 10cm, 20cm, 40cm, 60cm and 100cm under the ground, they are located 2 meters from the meteorological tower in the North. The soil moisture sensors are buried 2cm, 4cm, 10cm, 20cm, 40cm, 60cm and 100cm 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.
Observed items include: air temperature and humidity (Ta\_5m、RH\_5m、Ta\_10m、RH\_10m) (unit: Celsius, percentage), pressure(Press) (unit:hectopascal), precipitation (Rain) (unit: mm), wind speed (WS\_5m、WS\_10m) (unit: meter / sec), wind direction (WD\_10m) (unit: degree), 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: watt / square meter), soil moisture (Ms\_2cm、Ms\_4cm、Ms\_10cm、Ms\_20cm、Ms\_40cm、Ms\_60cm、Ms\_100cm) (unit: volumetric water content, percentage), soil temperature (Ts\_0cm、Ts\_2cm、Ts\_4cm、Ts\_10cm、Ts\_20cm、Ts\_40cm、Ts\_60cm、Ts\_100cm) (unit : Celsius).
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 sensor problem, Ms\_40cm data between January 1 and March 2 had a large fluctuation, it can only be used as reference. (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: 2014-6-10 10:30; (6) The naming rule is: AWS + site name.
For hydro-meteorological network or site information, please refer to Liu et al. (2018). For observation data processing, please refer to Liu et al. (2011).

2、Keywords

Theme：Precipitation,Meteorological element
Discipline：Atmosphere
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches, Bajitan Gobi desert station
Time：2014, 2014-01-01 to 2014-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：18.7MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.915 | - |
| west：100.3042 | - | east：100.3042 |
| - | south：38.915 | - |

5、Time frame:2014-01-08 00:00:00+00:00--2015-01-07 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 (automatic weather station of Bajitan Gobi Desert Station, 2014). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.259.2015.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.

7、Supporting project information

National Natural Science Foundation of China

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