A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (automatic weather station of Shenshawo sandy desert station, 2015)**

1、Description

This data set includes observation data of meteorological elements in the Shenshawo Desert Station in the middle of the Heihe Hydrometeorological Observation Network from January 1, 2015 to April 12, 2015. The site is located in Shenshawo, Zhangye City, Gansu Province, and the underlying surface is desert. The latitude and longitude of the observation point is 100.4933E, 38.7892N, and the altitude is 1594m. 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, and among them a repetitive soil moisture sensor (Ms\_40cm\_2) was embedded in the underground 40cm on May 6, 2014.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 March 19, 2015 to March 26, due to the collector problem, the data is missing; (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: 2015-6-10 10:30; (6) the naming rules are: AWS+ site name. The station was dismantled after April 12.
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, the artificial oasis experimental area in the middle reaches, Shenshawo desert station
Time：2015, 2015-01-01 to 2015-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：3.54MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.7892 | - |
| west：100.4933 | - | east：100.4933 |
| - | south：38.7892 | - |

5、Time frame:2015-01-09 00:00:00+00:00--2016-01-08 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 (automatic weather station of Shenshawo sandy desert station, 2015). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.326.2016.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.

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