A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (automatic weather station of Heihe remote sensing station, 2016)**

1、Description

This data set contains meteorological element observation data of heihe remote sensing station in the middle reaches of heihe hydrometeorological observation network from January 1, 2016 to December 31, 2016.The station is located in the east of dangzhai town, zhangye city, gansu province.The longitude and latitude of the observation point are 100.4756e, 38.8270n and 1560m above sea level.The air temperature and humidity sensor is located at 1.5m, facing due north.The barometer is in the waterproof box;The tilting bucket rain gauge is installed at 0.7 m;The wind speed and direction sensor is located at 10m, facing due north;The installation height of the four-component radiometer is 1.5m, facing due south;The installation height of the two infrared thermometers is 1.5m, facing due south and the probe facing vertically downward.The soil temperature probe is buried at 0cm on the surface and 2cm, 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm underground.The soil water probe was buried at 2cm, 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm.Average soil temperature probes were buried in 2cm and 4cm;The soil heat flow plate (3 pieces) is buried 6cm underground.Two photosynthetically active radiometers were set up 1.5m above the canopy (one probe vertically upwards and one probe vertically downwards), facing due south.
Observation projects are: air temperature and humidity (Ta\_1. 5 m, RH\_1. 5 m) (unit: c, percentage), pressure (Press) (unit: hundred mpa), precipitation (Rain) (unit: mm), wind speed (WS\_10m) (unit: m/s), wind (WD\_10m) (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\_80cm, Ts\_120cm, Ts\_160cm) (in:C), soil moisture (Ms\_0cm, Ms\_2cm, Ms\_4cm, Ms\_10cm, Ms\_20cm, Ms\_40cm, Ms\_80cm, Ms\_120cm, Ms\_160cm) (unit: %), upward and downward photosynthetically active radiation (PAR\_U\_up, PAR\_U\_down) (unit: micromole/sq.s), mean soil temperature (TCAV) (unit: Celsius).
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;2016.1.01-1.29 due to collector problems, many observation elements have more error values;(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: 2016-6-10-10:30;(6) the naming rule is: AWS+ site name.
For information of hydrometeorological network or station, please refer to Liu et al. (2018), and 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, Heihe station
Time：2016-01-01 to 2016-12-31, 2016

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：12.8MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.827 | - |
| west：100.4756 | - | east：100.4756 |
| - | south：38.827 | - |

5、Time frame:2016-01-08 00:00:00+00:00--2017-01-07 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 hydrometeorological observation network (automatic weather station of Heihe remote sensing station, 2016). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.458.2017.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

8、Data resource provider

name: XU Ziwei
unit: Beijing Normal University
email: xuzw@bnu.edu.cn

name: TAN Junlei
unit:
email: tanjunlei@163.com

name: REN Zhiguo
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
email:

name: LI Xin
unit:
email: xinli@itpcas.ac.cn

name: LIU Shaomin
unit: Beijing Normal University
email: smliu@bnu.edu.cn

name: CHE Tao
unit:
email: chetao@lzb.ac.cn