A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (automatic weather station of Zhangye wetland station, 2016)**

1、Description

The data set contains meteorological observation data of zhangye wetland station in the middle reaches of heihe hydrometeorological observation network from January 1, 2016 to December 31, 2016.The site is located in zhangye national wetland park in gansu province.The latitude and longitude of the observation point is 100.4464E, 38.9751N, and altitude is 1460m.Air temperature and relative humidity sensors are set up at 5m and 10m, facing due north.The barometer is installed at 2m;The inverted bucket rain gauge is installed at 10m;The wind speed sensor is set up at 5m and 10m, and the wind direction sensor is set up at 10m, facing due north.The four-component radiometer is installed at 6m, facing due south;The two infrared thermometers are installed at the position of 6m, facing south, and the probe is facing vertically downward.The soil temperature probe is buried at 0cm on the surface and 2cm, 4cm, 10cm, 20cm and 40cm underground, in the south due to 2m from the meteorological tower.The soil hot flow plates (3) are successively buried in the ground 6cm;Four photosynthetic radiometers are installed above and inside the canopy respectively. The upper part of the canopy is installed at 6m (one probe vertically up and one probe vertically down), and the upper part of the canopy is installed at 0.25m (one probe vertically up and one probe vertically down), facing due south.  
Observation items are: air temperature and humidity (Ta\_5m RH\_5m Ta\_10m, RH\_10m) (unit: c, percentage), pressure (Press) (unit: hundred mpa), precipitation (Rain) (unit: mm), wind speed (WS\_5m, 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:Degrees Celsius), soil heat flux (Gs\_1, Gs\_2, Gs\_3) (unit: watts per square meter), soil temperature (Ts\_0cm Ts\_2cm Ts\_4cm, Ts\_10cm, Ts\_20cm, Ts\_40cm) (unit: c), the canopy on the up and down photosynthetic active radiation (PAR\_U\_up, PAR\_U\_down) (unit: second micromoles/m2) and up and down under canopy photosynthetic active radiation (PAR\_D\_up, PAR\_D\_down) (unit: second micromoles/m2).  
Processing and quality control of observation data :(1) ensure 144 data per day (every 10min). If data is missing, it will be marked by -6999;(2) eliminate the moments with duplicate records;(3) data that is obviously beyond the physical meaning or the range of the instrument is deleted;(4) the part marked by red letter in the data is the data in question;(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 rule is: AWS+ site name.  
Please refer to Li et al. (2013) for hydrometeorological network or site information, and Liu et al. (2011) for observation data processing.

2、Keywords

Theme：Precipitation,Meteorological element  
Discipline：Atmosphere  
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches, Zhangye wetland station  
Time：2016-01-01 to 2016-12-31, 2016

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：10.8MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.9751 | - |
| west：100.4464 | - | east：100.4464 |
| - | south：38.9751 | - |

5、Time frame:2016-01-14 00:00:00+00:00--2017-01-13 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 Zhangye wetland station, 2016). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.465.2017.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