A Big Earth Data Platform for Three Poles

**Observation of water and heat flux in alpine meadow ecosystem —automatic weather station of E’bao station (2015-2016)**

1、Description

The data set contains the meteorological element observation data of ebao station in the upper reaches of heihe hydrometeorological observation network on January 1, 2015 and December 31, 2016.The station is located in ebao town, qilian county, qinghai province.The longitude and latitude of the observation point are 100.9151E, 37.9492N, and the altitude is 3294m.The air temperature and relative humidity sensor is set up at 5m, facing due north.The barometer is installed in the anti-skid box on the ground;The tipping bucket rain gauge is installed at 10m;The wind speed and direction sensor is mounted at 10m, facing due north;The four-component radiometer is installed at 6m, facing due south;Two infrared thermometers are installed at 6m, facing south, with the probe facing vertically downward;The soil temperature probe is buried at the surface of 0cm and underground of 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm, 2m south of the meteorological tower.The soil moisture probe is buried underground at 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm, 2m south of the meteorological tower.The soil heat flow plates (3 pieces) are successively buried 6cm underground, 2m south of the meteorological tower.
Observation projects are: air temperature and humidity (Ta\_5m, RH\_5m) (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) (unit: wattage/m2), soil temperature (Ts\_0cm, Ts\_4cm, Ts\_10cm, Ts\_20cm, Ts\_40cm, Ts\_80cm, Ts\_120cm, Ts\_160cm) (unit: water content by volume, percentage).
Processing and quality control of observation data :(1) 144 data per day (every 10min) should be ensured.The four-component radiation and infrared temperature were between October 11, 2015 and November 5, 2015.The instrument of the observation tower was re-adjusted between 11.1 and 11.5, and the data was missing;(2) eliminate the moments 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 letters in the data is questionable data;(5) the format of date and time is uniform, and the date and time are in the same column.For example, the time is: 2015-9-10 10:30;(6) naming rules: AWS+ site name.
For information of hydrometeorological network or site, please refer to Li et al. (2013), and for data processing, please refer to Liu et al. (2011).

2、Keywords

Theme：Soil,Precipitation,Radiation,Temperature,Surface air temperature,Winds,Precipitation amount,Soil temperature,Humidity/Dryness,Soil moisture/Water content,Soil heat flux
Discipline：Atmosphere,Terrestrial Surface
Places：Heihe River Basin, E’bao station, the cold region hydrology experimental area in the upper reaches
Time：2015-2016

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：28.9MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：37.9492 | - |
| west：100.9151 | - | east：100.9151 |
| - | south：37.9492 | - |

5、Time frame:2015-01-13 16:00:00+00:00--2016-10-12 16:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, LIU Shaomin, XU Ziwei, CHE Tao, ZHANG Yang. Observation of water and heat flux in alpine meadow ecosystem —automatic weather station of E’bao station (2015-2016). A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2704702019

References to articles:

Che, T., Li, X., Liu, S., Li, H., Xu, Z., Tan, J., Zhang, Y., Ren, Z., Xiao, L., Deng, J., Jin, R., Ma, M., Wang, J., & Yang, X. (2019). Integrated hydrometeorological, snow and frozen-ground observations in the alpine region of the Heihe River Basin, China. Earth System Science Data, 11, 1483-1499

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.

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.

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program

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: ZHANG Yang
unit:
email: zhangyang@lzb.ac.cn

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