A Big Earth Data Platform for Three Poles

**Observation of water and heat flux in alpine meadow ecosystem--automatic weather station of Yakou station（2015-2017）**

1、Description

This data set contains the data of meteorological elements observed in the pass station upstream of heihewen meteorological observation network on January 1, 2015 and December 31, 2015.The site is located in da dong shu pass, qilian county, qinghai province.The longitude and latitude of the observation point are 100.2421E, 38.0142N, and the altitude is 4148m.Data including two observation points, all in pass observatory, located about 10 m, a set of continuous observation in 2015 (30 min output), another set for September 18, 2015 in 10 m high pass new stations (10 min), specific include: air temperature, relative humidity sensors at 5 m, toward the north (two sets of observation, 10 min and 30 min output);The barometer is installed in the skid-proof box on the ground (two groups of observation, 10min and 30min output respectively);The tipping bucket rain gauge is installed at 10m;The wind speed and direction sensor is mounted at 10m, facing due north (two groups, 10min and 30min output respectively).The four-component radiometer consists of two observation points, one is installed at the meteorological tower 6m, facing due south (10min output), and the other is installed on the support 1.5m above the ground (30min output).Two infrared thermometers are installed at 6m, facing south, with the probe facing vertically downward;The soil temperature probe was buried at 0cm on the surface and 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm underground (the two groups were observed for 10min and 30min respectively).The soil moisture probe was buried in the ground at 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm (the two groups were observed for 10min and 30min respectively).The soil heat flow plate was buried 6cm underground (observed in two groups, 10min (3 heat flow plates) and 30min (2 heat flow plates)).  
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 or 48 data per day (every 10min or 30min) should be ensured.The four-component long-wave radiation output of 30min was between January 1, 2015 and January 1, 2015.The observation data was lost between 5.24 and 7.12 after 30min due to the collector problem.(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,Winds,Precipitation amount,Soil temperature,Humidity/Dryness,Soil moisture/Water content,Soil heat flux  
Discipline：Atmosphere,Terrestrial Surface  
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, Yakou station  
Time：2015-2017

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：33.6MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.0142 | - |
| west：100.2421 | - | east：100.2421 |
| - | south：38.0142 | - |

5、Time frame:2015-01-16 16:00:00+00:00--2018-01-15 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 Yakou station（2015-2017）. A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2702792019

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., Li, X., Xu, Z., Che, T., Xiao, Q., Ma, M., Liu, Q., Jin, R., Guo, J., Wang, L., Wang, W., Qi, Y., Li, H., Xu, T., Ran, Y., Hu, X., Shi, S., Zhu, Z., Tan, J., Zhang, Y., Ren, Z. (2018). The Heihe Integrated Observatory Network: A basin‐scale land surface processes observatory in China. Vadose Zone Journal, 17,180072. https://doi.org/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

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