A Big Earth Data Platform for Three Poles

**Qilian Mountains integrated observatory network: Cold and Arid Research Network of Lanzhou university (an observation system of Meteorological elements gradient of Liancheng Station, 2018)**

1、Description

This dataset includes data recorded by the Cold and Arid Research Network of Lanzhou university obtained from an observation system of Meteorological elements gradient of Liancheng Station from January 1 to December 31, 2018. The site (102.833E, 36.681N) was located on a forest in the Tulugou national forest park, which is near Liancheng city, Gansu Province. The elevation is 2912 m. The installation heights and orientations of different sensors and measured quantities were as follows: air temperature and humidity profile (4 and 8 m, towards north), wind speed and direction profile (windsonic; 4 and 8 m, towards north), air pressure (1.5 m), rain gauge (2 m), four-component radiometer (4 m, towards south),infrared temperature sensors (2 m, towards south, vertically downward), photosynthetically active radiation (4 m, towards south), soil heat flux (2 duplicates below the vegetation;-0.05 and -0.1m in south of tower), soil soil temperature/ moisture/ electrical conductivity profile (below the vegetation;-0.05 and -0.1m in south of tower), sunshine duration sensor(4 m, towards south).
The observations included the following: air temperature and humidity (Ta\_4 m and Ta\_8 m; RH\_4 m and RH\_8 m) (℃ and %, respectively), wind speed (Ws\_2 m, Ws\_4 m, and Ws\_8 m) (m/s), wind direction (WD\_2 m, WD\_4 m, and WD\_8 m) (°), air pressure (press) (hpa), precipitation (rain) (mm), four-component radiation (DR, incoming shortwave radiation; UR, outgoing shortwave radiation; DLR\_Cor, incoming longwave radiation; ULR\_Cor, outgoing longwave radiation; Rn, net radiation) (W/m^2), infrared temperature (IRT) (℃), photosynthetically active radiation (PAR) (μmol/ (s m-2)), soil heat flux (Gs\_5 cm, Gs\_10 cm) (W/m^2), soil temperature (Ts\_5 cm, Ts\_10 cm) (℃), soil moisture (Ms\_5 cm, Ms\_10 cm) (%, volumetric water content), soil water potential (SWP\_5cm,SWP\_10cm)(kpa), soil conductivity (EC\_5cm,EC\_10cm)(μs/cm), sun time (h).
The data processing and quality control steps were as follows: (1) The AWS data were averaged over intervals of 10 min for a total of 144 records per day. The soil heat flux data were wrong during Jan.1 to May 30 because of rodent damage; The data during May. 30 to July 6 were missing because the power supply failure; The air humidity data were rejected due to program error. (2) Data in duplicate records were rejected. (3) Unphysical data were rejected. (4) The data marked in red are problematic data. (5) The format of the date and time was unified, and the date and time were collected in the same column, for example, date and time: 2018-6-10 10:30.

2、Keywords

Theme：Desert,Vegetation
Discipline：Terrestrial Surface
Places：datong river valley
Time：2018

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：8.56MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：36.692 | - |
| west：102.737 | - | east：102.737 |
| - | south：36.692 | - |

5、Time frame:2018-01-07 08:00:00+00:00--2019-01-06 08:00:00+00:00

6、Reference method

References to data:

ZHANG Renyi, ZHAO Changming. Qilian Mountains integrated observatory network: Cold and Arid Research Network of Lanzhou university (an observation system of Meteorological elements gradient of Liancheng Station, 2018). A Big Earth Data Platform for Three Poles, doi:10.11888/Geogra.tpdc.2701652019

References to articles:

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: ZHAO Changming
unit: Lanzhou University
email: zhaochm@lzu.edu.cn

name: ZHANG Renyi
unit: Lanzhou University
email: zrenyi@lzu.edu.cn