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 Dunhuang 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 Dunhuang Station from January 1 to December 31, 2018. The site (93.708° E, 40.348° N) was located on a wetland in the Dunhuang west lake, Gansu Province. The elevation is 990 m. The installation heights and orientations of different sensors and measured quantities were as follows: air temperature and humidity profile (4m and 8 m, towards north), wind speed and direction profile (windsonic; 4m and 8 m, towards north), air pressure (1 m), rain gauge (4 m), infrared temperature sensors (4 m, towards south, vertically downward), soil heat flux (-0.05 and -0.1m ), soil soil temperature/ moisture/ electrical conductivity profile (below the vegetation in the south of tower, -0.05 and -0.2 m), photosynthetically active radiation (4 m, towards south), four-component radiometer (4 m, towards south), sunshine duration sensor(4 m, towards south).  
The observations included the following: air temperature and humidity (Ta\_4 m, Ta\_8 m; RH\_2 m, RH\_4 m, RH\_8 m) (℃ and %, respectively), wind speed (Ws\_4 m, Ws\_8 m) (m/s), wind direction (WD\_4 m, 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\_0.05m, Gs\_0.1m) (W/m^2), soil temperature (Ts\_0.05m, Ts\_0.2m) (℃), soil moisture (Ms\_0.05m, Ms\_0.2m) (%, volumetric water content), soil conductivity (Ec\_0.05m, Ec\_0.2m)(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 data were missing during Jan. 23 to Jan. 24 because of collector failure; the data during Mar. 17 and May 24 were wrong because of the tower body tilt; 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：Soil,Radiation,Sunshine,Earth SurFace Processes,Winds,Soil temperature,Wind direction,Humidity/Dryness,Pressure,Soil heat flux  
Discipline：Atmosphere,Terrestrial Surface  
Places：Shule River Basin, Dunhuang station  
Time：2018

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：10.1MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.348 | - |
| west：93.709 | - | east：93.709 |
| - | south：40.348 | - |

5、Time frame:2018-01-16 00:00:00+00:00--2019-01-15 00:00:00+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 Dunhuang Station, 2018). A Big Earth Data Platform for Three Poles, doi:10.11888/Geogra.tpdc.2701672019

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

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