A Big Earth Data Platform for Three Poles

**Qilian Mountains integrated observatory network: Dataset of Qinghai Lake integrated observatory network (an observation system of Meteorological elements gradient of the temperate steppe, 2021**

1、Description

This dataset includes data recorded by the Qinghai Lake integrated observatory network obtained from an observation system of Meteorological elements gradient from Janurary 1 to October 13 in 2021. The site (100°14'8.99"E, 37°14'49.00"N) was located in Sanjiaocheng sheep breeding farm, Gangcha County, Qinghai Province. The elevation is 3210m.The installation heights and orientations of different sensors and measured quantities were as follows: air temperature and humidity profile (HMP155; 3, 5, 10 m, towards north), wind speed and direction profile (windsonic; 3, 5, 10m, towards north), air pressure (PTB110; 3 m), rain gauge (TE525M; towards north), four-component radiometer (CNR4; 6m, towards south), two infrared temperature sensors (SI-111; 6 m, towards south, vertically downward), photosynthetically active radiation (PQS1; 6 m, towards south, each with one vertically downward and one vertically upward, soil heat flux (HFP01; 3 duplicates below the vegetation; -0.06 m), soil temperature profile (109; -0.05、-0.10、-0.20、-0.40、-0.80、-1.20、-2.00、-3.00 and -5.00m), soil moisture profile (CS616; -0.05、-0.10、-0.20、-0.40、-0.80、-1.20、-2.00、-3.00 and -5.00m).
The observations included the following: air temperature and humidity (Ta\_3 m, Ta\_5 m, Ta\_10 m; RH\_3 m, RH\_5 m, RH\_10 m) (℃ and %, respectively), wind speed (Ws\_3 m, Ws\_5 m, Ws\_10 m) (m/s), wind direction (WD\_3 m, WD\_5 m, WD\_10 m) (°), precipitation (rain) (mm), air pressure (press) (hpa), infrared temperature (IRT\_1 and IRT\_2) (℃), photosynthetically active radiation of upward and downward (PAR\_D\_up and PAR\_D\_down) (μmol/ (s m-2)), 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), soil heat flux (Gs\_1, Gs\_2, and Gs\_3) (W/m^2), soil temperature (Ts\_5cm、Ts\_10cm、Ts\_20cm、Ts\_40cm、Ts\_80cm、Ts\_120cm、Ts\_200cm、Ts\_300cm、Ts\_400cm) (℃), soil moisture (Ms\_5cm、Ms\_10cm、Ms\_20cm、Ms\_40cm、Ms\_80cm、Ms\_120cm、Ms\_200cm、Ms\_300cm、Ms\_400cm) (%, volumetric water content).
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 missing data were denoted by -6999. (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: 2018/8/31 10:30.

2、Keywords

Theme：Soil,Precipitation,Temperature,Soil water content,Winds,Temperature profiles,Soil temperature,Precipitation,wind speed
Discipline：Atmosphere,Terrestrial Surface
Places：Qinghai Lake Basin
Time：2021

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：14.7MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：37.25 | - |
| west：100.24 | - | east：100.24 |
| - | south：37.25 | - |

5、Time frame:2020-12-31 16:00:00+00:00--2021-10-12 16:00:00+00:00

6、Reference method

References to data:

Li Xiaoyan. Qilian Mountains integrated observatory network: Dataset of Qinghai Lake integrated observatory network (an observation system of Meteorological elements gradient of the temperate steppe, 2021. A Big Earth Data Platform for Three Poles, doi:10.11888/Atmos.tpdc.2726892022

References to articles:

Li, X.Y., Yang, X.F., Ma, Y.J., Hu, G.R., Hu, X., Wu, X.C., Wang, P., Huang, Y.M., Cui, B.L., & Wei, J.Q. (2018). Qinghai Lake Basin Critical Zone Observatory on the Qinghai-Tibet Plateau. Vadose Zone Journal, 17(1).

Li, X.Y., Ma, Y.J., Huang, Y.M., Hu, X., Wu, X.C., Wang, P., Li, G.Y., Zhang, S.Y., Wu, H.W., Jiang, Z.Y., Cui, B.L., & Liu, L. (2016). Evaporation and surface energy budget over the largest high-altitude saline lake on the Qinghai-Tibet Plateau. Journal of Geophysical Research: Atmospheres, 121(18), 10470-10485.

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program
the Strategic Priority Research Program of the Chinese Academy of Sciences

8、Data resource provider

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