A Big Earth Data Platform for Three Poles

**HiWATER: The multi-scale observation experiment on evapotranspiration over heterogeneous land surfaces 2012 (MUSOEXE-12)-dataset of flux observation matrix（Zhangye gobi desert station)**

1、Description

This dataset contains the automatic weather station (AWS) measurements from Bajitan Gobi station in the flux observation matrix from 13 May to 21 September, 2012. The site (100.30420° E, 38.91496° N) was located in a Gobi surface, which is near Zhangye city, Gansu Province. The elevation is 1562 m. The installation heights and orientations of different sensors and measured quantities were as follows: air temperature and humidity (HMP45AC; 5 m and 10 m, towards north), air pressure (PTB110; 2 m), rain gauge (TE525M; 10 m), wind speed (03001; 5 m and 10 m, towards north), wind direction (03001; 10 m, towards north), a four-component radiometer (CNR1; 6 m, towards south), two infrared temperature sensors (IRTC3; 6 m, vertically downward), soil temperature profile (AV-10T; 0, -0.02, -0.04, -0.1, -0.2, -0.4, -0.6, and -1.0 m), soil moisture profile (ECh2o-5; -0.02, -0.04, -0.1, -0.2, -0.4, -0.6, and -1.0 m), and soil heat flux (HFT3; 3 duplicates, 0.06 m).   
The observations included the following: air temperature and humidity (Ta\_5 m and Ta\_10 m, RH\_5 m and RH\_10 m) (℃ and %, respectively), air pressure (press, hpa), precipitation (rain, mm), wind speed (Ws\_5 m and Ws\_10 m, m/s), wind direction (WD\_10 m, °), 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\_1 and IR\_2, ℃), soil heat flux (Gs\_1, Gs\_2 and Gs\_3, W/m^2), soil temperature profile (Ts\_0 cm, Ts\_2 cm, Ts\_4 cm, Ts\_10 cm, Ts\_20 cm, Ts\_40 cm, Ts\_60 cm, and Ts\_100 cm, ℃), and soil moisture profile (Ms\_2 cm, Ms\_4 cm, Ms\_10 cm, Ms\_20 cm, Ms\_40 cm, Ms\_60 cm, and Ms\_100 cm, %).  
 The data processing and quality control steps were as follows. (1) The AWS data were averaged over intervals of 10 min; therefore, there were 144 records per day. The missing data were filled with -6999. (2) Data in duplicate records were rejected. (3) Unphysical data were rejected. (4) In this dataset, the time of 0:10 corresponds to the average data for the period between 0:00 and 0:10; the data were stored in \*.xlsx format. (5) Finally, the naming convention was AWS+ site no. Moreover, suspicious data were marked in red.  
For more information, please refer to Liu et al. (2016) (for multi-scale observation experiment or sites information), Xu et al. (2013) (for data processing) in the Citation section.

2、Keywords

Theme：Precipitation,Temperature,Precipitation amount,Humidity/Dryness,Air temperature  
Discipline：Atmosphere  
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches, flux observation matrix  
Time：2012, 2012-05-13 to 2012-09-21

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：3.15MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.91496 | - |
| west：100.3042 | - | east：100.3042 |
| - | south：38.91496 | - |

5、Time frame:2012-05-24 02:23:00+00:00--2012-10-02 02:23:00+00:00

6、Reference method

References to data:

LI Xin, LIU Shaomin, XU Ziwei. HiWATER: The multi-scale observation experiment on evapotranspiration over heterogeneous land surfaces 2012 (MUSOEXE-12)-dataset of flux observation matrix（Zhangye gobi desert station). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.076.2013.db2016

References to articles:

Liu, S.M., Xu, Z.W., Song, L.S., Zhao, Q.Y., Ge, Y., Xu, T.R., Ma, Y.F., Zhu, Z.L., Jia, Z.Z., Zhang, F. (2016). Upscaling evapotranspiration measurements from multi-site to the satellite pixel scale over heterogeneous land surfaces. Agricultural and Forest Meteorology, 230-231, 97-113. doi:10.1016/j.agrformet.2016.04.008.  
  
Xu, Z.W., Liu, S.M., Li, X., Shi, S.J., Wang, J.M., Zhu, Z.L., Xu, T.R., Wang, W.Z., & Ma, M.G. (2013). Intercomparison of surface energy flux measurement systems used during the HiWATER-MUSOEXE. Journal of Geophysical Research, 118, 13140-13157, doi:10.1002/2013JD020260.

7、Supporting project information

National Natural Science Foundation of China

8、Data resource provider

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