A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of Hydrometeorological observation network (an automatic weather station of Sidaoqiao populus forest station, 2013)**

1、Description

This dataset includes data recorded by the Hydrometeorological observation network obtained from the automatic weather station (AWS) at the observation system of Meteorological elements gradient of Sidaoqiao populus forest station between 10 July, 2013, and 31 December, 2013. The site (101.124° E, 41.993° N) was located on a populous and tamarix forest (Populus euphratica Olivier. and Tamarix chinensis Lour.) surface in the Sidaoqiao, Dalaihubu Town, Ejin Banner, Inner Mongolia Autonomous Region. The elevation is 876 m. The installation heights and orientations of different sensors and measured quantities were as follows: air temperature and humidity profile (HMP45AC; 28 m, north), wind speed profile (010C; 28 m, north), two four-component radiometer (CNR4; 6 m and 24 m, south), two infrared temperature sensors (SI-111; 24 m, south, vertically downward), two photosynthetically active radiation (PQS-1; 24 m, south, one vertically upward and one vertically downward), soil heat flux (HFP01; 3 duplicates, -0.06 m), and soil temperature profile (109ss-L; 0, -0.02 and -0.04 m).
The observations included the following: air temperature and humidity (Ta\_28 m; RH\_28 m) (℃ and %, respectively), wind speed (Ws\_28 m) (m/s), 24 m four-component radiation (DR\_1, incoming shortwave radiation; UR\_1, outgoing shortwave radiation; DLR\_Cor\_1, incoming longwave radiation; ULR\_Cor\_1, outgoing longwave radiation; Rn\_2, net radiation) (W/m^2), 6 m four-component radiation (DR\_2, incoming shortwave radiation; UR\_2, outgoing shortwave radiation; DLR\_Cor\_2, incoming longwave radiation; ULR\_Cor\_2, outgoing longwave radiation; Rn\_2, net radiation) (W/m^2), infrared temperature (IRT\_1 and IRT\_2) (℃), photosynthetically active radiation of upward and downward (PAR\_up and PAR\_down) (μmol/ (s m^-2)), soil heat flux (Gs\_1, Gs\_2 and Gs\_3) (W/m^2), and soil temperature (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) (℃).
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. Data during 16 July, 2013 and 17 July, 2013 were missing during the malfunction of datalogger. The soil heat flux (G3) was missing during 20 November, 2013 and 8 December, 2013 because the wire was break by the sheep. 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: 2013-9-10 10:30. (6) Finally, the naming convention was AWS+ site no. Moreover, suspicious data were marked in red.
For more information, please refer to Li et al. (2013) (for hydrometeorological observation network or sites information), Liu et al. (2011) (for data processing) in the Citation section.

2、Keywords

Theme：Precipitation,Meteorological element
Discipline：Atmosphere
Places：Heihe River Basin, populus forest station, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2013, 2013-07-10 to 2013-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：4.44MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：41.9932 | - |
| west：101.1239 | - | east：101.1239 |
| - | south：41.9932 | - |

5、Time frame:2013-07-20 16:00:00+00:00--2014-01-11 12:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, XU Ziwei, CHE Tao, REN Zhiguo. HiWATER: Dataset of Hydrometeorological observation network (an automatic weather station of Sidaoqiao populus forest station, 2013). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.183.2014.db2016

References to articles:

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.

Liu, S.M., Li, X., Xu, Z.W., Che, T., Xiao, Q., Ma, M.G., Liu, Q.H., Jin, R., Guo, J.W., Wang, L.X., Wang, W.Z., Qi, Y., Li, H.Y., Xu, T.R., Ran, Y.H., Hu, X.L., Shi, S.J., Zhu, Z.L., Tan, J.L., Zhang, Y., & Ren, Z.G. (2018). The Heihe Integrated Observatory Network: A Basin-Scale Land Surface Processes Observatory in China. Vadose Zone Journal, 17(1), 180072. doi:10.2136/vzj2018.04.0072.

7、Supporting project information

National Natural Science Foundation of China

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