A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (automatic weather station of Yakou station, 2016)**

1、Description

This data set contains meteorological observation data of meteorological elements from January 1, 2016 to December 31, 2016 on the haihewen meteorological observation network in yaokou station.The station is located in da dong shu pass, qilian county, qinghai province.The latitude and longitude of the observation point are 100.2421E, 38.0142N, and 4148m above sea level.The published data included two observation points, both of which were in the observation station of mountain pass, about 10m apart. Specifically, the air temperature and relative humidity sensors were set up at 5m, facing due north (the two observation groups output 10min and 30min respectively).The barometer is installed in an anti-skid box on the ground (two groups of observation, 10min and 30min output respectively);The inverted bucket rain gauge is installed at 10m;The wind speed and direction sensor is set at 10m, facing due north (two groups, respectively 10min and 30min output);The four-component radiometer consists of two observation points, one of which is installed at the 6m position of the weather tower, facing due south (10min output), and the other is installed on a support 1.5m above the ground (30min output).The two infrared thermometers are installed at the position of 6m, facing south, and the probe is facing vertically downward.The soil temperature probe was buried at 0cm on the surface and 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm underground (the two groups were observed and output for 10min and 30min respectively).The soil moisture probes were buried in the ground at 4cm, 10cm, 20cm, 40cm, 80cm, 120cm and 160cm (the two groups were observed and output for 10min and 30min respectively).The soil heat flux plates were buried 6cm underground (observed in two groups for 10min (3 heat flux plates) and 30min (2 heat flux plates) respectively).
Observation items are: air temperature and humidity (Ta\_5m, RH\_5m) (unit: c, percentage), pressure (Press) (unit: hundred mpa), precipitation (Rain) (unit: mm), wind speed (WS\_10m) (unit: m/s), wind (WD\_10m) (unit: degrees), the radiation of four component (DR, UR, DLR\_Cor, ULR\_Cor, Rn) (unit: watts per square meter), the surface radiation temperature (IRT\_1, IRT\_2) (unit:C), soil heat flux (Gs\_1, Gs\_2, Gs\_3) (unit: watts/m2), soil temperature (Ts\_0cm, Ts\_4cm, Ts\_10cm, Ts\_20cm, Ts\_40cm, Ts\_80cm, Ts\_120cm, Ts\_160cm) (unit: Celsius), soil moisture (Ms\_4cm, Ms\_10cm, Ms\_20cm, Ms\_40cm, Ms\_40cm, Ms\_80cm, Ms\_120cm, Ms\_160cm) (unit: volume water content, percentage).
Processing and quality control of observation data :(1) ensure 144 or 48 data per day (every 10min or 30min). If data is missing, it will be marked by -6999;(2) eliminate the moments with duplicate records;(3) data that is obviously beyond the physical meaning or the range of the instrument is deleted;(4) the part marked by red letter in the data is the data in question;(5) the format of date and time is uniform, and the date and time are in the same column.For example, the time is: 10:30 on 10th September 2016;(6) the naming rule is: AWS+ site name.
Please refer to Liu et al. (2018) for hydrometeorological network or site information, and Liu et al. (2011) for observation data processing.

2、Keywords

Theme：Precipitation,Meteorological element
Discipline：Atmosphere
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, Yakou station
Time：2016-01-01 to 2016-12-31, 2016

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：15.2MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.0142 | - |
| west：100.2421 | - | east：100.2421 |
| - | south：38.0142 | - |

5、Time frame:2016-01-13 00:00:00+00:00--2017-01-12 00:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, LIU Shaomin, XU Ziwei, CHE Tao, ZHANG Yang. HiWATER: Dataset of hydrometeorological observation network (automatic weather station of Yakou station, 2016). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.464.2017.db2017

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.

Che, T., Li, X., Liu, S., Li, H., Xu, Z., Tan, J., Zhang, Y., Ren, Z., Xiao, L., Deng, J., Jin, R., Ma, M., Wang, J., & Yang, X. (2019). Integrated hydrometeorological, snow and frozen-ground observations in the alpine region of the Heihe River Basin, China. Earth System Science Data, 11, 1483-1499

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