A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (eddy covariance system of Dashalong station, 2017)**

1、Description

This data set contains the eddy correlation-meter observation data from January 1, 2017 to December 31, 2017 at the upper reaches of the heihe hydrometeorological observation network.The station is located in qilian county, qinghai province.The longitude and latitude of the observation point are 98.9406e, 38.8399N and 3739 m above sea level.The frame of the vortex correlator is 4.5m high, the sampling frequency is 10Hz, the ultrasonic orientation is due north, and the distance between the ultrasonic wind speed and temperature meter (CSAT3) and CO2/H2O analyzer (Li7500, replaced with Li7500RS in April 2017) is 15cm.
The original observation data of the vortex correlativity instrument is 10Hz, and the published data is the 30-minute data processed by Eddypro software. The main processing steps include: outliers, delay time correction, coordinate rotation (quadratic coordinate rotation), frequency response correction, ultrasonic virtual temperature correction and density (WPL) correction.Quality assessment for each intercompared to at the same time, mainly is the atmospheric stability (Δ st) and turbulent characteristics of similarity (ITC) test.The 30min pass value output by Eddypro software was also screened :(1) data when instrument error was eliminated;(2) data of 1h before and after precipitation are excluded;(3) remove the data with a missing rate of more than 10% in the original 10Hz data within every 30 minutes;(4) the observation data of weak turbulence at night (u\* less than 0.1m/s) were excluded.The average observation period was 30 minutes, 48 data per day, and the missing data was marked as -6999.Suspicious data caused by instrument drift, etc., shall be marked in red font.The eddy current system Li7500 was calibrated from April 13 to 15, and the collector's data storage problem occurred from July 8 to 12, resulting in missing data.When 10Hz data is missing due to a problem with the memory card storage data, the data is replaced by the 30min flux data output by the collector.
The published observational data include:Date/Time for the Date/Time, wind Wdir (°), Wnd horizontal wind speed (m/s), standard deviation Std\_Uy lateral wind speed (m/s), ultrasonic virtual temperature Tv (℃), the water vapor density H2O (g/m3), carbon dioxide concentration CO2 (mg/m3), friction velocity Ustar) (m/s), Mr. Hoff length L (m), sensible heat flux Hs (W/m2), latent heat flux LE (W/m2), carbon dioxide flux Fc (mg/(m2s)), the quality of the sensible heat flux identifier QA\_Hs, the quality of the latent heat flux identifier QA\_LE,Quality indicator for co2 flux QA\_Fc.The quality of the sensible heat and latent heat, carbon dioxide flux identification is divided into three (quality id 0: (Δ st < 30, the ITC < 30);1: (Δ st < 100, ITC < 100);The rest is 2).The meaning of data time, such as 0:30 represents the average of 0:00-0:30;The data is stored in \*.xls format.
For information of hydrometeorological network or station, please refer to Liu et al. (2018), and for observation data processing, please refer to Liu et al. (2011).

2、Keywords

Theme：Latent heat flux,Radiation,Carbon dioxide flux,Sensible heat flux
Discipline：Atmosphere
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, Dashalong station
Time：2017-01-27 to 2017-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：2.66MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.8399 | - |
| west：98.9406 | - | east：98.9406 |
| - | south：38.8399 | - |

5、Time frame:2017-02-07 16:00:00+00:00--2018-01-11 16:00:00+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 (eddy covariance system of Dashalong station, 2017). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.7.2018.db2018

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

7、Supporting project information

8、Data resource provider

name: XU Ziwei
unit: Beijing Normal University
email: xuzw@bnu.edu.cn

name: TAN Junlei
unit:
email: tanjunlei@163.com

name: ZHANG Yang
unit:
email: zhangyang@lzb.ac.cn

name: LI Xin
unit:
email: xinli@itpcas.ac.cn

name: LIU Shaomin
unit: Beijing Normal University
email: smliu@bnu.edu.cn

name: CHE Tao
unit:
email: chetao@lzb.ac.cn