A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (eddy covariance system of Zhangye wetland Station, 2016)**

1、Description

This data set contains the vortex correlator observation data of zhangye wetland station in the middle reaches of heihe hydrometeorological observation network from March 18, 2016 to December 31, 2016.The site is located in zhangye city, gansu province.The latitude and longitude of the observation point is 100.44640E, 38.97514N, and the altitude is 1460.00m.The height of the vortex correlation instrument is 5.2m, the sampling frequency is 10Hz, the ultrasonic direction is due to the north, and the distance between the ultrasonic wind speed and temperature instrument (Gill) and the CO2/H2O analyzer (Li7500A) is 25cm.
The original observation data of vorticity correlativity is 10Hz, and the released data is the data of 30 minutes processed by Eddypro software. The main steps of its processing include: outfield value elimination, delay time correction, Angle correction, coordinate rotation (secondary 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.(2) data of 1h before and after precipitation were excluded;(3) the missing rate of 10Hz original data is more than 10% every 30min;(4) the observed data of weak turbulence at night were excluded (u\* less than 0.1m/s).The average period of observation data was 30 minutes, 48 data a day, and the missing data was marked as -6999.The suspicious data caused by instrument drift and other reasons are marked in red. Among them, the three-dimensional ultrasonic discontinuity of the vortex system from April to June 2016 has some problems, and some data are missing.
Observations published 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,Carbon dioxide flux mass identification 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 are 2).The meaning of data time, such as 0:30 represents the average between 0:00 and 0:30;The data is stored in \*.xls format.
Please refer to Li et al. (2013) for hydrometeorological network or site information, and Liu et al. (2011) for observation data processing.

2、Keywords

Theme：Latent heat flux,Radiation,Carbon dioxide flux,Sensible heat flux
Discipline：Atmosphere
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches, Zhangye wetland station
Time：2016-03-18 to 2016-12-31, 2016

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：2.04MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.97514 | - |
| west：100.4464 | - | east：100.4464 |
| - | south：38.97514 | - |

5、Time frame:2016-03-27 00:00:00+00:00--2017-01-09 00:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, LIU Shaomin, XU Ziwei, CHE Tao, REN Zhiguo. HiWATER: Dataset of hydrometeorological observation network (eddy covariance system of Zhangye wetland Station, 2016). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.453.2017.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.

7、Supporting project information

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