A Big Earth Data Platform for Three Poles

**Cold and Arid Research Network of Lanzhou university (eddy covariance system of Minqin station, 2020)**

1、Description

The data set contains the observation data of vortex correlator at Minqin station of cold and arid area scientific observation network of Lanzhou University from January 1, 2020 to December 31, 2020. The station is located in Minqin County, Wuwei City, Gansu Province, between Badain Jaran Desert and Tengger Desert in Western China. The longitude and latitude of the observation point are 103.668e, 39.208n and 1020m above sea level. The frame height of eddy correlator is 4m, the sampling frequency is 10Hz, the ultrasonic direction is due north, and the distance between ultrasonic anemometer (csat3) and CO2 / H2O analyzer (li7500a) is 17cm.  
The original observation data of eddy correlator is 10Hz, and the released data is the 30 minute data processed by eddypro software. The main processing steps include: field value elimination, delay time correction, coordinate rotation (quadratic coordinate rotation), frequency response correction, ultrasonic virtual temperature correction and density (WPL) correction. At the same time, the quality of each flux value is evaluated, mainly the atmospheric stability（ Δ St) and turbulence similarity characteristics (ITC). The 30min flux value output by eddypro software is also screened: (1) eliminate the data when the instrument is wrong; (2) Eliminate the data with a loss rate of more than 10% every 30min in the 10Hz original data. The average period of observation data is 30 minutes, 48 data a day, and the missing data is marked as - 6999.  
The published observation data include: date / time, wind direction WDIR (°), horizontal wind speed wnd (M / s), standard deviation of lateral wind speed STD\_ Uy (M / s), ultrasonic virtual temperature TV (℃), water vapor density H2O (g / m3), carbon dioxide concentration CO2 (mg / m3), friction velocity ustar (M / s), Obukhov length L (m), sensible heat flux HS (w / m2), latent heat flux Le (w / m2), carbon dioxide flux FC (mg / (M2S)), quality identification QA of sensible heat flux\_ HS, quality identification of latent heat flux QA\_ Le, quality identification QA of carbon dioxide flux\_ Fc。 The quality identification of sensible heat, latent heat and carbon dioxide flux is divided into nine levels (quality identification 1-3 has good data quality, 4-6 has good data quality, 7-8 has poor data quality (better than interpolated data), and 9 has poor data quality). The meaning of data time, for example, 0:30 represents the average of 0:00-0:30; The data is stored in \*. XLS format.

2、Keywords

Theme：Radiation,Carbon dioxide flux  
Discipline：Atmosphere  
Places：Shiyang River Basin, Minqin  
Time：2020

3、Data details

1.Scale：None

2.Projection：

3.Filesize：3.19MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：39.208 | - |
| west：103.668 | - | east：103.668 |
| - | south：39.208 | - |

5、Time frame:2019-12-31 16:00:00+00:00--2020-12-30 16:00:00+00:00

6、Reference method

References to data:

ZHANG Renyi, ZHAO Changming. Cold and Arid Research Network of Lanzhou university (eddy covariance system of Minqin station, 2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2714782021

References to articles:

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program

8、Data resource provider

name: ZHAO Changming  
unit: Lanzhou University  
email: zhaochm@lzu.edu.cn  
  
name: ZHANG Renyi  
unit: Lanzhou University  
email: zrenyi@lzu.edu.cn