A Big Earth Data Platform for Three Poles

**WATER: Dataset of eddy covariance observations at the A'rou freeze/thaw observation station**

1、Description

The dataset of eddy covariance observations was obtained at the A'rou freeze/thaw observation station from Jul. 14, 2008 to Dec. 31, 2010, in Wawangtan pasture (E100°28′/N38°03′, 3032.8m), Daban, A'rou. The experimental area with a flat and open terrain slightly sloping from southeast to northwest and hills and mountains stretching outwards is an ideal horizontal homogeneous underlying surface.   
 The original observation items included the latitudinal wind speed Ux (m/s), the latitudinal wind speed Uy (m/s), the longitudinal wind speed Uz (m/s), the ultrasonic temperature Ts (°C), co2 consistency (mg/m^3), h2o consistency (g/m^3), air pressure (KPa) and the abnormal ultrasonic signal (diag\_csat). The instrument height was 2.81m, the ultrasound direction was at an azimuth angle of 0°, the distance between Li7500 and CSAT3 was 30m and sampling frequency was 10HZ/s. The instrument mount was 3.15m, the ultrasound direction was at an azimuth angle of 86°, the distance between Li7500 and CSAT3 was 22cm and sampling frequency was 10HZ/s.  
 The dataset was released at three levels: Level0 were the raw data acquired by instruments; Level1, including the sensible heat flux (Hs), the latent heat flux (LE\_wpl), and co2 flux (Fc\_wpl), were real-time eddy covariance output data and stored in .csv month by month; Level2 were processed data in a 30-minute cycle after outliers elimination, coordinates rotation, frequency response correction, WPL correction and initial quality control. The data were named as follows: station name +data level+data acquisition date. As for detailed information, please refer to Meteorological and Hydrological Flux Data Guide and Eddy Covariance Observation Manual.

2、Keywords

Theme：Latent heat flux,Radiation,Greenhouse Gases,Carbon dioxide flux  
Discipline：Atmosphere  
Places：Heihe River Basin, the cold region hydrology experimental area in the upper reaches, A'rou flight zone,   
Time：

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：46.2MB

4.Data format：

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.04 | - |
| west：100.46 | - | east：100.46 |
| - | south：38.04 | - |

5、Time frame:2008-07-29 08:00:00+00:00--2012-05-15 08:00:00+00:00

6、Reference method

References to data:

TAN Junlei. WATER: Dataset of eddy covariance observations at the A'rou freeze/thaw observation station. A Big Earth Data Platform for Three Poles, doi:10.3972/water973.0282.db2015

References to articles:

Li, X., Li, X.W., Li, Z.Y., Ma, M.G., Wang, J., Xiao, Q., Liu, Q., Che, T., Chen, E.X., Yan, G.J., Hu, Z.Y., Zhang, L.X., Chu, R.Z., Su, P.X., Liu, Q.H., Liu, S.M., Wang, J.D., Niu, Z., Chen, Y., Jin, R., Wang, W.Z., Ran, Y.H., Xin, X.Z., Ren, H.Z. (2009). Watershed Allied Telemetry Experimental Research. Journal of Geophysical Research, 114(D22103), doi:10.1029/2008JD011590.  
  
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

The CAS (Chinese Academy of Sciences) Action Plan for West Development Project  
National Program on Key Basic Research Project (973 Program

8、Data resource provider

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