A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (large aperture scintillometer of Sidaoqiao Superstation, 2014)**

1、Description

The data set contains the flux observation data of scintillator with large aperture from sidaoqiao station downstream of heihe hydrometeorological observation network.There are two groups of large aperture scintillators at the downstream sidaoqiao station.On the east side (point 1), there is a large aperture scintillator of model BLS900. The north tower is the receiving end and the south tower is the transmitting end. The observation period of BLS900\_1 is from March 13, 2014 to December 31, 2014.On the west side (no. 2 point), there is a large aperture scintillator of BLS900 model. The north tower is the receiving end and the south tower is the transmitting end, and the observation time of BLS900\_2 is from January 1, 2014 to November 8, 2014.The station is located in ejin banner of Inner Mongolia, the underlying surface involves tamarisk, populus populus, bare land and cultivated land.The latitude and longitude of the north tower of point 1 is 101.147e, 42.005n, and that of the south tower is 101.131e, 41.987n.The latitude and longitude of the north tower at point 2 is 101.137e, 42.008n, and the latitude and longitude of the south tower is 101.121e, 41.990 N, with an altitude of about 873m.The effective height of the large aperture scintillation instrument is 25.5m, the diameter length of LAS at point 1 is 2390m, and that of LAS at point 2 is 2380m, and the sampling frequency is 1min.
Large aperture flicker meter raw observation data for 1 min, data released for 30 min after processing and quality control of data, including sensible heat flux is mainly combined with the automatic meteorological station observation data, based on similarity theory alonzo mourning - Mr. Hoff is obtained by iterative calculation, the quality control of the main steps include: (1) excluding Cn2 reach saturation data (BLS900\_1: Cn2 > 7.25 e-14, BLS900\_2: Cn2 > 7.33 E - 14).(2) data with weak demodulation signal strength (Average X Intensity<1000) were eliminated;(3) data at the time of precipitation were excluded;(4) data of weak turbulence under stable conditions were excluded (u\* < 0.1m/s).In the iterative calculation process, for BLS900, the stability universal function of Thiermann and Grassl, 1992 was selected.Please refer to Liu et al.(2011, 2013) for detailed introduction.
Some notes on the released data :(1) the data of LAS point 1 in the downstream is mainly BLS900\_1, and the missing moment is marked by -6999;LAS data of downstream point 2 is mainly BLS900\_2, and the missing moment is marked by -6999.(2) data table head: Date/Time: Date/Time (format: yyyy-m-d h:mm), Cn2: structural parameters of air refraction index (unit: m-2/3), H\_LAS: sensible heat flux (unit: W/m2).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：Radiation,Sensible heat flux
Discipline：Atmosphere
Places：Heihe River Basin, Sidaoqiao superstation, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2014, 2014-01-01 to 2014-11-08, 2014-03-13 to 2014-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：0.96MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.005 | - |
| west：101.147 | - | east：101.147 |
| - | south：42.005 | - |

5、Time frame:2014-03-24 08:00:00+00:00--2015-01-11 08:00:00+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 (large aperture scintillometer of Sidaoqiao Superstation, 2014). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.225.2015.db2016

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

National Natural Science Foundation of China

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