A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (large aperture scintillometer of Sidaoqiao superstation, 2015)**

1、Description

The data set contains the flux observation data of scintillator with large aperture from sidaoqiao station downstream of heihe hydrometeorological observation network.Two groups of LAS (BLS900\_1 and BLS900\_2) were along the northeast to southwest direction, with an effective height of 25.5m and a light diameter length of 2390m and 2380m, respectively. The observation time was from January 1 to April 24, 2015 and from February 11 to December 31, 2015, respectively.On April 25, 2015, LAS (bls900-1 dismantled, bls900-2 placed in the original BLS900\_1 transmitting tower and BLS900\_2 receiving tower) were adjusted into a group, with an effective height of 25.5m and a light diameter length of 2350m.The site is located in ejin banner, Inner Mongolia, with tamarix chinensis, populus populus, bare land and cultivated land under it.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 sampling frequency of large aperture scintillator is 1min.
Large aperture flicker meter raw observation data for 1 min, published data 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, adjusted BLS900: Cn2 > 7.58 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).During the iterative calculation, 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) during the simultaneous observation of two LAS, LAS data at downstream point 1 is mainly BLS900\_1, and the missing time is marked by -6999;LAS data of downstream point 2 is mainly BLS900\_2, and the missing moment is marked by -6999.After April 25, the downstream LAS data was observed as BLS900\_2, and the missing time was 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：2015, 2015-01-01 to 2015-04-24, 2015-02-11 to 2015-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：0.64MB

4.Data format：文本

4、Space scope

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

5、Time frame:2015-01-10 16:00:00+00:00--2015-05-03 16:00:00+00:00

6、Reference method

References to data:

TAN Junlei, LI Xin, XU Ziwei, CHE Tao, REN Zhiguo. HiWATER: Dataset of hydrometeorological observation network (large aperture scintillometer of Sidaoqiao superstation, 2015). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.329.2016.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

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: REN Zhiguo
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences
email:

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

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