A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (large aperture scintillometer of Daman superstation, 2017)**

1、Description

The data set contains the flux observation data of large aperture scintillator from daman station in the middle reaches of heihe hydrometeorological observation network.Large aperture scintillators of BLS450 and BLS900 models were installed at daman station in the middle reaches of China. The north tower was the receiving end of BLS900 and the transmitting end of BLS450, and the south tower was the transmitting end and the receiving end of BLS900.The observation period is from January 1, 2017 to December 31, 2017.The station is located in dazman irrigation district, zhangye city, gansu province.The latitude and longitude of the north tower is 100.3785 E, 38.8607 N, and the latitude and longitude of the south tower is 100.3685 E, 38.8468 N, with an altitude of about 1556m.The effective height of the large aperture scintillator is 22.45m, the optical diameter length is 1854m, and the sampling frequency is 1min.
Large aperture flicker meter raw observation data for 1 min, data released for 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 (Cn2 e-13 > 1.43);(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, the stability universal function of Thiermann and Grassl(1992) was selected. Please refer to Liu et al(2011, 2013) for detailed introduction.Due to instrument failure, data of large aperture scintillator was missing from June 6 to July 2, 2017.
Some notes on the released data :(1) the middle LAS data is mainly BLS900, the missing time is supplemented by BLS450 observation, and the missing time of both is marked with -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, the artificial oasis experimental area in the middle reaches, Daman Superstation
Time：2017, 2017-01-01 to 2017-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：0.64MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.861 | - |
| west：100.379 | - | east：100.379 |
| - | south：38.861 | - |

5、Time frame:2017-01-12 08:00:00+00:00--2018-01-11 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 Daman superstation, 2017). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.4.2018.db2018

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: LIU Shaomin
unit: Beijing Normal University
email: smliu@bnu.edu.cn

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