A Big Earth Data Platform for Three Poles

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

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.The large aperture scintiometer of German BLS450\_NQ and Dutch Kipp&zonen models has been installed at the dameng station in the middle reaches. The north tower is the receiving end of Kipp&zonen and the transmitting end of BLS450\_NQ, and the south tower is the transmitting end of Kipp&zonen and the receiving end of BLS450\_NQ.The observation period of BLS450\_NQ is from January 1, 2014 to December 31, 2014, and the observation period of Kipp&zonen is from January 1, 2014 to March 1, 2014.The station is located in dazman irrigation district, zhangye city, gansu province. The underlying surface involves corn, orchards and greenhouses, but mainly corn.The latitude and longitude of the north tower is 100.379 E, 38.861 N, and the latitude and longitude of the south tower is 100.369 E, 38.847 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 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 (BLS450\_NQ: Cn2 > 1.43 e-13, Kipp&zonen: Cn2 e-13 > 1.54);(2) data with weak demodulation signal strength were eliminated (BLS450\_NQ: Mininum X<50, Kipp&zonen: Demod>-20mv);(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 BLS450\_NQ, the stability universal function of Thiermann and Grassl, 1992 was selected.For Kipp&zonen, take Andreas 1988's stability universal function.Please refer to Liu et al.(2011, 2013) for detailed introduction.  
Some notes on the released data :(1) the data of mid-range LAS is mainly BLS450\_NQ, the missing moment is supplemented by Kipp&zonen observation, and the missing of both is marked by -6999.(2) missing period: on June 21, 2014, solstice, 27, due to the lack of data from the automatic meteorological station, the sensible heat flux H\_LAS observed at LAS during this period could not be calculated;On June 29, 2014, solstice on July 2, July 21, solstice 22, September 24, solstice 25, and December 21, solstice 30, data was missing due to LAS instrument failure.(3) 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：2014, 2014-01-01 to 2014-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：0.51MB

4.Data format：文本

4、Space scope

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

5、Time frame:2014-01-09 16:00:00+00:00--2015-01-08 16:00:00+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, 2014). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.226.2015.db2016

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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

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8、Data resource provider

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