A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of hydrometeorological observation network (thermal dissipation sap flow velocity probe, 2015)**

1、Description

The data set contains the data of thermal diffusion fluid flow meter in the hydrometeorological observation network from January 1 to December 31, 2015. The study area is located in huyang forest, ejin banner, alxa league, lower reaches of heihe, Inner Mongolia autonomous region.According to the different height and diameter at breast height of iminqak, choose install Thermal diffusion flow meter sample tree (Thermal Dissipation SAP flow velocity Probe, TDP), domestic TDP pin type Thermal diffusion plant flow meter, model for TDP30.The TDP1 point and TDP2 point of sample plots were set in the vicinity of mixed forest station and populus populus station, respectively.Sample tree height from high to low in turn for TDP2 (16.4 meters, 18.3 meters, 16.9 meters), TDP1 (12.5 meters, 13 meters, 14 meters), diameter at breast height order from large to small is TDP1 (48 cm, 41.6 cm, 46.6 cm), TDP2 (33.8 cm, 38.5 cm, 42.3 cm), density of TDP1 respectively (0.0158 per square meter) tree, TDP2 (0.0116 per square meter), to represent the whole area of populus euphratica transpiration measurement.Two sets of probes are installed in each sample tree, with a height of 1.3 meters and a direction of east and west of the sample tree.
The original observation data of TDP is the temperature difference between the probes, and the collection frequency is 10s, with an average output of 10 minutes.The published data are calculated and processed trunk flow data, including flow rate V (cm/h), flux Fs (cm3/h) and daily transpiration Q (mm/d) per 10 minutes.Firstly, the liquid flow rate and liquid flux were calculated according to the temperature difference between the probes, and then the transpiration Q per unit area of the forest zone was calculated according to the area of Euphrates poplar forest and the distance between trees at the observation points.At the same time, post-processing was carried out on the calculated rate and flux value :(1) data that obviously exceeded the physical significance or the instrument range were removed;(2) the missing data is marked with -6999;(3) suspicious data caused by probe fault or other reasons shall be identified in red, and the data confirmed to have problems shall be removed.
Please refer to Li et al. (2013) for hydrometeorological network or site information, and Qiao et al. (2015) for observation data processing.

2、Keywords

Theme：Vegetation,Evapotranspiration,Thermal dissipation sap flow velocity probe（TDP）
Discipline：Terrestrial Surface
Places：Heihe River Basin, the natural oasis eco-hydrology experimental area in the lower reaches
Time：2015, 2015-01-01 to 2015-12-31

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：15.26MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：41.99 | - |
| west：101.1346 | - | east：101.1346 |
| - | south：41.99 | - |

5、Time frame:2015-01-08 08:00:00+00:00--2016-01-07 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 (thermal dissipation sap flow velocity probe, 2015). A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.331.2016.db2016

References to articles:

Liu SM, Li X, Xu ZW, Che T, Xiao Q, Ma MG, Liu QH, Jin R, Guo JW, Wang LX, Wang WZ, Qi Y, Li HY, Xu TR, Ran YH, Hu XL, Shi SJ, Zhu ZL, Tan JL, Zhang Y, Ren ZG. The Heihe Integrated Observatory Network: A basin-scale land surface processes observatory in China. Vadose Zone Journal, 2018, 17:180072. doi:10.2136/vzj2018.04.0072.

Li X, Cheng GD, Liu SM, Xiao Q, Ma MG, Jin R, Che T, Liu QH, Wang WZ, Qi Y, Wen JG, Li HY, Zhu GF, Guo JW, Ran YH, Wang SG, Zhu ZL, Zhou J, Hu XL, Xu ZW. Heihe Watershed Allied Telemetry Experimental Research (HiWATER): Scientific objectives and experimental design. Bulletin of the American Meteorological Society, 2013, 94(8): 1145-1160, 10.1175/BAMS-D-12-00154.1.

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