A Big Earth Data Platform for Three Poles

**The development of devices monitoring ecosystem energy and water flux: Sap flow gauge (2019-2020)**

1、Description

The data set contains the plant liquid flow meter data (101.1346 ° e, 41.9900 ° n) of the mixed forest station in the surface process comprehensive observation network of Heihe River Basin from October 20, 2019 to December 7, 2020. The study area is located in the Populus euphratica forest in Ejina Banner, Alashan League, inner Mongolia Autonomous Region, at an altitude of 874m. According to different heights and DBH of Populus euphratica forest, sample trees are selected to install the developed plant liquid flow instrument. Each sample tree is installed with two groups, with a height of 1.3m.
The original observation data of the plant liquidometer is the temperature difference between the probes, and the time is 10 minutes. The published data is the temperature difference data delta every 10 minutes\_ T (℃), liquid flow rate V (cm / h) and daily transpiration t (mm / D). Firstly, the liquid flow rate and liquid flow volume are calculated according to the temperature difference between the probes, and then the transpiration t is calculated according to the Populus euphratica forest area and tree spacing at the observation point. At the same time, the post-processing of the calculated rate and flux values: (1) eliminate the data obviously beyond the physical meaning or beyond the instrument range; (2) Missing data are marked with - 6999; (3) Suspicious data caused by probe failure and other reasons shall be identified in red font, and the data confirmed to be problematic shall be eliminated.
Please refer to Liu et al. (2018) for site information and Qiao et al. (2015) for observation data processing.

2、Keywords

Theme：Evaporation capacity,Hydrology
Discipline：Terrestrial Surface
Places：the natural oasis eco-hydrology experimental area in the lower reaches, The Lower Reaches of Heihe River Basin,
Time：2020

3、Data details

1.Scale：None

2.Projection：

3.Filesize：1.46MB

4.Data format：None

4、Space scope

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

5、Time frame:2019-10-19 16:00:00+00:00--2020-12-06 16:00:00+00:00

6、Reference method

References to data:

LIU Shaomin, XU Ziwei, SHI Shengjin. The development of devices monitoring ecosystem energy and water flux: Sap flow gauge (2019-2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Hydro.tpdc.2717942021

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Su, P.X., Yan, Q.D., Xie, T.T., Zhou,Z.J., & Gao, S. (2012). Associated growth of C3 and C4 desert plants helps the C3 species at the cost of the C4 species. Acta Physiologiae Plantarum, 34(6), 2057-2068.

Liu, S., Li, X., Xu, Z., Che, T., Xiao, Q., Ma, M., Liu, Q., Jin, R., Guo, J., Wang, L., Wang, W., Qi, Y., Li, H., Xu, T., Ran, Y., Hu, X., Shi, S., Zhu, Z., Tan, J., Zhang, Y., Ren, Z. (2018). The Heihe Integrated Observatory Network: A basin‐scale land surface processes observatory in China. Vadose Zone Journal, 17,180072. https://doi.org/10.2136/vzj2018.04.0072.

7、Supporting project information

The development of devices monitoring ecosystem energy and water flux

8、Data resource provider

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