A Big Earth Data Platform for Three Poles

**HiWATER: Dataset of surface temperature of orchard in the midstream of the Heihe River Basin**

1、Description

A land surface temperature observation system was set up in apple orchard near by the No.17 eddy covariance system of the MUlti-Scale Observation experiment on Evapotranspiration over heterogeneous land surfaces 2012 (MUSOEXE-12). This observation site can offer in situ calibration data of apple trees for TASI, WiDAS and L band sensor used in aerospace experiment.  
Observation Site:  
This point is located in a large and homogeneous apple orchard in Zhangye Experiment Field, Gansu Academy of Agricultural Sciences. It’s 4 meters away from southwest of No.17 eddy covariance system, and observation height is 4.55 m. Crown size of observed apple tree is 4 m × 4 m. Underlying surface of observation site is mainly apple trees. The coordinates of this site: 38°50′41.70" N，100°22′11.40" E.  
Observation Instrument:  
The observation system consists of one SI-111 infrared radiometers (Campbell, USA) installed vertically downward to apple tree.  
Observation Time:  
This site operates from 3 August, 2012 to 27 September, 2012. Observation data laagered by every 1 minute uninterrupted. Output data contained sample data of every 1 minute.  
Accessory data:  
Land surface (apple tree) infrared temperature (by SI-111) can be obtained. Dataset is stored in \*.dat file, which can be read by Microsoft excel or other text processing software (UltraEdit, et. al). Table heads meaning: Target\_C\_Avg, apple tree temperature @ 4.55 m (℃); SBT\_C\_Avg, body temperature of SI-111 sensor (℃).  
Dataset is stored day by day, named as: data format + site name + interval time + date + time. The detailed information about data item showed in data header introduction in dataset.

2、Keywords

Theme：Vegetation,Canopy temperature  
Discipline：Terrestrial Surface  
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches, orchard  
Time：2012-08-23 to 2012-09-27, 2012

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：0.0MB

4.Data format：文本, \*.dat后缀

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.84491667 | - |
| west：100.3698333 | - | east：100.3698333 |
| - | south：38.84491667 | - |

5、Time frame:2012-09-03 12:00:00+00:00--2012-10-08 16:12:00+00:00

6、Reference method

References to data:

MA Mingguo. HiWATER: Dataset of surface temperature of orchard in the midstream of the Heihe River Basin. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.030.2013.db2017

References to articles:

Li, X., Liu, S.M., Xiao, Q., Ma, M.G., Jin, R., Che, T., Wang, W.Z., Hu, X.L., Xu, Z.W., Wen, J.G., Wang, L.X. (2017). A multiscale dataset for understanding complex eco-hydrological processes in a heterogeneous oasis system. Scientific Data, 4, 170083. doi:10.1038/sdata.2017.83.

7、Supporting project information

Heihe Watershed Allied Telemetry Experimental Research (HiWATER)

8、Data resource provider

name: MA Mingguo  
unit: Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences  
email: mmg@lzb.ac.cn