A Big Earth Data Platform for Three Poles

**HiWATER: Simultaneous observation dataset of land surface temperature in the middle reaches of the Heihe River Basin**

1、Description

The aim of the simultaneous observation of land surface temperature is obtaining the land surface temperature of different kinds of underlying surface, including greenhouse film, the roof, road, ditch, concrete floor and so on, while the sensor of thermal infrared go into the experimental areas of artificial oases eco-hydrology on the middle stream. All the land surface temperature data will be used for validation of the retrieved land surface temperature from thermal infrared sensor and the analysis of the scale effect of the land surface temperature, and finally serve for the validation of the plausibility checks of the surface temperature product from remote sensing.  
1. Observation time and other details  
On 25 June, 2012, ditch and asphalt road surface temperatures were observed once every five minutes using handheld infrared thermometers recorded.  
On 26 June, 2012, ditch and asphalt road surface temperatures were observed once every five minutes using handheld infrared thermometers while greenhouse film and concrete floor surface temperatures were observed once every one second using self-recording point thermometer.  
On 29 June, 2012, concrete floor surface temperatures were observed continuously using handheld infrared thermometers during the sensor of TASI go into the region. At the same time, greenhouse film and concrete floor surface temperatures were observed once every one second using self-recording point thermometer.  
On 30 June, 2012, asphalt road, ditch, bare soil, melonry and ridge of field surface temperatures were observed continuously using handheld infrared thermometers during the sensor of TASI go into the region. At the same time, greenhouse film and concrete floor surface temperatures were observed once every one second using self-recording point thermometer.  
On 10 July, 2012, asphalt road, ditch, bare soil, melonry and ridge of field surface temperatures were observed once every one minute using handheld infrared thermometers during the sensor of TASI go into the region. At the same time, concrete floor surface temperatures were observed once every six second using self-recording point thermometer.  
On 26 July, 2012, asphalt road, concrete floor, bare soil and melonry surface temperatures were observed once every one minute using handheld infrared thermometers during the sensor of WiDAS go into the region. At the same time, greenhouse film and concrete floor surface temperatures were observed once every six second using self-recording point thermometer.  
On 2 August, 2012, corn field and concrete floor surface temperatures were observed using handheld infrared thermometers. At the same time, greenhouse film and concrete floor surface temperatures were observed once every six second using self-recording point thermometer. For corn field, twelve sites were selected according to the flight strip of the WiDAS sensor, and for each site one plot surface temperatures were recorded continuously during the sensor of WiDAS go into the region.  
On 3 August, 2012, corn field and concrete floor surface temperatures were observed using handheld infrared thermometers. At the same time, greenhouse film and concrete floor surface temperatures were observed once every six second using self-recording point thermometer. For corn field, fourteen sites were selected according to the flight strip of the WiDAS sensor, and for each site three plots surface temperatures were recorded continuously during the sensor of WiDAS go into the region.  
2. Instrument parameters and calibration  
The field of view of the self-recording point thermometer and the handheld infrared thermometer are 10 and 1 degree, respectively. The emissivity of the latter was assumed to be 0.95. The observation heights of the self-recording point thermometer for the greenhouse film and the concrete floor were 0.5 m and 1 m, respectively. All instruments were calibrated three times (on 6 July, 5 August and 20 September, 2012) using black body during observation.  
3. Data storage  
All the observation data were stored in excel.

2、Keywords

Theme：Temperature,TASI,Skin temperature,Terrestrial Surface Remote Sensing  
Discipline：Atmosphere,Terrestrial Surface  
Places：Heihe River Basin, the artificial oasis experimental area in the middle reaches  
Time：2012, 2012-06-25 to 2012-08-03

3、Data details

1.Scale：None

2.Projection：4326

3.Filesize：0.0MB

4.Data format：文本

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.9 | - |
| west：100.25 | - | east：100.55 |
| - | south：38.83 | - |

5、Time frame:2012-07-02 16:19:00+00:00--2012-08-10 16:19:00+00:00

6、Reference method

References to data:

WANG Haibo. HiWATER: Simultaneous observation dataset of land surface temperature in the middle reaches of the Heihe River Basin. A Big Earth Data Platform for Three Poles, doi:10.3972/hiwater.031.2013.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

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