A Big Earth Data Platform for Three Poles

**HiWATER: MUlti-scale observation experiment on land surface temperature (MUSOES)- dataset of component temperature in the down of Heihe River Basin (Thermal imager)**

1、Description

This dataset includes component temperatures measured by the thermal imager at the Mixed Forest and Sidaoqiao stations between 23 July and 18 August, 2014. The Mixed Forest (101.1335 °E, 41.9903 °N, 874 m.a.s.l.) and Sidaoqiao (101.1374 °E, 42.0012 °N, 873 m.a.s.l.) stations were located in the downstream of the Heihe River basin, Dalaihubu Town, Ejin Banner, Inner Mongolia.
At the Mixed Forest station, a Testo 890-2 thermal imager (Testo Inc., Germany) with a resolution of 640 × 480 pixels was employed to acquire brightness temperature images. The imager was manually operated from a 10-m height platform of the tower between 10:00-16:00 (China Standard Time, CST) with an observation interval of 1-h on cloudless days. On August 4th observations were acquired between 11:00 and 17:00 at an interval of 10-min to match observations acquired with an airborne TIR imager. The ground based imager was pointed to five viewing directions (southeast-SE, east-E, northeast-NE, northwest-NW, and southwest-SW) and was inclined 25°–45° below the horizon depending on viewing direction. At Sidaoqiao station, a Testo 875-2i imager (Testo Inc., Germany) with a resolution of 160 × 120 pixels was manually operated from a 10-m high platform to acquire brightness temperature images in directions SW, SE, NE, and NW. Depending on the targets in each viewing direction, the imager was inclined to 30°–45° below the horizon. Observations at Sidaoqiao and Mixed Forest stations were almost synchronous. Furthermore, visible images were taken simultaneously with the aforementioned two TIR imagers (2048 × 1536 pixels for Testo 890-2 and 640 × 480 pixels for Testo 875-2i).

2、Keywords

Theme：Component temperature,Synchronous observation,Terrestrial Surface Remote Sensing
Discipline：Terrestrial Surface
Places：mixed forest station, Sidaoqiao superstation, the natural oasis eco-hydrology experimental area in the lower reaches, Heihe River Basin
Time：07-23-2014 to 08-18-2014

3、Data details

1.Scale：None

2.Projection：

3.Filesize：3375.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：41.9903 | - |
| west：101.1335 | - | east：101.1335 |
| - | south：41.9903 | - |

5、Time frame:2014-07-30 12:00:00+00:00--2014-08-25 13:59:59+00:00

6、Reference method

References to data:

LI Mingsong , MA Jin . HiWATER: MUlti-scale observation experiment on land surface temperature (MUSOES)- dataset of component temperature in the down of Heihe River Basin (Thermal imager). A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2709782019

References to articles:

Li, M., Zhou, J., Peng, Z., Liu, S., Göttsche, F. M., Zhang, X., & Song, L. (2019). Component radiative temperatures over sparsely vegetated surfaces and their potential for upscaling land surface temperature. Agricultural and Forest Meteorology, 276, 107600.

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

8、Data resource provider

name: LI Mingsong
unit: University of Electronic Science and Technology of China
email: lms0102@163.com

name: MA Jin
unit: University of Electronic Science and Technology of China
email: jin.ma@uestc.edu.cn