A Big Earth Data Platform for Three Poles

**High-Temporal and Landsat-Like surface evapotranspiration in Heihe River Basin (2010-2016) (HiTLL ET V1.0)**

1、Description

This data set mainly includes daily surface evapotranspiration products in Heihe River Basin (HRB) from 2010 to 2016, with a resolution of 100 meters. Based on multi-source remote sensing data (MODIS Landsat TM/ETM+ data) and regional meteorological data (China meteorological forcing dataset, CMFD), sensitivity parameters of the theoretically robust surface energy balance system (SEBS) model were determined through global sensitivity analysis, and then the parameterization scheme of the model was optimized to improve the estimation accuracy. At the same time, combined with spatial and temporal data fusion algorithm of remote sensing image. Finally, the High-Temporal and Landsat-Like surface evapotranspiration (ET) (HiTLL ET) was obtained over the Heihe Basin. It was validation by the EC measurements from the flux observation stations and ETMap, and the estimation results are consistent with the observation and the spatial and temporal distribution pattern of ETMap. This data set can provide data support for the study of water consumption law and scientific effective management of watershed water resources within HRB, especially for woodland and grassland in the upper stream regions, oasis farmland and desert vegetation in the midstream and downstream regions.

2、Keywords

Theme：Land-surface evapotranspiration,Hydrology,Terrestrial Surface Remote Sensing
Discipline：Terrestrial Surface
Places：Heihe River Basin
Time：2010-2016

3、Data details

1.Scale：None

2.Projection：UTM

3.Filesize：224046.56MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：42.68 | - |
| west：97.12 | - | east：101.81 |
| - | south：37.71 | - |

5、Time frame:2009-12-31 16:00:00+00:00--2016-12-30 16:00:00+00:00

6、Reference method

References to data:

LIU Shaomin, MA Yanfei. High-Temporal and Landsat-Like surface evapotranspiration in Heihe River Basin (2010-2016) (HiTLL ET V1.0). A Big Earth Data Platform for Three Poles, doi:10.11888/Hydro.tpdc.2710812020

References to articles:

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.

Ma, Y.F., Liu, S.M., Song, L.S., Xu, Z.W., Liu, Y.L., Xu, T.R., Zhu, Z.L. (2018). Estimation of daily evapotranspiration and irrigation water efficiency at a Landsat-like scale for an arid irrigation area using multi-source remote sensing data. Remote Sensing of Environment, 216, 715-734. doi:10.1016/j.rse.2018.07.019.

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program
Youth Program of National Natural Science Foundation of China (grant number: 41701426)

8、Data resource provider

name: LIU Shaomin
unit: Beijing Normal University
email: smliu@bnu.edu.cn

name: MA Yanfei
unit: Handan College
email: maayanfei@126.com