A Big Earth Data Platform for Three Poles

**PML\_V2 global evapotranspiration and gross primary production (2002.07-2019.08)**

1、Description

PML\_V2 terrestrial evapotranspiration and total primary productivity dataset, including gross primary product (GPP), vegetation transpiration (Ec), soil evaporation (Es), vaporization of intercepted rainfall , Ei) and water body, ice and snow evaporation (ET\_water), a total of 5 elements. The data format is tiff, the space-time resolution is 8 days, 0.05°, and the time span is 2002.07-2019.08.

Based on the Penman-Monteith-Leuning (PML) model, PML\_V2 is coupled to the GPP process based on stomatal conductance theory. GPP and ET mutually restrict and restrict each other, which makes PML\_V2 in ET simulation accuracy, which is greatly improved compared with the previous model. The parameters of PML\_V2 are divided into different vegetation types and are determined on 95 vorticity-related flux stations around the world. The parameters were then migrated globally according to the MODIS MCD12Q2.006 IGBP classification. PML\_V2 uses GLDAS 2.1 meteorological drive and MODIS leaf area index (LAI), reflectivity (Albedo), emissivity (Emissivity) as inputs, and finally obtains PML\_V2 terrestrial evapotranspiration and total primary productivity data sets.

2、Keywords

Theme：Evapotranspiration,Vegetation,Gross primary product,Hydrology
Discipline：Terrestrial Surface
Places：globe
Time：2002-2019

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：19456.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：90.0 | - |
| west：-180.0 | - | east：180.0 |
| - | south：-60.0 | - |

5、Time frame:2002-09-20 00:00:00+00:00--2019-11-17 00:00:00+00:00

6、Reference method

References to data:

ZHANG Yongqiang. PML\_V2 global evapotranspiration and gross primary production (2002.07-2019.08). A Big Earth Data Platform for Three Poles, doi:10.11888/Geogra.tpdc.2702512020

References to articles:

Zhang, Y., Kong, D., Gan, R., Chiew, F.H.S., McVicar, T.R., Zhang, Q., & Yang, Y. (2019). Coupled estimation of 500m and 8-day resolution global evapotranspiration and gross primary production in 2002-2017. Remote Sensing Environ. 222, 165-182. https://doi:10.1016/j.rse.2018.12.031

Zhang, Y., Peña-Arancibia, J.L., McVicar, T.R., Chiew, F.H.S., Vaze, J., Liu, C., Lu, X., Zheng, H., Wang, Y., Liu, Y.Y., Miralles, D.G., & Pan, M. (2016). Multi-decadal trends in global terrestrial evapotranspiration and its components. Scientific Reports. 6, 19124. https://doi.org/10.1038/srep19124

7、Supporting project information

8、Data resource provider

name: ZHANG Yongqiang
unit:
email: zhangyq@igsnrr.ac.cn