**Global vegetation production dataset (GLASS GPP/NPP) User Guides**

**Abstract:** Based on the revised light use efficiency model (ie., EC-LUE), we generate a new long-term product of global gross primary production (thereafter GLASS GPP). The revised EC-LUE can effectively reproduce the spatial, seasonal, and annual variations, especially improve the model performance in reproducing the interannual variations in GPP, by integrating the regulations of several major environmental variables: atmospheric CO2 concentration, radiation components, and atmospheric vapor pressure deficit (VPD). Then net primary production (thereafter GLASS NPP) is derived from GLASS GPP combined with the respiration index (ratio of NPP to GPP), and the respiration index is calculated from 19 dynamic global vegetation models (DGVMs) in TRENDY v9. The long-term vegetation production dataset has great potential in monitoring global eco-environmental change and their impact on climate change as basic data.

**Brief introduction of GLASS GPP/NPP:**

1. Modis\_500m (2000-2020)
* Data period: 2000-2020
* Extent: global
* Spatial reference: Sinusoidal
* Spatial resolution: 500-meter
* Temporal resolution: 8-day
* Scale factor: 0.01 invalid value: 65535
* Unit: g C m-2 day-1
1. AVHRR (1982-2018)
* Data period: 1982-2018
* Extent: global
* Spatial reference: WGS 1984
* Spatial resolution: 0.05-degree
* Temporal resolution: 8-day
* Scale factor: 0.01 invalid value: 65535
* Unit: g C m-2 day-1

**How to get the annual value of GLASS GPP/NPP?**

To get the annual value of GLASS GPP/NPP form each 8-day, please multiply the GPP/NPP value by corresponding days (8 for the first 45 values, and 5 or 6 for the last value).

**Contact me:**

If you have any questions about the GPP/NPP dataset, please do not hesitate to contact Wenping Yuan (yuanwpcn@126.com).

The latest updates of GPP/NPP datasets are always available in personal homepage of Wenping Yuan (<https://atmos.sysu.edu.cn/teacher/358>) or from the baidu network disk (link: <https://pan.baidu.com/s/1Ts4g6_mnW_QJ6Yv2w3Mbig>, password: ieqs).

**Reference:**

[1] Zheng Y, Shen RQ, Wang YW, Li XQ, Liu SG, Chen JM, Ju WM, Zhang L, Yuan WP. 2020. Improved estimate of global gross primary production for reproducing its long-term variation, 1982–2017. Earth System Science Data, 12, 2725-2746.

[2] Yuan WP, Liu SG, Yu GR, Bonnefond JM, Chen JQ, Davis K, Desai AR, Goldstein AH, Gianelle D, Rossi F, Suyker AE, Verma SB. 2010. Global estimates of evapotranspiration and gross primary production based on MODIS and global meteorology data. Remote Sensing of Environment, 114, 1416-1431.