A Big Earth Data Platform for Three Poles

**1 km monthly potential evapotranspiration dataset in China (1990-2020)**

1、Description

The data set is China's monthly potential evapotranspiration, with a spatial resolution of 0.0083333 ° (about 1km) and a time of 1990.1-2020.12 (to be updated every year), with a unit of 0.1mm. This data set is based on the monthly average temperature, minimum temperature and maximum temperature data set of 1km in China (published by this station, Peng at al. 2019) and obtained by using Hargreaves potential evapotranspiration calculation formula (Peng at al. 2017). The formula is as follows: pet = 0.0023 × S0 × (MaxT − MinT)0.5 × (mean + 17.8), where pet is the potential evapotranspiration, mm / month; Maxt, mint and mean are the monthly highest temperature, lowest temperature and average temperature respectively; S0 is the theoretical solar radiation reaching the top of the earth's atmosphere, which is calculated according to the solar constant, solar terrestrial distance, Julian day, declination, etc. In order to facilitate storage, the data are int16 and stored in NC (NetCDF) files. NC data can be opened by ArcMap software and extracted and processed by MATLAB and R software.

2、Keywords

Theme：Lysimeter,Potential evapotranspiration  
Discipline：Atmosphere  
Places：China  
Time：long term, 1990-2020

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：7200.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：58.6354573584943 | - |
| west：71.285888671875 | - | east：136.694222005205 |
| - | south：15.752124025163 | - |

5、Time frame:1900-01-14 15:54:00+00:00--2020-12-14 16:00:00+00:00

6、Reference method

References to data:

PENG Shouzhang. 1 km monthly potential evapotranspiration dataset in China (1990-2020). A Big Earth Data Platform for Three Poles, doi:10.11866/db.loess.2021.0012022

References to articles:

Peng, S.Z., Ding, Y.X., Wen, Z.M., Chen, Y.M., Cao, Y., & Ren, J.Y. (2017). Spatiotemporal change and trend analysis of potential evapotranspiration over the Loess Plateau of China during 2011-2100. Agricultural and Forest Meteorology, 233, 183-194. https://doi.org/10.1016/j.agrformet.2016.11.129  
  
Ding, Y.X., Peng, S.Z. (2021). Spatiotemporal change and attribution of potential evapotranspiration over China from 1901 to 2100. Theoretical and Applied Climatology. https://doi.org/10.1007/s00704-021-03625-w  
  
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7、Supporting project information

Second Tibetan Plateau Scientific Expedition Program  
National Natural Science Foundation of China (42077451)

8、Data resource provider

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