A Big Earth Data Platform for Three Poles

**Standard atmosphere dataset over the Tibetan Plateau (climatology from 1981-2020)**

1、Description

The Tibetan Plateau Subregional Dynamical Downscaling Dataset-Standard Year (TPSDD-Standard) is a high spatial-temporal resolution gridded dataset for the study of land-air exchange processes and lower atmospheric structure over the entire Tibetan Plateau, taking into account the climatic characteristics of each subregion of the Tibetan Plateau. Based on the 500 hPa multi-year average of the geopotential height field over the Tibetan Plateau, the year (2014) with the largest pattern correlation coefficient with this geopotential height field is selected as the standard year, which means that it can roughly reflect the multi-year average status of the atmosphere over the Tibetan Plateau. The temporal resolution of this data is 1 hour and the spatial resolution is 5 km. Meteorological elements of the dataset include near-surface land-air exchange parameters such as downward/upward long-wave/short-wave radiation fluxes, sensible heat fluxes, latent heat fluxes, etc. In addition, the 3-dimensional vertical distribution of wind, temperature, humidity, and pressure from the surface to the top of the troposphere is also included. The dataset was independently evaluated by comparing the observed data with the latest ERA5 reanalysis data. The results demonstrate the accuracy and superiority of the dataset, which offers great potential for future climate change studies.

2、Keywords

Theme：Winds,Humidity/Dryness
Discipline：Atmosphere
Places：Qinghai Tibet Plateau
Time：standard atmosphere year, 2014

3、Data details

1.Scale：None

2.Projection：Lambert\_Conformal\_Conic

3.Filesize：1572864.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：39.5 | - |
| west：74.0 | - | east：105.0 |
| - | south：26.5 | - |

5、Time frame:2013-12-31 16:00:00+00:00--2014-10-31 16:00:00+00:00

6、Reference method

References to data:

Ma Shupo, ZHU Jinhuan, LI Peng , ZOU Han , ZHOU Libo , LI Fei. Standard atmosphere dataset over the Tibetan Plateau (climatology from 1981-2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Atmos.tpdc.2729102022

References to articles:

Skamarock, W.C., et al. (2019). A Description of the Advanced Research WRF Model Version 4. NCAR Tech. Note NCAR/TN-475+STR 145.

Hersbach, H., Dee, D. (2016). ERA5 reanalysis is in production. ECMWF newsletter, 147(7), 5-6.

7、Supporting project information

CASEarth:Big Earth Data for Three Poles（grant No. XDA19070000）

8、Data resource provider

name: LI Fei
unit: Institute of Atmospherie Physics,Chines Academy of Sciences
email: lifei@mail.iap.ac.cn

name: ZHU Jinhuan
unit: Institute of Atmospherie Physics,Chines Academy of Sciences
email: zhujinhuan@mail.iap.ac.cn

name: Ma Shupo
unit: Institute of Atmospheric Physics, Chinese Academy of Sciences
email: mashupo@mail.iap.ac.cn

name: ZHOU Libo
unit: Institute of Atmospheric Physics, CAS
email: zhoulibo@mail.iap.ac.cn

name: LI Peng
unit: Institute of Atmospheric Physics, CAS
email: lipeng@mail.iap.ac.cn

name: ZOU Han
unit: Institute of Atmospheric Physics, CAS
email: zouhan@mail.iap.ac.cn