A Big Earth Data Platform for Three Poles

**China regional atmospheric driving dataset based on geostationary satellites and reanalysis data (2005-2010)**

1、Description

Based on the geostationary satellites and reanalysis data, the China Regional Atmospheric Driving Dataset is a set of atmospheric driving data sets with high spatiotemporal resolution prepared by the China Meteorological Administration, with a spatial resolution of 0.1 ° × 0.1 ° and a temporal resolution of 1 Hours, covering a range of 75 ° -135 ° east longitude and 15 ° -55 ° north latitude, include 6 elements of near-surface temperature, relative humidity, ground pressure, near-surface wind speed, incident solar radiation on the ground, and ground precipitation rate. The preparation process of precipitation products is as follows: The 6-hour cumulative precipitation estimated from the multi-channel data of the China Fengyun-2 geostationary satellite is integrated with the 6-hour cumulative precipitation from conventional ground observations to obtain 6-hour cumulative precipitation spatial distribution data, and then use the high-resolution cloud classification information retrieved from the multi-channel inversion of the geostationary satellites determines the interpolation time weight of the cumulative precipitation and obtains an estimated one-hour cumulative precipitation. The preparation process of the radiation data is as follows: The surface incident solar radiation based on FY-2C, uses the radiation transmission model DISORT (Discrete Ordinates Radiative Transfer Program for a Multi-Layered Plane-parallel Medium) to calculate the radiation transmission and obtains the data of surface incident solar radiation in China. Preparation process of other elements: The space and time interpolation method is used for the NCEP reanalysis data of 1.0 ° × 1.0 ° to obtain driving factors such as near-surface air temperature, relative humidity, ground pressure, and near-surface wind speed of 0.1 ° × 0.1 ° per hour.  
Physical meaning of each variable:  
Meteorological Elements || Variable Name || Unit || Physical Meaning  
| Surface temperature || TBOT || K || Surface temperature (2m)  
| Surface pressure || PSRF || Pa || Surface pressure  
| Relative humidity on the ground || RH || kg / kg || Relative humidity near the ground (2m)  
| Wind speed on the ground || WIND || m / s || Wind speed near the ground (anemometer height)  
| Surface incident solar radiation || FSDS || W / m2 || Surface incident solar radiation  
| Precipitation Rate || PRECTmms || mm / hr || Precipitation Rate  
For more information, see the data documentation published with the data.

2、Keywords

Theme：Precipitation,Radiation,Temperature,Precipitation rate,Winds,Humidity/Dryness,Near surface temperature,Pressure,wind speed  
Discipline：Atmosphere  
Places：China  
Time：2005-2010

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：140288.0MB

4.Data format：NetCDF

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：55.0 | - |
| west：75.0 | - | east：135.0 |
| - | south：15.0 | - |

5、Time frame:2005-07-20 00:00:00+00:00--2010-07-19 23:00:00+00:00

6、Reference method

References to data:

SHI Chunxiang. China regional atmospheric driving dataset based on geostationary satellites and reanalysis data (2005-2010). A Big Earth Data Platform for Three Poles, doi:10.11888/Meteoro.tpdc.2709652013

References to articles:

Shi C X, Xie Z H, Qian H, et al. China land soil moisture EnKF data assimilation based on satellite remote sensing data. Sci China Earth Sci, 2011, doi: 10.1007/s11430-010-4160-3

7、Supporting project information

8、Data resource provider

name: SHI Chunxiang  
unit:   
email: shicx@cma.gov.cn