A Big Earth Data Platform for Three Poles

**Dataset of passive microwave SSM / I and SSMIS brightness temperature in China (1987-2015)**

1、Description

This dataset mainly includes the twice a day (ascending-descending orbit) brightness temperature (K) of the space-borne microwave radiometers SSM / I and SSMIS carried by the US Defense Meteorological Satellite Program satellites (DMSP-F08, DMSP-F11, DMSP-F13, and DMSP-F17), time coverage from September 15, 1987 to December 31, 2015. The SSM/I brightness temperature of DMSP-F08, DMSP-F11 and DMSP-F13 include 7 channels: 19.35H, 19.35V, 22.24V, 37.05H, 37.05V, 85.50H and 85.50V; The SSMIS brightness temperature observation of DMSP-F17 consists of seven channels: 19.35H, 19.35V, 22.24V, 37.05H, 37.05V, 91.66H and 91.66v. Among them, DMSP-F08 satellite brightness temperature coverage time is from September 15, 1987 to December 31, 1991; DMSP-F11 satellite brightness temperature coverage time is from January 1, 1992 to December 31, 1995; The coverage time of DMSP-F13 satellite brightness temperature is from January 1, 1996 to April 29, 2009; The coverage time of DMSP-F17 satellite brightness temperature is from January 1, 2009 to December 31, 2015.
1. File format and naming:
The brightness temperature is stored separately in units of years, and each directory is composed of remote sensing data files of each frequency, and the SSMIS data also contains the .TIM time information file.
The data file names and their naming rules are as follows:
EASE-Fnn-ML / HyyyydddA / D.subset.ccH / V (remote sensing data)
EASE-Fnn-ML / HyyyydddA / D.subset.TIM (time information file)
Among them: EASE stands for EASE-Grid projection method; Fnn stands for satellite number (F08, F11, F13, F17); ML / H stands for multi-channel low-resolution and multi-channel high-resolution respectively; yyyy represents the year; ddd represents Julian Day of the year (1-365 / 366); A / D stands for ascending (A) and descending (D) respectively; subset represents brightness temperature data in China; cc represents frequency (19.35GHz, 22.24 GHz, 37.05GHz, (85.50GHz, 91.66GHz); H / V stands for horizontal polarization (H) and vertical polarization (V), respectively.
2. Coordinate system and projection:
The projection method of this data set is EASE-Grid, which is an equal area secant cylindrical projection, and the double standard parallels are 30 ° north and south. For more information about EASE-GRID, please refer to http://www.ncgia.ucsb.edu/globalgrids-book/ease\_grid/.
If you need to convert the EASE-Grid projection to Geographic projection, please refer to the ease2geo.prj file, the content is as follows:
Input
projection cylindrical
units meters
parameters 6371228 6371228
1 / \* Enter projection type (1, 2, or 3)
0 00 00 / \* Longitude of central meridian
30 00 00 / \* Latitude of standard parallel
Output
Projection GEOGRAPHIC
Spheroid KRASovsky
Units dd
parameters
end
3. Data format:
Stored as integer binary, Row number: 308 \*166，each data occupies 2 bytes. The actual data stored in this dataset is the brightness temperature \* 10. After reading the data, you need to divide by 10 to get the real brightness temperature.
4. Data resolution:
Spatial resolution: 25.067525km, 12.5km (SSM / I 85GHz, SSMIS 91GHz)
Time resolution: daily, from 1978 to 2015.
5. Spatial range:
Longitude: 60.1 ° -140.0 ° east longitude;
Latitude: 14.9 ° -55.0 ° north latitude.
6. Data reading:
Remote sensing image data files in each set of data can be opened in ArcMap, ENVI and ERDAS software.

2、Keywords

Theme：Microwave remote sensing,Surface Freeze-thaw Cycle/state Remote Sensing
Discipline：Cryosphere
Places：China
Time：1987-2015

3、Data details

1.Scale：None

2.Projection：

3.Filesize：14856.3MB

4.Data format：栅格

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：55.0 | - |
| west：60.1 | - | east：140.0 |
| - | south：14.9 | - |

5、Time frame:1987-09-23 15:00:00+00:00--2016-01-08 15:00:00+00:00

6、Reference method

References to data:

National Snow and Ice Data Center（NSIDC）. Dataset of passive microwave SSM / I and SSMIS brightness temperature in China (1987-2015). A Big Earth Data Platform for Three Poles, 2016

References to articles:

7、Supporting project information

8、Data resource provider

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