A Big Earth Data Platform for Three Poles

**China long-sequence surface freeze-thaw dataset——decision tree algorithm (1987-2009)**

1、Description

China long-sequence surface freeze-thaw dataset——decision tree algorithm (1987-2009), is derived from the decision tree classification using passive microwave remote sensing SSM / I brightness temperature data.
This data set uses the EASE-Grid projection method (equal cut cylindrical projection, standard latitude is ± 30 °), with a spatial resolution of 25.067525km, and provides daily classification results of the surface freeze-thaw state of the main part of mainland China. The data set is stored by year and consists of 23 folders, from 1987 to 2009. Each folder contains the day-to-day surface freeze-thaw classification results for the current year. It is an ASCII file with the naming rule: SSMI-frozenYYYY \*\*\*. Txt, where YYYY represents the year and \*\*\* represents the Julian date (001 ~ 365 / 366). The freeze-thaw classification result txt file can be opened and viewed directly with a text program, and can also be opened with ArcView + Spatial Analyst extension module or Arcinfo's Asciigrid command.
The original frozen and thawed surface data was derived from daily passive microwave data processed by the National Snow and Ice Data Center (NSIDC) since 1987. This data set uses EASE-Grid (equivalent area expandable earth grid) as a standard format .
China's surface freeze-thaw long-term sequence data set-The decision tree algorithm (1987-2009) attributes consist of the spatial-temporal resolution, projection information, and data format of the data set.
Spatio-temporal resolution: the time resolution is day by day, the spatial resolution is 25.067525km, the longitude range is 60 ° ~ 140 ° E, and the latitude is 15 ° ~ 55 ° N.
Projection information: Global equal-area cylindrical EASE-Grid projection. For more information about EASE-Grid projection, see the description of this projection in data preparation.
Data format: The data set consists of 23 folders from 1987 to 2009. Each folder contains the results of the day-to-day surface freeze-thaw classification of the year, and is stored as a txt file on a daily basis. File naming rules: For example, SMI-frozen1994001.txt represents the surface freeze-thaw classification results on the first day of 1994. The ASCII file of the data set is composed of a header file and a body content. The header file consists of 6 lines of description information such as the number of rows, the number of columns, the coordinates of the lower left point of the x-axis, the coordinates of the lower left point of the y-axis, the grid size, and the value of the data-less area. Array, with columns as the priority. The values ​​are integers, from 1 to 4, 1 for frozen, 2 for melting, 3 for desert, and 4 for precipitation. Because the space described by all ASCII files in this data set is nationwide, the header files of these files are unchanged. The header files are extracted as follows (where xllcenter, yllcenter and cellsize are in m):
ncols 308
nrows 166
xllcorner 5778060
yllcorner 1880060
cellsize 25067.525
nodata\_value 0
All ASCII files in this data set can be opened directly with a text program such as Notepad. Except for the header file, the main content is a numerical representation of the surface freeze-thaw state: 1 for frozen, 2 for melting, 3 for desert, and 4 for precipitation. If you want to display it with an icon, we recommend using ArcView + 3D or Spatial Analyst extension module to read it. During the reading process, a grid format file will be generated. The displayed grid file is the graphic representation of the ASCII code file. Reading method:
 [1] Add 3D or Spatial Analyst extension module in ArcView software, and then create a new View;
 [2] Activate View, click the File menu, select the Import Data Source option, the Import Data Source selection box pops up, select ASCII Raster in Select import file type: in this box, and a dialog box for selecting the source ASCII file automatically pops up Find any ASCII file in the data set and press OK;
 [3] Type the name of the Grid file in the Output Grid dialog box (a meaningful file name is recommended for later viewing), and click the path where the Grid file is stored, press Ok again, and then press Yes (to select an integer) Data), Yes (call the generated grid file into the current view). The generated file can be edited according to the Grid file standard. This completes the process of displaying the ASCII file as a Grid file.
 [4] During batch processing, you can use ARCINFO's ASCIIGRID command to write an AML file, and then use the Run command to complete in the Grid module:
Usage: ASCIIGRID <in\_ascii\_file> <out\_grid> {INT | FLOAT}

2、Keywords

Theme：Decision tree algorithm,Galactic System,Freeze thawing,Frozen Ground
Discipline：Others,Solar-Terrestrial Physics and Astronomy,Cryosphere
Places：China
Time：

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：716.46MB

4.Data format：ASCII Grid

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：53.9 | - |
| west：73.2 | - | east：135.5 |
| - | south：17.8 | - |

5、Time frame:1987-01-11 02:13:00+00:00--2010-01-10 02:14:00+00:00

6、Reference method

References to data:

LI Xin. China long-sequence surface freeze-thaw dataset——decision tree algorithm (1987-2009). A Big Earth Data Platform for Three Poles, doi:10.11888/Geocry.tpdc.2706222012

References to articles:

7、Supporting project information

8、Data resource provider

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