A Big Earth Data Platform for Three Poles

**Snow cover dataset of the Tibetan Plateau - multisource fusion algorithm (2008-2010)**

1、Description

This dataset is the snow cover dataset based on the MODIS fractional snow cover mapping algorithm Coupled Regional Approach (CRA). The CRA algorithm mainly consists of three parts. (1) First, the N-FINDR (Volume Iterative Approach) and OSP (Orthogonal Subspace Projection) are used to automatically extract the endmember according to the settings (extracting 30 end endmembers). (2) On the basis of automatic extraction, combined with the IGBG land cover type map, six types of endmembers of snow, vegetation, cloud, soil, rock and water are selected by the manual screening method, and an annual spectrum database is established according to the 2009 image. There are 3 spectra in the early, middle and late months and 36 spectra a year. (3) The established spectral database is used as a priori knowledge, and based on prior knowledge, the fully constrained linear unmixing method (FCLS) for subpixel decomposition is used to obtain the fractional snow cover products. The NDSI ratio algorithm with improved topographic effect is used to obtain the snow cover area, the spatiotemporal data are then interpolated, and, finally, the multisource data fusion with the AMSR-E microwave snow depth product is undertaken.  
The dataset adopts a latitude and longitude (Geographic) projection method. The datum is WGS84, and the spatial resolution is 0.005°. It provides the daily cloudless snow cover area map of the Tibetan Plateau from 2008 to 2010. The data set is stored by year and consists of 3 folders from 2008 to 2010. Each folder contains the classification results of the daily snow cover of the current year. It is a tif file with the naming rule YYYY\*\*\*.tif, in which YYYY represents the year (2008-2010), and \*\*\* represents the day (001~365/ 366). It can be opened directly with ARCGIS or ENVI.

2、Keywords

Theme：Snow,Cryosphere remote sensing products,Surface Freeze-thaw Cycle/state Remote Sensing,Snow facies  
Discipline：Cryosphere  
Places：Tibetan Plateau   
Time：2010, 2008, 2009

3、Data details

1.Scale：3000000

2.Projection：

3.Filesize：23961.6MB

4.Data format：img

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：37.0 | - |
| west：75.0 | - | east：103.0 |
| - | south：28.0 | - |

5、Time frame:2008-01-07 13:55:00+00:00--2011-01-06 13:55:00+00:00

6、Reference method

References to data:

HAO Xiaohua. Snow cover dataset of the Tibetan Plateau - multisource fusion algorithm (2008-2010). A Big Earth Data Platform for Three Poles, doi:10.11888/Snow.tpdc.2700132012

References to articles:

Hao, X.H., Luo, S.Q., Che, T., Wang, J., Li, H.Y., Dai, L.Y., Huang, X.D., &Feng, Q.S. (2019). Accuracy assessment of four cloud-free snow cover products over the qinghai-tibetan plateau. International Journal of Digital Earth,12 (4), 375-393.

7、Supporting project information

8、Data resource provider

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