A Big Earth Data Platform for Three Poles

**Greenland ice sheet surface melting 0.05 ˚ Daily data sets (1985, 2000, 2015)**

1、Description

Surface melting is the primary reason that affects the mass balance of Greenland ice sheet. At the same time, ice and snow have high albedo, and ice sheet surface melting will cause the difference of radiation energy budget, and then affects the energy exchange between sea-land-air. The high-resolution ice sheet surface melting product provides important information support for the study of Greenland ice sheet surface melting and its response to global climate change. This dataset combined microwave radiometer product and optical albedo product, the daily, winter (June-August) averages and July averages of the former are used for layer-stacking, then Gram-Schmidt Spectral Sharpening was adapted to fuse the layer-stacking results with MODIS GLASS albedo product. The spatial resolution of fusion-results has been downscaled from 25 km to 0.05˚. By employing a threshold-based melt detection approach for each fusion-results pixel, Greenland ice sheet surface melt daily product for 1985, 2000, 2015 (DSSMIS) was generated. The spatial resolution of DSSMIS is higher than that of published data sets at home and abroad. Combined with the advantages of radiometer and albedo data, the spatial details characteristics are enhanced and consistent with the extraction range of the original radiometer products, effectively reducing the noise of the radiometer. DSSMIS’s data type is integer, where 1 is melted, 0 is not melted, 255 is masked area besides Greenland ice sheet, and the data set is stored as \*.nc.

2、Keywords

Theme：Downscaling,Surface Freeze-thaw Cycle/State,Cryosphere remote sensing products,Surface Freeze-thaw Cycle/state Remote Sensing,Remote Sensing Technology,Optical remote sensing,Microwave radiometer
Discipline：Remote Sensing Technology,Cryosphere
Places：Greenland
Time：2000, 2015, 1985

3、Data details

1.Scale：40000000

2.Projection：North\_Pole\_Stereographic

3.Filesize：266.4MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：83.8635 | - |
| west：-90.8971 | - | east：7.0503 |
| - | south：58.8075 | - |

5、Time frame:None--None

6、Reference method

References to data:

WEI Siyi. Greenland ice sheet surface melting 0.05 ˚ Daily data sets (1985, 2000, 2015). A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2718492021

References to articles:

7、Supporting project information

8、Data resource provider

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