A Big Earth Data Platform for Three Poles

**Greenland ice sheet mass balance data set (1985-2015)**

1、Description

The mass loss of the Greenland ice sheet has been the main contributor to global sea level rise in recent decades. Under the trend of global warming, the Greenland ice sheet is melting faster. It is of great scientific significance to explore the causes of mass loss and its response to climate change. Based on the MEaSUREs Greenland groundingline and the basin boundaries, we discretize the groundingline, combine the MEaSUREs annual ice velocity data from 1985 to 2015 with the BedMachine v3 ice thickness data, and vectorially calculate the ice discharge at each flux gate of the groundingline. We use the surface mass balance data of RACMO2.3p2 model to spatially calculate the surface mass balance of each basin, and combined it with the ice discharge results to obtain the Greenland ice sheet mass balance data set (1985-2015). The data set includes the mass balance results of each basin of the Greenland ice sheet in the year 1985, 2000 and 2015, and the annual ice velocity data, ice thickness and annual ice discharge corresponding to the location of each flux gate. The data set realizes the fine evaluation of ice flux at the groundingline, and reflect the changes and spatial distribution characteristics of the mass balance of each basin of the Greenland ice sheet in recent 30 years. It provides basic data for the subsequent fine change evaluation and prediction of the mass balance of the Greenland ice sheet and the exploration of the mechanism of ice sheet loss.

2、Keywords

Theme：Surface mass balance,ice discharge,Mass balance,Glacier(Ice Sheet)
Discipline：Cryosphere
Places：Greenland Ice Sheet
Time：1985-2015

3、Data details

1.Scale：None

2.Projection：North\_Pole\_Stereographic

3.Filesize：21.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：55.0 | - |
| west：-90.0 | - | east：0.0 |
| - | south：85.0 | - |

5、Time frame:1985-06-30 16:00:00+00:00--2015-06-30 03:59:59+00:00

6、Reference method

References to data:

CHENG Xiao, LIN Yijing. Greenland ice sheet mass balance data set (1985-2015). A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2718312021

References to articles:

7、Supporting project information

8、Data resource provider

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