A Big Earth Data Platform for Three Poles

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

1、Description

The Antarctic ice sheet is one of the largest potential sources of global sea level rise. Accurately determining the mass budget of the ice sheet is the key to understand the dynamic changes of the Antarctic ice sheet. It is very important to understand the evolution process of the ice sheet and accurately predict the future global sea level rise. Based on the MEaSUREs Antarctic groundingline and the basin boundaries, we discretize the groundingline, combine the MEaSUREs and RAMP annual ice velocity data from 1985 to 2015 with the BedMachine 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 Antarctic ice sheet mass balance data set (1985-2015). The data set includes the mass balance results of each basin of the Antarctic 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 Antarctic ice sheet in recent 30 years. It provides basic data for the subsequent fine change evaluation and prediction of the mass balance of the Antarctic 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：Antarctic ice sheet
Time：1985-2015

3、Data details

1.Scale：None

2.Projection：South\_Pole\_Stereographic

3.Filesize：22.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：-60.0 | - |
| west：-180.0 | - | east：180.0 |
| - | south：-90.0 | - |

5、Time frame:1985-06-30 16:00:00+00:00--2015-06-29 16:00:00+00:00

6、Reference method

References to data:

CHENG Xiao, LIN Yijing. Antarctic ice sheet mass balance data set (1985-2015). A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2718302021

References to articles:

7、Supporting project information

8、Data resource provider

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