A Big Earth Data Platform for Three Poles

**Sentinel-1 EW SAR data for Antarctic and Arctic ice sheets (2015-2016)**

1、Description

The Sentinel-1A/B satellite uses a near-polar sun-synchronous orbit with an orbital altitude of 693 km, an orbital inclination of 98.18°, and an orbital period of 99 minutes. It is equipped with a C-band Synthetic Aperture Radar (SAR) with a designed service life of 7 years (12 years expected). Sentinel-l has a variety of imaging methods that enable different polarization modes such as single-polarization and dual-polarization. Sentinel-1A SAR has four working modes: Strip Map Mode (SM), Extra Wide Swath (EW), Interferometric Wide Swath (IW) and Wave Mode (WV). Satellite A was successfully launched in April 2014. The revisit period of the same region was 12 days. Satellite B successfully operated on orbit in April 2016. The current revisiting period reached 3 to 6 days. After the operation of two satellites, the S1 data acquisition frequency in the Antarctic region increased greatly.
This data set comprises the Sentinel-1 SAR data for the Antarctic ice sheet and the Greenland Ice Sheet area.
The data band comprises C-band extra wide multiview data with a resolution of 20 m\*40 m. The temporal resolution is 12 days and is related to the round-trip period, the width is 400 km, the noise level is -25 dB, and the radiation measurement accuracy is 1.0 dB.
The annual temporal coverage of these data is October to the next March in the Antarctic and April to September in Greenland, and the spatial coverage comprises the Antarctic ice sheet ice shelf area and Greenland ice sheet.

2、Keywords

Theme：Cryosphere remote sensing products,Surface Freeze-thaw Cycle/state Remote Sensing,Glacier(Ice Sheet)
Discipline：Cryosphere
Places：Antarctic, Greenland
Time：2015-2016

3、Data details

1.Scale：None

2.Projection：

3.Filesize：1500000.0MB

4.Data format：tif

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：85.0 | - |
| west：110.0 | - | east：20.0 |
| - | south：55.0 | - |

5、Time frame:2015-01-17 16:00:00+00:00--2017-01-16 16:00:00+00:00

6、Reference method

References to data:

Lu Zhang. Sentinel-1 EW SAR data for Antarctic and Arctic ice sheets (2015-2016). A Big Earth Data Platform for Three Poles, doi:10.11888/GlaciolGeocryol.tpe.00000030.file2018

References to articles:

7、Supporting project information

8、Data resource provider

name: Lu Zhang
unit: Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
email: zhanglu@radi.ac.cn