A Big Earth Data Platform for Three Poles

**Ice elevation changes for typical glaciers on the QTP V1.0 (2000-2013)**

1、Description

The continuous advancement of SAR interferometry technology makes it possible to obtain multitemporal DEMs with high precision in the glacial area. In particular, in 2000, the Shuttle Radar Topography Mission (SRTM) led by NASA provided DEM data covering the area from 56ºS to 60ºN; the TanDEM-X bistatic SAR interferometry system of DLR could provide the global DEM data with high resolution and precision. These high-quality, large-coverage SAR interferometry data, as well as published DEM data products, provided valuable information for using the multitemporal DEMs to detect changes in ice thickness.
The temporal coverage of the ice thickness variation data of typical glaciers on the Tibetan Plateau was from 2000 to 2013, covering Puruogangri and the west Qilian Mountains with a spatial resolution of 30 meters. Using TanDEM-X bistatic InSAR data and a C-band SRTM DEM, the differential radar interferometry method was first used to generate a TanDEM-X DEM with high precision. Then, based on the precise registration of DEM, the DEM data obtained in different periods were compared. Lastly, the ice thickness changes were estimated. The format of the data set was GeoTIFF, and each typical glacier ice thickness change was stored in a folder.
For details of the data, please refer to the Ice elevation changes for typical glaciers on the Tibetan Plateau - Data Description.

2、Keywords

Theme：Glacier thickness,Glacier topography,Radar images,Glacier(Ice Sheet),Terrestrial Surface Remote Sensing
Discipline：Terrestrial Surface,Cryosphere
Places：Puruogangri, Tibetan Plateau , West Qilian Mountains
Time：2000-2013

3、Data details

1.Scale：250000

2.Projection：

3.Filesize：252.0MB

4.Data format：PDF

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：39.8 | - |
| west：96.3 | - | east：96.9 |
| - | south：39.2 | - |

5、Time frame:2000-01-17 00:00:00+00:00--2014-01-16 00:00:00+00:00

6、Reference method

References to data:

Ice elevation changes for typical glaciers on the QTP V1.0 (2000-2013). A Big Earth Data Platform for Three Poles, doi:10.11888/Glacio.tpdc.2700732018

References to articles:

Sun, Y., Jiang, L., Liu, L., Sun, Q., & Hsu, H. (2017). Mapping glacier elevations and their changes in the western qilian mountains, northern tibetan plateau, by bistatic insar. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, PP(99), 1-11.

Liu, L., Jiang, L., Sun, Y., Yi, C., Wang, H., & Hsu, H. (2016). Glacier elevation changes (2012–2016) of the puruogangri ice field on the tibetan plateau derived from bi-temporal tandem-x insar data. International Journal of Remote Sensing, 37(24), 5687-5707.

7、Supporting project information

现代大地测量及其地学应用的研究
CASEarth:Big Earth Data for Three Poles（grant No. XDA19070000）

8、Data resource provider