

Estimation of glacier velocities at Pio XI in the Southern Patagonia Icefield detected by ALOS-2/PALSAR-2

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The Southern Patagonia Icefield(SPI) is the largest temperature ice mass in the southern hemisphere. Recently, it is reported that majority glaciers in the SPI had undergone significant retreat and thinning. On the contrary to this trend, only Pio XI glacier advanced in the SPI in the last century. Pio XI glacier, the largest glacier in the SPI, has two termini. The north tongue calves into the Greve lake, whereas south tongue into the Eyre Fjord. There are two interesting reports on the behaviours of Pio XI. One is about whether Pio XI is surge-type glacier, another is about switch the flow path of Pio XI.

In order to understand the dynamics of Pio XI glacier, this paper reports the temporal variations of flow velocities and terminus positions by using Advanced Land Observation Satellite-2/Phased Array-type L-band Synthetic Aperture Radar-2(ALOS-2/PALSAR-2)data acquired in 2015.

In 2015, Pio XI flows < 4m/d from February to June. However in the term from August to September, Pio XI revealed significant acceleration. In 2015, the primary flow of Pio XI is terminate into Greve lake from north tongue.

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