



Rifting processes of Brunt and Stancomb-Wills Ice Shelves analysed using SAR magnitude data

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We present velocity data from the Brunt and Stancomb-Wills Ice Shelves in Antarctica determined using template matching of SAR images. From these data we estimate stresses acting on the ice shelves and determine locations of active rifts by calculating rates of horizontal divergence

Calculating strain-rates and corresponding horizontal devatoric stresses reveals that the main areas of resistive forces acting on Brunt/Stancomb-Wills Ice Shelves are 1) grounding line to the south of Stancomb-Wills Ice, 2) ice-shelf margin towards Lyddan Ice Rise, and 3) around the Mcdonald Ice Rumples. On Brunt Ice Shelf the direction of strongest velocity gradient is across the ice shelf towards Stancomb-Wills Ice Shelf and not along the flow-line direction. A chasm between Stancomb-Wills Ice Shelf and Brunt Ice Shelf has been growing in length for the last twenty years. As a consequence, the mechanical coupling between these two ice shelves is currently being reduced. We suggest that this progressive decoupling between the ice shelves may be the reason for the observed slow done of Brunt Ice Shelf over the last nine years.