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ACC028-P02

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An attempt to estimate ice sheet flow rate and its temporal change over coastal region of east Antarctica by InSAR

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Development of a global digital elevation model (GDEM) from Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data allowed us to detect surface displacements easily over ice sheet and ice stream in polar region by applying it in interferometric SAR processing. We applied the ASTER GDEM to interferograms obtained from two interferometric pair data in 2007 and 2008 observed by the Phased Array type L-band Synthetic Aperture Radar (PALSAR) boarded on Advanced Land Observing Satellite (ALOS) over an Antarctic ice sheet of the northern part of Enderby Land to remove topographic fringe and extract fringes induced by ice sheet surface displacements (Doi et al., 2011). The interferograms consisted of the extracted fringes were converted to maps of displacement along look vector. The observed maximum displacements of the both displacement maps for the recurrent period of 46 days were about 2 m. We also obtained a difference between the displacement maps, and found that complicated displacement pattern was canceled out in the differenced map. Small changes in displacements of less than 30 cm/46 days were also found along ice stream margins in the obtained differenced displacement map. Similar analysis will be applied to interferometric SAR pair data observing area along Soya Coast, where many ground truth data were obtained.

Keywords: InSAR, Antarctica ice sheet, ice sheet flow rate