

# Surface velocities in the hinterland of the Neumayer III station (Antarctica) derived from SAR-interferometry

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## Abstract

Surface velocities of polar ice are an important input parameter for mass flux calculations and ice-sheet modelling. As on-site measurements in remote areas are sparse, satellite-based measurements have to be used to obtain area-wide surface velocities. Synthetic Aperture Radar (SAR) data from various sensors are routinely employed for this purpose. Depending on the availability of adequate SAR image pairs, the surface velocity can be derived by SAR interferometry. The accuracy of the applied interferometric method heavily depends on external input parameters (e.g. elevation model) and the processing history. The presentation focuses on the hinterland of the German overwintering station Neumayer III (Antarctica). The dependency of the interferometric approach on external elevation models is shown by comparing surface velocities based on Antarctic-wide elevation models (from satellite altimetry) with surface velocities based on local elevation models (from SAR interferometry). The accuracy of the generated surface velocity fields is evaluated by comparing the data with on-site GPS measurements.

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