



Velocities, elevation changes and mass budgets of northern Antarctic Peninsula glaciers

Thorsten Seehaus (1), Sebastian Marinsek (2), Pedro Skvarca (2), and Matthias Braun (1)

(1) Department of Geography, University, Erlangen, Germany, (2) Instituto Antártico Argentino, Buenos Aires, Argentina

During the last 5-6 decades the climatic conditions at the Antarctic Peninsula have shown significant changes. The disintegration of ice shelves (e.g. Larsen-A and B, Wordie) led to an increased flow speed and significant surface lowering of tributary glaciers. Current estimates show a positive contribution of Antarctic Peninsula ice to sea level rise. However the quantifications of ice mass loss along the Antarctic Peninsula is still inadequate due to the insufficient temporal coverage of ice speeds as well as lack of ice thickness and surface mass balance data.

By analyzing time series of SAR satellite data (ERS-1/2, ENVISAT, ALOS PALSAR, TerraSAR-X) of the last 20 years glacier velocity changes are determined for the northern Antarctic Peninsula. The glacier surface velocities are computed by using feature tracking on applicable pairs of SAR Images. In combination with the new high resolution TanDEM-X satellite data and previous ASTER digital elevation models the calculation of surface elevation changes and first ice discharge estimates are provided. Later these first results will support the imbalance calculation in the research area.