



Observations of surface velocity near the onset of the NEGIS ice stream by GPS

Christine S. Hvidberg, Aslak Grinsted, Lars B. Larsen, and Dorthe Dahl-Jensen
Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark (ch@nbi.ku.dk)

The Northeast Greenland Ice Stream (NEGIS) extends around 700 km from its onset near the ice divide to the coast in Northeast Greenland. It drains a sector of approximately 16% of the ice sheet area through its three main outlets, 79th Fjord, Zachariae and Storstrømmen, and recent retreat at the outlets has increased the mass loss from the sector. The dynamics of the interior part of NEGIS and its sensitivity to marginal mass loss is not well known. Here we present the results from in-situ GPS mapping of surface velocity collected in an area located approximately 150 km from the ice stream onset near the EastGRIP deep drilling site (75°38'N, 35°60'W, 2700 masl). A >20 station GPS strain net was established and observed for consecutive years in 2015-2017. The area extends 20 km along the NEGIS and 40 km across, covering the entire 25 km width of NEGIS with a uniform surface speed of appr. 57 m/yr and extending across both shear margins to the slower moving regions outside the ice stream. GPS results are presented and supplemented by satellite-based topography and velocity products to describe the ice dynamics and structure of the NEGIS ice stream near its onset, including the shear margins.