



Detailed High-Resolution Observations of Ice Deformation Prior to Glacier Calving

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Observations of ice deformation patterns at the front of an actively calving glacier during five summer field seasons allow us to relate ice flow patterns to glacier calving. Ice geometry and displacement were measured every minute with a terrestrial radar interferometer (GPRI) during 10 days per field season. The investigated tidewater glacier, Eqip Sermia in West Greenland, features calving front sections that are in very shallow water or near-floating, and glacier thinning with a nearly constant calving front position yield measurements at different ice thicknesses. We used this data set for a parameter study on the influence of ice thickness, front geometry and external forcing on the calving process. We present limits on critical strain rate for iceberg calving in dependence on front height and water depth.