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Calving rates from crevasse calving in PISMv0.7

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Calving of icebergs is an important mechanism for rapidly transferring mass from the ice sheets into the adjacent ocean. In Greenland icebergs contributes up to 44% of the Greenland Ice Sheet mass loss every year, while melting counts for the rest (57%).

A crevasses-depth calving criteria based on structural damage of the ice by penetration of surface and basal crevasses are implemented into the thermodynamically ice sheet model Parallel Ice Sheet Model (PISM). The calving rate is estimated, by running modified setups of the standard experiment from the Marine Ice Sheet Model Intercomparison Project (MISMIP). In the presentation we discuss the influence of the special model resolution, bed slope inclination, accumulation rate, ice softness (magnitude of basal friction), and the water depth in the surface crevasses on the calving rate.