



Project acronym: RECOVER

Project title: Recovery of the long-term Mittivakkat Gletscher surface mass balance record

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Discipline: Earth Sciences & Environment: Global change & Climate observation

Station(s): Sermilik Research Station (Greenland/Denmark)

The field site is Mittivakkat Gletscher, which is located above the research station. The main objective of the proposed field campaign was to reestablish the surface mass balance measurement series on the glacier, which was discontinued for the years 2020-2021 due to the covid-19 pandemic, such that the surface mass balance series can continue in the future. This includes locating, replacing and/or reinstalling stakes that have melted out of the ice surface and recover stakes on the upper part of the glacier that are possibly still intact. In addition to continuing the mass balance series, we aim to reestablish the surface-based albedo measurement series which have been ongoing since 2015. We also aim to extend the usefulness of this data series by:

1. Installing a draw wire ice ablation tracker system similar to Hulth (2010). This will be installed in the lower ablation area and hence complement the GEUS automatic weather station (AWS) on Mittivakkat Gletscher. The addition of this device to the existing AWS monitoring will allow for answering questions of vertical ablation gradients and their spatiotemporal variability. For instance, we will be able to study the short-term impact of extreme ablation events and the influence of the position of inversion layers.
2. Installing a series of six high frequency air temperature loggers on stakes at 1 m and 2 m above the glacier surface over a range of altitudes between 200 and 800 m a.s.l. during the field campaign. This will allow a low altitude high frequency investigation of surface air temperature and lapse rates analogous to the high-altitude study conducted on the Gamma Glacier in the Chilean Andes (Hanna et al., 2017).