

Ice Dynamics and Cryospheric Changes in Northern Canada

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Fieldwork in spring and summer 2023 continued the long-term mass balance measurements at White Glacier, Axel Heiberg Island. This included spring measurements of snow depth and ice melt at a network of stakes along the glacier centerline, GPS measurements along the survey network, and servicing of weather stations. Summer fieldwork involved repeat terrestrial photography and GPS measurements at survey cairns.

In August 2023 we started to undertake fieldwork out of Grise Fiord, but unfortunately this was cancelled due to the passing away of the leader of an associated team working in the same area. Instead we undertook fieldwork on southern Ellesmere Island from the CCGS Amundsen icebreaker in September, which included a visit to Sydkap Glacier to download 2 GPS stations to measure ice velocity, and 3 timelapse cameras to monitor iceberg calving. Satellite imagery indicates that Sydkap Glacier has been speeding up recently, so these instruments help us to understand why this is happening. We also deployed two GPS systems on Manson Icefield to monitor a potential new subglacial lake, and a surge-type glacier. The subglacial lake occurs where several glaciers meet, and currently seems to be filling at a rate of about 20 m/yr.