

Ice Dynamics and Cryospheric Changes in Northern Canada

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Fieldwork in spring and summer 2022 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, the downloading of GPS units to measure the glacier's speed, and servicing of weather stations. Summer fieldwork involved air photo surveys over regional glaciers including Crusoe, Thompson, and White, repeat photography at survey cairns, and on-ice measurements of glacier faults and folds.

In August 2022 fieldwork was undertaken as daytrips by helicopter out of Grise Fiord, with visits to Sydkap Glacier to install 2 new GPS stations to measure ice velocity, and drone flights to take high resolution photos. We also installed timelapse cameras on surrounding cliffs, overlooking the glacier terminus. Satellite imagery indicates that Sydkap Glacier has been speeding up recently, so these instruments will help us to understand why this is happening. We also set up a water pressure sensor and timelapse camera south of Sydkap Glacier to monitor a large glacier-dammed lake that has been present there for many decades. Finally, we undertook an aerial survey of Manson Icefield to investigate locations of glacier surging, and to identify sites for potential future fieldwork.