

Title

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Theme

Sub- Theme 3: Operating Observing Systems and Networks

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Poster title (brief)

Multi-decadal glacier monitoring on Axel Heiberg Island, Nunavut

Abstract - text box

The Canadian Arctic Archipelago (CAA) hosts an area of glaciers and ice caps exceeding 140,000 km². This large area of ice in combination with enhanced Arctic warming, which has exceeded 3°C since 1972 at the Eureka weather station, has resulted in the CAA becoming the largest contributor to global sea level rise outside the continental ice sheets. While remote sensing serves as a critical tool in determining the extent of glacier change across this large region, field-based observations of glacier dynamics and glacier-climate processes are essential for the prediction of future glacier stability.

White Glacier on Axel Heiberg Island, Nunavut, hosts one of Canada's longest glacier mass balance records (58 years) as well as numerous early studies during the 1960-1970s into polythermal glacier dynamics, englacial temperatures, and energy balance processes in the glacier accumulation and ablation areas. Recent work is endeavoring to determine how these key aspects of the glacier system are evolving under enhanced warming in recent decades using continuous dGPS observations, automatic weather stations, time-lapse camera techniques, and thermos-mechanically coupled modelling tools. We present both the historic and ongoing work

here, and welcome recommendations from the community for future research directions and potential collaborations.