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Title Facilitating Weather-Related Decision Support in the Arctic using the Canadian Arctic Weather Science Project's Supersites

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Theme -Theme 2: Observing in Support of Adaptation and Mitigation

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Poster title (brief) Facilitating Weather-Related Decision Support in the Arctic using the Canadian Arctic Weather Science Project's Supersites

Abstract - text box

Weather-related hazards, including blizzards, high winds, and low visibility are primary contributing factors to many Search and Rescue events in the Arctic, affecting both the safety and mobility of those living and operating in the North. Recognizing significant limitations in monitoring infrastructure (i.e., spatial and temporal coverage) and weather prediction skill in Canada's North, Environment and Climate Change Canada (ECCC) has since 2015 made significant on-going investments in Arctic-focused monitoring and prediction systems. Through the Canadian Arctic Weather Science (CAWS) project, ECCC commissioned supersites for meteorological observations in the Canadian Arctic and sub-Arctic. In particular, the Iqaluit supersite (64 N, 69 W) is equipped with in-situ and remote sensing instrumentation including Doppler and water vapour LiDARs, precipitation, fog, and radiation sensors that operate autonomously and continuously during all weather conditions.

Research and development activities centered around the Iqaluit supersite characterize the atmospheric boundary layer and integrate detailed meteorological observations with post-processing weather forecasting products to generate more precise and reliable weather forecast guidance for hazardous conditions (e.g.: blizzard, reduced visibility, blowing snow). The benefit of such integrated measurement systems at the Iqaluit supersite is being investigated to determine potential applications to support search and rescue (SAR) operations in the Arctic. The goal of this initiative is to tailor existing observations and weather products to produce and communicate weather-related information such that it becomes salient, relevant and compatible with local and indigenous knowledge systems and practices. Potential applications for SAR operations, local communities, and the department of national defense are discussed.