

## Public Registry - Project Proposals

NPC 150594: IceBird Winter 2025

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Proposal Status: Conformity Determination Issued

Overview Documents

Project Overview

Type of application: Renewal

Proponent name: Thomas Krumpen

Proponent company: Alfred Wegener Institute for Polar and Marine Research

Project Description:

The aim of IceBird is to conduct sea ice surveys over different ice regimes when sea ice is close to its maximum thickness. The project is designed to collect detailed measurements and trace the evolution of such changes from year to year. Sea ice thinning and retreat are expected to continue as a result of climate change with a major uncertainty introduced by long-term natural climate variability. The project will use a specially modified DC-3 research aircraft, owned by the Alfred Wegener Institute, fitted with scientific instruments that will be used to collect data. The surveys contribute to a sea ice observation program that spans the western part of the Arctic Ocean from the Fram Strait to the Western Beaufort Sea. The scientific instruments include a towed electromagnetic-induction system (EM-system) for estimation of ice thickness, an airborne laser scanner for high-resolution surface roughness and a snow radar for snow depth on sea ice. In addition, a set of air-launchable buoys will be used to mark flight tracks over the drifting sea ice for re-visits by follow up surveys. Airborne observations and data will be collected while based at four different locations across the Arctic: Inuvik, Northwest Territories; Cambridge Bay, Resolute Bay, and Eureka, Nunavut; Station Nord, Greenland. At each location, research flights will be conducted with a range of approximately 300 km. The planned flight altitudes are between 60 m and 600 m, with low altitude flights only making up approximately 20 minutes of each flight. The IceBird campaign is building on the heritage of data collected at previous sea ice surveys (German PAMARCMiP and Canadian CASIMBO). The existing data record has documented the decline of sea ice thickness north of Canada and Greenland in the past decade and demonstrated the variability of sea ice conditions during spring. The results will be published in English in international peer-reviewed papers and communicated at international conferences. Data will be made publicly available at the world renowned PANGAEA repository (Pangaea.de). We also plan to conduct science communication via social media channels during and shortly after the field campaigns. See Expedition Flight Route Map and Flight Pattern diagram in attached documents. The project will begin in Inuvik on March 22, will come to Nunavut on March 25, and will leave to Greenland on April 13, 2025. There are eight personnel on this project, five scientific crew and three aircraft crew.

Project Schedule

Start Date: 2025-03-25

End Date: 2025-04-13

#### Project Map

#### List of project geometries:

Id	Geometry	Location Name
14171	polygon	Last Ice Area
14173	polygon	Victoria Strait
14174	polygon	Penny Strait
14175	polygon	Pond Inlet
14176	polygon	Qikiqtarjuaq
14169	point	Eureka
14170	point	Resolute Bay
14172	point	Cambridge Bay

#### NPC Planning regions:

No Approved Plan

North Baffin

#### Project Land Use and Authorizations

#### Project Land Use:

Airport

Scientific Research

#### Licensing Agencies:

Nunavut Impact Review Board

Nunavut Research Institute

Nunavut Research Institute

#### Material Use

#### Equipment:

Type	Quantity	Type	Use
Basler BT-67 (DC3) airplane	1	N/A	Research flights and ferrying equipment & passengers

#### Fuel Use:

Type	Container	Capacity	Use
Aviation fuel	1	16000	For aircraft

Hazardous Material and Chemical Use:

Type	Container	Capacity	Use
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No data found

Water Consumption:

Daily Amount (m2)	Retrieval Method	Retrieval Location
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Waste and Impacts

Environmental Impacts:

There will be minimal impact on the environment as a result of this project. There will be some impact from the fuel used by the aircraft. All measurements will be taken from the air and the aircraft will not land outside of the airports except in the event of an emergency. The aircraft will sometimes be required to fly at low altitudes (80 m) to take the necessary measurements. The emissions generated from the fuel used by the aircraft are equal to or less than the other commercial flights in the area, so this impact would be within acceptable levels. When flying at low altitudes, the aircraft will avoid sensitive wildlife areas. Crew on the aircraft will look for marine mammals and avoid areas where they are seen.

Waste Management:

Waste Type	Quantity Generated	Treatment Method	Disposal Method
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Other, garbage minimal	.	will remain with the aircraft	
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