

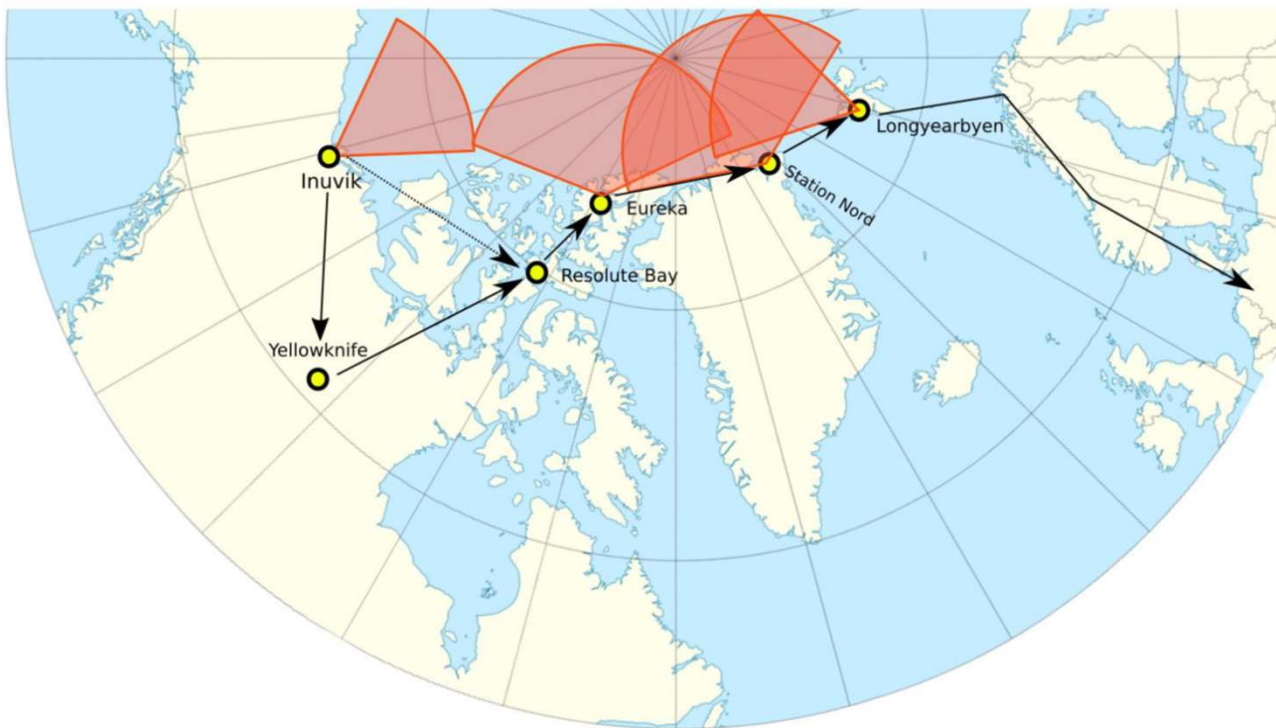
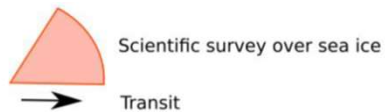
# **AWI IceBird**

**Leading Airborne Program for Direct Sea Ice Observations**

Survey activities for winter 2024

PI: Dr. Christian Haas

# Expedition flight route



9	Tu	YQA->YEV
10	We	YQA->YEV
11	Th	YEV Sea ice
12	Fr	YEV Sea ice
13	<b>Sa</b>	YEV TVC
14	<b>Su</b>	YEV TVC
15	Mo	YEV spare
16	Tu	YEV spare
17	We	YEV->YRB
18	Th	YRB
19	Fr	YRB
20	<b>Sa</b>	YRB
21	<b>Su</b>	YRB
22	Mo	YRB
23	Tu	YRB
24	We	YRB->YEU
25	Th	YEU
26	Fr	YEU
27	<b>Sa</b>	YEU
28	<b>Su</b>	YEU
29	Mo	YEU
30	Tu	YEU
1	<b>We</b>	YEU
2	Th	YEU
3	Fr	YEU
4	<b>Sa</b>	YEU-BGNO
5	<b>Su</b>	BGNO
6	Mo	BGNO
7	Tu	BGNO
8	We	BGNO->ENSB
9	Th	ENSB->BRE
10	Fr	ENSB->BRE

# Scientific program

*The aim of Ice Bird is to conduct sea ice surveys over different ice regimes when sea ice is close to its maximum and minimum extents. 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. These instruments will be used to collect data and samples during a series of planned high altitude and low altitude flights. Airborne observations and data will be collected while based at four different locations across the Arctic: Inuvik, Northwest Territories; Resolute Bay and Eureka, Nunavut; Station Nord, Greenland and Longyearbyen, Norway. 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.*

# Airborne sensors



**Snow Radar (UWBM)**

**Laser Scanner (ALS)**

**Str. Therm. (KT19)**

**Nadir Camera (CAM)**

**Buoy launcher**

**EM-Bird (AEM)**

Particulars of methods and scientific instruments	Methods to be used	Instruments to be used
Types of samples and data	Measurements of sea ice thickness and snow depth	EM-Bird, Laserscanner, Buoy drops, FMCW snow radar

# Flight pattern

