SWEDISH POLAR RESEARCH SECRETARIAT
POLARFORSKNINGSSEKRETARIATET

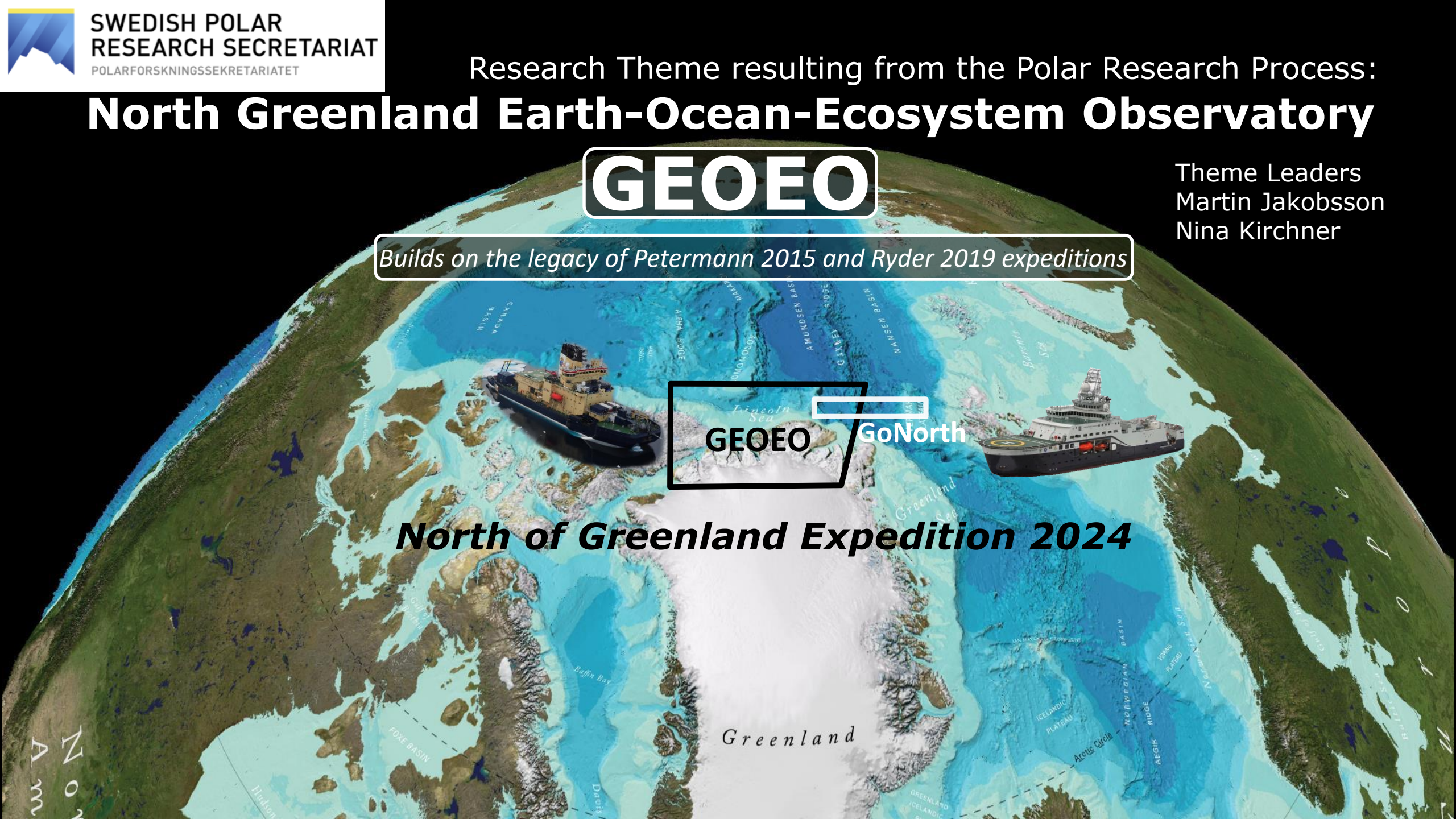
Research Theme resulting from the Polar Research Process:

North Greenland Earth-Ocean-Ecosystem Observatory

GEOEO

Theme Leaders
Martin Jakobsson
Nina Kirchner

Builds on the legacy of Petermann 2015 and Ryder 2019 expeditions



North of Greenland Expedition 2024

Ryder 2019 Expedition

Explorers Club Flag
Expedition #51

NORTHERN GREENLAND
RYDER 2019 EXPEDITION
ICEBREAKER ODEN

Petermann 2015 Expedition

Bolin Centre for Climate Research
Stockholm University
University of New Hampshire
CCOM JHC
OSU Oregon State University
UNIVERSITY OF COPENHAGEN
University of Gothenburg
Naturhistoriska riksmuseet
INSTAAR
USGS science for a changing world
GEUS
British Antarctic Survey
MEMORIAL UNIVERSITY
Universidad de Oviedo
Universidá d'Uviéu
University of Oviedo
LUND UNIVERSITY
POLARFORSKNINGS SEKRETARIATET
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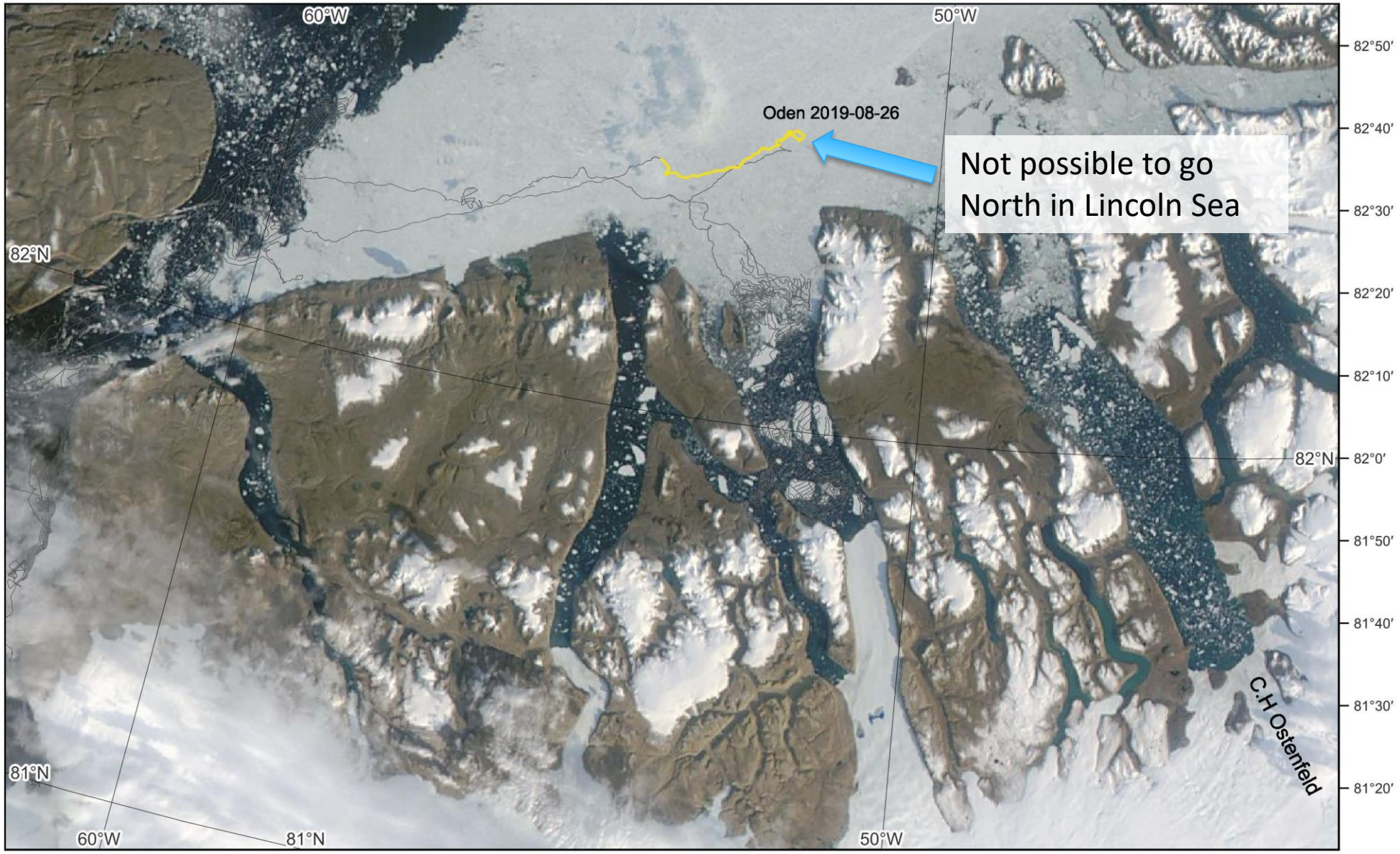
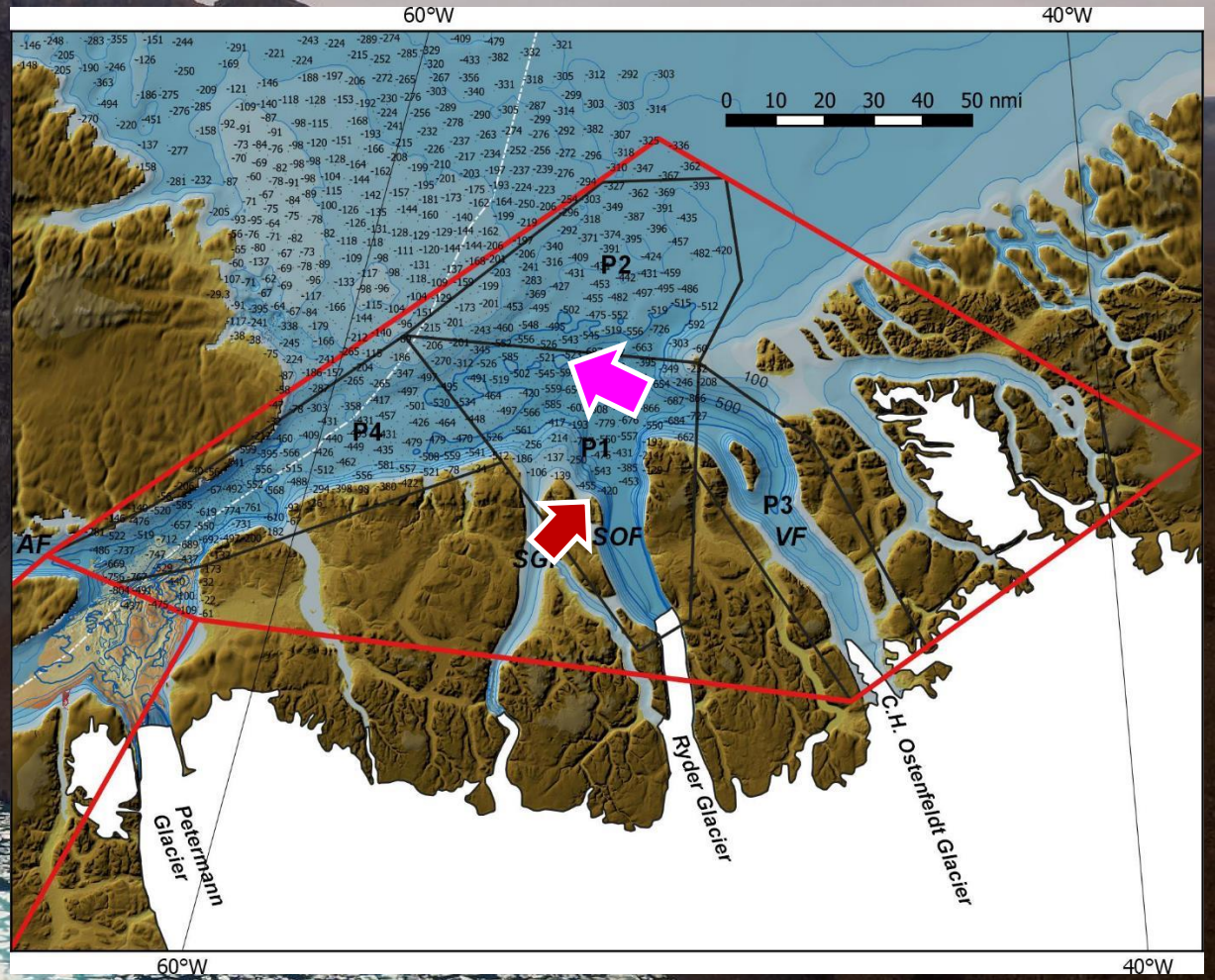
Ryder 2019: The three main logistical challenges

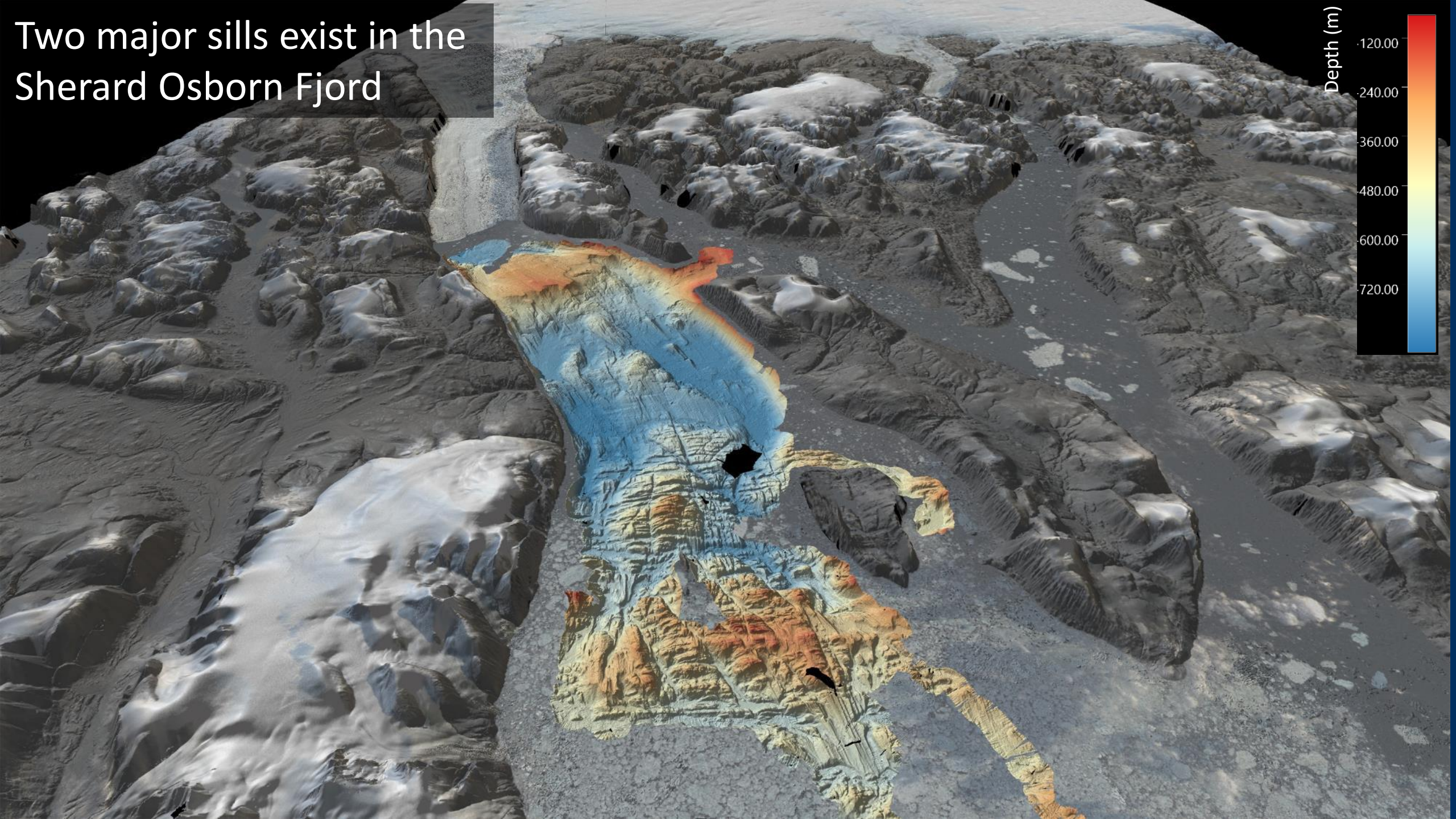


Could not go further north in the Lincoln Sea

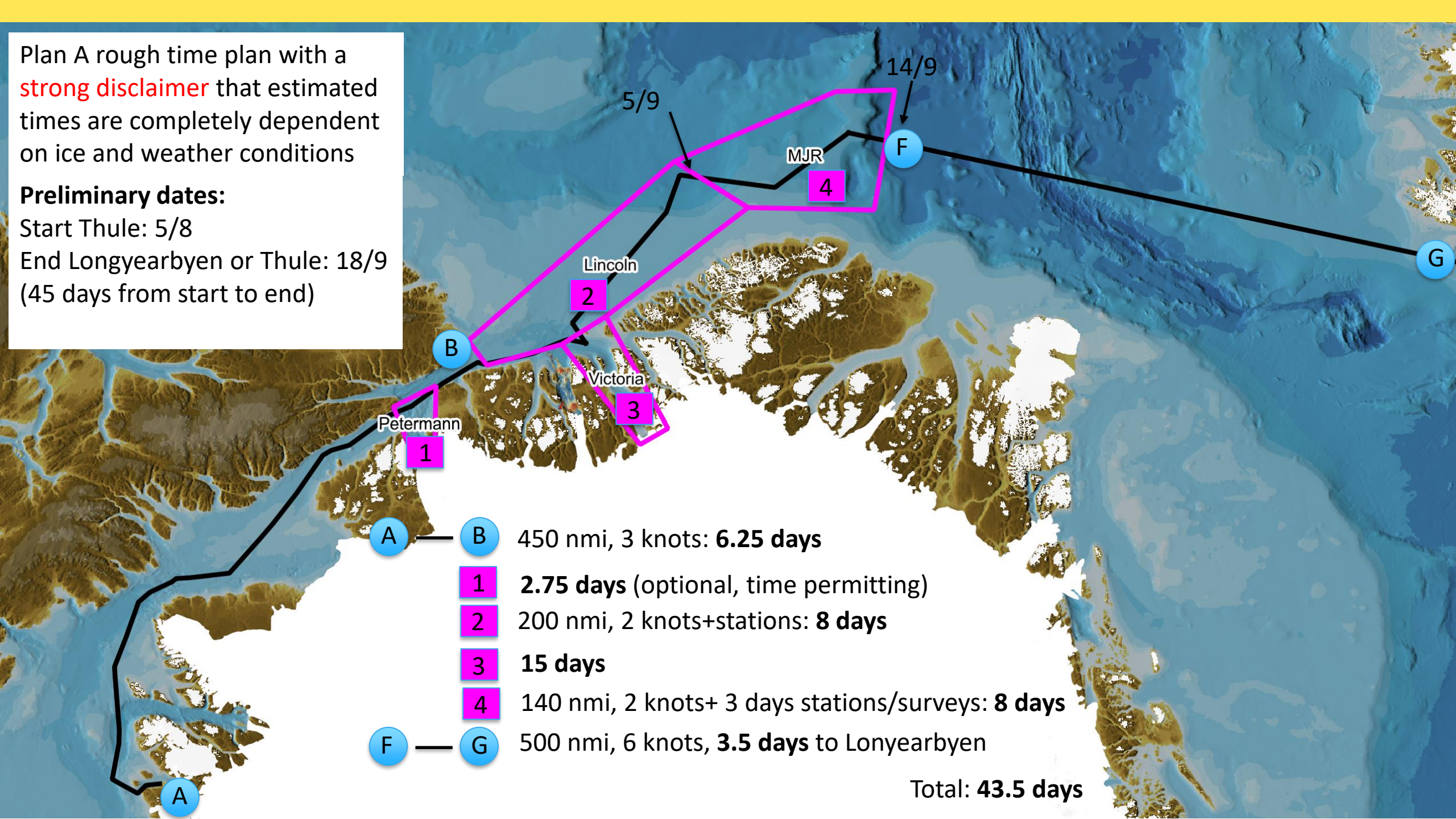
Modis 2019-08-29

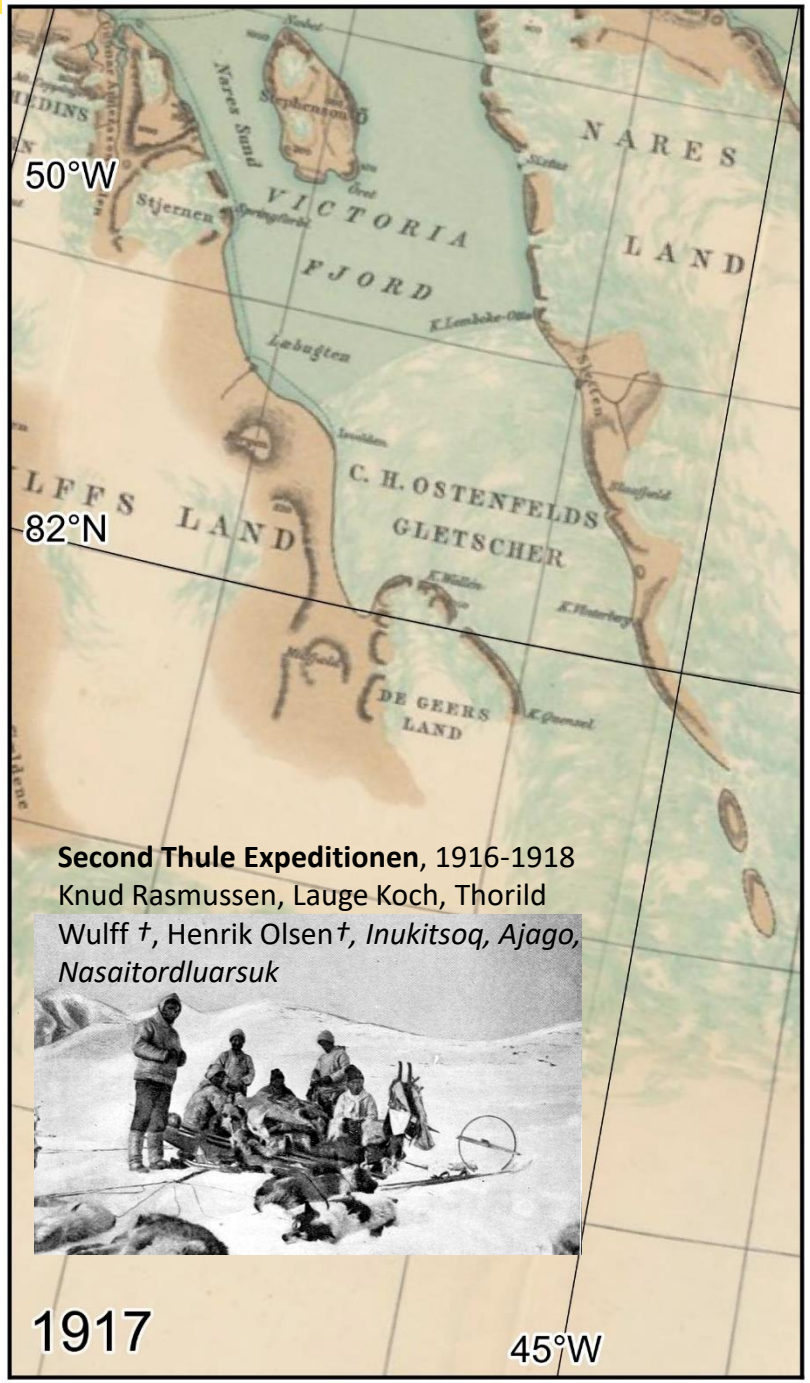
Sherard Osborn Fjord

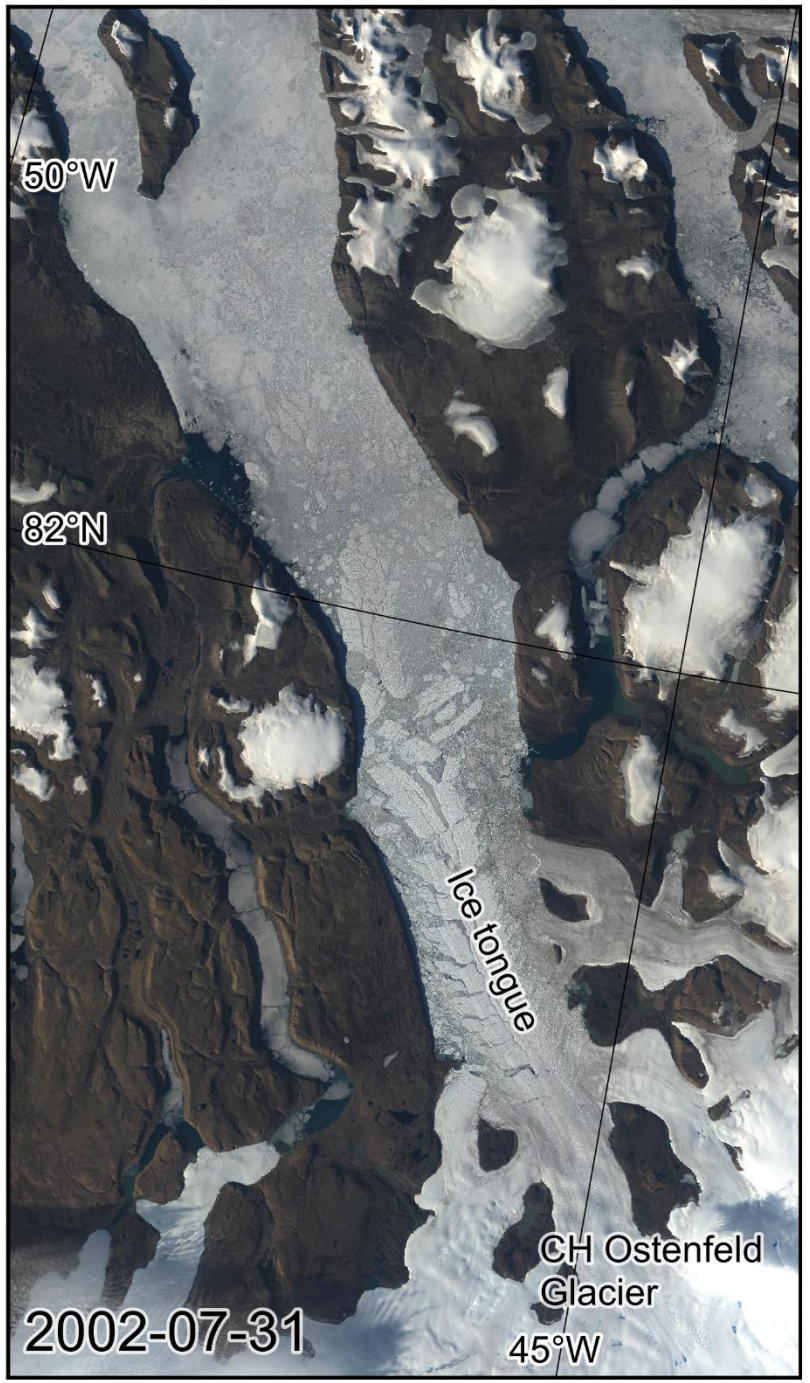


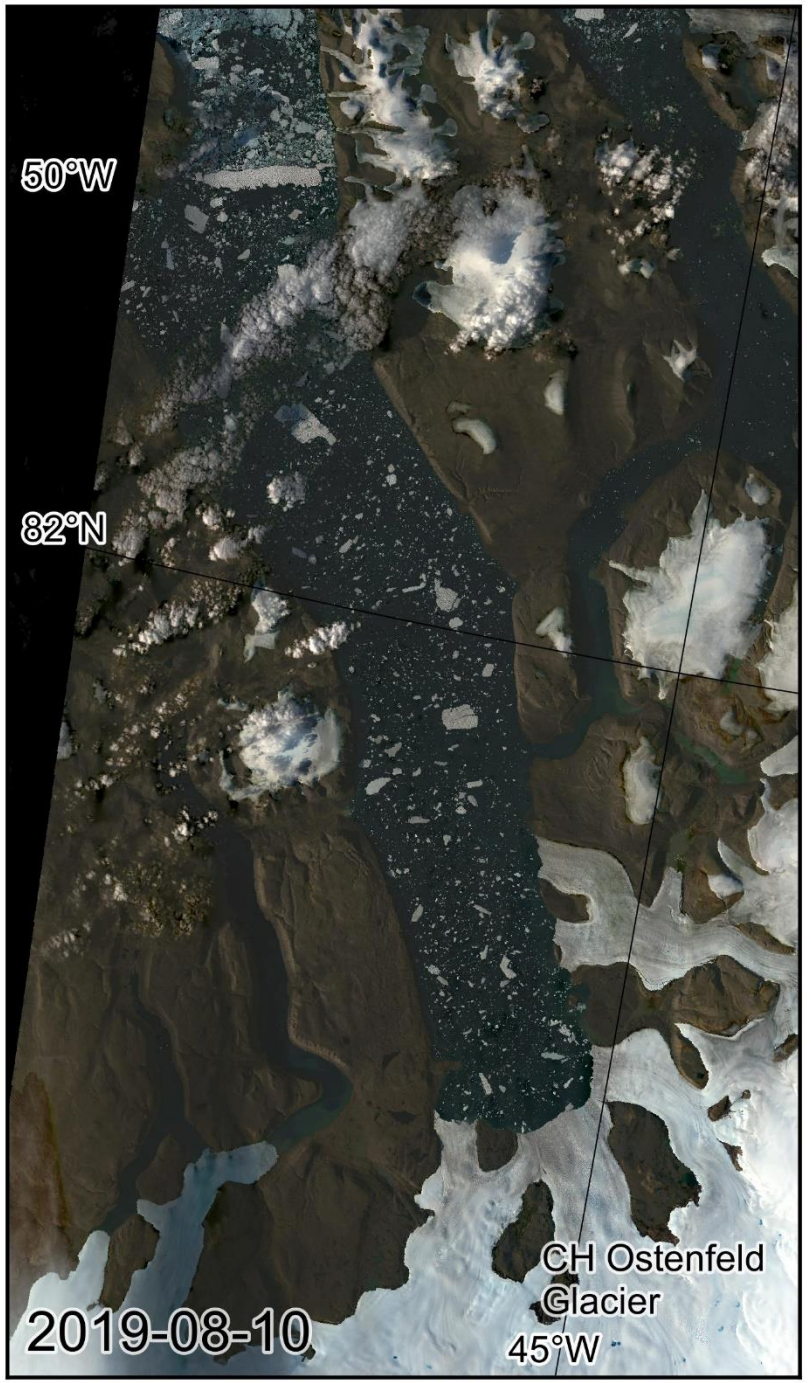

Two major sills exist in the Sherard Osborn Fjord
Depth (m)
-120.00
-240.00
-360.00
-480.00
-600.00
-720.00


Stations and sites
Land camps
Temp. buoys
Drift wood
Multinets
Lake cores
Plankton nets
Cores
Dissolved gas sampling
CTD
Ecology/ Archeology/ Palaeogenetics
XBT
Sea level site
Lomonosov Ridge
Arctic Ocean
Morris Jessup Rise
Atlantic water
Thule – Svalbard transect
GoNorth 2024
Atlantic water
RV Kronprins Haakon
Lincoln Sea
IB Oden
Plan A
(optimal conditions)
Ryder 2019 Expedition
Petermann 2015 Expedition
C.H. Ostenfield Glacier
Ryder Glacier
Petermann Glacier


Plan A rough time plan with a strong disclaimer that estimated times are completely dependent on ice and weather conditions
Preliminary dates:
Start Thule: 5/8
End Longyearbyen or Thule: 18/9
(45 days from start to end)
5/9
14/9
MJR
4
F
G
Lincoln
2
B
Victoria
3
Petermann
1
A
B
450 nmi, 3 knots: 6.25 days
1
2.75 days (optional, time permitting)
2
200 nmi, 2 knots+stations: 8 days
3
15 days
4
140 nmi, 2 knots+ 3 days stations/surveys: 8 days
F
G
500 nmi, 6 knots, 3.5 days to Lonyearbyen
Total: 43.5 days
A


50°W
NARES
VICTORIA
FJORD
LAND
C. H. OSTENFELDS
GLETSCHER
LFFS
LAND
82°N
DE GEERS
LAND
Second Thule Expeditionen, 1916-1918
Knud Rasmussen, Lauge Koch, Thorild Wulff †, Henrik Olsen †, *Inukitsoq, Ajago, Nasaitordluarsuk*
1917
45°W


50°W
82°N
Ice tongue
CH Ostenfeld
Glacier
2002-07-31
45°W


50°W
82°N
CH Ostenfeld
Glacier
2019-08-10
45°W

Polar Connect Northern EU Gateways

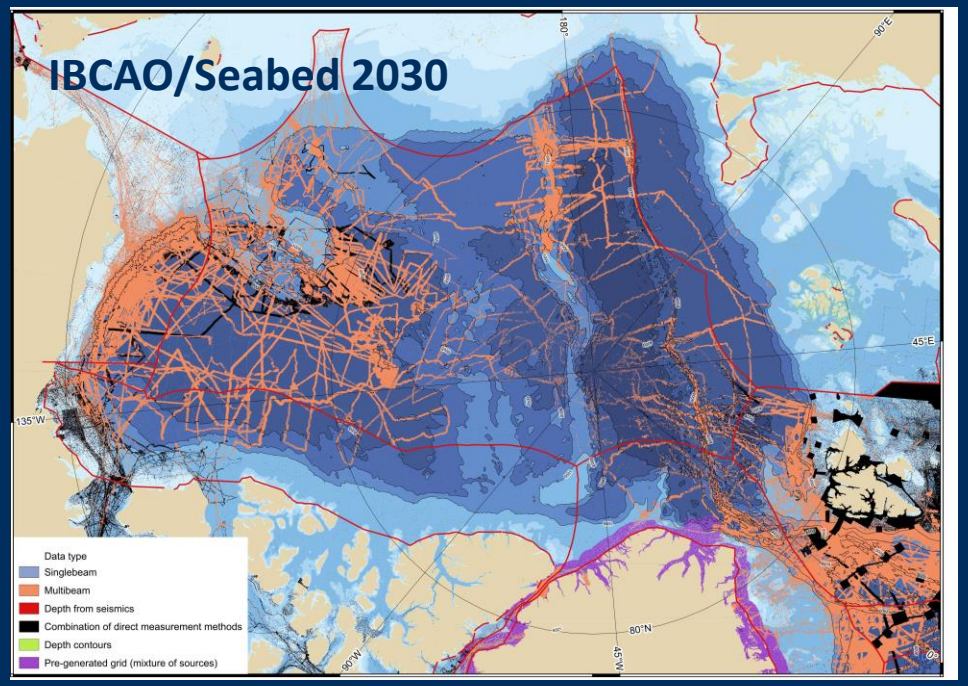
Global terrabit-capacity via the Arctic to Asia (and north America)

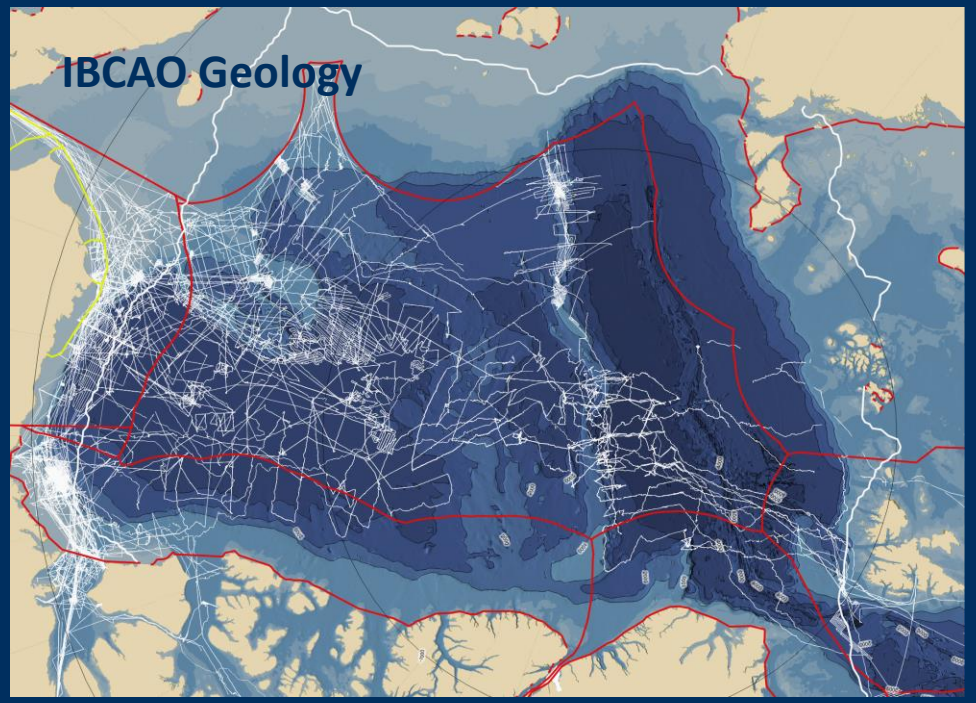
SUNET

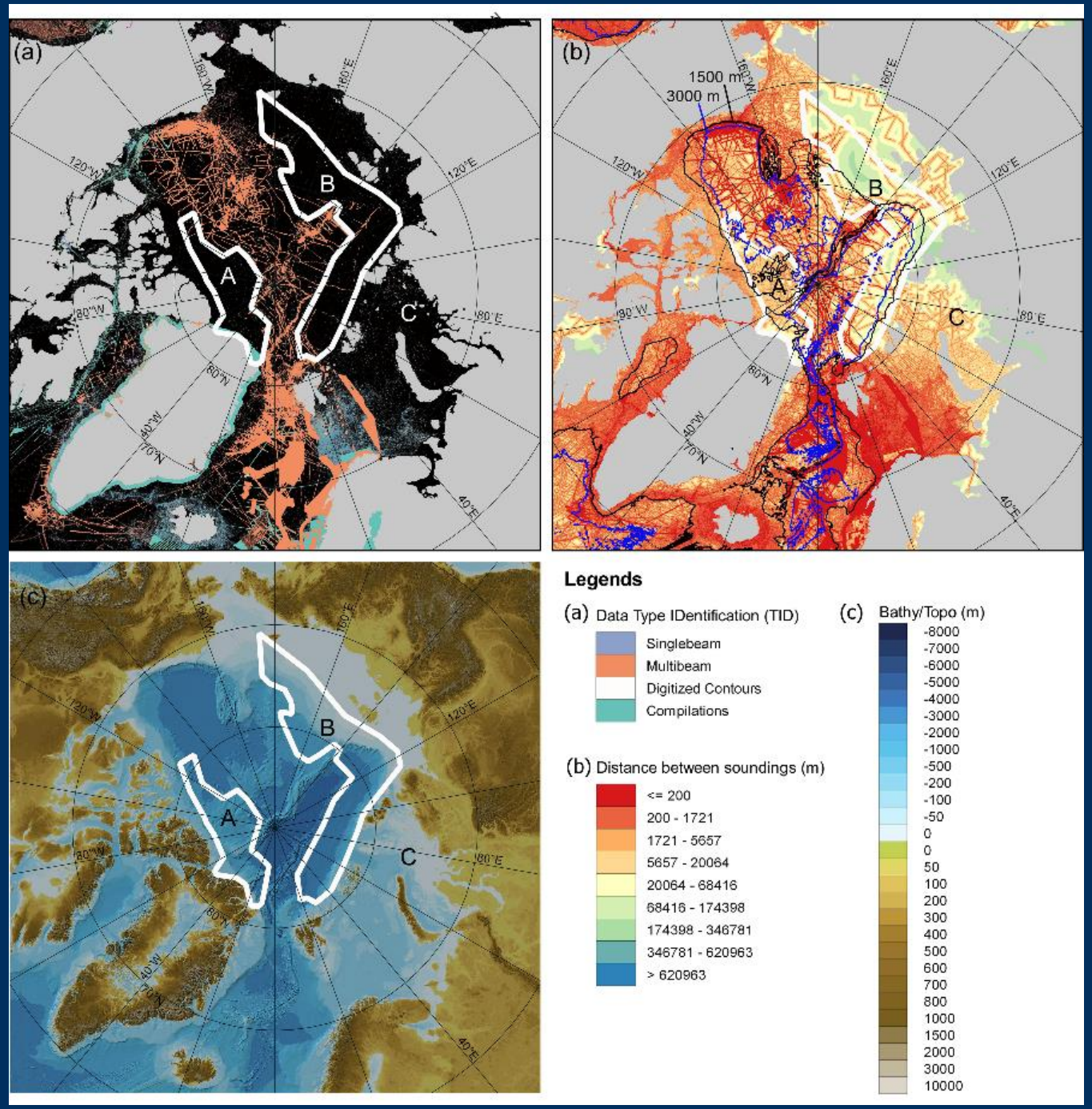
VETENSKAPSRÅDET
THE SWEDISH RESEARCH COUNCIL

POLARFORSKNINGS SEKRETARIATET
SWEDISH POLAR RESEARCH SECRETARIAT

NORDUnet
Nordic Gateway for Research & Education







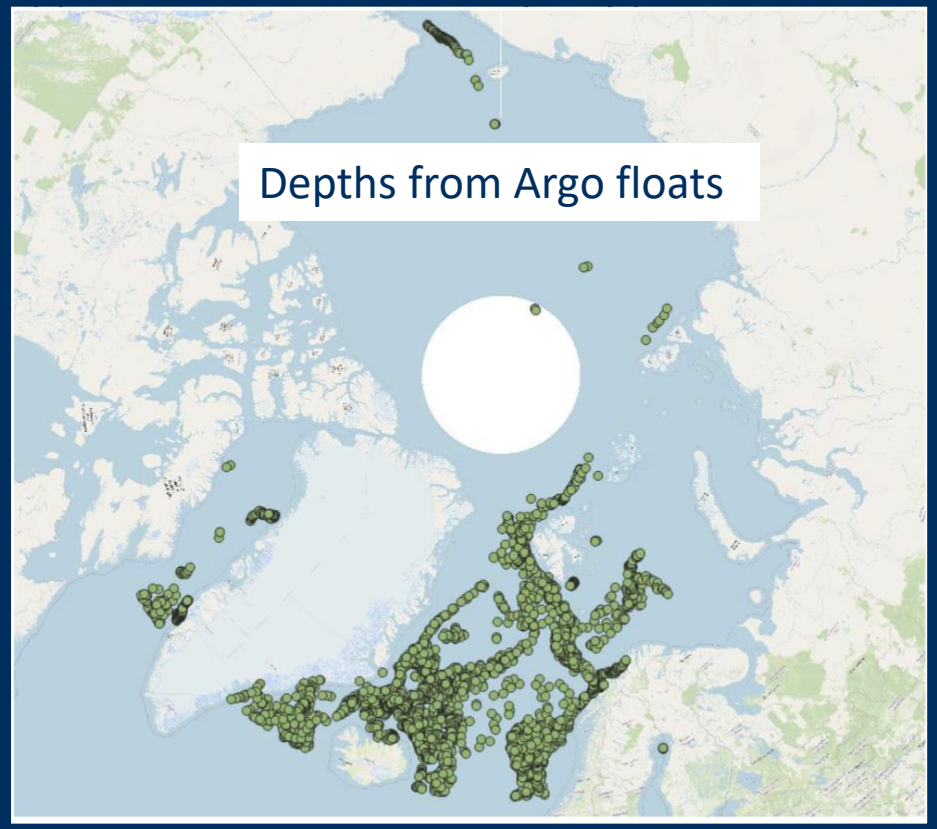
Three areas of particularly poor data coverage in IBCAO 4.2.26

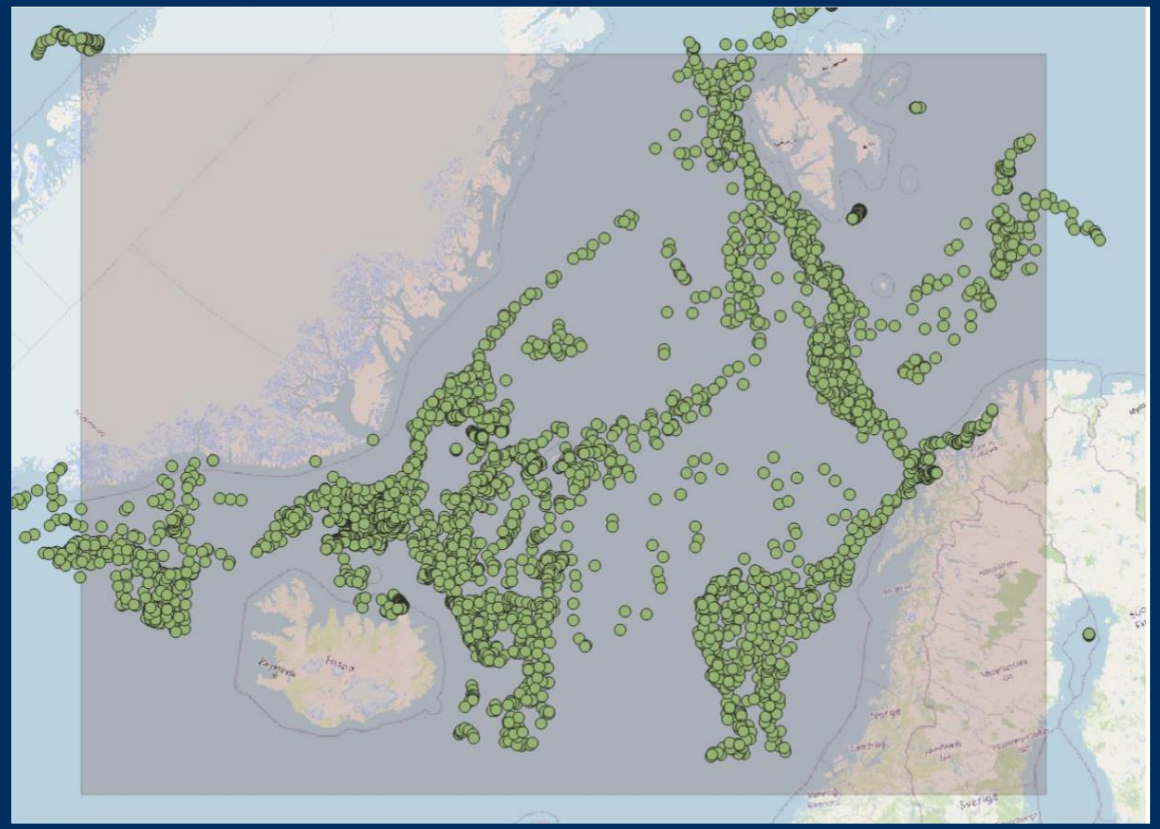
A. Off Northern Greenland and the Canadian Arctic Archipelago

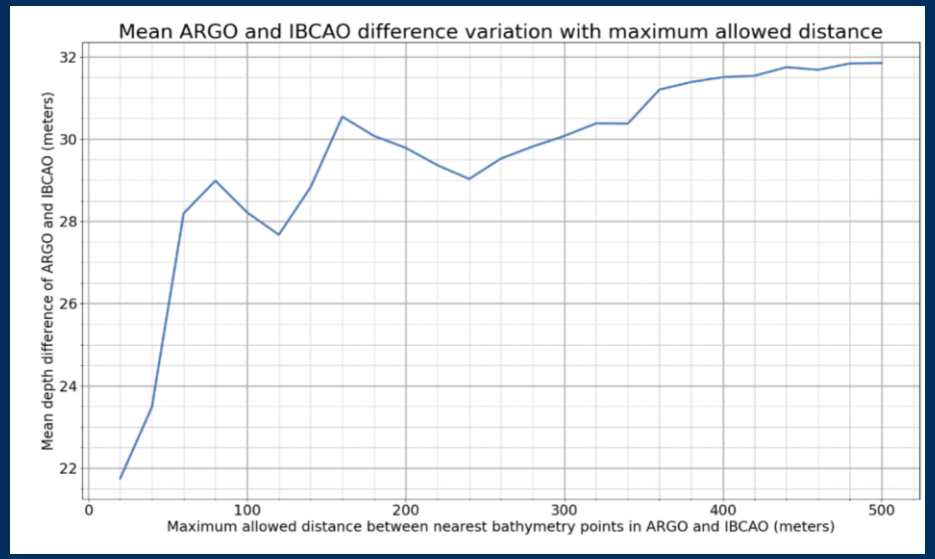
B and C. The outer continental shelves and slopes of the western Chukchi, East Siberian, Laptev, Kara and Barents seas

In area A data are scarce because of few mapping activities due to difficult ice conditions. The are likely data existing in areas B and C which have not yet been contributed to IBCAO.

THE NIPPON FOUNDATION-GEBCO SEABED 2030







With three very large outliers excluded:
Mean depth difference= 3.9%
Median depth difference = 2.1%
Standard deviation = 6.7%

THE NIPPON FOUNDATION-GEBCO SEABED 2030

Future expeditions

- Oden (GEOEO) + Kronprins Haakon (GoNorth) 2024
- Amundsen (North Greenland 2024)
- Kronprins Haakon
- Oden (Canada-Sweden collaboration)
- Healy ?
- .....?

THE NIPPON FOUNDATION-GEBCO SEABED 2030