NW Greenland

Hydrographic Survey Past & Future: GO-MARIE Program Phase II

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Arctic-Antarctic North Pacific Mapping Meeting 11/8/2019

Our Mission is to Actively Monitor Humanity's Impact on the Ocean, to better understand the ongoing ocean system processes through dedicated Interdisciplinary Science Field Campaigns

OCEANRESEARCH PROJECT

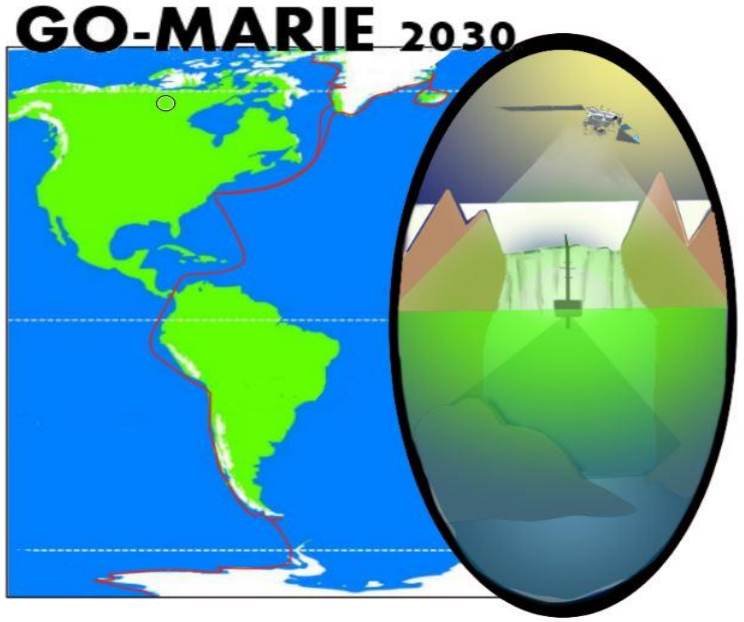
Bathymetry For Science

The Nippon Foundation-GEBCO Seabed 2030 Project

- NF GEBCO Hydrographer Alum Engagement
- 10-year Polar Mapping campaign, **2 Year pilot phase**, Phase II 2021 W-NW Greenland, emphasis in coupling physical processes with biological response as controlled by seabed topography

OCEANRESEARCH PROJECT

MAP THE GAPS



GO-MARIE

UNIVERSITY OF MARYLAND 1856

UMBC

JOHNS HOPKINS UNIVERSITY

NASA Goddard Space Flight Center

Geological Survey of Denmark and Greenland

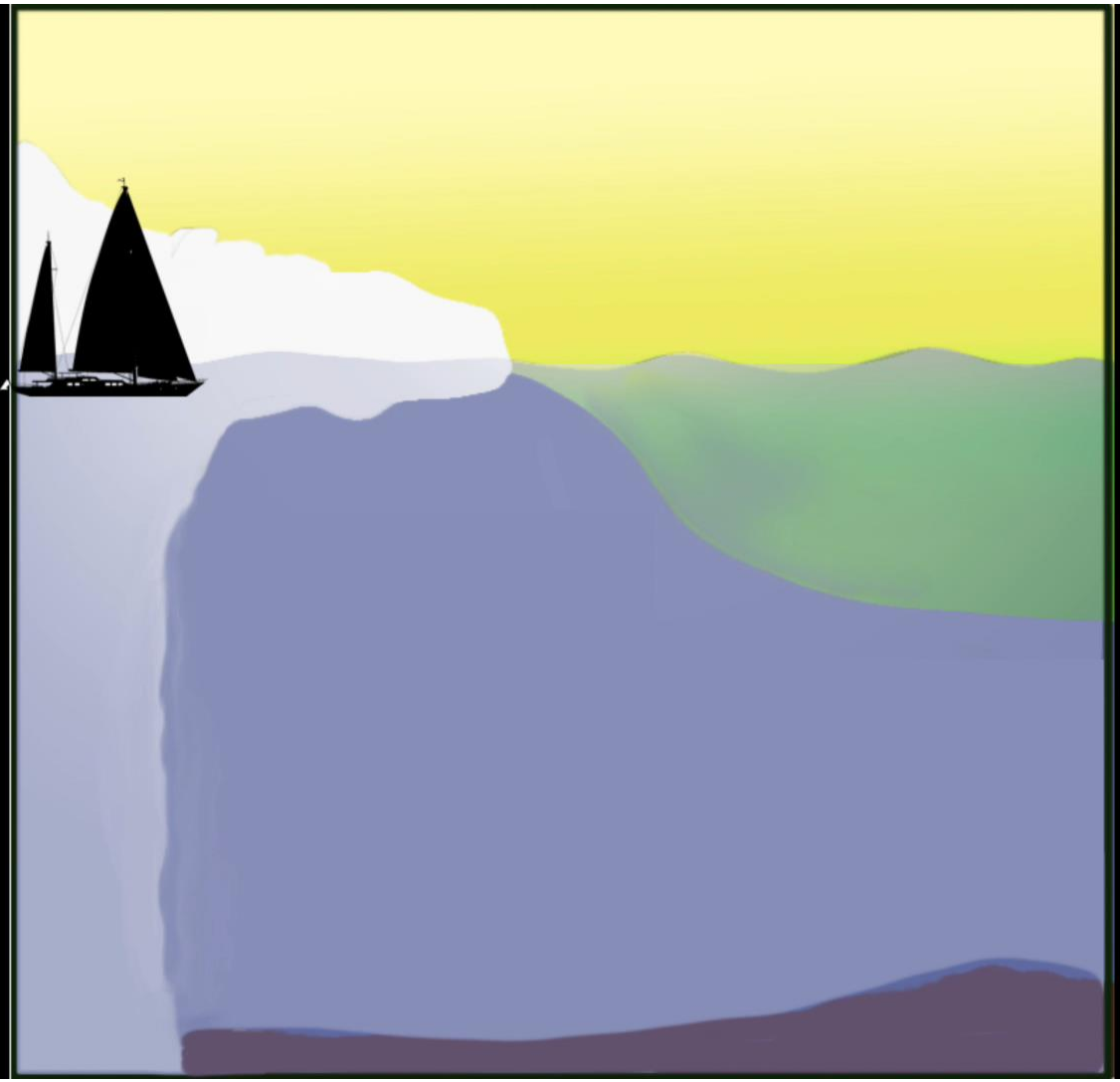
GEUS

NCAS-M NOAA COOPERATIVE SCIENCE CENTER IN ATMOSPHERIC SCIENCES & METEOROLOGY

VIMS | WILLIAM & MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE

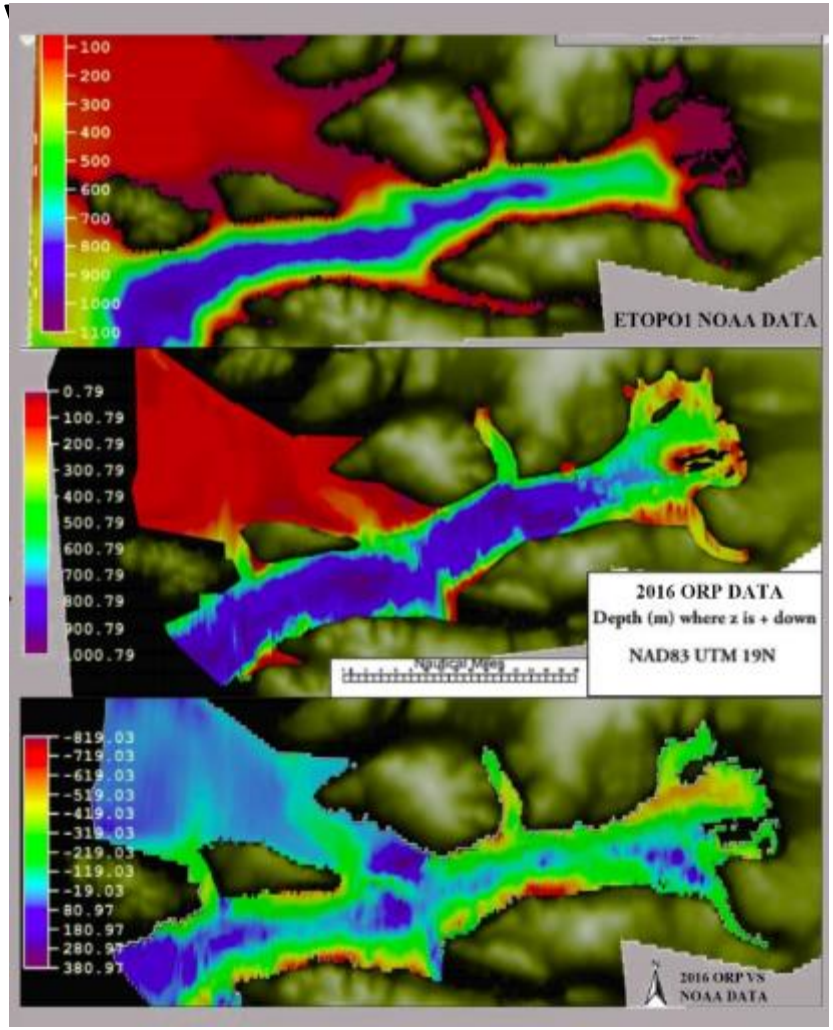
Why map coastal glaciated fjords?

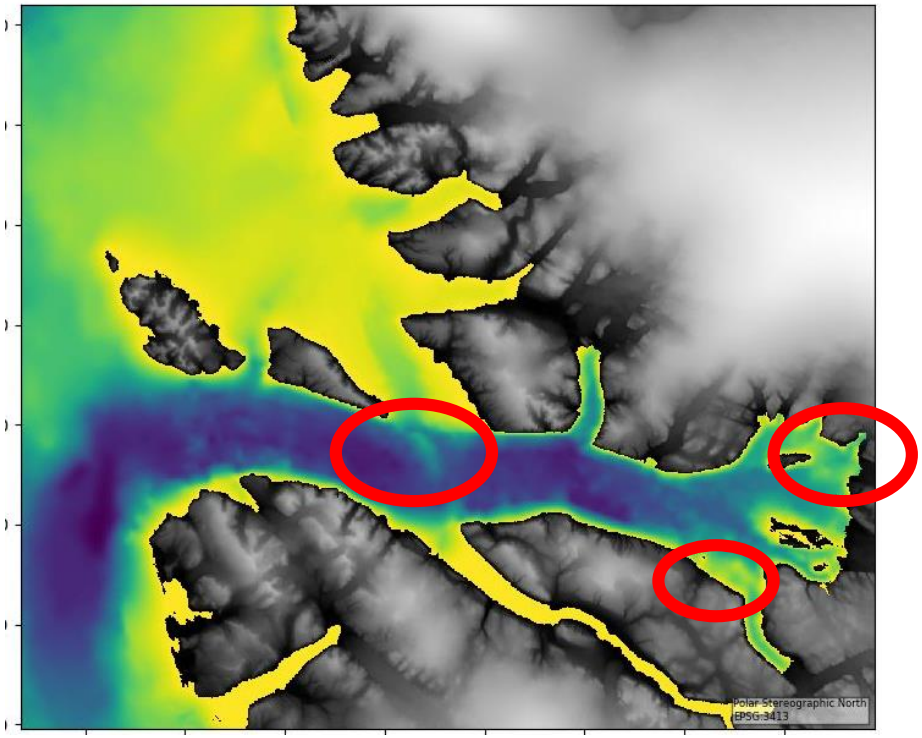
- Ecosystem Services
- Socioeconomical benefits
- Relate hydrographic data with satellite remote sensed data



Seabed bathymetry a 2-fold dominant Control on glaciated fjords systems
←

NW Greenland Inglefield Bredning Better Resolution BUT





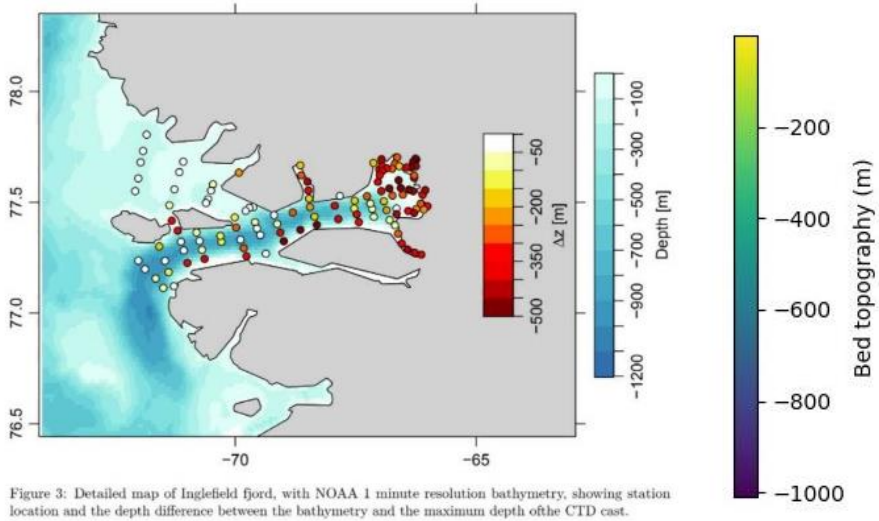
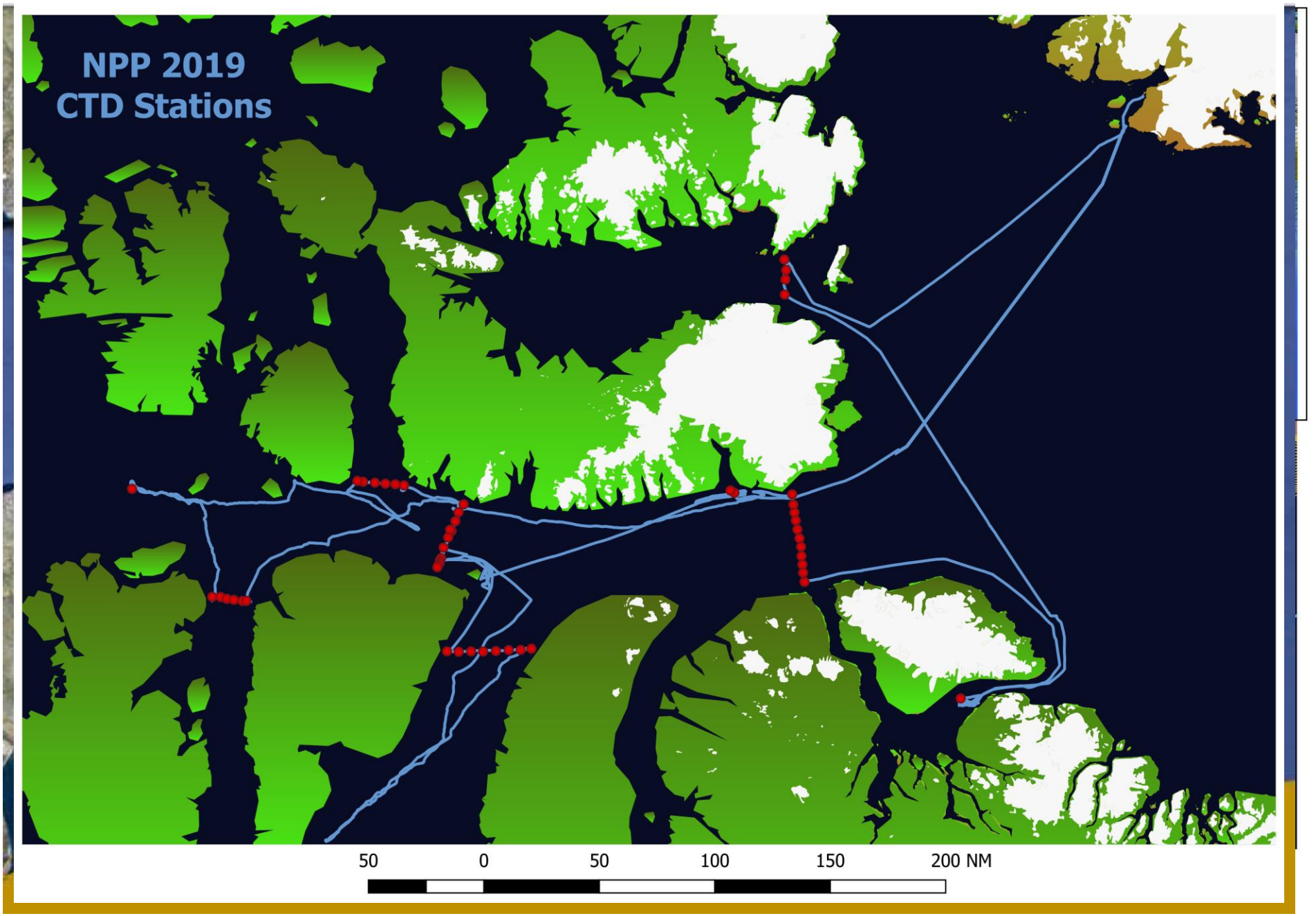


Figure 3: Detailed map of Inglefield fjord, with NOAA 1 minute resolution bathymetry, showing station location and the depth difference between the bathymetry and the maximum depth ofthe CTD cast.

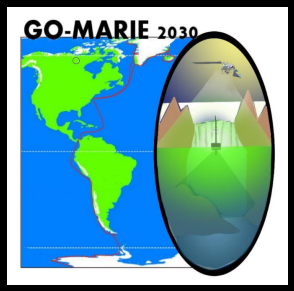
Ultimately data applied to Bedmachinev3 & IBCAO

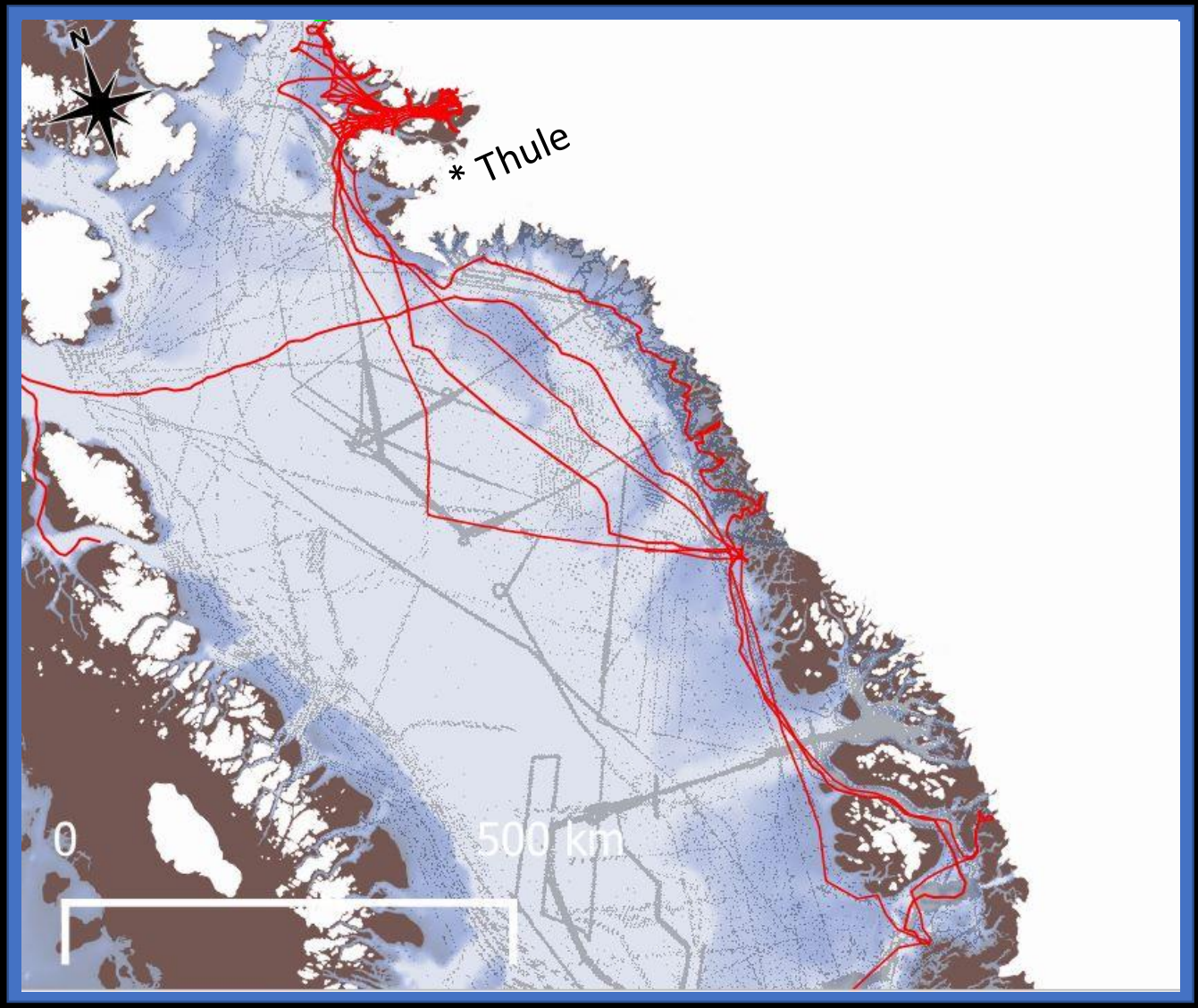


Sills influence boundary current role on outlet glaciers & glacial marine ecosystem

Phase II:

NW Greenland





Survey Priorities:

2500km
100 profiling stations

- **Non MBES** coverage of glacial fjords (Tracy) , glacier terminus landward of **OMG AirGrav Zone** & in transit seaward of OMG AirGrave Zone
- **Disko Bay** Secondary Channels, unsurveyed areas, circulation models
- **Landfast** glacier fjords (interdisciplinary research)
- Opportunistic surveys in **transit**, inlets for refuge and **safety** of navigation
- Special attention to RDACC **Survey** Interests, JPL OMG and GINR

R/V Marie Tharp to Disembark & Map the Impossible

Sets sail! June 2021

- Reinforced steel expedition vessel, 23m, Crew 10.

Hydrographic System Sponsorship!
Onboard ping to grid strategy.

SEAHORSE GEOMATICS

Survey 2500km, 100-130 Profiling stations
Norbit: Prototype 100khz, 200-900m depths, 200-300m swath

- Survey priority site RDACC consensus for Phase II GO-MARIE W-NW

2021-22.

- Collaborative interdisciplinary research interest.

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Thank you!