



VEGA

GREENLAND EXPEDITION

Ola Skinnarmo



Martin Jakobsson



Larry Mayer



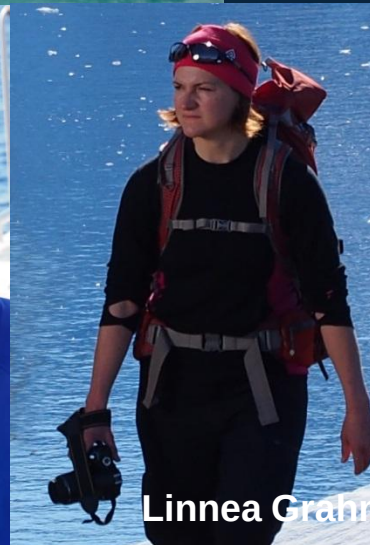
Glenn Mattsing



Fredrik Blomqvist



Niklas Roselius



Linnea Grann



Tomas Thorsteinsson

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GREENLAND EXPEDITION



Arnar Steingrímsson



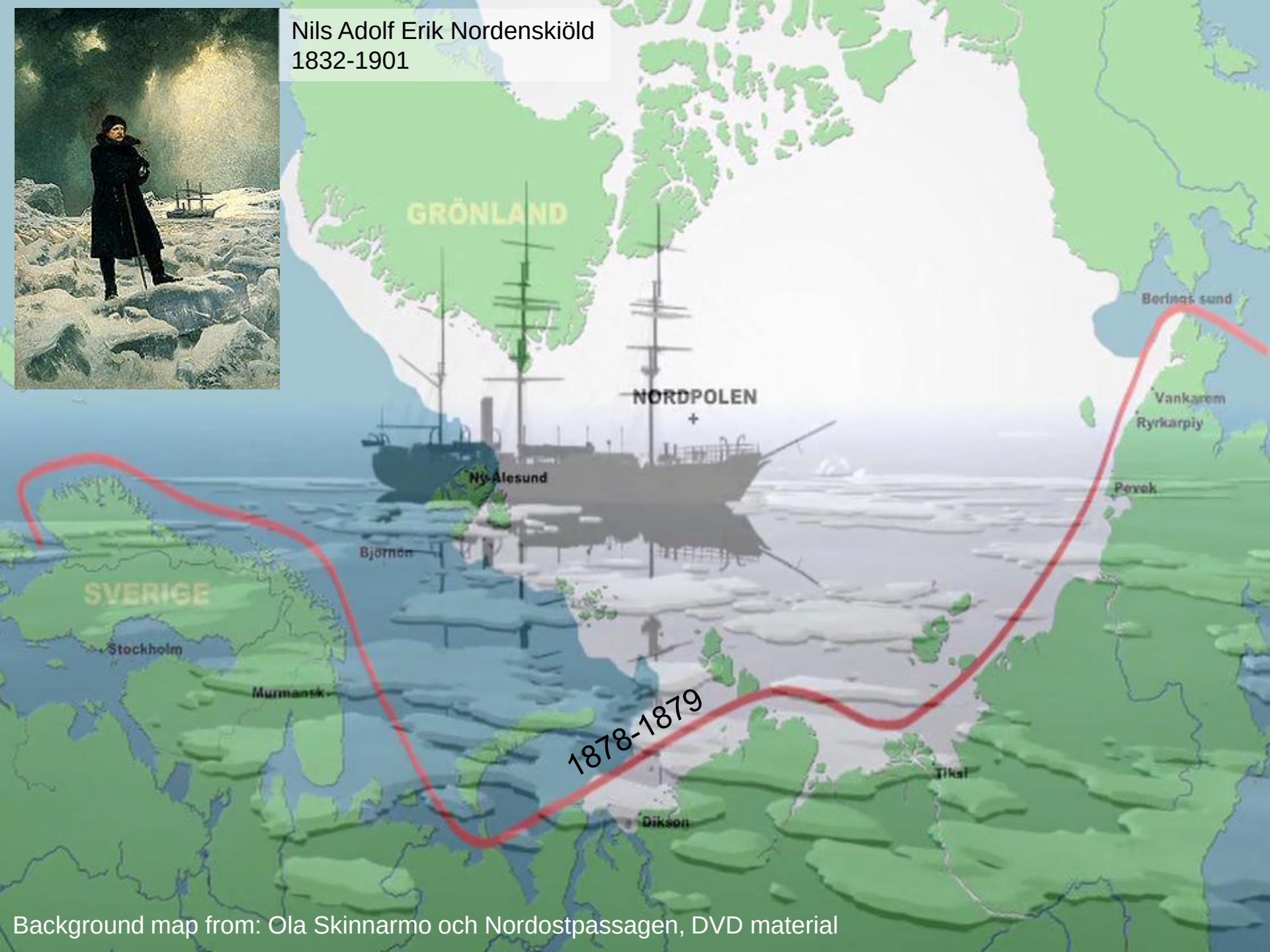
Eric Borg



Motivation

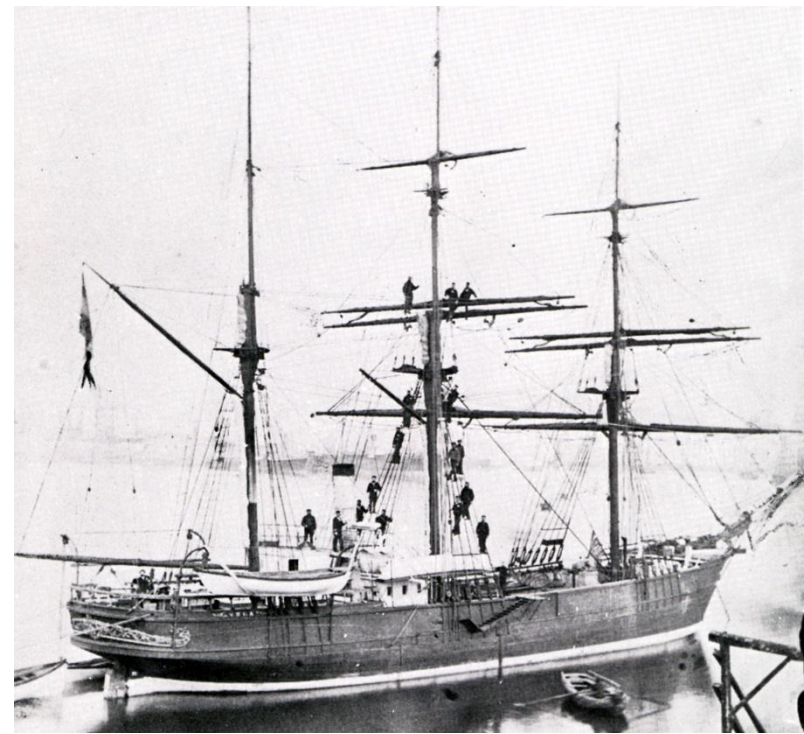
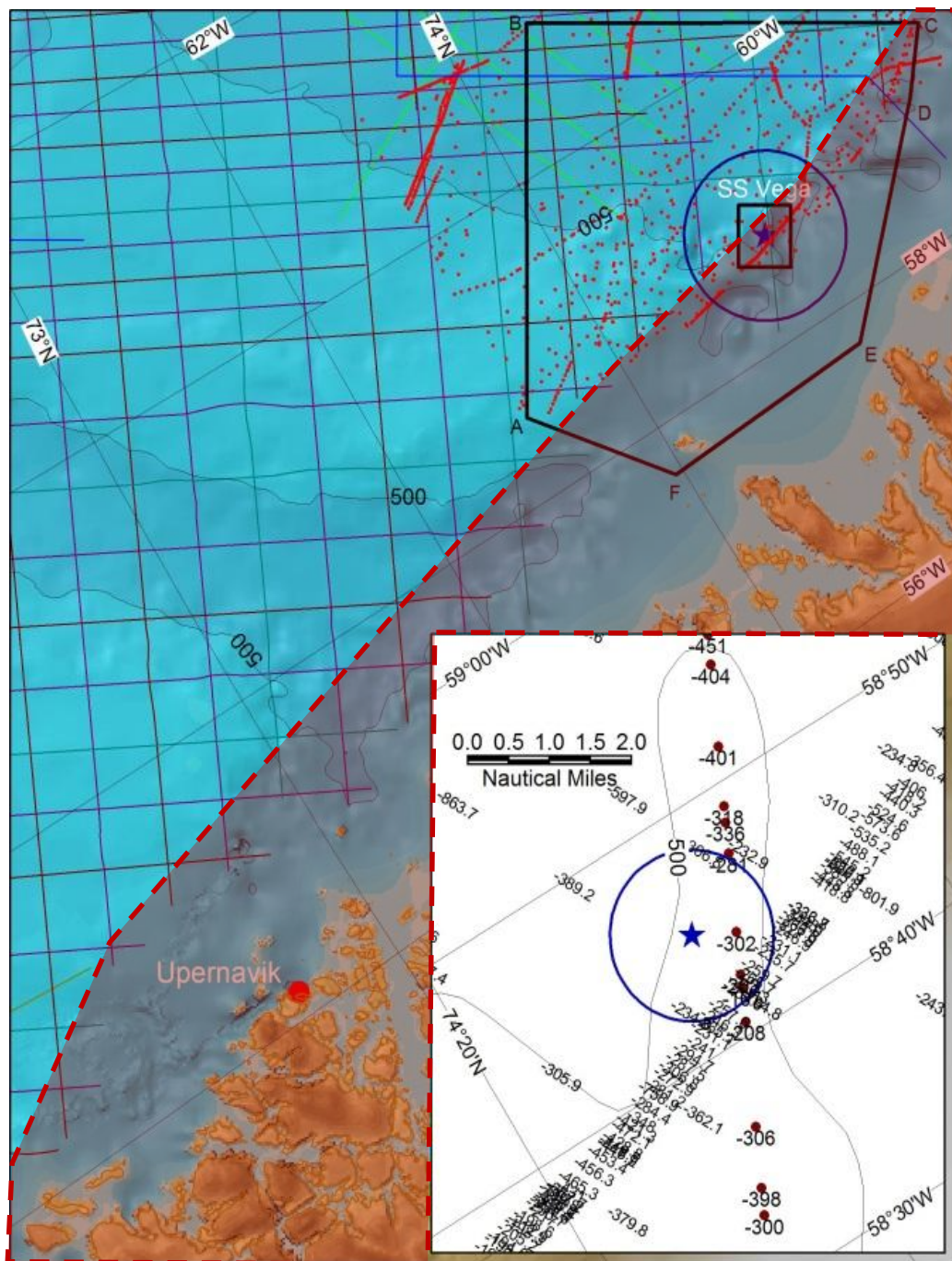
- Locate the wreck of the ship *SS Vega* that got stuck in the ice and sank in Melville Bay in 1903. *SS Vega* was used by Adolf Erik Nordenskiöld to sail the Northeast Passage 1878-79.
- Map the seafloor for glaciogenic landforms related to the Greenland Ice Sheet, which retreated from the outer continental shelf to its present position since the Last Glacial Maximum (LGM) at about 20 ka BP.
- Map the seafloor to locate possible deep connections and shallow barriers between the outer continental shelf and the inner fjord system. The purpose is to investigate whether or not warmer water could make its way into the fjord system and thereby affect the outlet glaciers of this region.

Nils Adolf Erik Nordenskiöld
1832-1901



Background map from: Ola Skinnarmo och Nordostpassagen, DVD material





Built in Bremerhaven 1872

Length: 45.7 m

Width: 8 m

Steam engine: 60 hp

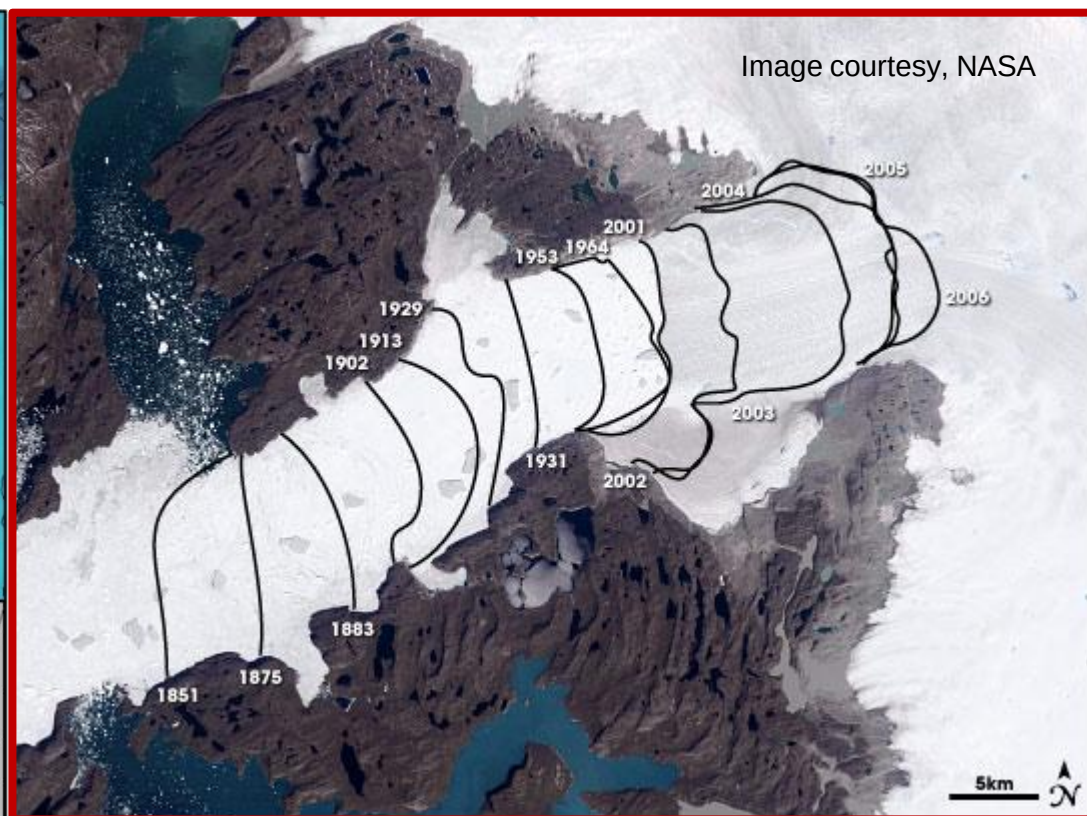
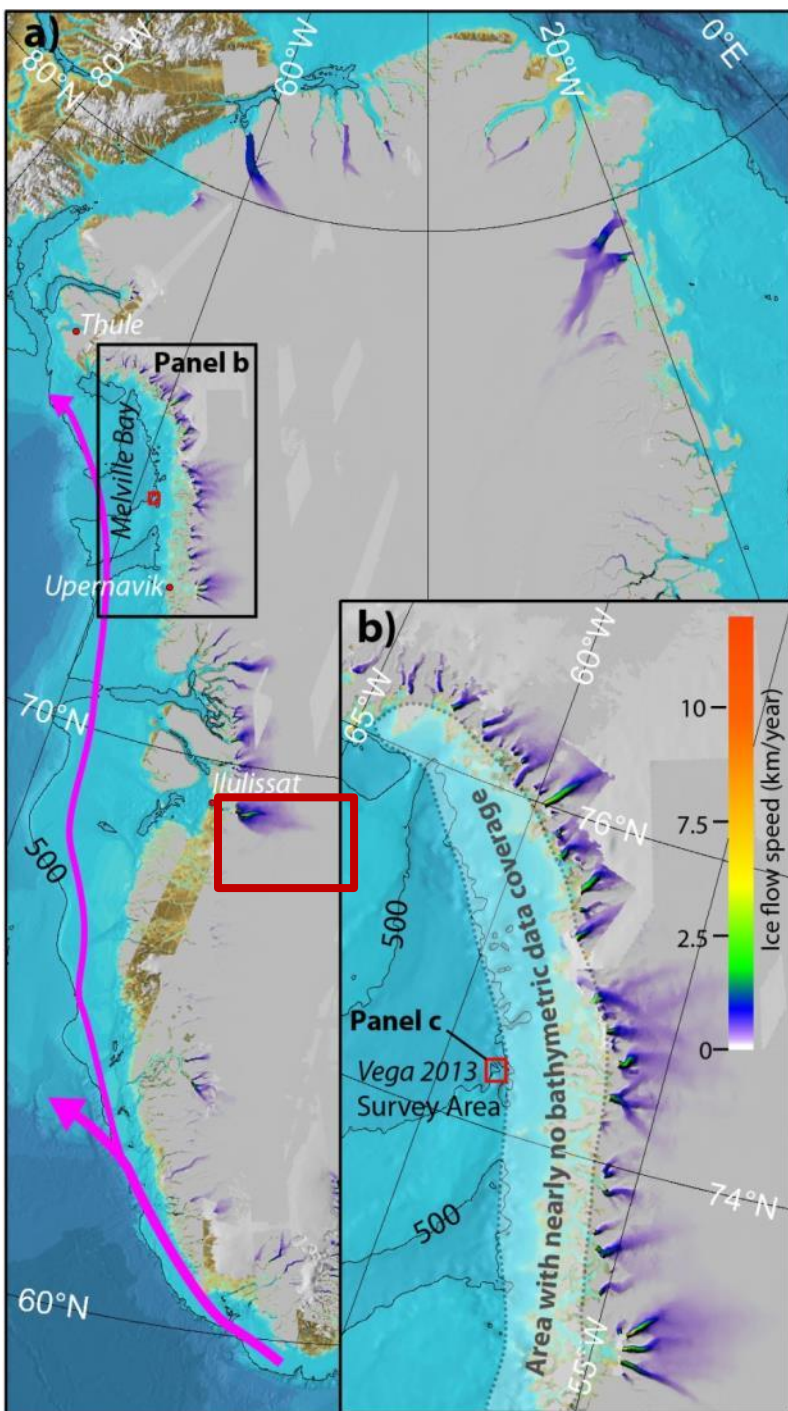
Challenges:

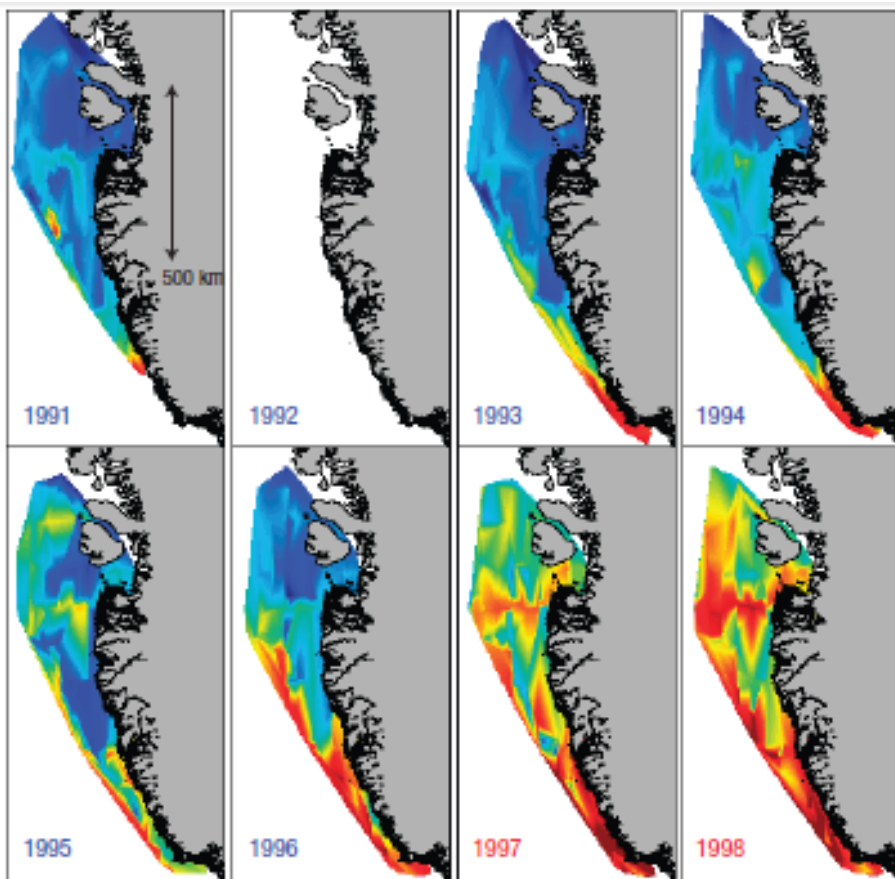
Positioning uncertainty

Ice drift

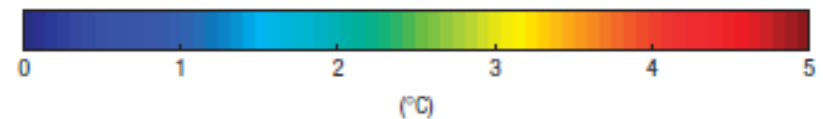
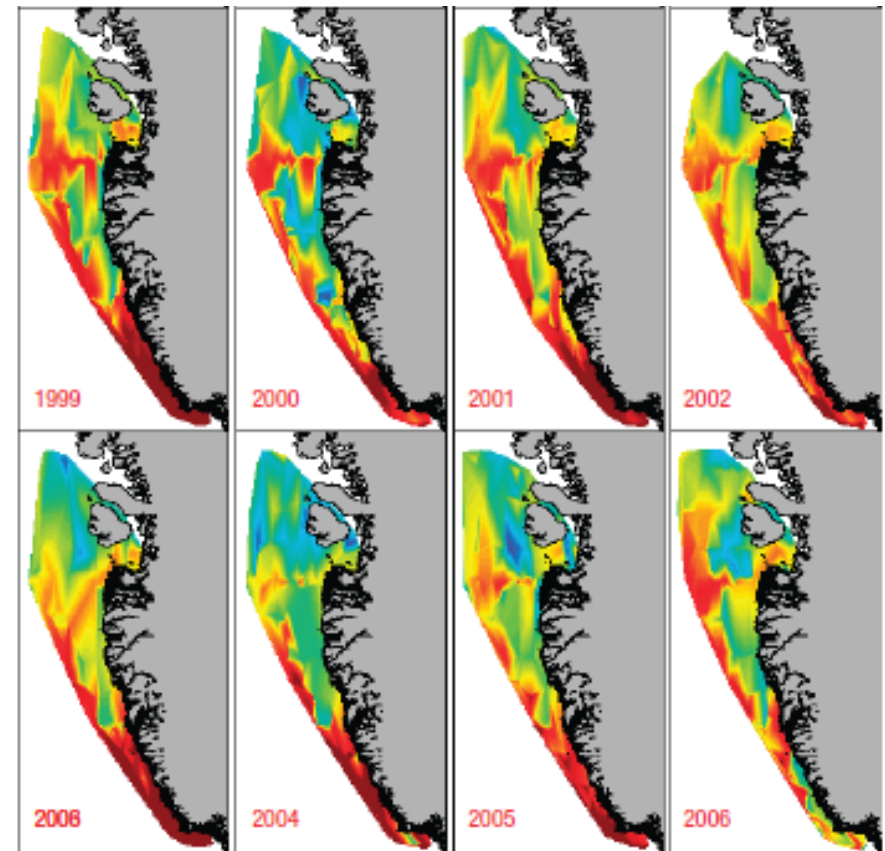
Ice bergs

Bottom topography





Holland, D. M., Thomas, R. H., Young, B. d., Ribergaard, M. H., and Lyberth, B., 2008, Acceleration of Jakobshavn Isbræ triggered by warm subsurface ocean waters: Nature Geoscience, v. 1, p. 659-664.



From *Skidbladner* to *Explorer of Sweden*





Hemisphere R320

Hemisphere VS101
GPS Compass

AML SVP

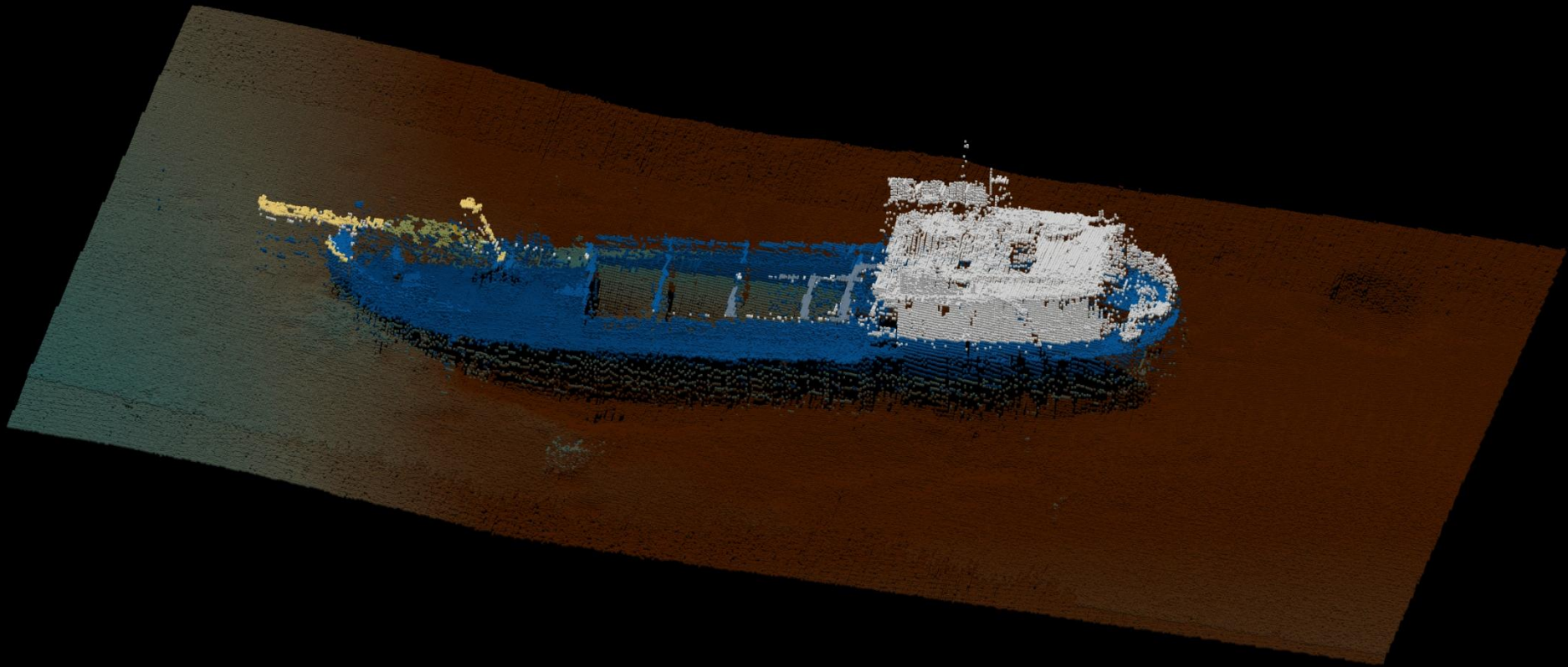


KONGSBERG

Seatex MRU 5+

Kongsberg EM2040, 1°x1°

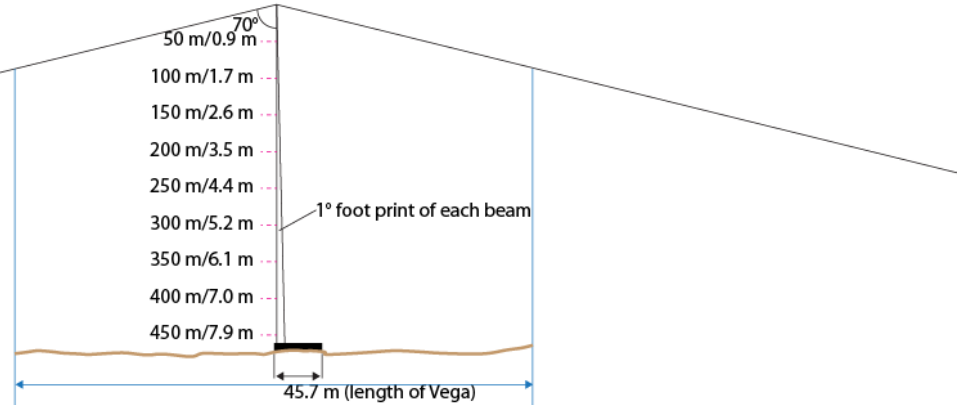
Multibeam: Kongsberg EM2040, 200/300/400 kHz, 1°x1°



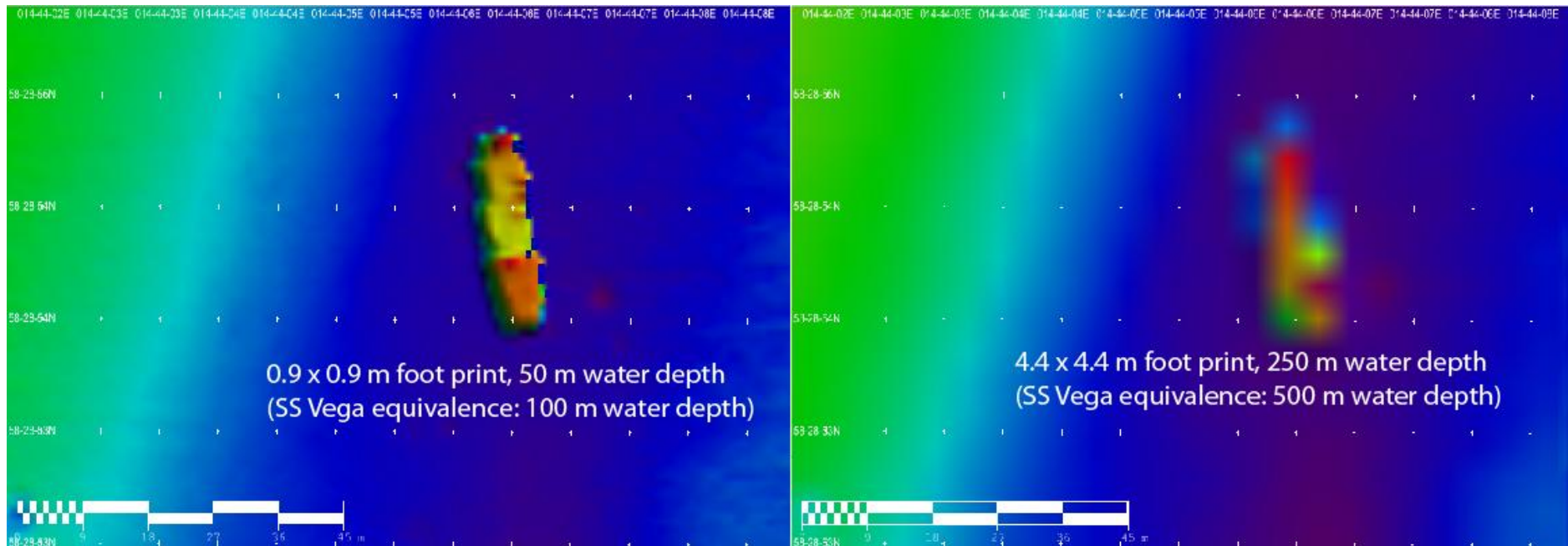
Systerfartyg: Rospiggen

- *M/S Marjaana byggdes för Underås Sandtag AB 1944.*
- *Fartygets namn var först Underås Sandtag II och det fraktade sant till betong*
- *Underås Sandtag II såldes 1965 och döptes om till M/S Marjaana*
- *M/S Marjaana sjönk i södra Mälaren 1969 efter att ha kolliderat med hård is veckan före Påsk*
- *Alla klarade sig ombord utom skeppshunden*

EM2040, 300 kHz

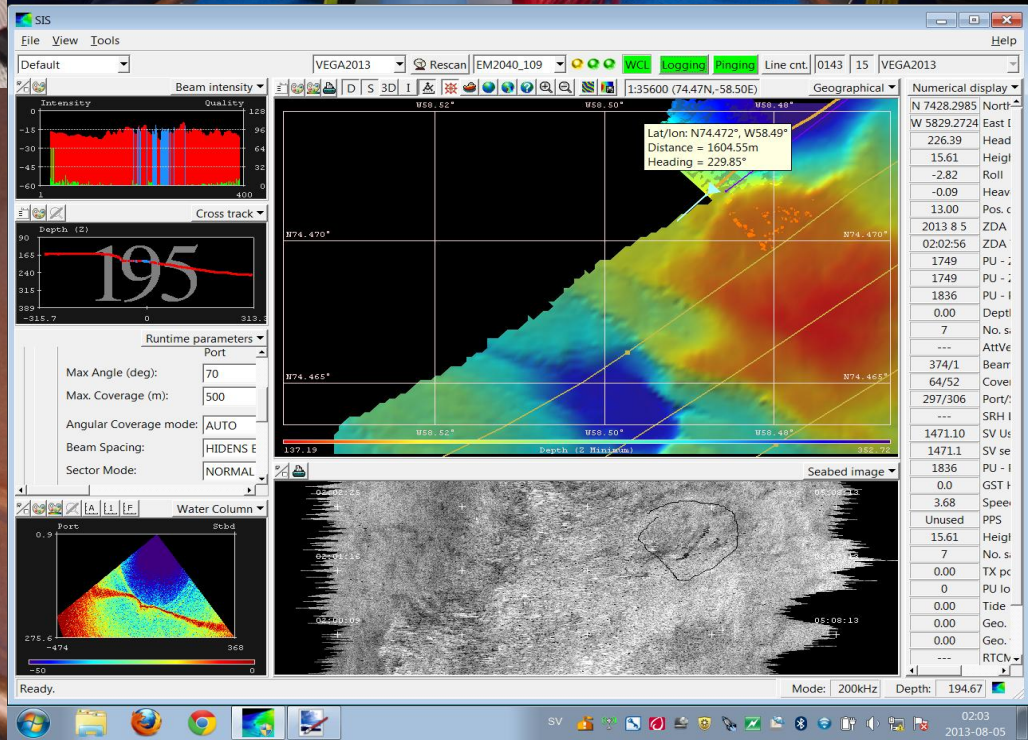
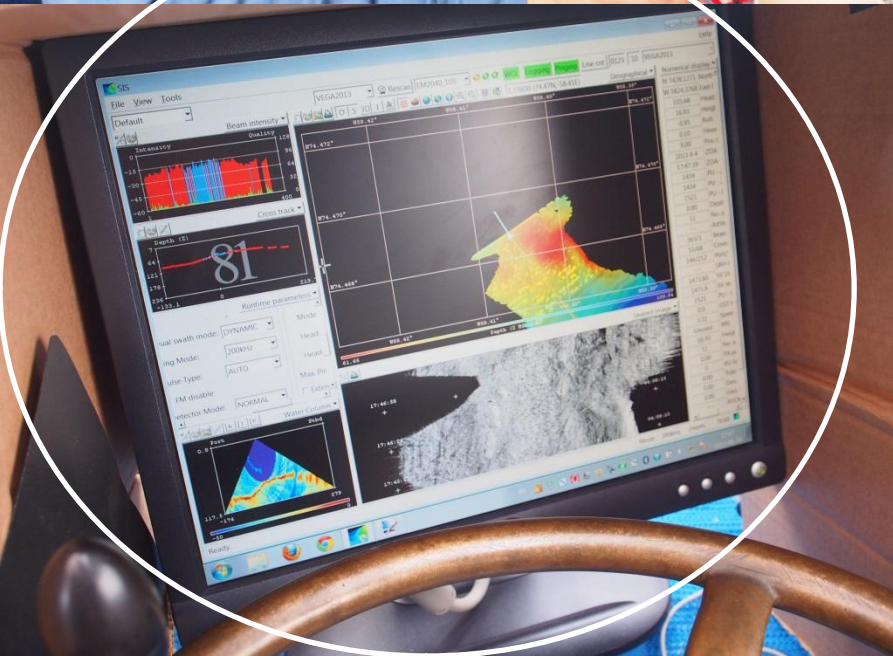


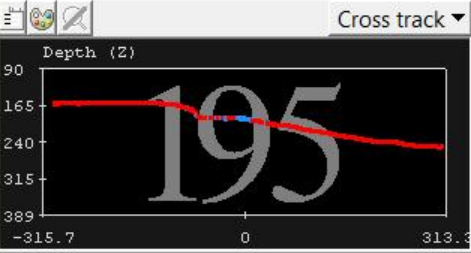
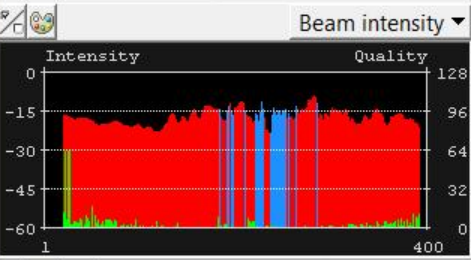
300 kHz: Max coverage/depth cold ocean ~705/465 m
200 kHz: Max coverage/depth cold ocean ~850/600 m



Upernavik, west Greenland: Latitude 72.78 N Longitude 56.14 W







Runtime parameters

Port

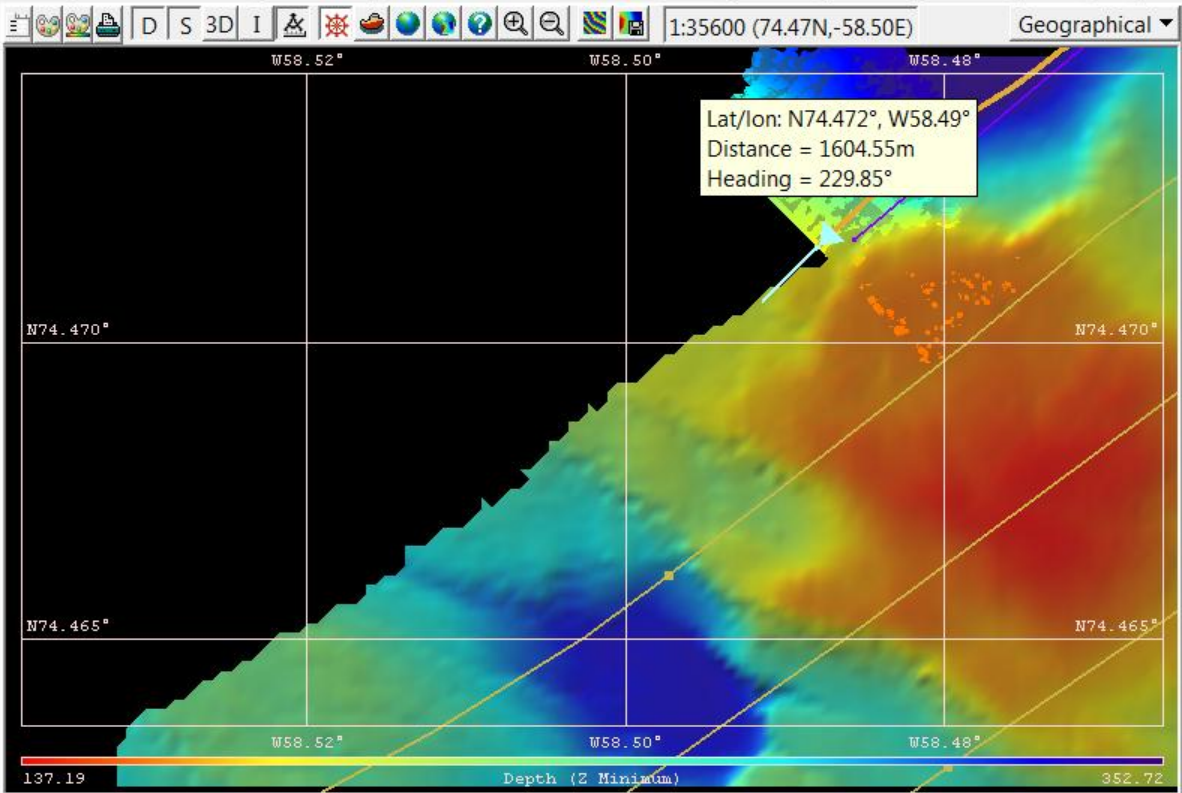
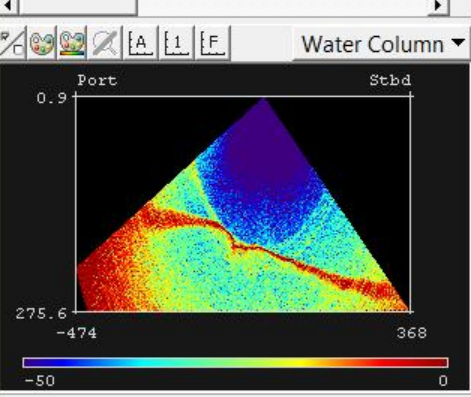
Max Angle (deg): 70

Max. Coverage (m): 500

Angular Coverage mode: AUTO

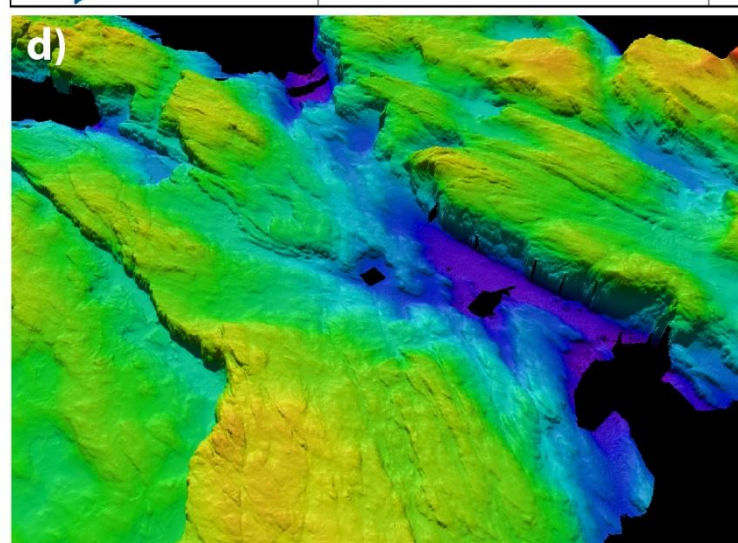
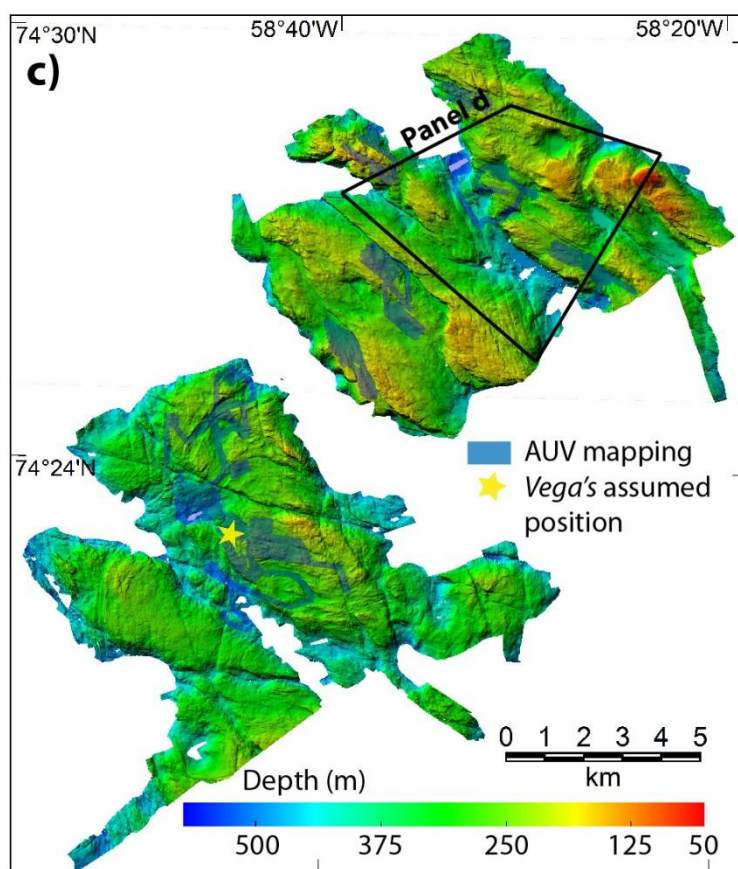
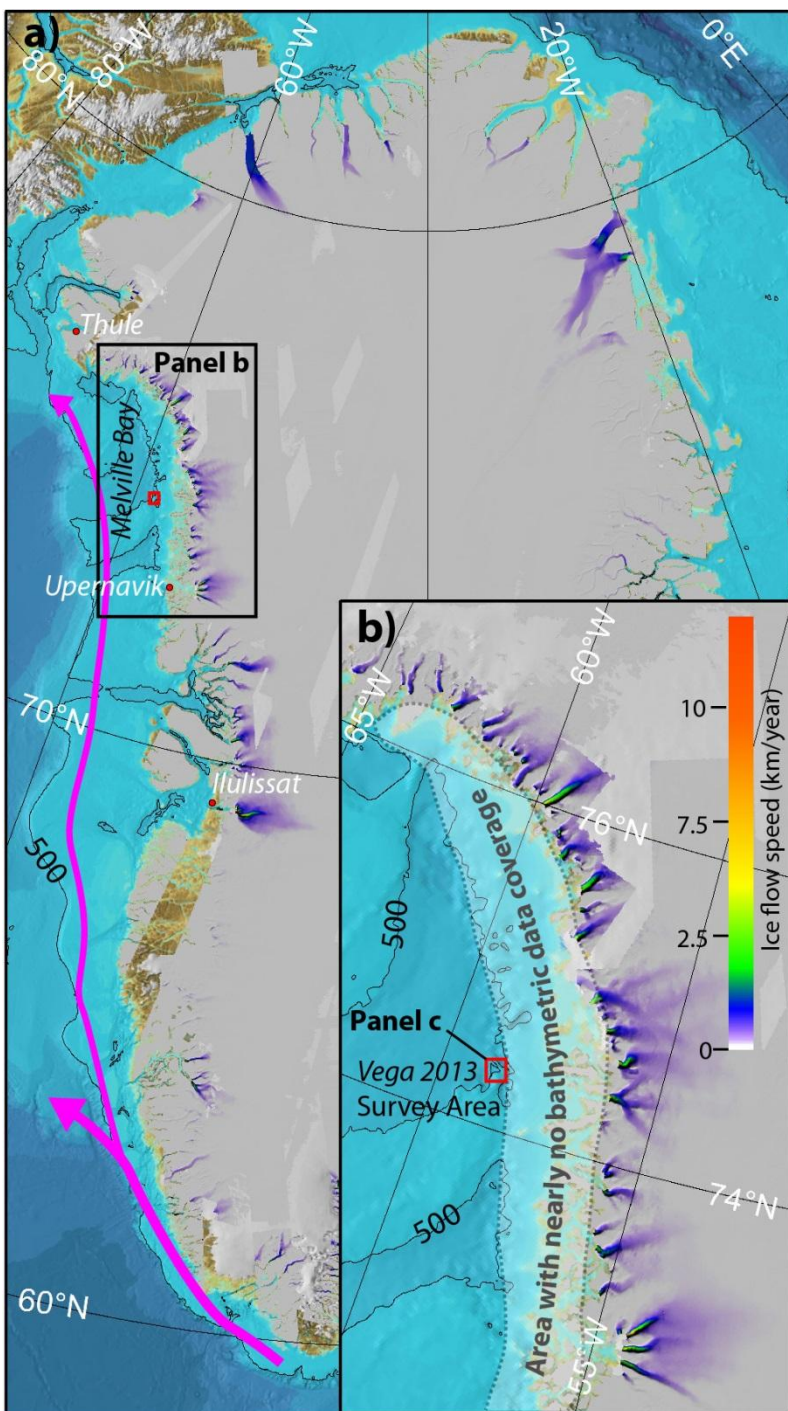
Beam Spacing: HIDENS E

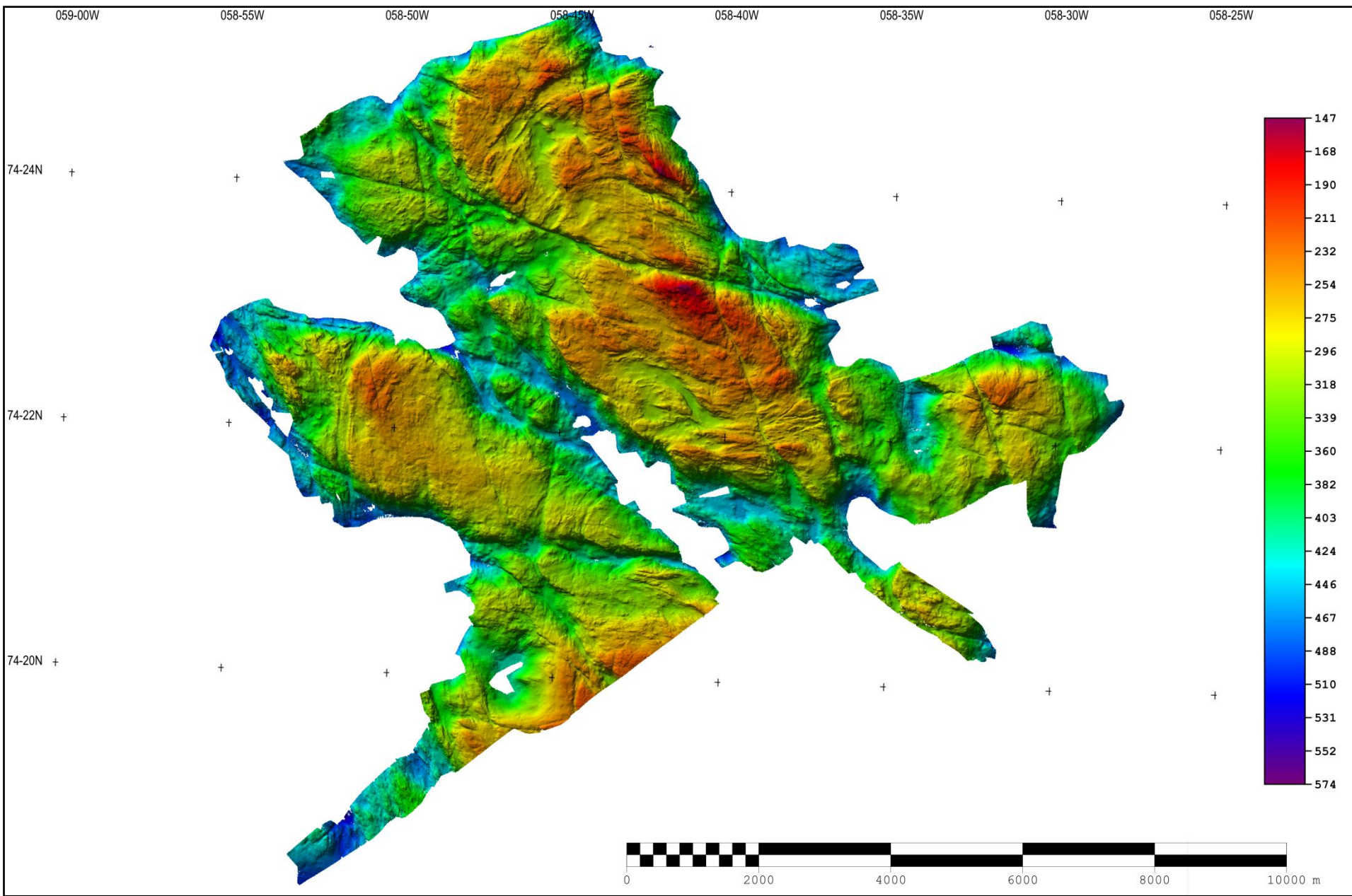
Sector Mode: NORMAL

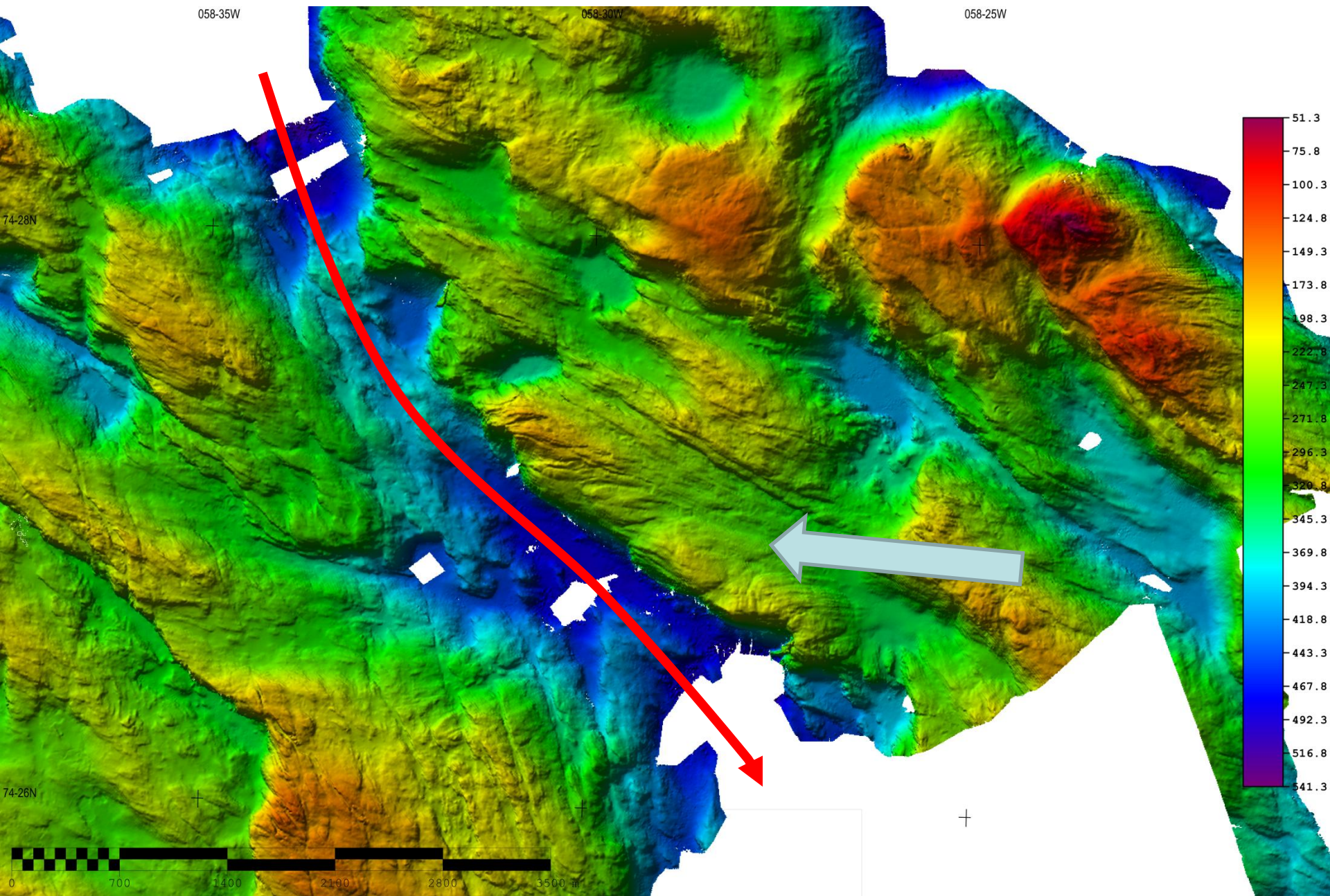


Numerical display

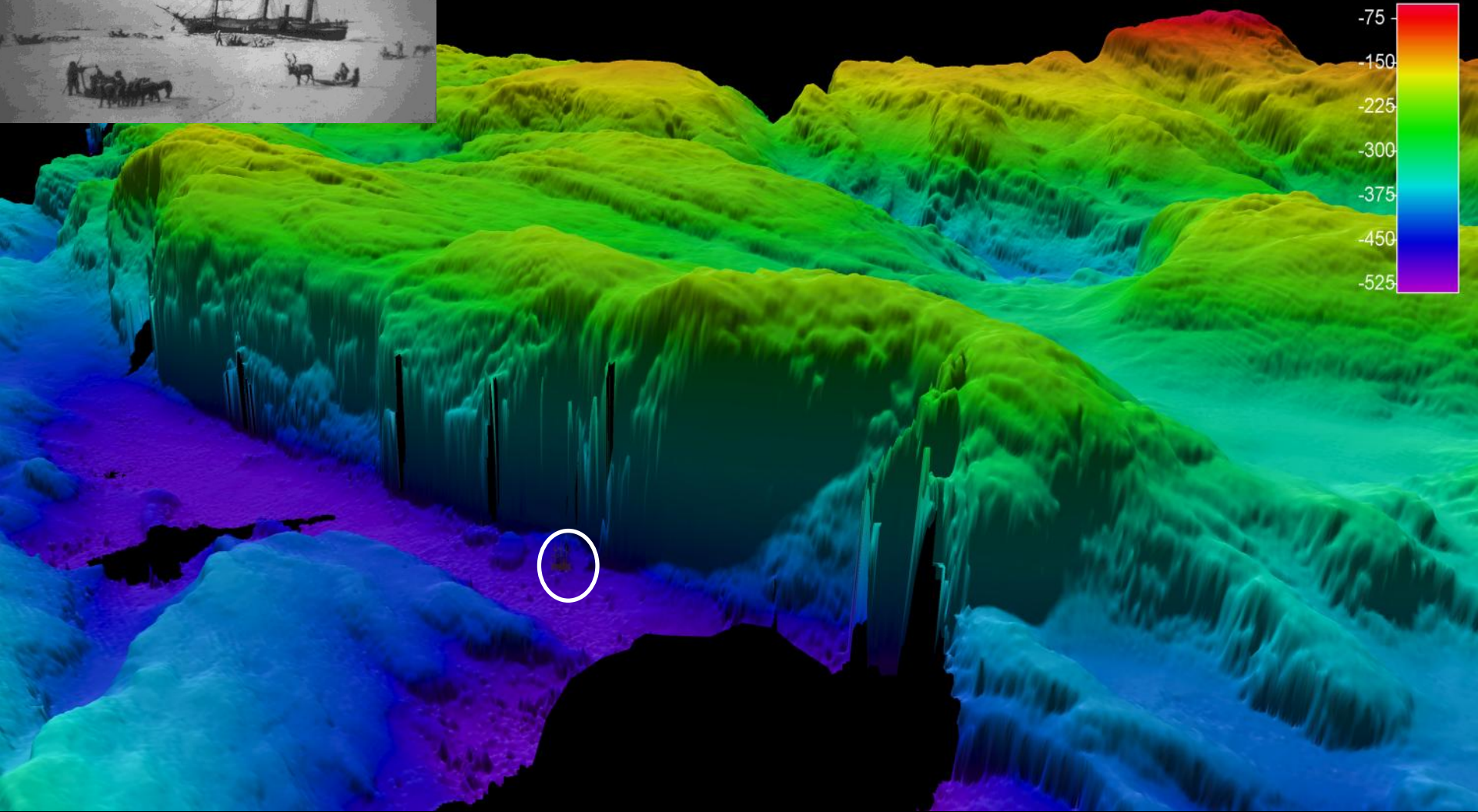
N 7428.2985	North
W 5829.2724	East
226.39	Head
15.61	Heigl
-2.82	Roll
-0.09	Heav
13.00	Pos. c
2013 8 5	ZDA
02:02:56	ZDA
1749	PU -
1749	PU -
1836	PU - I
0.00	Deptl
7	No. s.
---	AttVe
374/1	Bearr
64/52	Cover
297/306	Port/
---	SRH I
1471.10	SV Us
1471.1	SV se
1836	PU - I
0.0	GST H
3.68	Spee
Unused	PPS
15.61	Heigl
7	No. s.
0.00	TX pc
0	PU lo
0.00	Tide
0.00	Geo.
0.00	Geo.
---	RTCM







Find Vega!



But we did not find SS Vega in the surveyed area

Greenlandic: Kullorsuaq
Danish: Djævelens Tømmelfinger
Peak: 546 m



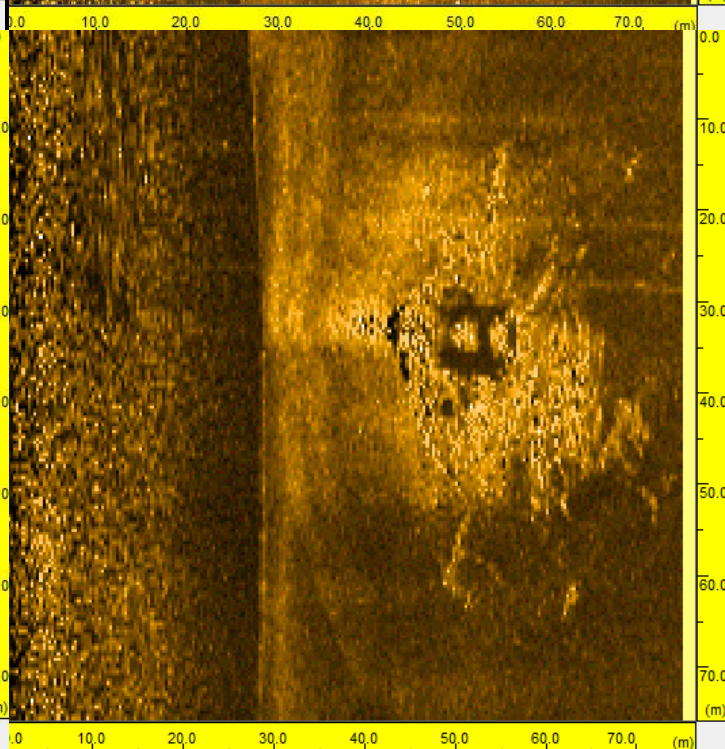
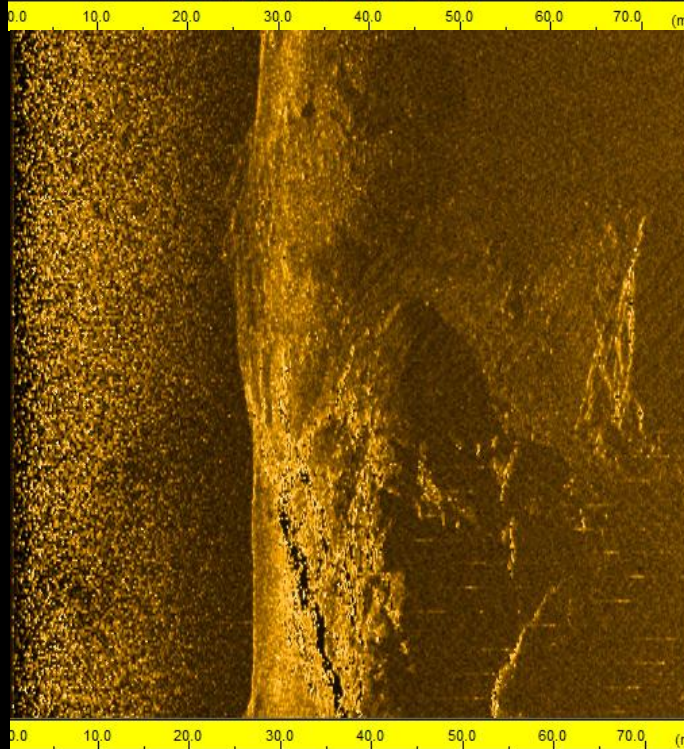
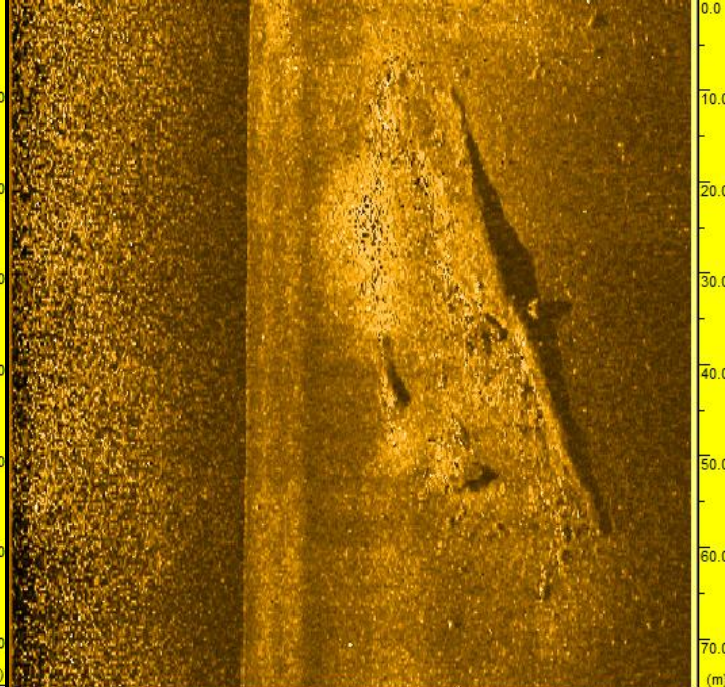
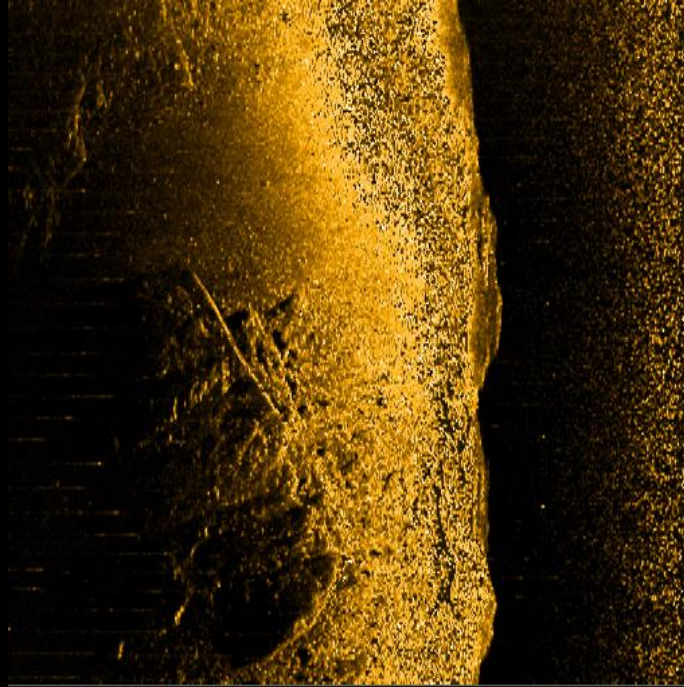




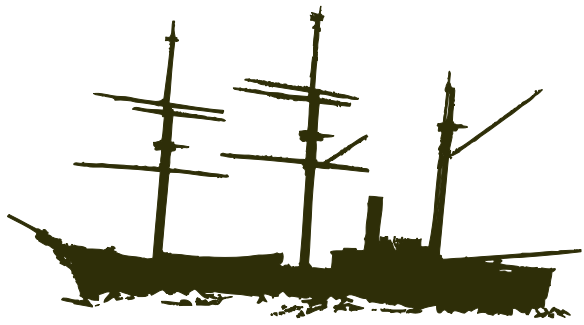
Gavia AUV: Depth rated to 500 m, Marine Sonic Technology sidescan 600/1200 kHz, GeoSwath interferometric bathymetric/sidescan sonar











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Thanks!

