VEGA
GREENLAND EXPEDITION

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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.
Challenges:

- Positioning uncertainty
- Ice drift
- Ice bergs
- Bottom topography

Built in Bremerhaven 1872
Length: 45.7 m
Width: 8 m
Steam engine: 60 hp
From Skidbladner to Explorer of Sweden
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

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

1st footprint of each beam

45.7 m (length of Vega)

300 kHz: Max coverage/depth cold ocean ~705/465 m
200 kHz: Max coverage/depth cold ocean ~650/600 m

0.9 x 0.9 m footprint, 50 m water depth
(SS Vega equivalence: 100 m water depth)

4.4 x 4.4 m footprint, 250 m water depth
(SS Vega equivalence: 500 m water depth)
Upernavik, west Greenland: Latitude 72.78 N Longitude 56.14 W
Lat/lon: N74.472°, W58.49°
Distance = 1604.55m
Heading = 229.85°
Find Vega!

But we did not find SS Vega in the surveyed area.
Greenlandic: Kullorsuaq
Danish: Djøevelens Tommelfinger
Peak: 546 m
Gavia AUV: Depth rated to 500 m, Marine Sonic Technology sidescan 600/1200 kHz, GeoSwath interferometric bathymetric/sidescan sonar
Thanks!