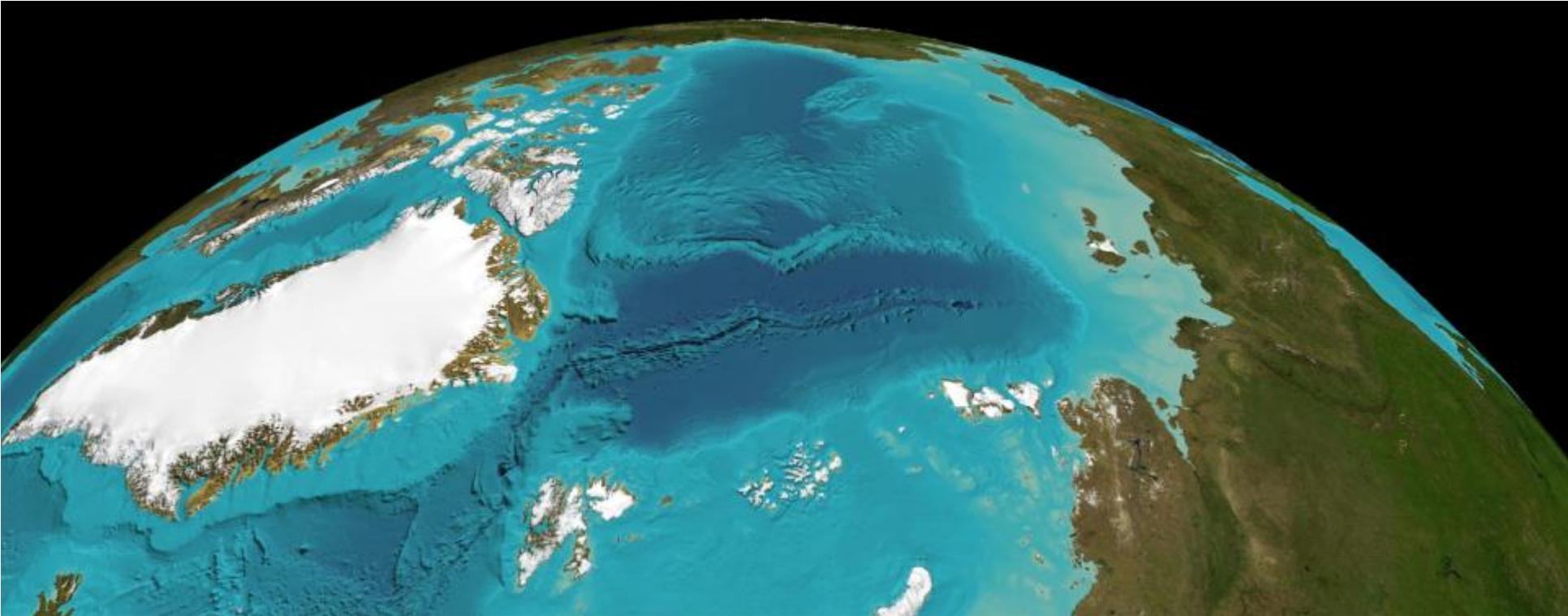




International Bathymetric Chart of the Arctic Ocean (IBCAO)

Version 3.0: Released Spring 2012

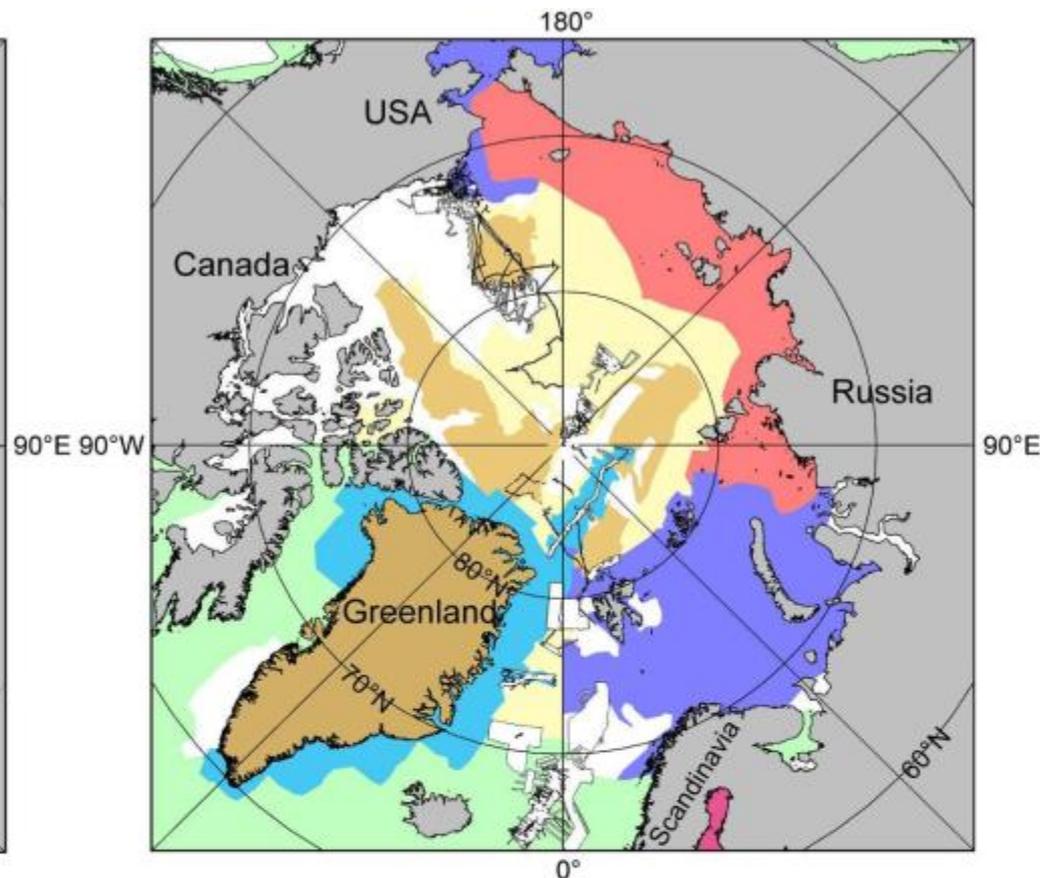
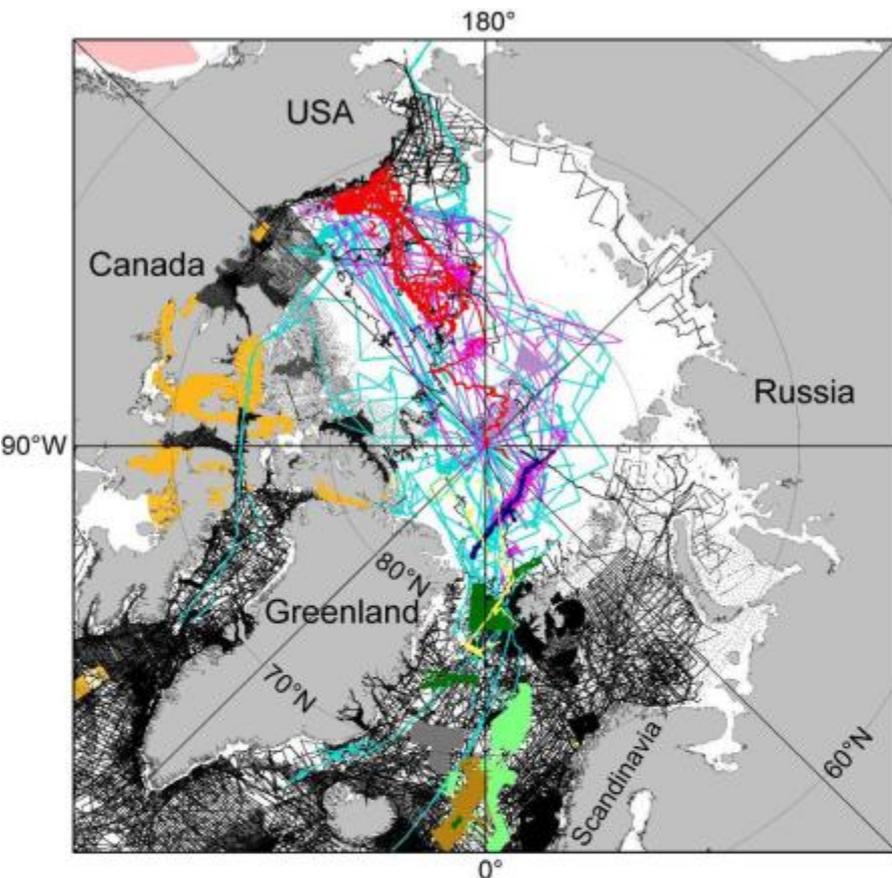
IBCAO Compilation Team



Arctic-Antarctic Seafloor Mapping Meeting 2011

Stockholm May 3-5

IBCAO Version 2.0: Source Data



Multibeam Sources

- USCGC Healy, R/V Nathaniel B Palmer
- R/V Polarstern
- I/B Oden
- Norwegian Petroleum Directorate
- AMORE (Healy and Polarstern)
- SCICEX 1999
- US Naval Research Laboratory (NRL)
- US Law of the Sea mapping by the Center for Coastal and Ocean Mapping/ Joint Hydrographic Center*

Single Beam Sources

- US and British Royal Navy submarine cruises (1958-1992)
- SCICEX cruises (1993-1999)
- Norwegian Hydrographic Service survey
- Soundings from Canadian Hydrographic Service surveys not included in earlier IBCAOs
- Soundings collected by various surface vessels and ice drift stations. Five major archives have been included:
 1. US National Geophysical Data Center (NGDC)
 2. US Naval Research Laboratory (NRL)
 3. US Geological Survey (USGS)
 4. Norwegian Hydrographic Service
 5. Royal Danish Administration of Navigation and Hydrography

Maps and Regional Grids

- IBCAO drawn contours
- IBCAO drawn contours based on soundings from charts published by the Russian Federation's Department of Navigation and Oceanography (DNO)
- 1:5 000 000 scale DNO map of the Arctic Ocean (Naryshkin, 1999)
- 1:2 500 000 scale DNO map of the Arctic Ocean (Naryshkin, 2001)
- Charts published by NRL (Perry et al., 1986; Cherkis et al., 1991; Matishov et al., 1995)
- Contours retrieved from the GEBCO Digital Atlas (GDA) 2003.
- Bathymetry in the Gulf of Bothnia from a digital grid by Siefert et al. (2001)
- Greenland DTM by the Danish Cadaster and Mapping Agency (Ekholm, 1996)
- GTOPO30 topographic model (U.S. Geological Survey, 1997)



IBCAO Version 3.0

IBCAO Version 3.0

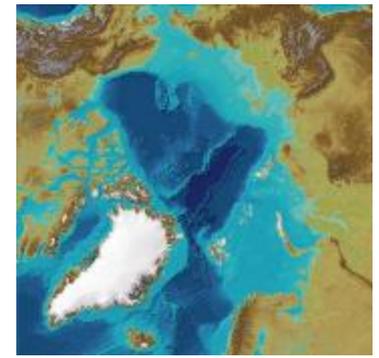
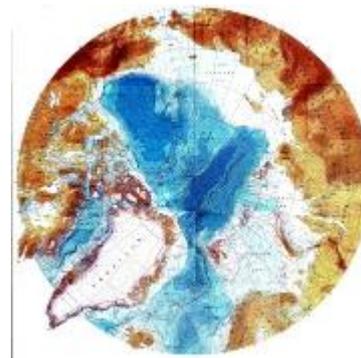
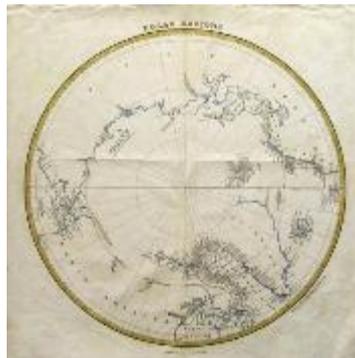


- Higher resolution: 500x500m, where possible
- Better and more accessible source data information
- First snapshots were presented during the American Geophysical Union (AGU) Fall Meeting in San Francisco, December
- Journal article to accompany release published GRL
- Web page updated
- New printed map based on IBCAO 3.0: Work in progress

The International Bathymetric Chart of the Arctic Ocean (IBCAO) Version 3.0

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1500

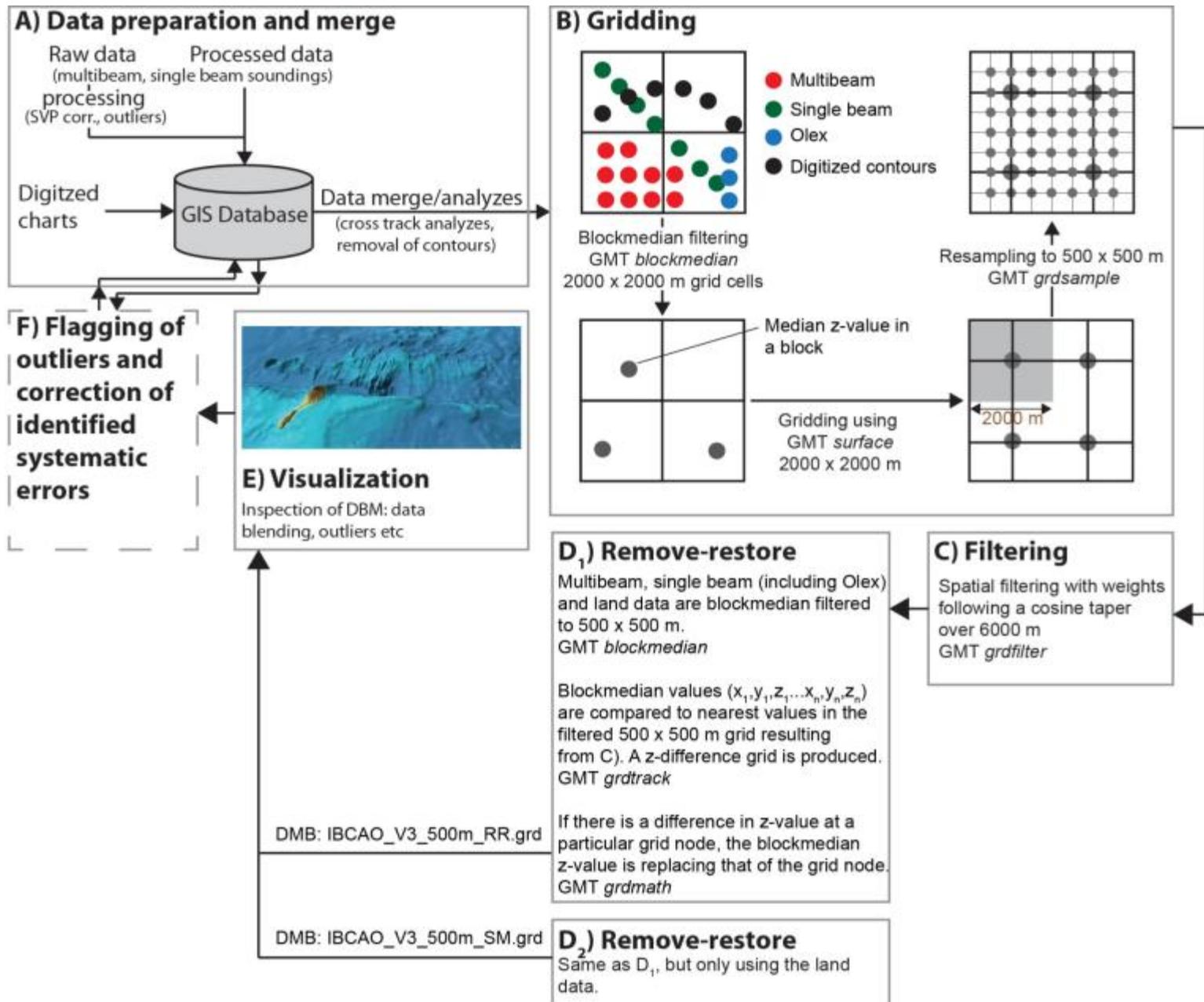
1800

1900

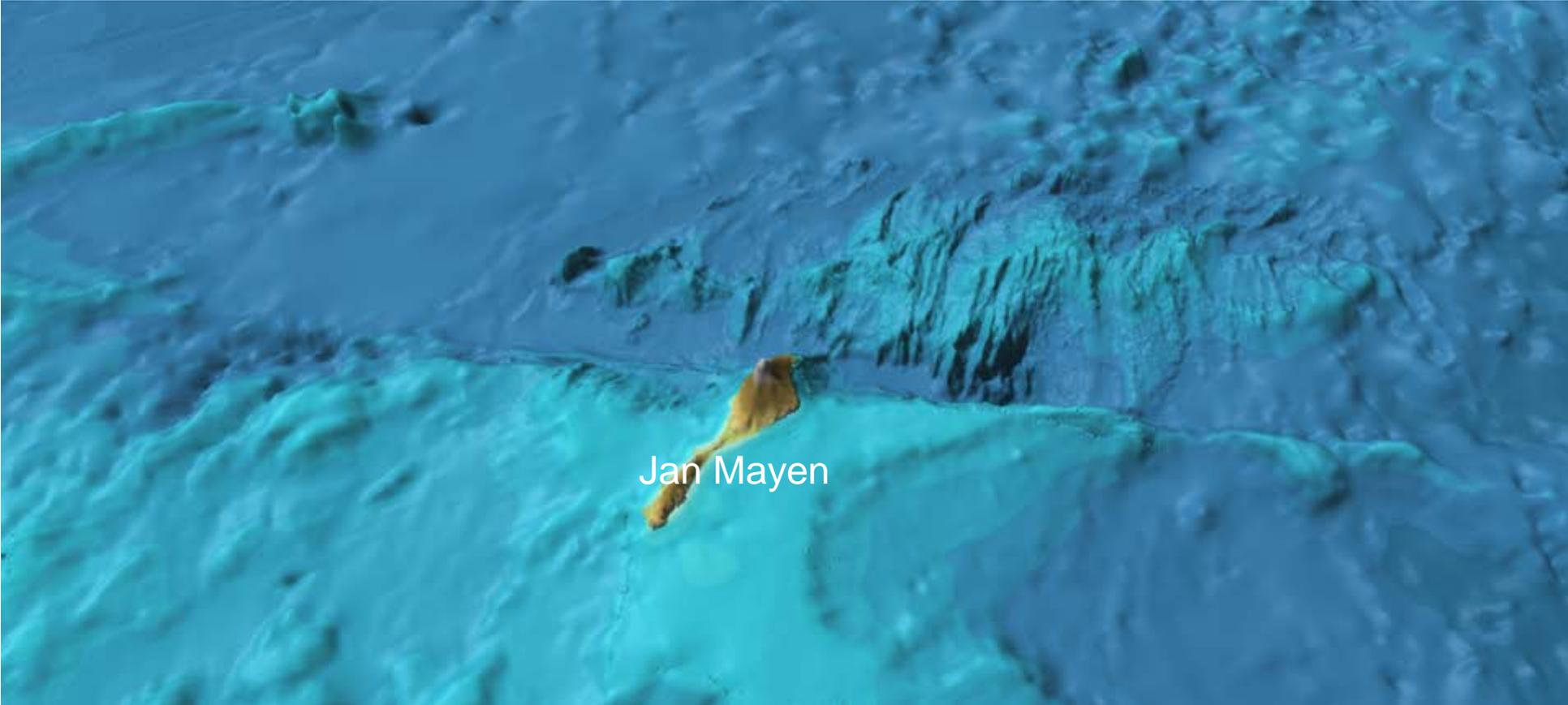
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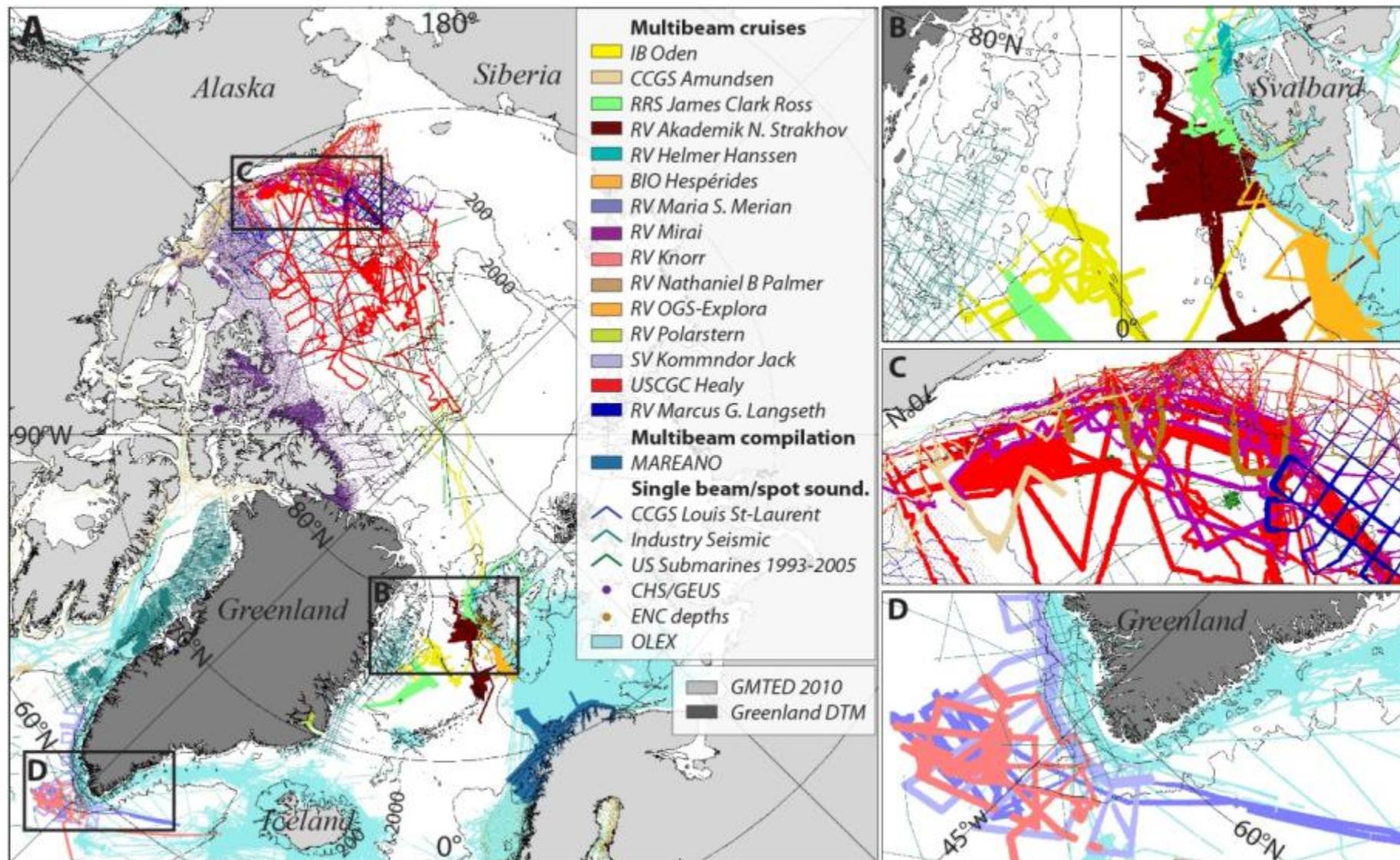
Gridding concept



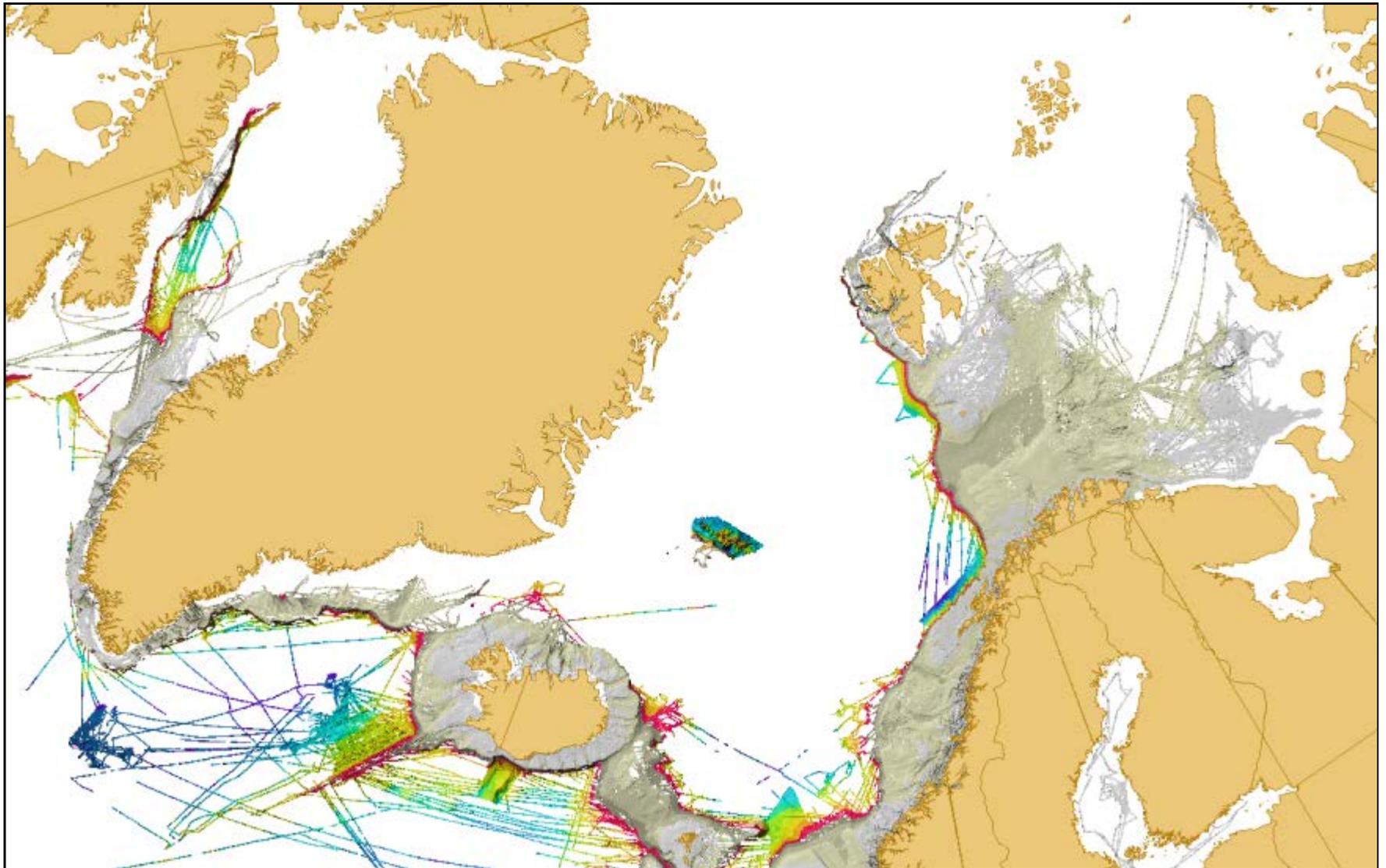
High resolution is well blended with low resolution source data



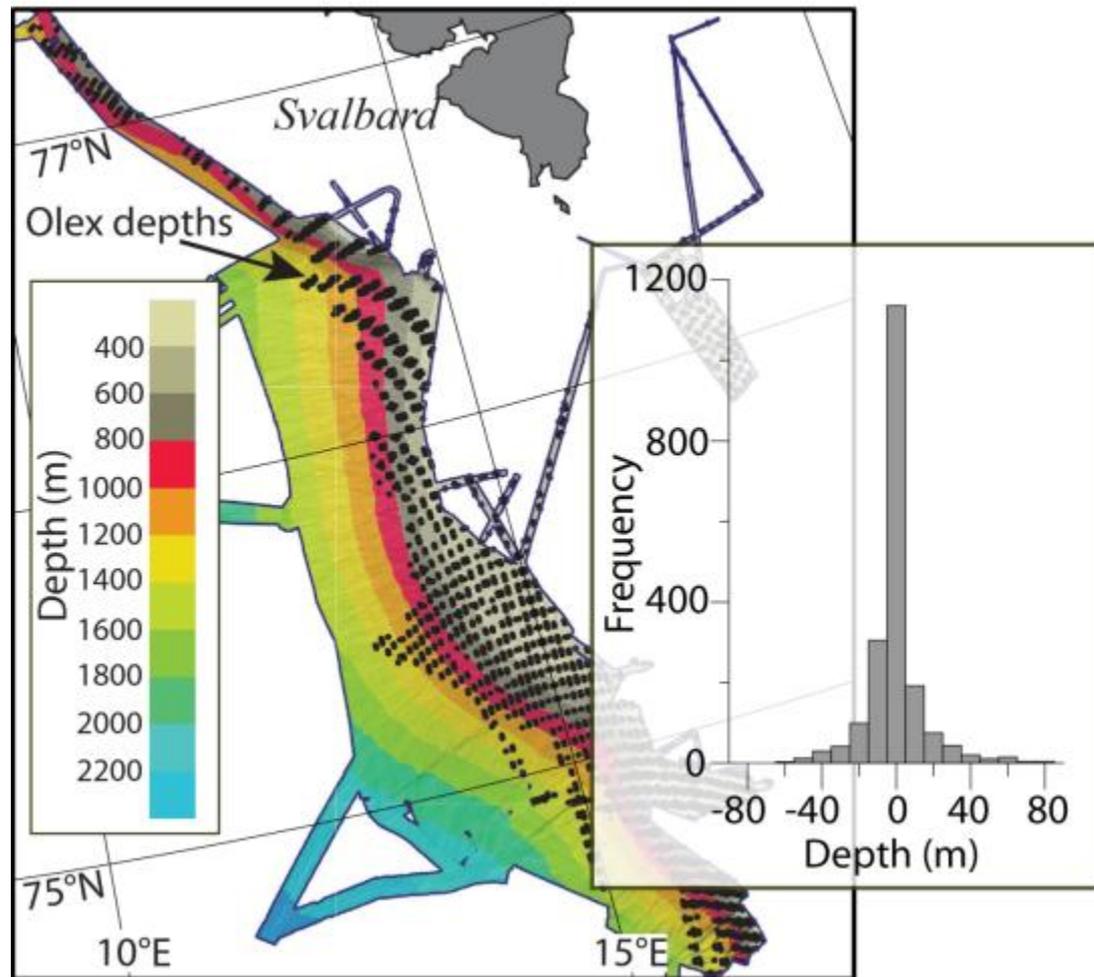
New source data



The OLEX contribution



OLEX depths, corrected or? How does OLEX match with multibeam data?



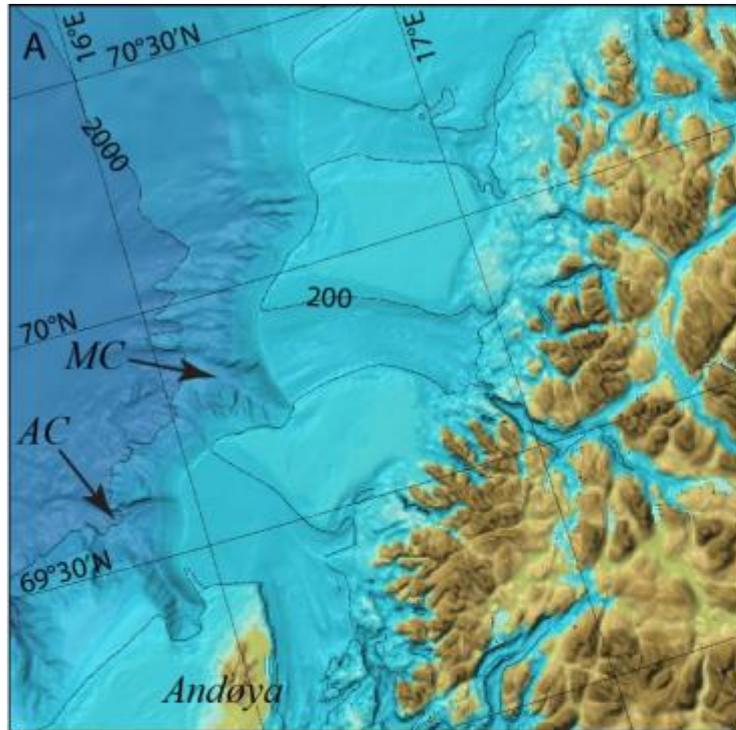
$\left(\frac{1}{n} \sum_{i=1}^n (D_{Olex} - D_{multibeam})\right)$,
depths with negative numbers

The mean difference is -4.9 m, suggesting a slight bias towards deeper Olex depths.

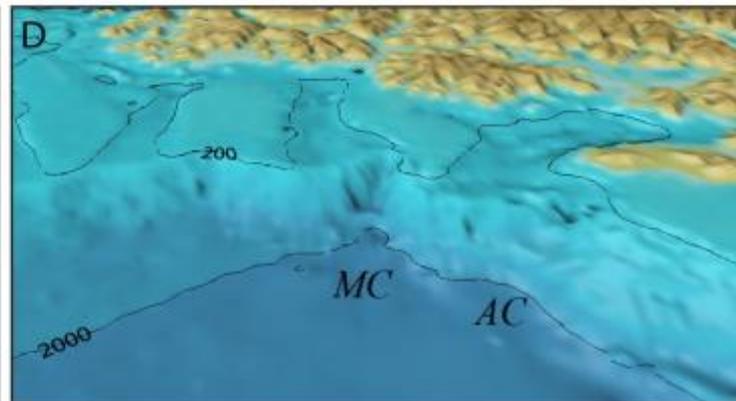
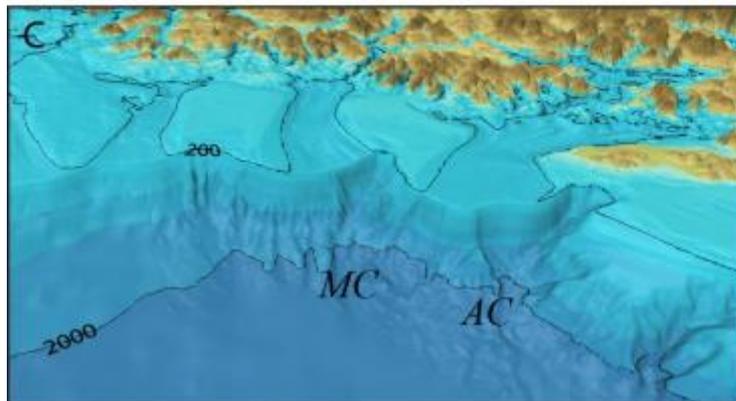
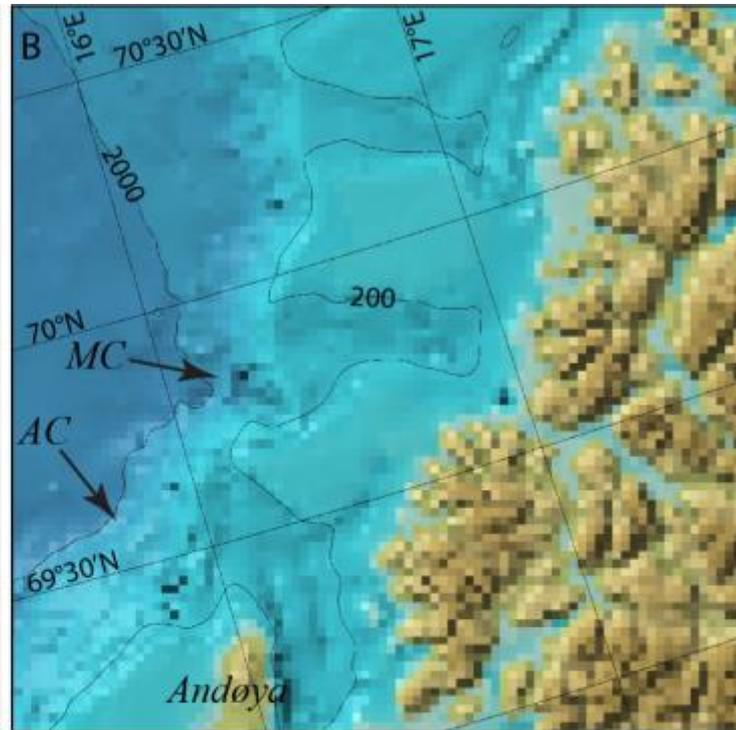
However, considering that the mean depth of the compared values is 640 m, the mean difference is less than 1% of the water depth

Results

Version 3.0



Version 2.0



IBCAO Version 2.0



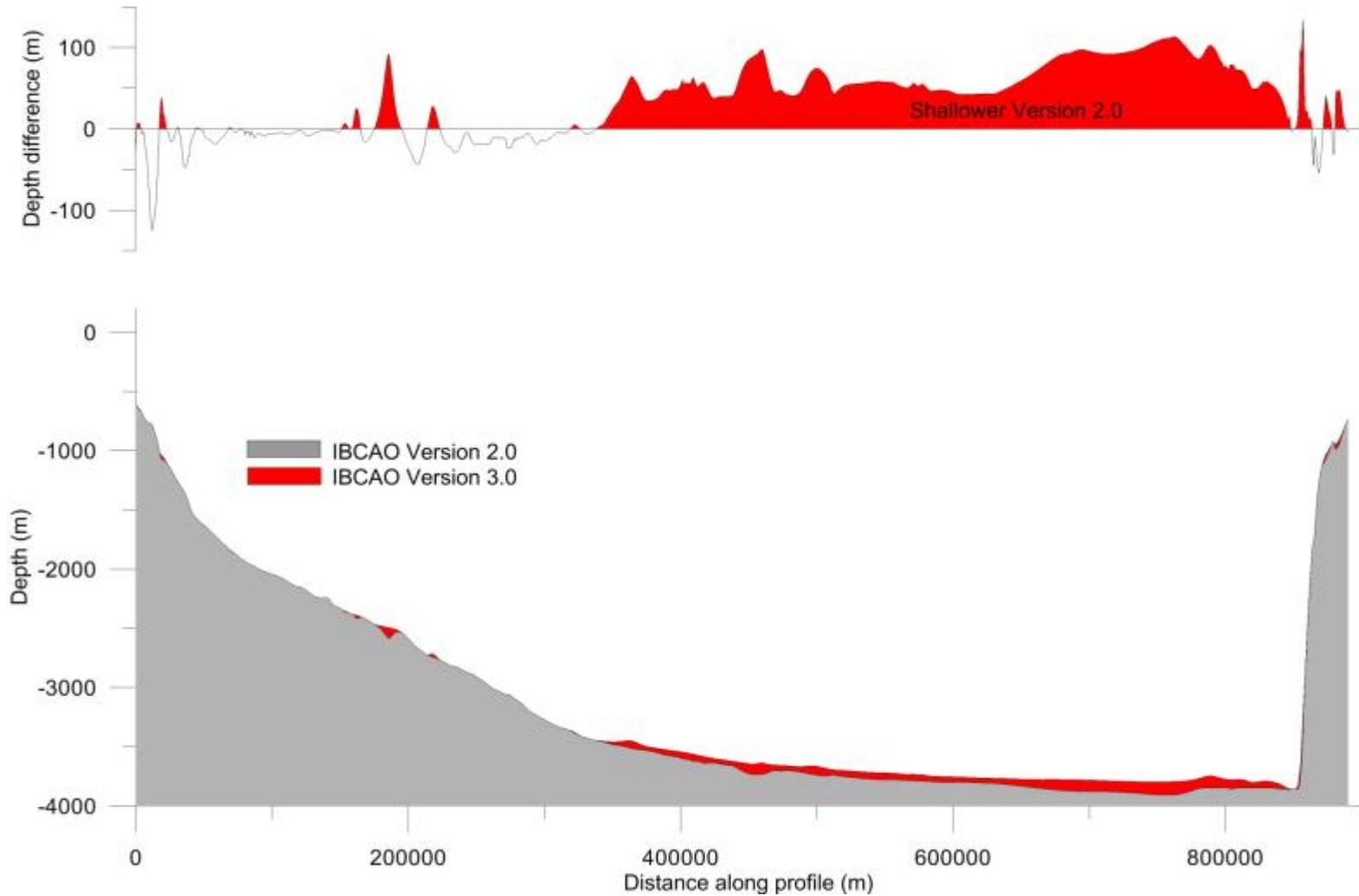
IBCAO Version 3.0

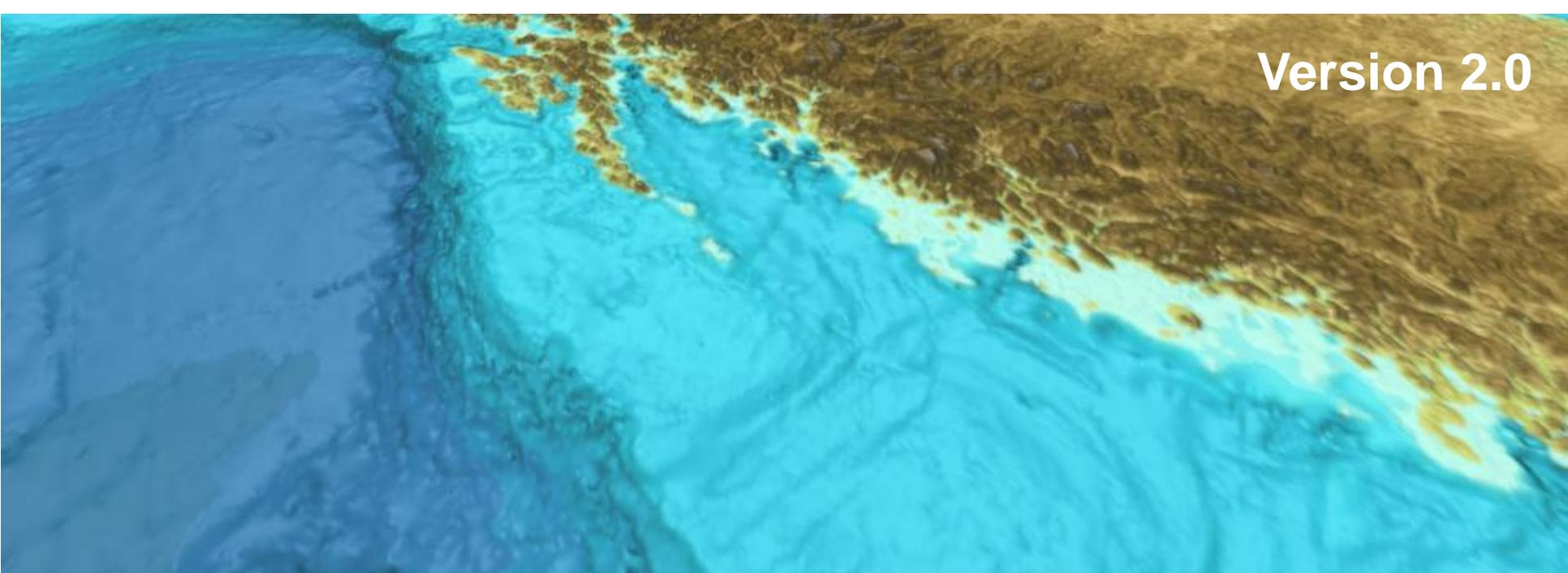


IBCAO Version 3.0 (Smooth)

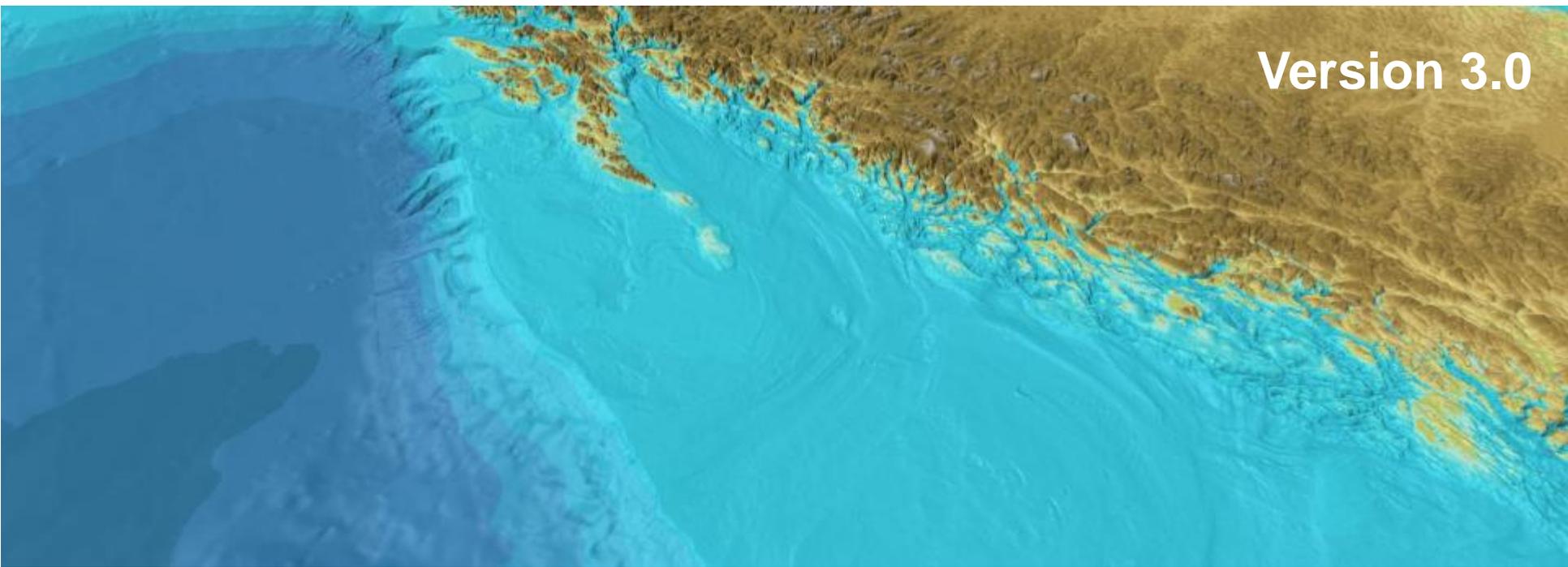


Results

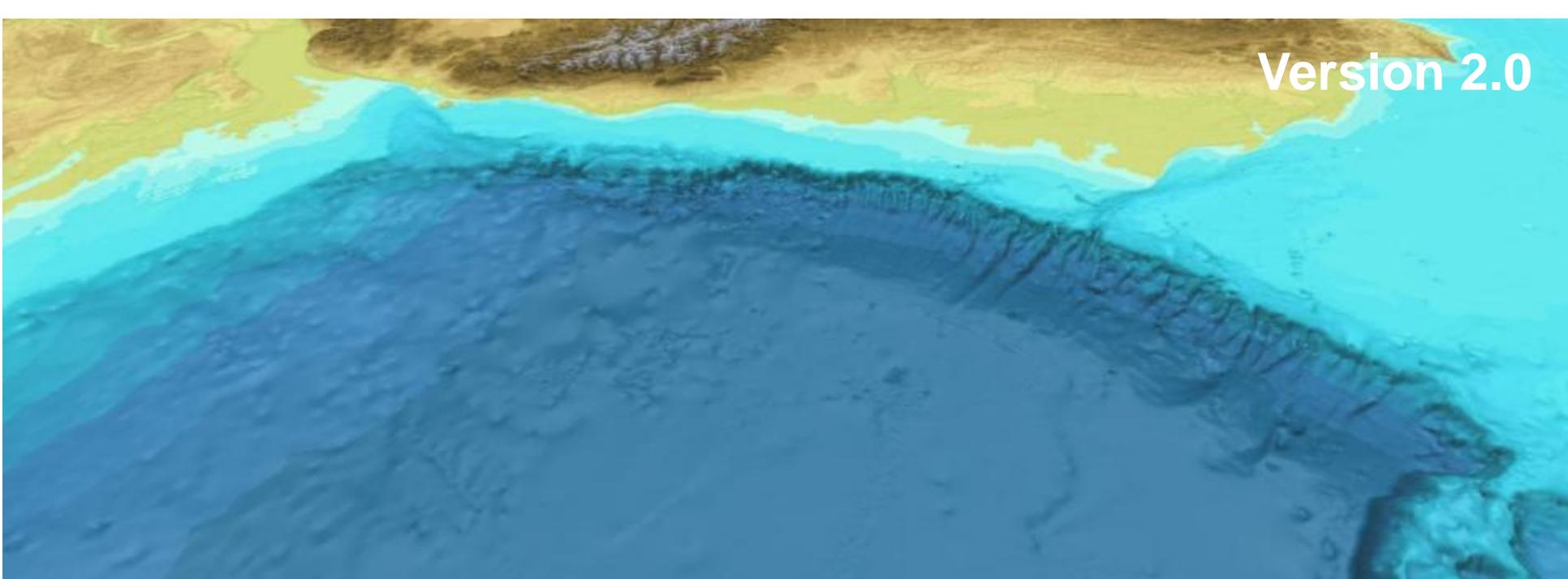


A topographic map of a coastal region, labeled "Version 2.0". The map shows a coastline on the left side, with a large body of water to the west. The land is colored in shades of cyan, blue, and brown, representing different elevations. The terrain is relatively smooth, with some major features like a large bay and a river system visible. The text "Version 2.0" is located in the top right corner.

Version 2.0

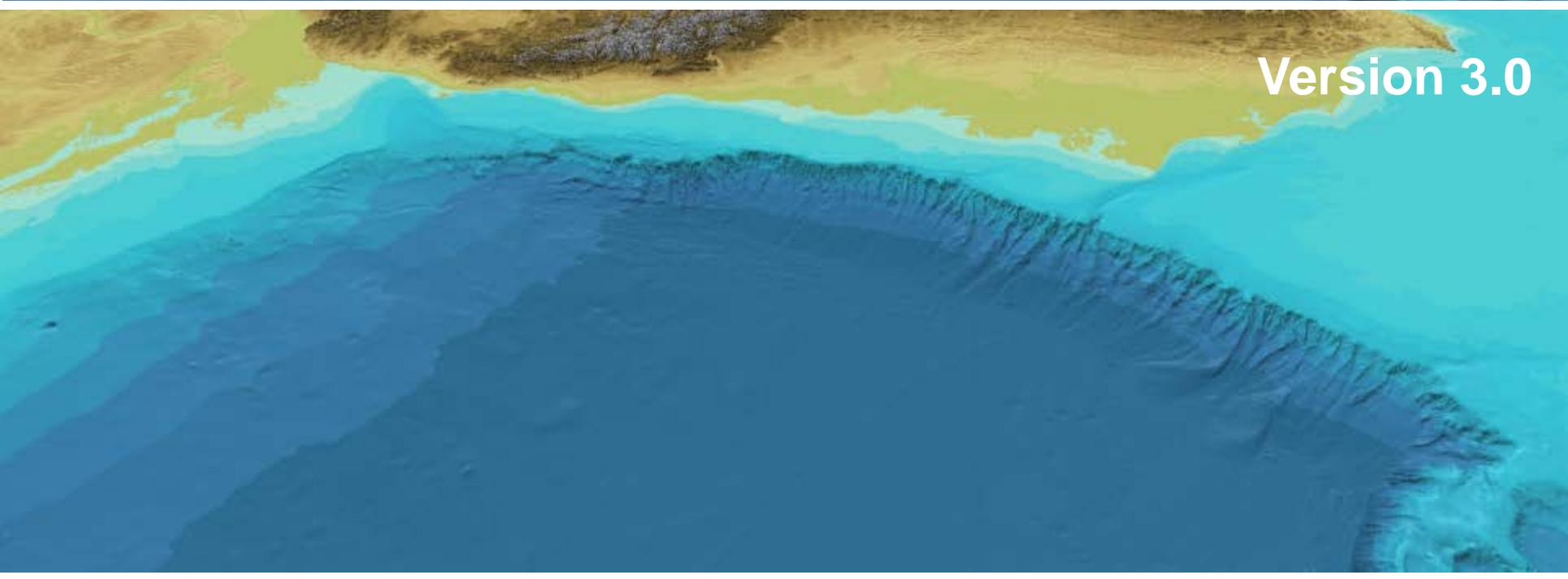
A topographic map of the same coastal region, labeled "Version 3.0". This version shows a much more detailed and textured terrain. The cyan and blue areas are more intricate, showing more of the underlying topography. The brown areas are also more detailed, with more visible ridges and valleys. The coastline is more irregular and detailed. The text "Version 3.0" is located in the top right corner.

Version 3.0



Version 2.0

This topographic map shows a coastal region with a color gradient from yellow (low elevation) to dark blue (high elevation). The terrain is characterized by a prominent ridge running diagonally from the upper left towards the lower right. The ridge is flanked by lower elevations, and the overall topography is relatively smooth with some minor depressions and ridges. The color gradient is consistent across the entire map, indicating a uniform elevation scale.



Version 3.0

This topographic map shows the same coastal region as Version 2.0, but with a more detailed and textured appearance. The color gradient is the same, but the terrain features are more pronounced and varied. The ridge is more defined, and there are more distinct ridges and depressions throughout the landscape. The overall topography is more complex and detailed, suggesting a higher resolution or more accurate data source.

