

Antarctic and Arctic Bathymetry Data Available Through Global Multi Resolution Topography (GMRT)

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Background

- **Data from US academic ships (R2R)**
including *NB Palmer*, *Sikuliaq*, (*Healy*)
- **Collected by PI-driven project**
- **MB data archived at MGDS**
- **Restricted hold for two years**
(usually)
- **Integrating multibeam data into GMRT**
- **Long-term archive at NCEI**

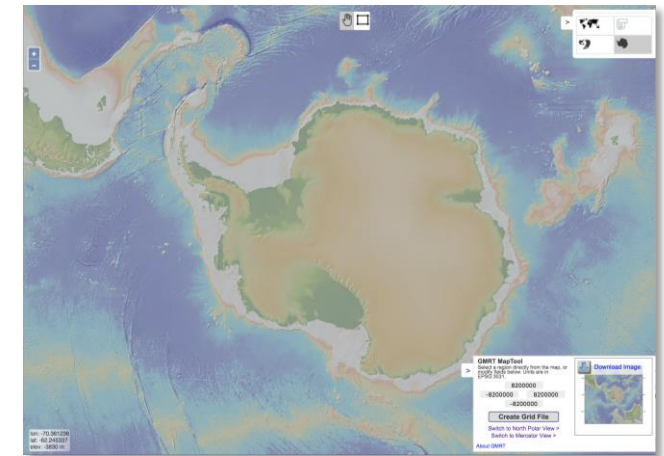
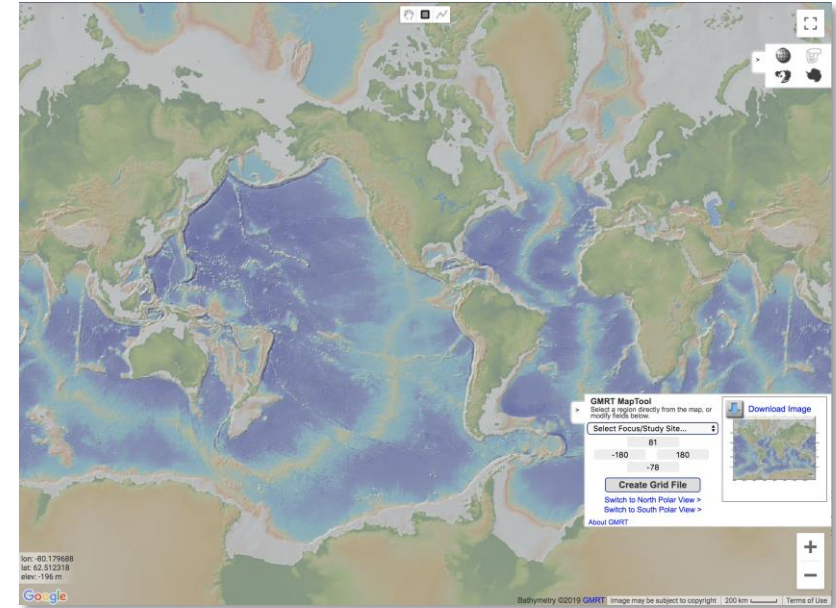


R2R = Rolling Deck To Repository
MGDS = Marine Geoscience Data Synthesis

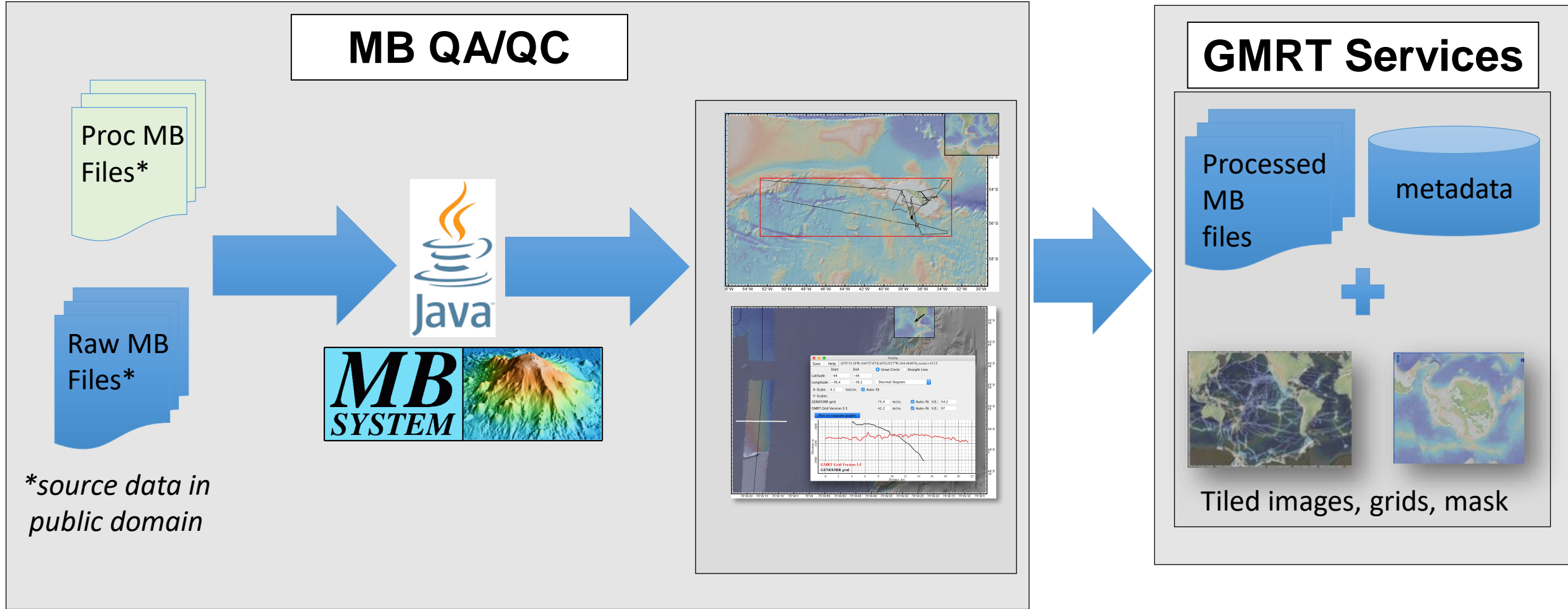


GMRT - Overview

- **Multi-resolution tiled synthesis**
 - Topography and bathymetry
- **Comprehensive metadata**
 - Full attribution to sources and access to source data
- **Three projections**
- **Elevation data in many formats**
 - Grids, Images, Points, Profiles



GMRT - Multibeam Data Workflow

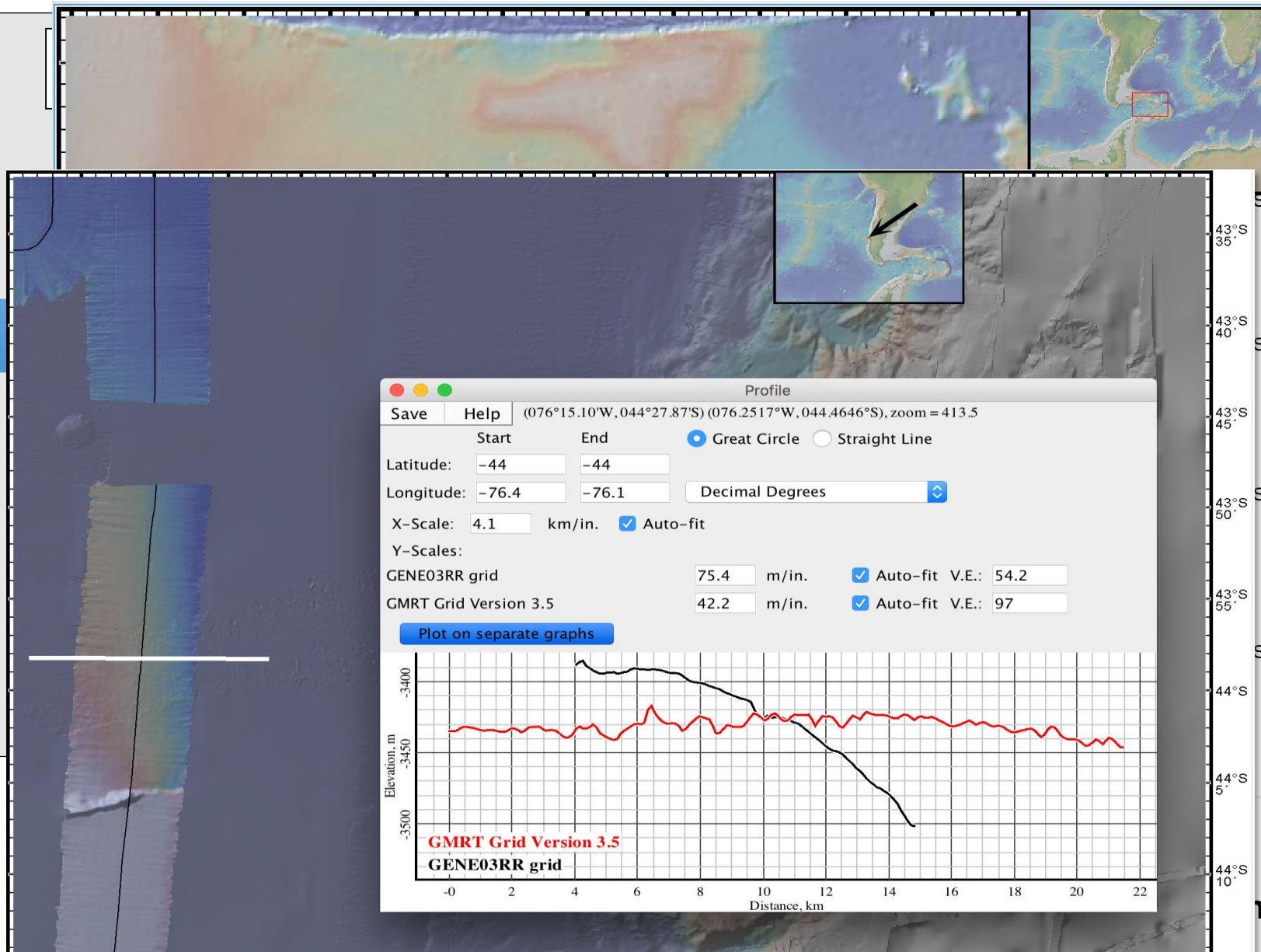


GMRT - Multibeam Data Workflow

Proc MB
Files*

Raw MB
Files*

**source data in
public domain*



RT Services

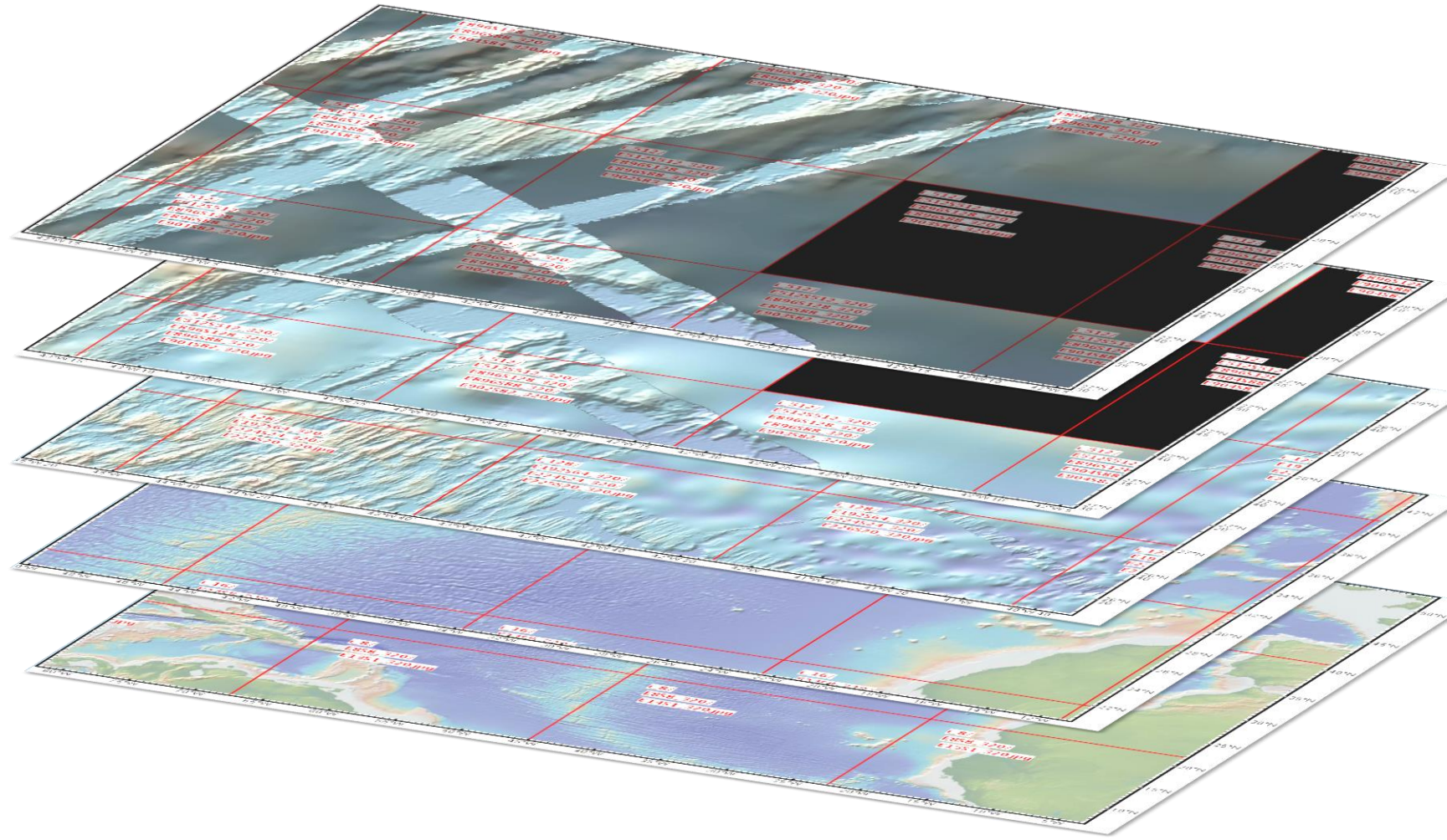
metadata

Images, grids, mask

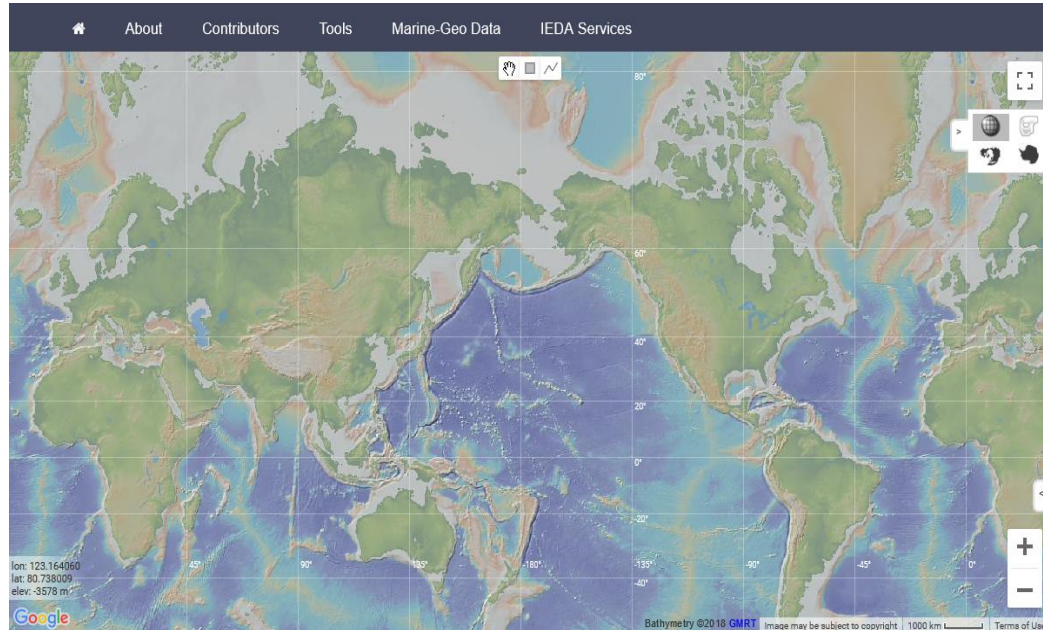


GMRT - Tiled Multi-Resolution Architecture

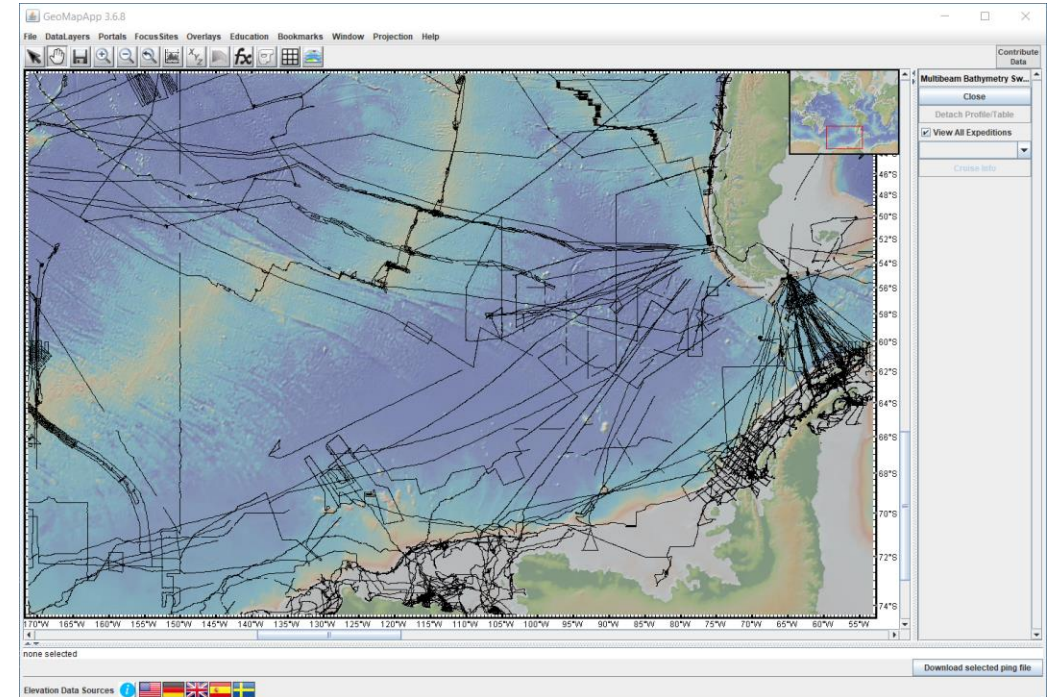
- Manage and integrate sparse high-resolution data
- Provide access to variable resolution data from 1km to meter scale
- Assemble and deliver gridded products
- Multiple resolutions of tiled rasters



GMRT – Access to Data



www.gmrt.org/GMRTMapTool/

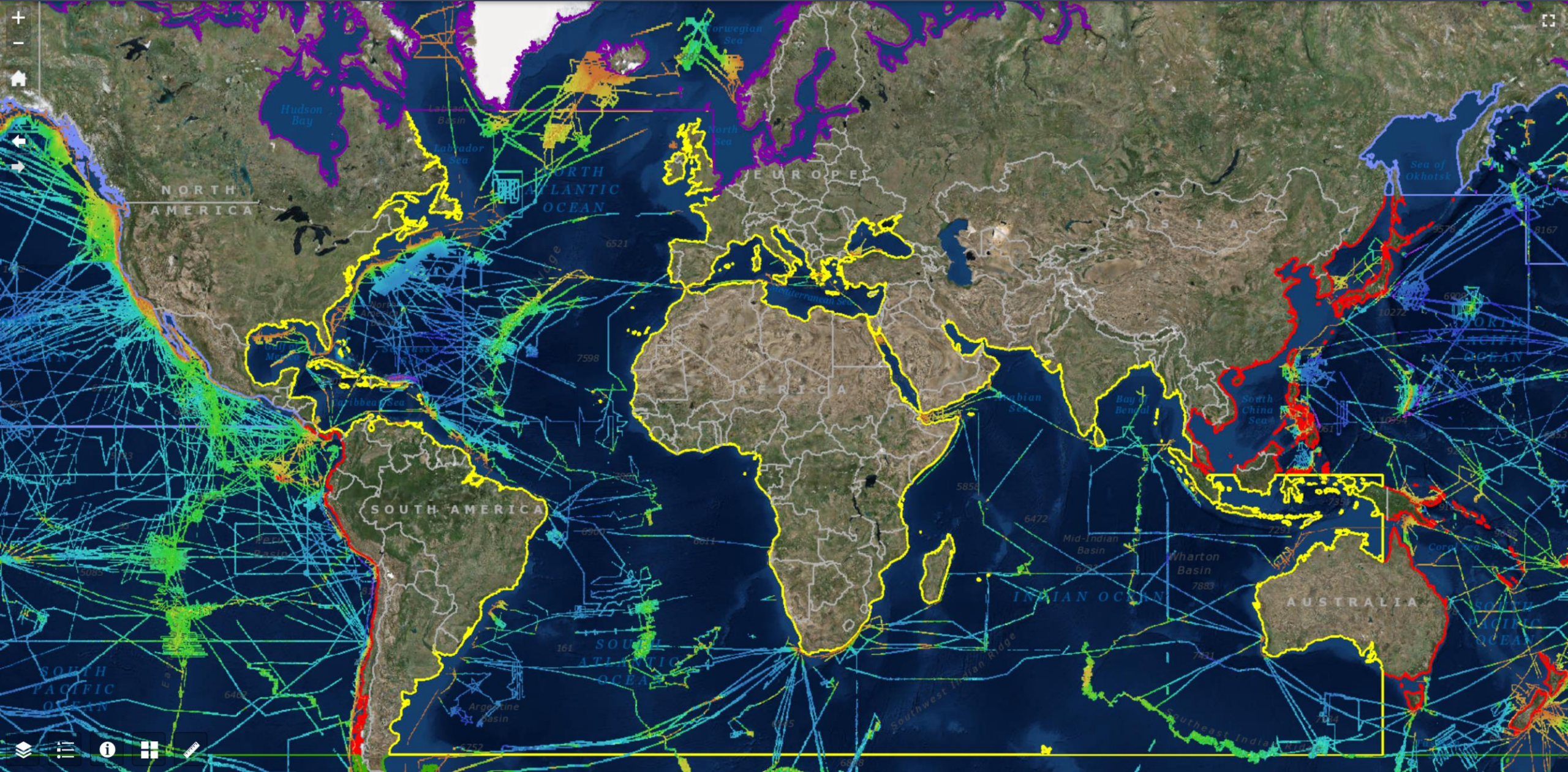


GeoMapApp
www.geomapapp.org

Web Services
GMRT WMS (Mercator and Polar projection)



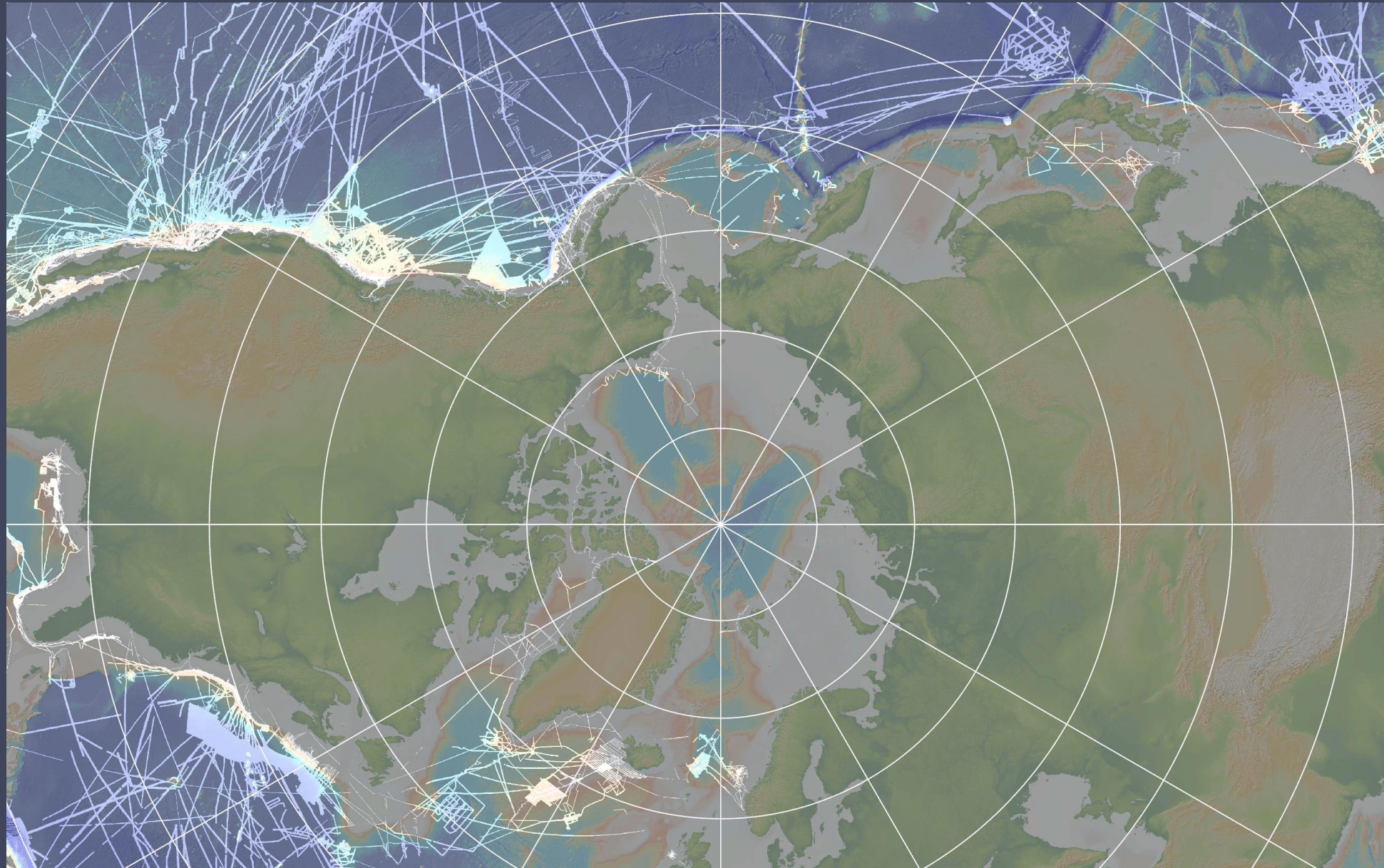
GMRT 3.5 Contributed to Seabed2030



GMRT 3.5 Contributed to GEBCO

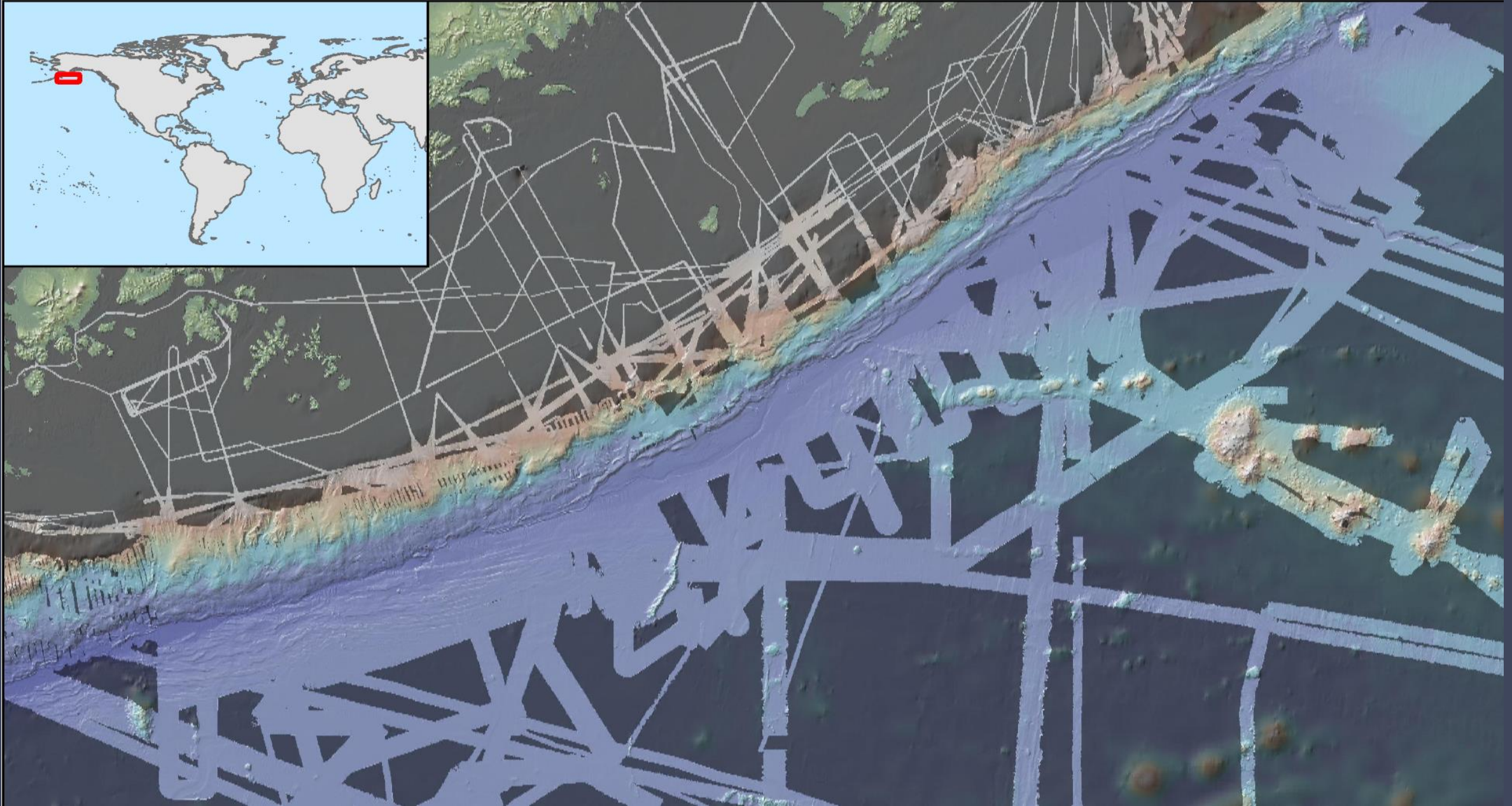
GMRT grids (400m) have been provided to regional data centers

GMRT - Arctic and North Pacific Data

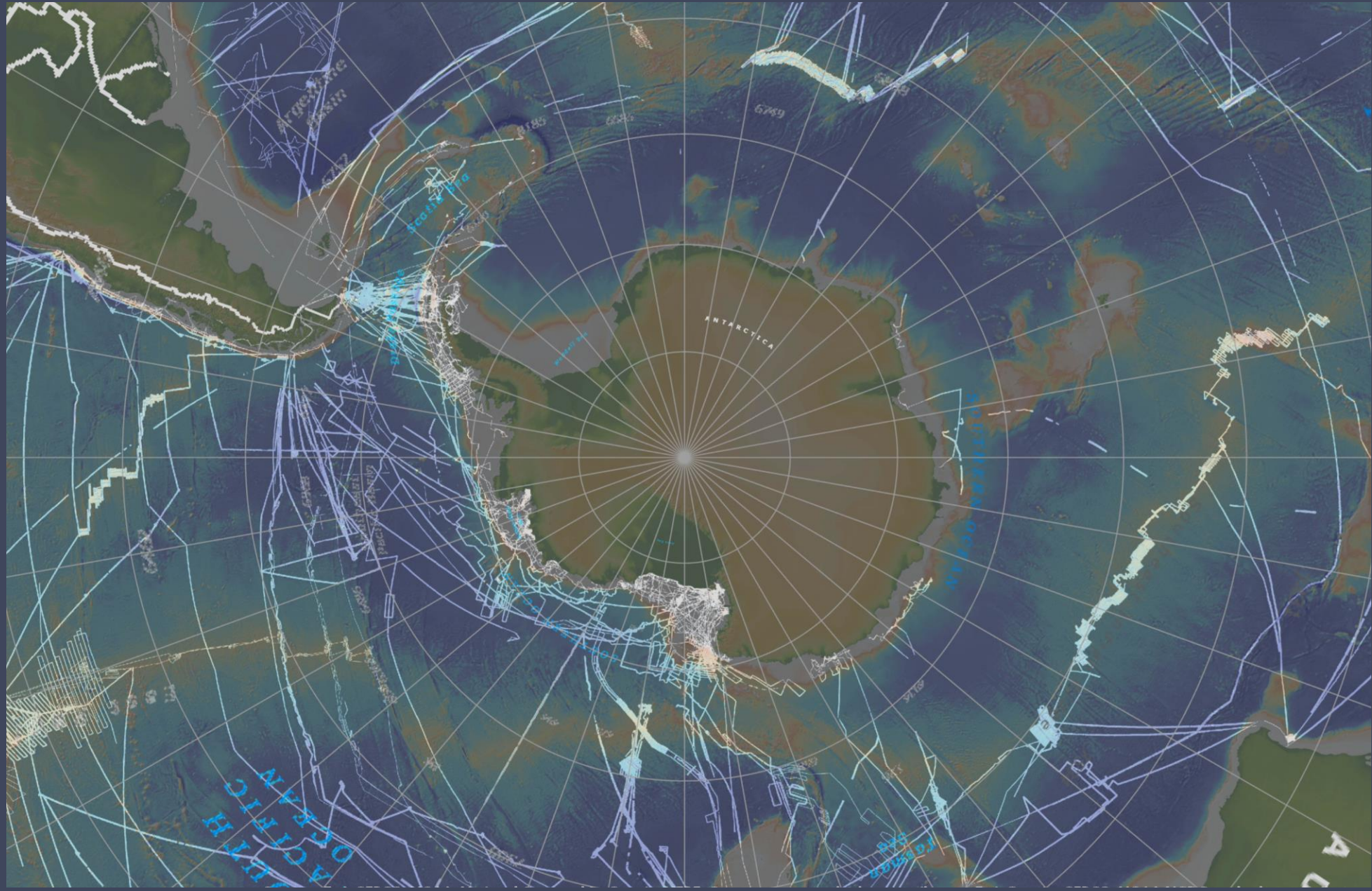


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

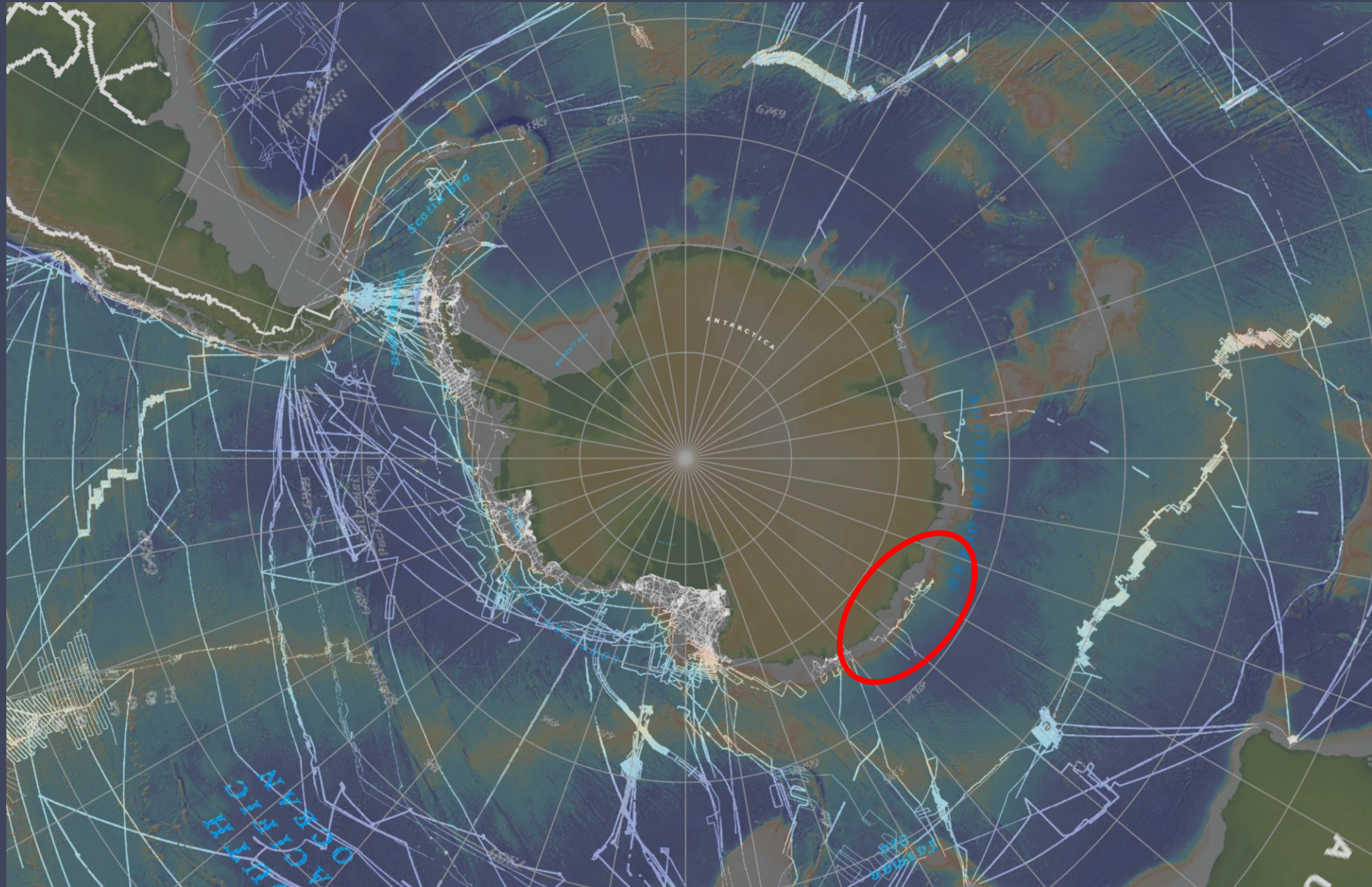
GMRT – Alaska Margin Example



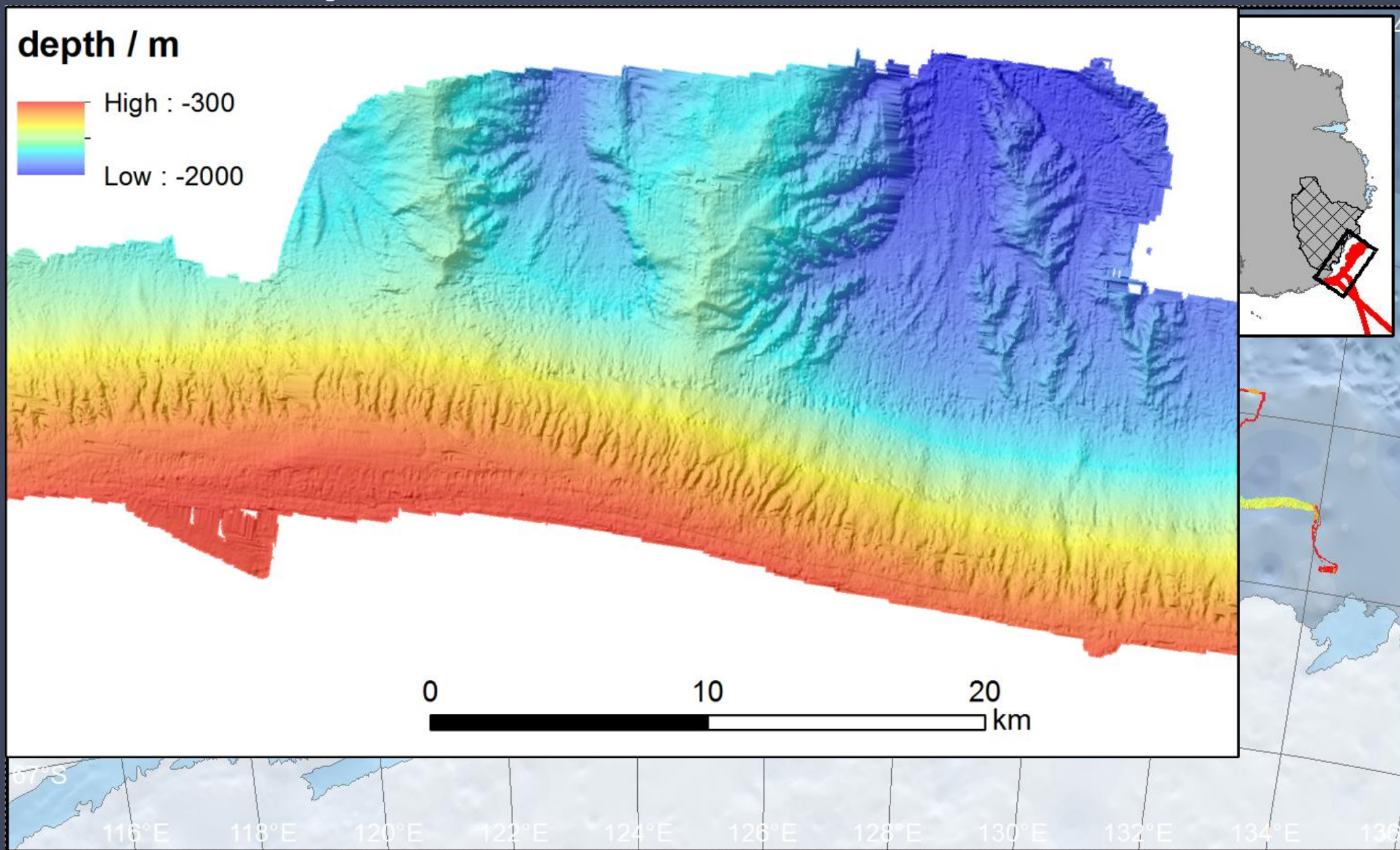
GMRT - Southern Ocean Data



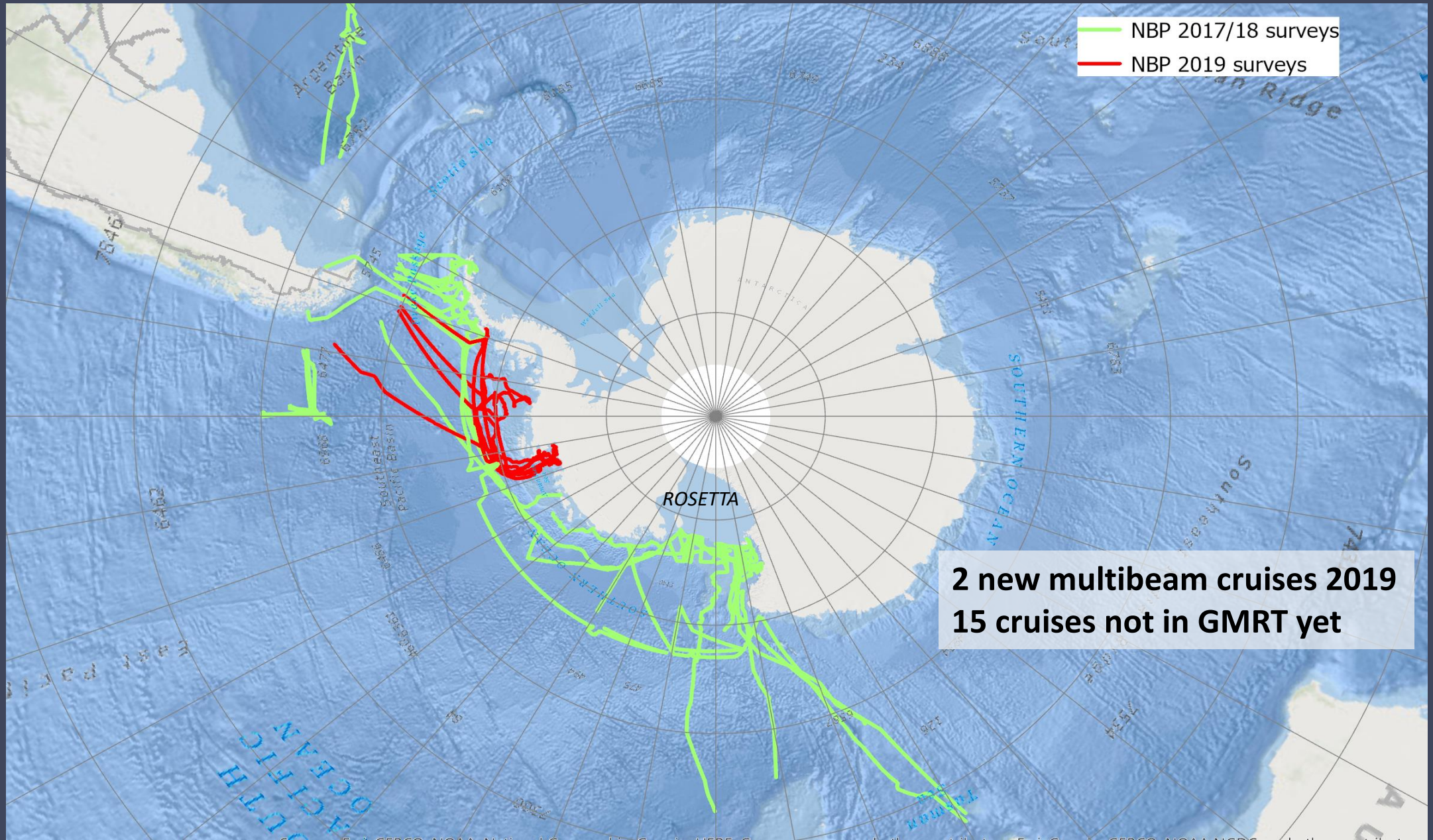
GMRT - Southern Ocean Data



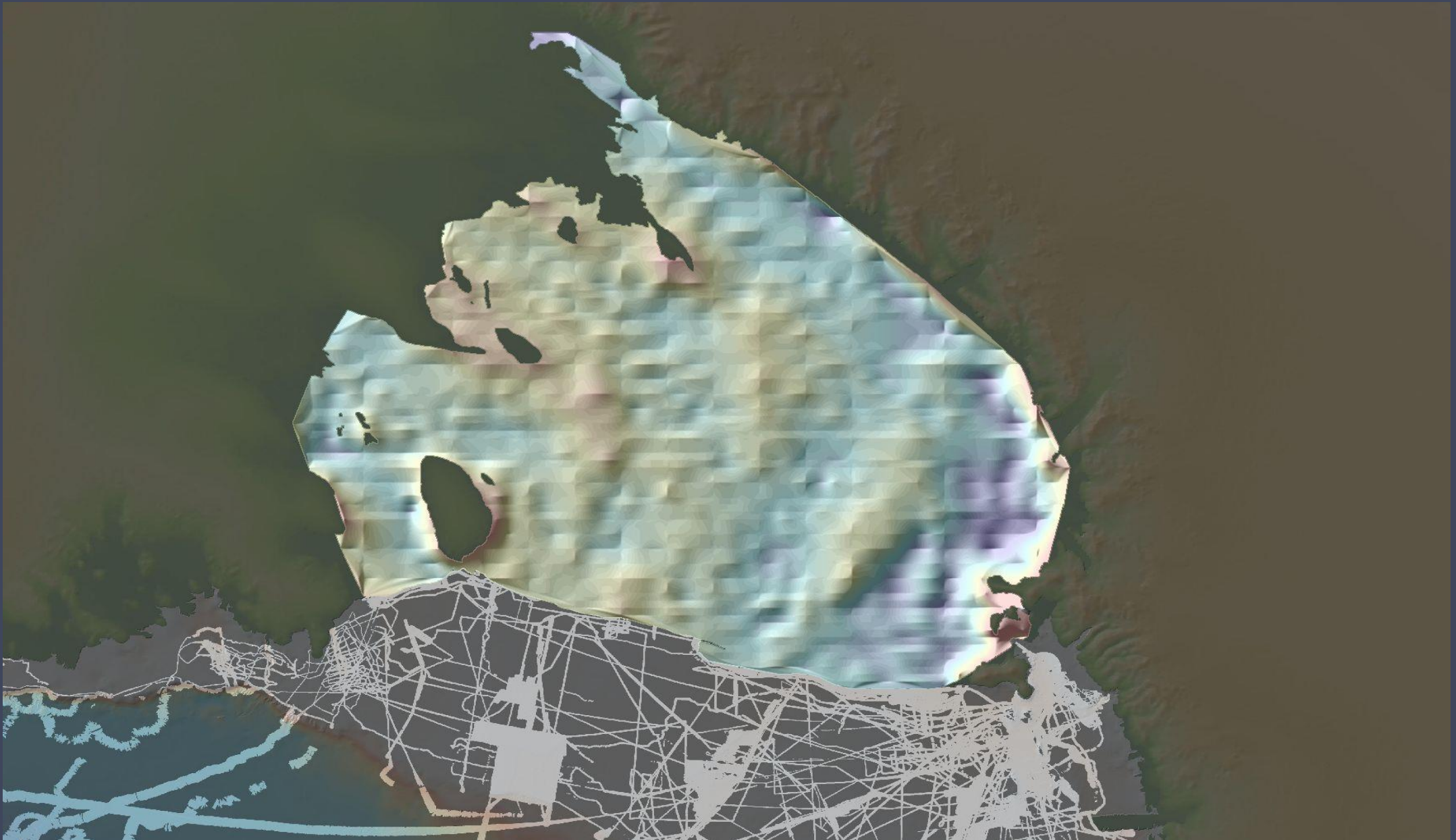
Example – East Antarctica / NBP1503



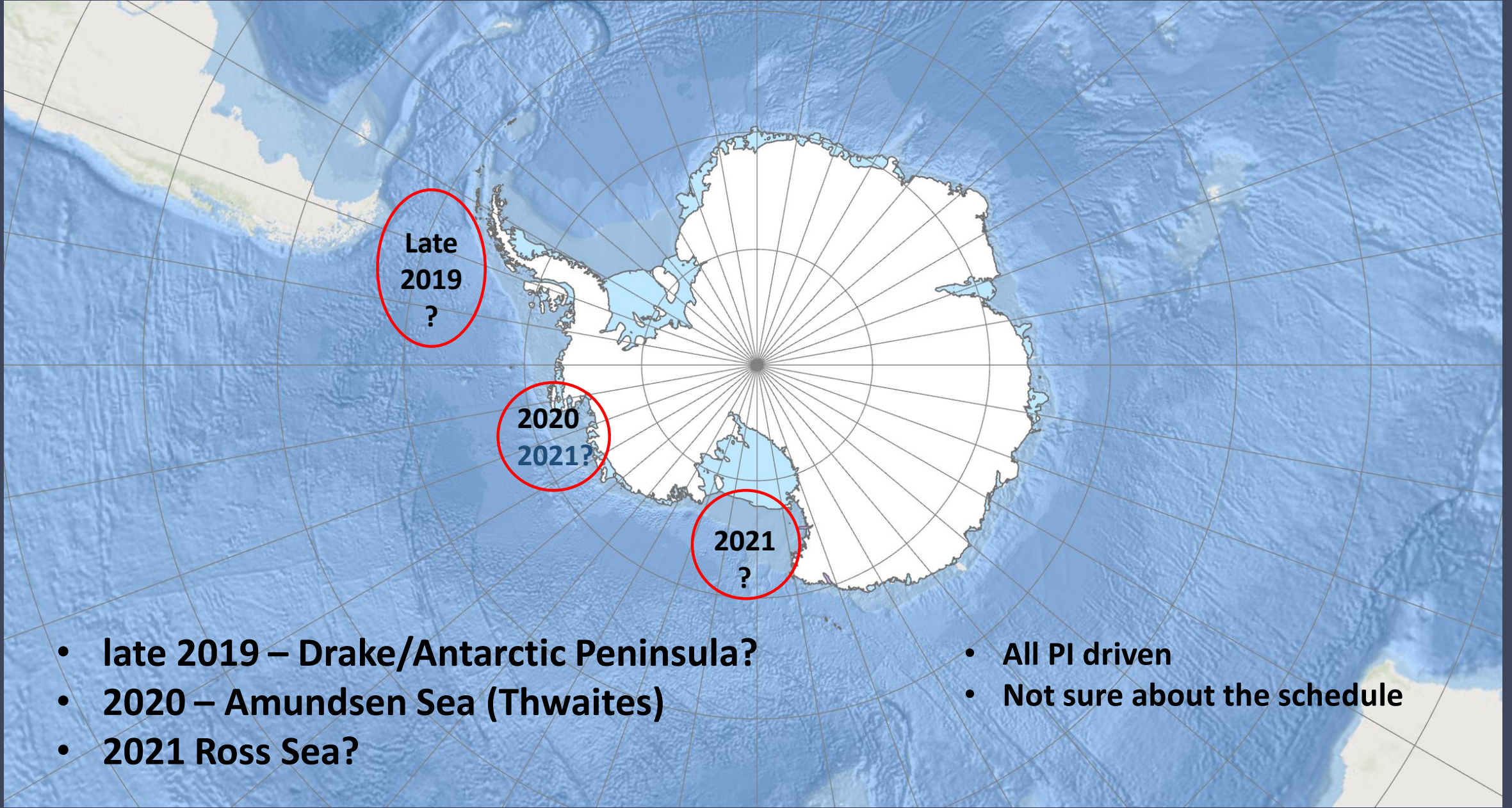
MGDS multibeam data not in GMRT yet



Ross Ice Shelf – Predicted Bathymetry



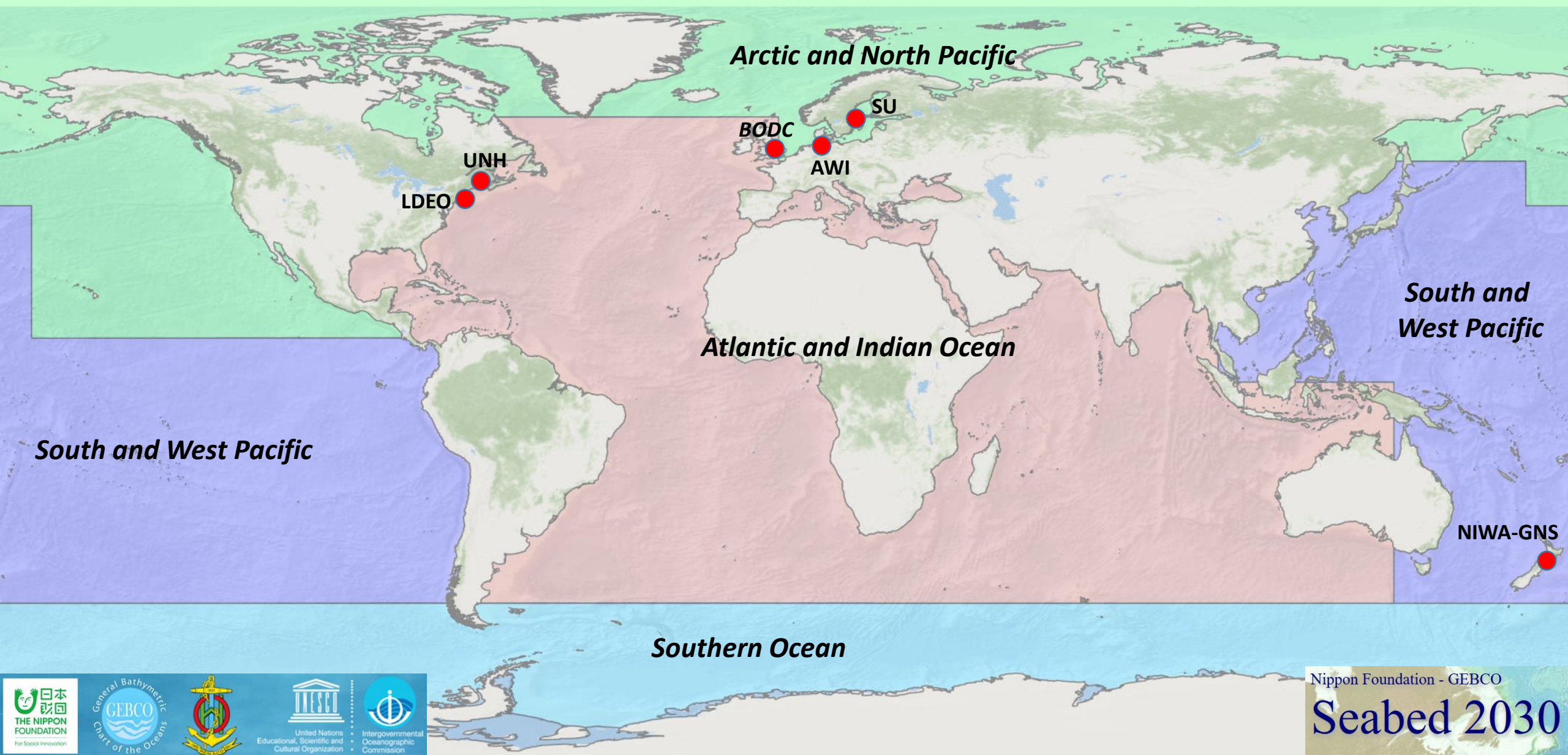
Upcoming/Planned Cruises



- late 2019 – Drake/Antarctic Peninsula?
- 2020 – Amundsen Sea (Thwaites)
- 2021 Ross Sea?

- All PI driven
- Not sure about the schedule

Atlantic and Indian Ocean Regional Center



Arctic and North Pacific

SU

BODC

AWI

UNH

LDEO

South and West Pacific

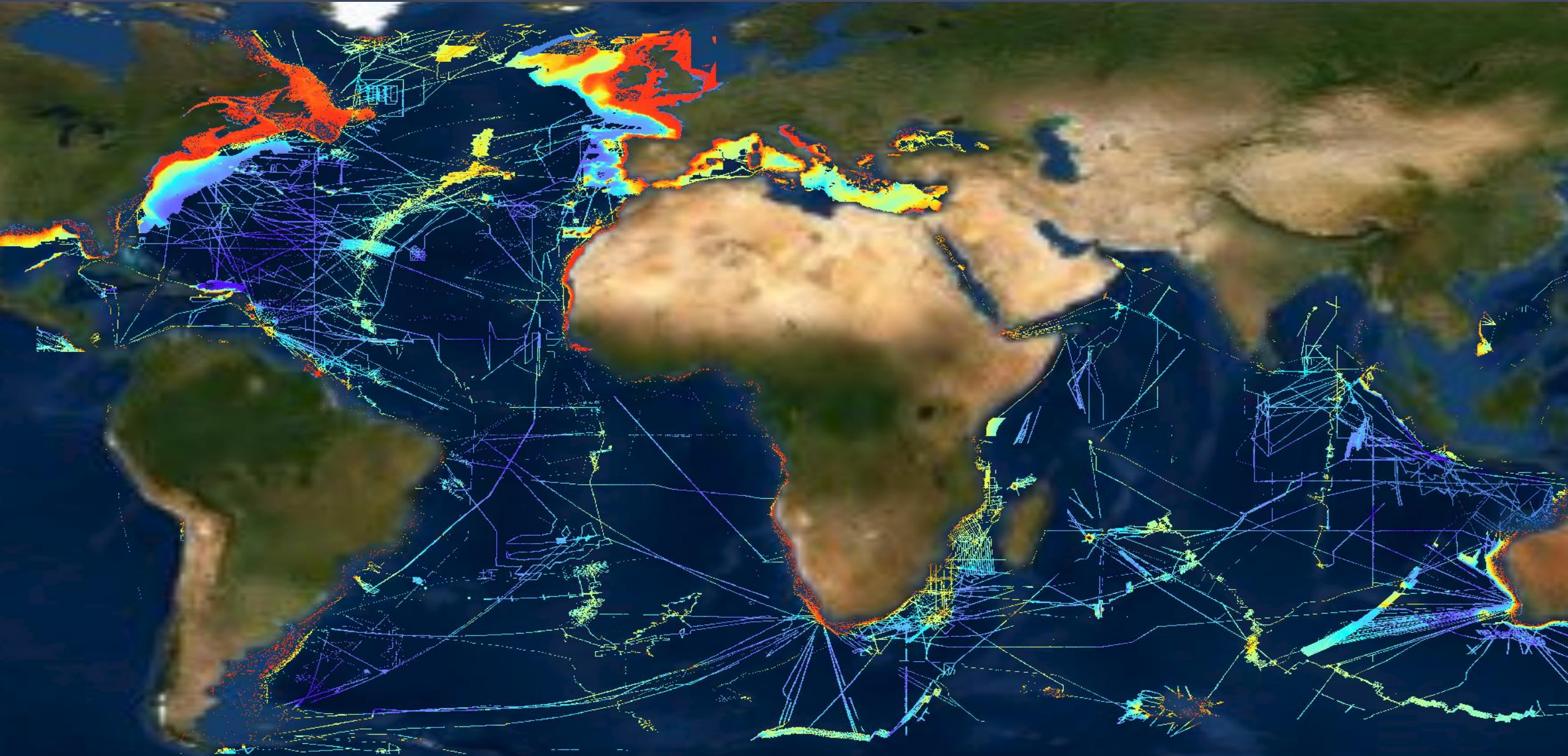
Atlantic and Indian Ocean

South and West Pacific

NIWA-GNS

Southern Ocean

Atlantic and Indian Ocean Regional Center



Atlantic and Indian Ocean Regional Center



Any data in Atlantic or Indian Ocean?

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