GEBCO / Nippon Foundation Report

5th RSAHC meeting
Riyadh, Saudi Arabia

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WHY ARE BATHYMETRIC GRIDS IMPORTANT?

Growing recognition of the need for scientific bathymetric grids and maps

- **WHY: Better representation of sea-floor morphology**

Emphasize these grids cannot be used for navigation purposes

WHY ARE BATHYMETRIC GRIDS IMPORTANT?

Seamless bathymetric grid data uses:

- **Scientific and academic research** (tectonic and ocean current models)
- **Geohazard modelling and mitigation** (Tsunami-propagation and storm surge models)
- **Sustainable Resource Management** (Fisheries resource management, aquaculture, petroleum and mineral exploration, renewable energy resources
- **Environmental Stewardship** (Habitat monitoring, national heritage, management of marine protected areas)

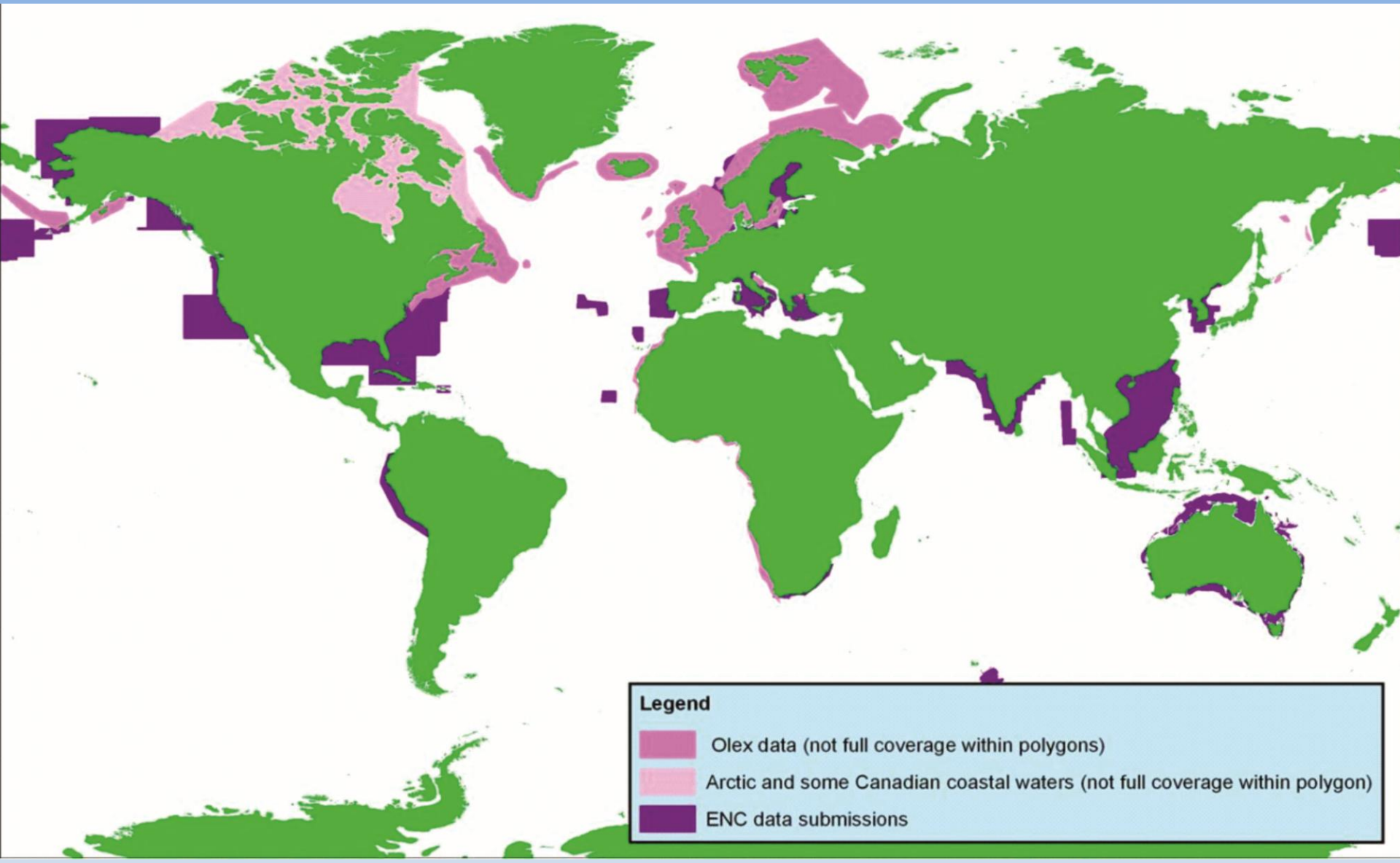
SHALLOW-WATER BATHYMETRY INITIATIVE

- **GEBCO datasets and maps have traditionally concentrated the bathymetry of the deeper water regions of the world's oceans – i.e. at depths of 200 m and deeper.**

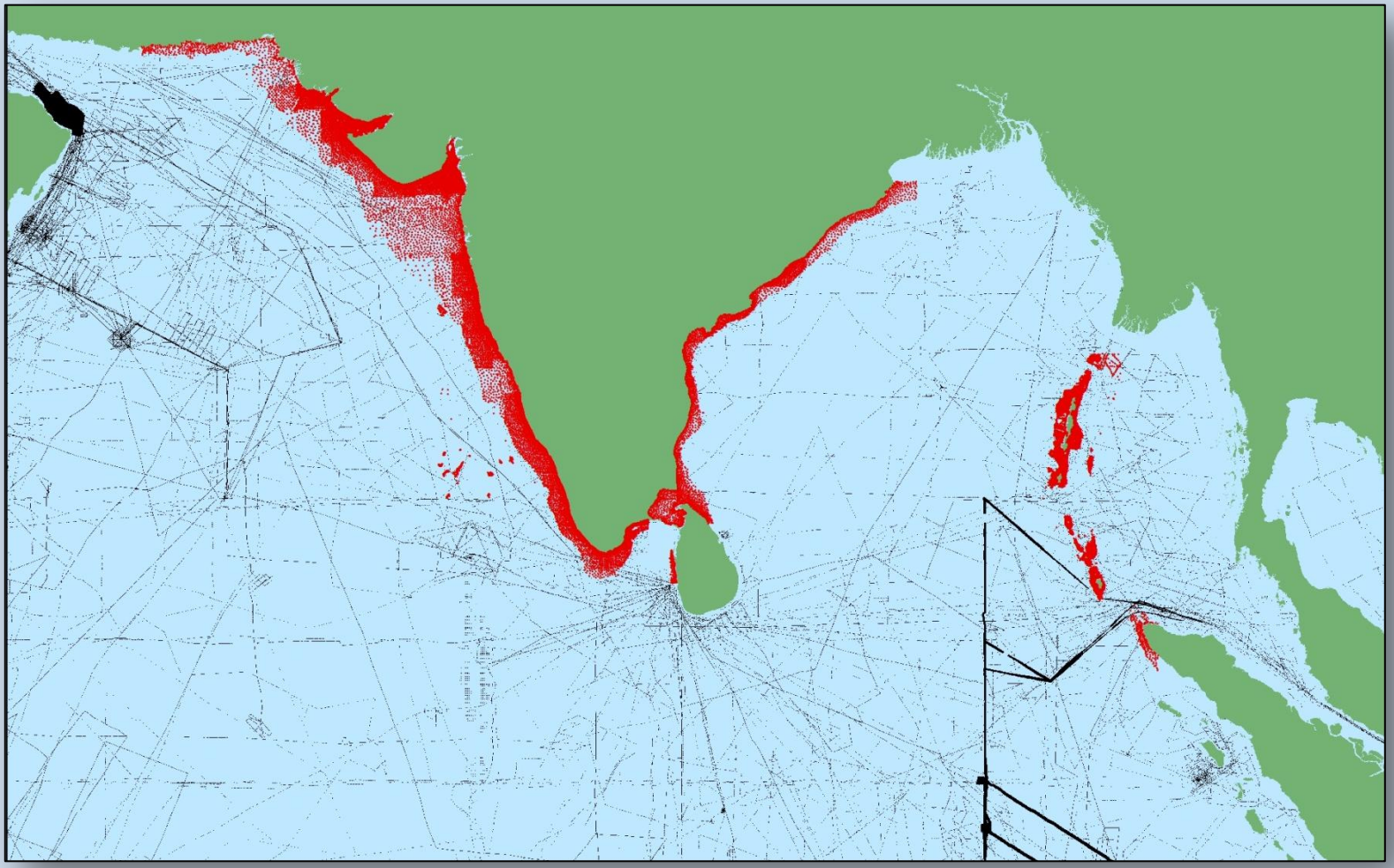
- **To more accurately model the shape of the ocean floor in all areas and serve a wider user community, GEBCO is been striving to improve gridded bathymetric datasets in shallower waters.**

http://www.gebco.net/about_us/posters_and_publicity/documents/gebco_shallow_bath_20070501.pdf

SHALLOW-WATER BATHYMETRY

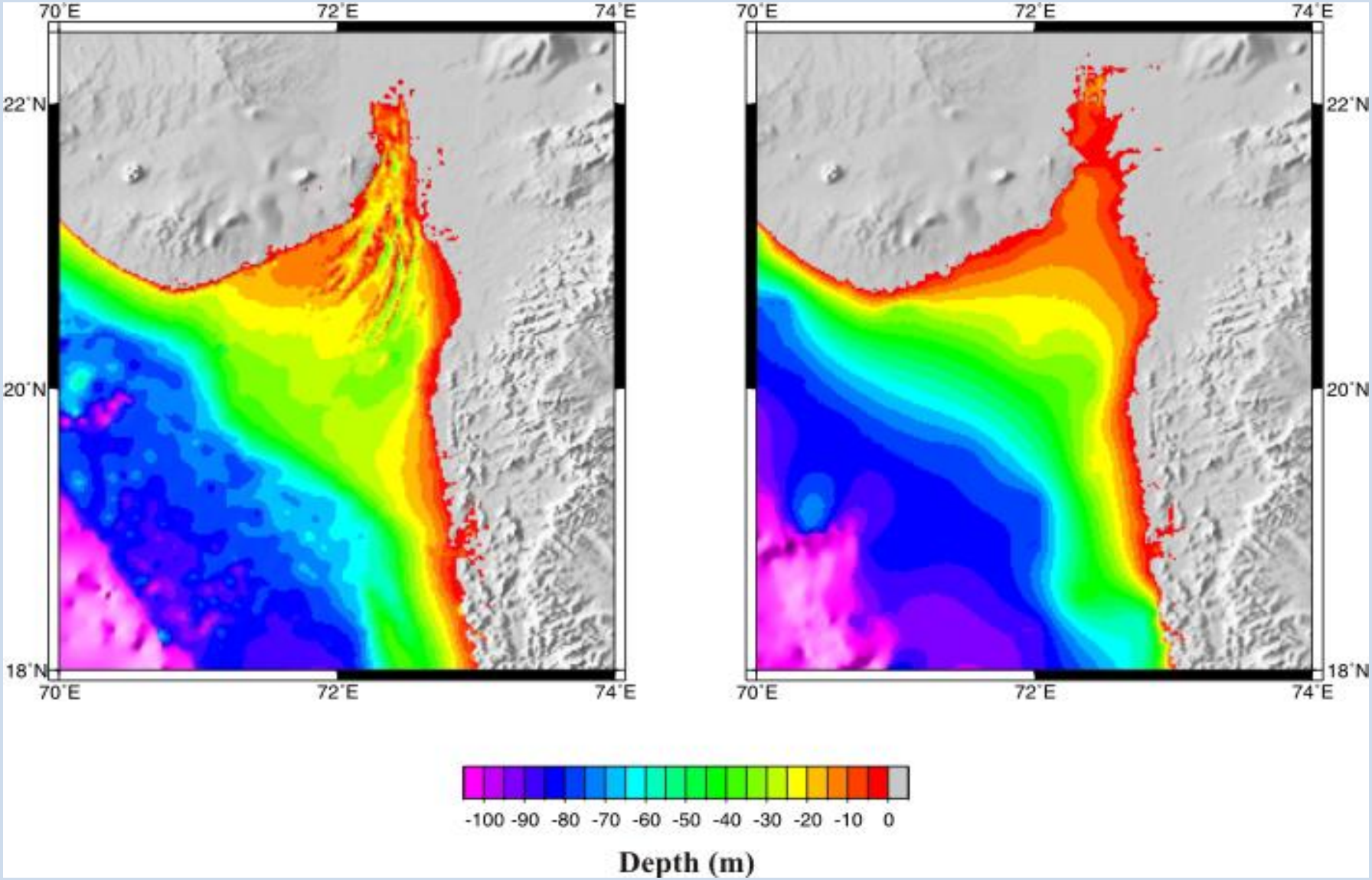


DATA FOR GEBCO_08 GRID



RED: ENC-Soundings

BLACK: Grid cells in GEBCO_08 grid constrained by ship-track soundings



Grid produced using GEBCO bathymetry (right) and improved with ENC shallow-water data (left) for Gulf of Khambat, India

REQUEST FOR SHALLOW-WATER DATA

Extend further request to all HO present to submit shallow-water data to GEBCO

How to contribute data to GEBCO:
http://www.gebco.net/data_and_products/gridded_bathymetry_data/shallow_water_bathymetry/

Information also in IHO CL36/2006 & CL 14/2007
Contact Tony Pharaoh at IHO

GEBCO

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Aims to provide the most authoritative, publicly-available bathymetric datasets for the world oceans

Evaluates and authorizes undersea feature names for use on its products, which are published in a gazetteer

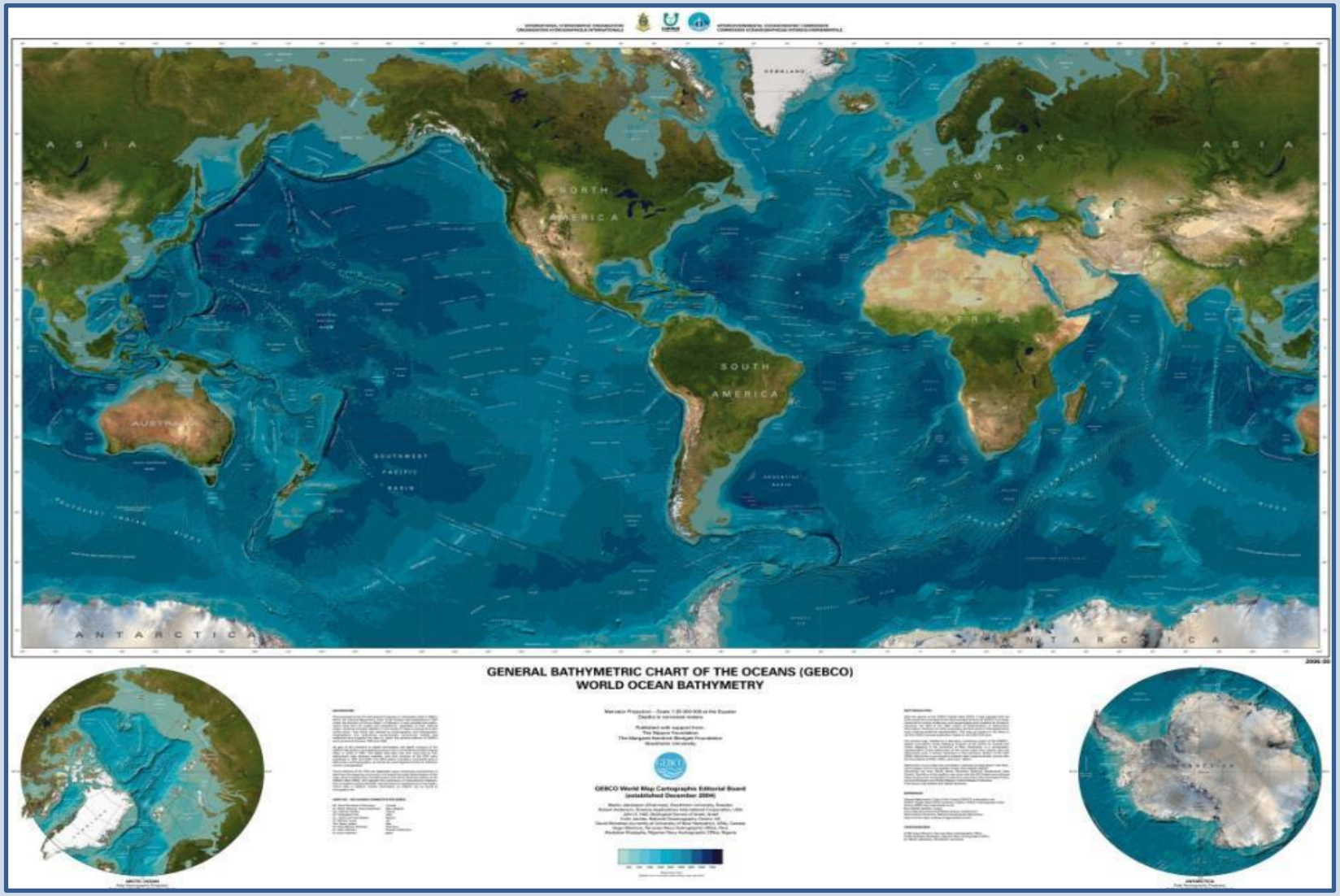
www.gebco.net

General Bathymetric Chart of the Oceans (GEBCO) is a largely volunteer-driven organisation that operates under the International Hydrographic Organization (IHO) and Intergovernmental Oceanographic Commission (IOC) of UNESCO

GEBCO ORGANISATION

- **GEBCO is led by a Guiding Committee consisting of 5 IHO-appointed members, 5 IOC-appointed members, Subcommittee Chairs and the Director of the IHO-DCDB**
- **GEBCO has 3 standing subcommittees**
  - *Subcommittee for Undersea Feature Names (SCUFN)*
  - *Technical Subcommittee for Ocean Mapping (TSCOM)*
  - *Subcommittee for Regional Undersea Mapping (SCRUM)*

GRIDDED BATHYMETRY DATA



CAPACITY-BUILDING INITIATIVES

The Postgraduate Certificate in Ocean Bathymetry

Designed to train a new generation of scientists and hydrographers in ocean bathymetry

is funded by:
Nippon Foundation of Japan

and taught at:
Center for Coastal and Ocean Mapping / Joint Hydrographic Center
University of New Hampshire, USA

NIPPON FOUNDATION

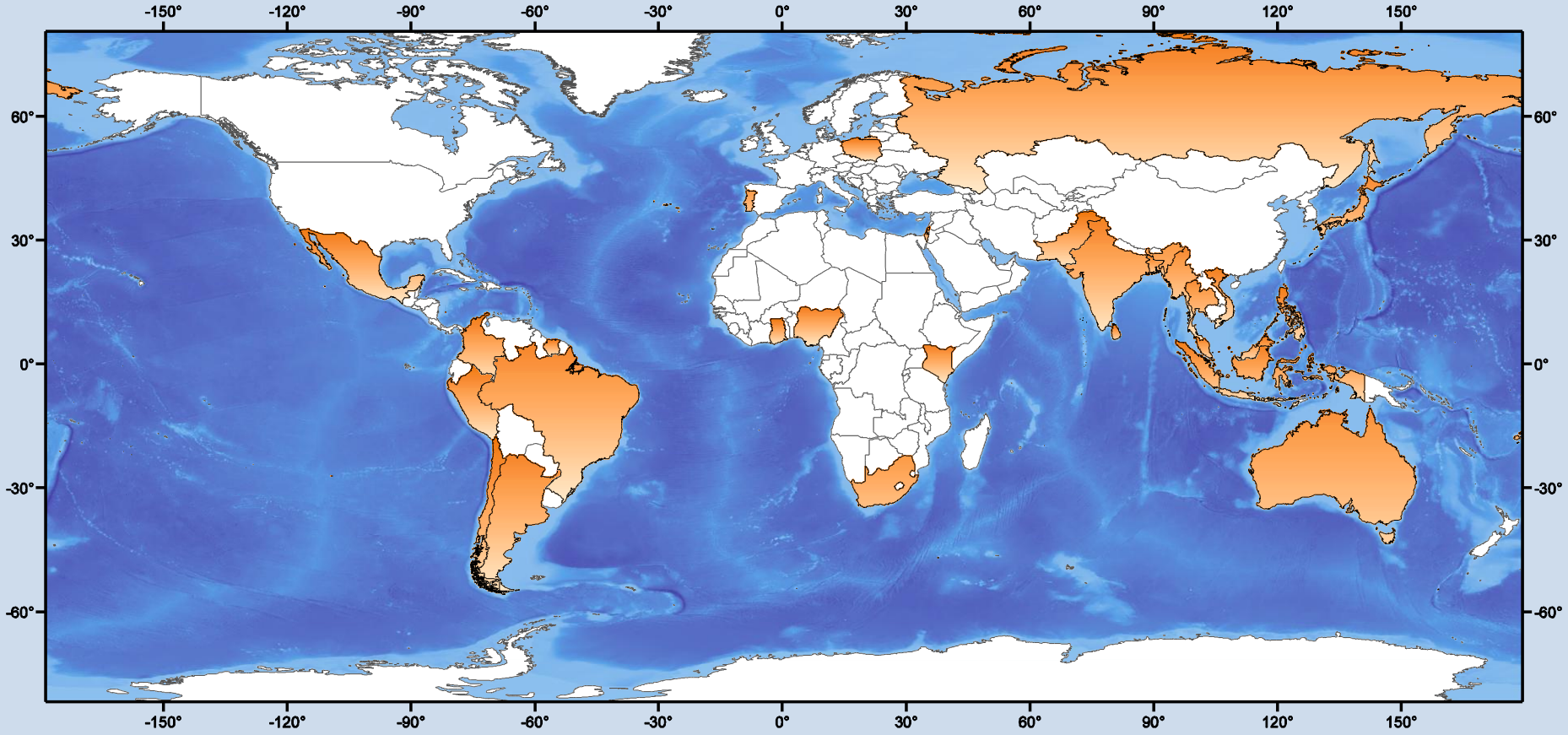
The Nippon Foundation was established in 1962 as a non-profit philanthropic organization that is active in Japan and around the world.

Many of their efforts focus on supporting and developing maritime and shipping fields

http://www.nippon-foundation.or.jp/en/

GEBCO SCHOLARS

- **54 scholars from 28 Coastal states**



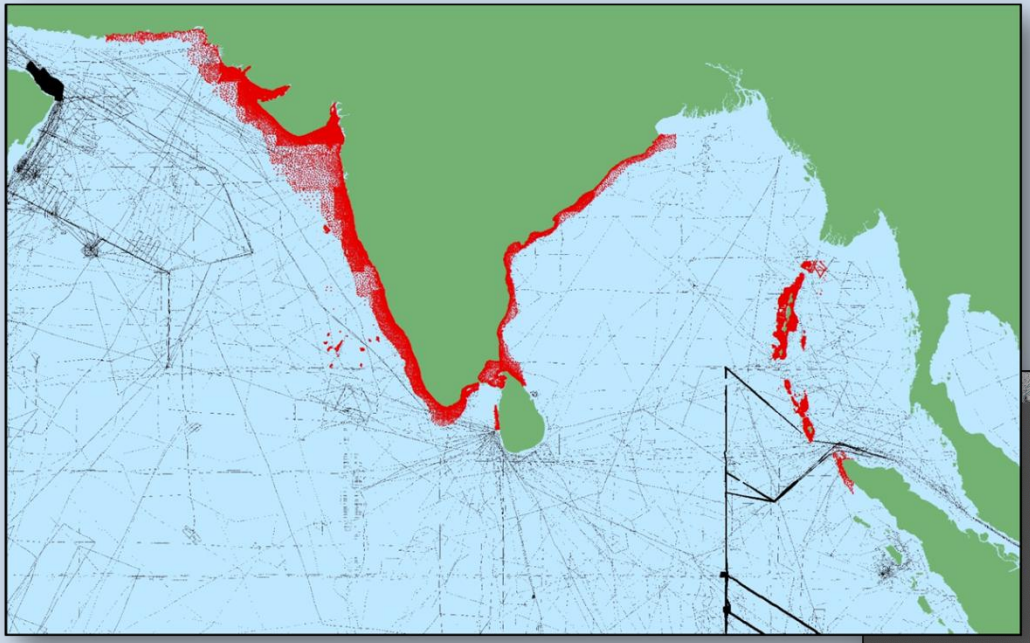
REGIONAL PROJECTS

GEBCO supports a number of regional projects such as IBCSO (International bathymetric chart of Southern Ocean) and IBCAO (International bathymetric chart of Arctic Ocean)

Global grid are continuously upgraded

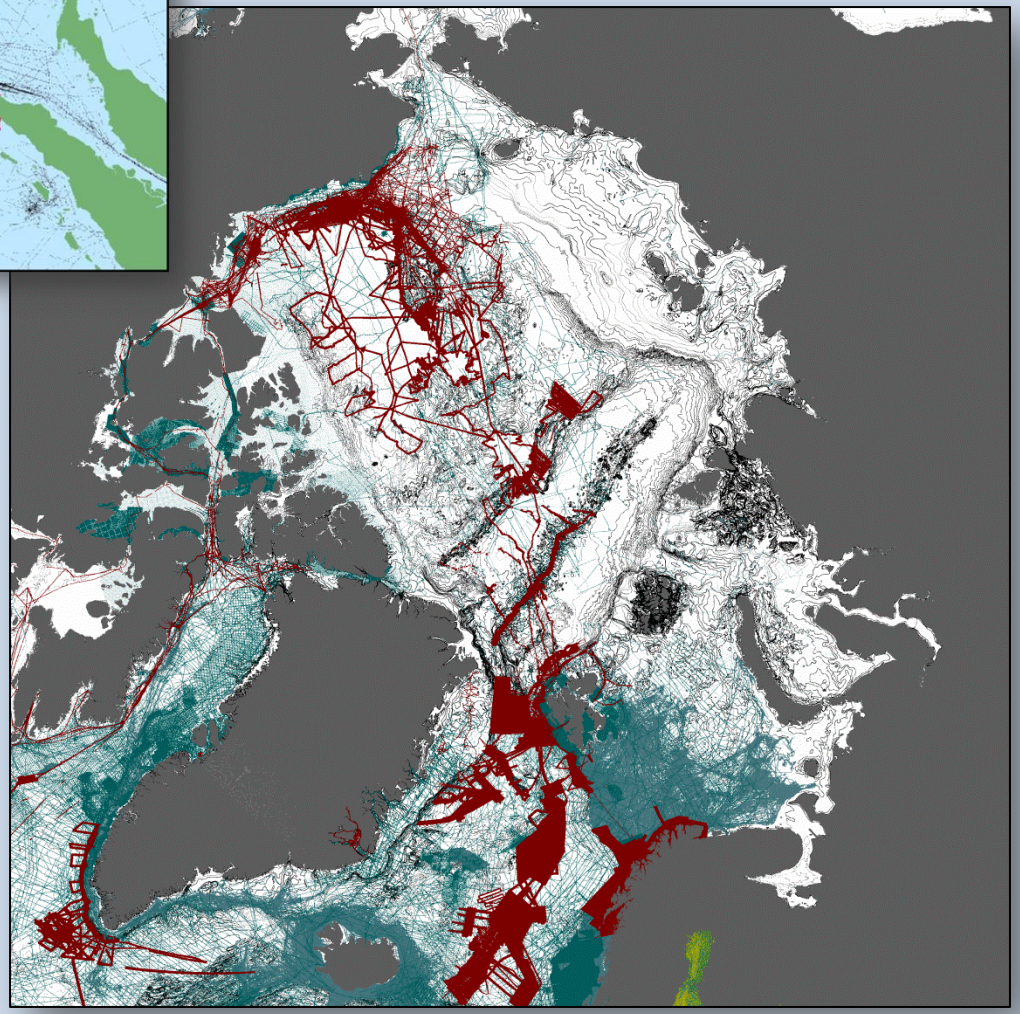
- **in part from these regional grids**

These regional grids have value in own right as they are of a much higher resolution and now using multi-resolution gridding techniques



GEBCO Version 8
Released January 2009

IBCAO Version 3.0
created June 8, 2012



VALUE OF REGIONAL PROJECTS

INDIAN OCEAN BATHYMETRIC COMPILATION

This is a GEBCO regional project funded by the Nippon Foundation

OBJECTIVES:

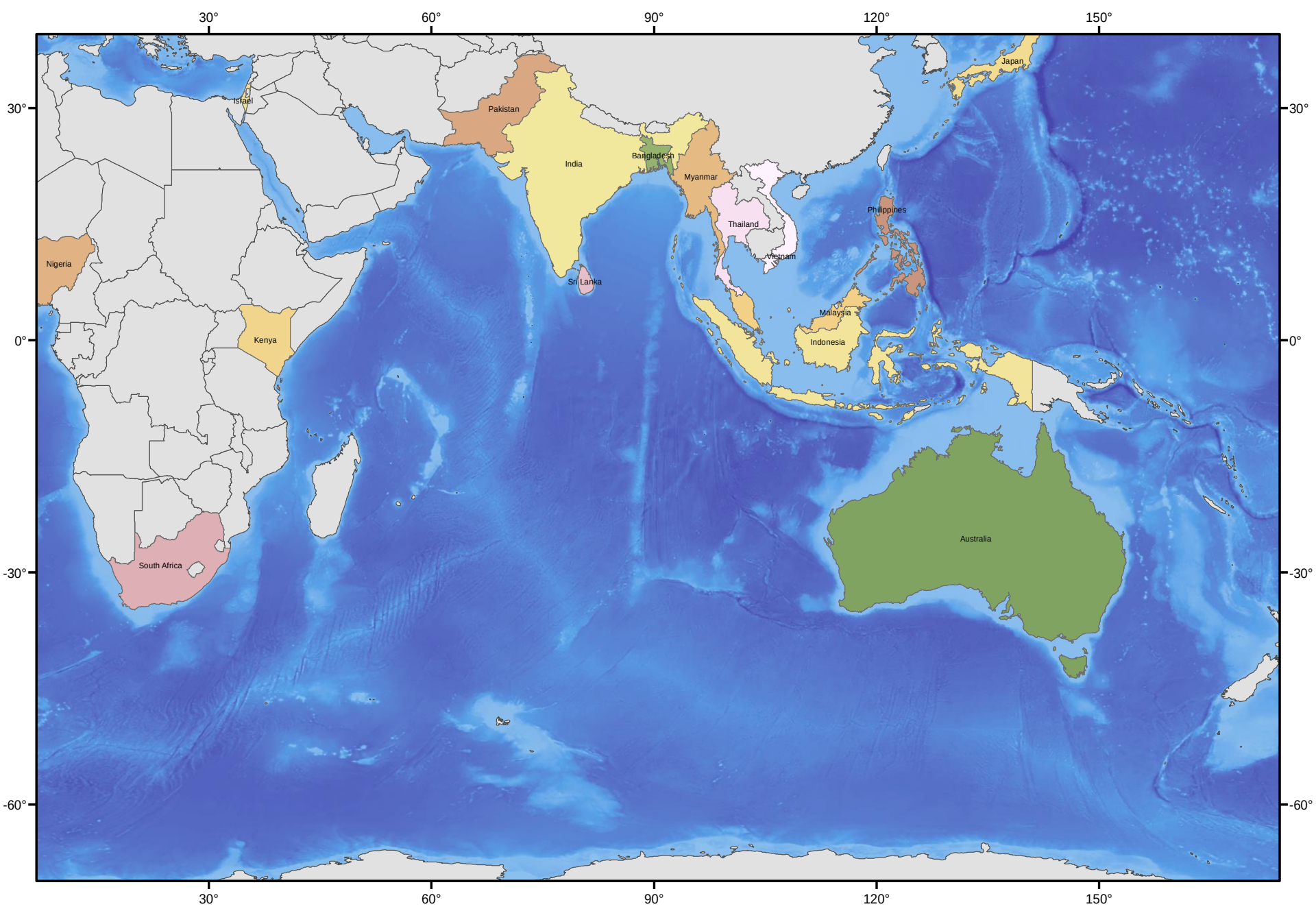
The aim of this multi-nation project is to assemble, collate, archive, interpret and publish all publically-available bathymetric data as a grid and a paper map from all available sources within the Indian Ocean

BACKGROUND

WHY THE INDIAN OCEAN?

- **The Indian Ocean represents ~20% of world oceans → no new comprehensive data compilation has been undertaken since the GEBCO update in 2003.**

- **27 Scholars from 13 Indian Ocean coastal states have been educated through the GEBCO / Nippon Foundation Postgraduate Certificate in Ocean Bathymetry**



Distribution of GEBCO Scholars home states around Indian Ocean

WHY A NEW COMPILATION?

1. **Current GEBCO chart for Indian Ocean does not include all latest data sources.**

   We want to utilize all collected multibeam data, satellite altimetry data and any other data sources

2. **Emphasis on shallow-water bathymetry as this one focus of GEBCO**

   In order to generate seamless grid

AREA OF INTEREST

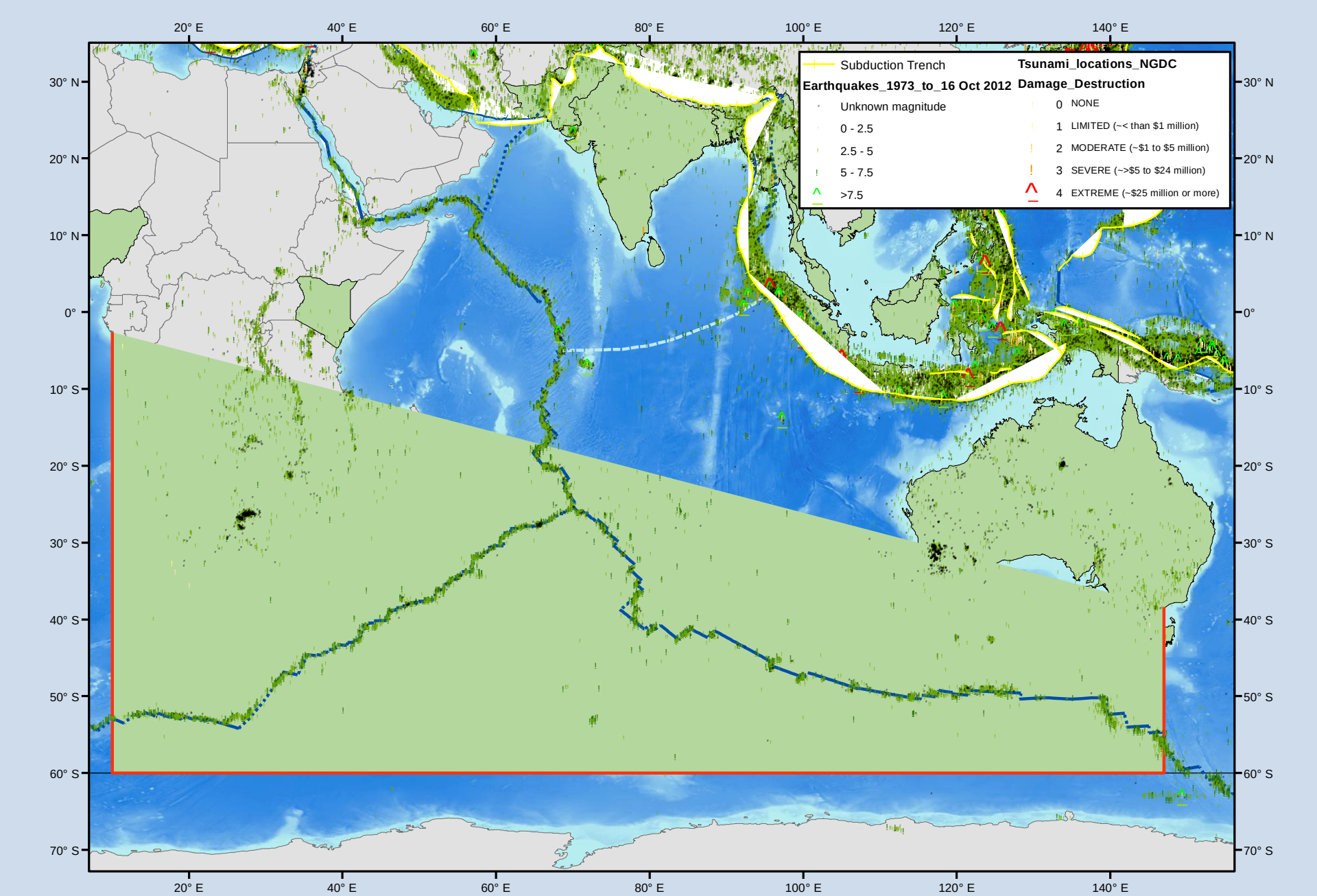
The working extent is:

- **10° East to around 147° East to the south of Australian**

(Includse South African extended continental shelf to western limit of Indian Ocean in the east)

- **To 60° South**

(To meet with the northern extent of the International Bathymetric Chart of the Southern Ocean (IBSCO) in the south)



GEOHAZARDS ASSOCIATED WITH EARTHQUAKES

PROPOSED PRODUCTS

- **Bathymetric data, together with satellite altimetry data, will be used to produce an up-to-date comprehensive and integrated view of the Indian Ocean seafloor**
- **Produce a published bathymetric map as well as bathymetric grids (to be included into next GEBCO world grid)**

PROGRESS

1) The identification of major data sources
2) The identification of network of GEBCO scholars who wanted to be involved
3) First workshop establishing working group and approaches
4) Data acquisition and processing
5) Meeting with hydrographic meetings to enlist support from Hydrographic Offices

THANK YOU