

# TSCOM Activities and Preoccupations

Preliminary report  
10-11 October 2016

Hosted by the Hydrographic and Oceanographic Service of the  
Chilean Navy (SHOA)  
Viña del Mar, Chile

# TSCOM Mission and Objectives

- Maintain and improve GEBCO products
- Monitor developments and data availability
- Provide scientific and technical advice on bathymetric topics
- Encourage acquisition and exchange of bathymetric data

# TSCOM Membership

## **Committee Members**

Jenifer Austin – Google Earth, USA

Vicki Ferrini – LDEO, USA

John Hall – Geological Survey of Israel

Timothy Kearns – OneOcean Corporation, USA

Karen Marks – NOAA, USA (Chair)

Marzia Rovere – Istituto di Scienze Marine, Consiglio Nazionale delle Ricerche, Italy

Thierry Schmitt – SHOM, France (Vice Chair)

Walter Smith – NOAA, USA

Shin Tani – Hydrographic and Oceanographic, Coast Guard, Japan

Pauline Weatherall – British Oceanographic Data Center, UK

## **Scientific Advisors**

Paul Elmore, NRL, USA

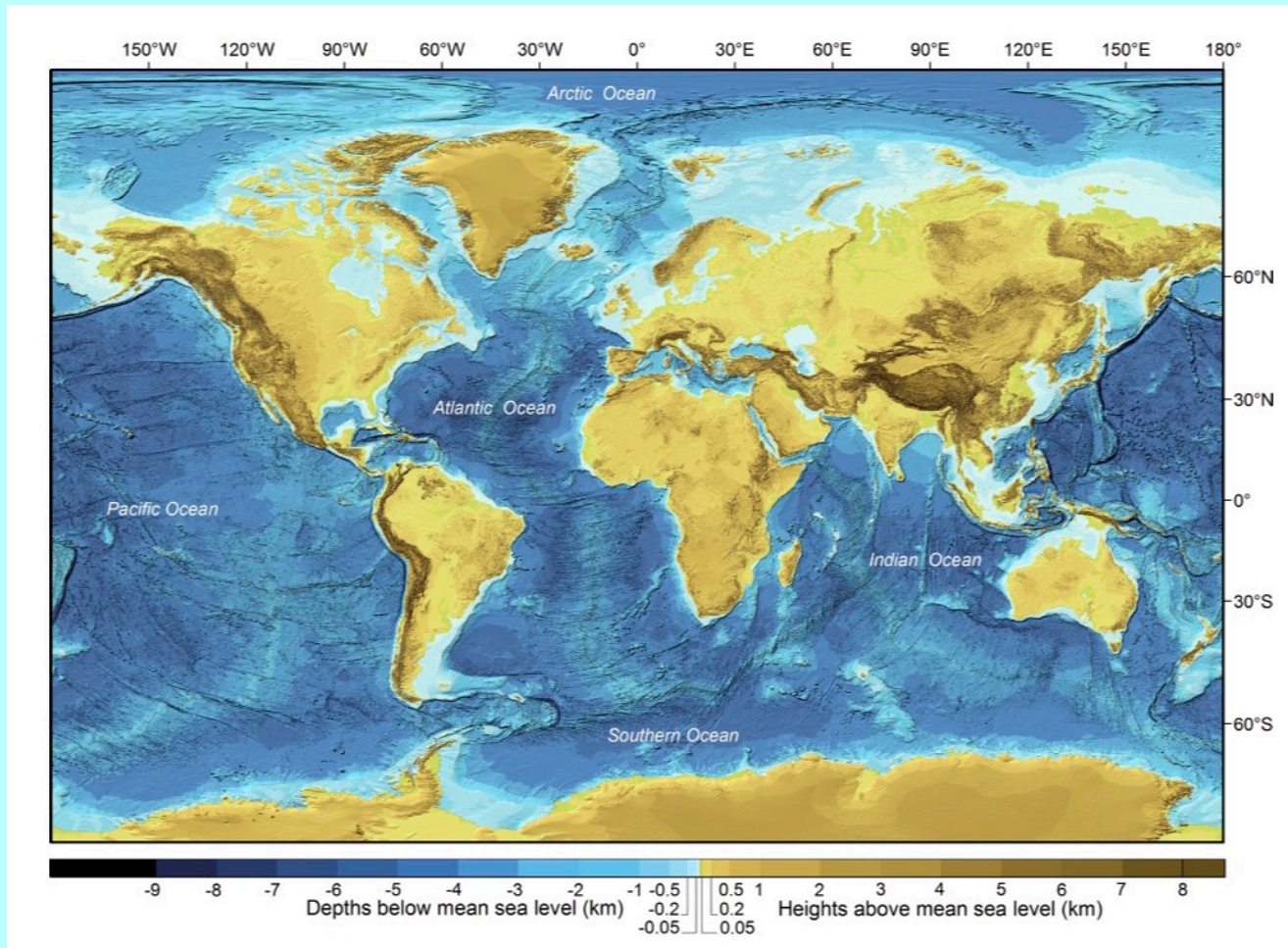
Tony Pharoah, IHO, Monaco

Martin Jakobsson, Stockholm University, Sweden

David Sandwell, Scripps Institution of Oceanography, USA

**There are many more active in TSCOM work**

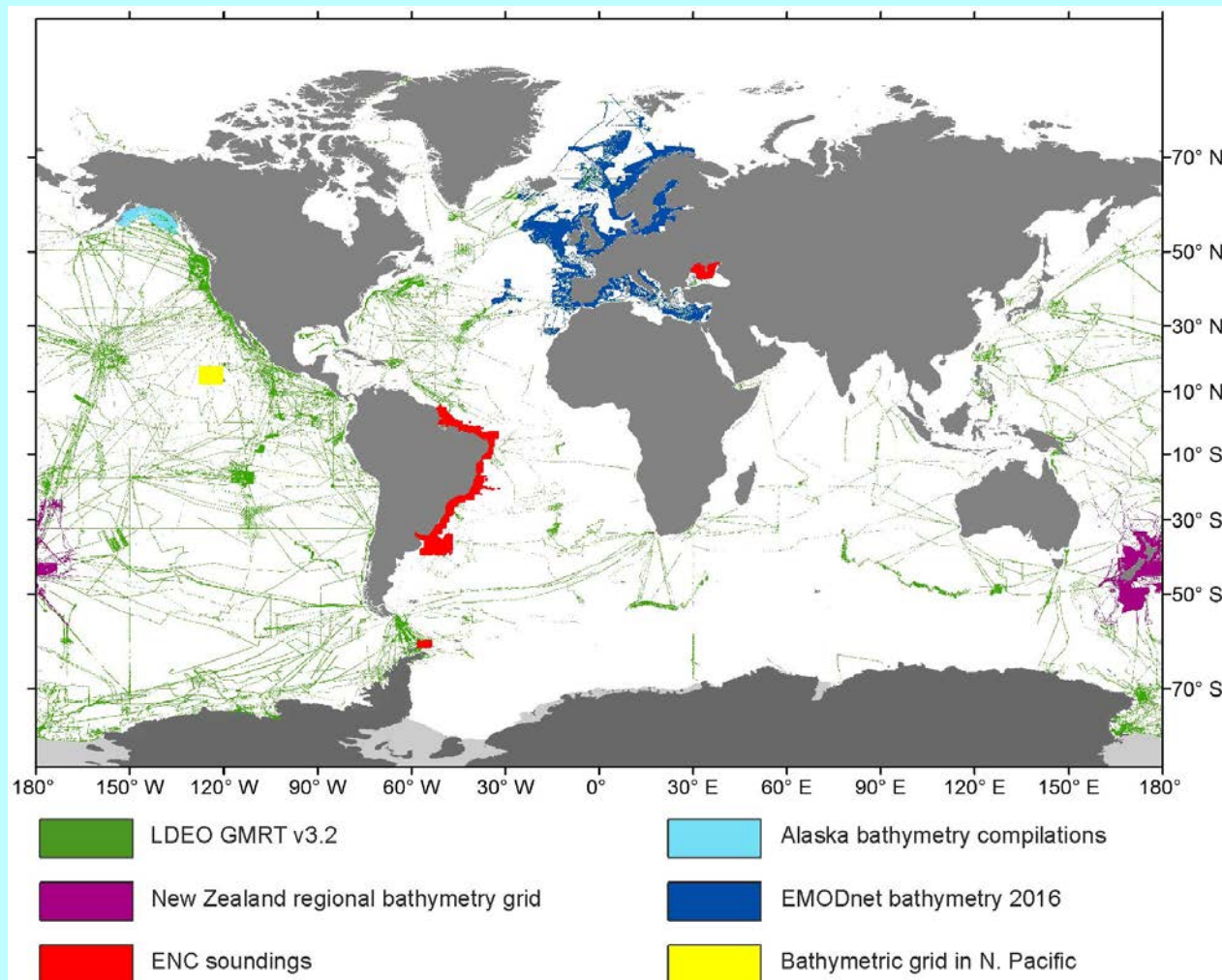
# GEBCO\_2014



- New data contributed, update planned early 2017
- Download from <http://www.gebco.net>



# New Data



- New data to be included in 2017 GEBCO grid update

# GEBCO\_2014 Release Paper

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Research Article

**A new digital bathymetric model of the world's oceans**

Pauline Weatherall, K. M. Marks, Martin Jakobsson, Thierry Schmitt, Shin Tani, Jan Erik Arndt, Marzia Rovere, Dale Chayes, Vicki Ferrini, Rochelle Wigley

First published: 4 August 2015 Full publication history

DOI: 10.1002/2015EA000107 View/save citation

Cited by: 0 articles

Am score 52

Abstract

General digital bathymetric model of the world's oceans available for the first time in 2014 released from the GEBCO 2014 Release of the Seafloor Observations

Early View

Online Version of Record published before inclusion in an issue

Abstract

1 Introduction

2 Methods and Data Sources

3 Results and Discussion

4 Summary and Outlook

Acknowledgments

References

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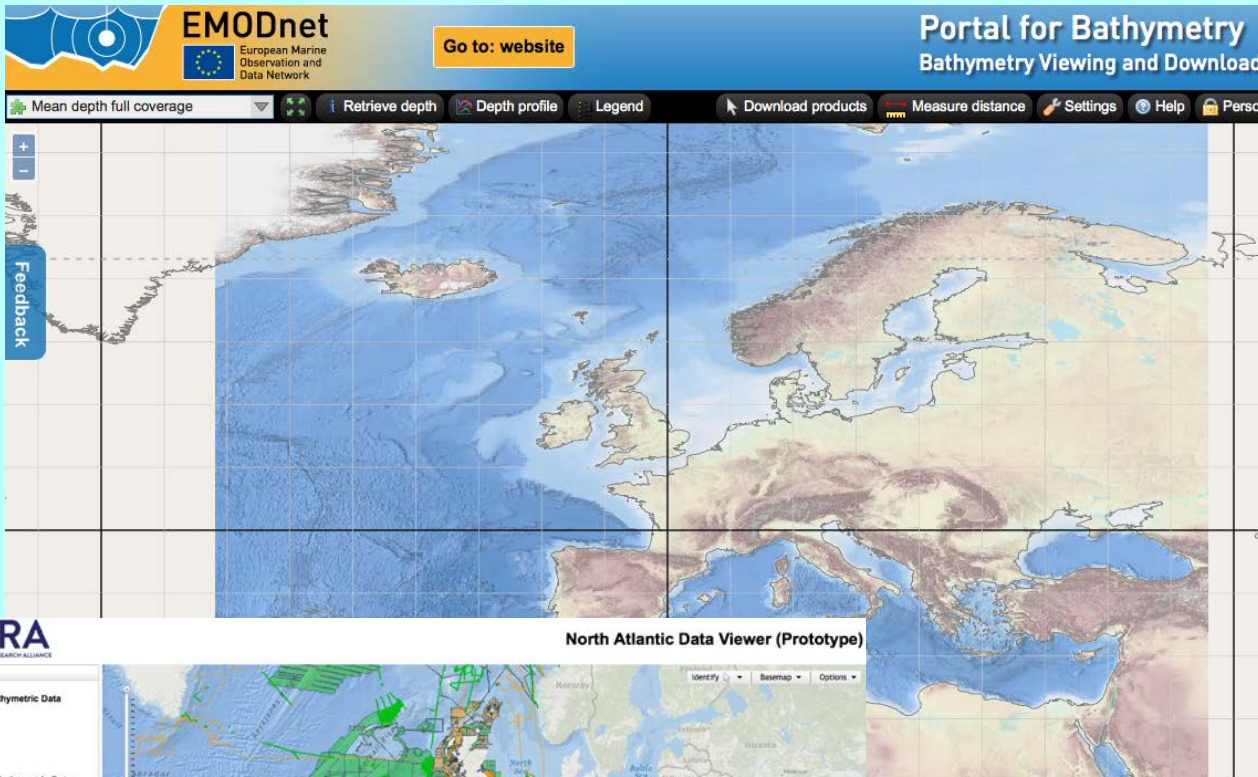
About this Attention Score

In the top 5% of all research outputs scored by Altmetric

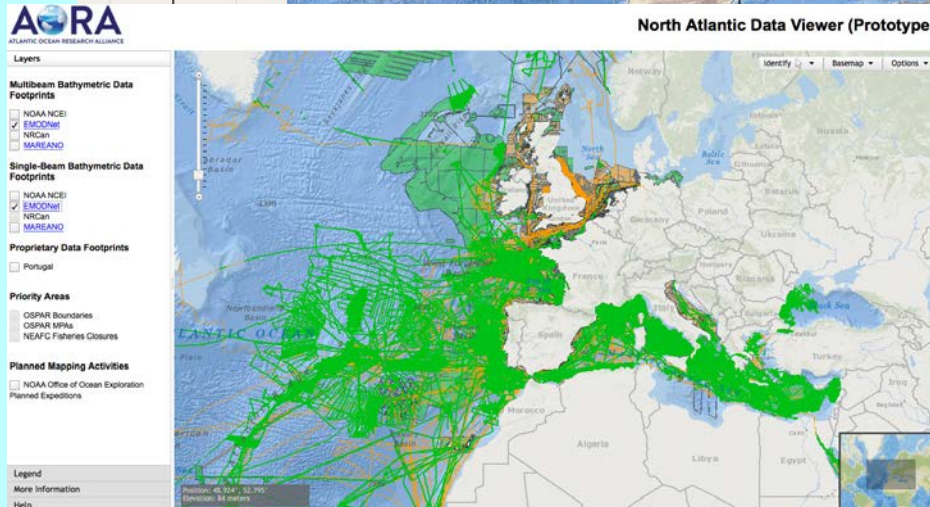
- Published in AGU's new Earth and Space Science Journal, Aug. 2015
- Obtained DOI
- Open Access – Creative Commons license permits free use and distribution
- Manuscript documents history, data sources, construction of grid, and scientific results

<http://onlinelibrary.wiley.com/doi/10.1002/2015EA000107/full>

# EMODNet Update



- Ingested into GEBCO grid
- New 250 m resolution version
- Included in North Atlantic Data Viewer of NOAA
- Portal demonstration



Release of new version soon  
Covers European waters  
Source data referencing system (CDI)  
Strong linkage with GEBCO  
Hi-res DTM prototypes  
Details in **EMODNet status report**

# Crowd-Sourced Bathymetry WG

- Crowd-Sourced Bathymetry Working Group (CSBWG) established by the IHO IRCC in 2015
- Lisa Taylor is Chair, Correspondence Groups focus on data format and metadata, uncertainty, systems and hardware, and trusted node collection models
- Develop a guidance document to guide mariners in collecting and contributing crowd-sourced bathymetric data
- Enhance the IHO Data Center for Digital Bathymetry (DCDB) to serve as a data portal for crowd-sourced bathymetry
- Held meetings in Kuala Lumpur and Boulder. Next meeting is scheduled in Rostock, Germany



# Crowd-Sourced Bathymetry WG

International Hydrographic Organization  
Organisation Hydrographique Internationale

Home Letters & Documents Standards & Publications Committees & WG Capacity Building ENCs & ECDIS Meetings External Liaisons IHO Membership World Bath

IHO Home / IHO DCDB

## IHO Data Centre for Digital Bathymetry (DCDB)

The International Hydrographic Organization Data Centre for Digital Bathymetry (IHO DCDB) was established in 1988 to steward worldwide bathymetric data on behalf of the IHO Member States. The Centre provides long term archive of and access to single and multibeam deep and shallow water ocean depths contributed by a range of mariners.

[Access Data](#)

[Contribute Data](#) [Crowdsourced Bathymetry](#) [Shallow Water Bathymetry](#) [Data Uses](#) [Other Resources](#)

[Contribute Data](#)

To address the significant lack of bathymetric data available globally, especially in near shore areas, the IHO DCDB is accepting crowdsourced bathymetry (CSB) data collected by professionally manned vessels and other trusted qualified mariners using data accumulation devices recognized and approved by the IHO. This cooperative approach leverages underway x, y, z, t data already being collected on vessels with common commercial echo sounders and Global Navigation Satellite System receivers.

- [CSB GeoJSON format: PDF; JSON](#)
- [Interactive map example](#) (under development)

The UKHO, other IHO Member States, and the IHB in cooperation with the Professional Yachting Association (PYA), have recently been engaged in various pilot CSB projects that have confirmed the feasibility of the CSB approach. There are also a number of commercial and volunteer based organisations using similar methodology (e.g., [Olex mapping system](#)).

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IHO Home Data Centre for Digital Bathymetry (DCDB) Crowdsourced Bathymetry Interactive Map (example)

### Crowdsourced Bathymetry Example

This is a demonstration page of Crowdsourced Bathymetry stored as GeoJSON and displayed via an open source mapping tool (Leaflet). This representative sample came from Captain Sleg with expeditions.com who notes that the data were collected by two vessels, the NG Endeavour and NG Explorer from 2008 - 2014. Both vessels are equipped with SOLAS approved single beam Furuno echo-sounder and the soundings are corrected for the draft of the vessels.

We use a cluster technique to display the points at smaller scales and reveal more detail as you zoom in since there are nearly 10,000 points in this example!

- Zoom in to reveal greater detail for a given region.
- Select a cluster to reveal smaller clusters, and eventually, the individual data points.

Leaflet | Map data © OpenStreetMap contributors, CC-BY-SA, Imagery © Mapbox

Crowdsourced Bathymetry (example)

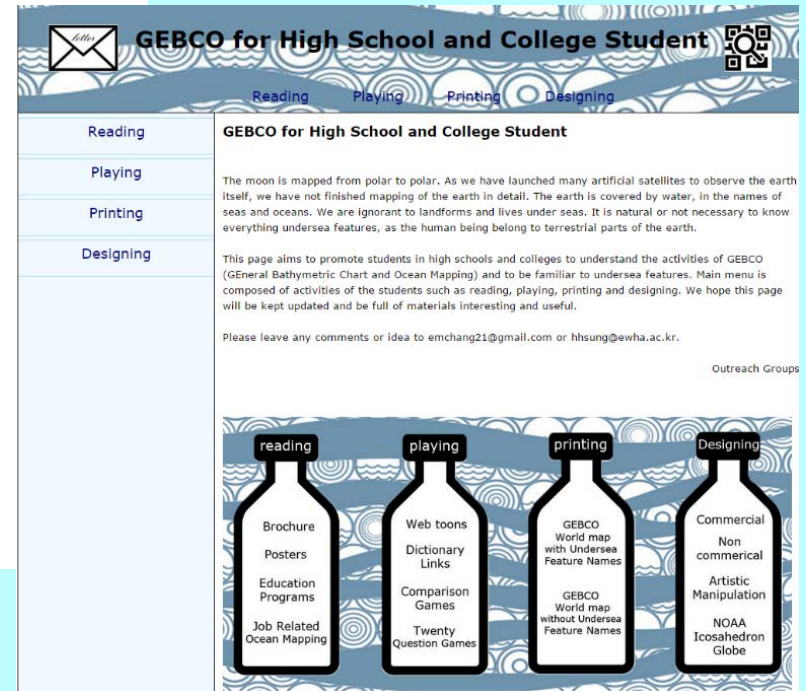
<http://www.ngdc.noaa.gov/iho/#csb>

- Prototype of data portal for crowd-sourced bathymetry

# Outreach Working Group

Eunmi Chang, Hyo Hyun Sung, Pauline Weatherall

- Outreach Roadmap, Strategy, Survey results, and Activities
- Subpage for Secondary School Students
  - Reading
  - Playing
  - Printing
  - Designing
- Break-out session scheduled



# Outreach Working Group

Vicki Ferrini, Rochelle Wigley

## GEBCO project and community video

### News and events – March 2016

GEBCO is an international community of seafloor mapping experts who work toward the common goal of building a global map of the seafloor.

View video clip to find out about GEBCO's work and community.

Learn more about [GEBCO](#) and our [data sets and products](#).

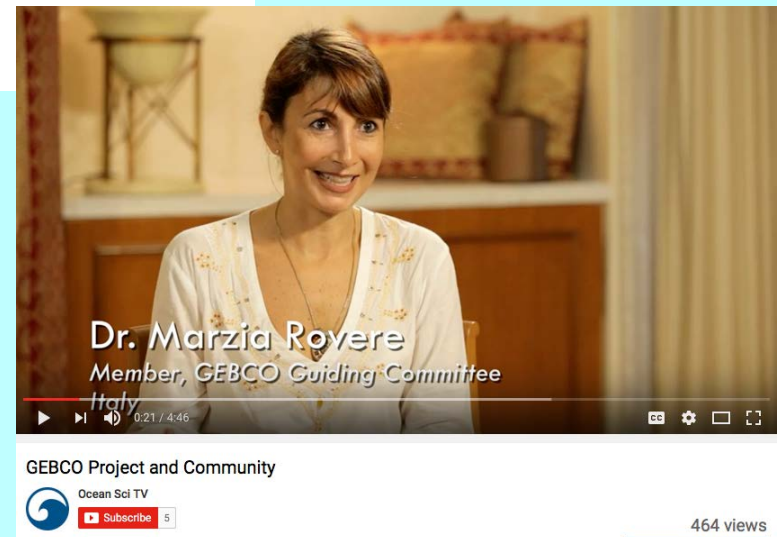
### Video credits

Executive Producers: Vicki Ferrini, Rochelle Wigley

Videography: Vincent DeLuca

Producers: Erin Higgins, Ashely McInerney

Post-production: Zlatka Creative, LLC





# GEBCO Hi-Res Product Update

## Global Multi-Resolution Topography (GMRT) v3.2 June 2016

- Technical Components from GMRT
  - Integration with GEBCO\_2014
  - Grid Composition
  - Image Creation
  - Attribution
  - Web Services
- Needs of Contributors
  - Attribution
  - Analytics
- Workflow
  - Extent of Coverage
  - Editorial Process

<http://gmrt.marine-geo.org>



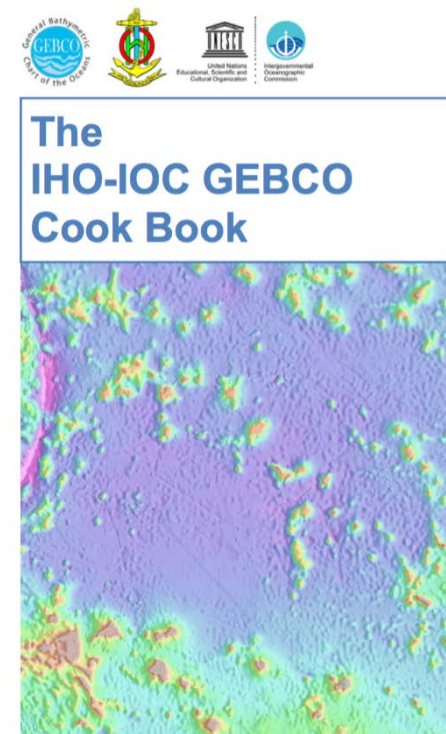
Vicki Ferrini, LDEO



# IHO-IOC GEBCO Cook Book

At the 2009 GEBCO 25<sup>th</sup> Meeting of TSCOM, the “Cook Book Working Group” was formed to “create a manual that enables users to prepare and grid data for inclusion in GEBCO products,” resulting in:

- IHO-IOC GEBCO Cook Book:
  - IHO Publication B-11 (April, 2012)
  - IOC Manuals and Guides, 63 (Oct. 2012)
  - EOS “News Brief” announcing Cook Book was published in EOS Trans. AGU, Feb. 2013
  - Article in Hydro Int’l (April, 2014) highlighted Cook Book
- Used as educational resource, including:
  - UNH CCOM/JHC Ocean Mapping classes
  - Texas A&M University
  - Workshops
  - Used internationally
- Available for Download: <http://www.gebco.net>
- Citation format is published on GEBCO website
- **Updated Dec. 2015 and July 2016, seeking new materials**



July 2016

IHO Publication B-11  
IOC Manuals and Guides, 63



# New Updates to Cook Book

- Chapter 8, Section 8.2.11, References updated (*P. Doucette*)
- Chapter 11, "LANDSAT 8 Satellite-Derived Bathymetry" has been replaced with an updated version (*S. Pe'eri, B. Madore, L. Alexander, A. Klemm, A. Armstrong, C. Parrish, C. Azuike, and E. Tetteh*)
- Chapter 13.0 Mosaics in CARIS (*Lt. Commander Gustavo Adolfo Gomez-Pimpollo Crespo*)
- Chapter 14.0 Nautical Chart *Adequacy* (*A. Klemm, J. Nyberg, S. Pe'eri, R. Wigley, L. Gur-Arieh, Y. Kamaruddin, A. Kimeli, H. Kurita, I. B. Prasetyawan, J. Roperez, N. Samarakoon, M. Vallee, J-Y Roh, and J. Sydenham*)
- Chapter 15.0 Map Digitizer Program Version 2.1.0 (*C. Keller and J. Hall*)

# 11<sup>th</sup> Annual GEBCO Science Day



- SHOA Naval Club Conference Room, Oct. 12, 2016
- Tim Kearns and Jaya Roperez, Conveners
- 9 oral and 6 poster presentations
- Attendees from all over the world

# Nautical Chart Adequacy Workshop



- Workshop developed and hosted by NOAA Coast Survey and UNH/CCOM
- Trained hydrographers on procedures to assess adequacy of nautical charts using public information
- Used Chapter 11 “Nautical Chart Adequacy Procedure” of Cook Book

Shachak Pe’eri and Rochelle Wigley, UNH/CCOM

Workshop- July 2016



# Break-out Sessions

- Outreach Working Group
- Update the GEBCO\_2014 grid – Regional compilations and base grid
- Seabed 2030

# END OF PRESENTATION