

IHO HYDROGRAPHIC COMMITTEE ON ANTARCTICA (HCA)

5th Meeting, Christchurch, 2-4 November 2005

**Report about
GEBCO activities in 2004/2005
Hans Werner Schenke**

The Twenty-first Meeting of the joint IOC-IHO General Bathymetric Chart of the Oceans Guiding Committee (GC XXI) was held at the Instituto Nacional de Estadística, Geografía e Informática, Aguascalientes, Mexico on 11th and 12th July 2005. The Meeting of the GEBCO Sub-Committee on Digital Bathymetry SCDB took place at the same venue on 7th and 8th July 2005. In this report only subjects are introduced and discussed which are of direct interest for the HCA Meeting.

Reports by the chairpersons of the two GEBCO Sub-Committees to the GC:

1. Sub-Committee on Digital Bathymetry (SCDB XXI)

The Twenty-first Meeting of the joint IOC-IHO GEBCO Sub-Committee on Digital Bathymetry (SCDB XXI) was held at the Instituto Nacional de Estadística, Geografía e Informática, Aguascalientes, Mexico on 7th and 8th July 2005.

REVIEW OF ON-GOING ACTIVITIES AND CURRENT PRODUCTS

Report of the GEBCO Bathymetric Editor and the GDA Manager

Review of known problems and planned updates in the GDA-CE contours, grid, or other features

Review of bathymetric mapping worldwide

Reports of liaisons with IBCs, regional data centres

International Bathymetric Chart of the Southern Ocean (IBCSO). Dr. Schenke reported that the inaugural meeting of the IBCSO, defined as covering the Earth south of 60°S, had taken place on 30th July 2004 during the XXVIII SCAR Conference in Bremen, Germany. The meeting was well attended and there was extensive discussion including the acquisition of data from under the ice shelves. A lot of data had been promised and connections with the future IPY and the SSPARR program. An initial working group of 8-9 people had been established. The IBCSO had been accepted as an Expert Group within the SCAR Geoscience Standing Scientific Group.

Report of the IHO Data Centre for Digital Bathymetry (DCDB) including a Report of the WDC for Marine Geology & Geophysics Boulder and a Report on NGDC activities in support of IOC/GEBCO.

Regarding the SSPARR project it was reported that it is believed that the transducers for the first SSPARR buoys had been calibrated at CCOM. A plan is under development to distribute

SSPARR buoys in the Arctic using hovercraft to drill ca. 6 inch diameter holes in the ice from which transducers would be suspended.

New World Chart from GDA-CE

Under the guidance of Prof. M. Jakobsson the GEBCO World Map Project was initiated. A draft map at 1:35 million scale based on the GDA grid had been produced in Stockholm with the assistance of two Nippon Foundation/GEBCO students. Once an Editorial Board had been established it was anticipated that printing could begin in Fall 2005

Report on connections to the Nippon Foundation/GEBCO Training Project
Review of the “straw-man” blend of the GEBCO and altimetry grids

SCIENTIFIC AND TECHNICAL OPPORTUNITIES AND CHALLENGES AHEAD

High-resolution coastlines and land elevation data

‘Mining’ shallow water soundings from DNCs and ENCs

Two grids in parallel, or one grid only?

Moving from contour-driven grids to grid-driven contours in the GDA

Procedures for product update and distribution

Update of GEBCO Guidelines and Terms of Reference:
GEBCO Bathymetric Editor.
GEBCO Digital Atlas Manager.

2. GEBCO Sub-Committee on Undersea Feature Names (SCUFN)

SCUFN XVIII was held in Monaco from 3^d-6th October 2005. In 2006 SCUFN might meet at the same time as the SCDB and the Guiding Committee.

Gazetteer could be downloaded from

<http://www.ngdc.noaa.gov/mgg/gebco/underseafeatures.html>.

IHO Circular Letter CL90 (2004) had requested nominations for more members of SCUFN and in CL56 (2005) three new members had been proposed. They were LCdr Harvinder AUTAR (India), Capt. Albert E. THEBERGE (USA) and L. Cdr. Rafael PONCE Urbina (Mexico). All three proposed persons were approved by GEBCO GC.

SCUFN XVII took place at the Head Department of Navigation and Oceanography (HDNO) of the Russian Federation Ministry of Defense St. Petersburg, Russia 8-11 June 2004

Summary report:

Remaining items from previous meetings:

- From SCUFN XV (Monaco, Oct 2002) **(1 out of 3 accepted)**
- From SCUFN XVI (Monaco, April 2003) **(15 out of 41 accepted)**

Proposals submitted during intersessional period **(30 out of 38 accepted)**

- There remained 20 proposals from HDNO that could not be handled during the meeting due to lack of time.
- No proposals were submitted by IOC Editorial Boards
- Summary of proposal evaluation:
 - 98 undersea feature names were considered during SCUFN XVII,
 - 45 proposals were finally discussed and accepted

3. GEBCO web site

The question was raised of using a more concise and memorable URL than <http://www.ngdc.noaa.gov/mgg/gebco/gebco.html>, which is hosted by the NGDC. The

preferred name gebco.org is held by a commercial company, not willing to give up the site. It was said that in principle the most appropriate extensions for GEBCO were .org or .net. An alternative URL, such as the .gebco.org or .gebco-bathymetry.org are considered as possibilities.

4. New Structure of IHO/IOC GEBCO Ocean Mapping

In order to optimize the operation of GEBCO and the IOC Ocean Mapping programs a proposal for a new organizational structure was presented by IHO and IOC to the GEBCO GC. In the course of the discussion it turned out that in practice both, the Ocean Mapping and the GEBCO programs, work very well together. The IBCAO and the new IBCSO are good examples how products from the OM program can be integrated into GEBCO.

The proposal was in extenso discussed, a working group was established to study possibilities for a reorganization of GEBCO/Ocean Mapping.

The proposed IBCSO

A detailed report about the new IBCSO is given in the HCA4_7.3C document to this meeting. Terms of References:

The topography of the Southern Ocean, defined in the IHO S-23 Document as the area south of 60°S surrounding Antarctica, is still widely unknown. This ocean presently contains, due to continuous ice-coverage, so-called “white spots”, which describes areas without any knowledge about form and structure of the seafloor. However, the survey activities of modern ice-breaking research vessels during the last decade using multibeam systems have increased the data-base, which may result in compilations of new bathymetric charts around Antarctica that could reveal the seafloor morphology of large “white spots”.

Bathymetric data play an important role in climate, environmental and solid earth research,

- especially for many scientific disciplines, and they are indispensable for
- preparing reliable Nautical Charts for the safety of navigation in Antarctic waters.

The summarized work plan for IBCSO:

1. Building and maintaining of a thorough data base
2. Quality control and assessment, analysis and editing of available bathymetric data
3. Development of a new method for morphological interpolation of bathymetric contours using sonar data and satellite radar altimetry gravity anomalies
4. Determination of Digital Terrain Models around Antarctica.
5. Creation of a set of 1:1 Million traditional bathymetry sheets in digital form
6. In areas of systematic multibeam surveys large scale bathymetric charts prepared.

Ad-hoc IBCSO working group:

Gleb Udintsev, Hans Werner Schenke, Ron Macnab, Fraser Taylor, Paul Cooper
Vaughan Stagpoole (supported by Fred Davey), Michel Huet, Bill Haxby
agree.

Rob Larter, Roy Livermore at BAS,
Henk Brolsma at AAD
to be asked?

GEBCO continues to support the IBCSO program. Support is granted by the SCDB and the IHO DCDB, by supplying data and expertise of the committee members.

5. The POBACE Proposal

The **Polar Ocean Bathymetry Co-ordination Effort** proposal was introduced to GEBCO as a reaction of the presentation of the IBCSO program to a wider geo-scientific research community at a meeting in Potsdam, when Chris Rapley (BAS) and Robin Bell (LDEO) proposed an International Polar Year in 2007/2008, to include Earth sciences, at both poles (following earlier IPYs in 1883 and 1932-33 and the IGY in 1957-58). It was noted that the proposal was intended to be for multidisciplinary research into global processes, especially climate studies, and for research that needed to be conducted with the collaboration of several countries. Bathymetric studies will also be proposed for the IPY, they would impact on many activities (fishing, safety, transport, pollution etc.). It is expected that the POBACE proposal would experience problems of data archiving, co-ordinating expeditions, planning tracks and post-cruise processing but that there would also be many benefits; links with the IBCSO had already been established. So far, the world-wide distribution of the proposal had elicited many positive comments.

6. World vector shoreline

NGA reported about collecting data for a new World Vector Shoreline which is planned to make public; the shoreline in the current version of the GDA is from the WVS at 1:250,000 scale. It was reported at earlier meetings by RADM Andreasen that his office had contracted to collect a new WVS shoreline at 1:50,000 scale from north of Antarctica to something like 82° or 84°N; this will be a satellite-derived shoreline which approximates the High Water Line not the Low Water Line. He said he also plans to put this shoreline into continual maintenance such that it is improved over time. The intention is to make the WVS freely available on 28 CD-ROMs and a single DVD.

Dr von Rosenberg noted at the GEBCO-Meeting in Aguascalientes that pre-release samples of the latest coastline being prepared by the National Geospatial-Intelligence Agency might be available in late 2005 although some places with ice and cloud cover remained problematical.

7. Next GEBCO Meeting:

The next GEBCO-Meeting will take place in Bremerhaven, Germany from 13 to 24 June in the German Maritime Museum. The meeting will be organized and hosted by the Alfred Wegener Institute for Polar and Marine Research. The Meeting will include the meetings of the two Sub Committees (SCDB and SCUFN) and a joint meeting with representative from the IOC Ocean Mapping programmes will be arranged.