



International Bathymetric Chart of the Southern Ocean

SCAR Expert Group IBCSO – 1st Business Meeting
10th ISAES at the University of California Santa Barbara, 1 September 2007

Date: Saturday, 1 September 2007 (8:10 a.m. to 12:15 p.m.)

Meeting Place: University of California Santa Barbara, University Center

MINUTES

1. Opening

Dr. Schenke called the meeting to order at 8:10 a.m. and addressed the 1st IBCSO Business Meeting.

Attendance:

- | | |
|-------------------------------|--|
| 1. Robert Anderson (SAIC) | robert.m.anderson@saic.com |
| 2. Suzanne Carbotte (LDEO) | carbotte@ldeo.columbia.edu |
| 3. Detlef Damaske (BGR) | d.damaske@bgr.de |
| 4. Fred Davey (GNS) | f.davey@gns.cri.nz |
| 5. Tara Deen (BAS) | tde@bas.ac.uk |
| 6. Rudolf Greku (IGS) | satmar@svitonline.com |
| 7. Phil McGillivary (USCG) | pmcgillivary@d11.uscg.mil |
| 8. Frank Nitsche (LDEO) | fnitsche@ldeo.columbia.edu |
| 9. Yoshifur Nogi (NIPR) | nogi@nipr.ac.jp |
| 10. Philip O'Brien (GA) | Phil.O'Brien@ga.gov.au |
| 11. Norbert Ott (AWI) | Norbert.Ott@awi.de |
| 12. Hans-Werner Schenke (AWI) | Hans-Werner.Schenke@awi.de |
| 13. Alexander Tate (BAS) | ajtate@bas.ac.uk |

2. Adoption of the Agenda

The attendees adopted the agenda.

3. Introduction of Participants

The participants of the IBCSO Business Meeting introduced themselves to the meeting.

4. Report on the SCAR 2004 Meeting in Bremen

Dr. Schenke gave an abstract of the IBCSO Inaugural Meeting during the XXVIII SCAR Meeting in Bremen. He presented an index of names and pointed out, that some of the colleagues retired in the meanwhile. He listed facilities with substantial interest to attend or support the IBCSO mapping program. A brief history of the IBCSO development was given, starting with the idea of a southern equivalent to the IBCAO during GEBCO and IBCAO meetings in 2002 and moving to the adoption as an IBC mapping program by the 37th IOC Executive Council in Paris, 2004. He described key aspects of data mining activities for the Southern Ocean with hydrographic offices e.g. Argentina, Australia, Brazil, Chile, New Zealand, South Africa, United Kingdom, United States. Finally, Dr. Schenke explained, that there was an unintended two years break of the IBCSO program due to the loss of AWI expert staff. At the end of 2006 the IBCSO was revitalized and is based at AWI Bremerhaven.

5. Report on IBCAO and SSPARR

Mr. Anderson presented a short report on the IBCAO mapping program of the Arctic Ocean and brought a copy of the International Bathymetric Chart of the Arctic Ocean (IBCAO) poster for the attendees to see.

He also gave an overview of a bathymetric profiling system based on drifting buoys. The program entitled 'Seafloor Sounding in Polar and Remote Regions (SSPARR)' has its origin in GEBCO. It focuses on the development of drifting buoys for ice-infested seas at high latitudes which can operate unattended to obtain bathymetric data in remote areas without ship traffic. Prototype buoys are tested in the Beaufort Sea and operational status is planned for 2009. Some restrictions for use in Antarctic waters were pointed out during a discussion. The number of measurements per day is only four or five single beam soundings per day. But autonomous buoys with a lifetime of 2-3 years are indispensable for bathymetric data acquisition in polar areas, where no or only sparse bathymetric data is available.

6. Report on the Ross Sea Map

Dr. Davey reported on the bathymetric data compilations for the Ross Sea and the Ross Sea and adjacent areas of the Southern Ocean that he and Vaughan Stagpoole have produced. He noted that, subject to funding, they plan to update the compilations incorporating the large amount of new data since 2001. These digital compilations will, in general, be available for use in GEBCO. He noted that the Lamont-Doherty Earth Observatory MultiBeam data base stored most of the multibeam data used in these map compilations. New Zealand has recorded some multibeam data in the region and these are archived by Land Information New Zealand (LINZ).

7. Report on special US mapping programs

Dr. McGillivray gave a report on mapping programs in the United States. He described a wave-powered autonomous surface vessel (ASV) called WaveGlider. The WaveGlider operates in depth of 40-50 feet and is attached to a surfboard. The WaveGlider does not rely on batteries for propulsion but derives its power from ocean wave by nanomagnetism. WaveGlider ASV obtains position from onboard GPS and sustains near-continuous satellite communication (one signal per minute) which allows it to follow specified routes or to be redirected when needed, e.g., to avoid ice-covered areas. The incorporation of existing low-power acoustic bathymetric mapping systems derived from

drifting buoys into wave-powered ASV is an inexpensive alternative of extensive mapping of the Southern Ocean seafloor. Nevertheless additional funding is needed for this cooperation.

8. Report on Ukrainian Antarctic Expedition

A brief overview of the Ukrainian Antarctic Expedition in 2006 was given by Dr. Greku. Track lines in the area of the Anagram Archipelago were presented and additional information about former bathymetric and geophysical surveys between 1998 and 2003 was given. The data will be integrated in IBCSO. Dr. Greku informed the meeting about a planned echo-sounding survey in 2008.

Coffee Break

Dr. Schenke announced a coffee break from 9:30 – 9:45

9. Report on the IBCSO Concept

Dr. Schenke reported about the concepts of the SCAR expert group IBCSO. The program was presented and discussed at several workshops and conferences. The Consultative Group on Ocean Mapping (CGOM), the responsible Intergovernmental Oceanographic Commission (IOC) body for regional ocean mapping programs, was endorsed and will receive adequate support by the IOC. GEBCO welcomes and appreciates IBCSO, since this project will concentrate working in those regions which are recognized as areas of sparse or no data coverage e.g. South Pacific, Weddell Sea, and Ross Sea. IBCSO has now liaisons per personal membership with the GEBCO Subcommittee on Digital Bathymetry (SCDB), the SCAR Standing Committee on Antarctic Geographic Information (SC-AGI), and with the SCAR/SCOR Expert Group in Oceanography. The SCAR/SCOR expert group adopted two recommendations about bathymetric data acquisition and data availability in support of oceanography. Letters regarding this were sent to national funding agencies in June 2007. To strengthen cooperativeness with IBCSO, the SCAR directorate recommended the nomination of representatives from SCAR members for an IBCSO board. The IBCSO board is supposed to support the IBCSO editorial and advisory boards with information, e.g. about data resources and planned cruises.

10. Election of the Editorial Board for the IBCSO

As announced previously by the IBCSO mailing list and circulated meeting agenda, the IBCSO editorial board has been established during the business meeting. Following persons agreed to take part in the editorial board:

1. Suzanne Carbotte (LDEO)
2. Tara Deen (BAS)
3. Vladimir Fomin (IHO Representative)
4. Yoshifur Nogi (NIPR)
5. Philip O'Brien (GA)
6. Norbert Ott (AWI)
7. Hans-Werner Schenke (AWI)

There are pending memberships from people, who were not able to attend the business meeting e.g. Gleb Udintsev, Vaughan Stagpoole, German Leitchenkov. The editorial board will be updated after verification.

11. Report on the concept of the Southern Ocean GIS

Dr. Ott presented the concept of the Southern Ocean Geographic Information System (SOGIS) – the correspondent digital database of the IBCSO mapping program. A key objective of the IBCSO is the production of a bathymetric map for the Southern Ocean. This comprises printed maps as well as digital maps for use in GEBCO and other projects. Since the restart of the IBCSO at the end of 2006, the work plan has been modified due to changes in data infrastructure and GIS environment. In the course of the IBCSO project the emphasis shifted from ‘digital ocean mapping’ towards ‘GIS based data compilation’. Consequent use of digital data in a proprietary GIS environment leads to the buildup of a complex geodatabase with meta-information. The technological strategy implies collection and integration of existing geophysical and geological data sets together with topographic and bathymetric data for Antarctica and the Southern Ocean. On this account, the IBCSO may develop from an ocean mapping program into an international and interdisciplinary forum within planned Southern Ocean and Global Ocean Observing Systems.

12. Topics for Discussion

Data exchange and transfer strategies were discussed with special emphasis on distribution of original (raw) data. Original data are provided for the IBCSO but not for further exchange to third parties within the SOGIS. Original data are still available from the data originators and producers. This is in accordance with the data policies of the NGDC and other international data centers. Processed and gridded data, e.g. MB System, CARIS or Fledermaus data formats, are stored within the SOGIS.

Mr. Anderson asked about classified data and related problems e.g., in the Scotia Sea and adjacent Islands.

Dr. McGillivray asked for existing Lidar data from Argentina and Chile, but Lidar data are not available due to high costs.

Management perspectives were also under discussion. It was agreed, that SCAR and IBCSO sent a request to the SCAR members to provide (1) metadata with track information and (2) multibeam data sets with depth and positional information. This allows the IBCSO expert group to produce an inventory of existing multibeam data that can be provided for planned surveys to shift their ship tracks and acquire new echo-sounding data.

The spatial resolution of the IBCSO in relation to the high resolution original data was discussed. New approaches comprise methods like adaptive grids and nested or variable-meshed grids. This topic needs further discussion with the GEBCO-SCDB.

Additional topics under discussion were the metadata standard for the IBCSO database (FGDC vs. ISO 19115) and the schedule for the presentation of a preliminary map, which can be expected in springtime 2009.

13. Outreach/Reports

Dr. McGillivray noted that the educational outreach for the IBCSO program should be presented additionally in Spanish, because SCAR education materials are presented commonly in both languages – English and Spanish.

14. Any Other Business

IBCSO should intensify endorsement and recommendations to other programs, work shops and organizations, e.g. the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Note: the IBCSO project is now involved in the planned Southern Ocean Observing System (SOOS) and has close contact to other SO efforts and programs.

Stakeholder ('user') information needs to be added on the IBCSO homepage. IBCSO must specify that it serves experts from fields of oceanography, hydrography, climatology, biology, geology etc. and how GIS data are provided to them.

15. Next Actions

There is need for the presentation of ship track information in digital maps for survey planning. The ship track data with additional information can be imported for use in GeoMapApp, a Java application developed by Bill Haxby and the LDEO Database Management Group. This allows scientists a quick look on existing ship tracks with multibeam data and arrange a shift their own track to acquire new data for IBCSO and GEBSCO.

16. Next Meeting

The next IBCSO meeting will be held during the Biennial SCAR Meeting in St Petersburg, Russia (4-7 July 2008).

17. Closing

Dr. Schenke closed the meeting at 12:15 p.m.

Bremerhaven (Germany), 30 October 2007

Norbert Ott