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IOC-IHO/GEBCO Guiding Committee XXV
English only
17 September 2008

INTERGOVERNMENTAL OCEANOGRAPHIC
COMMISSION
(of UNESCO)

INTERNATIONAL HYDROGRAPHIC
ORGANIZATION



General Bathymetric Chart of the Oceans (GEBCO)

Twenty-fifth Meeting of the GEBCO Guiding Committee
29th-20th May 2008

at

**Hydrographic and Oceanographic Department, Japan Coast
Guard, Tokyo, Japan**

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1. OPENING OF THE MEETING

- 1 The Twenty-fifth Meeting of the joint IOC-IHO General Bathymetric Chart of the Oceans Guiding Committee (GC XXV) was held at the Hydrographic and Oceanographic Department (JHOD), Japan Coast Guard, Tokyo, Japan on 29th and 30th May 2008.
- 2 Those present, in addition to Dave Monahan, the Chairman, were Bob Anderson, James Braud, Juan Brown, Etienne Cailliau, Norman Cherkis, Shin-Ho Choi, Sungjai Choo, Robin Falconer, Chris Fox, José Frias, Colin Jacobs, Martin Jakobsson, Paolo Lusiani, Tony Pharaoh, Hans-Werner Schenke, Walter Smith, Shin Tani, Paola Travaglini, Nataliya Turko, Pauline Weatherall, Bob Whitmarsh and Kunio Yashima. The meeting was assisted by a team led by Mr Hiroki Yajima of JHOD's International Affairs Office.
- 3 The Chairman, Mr Dave Monahan, thanked the hosts for organising the meeting. He noted that an apology for absence had been received from Capt Hugo Gorziglia. The meeting started at 09.40.

2. CONDUCT OF THE MEETING

- 4 The Agenda (Annex 1) was agreed.

3. WHAT HAVE WE BEEN DOING?

3.1 ONGOING PROJECTS

3.1.1 Sub-Committee on Digital Bathymetry, including reports from the Bathymetric Editor and the Digital Atlas Manager

- 5 Dr Smith reported on the activities of the Sub-Committee on Digital Bathymetry (SCDB), soon to be the Technical Sub-Committee on Ocean Mapping (TSCOM) if the proposed Terms of Reference were approved by the IOC Executive Board. SCDB had received reports from both the Bathymetric Editor and the Digital Atlas Manager. A small group had been formed to decide how in future the MOA grid should be updated regularly by GEBCO. Another group had been charged with deciding on the policies and restrictions, if any, to be adopted by GEBCO when it receives data. The SCDB proposed that eventually the policy statement should be incorporated in an IHB Circular Letter to HOs explaining why GEBCO was requesting shallow-water data. Dr Smith concluded by saying that stimulating talks and posters had been presented on the Science Day.
- 6 In answer to a question from Dr Fox, Dr Smith clarified that the data policy was intended to apply principally to data coming from HOs but it could apply to all data contributed to GEBCO for incorporation into its products ('upstream' side) and also to GEBCO products ('downstream' side). Dr Fox continued that his concern was that he understood that a lot of international groups were currently talking about data policy and there was a need for some compatibility between them. For example, would a time limit apply to the restricted distribution of data because many donors, if given the option, would prefer to restrict access to their data. Dr Smith replied that the SCDB thought that GEBCO could 'do a good job' even if it had to work with only unrestricted data. He thought it was better to avoid restricted data because it constrained the products that could be derived from it.
- 7 Ing gen Cailliau explained that the policy discussion had arisen originally from the SCDB's wish to extract soundings from ENCs. He added that GEBCO could have a general policy for all data but special policies for special situations such as making use of shallow-water data. Mr Pharaoh added

that he understood Dr Fox's concern to relate to deep-water data from HOs but the SCDB discussion had related only to shallow-water data obtained from HOs. So, he saw that HOs had two choices either 1) to make their data publicly available or 2) to stipulate that their data were not for commercial use, not to be passed to third parties and not for purposes of navigation or safety at sea. Dr Smith concurred with Mr Pharaoh; the policy in the Circular Letter needed to make clear that it was concerned only with how shallow-water data were treated by GEBCO.

- 8 Cdr Lusiani opined that GEBCO should have a single policy for shallow-water and deep-water data. Because the IMO says that only HOs can produce navigational charts he thought that it should be clear that data donated to GEBCO would never be used for navigation but only for the production of maps for scientific purposes.
- 9 The Chairman suggested that SCDB should re-visit the policy discussion or else abandon it. Dr Smith said that SCDB had done its best and he was keen to finalise the policy in Tokyo. The Chairman said that it was not the Committee's job to re-do the SCDB's work and he asked Dr Smith to return with a policy on how to deal with ENC (shallow-water) data within 24 hours. He said that other policy issues could be dealt with under Agenda item 5. Subsequently a small group worked on this item and came up with the policy set out in Annex 5 of the SCDB Minutes.

3.1.2 Sub-Committee on Undersea Feature Names

- 10 Dr Schenke reported on the activities of SCUFN (Annex 2). SCUFN XXI had been hosted by NORI, Korea and the Agenda and tabled documents would eventually appear on the GEBCO and IHB web sites. Nine out of 11 members had attended. New member Ksenia Dobrolyubova (Russia) attended for the first time. Vadim Sobolev had not attended the last three meetings and so a vacancy had arisen and IOC were seeking a replacement. Dr Schenke reported that there had been a lack of travel support for the IOC members; IHO members travel was paid for by their offices. Other participants were Trent Palmer (ACUF) and 12 observers.
- 11 Dr Schenke continued that IHO Publication B-6 (Standardization of Undersea Feature Names) was now available on the web in French, Japanese, Spanish, Russian and Korean. B-6 now contained a section on Terminology, written by a group led by Dr Ohara, in which 60 terms were defined. Some other terms were now redundant. The 4th Edition of B-6 would appear on the IHB web site in July 2008 if adopted by the Committee.
- 12 Dr Schenke continued that a number of items remaining from previous meetings (SCUFN XVII to XX) had been concluded. Proposals had been received from GINRAS (Russian Academy of Sciences), JCUFN (Japan), BNHC (Brazil) and KCMGN (Korea).
- 13 Dr Schenke reported that the Gazetteer of Undersea Feature Names (B-8) was being reformatted into a 'geospatially enabled database' which would have a web-based map interface. This involved three projects 1) NGDC was transferring the Gazetteer to an Oracle database, 2) BODC was transferring the Gazetteer to an Access database and 3) AWI was harmonizing the Gazetteer with the gazetteer of Antarctic place names. In related work SCUFN's undersea features were being redefined as either point, linear or areal features. This had to be done before they could be posted on the Google Ocean web site. A group led by Mrs Lisa Taylor will review a new set of checked co-ordinates of features that has been created for B-8.
- 14 Dr Schenke concluded by asking the Committee to approve the 4th Edition of B-6. He said that SCUFN would be happy to hold its next meeting with the Guiding Committee.

- 15 The Chairman congratulated Dr Schenke and his team on the work they had achieved. In answer to a question Dr Schenke confirmed that the extent and shape of all features south of 60°S had been finalised. Dr Jakobsson added that all Arctic features had already been delineated to which Dr Schenke responded that they would need to be reviewed. Ms Weatherall noted that the use of polygons to define features had been investigated at BODC and, although suggestions had been made to SCUFN, she was looking for some feedback, for example whether more points were needed to define linear features. Dr Schenke replied that a harmonized product was sought and to ensure this happened the smoothing at different scales needed to be agreed. He said this was a job for Mrs Taylor's group. Dr Jakobsson added that a semi-automatic method has been used in the Arctic using slopes to define polygons and he suggested that this approach could be used globally (see Jakobsson et al., Geol Soc Amer Bull, 115, (12), 1443-1455). Dr Schenke agreed that Dr Jakobsson's scheme should be considered. He said the way forward was clear and Ms Weatherall should continue to work on providing shape files for the majority of features to Mrs Taylor whose team would eventually pass them on to Ing en chef Huet for inclusion in the Gazetteer.
- 16 Dr Schenke asked whether Google should be asked to support some of this work. Dr Fox replied that this was a very relevant question because Google had approached NOAA to provide a gazetteer of undersea feature names. He asked Ms Weatherall whether she had adequate resources to which she replied that so far she had concentrated on linear features but it would be useful to discuss resources elsewhere. Dr Brown added that there were two separate issues 1) what needs to be done and 2) who does it. The Chairman responded that if funding was needed then the Committee needed to see a proposal. Dr Fox said that Google were expecting a proposal. Dr Falconer suggested that those involved should prepare a proposal in the next 24 hours and reminded them that GEBCO also has funds and access to the NF students as a resource.
- 17 Dr Smith noted that features such as seamounts are presently defined by points and not polygons. However if, in future, they were defined by irregularly shaped polygons such a polygon would need to be smoothed according to the map scale used. Dr Schenke concurred that this was a good point but stated that at present it would be too much work, at scales larger than 1:1 million or 1:500,000, to delimit the base of a seamount. The same argument could be applied to similarly shaped features such as basins. He said it was important to keep things simple.
- 18 Mr Pharaoh commented that, regarding the definition of terms in B-6, there was another IHO document, the Hydrographic Dictionary, which defined bathymetric features. Dr Schenke responded that the definitions in the dictionary had wider implications and he was not certain that all terms needed to be common between the two sources but the same definitions should apply wherever possible.
- 19 Dr Schenke concluded by saying that he was seeking approval of the Committee for the latest version of B-6, subject to the addition of a description of 'deep' and the use of plurals to be added shortly. **The Committee approved the latest version of B-6 'Standardization of Undersea Feature Names'.**

3.1.3 Nippon Foundation/GEBCO Training Project

- 20 Dr Falconer reported on the Nippon Foundation/GEBCO Training Project at the University of New Hampshire. He commended Dave Monahan, the Project Manager, for his huge effort in keeping the project going as well as contributing to the teaching, arranging student visits and cruises, and conducting negotiations with the Nippon Foundation. He was pleased to see that there were 17 NF/GEBCO scholars present in Tokyo and noted that there were currently 24 scholars from 16 countries and that this would soon (September 2008), with the Year 5 intake, be 30 scholars from 21 countries. All but one of the alumni were in occupations relevant to ocean bathymetry.

- 21 Dr Falconer reminded the Committee that the project was overseen by a Project Management Committee which he chaired. In the last year this Committee had been re-structured. Messrs Schenke, Loughridge and Smith had stepped down and three scholars (Dr Wigley, Lt Cdr Montoro and Mr Morishita) had taken their places alongside Messrs Anderson, Frias, Jakobsson, Monahan, Tani and Whitmarsh.
- 22 Dr Falconer continued by explaining the Nippon Foundation's long-term view that GEBCO should be building an active network of people of all generations. With the aim of including as many scholars as possible the NF had been asked, and had agreed, to support the travel of alumni to Tokyo. He said that he had observed that all the scholars present, from different years, countries and cultures, were integrating well with each other and with the GEBCO community as a whole. In particular the scholars has discussed how they will interact in future and will report back to the Committee the following day (see item 3.2.3.3).
- 23 Regarding the Year 5 (2008-09) students Dr Falconer announced that the NF funds would cover five and a half students and the remainder would come from UNH sources. These students would come from five countries new to the project viz. Brazil, Chile, Columbia, Russia and Thailand as well as Japan.
- 24 Dr Falconer reminded the Committee that the NF funds the project on a year-by-year basis and this looks set to continue. When Mr Monahan had met Mr Wada, the NF contact, recently in New York City he had made no commitment for the future but said that the NF regarded the training project as a successful programme. On the other hand it was clear that the NF was also looking to the long-term future of the project in a global context. It was suggested that by 2050 there will be wars over resources and the NF hopes that this will not be so in the oceans.
- 25 Dr Falconer informed the Committee that the PMC, scholars and students had visited the NF earlier in the week and met the Chairman, Mr Sasagawa, son of the founder of the NF, and the Chief Executive. The NF had indicated that they didn't want just five more years of the course at UNH. They expected GEBCO to make the best use of existing scholars, for example, to run courses in their own countries, to teach (although they had no training as teachers) or to run regional projects that the NF will support. Dr Falconer said that he had been exploring some of these ideas with the scholars. In any event a proposal to cover the period after Year 5 had to be prepared by the end of 2008. He hoped that there would be an opportunity for further discussions in the PMC in October at UNH. The PMC had previously met Years 1 and 2 students at UNH and regretted not meeting the Year 3 students because these meetings had been valuable opportunities to get to know them.
- 26 Dr Falconer concluded that he was optimistic for the future of the project but further discussions were needed. The scholars were keen to work with the Committee and the wider GEBCO community. He pointed out that some scholars were fast occupying positions of responsibility and influence in their own countries. He suggested that as GEBCO people travel they make efforts to meet scholars along, or close to, their itinerary.
- 27 **3.1.3.1** Dr Falconer asked the Committee to approve the membership of the new Project Management Committee as follows: Dr Falconer (Chairman), Mr Anderson, Lic Frias, Dr Jakobsson, Lt Cdr Montoro, Mr Morishita, Mr Tani, Prof Whitmarsh (Secretary) and Ms Wigley. **The Committee approved the membership of the NF/GEBCO Project Management Committee.**

3.1.4 Outreach Working Group

- 28 Cdr Lusiani reported on the activities of the Outreach WG. He was planning to translate the 'History of GEBCO' book into Italian and publish it in serial form in a magazine (Revista Marítima). He had also proposed that an educational section should be added to the GEBCO web site to inform children aged 6-14 years about GEBCO and oceanography in general. He had recruited Ms Travaglini to the WG to help with this aspect. He hoped to be able to provide material within two years and proposed to draw on the €10,000 allocated by the IHO for educational projects. He invited those present to join the WG to which Mr Tani responded positively.
- 29 The Chairman thanked Cdr Lusiani. He wondered whether GEBCO should have a Wikipedia entry. There was support for this idea from the Committee and the Secretary suggested that the students should write the entry. Dr Jakobsson opined that a Wikipedia entry was suitable for children over 14 years. Mr Cherkis noted that Wikipedia was open-source and therefore could be changed. Dr Jakobsson considered that that was a positive aspect.
- 30 Cdr Lusiani said he thought that GEBCO was known only to specialists and he wanted to use magazines and other opportunities to spread the word to a larger audience. Dr Turko suggested that contact could be made with national organisations representing geography teachers. Cdr Lusiani agreed but pointed out that GEBCO needed first to generate some suitable visual material or even a play to stimulate the children's imaginations. Dr Turko replied that teachers had the skills to help with this. Cdr Lusiani responded that in his experience teachers liked ready-made material.
- 31 Ms Weatherall, as web mistress, responded that she preferred to keep the web site as a place to post the latest information about GEBCO.
- 32 Dr Brown asked whether the distribution of the World Map counted as outreach. Dr Jakobsson noted that in Sweden 90% of the maps had been distributed to schools and teachers. Dr Fox said that at the 2007 Fall AGU meeting a lot of maps had been distributed to teachers. He thought that it needed an explanatory brochure too.

3.1.5 GEBCO Accounts

- 33 The Secretary presented summary statements of the two accounts administered by Southampton University (Annex 3).
- 34 Cdr Lusiani noted that GEBCO needed to demonstrate that it was planning to use the funds allocated by the IHO for the 5-year period 2008-2012. Mr Pharaoh confirmed that the IHB was waiting for instructions from GEBCO. The Secretary suggested, and the Committee agreed, that €2000 previously allocated to Dr Schenke from the normal GEBCO account should come from IHO funds [Action Secretary]. Cdr Lusiani and Mr Pharaoh agreed to work together to plan how the funds would be spent [Action Cdr Lusiani, Mr Pharaoh].

3.2 MAPPING PROJECTS

3.2.1 GEBCO's strategy for updating world ocean bathymetry

35 There was no discussion of this item which had already been discussed by the SCDB.

3.2.2 GEBCO and regional mapping projects

36 Dr Jakobsson said he wanted to continue the discussion started in Paris at the last meeting. He principally wanted to explore how use could be made of the IBCs. There had been some discussions between GEBCO and some IBCs but this had ignored the fact that in principle they were conducting the same activity. He wanted to start by considering the currently active IBCs. The Chairman noted that in the days of publishing paper maps it had been more natural for there to be an interaction between IBCs and GEBCO.

37 Dr Fox commented that the Committee's main role is to ensure that GEBCO produces the best model of world bathymetry. He cited the IBCAO as a wonderful example to follow and said that if all IBCs were like that there would be no problem so the question was, how to make that happen for the other IBCs. Dr Smith concurred and said that a distinction needed to be made between the organisational structure of an IBC and the technical problems it encountered. If the people involved in GEBCO and the IBCs were the same and they accessed the same sources then there would be a convergence of products. The technical problems were the concern of the SCDB which was doing its best. For example, the IBCSEP has asked for tools and software and this had been agreed. He continued that caution had to be exercised when passing data to third parties as happened when GEBCO gave data to an IBC or *vice versa*.

38 Dr Jakobsson disagreed that the principal problem was technical, it was more a question of the strategic distribution of effort. In other words it had to be decided where an IBC was needed and then to form a regional group that could work to release data in a particular region.

39 Dr Turko regretted that Mr Travin was not present because IOC was keen to set up IBCs to help developing countries in particular areas although this may no longer be UNESCO's policy.

40 The Chairman commented that not all IBCs operated in the same way. The IBCSEP was a project of HOs whereas the IBCSO was being run only by scientists without significant financial support from IOC or IHO. Therefore he concluded that GEBCO should not develop a view on the organisational structure of IBCs. On the other hand if an IBC creates a chart then GEBCO should make use of that product and the data behind it. Dr Jakobsson agreed and said that he thought the way forward was to make stronger links with functioning IBCs. He didn't think the time was ripe to consider new IBCs because funding was tight but GEBCO could initiate regional mapping projects on its own. Cdr Lusiani also agreed and said that the problem needed political decisions elsewhere. IHO had a clear policy but IOC's intentions were unclear (they tended not to enable GEBCO and the IBCs to collaborate). At one time IOC funds had flowed to GEBCO and then to IBCs; now ocean mapping funds were being diverted to tsunami projects. He concluded that once the new Terms of Reference and Rules of Procedure had been agreed GEBCO's aims and objectives would be clearer. Dr Jakobsson said the last remarks had pinpointed what he was trying to say. It was essential to make it clear that GEBCO and the IBCs were interlinked and should not be seen as being in competition.

41 Dr Falconer remarked that the following day the Committee would see a classic example of how such a regional mapping project gets off the ground. The scholars had asked what they could do for GEBCO and had decided to map the Northwest Indian Ocean.

42 Dr Smith commented that the idea that GEBCO should collate digital data and that this would enable the creation of scale-independent data sets was accepted some time ago. Originally there

had been a distinction between GEBCO and IBCs purely on the basis of the scales at which they worked. Now that a worldwide grid was being developed this distinction should no longer be necessary. He opined that the Committee needed to address the mistaken view that GEBCO operated only in deep-water. From the technical point of view there should be no boundary between deep-water and shallow-water. The Chairman replied that he thought the GEBCO grid should be scaleless and its products seamless. He quoted the example of Arctic experts who simply got together, made a map (IBCAO) and were happy to share their data. Cdr Lusiani agreed too; he said that now that the technology had changed there was no reason for GEBCO to behave as it had 20-30 years ago. It was in danger of running behind the technology.

- 43 Dr Yashima recalled that several years ago it was proposed that GEBCO and the IBCs should merge. However, although the IHO support GEBCO for historical reasons, the IOC is now less supportive of ocean mapping. Dr Jakobsson thought that the Committee should endorse any move for an IBC, such as the proposed NW Indian Ocean group, to work with GEBCO. He could not understand why the IOC was so slow at endorsing new IBC proposals. Dr Falconer agreed and said that GEBCO should accept the creation of the NW Indian Ocean group as a *fait accompli* and fully support it. He drew a comparison with the IBCSO which, at the meeting with CGOM two years ago, had received very good but intangible support and effectively had had to look elsewhere for resources. Dr Schenke concurred and said that the IBCSO had used the IBCAO as an example of how to proceed. The way that the IBCSO Terms of Reference had been written there was no problem in giving the data to GEBCO. Ing gen Cailliau said he wanted to make two points, 1) here was a chance to show that GEBCO was a 'multipurpose tool' and 2) here was an opportunity to encourage a regional group to make a map.
- 44 Dr Smith remarked that if there was a good exchange of data at the technical level then GEBCO and IBCs would produce compatible products. He noted that one view was that GEBCO should form a global database to enable sharing of data. Finding data twice over was a waste of effort and resources. There was a need to solve the management and organisational problems inherent in the collection of data. Historically the IBCs had had their own Terms of Reference which did not complement those of GEBCO. However he saw the IBCAO and the IBCSO as a new way of working that eventually will provide something tangible for GEBCO to use. Dr Jakobsson agreed; he saw the IBCs as part of a global jigsaw of bathymetric maps and considered that once an IBC had a finished product it should deliver it to GEBCO. Dr Smith replied that almost every IBC was different; some will work with GEBCO and others will remain independent. He questioned whether giving data to GEBCO would work because of the technical and political problems inherent in edge-matching data sets from two different sources. He said that personally he didn't want to spend effort on edge-matching. Mr Pharaoh commented that the IHO has many liaison members on ISO committees and wondered whether GEBCO could establish similar liaisons with the IBCs.
- 45 Subsequently a small group of Drs Jakobsson, Smith, Fox, Brown and Falconer met informally and decided that the above disagreements amounted to a communication problem. Dr Falconer summarised their deliberations as follows:
 use common standards
 use existing expertise
 use all available sources whether IBCs or regional projects, although in some areas more work is needed.
 In areas where more work is needed GEBCO should strive to help IBCs and regional projects.
- 46 Finally, Dr Falconer cautioned against using the word 'data' which, depending on the context, can mean a grid point, a sounding or a database including the location of an observation. Similarly 'stitching' has different meanings, one of which is 'edge matching', for different people.

3.2.3 GEBCO and the IBCs

- 47 **3.2.3.1 Arctic Ocean.** Dr Jakobsson reported that the IBCAO Editorial Board had been revitalised in the Fall of 2007. The IBCAO now existed as version 2.0, released in April 2008, which had been frequently downloaded (see www.ibcao.org). The new version included 1 and 2 arc minute grids, Google map products, pdf maps, sources of the data, etc. The grid was being updated all the time and it was hard to keep abreast of the changes. The latest grid has been given to Ms Weatherall to add to the GEBCO grid in the next few weeks.
- 48 **3.2.3.2 Southern Ocean.** Dr Schenke reminded the Committee that the IBCSO had started in 1999. The map has an Editorial Board, a Project Board and an Advisory Board as well as an international Board of Experts (see www.ibcso.org). This IBC has received very wide international support from SCAR, SCOR, GOOS, SOOS, IHO/IOC and GEBCO. A lot of meetings and workshops had been held that had led to a willingness to provide data. Additional data were now being collected from the area between 50°S and 60°S which contained important oceanographic gateways. Collected data sets include Bob Fisher's fundamental (southern) Indian Ocean charts, contributions from Australia, France and Russia, maps of the Ross Sea from New Zealand and of the South Atlantic Ocean (Germany, Spain, UK), and maps of the Bellingshausen and Amundsen Seas. These data are being incorporated into a database named SOGIS. The first version of the map is expected towards the end of 2009.
- 49 **3.2.3.3 Indian Ocean.** Mr Hartoyo explained that the scholars present in Tokyo had discussed possible new projects and had decided to concentrate on the northern Indian Ocean since this would directly involve scholars from Bangladesh, Indian, Indonesia and Pakistan. He said that Indonesia has some multibeam data which will be donated and the other countries represented have data too. One advantage of an improved Indian Ocean map will be for better tsunami modelling compared to the currently available 1 arc minute GEBCO grid. Dr Turko noted that the IOC already has a collaborative project in the Indian Ocean and she advised Mr Hartoyo to involve them. Dr Schenke added that the IOC also has a Capacity Development programme, supported by Italy and Norway, that includes coastal mapping in the Indian Ocean. The programme had already held two training courses; he had been involved in one of them. An excellent network already existed and he would be happy to put Mr Hartoyo in touch with it. Mr Mahale noted that three Indian institutions collect bathymetric data (National Institute of Oceanography, Goa; National Centre for Antarctic and Ocean Research, Goa; and the National Institute of Ocean Technology, Tamil Nadu). This new Indian Ocean proposal was greeted with acclamation by the Committee.
- 50 **3.2.3.4 Southeast Pacific Ocean.** Lt Cdr Montoro reported that he was involved in a new project, assisted by Dr Smith, that planned to map the region west of the western limit of the IBCSEP.
- 51 **3.2.3.5 North Atlantic Ocean.** Dr Jakobsson reported that he had tried to start an IBC of the North Atlantic but very slow progress had been made. In any event this was a major topic of his student Benjamin Hell who was building an Oracle bathymetric database of the area on which various software tools that he was developing would be tested.
- 52 **3.2.3.6 Northwest Pacific Ocean.** Mr Tani reported that the IBCWP was essentially 'dead'. It had been a very ambitious project involving many countries. However he remained optimistic because several NF/GEBCO scholars came from the area and he expected UNCLOS data to be released soon by Australia and New Zealand. Otherwise he said that there is a serious problem in collecting data which already exists. For example, dense surveys have been conducted around Japan. Dr Fox added that the USA had already collected some data in the area (near the Marianas islands) for LOS purposes and this was available now. Mr Tani wondered how GEBCO could overcome the

political problems of the IBCWP within the IOC. The only other way forward was to rely on the scholars and other national contacts.

- 53 **3.2.3.7 Caribbean Sea and Gulf of Mexico.** Lic Frias reported that progress in the IBCCA had slowed in recent years partly because of a rapid turnover of personnel. There had been only three meetings in the last 10 years. Nevertheless two sheets had been completed but more than 20 sheets remained in different stages of completion. He regretted that the IOC persons coordinating this IBC were not very active and that it was difficult to make progress without holding meetings. Other problems were that only three of the countries involved had multibeam systems. Although Mexico owned two systems there was little experience in using them.
- 54 Dr Smith enquired what the GEBCO and the SCDB could do to help the IBCCA. Lic Frias replied that the IBC needed help in acquiring the latest data, for example from the Meso-American and Caribbean Sea Hydrographic Commission of IHO. There was also a need for training in how to manage multibeam data and for software such as Caris that could be used to merge data sets.

3.2.4 GEBCO World Map

- 55 See item 3.2.7.

3.2.5 Ingesting IBCAO version 2.0 into GEBCO

- 56 There was no discussion of this item.

3.2.6 Nippon Foundation students' maps

- 57 There was no discussion of this item.

3.2.7 Ideas for new printed GEBCO maps

- 58 Dr Jakobsson started by referring to problems encountered in publishing the World Map. The size of the chart created distribution problems and the next edition would be smaller and printed on glossy paper with more radiant colours. Even so there would be an opportunity for creating large charts using print-on-demand. Dr Schenke asked that any new edition should involve SCUFN in placing feature names on the printed map. Dr Yashima said he dreamt of a 6th Edition chart on paper. Print -on-demand is not used in Japan but the chart could be printed locally. He suggested that some HOs could also print the chart in other countries although the print run would be relatively small. Mr Anderson remarked that he had visited print-on-demand facilities in the USA that were licensed to NOAA and can successfully reproduce colours for the same price as a chart sent by mail. In the USA perhaps the World Chart could be added to the NOAA database of charts.
- 59 Dr Jakobsson responded that large print runs were needed for outreach purposes. The principal problem was ensuring that the charts were small enough to be mailed cheaply. Print-on-demand was the 'icing on the cake'.
- 60 Dr Brown said he understood the size question but smaller meant less resolution. Ideally one should have access to both large and small charts. Dr Jakobsson noted that the technology allowed

for any number of sizes. Dr Smith made a plea for a set of 10-million-scale, paper charts similar to the 5th Edition but Dr Jakobsson considered that a step too far. Dr Smith persisted that a 6th Edition would show that GEBCO's charts were evolving; GEBCO was ready to consider printing such a set of charts. The Chairman intervened that considerable resources would be needed to get such a project underway and Dr Jakobsson concurred. After Dr Turko added her support for a 6th Edition the Chairman asked for a volunteer to investigate the cost and resources required to prepare a 6th Edition for publication. Dr Yashima agreed to work with Mr Jacobs on this project [Action Dr Yashima, Mr Jacobs]. Dr Jakobsson advised that it was better to choose a printer close by and not in a far away but cheaper location.

- 61 Mr Anderson continued that GEBCO had not published a chart series for a long time (since the 5th Edition). He had heard comments that giving data to GEBCO was like donating data to a black hole. He put forward the idea of a new publication that would be a 'newspaper' on seafloor mapping; for example, it could be a quarterly newspaper with updates on regional surveys. The scholars could use it to demonstrate to the Nippon Foundation that they continued to be active. Mr Cherkis noted the success of 'Progress', the quarterly newsletter of the International Arctic Science Committee which was distributed by email. Dr Schenke added that SCAR has a similar newsletter too. Drs Brown and Schenke and Ing gen Cailliau cautiously welcomed the idea but noted that it would depend on an active individual to lead it. Dr Brown suggested that, because the new web site has a News/Events section, in the meantime people could send news items to Ms Weatherall. Dr Smith concurred. Dr Falconer noted that this might be an area where GEBCO funds could help, for example, to pay a well supervised student. He suggested that the idea be put on one side for now until an individual could be found who would lead the project.
- 62 Drs Brown and Smith asked that the Science Day presentations and posters be submitted to Ms Weatherall for posting on the GEBCO web site [Action All].

3.2.8 Other mapping projects

- 63 Mr Anderson reported on the 'Sea-floor sounding in polar and remote regions' (SSPAR) project. He recalled that the idea for the project had started at the GEBCO meeting in 2002. The objective is to build autonomous sounding-buoys powered by alkaline D-cell batteries which can operate in water depths to 5000 m. The NSF funded a feasibility study but further funds from that source were contingent on John Hall paying for integrating satellite communications into the system. This was now being carried out by Christian Mikkelsen Research AS in Bergen, Norway. The current plan is for a pre-programmed sequence of ten pings to acquire the depth four times a day which will be transferred automatically, via an Iridium satellite phone call, to create an email message with an attached file containing the data. The first tests of the system are scheduled for June 2008 when a hovercraft will be deployed off the Yermak Plateau. Subsequently the hovercraft will take the buoy to Greenland for further trials in August. At present there is only one prototype buoy but funding exists to build three more. The power source is designed to last 3-4 years. There are plans for initial quality control before the data are posted on a public web site.

3.3 RECENT PROJECTS

3.3.1 Google and web mapping

- 64 Dr Fox prefaced his remarks by saying that, as a US government employee, he could not favour any one commercial organisation over another. However he knew that Google Ocean was

interested in bathymetry, and particularly feature names, because they had approached NOAA through their Climate Laboratory. He noted that any data provided to Google would be located efficiently by browsers and would be correctly referenced to GEBCO. It was a great opportunity to promote GEBCO.

- 65 The Chairman reported that he had met some Google Earth people who had no idea of the existence of Google Ocean. Google was evidently a huge organisation out to obtain every bit of spatial information they could and they expected people to freely donate their data. Dr Fox wondered whether the Google Foundation (<http://www.google.org/foundation.html>) might fund some of GEBCO's work.
- 66 The Chairman commented that KML files from the Gazetteer already exist as does a global grid. He wondered what GEBCO could sell to Google. Dr Jakobsson responded that the grid should not be given away but GEBCO could provide a draped image of the sea-floor. Mr Pharaoh objected that such an image would be pixelated with gaps around coastlines and thought that Google would want something better. Dr Brown agreed because people want to zoom into a dataset and would lose interest if there are gaps in the data. Further, he was sceptical of Google's intentions and wanted to be sure that GEBCO would be properly acknowledged. Dr Falconer addressed this last point. He understood that Google's business model was to generate products that lots of people would look at and to use that fact to sell advertising space. The model does not include paying those who contribute data but can involve working with people who wish to contribute data. Dr Jakobsson commented that Google's depiction of Arctic bathymetry was bad and GEBCO should work to get them to insert a better image. He had only provided Google with information on where to find the IBCAO data and how to generate the best-looking map. There was some inconclusive discussion of how and who in Google to approach.
- 67 Dr Falconer wondered whether Google could use the current 30 arc-second or one arc-minute global grids. Dr Smith replied that it was technically feasible for Google to use the grids and that they may already have them. He cautioned that in his experience they were careless about the attribution of sources of data. Mr Braud offered to work with his own Google contact to provide the MOA grid and to ensure the correct attribution was used. Dr Brown said that Google was currently using DBDBV and he agreed that it should be replaced by the MOA grid. Dr Smith wanted the grid to be peer-reviewed first but the Chairman reminded him that Google were not unduly concerned by data quality.

3.3.2 GeomapApp Lamont Project.

- 68 There was no discussion of this item.

3.3.3 New World Grid and editorial review

- 69 Dr Smith reported that there was currently an updated 1 arc-minute GDA grid which is available from the GEBCO web site. GEBCO holds some shallow-water data too but this needs to be peer-reviewed. He reminded the Committee that they had agreed in November 2007 that this was to be the basis of any future grid. He had understood that all the required software was in place and in a portable condition so that others could help. Meanwhile he was aware that Dave Sandwell had revised the MOA grid and published it on the web too. So far he and others had not been able to review it. This grid extended from 81°N to 81°S on a Mercator grid and from pole-to-pole on a 30 arc-second grid.

- 70 The original plan had been to put up first, the GDA grid, second, a provisional grid with updates and, third, an MOA-derived grid with data control information. It had been planned that HOs would evaluate the last stage. Dr Brown confirmed that that was what he had understood but in addition he thought there was a need for internal and external reviews. Dr Smith noted that the MOA grid was seen as only the starting point and it would be enhanced as more data became available. Dr Jakobsson said there should be an overall plan, for example, how the updating would take place. Dr Smith replied that SCDB had mechanisms in place for that. Dr Jakobsson clarified that he had meant GEBCO's whole mapping strategy, including regional mapping projects.
- 71 Dr Smith recapitulated the process that he thought the Committee had agreed last November. This was:
The objective was to create a bathymetric model as a representation of the sea floor. The best model would result from insonifying the sea bed at the highest resolution.
The MOA grid tries to incorporate as much data as possible.
A one arc minute grid would be built but allowing for a variable grid size where possible.
It would be necessary to interpolate over any gaps. If satellite 'bathymetry' was inadequate to do this it would have to be done another way.
The above steps would lead to a product that can be accessed over the web.
If quality control reveals artefacts than it would be necessary to return to step 1.
As more and more data are acquired over time it will be less and less necessary to interpolate.
Finally GEBCO would take over the upkeep and maintenance of the MOA grid.
- 72 Dr Smith added that in November 2007 the Committee had wanted to include peer review but this implied the use of resources that had to be planned for. He said that the SCDB was already reviewing the work done by Ms Weatherall and that the MOA group was working with GEBCO data centres as well. The Chairman noted that this was the process to be followed for the next version of the MOA because the GEBCO web site already has posted on it the latest version as updated by Ms Weatherall.
- 73 Dr Jakobsson objected that he had envisaged a different procedure. He had thought that the IBCs would work closely with GEBCO and feed their data into the GEBCO data base. He didn't want to see the IBC data being re-worked. Dr Brown pointed out that that approach was fine for the IBCAO and the IBCSO but otherwise the Committee would have to accept the SCDB procedure described by Dr Smith. Dr Smith remarked that the closer one gets to the raw data the more resources and more local knowledge are needed. The IBCs had the advantage of being in close contact with regional and local sources.

3.4 OTHER ACTIVITIES

3.4.1 Updating IHO M-3 document

- 74 Cdr Lusiani reported that about two months ago some proposed changes to document M-3 had been received from the IHB. There was no problem in accepting the changes other than adding some revision of the paragraphs on new technologies which he and Dr Jakobsson had re-written. The Secretary suggested that the current title of section A5.3 was unclear and should be replaced by the words 'Data storage'. This was agreed.
- 75 The Chairman thanked Cdr Lusiani and Dr Jakobsson for their work in bringing M-3 up to date.

3.4.2 Meeting on inundation mapping

76 Item 3.2.3.3 refers to Dr Schenke's course on Inundation Mapping.

3.4.3 Delineation of undersea feature names

77 Dr Schenke reported that a sub-group of SCUFN had finished a one-page work plan whereby each feature in the Gazetteer would be checked. So far Ms Weatherall had checked just point and line features and was sending the list to Mrs Taylor, the group leader. Closed polygonal features had yet to be checked. The procedure for all features involved checking them against available digital maps. Mr Krockner at AWI was creating shape files for all features which would be sent to Mrs Taylor for verification. Some assistance was expected from a Japanese hydrographer who would visit IHB in the autumn to work with Mr Pharaoh and Ing en chef Huet.

78 As a consequence of the above activity Dr Schenke requested the Committee to provide further financial support, in addition to the €2000 already agreed, to underwrite the salary of a scientist at AWI. He mentioned a sum of €2000 [subsequently this was raised to €2500]. Mr Pharaoh noted that GEBCO had not yet sought any of the funds allocated to it by IHO and this was an opportunity to do so. **The Committee agreed to earmark €2000 of the IHO funds to Dr Schenke's project at AWI [Action Secretary].**

4. PEOPLE WHO HAVE BEEN DOING IT

4.1 GUIDING COMMITTEE MEMBERSHIP

4.1.1 How to 'start the clock' with the anticipated new Rules of Procedure

79 Dr Falconer noted that a decision had to be made about when to start the 5-year terms of sub-committee or committee membership. He said that the IHO was keen to start the new procedures on 1st January 2009 but he didn't expect the IOC to be so formal. The Secretary pointed out the pitfall of starting all memberships on the same date with the result that most members would rotate off their sub-committee or committee at the same time. Dr Falconer suggested that a solution was for some members to resign early. **It was agreed that provisionally GEBCO would work to the new arrangements from 1st January 2009.**

4.2 OTHER APPOINTMENTS

80 The Secretary summarised the current membership of the Committee and the two Sub-Committees. He pointed out that, should the proposed Terms of Reference be accepted by IOC and put into effect that Drs Fox, Schenke and Smith would become ex-officio Guiding Committee members leaving two empty slots. In SCUFN there was a vacancy for one IOC member and one IHO member. Dr Falconer was in favour of 'retiring' those members who did not attend meetings. The Chairman concurred with this suggestion and asked the Committee to suggest to him who should be asked to stand down [Action All Committee]. Dr Smith suggested that those who rotated off TSCOM could remain as Observers so that they had some status to help them obtain travel funds. Dr Brown pointed out that only four SCDB members had attended in Tokyo which would, in future, have made TSCOM non-quorate. Dr Falconer pointed out that a meeting could still have been held but recommendations to the Guiding Committee would have been precluded. Dr Schenke

noted that SCUFN already followed an informal procedure of ‘retiring’ members who didn’t attend for two consecutive years.

5. WHERE ARE WE GOING?

5.1 ORGANISATIONAL DRIVERS

5.1.1 IHO

5.1.1.1 Approval of the new Rules of Procedure.

81 Dr Falconer reported that IHO had already approved the new Terms of Reference and Rules of procedure.

5.1.1.2 GEBCO representation on the new Interregional Coordination Committee (IRCC) of IHO

82 Mr Pharaoh enquired about the status of this item. The Chairman, who had been invited by IHO to join the Committee, replied that no action was required, this was for information only.

5.1.2 IOC

83 **5.1.2.1** The Chairman noted that the Committee was waiting to see whether the new Terms of Reference were approved by the 41st Executive Council of IOC [this happened subsequently on 1st July 2008].

5.1.2.2 Letter to Executive Secretary of IOC.

84 There had been no action on this item (Paragraph 93 of the GC XXIV refers).

5.1.2.3 Letter to funding agencies re swath bathymetry.

85 There had been no action on this item (Paragraph 84 of the GC XXIV refers).

5.2 OTHER ISSUES

86 The Chairman noted that the scholars needed to be integrated more fully into GEBCO. He asked for volunteers to mentor individual scholars [\[Action All\]](#).

6. HOW DO WE TELL THE WORLD AND EACH OTHER THAT WE ARE GETTING SOMEWHERE?

6.1 TRANSFER OF GEBCO WEB SITE TO BODC

87 Ms Weatherall reported that the transfer had proceeded smoothly and that currently there was nothing of substance that needed the Committee’s attention. She said that she had already received some feedback and welcomed suggestions for additions.

7. DATES AND PLACES OF MEETINGS IN 2009 AND 2010

7.1 2009

- 88 Ing gen Cailliau recalled that two years ago he had invited GEBCO, on behalf of the Chief Hydrographer of SHOM, to meet in Brest, France. He noted that a number of issues remained to be discussed. First, would both Sub-Committees meet as well as the Guiding Committee? He felt that two weeks was a long meeting. However, running the sub-committees in parallel was not favoured by those present because some attendees liked to attend both meetings. Dr Schenke replied that it was SCUFN's consensus to meet with the Guiding Committee because this reduced travel expenses and provided a good opportunity to exchange information. Dr Smith acknowledged that meeting with the Guiding Committee led to better attendance but it also led to larger meetings which became harder to manage. On balance he agreed with SCUFN. Depending on SCDB's intersessional work, two days of sub-committee meeting plus a Science Day was the maximum requirement. Ing gen Cailliau said that SHOM would coordinate with Ifremer to hold the Science Day on the Ifremer site.
- 89 **It was agreed that the 2009 meetings would take place either in the first two weeks of May or in the last two weeks of September.** Ing gen Cailliau requested that the dates be fixed as soon as possible and the Chairman requested that this be done by email [**Action Secretary**].

7.2 2010

- 90 Several options were suggested for 2010. Dr Falconer noted that some unofficial discussions had taken place over venues in South America and Indian Ocean areas. The Secretary noted that there was a long-standing invitation to visit NGDC with which Dr Fox concurred.

8. ANY OTHER BUSINESS

- 91 **8.1** Dr Schenke introduced a short, light-hearted film of the activities of SCUFN on Jeju island the previous week.
- 92 **8.2** Mr Pharaoh noted that the Global Map Project (www.intergraph.com/interoperability_gmp.aspx) of Intergraph was looking to include ocean bathymetry as a layer. He reported that Capt Gorziglia had asked SCDB to provide relevant information on GEBCO's bathymetry for this project [**Action Dr Smith**].

9. CLOSURE OF THE MEETING

- 93 The Chairman thanked everyone present for their attention and the Secretary for his seemingly endless recording of the proceedings. Finally he thanked the meeting hosts. They were the best hosts ever and their help in organising all the meetings was sincerely appreciated.

ANNEX 1

Twenty-fifth Meeting of the GEBCO Guiding Committee Japan Coast Guard in Tokyo, Japan 29th-30th May, 2008

AGENDA

1. OPENING OF THE MEETING

2. CONDUCT OF THE MEETING

3. WHAT HAVE WE BEEN DOING?

3.1 ONGOING PROJECTS

- 3.1.1 Sub-Committee on Digital Bathymetry, including reports from the Bathymetric Editor and the Digital Atlas Manager (Smith)
- 3.1.2 Sub-Committee on Undersea Feature Names (Schenke)
- 3.1.3 Nippon Foundation/GEBCO Training Project (Falconer)
 - 3.1.3.1 Ratification of new Project Management Committee
- 3.1.4 Outreach WG (Lusiani)
- 3.1.5 GEBCO accounts (Whitmarsh)

3.2 MAPPING PROJECTS

- 3.2.1 GEBCO's strategy for updating world ocean bathymetry (Jakobsson)
- 3.2.2 GEBCO and regional mapping projects (Jakobson)
- 3.2.3 GEBCO and IBCs (IBCCA, IBCSO, IBCSEP, IBCEA, IBCM, IBCNA etc) (Frias, Schenke, Travin,)
- 3.2.4 GEBCO World Map (Jakobsson, Jacobs)
- 3.2.5 Ingesting IBCAO version 2.0 into GEBCO (Jakobsson)
- 3.2.6 Nippon Foundation students' maps (Monahan)
- 3.2.7 Ideas for new printed GEBCO maps (Jakobsson)
- 3.2.8 Other projects

3.3 RECENT PROJECTS

- 3.3.1 Google and web mapping (Fox)
- 3.3.2 GeomapApp Lamont Project (Smith, Fox)
- 3.3.3 New World Grid and editorial review (Smith)

3.4 OTHER ACTIVITIES

- 3.4.1 Updating IHO M-3 document (Jakobsson, Lusiani)
- 3.4.2 Meeting on inundation mapping (Schenke)

4. PEOPLE WHO HAVE BEEN DOING IT

4.1 GUIDING COMMITTEE MEMBERSHIP

4.1.1 How to 'start the clock' with anticipated new Rules of Procedure (All)

4.2 OTHER APPOINTMENTS

4.2.1 Personality List (Perm Sec)

4.2.2 Succession planning

5. **WHERE ARE WE GOING?**

5.1 ORGANIZATIONAL DRIVERS

5.1.1 IHO

5.1.1.1 Approval of new Rules of Procedure (Falconer)

5.1.1.2 GEBCO representation on new INTER REGIONAL COORDINATION COMMITTEE (IRCC) of IHO (Monahan)

5.1.2 IOC

5.1.2.1 IOC Executive Council meeting 24th-25th June 2008 and timetable to approve new Terms of Reference/Rules of Procedure (Lusiani, Travin, Monahan)

5.1.2.2 Letter to Executive Secretary of IOC (Monahan)

5.1.2.3 Letter to funding agencies re swath bathymetry (Monahan)

5.2 OTHER ISSUES

6. **HOW DO WE TELL THE WORLD AND EACH OTHER THAT WE ARE GETTING SOMEWHERE?**

7.1 Transfer of GEBCO web site to BODC (Brown, Weatherall)

7.2 Outreach (c.f Agenda Item 3.1.4)

7. **DATES AND PLACES OF MEETINGS IN 2009 AND 2010**

8. **ANY OTHER BUSINESS**

9. **CLOSURE OF THE MEETING**

ANNEX 2

Report by the Chairman of the Sub-Committee on Undersea Feature Names (SCUFN)

1. Report on SCUFN-21

- The Twenty-first Meeting of SCUFN took place in Seogwipo, Jeju Island, Korea, hosted by the National Oceanographic Research Institute (NORI)
- Formalities
 - Invitation by the Secretary and the Chairman in due time
 - Agenda and documents are on IHB web site (password protected)
 - Membership (see below)



Dr. Hans Werner SCHENKE, DE	IOC (Chair)
Ing. en Chef Michel HUET, IHB	Secretary
LCdr. Harvinder AVTAR, India	IHO
Capt. Albert E. THEBERGE, USA	IHO (absent)
Capt. Vadim SOBOLEV, Russia	IHO (absent)
Lic. Walter REYNOSO Peralta, Argentina	IHO
Dr. Yasuhiko OHARA, Japan	IHO
Mrs. Lisa A. TAYLOR, USA	IHO
Lic. José Luis FRIAS Salazar, Mexico	IOC
Dr. Hyun-Chul HAN, Korea	IOC
Mr. Norman Z. CHERKIS, USA	IOC
Dr. Ksenia DOBROLYUBOVA, Russia	IOC (new member)

9 members out of 11 participated

2. General Business:

Travel Funding for IOC representatives

-> letter to IOC-Secretary

-> support from GEBCO

Election of a new SCUFN Member: Dr. Ksenia DOBROLYUBOVA

Vacancy for a new Member from IOC side: NN

Russian member Vadim Sobolev did not attend last 3 Meetings

3. Other participants at SCUFN-21

Advisor to SCUFN:

Mr. Trent Palmer, Secretary ACUF, US BGN

Observers:

LCdr. Ana Angelica ALBERONI, Brazil

Mr. Ralf KROCKER, Germany

Dr. Gábor GERCSÁK, Hungary

Mr. Yo IWABUCHI, Japan

Mr. Teruo KANAZAWA, Japan

Prof. Sungjae CHOO, Korea

Prof. Hyo Hyun SUNG, Korea

Mr. Soo Yeol YOO, Korea

Mr. Yejong WOO, Korea

Mr. Shin-Ho CHOI, Korea

Mr. Junghyun KIM, Korea

Dr. Vaughan STAGPOOLE, New Zealand

4. STANDARDIZATION OF UNDERSEA FEATURE NAMES: IHO-IOC PUBLICATION B-6

4th Edition, June 2008. Publication B-6 in additional languages,

(English/French)

(English/Japanese)

(English/Spanish)

(English/Russian)

(English/Korean)

Sub-Group: Examine the Terminology Section in B-6. Report by Dr. Ohara

- Comparison B-6 Terminology and content of SCUFN Gazetteer B-8
 - Statistics of use of generic terms in B-8

- 60 terms are defined
- 14 terms are not used
- 8 generic terms used in B-8 are not defined in B-6
- Discussion of new generic terms to be included in B-6
 - generic terms to be included → No
 - minor generic terms like mud-volcano → No
 - new generic term Deep → Yes
 - generic terms in singular and plural → Yes

Remaining items from previous meetings:

1. all items from earlier meetings SCUFN-17 to 19 were concluded
2. A list of 40 Action Items from SCUFN-20
 - 12 DNO proposals; requests for additional data
 - Investigation of 80 unnamed seamounts
 - Two features accepted in the Ross Sea (Fred Davey for Tangaroa Seamount and Palmer Seamount and East and West Adare Ridge)
 - Received ACUF reports from intersessional period
 - Ask submit bathy and track control from UF to IHO DCDB
3. Report of Sub-Group w.r.t. B-6 Terminology Working Group

5. PROPOSALS SUBMITTED DURING INTERSESSIONAL PERIOD

Notes:

The status of proposed undersea feature names are classified as follows: ACCEPTED, NOT ACCEPTED and PENDING

5.1 Proposals by GINRAS

Chichagov Seamount	ACCEPTED
Dibner Seamount	ACCEPTED
Dmitryev Seamount	Feature is ACCEPTED ; specific name is not accepted
Gnom Hill	ACCEPTED as Gnom Knoll

5.2 Proposals by JCUFN

Bando Basin	ACCEPTED
Bando Abyssal Plane	ACCEPTED as Bando Basin
Boso Canyon	ACCEPTED

Katsuura Basin	ACCEPTED
Katsuura Canyon	ACCEPTED
Okina Seamount	ACCEPTED Unnamed seamount # 16
Mogi Fan	ACCEPTED
Tayama Guyot	ACCEPTED
Tomoda Guyot	ACCEPTED
5.3 Proposals by BNHC	
Admiral Camera Seamount	ACCEPTED as Almirante Câmara Seamount
Admiral Paulo Moreira Seamount	ACCEPTED as Paulo Moreira Seamount
Jean Charot Seamounts	ACCEPTED
Rio Grande do Norte Plateau	ACCEPTED
Romano Russo Seamount	ACCEPTED
Santa Catarina Plateau	NOT ACCEPTED reserve section
Zembruscki Seamount	ACCEPTED
5.4 Proposals by KCMGN	
Gageo Reef	ACCEPTED
Galmaegi Hill	ACCEPTED as Galmaegi Reef
Jeju Valley	ACCEPTED
Jugam Seamount Chain	ACCEPTED as Jugam Ridge
Sae Hills	ACCEPTED as Saeteok Bank
Ulsan Canyon	ACCEPTED as Ulsan Sea Channel
Usan Ridge	ACCEPTED
Wangdol Reef	ACCEPTED
5.5 Proposal by Institute of Volcanology and Seismology, Far East Branch	
Grigor'ev Seamount	NOT ACCEPTED. The feature is located within

the territorial waters of Russia.

5.6 Proposal by Walter Reynoso Peralta, SHN, Argentina

Nippon Foundation Seamounts NOT ACCEPTED. Does not meet the naming criteria

5.7 LIAISON WITH ACUF of the US Board on Geographical Names

Review of Reports of ACUF Meetings since July 2007

ACUF Meeting 317, 9 May 2006

ACUF Meeting 318, 9 August 2006

ACUF Meeting 322, 16 March 2007

Demer Canyon	NOT ACCEPTED
Jenkins Canyon	NOT ACCEPTED
Malahoff Seamount	NOT ACCEPTED
GPL Walker Seamount	ACCEPTED as George Walker Seamount

6. GAZETTEER OF UNDERSEA FEATURE NAMES B-8

Reformat the GEBCO Gazetteer into a Geospatially Enabled Data Base.

6.1 Web-based Map Interface

Enhanced display and search options in various products, e.g. GDA, GIS systems
Web-based interactive maps, and KML files (Google Earth).

Enhanced data base management capability.

6.2 Three projects:

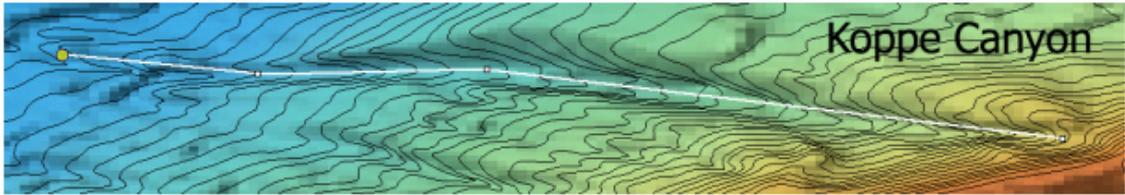
1. NGDC to transfer the GEBCO Gazetteer to an Oracle data base, develop on-line interfaces for feature name search, display and submittal, and data base management
(<http://www.ngdc.noaa.gov/mgg/gebco/gazetteer/access.html>).
2. BODC efforts include transferring the GEBCO gazetteer to an Access data base table via custom software, checking for missing data and typing errors
3. AWI project: Harmonization between GEBCO Gazetteer and the Composite Gazetteer on Antarctic Place Names (CGA)

6.3 Identifying features that require additional coordinates, and reordering Coordinates to display the features accurately

- in the GDA
- in GIS
- on bathymetric maps, and in
- Nautical Charts

6.4 SCUFN undersea features be precisely geographically defined by coordinates:

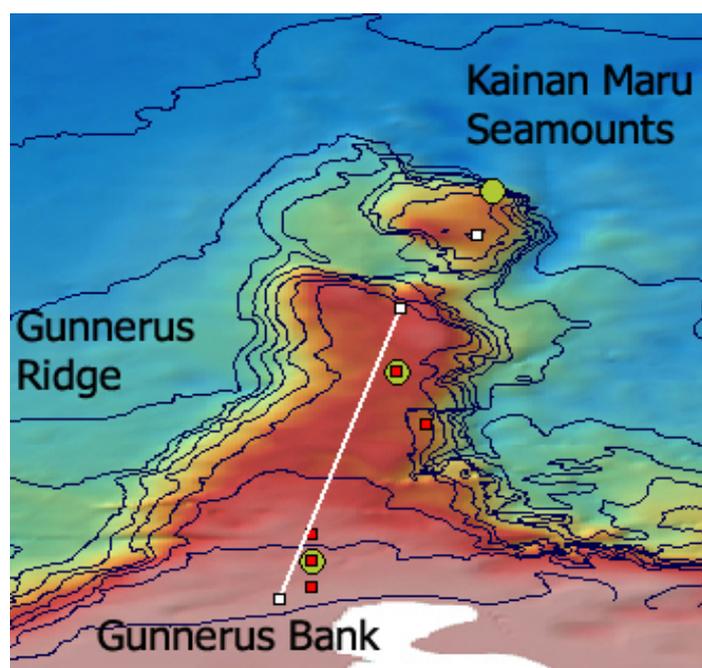
- point feature (seamount, hill, peak, ...) with one coordinate,
- linear feature (canyon, trough, trench, ...) as line / open polygon and
- areal feature (abyssal plain, basin, ...) as polygon



Feature Name: Koppe
 Generic Term: Canyon
 Feature Key 2697
 Reason: More detailed geometric description recommended
 Comment: Change position of CGA feature #7754.
 Accredited by: SCUFN (Jun. 1997).

New positions in SCUFN and CGA - GBC:

71°47' S, 15°39' W	
71°33' S, 17°36' W	
71°34' S, 18°19' W	
71°30' S, 19°00' W	← actual position in SCUFN



Grid: ETOPO2
 Isolines: GEBCO
 Feature Name: Gunnerus
 Generic Term: Ridge
 B-8 Feature Key: 664
 Reason: Geometric
 description as line
 recommended.
 (up to now: only one position:
 66°30'S, 33°45'E)

6.5 A Sub-Group was established to review the coordinates for UF (shape/extension), as proposed by AWI and BODC for inclusion into B-8, and to find gross errors in the coordinates proposed Use the GDA or ETOPO-2 to check the coordinates.

Reviewers will make a list of results of the review to the chairman of the sub-group. The sub-group Chairman will provide the final information to the IHB for inclusion into the IHB

The first task of the Sub-Group will be to assign generic terms a specific geometry.

Sub-group includes Mrs. Lisa A. TAYLOR, Lic. Walter REYNOSO Peralta, Dr. Yasuhiko OHARA, Lic. José Luis FRIAS Salazar, Dr. Hyun-Chul HAN, Mr. Norman Z. CHERKIS, Dr. Ksenia DOBROLYUBOVA, Prof. Hyo Hyun SUNG

7. Summary:

- 63 undersea feature names were considered/discussed
 - 7 proposals were rejected
 - 29 are pending
 - 27 proposals were finally discussed and accepted
- Next Meeting: JOINTLY WITH GEBCO GC in Brest, France. Date to be confirmed.



Open SCUFN Science Day

The Third International Symposium on Application of Marine Geophysical Data
and Undersea Feature Names

The Korean Cartographic Association National Oceanographic Research Institute
(NORI)

23 May 2008, Jeju Island

Session I: Activities of Naming Undersea Features

- Norman Cherkis: ACUF and SCUFN: Procedural Similarity and Difference
- Jose Luis Frias: The Status and Practice about Undersea Feature Nomenclature in Mexico
- Ksenia Dobrolyubova: Russian Undersea Feature Names: The Memory about Discoveries and People
- Gabor Gerzsak: Overview of Hungarian Research in standardization of Undersea Feature Names

Session II: Management of Undersea Feature Names

- Yasuhiko Ohara: Results from SCUFN Working Group on Revision of IHO-IOC Document B-6 (Terminology Section)
- Ralf Krockner: Harmonization between SCUFN Gazetteer and the SCAR Composite Gazetteer of Antarctica
- Pauline Weatherall: Report to the GEBCO Sub-Committee on Undersea Feature Names on the Work Carried out at the BODC with the GEBCO Gazetteer B-8

Session III: Application of Marine Geophysical Data

- Hans Werner Schenke: Definition of the Limits of the Oceans and Seas in the Southern Ocean
- Walter Peroso Peralta: Unnamed Seamounts in the Central Pacific Ocean
- Vaughan Stagpool: Nomenclature for Undersea Volcanos in the South West Pacific, Tonga Arc
- Jinho Kim: Geophysical Constraints on the Origin of Hupo Bank

ANNEX 3

Report on the GEBCO Accounts held at Southampton University, U.K. to the GEBCO Guiding Committee (29th-30th May, 2008)

GEBCO funds are held in two separate accounts which are held by Southampton University, of which one is in sterling and the other principally in US dollars.

1. Southampton GEBCO Fund (Annex 1)

administered by Southampton University (Project 501914101)

The major part of the income to this fund this year has come from BODC, being the half share of the income from the sale of the GDA-CE CDs.

Expenditure from this account has largely been used to support the attendance of GEBCO members to meetings, to pay the Secretary's Honorarium and to support the publication and distribution of the Summary Report.

2. The Nippon Foundation Fund (Annex 2)

administered by Southampton University (Project 501915101)

Income to, and Expenditure from, this fund are in US Dollars, but the fund also earns some interest which is paid annually in Pounds Sterling. Therefore accounts are kept in both \$ and £. Although the Southampton books are held in Sterling the balance, when converted back to dollars, is computed using the same exchange rate that was used to convert dollars to pounds sterling in the first place so that the fund is not exposed to currency fluctuations.

US Dollar summary (including commitments; conversion rate US\$1=£0.5145)

Southampton GEBCO Fund (as at 15/5/08)	£58,124	\$112,972
Nippon Foundation Fund (as at 15/5/08)*		\$534,269
	Total	\$647,241

* including 3 payments due to UNH in February, May and September 2008

R.B. Whitmarsh,
GEBCO Permanent Secretary
15 May 2008

GEBCO PERSONALITY LIST

(Last Revised 12 August 2008)

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The mailing addresses and other contact details of all the people listed above, plus those currently active in GEBCO, can be found on the GEBCO web site. An alphabetical list of names, which is regularly updated, can be found at,

http://www.gebco.net/about_us/contact_us/

ANNEX 5

Acronyms

ACUF	Advisory Committee on Undersea Features (USA)
AGU	American Geophysical Union
AWI	Alfred Wegener Institute (Germany)
BNHC	Brazilian Navy Hydrographic Center
BODC	British Oceanographic Data Centre
CGOM	Consultative Group on Ocean Mapping (IOC)
DBDBV	Digital Bathymetry Database 5
ENC	Electronic Navigational Chart
GDA	GEBCO Digital Atlas
GINRAS	Geological Institute Russian Academy of Sciences
GOOS	Global Ocean Observing System
HO	hydrographic office
IBC	International Bathymetric Chart
IBCAO	International Bathymetric Chart of the Atlantic Ocean
IBCCA	International Bathymetric Chart of the Caribbean Sea and Gulf of Mexico
IBCSEP	International Bathymetric Chart of the South East Pacific
IBCSO	International Bathymetric Chart of the Southern Ocean
IBCWP	International Bathymetric Chart of the Western Pacific
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
ISO	International Organization for Standardization
JCUFN	Japanese Committee on Undersea Feature Names
JHOD	Japan Hydrographic and Oceanographic Department
KCMGN	Korean Committee on Marine Geographical Names
KML	Keyhole Markup Language
LOS	Law of the Sea
MOA	Memorandum of Agreement
NF	Nippon Foundation (Japan)
NGDC	National Geophysical Data Center, Boulder (USA)
NOAA	National Oceanic and Atmospheric Administration (USA)
NORI	National Oceanographic Research Institute (Korea)
NSF	National Science Foundation (USA)
PMC	Nippon Foundation/GEBCO Project Management Committee
SCAR	Scientific Committee on Antarctic Research
SCDB	Sub-Committee on Digital Bathymetry (GEBCO)
SCOR	Scientific Committee on Oceanic Research
SCUFN	Sub-Committee on Undersea Feature Names (GEBCO)
SHOM	Service Hydrographique et Océanographique de la Marine (France)
SOGIS	Southern Ocean Geographic Information System
SOOS	Southern Ocean Observing System
SSPAR	Sea-floor sounding in polar and remote regions
TSCOM	Technical Sub-Committee on Ocean Mapping (GEBCO)

UNCLOS	United Nations Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNH	University of New Hampshire (USA)
WG	Working Group