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ORGANIZATION



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

General Bathymetric Chart of the Oceans (GEBCO)

Thirty-First Meeting of the GEBCO Guiding Committee

International Hydrographic Bureau
4b quai Antoine 1er B.P. 445
MC 98011 MONACO CEDEX

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Opening remarks

The Chair of GEBCO, VADM Shin Tani, welcomed the attendees to the GEBCO Guiding Committee meeting. He welcomed the new member to the Guiding Committee Adm. Patricio Carrasco, Director of the Hydrographic and Oceanographic Service of the Chilean Navy. Tani notes a very important issue that GEBCO should address: the disappearance of the Malaysian Airliner. In addressing this type of topic, it will raise GEBCO's profile, which is a goal of the GGC. Another important topic to be discussed at this meeting is the 10-year celebration of the Nippon Foundation/GEBCO training Program. He also noted that this coincides with GEBCO desire to develop a decadal plan. In developing a decadal plan, this would raise GEBCO's profile. To do this, GEBCO needs a budget. This will be discussed in detail during the meeting in context. Other important issues to be discussed at the meeting will be the proposed revised Guiding Committee Terms of Reference-Rules of Procedure.

Robert Ward, President of the Directing Committee of the IHO, welcomed the attendees to the International Hydrographic Bureau in Monaco. He emphasized that this meeting will be a very significant meeting or as he described it, a watershed moment. One goal for GEBCO should be how to generate the definitive global bathymetric model. It will take a high profile, good data, and finances all being addressed in a strategic perspective and a practical manner. He recognizes the IOC and IHO administrative difficulties but noted they can be used as advantage. So, how to raise the GEBCO profile? GEBCO needs to determine the definitive global bathymetric data set and be first port of call for global bathymetry. If not, other organizations or commercial interests will be the source. Good data is the key and GEBCO should not necessarily be about maps. GEBCO financial needs should be addressed. It is not realistic to get all of its needed funds from IHO to move GEBCO forward. GEBCO should seek donations and not charge for services. The most important aspect of GEBCO is the data. The proposed IHO Bathymetric Crowd Sourcing program could be very important. Commercial companies providing bathymetry put off some. The IHO Data Center for Digital Bathymetry is not a commercial entity so this is good. Bottom line is that all parties need to work together and this is the challenge for the next decade

Julian Barbieri, IOC Secretariat, represented Wendy Watson-Wright, Executive Secretary of IOC, at the meeting. Watson-Wright expressed her thanks for inviting her to participate in the meeting and sent her greetings from IOC. Barbieri empathized the IOC is focusing on Ocean research and capacity building. GEBCO can contribute to IOC programs through its development of global ocean bathymetry. IOC is looking at the science and policy interface. This presents new problems and challenges and IOC looks to GEBCO to help. For example, the IOC tsunami programs need ocean bathymetry and is a very timely topic. He also noted that capacity building is very important to IOC. IOC would like to try to integrate capacity building with their programs. Finally, he said that the IOC Executive Committee would review the recently revised GGC Terms of Reference-Rules of Procedure for their approval. He noted that IOC would like more support from Member States and due to financial problems, there is no funding for GEBCO. Nevertheless, IOC would like to help in any way that it can.

Meeting Administration

All attendees introduced themselves and it was determined that there was a quorum. GGC members who sent their apologies were Marzia Rovere, Chrétien Ngouanet, Nataliya Turko, Paolo Lusiani and Peush Pawsey. David Clark reviewed the schedule of the upcoming SCUFN

meeting, which follows this GGC meeting. All GGC members were invited to attend the first several days of the SCUFN meeting. The agenda was approved but the right to move topics around on the schedule was given. See Annex 1.

Approval of GGC XXX report

Clark introduced the report from the 30th GGC meeting. Tani asked for comments. They will be accepted until the day following the opening of this meeting when the report would be approved. Clark commented that the Outreach and Education Working Group Report would be added to the report after this meeting.

IHO report

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_ihb_report_to_ggc_31.pdf

Director Mustafa Iptes and Assistant Director David Wyatt presented the IHO report. Montenegro was approved as a member of IHO. This brings the number of Member States to 82. Several other countries have received members' votes and are waiting for approval. Other countries are gathering votes for approval. Several countries' memberships have been suspended. When the pending revisions to the IHO Convention enter in to force, it will be simpler and less time consuming for countries to become members of IHO.

IHB is developing a GIS data base which will contain country information on each member state. Tani asked whether the local and regional information could include a footprint of soundings. Ward suggested a database of coverages and could include unsurveyed areas but noted there might be some sensitivity. A question was asked if GEBCO will establish an IHO GEBCO data discovery portal? Lisa Taylor, Director of the DCDB said that the DCDB at NGDC does have a discovery portal.

The World Hydrography Day will be celebrated on June 18, 2015 in Monaco. The theme is "Hydrography – much more than nautical charts." The upcoming Fifth Extraordinary International Hydrographic Conference will be held at IHB, Monaco October 6-10, 2014. Industry participation is very good; only three of 13 exhibit slots are free. GEBCO will need to send in a report for the meeting. IHB also reemphasizes that GEBCO should continue to participate in the RHC meetings.

IHO publication B7 updating/revisions have not progressed as hoped. The question was what should we do to get this progressing? It was noted that a draft was passed to the GEBCO Secretary in 2012, but nothing has been done. Action: GEBCO Secretary to send draft B7 version out again for comment. *(NB. B7 was sent out to the GGC 27Sept13 for comment. No responses - DMC)*. GEBCO will transfer its funds from Stockholm University to IHB for financial servicing and banking. The GGC will need to develop an agreed budget against which the IHB can then disburse the funds.

IHB is initiating a program as a proof of concept in crowd sourcing bathymetric data. The Professional Yachting Association will participate. The DCDB at NGDC will be the repository for the data.

IHB observed that GEBCO has an obvious place in the Group on Earth Observation (GEO) and the United Nations initiative on Global Geospatial Information Management (UN-GGIM), but that this is not acknowledged at present. IHB Director Gilles Bessero attended the GEO Ministerial summit recently where there was a recognition that bathymetric services and products are needed for a comprehensive description of the Earth system. The GEO program to build Global Earth Observation System of Systems (GEOSS) could benefit greatly from GEBCO involvement. Ward noted that GEO is becoming a significant influence in the Earth observing community as it has backing from many nations at a high level. However, because of this, it is a large complex effort with many, sometimes disparate, parts. Nevertheless, it is important that GEBCO has a profile in the considerations being made by the groups.

IHB Assistant Director Tony Pharaoh presented a proposal to the GGC to scan and archive the approximately 100 geo-referenced raster copies of the repository of GEBCO ocean maps and plotting sheets that are held at the IHB.

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc_ihb_digital_maps_report.pdf These would be available on the GEBCO web site in various versions. Jakobsson noted that there are many ways to do this using tiling. The web implementation could include viewing the data or downloading the scanned data either one or the other or both, but this would increase the work need to implement. Falconer said the only way to do this would be to have a commercial contract. Schenke suggested that it would be valuable to add additional information to the product.

IOC report

Osamu Miyaki presented the IOC report.

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc_ioc_report.pdf

IOC now has 147 Member States. The current Executive Secretary, Dr. Wendy Watson-Wright, will be stepping down at the end of the year so a recruitment has started. The IOC Secretariat will be restructured this year also. The 47th IOC Executive Council will be held in July of this year. GEBCO is invited to participate and Tani will attend. The newly revised GEBCO Guiding Committee Terms of Reference-Rules of Procedure will be on the agenda. It is hoped that the TOR-ROP will be approved and adopted after the Executive Council meeting.

IOC is developing a strategic plan for capacity building. The draft Strategic and Action Plan will be considered by the 28th IOC Assembly in June 2015. One of the elements of the plan is the Ocean Teacher Global Academy. This is a program of training courses related to IOC programs contributing to the sustainable management of oceans and coastal areas worldwide. IOC welcomes GEBCO participation in this program.

Miyaki reported that it is the 50th anniversary of the International Indian Ocean Expedition (IIOE). There is a proposal to hold another IIOE. The IIOE-2 proposal will be considered at IOC Executive Committee in July 2014. GEBCO is invited to participate in IIOE-2. He noted that bathymetry will be collected and would fit nicely into the GEBCO Indian Ocean Data Compilation project. IOC welcomes any proposal from GEBCO to encourage member states to support GEBCO. IOC also encourages GEBCO input into the IOC mid-term strategy development. It was noted that the IOC Ocean Teacher Academy could fit nicely into the NF/GEBCO Training program. Barbieri suggested that GEBCO could interact with IOC

through the IODE data centers. Tani questioned where GEBCO “fits” within IOC. Barbieri thinks that it should be under the Ocean Observations section. Ward agreed.

IHO DCDB report

Taylor gave an update on the DCDB. One of the priorities of the DCDB is the new Crowd-Sourced Bathymetry (CSB) project. The new CSB project will begin this year. It will be in cooperation with the Professional Yachting Association (PYA). They will do a pilot project with the PYA, IHB and the DCDB. The DCDB will develop a portal for the data. Once the prototype is successful, the portal will be expanded.

Taylor referred to the Data Store description/discussion as part of the TSCOM report.

The Web interface to the Gazetteer on Undersea Features is working well and is operational. She noted that maintaining the system is unfunded. It currently works well but a number of improvements are needed. Clark noted that there is funding for the Gazetteer support in the IHO Workplan budget. Taylor said that GEBCO cannot fund projects at NGDC. Tani suggested that there may be other avenues for funding it.

Schenke asked about GEBCO’s connection to openseamap.org. Weatherall said that BODC has had contact with them. It was remarked that getting Open Sea Map involved in GEBCO is what we want to happen. The question was asked, does GEBCO want to position itself as the main source of ocean bathymetry data? If so, we also want the ability to do this easily, through the DCDB and other GEBCO partners. It was agreed that IHO and GEBCO wanted to highlight the expansion of GEBCO partners into different types of organizations. They want to also promote the concept of putting data in the Data Store and getting even more data out. We hope to make it so that relevant organizations cannot afford not to be a part of it. Jakobsson noted that the crowd-sourced bathymetry project is the key and a logical extension of this idea.

Digital Atlas Manager Report

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_gda_managers_report.pdf

Pauline Weatherall, GEBCO Digital Atlas Manager, briefed on the current activities of the Digital Atlas Manager at BODC. The release of GEBCO Global 30 arc second grid has been delayed until several important contributions could be incorporated into the database. These included data from EMODnet (European waters), the Baltic Sea Bathymetry Database and the Grid for part of the Northwestern Pacific region. The compilation and gridding can now go forward and it is anticipated that the task will be finished in August 2014 and will be published in September 2014. A number of other new data sets have also been received at BODC.

The new GEBCO grid will be made available via the internet and also as part of the GEBCO Digital Atlas. It will also be available via the internet, and will be available as a complete global grid file or for user defined sub areas. The application has been updated and extended, allowing the ‘cutting’ of user selected areas to be done in the background. This is useful when selecting data for a large geographic area. The grid will be made available in netCDF, using Climate and Forecast (CF) metadata conventions. This is a means of including metadata within the netCDF data file and to help with interoperability between data sets. These are available via the internet and through the GDA. The use of assigning a Digital Object Identifier (DOI) to the next release

of the GEBCO grid is being investigated. A new version of the GEBCO Web Map Service (WMS) will be developed based on the GEBCO_2014 Grid. The GEBCO Source Identifier (SID) grid will be made available as a WMS.

The GEBCO_08 grid has been downloaded 5002 times in the last six months. The GEBCO_08 SID Grids has been downloaded 1567 times in the same period. 100 copies of the GDA were distributed in 2013, 48 copies sold and 52 were distributed for free. The sales of GDA amounted to 5,617 British Pounds Sterling for GEBCO. BODC maintains the GEBCO web site and there have been 55,600 visits since the last GGC meeting. It was also noted that BODC maintains a GEBCO Facebook page.

Taylor asked if the new data are being offered to EMODnet. The answer was yes. Schenke recommended that the name proposals from the SCUFN be indicated on the GEBCO Grid. Weatherall said that would be a very good and she could look into implementing it. Jakobsson complimented the timely offering and use of the improved and enhanced Grid. This should be given priority and used to promote GEBCO.

SCUFN report

Hans-Werner Schenke gave a short update on the activities of SCUFN. The SCUFN meeting follows this GGC meeting, so there will be a more comprehensive report at the next GGC meeting.

There is one new vacancy on the SCUFN. There is also one new member of SCUFN, Dr Kian Fadaie from the Canadian Hydrographic Service. There will be 10 members of SCUFN attending the meeting next week. The long time Secretary, Assistant Director Michel Huet will retire after this meeting and his replacement at the IGHB Yves Guillam will take his place. Schenke noted that Felipe Barrios has missed two meetings and would normally be replaced, but due to extenuating circumstances, SCUFN will make an exception. He is working on his Master's thesis at the University of New Hampshire. Tani commented that the GGC intends to be very strict with the policy for missing meetings. Patricio Carrasco said that Barrios would be supported. Clark clarified the wording in the ToR that "normally" means under usual circumstances but does allow for flexibility. Taylor remarked that Barrios is an active participant at the SCUFN meetings.

Schenke briefly reviewed the SCUFN agenda. There were 102 new names proposals to be considered by SCUFN. There was a change for B-6 approved by SCUFN to exclude SCUFN members from making name changes. The change of B-6, Section 2 ii) on page 1-iv was changed to read: "Names submitted to the Sub-Committee by individuals (with the exception of SCUFN members), agencies and organizations involved in marine research, hydrography, etc." Schenke and Taylor demonstrated the new on line Gazetteer of Undersea Feature Names. The GGC strongly endorsed this new activity and much discussion followed.

Jakobsson asked what were the cut-off dates for submission of feature names? The submission dates are 30 days prior to the SCUFN meeting if submitted electronically; six weeks if submitted via a written document. The proposals are put on web site and password protected which allows the SCUFN members to review them prior to the meeting. The public is denied access until after the meeting.

The Chair (Schenke) and Vice Chair (Taylor) were approved by the GGC for a new term as Chair and Vice Chair.

TSCOM Report

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc_tscom_report.pdf

Karen Marks presented an update on the TSCOM activities. There are currently 10 members of TSCOM and 4 advisors. Unfortunately, Bruce Goleby, Geoscience Australia, had to resign from the GGC and from TSCOM as Vice Chair. Therefore, at the next TSCOM meeting (December 2014 at Google in California, USA) a new Vice Chair may be discussed.

Marks reported that the web page for the IHO DCDB GEBCO Data Store is scheduled for a major face-lift by NGDC. She noted that the GEBCO Data Store, a repository for bathymetric trackline and gridded bathymetry used to produce the GEBCO grid is under development. It will differ from other repositories in that it will store processed data and metadata developed by the contributors. The Data Store will be implemented with the Metadata Editing Made Easy (MEME) tool which will enable contributors to easily create acceptable metadata and submit data through an HTML. TSCOM's goal is to make contributing data to the Data Store simple, easy, and painless.

The GEBCO Cook Book continues to be used internationally. The current version is November 2014 and it has had new contributions. The Cook Book has both an IHO and IOC publication number. Marks noted that an article published in the April 2014 edition of Hydro International highlighted the GEBCO Cook Book.

Marks gave an update on GEBCO high-resolution grid product (GEBCO Hi-Res). Formerly it was known as the GEBCO 100m project. This is a prototype product that combines the GEBCO_08 grid with the LDEO compilations and contributed grids. LDEO's Global Multi-Scale Resolution Topography (GMRT) is used to view terrestrial and seafloor elevation data in image and grid form which can be viewed in various resolutions. The GMRT was updated in May 2014 with new contributions and enhanced web applications. Improvements to the GEBCO Hi-Res product are currently under development and include optimizing workflow for integrating data and access infrastructure. The product will be demonstrated at the TSCOM meeting in December. The meeting will take place at Google Headquarters, Mountain View, California, USA, December 11-13, 2014. In addition, the GEBCO Bathymetric Science Day will be held as an all-day session at the Annual Fall AGU meeting the following week in San Francisco, California.

Marks and GEBCO member Walter Smith submitted an article to the AGU publication EOS, on seafloor in the Malaysia Airlines MH370 search area. This article and many other related articles used or referenced GEBCO data in the search area. Geoscience Australia used GEBCO data in the search for the missing airplane.

Tani asked how many staff are working on the Data Store. Taylor said the NGDC staff of the DCDB were all engaged at various times on the development of the Data Store. Falconer asked about the relationship between the Data Store and EMODnet. Weatherall said they are similar and both activities are in contact with each other. Jakobsson pointed out the EMODnet is a

major, well funded European project but is mostly the region around Europe. But EMODnet is expanding its region. He also noted that EMODnet distributes only the compiled data not the source data.

SCRUM Report

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_scrum_report.pdf

Jakobsson gave a report on the activities of the SCRUM. He said that there has been and continues to be great interest in the regional mapping and membership in SCRUM. There are 20 members currently on the subcommittee from many parts of the world. He asked the question, what makes GEBCO unique? GEBCO is unique because it has a mandate to map the World's oceans and it is the only project which has this mandate as its primary goal. How is this accomplished? GEBCO has been in the business of "crowd sourced" data compilation since it began. It has compiled its data using international cooperation to further the improvement of the global bathymetric database. GEBCO has many international contacts with national hydrographic organizations, academic institutions and private industry. In the course of developing the global bathymetric map (and database), GEBCO participants have developed and used new technology, putting GEBCO in the forefront of global sea floor mapping. Therefore, there is a great opportunity for more involvement in GEBCO activities.

Status of various SCRUM activities:

IBCAO - We have begun working on Version 3.1. There is a need to sign disclosures for no access to source data. i.e., Greenland (oil companies)

IBCSO – The new data have been incorporated to GEBCO Grid

The Baltic Sea Bathymetry Database (BSBD) is an effort to in one place gather and distribute bathymetry for the areas of all Baltic Sea countries

Indian Ocean data compilation Project – The project is proceeding well. Rochelle Wigley is heading up the project and is involving many NF Scholars. A training workshop was held in Kuala Lumpur from 5 - 9 May 2014. The meeting objective was to utilize the skills and experience of the techniques for data compilation of the IBCSO.

The EMODnet has agreed to enhance their cooperation with GEBCO. This will be a great contribution to the GEBCO bathymetric database.

Many of the IBC projects have become integrated into GEBCO; however, some of the IBCs are dormant. It would be useful to restart these projects if possible. We have learned that it is not so easy to get the NF Scholars working on a project. To do this, a host is needed, an active manager is required, and strong coordination is necessary. Once these are in place, data flowing into GEBCO becomes "easy". The BSBD is a good example of this. Weatherall confirmed that this is indeed the case. Other activities of SCRUM include a release of the new GEBCO grid in 2014, a meeting at Google Headquarters and a Special session at the AGU. Future plans are to implement "regional ambassadors" to actively seek data for particular regions.

Outreach and Education Working Group report

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc_gebco_outreach_roadmap.pdf

Pauline Weatherall and Hyo Hyun Sung presented the current roadmap for the GEBCO Outreach and Education (O&E) activity. The roadmap describes five themes to promote GEBCO to the scientific community and the general public as well as playing an educational role in raising the

awareness about existing GEBCO services and products. The follow-on Master plan will be drafted by November 2014.

Theme one is reviewing the current suite of GEBCO services and products. This also entails reviewing the GEBCO users. Theme 2 is developing a vision and strategy of the outreach and education program via a SWOT analysis. A SWOT analysis is an evaluation by Strengths, Weaknesses, Opportunity and Threats. This will define the program's weak and strong points. Theme 3 is a comprehensive look at the resources of GEBCO including the budget, and the in-kind contributions. Theme 4 is the prioritization of the activities of GEBCO and defining the O&E activities related to the overall GEBCO project. Theme 5 is the step-by-step implementation of the roadmap taking into consideration the results of the themes 1-4. A detailed discussion of the themes was given and many potential future activities were described.

Sung noted that there are many good GEBCO products and there are many users for these products. Taylor speculated that GEBCO needs a "branding." Falconer agreed. Tani related that the NF acknowledged that outreach is difficult and GEBCO will need some help in this area. Wyatt remarked that developing outreach products can get expensive and sometimes their utility is less effective. A rhetorical question was asked: does GEBCO know who we are? It was agreed that we need to know what we do and who our users are. Tani pointed out that GEBCO is very unique but we are challenged to state why we are important to the ocean community. One aspect we need to recognize is the role of the politicians in our activities and who among them can help us.

Weatherall noted that Paolo Lusiani, the Chair of the working group has stood down. All in attendance thanked Paolo for his many years as a member of the GGC and the Outreach and Education Working Group.

GEBCO World Map publication

Jakobsson gave an update on the GEBCO World Map. The new version of the map is now ready for printing. To print many copies, resources will be needed. It was agreed that it would need a new name, maybe something like GEBCO World Map 2014. Falconer said that because it will be available to be print on-demand, there could be a number of versions since the users can add data to the map before printing. Jakobsson noted that the World Map on Google gets 49 five star ratings. He also said that he would print some copies of the maps in Stockholm. An action was entered to look into options for printing the map. Ward said that a good product like this could raise GEBCO's brand. He also noted that having copies available for the EIHC would be good.

GEBCO Globe

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_globe_report_2014.pdf

The project to develop a physical globe from the GEBCO data began in 2006. There are three sizes of globes that have been produced: 14cm, 32cm, and 68cm. They have been very well received. They make very good outreach materials. The question to be answered was what will we do as a next step with the Globe project? It was pointed out that the larger globes need a modification of the color scheme before they could be massed produced. This is sometimes hard to do with the commercial vendors. Another problem is that the current manufacturing company

for the Globes is in China. One idea for continuing the project would be to turn over the project to a commercial company for production and distribution. Jakobsson said that the small Globes would be easy and cheap to produce but would need a color palette adjustment. Tani pointed out the fact that the small Globes do not do justice to the seafloor. Ward said that there are medium sized Globes at IHB available for purchase and but noted that they have been a big burden to the staff.

Discussions also centered on whether GEBCO products should be available for sale or be freely available. Do the Globes fit in the overall mission of GEBCO to compiling and gridding global bathymetric data? Jakobsson said that if they are used for outreach and education, they should be given away freely. He cited the many giveaways at the AGU. Taylor pointed out that it is not economic to try to sell them to recoup the cost of production. Marks said to put all the GEBCO products on the web available for download. All present agreed. Tani summed up the discussion: GEBCO should not be in the business of selling products; giveaways are the best for education and outreach; GEBCO's goal is to produce definitive maps and grids of the sea floor. The decision was made not to continue the Globe project. However, The GGC will support commercial companies or other interested parties in developing the project further. Tani and all present thank Bob Anderson for all his hard work on this unique GEBCO product.

Schenke took this opportunity in discussing ideas and products relating to outreach. He said that the lenticular map of the southern ocean could now be produced. He thought that map of southern ocean 60x70 cm would be a good reflection of GEBCO gridding techniques. Schenke is ready to proceed, but this project needs funding. From past experiences, to produce 1000 - 1500 would cost 15,000 EURO. This could be a good outreach product, so it is recommended that it be considered by the Outreach and Education Working Group.

NF/GEBCO Training Program

Falconer briefed on the status of the Nippon Foundation/GEBCO Training project. He noted that he recently submitted the yearly proposal to keep the program at UNH in operation. The NF is very happy with the program, and Tani noted that the NF usually do not fund projects for more than five years. There are now 60 graduates of the program and all but one are working at their home institutions or are still in the field. Some have moved to different organizations, but are still in the field.

The Nippon Foundation would like to see GEBCO develop a 10 year plan. NF also would like to see a celebration of the very successful 10 years of the program. They want to be able to make a public statement on the importance of the project. This celebration would be very high level with Prince Albert of Monaco and Mr. Sasakawa, head of the NF invited to attend. They encourage participation of others, not just NF Scholars. It is hoped that the celebration event could highlight the strong support of Monaco for GEBCO and especially this training program. It was noted that the NF did grant \$30K for initial planning for the celebration. The NF will participate in the EIHC in October and it will be discussed more.

Falconer did note that there are funds from NF for Special Projects related to the Scholar program. Ideas for new projects under this are: better data compilation in Antarctica above 60N, more resources for the on-going Indian Ocean data compilation, maybe a new focus in the

Caribbean. Iptes said that there is an excellent relationship with NF, and noted that an MOU between IHO and NF will be developed.

Rochelle Wigley, Program Manager for the NF/GEBCO Training Program at UNH, gave an update on the program.

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc_nippon_foundation_report.pdf

There are 60 graduate scholars come from 31 countries. The scholars are from hydrographic offices and from academic/research institutions. There is a good mix of male and female graduates. While it is very good that the scholars have much national and cultural diversity, the NF's priority is that the scholars admitted to the program have a passion for the oceans.

Wigley described the academic year for the Scholars as very full with two semesters of classroom and laboratory courses, a two-month survey course, visits to national laboratories, and hands on hydrography training. They are trained on every aspect of hydrography from beginning to end.

The budget for this year is \$570K USD. Here were 60 applications for the program this year. The applicants are short listed and then interviewed over Skype. A selection panel of the Program Manager, a NF representative and the Chair of the Training Program Management Committee make the selection in April. The NF would like to see a Scholar alumna also on the selection panel. They would also like to have two certificates give to the Scholars: a completion certificate and a certificate to introduce the graduating scholar to the community.

Falconer noted that UNH is very strong supporter of the program; and Rochelle Wigley and Dave Monahan contribute a huge amount of time to the program. Taylor thanked them for their hard work and noted that NGDC is very supportive of their visits to the data center. Patricio Carrasco asked if there is a report on what the Scholars are doing after graduating from the program. Falconer noted that Monahan has this information and it should be formalized. A suggestion was made that there should be follow-up visits by GEBCO members to the home institutions of the Scholars to review their current activities. Iptes suggested that Scholar alumni interact cross class; perhaps in 2016 they should have a workshop. The GEBCO Science Day is another good time for Scholars' to interact. Tani noted that the Scholars use Facebook to communicate. Ward complemented the program and noted that the NF/GEBCO program is unique to IHO. The program has good flexibility and it needs to be sure that it continues.

Falconer noted that there are still funds remaining for the NF Special Projects Fund. These are intended to help the Scholars in new or continuing projects. Some ideas on projects were crowd source bathymetry compilation, web development, extending the Arctic mapping, continuing the Indian Ocean Data Compilation project. It was agreed to ask for proposals for the Special Projects funding.

Nippon Foundation scholar program 10 year celebration

For the past several years, it has been suggested that celebration should be held to celebrate the 10 year anniversary of the Nippon Foundation/GEBCO Training Program at the UNH. Tani said it would maybe appropriate to have the celebration on the World Ocean Day. The celebration should be at least two days. Jakobsson recommended a big exhibition should be a part of it. A

suggestion was made to have it at the Oceanographic Museum in Monaco. Another suggestion was to have the event in conjunction with the World Hydrographic Day. Tani recommended that an organizing committee be established. Members could include: Tani, Falconer, Wigley, Rovere, Iptes, Wyatt. It was noted that the meeting date should be set well in advance because it is difficult to get the press involved. Carrasco recommended involving Member States. Norhizam Hassan, a Scholar alumnus, said it would be best if all the scholars' were invited, not just a subset. The event would highlight their contributions and would have scientific presentation and posters. Tani asked for ideas and proposals for this future event.

GEBCO Financial Report

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_financial_report_2014.pdf

David Clark reviewed the GEBCO finances. GEBCO has four accounts currently. Two accounts are at Stockholm University, one is at IHB and one at UNH. The accounts at SU are the NF account and the GEBCO Operations account. The NF Account at SU is divided into two sub accounts, the Interest account and the Special Projects account. The NF Interest sub account is currently values at \$400 USD and effectively is no longer a consideration since it will be rolled into the other NF sub account. The NF Special Projects sub account is currently \$125,643 USD. These funds are used to support NF Scholar activities. The Indian Ocean Data Compilation Project is funded out of this program. The other account at SU is the GEBCO Operations account, which currently has \$ 9,069 USD. These funds are used to support general GEBCO operations such as travel, meeting support, and projects. Clark noted that the funds held at SU are in Swedish Kroner and the amounts reported here in US Dollars are subject to international currency rate fluctuations. The GEBCO account at UNH is used to support the NF Training program. Last year the amount received by UNH was \$570K.

The GEBCO account at IHB was discussed. David Wyatt stated that there were approximately 78,266 Euro in the account. Each year, the Principality of Monaco donates 8,200 for GEBCO support and IHB appropriates 8,200 from its budget each year also. Jakobsson remarked that GEBCO needs to know how to use these funds. Ward stated that IHB manages a number of accounts and they would not have any problems managing the GEBCO accounts. They just need to be well documented (for the auditors) and good spend plans put in place. The spend rules have been written for the current GEBCO account (paper copy given to Clark). The IHO Directing Committee will disburse funds under the GGC guidance. There was an action to develop the spending rules for the other accounts. Another action was to start the transfer of the funds as soon as possible from SU to IHB. Tani said that the GGC needs to develop spending rules and approve. Jakobsson stressed that GEBCO need to have some flexibility on how the funds are used.

Raising support for GEBCO operations

David Clark described a rough GEBCO budget, which was drafted several years ago. Wyatt pointed out that all IHB committees are self-supporting, including travel. Tani noted that the GEBCO funds will be colored, i.e., different funds have different spend rules. Ward confirmed this. He pointed out that GGC can allocate their new account funds according to their newly developed spend rules. The new GEBCO Operations account could include Member States donations, funds from sale of the GDA, etc.

Osamu Miyaki said that IOC used to have travel funds for capacity building but current financial situation this is no longer possible. He noted that the IOC funding comes from member countries and many poorer countries cannot support IOC currently. Tani said that if GEBCO could not support some of its members, the GEBCO committees could run the danger of having members from rich countries only. GEBCO should be able to support members from less rich countries.

Jakobsson strongly urged that the GGC make a strong, detailed budget with well thought out ideas that could be financially supported. Taylor suggested that the budget be as transparent as possible to all of the GGC and chairs of the subcommittees and working groups. Action was taken to prepare a financial report. Ward said that IHB needs a budget from GEBCO. Iptes thanked everyone for the detailed budget discussions.

Discussion about the need for a paid secretary and treasurer position. An action was taken to prepare a secretary job description. Tani said that it may be possible for IHB to assume the secretary position. Falconer said GEBCO cannot function without a secretary. His opinion was that the task is ½ person year job.

Review and confirmation of ToRs and RoPs

Ward confirmed that the IRCC had endorsed the revised GGC ToR-RoPs. He believes that in their current form, some Member States might still have a problem approving the revised ToR-RoPs. The ToR-RoPs need to have alternative wording which would be more general and therefore more agreeable. This could be considered as a clarification and the IRCC would then not need to be consulted. Miyaki noted that the IOC would need such clarifications before the upcoming Executive Council meeting in July.

Hyo Hyun Sung said that the NF Scholars make good contributions. The program is to be commended, but why mention them specifically in the ToR-RoPs? The opportunity of being an observer should be open to everybody. Thus, it is not appropriate to specify a particular course such as the N.F GEBCO program in ToR-RoP. Why have a special category? It is rarely found in the ToR-RoP of other organizations to have an observer who is a non-voting member with a five year fixed term and who is elected by the GGC chair. Even though NF alumni can always participate in and contribute to GGC meeting as an observer. Tani stated that GEBCO wants to emphasize contributions of the scholars. Jakobsson also noted that it helps emphasize the value of the program. New wording was developed and all in attendance reviewed the revised entry to the ToR-RoPs. Taylor initially objected to the old language, but now supports the new wording. Further discussion mostly supported the new language. Tani called the question for a vote. Seven in favor of the new language, one against. Clark and Miyaki will coordinate the version sent to IOC for approval.

Guiding Committee Membership and GEBCO organizational issues

Prior to this GGC meeting, Paolo Lusiani submitted his resignation as a member of the Guiding Committee. All the participants at the meeting offered Paolo a very warm thank you for his participation in GEBCO and Shin Tani especially thanked him. It is noted that now there is an IHO vacancy on the GGC.

Two new members of the Guiding Committee have been absent for their first two meetings of the Guiding Committee. Peush Pawsey has missed the GGC meetings without an explanation, so

according to the GEBCO Bylaws, he could be asked to step down from the GGC. An action was taken to write Pawsey for an explanation for why he has missed the meetings. It was noted that he has never been to a GGC meeting.

The situation for our colleague, Chretien Ngouanet, is different. Ngouanet was appointed in 2013 very close to the GGC meeting that year. It turned out that he had a meeting in Europe very close to the same time as the GGC meeting, which was in Venice, Italy. It was not possible to modify his plans to attend the GGC meeting. For this GGC meeting, he actively sought funding for travel from IOC and the GGC. Unfortunately, none was available. Miyaki strongly endorses his participation since he is an IOC appointee. Taylor noted that a one year notice of date and venue for the GEBCO meeting would help members plan their travel and get support if necessary.

It was noted that Marzia Rovere was newly appointed to the GGC. Unfortunately, she was on a sea cruise and was unable to attend the current GGC meeting.

There were no proposals for new GEBCO subcommittees or working groups.

Future GEBCO Directions

Shin Tani lead off the discussion on the future of GEBCO. The Nippon Foundation has asked this question and it is a good time to generally consider this very important question. Specifically, what is the future of GEBCO for the next ten years? Falconer commented that there has been some work done to answer this question. There have been three groups set up to work on this: Group 1 was made up of one half NF Scholars and one half of others in the field of ocean mapping; Group 2 was made up of Japanese NF scholars; Group three will be made up of experienced people in the ocean community. He went on to recount that the NF sees that the future of GEBCO could be generalized as consisting of three pillars: 1) human capacity; 2) science and technology; and 3) outreach and education. Of course, we need to add “resources” for this. Falconer drafted up some of these ideas and sent a “white” paper out to some GEBCO members for comment in early 2014. Unfortunately, he received few comments on this document to date. See:

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_decadal_goal_outline.pdf

Rochelle Wigley reported on the development of decadal goals by Group 1.

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_draft_ten_year_plan.pdf

Using a teleconference via the internet, Group 1 made some significant progress in spite of specific guidance. The consensus of the group was that GEBCO is, and should continue to be, the most comprehensive global bathymetry dataset; assembled by an inclusive, international community of experts, who support the open sharing of data and expertise. She pointed out that the Group debated whether GEBCO is the most “comprehensive” or “definitive” global bathymetry data set. Another significant goal that was much discussed within the Group was the “promoting” rather than “advancing” technology related to mapping the sea floor. The thinking was that GEBCO did not advance technology, just promoted it. Another aspect that was agreed upon by the Group was that GEBCO needed to be able to track how the bathymetry data are being used. Moreover, GEBCO needs to encourage use of its data.

Group 1 developed a list of 13 points to consider in the development of a decadal plan for GEBCO. These are:

1. What are the limits? GEBCO should focus on bathymetry and not take on other aspects of the Ocean floor.
2. Define who are the GEBCO users. Define primary and secondary users and how the data are used.
3. Source data should be varied. GEBCO must use all available sources of data including measured, predicted or gridded.
4. Data output products. GEBCO should keep its current products including maps, trackline data and grids. It should expand web services and improve the metadata, e.g., SID.
5. Data Storage. The archival and distribution should be varied and include centers, distributed access, cloud storage and commercial.
6. Product channels. Data distribution should use all media including the web, cloud, printed maps, publications, etc. The use of new social media was encouraged.
7. Funding. The Group realized this topic is being addressed by the GGC, IHB and IOC. However, at some point a budget that reflects future GEBCO plans needs to be developed.
8. Capacity Building. Current efforts (i.e., NF project at UNH, GEBCO maps, etc.) have worked well but an expanded effort is needed to advance this effort further. Recommend that a Capacity Building GEBCO working group be established.
9. Technology. GEBCO does well in keeping up with technology but in the future, it will need to maintain this capability in its compilation and distribution of bathymetric data.
10. Data gaps. GEBCO has one of the most comprehensive bathymetry databases, but there are many areas which there are little to no data. GEBCO is well placed and in a unique situation to be proactive in influencing filling the data gaps.
11. And 12. Management and human resources for GEBCO. Formalization of subcommittees and working groups will encourage participation due to potential heightened interest by home institutions.
13. Leverage private industry. Currently not cooperating much with industry. GEBCO need to demonstrate the value of bathymetry data thus engaging the commercial sector.

Jakobsson recommended writing an article for AGU EOS publication to start off with a way to improve our communications. It was recognized that GEBCO needs to communicate better with GEO/GEOSS. Ward asked how does GEBCO know what the national ministers want and how does GEBCO communicate with them? One idea was to use social media to track interest in GEBCO. Wigley suggested GEBCO establish a formal subcommittee or working group to develop a 10 year plan. Tani noted that we have a group, Group 1, which has just reported. However, perhaps a more formal structure is needed. Addressing some of the 13 items listed: #10, it takes time resources to develop survey vessels and plans to address the data gaps; #2, it was questioned whether GEBCO should be more proactive in collecting data; #3, Should a greater effort be made to identify and compile historical bathymetry data?; #4, habitat mapping is a good use for GEBCO data, perhaps a product GEBCO could evolve into; #5, GEBCO is recognized as a very good base map and it is used extensively, but it will be more valuable if the resolution and coverage were enhanced.

It was speculated that there could be three new directions for GEBCO, 1) Ocean GIS system. 2) Data from more survey vessels, and 3) Crowd sourced bathymetry. Taylor liked the idea of habitat mapping, but moving into that area would dilute GEBCO's emphasis on the compilation of global bathymetry. If we decided to move into habitat mapping, it would be a significant impact on GEBCO. Falconer noted that an Ocean GIS was studied by UNH and was found that it was not feasible to maintain it without a significant financial and human resources commitment. Jakobsson has looked at 25-meter resolution data from crowd sourcing and found that it was very good.

Wigley suggested that GEBCO still needs to reiterate its overall goal. Group 1 says that GEBCO should compile the most comprehensive global bathymetry data set. Ward asked the question is there any limit on where the ocean stops? Is it from the high water mark on land to the deep ocean? Maybe not all the "ocean" data. Jakobsson says yes, all the ocean data. Sweden is now dealing with this in a comprehensive way. Ward agreed that GEBCO should be from beach to deep. It was suggested that GEBCO draft a one pager on how important bathymetry is. It was recognized that a policy decision was needed to expand GEBCO mission from beach to deep. Falconer asked how this would be implemented? Tani pointed out that if we are going to expand, we need to very carefully list the steps to get there. He also pointed out that we cannot forget the other major part of GEBCO, which is the identifying and naming of under sea features.

Tani drafted a list of GEBCO goals as a result of this discussion:

1. Develop and constantly improve the portrayal of global ocean depths;
2. Act as the designated international authority for undersea feature names;
3. Advance the development and application of sea floor mapping technology;
4. Encourage and facilitate cooperation leading to the exchange and preservation of bathymetric data and associated metadata;
5. Foster collaboration among individuals and organizations with established and developing expertise so as to assist local and regional mapping efforts to attain a global standard of quality;
6. Identify oceanic areas that are insufficiently mapped and recommend to appropriate ocean-going organizations and institutions that such areas need to be surveyed;
7. Promote education and training in ocean mapping;
8. Bring together the ocean mapping community and users of bathymetry thereby leading to products that are more widely used.

Tani said we need a decadal goal for GEBCO. He asked where would GEBCO want to be in ten years. He suggested that GEBCO could want to know the bathymetry of the ocean floor as well as we know the topography of the land. It was recognized that this is a big goal. How practical is it? It was noted this is more a vision statement for GEBCO. If we accept this vision, how do we get there? Taylor suggested that there are a lot of data that could be compiled by GEBCO that we have not addressed. But how do we get this data into GEBCO? Clark noted that the problem is not technological, but is socio-economic and political. Ward said GEBCO could establish a resolution to give us a target to work toward. Wigley said that showing where GEBCO has data would show where more data are needed. Then we could encourage contributions. Marks said that this would be a good role for the Data Store. Taylor agreed and asked that everyone send her ideas for what capabilities they would want in the Data Store.

Detailed discussion on technical details regarding resolution of proposed enhanced GEBCO database.

Ward suggested for marine areas off developing countries, maybe best to still use paper charts. It was pointed out that they are probably unreliable and a way must be found to fill the gaps with good digital data. Therefore, GEBCO's role is to promote a way to fill these gaps. A way to do this is to show the Member States a way to fill the gaps with a minimum density of data. GEBCO could propose, "Every country should have a minimum density grid." Jakobsson suggested 100m from his experience. Ward asked if the GGC would set this as a direction or goal? Carrasco said that this was perhaps setting too strong of a goal because if we fail, then GEBCO would receive some criticism for it. Maybe we should set a more modest goal. Taylor cautioned that setting the goal too low would also lose us some creditability. One proposed decadal goal could be "to produce the most comprehensive bathymetric data compilation from the 200 isobaths to the coast line at 100 meter resolution." Tani asked if GEBCO would include classified or restricted data into the grids. Weatherall said we are doing this now and using the Source Identifiers addresses this issue.

The discussion turned to funding. How does GEBCO promote collection and compilation of coastal data? Jakobsson said one way is to write proposals for specific projects. He has much success doing this for the Arctic. Taylor noted that this would increase the data flow and visibility of GEBCO, but would not increase the operational funds. Schenke suggested the use of overheads on some of the funds GEBCO receives. Falconer noted that the NF Special Projects funds could be used for seed money for selected projects, noted especially for the bathymetric Crowd Sourced Bathymetry proposed project. But we would have to have the NF Scholars involved. GEBCO could ask IOC and maybe the UN Food and Agricultural Organization to promote it. The NF Scholars are a good source for this as they are the local contacts. Jakobsson reiterated that the crowd sourcing is a good project idea, and using scholars with a regional emphasis is all good. Falconer noted that Sri Lanka is a good example since there is NF Scholar connection. Action to develop a bathymetric crowd sourcing proposal.

Tani noted that in general, the finances of GEBCO have improved. Ward noted that there is funding, but needs refinement and a budget. Taylor asked about prospects for future GEBCO funding. Tani noted the sales of the GDA from BODC. Weatherall said much of the data are provided free of charge via downloads from the internet. The CDs are sold with educational use discounted. Recently there have been some very large requests which were a problem to deal with. Tani said that the data should be free, but data on CDs are a convenience and there should be a charge. Weatherall noted that some users wanted a license, not the CDs. Falconer noted that the GDA also includes the software to access the data. Jakobsson suggested that GEBCO should give all data away and ask for a donation to support our activities. Wyatt noted that the music industry is very successful with asking for donations. Consensus was that asking for donations was a creditable idea and should be pursued. After much discussion, an action was made to investigate adding a donation capability to the GEBCO web site.

GEBCO IHO Work plan 2015

The GEBCO IHO Workplan for 2015 was discussed. Ward commented that the high-level IHO Workplan was approved (which included GEBCO tasks). Wyatt said that what is needed now is for the Workplan tasks, developed from the high-level tasks, be fleshed out with details. Clark

noted that there was funding identified for certain tasks in the plan. These funds would come from the GEBCO account currently at IHB. Marks said that the GEBCO Cookbook development would not have any cost. Action was to send the high-level Workplan out to GEBCO Subcommittee chairs and working groups for input.

IHO RHC meetings

Clark briefly reviewed the previously distributed list of Regional Hydrographic Commission meetings. Weatherall noted that she might attend the North Sea Hydrographic Commission meeting in late June 2014. Jakobsson thought that Benjamin Hell might have attended the Baltic Sea Hydrographic Commission meeting in early June 2014. Tani said he could attend the East Asia Hydrographic Commission when scheduled. The GGC will ask Marzia Rovere to attend the East Atlantic Hydrographic Commission meeting in Casablanca in September 2014. Wigley will attend the North Indian Ocean Hydrographic meeting in Oman in August 2014. Clark noted that there is some funding to help fund attendance to the RHCs either through the Nippon Foundation Special Funds (NF Scholars only) or through the GEBCO funds at IHB for IHB Workplan activities.

New/Other Business

Tani asked for any new business. Jakobsson recommended that the contours in the GDA be updated. Weatherall agreed. An action was entered to recommend improvements to the GDA.

Dates and Places of Next Meetings

The TSCOM-SCRUM meeting will take place in Mountain View, California, USA at Google Headquarters. Jenifer Austin, Google's Ocean Manager, will host the meeting. The dates of the meeting are December 11-13, 2014.

The 2014 Bathymetric Science Day will take place as session at the American Geophysical Union's fall meeting in San Francisco, USA on December 18, 2014. The meeting is being organized by Paul Elmore, NRL, Jenifer Austin and Martin Jakobsson.

The GEBCO 2015 meeting will be held in Kuala Lumpur, Malaysia Hosted by the Royal Malaysian Navy. Cdr Norhizam Hassan, National Hydrographic Center, gave a briefing describing the details of the meeting. The meeting will take place from October 5 to October 9, 2014. It will be at the The Royale Chulan Hotel, except the GEBCO Bathymetric Science Day will be held at the Kuala Lumpur Convention Centre (*NB: The Bathymetric Science day will be Monday, October 5.*). There will also be a spouses' program.

http://www.gebco.net/about_us/meetings_and_minutes/documents/ggc2014_2015_meeting_brief.pdf

ADM Patricio Carrasco made an invitation to GEBCO to hold the 2016 meeting in Valparaiso, Chile. Tani and Carrasco will decide on a proposed date and the invitation will be considered.

Action item review

The actions from the meeting were reviewed. See Annex 2

Chair's closing remarks

Shin Tani thanked all participants for an interesting and productive meeting. He was encouraged by everyone's enthusiasm and hoped it carries over into the next year. He also thanked the IHB for their gracious hosting of the meeting. He wished all safe travel to their homes.

Attendees:

GEBCO Guiding Committee Members

IOC

Robin Falconer (Past Chairman)

Martin Jakobsson (Vice-Chair, Chair SCRUM)

IHO

Shin Tani (Chairman)

Patricio Carrasco

Hyo Hyun Sung

Karen Marks (Chair TSCOM) ex-officio

Hans-Werner Schenke (Chair SCUFN) ex-officio

Lisa Taylor (Director, IHO Data Center for Digital Bathymetry), ex-officio

David Clark (Permanent Secretary/Treasurer)

Other Invited Attendees

Julian Barbière

Gilles Bessero

Norhizam Hassan

Mustafa Ipteş

Osamu Miyaki

Yoshiharu Nagaya

Tony Pharaoh

Robert Ward

Pauline Weatherall

Rochelle Wigley

David Wyatt

Annex 1

Agenda *Version 2.0 06/08/2014*

1. Opening remarks
 - GEBCO – Tani
 - IHO – Ward
 - IOC – Barbière
2. Meeting Administration – Tani/Clark
3. Approval of GGC XXX report
4. IHO report – Iptes/Wyatt
 - GEBCO participating in EIHC 5
 - Nippon Foundation scholars attendance and exhibition at EIHC 5
5. IOC report – Miyaki
6. IHO DCDB report – Taylor
7. Digital Atlas Manager Report – Weatherall
8. SCUFN report – Schenke
9. TSCOM Report – Marks
 - Update on the IHO-IOC GEBCO Cook Book
 - Update on the GEBCO Data Store
 - Update on high-resolution grids
10. SCRUM Report – Jakobsson
11. Education and Outreach Working Group report – Lusiani /Sung/Weatherall
12. GEBCO World Map publication – Jakobsson
13. GEBCO Globe
14. NF/GEBCO training project management committee
 - Management report – Falconer
 - UNH Program Status – TBD
15. Nippon Foundation scholar program 10 year celebration – Tani/Falconer
16. GEBCO Financial Report – Clark
 - Financial statement and forecast
 - Schedule for transfer of accounts to IHB
17. Raising support for GEBCO operations – Tani
18. GEBCO organizational issues – Tani
19. Review and confirmation of ToRs and RoPs – Tani
 - Criteria and procedure of selection of Nippon Foundation scholar to GGC
20. Guiding Committee Membership – Tani
21. TSCOM membership – Marks
22. SCRUM membership – Jakobsson
23. Future GEBCO Directions – Tani
24. GEBCO IHO Work plan 2015 – Clark
25. IHO RHC meetings – Clark
26. New/Other Business – Tani
27. Dates and Places of Next Meetings
 - TSCOM/SCRUM 2014 – Marks/Jakobsson
 - GEBCO meeting 2015 Kuala Lumpur, Malaysia – Hassan

- 2016 & 2017
28. Action item review – Clark
29. Chairman closing remarks – Tani

Annex 2

GEBCO Guiding Committee Meeting (GGC-31) Actions

05/29/15 – DMC

Number	Action	Name	Due Date	Status
GGC31-01	Provide GEBCO input for EIHC by end of June, for last two years.	Clark*, Tani		Completed
GGC31-02	Review proposal 4 for EIHC and provide guidance crowd source bathymetry	Taylor, Tani,		Completed
GGC31-03	Write letter to NGDC complementing the exceptional work done developing the digital gazetteer	Clark, Tani, Schenke		
GGC31-04	Submit request for web support at BODC under Task 3.8.6	Clark, Weatherall		Completed
GGC31-05	Draft up certificates for NF Scholars at UNH for review.	Wigley		
GGC31-06	Determine how to track data using DOI	Taylor		Completed
GGC31-07	Develop spending rules for the other GEBCO accounts at IHB	Clark, Wyatt		In progress
GGC31-08	Write and formalize the GEBCO secretary job description	Clark, Tani, Jakobsson		
GGC31-09	Draft GEBCO 2014 financial report and budget	Clark, Wyatt		In progress
GGC31-10	Develop a crowd source project proposal to NF Program Management Committee	Wigley, Taylor, Falconer, Wyatt		Completed
GGC31-11	Provide input to the 2015 IHO Work Plan	Clark, Jakobsson, Marks, Taylor, Schenke, Sung, Weatherall		Completed
GGC31-12	Investigate printing and distributing the GEBCO World Map	Taylor, Iptes, Jakobsson		

GGC31-13	Send out request for proposals to the NF Special Project fund.	Falconer, Clark		
GGC31-14	Write letter to Chrétien Ngouanet requesting an update on his ability to serve on the GGC	Tani and Clark		Completed
GGC31-15	Draft the evolution of the GEBCO 10 year plan	Falconer, Wigley, Ferrini,		In progress
GGC31-16	Propose improvements to GDA	Taylor		
GGC31-17	Write letter to IHB informing them of the decision to terminate the membership of Peush Pawsey on the GGC.	Clark, Tani		Completed
GGC31-18	Write letter to IHB informing them of vacancies on the GGC	Clark, Tani		
GGC31-19	Ask for participation in the EatHC (Casablanca, Morocco, 16-18 Sept 2014)	Clark, Tani		Completed
GGC31-20	Propose date for 2016 GEBCO meeting in Valparaiso, Chile	Carrasco, Tani		
GGC31-21	Report on the feasibility to implement a monetary donation capability on the GEBCO web pages	Clark, Wyatt, Weatherall		
GGC31-22	Nominate and select NF Scholars for participation in the EIHC	Wigley, Falconer, Iptes		Completed
GGC31-23	Send revised ToR/RoP to IOC and GGC Secretary	Ward		Completed
GGC31-24	Send revised ToR/RoP and explanation to IOC to be considered by IOC Exec Comm	Clark		Completed
GGC31-25	Develop Master Plan for Education and Outreach road map	Sung, Weatherall		Completed
GGC31-26	Develop plan and implement it for the NF 10 year celebration	Wigley, Iptes, Falconer, Clark, Rovere		In progress
GGC31-27	Comment on draft IHO Publication B7 – Guidelines for Ocean Mapping	Clark, GEBCO Guiding Committee, others		
GGC31-28	Develop proposal to scan GEBCO Maps and Plotting Sheets at IHB	GEBCO Guiding Committee		
From GGC 30, 2013				

GGC30-01	Set date and venue of 10 year celebration of the NF Training Program	Tani, Monahan, Falconer		Completed
GGC30-02	Develop ideas for funding for GEBCO operations.	Tani, Jakobsson, Marks, Schenke		In progress
GGC30-03	Develop revised GGC ToR/RoP for submission to IHO and IOC	Tani, Jakobsson, Goleby, Falconer, Wyatt, Miyaki		Completed
GGC30-04	Distribute 2015 Work Plan to appropriate GEBCO members	Clark, Wyatt		Completed
GGC30-05	Provide input to 2015 Work Plan	Chairs of SCRUM, TSCOM, SCUFN, Education – Outreach and DCDB		See GGC31-11
From GGC 29, 2012				
GGC29 – 03	Clarify procedure for IOC appointments to the GGC	Falconer, Clark		Completed
GGC29 – 07	Keep list of RHCs up to date through 2014 and track GEBCO participation	Clark	On going	In progress
GGC29 – 10	Explore link from ESRI to GEBCO web site	Weatherall		
GGC29 – 15	Send out the GEBCO portion of the approved 2013-17 IHO Workplan with funding levels	Clark		See GG31-11
GGC29 – 16	For 2013-17 IHO/GEBCO work plan, develop individual GEBCO task work plans	Task Leaders		See GG31-11

* First names have the lead

Annex 3

Acronyms

AGU	American Geophysical Union
BODC	British Oceanographic Data Centre
BSBD	The Baltic Sea Bathymetry Database
CCOM	Centre for Coastal and Ocean Mapping
CGOM	Consultative Group on Ocean Mapping
DCDB	Data Center for Digital Bathymetry
DHN	Dirección de Hidrografía y Navegación
EIHC	Extraordinary International Hydrographic Conference

EMODnet	European Marine Observation and Data Network
ENC	Electronic Navigational Chart
FGDC	Federal Geographic Data Committee
GA	Geoscience Australia
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GGC	GEBCO Guiding Committee
GIS	Geographical information system
IBC	International Bathymetric Chart
IBCAO	International Bathymetric Chart of the Arctic Ocean
IBCCA	International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico
IBCM	International Bathymetric Chart of the Mediterranean
IBCSO	International Bathymetric Chart of the Southern Oceans
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IIOE-2	50th Anniversary of the International Indian Ocean Expedition (IIOE)
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange
IRCC	Interregional Coordination Committee
LDEO	Lamont-Doherty Earth Observatory
NF	Nippon Foundation
NGDC	National Geophysical Data Center, Boulder (USA)
NOAA	National Oceanographic and Atmospheric Administration
NOC	National Oceanographic Center, (UK)
NOCS	National Oceanography Centre - Southampton
NRL	Naval Research Laboratory (USA)
PMEL	Pacific Marine Environmental Laboratory
PRC	People's Republic of China
RHC	Regional Hydrographic Commission
RM	Regional Mapping
SCRUM	Interim Sub-Committee for Regional Undersea Mapping (GEBCO)
SCUFN	Sub-Committee on Undersea Feature Names (GEBCO)
SU	Stockholm University
ToR/RoP	Terms of Reference/ Rules of Procedure
TSCOM	Technical Sub-Committee on Ocean Mapping (GEBCO)
UN-GGIM	United Nations initiative on Global Geospatial Information Management
UNH	University of New Hampshire
WG	Working group