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IOC-IHO/GEBCO XXX Guiding Committee

English only
01 June 2014

D R A F T



**INTERNATIONAL HYDROGRAPHIC
ORGANIZATION**



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

General Bathymetric Chart of the Oceans (GEBCO)

Thirtieth Meeting of the GEBCO Guiding Committee

**Istituto di Scienze Marine
Consiglio Nazionale delle Ricerche
Venezia, Italy**

October 11, 2013

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Opening remarks

Chairman Robin Falconer welcomed everyone to the meeting. He thanked our host from ISMAR for providing the facilities. Marzia Rovere representing ISMAR welcomed everyone from many countries and encouraged cooperation among all participants in the future. Mustafa Iptes stated the IHO's support for GEBCO. Osamu Mysaka presented a recorded message from Wendy Watson-Wright, Executive Secretary of IOC, in which she welcomes GEBCO activities within IOC and reiterated IOC support of GEBCO especially in capacity building.

Meeting Administration. In order to address priority items at the beginning of the meeting and to be more efficient in dealing with the priority issues, some items were moved up on the agenda. See Annex 1. These included the proposed revisions to the GGC Terms of Reference/Rules of Procedure; the GEBCO tasks under 2013-17 IHO work plan and the election of a new GGC Chair. There were no additions to the agenda.

David Clark Offered the report of the 29th Meeting if the GGC for approval. He noted that there were a number of corrections and that the corrected version was posted on the GEBCO web site prior to the meeting. Martin Jakobossn moved that they be accepted. Passed by Consensus. He noted that there were outstanding action items from the last GGC meeting.

IHO report

David Wyatt on behalf of Mustafa Iptes gave the IHO report. IHO currently has 81 members, Three have been suspended and there are eight new countries applying for admission to IHO. The IHO Interregional Regional Coordinating Commission commends GEBCO's active participation in the past and welcomes enhanced participation in the future. The IHO is emphasizing capacity building as an area of concentration. GEBCO's Nippon Foundation Training Program is a key part of this emphasis.

The 5th Extraordinary International Hydrographic Conference will take place on October 6-10, 2014 at IHB in the Principality of Monaco. There are currently 31 industry expositions planned and applications from member states are encouraged. The IEHC will highlight the IHO emphasis on capacity building. IHO encourages GEBCO to attend and activity participate. There will be two main plenary sessions emphasizing industry-member states activities. UNESCO's Intergovernmental Oceanographic Commission and IHO enhanced coordination will be addressed. Wyatt said that GEBCO is expected to highlight what GEBCO is and promote its activities within member states and hydrographic offices. Iptes noted that there will be no formal reporting by GEBCO but GEBCO can do an informational paper. It is expected that there will be 300 participants. The deadline for proposing an informational paper is January 14, 2014. Wyatt also emphasized that GEBCO is encouraged to attend and participate in the Regional Hydrographic Commissions' meetings as well as the IRCC. He noted that GEBCO made a good report for the last IRCC meeting. Falconer said he attended IRCC and that it was very busy but a very good meeting. Falconer strongly recommended that GEBCO actively participate in the EIHC and that GEBCO's attendance should help in its strategic planning? Wyatt added that the IEHC will have a focus on capacity building which GEBCO has a strong program in the Nippon Foundation Training Program.

Wyatt presented the new IHO program of "Crowd-sourced" bathymetry which is being proposed as part of the DCDB activities. This new program was discussed in some detail in the TSCOM/SCRUM meeting held earlier this week See:

http://www.gebco.net/about_us/meetings_and_minutes/tscom_and_scrum_2013.html

The initial concept to begin the project is to put data loggers on boats of private yachting companies. Putting loggers on boats is good beginning. This project will be in the testing phase in 2014 and hopefully in place in 2015.

Wyatt noted that IHB is in the process of updating the IHO publication B-7, "GEBCO Guidelines." GEBCO is urged to provide input to this update. This updating will be incorporated into the IHO 2015 Work Plan which will be discussed later in this meeting.

Wyatt said that IHB commends the GEBCO Cook Book and notes it is a very good educational resource.

IHO DCDB report (No Report)

IOC report

Osamu Miyaki presented the report of the Intergovernmental Oceanographic Commission.

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

There are 146 Member States in IOC as of 2 September 2013. He welcomes the opportunity to participate in the GEBCO activities representing IOC. He is currently seconded to IOC from Japan and is the point of contact in IOC for GEBCO. Mitrasen Bhikajee, the Deputy Executive Secretary of IOC, will also be reviewing GEBCO activities for IOC.

Miyaki reported that the IOC held its biennial Assembly in June 2013 at UNESCO Headquarters in Paris, France. All 146 member states attended. David Clark from GEBCO also attended. The endorsement of GEBCO Sub Committee on Undersea Mapping was on the agenda. The Terms of Reference were endorsed by the Assembly and was supported by many favorable remarks by the Member States. The Assembly also strongly endorsed the development of a new capacity building strategy. IOC is very supportive of GEBCO's Nippon Foundation Training Program. Because of GEBCO experience with the NF Training Program, IOC welcomes GEBCO input to their new capacity building strategy.

Miyaki reported that there are no funds available at IOC to support GEBCO, but welcomes GEBCO participation in existing, on-going programs. (Miyaki noted the current IOC financial challenges.) One such program could be the 50th Anniversary of the International Indian Ocean Expedition (IIOE-2). Joint activities would compliment the GEBCO Indian Ocean Mapping Program. This cooperation would be supported by the member states in the Indian Ocean. Data the data collected by IIOE-2 will available via IODE. GEBCO would be welcomed to help in the IIOE-2 planning. A good source of information on IIOE-2 is their web site. Falconer noted IOC emphasis in capacity building and has discussed this with Wendy Watson -Wright, the Executive Director of IOC. Iptes noted the good cooperation between IOC and IHO. Shin Tani recommends that TSCOM/SCRUM need to coordinate with IOC.

Digital Atlas Manager Report

Falconer moved to recognize Pauline Weatherall, GEBCO Digital Atlas Manager, and to thank her for all her fabulous work. The GGC enthusiastically approved!

Pauline Weatherall presented the Digital Managers Report which was previously submitted. The GGC accepted her report. (Annex 5.)

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

Weatherall gave an update of the GEBCO global 30" arc sec grid. A new version of the grid is being prepared and will be released early 2014. It will be labeled "GEBCO_2014" to distinguish it from earlier releases. The GEBCO Global Grid data is being tagged with Source Identifiers (SID). This will result in enhanced capabilities for the GEBCO Global Grid data base. GEBCO data continues to be popular with thousands of downloads in the last year and over 100 copies of the GEBCO Digital Atlas being distributed on DVD, resulting in £3900 of royalties for GEBCO in 2012. Since the last GEBCO meeting in October 2012 there have been over 79,700 visits to the GEBCO web site, viewing 243,000 web pages. Weatherall also noted that GEBCO Facebook page had 17 new posts in 2013.

SCUFN report

H-W. Schenke

Hans Schenke, Chairman of SCUFN, presented reports on two past SCUFN meetings: SCUFN 25th report.

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

The 25th Meeting of SCUFN took place in Wellington at the Land Information New Zealand (LINZ), hosted by the New Zealand Geographic Board (NZGB). The meeting was attended by 10 of the 12 members and 12 observers. There were 104 actions left over from the last meeting, of which 74 were completed and 30 pending. For this meeting, 137 undersea feature name proposals were considered/discussed, 48 proposals were discussed and finally accepted, 75 undersea feature names were adopted from the New Zealand Geographic Board, 7 proposals are pending, and 7 were not accepted. Also discussed at the meeting was Standardization Of Undersea Feature Names: IHO-IOC Publication B-6. Highlights include B-6 will have eventually a user's guide for the preparation of undersea feature name proposals. A bilingual version of the proposal form was developed by a SCUFN-Member, other bilingual versions to follow. Also discussed was the "Gazetteer Of Undersea Feature Names" IHO-IOC Publication B-8. The major development for B-8 is that the Gazetteer is being developed to be a geospatially enabled database. This will make the Gazetteer available in GIS friendly formats, enable easy real time updates, and make it easy to use for on-line name proposals. The development of this capability is an ongoing process.

SCUFN 26th report

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

The 26th Meeting of SCUFN took place in September 2013 in Tokyo at the Japan Hydrographic and Oceanographic Department (JHOD). The meeting was attended by 9 of the 12 members. There were 24 observers. There were 82 actions from the previous meeting of which 59 were completed before this meeting and there are 23 pending. At this meeting 110 undersea feature name proposals were considered/discussed, 51 new proposals were discussed and finally accepted, 22 names from Gazetteer's Reserve Section, 32 undersea feature names were adopted

from the NZGB and 5 proposals are pending. Also discussed at the meeting was Standardization Of Undersea Feature Names: IHO-IOC Publication B-6. It was decided that in order to avoid any conflict of interest, members of SCUFN should not submit name proposals. It was also noted that the geospatially enabling of the "Gazetteer Of Undersea Feature Names" IHO-IOC Publication B-8 has been completed (and was demonstrated). B6 was sent out for review by IHO

There was discussion about the naming of politically sensitive features. It was proposed to use the midpoint of the feature if it is in dispute. This emphasizes that GEBCO SCUFN does not make a statement of ownership, but just names the features. Falconer moves to use the middle point for the naming. This was approved. Falconer also moves that the GGC adopts a resolution that GEBCO is responsible for naming features but not stating ownership.

Falconer moves to thank SCUFN members for their huge amount of work and their commitment to the success of the Sub-Committee's effort. Unanimously approved! Falconer moves to extend the terms of the members of SCUFN who are up for reappointment; Goleby second. Approved. Falconer moves to approve Hans Werner Schenke as Chair for another term (5 years); Goleby second. Passed by consensus

TSCOM Report

Bruce Goleby presented the report for the Technical Sub-Committee on Ocean Mapping.

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

The members of TSCOM and the Guiding Committee would like to thank the outgoing chair, Dr Walter Smith of NOAA. Walter has been chair for 9 years and has been instrumental in implementing many changes in TSCOM. Walter will remain on TSCOM. During the last year, TSCOM has been addressing its membership, There are 16 members nominated. The GGC approved the list. Karen Marks was nominated as Chair; approved. Bruce Goleby was nominated as Vice-Chair; approved.

Goleby reported on the wide variety of TSCOM activities. The GEBCO Bathymetric Science Day was very successful. There were 10 presentations and 13 poster papers. Paul Elmore is the GEBCO organizer for Science day and he is to be congratulated on a fine session. The GEBCO Cookbook was announced by an article in the American Geophysical Union's EOS in February 2013. He reminded that the Cook Book is a living document and there are still chapter to be completed. The GEBCO Data Store has undergone some successful tests in 2013 between BODC and NGDC.

There were three breakout groups: 1) GEBCO 2013/14 grid - it plans updates, publication and the inclusion of regional compilations. It will define a time line with tasks assigned to the members. It was decided to form a GEBCO 100+ grid working group. 2) Outreach will look into a training workshop, a lecture series and answer "what is GEBCO" 3) Metadata are looking at a number of topics including content models, distribution formats, and standard processes.

SCRUM and TSCOM chairs will actively maintain interaction so that TSCOM and SCRUM continue to work very closely, respecting each other's aims but ensuring close cooperation and overlap.

Nippon Foundation scholar program 10 year celebration

Robin Falconer and Dave Monahan reported briefly on the discussions held the previous day at the Nippon Foundation GEBCO Training Management Committee meeting. Several options were discussed for the celebration of the 10th anniversary of the NF Training Program. These included having the celebration in conjunction with World Ocean day at the United Nations or having it in Monaco with an invitation to HSH Prince Albert II to attend. The NF would like a very public event highlighting the contribution of the NF Scholars and how the program advances science. The date for the celebration was discussed; 2014 would make it a tight schedule with 2015 more likely. Monahan noted the 10th year NF Scholar class will not graduate until 2015. Tani, Monahan and Falconer will pursue setting the date, place and time.

SCRUM Report

Martin Jakobsson briefly reported on SCRUM. He again noted that the SCRUM ToR/RoP were approved by IOC in June 2013, so with the previous approval by IHO, SCRUM is now officially a sub committee of GEBCO. SCRUM membership has grown in 2013 and there are 22 GEBCO members interested in participation. The GGC approved the large membership since it represents the regional aspects of the sub committee. Jakobsson and Pauline Weatherall were nominated as Chair and Vice Chair respectively. The GGC unanimously approved.

Jakobsson briefly described the current active regional mapping activities: Baltic Sea; International Bathymetric Chart of the Southern Ocean (IBCSO); International Bathymetric Chart of the Arctic Ocean (IBCAO); Indian Ocean GEBCO Nippon Foundation Bathymetric Compilation; and the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (IBCCA). It was noted that the South East Pacific is an area which there could be a GEBCO project but it has not happened yet.

Jakobsson also notes that the LEDO 100 meter grid project, EMODnet and Google Ocean are important activities for SCRUM.

NF/GEBCO training project management committee report

Dave Monahan briefly reported on the NF/GEBCO training project. There are currently 54 NF scholar and 6 currently enrolled at UNH in the program. The new group began in August 2013. Scholars are from 31 countries bounding on all the world's oceans and speak 20 languages. The Nippon Foundation is very supportive of the program and would like it to continue for another 10 years. But for the next ten year proposal, the program will make a new strategic plan.

GEBCO Financial Report

David Clark presented the current financial situation for GEBCO

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

GEBCO currently has funds in two institutions, Stockholm University and the University of New Hampshire. The funds at SU are in two accounts: the Nippon Foundation account and the GEBCO Operations account. The Nippon Foundation account is further divided into two sub accounts; an interest earned account (when the NF funds were at Southampton University) and the Nippon Foundation Special Projects fund. The balance of the interest earned fund account is 154,342.80 Swedish Kroner (SEK) or \$23, 562 US Dollar (USD). The balance of the Nippon

Special Projects account is 1,141,016.45 SEK or \$176, 478 USD. The balance of the GEBCO operations account is 8,916 SEK or \$1,371 USD. The Nippon Foundation Account at UNH from March 2011 to May 2013 had deposits of \$1,659,000 USD. Since March 2011, UNH maintains the accounting and distribution of the funds in support of the Nippon Training Program at UNH. It is planned that in 2014, IHB will assume the accounting and distribution of the accounts currently maintained by SU.

Robin Falconer posed the question of how to raise funds for GEBCO operations. From Clark's report, the amount needed for GEBCO operations range from a low end of about \$30K USD to a high of \$100K USD. One suggestion was to make proposal to the Prince Albert's' fund. Falconer said this is a serious issue and best dealt with by a small task group focused on the issue. The GGC moved to establish such a group made up of the officers of GEBCO and the chairs of the Subcommittees.

GEBCO organizational issues

Revision of the GEBCO Terms of Reference/Rules of Procedure

Robin Falconer lead the discussion on the proposed revision of the GGC Terms of Reference/Rules of Procedure. Falconer gave an overview of the process which involved initial comments on the revision by IHB and IOC, resulting in the version not being considered. Wyatt noted that IHB wanted to bring the ToR/RoP in line with other IHO groups such as the IRCC. Also wanted was to minimize the bureaucratic process (e.g., GEBCO subcommittee establishment needing approval by both IHO and IOC). Another area mentioned by Falconer was a desire to open up the membership of the GGC (e.g., make sub-committee members formal members of the GGC and not ex-officio). Schenke asked if this revision would affect the ToRs of SCUFN. It would not. Tani asked if the ToR/RoP are for GEBCO or for the GGC? Wyatt noted that the existing preamble was not modified. Falconer said the GGC needs to add a Workplan provision to the ToR/RoP as it addresses funding. Tani asked about the NF project; should it be included. Consensus was that is better covered by an MOU. Wyatt remarked that some of the proposed changes are intended to keep IHB and IHO aware of GEBCO's activities. After some further discussion, it was decided to form a task group to finalize the revision.

Guiding Committee Membership

Robin Falconer said that he has been participating in GEBCO for a long time. Therefore he is stepping down as Chairman at this meeting and will remain on the Guiding Committee for one more year. Shin Tani is nominated as the new chair. A discussion followed (Tani recused himself). The vote was six yes and one abstention. Martin Jakobossn was unanimously elected as Vice Chair.

It was noted that there are 4 new members of the Guiding Committee. From the IHO side Peush Pawsey and Shin Tani; from the IOC side Chrétien Ngouanet and Bruce Goleby. With Chris Fox's retirement, there will be another vacancy on the GGC, IHO side. All in attendance thanked Kunio Yashima for his 22 years of service to GEBCO. Kunio said that he will try to continue to keep involved in GEBCO.

GEBCO IHO Work plan 2013- 2017

The GEBCO tasks in the IHO 2013-17 Workplan were discussed. Wyatt distributed a copy of the Workplan broken out and reformatted for 2015. See Annex 3. Schenke ask if travel could be covered under the work plan, Wyatt said generally no, unless there is a special case. Wyatt pointed out the tasks to revise/update the IHO publications and noted that B-4 may be withdrawn at IRCC6. Wyatt said that the tasks should be kept at a high level, not too much detail is needed.

Education and Outreach Working Group report

Paolo Lusiani and Hyo Sung presented the Education and Outreach Working Group report.

http://www.gebco.net/about_us/meetings_and_minutes/ggc_2013_presentations.html

The GEBCO Globes have been very successful. Bob Anderson recounted the development of the Globes and said the project was difficult but the end product is popular. There are many items which could be developed (lenticular maps, webtoons, etc,) but there are costs involved. It was stated that the GEBCO education and outreach does have a budget in the IHO Workplan (10K Euro for 5 years). Google is very much interested in outreach and Google Ocean could be an interesting aspect of it. It was noted that Google gives grants to non-profit organizations. Sung will investigate the details of how Google and GEBCO can work together on outreach.

Dates and Places of Next Meetings, 2014 and 2015

The date and venue of the next meetings were discussed. To date, there is not a host decided for the 2014 GEBCO meetings. Malaysia will tentatively host the GEBCO meetings in Kuala Lumpur in 2015. Mexico has discussed possibly hosting for 2016. Google has offered to host the 2014 meeting of TSCOM and SCRUM. Korea also has offered to host meetings in 2014. The dates will depend on the venue and host. Schenke noted that SCUFN will be at IHB in Monaco June 16-20, 2014. Decisions needed within one month.

Other Business

- Tani thanked Chris Fox for his long and valuable service to GEBCO. IHO will be writing him a thank you letter.
- The GGC thanks Paul Elmore for organizing the last two Science Days. Unfortunately Paul has been unable to attend the meetings for different reasons, but they have been a huge success. Thank you Paul!
- The GGC endorses the new GEBCO World Map and asks that it be made available on the web. Falconer moves that a version with the SCUFN Gazetteer names be made available. Approved.
- Tani proposed that before names for the Gazetteer are proposed to SCUFN for consideration, the data should be sent to the DCDB. He said that we need to make a procedure to not approve the names until data are submitted. Schenke will take this proposal to next the next SCUFN meeting to consider it. Tani thinks that the GGC should not make final acceptance of names without the justifying data.

Chairman closing remarks

Tani thanked all the attendees for their hard work and participation in GEBCO. He also thanked the Istituto di Scienze Marine for hosting the meeting, especially Marzia Rovere and Federica Foglini. The Guiding Committee also thanks to the sponsors, OneOcean, ESRI, Konsberg, Navionics.

Attendees

Joint IOC-IHO GEBCO Guiding Committee

Attendees:

GEBCO Guiding Committee Members

IOC

Robin Falconer (Chairman)

Bruce Goleby (Interim Co-Chair TSCOM)

Martin Jakobsson (Chairman SCRUM)

Nataliya Turko

IHO

Paolo Lusiani

Hyo Hyun Sung

Shin Tani

Hans-Werner Schenke (Chairman SCUFN) ex-officio

David Clark (Permanent Secretary/Treasurer)

Other Attendees Bob Anderson

Federica Foglini

Mustafa Ipteş

David Monahan

Taisei Morishita

Osamu Miyaki

Tony Pharaoh

Marzia Rovere

PaulineWeatherall

David Wyatt

Kunio Yashima

Annex 1

Agenda

Version 3.1; 10/03/13

- 09:15 – 09:35 Opening remarks
- Chairman
 - Host
 - IHO
 - IOC
- 09:35 – 09:45 Meeting Administration *D. Clark*
- Adoption of Agenda
 - Approval of 29th GGC report
 - Outstanding actions from 29th GGC
- 09:45 – 10:15 IHO report *D. Wyatt*
- 5th Extraordinary International Hydrographic Conference 06-10 Oct 2014
 - "Crowd-source' bathymetry" proposed for DCDB
 - Update for IHO B-7
- 10:15 – 10:40 IHO DCDB report – policy issues only *L. Taylor*
- 10:40 – 11:05 IOC report *O. Miyaki*
- IOC Assembly
- 11:05 – 11:20 Coffee Break
- 11:20 – 11:50 Digital Atlas Manager Report - policy issues only *P. Weatherall*
- 11:50 – 12:20 SCUFN report *H-W. Schenke*
- 12:20 – 12:50 TSCOM Report *K. Marks & B. Goleby*
- 12:50 – 13:00 Nippon Foundation scholar program 10 year celebration *D. Monahan*
- 13:00 – 14:00 Lunch
- 14:00 – 14:45 SCRUM Report *M. Jakobsson*
- IBCSO
 - Indian Ocean
 - Other Nippon Projects *R.*
- Falconer*
- 14:45 – 15:00 NF/GEBCO training project management committee report *R. Falconer*
- 15:00 – 15:30 GEBCO Financial Report *D. Clark*
- Raising support for GEBCO operations *R. Falconer*
- 15:30 – 15:45 Coffee Break
- 15:45 – 16:30 GEBCO organizational issues *R. Falconer*
- Proposed update for the GGC ToR/RoP
 - Guiding Committee Membership

- TSCOM membership
 - SCRUM membership
 - Future GEBCO Directions
- 16:30 – 17:00 GEBCO IHO Workplan 2013- 2017 *R. Falconer & D. Clark*
- IHO RHC meetings
- 17:00 – 17:15 Education and Outreach Working Group report *P. Lusiani & H. Sung*
- GEBCO World Map publication *M. Jakobsson*
- 17:15 – 17:35 New/Other Business *R. Falconer*
- 17:35 – 17:40 Dates and Places of Next Meetings, 2014 and 2015 *R. Falconer*
- Proposal needed for place and date for GGC 31 in 2014
 - GGC 32 in Kuala Lumpur, Malaysia in 2015 (Tentative)
- 17:40 – 17:50 Action item review *D. Clark*
- 17:50 – 18:00 Chairman closing remarks *R. Falconer*

Annex 2

Action Items

As of 06/1/14

Number	Action	Name	Due Date	Status
GGC30-01	Set date and venue of 10 year celebration of the NF Training Program	Tani, Monahan, Falconer		
GGC30-02	Develop ideas for funding for GEBCO operations.	Tani, Jakobossn, Marks, Schenke		
GGC30-03	Develop revised GGC ToR/RoP for submission to IHO and IOC	Tani, Jakobossn, Goleby, Falconer, Wyatt, Miyaki		
GGC30-04	Distribute 2015 Work Plan to appropriate GEBCO members	Clark, Wyatt		
GGC30-05	Provide input to 2015 Work Plan	Chairs of SCRUM, TSCOM, SCUFN, Education - Outreach and DCDB		
	Actions from previous meeting			
<i>GGC29 – 01</i>	Write Letter to the Malaysia Hydrographic Office regarding the 2013 GEBCO meeting	Clark*, Falconer		Completed
<i>GGC29 – 02</i>	Actively look at the Prince Albert Foundation for GEBCO funding	Jakobsson, Fox	Postponed	
<i>GGC29 – 03</i>	Clarify procedure for IOC appointments to the GGC	Falconer, Clark	12/1/12	In progress
<i>GGC29 – 04</i>	Compile and distribute to GGC	Clark, Falconer		Completed

	the list of GGC tenure			
<i>GGC29 – 05</i>	TSCOM co-chairs recruit members for the sub-committee	GGC		Completed
<i>GGC29 – 06</i>	Offer Paul Elmore position as Science Day Convener	Falconer, Clark		Completed
<i>GGC29 – 07</i>	Keep list of RHCs up to date through 2014 and track GEBCO participation	Clark	On going	In progress
<i>GGC29 – 08</i>	Send clean copy of GEBCO Bathymetry Cookbook to IHO and IOC for posting on the web	Marks		Completed
<i>GGC29 – 09</i>	Resolve IOC logo requirements and develop options	Weatherall, Wyatt	1/1/2013	Completed
<i>GGC29 – 10</i>	Explore link from ESRI to GEBCO web site	Weatherall		
<i>GGC29 – 11</i>	Develop Standard GEBCO Power Point presentation, place to the GEBCO web site	Fox, Weatherall		Completed
<i>GGC29 – 12</i>	Send Walter Peralta the Standard GEBCO presentation	Fox		Completed
<i>GGC29 – 13</i>	Develop plan for GEBCO outreach	Weatherall, Lusiani		In progress
<i>GGC29 – 14</i>	Develop proposal for a Lenticular Map of the Southern Ocean (IBCSO).	Schenke		Completed
<i>GGC29 – 15</i>	Send out the GEBCO portion of the approved 2013-17 IHO Workplan with funding levels	Clark, Fox		
<i>GGC29 – 16</i>	For 2013-17 IHO/GEBCO work plan, develop individual GEBCO task work plans	Task Leaders		

* First names have the lead

Annex 3

1.1. IHO-IOC GEBCO Guiding Committee (GGC) Work Plan 2014-2015

1.1 GGC Tasks

- A Organise and conduct GGC XXXI meeting in 2014 (IHO Task 3.8.1.1)
- B Ensure conduct of TSCOM, SCRUM and SCUFN meetings in 2014 (IHO Tasks 3.8.1.2, 3.8.1.3 and 3.8.1.4)
- C Ensure effective operation of IHO DCDB (IHO Task 3.8.2)
- D Encourage the contribution of bathymetric data to the IHO DCDB (IHO Task 3.8.3), identify priority areas for regional mapping (IHO Task 3.8.3.1) and promote data contribution through GEBCO participation in RHCs meetings (IHO Task 3.8.3.2)
- E Maintain IHO bathymetric publications (IHO Task 3.8.4) including: B-4 (IHO Task 3.8.4.1), B-6 (IHO Task 3.8.4.2), B-7 (IHO Task 3.8.4.3), B-8 (IHO Task 3.8.4.4), B-9 (IHO Task 3.8.4.5), B-10 (IHO Task 3.8.4.6) and B-411(IHO Task 3.8.4.7)
- F Develop the on-line function of B-4 (Information concerning recent bathymetric data) (IHO Task 3.8.4.8)
- G Contribute to outreach and education about ocean mapping (IHO Task 3.8.5) by development of outreach and educational materials (IHO Task 3.8.5.1) and printing of IHO-IOC GEBCO World and Regional Maps (IHO Task 3.8.5.2)
- H Ensuring IHO-IOC GEBCO Web site is kept current and updated regularly (IHO Task 3.8.6)
- I Develop short course and course material on compiling digital bathymetric models (DBMs) to be included in GEBCO from a heterogeneous bathymetric source database (IHO Task 3.8.7)
- J Update and enhance the GEBCO Gazetteer (B-8) for internet access (IHO Task 3.8.8) including providing the GEBCO Gazetteer as a web service via a geospatially enabled database (IHO Task 3.8.8.1) and develop and make available public and management on-line interfaces to the Gazetteer (IOH Task 3.8.8.2)

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard
A	Organise and conduct GGC XXXI meeting	H		2014	2014	P	Chair GGC Sec	

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard
B	Ensure conduct of TSCOM, SCRUM and SCUFN meetings	H		2014	2014	P	Chair GGC, Chair, TSCOM, Chair SCRUM and Chair SCUFN	
C	Ensure effective operation of IHO DCDB	H	Expand data portal and capacity to enable the upload, viewing and downloading of all data - 2014	Continuous		O	Manager DCDB	
D1	Encourage the contribution of bathymetric data to the IHO DCDB	H		Continuous		O	All members of GEBCO GC through the Chair	
D2	Identify priority areas for regional mapping	H	Indian Ocean – hold workshop and generate first grid - 2014 Caribbean – commence development of digital grid - 2014	Continuous		O	Chair SCRUM	
D3	Promote data contribution through GEBCO participation in RHCs meetings	H	Obtain one data set from each RHC - 2014	Continuous		O	All members of GEBCO GC through the Chair	
E	Maintain IHO bathymetric publications	M M H H M L M	Complete initial draft - 2014 Ensure contributions are published within 3 months of receipt	Continuous	2015 2015 2015 2015 2015 2028 2014	O	All members of GEBCO GC through the Chair	B-4 - Information concerning recent bathymetric data B-6 - Standardization of undersea feature names B-7 - GEBCO guidelines B-8 - Gazetteer B-9 - GEBCO digital atlas B-10 - The history of GEBCO B-11 - GEBCO Cookbook

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard
F	Develop the on-line function of B-4	M		2013	2015		Chair TSCOM	
G1	Contribute to outreach and education about ocean mapping	H		Continuous		O	All members of GEBCO GC through the Chair	
G2	Development of outreach and educational materials	H		Continuous			All members of GEBCO GC through the Chair	
G3	Printing of IHO-IOC GEBCO World and regional Maps	M	Print updated version of Arctic map - 2014	Continuous			Chair TSCOM	B-9 - GEBCO digital atlas
H	Ensuring IHO-IOC GEBCO Web site is kept current and updated regularly	M		Continuous		O	Chair TSCOM	
I	Develop short course and course material on compiling digital bathymetric models (DBMs) to be included in GEBCO from a heterogeneous bathymetric source database	M		2013	2015	O		
J1	Update and enhance the GEBCO Gazetteer (B-8) for internet access	H	?	Continuous		O	Chair SCUFN	B-8 - Gazetteer
J2	Provide the GEBCO Gazetteer as a web service via a geospatially enabled database	H	?	2013	2015	O	Chair SCUFN	B-8 - Gazetteer
J3	Develop and make available public and management on-line interfaces to the Gazetteer	M	?	2013	2015	O	Chair SCUFN	B-8 - Gazetteer

1.2 GGC Meetings (IHO Task 3.8.1.1 refers)

Date	Location	Activity
October 2012	IHB, Monaco	XXIX th Meeting
October 2013	Venice, Italy	XXX th Meeting
October 2014	tbc	XXXI th Meeting

Chair: Robin Falconer	Email: robinfalconerassociates@paradise.net.nz
Vice-Chair:	Email:
Secretary: David Clark	Email: David.M.Clark@noaa.gov

Annex 4

Acronyms

AGU	American Geophysical Union
BODC	British Oceanographic Data Centre
CCOM	Centre for Coastal and Ocean Mapping
CGOM	Consultative Group on Ocean Mapping
DCDB	Data Center for Digital Bathymetry
DHN	Direccion de Hidrografia y Navegacion
EIHC	Extraordinary International Hydrographic Conference
EMODnet	European Marine Observation and Data Network
ENC	Electronic Navigational Chart
FGDC	Federal Geographic Data Committee
GA	Geoscience Australia
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)
UNH	University of New Hampshire
WG	Working group

Annex 5

Report of the GEBCO Digital Atlas Manager (October 2012 – October 2013)

This report covers the work carried out at the British Oceanographic Data Centre (BODC) for GEBCO since the previous GEBCO meetings in October 2012.

Annex A includes statistics on the distribution of GEBCO's data sets. Annex B includes information on access to GEBCO's web site.

Status of GEBCO's global 30 arc-second interval grid

During the year, work has been done to finalise a new release of the GEBCO 30 arc-second grid. In addition to the list of updates reported at the last GEBCO meeting, we have now included version 1 of the International Bathymetric Chart of the Southern Ocean (IBCSO) for the area south of 60°S; extended the coverage of Olex data for the Northwest European Shelf area (from 0°E to 15° 30'E) and fixed a bug in the GEBCO grid due to the erroneous inclusion of 'Sandy Island' (Coral Sea, South Pacific Ocean area) in the existing GEBCO grid.

This update work is now completed and we are in the process of making the grid available for download via the internet. Through discussions with GEBCO colleagues it was decided to call this release of the grid: **The GEBCO_2013 Grid**.

The new grid includes the following updates:

- International Bathymetric Chart of the Arctic Ocean (IBCAO) V3
- International Bathymetric Chart of the Southern Ocean (IBCSO) V1
- Waters around Australia: Australian Bathymetry and Topography Grid, June 2009
- Bathymetry data for all ocean regions: From the Global Multi-Resolution Topography (GMRT) synthesis, provided by the Lamont-Doherty Earth Observatory at Columbia University
- South China Sea region: update based on sounding data extracted from Electronic Navigation Charts (ENC), provided by the East Asia Hydrographic Commission
- North American Great Lakes: Bathymetric grids provided by the US National Oceanic and Atmospheric Administration (NOAA), US National Geophysical Data Center (NGDC)
- North Atlantic Ocean, Gulf of Cadiz region: Bathymetric compilation produced under the European Social Fund (ESF) EuroMargins SWIM project "Earthquake and Tsunami hazards of active faults at the South West Iberian Margin: deep structure, high-resolution imaging and paleoseismic signature"

- Indian Ocean, region off Sumatra: Bathymetric survey carried out by HMS Scott in 2005
- Waters off the West Coast of Africa: update based on bathymetry data from Olex (between 8°N and 34°N)
- Northwest European Continental Shelf area: update based on bathymetry data from Olex AS. Olex data coverage extended from 0°E to 15° 30'E
- South Pacific Ocean, Coral Sea region, update to correct an error in the GEBCO grid due to the inclusion of an erroneous island ("Sandy Island") using data supplied by Geoscience Australia (on behalf of the data set originators at the University of Sydney) for data from R/V Southern Surveyor (survey code SS2012_v06) and The Royal Australian Navy, Australian Hydrographic Service for data from hydrographic surveys of the region.

Making GEBCO's grids available

The new GEBCO grid will be made available in netCDF forms as both two-dimensional (2D) and one-dimensional (1D) arrays of signed 2-byte integers. The 1D grid file format is aimed specifically for use with the GEBCO Digital Atlas software interface and GEBCO Grid Display software. The 2D grids are suitable for direct import into GIS-type applications and other software systems.

This release of the grid will use the NetCDF Climate and Forecast (CF) metadata conventions (<http://cf-pcmdi.llnl.gov/>) for the 2D grids. This includes the use of a 'standard_name' and/or 'long_name' to describe the variables in the netCDF file, i.e. the elevation value and latitude and longitude values. The CF community maintains a list of 'standard_names' to describe variables: <http://cf-pcmdi.llnl.gov/documents/cf-standard-names/>, this helps with operability between data sets, i.e. comparing like with like. For example, the 'z' value of the grid has been given the standard_name: "height_above_reference_ellipsoid" .

The grid will be made available via the internet and also as part of the GEBCO Digital Atlas. Via the internet, the grid will be available as a complete global grid file or for user-defined sub areas. The existing web application for delivering GEBCO's grids has been updated and extended, allowing the 'cutting' of user-selected areas to be done in the background so that the data can be collected later. This is useful when selecting data for a large geographic area.

A new version of the GEBCO Web Map Service (WMS), based on the GEBCO_2013 Grid, will be made available. See the metadata work section below for further information on the development of the WMS.

Metadata work

A Source Identifier (SID) Grid is made available to accompany the GEBCO global 30 arc-second grid. The SID grid shows which of the corresponding grid cells in the GEBCO grid are based on soundings or existing grids and which are interpolated. At present, the SID grid is largely made available as a 'yes/no' grid, i.e. cells are coded as constrained by data or interpolated.

We have been working to extend this so that information on the survey used to develop the grid at that location is made available. This would provide some quality assurance information to users and provide

attribution to data contributors.

In collaboration with GEBCO colleagues, a set of attribute fields has been defined – covering the type of metadata that we would like to make available for each SID record. There are currently over 8,000 SID records.

We have been working to populate the metadata fields and also on a mechanism for making the metadata information available via web services. Building on an existing system at BODC, we have created a set of dummy metadata records which can be accessed via the internet in xml:

<http://vocab.nerc.ac.uk/collection/GGS/current>

It is aimed that this information will be accessible through GEBCO's WMS and also displayed on GEBCO's web site.

A demonstration web map service has been created that includes the GEBCO 30 arc second grid and SID grid as separate layers. Both layers can be plotted using an Open Geospatial Consortium (OGC) WMS 'getmap' request. The SID layer can be queried using an OGC WMS 'getfeatureinfo' request. This will return a link to the metadata information about the queried SID grid cell.

Miscellaneous activities

BODC was pleased to host a lab visit by Nippon Foundation/GEBCO Scholar, Lt Cdr Lim Siong Hui in July 2013.

I attended the EMODnet Hydrography (<http://www.emodnet-hydrography.eu/>) Phase 2 Kick-off Meeting in Lisbon, Portugal, June 2013 and gave a presentation about GEBCO.

Access to GEBCO's data sets and products

GEBCO's bathymetric data sets are made available, on behalf of GEBCO, by BODC via the internet and on DVD as part of the GEBCO Digital Atlas.

Since the last GEBCO meetings there have been:

- over 11,000 requests for downloads of GEBCO's gridded data sets (GEBCO_08 Grid, Source Identifier (SID) Grid and GEBCO One Minute Grid)
- over 2,500 requests for GEBCO's viewing software for displaying and accessing data from GEBCO's grids

During the year 102 copies of the GDA have been distributed. This includes 48 copies sold and 54 complimentary copies distributed. Of these complimentary copies, 52 have been given to participants on IODE training programmes. Royalties contributed to GEBCO from the sale of the GDA for 2012 amounted to £3,900. This money has been transferred to the GEBCO account held at Stockholm University.

We have answered 96 email enquiries relating to GEBCO's data sets and products. Some users provide feedback or ask permission to use our data in their products and services. From information supplied by users over the last 12 months, the following are just some of the ways that GEBCO's data sets are being used:

- GEBCO_08 Grid used in developing a printed world map

- Use of the GEBCO world map by an Austrian newspaper in a special issue about life in the sea, deep-sea exploration and natural resources
- GEBCO_08 Grid used to develop a new hydrodynamic model of the Brazilian coastline and adjacent waters
- GEBCO_08 Grid used to build a model for an internal research project on the South China Sea which would subsequently be used to create a commercially available metocean database
- GEBCO_08 grid to support the planning and design of offshore wind farms in North European waters

See Annex A for further information on data access statistics.

GEBCO's web site

Since July 2008, GEBCO's web site has been maintained and updated on behalf of GEBCO by BODC. It can be accessed at www.gebco.net.

In addition to general site maintenance and request for content updates by GEBCO colleagues, the following pages/sections have been added to GEBCO's web site during the year:

- the addition of 'news and events' items:
http://www.gebco.net/about_us/news_and_events/ and
http://www.gebco.net/about_us/news_and_events/index_2012.html
- presentation and poster information for the Seventh GEBCO Science Day:
http://www.gebco.net/about_us/gebco_science_day/
- a new page for the GEBCO Cook Book:
http://www.gebco.net/data_and_products/gebco_cook_book/
- the 'meetings and minutes' pages have been updated:
http://www.gebco.net/about_us/meetings_and_minutes/

Since the last GEBCO meetings, we have had over 79,700 visitors to site, accessing 243,000 web pages.

We have also added 17 posts to GEBCO's Facebook page: <http://www.facebook.com/GEBCO>

See Annex B for further information on web site statistics.

BODC gratefully acknowledges the receipt of funding (5K Euro) for GEBCO web site maintenance work (part of the IHO funding for GEBCO work plan tasks).

P. Weatherall (2nd October 2013)

Annex A

Distribution of GEBCO's bathymetric data sets and products

This includes:

- Downloads of GEBCO's gridded data sets from the Internet

- Downloads of the Grid Viewing Software
- Distribution of the GEBCO Digital Atlas on DVD

Internet downloads of GEBCO's gridded bathymetric data sets

Numbers of downloads are given until the 16th September 2013, a selected 'cut off' date used for calculating the statistics for this report as presented below.

GEBCO_08 Grid

From the data set's release in 29th January 2009 to 16th September 2013

- Total number of downloads: 25,624
- Full global data set: 8,301
- User-selected sub-regions of the global grid: 17,323

Since last year's meeting: 1st October 2012 to 16th September 2013

- Total number of downloads: 6,630
- Full global grid: 2,196
- User-selected sub-regions of the global grid: 4,434

GEBCO_08 Source Identifier Grid

From the data set's release in 27th November 2009 to 16th September 2013

- Total number of downloads: 6,137
- Full global data set: 3,020
- User-selected sub-regions of the global grid: 3,117

Since last year's meeting: 1st October 2012 to 16th September 2013

- Total number of downloads: 1,886
- Full global grid: 882
- User-selected sub-regions of the global grid: 1,004

GEBCO One Minute Grid

Since 1st January 2009 to 16th September 2013

- Total number of downloads: 11,205
- Full global data set: 5,211
- User-selected sub-regions of the global grid: 5,994

Since last year's meeting: 1st October 2012 to 16th September 2013

- Total number of downloads: 2,664
- Full global data set: 1,260
- User-selected sub-regions of the global grid: 1,404

Internet downloads of viewing software for displaying and accessing data from GEBCO's grids

- Total number of downloads since January 2009: 12,899
- Total number of downloads since October 2012: 2,588

Distribution of the GEBCO Digital Atlas (GDA)

Since 01 October 2012, 102 copies of the GDA have been distributed. This includes 48 copies sold and 54 complimentary copies. This year, 52 copies have been given to participants on IODE training courses.

Since its release in 2003, 1,586 copies of the GDA have been distributed.

The net income received from sales of the GDA is shared equally between BODC and GEBCO. Royalties contributed to GEBCO from the sale of the GDA for 2012 amounted to £3,900. This makes a total of £81,526 since the re-release of the GDA in 2003.

Royalties contributed to GEBCO for the sale of the GDA per year:

Year	Amount
2003	£10,222
2004	£9,053
2005	£8,474
2006	£12,433
2007	£8,754
2008	£8,216
2009	£11,580
2010	£5,720
2011	£3,174
2012	£3,900

Annex B

GEBCO's web site was re-launched in July 2008. The web site is maintained, on behalf of GEBCO, by the British Oceanographic Data Centre (BODC).

1. Visits to GEBCO's web site

The following tables and diagrams provide statistics about access to GEBCO's web site (www.gebco.net) for the reporting period 1st October 2012 to 13th September 2013.

In summary, there were over 79,700 visits to the site, viewing over 243,000 pages.

Month	Number of pages viewed
Oct-12	24,613
Nov-12	23,946
Dec-12	18,771

Jan-13	21,320
Feb-13	22,852
Mar-13	22,283
Apr-13	21,818
May-13	20,237
Jun-13	18,219
Jul-13	19,148
Aug-13	18,068

2. Number of visits to individual GEBCO web pages

The following table details the number of visits to the 'top 20' most popular pages on GEBCO's web site since the last GEBCO meeting in October 2012. Information is also included to show if a page has increased or decreased in popularity when compared with the period between GEBCO's meetings in 2011 and 2012.

Explanation of terms used:

Ranking in 'top 20' for 2012/2013	From the web page access statistics for the period between GEBCO's meetings in 2012 and 2013 – the pages are ranked 1 to 20 with 1 being the most popular
Ranking in 'top 20' for 2011/2012	From the web page access statistics for the period between GEBCO's meetings in 2011 and 2012 – the pages are ranked 1 to 20 with 1 being the most popular
Page title and URL	Title of the GEBCO web page viewed with URL
No. page views (2012/2013)	The total number of pages viewed since the last GEBCO meeting in October 2012. Repeated views of a single page are counted.
No. page views (2011/2012)	The total number of pages viewed between GEBCO's meetings in 2011 and 2012.
Average time on page (minutes)	The average amount of time that visitors spent viewing this set of pages or page.

Ranking in 'top 20' for 2012/2013	Ranking in 'top 20' for 2011/2012	Page title and URL	No. of page views (2012/2013)	No. of page views (2011/2012)	Avg. Time on Page (minutes)
1	1	Gridded bathymetry data* www.gebco.net/data_and_products/gridded_bathymetry_data/index.html	40,726	37,202	01:30
2	2	GEBCO home page www.gebco.net /index.html	39,086	36,067	01:08
3	3	GEBCO world map www.gebco.net/data_and_products/gebco_world_map/index.html	27,164	29,279	01:05

4	4	GEBCO Digital Atlas www.gebco.net/data_and_products/gebco_digital_atlas/index.html	11,240	12,090	00:48
5	6	External link to grid data download page* www.bodc.ac.uk/data/online_delivery/gebco/index.html	9,471	8,115	08:04
6	5	GEBCO's data and products www.gebco.net/data_and_products/index.html	8,855	8,527	00:21
7	12	Web map service overview page www.gebco.net/data_and_products/gebco_web_services/web_map_service/index.html	6,643	3,681	03:00
8	8	GEBCO grid display software www.gebco.net/data_and_products/grid_display_software/index.html	6,571	5,732	01:17
9	**	Imagery index page www.gebco.net/data_and_products/imagery/index.html	6,450	-	00:24
10	10	Undersea feature names www.gebco.net/data_and_products/undersea_feature_names/index.html	5,677	5,251	01:35
11	9	General interest www.gebco.net/general_interest/index.html	5,564	5,513	00:43
12	13	Grid imagery www.gebco.net/data_and_products/gridded_bathymetry_data/grid_plots/index.html	3,447	3,107	01:15
13	7	Contacts information www.gebco.net/about_us/contact_us/index.html	3,238	5,836	02:04
14	15	General interest – FAQ page www.gebco.net/general_interest/faq/index.html	3,195	2,711	02:25
15	***	NF/GEBCO Training project page www.gebco.net/training/training_project/index.html	2,941	-	02:51
16	16	Regional mapping projects overview www.gebco.net/regional_mapping/mapping_projects/index.html	2,819	2,700	01:37
17	19	Web services overview page www.gebco.net/data_and_products/gebco_web_services/index.html	2,656	2,423	00:18

18	***	Visualizations of GEBCO's bathymetric data sets www.gebco.net/general_interest/bathymetry_visualisations.html	2,532	-	00:32
19	11****	GEBCO world map – large JPEG image www.gebco.net/data_and_products/gebco_world_map/images/gda_world_map_large.jpg	2,267	3,877	04:16
20	17	SCRUM information page www.gebco.net/regional_mapping/index.html	2,199	2,567	00:22

* See Annex A for details on Internet downloads of GEBCO's gridded bathymetric data sets.

** This is a new web page.

*** The page was not included in last year's 'top 20' list of most popular web pages.

**** Please note that this map image has now been replaced by an updated version.

3. Traffic sources to GEBCO's web site

The following section details the routes used to find GEBCO's web pages.

Explanation of terms used:

Direct traffic	The user has entered the URL of a GEBCO web page directly
Search engines	Web pages found by searching using a keyword in a search engine such as Google or Yahoo etc.
Referral sites	Web page found by following a link from another web site

The above graph shows the routes used to find pages on GEBCO's web site since the last GEBCO meeting. For comparison, the same information is shown in the graph below for the previous reporting year. To note, we are now getting more 'traffic' from referral sites.

The table below lists the top 15 most popular routes for people to find GEBCO's web pages.

Explanation of terms used:

Ranking in 'top 15' for 2012/2013	From the web page access statistics for the period between GEBCO's meetings in 2012 and 2013 – the pages are ranked 1 to 15 with 1 being the most popular method for finding GEBCO's web site.
Ranking in 'top 15' for 2011/2012	From the web page access statistics for the period between GEBCO's meetings in 2011 and 2012 – the pages are ranked 1 to 15 with 1 being the most popular method for finding GEBCO's web site.
Source	The source of traffic to the site, e.g. the name of the referral site or search engine:

Medium	The type of traffic: Organic = search engine Referral = from an external web link (none) = direct – i.e. the user has entered the URL of a GEBCO web page
Visits	The number of visits to the site
Pages/visit	The average number of pages per visit
Average time on site (minutes)	The average amount of time spent on the site in minutes

Ranking in 'top 15' for 2012/2013	Ranking in 'top 15' for 2011/2012	Source / Medium	Visits (2012/2013)	Pages / visit (2012/2013)	Average time on site (minutes)
1	1	Google / organic	39,156	3.08	03:15
2	2	(direct) / (none)	11,989	2.97	03:16
3	3	ngdc.noaa.gov / referral	3,275	4.37	03:43
4	*	worldmapfinder.com / referral	2,318	1.33	00:31
5	4	google.com / referral	1,920	1.68	00:53
6	6	iho.int / referral	1,162	4.11	04:24
7	5	en.wikipedia.org / referral	1,024	4.01	03:16
8	*	marineregions.org / referral	965	3.35	04:13
9	10	openseamap.org / referral	831	4.57	03:04
10	12	google.co.uk / referral	759	1.51	00:33
11	7	bodc.ac.uk / referral	691	4.09	03:30
12	9	bing / organic	586	3.05	02:29
13	14	facebook.com / referral	522	3.15	04:51
14	*	maps.ngdc.noaa.gov / referral	515	3.63	03:07
15	8	yahoo / organic	483	3.47	03:41

* The traffic source was not included in last year's 'top 15' list.

4. Geographic distribution of Internet Protocol (IP) addresses accessing GEBCO's web site

The graph below outlines the numbers per continent of IP addresses accessing GEBCO's web site since the last GEBCO meeting.

For comparison, the graph below gives the same information for the previous reporting period (2011/2012). The numbers of visits to GEBCO's web site per continent remains largely static; there has been a slight decrease in the visits from IP addresses in Africa over the last twelve months and a slight increase in those from Europe.

The table below details the geographic distribution by country (top 20 'number of visits' listed) of IP addresses accessing GEBCO's web site.

Explanation of terms used:

Visits to GEBCO's web site ranking in 'top 20' for 2012/2013	From the web page access statistics for the period between GEBCO's meetings in 2012 and 2013 – the pages are ranked 1 to 15 with 1 being the most popular
Visits to GEBCO's web site ranking in 'top 20' for 2011/2012	From the web page access statistics for the period between GEBCO's meetings in 2011 and 2012 – the pages are ranked 1 to 15 with 1 being the most popular
Country/Territory	The name of the country or territory of the origin of the IP address accessing GEBCO's web site
Visits	The total number of visits to the site from this country/territory
Pages/visit	The number of pages viewed per visit
Average time on site (minutes)	The average amount of time that visitors spent on the site

Visits to GEBCO's web site ranking in 'top 20' for 2012/2013	Visits to GEBCO's web site ranking in 'top 20' for 2011/2012	Country / Territory	Number of visits to site in 2012/2013	Number of visits to site in 2011/2012	Pages / visit (2012/2013)	Average visit duration (minutes) 2012/2013
1	1	United States	15,818	14,644	2.79	02:23
2	2	United Kingdom	7,698	7,885	2.98	02:49
3	4	France	4,145	3,075	3.3	03:17
4	3	Germany	3,373	3,618	3.55	03:17
5	5	India	2,804	2,880	2.77	02:45
6	9	Spain	2,572	1,993	3.82	03:57
7	6	Canada	2,535	2,395	2.99	02:58
8	8	Japan	2,529	2,076	3.22	03:00
9	13	Indonesia	2,245	1,638	3.57	05:00
10	10	Italy	2,236	1,770	3.82	03:01
11	7	Russia	2,040	2,269	3.18	03:04
12	11	Australia	1,976	1,751	2.86	02:46
13	12	China	1,811	1,673	3.53	04:39
14	14	Brazil	1,300	1,248	3.23	03:13
15	15	Netherlands	1,129	984	3.36	02:46
16	16	Mexico	1,046	971	3.76	04:02

17	17	South Korea	1,018	938	3.38	03:25
18	*	(not set)	998	-	2.35	03:22
19	18	Norway	903	872	3.55	03:54
20	*	Portugal	864	-	3.52	03:10

* This country was not included in last year's 'top 20' number of visits from IP addresses located in particular countries.

5. GEBCO's Facebook page (<https://www.facebook.com/GEBCO>)

During the year we have posted 17 news items to GEBCO's Facebook page. There have been 317 likes of these pages compared with 233 likes for the previous year.