

TSCOM and SCRUM REPORT

Submitted by Chairs TSCOM and SCRUM

SUMMARY

Executive Summary: This document provides details of the TSCOM and SCRUM meeting and the activities since GGC34.

Action to be taken: See paragraph 29

Related documents: None

1. Participants welcomed by Adam Lewis, Geoscience Australia.
2. Chairs TSCOM and SCRUM (Karen Marks (KM) and Vicki Ferrini (VF)) provided brief presentations, which provided background details on roles and activities over the past 12 months. SCRUM Member list was highlighted along with a number of projects and initiatives with which there had been some interaction. An updates on the relevant publications were provided. The process for the proposed amendments to the relevant IHO Resolutions was described – approved at TSCOM, submitted to GGC for endorsement and submission to IRCC for final approval and adoption by IHO Members.
3. Graham Allen (GA) provided a comprehensive briefing on the Seabed 2030 Project background and recent activities. GEBCO2014 calculated to be 18% complete on a 1x1km grid; considering a higher multi-resolution grid calculated that 6.2% completed. He described the preferred data flow in detail. He provided details of the next activities and deliverable for Year 2.
4. Martin Jakobsson (MJ) provided a brief on the organization and activities of the RDACC North Pacific-Arctic Ocean. He reported on the First Arctic, Antarctic & North Pacific Mapping meeting in Stockholm, 8-10 October 2018.
5. Serge Levèsque (SL) provided a brief on Canadian Hydrographic Service (CHS) activities, including the recent New Technologies – First International Hydrographic Remote Sensing Workshop held in Ottawa 18-20 September 2018. He described the Canadian Oceans Protection Plan and the relevant associated initiatives. He highlighted Metadata training and workshop at Department of Fisheries and Ocean (DFO) Canada and planned survey activities to match the highest priorities for shipping.
6. Geoffroy Lamarche (GL) provided a presentation on the activities of the RDACC South and West Pacific Centre. He highlighted Inaugural Seabed 2030 South and West Pacific Meeting in Wellington on 11-13 February 2019.
7. VF provided a brief on the RDACC Atlantic-Indian Oceans. She noted the individuals working at the RDACC and then provided details on the achievements for Year 1 and the proposed activities for Year 2.

8. Boris Dorschel (VF) provided a presentation on the RDACC Southern Ocean activities, he highlighted the additional challenge of increasing the area to 50° south, approximately 2.5 times the area of the original IBCSO. He noted the progress achieved towards completing the section of the GEBCO 2018 grid.
9. Helen Snaith (HS) provided a presentation update brief on the activities of the GDACC. She described the work and role of the GDACC, including the maintenance of the GEBCO and Seabed 2030 websites. She described the process for the creation and release for the GEBCO 2018 grid. She noted the data sets already contributed for the creation of the GEBCO 2018 grid, although she noted that new data sets had already been updated. This initiated a discussion on how data uncertainty was assessed and what processes will be considered in the future. Karen Marks noted that caution should be used in calling the GEBCO 2018 grid a high resolution grid as the majority of the data remains the original satellite altimetry data.
10. Currently, the BODC provides the GEBCO grid display software that allows users to view and access data from GEBCO's gridded bathymetric data sets. The software is available to download under licence or be delivered on CDROM as part of the Global Digital Atlas product, and can be used with the current gridded data sets. The software was developed by BODC and the current version, 2.13, was released in April 2010. This software would need further development to operate on the next generation of GEBCO gridded products. The number of downloads and requests for the GDA have decreased significantly over the last few years. Given the increase in availability of software able to manipulate the gridded data, we propose withdrawing the software, and the associated GDA CDROM product, in favour of development of online services to provide visualisation and export of the new versions of the GEBCO grid.
11. MJ provided a briefing on the process and methods used to calculate the current level of global bathymetry coverage in the most recent GEBCO 2014 grid using a multi-resolution grid approach. He explained how the original 18% figure was derived and how the revised 6% figure should be used. It was noted that there needed to be reassessment of the communications strategy to explain more clearly the reduction and to clarify that it is 6% of the GEBCO grid that has been filled, the total global coverage remains an unknown figure ($X+Y+Z=100\%$, X = GEBCO grid coverage, Y = unknown survey data coverage and Z = unmapped area). This resulted in wide ranging discussion on whether the method should be used to indicate the regional coverage as well. It was felt this could be use internally but might not be helpful externally.
12. Thierry Schmitt provided an update brief on the new European Marine Observation and Data Network (EMODnet) Bathymetry DTM 09/2018. He provided background details and information on the current coverage and data sets. He then provided an update on the Service hydrographique et océanographique de la Marine (Shom) of France activities outside the European region.
13. VF provided a presentation on the Global Multi-Resolution Topography (GMRT). She provided details on how the multibeam data was prepared for inclusion in the 100m tiled grid. She provided detail on the GMRT v3.5 and what additional data and enhancements will be included in the GMRT v3.6.
14. VF provided a presentation on behalf of John Hall covering his working on creating a 100m grid of the Oman Sea, Gulf of Aden and Red Sea using multiple sources.
15. Kim Picard (KP) gave a presentation on collaborating the Australian seabed mapping effort, in which she gave details of the various programmes collecting data within the Australian EEZ. The objective was to harmonize the effort for the collection of all the marine data

- (bathymetry, water column, backscatter, etc.) and to make the data easily and freely available, she highlighted a new website, which had been developed to facilitate the programme.
16. Maurizio Demarte (MD) provided a presentation on the activities of the Istituto idrografico della marina (DIMAR) of Italy in the arctic region and contributions to the GEBCO and Seabed 2030 projects.
 17. Karolina Zwolak (KZ) provided an update on the Indian Ocean Bathymetric Compilation, she noted that work had been suspended due to refocus of work on Seabed. She highlighted the work undertaken currently. It was highlighted that basic resource challenges needed to be overcome in addition to technical issues.
 18. Jennifer Jencks (JJ) gave a comprehensive brief on the developments in the IHO Data Centre for Digital Bathymetry (DCDB) and future proposed enhancements. She also provided details on the Crowdsourced Bathymetry (CSB) initiative and the collaboration with Rosepoint Navigation to gather position and depth data via on board ECS from small vessels. She highlighted the work to enhance the data collected via the Voluntary Observing Ships (VOS) programme to include bathymetry. She highlighted the new Chapter 16 to B-11, 'Finding Gaps to Maps', on tools developed to assessing the gaps in bathymetric coverage and identifying priority areas. IHO provided a quick explanation of the current IHO resolutions and INTChart regulations and guidance, which need to be taken into consideration by GEBCO and the elements of the Seabed 2030 project.
 19. Federica Foglini (FF) provided an update presentation of the activities on the TSCOM Metadata Working Group and the results of the survey questionnaire. She highlighted the scope and main objectives of the Working Group.
 20. Andrew Hoggarth (AH) provided a presentation on the Open Geospatial Consortium (OGC) and its relevance to GEBCO and Seabed 2030. He described the OGC programmes and how they advance interoperability. He highlighted the OGC Marine/Maritime Summit and Technical Committee meeting in Singapore 25 February to 1 March 2019.
 21. KM gave a brief overview on the continuing development to the B-11, the *GEBCO Cookbook*, and the recently included new chapters and content. She highlighted the wide variety of different users and uses.
 22. Hyo Hyun Sung (HHS) provided an overview of Outreach activities on the past year. She noted the mitigation of the Working Group to a Sub-Committee, developments of the webpage and progress on other outreach tools and activities. She highlighted proposed names and members of the proposed new Sub-Committee. KM asked for the documents to be made available on the GEBCO website. **Action HHS**
 23. KZ provided a brief on recent activities of the NF-UNH Ocean Mapping Training programme. The previous participants of the programme present at the meeting were introduced – Felipe Barrios Burnett (Chile), Yasuhiko Ohara (Japan), Liva Goba (Latvia) and Karolina Zwolak (Poland).
 24. Eunmi Chang (EC) gave an update on development of the GEBCO education materials. She highlighted the target audiences and the material created. She displayed various examples of the material created.
 25. Tim Kearns (TK) provided a brief on the GEBCO Symposium programme and presentations. He highlighted the goal of the Symposium – *To grow the GEBCO Community through listening, share and engaging with others*. He described the methods and processes

on how this can be achieved. He highlighted the web services created to support the Symposium organization and activities.

26. The breakout session leaders from each Seabed 2030 region provide short feedback briefs on their discussions and proposed actions.
27. HHS and EC provided background briefings on proposed GEBCO outreach and capacity building strategies, targets, proposed plans, channels and suggested way forward in consideration of the decision at GGC34 to create a new Sub-Committee with responsibility for Outreach, Communications and Engagement. It was noted that the GEBCO product customer communities needed to be identified and the message tailored appropriately.
28. David Miller (DM) provided a brief presentation on the communications strategies for industry targets with examples from the Fugro experience, he also considered wider industry considerations and potential approaches to be contemplated to increase awareness and engagement. This initiated wide ranging discussions and numerous questions.
29. HHS and EC addressed the issue of resources, proposed plans and future actions. DM agreed to approach other industries and industry associations. **Action DM** Other groups identified Marines Science, Government/IGOs, Education/Academia and NGO/Opinion Leaders which need to be engaged to raise awareness and contribute. It was agreed that SCOPE (Sub-Committee for Communications, Outreach and Public Engagement) should be used. Revised ToRs were displayed and it was agreed that they should be uploaded as a GGC meeting document.
30. **ACTION**

The GGC is requested to:

- a. **Note** the contents of this report;
- b. **Approve** the withdrawal of GEBCO grid display software version 2.13 to be replaced by online services; and
- c. **Take** any other action deemed appropriate.