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Reports of Meetings of Experts and Equivalent Bodies

IODE Steering Group for the OceanTeacher Global Academy project (SG-OTGA-III)

Third Session (hybrid)

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1. OPENING OF THE MEETING

The meeting was opened by Mr Udaya Bhaskar (RTC India), Chair of the Steering Group for the OceanTeacher Global Academy Project. He welcomed participants to this session of the Steering Group and informed the Group that the meeting would be held both onsite and online. As the chair was joining the meeting remotely, it was agreed that Mr Aidy Muslim, former co-chair of the Steering Group, would assist in chairing the meeting.

The Chair outlined the objectives of the Steering Group meeting:

- To review the current status of OTGA
- To review the training courses delivered by the Regional and Specialized Training Centres in 2022
- To discuss the operations of the OTGA
- To discuss the Project work plan for 2023-24, including proposed courses
- To discuss the future of OTGA

The Chair informed the Group that nominations for Chair of the Steering Group for the next intersessional period would be accepted until the end of the meeting and should be sent to the OTGA Secretariat. RTC/STC coordinators can vote for the Chair (one vote per RTC/STC) and results will be announced on the final day of the meeting.

1.1 WELCOME BY THE IOC REPRESENTATIVES

Mr Peter Pissierssens, IOC Capacity Building Coordinator and Head of the UNESCO/IOC Project Office for IODE, welcomed the meeting participants, and reflected on the history of OceanTeacher. IODE has a long tradition in short term technical training going back to the late 1980s with ad hoc training courses organized in various locations around the world. The OceanTeacher Global Academy has expanded the development of regional and specialised training centres with attention to local requirements, language and culture. The OTGA approach is based on local ownership, with the regional training centres supported by the host countries. The second OceanTeacher Global Academy has adapted quickly to provide online training to meet the changing needs.

Mr Pissierssens recalled OTGA has become a service provider for all IOC programmes with courses delivered or planned to support ocean acidification, ocean literacy, tsunami awareness, GOOS, IODE (including OBIS and ODIS), and the Harmful Algal Bloom programme. OTGA is also supporting the IOC regional sub-commissions and regional committees to ensure the capacity development needs of the regions are being met through the support of the regional and specialized training centres. OTGA is an officially endorsed action project contributing to the United Nations Decade of Ocean Science for Sustainable Development and this endorsement will encourage greater participation, collaboration and co-development in OTGA contribution to the ten Ocean Decade challenges and help deliver the ocean we want by 2030.

Mr Pissierssens thanked the Government of Flanders as well as the 17 institutions hosting Regional and Specialized Training Centres for their continued support of the OceanTeacher Global Academy Project.

Mr Ariel Troisi, IOC Chair and chair of the IOC Group of Experts on Capacity Development (GE-CD) stated that capacity development is at the centre of the IOC functions providing services to all Member States. GE-CD is working towards the next CD survey to be launched in December which aims to capture the needs and requirements of Member States to make sure they are fully aligned with the new CD Strategy.

1.2 ADDRESS BY THE DONOR REPRESENTATIVE

Mr Gert Verreet, Policy Officer from the Flanders Department of Economy, Science and Innovation, Belgium addressed the meeting. Mr Verreet informed the Steering Group that the Government of Flanders is proud to host the UNESCO/IOC Project Office for IODE in Oostende and to provide the new facility. The Government of Flanders is investing in infrastructure and also funding international marine science. Mr Verreet was pleased to see the FUST projects coming to fruition, noting that most projects were delayed due to Covid. The OTGA Project will come to end in mid 2024 and he expected the Project would continue based on the good results achieved. He informed the Group that the self-evaluation of the Project is due by the end of this year and the external evaluation will take place in 2023. The Project will need to formulate the evaluation questions for the external review. This will be further discussed by the Steering Group at Agenda 6.

1.3 ADOPTION OF THE AGENDA AND TIMETABLE

This agenda item was introduced by the Chair. The Steering Group adopted the agenda which is attached as Annex I. The Chair informed the Group that all documents and presentations of the meeting are available online on the OTGA e-learning platform (https://classroom.oceanteacher.org/course/view.php?id=838 available to SG-OTGA members only).

1.4 INTRODUCTION OF PARTICIPANTS

This agenda item was introduced by the Chair. All participants were invited to introduce themselves. The full list of participants is available as Annex II.

Mr Taco de Bruin, IODE Co-chair, noted that OTGA is the flagship Project of IODE providing a distributed system for capacity development. He thanked all RTC and STC staff as well as the OTGA Secretariat for all their work to ensure the success of OTGA.

2. OTGA PROJECT STATUS

2.1 OVERVIEW OF PROJECT ACTIVITIES

This agenda item was introduced by Ms Claudia Delgado, IODE Training Coordinator. She informed the Steering Group that 29 training courses were delivered by OTGA Regional and Specialized Training Centres (online and blended) during 2022. In addition, 17 online training courses were hosted by the OTGA on behalf of partner organizations. Over 2200 applications (for 29 OTGA courses) were received and more than 1300 learners enrolled in courses which were delivered in English, Spanish and

Portuguese. There are more than 9000 registered users on the OTGA e-learning platform. The main activities implemented in 2022 include

- Standard Course Templates in English, Spanish, Portuguese and French
- Training course on *Designing and Teaching Online Courses for RTC/STC administrators and instructors* implemented
- A short tutorial on Copyright developed
- OTGA Course Design Rubric
- OceanTeacher Global Academy Alumni System
- ISO 29993 Certification

The OTGA Alumni System incorporates a single sign-on for all OTGA course participants where the IOC OceanExpert (OE) system is used to register the profile data of the OTGA alumni. OE is used to authenticate users using their OE login credentials avoiding multiple subscriptions. The OTGA Alumni System also introduces standard reports to provide accurate statistics for reporting to UNESCO, the IOC and the OTGA donor.

Finally, Ms Delgado recalled the ISO certification process for the IODE Project Office. In March 2022 the Project Office was successfully audited for certification for the new international standard ISO 29993 as a Learning services outside formal education.

3. REVIEW OF RTC/STC ACTIVITIES 2022

Representatives of each RTC/STC provided a presentation focusing on:

- A description of the RTC or STC
- Summary of training courses delivered in 2022
- Issues encountered in delivering courses

3.1 SUMMARY OF OTGA RTC/STC ACTIVITIES

All presentations from the RTCs/STCs have been uploaded to the meeting site.

3.1.1. STC ARGENTINA

Ms Nancy Correa, STC coordinator, discussed the three courses offered during 2022:

(i) Determination of the outer limits of the Continental Platform (in Spanish)
(ii) Determination of the outer limits of the Continental Platform (in English)
(iii) Sea-ice and Icebergs Observation (in Spanish)

(i) Determination of the outer limits of the Continental Platform. The course included lectures and practical exercises covering scientific, technical and legal issues associated with the definition of the outer limits of the Argentine continental platform. The course included both synchronous and asynchronous sessions and the number of hours invested in the course by most students was 10 to 30 hours. The course was attended by 31 students, mostly from South America (Argentina, Uruguay, Brazil, Colombia, Ecuador, Venezuela, Guatemala, Nicaragua) as well as one from The Netherlands. The course was evaluated (in Spanish) by the students and the results showed:

- Teaching staff excellent, efficient and knowledgeable
- The course was useful for practitioners in the area

- The performance and functioning of the platform employed had some glitches
- The course should have been longer in order to allow more time for the students to get better acquainted with the reading and audio-visual material provided

Suggestions for improvement included:

- More practical exercises during the synchronous lessons
- Allow more time for the understanding of the different subjects
- The online lessons should be recorded and made available to the students for subsequent viewing
- Allow more time for the assignments involved

(ii) Observation of Sea-ice and Icebergs. The goal of the course was provision of the information and tools available for onboard and Antarctic station-based observations for navigation in polar waters. The course included both synchronous and asynchronous sessions and the number of hours invested in the course was 10 to 30 hours. The course was attended by 35 students mostly from South America (Argentina, Uruguay, Brazil, Colombia, Ecuador, Venezuela, Guatemala, Nicaragua) and one from Belgium. Topics covered in the course include:

- Identify the various types of icebergs and marine ice
- Perform marine ice and iceberg assessments and provide objective, internationally standardized records
- Understanding and appropriate interpretation of ice charts
- Acquaintance with the resources available for their operational use for navigation in polar waters

The course was evaluated by the students and based on the 30 most relevant answers to the 32 questions proposed:

- Overall qualification of the course and the teaching materials: very good
- Performance of the teaching staff: very good
- The interpretation of the photographs was difficult due to the loss of perspective, which complicates the assessment of ice height
- The feasibility of future face-to-face courses should be considered
- Some students had problems due to time-zone differences

Suggestion for improvement include:

- Face-to-face courses
- More hours of synchronic classes
- Availability of solved exercises
- More practical exercises prior to evaluation
- Availability of more videos of sea-ice (rather than photographs)

Courses planned for 2023 are:

- Marine microbiology and Biogeochemistry in Spanish (February)
- Methodology for Geological and Physical Oceanography of Coastal Environments in Spanish (March)

- Observation of Icebergs and Sea-Ice in Spanish (May)
- Observation of Icebergs and Sea-Ice in English (June)
- Determination of the outer limits of the Continental Platform in Spanish and probably in English (date to be defined)

3.1.2. RTC BELGIUM

Ms Claudia Delgado, RTC coordinator and IODE Training Coordinator, reported that RTC Belgium is hosted by the UNESCO/IOC Project Office for IODE, Oostende, Belgium. The Project Office also hosts the IODE Secretariat, the OTGA Secretariat and OBIS. The Project Office was established in 2005 and is co-located with several other ocean-related organisations, namely, VLIZ, the European Marine Board, EMODnet and ILVO. The objectives of the Project Office are:

- to establish a creative environment facilitating the further development and maintenance of IODE and partner data and information management projects, services and products with emphasis on improving the efficiency and effectiveness of the data and product/service stream between the stage of sampling and the user
- to assist in strengthening the capacity of Member States to manage oceanographic data and information and to provide ocean data and information products and services required by users

The following course were organised in 2022:

- Ocean Acidification [21 Feb - 10 April]
- Ocean Data Management [28 March - 06 May]
- Supporting Marine Earth Observation Educators [30 May - 17 Jun]
- Vessel-based ocean monitoring with applications to R/V Dr Fridtjof Nansen surveys [30 May - 17 Jun]
- Ocean Colour Remote Sensing and Data Analysis for African Early Career Ocean Professionals (ECOPs) [6 - 24 Jun]
- Marine Invasive Species Early Detection: Utilising Molecular Tools [31 Oct - 18 Nov]
- Introduction to Ocean Best Practices [self-paced asynchronous]

In addition, the OTGA e-learning platform hosted the following courses on behalf of affiliate organisations:

- VLIZ: World Register of Marine Species (for editors): Nematoda
- VLIZ/WoRMS: AlgaeTraits: a trait database for (European) seaweeds
- NF-POGO Centre of Excellence (January – July 2022): Ocean Data Management module (plus 6 other modules)
- ECOPs (June 2022): Ocean Colour Remote Sensing and Data Analysis
- IALA (July – December 2022): L1.1 AtoN Manager Course. Module 1; L1.1 AtoN Manager Course. Module 2; L1.1 AtoN Manager Course. Module 3
- MEDIN (BODC): Marine Data Management, Governance and the MEDIN toolset (Feb 2022); Marine Data Management, Governance and the MEDIN toolset (Aug 2022); An introduction to MEDIN and marine data management for Cefas

(Nov 2022); Marine Data Management, Governance and the MEDIN toolset (Nov 2022)

Courses planned for 2023-24 include:

- Ocean Data Management (self-paced, 3 editions)
- Marine Biological Data Management
- Ocean Acidification (Africa, Global)
- OceanInfoHub (4 editions: English, Spanish, French, Portuguese)
- Data Management and Analysis with R Programming for Early Career Ocean Professionals (ECOPs)

3.1.3. RTC CHINA

Ms Dian Xu, representing the RTC China, reported the Ocean Teacher Global Academy (OTGA) Regional Training Center-Tianjin is co-hosted by the National Marine Data and Information Service (NMDIS) and National Center for Ocean Standards and Metrology (NCOSM) since 2018, two institute subordinate to Ministry of Natural Resources, China, with the four training courses held since 2018 for more than 150 people from member states of Western Pacific.

The course on *Quality Assurance and Quality Control on Marine Ecosystem-based Management* will be delivered online between 21-25 November 2022. Participants will be introduced to up-to-date best practices and standards as well as the quality assurance and quality control on marine ecosystem observation, and marine instrument measurement testing, specifically on the four important sectors of the whole process of QA and QC, namely sensors, laboratory, data processing, and product application. OTGA provides an opportunity for regional nations exchange as well as a valuable platform for sharing experiences and seeking for further cooperation. We hope trainers will have more close cooperation and exchange and share advanced technologies and successful experiences in the areas of ocean research, observations and services in all IOC member states by the end of the training courses.

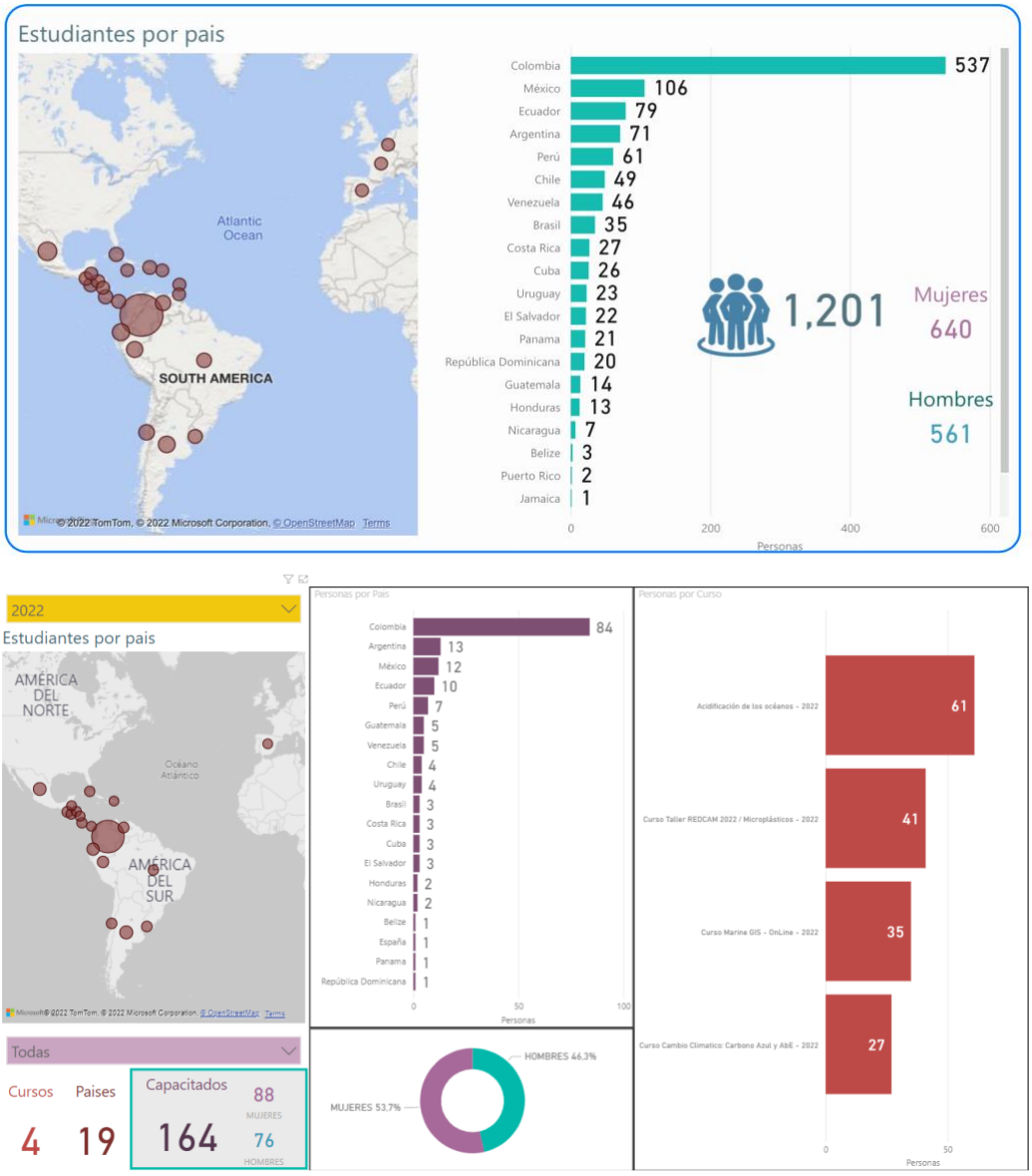
3.1.4. RTC COLOMBIA

Ms Paula Cristina Sierra-Correa, RTC-Colombia Coordinator, informed the Group that the mission of INVEMAR is to conduct basic and applied research on Geosciences, Biodiversity, Environmental Quality, Use and Valuation of Resources, Climate Change, ICZM, MSP and Information Systems; oriented to support the decision making process and policy design. INVEMAR is also certified by ISO 9001 and NTC/ISO 17025 Accredited on chemical procedures. RTC-Colombia delivered six online training courses in 2022 for Spanish speakers. These were

- Cambio Climático: Carbono Azul y adaptación basada en ecosistemas marinos y costero (13-24 June),
- Tecnologías de Información (SIG) aplicado al Medio Marino y Costero. Caso de estudio: Determinación de zonas de conservación con ArcGIS (1 August-1 September),

- Curso regional de capacitación y entrenamiento sobre medición del sistema de carbonatos para la evaluación del indicador de acidez media del mar (ODS 14.3.1) (22 August – 2 September),
- Curso de estresores marinos y costeros: herramientas para la gestión de la calidad ambiental marina. Énfasis en contaminación por microplásticos (3-31 October),
- Curso Áreas Marinas Protegidas (1-18 November),
- Data management and publication through the Global Genome Biodiversity Network (GGBN) (7-18 November)

The following is a summary of participants attending courses delivered by INVEMAR since becoming part of OTGA, and in 2022 (to date):



3.1.5. RTC CONO SUR

Ms Marinez Schere, RTC Cono Sur coordinator, informed the Group that the RTC is a centre run and coordinated by two universities (Universidad de la Republica - UDELAR,

Federal University of Santa Catarina – UFSC) and two governments from two neighbouring countries, making the proposal a true regional initiative under the umbrella of GERCOSUL Agreement (Universities of Argentina, Uruguay and Brasil). Both UdelaR and UFSC are top educational institutions in Uruguay and Brazil, with large experience in delivering tertiary teaching as well as non-academic training to civil society. Both universities are ready to adapt to utilizing the OTGA Moodle platform for in-site or distance-learning and trainers from UdelaR and UFSC are PhD Professors. Most of the training efforts are delivered through a combination of web-based lectures (on-line; OTGA platform or own facilities) combined with face-to-face workshops in each country (planned for 2023). Languages of instruction are Spanish, Portuguese and English. In 2022 one course was delivered, Coastal *and Marine Spatial Planning (CMSP).* Another course, *Atmosphere and Oceanic Processes,* was originally planned for 2nd semester 2022, but was postponed to 2023 for logistic reasons. In 2023, four courses are planned: *MCSP (3rd Edition)*, *MCSP/MSP Challenge*, *Plastic marine pollution* and *Atmosphere and oceanic processes.*

3.1.6. RTC ECUADOR

Mr Jonathan Cedeño, RTC Ecuador coordinator, informed the Group the RTC is hosted by the Escuela Superior Politécnica del Litoral (ESPOL) and the Faculty of Maritime Engineering and Marine Sciences (FIMCM) which delivers the Oceanographic Engineering (OE) programme consisting of Ocean Sciences, Coastal Engineering and Coastal Resources Management. In 2022 one online course was delivered on *Tropical Estuaries: Methodologies and tools for sustainable management*. This was a 40 hour asynchronous and synchronous course with instructors from ESPOL, University of Antwerp and UPCH Perú, Universidad Científica Perú. Lessons learned from 2021 were that the BBB platform had some issues with firewalls and it was decided to use Zoom as the communication platform and a WhatsApp group was used for rapid messages and interactions. The programme for 2023 is yet to be decided but will be a topic on Marine Science (Estuaries, Humboldt Current System) developed with Universidad Peruana Cayetano Heredia UPCH. A final decision has to be made by the second half of December 2022. Mr Cedeño also outlined other FIMCM projects including Galapagos Ocean Acidification Monitoring Program (GMaRE), Coastal-Marine Geosciences Research Group (GEMAC) and the Erasmus projects & RO-EC cooperation.

3.1.7. RTC GHANA

Mr Benjamin Botwe, RTC coordinator, informed the Group that the RTC Ghana is hosted by the Department of Marine and Fisheries Sciences, University of Ghana. MAFS has 12 full-time lecturers, with diverse research interests including:

- Coastal processes and management
- Marine zooplankton monitoring in the Gulf of Guinea.
- Aquatic fauna conservation (sea turtle, waterbirds, manatee, dolphins, sharks)
- Marine benthic biodiversity and ecology
- Marine pollution and ecotoxicology
- Fishery ecology and management
- Environmental radioactivity

- Sediment dynamics
- Aquaculture
- Seafood safety

In 2022 RTC Ghana delivered one course on *Fishing Vessel Traffic Data Analyses for Fisheries Management*. Courses to be delivered in 2023 are:

- Fisheries statistics and data collection
- Fishing vessel traffic data analyses for fisheries management

3.1.8. STC HAB

Mr Henrik Enevoldsen, representing the STC HAB and IOC Science and Communication Centre on Harmful Algae, informed the Group the IOC Science and Communication Centre on Harmful Algae is a cooperative effort of IOC of UNESCO and Dept. of Biology/Marine Biological Section, established 1995. The overall objective is to help establish capacity to conduct scientific research on harmful algae and their effects in order to improve tools for effective management and mitigation of the effects. The STC HAB at UCPH coordinates international research programmes, implements cooperative research projects, develops manuals and guides, data products and data access, and supports 16 different scientific groups.

Training activities in 2022 were:

- IOC course with a focus on identification of HAB species which is organized annually at UCPH (16-27 October 2022, 14 participants) which consist of two parts: e-learning in OTGA and practical identification. An exam qualifying for the *IOC Certificate of Proficiency in Identification of Harmful Marine Microalgae* is included.
- In-country training for NatMIRC (National Marine Information and Research Centre, Swakopmund) staff, July-September 2022 with 14 participants from Namibia and South Africa. This course included 80 hours of teaching divided into two parts: distance learning with an estimated 40 hours of reading including four on-line sessions and 40 hours of practical species identification and microscopy. The course was supported financially by the British Government. A similar course is planned for 2023.
- The International Phytoplankton Intercomparison (IPI) is a proficiency testing scheme for Phytoplankton analysts. IPI is working towards accreditation as a proficiency testing provider under ISO 17043 and ISO 13528. This course runs every year and in 2022 the course ran from May to December with 78 participating laboratories. IPI is offered by the IOC Science and Communication Centre in collaboration with the Canary Islands Harmful Algal Bloom Observatory at the University of Las Palmas de Gran Canaria, Spain and the Marine Institute, Ireland.

3.1.9. RTC INDIA

Mr Udaya Bhaskar, RTC Coordinator, informed the Group that ITCOO was approved in December 2012 as a part of XII Five Year plan initiatives of INCOIS and the first set of classes started in July 2013. ITCOO has successfully conducted 64 courses, which

includes both National and International with participants from 80 countries (mainly Indian Ocean Rim) participating in the courses. ITCOO conducted 7 training courses and 2 Webinars during 2022. Future additions include (i) initiate class in new 72 seater e-class room facility,(ii) initiate trainings & workshops specific to decade activities in collaboration with other sister concerns, and (iii) hybrid mode of learning online (using Moodle) and onsite.

3.1.10. STC INDONESIA

Mr Aritywrman, representing the STC coordinator, reported that the STC is hosted by BMKG (Agency for Meteorology, Climatology and Geophysics). He described the online and onsite training delivered by BMKG. International training courses include:

- Impact Based Forecast Training for RA II and RA V (Online) NWP Training for RA-V (Online & F2F)
- Climate Field School for RA II and RA V (Online & F2F)
- IBF Training for PAGASA (Online)
- Climate Training for Timor Leste (On the Job Training) OSCAR Training (F2F)
- BMKG - USGS Joint Training Course on Earthquake Early Warning System (Online)
- UNDP Climate Projection Training (Online)
- UNEP: BIP-MT Training, QMS Training and AWS Training for Timor Leste (Online & F2F) - early 2023

OTGA training courses delivered in 2022 were:

- Ocean Forecast System: Coastal Resilience & Disaster Risk. This 3-week online course was delivered from 15 August to 2 September 2022 with three days of synchronous sessions per week. Topics covered included: Overview OFS coastal resilience and disaster risk to Delft3D pre-processing, processing, post-processing and analysis. 80 participants from 19 countries attended (33 female and 47 male) from Algeria, Argentina, Bangladesh, Belgium, Colombia, Ecuador, Ghana, Indonesia, India, Italy, Malaysia, Mexico, Mozambique, Tunisia, Papua New Guinea, Peru, Philippines, Sri Lanka and Vietnam and 34 successfully completed the course.
- Tsunami Communities Preparedness Training Course will be conducted 4-11 December 2022 with 4 main sessions (i) Tsunami Community Preparedness, (ii) Assessing Tsunami Hazard, Impact and Community (iii) Developing Tsunami Community Preparedness and (iv) Ensuring Fast Response Community. Participants from the previous tsunami course, as well as representatives of the tsunami community and BMKG stations will attend.

Issue encountered include:

- OFS Training. Information on the candidate's level in modelling related skill is needed. Alternatively, entry test should be provided and be taken by candidates
- Issues with self-enrolment
- Needs analysis, to be used as a reference when proposing new training

Proposed courses for 2023-24 are:

- Ocean Forecast System (OFS) Processing: Coastal Resilience and Disaster Risk. Online
- Training the Trainers: Climate Field School (CFS) for Fishermen. Online
- Tsunami Modelling Training Course. Online.

3.1.11. RTC KENYA

Mr Harrison Ong'anda, RTC coordinator, informed the Group that the RTC-Kenya is hosted at the Kenya Marine and Fisheries Research Institute (KMFRI). KMFRI is organized into three research Directorates located in Mombasa:

- Oceans and Coastal Services (OCS)
- Fresh Water Services (FWS)
- Aquaculture

In 2022 RTC-Kenya contributed to the training course on *Vessel-based Ocean Monitoring with Applications to R/V Dr Fridtjof Nansen Surveys* (Namibia, June 2022). RTC Kenya contributed to Unit 2.3. Data Management and Unit 8.3. ODV Standard and Special analyses during this course.

3.1.12. RTC MALAYSIA

Mr Aidy Muslim, RTC Malaysia coordinator, introduced the Institute of Oceanography and Environment which is a leading marine-focused institution responsible to (i) undertake oceanography and marine-related research with a long-term focus for high societal benefit, (ii) encourage advanced knowledge in ocean and marine system through multi-disciplinary research at national and regional levels, (iii) provide constructive and continuous trainings and research programs at postgraduate levels, and (iv) manage, develop and coordinate marine data information and oceanographic facilities and infrastructures to benefit the Malaysian scientific community, policy makers and industry. UMT has gone online for all courses. One OTGA course was planned for late 2021, *Regional Ocean Governance and Introduction to Marine Spatial Planning,* but was cancelled due to Covid. Courses proposed for 2023 are

- Integrated Data Analysis Approach for Coastal Upwelling Studies
- Enhancing Coastal Risk Reduction Science and Practice by Considering Climate, Ecosystems, and Communities in the tropical region
- Introduction to Google Earth Engine for Coastal and Marine application (1)
- Google Earth Engine for Coastal and Marine application (2)

Some issues encountered include (i) all courses at the university becoming online there was limited time to focus on OTGA, (ii) staff still learning with online training implementation, (iii) hands-on courses are harder to implement online and require more planning, and (iv) multiple lockdowns in Malaysia causes uncertainty, with most staff working from home.

3.1.13. RTC MOZAMBIQUE

Ms Clousa Maueua, representing the RTC Mozambique, reported the RTC is hosted by the Centre for Marine Research and Technology affiliated to the University of Eduardo

Mondlane University (UEM). The mission of the RTC is to provide courses for Portuguese speaking countries in Africa (Angola, Cabo Verde, Guinea-Bissau, Mozambique, and São Tomé).

The RTC hosted one online training course in 2022, *The Technics of Online Oceanographic Data Collection* held from 16 May to 30 September. This course consisted of three modules:

- Module 1. Importance of in situ observations. The use of Ocean Data View for data visualisation
- Module 2. Access to free online data and importance of remote sensing data
- Module 3. Scientific reports and article writing

The RTC also contributed to the training course on *Vessel-based Ocean Monitoring with Applications to R/V Dr Fridtjof Nansen Surveys* (Namibia, June 2022). The RTC also hosted an onsite course *Training of Trainers on the Ecosystem Approach to Fisheries (EAF)* and *Training of Trainers on the Use of EAF Implementation and Monitoring Tool (IMT)* financed by NORAD and FAO from 22 August to 3 September.

Some of the issues encountered for the OTGA course include (i) active participation at the beginning of the course and (ii) need to deliver exercises on time. There is need for improvement to (i) establish and follow organisation timeline and (ii) retain all the participants during the course period. RTC staff were able to participate in continuous professional development including Copernicus courses and IHE (Delft) courses.

3.1.14. STC NORWAY

No report was received from STC Norway. The Secretariat noted that OTGA sponsored four participants for the training course SDG200, organised by the University of Bergen (UiB), which took place onboard the Norwegian sailing vessel Statsraad Lemkuhl while sailing across the Pacific from Valparaíso, Chile to Palau. Participating students were part of the crew and had all their classes onboard. The course related to the UN's sustainable development goals, especially SDG 14 Life below water and SDG 13 Climate action.

3.1.15. RTC PACIFIC COMMUNITY

Ms Molly Powers, RTC Pacific coordinator, informed the Group that the Pacific Community (SPC) has 27 member countries and territories, 600+ staff, 6 Regional campuses and 8 technical divisions and an annual budget of USD 100 million. SPC Ocean Services activities include ocean and maritime governance policies and laws, maritime boundaries and marine spatial planning, coastal hazard assessment and early warning systems, sustainable sea transportation and ports, and ocean literacy and maritime capacity development. RTC Pacific collaborated with OTGA on the following courses in 2022: (i) Ocean Acidification in the Pacific Islands 2022 (online), (ii) IALA Level 1 Aids to Navigation Manager Course (blended), and (iii) Pacific Island Marine Bioinvasions Alert Network (PacMAN) Training Course for Scientific Experts (blended). Other online and hybrid courses delivered in 2022 were (i) Fiji National Extended Continental Shelf and GEOCAP Software training, (ii) Pacific Islands Domestic Ship Safety Training for Kiribati. Other in-person courses delivered in 2022 were (i) Papua

New Guinea Ocean Science to Service, (ii) Extended Continental Shelf and GEOCAP Software training (x2), and (iii) Kiribati Ocean Science to Service Training. RTC Pacific is proposing the following OTGA courses to be delivered in 2023: Ocean Acidification follow-up course (in person), Pacific Tides Training (in person), PSLGM Routine Maintenance and Return to Service (online/in person), Pacific Marine Bioinvasions Alert Network (PACMAN) monitoring and awareness courses (online/in person), Ocean Science to Service: Introduction to the Pacific Ocean Portal (online).

3.1.16. RTC PORTUGAL

Ms Filomena Cardoso Martins, RTC coordinator, informed the Group the RTC is a consortium of universities in Portugal with a coordination committee and the RTC Portugal coordinator. The course portfolio consists of three groups of courses:

(i) A first group of courses that are already completely organize to be delivered fully online
(ii) A second group of courses that are in a process of redesigning to be deliver online (synchrony, asynchrony sessions)
(iii) A third group composed of hands-on courses that needs the presence of the participants in the facilities place. Some of them can be turned into b-learning courses, others not.

One course was delivered in 2022, *Observational oceanography and online resources for marine ecosystem analysis*. Another course on Ocean Literacy was planned but not completed. Three courses are planned for 2023:

- The change we need for the ocean we want Ocean Literacy with schools (March)
- Management and mitigation of coastal erosion (July)
- Observational oceanography and online resources for marine ecosystem analysis (to be confirmed).

3.1.17. STC ITIC

Ms Laura Kong, STC coordinator, described the ITIC and the IOC's Global Tsunami Warning and Mitigation Systems and the IOC Tsunami Information Systems. The status of the OTGA Tsunami Awareness course has taken longer than anticipated, however the content is being finalized, followed by testing and should go live in the 4th quarter 2022. Delays have been due to online delivery format and converting existing PPT to Moodle, including learning outcomes and assessments, and the deep learning and competency for interactive activities.

OTGA Courses planned 2023-24 include:

- Tsunami Awareness - overview covering hazard assessment, warning, preparedness, mitigation, response
- Tsunami Early Warning Systems (TEWS) - components of, and requirements for robust, reliable, and effective TWS
- TWC Staff Basic Competencies - Information and skill requirements for TWC staff. Topics: science of earthquakes and tsunamis, analysis methods, tools and

techniques for monitoring, assessing tsunami threat, issuing alerts, cancelling tsunami warnings

4 OTGA OPERATIONS AND WORK PACKAGES

4.1 OTGA WEBSITE AND E-LEARNING PLATFORM

This agenda item was introduced by Ms Claudia Delgado from the OTGA Secretariat who advised that the OTGA web site is the same as the e-learning platform. The new landing page was implemented in 2022 with more information on the Project and the network of training centres. The landing page also now incorporates a single sign on using OceanExpert credentials which provides a transparent link between the two systems. All courses are tagged with the training centre, language, SDGs being addressed. Course cards identify each course. OTGA is mainly focussed on delivering online courses that can be self-paced (no tutor assistance, open for self enrollment) or facilitated courses (tutor assisting throughout the courses, specific start and end date, may or may not include synchronous activities). Some courses can also be blended (both online and onsite phases). Face to face courses should be the exception. Course templates have been developed in four languages and these serve as a guide for instructors to design the course. For course design it is important to keep it light with no live or pre-recorded lectures. It is important to provide opportunities for collaboration which can include asynchronous activities (e.g. Forum) and synchronous activities (e.g. Chat, web conferencing). All activities should have Completion Tracking enabled which can allow tracking activities and Activity Reports. Ms Delgado informed the Steering Group that she will no longer work as IODE Training Coordinator and part of the OTGA Secretariat as from January 2023. The Steering Group members thanked Ms Delgado for her input to the OTGA Project and wished her all the best for her new endeavours.

4.2 OTGA SINGLE SIGN-ON

This agenda item was introduced by Greg Reed from the OTGA Secretariat who informed the Group that OTGA has introduced a single sign-on to the platform so that all learners and facilitators who want to access the OTGA will login with the SSO mechanism using their credentials in OceanExpert. All password resets and any account issues will be managed on the OE side and users who need to update details of their account will be redirected to OE. All learners and facilitators must create a user profile on OceanExpert which also maintains a calendar of all IOC events and a list of participants in events.

4.3 REVIEW OF OTGA COURSE MANAGEMENT GUIDELINES

This agenda item was introduced by Greg Reed who informed the Group that the OTGA Course Management Guidelines describe the process for organizing and managing training courses within the framework of the OTGA. The guidelines can also be used as a guide for organizing and hosting other training courses. The guidelines are intended to support the RTC/STC network by:

- Providing procedures on how to plan and design a course

- Providing recommendations on how to use the OceanTeacher Learning Management System
- Providing instruction on administrative procedures for organizing OTGA courses

Mr Reed outlined OTGA course planning timeline which should begin a minimum sixteen weeks before the start of the course. The course planning timeline is used to show the steps to consider when preparing for a course and it is important that the timeline be followed. All proposals for training courses must be included in the OTGA Course Proposal Form (*Document No. IODE.F08*). The Course Proposal Form will explain what will be gained from the course and should include the course objectives, learning outcomes, topics to be covered, the learning activities, target audience, facilitators, assessment process and learning resources. Mr Reed further outlined the procedures for course announcements, facilitator assessment, participant application and selection.

Activities organized during a training course include recording attendance (for onsite courses), issuing certificates and web conferencing. Attendance must be recorded for all onsite courses. For distance learning courses, Activity Completion is used to monitor progress through the course. Activity Completion must be enabled for all topics so attendance and participation can be monitored. OTGA course participants may receive either a *Certificate of Participation* for attended a course and this is monitored through online tracking tools or attendance records, and attain at least 90% attendance, or a *Certificate of Completion* can be awarded to participants who successfully complete the courses with well-structured activities, e.g., assignment, quiz, forum, etc., and with completion tracking enabled to monitor the learner progress through a sequence of learning activities. All certificates are issued from within the course by the OTGA e-learning platform using the template provided by the OTGA Secretariat.

Web conferencing can be used to deliver interactive visual solutions for OTGA distance learning courses by providing facilitators with tools to engage learners. BigBlueButton, is an activity module in Moodle, and is the preferred web conferencing solution for OTGA online learning. BigBlueButton supports real-time sharing of slides, webcams,

whiteboard, chat and presenter's desktop. It also allows tracking attendance and can be used to pre-record lectures for learners to watch at their leisure. It is recommended hosting sessions be limited to 100 or less users as overall performance will degrade with more than 100 users. If recording a session, the recording will appear at the same location in the course. Other web conferencing tools can also be used.

The quality of learning services provided by OTGA underpins this certification and in March 2022 the UNESCO/IOC Project Office for IODE was successfully audited for certification for the international standard ISO 29993 as a Learning services outside formal education. All learning and assessment materials will be assessed on an annual basis. As part of the certification, all OTGA courses including learning and assessment materials will be reviewed on an annual basis by the OTGA Secretariat. The OTGA Course Design Rubric (see Annex III) will be used to evaluate and improve instructor led and self-paced OTGA courses. This rubric comprises a set of eight criteria used to evaluate courses and uses a scoring system to determine if a course meets the criteria. All courses will be reviewed against the criteria and should achieve an overall score of 80% of the possible points to attain endorsement as an OTGA course. Future editions of courses that have been evaluated must address the recommendations.

The OceanTeacher Global Academy Course Management Guidelines can be downloaded from the Steering Group meeting site.

The representative from Colombia suggested more than one week for course enrollment is needed. The Secretariat will revise the course planning timeline to extend the period for enrollment to two weeks.

4.4 OTGA COURSE TEMPLATES

This agenda item was introduced by Mr Cheikh Ould Moulaye, OTGA e-learning Instructional Designer who explained the course templates provide a set of standard screens/pages created for a course to provide a consistent and familiar navigation experience for learners. For learners, the templates offer a standardized experience: where to find information from one course to another. This is important for participants new to online learning and reduces the cognitive load for learners. They can focus on their learning tasks or subject matter experts, the templates give a professional look to the course and can save hours of effort compared to starting a new course from scratch. For the OTGA Project, it reduces the time necessary to maintain and update these courses and makes it easier to evaluate the courses using OTGA Course Design Rubric. It also helps the OTGA Project Office to maintain its ISO 29993 Certification. He described each item in the template including the Start Here section, the modules and the lessons.

4.5 DTOL COURSE AND COPYRIGHT

This agenda item was introduced by Mr Cheikh Ould Moulaye, OTGA e-learning Instructional Designer who explained the purpose of the *Introduction to designing and teaching online courses* is to assist the OceanTeacher Global Academy accomplish its mission to provide a comprehensive web-based training platform that supports classroom, blended, and online learning. Based on our needs analysis phase, we

proposed to offer RTCs/STCs instructors an introductory course on designing and delivering online courses using the OTGA Learning Management System, Moodle.

The representative from RTC Portugal enquired about access to the DTOL course and if it is possible to complete the course at any time. The Secretariat advised the course is a self-paced course and trainers are enrolled once a course is approved. It is strongly recommended that all trainers in a course complete the course. A Badge is awarded through the e-learning platform for completion of the DTOL course.

Mr Cheikh Ould Moulaye then described the Copyright Rules tutorial. All items posted to OTGA courses must be limited to students enrolled in the course and all materials must be legally obtained. Providing a link to materials is preferable to uploading material and where possible, choose images and other material with a Creative Commons licence. A Creative Commons licence requires attribution.

4.6 OTGA PROJECT BUDGET

Ms Kristin de Lichtervelde from the OTGA Secretariat discussed the OTGA budget and the need to follow the prescribed timeline for organising courses. She explained that face-to-face training courses were the main budget item at the start of the Project but due to Covid restrictions F2F courses were no longer possible and the focus of the budget has now shifted to course development and hybrid courses. The OTGA budget can be used for course development which is a more sustainable solution and this should be supported by IOC Programmes. If funding for F2F courses is requested then the course planning timeline must be followed. Budget for courses require a contract and RTCs/STCs must follow the procedures:

- Course has been developed and approved (15 weeks before the start of the course)
- Budget has been submitted and approved (at least 12 weeks before the start of the course)
- Contract has been established (can take up to 2 weeks after all information received)

All RTC/STCs need to provide legal and banking information which is required by UNESCO to create a Vendor. Non eligible costs include promotional materials, visa costs, renting classrooms, internet and Covid costs (such as quarantine hotels, PCR tests). She underlined the need to check the OTGA Course Management Guidelines for details.

The coordinator from RTC Malaysia asked about funding for course development. The OTGA Secretariat advised that all course development funded by the Project should be approved by the relevant IOC programme or regional body. Proposals must include a course outline, learning outcomes, project timeline and SMEs to be used for course development.

4.7 REVIEW OF OTGA PROJECT WORK PACKAGES

Ms Delgado, OTGA Secretariat, reviewed the Project work package activities. She recalled the OTGA-2 Project is structured around five interrelated work packages, as follows:

- WP1: Project Coordination. Main tasks include monitoring the timely implementation of the project workplan and timely delivery of the project deliverables
- WP2: Project Technical Support. Main tasks include improving the services supporting the delivery of the Learning Services, including the online application for courses, remote participation in courses and, above all, an up to date, fully functioning e-Learning Platform that can serve and assist with training 24/7, around the globe
- WP3: Training course content creation. Main tasks include designing and developing new course contents to address the capacity needs of the different IOC Programmes
- WP4: Training course activities. Main tasks include provision of classroom and online training courses and support to users/learners during online courses
- WP5: Outreach, communication and project evaluation. Main tasks include implementing an effective communication and dissemination plan for the project and by providing support towards the project evaluation and ensuring the Steering Group provides guidance for the successful implementation of the Project

The OTGA Secretariat has taken on the responsibility for the work packages over the last year.

5 OTGA WORK PLAN 2023-24

5.1 TRAINING NEEDS IDENTIFIED BY IOC PROGRAMMES AND REGIONS

Proposed OTGA training courses to support IOC Programmes and Regions were discussed.

Mr Mika Odido, IOC Coordinator in Africa, informed the Group of some of the training activities in the region. IOC Africa worked with RTCs in Kenya and Mozambique to support the FAO-Nansen course on data management. This was considered to be a useful course and utilised a lot of data collected by Nansen programme in the region. A repeat of the course would be worthwhile. The online Ocean Data Management should be delivered by all three RTCs in the region as this is a priority for data centres. Other areas identified for priority include marine biodiversity and the application of remote sensing to coastal management. Mr Odido mentioned the possibility of using a research vessel from Egypt for cruises in the Mediterranean in 2nd or 3rd quarter 2023 and recommended collaboration with African RTCs in the area of cruise data.

Ms Claudia Delgado, on behalf of the IODE programme, informed the Group that three editions of the updated ODM self-paced course are planned in the next 18 months. (2 in 2023 and 1 in 2024) and are aimed for a global audience. A biological data management course, which is under development, should be available by mid-2023. Two Ocean Acidification courses, an adaption of course delivered this year for the Pacific Islands, will be delivered, one targeting Africa and one for the global audience. Four courses for OceanInfoHub, in 4 languages, will be available online early 2023 (dates to be advised). Also a Training course supporting the Decade and ECOPs will take place in Feb 2023.

Mr Gert Verreet, Flanders Government, inquired about relations with the Westpac region on course development. Mr Aidy Muslim, RTC-Malaysia, explained that an online meeting was held with Westpac last year and their RTRC network is moving forward but there has been no call for training. He advised the IOC Westpac has new leadership and they need to be advised of OTGA activities in the region to encourage synergising between OTGA and Westpac. Mr Muslim is due to meet with one of the Westpac co-chairs and will discuss OTGA activities. Mr Ariel Troisi, IOC Chair, advised that the IOC Group of Experts will meet on Friday and will discuss how to best identify regional needs and requirements and to align training efforts. Ms Laura Kong, STC-ITIC, commented that ITIC training needs will be aligned to the Ocean Decade and be customised for the regions.

5.2 OTHER OTGA ACTIVITIES

Ms Claudia Delgado informed the Group that OTGA collaborates with other partners by hosting or facilitating training courses. Ms Delgado informed the Group that OTGA is working with a number of external partners to deliver training on the e-learning platform. These partners include VLIZ, ECOPs, IALA, BODC/MEDIN, POGO, EUMETSAT, Mercator Ocean, FAO/Nansen/IMR, GGBN. OTGA also delivers training to support IOC programmes and projects (OBPS, OIH, OBIS/Pacman, IOC Capacity Development) and the UN Ocean Decade (ECOPs). OTGA outreach includes social media (Facebook 3000 followers, LinkedIn 600 followers, Twitter 400 + followers), regular articles in the IOC newsletter, production of two outreach videos, and delivering presentations at events and conferences.

5.3 OTGA WORKPLAN FOR 2023-24

All RTCs and STCs were requested to nominate training courses to be delivered for 2023-24 to be included in the Project work plan. Ms Delgado (OTGA Secretariat) reminded the Steering Group the focus should be on reducing the number of courses offered and developing quality flagship training courses. The possibility of co-designed courses between RTCs/STCs should also be explored.

The Steering Group agreed to a total of 30 courses to be delivered by RTCs/STCs and 14 courses to be hosted by RTCs/STCs on behalf of affiliate organisations in 2023, as listed in Annex IV. The Secretariat will discuss which each training centre the work plan for 2024. All RTCs and STCs were reminded to follow the course planning timeline.

6 FUTURE OF OTGA

Mr Reed (OTGA Secretariat) informed the Group that the mid-term self-evaluation has been requested by the funder describing the Project implementation, including the results achieved. The mid-term self-evaluation shall also include key evaluation questions to be included in the terms of reference for the FUST external evaluation which will be undertaken during the first semester 2023. The FUST Steering Committee will meet in mid-January 2023 with the aim to review the Project progress report containing the mid-term self-evaluation as well as the proposed evaluation questions to be included in the final Terms of Reference of the FUST external evaluation.

The Steering Group agreed on the following three questions to be included in the mid-term self-evaluation:

(i) Has your participation in OTGA promoted your role as a training centre in the region? Explain the reasons.
(ii) Are other programmes/projects using your RTC/STC for their training activities and providing support? Provide examples.
(iii) How has OTGA contributed to capacity development of ocean professionals in your region?

The current OTGA Project will finish in June 2024 and a proposal for the continuation of OTGA Project should be developed over the next twelve months. The Steering Group identified key points to be addressed in the new proposal:

- Focus on a standard set of core training courses recommended by UNESCO/IOC programmes
- Support training activities of regional and global partners and Decade Actions
- How to qualitative measure the value of the training in terms of job advancement / promotion as a result of completing training
- Collate and publish success stories and report to governing bodies

The Group will further discuss the new project proposal for the continuation of OTGA by correspondence.

7 SUMMARY AND DISCUSSION

7.1 ANY OTHER BUSINESS

Mr Reed (OTGA Secretariat) reminded the RTC/STC representatives to use the correct logos on presentations and course materials. These are as follows:

OTGA	OTG@ OceanTeacher Global Academy
IOC/UNESCO	unesco Intergovernmental Oceanographic Commission
OTGA banner	unesco Intergovernmental Oceanographic Commission · 2021 2030 United Nations Decade of Ocean Science for Sustainable Development · IODE · Flanders State of the Art · OTG@ OceanTeacher Global Academy

Flanders	
Creative Commons	

The Group discussed peer review of 2022 courses using the OTGA Course Design Rubric . Each RTC/STC would evaluate the OTGA courses delivered by other training centres using the rubric which comprises a set of eight criteria used to evaluate and score courses to determine if a course meets the given criteria. The Secretariat will advise each RTC/STC of the courses to be reviewed and Mr Cheikh Ould Moulaye, OTGA e-learning Instructional Designer, will be available to provide advice on the use of the rubric.

7.2 REVIEW OF THE MAIN DECISIONS AGREED DURING THE MEETING

The following decisions and actions were agreed by the Group:

- The Group instructed the Secretariat to revise the course planning timeline to extend the period for enrollment to at least two weeks.
- The Group instructed the Secretariat to finalise the work plan for 2023.
- The Group agreed to use the Course Design Rubric to peer review the 2022 OTGA courses delivered by RTCs/STCs. The Secretariat will advise each RTC/STC of the review process.
- The Group instructed the Secretariat to finalize the report, send out a draft for possible edits/corrections and decided that the report would be adopted by email.

7.3 ADOPTION OF THE WORK PLAN AND SUMMARY REPORT

The Secretariat will finalise the proposed workplan for 2023 to be included in the summary report. The summary report will be circulated to the Steering Group for comment.

7.4 DESIGNATION OF SG CHAIR

Nominations for Chair of the Steering Group for the next intersessional period were open during the meeting and two nominations were received from Mr Udaya Bhaskar (RTC India) and Mr Aidy Muslim (RTC Malaysia). The Group decided there should be two co-chairs of the Steering Group and designated Mr Bhaskar and Mr Muslim as Steering Group Co-Chairs for the next intersessional period.

8 CLOSING

The Chair thanked all participants for their active participation in the meeting. He also thanked the OTGA Secretariat for their assistance in organising the hybrid meeting.

The meeting closed at 12:30 on 23 November 2022.

ANNEX I. AGENDA OF THE MEETING

1. **OPENING OF THE MEETING.**
2. **OTGA PROJECT STATUS**
3. **REVIEW OF RTC/STC ACTIVITIES 2022**
4. **OTGA OPERATIONS**
5. **RTC/STC WORK PLAN 2023-24**
6. **FUTURE OF OTGA**
7. **SUMMARY AND DISCUSSION**
8. **CLOSING OF MEETING**

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ANNEX III. OTGA COURSE DESIGN RUBRIC

The OTGA Course Design Rubric[1] is used to evaluate and improve instructor led or self-paced OTGA courses. All OTGA courses will be reviewed annually by the OTGA Secretariat against the criteria and must achieve an overall score of 80% of the possible points to attain endorsement as an OTGA course. Feedback and recommendations for improvement will be provided to the RTC/STC responsible for the course delivery. Future editions of courses that have been evaluated must address the recommendations provided.

General Criteria	Specific Review Criteria	Points (max. 3)
Course Overview and Introduction. *The overall design of the course is made clear to the learner at the beginning of the course. (Max. score 6)*	1.1 Instructions make clear how to get started and where to find various course components.	
	1.2 Learners are introduced to the purpose and structure of the course. (*The length of time and date(s) for the course are clearly stated or if the course is self-paced)*	
Learning Objectives. *Learning objectives describe what learners will be able to do upon completion of the course. (Max. score 15)*	2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable.	
	2.2 The module/unit learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies.	
	2.3 All learning objectives or competencies are stated clearly and written from the learner's perspective.	
	2.4 The relationship between learning objectives or competencies and course activities is clearly stated.	
	2.5 The learning objectives or competencies are suited to the purpose or level of the course.	
Assessment and Measurement. *Assessment strategies are designed to evaluate learner progress in achieving the stated learning objectives.* *(Max. score 9)*	3.1 The assessments measure the stated learning objectives or competencies.	
	3.2 Course information specifies how successful completion of the course will be recognized. (Specify the form of recognition to be received for completion of the course, for example, certificate of completion, certificate of attendance, digital badge)	
	3.3 Specific and descriptive criteria are provided for the evaluation of learners' work and are tied to the course policy for determination of successful course completion.	
Instructional Materials. *Instructional materials enable learners to achieve stated learning objectives.* *(Max. score 6)*	4.1 The instructional materials contribute to the achievement of the stated course and module/unit learning objectives or competencies.	
	4.2 Both the purpose of instructional materials and how the materials are to be used for learning activities are clearly explained.	
Learning Activities and Learner Interaction. *Course activities facilitate and support learner*	5.1 The learning activities promote the achievement of the stated learning objectives or competencies.	

[1] *Based on the QM CPE Rubric*

interaction and engagement. *(Max. score 9)*	5.2 Learning activities provide opportunities for interaction that support active learning. (Courses where instructors/facilitators do not interact with learners, synchronously or asynchronously, can use technology in a variety of ways to actively engage learners with content, for example, self-check features at key points throughout the content, automated exercises, and automated feedback on responses)	
	5.3 The instructor/facilitator's plan for classroom response time and feedback on assignments is clearly stated. (For courses that are not instructor/facilitator led, an explanation of when feedback on assignments and quizzes will be provided to learners.)	
Course Technology. *Course technologies support learner achievement of course objectives or competencies.* *(Max. score 6)*	6.1 The tools used in the course support the learning objectives or competencies.	
	6.2 Course tools promote learner engagement and active learning.	
Learner Support. *The course facilitates learner access to support services essential to learner success.* *(Max. score 6)*	7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	
	7.2 Course instructions articulate or link to the institution or organization's accessibility policies and services.	
Accessibility and Usability. *The course design reflects a commitment to accessibility and usability for all learners.* *(Max. score 6)*	8.1 Course navigation facilitates ease of use.	
	8.2 Information is provided about accessibility of all technologies required in the course.	

ANNEX IV. PROPOSED WORK PLAN 2023

(I) OTGA courses to be delivered by RTCs/STCs

RTC/STC	Course name	Online/F2F	Date	Comments	IOC Programme	IOC Region	Priority
STC Argentina	Marine Microbiology and Biogeochemistry	online	February		other	GLOBAL	HIGH
	Methodology for Geological and Physical Oceanography of Coastal Environments	online	march		other	GLOBAL	HIGH
	Observation of Icebergs and Sea-Ice in spanish	online	may		GOOS	GLOBAL	HIGH
	Observation of Icebergs and Sea-Ice in english	online	jun		GOOS	GLOBAL	HIGH
	Determination of the outer limits of the Continental Platform in spanish	online	2nd sem. 2023		Law of the Sea	GLOBAL	HIGH
	Determination of the outer limits of the Continental Platform in english	online	2nd sem. 2023	collaboration with RTC Pacific/redesign	Law of the Sea	GLOBAL	LOW
RTC Belgium	Biological Data Management	online	Jun-23		OBIS	GLOBAL	MEDIUM
	Ocean Acidification	online	Mar-Apr 2023	Online course on Ocean Acidification in the framework of an ongoing regional OA project in Africa	Ocean Acidificatio n	IOCAFRIC A	HIGH
RTC China	Training course on marine information technologies	online	15 May-26 May, 2023	Introduce the cutting-edge ocean data management strategies, methods and tools at global and regional levels, share experience in ocean data and information technology development and application in China, inspire discussion on the role of information technologies in realizing the sustainable development goals for the ocean.	IODE	WESTPAC	HIGH
RTC Colombia	Ocean Acidification (existing course)	face-to-face	June 2023	Course theory and practice in Lab, working in order to report the indicator 14.3.1. Some materials in English from other RTC will be useful. The course may be is co-financing by IAEA-Monaco if OTGA also co-finance some scholarships	Ocean Acidificatio n	GLOBAL	HIGH
	Blue Carbon (mangroves and seagrasses) already exists, modify content	face-to-face	April or July 2023	Course will be using materials from IPBC and IOC-Unesco (Invemar is part of International Parnership Blue Carbon and Global Mangrove Alliance and Colombia has the first Blue Carbon Project certified by Verra in the World). Maybe some international experts comes to Colombia for the International Event on Mangroves, Macrobentic and Management MMM6, in this event one of the important topic is Blue Carbon, we try to join the course before this event in order to join the efforts at international and national level. We have some stakeholders interested in co-finance some scholarships if OTGA also co-finance or support part of the participants	Ocean Carbon	GLOBAL	HIGH
	Marine GIS	face-to-face	1st semester 2024	Data & Information including remote sensing and GIS, as well as new technologies for capture data	IODE	IOCARIBE	HIGH
RTC Cono Sur	MCSP (3rd Edition)	online	May-23		MSP	GLOBAL	HIGH
	MCSP/MSP Challenge - Uruguay 2023	blended	Jun-Jul 2023	F2F 2-3 days , OTGA funding fro participants from Brasil	MSP	GLOBAL	HIGH
	Plastic marine pollution 2nd edition	online	2nd semester		MSP	GLOBAL	HIGH
RTC Kenya	High Resolution Benthic Mapping (substratum and biotic forms)	blended	Jul-23	use data from multi beam, back scatter. Preliminary stage.	Ocean Mapping	IOCAFRIC A	
RTC Malaysia	Integrated data analysis aproach for Coastal upwelling studies	online	JAN/FEB 2023	lecture, open call, maybe APRIL		WESTPAC	MEDIUM
	Introduction to Google Earth Engine for Coastal and Marine application (1)	blended	Nov-23			WESTPAC	MEDIUM
RTC Mozambiqu e	Accessing free oceanographic programs and data	online	06-10 Mar-2023		IODE	IOCAFRIC A	
	Training course on satelite data ocean monitoring for coastal zone	blended	7-11 Aug-2023		IODE	IOCAFRIC A	

STC Indonesia	Ocean Forecast System (OFS) Processing: Coastal Resilience and Disaster Risk	online	2nd Semester 2023	60 participants. Main participants: Alumni of the OFS Course 2021 (34 persons), Secondary participants (TBD): new participants that have skills in Ocean Modelling (will be selected through pre-course activity)	Ocean Acidification	WESTPAC	MEDIUM
	Training of Trainers: Weather Field School (CFS) for Fishery Extension workers	online	2nd Semester 2023	60 participants. Will welcome 70 - 80 candidates	Ocean Literacy	GLOBAL	MEDIUM
RTC Portugal	The change we need for the ocean we want - Ocean Literacy with schools	online	Mar-23	Empower teachers with more tools, critical thinking and understanding about the ocean and increase awareness about their daily relationship with it and how their behaviours can impact Ocean sustainability. It is intended that the trainees' learning is transferred and adapted to formal educational contexts.	Ocean Literacy	GLOBAL	1
	Management and mitigation of coastal erosion	online	Jul-23	This course aims to address the causes of coastal erosion and discuss measures for their mitigation, mapping the risk of erosion, presenting study examples, assessing the costs and benefits of coastal defense interventions, and discussing planning and monitoring policies.	Sea Level	GLOBAL	1
	Observational oceanography and online resources for marine ecosystem analysis	online	to be confirm date	To provide a brief overview on instruments employed on ocean observations; To provide an introduction on the use of free software for synthesis of ocean data and analyses; To discover and use of multi-parameter ocean data collections; To develop ocean data and products from multiple sources using selected software programs	GOOS	GLOBAL	2
STC ITIC	Tsunami Awareness - English, 4-6 hrs content	online	2022 Q4	**English**. Overview covering Tsunami Basics, Warning Systems, and Preparedness. Standard content with Learning Activities allowing for regional or country focus. Audience: All levels, no background necessary. (to be part of UNESCO IOC Tsunami Ready implementing process). Other RTCs may wish to build from this self-paced (no instructor) course, by adding another course with regional / country focus.	Tsunami	GLOBAL	**1**
	Tsunami Awareness - Spanish, 4-6 hrs content	online	2023 Q2	**Spanish**. Overview covering Tsunami Basics, Warning Systems, and Preparedness. Standard content with Learning Activities allowing for regional or country focus. Audience: All levels, no background necessary. (to be part of UNESCO IOC Tsunami Ready implementing process). Other RTCs may wish to build from this self-paced (no instructor) course, by adding another course with regional / country focus.	Tsunami	GLOBAL	**1**
	UNESCO IOC Tsunami Ready Recognition Programme: Guidelines for establishing Tsunami Ready communities - English, 6-8 hrs content	online	2023 Q1	**English.** Teaching Manual: IOC MG 74, 2022, Standard Guidelines for the Tsunami Ready Recognition Programme. covering Indicators, and process for recognizing communities as UNESCO IOC Tsunami Ready. Audience: government and non-government officials responsible or interested in tsunami preparedness, and in establishing Programme. (Course pre-requisite is Tsunami Awareness). Implement in coord with IOC Indian Ocean Tsunami Information Centre (IOTIC)	Tsunami	GLOBAL	**1**
	UNESCO IOC Tsunami Ready Recognition Programme: Guidelines for establishing Tsunami Ready communities - Spanish, 6-8 hrs content	online	2023 Q2	**Spanish.** Teaching Manual: IOC MG 74, 2022, Standard Guidelines for the Tsunami Ready Recognition Programme covering Indicators, and process for recognizing communities as UNESCO IOC Tsunami Ready. Audience: government and non-government officials responsible or interested in tsunami preparedness, and in establishing Programme. (Course pre-requisite is Tsunami Awareness).	Tsunami	GLOBAL	**1**
	Tsunami Early Warning Systems - English, 40 hrs content	blended	2023 Q3	**English.** Components of, and requirements for a robust, reliable, and effective tsunami warning system. Standard content with options for regional customization through F2F. Audience: staff of agencies responsible for tsunami warning and mitigation in a country. Potential interest by other RTCs. (Adapt from 2-week ITIC Tsunami Programme - Hawaii trainings (ITP-Hawaii), plan to hold in 2023	Tsunami	GLOBAL	2

				Q3 in New Zealand). (Course pre-requisite is Tsunami Awareness).			

(II) Courses hosted on behalf of affiliate organisations

RTC/STC	Course name	Online/F2F	Date	Comments	IOC Programme	IOC Region	Priority
RTC Belgium	Ocean Data Management (Self-paced)	online	May-June 2023	Self paced course 100 participants max.	IODE	GLOBAL	HIGH
	Ocean Data Management (Self-paced)	online	Oct-Nov 2023	Self paced course 100 participants max.	IODE	GLOBAL	HIGH
	Ocean Data Management (Self-paced)	online	Mar-Apr 2024	Self paced course 100 participants max.	IODE	GLOBAL	HIGH
	Ocean Acidification	unsure	Sep-Oct 2022	check with Katerina	Ocean Acidification	GLOBAL	HIGH
	IOC/OTGA/OIH Training course: Implementing the Ocean Data and Information System (ODIS) architecture - English	online			OIH	GLOBAL	HIGH
	IOC/OTGA/OIH Training course: Implementing the Ocean Data and Information System (ODIS) architecture - Spanish	online			OIH	GLOBAL	HIGH
	IOC/OTGA/OIH Training course: Implementing the Ocean Data and Information System (ODIS) architecture - French	online			OIH	GLOBAL	HIGH
	IOC/OTGA/OIH Training course: Implementing the Ocean Data and Information System (ODIS) architecture - Portuguese	online			OIH	GLOBAL	HIGH
	Data Management and Analysis with R Programming for Early Career Ocean Professionals (ECOPs)	online	Mar-23	online synchronous with tutor assistance	IODE	GLOBAL	HIGH
RTC Colombia	Curso Taller RedCAM	online	2nd semester of 2023		other	IOCARIBE	HIGH
RTC Malaysia	Enhancing Coastal Risk Reduction Science and Practice by Considering Climate, Ecosystems, and Communities in the tropical region	face-to-face	May/ July 2023	Closed Training course for Project members (Fully covered by Asia Pacific Network Grant)		WESTPAC	HIGH
STC HAB	In-country HAB Training Course Namibia	face-to-face	27.01.-10.02.23		HAB	IOCAFRICA	
	IOC Identification Qualification in Harmful Marine Microalgae 2023	blended	15.08-15.09.23		HAB	GLOBAL	
	International Phytoplankton Intercalibration (IPI) 2023	blended	Autumn 2023 tbd		HAB	GLOBAL	