

The Global Ocean Observing System



GOOS and Capacity Development

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GE-CD-VI

GOOS 2030 Strategy

Vision: A truly global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing and prosperity

- Strategic Objective 9: Develop capacity to ensure a broader range of beneficial stakeholder participation.

**UN Ocean Decade: Challenge 7
'Expand the Global Ocean Observing System'**



Cross-GOOS Progress

SO9 - capacity development

- GOOS develop partnership with IODE/OTGA - courses+
- Enable community of practice capacity development in GOOS
- Investigate mechanisms to support CD activities within regions through GRAs e.g. instrument donation, sharing of training materials, etc.

No.	SO9 - capacity development	
1	Greater number of countries actively participating in the GOOS	
2	A greater number of countries with capabilities in ocean forecasting	
3	New practices and data products addressing the needs of diverse countries	

Source: GOOS SC-13 Reporting- Strategic Objectives



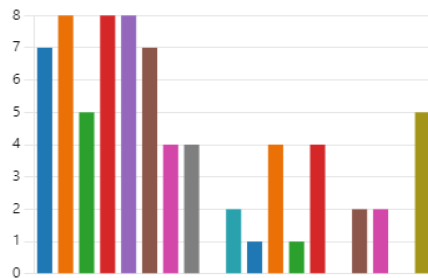
	Type of event	Aimed at	Attendees	Description	Partners
OCG	Showcase / tour	School students	4000	OCG-14 May 2023 in South Africa had a large outreach event organised that showcased the impact of ocean observations on society - 3 day event had participation from organisations across South Africa.	
OCG	Webinar (series)	ocean professionals	60 - 200 per webinar	WMO Information System 2.0 (WIS 2.0), Argo Data IOC/UNESCO information data related resources and the Ocean InfoHub Project, ASAP, Upper air profiles at sea and ERDDAP	
DBCP - OCG	Workshop and instrumentation	SIDS, Africa, LME young professionals	30 in person, 50 online Tunisia, May 120 for online session November	Mediterranean Training Workshop on Ocean Observations and Data Applications May 2023, Tunisia. Plus November 2022 online session with special session on carbon and biogeochemistry observations. Funding provided to those who had not previously engaged in DBCP/GOOS, laying the groundwork for future initiatives. Solomon Islands were supported with 2 wave buoys (Scripps). Pacific Community has plans to further strengthen capacity through deployment of buoys.	Tunisian National Institute of Meteorology (INM), Ministry of Transport, IOC, WMO, LDL/SIO
SOT - OCG	Training workshop	Port meteorological officers (PMOs)	37 from 24 countries	7th Port Meteorological Officer (PMO) Training workshop, in Fiji, Oct 2023. Objective to get more countries in the Pacific involved in PMO as this is a gap. Region is working on strengthening its observing capacity including VOS.	Pacific Community (SPC), WMO
BGC	Summer School - training workshop	early career scientists	28 from different parts of the world	3rd " Instrumenting our ocean for better observation: a training course on a suite of biogeochemical sensors " was held in June 2023, in Sweden. Lectures and hands-on workshops, to teach best practices for biogeochemical sensors, data and critical thinking for optimum sampling strategy in the context of local, regional and global and climate, operational services, and ocean health: oxygen particulate organic carbon, pH, pCO2, nitrate.	Kristineberg Marine Research Station in Sweden, IOCCP, Integrated Carbon Observation System Ocean Thematic Centre (ICOS OTC), NOAA, Ocean Frontier Institute, and Carbon to Sea.
BGC	Summer School	early career scientists	33 young researchers from 17 countries	GOOD-OARS-CLAP-COPAS Summer School in Chile, November 2023, 15 world experts, presentations on ocean acidification and deoxygenation as well as practical sessions on modelling, laboratory experiments, shipboard measurements and analysis, communication training and an introduction to ethics in science.	IOC, SCOR, PICES, EGU, IAEA -OA-ICC, OARS, GOOD, IRD, OCB, CEAZA, FCM, ESMOI, COPAS COASTAL, Uni. Catolica del Norte, COROA, IOCCP (SCOR)
BioEco	Various workshops	ocean professionals		BioEco have contributed to and facilitated sessions, workshops and symposia at various conferences to expand our outreach into the community in building awareness, understanding and capacity in EOVI implementation. Involving continued engagement directly with MBON through participation of MBON.	MBON
BioEco	Leadership	ECOPS	several	Development of EOVI co-lead roles provides an opportunity for direct engagement and capacity development of Early Career Researchers in implementing EOVI and engaging with international communities.	

DBCP Capacity Building

Questionnaire for DBCP Capacity Building Feedback and Needs

- 44 responses, 43 valid [TRAINEES only]
- 24 Members/Member States

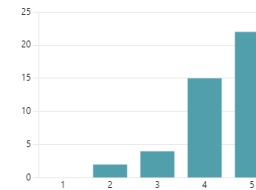
- 2023, Part II, 1st Mediterranean ... 7
- 2022, Part I, 1st Mediterranean T... 8
- 2021, 5th Pacific Islands Training... 5
- 2019, 4th Pacific Islands Training... 8
- 2018, 3rd Pacific Islands Training... 8
- 2017, 5th Workshop for North P... 7
- 2016, 2nd Pacific Islands Trainin... 4
- 2015, 1st Pacific Islands Training... 4
- 2015, 4th Workshop for North P... 0
- 2014, 5th Workshop for Western... 2
- 2014, 3rd Workshop for North P... 1
- 2013, 4th Workshop for Western... 4
- 2013, 2nd Workshop for North ... 1
- 2012, 3rd Workshop for Wester... 4
- 2012, 1st Training workshop for ... 0
- 2011, 2nd Workshop for Wester... 2
- 2010, 1st Workshop for Wester... 2



2012-2015 two workshops every year,
No CB activity in 2020, and virtual 2021&2022
No response from 2012 Chennai, and 2015 Busan

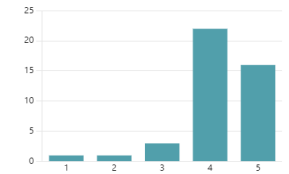
The topics and presentations improved capacity/knowledge/technical skills in your interested subjects.

4.33
Average Rating



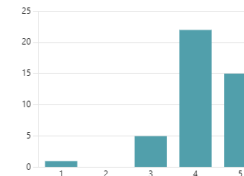
Improved your knowledge of observation technology/instrumentation/sensors?

4.19
Average Rating



Improved your professional knowledge/technical skills, incl. quality control, etc?

4.16
Average Rating



Can you rank the following that may be priority areas for capacity building?

- 1 Observation technology/ sensor...
- 2 Data collection/data access/dat...
- 3 Data applications
- 4 Forecasting/modeling
- 5 Cooperation and partnership, in...
- 6 Disaster risk reduction/Climate c...



DBCP Training Workshop on Ocean Observations for Weather Forecast and Climate Prediction (6-8 Aug 2024)

Modules and Topics of Workshop

Session 1: Needs and Requirements of Ocean Data

Session 2: Data Management and Access

Session 3: Data Application in Forecasting

Session 4: Data Application in Climate Prediction

Session 5: Regional Requirements and Cooperation

Please feel free to contact **JIANG Qiu (jlzjq@163.com)**, Chair of DBCP TT-CB for questions

Outcomes from review of DBCP capacity development activities

- Continuously leverage resources to organize needs-oriented training.
- Cooperate with WIS 2.0 and Cross-Network Data Implementation Strategy to improve the data exchange ,accessibility and usability.
- Establish alumni database/email newsletters to encourage the engagement and cooperation.

GOOS SC13 – GOOS Progress report recommendations

BioEco Panel recommends that GOOS develop direct partnerships with IODE and the OTGA to develop a series of courses, if regarded as a priority, more broadly to develop EOV capacity across the whole of the observing system, not just specifically for the BioEco EOVs.

Enhance IOC's capacity development needs assessment process through various approaches to ensure a wider representation of communities provide feedback which can be used to target capacity development activities through GOOS, IOC/WMO

Enable a community of practice for capacity development within GOOS, IOC/WMO that will allow those involved with CD to better integrate activities and add value wherever possible. foster integration and collaboration through networks and WMO/IOC ensuring maximum impacts of capacity development activities e.g co-hosting webinar series, regional to national workshops etc



GRA Forum 11, 8-9 April 2024

To enhance GRA observing, the idea of categorizing the types of priorities was raised: technical capability vs. data management vs. capacity development etc.

The GRAs could play a key role in outlining the priorities each GRA provided to see if there are priorities which align. Identifying top 2-3 priorities for each GRA may be more useful to match the need and expertise. Each region has different capacity gaps, so by understanding those gaps in capacity may allow for more tailored efforts to build capacity

NFP Forum 2, 24 October 2024

Explore opportunities to strengthen connections between GRA and National Focal points
Particularly in building observation / data capacity for all EOVs



WMO/IOC Joint collaborative Board

Capacity Development: : Establish joint training centers and resources between WMO and IOC to enhance capacity development (CD) in meteorology and oceanography.

Key Actions:

1. Cooperation Framework:

- Foster collaboration between WMO Regional Training Centers and IOC Training Centers.
- Encourage cross-pollination of existing CD groups within IOC and WMO, led by David Farrell.

2. Membership and Coordination:

- David Farrell (JCB member) will flag an upcoming WMO CD group meeting for awareness.
- Request the IOC CD team (through Peter) to identify a member, with Kathy Ann Caesar serving temporarily under David's coordination.

3. Small Joint Advisory Group:

- Form a small advisory group consisting of members from IOC and WMO CD groups under JCB.
- This group will recommend the development of joint courses and facilitate information sharing among BMKG, India, and the Caribbean.

4. Global Calendar:

- Populate the WMO and IOC Global Calendar with details on CD training programs.



WMO/IOC Joint collaborative Board

Capacity Development: : Establish joint training centers and resources between WMO and IOC to enhance capacity development (CD) in meteorology and oceanography.

Long-Term Goals:

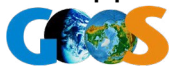
- Establish Joint Meteorological and Ocean Training Centers.
- Encourage volunteers from IOC and WMO CD groups to participate in each other's meetings.
- Seek national and regional experts for consultations on joint course development via WMO regions or IOC Subcommissions.

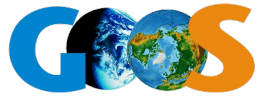
Timelines and KPIs:

- **October 2023:** Alert the WMO CD group about the joint training initiative from JCB.
- **Today:** Form a small group during the JCB meeting.
- **One Year:** Deliver at least one course proposal for the next in-person JCB meeting.
- **Within 6 Months:** Initiate information exchange meetings between BMKG, India, and the Caribbean.
- **November 2023:** Advertise the joint training effort to IOC partners if approved.
- **Communication:** Engage with the Ocean Decade CD facility regarding platform utilization.

Strategic Advice:

- Recommend that WMO and IOC governing bodies endorse the joint training effort for capacity development.
- Support the establishment of Joint Meteorological and Ocean Training Facilities, leveraging existing centers.





The Global Ocean Observing System

Thank you

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