CLIVAR: CLIMATE & OCEAN

variability, predictability and change

OOPC

Indian Ocean Regional Panel - IORP

Co-chairs Juliet Hermes and Roxy Koll
Jing Li, Birgit Gaye

WCRP World Climate Research Programme

CLIVAR

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

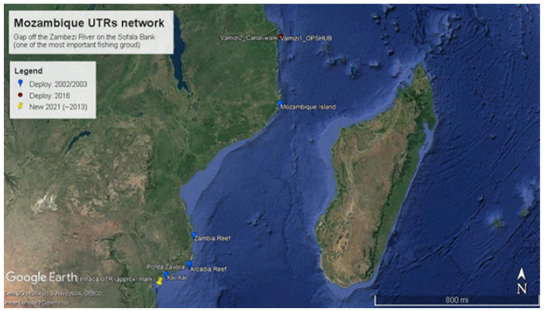
The Global Ocean Observing System GOOS

IORP Membership 2022

Name	Role	Year	Institute	Country
Roxy Mathew Koll	Co-Chair	2022	IITM	India
Juliet Hermes	Co-Chair	2022	South African Environmental Observation Network	South Africa
Lisan Yu	Member	2022	Woods Hole Oceanographic Institution (WHOI)	USA
Nick Hardman-Mountford	Member	2022	Oceans & Natural Resources, Commonwealth Secretariat	UK
Elaine McDonagh	Member	2022	Norwegian Research Centre (NORCE)	Norway
Motoki Nagura	Member	2023	JAMSTEC	Japan
Birgit Gaye	Member	2022	University of Hamburg	Germany
Dwi Susanto	Member	2022	University of Maryland	USA/Indonesia
Bernardino Sérgio Malauene	Member	2023	Instituto Nacional de Investigação Pesqueira	Mozambique
Faiza Yousef Al-Yamani	Member	2023	Kuwait Institute for Scientific Research	Kuwait
Marie-Alexandrine Sicre	Member	2024	CNRS, LOCEAN	France
Janet Sprintall	Member	2024	Scripps Institution of Oceanography, UCSD	USA
Shikha Singh	Member	2024	Indian Institute of Tropical Meteorology	India
Eluri Pattabhi Rama Rao	Member	2024	Indian National Centre for Ocean Information Services (INCOIS)	India
Dongxiao Wang	Member	2022	School of Marine Sciences, Sun Yat-Sen University	China
Srinivasa Kumar	Ex officio		INCOIS | IOGOOS	India
Michael McPhaden	Ex officio		Chair / Tropical Moored Buoy Implementation Panel	USA

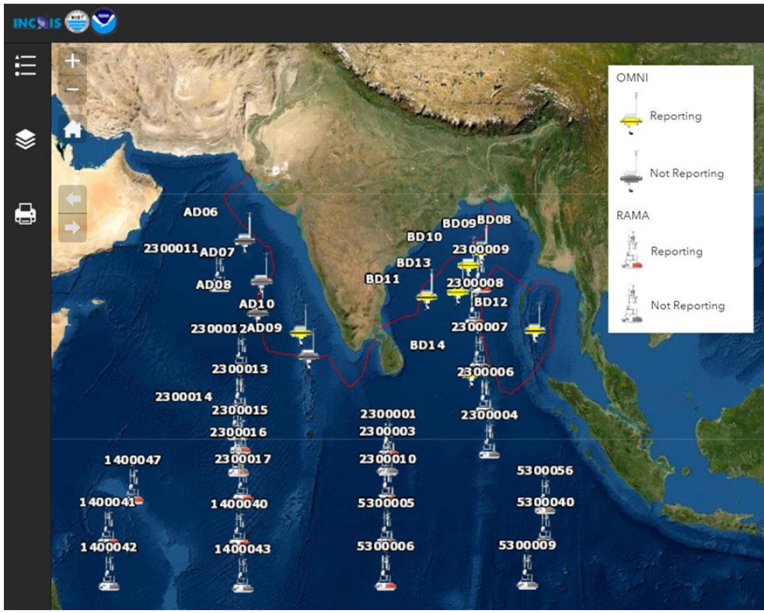
IORP Annual activities

- No in person meeting but quarterly virtual meetings of IORP and also of co-chairs
- Slack channel set up, in particular for ECS
- WIO workshop to be hybrid in Mozambique in June, successfully received funding from POGO and CLIVAR
- Task teams to address issues



IORP Annual activities

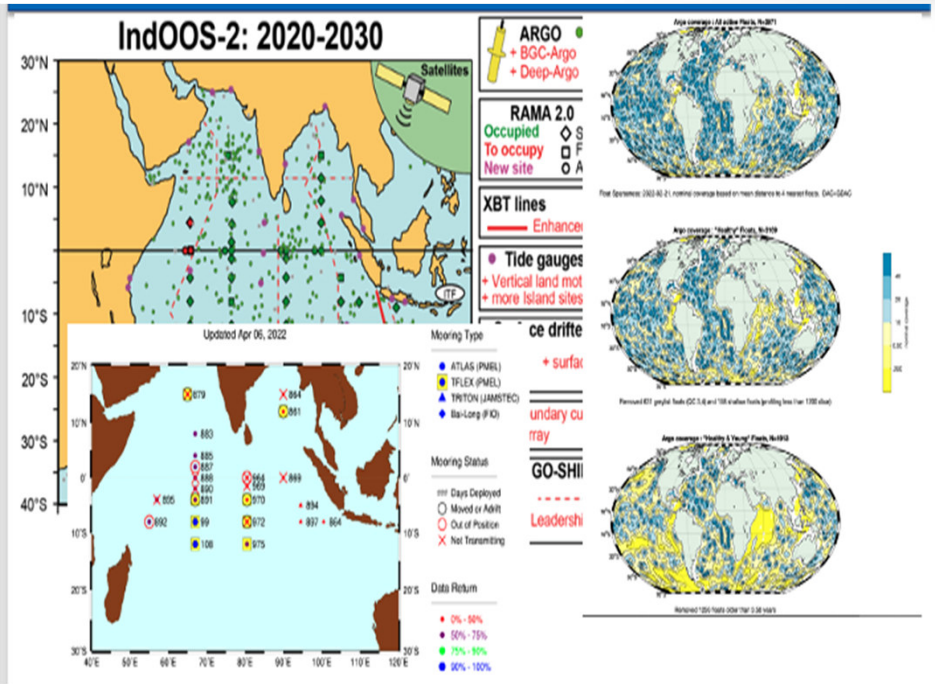
- Roxy and Juliet presented at the IORA webinar on climate change in the Indian Ocean marine environment
- NOAA-MoES partnership expanded and RAMA-OMNI dataserver launched
- Ocean and atmosphere observation network in Sri Lanka established by the Chinese academy of sciences
- Negative impact – the shut down of the IOC PPO in 2021 and shrinking support from IOC GOOS



CLIVAR

The Global Ocean Observing System
GOOS

Tracking of IndOOS2 Implementation



- IORP Task Team & IRF track IndOOS-2 implementation
- Extreme losses in the OMNI/RAMA array during COVID
  - RAMA data return only 0-50% with deployment periods well past expected 1-year lifetimes of moorings/sensors due to lack of servicing opportunities
  - Severe reduction in Argo (core and BGC) deployment with 54% of floats > 3 years old
- Enormous societal impacts to regional forecasting systems
- Permanent gap in the observing system for future climate predictions
- BAMS article to alert community planned jointly by IORP IndOOS-2 TT, IRF and Argo ocean-ops

Activities

- Indian Ocean Ambassadors for networking and dissemination
- First WCRP Climate Research Forum in the Southern Asian Region
- Contributed to the IPCC AR6
- WG1 report Policy brief for the IPCC SROCC highlighting 3 Indian Ocean case studies
- Commonwealth case study paper and progress in understanding of Indian Ocean circulation, variability, air-sea exchange and impacts on biogeochemistry (Philips et al., 2021).
- Juliet is chair of the Indian Ocean Rim Association Academic Group

The Indian Ocean Observing System (IndOOS) (from Beal et al., 2019).

Indian Ocean ECRs

SDA^2 framework

Skill Development → Awareness → Application

- **Hackathons – Pre-school exercise** (eg : to develop a code)
- **Graduate Student Seminars -** Lightning session/online+in-person Poster session
- **Hands-on training** (Version Control System, Data Analysis, etc)
- **Working groups** (ECRs + mentor)

- **Working Groups discussion.**
- **Webinars/interactive sessions (**with leading scientists & subject matter experts w.r.t. to the WGs)

- **Community Paper**
  - Timeline based community research paper as a quantified output for the Summer school.
  - Clivar Exchanges/Journal Article
- **Product Development**

(Shikha Singh)

Marine heat wave summer school (July 2023)

Summer School on Marine Heatwaves: Global Phenomena with Regional Impacts

A cross-panel hands-on training course for understanding and detecting MHWs

- selected for support by the CLIVAR SSG in September 2022
- Centered around 3 themes: detection, mechanisms and impacts of MHWs
- Tentatively in July 2023, to be held at ICTP, Trieste, Italy (Hybrid Mode) ⟶
- Organizing Committee: IORP and both Pacific and Atlantic CLIVAR Regional panels, GOOS MHW exemplar group.
- Closely associated with WCRP Lighthouse Activity. ⟶
- To be proposed as a UN decade activity.

Regional Training Workshop on Observing the Coastal and Marginal Seas in the Western Indian Ocean June 7-9, 2022 in Maputo

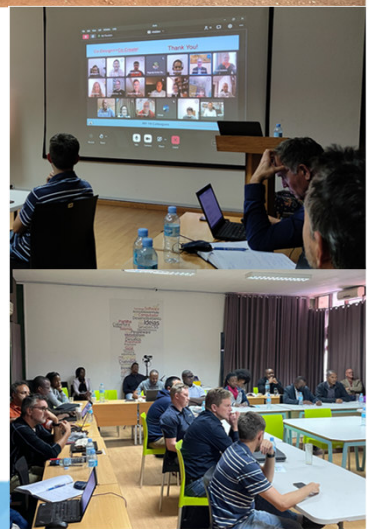
Encourage the WIO countries to engage in ocean observing and marine research

- Participants
  - **Students: 22 in-person** from WIO region (>100 online)
  - **Lectures: 12 in-person** from WIO and beyond (10 online)

Day 1
- Existing WIO observing systems
- Coastal instruments and platforms
- Data best practices

Day 2
- Marine robotics & **site demo**
- Argo floats (Bio-Argo)
- Satellite observation
- Moorings

Day 3
- Data analysis, and management
- Ocean observation for societal needs
- Panel discussion



Next key priorities

1. Marine Heat Wave workshop in Trieste in July 2023
2. MHW research focus group
3. IndOOS -2 implementation tracking (working with IRF with a goal to provide progress report on IndOOS-2 implementation, accessing IIOE 2 national reports)
4. Paper on impact of COVID on IndOOS
5. ECRs and Indian Ocean Ambassadors
6. Expand science to policy and society
7. Form closer links with SIBER looking to 2025 and beyond – pilot project is CoLaB (Coastal Lab in a Box) to develop sustainable low cost coastal observing systems
8. How can we form enhanced links with OOPC, member of OOPC on IORP or IORP on OOPC