



United Nations
Educational, Scientific and
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Intergovernmental
Oceanographic
Commission

PERTH PROGRAMME OFFICE (PPO)
IN SUPPORT OF UNESCO IOC

Newsletter

SEPTEMBER 2014

Welcome to the 7th occasional newsletter for the Perth Programme Office (PPO) in support of UNESCO's Intergovernmental Oceanographic Commission (IOC). This newsletter provides an update to stakeholders on recent PPO programs and activities. Further information can be obtained through our website (www.iocperth.org), or please feel free to contact the PPO (nick.dadamo@bom.gov.au or I.wicks@bom.gov.au) for further details on anything contained in this newsletter.

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IIOE-2 Update

The Indian Ocean and wider global oceanographic community has been planning since 2011 to descend upon the Indian Ocean to extensively study its oceanography, biology, biochemistry and geology between 2015-2020 in order to uncover answers to a suite of contemporary marine science questions in the face of a changing global climate and increasing human usage.

This planning has taken inspiration from the original International Indian Ocean Expedition (IIOE) which occurred between 1959-65 under the sequential leadership of the Scientific Committee on Ocean Research (SCOR) and the UNESCO IOC. It was the first international collaborative program of scientific cruises and observations undertaken at such a grand scale in the Indian Ocean and uncovered formative baseline scientific information of significant societal and environmental relevance.

Under the guidance of the IOC, the Indian Ocean Global Ocean Observing System Regional Alliance (IOGOOS) and SCOR a large community (via a Reference Group process facilitated jointly by the PPO and SIBER*, and also via numerous national scale meetings and briefings) have converged on a broad number of scientific priorities and governance arrangements for an IIOE-2. Related planning documents and presentations from the Reference

Group process can be accessed via the PPO's website (www.iocperth.org). The IIOE2-2 will be highly relevant to the oceanography and coupled climate of not only the Indian Ocean's constituent countries, but also those tele-connected by currents and atmospheric processes far and away from this ocean per se.

A formal proposal and draft resolution for IIOE-2 was presented to the IOC Executive Council at its 47th Session in July 2014 (EC-47). The Executive Council voted to formally adopt IIOE-2 as a major IOC initiative in partnership with SCOR and IOGOOS, a significant step forward in realising IIOE-2. The resolution (EC-XLVII, Res 6.3) includes a number of further commitments to finalise the planning phase of IIOE-2 and to present IIOE-2 research and operational plans back to the IOC Assembly in June 2015. Specifically:

- Finalisation of the science research plan will be led by SCOR via a scientific expert process, with participation of the IOC and IOGOOS; and
- An Interim Planning Committee (Group of Experts - formed following IOC Member State [MS] nominations) will work up until June 2015 to develop and manage the implementation planning for the IIOE-2 with secretariat support by the IOC.



IIOE-2 Update cont....

Full details of the IIOE-2 discussion at EC-47 and the adopted resolution can be found in the IOC Summary Report via www.ioc-unesco.org. A summary timetable of the key next steps is also included here for reference.

The PPO will continue to play a leading role in the finalisation of planning for IIOE-2, including participating in the scientific expert process for the finalisation of an IIOE-2 research plan. The PPO, through its support for IOGOOS, will also continue to champion coordinated national engagement in IIOE-2 planning processes, and welcomes all communications from interested stakeholders.

**SIBER—Sustained Indian Ocean Biogeochemistry and Ecosystem Research, a science alliance under the co-patronage of IOGOOS.*

Action	dates
Development of draft research plan	June-September 2014, led by SCOR
Establishment of the IIOE-2 Interim Planning Committee (IPC)	July-August 2014, by IOC Executive Secretary
Review process for research plan	January-February 2015, by correspondence
Development of a draft Implementation Plan for IIOE-2	December 2014-March 2015 by IPC
Circulation of the draft Implementation Plan to IOC MS and partners	March 2015
Development of final draft of the Research and Implementation Plans	March-May 2015
Discussion and adoption of arrangements for IIOE-2	IOC 28 th Assembly, July 2015

NEW PI-GOOS COORDINATOR



The PPO is very pleased to introduce Dr. Tommy Moore, the new Pacific Islands Global Ocean Observing System (PI-GOOS) Coordinator at the Secretariat of the Pacific Regional Environmental Programme (SPREP), based in Apia, Samoa, where he also serves as a member of the Pacific Meteorology Desk. PI-GOOS, as a GOOS Regional Alliance, was established in the early 2000s to address regional priorities for ocean observations and associated applications. It supports international observing efforts in the area, such as the Argo program and the TAO/Triton array of deep instrumented moorings. As well as ocean observing, PI-GOOS has been helping educate people in the region on oceanography and climate science, monitoring techniques, and data processing, including support for the pre-tertiary ocean/climate curriculum development and delivery program called SEREAD. The PPO works closely with PI-GOOS as a member of its Advisory Committee and supports and facilitates PI-GOOS activities in conjunction with the IOC's GOOS Project Office.

In the coming year PI-GOOS will expand its ocean observing capacity, increase modelling capacity within the region, participate in the Global Ocean Acidification Observing Network, and continue to build regional capacity through educational programs and training. Dr Moore will also be a panellist on the IOC side-event on ocean acidification as part of the Small Island Developing States (SIDS) Conference in Samoa, during September 2014.



Dr. Moore has a PhD in Oceanography from the University of Delaware where his research focused on marine chemistry and biological productivity. Most recently, he studied how seagrasses alter the chemistry of their surrounding waters during a post-doctoral fellowship at IMEDEA, Mallorca, Spain. Dr. Moore also holds a MA from Boston University and a BSc from the University of Montana.

Dr Moore can be contacted via email: tommym@sprep.org

IOGOOS-XI Meetings: 29 October—November 1, Phuket, Thailand

The Indian Ocean Global Ocean Observing System (IOGOOS) Regional Alliance will be holding an IOGOOS Workshop and its Eleventh Annual Meeting in Phuket, Thailand during October 29—November 1, 2014. This annual meeting will once again be held in conjunction with the fifth annual meetings of SIBER and the Indian Ocean Observing System Resources Forum (IRF). Integrated high level mutual discussions and forward planning between these aligned groups will be a key objective of the meetings. The Thailand-China



Joint Laboratory for Climate and Marine Ecosystems and the Phuket Marine Biological Centre are hosts for these important meetings, and sponsorship is also being provided by the PPO.

PPO Sponsors



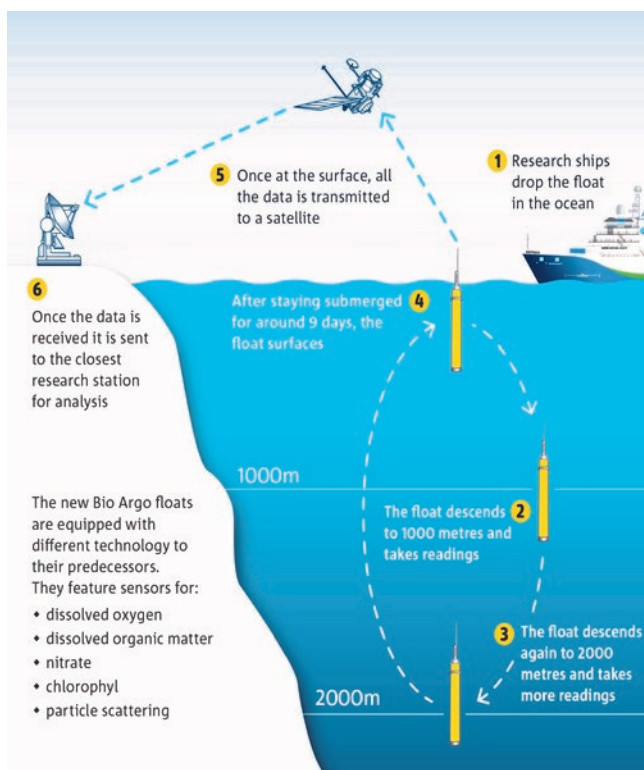
Australian Government
Bureau of Meteorology



Government of Western Australia
Department of the Premier and Cabinet
Office of Science

CSIRO bio-robots make a splash in the Indian Ocean

Robotic floats armed with revolutionary new biosensors will be launched in the Indian Ocean, as part of a newly funded Australia-India Strategic Research Fund project. It aims to help find out what makes the world's third largest ocean tick – and how both nations can benefit from it. CSIRO have joined forces with India's National Institute of Oceanography (CSIR-NIO) and the Indian National Centre for Ocean Information Services (INCOIS) to deploy sensors that measure chlorophyll, coloured dissolved organic matter (CDOM), particle size distribution, dissolved oxygen and nitrate mounted on robotic



Principal scientist Nick Hardman-Mountford testing communications on one of the new Bio-Argo floats

profiling floats. This is a new pioneering phase of development for the Argo program. It involves newly enhanced floats similar to those used in the past decade for the international Argo oceanographic network of more than 3000 floats that has successfully measured ocean temperature and salinity. The floats can repeatedly dive and ascend throughout the upper 2km of the ocean taking measurements as they go, then send their data back via communications satellites. The data collected, when combined with satellite ocean colour data from sensors such as MODIS, will enable a 3D picture of ocean phytoplankton and their role in carbon cycling to be constructed, informing research into climate variability and marine fisheries. Through CSIRO's Earth Observation and Informatics Future Science Platform, additional floats are being tested with sensors that measure light penetration into the ocean (upwelling radiance and downwelling irradiance) to test their use

in calibration and validation of ocean colour satellites.

There will be significant knowledge exchange between India and Australia throughout the project at the institutional level. The project will also have far reaching benefits and relevancy to the broader scientific community around the Indian Ocean and beyond. These broader links will be facilitated by the PPO and its supported scientific alliances (i.e. IOGOOS, SIBER) as part of a communication and outreach program. The PPO will seek to facilitate the rapid use of the knowledge gained from this project through the organisation of a final workshop, as well as communication and training opportunities throughout the project. Further updates on communication and outreach activities will be provided via PPO communications (email, website, newsletters).

SHORT & SWEET

EIOURI— The PPO continues to support, at strategic and tactical levels, the development of the East Indian Ocean Upwelling Research Initiative (EIOURI), including facilitation of Australian scientific involvement. EIOURI will be run under the auspices of the IIOE-2, as a major scientific project aiming to characterise the bio-physical dynamics of key upwelling regimes in the east Indian Ocean. It is being designed and planned jointly by SIBER and the Indian Ocean Panel of GOOS/CLIVAR (CLIVAR being the Climate and Variability program under the broader World Climate Research Program).

The PPO has moved —The PPO and co-located Secretariat of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS) have recently moved, along with their host (Australian Bureau of Meteorology), to new offices in West Perth, Western Australia. The new site provides office and IT facilities and the PPO maintains a 'hot-desk' for any visiting stakeholders looking for a location to work from when in Perth. Our postal address details and telephone contacts remain unchanged, but if you wish to visit us please now come to:
Level 3, 1 Ord Street, West Perth, Australia, 6005.

NEWS FROM ICG/IOTWS



IOTWS Workshop on Standard Operating Procedures for Tsunami Warning and Emergency Response for Northern and Western Indian Ocean Countries

A regional training workshop on tsunami warning and emergency response Standard Operating Procedures (SOPs) for Northern and Western Indian Ocean countries was held in, Hyderabad, India, 23-26 June 2014, hosted by the Government of India through the Indian Centre for Ocean Information Services (INCOIS). The workshop was attended by 30 participants from 11 countries, with a team of 10 trainers from Australia, India, Indonesia, United States, the Asia-Pacific Broadcasting Union, UNESCO Disaster Risk Reduction and Tsunami Information Unit, Jakarta and IOC UNESCO.

The objectives of the workshop were: to understand Regional Tsunami Service Provider (RTSP) services and products; to understand the impact of the RTSP products on National Tsunami Warning Centre (NTWC) SOPs; to identify potential gaps and possible challenges for warning chain SOPs at the national level; to familiarise the electronic media with the RTSP service and develop/adapt SOPs for interfacing with the media; and to prepare for the IOWave14 Exercise.

Indian Ocean Wave Exercise 9-10 September

The 3rd Indian Ocean-wide tsunami exercise, IOWave14, will take place on 9 and 10 September. IOWave14 will simulate Indian Ocean countries being put in a Tsunami Warning situation and require the National Tsunami Warning Centre (NTWC) and (optionally) the Disaster Management Organisation (DMO) in each Member State to implement their Standard Operating Procedures (SOPs). The exercise will comprise two scenarios on successive days, one in the eastern Indian Ocean and the other in the north-western Indian Ocean. The first scenario will simulate a magnitude 9.1 earthquake south of Java, Indonesia and the second scenario will simulate a magnitude 9.0 earthquake in the Makran Trench south of Iran and Pakistan. Both scenarios will generate simulated tsunami waves travelling across the whole Indian Ocean basin.

Indian Ocean Tsunami Warning and Mitigation System 10 years after the Indian Ocean Tsunami: Achievements, Challenges, Remaining Gaps and Policy Perspectives. Jakarta, Indonesia, 24-25 November

To commemorate the 10th anniversary of the Indian Ocean Tsunami, IOC UNESCO and the Indonesia Agency for Meteorology, Climatology and Geophysics (BMKG) are organising a high level conference to recognise the achievements of the last 10 years, to highlight work that still needs to be done, and to seek re-commitment to continued investment in the Indian Ocean Tsunami Warning and Mitigation System (IOTWS). The conference will offer high level perspectives and panel discussions from decision makers and scientists. It is expected that the conference will provide input to the 3rd UN World Conference on Disaster Risk Reduction (14-18 March 2015, Sendai, Japan).