



Home » NEWS & EVENTS » News » New era for Indian Ocean research

NEWS & EVENTS

News
WAMSI Bulletins
Events Calendar
Media Releases
Research Conferences
Archive

New era for Indian Ocean research

28 January 2016



The disappearance of flight MH370, the devastation caused by the 2004 Boxing Day Tsunami, the profound societal impact of monsoons which are so strongly linked to the Indian Ocean and the fact that so many island groups, states and territories rely on its little understood ways has helped to renew a global drive to find out more about the only ocean to be blocked by land to the north.

Indian Ocean research came into focus in Goa, India, recently when researchers from around the world presented their findings ahead of a Second International Indian Ocean Expedition (IIOE-2), launched 50 years after its predecessor.

A group of researchers from WAMSI partner organisations (CSIRO; Murdoch University, Curtin University, The University of Western Australia, Bureau of Meteorology and IMOS) attended the 'Dynamics of the Indian Ocean: Perspective and Retrospective'.

The symposium provided a forum for marine and related scientists from countries bordering the Indian Ocean, as well as those from further afield, to present results of their latest research in the Indian Ocean; review the progress made in understanding the unique characteristics of the region; and plan future research to address outstanding issues.

"The symposium papers and the work to be undertaken now through IIOE-2 are particularly relevant to Western Australia and Australia more broadly," Head of the Perth Programme Office of the Intergovernmental Oceanographic Commission (IOC) of UNESCO and IOC Second International Indian Ocean Expedition (IIOE-2) Coordinator Dr Nick D'Adamo said.

The work WAMSI partners are doing on the west coast of Australia contributed significantly to the event in synergy with the work of the broader regional and international scientific community. Presentations were made by: Professor Chari Pattiaratchi and Dr Eric Raes (UWA); Dr Alicia Sutton (Murdoch University); CSIRO's Dr Francois Dufois, Dr Ming Feng and Dr Andreas Schiller; and IMOS Director Tim Moltmann.

Dr Pattiaratchi and Ms Su are examining the dynamics of the central northern Indian Ocean and contributing to the East Indian Ocean Upwelling Research Initiative of IIOE-2, which includes areas off N-NW Australia.

Tim Moltmann highlighted IMOS's contribution particularly to Eastern Indian Ocean marine and related research.

Dr Feng's area of research focus has been on the marine heatwave events off Western Australia in the Leeuwin Current system over the past few years and how they are linked to the Indo-Pacific climate variability.

"There were a lot of discussions about marine heatwaves and the Ningaloo Niño phenomena in particular, and the focus for the next IIOE expedition," Dr Feng said. "So there will be a joint effort from scientists from Australia, China and Japan to investigate the dynamics of the Ningaloo Niño – marine heatwave.

"There are a few research cruises being proposed from Australia and Japan to collaborate on this topic.

"Also there are on-going discussions to enhance our capability to monitor the Leeuwin current through IMOS, which is an important component of the Indian Ocean heat balance," Dr Feng said. "We would link with the United States/South Africa monitoring programs off Africa to understand the Indian Ocean basin wide circulation and heat balance."

The International Symposium also celebrated of The Golden Jubilee of India's National Institute of Oceanography (NIO), which was established in 1966 following the first International Indian Ocean Expedition (IIOE). the launch of the Second IIOE on 4 December 2015; and the start of the first multi-national IIOE-2 research cruise (ORV Sagar Nidhi (India), Goa to Mauritius, 4-22 December 2016).

The IIOE-2 is an interdisciplinary oceanographic research effort over five years. It aims to build on the scientific understanding of the Indian Ocean region in order to enhance the economic and social benefits of Indian Ocean rim nations, which includes Australia.

The UNESCO/IOC Perth Programme Office has helped plan the IIOE-2 since 2012, and now hosts one of the two Joint Project Office (JPO) nodes for the IIOE-2, led by Dr Nick D'Adamo. This facility works closely with the other major JPO node in Hyderabad, India and with UNESCO/IOC HQ in France, and connects with the broader international IIOE-2 constituency. The IIOE-2 website at www.iioe-2.incois.gov.in provides links to key IIOE-2 reports and information.

Murdoch University's Professor Lynnath Beckley, who was on the IIOE-2 Science Plan Development Committee, described the first Indian Ocean expedition in the 1960s as, "the biggest exercise ever in marine science."

"We live in a remarkably different world than we did 50 years ago," Professor Beckley said. "Exclusive economic zones (EEZ) prescribed by the UN convention, some countries weren't independent in the 1960s, not to mention computer modelling.

"So we developed a broad science plan for the Indian Ocean consisting of six major themes and countries are now trying to slot in to those themes over the next five years," Professor Beckley said.

The six research themes for the IIOE-2 are:

1. Anthropogenic impacts (Human impact)
2. Boundary current dynamics, upwelling variability and ecosystem impacts
3. Monsoon variability and ecosystem response
4. Circulation, climate variability and change
5. Extreme events and their impacts on ecosystems and human populations
6. Unique geological, physical, biogeochemical, and ecological features of the Indian Ocean

"If you're a country that abuts the Indian Ocean, bringing together other countries to work in the Indian Ocean is quite a good idea," Professor Beckley said. "It focusses people in one area of the planet and attracts others to work there."

CSIRO's Dr Nick Hardman-Mountford chaired a session on ecosystems covering from plankton and nitrogen cycling to fish, seabirds and citizen science.

"I think there was a real sense we've started something new," Dr Hardman-Mountford said. "It started by paying tribute to the first Indian Ocean Expedition achievements and, looking forward, this is the start of a major endeavour for the Indian Ocean as a whole."

"I think the momentum is there, there's a lot of countries starting to work in the Indian Ocean; the US Germans, Dutch, UK all have interests there. We know many of the Indian Ocean rim nations are onboard - South Africa is getting a new ship. This has been a good meeting for forming partnerships between those nations with the best capacity and those with an interest.

"A lot of standard oceanographic rules have been developed in areas such as the North Atlantic and it's not the same in the Indian Ocean. It is not an open basin, there are monsoons, it has the Leeuwin Current and massive biodiversity and things don't behave the way we expect. This, coupled with the fact it has some of the poorest countries on its boundary and a huge dependence on it by local populations for food, climate and weather systems, makes the Indian Ocean interesting to study.

"There is a real sense of excitement about the next phase of work in the Indian Ocean and WAMSI/CSIRO being able to be part of this research," Dr Hardman-Mountford said.



Dr Nick Hardman-Mountford and colleague in front of ORV Sagar Nidhi (India) at the launch of the first multi-national IIOE-2 research cruise (Goa to Mauritius 4-22 December 2016)