2nd International Indian Ocean Expedition 2015-2020

Newsletter

(A basin-wide research program co-sponsored by IOC-UNESCO, SCOR and IOGOOS)

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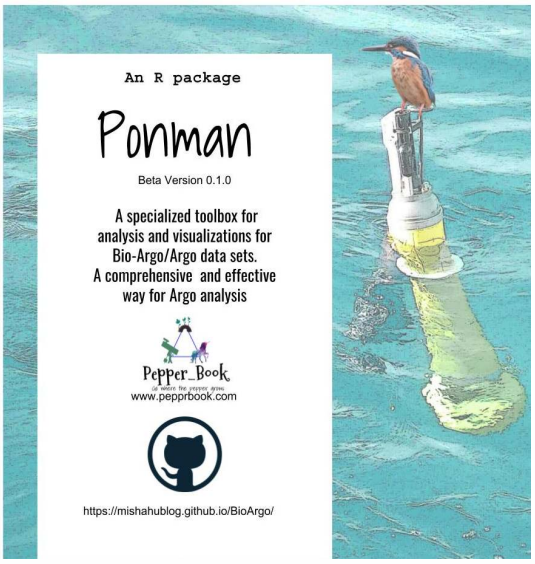
To advance our understanding of interactions between geologic, oceanic and atmospheric processes that give rise to the complex physical dynamics of the Indian Ocean region, and to determine how those dynamics affect climate, extreme events, marine biogeochemical cycles, ecosystems and human populations.

Ponman: A toolbox for visualisation and analysis of Bio-Argo datasets

The rapid pace of growth in the improvements to ocean observation platforms and availability of newer tools for gathering a multitude of oceanographic data call for a concomitant growth in the development of new techniques for data visualisation and analysis. The research team from India's Cochin University of Science and Technology (CUSAT) and the Ministry of Earth Sciences' Centre for Marine Living Resources and Ecology (CMLRE) has recently developed a specialised toolbox "Ponman" to analyse and visualise Bio-Argo Data. Bio-Argo floats are equipped with chlorophyll, oxygen, nitrate, CDOM and turbidity sensors. The Ponman package allows both single and batch processing of Bio-Argo data, depth-wise. It accesses the data through FTP from the Ifremer database. Based on analysis requirements, either single or section-wise profiling, time-series options etc. are provided in Ponman. In addition, sub-setting or pooling of data/profiles can be performed in respect to space and time.



Explore more in the latest upcoming edition of "The Indian Ocean Bubble-2 "

[Report Courtesy: Midhun Shah Hussain, CUSAT, Kochi, INDIA]

Understanding Harmful Algal Blooms (HABs) in the Arabian Sea

The occurrence of Noctiluca in the Northeastern Arabian Sea is perplexing. Though the multi-disciplinary Joint Global Ocean Flux Study (JGOFS) in the Arabian Sea did not observe their occurrences, JGOFS attributed the occurrence of large diatom bloom to high productivity and export flux to large diatom bloom. This bloom is highly dynamic in nature and mostly patchy making it elusive in the surface ocean. However, the satellite ocean color did provide data with high temporal resolution and clearly showed high chlorophyll patches towards the later winter monsoon period. Numerous instances of coastal pollution and fish mortality has been reported due to intense Noctiluca bloom off Oman coast. The ocean color also showed the spatial expansion of the bloom over the last decade. That attracted the attention of the scientific community. Several studies have been carried out over the last two decades to understand their optical characteristics and physicochemical conditions during a Noctiluca bloom.

Several hypothesis has been proposed in the recent past to explain this perplexing feature which includes declining dissolved oxygen concentration in the surface layer and relative depths of nitracline and silicocline with respect to varying strengths of convective mixing. The increasing anthropogenic pollution caused by developing nations around the Arabian Sea coupled with impending global warming has also been suggested to fuel the ever expanding Noctiluca bloom. Irrespective of the reason, there is no denying that the regular occurrences of Noctiluca in this part of the basin has affected the Marine fisheries and have caused immense distress to the coastal community.

IOGOOS GLOBAL OCEAN OBSERVING SYSTEM FOR INDIAN OCEAN
UNESCO United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission
International Council for Science SCOR Scientific Committee on Oceanic Research
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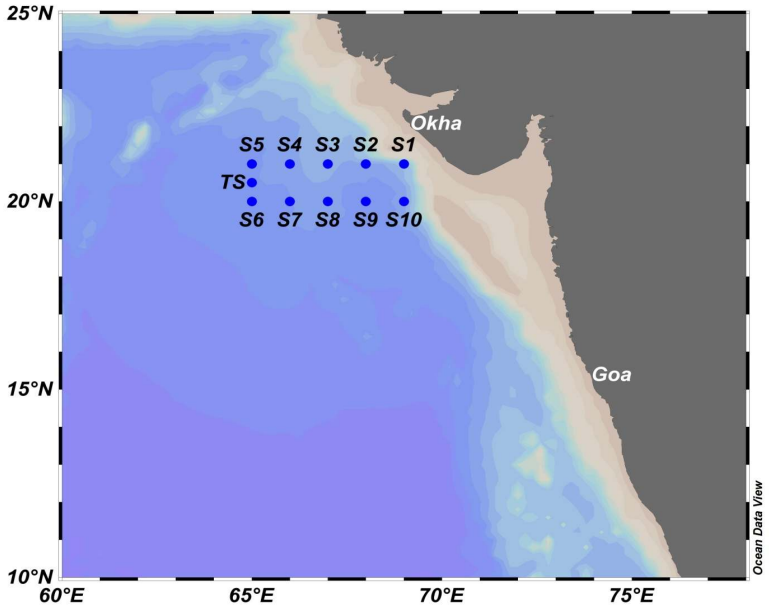
INCOIS is planning to provide regular information on Alagal Blooms in the Indian seas using satellite based detection and monitoring. The information will be provided at four selected bloom hot-spots namely northeastern Arabian Sea, Coast of Kerala, Gulf of Munnar and Coast of Odisha in the form of daily bulletin. The bloom of Noctiluca may have large impact on higher trophic level due to mixotrohic characteristics. Therefore the northern Arabian Sea is considered as a potential hot-spot for continuous monitoring of bloom. A cruise onboard FORV Sagar Sampada in the Arabian Sea is currently, investigating on the pre-conditioning factors conducive for favorable growth of Noctiluca and also validating the satellite based algorithm for its detection.



Map showing planned sampling locations in the North eastern Arabian Sea

[Report Courtesy: Satya Prakash and Aneesh Lotliker, INCOIS, Hyderabad, INDIA]

Annual Meetings of the IIOE-2 Steering Committee, IOGOOS, IORP, SIBER, IRF & IOCINDIO 11-15 March 2019, South Africa

The IIOE-2 Joint Project office is pleased to report that through the agency of Prof Mike Roberts and associated colleagues of the West Indian Ocean SOLSTICE project (http://www.solstice-wio.org/) the Nelson Mandela University has offered to co-host, in conjunction with the UNESCO IOC Perth Programme Office, the 3rd IIOE-2 Steering Committee meeting within the week of 11-15 March 2019, Port Elizabeth, South Africa. As in the past, this IIOE-2 meeting will be held under the banner of the (3rd) International Indian Ocean Science Conference (IIOSC3), and incorporated collegially within an integrated week's schedule with IOGOOS-15, IORP-15, SIBER-9, IRF-9, IOCINDIO-7 and the Second major workshop of the IndOOS Review. Furthermore, there will special West Indian Ocean / South African marine scientific presentations, workshops and demonstrations.

Further details are available in the IIOSC 2019 Information Booklet at the below web link:
http://www.iioe-2.incois.gov.in/documents/IIOE-2/IIOSC2019/InformationBooklet.pdf

The integrated set of meetings comprise:

- 3rd meeting of the Second International Indian Ocean Expedition (IIOE-2) Steering Committee
- 15th annual meeting of the Indian Ocean Global Ocean Observing System Regional Alliance (IOGOOS)
- 15th annual meeting of the CLIVAR/IOC-GOOS Indian Ocean Region Panel (IORP)
- 9th annual meeting of Sustained Indian Ocean Biogeochemistry and Ecosystem Research (SIBER) of IMBER/IOGOOS
- 9th annual meeting of the Indian Ocean Observing System (IndOOS) Resource Forum (IRF) of IOGOOS
- IndOOS Review Workshop
- 7th meeting of the IOC Regional Committee for the Central Indian Ocean (IOCINDIO)
- West Indian Ocean / South African marine scientific presentations
- West Indian Ocean marine ocean observing / robotics workshops and demonstrations (various; SOLSTICE led)

Registrations are now open via the link International Indian Ocean Science Conference 2019

Watch out for further details on the IIOE-2 website: www.iioe-2.incois.gov.in

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Endorse your projects in IIOE-2

Don't miss the opportunity to network, collaborate, flesh out your research project and participate in IIOE-2 cruises!!

The endorsement of your scientific proposal or a scientific activity focusing on the Indian Ocean region is a recognition of the proposal's or activity's alignment with the mission and objectives of IIOE-2, of its potential for contributing to an increased multi-disciplinary understanding of the dynamics of the Indian Ocean, and of its contribution to the achievement of societal objectives within the Indian Ocean region. Over 31 international, multi-disciplinary scientific projects have already been endorsed to date by the IIOE-2. Yours could be the next one!

Visit http://www.iioe-2.incois.gov.in/IIOE-2/EndorsementForm.jsp for further details and for projects already endorsed by IIOE-2.

Some Upcoming Events

- SOLAS Open Science Conference during 21-25 April 2019, at Hokkaido University Conference Hall, Sapporo, Japan.
  https://www.confmanager.com/main.cfm?cid=2778

- "Ocean sustainability for the benefit of society: Understanding, challenges, and solutions", 17-21 June 2019, Brest, France. Call for Sessions and Workshops at the Second Open Science Conference of the Integrated Marine Biosphere Research (IMBeR) Project.
  http://www.imber.info/en/events/osc--imber-open-science-conference/osc-2019/2019-imber-open-science-conference

- 14th International Conference on Copepoda (ICOC) during 14-19 June 2020, at Kruger Park, South Africa.
  http://abevents.co.za/WEB_ICOC2020/index.html

CLIVAR January 2019 Bulletin is available online

The International CLIVAR Project Office distributes a monthly bulletin with announcements, funding opportunities, meeting notifications relevant to the ocean/climate science community.

The latest CLIVAR Bulletin January, 2019 is available at:
https://mailchi.mp/clivar.org/clivar-bulletin-i1cjeez4v6?e=0e7979fd09

Call for Contributions

Informal articles/short notes of general interest to the IIOE-2 community are invited for the next (February-end) issue of the IIOE-2 Newsletter. Contributions referring IIOE-2 endorsed projects, cruises, conferences, workshops, "plain language summary" of published papers focused on the Indian Ocean etc. are welcome. Articles may be up to 500 words in length (Word files) accompanied by suitable figures, photos. (separate.jpg files).

Deadline: **25 February, 2019**

The Indian Ocean Bubble-2

Access the latest issue of Indian Ocean Bubble-2
http://www.iioe-2.incois.gov.in/IIOE-2/Bubble.jsp

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