



2nd International  
Indian Ocean  
Expedition  
2015-2020

# Newsletter

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

Volume-4, Issue-1  
January, 2020

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.

## The role of the U.S. Program on Biology in the International Indian Ocean Expedition (1959-1965) in discovering new species

Biology was a major focus of the first International Indian Ocean Expedition (IIOE-1) because of the increasing demand for protein in the Indian Ocean region. A survey of zooplankton using standardized techniques and equipment (the Indian Ocean Standard Net (IOSN): Currie, 1963) was carried out by participating nations and samples were sent to the Indian Ocean Biological Centre (IOBC) in India for identification and archiving (Hansen, 1966).



Curious Wormfish, *Gunnellichthys curiosus*. Source: Andrey Ryanskiy / Fishbase. License: CC by Attribution-NonCommercial-ShareAlike (Bray, 2016). Named by Dawson (1968) based on specimens collected by James E. Böhlke at the Seychelles Islands on 23 February 1964.

In addition to sampling with the IOSN, the U.S. Program on Biology contributed to the IIOE-1 through other sampling. At least 113 new species were described based on specimens collected from the R/V Anton Bruun, R/V Te Vega, land-based camps in India and Madagascar, and independent investigations in the Seychelles and elsewhere (Urban, 2020). These included crustaceans, brittle stars, corals, fish, and one kinorhynch species. The author welcomes information regarding species described from specimens collected by other nations. The full article will be published in the upcoming issue of IO Bubble-2.

### References:

- Bray, D.J. 2016, *Gunnellichthys curiosus* in Fishes of Australia, accessed 17 January, 2020, <http://136.154.202.208/home/species/4183>
- Currie, R.I. 1963. The Indian Ocean Standard Net. *Deep-Sea Research* 10:27-32.
- Dawson, C.E. 1968. Two New wormfishes (Gobioidea: Microdesmidae) from the Indian Ocean. *Proceedings of the Biological Society of Washington* 81:53-68
- Hansen, V.K. 1966. The Indian Ocean Biological Centre: The centre for sorting plankton samples of the International Indian Ocean Expedition. *Deep-Sea Research* 13:229-234.
- Urban, E.R. 2020. New Species Described from Specimens Collected as Part of the U.S. Program on Biology of the International Indian Ocean Expedition. <https://udspace.udel.edu/handle/19716/24919>

[Report Courtesy: Dr. Ed Urban, Scientific Committee on Oceanic Research, USA. E-mail: [ed.urban@scor-int.org](mailto:ed.urban@scor-int.org)]





## East India Coastal Current acts as a boundary between inshore and off-shore waters along western Bay of Bengal

Over the past four decades, ocean colour satellites are providing vital information on phytoplankton distribution at global scale. The consistent repetitive and wide area synoptic coverage has radically changed the nature of oceanographic observations in recent years. In a recent study, Lotliker et al. (2019), have demonstrated the efficient utilization of MODIS-Aqua satellite data to study the long-term trend in phytoplankton biomass i.e. chlorophyll-a (chl-a), at an ecologically sensitive site off Gopalpur along the northwestern Bay of Bengal. The chl-a shows a bimodal distribution, with a peak during pre-southwest monsoon attributed to recurring phytoplankton bloom and during end of southwest monsoon due to upwelling and eddy pumped nutrients. The study also depicts far offshore spread of chl-a during southwest monsoon and nearshore confinement during pre-southwest monsoon. The process restricting the offshore spread of high chl-a during pre-southwest monsoon is hypothesized to be due to the northward moving East India Coastal Current (EICC) which act as a boundary between inshore and off-shore waters.

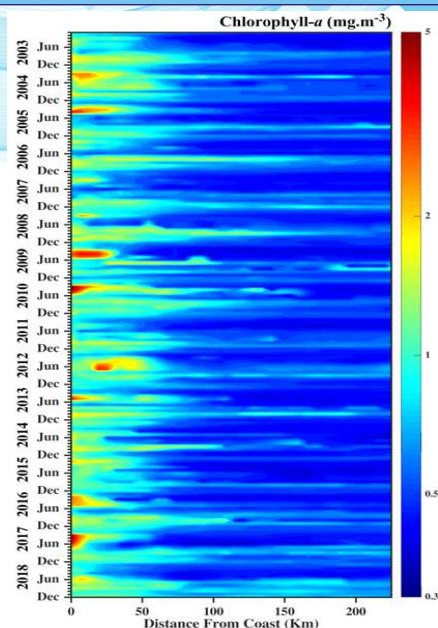


Figure: Latitudinal ( $18^{\circ}$  to  $20^{\circ}$  N) averaged Hovmöller plot showing time-series distribution of MODIS-Aqua retrieved chlorophyll-a ((Image reprinted by permission from Springer Nature, Environmental Science & Pollution Research, Lotliker et al. 2019))

### Reference:

Lotliker, A.A., Baliarsingh, S.K., Sahu, K.C. et al. Long-term chlorophyll-a dynamics in tropical coastal waters of the western Bay of Bengal. Environ Sci Pollut Res (2019) doi:10.1007/s11356-019-07403-0

[Report Courtesy: Dr. S. K. Baliarsingh, INCOIS, Hyderabad, India. E-mail: baliarsingh.s@incois.gov.in]

## DEADLINE EXTENDED: 29<sup>th</sup> February, 2020

### Tutorial Capacity Building in the 15<sup>th</sup> Pan Ocean Remote Sensing Conference(PORSEC) 15-19 September, 2020

The PORSEC Association would like to invite you to participate in the upcoming Tutorial Capacity Building in conjunction with the PORSEC 2020 conference from 15<sup>th</sup> to 19<sup>th</sup> September, 2020 which will be held at Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia, Johor Bahru, Malaysia. The five-day tutorial offers expert training for students and young scientists. The tutorial would focus on existing instruments in space and on methods of analysis and visualization. One of the unique aspects of the PORSEC tutorial is that most of the instructors are current or past PORSEC officers, who are experienced remote sensing scientists, which would give the participants a valuable networking experience, in addition to the knowledge and skills taught during the tutorial. Participants will be given exposure in the following areas.

- ☞ Theoretical information as well as practical exercises along with a variety of data and software.
- ☞ Fundamentals of visible, thermal and microwave remote sensing, satellite wind and wave data, satellite altimetry, ocean color data, fisheries applications, and data assimilation.
- ☞ Demonstrations on how to access all of these datasets from a variety of different software.
- ☞ How to write scientific manuscript
- ☞ Giving a scientific presentation in English to an international audience.
- ☞ Experience live field data collection and sampling at the ocean facilitated by the experienced local facilitators.
- ☞ Related instruments used for ocean water sampling would be demonstrated and students will get opportunities to operate them.

## Trainers:

- Gad Levy (NWRA, USA)
- Cara Wilson (NOAA, USA)
- MingAn Lee (NTOU, Taiwan)
- Stefano Vignudelli (CNR, Italy)
- Abderrahim Bentamy (Ifremer, France)
- Jim Gower (IOS, Canada)
- Nurul Hazrina Idris (UTM, Malaysia)
- Mazlan Hashim (UTM, Malaysia)
- Aidy Dr. Aidy @ Mohamed Shawal M. Muslim (INOS UMT, Malaysia)
- Mohd Nadzri Md Reba (UTM, Malaysia)

Following are some important dates for the tutorial:

- ☞ 1<sup>st</sup> September 2019 – 31 January 2020 - Capacity building student tutorial application.
- ☞ Mid February 2020 – Result of the selection process for the capacity building student tutorial.

Further details regarding the tutorial, registration process, availability of scholarship, accommodation etc. are available at the PORSEC website. (<https://www.geoinfo.utm.my/porsec/>).

## Sponsors:

PORSEC Association, UTM, UMT, IGRSM and Malaysia Space Agency

Looking forward to see you in Johor Bahru!

## International Indian Ocean Science Conference-2020 (IIOSC-2020)

The "International Indian Ocean Science Conference 2020 (IIOSC-2020)" sponsored by Ministry of Earth Sciences (MoES), Govt. of India, will be held during 16-20 March 2020 at Goa India co-hosted by National Institute of Oceanography (NIO) Goa, National Centre for Polar Ocean Research (NCPOR) Goa, Goa University and Indian National Centre for Ocean Information Services (INCOIS) Hyderabad. The conference aims at assessing the progress and scientific knowledge gained during the last 4 years of IIOE-2 (during 2016-2020). It is also an opportunity for scientists working on different facets of the Indian Ocean to present their ideas and discuss the outstanding issues, identify the knowledge gaps and plan a way forward to address such issues.

Scientists and colleagues who are interested in the Indian Ocean may kindly take note of this and freeze their dates for the conference. More details on the Conference are available at the website <https://iiosc2020.incois.gov.in/>

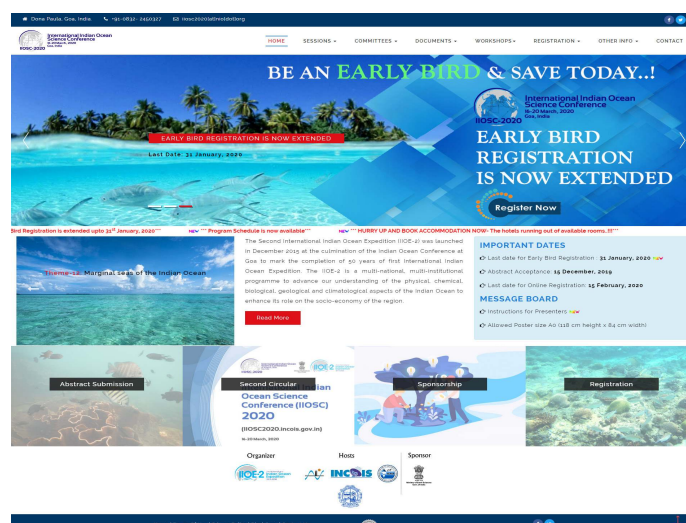
**\*\*\* HURRY UP AND BOOK ACCOMMODATION NOW- The hotels running out of available rooms..!!! \*\*\***

## IMPORTANT DATES

- ☞ Last date for Early Bird Registration: 31 January, 2020
- ☞ Last date for Online Registration: 15 February, 2020

## MESSAGE BOARD

- ☞ Instructions for Presenters
- ☞ Allowed Poster size A0 (118 cm height x 84 cm width)





## 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 37 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

- 36<sup>th</sup> International Geological Congress during 2-8 March, 2020, India EXPO Centre, Delhi, India. The call for Abstracts and Registration is now open and the deadline for online submission of the Abstracts is 31<sup>st</sup> October, 2019. <https://www.36igc.org>
- 14<sup>th</sup> International Conference on Copepoda (ICOC) during 14-19 June, 2020 at Kruger Park, South Africa. [http://abevents.co.za/WEB\\_ICOC2020/index.php](http://abevents.co.za/WEB_ICOC2020/index.php)

## CLIVAR January 2020 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, 2020 is available at:

<https://mailchi.mp/clivar.org/clivar-january-2020-bulletin?e=7f5a74dc93>

## 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, 2020**



Access the latest issue of Indian Ocean Bubble-2

<https://www.iioe-2.incois.gov.in/IIOE-2/Bubble.jsp>



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