

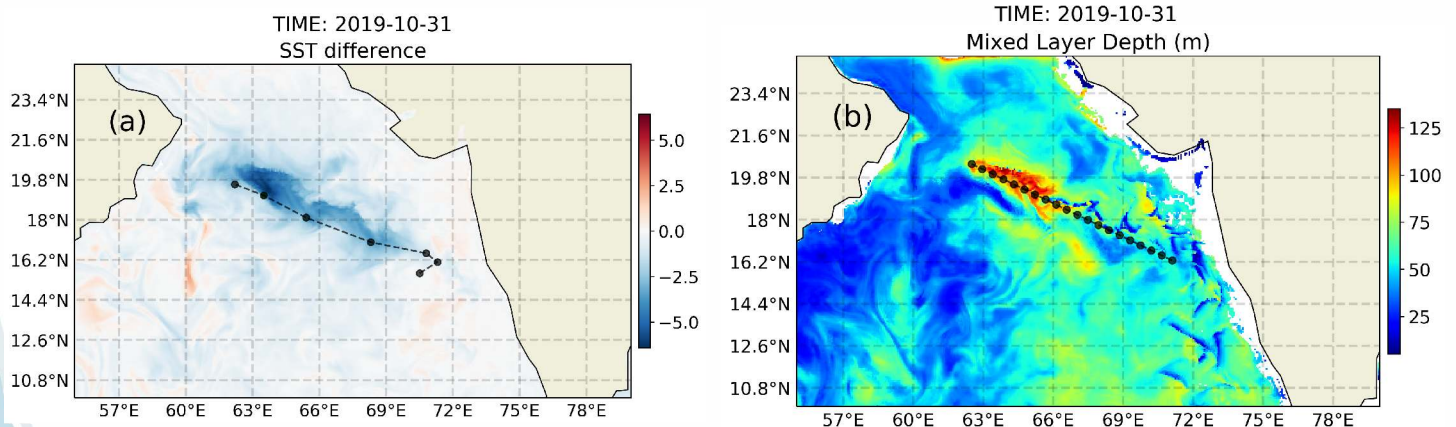


To advance our understanding of interactions between geologic, oceanic and atmospheric processes that give rise to the complex physical dynamics of the Indian Ocean region, and to determine how those dynamics affect climate, extreme events, marine biogeochemical cycles, ecosystems and human populations.

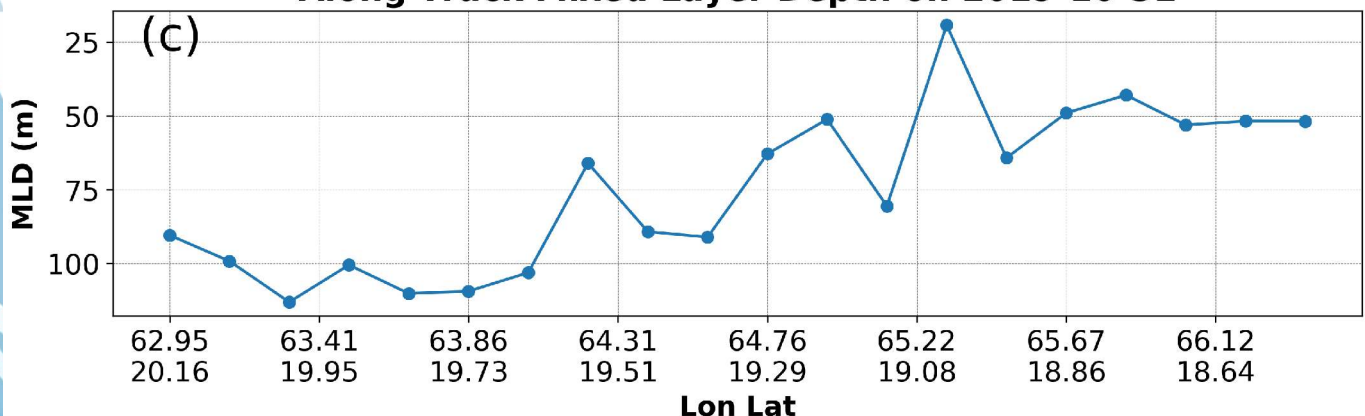
On the Super Cyclonic storm, "KYARR" currently active in the Arabian Sea

During the year 2019, several storms happened in the Northern Indian Ocean, and it got the most energetic cyclone season while considering storm seasons from 1972. Accumulated Cyclone Energy (ACE) is a measure of kinetic energy dispersal through winds during cyclones used by experts to quantify the energy exchange. Till date in 2019, ACE has reached 64.7, which is just 10.7 when climatology between 1981 and 2010 is considered (Ref: <http://tropical.atmos.colostate.edu/Realtime/>). Hence the year 2019 exceeded the climatology by approximately 6 times which is remarkable in the history of the Northern Indian Ocean.

Kyarr Super cyclone, currently active in the Arabian Sea, is unique in many aspects. It is the most robust cyclone occurring in the Arabian sea during the past twelve years. Kyarr started showing its signatures as a low pressure on 20 October, 2019 in the southeast Arabian Sea. On October, 22 it started to crystallize as a tropical storm and gained strength during 25 -26 October and rapidly intensified to a category 4 storm.



Along Track Mixed Layer Depth on 2019-10-31



India Metrological Department recently inducted state of the art coupled modelling system with initial ocean conditions from INCOIS-HYCOM (<http://nwp.imd.gov.in/hwrf/IMDHWRfv3.6/index1.html>) and has been successfully forecasting the evolution of the storm since its inception. Another storm christened as "MAHA" is also currently active in the Arabian Sea, making it a further unique cyclonic scenario in the history.

We have analyzed the SST cooling along the track of Kyarr and noted that there is an intense cooling in the north-eastern Arabian Sea with a magnitude as high as 6.4°C (Figure-1 a). The SST cooling is associated with a mixed layer deepening beyond 100 m along the track of the cyclone (Figure-1 (b & c)). The presence of two cyclones in the Arabian sea provides a unique natural laboratory to atmospheric and oceanographic scientists to unravel the mysteries in Nature.

[Report Courtesy: Sudheer Joseph, Lijo Abraham Joseph & Jyothi Lingala, INCOIS, Hyderabad, India. E-mail: sjo@incois.gov.in]

Tutorial Capacity Building in the 15th 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 15th to 19th September, 2020 which will be held at Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia, Johor Bahru, Malaysia. The 5 days tutorial offers expert training for students, and young scientists. The tutorial 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 gives participants a valuable networking experience, in addition to the knowledge and skills taught during the tutorial. Participants will be given following exposure such as:

- ☞ 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 are demonstrated and students will get opportunities to operate them.

Trainers:

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

Following are some important dates for the tutorial:

- ☞ 1st September 2019 – 30 November 2019 - Capacity building student tutorial application.
- ☞ 15th December 2019 – Result of the selection process for the capacity building student tutorial.

More details regarding the tutorial capacity building including scholarship availability are at the conference website (<https://www.geoinfo.utm.my/porsec/>). Other information such as registration and accommodation are also available in the website.

Please download the training application file at the attachment of this email and send to our email porsec2020@gmail.com with heading: Application for Tutorial Capacity Building

Sponsors:

- PORSEC Association
- UMT
- UTM
- IGRSM

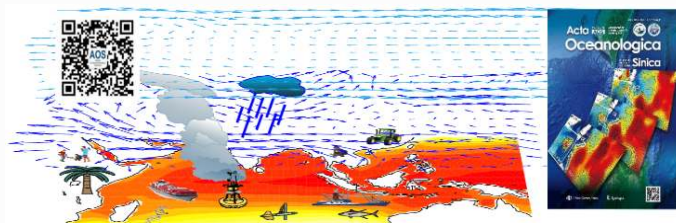
Looking forward to see you in Johor Bahru!

Call for papers - Special Issue in Acta Oceanologica Sinica on “Environment and Ocean-Atmosphere Interaction in the Indian Ocean”

Manuscripts are being invited for a special issue in Acta Oceanologica Sinica. All manuscripts about the ocean dynamics, environment, air-sea interactions over the Indian Ocean (including the Maritime Continent and the Southern Ocean connected to the Indian Ocean) are welcome. Manuscripts on interdisciplinary studies related to physics or dynamics, interactions between ocean basins, and ocean-land interactions related to the Indian Ocean are also welcome.

The target date for submission is **December 31, 2019**

If you are interested in submitting a manuscript or would like more information, please contact Lei Zhou
(zhoulei1588@sjtu.edu.cn).



International Indian Ocean Science Conference-2020 (IIOSC-2020)- Call for Abstracts

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, India. 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. A detailed first announcement is made available at the below web link:

Conference Website: <https://iiosc2020.incois.gov.in/>

Second Announcement: <https://iiosc2020.incois.gov.in/documents/IIOE-2/IIOSC2020/SecondAnnouncement-IIOSC2020.pdf>

Call for Abstracts: <https://iiosc2020.incois.gov.in/IIOSC2020/Abstracts.jsp>

IMPORTANT DATES

- ✍ Abstract Submission Opens: 15 August, 2019
- ✍ Abstract Submission Closes: 15 October, 2019
- ✍ Abstract Acceptance: 15 November, 2019
- ✍ Registration opens soon
- ✍ Early Bird Registration: 15 January, 2020
- ✍ Last Date for Registration: 15 February, 2020



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 35 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

- ☞ 36th 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 31st October, 2019. <https://www.36igc.org>
- ☞ 14th International Conference on Copepoda (ICOC) during 14-19 June, 2020 at Kruger Park, South Africa. http://abevents.co.za/WEB_ICOC2020/index.php

CLIVAR October 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 October, 2019 is available at:

<https://mailchi.mp/clivar.org/clivar-october-2019-bulletin?3D1339809>

Call for Contributions

Informal articles/short notes of general interest to the IIOE-2 community are invited for the next (November-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 November, 2019



Access the latest issue of Indian Ocean Bubble-2

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



Enroll yourself with IIOE-2 Community

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

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