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.

Physical Deterministic Sea Surface Temperature Suite for Indian Ocean Studies

In observational science, data is the foundation of a scientific model and Sea Surface Temperature (SST) is one of the key variables for the Oceanic model. The lack of high-quality surface data of Indian Ocean, particularly for the coastal waters, is an outstanding issue which has prevented researchers from answering some of the most pressing questions relating to Indian Ocean studies. On board measurements will be improved in the coming years under the umbrella of IIOE-2, but these will still be limited as the Indian Ocean is dynamically complex and highly variable under monsoonal influence, and contains numerous boundary currents, Indian Ocean Dipole, upwellings and downwellings, mesoscale eddies, cold-core and warm-core rings. Abundant satellite observations are therefore necessary in studying the different dynamics of the Indian Ocean. Deriving geophysical parameters from satellite radiance is an ill-posed problem and stochastic inverse methods are predominant in satellite retrievals where many ambiguities are inescapable. Deterministic inverse methods are the alternative and Physical Deterministic Sea Surface Temperature (PDSST) suite has been developed for SST retrieval from satellite image measurements. PDDSST is based on the radiative transfer model in conjunction with a deterministic inverse method. To demonstrate the superior performance of PDSST, the SST retrieval from a particular granule of MODIS-AQUA (10°x10° scale on 2nd December, 2017) near the coast of Bay of Bengal (BoB) using PDSST is compared with NASA operational MODIS-AQUA SST data, obtained from Physical Oceanography Distributed Active Archive Center (PO.DAAC).

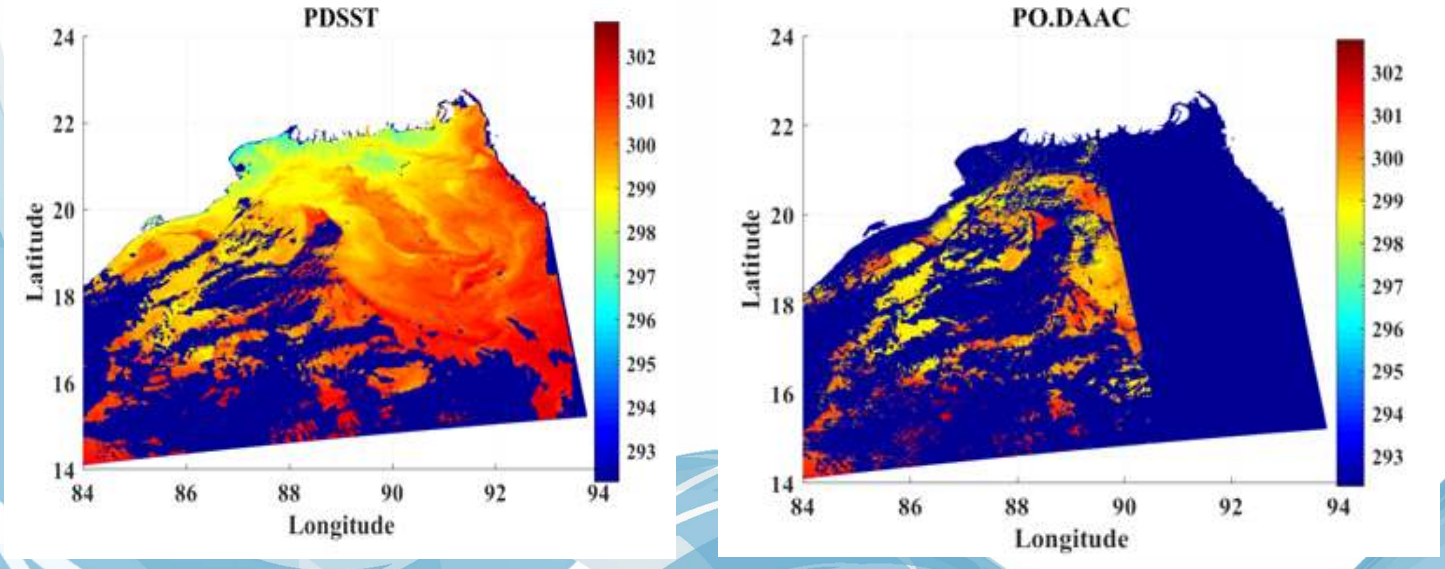


Figure: SST maps for single granule from MODIS-AQUA using: a) deterministic approach (PDDST suite) and b) stochastic approach (PO.DAAC, NASA)

The above figure shows that PDSST suite can extract a large amount of information on BoB SST front as compared to PO.DAAC. Such increased information of SST front can be used to largely improve the Indian summer monsoon (ISM) rainfall model. This is just an example that an enormous amount of information is available in satellite measurements and this information can be utilised in terms of geophysical parameters for earth science studies, if an appropriate inverse method is applied.

[Report Courtesy: Dr. Prabhat Koner, Earth System Science Interdisciplinary Center; University of Maryland, USA. E-mail: pkoner@umd.edu]

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 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:

- 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.

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

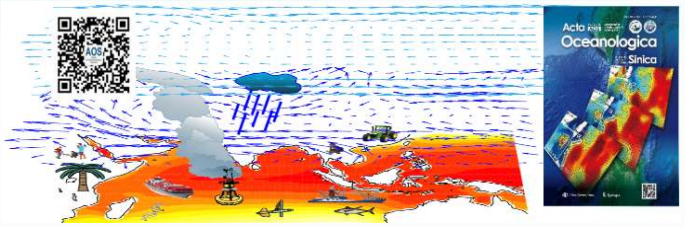
Looking forward to see you in Johor Bahru!

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)

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. 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

- Early Bird Registration: 15 January, 2020
- Last Date for Registration: 15 February, 2020

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GLOBAL OCEAN OBSERVING SYSTEM FOR INDIAN OCEAN

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

International Council for Science Scientific Committee on Oceanic Research SCOR

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

- EGU General Assembly 2020 during 3-8 May, 2020 at Vienna, Austria. Further information on the EGU General Assembly and abstract submission can be found here:
  https://www.egu2020.eu/
  https://meetingorganizer.copernicus.org/EGU2020/session/36146

- 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 November 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 November, 2019 is available at:
https://mailchi.mp/clivar.org/clivar-november-2019-bulletin-melqdvucn6

Call for Contributions

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

The Indian Ocean Bubble-2

Access the latest issue of Indian Ocean Bubble-2

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

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