IIOE-2 2nd International Indian Ocean Expedition 2015-2025

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.

Wave induced coastal flooding along the southwest coast of India during tropical cyclone Tauktae

The coastal flooding during the tropical cyclone Tauktae, 2021, at Chellanam coast, Kerala, India, has invited wide attention as the wave overtopping severely affected coastal properties and livelihood. We carried out a study using a combination of WAVEWATCHIII and XBeach to study the coastal inundation at Chellanam during high waves. The simulations emphasize the contribution of infragravity waves and wave setup on the overtopping of the waves which are often ignored in the operational framework of coastal inundation during cyclone conditions. The coastal inundation at Chellanam is important, as the storm surge during the cyclone was negligible as observed from the tide station data at the adjacent Cochin Port, and the time of high wave impact corresponded to low tidal conditions. Despite these conditions, the inundation at Chellanam severely affected the settlements. The waves damaged many houses, and overtopped water flushed past the beach road, causing waterlogging even on the eastern side.

The bathymetric slope has crucially controlled the wave setup elevation, which peaked at about 0.7 meters at the shoreline characterised by a relatively steep slope. The temporal variability is influenced by the incoming short and long waves and tidal conditions. The simulation results show that the wave setup has peak elevation during the low tide time. Experimental simulation with constant high tide conditions significantly reduced the wave setup elevation, showing the effect of low to mid-tide conditions in enhancing the wave setup elevation. The combined impact of short wave, longwave component and wave setup on the maximum runup extent is modulated by the steepness of the bathymetry and the tidal conditions. The peak in the longwave and wave setup corresponded to the high waves from the TC Tauktae, resulting in wave overwash that caused severe flooding. Further studies envisage the modelling framework to include the longwave component and the wave setup for operational inundation forecast during the cyclone and the coastal flooding during the high swell waves or the "Kallakadal" phenomenon. The present study shall lead to the development of a coastal inundation prediction system for the low-lying hot spots using the combination of WAVEWATCHIII and XBeach models.

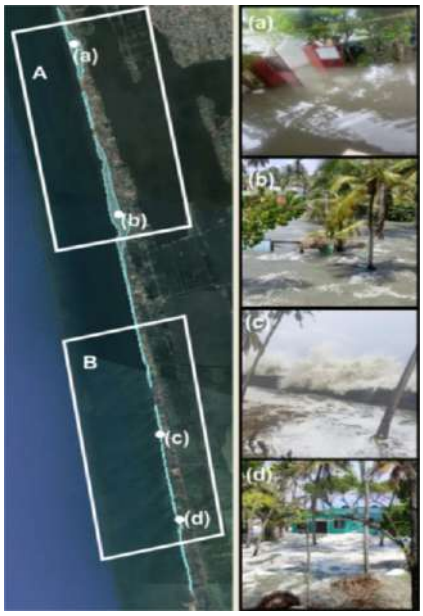


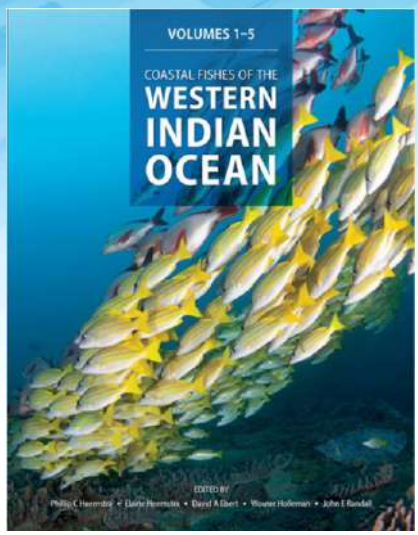
Figure: Simulated coastal inundation at Chellanam over Google Earth images. The point locations shown are (a) Cheriyakadavu, (b) Kannamali, (c) Velankanni, (d) Kandakkadavu and the corresponding photographs of inundation are shown in the right panel.

Citation: Ramakrishnan, R., Remya, P.G., Mandal, A. Prakash Mohanty , Prince Arayakandy, R. S. Mahendra, T. M. Balakrishnan Nair. Wave induced coastal flooding along the southwest coast of India during tropical cyclone Tauktae. Sci Rep 12, 19966 (2022).

https://doi.org/10.1038/s41598-022-24557-z

[Report Courtesy: Dr. Remya, P.G, INCOIS, Hyderabad, India; E-mail: remya.pg@incois.gov.in]

Coastal Fishes of the Western Indian Ocean



This remarkable 5-volume publication on the fishes of the Western Indian Ocean was launched at the annual Smith Memorial Lecture on 29 September 2022 in South Africa. **Coastal Fishes of the Western Indian Ocean** took 25 years to complete and involved almost 100 contributors from many parts of the world. It includes descriptions of 3500 species of fishes and has generated much interest in the diversity of coastal fishes in the Western Indian Ocean. It covers the region from Cape Point, South Africa to the Red Sea and east to Kanyakumari, India.

Searchable pdf versions of each volume have been created and for more information go to:

https://www.saiab.ac.za/coastal-fishes-of-the-western-indian-ocean.htm

[Report Courtesy: Lynnath Beckley, Environmental & Conservation Sciences Murdoch University, Western Australia; E-mail: L.Beckley@murdoch.edu.au]

DEEP-SEA RESEARCH PART II

THE SUBMISSION PORTAL FOR VOL. 6 OF THE DEEP-SEA RESEARCH II SPECIAL ISSUE SERIES ON THE IIOE-2 IS NOW OPEN

Submission of manuscripts that describe the results of studies related to the physical, chemical, biological, and/or ecological variability and dynamics of the Indian Ocean (including higher trophic levels) is encouraged.

Submission of manuscripts from students and early career scientists is also encouraged.

If you are interested in submitting a manuscript, please contact Raleigh Hood (rhood@umces.edu).

Indo-Pacific Fish Conference and the Australian Society for Fish Biology 20-24 November 2023, Auckland, New Zealand

The Indo-Pacific Fish Conference will be held in Auckland, New Zealand from Nov 20-24 2023 in partnership with the Australian Society for Fish Biology. Submission of abstracts is open from 10 Feb - 11 June 2023. Registration opens 20 April 2023. Closing date for nominations for the associated IPFC Bleeker Awards in fish Systematics and Taxonomy is 30 April 2023.

For more details visit Conference Website: https://www.ipfc11-asfb.ac.nz/

15th Pan Ocean Remote Sensing Conference (PORSEC), in Malaysia (December, 2022)

3 - 6 December 2022 Tutorial Capacity Building

7 - 8 December 2022 Conference Date

09:00 - 17:00 (GMT+8) Time

Johor Bahru, Malaysia & Online Venue

Welcome to the 15thPan Ocean Remote Sensing Conference (PORSEC). We hope to continue providing an opportunity for the scientists working on various aspects of ocean and atmosphere using remote sensing technology to come together, share and discuss the results and innovations, and provide training for the next generation of scientists.

In conjunction with the PORSEC 2022 conference, the 9thPORSEC Capacity Building Tutorial will be held prior to the PORSEC 2022 conference. The days tutorial offers expert training for students, and young scientists. Participants will be given theoretical lessons and practical exercises on remote sensing techniques used for monitoring the ocean-atmosphere system for research and operations.

We also would like to invite you to submit full academic papers or abstracts to the conference, related to the following themes below (but not limited to) to be addressed in the conference:

- Large and meso-scale oceanography
- Coastal impacts
- Emerging technologies for ocean and coastal applications
- Extreme events
- Operational remote sensing
- Ocean-Atmosphere interactions
- Remote sensing data for policy making
- Education and outreach
- Coastal disaster management
- Marine GIS
- Artificial intelligence and deep learning

Important Dates:

03 - 06 December 2022	Tutorial Capacity Building
07 - 08 December 2022	Conference Day

Conference program schedule is now available at https://www.geoinfo.utm.my/porsec/#program

Scholarship / Travel Grants:
Tuition fee waiver will be offered depend on the number of participants. Full/Partial travel grants might be available. Go to support funding section for more info.

The abstracts submitted to PORSEC2022 can be submitted as full paper to the PORSEC special issue of journals such as Tyler & Francis International Journal of Remote Sensing. This ensures efficient paper handling and gives opportunity to publish in such high IF journal.

Please don't miss to refer to important dates below and download our brochure for more information.

We are looking forward to meet all of you in the upcoming conference.

[Report Courtesy: Dr. Nurul Hazrina Idris Chairperson, PORSEC2022 LOC., E-mail: nurulhazrina@utm.my or porsec2020@gmail.com]

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 49 international, multi-disciplinary scientific projects have already been endorsed to date by the IIOE-2. Yours could be the next one!

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

CLIVAR November 2022 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, 2022 is available at:
https://mailchi.mp/clivar.org/clivar-november-2022-bulletin

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, 2022**

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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