

[Click here for our in-depth coverage of Lok Sabha and Assembly elections #ElectionsWithTheHindu](#)

# INCOIS scientists map Indian Ocean floor to study currents

Oceans play a critical role in both weather and climate prediction; due to vast economic benefits, it is essential to accurately forecast specific oceanographic parameters, says a study by the Indian National Centre for Ocean Information Services

April 26, 2024 12:46 am | Updated 12:46 am IST - HYDERABAD



V. GEETANATH

It is not just the Andaman and Nicobar Islands, even the Maldives islands have an influence on Indian Ocean currents significantly altering the direction and speed to a greater extent. These deep-swirling patterns in the ocean depths were found to be opposite to the surface currents, according to scientists at the Indian National Centre for Ocean Information Services (INCOIS) here.

A recent study of the Indian Ocean floor or the bathymetry undertaken by scientists Raheema Rahman and Hasibur Rahaman showed that the previously studied and used ocean modelling systems had underestimated the observed coastal currents around India. The bathymetry study showed that there is a significant improvement in the upper ocean salinity, temperature, and currents, particularly near the coast. A more realistic East India Coastal Current (EICC) flow was estimated at 1,000 metres and 2,000 metres depth, which is opposite to that of the surface.

The scientists also showed the presence of a boundary current along the coast of Andaman and Nicobar Island at a depth of 2,000 metres. The presence of the Maldives Islands has been found to be responsible for the westward extent of Equatorial Under Current (EUC). During fall, EUC is better defined in the eastern Equatorial Indian Ocean and lies at a depth of between 50 and 100 metres, unlike its spring counterpart, in which its core is located slightly deeper, between 100 and 150 metres depth.

“Oceans play a critical role in both weather and climate prediction and the maritime industry. Due to the vast economic benefits, it is essential to accurately forecast specific oceanographic parameters such as currents, temperature, and salinity of surface and subsurface on different time scales. For better prediction, the essential requirements are enhanced observations and improved models,” said the scientists.

Overall, the study has highlighted the importance of bathymetry on ocean general circulation models in advancing the understanding of ocean dynamics to improve the ocean state forecast, weather, and climate forecast over the Indian rim countries and subcontinent. The study – ‘Impact of bathymetry on Indian Ocean circulation in a nested regional ocean model’ was published in *Scientific Reports* journal in the latest issue.