

Indian researchers take a step towards improving wave forecasts

New Delhi, Aug 07 (India Science Wire): Researchers at the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad have found a method of improving wave forecasts. They have ascertained that certain phases of boreal summer intra seasonal oscillation or BSISO induce high wave activity in the northern Indian Ocean and Arabian Sea. The finding will help to improve wave forecasts in the Indian coastal region and help mitigate the adverse impacts of high waves such as coastal flooding and erosion. It will also aid better planning of sea navigation routes in the northern Indian Ocean waters.

Boreal Summer Intra-Seasonal Oscillation (BSISO) is the movement of convection (heat) from the Indian Ocean to the western Pacific in roughly every 10–50 days of the monsoon season from June to September. BSISOs represent monsoon's 'active' and 'break' periods, in which weeks of heavy rainfall give way to brilliant sunshine before starting all over again. The active phase also enhances monsoon winds and hence the surface waves.

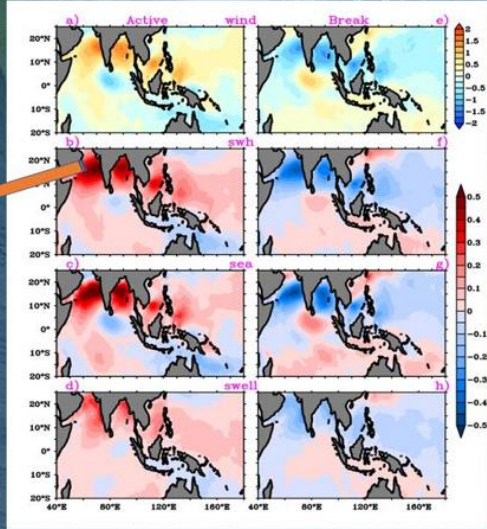
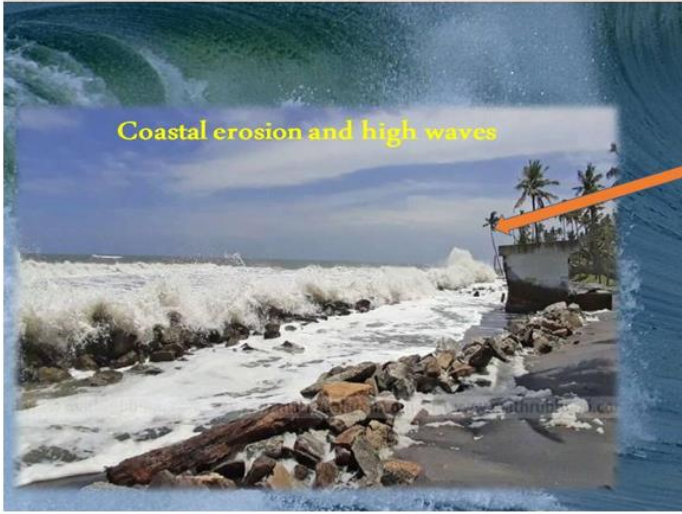
The team worked with data on Indian ocean waves such as their height, period, and surface winds over a span of 38 years from 1979-2017. By using mathematical data analysis models, the research team studied the relationship between various phases of BSISO and the height of waves in the Indian Ocean. They found that waves induced by active phases of BSISO are nearly 0.5 meters higher than those which occur during other phases of BSISO. The active phases of BSISO occur between June to August which are the monsoon summer months. "This finding has a great significance in developing seasonal and climate forecast service for waves and coastal erosion for India. Under the Deep Ocean Mission of the Ministry of Earth Sciences, we will be initiating work on this very soon", said Dr Balakrishna Nair, Director of INCOIS, Hyderabad, who led the study. The findings were published in a recent issue of the journal Scientific Reports.

"Wave forecast advisories based on the BSISO would be more useful for efficient coastal and marine management", he added. His team included Dr Gangirella Srinivas and Dr P G Remya, scientists at INCOIS, Hyderabad and S Malvika, a masters student at the Cochin University of Sciences and Technology, Kerala.

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The influence of Boreal Summer Intra-Seasonal Oscillations (BSISO) on Indo-western Pacific Ocean surface waves

Wind and wave anomalies during BSISO phases



Impact of BSISO on high waves and coastal erosion. (Photo: Dr B Nair, INCOIS)