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Technology dons the role of a guardian

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INCOIS uses IT and ocean observing systems to warn about calamities and improve the economy in coastal areas

Weather monitor:Scientists at the state-of-the-art Indian Tsunami Early Warning Centre (ITEWC) preparing bulletins. —file photo

From space-based satellites to devices positioned on ocean bed, Indian scientists are using cutting-edge technology to not only forewarn of an impending tsunami but also to bring about a sea change in the lives of coastal communities in the country.

In a fusion of science relating to oceans, information technology and ocean observing systems (both satellite-based and in situ), the Indian National Centre for Ocean Information Services (INCOIS) here has been providing advisories and warnings on ocean state to a string of agencies with the twin objectives of protecting life and property and improving the economy.

Following the 2004 Sumatra earthquake which unleashed killer tsunami waves flattening coastal areas and claimed more than 10,700 lives in India, the Ministry of Earth Sciences swung into action and set up a Rs.125-crore state-of-the-art Indian Tsunami Early Warning Centre (ITEWC) at INCOIS in 2007. Since then, this centre issued alerts (of no tsunami threat) during 16 major earthquake events in the Indian Ocean and developed more than 5,000 tsunami model scenarios covering the country's coastal areas.

Comprising a real-time network of seismic stations, bottom pressure recorders and tide gauges to detect a tsunami-triggering undersea earthquake and provide timely advisories, the 24x7 ITEWC has the capability to issue tsunami bulletins in less than 10 minutes of a major earthquake in the Indian Ocean thereby providing a response time of about 10 to 20 minutes for regions closer to the event and a few hours for far away places.

Recently, the ITEWC has been designated as a Regional Tsunami Advisory Service Provider (RTSP) and started providing advisories to all Indian Ocean Rim countries.

Fishing advisory

Using satellite imagery on sea surface temperature and the presence of chlorophyll, INCOIS has been issuing Potential Fishing Zone (PFZ) advisories in English and other local languages to about 60,000 fishermen in the country, indicating the likely places for shoals. With recent establishment of Oceansat-2 ground station on its campus, it started giving the advisories on a daily basis. Electronic Display Boards (EDBs) have been installed in 100 coastal locations to beam the advisories in time.

Studies have shown that the use of PFZs had reduced the search time for fish catches by 30 to 70 per cent, while the net profit went up by four to five times. An independent survey by National Council of Applied Economic Research (NCAER) estimated that the total annual net economic benefit due to identification of PFZs could be in the range of Rs. 34,000 to Rs. 50,000 crore.

As a leading forecasting agency for Indian Ocean, INCOIS has been equipping various stakeholders including shipping, navy, coast guard, mining, and oil industry with information on oceanic parameters such as waves, tides, currents and sea surface temperature. It also started a service named 'high wave alert' notifying the areas that will experience such waves due to bad weather, approaching cyclone or freak waves travelling towards Indian coast.