

# App to spot missing ships, aircraft

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**C**HENNAI: When the Indian Coast Guard (ICG)'s Dornier aircraft crashed over the Bay of Bengal in June 2015, many national agencies pitched in to help locate the wreckage.

At the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, scientists ran their indigenously developed Search And Rescue Aided Tool (SARAT) to provide probable areas to look for the debris in the sea.

The tool, based on mathematical calculations of ocean currents and wind, produced results that were more than 70%. The wreckage was found at a depth of 990 metres, 17 nautical miles southeast of Cuddalore, within the location area predicted by Incois.

Now, scientists have developed a mobile application for the tool that can help the ICG and other agencies track fishermen, small and large vessels or any other object lost in the sea. A tab-like gadget is also being made for the ICG to track missing vessels and small boats in the sea. It was initially run as a web-based application.

With the new software, INCOIS scientists say India is among the few nations, including the US and the Scandinavia countries, to have such a tool. Search and rescue operations in the ocean were based on manual calculations done regarding probable locations. But these were barely successful in finding the missing objects due to the constant change in weather patterns.

To mathematically calculate probable locations, the application requires information on the missing object, its last known

location and time. The software is also integrated with the existing Ocean Forecast System, run on supercomputers, to get real time and forecast data on ocean currents and wind. The accuracy of the ocean current and wind data is validated by using drifting and moored buoys in the ocean. INCOIS Ocean Science and Information Services Group head Balakrishnan Nair T M said the information on current and wind direction of the ocean was critical in calculating the probable location as it acted as a driving force for the missing object.

The software does mathematical calculations combining the ocean's real time data with the missing object's last known location and time to give a probable location. The result on probable location area is provided in a 360 degree radius of the last-known position of the object. The tool is programmed to deliver a prioritised search location result.

"The accuracy of the locations will increase with the exactness of the last known location and time of the missing object fed into the system," Nair said. The results will be valid for three days from the time of the calculation. "By the time, the search and rescue personnel reach the location to look for the missing object it would have drifted to a different location with the changing weather patterns. This is where our real time and forecast data on ocean comes in handy," he said.

Efforts are on to integrate the tool with the Indian National Satellite System (INSAT) for use in wireless gadgets. The mobile app is also being made available in several languages for the benefit of fishermen.