



NavIC Messaging Service – An Update

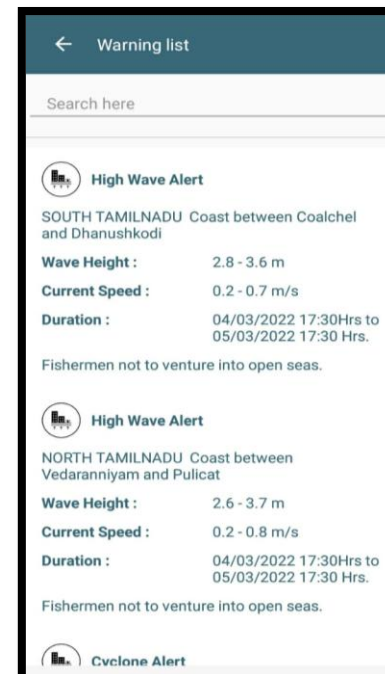
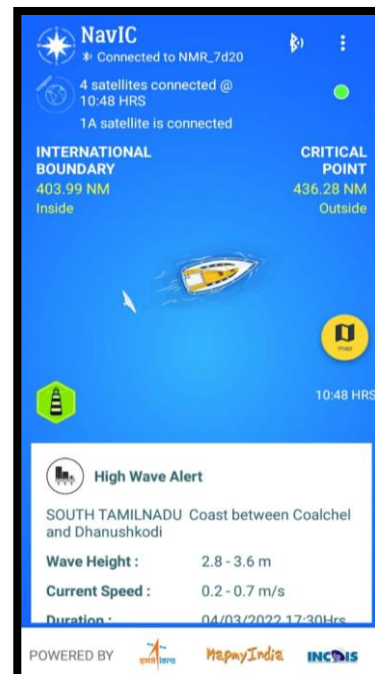
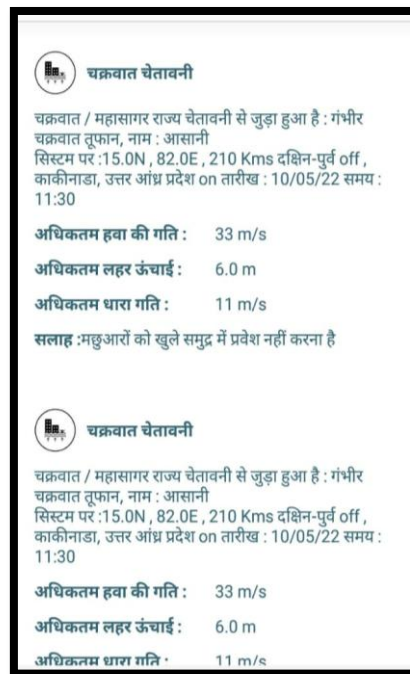
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- NavIC is offering short messaging service for the users in the Indian region. End-users located at remote places where cellular or internet based communication are difficult to reach (eg. Open seas, remote terrains etc.) benefit from messaging service via NavIC satellites.
- Message broadcasters are provided with a Web-based Interface for Messaging Service (WIMS) portal for submitting message request through internet. In addition, user specific interfaces are provided for prioritizing and security of the messaging service.
- Messaging service is presently being used by INCOIS[#] for broadcasting Potential Fishing Zone (PFZ) messages, Cyclone & High wave alerts etc. to fishermen across the country.
- Forward channel communication support to send acknowledgment to users in distress as a part of Second Generation Distress Alert Transmitters (SG -DAT) is being exercised.
- As a data relay service, tele-commanding of low earth orbit satellites has also been demonstrated by routing the commands through NavIC constellation using the NavIC messaging service.
- A Common Alert Protocol (CAP) is being developed for combining all Alerts for common broadcast.

- The broadcast of messages is distributed among the NavIC satellites (1A & 1E) considering parameters like size of messages, priority of messages, etc.
- Different message IDs are allotted to different broadcasters. The messaging channel is used in time-shared mode and preference is given to the users based on the priority of the applications.
- Priorities are allocated to certain users based on applications like disaster warning, distress alerts etc. High priority messages shall be broadcast by multiple satellites so that requests are quickly serviced. Message staggering and distribution across satellites is inbuilt.
- Messages that broadcast a large amount of information (like the INCOIS PFZ messages) is being staggered across multiple satellites to facilitate faster data collection.
- SIS ICD for Message service for INCOIS and SG-DAT available in ISRO website:
www.isro.gov.in/irnss-programme

- INCOIS provides ocean information and advisory services. INCOIS generates bulletins for ocean state forecast like High Wave Alerts and Cyclone Alerts etc. and early warnings of Tsunami.
- NavIC Messaging Service is used as a means to broadcast these information to fishermen. The information is displayed in the regional languages for convenience.

Screenshots of Alert Messages Received via NavIC Messaging Service

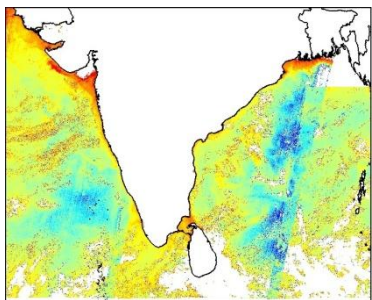


Major Cyclones / Depression Bulletins (2020-21)

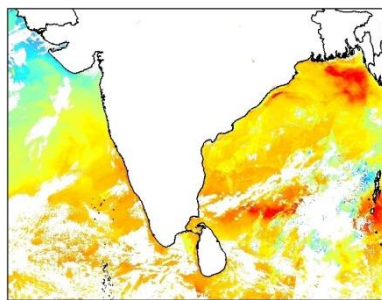
S. N o.	Name	Period	No. of Bulletins
1.	Amphan Cyclone	13/05/2020 to 21/05/2020	42
2.	Nisarga Cyclone	29/05/2020 to 04/06/2020	30
3.	Depression_BOB	09/10/2020 to 15/10/2020	22
4.	Depression_AS	16/10/2020 to 19/10/2020	11
5.	Depression	21/10/2020 to 24/10/2020	11
6.	Tauktae	13/05/2021 to 18/05/2021	38
7.	Yaas	22/05/2021 to 27/05/2021	30



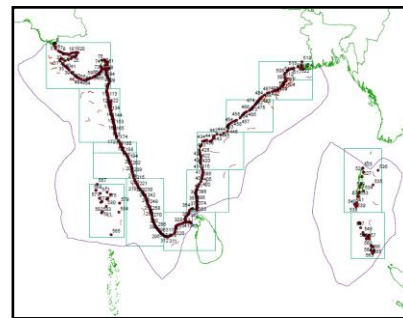
- INCOIS identifies location of fish aggregation by utilizing data from various remote sensing satellites.
- The PFZ advisories are generated in the form of PFZ maps and text.
- NavIC Messaging Service is used as one of the means to broadcast this information to the fishermen.



Chlorophyll Distribution from Oceansat-2



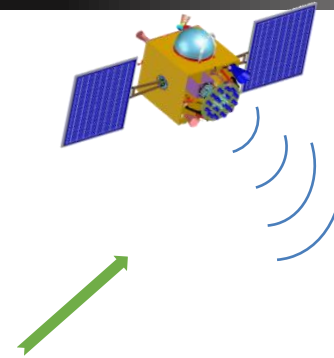
Sea-Surface Temperature from NOAA-AVHRR



PFZ map



Message transmission to NavIC satellite



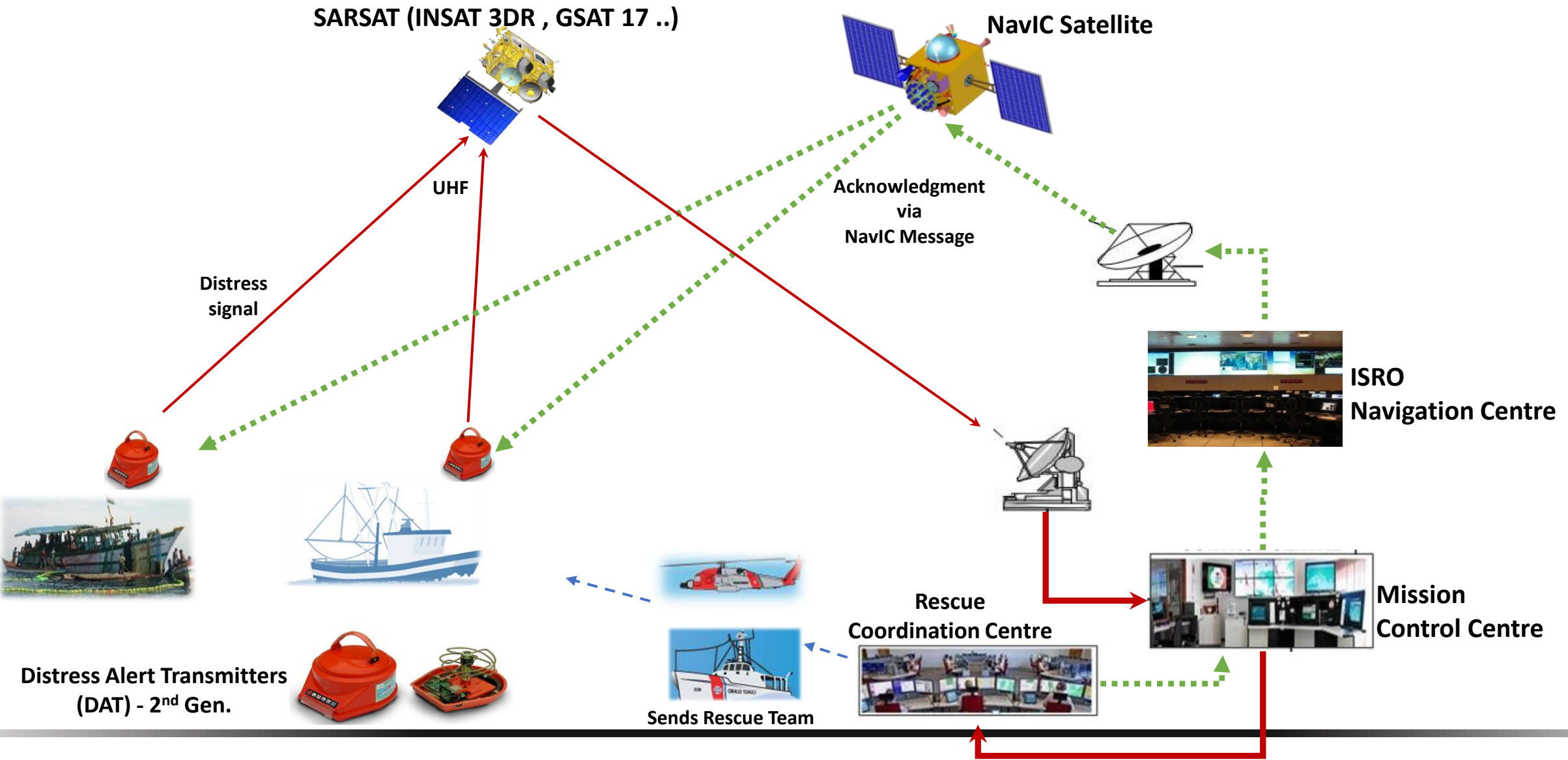
Dissemination



All Fishes Tuna

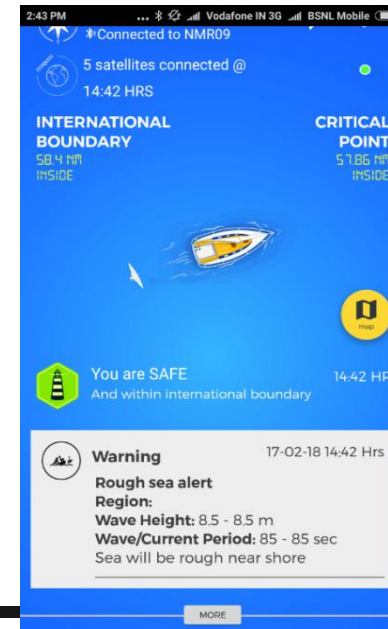
Radius: 400 NM

Acknowledgment for Distress Alert Messages

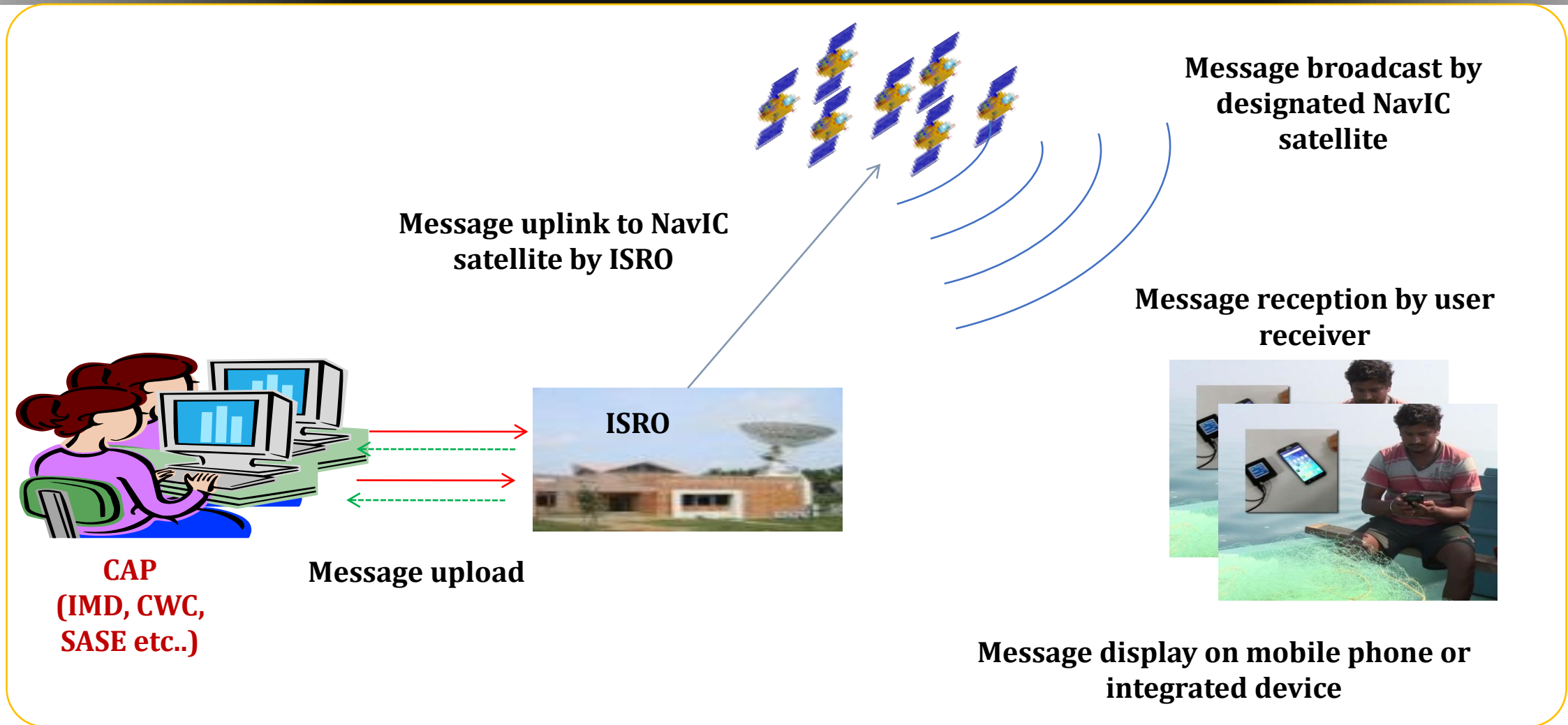


- Total 10853 segment messages for PFZ (Potential Fishing Zone) were broadcasted.
- Total 104 High wave alerts were disseminated.
- Total 325 SG-DAT acknowledgment messages were transmitted.
- Total 52 different messages were transmitted as cyclone alerts.

- NavIC Messaging Receiver (NMR) capable of receiving both the navigation signals and the messaging service signals delivered to fishermen.
- NMR also alerts fishermen from crossing international boundary.
- NMR functionality integrated with SG-DAT units to provide two-way communication with NMR features
- 50 units of second generation Distress Alert Terminals are kept ready. Trial with the support of Indian coast guard is going ON.



Integration with CAP



Internal End to End testing of CAP is going on.

Thank You