





# 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<sup>#</sup> 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 timeshared 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: <u>www.isro.gov.in/irnss-programme</u>

#### INCOIS Ocean State Forecast and Tsunami Alert Messages 15ro

- INCOIS provides ocean information and advisory services. INCOIS generates bulletins for ocean state forecast ۲ 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 ۲ displayed in the regional languages for convenience.

Duration :

#### Screenshots of Alert Messages Received via NavIC Messaging Service

NavIC * Connected to NMR_7d20	\$0 E			
4 satellites connected @ 13:44 HRS 1A satellite is connected	•			
INTERNATIONAL BOUNDARY 403.98 NM Inside	CRITICAL POINT 436.27 NM Outside			
	Ø			
â	13:44 HRS			
Cyclone Alert				
Cyclone/Ocean state warning associated with : Depression, Name : - System at :13.0N, 94.0E, 230 Kms S off, PortBlair,ANDAMAN on Date : 21/03/22 Time : 17:30				
Maximum Wind 19 m/s				
POWERED BY The Mapay India INCOIS				

🏨 चक्रवात चेतावनी					
चक्रवात तूफान, नाम : आसा- सिस्टम पर :15.0N , 82.0E	चक्रवात / महासागर राज्य चेतावनी से जुड़ा हुआ है : गंभीर चक्रवात तूफान, नाम : आसानी सिस्टम पर :15.0N , 82.0E , 210 Kms दक्षिन-पुर्व off , काकीनाडा, उत्तर आंध्र प्रदेश on तारीख : 10/05/22 समय : 11:30				
अधिकतम हवा की गति :	33 m/s				
अधिकतम लहर ऊंचाई :	6.0 m				
अधिकतम धारा गति :	11 m/s				
<b>सलाह</b> :मछुआरों को खुले सम्	सलाह :मछुआरों को खुले समुद्र में प्रवेश नहीं करना है				
🏨 चक्रवात चेतावनी					
चक्रवात / महासागर राज्य चेतावनी से जुड़ा हुआ है : गंभीर चक्रवात तूफान, नाम : आसानी सिस्टम पर :15.0N , 82.0E , 210 Kms दक्षिन-पुर्व off , काकीनाडा, उत्तर आंध्र प्रदेश on तारीख : 10/05/22 समय : 11:30					
अधिकतम हवा की गति :	33 m/s				
अधिकतम लहर ऊंचाई :	6.0 m				



#### Major Cyclones / Depression Bulletins (2020-21)

← Warning lis	st	S. N o.	Name
Search here		1.	Amphan Cyclone
High Wave Alert SOUTH TAMILNADU Coast between Coalchel and Dhanushkodi		2.	Nisarga Cyclone
Wave Height : Current Speed :	2.8 - 3.6 m 0.2 - 0.7 m/s	3.	Depression_BOB
Duration :	04/03/2022 17:30Hrs to 05/03/2022 17:30 Hrs. nture into open seas.	4.	Depression_AS
High Wave Alert		5.	Depression
NORTH TAMILNADU Vedaranniyam and F			m 1.
Wave Height :	2.6 - 3.7 m	6.	Tauktae
Current Speed :	0.2 - 0.8 m/s	_	
Duration :	04/03/2022 17:30Hrs to 05/03/2022 17:30 Hrs.	7	Yaas
Fishermen not to ve	nture into open seas.		
Cvclone Aler	t		

Name	Period	No. of Bulletins
Amphan Cyclone	13/05/2020 to 21/05/2020	42
Nisarga Cyclone	29/05/2020 to 04/06/2020	30
Depression_BOB	09/10/2020 to 15/10/2020	22
Depression _AS	16/10/2020 to 19/10/2020	11
Depression	21/10/2020 to 24/10/2020	11
Tauktae	13/05/2021 to 18/05/2021	38
Yaas	22/05/2021 to 27/05/2021	30



## **Potential Fishing Zone (PFZ) Information for Fishermen**

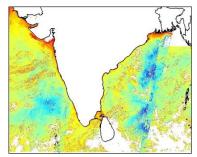




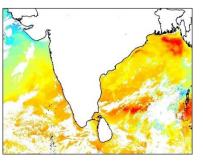


- INCOIS identifies location of fish aggregation by utilizing data from various remote sensing satellites.
- The PFZ advisories are generated in the form of PFZ maps and text.
- NavIC Messaging Service is used as one of the means to broadcast this information to the fishermen.

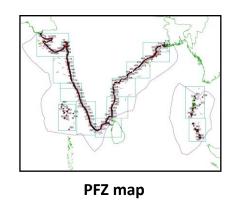




Chlorophyll Distribution from Oceansat-2



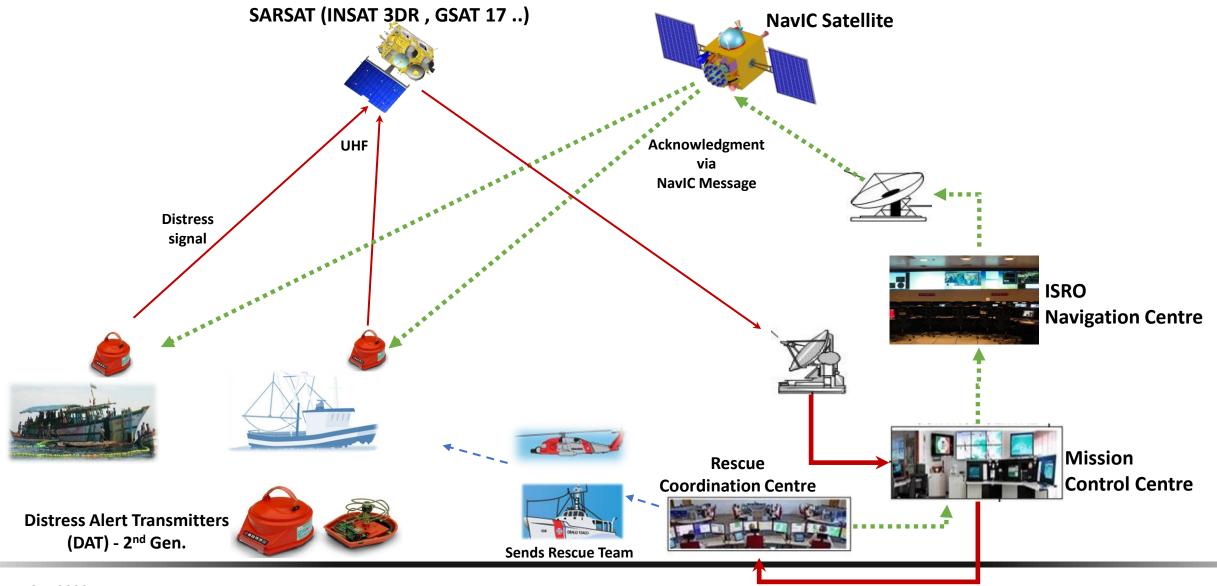
Sea-Surface Temperature from NOAA-AVHRR



(Source: https://incois.gov.in)

## **Acknowledgment for Distress Alert Messages**





इसरो डिंग्व



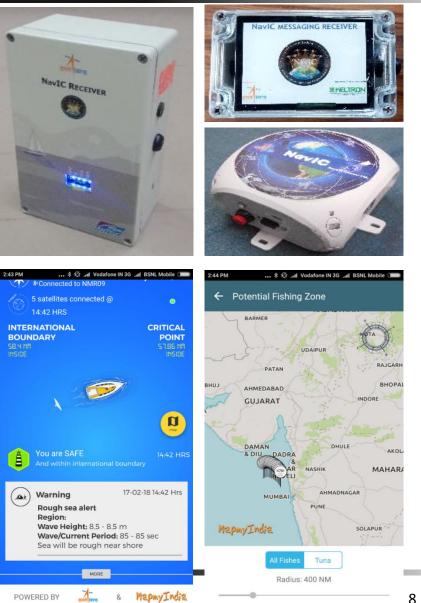


- Total 10853 segment messages for PFZ (Potential Fishing Zone) were broadcasted.
- Total 104 High wave alerts were disseminated.
- Total 325 SG-DAT acknowledgment messages were transmitted.
- Total 52 different messages were transmitted as cyclone alerts.

# NavIC Messaging and Positioning Application

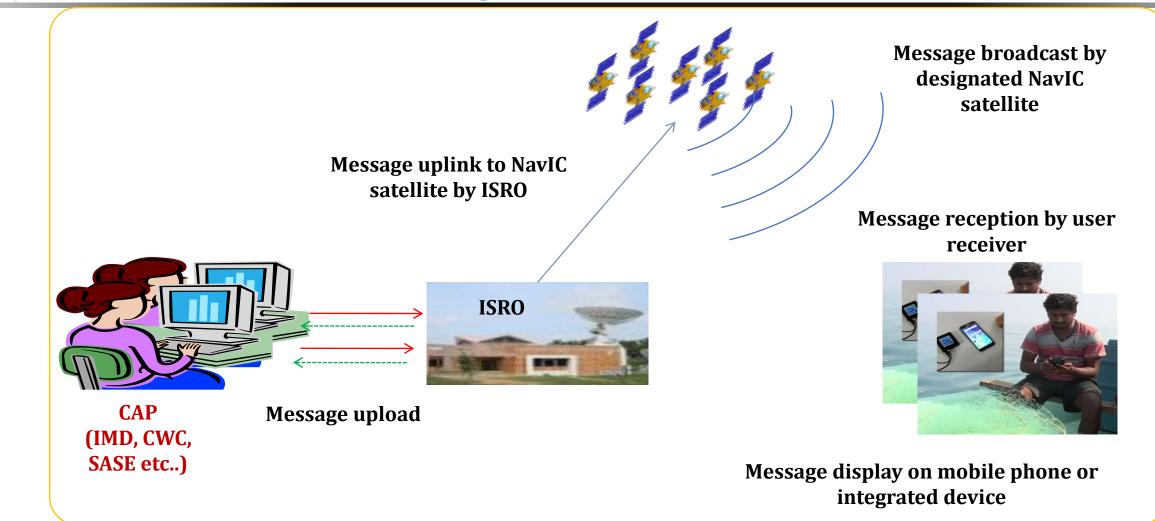


- NavIC Messaging Receiver (NMR) capable of receiving both the navigation signals and the messaging service signals delivered to fishermen.
- NMR also alerts fishermen from crossing international boundary.
- NMR functionality integrated with SG-DAT units to provide two-way communication with NMR features
- 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.

**उसरा** जिल्ल





### **Thank You**