



Distress Alert Transmitter For Fishermen

For Prelims: [Maritime Rescue Coordination Centres \(MRCCs\)](#), [Indian Coast Guard \(ICG\)](#), [Indian Space Research Organisation \(ISRO\)](#), Potential Fishing Zones (PFZs).

For Mains: Distress Alert Transmitter For Fishermen, Disaster and Disaster Management.

Source: [ET](#)

Why in News?

Recently, the [Indian Space Research Organisation \(ISRO\)](#) has developed the **second-generation Distress Alert Transmitter (DAT-SG)**, an indigenous technological solution for [Fishermen at sea to send emergency messages](#) from fishing boats.

- Fishermen, when faced with distress situations, can use the DAT to send emergency messages. These messages typically contain information about their identity, location, and the nature of the emergency.

What is a Distress Alert Transmitter (DAT)?

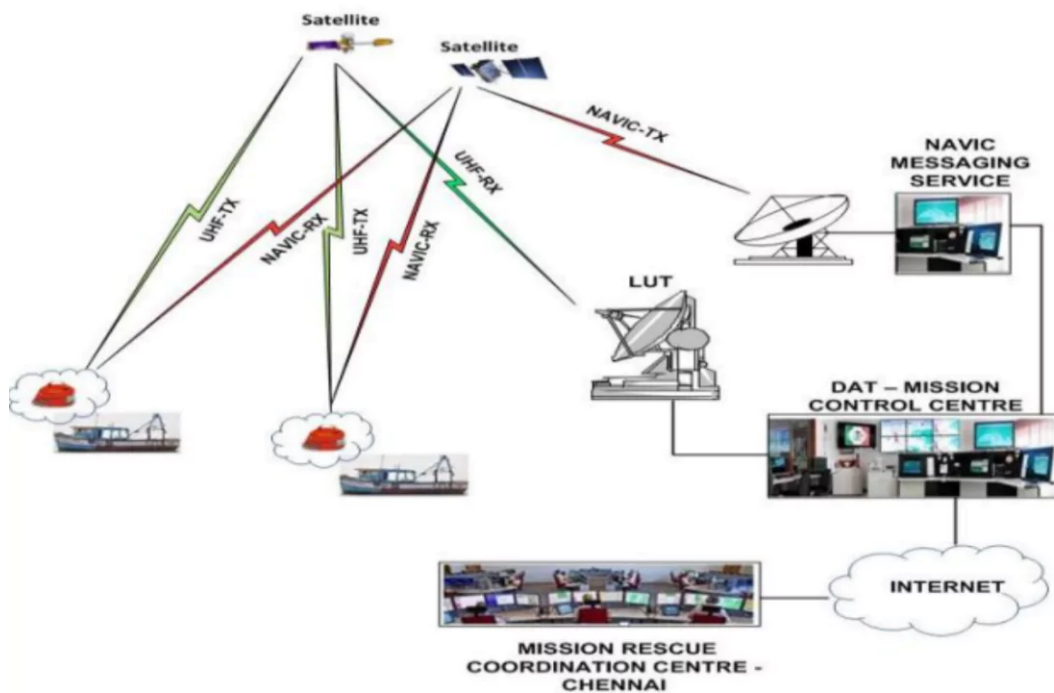
- **About:**
 - The first version of DAT has been operational since 2010, using which messages were sent through a communication satellite and received at a **central control station (INMCC: Indian Mission Control Centre)**, where the alert signals are decoded for the identity and location of the fishing boat.
 - The extracted information is then forwarded to [Maritime Rescue Coordination Centres \(MRCCs\)](#) under the [Indian Coast Guard \(ICG\)](#).
 - Using this information, the **MRCC coordinates to undertake search and rescue operations** to save the fishermen in distress.
 - Till now, **more than 20,000 DATs are being used.**

What is the Second Generation Distress Alert Transmitter (DAT-SG)?

- **DAT-SG:**
 - The DAT-SG builds upon the original **Distress Alert Transmitter (DAT)** and incorporates advanced capabilities and features to enhance maritime safety and communication.
 - The **DAT-SG** has the facility to send back an acknowledgement to the fishermen who activate the distress alert from sea.
 - ISRO has developed the DAT-SG which is a **UHF (Ultra High Frequency)** transmitter based on the [NavIC \(Navigation in Indian Constellation\) receiver module](#).
 - This NavIC receiver module supports position determination as well as broadcast messages reception called NavIC messaging service.
- **Features:**
 - **Bluetooth Interface:** The DAT-SG can be connected to mobile phones using a Bluetooth

interface. This allows fishermen to **receive messages on their mobile devices**. Additionally, an app on the mobile phone can be used to read messages in the native language, enhancing accessibility.

- **Integration with Mobile Phones:** DAT-SG can be integrated with mobile phones, providing a convenient and widely-used platform for communication.
- **Web-Based Network Management System (SAGARMITRA):** The central control center (INMCC) utilises a web-based network management system called "**SAGARMITRA.**"
 - This system **maintains a database of registered DAT-SGs and assists Maritime Rescue Coordination Centres (MRCCs)** in accessing real-time information about boats in distress. This feature helps the Indian Coast Guard in undertaking Search & Rescue operations promptly.
- **Two-way Communication:** DAT-SG is equipped with the **capability to receive messages from the control centre**. This enables the central control station **to send advance alert messages to fishermen in the case of events** such as bad weather, cyclones, tsunamis, or other emergencies.
- **Information about Potential Fishing Zones (PFZs):** DAT-SG can transmit information about **Potential Fishing Zones to fishermen at sea at regular intervals**. This feature assists fishermen in locating areas with a higher probability of a good catch, leading to increased efficiency in fishing operations and savings in terms of time and fuel.
- **Operational 24/7:** The services of DAT-SG are declared **operational on a 24x7 basis, ensuring continuous support for fishermen in distress**



What is NavIC?

▪ About:

- NavIC or the **Indian Regional Navigation Satellite System (IRNSS)** is designed with a constellation of 7 satellites and a network of ground stations.
 - There are a **total of eight satellites however only seven remain active**.
 - **Three satellites in geostationary orbit and four satellites in geosynchronous orbit**.
- The **constellations' first satellite (IRNSS-1A)** was launched on 1st July 2013 and the eighth satellite IRNSS-1I was launched in April 2018.
 - With the seventh launch of the constellation's satellite (IRNSS-1G), IRNSS was renamed NavIC by India's Prime Minister in 2016.
- It was recognised by the **International Maritime Organization (IMO)** as a part of the **World-Wide Radio Navigation System (WWRNS) for operation in the Indian Ocean**

Region in 2020.

▪ Potential Uses:

- Terrestrial, aerial and marine navigation;
- Disaster management;
- Vehicle tracking and fleet management (especially for mining and transportation sector);
- Integration with mobile phones;
- Precise timing (as for ATMs and power grids);
- Mapping and geodetic data capture.

UPSC Civil Services Examination Previous Year Question

Prelims

Q. With reference to the Indian Regional Navigation Satellite System (IRNSS), consider the following statements: (2018)

1. IRNSS has three satellites in geostationary and four satellites in geosynchronous orbits.
2. IRNSS covers entire India and about 5500 sq. Km beyond its borders.
3. India will have its own satellite navigation system with full global coverage by the middle of 2019.

Which of the statements given above is/are correct?

- (a)** 1 only
- (b)** 1 and 2 only
- (c)** 2 and 3 only
- (d)** None

Ans: (a)

Mains

Q. Why is Indian Regional Navigational Satellite System (IRNSS) needed? How does it help in navigation? (2018)

Q. Discuss India's achievements in the field of Space Science and Technology. How the application of this technology has helped India in its socio-economic development? (2016)