Space Applications Centre (SAC), ISRO is the nodal centre for development and field demonstration of different SATCOM (satellite communication) applications and associated technologies.

**INSAT-3A and INSAT-3D satellites** have Data Relay Transponders (DRT) which support reporting services at low bit rate in UHF (ultra high frequency) band. **INSAT-3C** has a MSS (mobile satellite services) transponder which also supports low bit rate communication in S-band.

Various applications like Distress Alert Transmitter, Tsunami Early Warning System, Automatic Weather Stations and transmitters for Cal-Val projects to support different applications have already been proven in the field and are providing operational service. The first satellite communication link between Antarctica and India has also been established.

### Distress Alert Transmitter (DAT)
- UHF Transmitter for Emergency Alert Messaging & Position reporting
- Built-in GPS receiver
- 2.4m Operational Hub at MRCC, Chennai
- Operational since 2005
- Technology available with Indian industries

### Major Highlights
- INSAT-3A & INSAT-3D satellites with Data Relay Transponders (DRT) to support low bit rate data reporting services
- Developed different terminals like Distress Alert Transmitter (DAT) & Automatic Weather Stations (AWS) and are available through Indian industries
- More than 5,000 terminals of DAT and 1200 AWS stations are operational in the field
- Special applications like data collection for Tsunami Early Warning is supported
- Suitable for all weather and all terrain data collection applications
- The terminals are available through Indian industries

### Major Benefits
- Low-cost terminal to support search & rescue operations for fishermen
- Providing meteorological sensor data collection for weather prediction
- In-situ data collection and reporting for calibration and validation of sensors
SATCOM APPLICATIONS

Automatic Weather Station (AWS) Highlights
- 5W UHF Transmitter (402.65-402.85 MHz)
- Built-in GPS receiver
- TDMA transmission on hourly basis for automatic weather data collection
- HUB is in Ext-C band at BES, Ahmedabad
- More than 1200 AWS stations working across India
- Supports more than eight meteorological sensors
- 23 Agro-met stations (AMS) are operational
- Technology available through Indian Industries

Calibration-Validation (Cal-Val) Highlights
- S-band Transmitter for collection of in-situ sensor data for Cal-Val of OCEANSAT-2 sensor
- TDMA communication of sensor data of Radiometer & Sun-Photometer
- S-band terminal with marine enclosure
- Receive Hub in Ext-C band at Delhi Earth Station
- Installed and Operational for OCEANSAT-2

Antarctica Communication Link
- Bi-directional communication between Maitri, Antarctica and NCAOR, Goa
- 3m C-band Earth station at Maitri (71° S, 11° E) to support communication at 2048 Kbps
- 7.2m C-band station at NCAOR (15.3° N, 73.5° E)
- Extreme low elevation angle of 5° to support services of data transfer, video-conferencing and internet access

Tsunami Early Warning System Highlights
- UHF transmitter and S-band transmitter for Tsunami Early Warning
- TDMA transmission support for Acoustic Tide Gauge & BPR (bottom pressure recorder)
- S-band terminal with receive line for command response
- Receive Hub in Ext-C band at INCOIS, Hyderabad
- Technology available through Indian Industries