Operational DCS status report and implementation of best practices

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Current GEO Satellites (INSAT-3D, INSAT-3DR, GSAT-17

- The Geostationary Satellites INSAT-3DR, INSAT-3D and GSAT-17 are carrying Data Relay Transponder (DRT) in UHF x C band. These satellites are operating at 74°E, 82°E and 93.5°E respectively.

- ISRO/India has launched INSAT-3DS satellite as a replacement of INSAT-3D on February 17, 2024.

- The payloads are operating in the 402 MHz band for uplink and 4.5 GHz band for down link. These help in collecting realtime data for meteorological, hydrological and oceanographic applications, from automatic data collection platforms (DCP)

Current GEO Satellites (INSAT-3D, INSAT-3DR, GSAT-17

Operational

- DRTs are supporting about 3800 Automatic Weather Stations and 64 Automatic Tide Gauges, ~600 terminals for Water recourses, ~100 terminals of Snow and Avalanche Study, 50 terminals for environment radiation monitoring, 375 terminals for Moored Buoy data collection, 15 terminals for Tsunameter.
- About 20000 terminals for Distress Alert Transmitter.

Planned

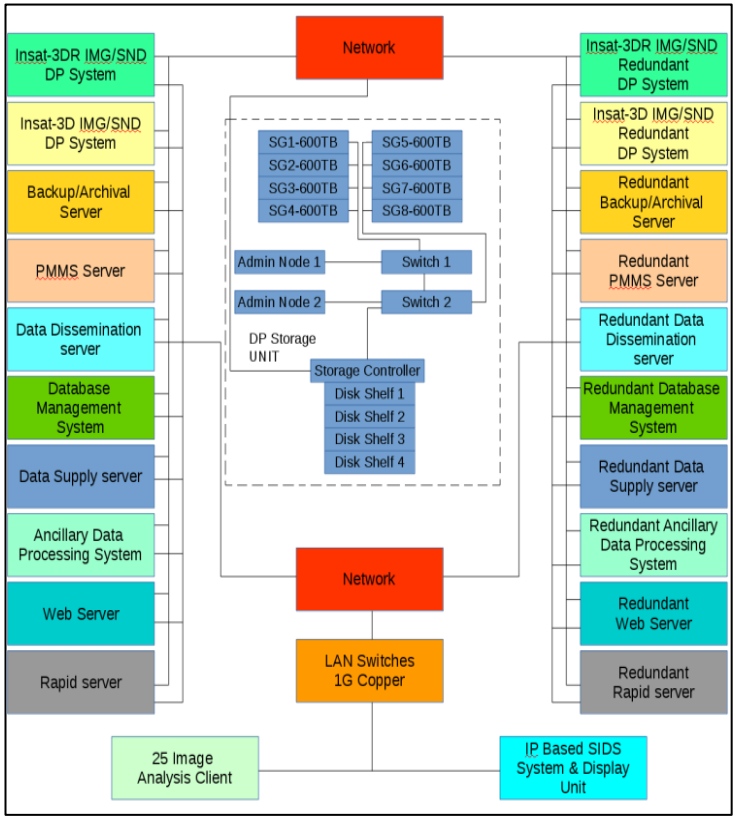
- 350 more AWS terminals is planned for Snow & Avalanche study.
- 50 more terminals also planned for radiation monitoring.

INSAT-3DS

- INSAT-3DS Satellite is a Third Generation Meteorological Satellite from Geostationary Orbit.
- Satellite will enhance meteorological observations and monitoring of land and ocean surfaces for weather forecasting and disaster warning.
- Satellite has two meteorological payloads namely
  - Six channel Imager & Nineteen channel Sounder.
- Imager generates images of the Earth and its environment in various spectral channels of Meteorological importance.
- Sounder provides the meteorological data with vertical profile of the various meteorological parameters of importance.
- INSAT-3DS has DRT and SAS&R Transponders to support data collection platforms (DCP) and emergency distress alert beacons operating in UHF band.

INSAT-3D, 3DR & 3DS- Multi-Mission Meteorological Data Receiving and Processing System (MMDRPS)

- IMD has established MMDRPS to receive the data from metrological satellites.
- MMDRPS systems has advanced servers capable to process the complete set of data within 7 minutes after completion of scan.
- The system has the storage capacity of order 2.0/2.0PB (Main/Mirror) & 324TB SSD which facilitates online sharing of processed data for all Indian meteorological satellites to the registered users as per IMD data policy.
- The processed data is shared through Web-based secured satellite Data Supply System.



Coordination Group for Meteorological Satellites

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CGMS

INSAT-3D, 3DR & 3DS- Operational Products

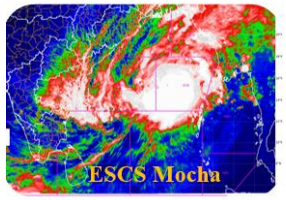
- Cloud images in the Visible, Short wave Infra-red, Mid Infra-red, Thermal Infra-red, Water Vapor Channels
- Atmospheric Motion Vectors (IR Wind, Water Vapor Winds, MIR/Visible Winds)
- Sea Surface temperature
- Outgoing Long-wave radiation
- Land Surface Temperature (LST), Insolation, Quantitative Precipitation Estimates
- Nighttime Fog, Smoke, Fire, Snow Cover, Aerosol Optical Depth
- Upper Tropospheric Humidity, Cloud top Temperature, Cloud top Pressure, Temperature & Humidity profiles, Total ozone, Total/Layer Precipitable Water Vapour, Stability Indices.
- Wind derived products such as Vorticity (at 850mb,700mb,500mb, 200mb levels), Wind Shear, Mid-level Wind Shear, Shear Tendency, Low-level Convergence, and Upper-Level Divergence using Imager Wind product.

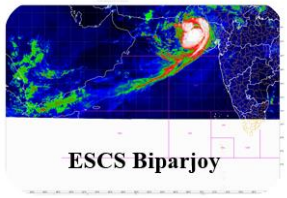
All these images and products are disseminated on a real-time basis through a dedicated IMD website.

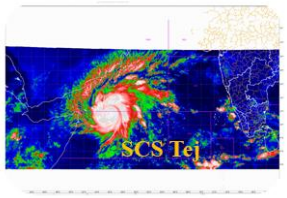
INSAT-3D, 3DR & 3DS- Satellite Based Cyclone Monitoring

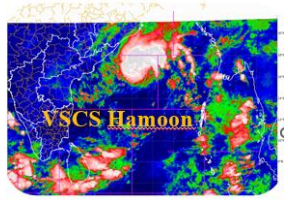
- During the year 2023, tropical cyclones Mocha, Biparjoy, Tej, Hamoon were monitored with INSAT 3D
- Advanced Dvorak Technique (ADT) software was implemented to determine the intensity of Tropical Cyclones.
- During extreme weather events, rapid scans were conducted during major cyclonic events like Mocha, Biparjoy, Tej, Hamoon etc. The imageries of rapid scan conducted during cyclonic events are being disseminated through web page (http://satmet.imd.gov.in/rapid/rapid_scan.htm).

Sl. No.	Name of Cyclone	Duration	Total no. of Rapid Scans
1.	ESCS-Mocha	09-15th May 2023	1493
2.	ESCS- Biparjoy	06-19th June 2023	2880
3.	SCS Tej	20-24th October 2023	1152
4.	VSCS Hamoon	21-25th October 2023	1440









Information: SFCG-43 (June 4-12, 2024 in Bengaluru, India)

- SFCG, a collegiate of Space Agencies and related national and international organizations, headquartered at ESA, France.
- ISRO is one of the founder members.
- Formulates resolutions and recommendations and coordination of frequencies for operation of satellites in space radio communication, Earth Observation, Space science and Human Space missions.
- SFCG also discusses on the agenda items of World Communication Conference (WRC) .
- ISRO has hosted twice in Bangalore (SFCG-3 in 1982 and SFCG-15 in 1995).
- **ISRO/India to host SFCG-43 during June 4-12, 2024 in Bengaluru, India.**

Information: SFCG-43

There are 4 working groups and a LMSG under SFCG that hold discussions on different topics , in two parallel sessions during the meeting.

SWG-1	SWG-2	SWG-3	SWG-4	LMSG
ITU matters and WRC related agenda items	**General Frequency Management**	**Sensors and Meteorological satellites**	**Databases and coordination**	**Lunar Martian Spectrum Group.**

Thank You