History

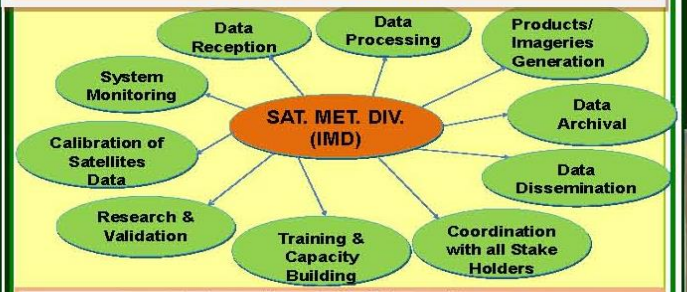
- *1960: The first satellite Television and Infrared Observational Satellite (TIROS) dedicated to meteorology was launched on 1 April 1960.*
- *1963: IMD's use of weather satellite commenced since the launching of TIROS-I on 1 April 1960 with real-time reception of satellite imagery in December 1963 through an automatic picture transmission (APT) station at Mumbai.*
- *1972: Satellite Meteorology Division started functioning in India Meteorological Department in 1972 and ISRO launched its first atmospheric observation Satellite Bhaskara with a microwave payload of Satellite Microwave Radiometer (SAMIR) for the observations of atmosphere & Ocean.*
- *1972-82: IMD received the Satellite imageries of NOAA and NASA meteorological satellites through Secondary Data Utilization Centre (SDUC) and printed on photographic paper for using in weather forecasting.*
- *1982: The first generation of the Indian National Satellite (INSAT) programme started as a series of multipurpose geo-stationary satellites by ISRO.*
- *1983: First satellite data receiving and processing system established to receive & process the data from INSAT-1B at every three-hourly basis.*
- *1996: Dissemination of the satellite imageries started through IMD website.*
- *1997-98: Two ground receiving & processing System: -High-Resolution Picture Transmission (HRPT) to receive & process the directly broadcast data of NOAA series satellites at New Delhi & Chennai during.*
- *1999: INSAT-2E satellite carried Charge coupled device (CCD) payload for the first time in INSAT series with 1 km resolution.*
- *2002: Kalpana-1was launched.*
- *2003: INSAT-3A was launched.*
- *2008: Commissioning of a Fully Automated Indigenously developed INSAT Meteorological Data processing System (IMDPS).*
- *2010-12: New polar orbiting satellite receiving systems at New Delhi, Chennai & Guwahati established to receive & process the directly broadcast data of NOAA/METOP/MODIS series satellites.*
- *2013: Launch of INSAT 3D satellites with 6 channel Image & 19 channels Sounder.*
- *2014: Development of Real Time Analysis of Product & Information Dissemination (RAPID).*
- *2016: Launch of INSAT-3DR satellite and utilization of its imageries & products.*
- *2017: RAPID scan utility started from INSAT-3DR Imager.*
- *2018-19: Installation started of Multi-Mission Meteorological Data Receiving and Processing System (MMDRPS).*
- *2020: Operationalization of MMDRPS.*
- *Currently IMD uses INSAT-3D & 3DR, Polar Satellite (Oceansat-2, SCATSat-1 & Mega-Trophiques).*

Current Operational Scenario of INSAT-3D/3DR

INSAT-3D **INSAT-3DR**

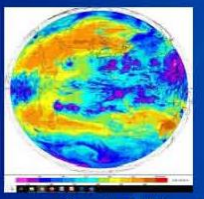
- INSAT-3D and INSAT-3DR are dedicated meteorological geostationary satellites located at 82°E and 74°E longitude respectively.
- INSAT-3D & 3DR carries a multi spectral six channel Imager, 19 channel Sounder, Data Relay Transponder and Satellite Aided Search & Rescue payloads.
- The Imager payload of INSAT-3D and INSAT-3DR is being used in staggered mode so that effectively 15 minutes temporal resolution is achieved.
- Sounder payloads of INSAT-3DR is operated in such a way that twenty times covered up INDIAN land region sector data and four times (04, 11, 16 & 23 UTC) Indian Ocean region data on hourly basis.

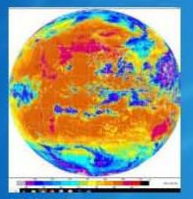
Functions of the Division



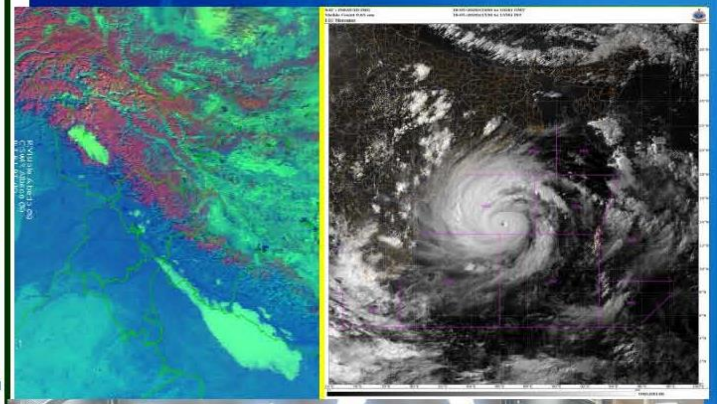
International Collaboration

Stake Holders





Satellite Meteorology Division
India Meteorological Department
Ministry of Earth Sciences
Government of India
Service to the Nation since 1972



For further details Kindly contact
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Contact No.011-24698106
www.mausam.imd.gov.in
https://www.satellite.imd.gov.in/insat.htm

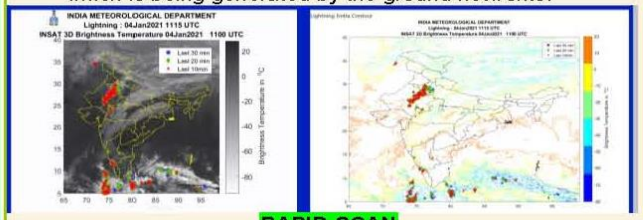
Main Activities

MMDRPS SYSTEM

- IMD established Multi-Mission Meteorological Data Receiving and Processing System (MMDRPS) for INSAT-3D, INSAT-3DR and INSAT-3DS satellites through a MoU with M/s Antrix Corporation Ltd, ISRO.
- Three dedicated Earth stations have been setup under MMDRPS Project, which have the capability to receive the data from INSAT-3D, INSAT-3DR and upcoming INSAT-3DS satellite.
- MMDRPS system consists of 52 servers of advance & latest state of art technology, capable to process the complete set of data within 7 minutes after end of scan.
- MMDRPS system have the storage capacity of order 2.0/2.0PB (Main/ Mirror) & 324TB SSD which will facilitate online sharing of processed data for all Indian meteorological satellites to the registered users as per IMD data policy through Web based secured satellite Data Supply System.
- All available past satellite datasets starting from 1983 will be kept in online mode in due course of time in MMDRPS.

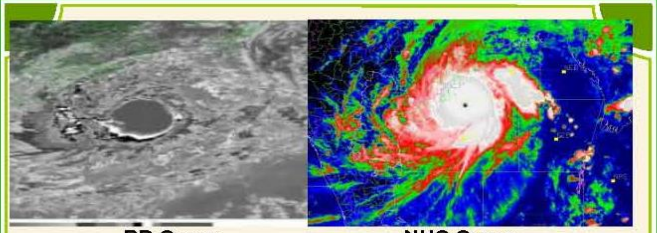
Visualization of surface Lighting network Data over satellite images

- IITM Pune collects the lighting data at frequency of 2-minutes interval and IAF every 15 minutes and provide this lighting data to IMD in real time basis.
- The merged product of lightning and satellite-based cloud with INSAT-3D data product is generated at real-time basis with half an hour animation.
- The points are lightning flashes/strikes (cloud-to-ground) which is being generated by the ground networks.



RAPID SCAN

INSAT-3DR Imager is operated in RAPID SCAN Mode during cyclone and convective activities over the India region. Till today, more than 12 tropical cyclones over Arabian Sea and Bay of Bengal have been monitored through RAPID SCAN.



BD Curve NHC Curve

Global Navigation Satellite System (GNSS)

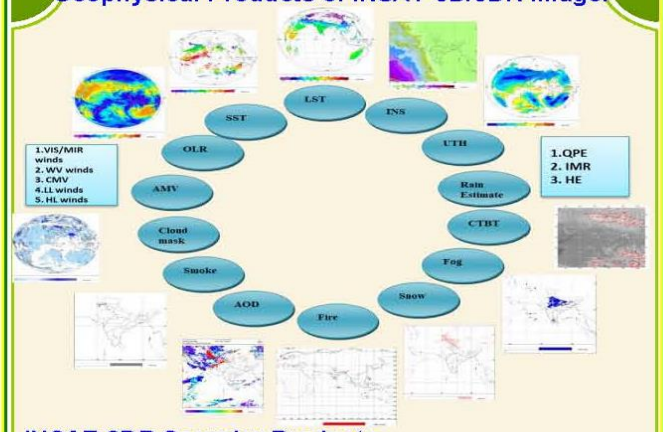
- IMD has set up a countrywide network of 25 nos. Global Navigation Satellite System (GNSS) stations for "Earth and Atmospheric studies" to drive integrated precipitable water vapour (IPWV).
- The IPWV data is being used for now casting, monsoon studies, thunderstorms observation, and climate research and assimilated in NWP models to improve the accuracy of weather forecasting.

CAL/VAL

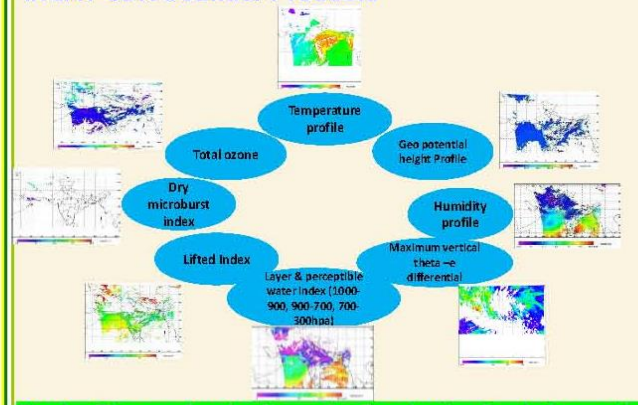
A dedicated CAL/VAL site (Great Rann of Kutch) has been setup for post-launch vicarious calibration and characterization of meteorological sensors of INSAT series satellites, as a very high accuracies satellite data is a need in most of weather forecasting and climate research applications.

Review Visit of Secretary MoES

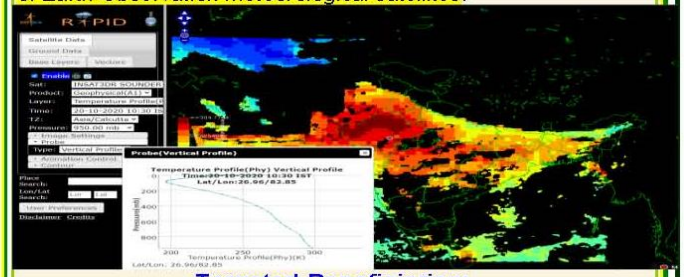
Geophysical Products of INSAT-3D/3DR Imager



INSAT-3DR Sounder Products



Real Time Analysis of Product & Information Dissemination (RAPID) is a web-based system which can provide quick visualization and analysis capabilities to end users and in-particular to meteorologists and decision makers of Earth Observation meteorological satellites.



Targeted Beneficiaries:

All State/Central Govt. agencies dealing with weather, forecast and extreme events including disaster management services, IAF/Indian Navy, Indian Coast Guard and general public.