



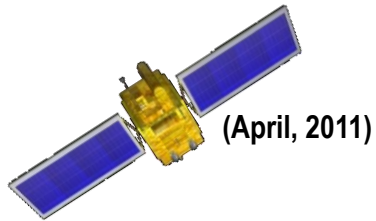
Presented to CGMS-46 Plenary, agenda item D.7

Current Satellites

LAND & WATER

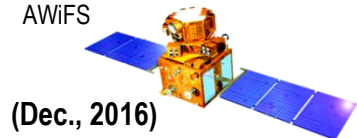
RESOURCESAT-2

LISS-3, LISS-4, AWiFS



RESOURCESAT-2A

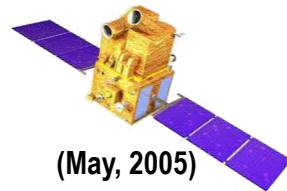
LISS-3, LISS-4,
AWiFS



HIGH RESOLUTION

CARTOSAT-1

2.5m PAN stereo



CARTOSAT-2

PAN,MS



OCEAN

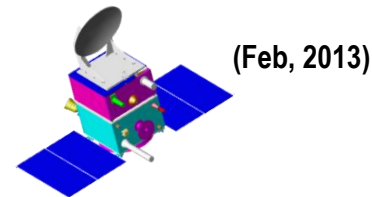
OCEANSAT-2

OCM, Scat, Rosa



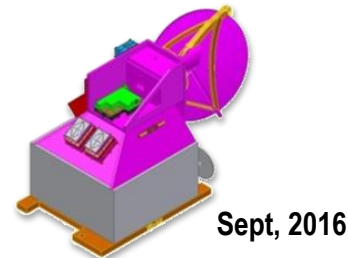
SARAL

Ka-Altimeter



SCATSAT-1

Ku Scat



WEATHER; CLIMATE

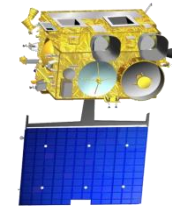
MEGHA-TROPIQUES

MADRAS, SCARAB, SAPHIR, ROSA



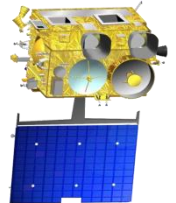
INSAT-3D

Imager, Sounder

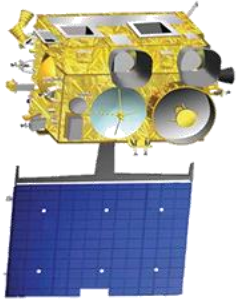


INSAT-3DR

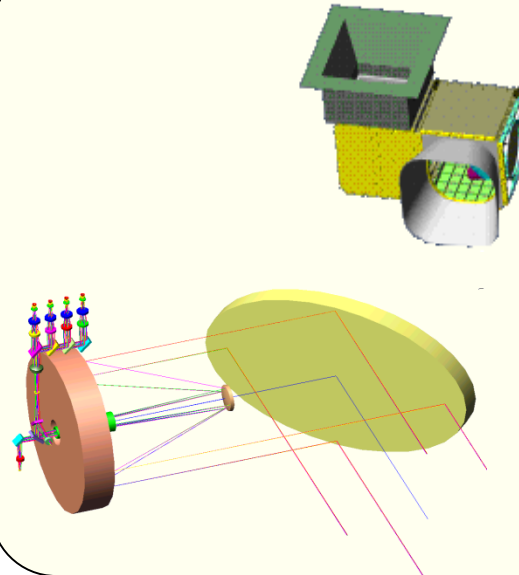
Imager, Sounder



INSAT - 3D/3DR



**July 2013/
Sept. 2016**



6 Channel IMAGER

- Spectral Bands (μm)**

Visible	:	0.55	-	0.75
Short Wave Infra Red	:	1.55	-	1.70
Mid Wave Infra Red	:	3.70	-	3.95
Water Vapour	:	6.50	-	7.10
Thermal Infra Red – 1	:	10.30	-	11.30
Thermal Infra Red – 2	:	11.30	-	12.50
- Resolution**

:	1 km for Vis & SWIR
:	4 km for MIR & TIR
:	8 km for WV

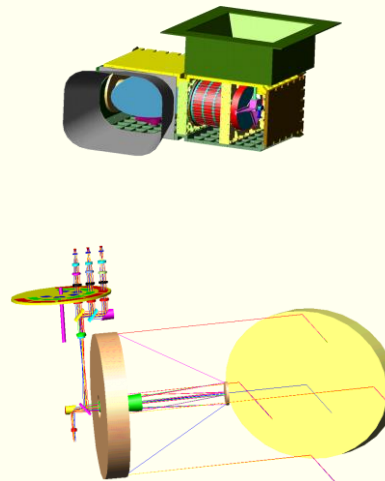
19 Channel SOUNDER

- Spectral Bands (μm)**

Short Wave Infra Red	:	Six bands
Mid Wave Infra Red	:	Five Bands
Long Wave Infra Red	:	Seven Bands
Visible	:	One Band
- Resolution (km)**

:	10 X 10 for all bands
---	-----------------------
- No of simultaneous**

:	4 sounding per band
---	---------------------



**Ground Spare INSAT-3DS
available for any
eventuality**

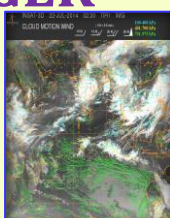
Coordination Group for Meteorological Satellites - CGMS

INSAT-3D & INSAT-3DR Data Products

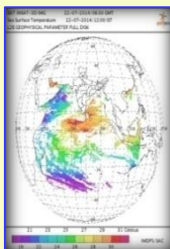
IMAGER



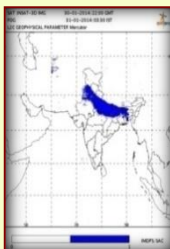
Visible Wind



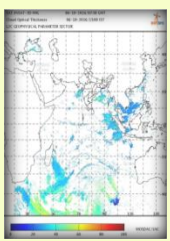
CM Wind



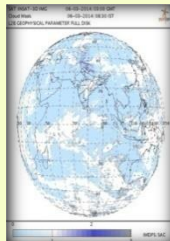
Sea Surface Temp



Fog



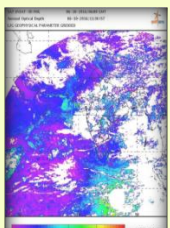
Cloud Opt Thick



Cloud Mask

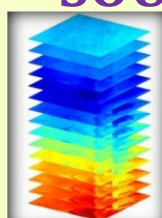


Snow

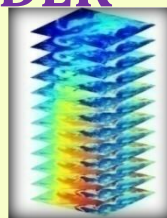


Aerosol OD

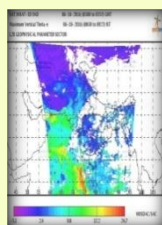
SOUNDER



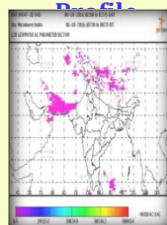
Temp. Profile



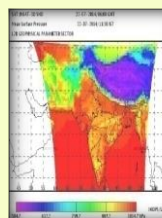
Hum. Profile



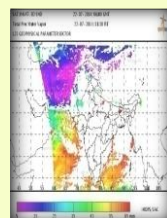
Potential Temp. Diff



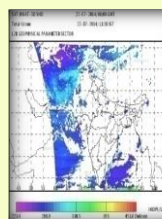
Dry Micro Bust Index



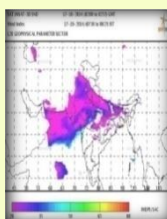
Mean Surface Pressure



Total Prec. Water Vapour

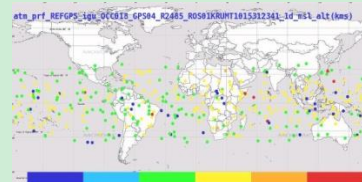


Total Ozone

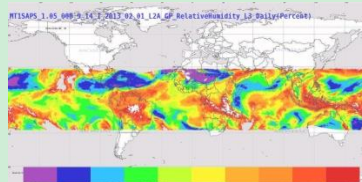


Wind Index

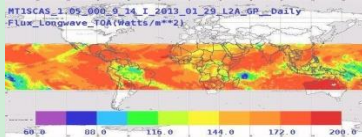
Megha-Tropiques SARAL



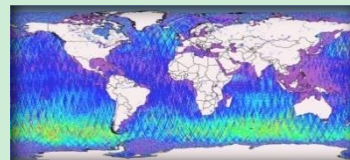
Daily Occultation - ROSA



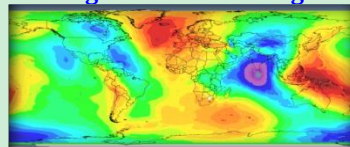
Daily Relative Humidity - SAPHIR



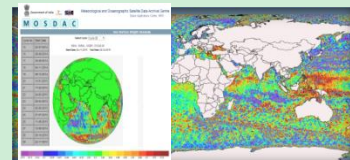
Daily Long wave Flux SCARAB



Significant wave height



Mean Sea Surface

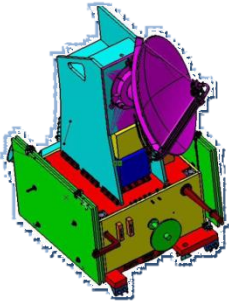


Sea Surface Height Anomaly

INSAT-3D & INSAT-3DR Data Products since	INSAT-3D	INSAT-3DR
3DIMG_L1B_STD: Level1 data for Imager 6 channels	01-Oct-13	11-Oct-16
3DIMG_L1C_ASIA_MER: Mercator projection for Asian Sector	01-Oct-13	03-Oct-16
3DIMG_L1C_SGP: IMAGER 6 channel in Mercator projection	01-Oct-13	03-Oct-16
3DIMG_L2B_CMK: INSAT cloud mask	08-Oct-13	11-Oct-16
3DIMG_L2B_HEM: Hydro-Estimator method	08-Oct-13	11-Oct-16
3DIMG_L2B_IMC: IMSRA Technique	01-Jan-16	08-Nov-16
3DIMG_L2B_LST: Land surface temperature	04-Mar-15	11-Oct-16
3DIMG_L2B_OLR: Outgoing Longwave Radiation	01-Oct-13	11-Nov-16
3DIMG_L2B_SST: Sea Surface Temperature	01-Oct-13	
3DIMG_L2B_UTH: Upper Tropospheric Humidity	01-Oct-13	11-Oct-16
3DIMG_L2C_CMP: Cloud Microphysical Parameters	30-Nov-15	11-Oct-16
3DIMG_L2C_FOG: Night time FOG	01-Oct-13	26-Oct-16
3DIMG_L2C_INS: Insolation	11-Mar-15	09-Nov-16
3DIMG_L2C_SNW: Snow Cover	01-Oct-13	11-Oct-16
3DIMG_L2G_AOD: Aerosol Optical Depth	05-Oct-13	11-Oct-16
3DIMG_L2G_GPI: GOES Precipitation Index	01-Oct-13	11-Oct-16
3DIMG_L2G_IMR: Indian Multi Spectral rainfall from IMAGER	01-Oct-13	11-Oct-16
3DIMG_L2G_SST: Sea Surface Temperature	01-Jan-14	11-Oct-16
3DIMG_L2P_IRW: INSAT-3D Infrared channel derived wind	08-Oct-13	11-Oct-16
3DIMG_L2P_MRW: MIR band data of IMAGER	08-Oct-13	11-Oct-16
3DIMG_L2P_SMK: Active Smoke product	01-Oct-13	11-Oct-16
3DIMG_L2P_VSW: Visible band data of IMAGER	08-Oct-13	11-Oct-16
3DIMG_L2P_WVW: Water vapour derived wind vectors	08-Oct-13	11-Oct-16
3DIMG_L3B_HEM_DLY: Daily HEM from INSAT-3D	01-Jul-15	10-Nov-16
3DIMG_L3B_OLR_DLY: Daily OLR from INSAT-3D	01-Jun-14	10-Nov-16
3DIMG_L3B_SST_DLY: Daily SST from INSAT-3D	01-Jun-14	12-Dec-16
3DIMG_L3B_UTH_DLY: Daily UTH from INSAT-3D	01-Jun-14	10-Nov-16
3DIMG_L3G_GPI_DLY: Daily GPI from INSAT-3D	01-Jul-15	10-Nov-16
3DIMG_L3G_IMR_DLY: Daily IMR Rain from INSAT-3D	01-Jun-14	10-Nov-16
3DSND_L1B_SA1: Sounder Level1 data for A1 sector	01-Oct-13	
3DSND_L1B_SB1: Sounder Level1 data for B1 sector	01-Oct-13	11-Oct-16
3DSND_L1B_STD: Level1 data for SOUNDER 19 Channels	18-Apr-14	14-Oct-16
3DSND_L2B_SA2: Sounder Level2 data for A2 sector	01-Oct-13	
3DSND_L2B_SB1: Sounder Level2 data for B1 sector	01-Oct-13	11-Oct-16

CURRENT LEO SATELLITES: (SCATSAT-1)

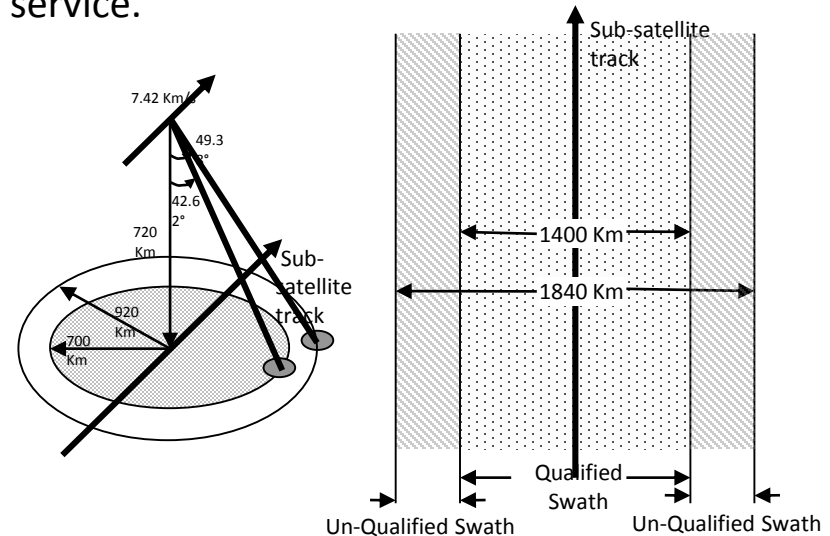
SCATSAT-1 is planned as an in-orbit replacement for the Scatterometer carried onboard Oceansat-2, which is non-functional after 4 ½ years of service.



Orbit : 720 km in sun-synchronous

LAUNCH: Sep 26, 2016

- IMS-2 Bus
- Ku-Band (13.515 GHz) Pencil beam Scatterometer
- Ground resolution: 50 km x 50 km
- Swath: 1440 Km
- Polarization: HH and VV
- Wind Direction: 0 to 360 deg with accuracy of 20 deg
- Wind Speed: 4 to 24 m/s with accuracy of 10% or 2m/s



Objectives:

- To provide global wind vector data for national and international user Community.
- To provide continuity of weather forecasting services to the user communities.
- To generate wind vector products for weather forecasting, cyclone detection and tracking.

SCATSAT-1 Data Products at MOSDAC

[VIEW GAMMA-0](#)

BT		INDIA		FULLGLOBE		NPOLAR24		NPOLAR72		ICE COVER		SPOLAR24		SPOLAR72		ANALYZED WIND VECTORS		HIGH RESOLUTION WIND VECTORS(INDIAN REGION)		HIGH RESOLUTION WIND VECTORS	
Product Type	Expected Count	Product Type	Expected Count	Product Type	Expected Count	Product Type	Expected Count	Product Type	Expected Count	Product Type	Expected Count(min,max)	Product Type	Expected Count	Product Type	Expected Count	Product Type	Expected Count	Product Type	Expected Count(min)	Product Type	Expected Count(min)
HH-ASC	1	HH-ASC	1	HH-ASC	1	HH-BOTH	1	HH-DES	1	ICE COVER	1	HH-BOTH	1	HH-ASC	1	AWV	1	HWV(Indian Region)	8	HWV	29
HH-DES	1	HH-DES	1			VV-BOTH	1					HH-BOTH	1								
VV-ASC	1	HH-BOTH	1	HH-BOTH	1							VV-BOTH	1	VV-ASC	1						
VV-DES	1	VV-ASC	1	VV-ASC	1																
		VV-DES	1	VV-DES	1																
		VV-BOTH	1	VV-BOTH	1																
BT Total Count : 4 DATE: 22May2018		INDIA(SigmaNaught) Total Count : 6 DATE: 20May2018 to 21May2018		FULL GLOBE(SigmaNaught) Total Count : 9 DATE: 20May2018 to 21May2018		NPOLAR24(SigmaNaught) Total Count : 2 DATE: 21May2018		NPOLAR72(SigmaNaught) Total Count : 2 DATE: 19May2018 to 21May2018		ICE COVER Total Count : 1 DATE: 21May2018		SPOLAR24(SigmaNaught) Total Count : 2 DATE: 21May2018		SPOLAR72(SigmaNaught) Total Count : 2 DATE: 19May2018 to 21May2018		AWV Total Count : 1 DATE: 21May2018		HWV(Indian Region) Total Count : 3 DATE: 22May2018		HWV Total Count : 7 DATE: 22May2018	
Products		Dissemination Method		Category		Parameter		Res (Km)		Format		Category		LEVEL 4 Data Products at MOSDAC GeoTiff Sigma0, Gamma0,BT (2 Km Resolution)							
L1, L2A		On user request and with authentication		L1B		Scan mode Sigma0		25,50		HDF5		INDIA		VVDES,VVASC,VVBOTH, HHDES,HHASC,HHBOTH							
L2B, L3, L4		As an open FTP		L2A		Swath grid Sigma0		25,50		HDF5		GLOBAL		VVDES,VVASC,VVBOTH, HHDES,HHASC,HHBOTH							
Quickbrowse		Anonymous user on MOSDAC portal		L2B		Winds		25,50		HDF5		NPOLAR24		VVBOTH, HHBOTH							
				L3S		Sigma0 (Day wise Global gridded)		25,50		HDF5		NPOLAR72		VVDES, HHDES							
				L3W		Winds (Day wise Global gridded)		25, 50		HDF5		SPOLAR24		VVBOTH, HHBOTH							
				L4AW		Analyzed winds		25		Netcdf		SPOLAR72		VVASC, HHASC							
				L4HW		High Resolution Winds		6.25		Netcdf											
				L3IC		Ice cover		25		Geotiff											
				L4-India, Fullglb, NPolar, Spolar		Sigma0, gamma0, BT		2		Geotiff											

Coordination Group for Meteorological Satellites

CURRENT LEO SATELLITES: Oceansat-2

A global mission, providing continuity of ocean colour data and wind vector in addition characterization of lower atmosphere and ionosphere from ROSA payload.



Launch: Sep 23, 2009

- An 8-band Ocean Colour Monitor (**OCM**) with 360 m spatial resolution; Swath -1420 km
- A Ku-Band Pencil beam **SCATTEROMETER** (OSCAT) with a ground resolution of 50 km x 50 km; Swath – 1400 km
- Radio Occultation Sounder for Atmospheric studies (**ROSA**) - Developed by the Italian Space Agency – ASI

- Due to problems in the payload Scatterometer operations are terminated from March 2014.
- The OCM and ROSA are functioning nominally.

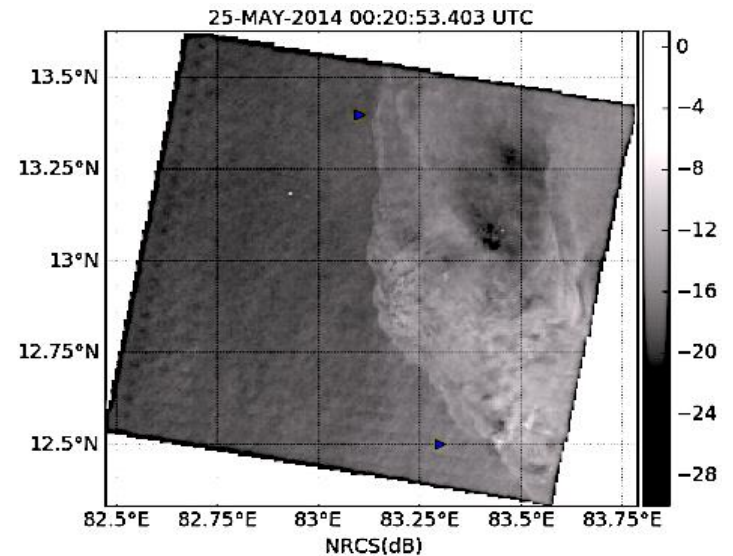
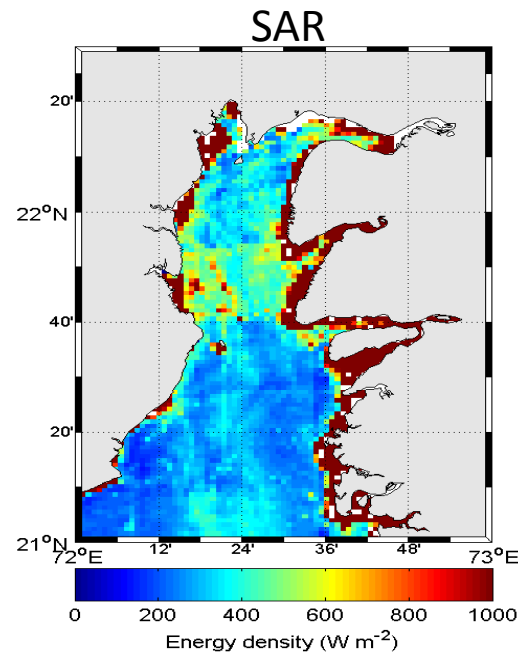
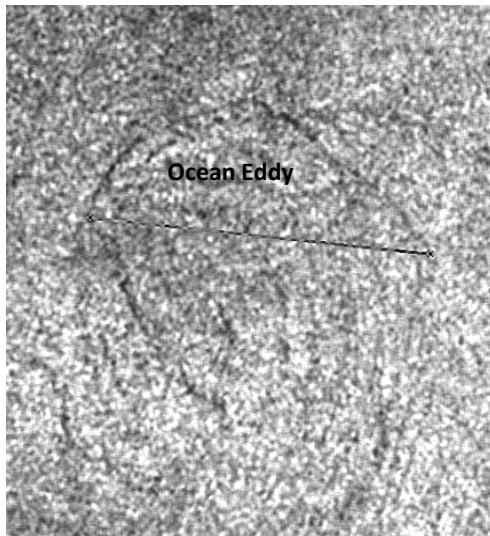
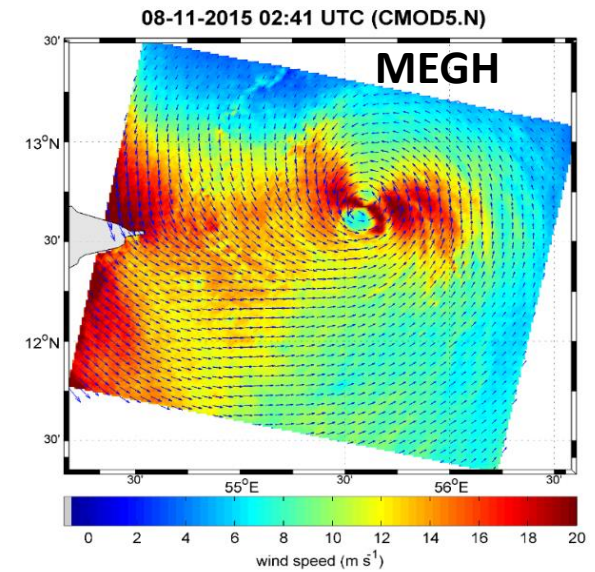
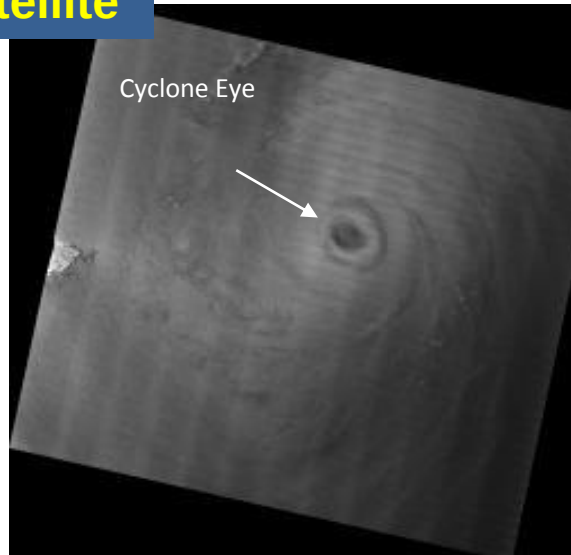
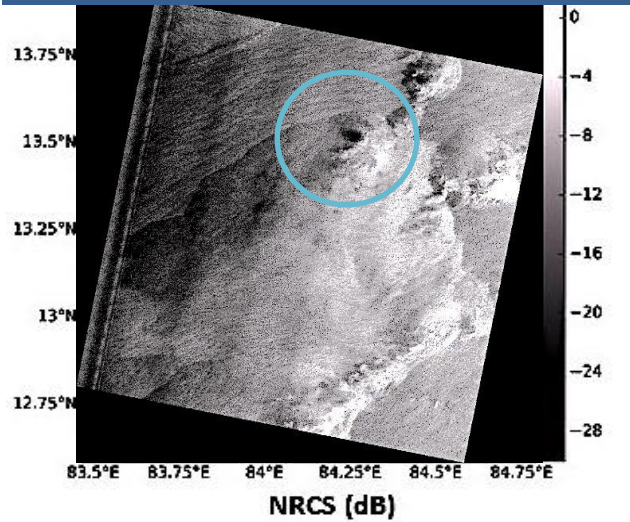
Global data acquisition of Ocean colour

- High Resolution Data - NRSC and INCOIS
- 1km resolution global products through NRSC Website
- Global Chlorophyll, Aerosol Optical Depth through NRSC Website
- 3531 OCM data are downloaded from NRSC Website

Scatterometer Wind Products

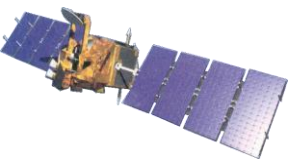
- Reception Station at Svalbard
- Real time transfer and processing
- Uploading to Web within 3 hrs through EUMETCAST
- 1.72 Lakhs data are downloaded from NRSC Website

RISAT-1: Radar Imaging Satellite



Coordination Group for
Meteorological Satellites

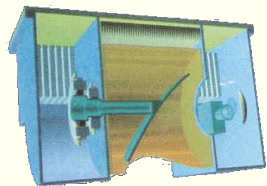
CURRENT LEO SATELLITES: **Megha-Tropiques**



For studying water cycle and energy exchanges to better understand the life cycles of the tropical convective system. The satellite is contributing to Global Precipitation Mission (GPM)

Launch: 2011

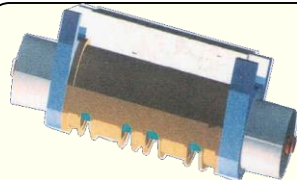
SAPHIR



- Water vapour profile
- Six atmospheric layers upto 12 km height
- 10 km Horizontal Resolution

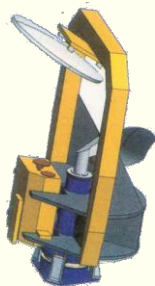
- SAPHIR and SCARAB data products are available operationally.
- MADRAS payload functioned for 18 months and the data is available.

SCARAB

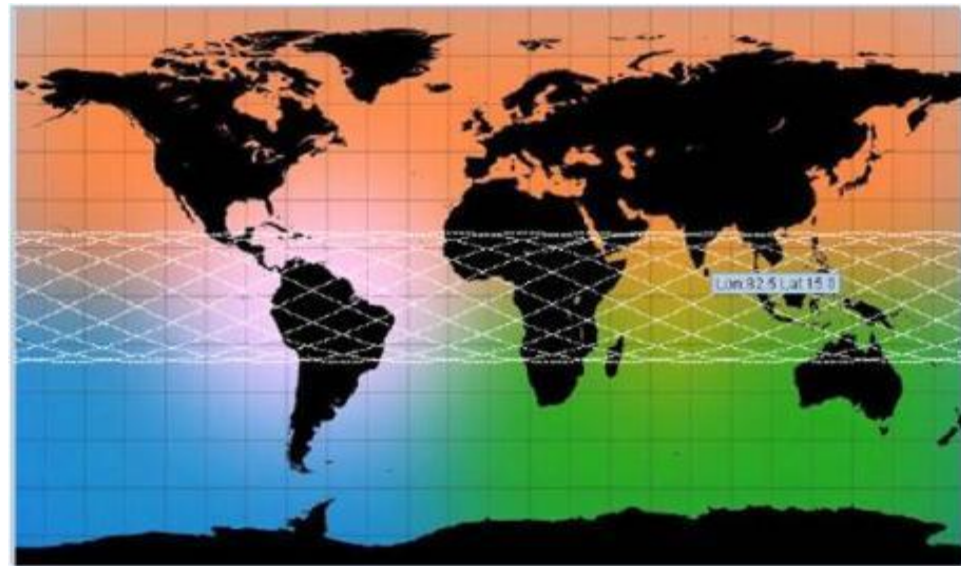


- Outgoing fluxes at TOA
- 40 km Horizontal Resolution

MADRAS



- Precipitation and Cloud properties
- 89 & 157 GHz: Ice particles in cloud top
- 18 & 37 GHz: Cloud Liquid Water and precipitation; Sea Surface Wind speed
- 24 GHz : Integrated water vapour



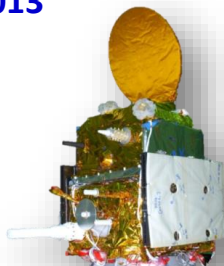
**Coordination Group for
Meteorological Satellites**

CURRENT LEO SATELLITES: **SARAL: Satellite with Argos and Altimeter**

-Joint Indo-French satellite mission for oceanographic studies

Hosted on MOSDAC FTP Site

Launch: Feb 25, 2013



Altika Payload:

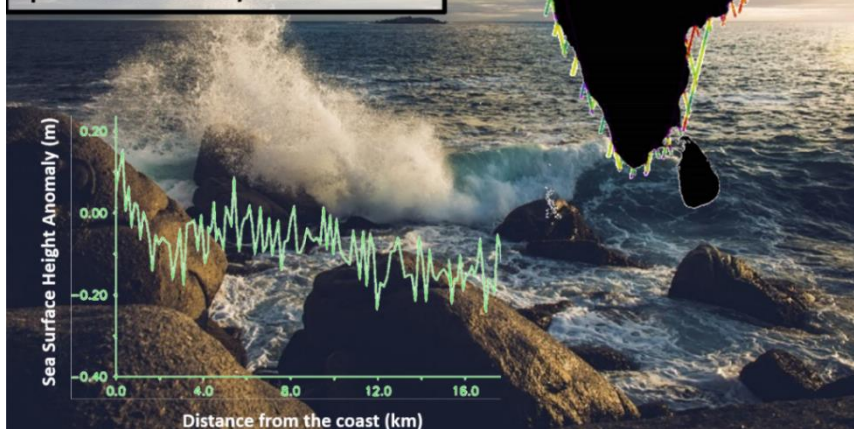
- **Ka-band** (35.75 GHz, BW 500 MHz) radar altimeter
- Dual-frequency microwave radiometer (23.8 & 37 GHz)
- DORIS & Laser Retro-reflector Array
- Repeat Cycle: 35 days

ARGOS Data Collection System:

- Contributes to development and operational implementation of global ARGOS DCS.
- Collect a variety of data from ocean buoys to transmit the same to the ARGOS Ground Segment for subsequent processing and distribution.

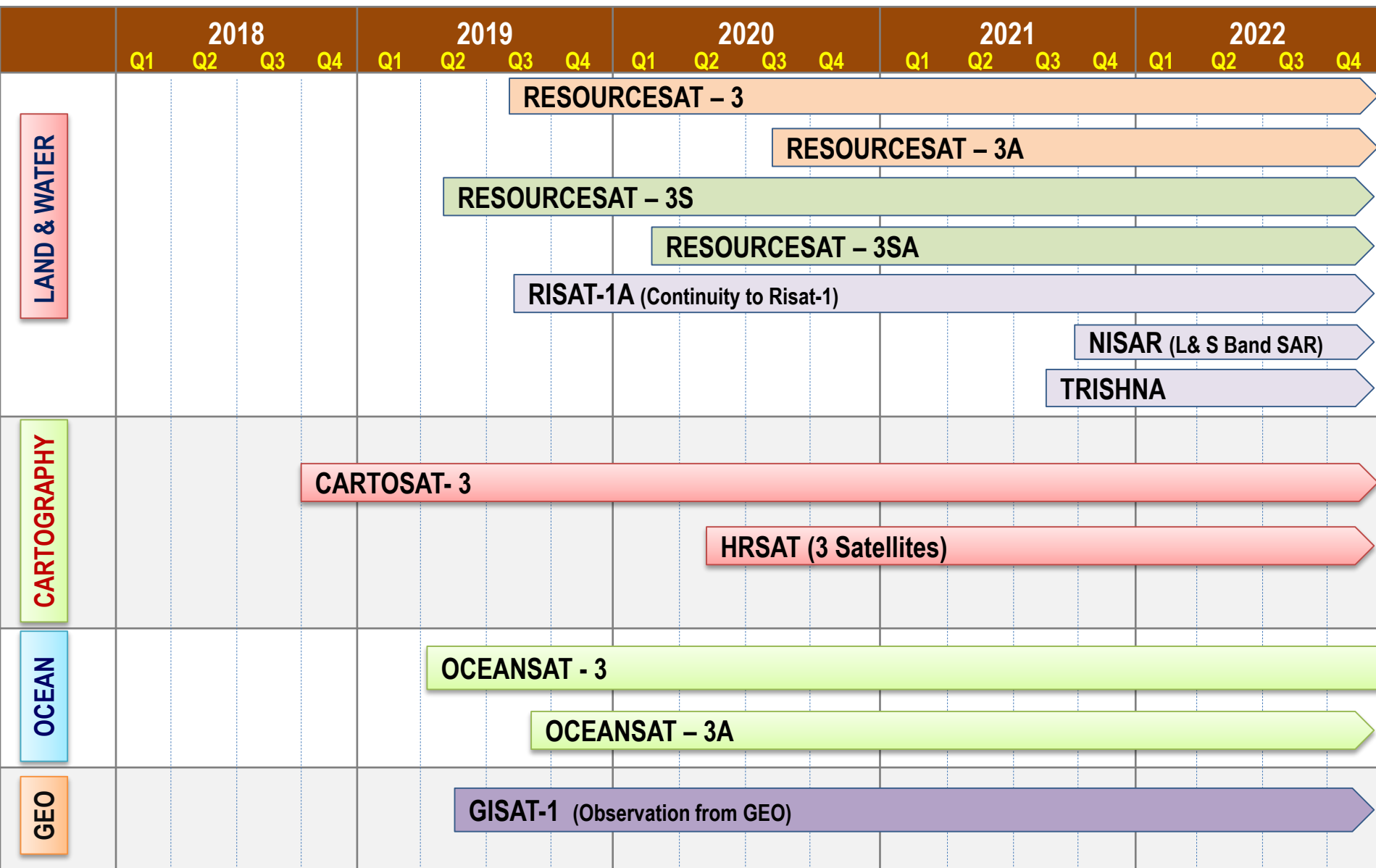
**Coordination Group for
Meteorological Satellites**

Indian Mainland Coastal Product
(Sea level Anomaly, Significant
Wave Height and Surface Wind
Speed from SARAL/AltiKa)

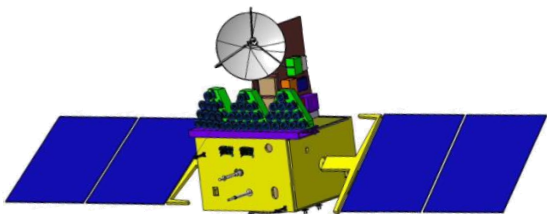


- 40 Hz **SSH** and **SSHA** from the following retracers
 - ❖ **BETA5 (exp)** retracker
 - ❖ **BETA9 (exp)**
 - ❖ **BAGP4 (least square)**
 - ❖ **BAGP4 (nelder mead)**
 - ❖ MLE4 calculated to 40 Hz
- 40 Hz SWH from all above algorithms
- 40 Hz SIGMA (0) from all above algorithms
- 40 Hz wind speed from all above algorithms
- 40 Hz flags for these algorithms
- 40 Hz Waveform class
- 40 Hz land flag
- distance from coast
- quality parameter for retracker fitting
- waveforms from data itself

Coordination Group for Meteorological Satellites - CGMS



OCEANSAT-3 (Q1-2019) & 3A (Q4-2019)



Payloads:

- **13-band Ocean Colour Monitor (OCM)** - 400-1010 nm range; 360 m resolution; 1400 km swath , Global Coverage in 2 days.
- **2-band Long Wave Infra Red (LWIR)** around 11 and 12 μm
- **Ku-Band Pencil beam SCATTEROMETER**

Band No.	λ_c (nm)	Application
B1	412	Yellow Substance Absorption
B2	443	Low Chlorophyll, Yellow Substance
B3	490	Moderate Chl., yellow substance
B4	510	High Chl., Chl. Species, TSM, algal blooms
B5	555	High Chl., Chl. Species, TSM, algal blooms
B6	566	Phycoerythrobilin pigment (PE), Trichodesmium bloom detection
B7	620	Algal blooms, TSM
B8	670	Algal Blooms, baseline for chl. Fluorescence
B9	681	Chl. Fluorescence for high concentrations
B10	710	Extrapolation to VIS bands better in atmos. Correction baseline for chl. fluorescence
B11	780	Atmospheric correction; avoids O_2 absorption band
B12	870	Atm. Correction. Good separation from previous bands. Better for coastal waters
B13	1010	Atm. Correction. Good for coastal waters. Useful for aerosol & foam discrimination
B14	11250	Sea surface temperature
B15	12250	Sea Surface Temperature

FUTURE GEO SATELLITES: (GISAT)

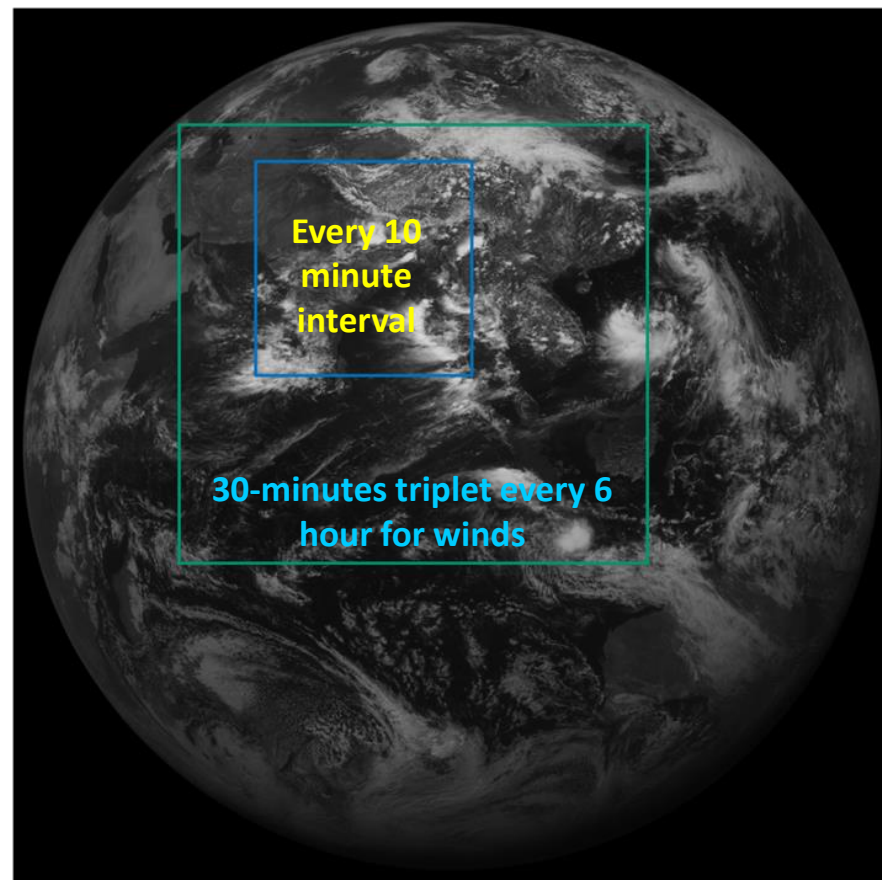
Launch Schedule: 2019, Geostationary orbit, 83E

MX-VNIR: Multispectral - Visible Near Infrared, HySI-VNIR: Hyperspectral Imager - Visible Near Infrared, HySI-SWIR: Hyperspectral Imager - Short Wave Infrared, MX-LWIR: Multispectral - Long Wave Infrared.

Band	Ch	SNR/ NEdT	IFOV (m)	Range (μm)	Channels (μm)
MX-VNIR	4	> 200	50	0.45 - 0.875	B1: 0.45-0.52 B2: 0.52-0.59 B3: 0.62-0.68 B4: 0.77-0.86 B5N: 0.71-0.74 B6N: 0.845-0.875
HyS-VNIR	60	> 400	500	0.375 - 1.0	$\Delta\lambda < 10 \text{ nm}$
HyS-SWIR	150	> 400	500	0.9 - 2.5	$\Delta\lambda < 10 \text{ nm}$
MX-LWIR	6	NEdT < 0.15K	1500	7.0 - 13.5	CH1: 7.1-7.6 CH2: 8.3-8.7 CH3: 9.4-9.8 CH4: 10.3-11.3 CH5: 11.5-12.5 CH6: 13.0-13.5

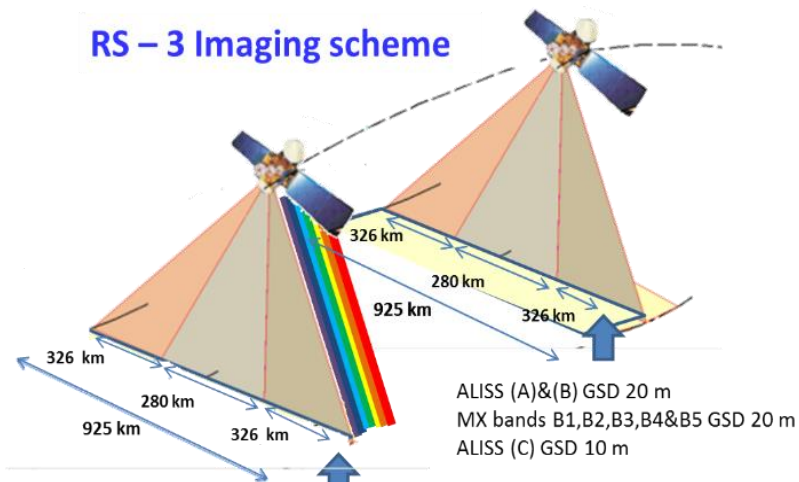
GISAT Scan scenario

Scan area for two scan scenario (5° & 10°)



Resourcesat-3 & 3A (2019 & 2020)

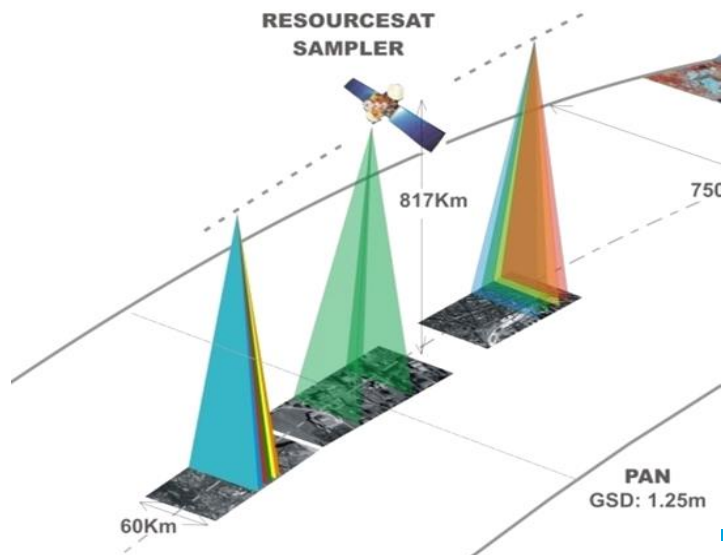
RS – 3 Imaging scheme



Sensor	GSD	Swath	Revisit
ALISS-3 (A &B)	20 m	925 km	4 days
ALISS-3 (C)	10 m	280 km	11 days
ATCOR 0.4-1 μ m	240 m		
Spectral bands : B1-B5			

Resourcesat Sampler – 3S (2019) / 3SA (2020)

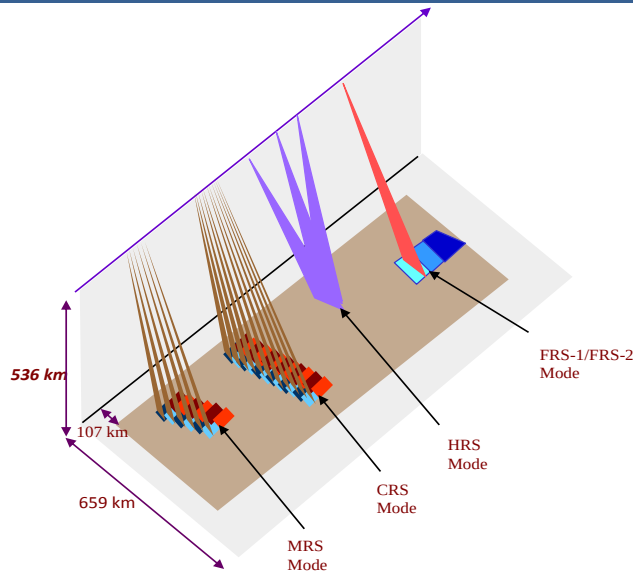
RESOURCESAT
SAMPLER



Sensor	GSD	Swath	Revisit
PAN	1.25 m	60 km	Revisit of 4 Days
MX	2.5 m	60 km	

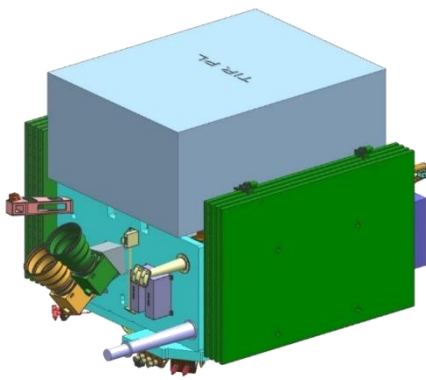
Advanced stereo PAN & Multi-spectral imaging

RISAT-1A (2019)



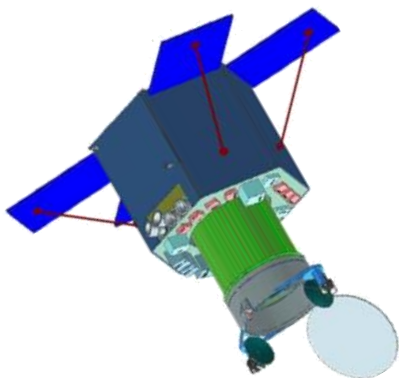
Frequency	C-band (5.35 GHz)
Polarization	Single, Dual , & Circular (Hybrid)
Swath	10 km to 240 km
Incidence Angles	20° – 49°
Spatial Resolution	3 to 8, 25, 50 m
Repetivity	25 days for 240 km swath – systematic
Modes	Strimap, CRS, MRS, Spotlight

TRISHNA (2021)



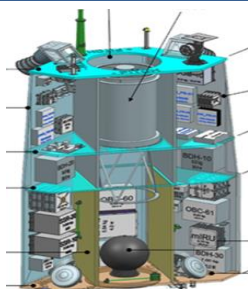
Thermal Infrared Instrument	4 bands (8.6 to 11.5 μm) 50 m resolution at NADIR 930 km swath
VNIR/SWIR Instrument	6 bands (485 to 2130 nm) 50 m resolution at NADIR 930 km swath

Cartosat-3



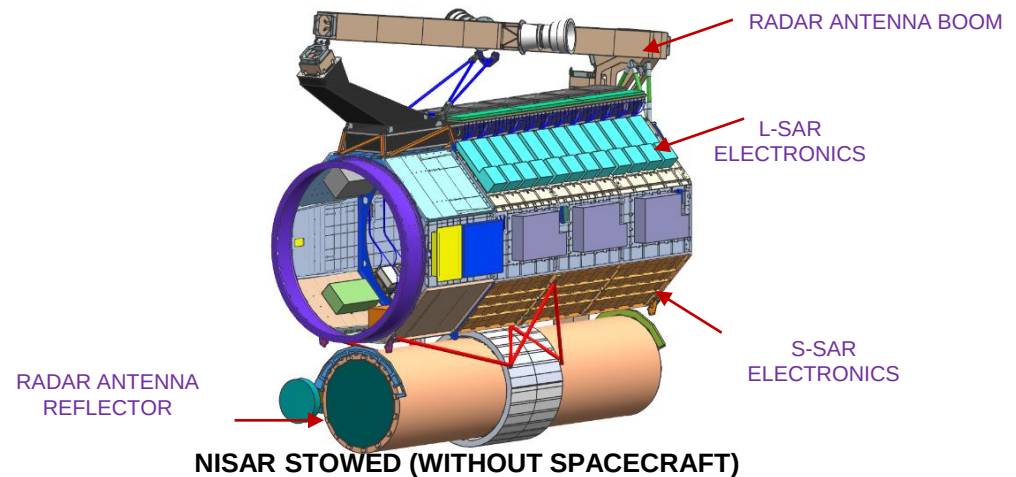
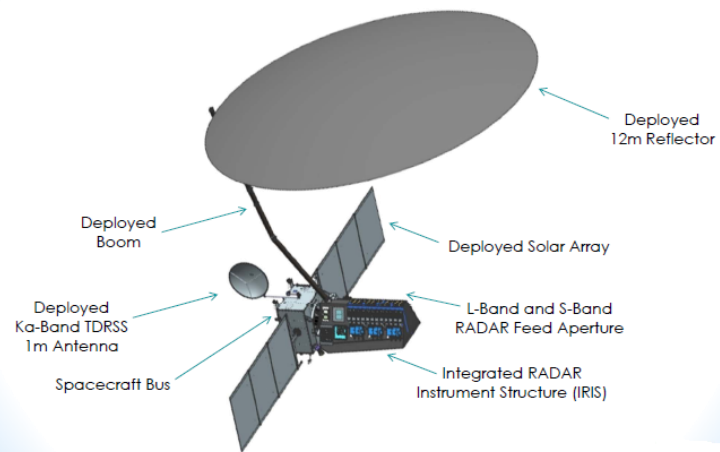
Sensor	GSD	Swath	Revisit
PAN	0.28 mt.	17 km	5 Days
MX	1.13 mt.	17 km	

HRSAT-1 (2020) – 3 Nos



Sensor	GSD	Swath	Revisit
PAN	1 m	15 km	Daily of Area of Interest
MX	< 4 m	15 km	
LWIR	20 m	6 km	

LAUNCH: 2021



Parameters	L-band SAR	S-band SAR
Orbit	747 Km with 98.5° Inclination	
Frequency (wavelength)	1.25GHz (24cm)	3.20 (9.3cm)
Repeat cycle	12 days	
Time of Nodal Crossing	6AM / 6PM	
Polarization	Single (SP), Dual (DP), Circular (CP), Quad (QP) and Quasi-quad pol (QQP)	
Incidence angle range	33 – 47 deg	
Available Range Bandwidths	5 MHz, 20 MHz, 40 MHz, 80 MHz	10 MHz, 25 MHz, 37.5 MHz, 75 MHz
Resolution (Azimuth × Slant range)	6.9m × 7.5m (for 20MHz bw) 6.9m × 1.9m (for 80MHz bw)	6.4m × 6m (at 25MHz bw) 6.4m × 2m (for 75MHz bw)
Max. Swath width	> 240 Km	
Data and Product Access	Free & Open	

Missions Beyond 2020

- Continuity to the operational series - Resourcesat, Cartosat, Oceansat, INSAT (met from Geo) are ensured.
- ISRO is interested in missions such as
 - Temperature, Humidity Sounder (in advanced stage)
 - Advanced Microwave Radiometer
 - Altimeter
 - Precipitation Radar
 - Wind Profiler
 - Atmospheric Chemistry, Aerosol mapping Missions
- There are opportunities for collaboration with international partners.



<https://mosdac.gov.in>

USER ORIENTED SERVICES ON WEB

Features:

- Multi Mission Satellite Data Repository
- In-situ and CAL-VAL data hosting
- NRT dissemination as open data
- Forecast & Alerts dissemination
- Tools & Utilities
- Research and Training programs

Services:

- Weather and Ocean State Forecast
- Nowcast, Current Events, Past Events
- Advisories
- Visualization
- Met Applications
- Ocean Applications

Announcements
 SMART | MOSDAC Research & Training Initiative | [SMART_Research_Programme_Brochure.pdf](#)
 SARAL-Altika Coastal Product | Science Product is now available | [Digital Object Identifier \(DOI\) | Digital Object Identifiers \(DOI\) based persistent identifiers for products introduced in MOSDAC. | List of DOI-final-flash.pdf](#)
 MOSDAC: A Decade of Service to the Nation | [decade-mosdacpdf.pdf](#)

Alerts
[Heavy Rain \(Nowcast\)](#) : Heavy Rain Alerts in Bellampalle Asifabad Aheri cities of India
[Heavy Rain \(Forecast\)](#) : Heavy Rain Alerts in Thrissur Kochi Trivandrum cities of India

Coordination Group for Meteorological Satellites



LIVE (Let's Interactively Visualize Earth)

<https://live.mosdac.gov.in>

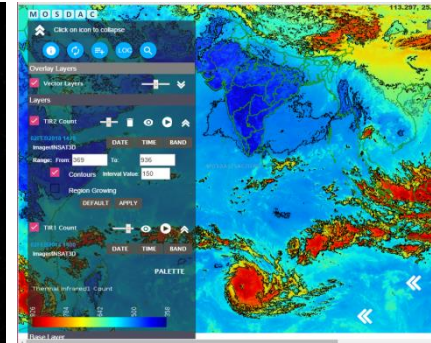
Web based visualization & analysis system;

- Provides Earth observation in Near Real Time
- Met. & ocean data products derived from satellite
- Model forecast and ground observations

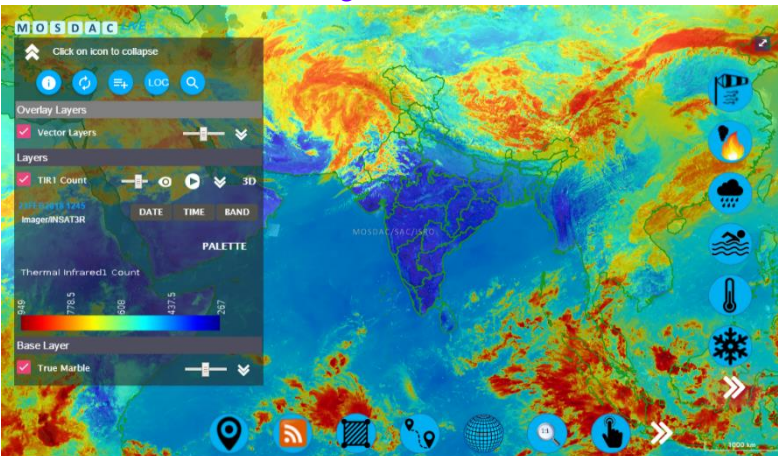
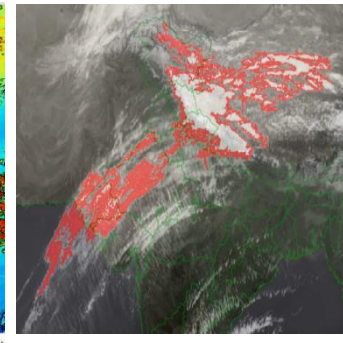
3D View



Add contours - each layer

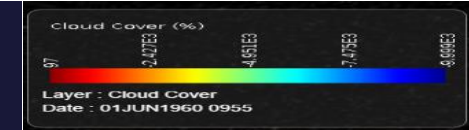
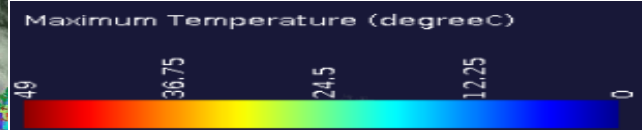
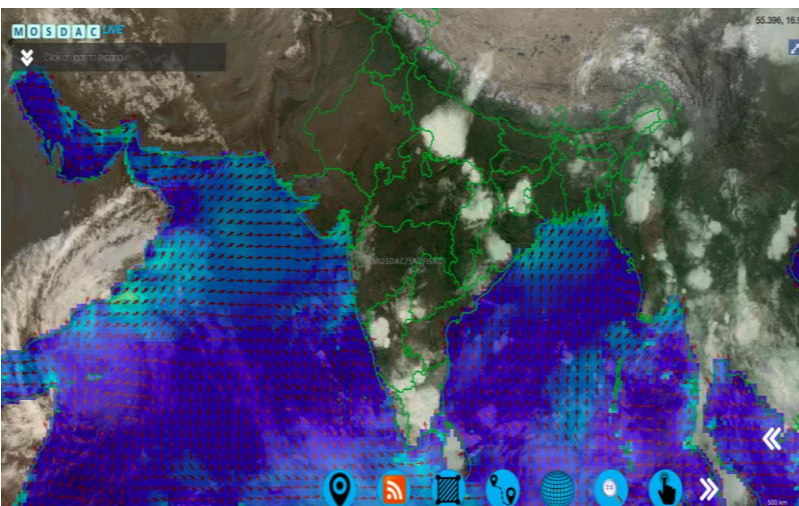
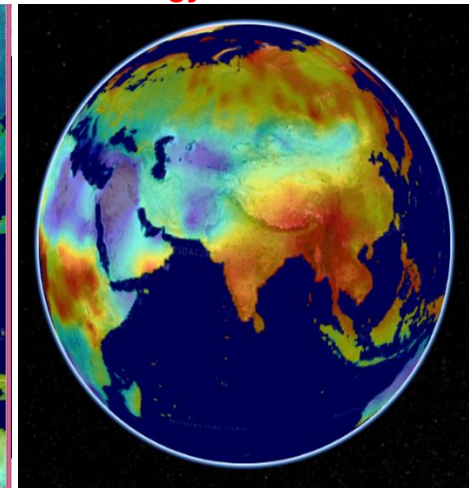
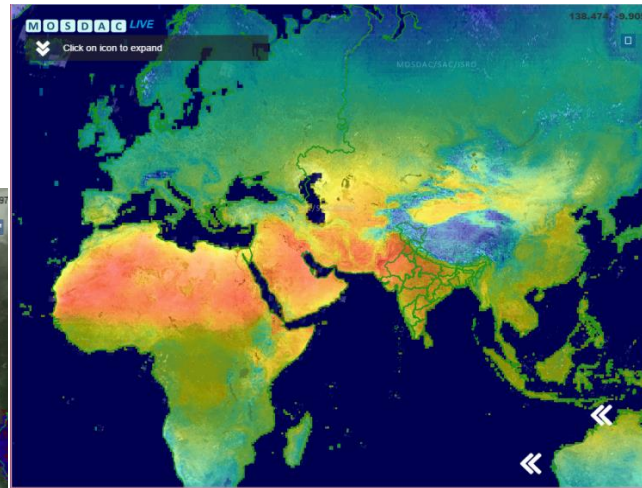


Auto region growing



Multilayer composition with vector overlays

Visualization of Climatology



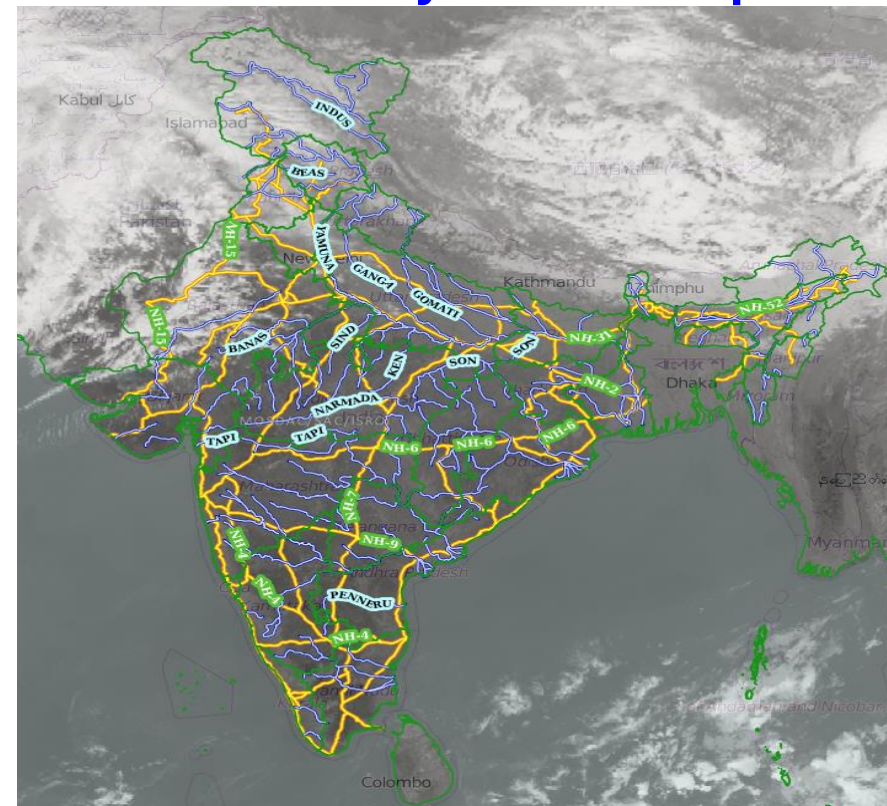
Meteorological Satellites

Para, In-situ data, Weather forecast information & Vector Layers

LIVE

Let's Interactively Visualise Earth <https://live.mosdac.gov.in>
Animation

Vector Overlay & Base Maps



Pseudo-LUTs

Display layers

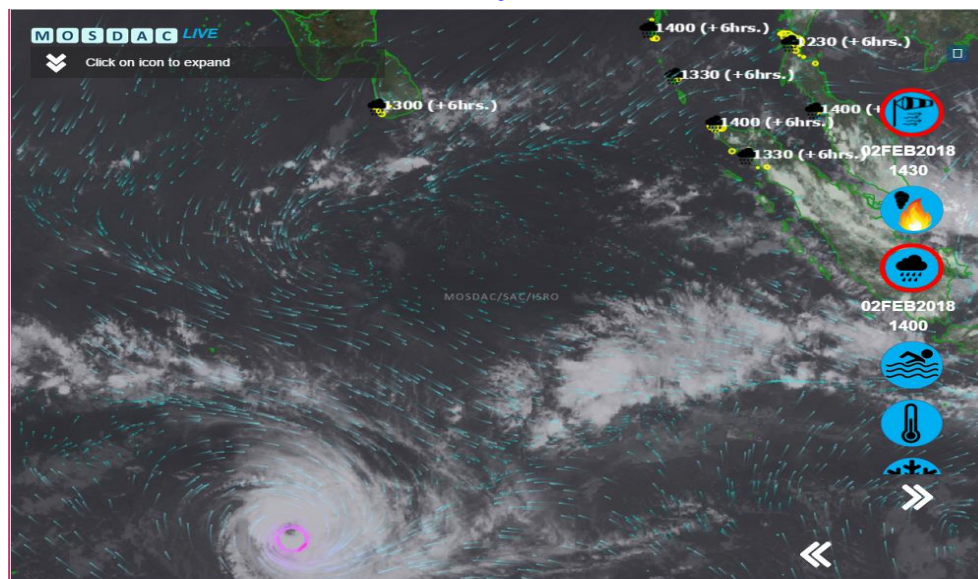
- With auto LUT
- User defined LUT

- Overlay Vector Data Administrative boundaries
 - Rivers, Roads, Airports, Railway tracks
- Map background by changing base map like;
 - True Marble, OpenStreet Map, Bhuvan Map, LISS-3 Mosaic, Cartosat DEM
- Capability to switch time
 - GMT, IST (local time zone)

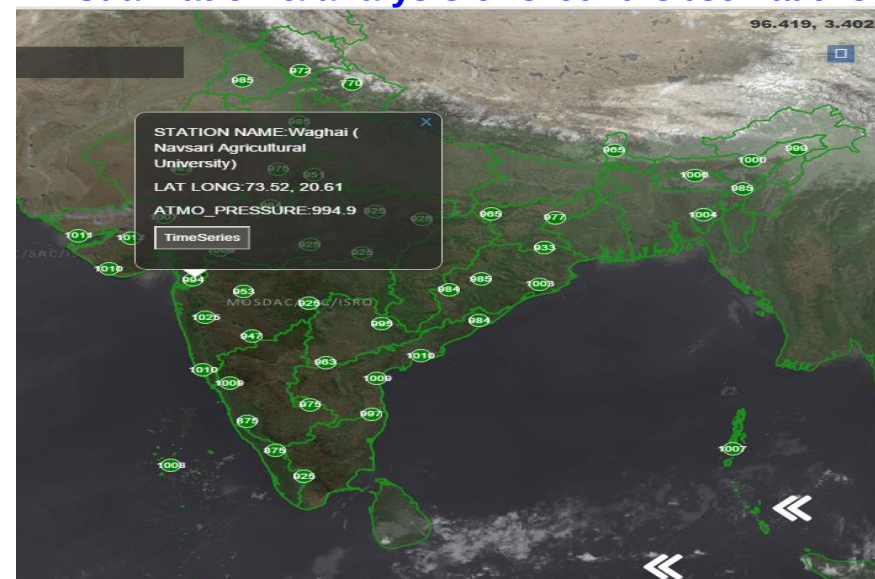
LIVE

Let's Interactively Visualise Earth <https://live.mosdac.gov.in>

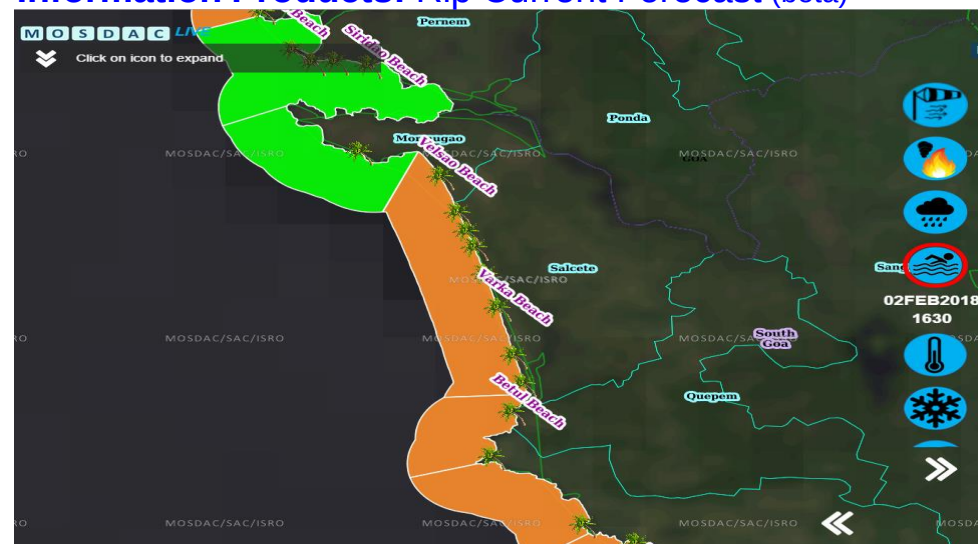
Information Products: Heavy Rain & Cloudburst Nowcast



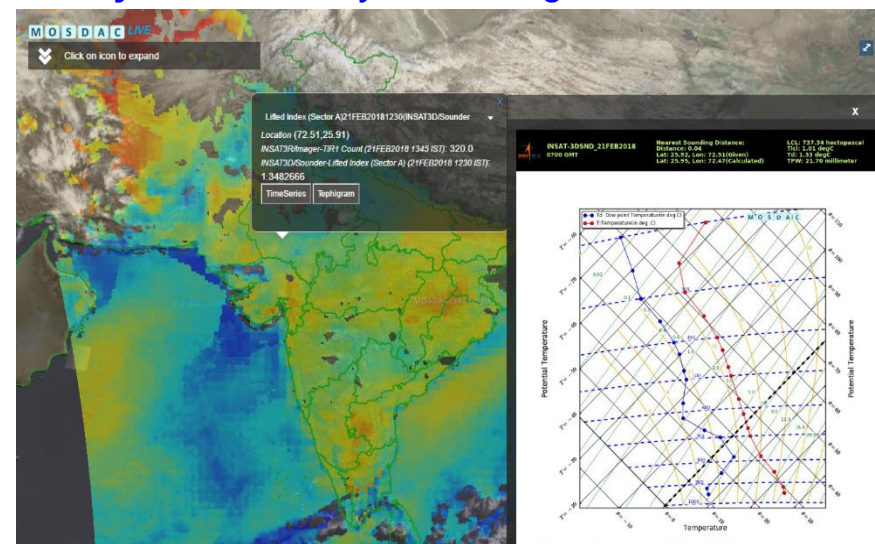
Visualization & analysis of Ground Observations



Information Products: Rip Current Forecast (beta)



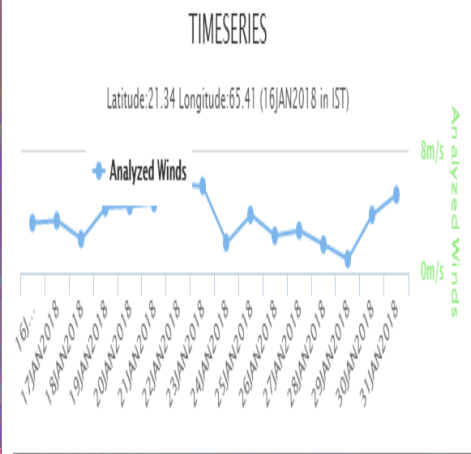
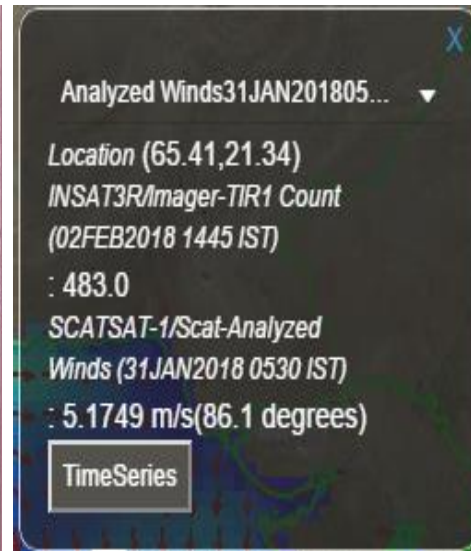
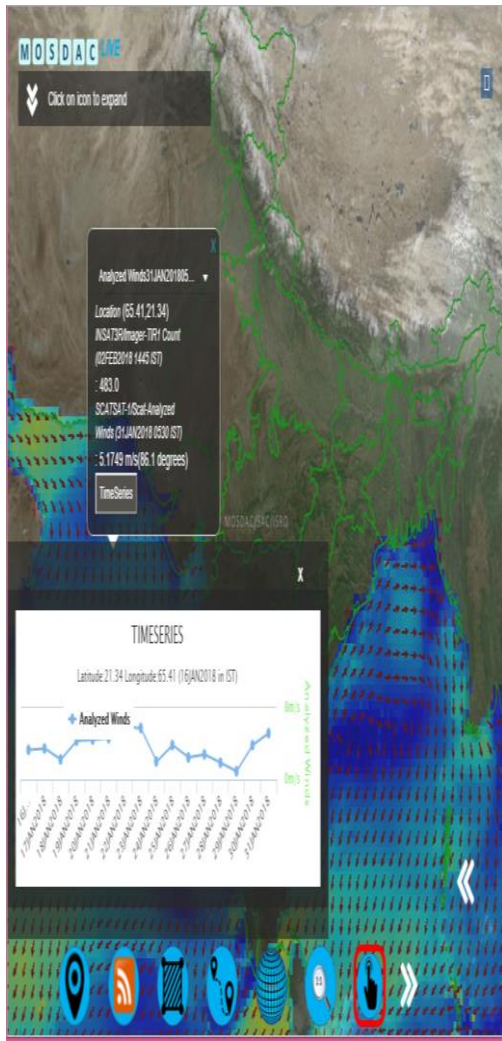
Analysis: Thermodynamic Diagrams



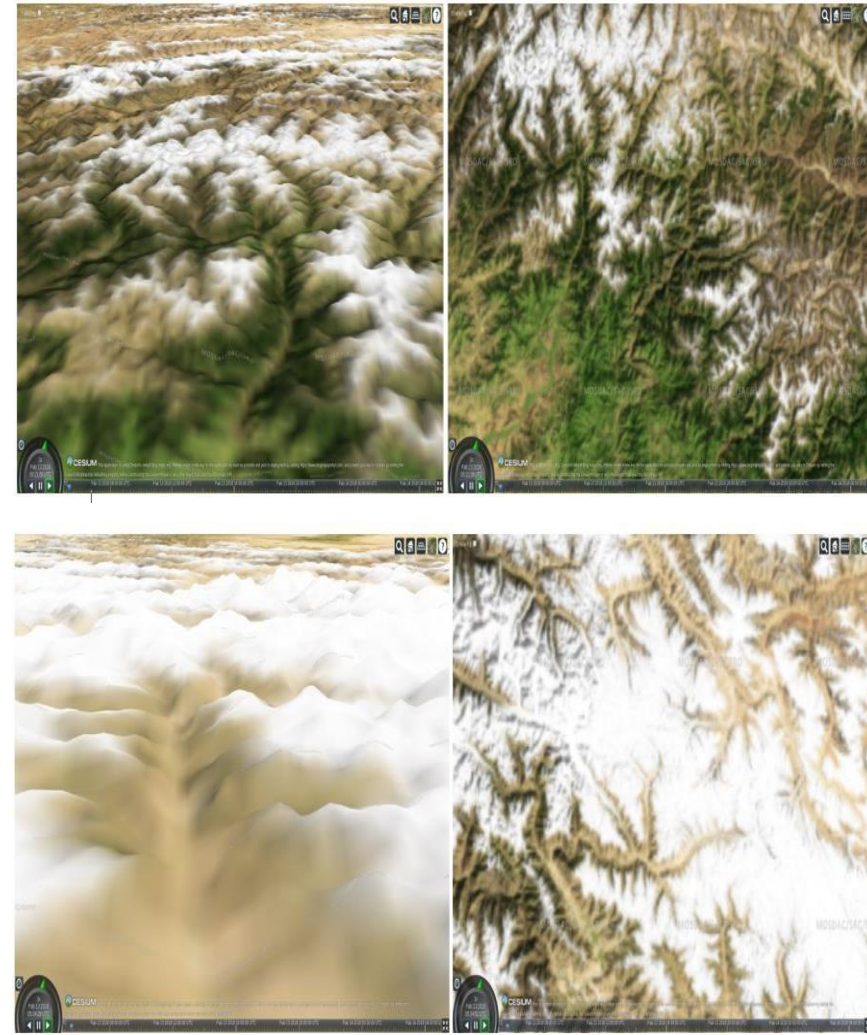
LIVE

Let's Interactively Visualise Earth <https://live.mosdac.gov.in>

Analysis: Point Probes & Time Series



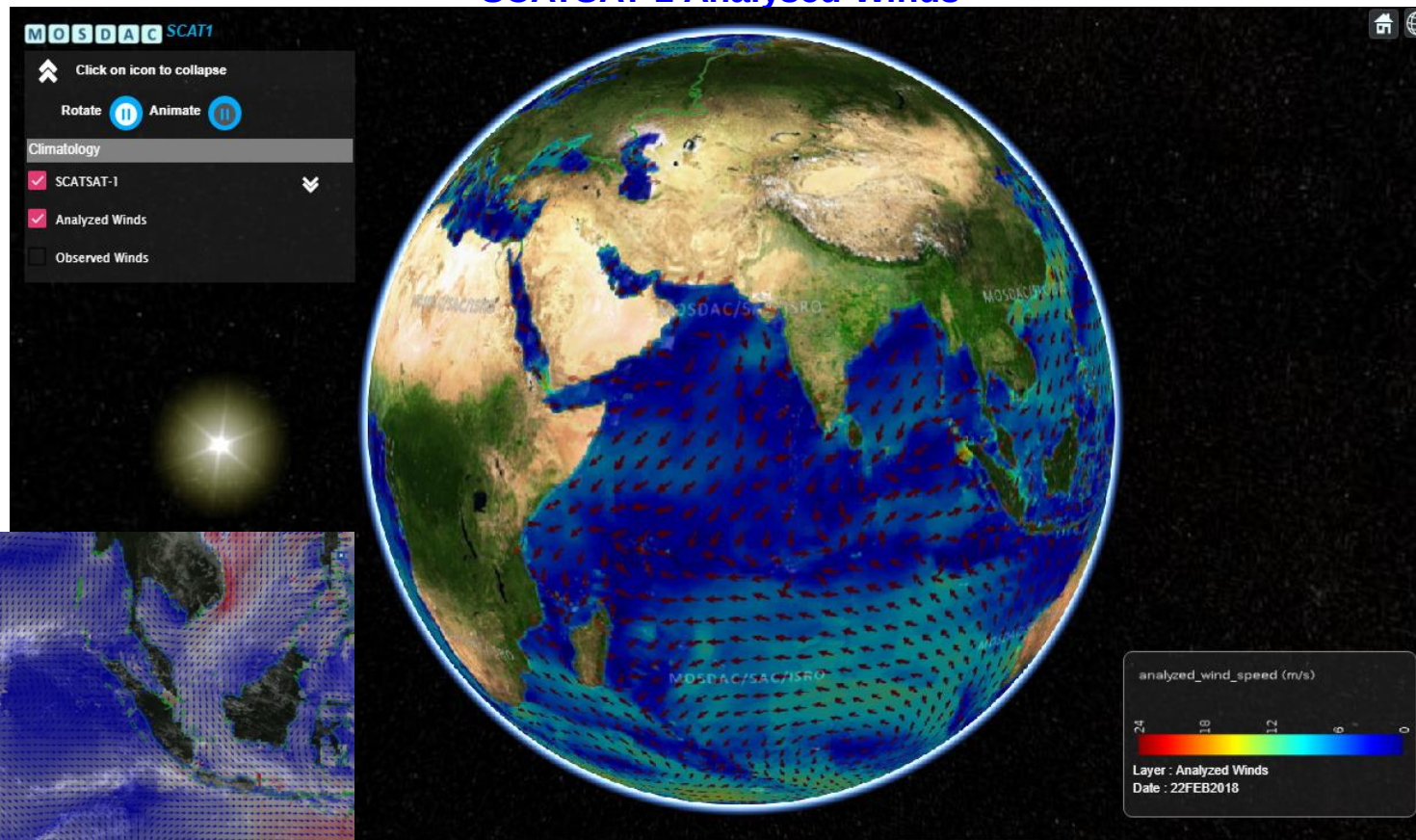
3D Visualization



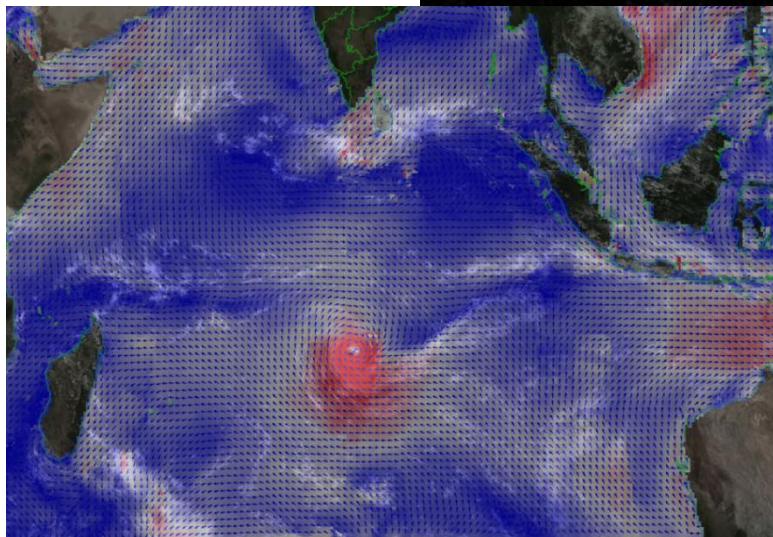
LIVE

Let's Interactively Visualise Earth <https://live.mosdac.gov.in>

SCATSAT-1 Analysed Winds



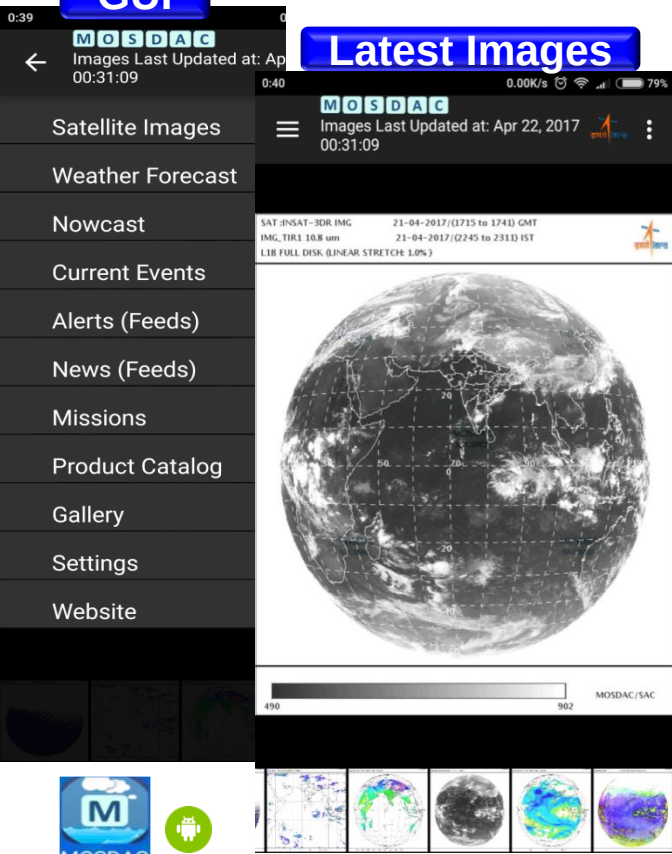
High resolution Winds



**Coordination Group for
Meteorological Satellites**

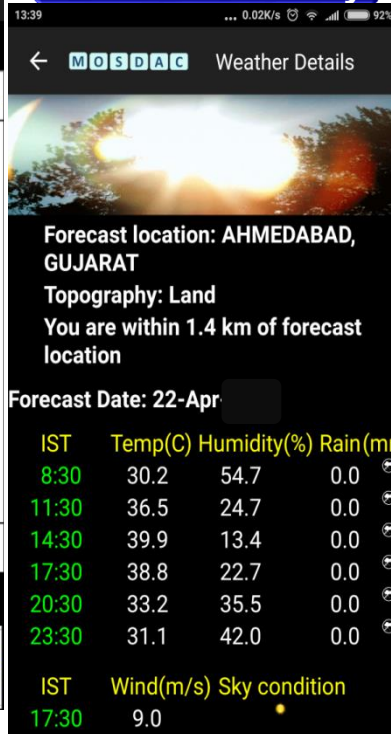
MOSDAC Mobile **WeatherApp (Android)** Initiative towards outreach to common man

GUI



Latest Images

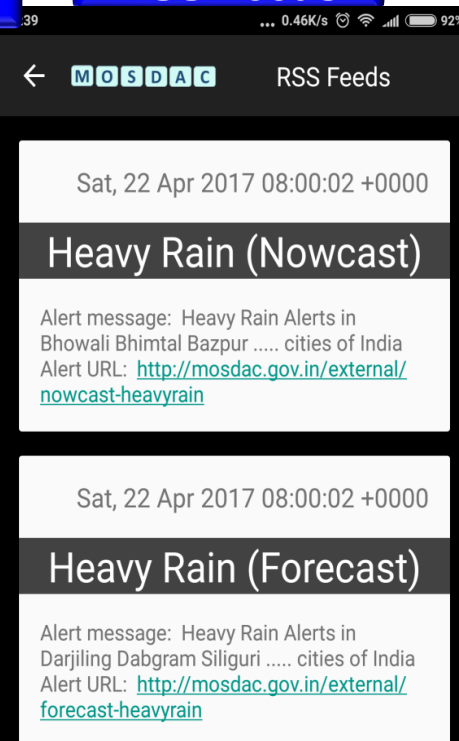
Forecast 3 Hourly



Nowcast Heavy Rain



RSS Feeds



Features:

- Hands-on-Notifications (RSS Feeds)
- Auto update of latest satellite imagery
- Sharing of satellite images on social network

- Location based forecast
- Fetches Nearest Forecast grid location
- Nowcast / Current Events
- Forecast Every 3 Hourly for next 72 Hours
- Zoom-Pan (supports different screen sizes)

Download: <http://mosdac.gov.in/data/tools/MOSDACApp.apk>

**Coordination Group for
Meteorological Satellites**

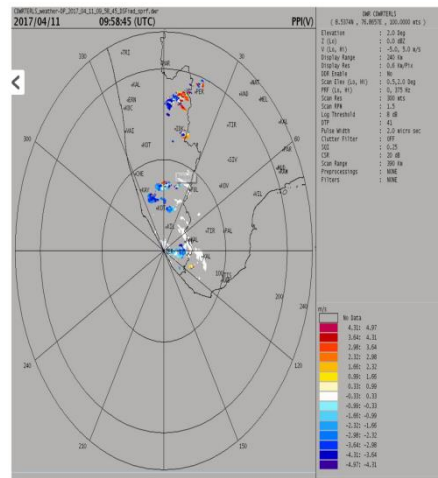


In-situ Data Sets archival and dissemination

Doppler Weather Radar

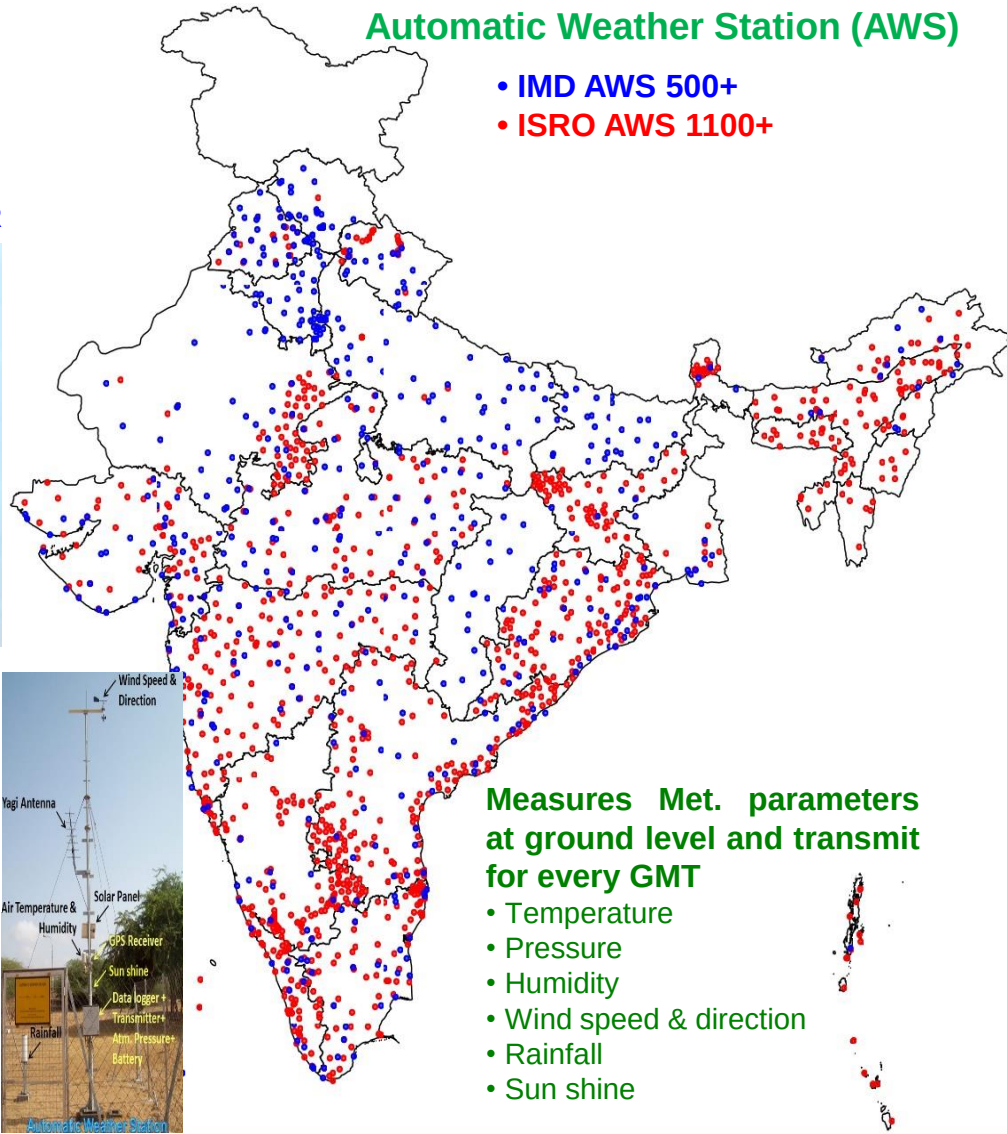
- Presently two DWR data (Thiruvananthapuram & Cherrapunji) fetched, processed & images are hosted.
- Application: rainfall estimation, detecting Thunderstorm, cyclone

Thiruvananthapuram -TERLS DWR



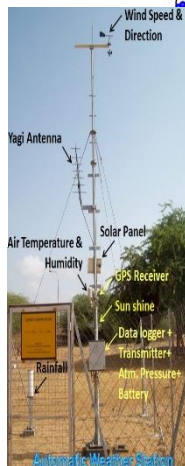
Automatic Weather Station (AWS)

- IMD AWS 500+
- ISRO AWS 1100+

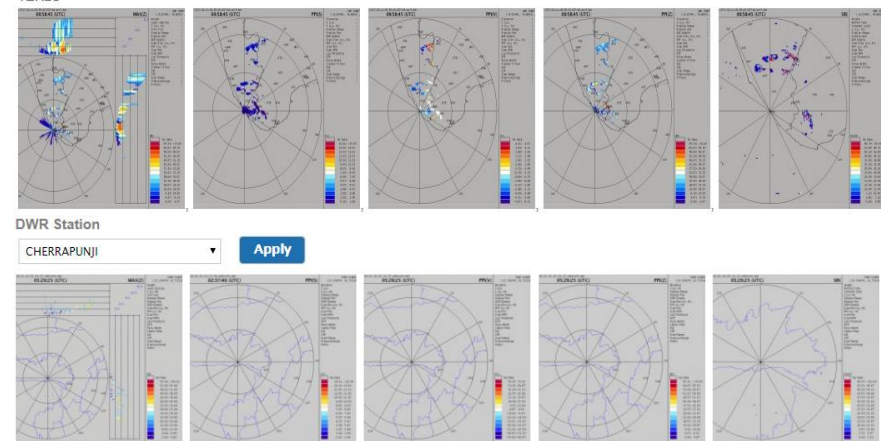


Measures Met. parameters at ground level and transmit for every GMT

- Temperature
- Pressure
- Humidity
- Wind speed & direction
- Rainfall
- Sun shine

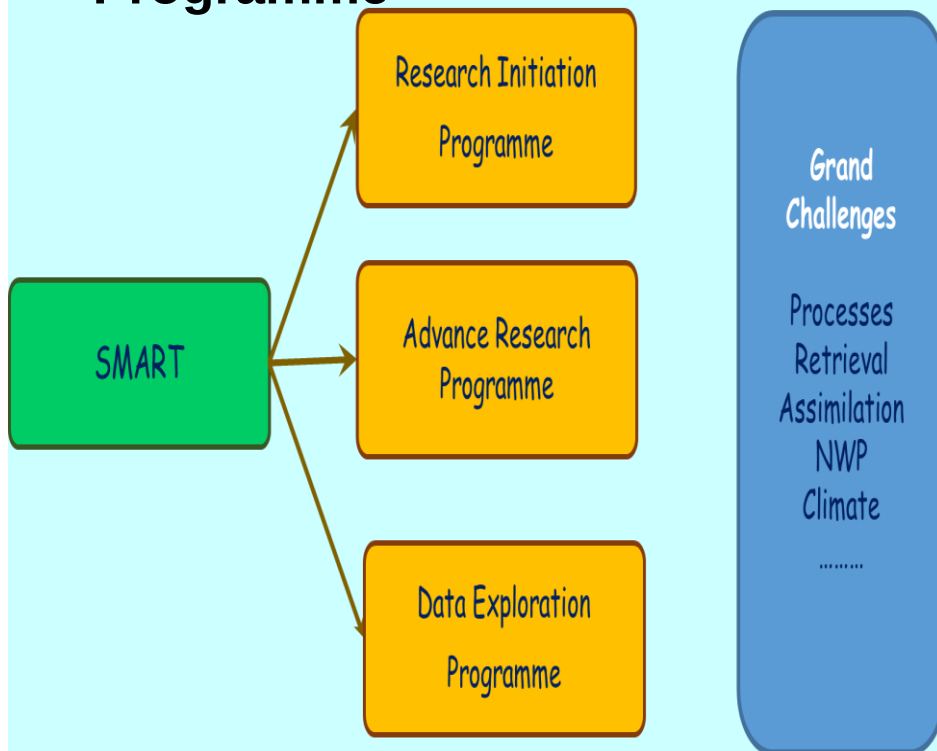


TERLS

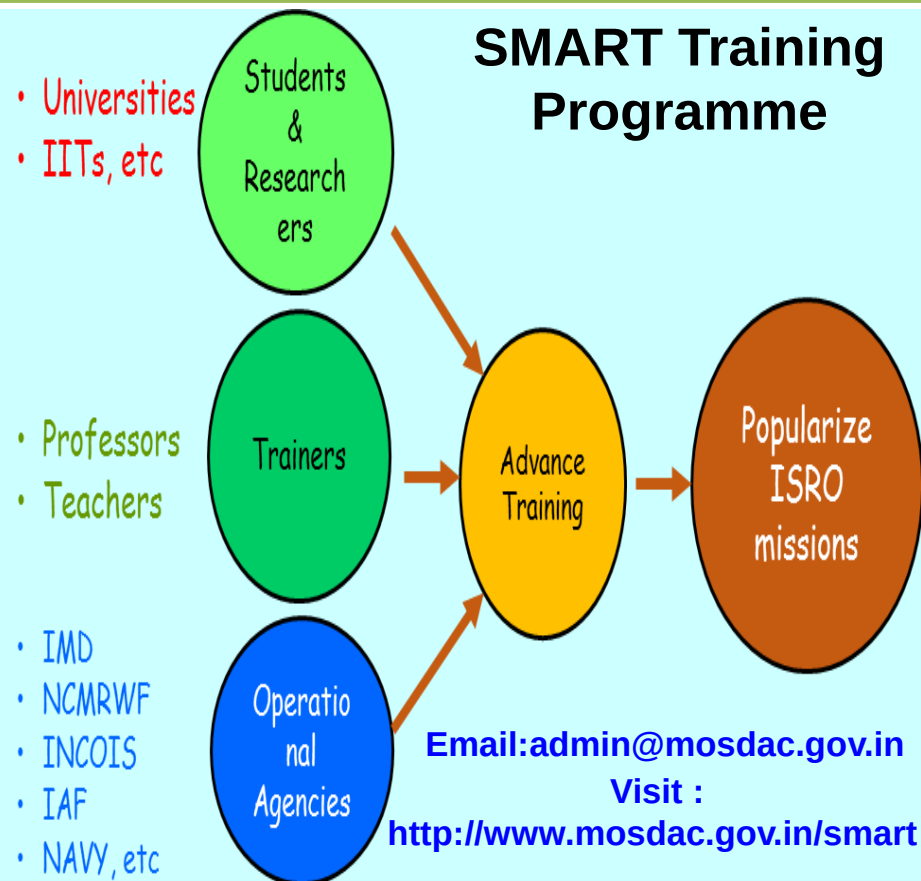


ISRO's initiative to promote research in Satellite Meteorology and Oceanography among students, academics & researchers using MOSDAC data

SMART Research Programme

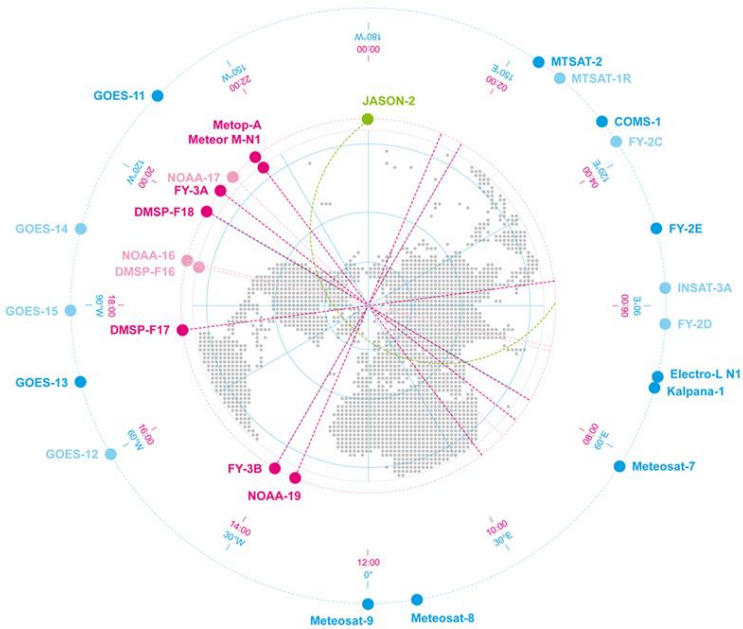


SMART Training Programme



- ✓ Long duration 1-9 months - challenging research
- ✓ Data handling & Visualization support with Expert guidance

- ✓ Short-term 3-5 days - advanced training
- ✓ About 5 times a year in Satellite Met. & Oceanography



Thanks

rksharma@sac.isro.gov.in