मॉस्डैक MOSDAC
भारत सरकार Govt. of India
अंतरिक्ष उपयोग केंद्र Space Applications Centre
इसरो isro
अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Satellite/Forecast

Sensor/Model

Product Type

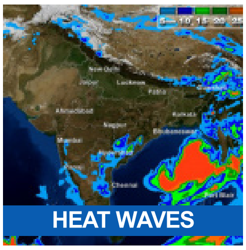
Product

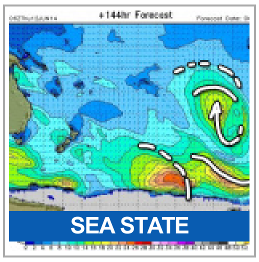
+
-

Fullscreen

Services

Forecast | Nowcast | Current Events | Alerts | Met Applications | Ocean Applications





Announcements

Monsoon Onset Prediction over Kerala (2024) | PDF, Tool: PDFViewer, Size: 763.84 KB | 20-May-24

Onset over Kerala - Monsoon 2023 | PDF, Tool: PDFViewer, Size: 463.15 KB | 15-May-23

INSAT Product Version Information | PDF, Tool: PDFViewer, Size: 1.61 MB | 01-Sep-22

SFTP Services for Data Download | PDF, Tool: PDFViewer, Size: 347.33 KB | 08-Nov-21

archive

भारत सरकार
Govt. of India

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Space Applications Centre, ISRO

Satellite Images | RADAR | Weather | OceanState | LIVE

MOSDAC

Satellite/Forecast

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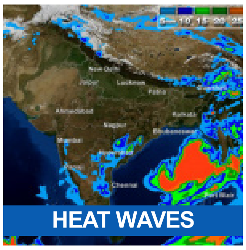

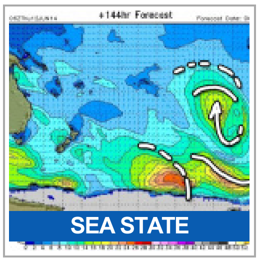

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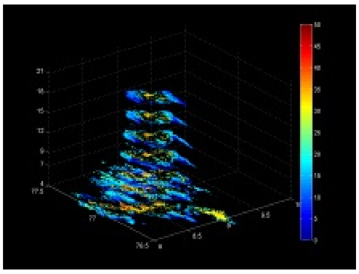
3D Volumetric TERLS DWRproduct



These products contain the 3D volumetric gridded de-cluttered radar reflectivity and de-aliased radial velocity generated from the C-Band Thumba Equatorial Rocket Launching Station (TERLS) DWR Volumetric PPI Scan data. The data grid has dimensions of (81x481x481) with a horizontal resolution of (1 km x 1 km) and vertical resolution of (250 m). The maximum altitude considered in while gridding is 20.0 km. This product can be used for various hydrological and numerical weather prediction applications.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

TERLS C-Band Doppler Weather Radar (dprf mode)

Processing Steps

Following are the three major processing steps :
- The radar reflectivity data is corrected for clutter using a combination of spatial continuity filter and fuzzy-logic based echo classification algorithm.
- The radial velocity data is dealiased using a 2D multipass velocity dealiasing scheme based spatial continuity of velocity fields
- The corrected reflectivity and radial velocity from all elevations is then gridded into a 3D volumetric grid having resolution of 250 x 1 km x 1 km.

Derivation Techniques and Algorithm

Decluttering of Radar reflectivity and Dealiasing of radial velocity; 3D volumetric gridding of radar variables as explained in detail in the above mentioned reports.

Reference

(1) Sambit Kumar Panda, Bipasha Paul Shukla, and Prashant Kumar, Clutter Mitigation and 3D volumetric gridding of TERLS DWR Reflectivity Data (V1.0), SAC Report,

SAC/EPSA/AOSG/SR/19/2018

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(3) Bipasha Paul Shukla, Prashant Kumar Saxena and Sambit Kumar Panda, Study of Tropical cyclone Okchi using TERLS DWR, SAC Report, SAC/EPSA/TDP/SR/09/2018

(4) Gianfranco Vulpiani, and Coauthors, 2012: On the use of dual-polarized c-band radar for operational rainfall retrieval in mountainous areas. J. Appl. Meteor., 51(2):405–425.

(5) Marco Gabella and Riccardo Notarpietro, 2002: Ground clutter characterization and elimination in mountainous terrain. In Use of radar observations in hydrological and NWP models, Katlenburg-Lindau, Copernicus, 305–311. URL: http://porto.polito.it/1411995/.

(6) Zhang et al. 2006, An Automated 2D Multipass Doppler Radar Velocity Dealiasing Scheme, J. of Atmos. and Ocean Tech, 23, 1239-1248, 2006

File Naming Convention

Netcdf file:
yyyy_mm_dd_hh_mm_ss_dprf_corrected.nc
PNG file:
yyyy_mm_dd_hh_mm_ss_voldbz_preview.png yyyy_mm_dd_hh_mm_ss_volvel_preview.png

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	May, 2018
4	Data Lineage or Quality	3D volumetric gridded radar reflectivity and radial velocity from TERLS DWR
5	Title	Post processing of TERLS DWR data and Volumetric Gridding

6	Abstract	The TERLS DWR data has been processed to correct for clutter and velocity folding prior to their application in hydrological and numerical weather prediction models. The radar reflectivity has been corrected for clutter using a combination of a spatial continuity filter and a fuzzy-logic based echo classification algorithm. The velocity folded regions are dealiased using a 2D multipass velocity dealiasing algorithm. The corrected reflectivity and radial velocity are then gridded into 1 km x 1 km x 250 m 3D volumetric grid which can be used by scientists for further meteorological applications. This data was prepared under the TDP/R&D project “Storm Tracking and Prediction using Doppler Weather Radar
7	Dataset Contact	Sambit Kumar Panda, EPSA, Space Applications Centre (ISRO), Ahmedabad-380015
8	Update frequency	3 months
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Spatial resolution is 1 km, while vertical resolution is 250 m.
11	Language	English
12	Topic Category	Doppler Weather Radar Data application
13	Keywords	Doppler Weather Radar, Reflectivity, Radial Velocity, Decluttering, Dealiasing
14	Date or period	May 1-31, 2018.
15	Responsible Party	Sambit Kumar Panda, Bipasha Paul Shukla, ASD/AOSG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Post processing of Doppler Weather Radar data and its application for Hydrological and Numerical Weather Prediction Models
16b	Individual name	Sambit Kumar Panda, ASD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117/6104. Email: sambit@sac.isro.gov.in
16c	Position	Scientist/Engineer-SC, ASD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 792691 6117/6104. Email: sambit@sac.isro.gov.in
17	Geographic Extent	lat_min: 06N lat_max: 11N lon_min: 74E lon_max: 79E
18	Geographic name, geographic Identifier	TERLS, Trivandrum.
19	Bounding box	lat_min: 06N lat_max: 11N lon_min: 74E lon_max: 79E
20	Temporal Extent	May1-31, 2018.
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in netcdf format and png files of daily archived data (“.tar.gz” compressed files).
23	Processing Level	Level 2
24	Reference System	Datum: WGS84

Tags:

Meteorological & Oceanographic Satellite Data Archival Centre

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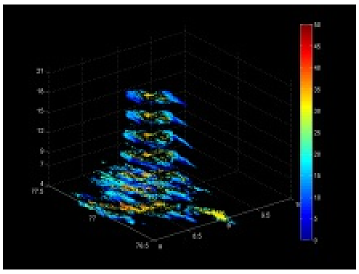
3D Volumetric TERLS DWRproduct



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16c	Position	Scientist/Engineer-SC, ASD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 792691 6117/6104. Email: sambit@sac.isro.gov.in
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22	Distribution Information	Online download in netcdf format and png files of daily archived data (".tar.gz" compressed files).
23	Processing Level	Level 2
24	Reference System	Datum: WGS84

Tags:

XML Content

- **rss**: INSAT-3D Imager ISROCast Feed http://mosdac.gov.in ISROCAST (ISRO Datacasting) 3drimg_datacast MOSDAC Geophysical Products false en-us Copyright 2016 admin admin@mosdac.gov.in Tue, 23 Aug 2022 09:16:41 GMT Datacasting Feed Publishing Tools http://datacasting.jpl.nasa.gov/datacasting.html 30 http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 INSAT-3D Imager 3DIMG_L2P_VSW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_VSW.gif Tue, 23 Aug 2022 08:00:00 GMT -48.000000 30.000000 45.000000 128.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_VSW.gif 3DIMG_23AUG2022_0800_L2P_VSW.h5 Winds derived using Visible band data of IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_VSW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_IMR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_IMR.jpg Tue, 23 Aug 2022 08:30:00 GMT -39.000000 30.000000 40.000000 120.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_IMR.jpg 3DIMG_23AUG2022_0830_L2G_IMR.h5 Indian Multi Spectral rainfall from IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_IMR.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1C_SGP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 08:30:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1C_SGP_IR1.jpg 3DIMG_23AUG2022_0830_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1C_ASIA_MER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_ASIA_MER_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -10.000000 44.000000 45.000000 105.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_ASIA_MER_IR1.jpg 3DIMG_23AUG2022_0800_L1C_ASIA_MER.h5 IMAGER- 6 channel Level1 data in Mercator projection for Asian Sector http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_ASIA_MER_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_AOD http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_AOD.jpg Tue, 23 Aug 2022 08:30:00 GMT -9.000000 45.000000 45.000000 100.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_AOD.jpg 3DIMG_23AUG2022_0830_L2G_AOD.h5 The AOD product provides the aerosol optical thickness, at 650 nm and 4 Km spatial resolution over both land and ocean surfaces with root mean square (RMS) error of ?0.1. http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_AOD.jpg Tue, 23 Aug 2022 09:16:00 GMT 3DIMG_L2C_FOG http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2C_FOG.jpg Tue, 23 Aug 2022 08:30:00 GMT -10.000000 44.000000 45.000000 105.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2C_FOG.jpg 3DIMG_23AUG2022_0830_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2C_FOG.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_CTP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CTP.jpg Tue, 23 Aug 2022 08:00:00 GMT -79.000000 1.000000 78.000000 162.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CTP.jpg 3DIMG_23AUG2022_0800_L2B_CTP.h5 Cloud top properties derived using INSAT3D IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CTP.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_WDP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_MIDSH.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 30.000000 50.000000 130.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_MIDSH.jpg 3DIMG_23AUG2022_0800_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3D AMVs. http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_MIDSH.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_LST http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_LST.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_LST.jpg 3DIMG_23AUG2022_0800_L2B_LST.h5 Land surface temperature (LST) is a key parameter in the land surface processes. LST is very useful input to various models related to agrometeorology, ecology, hydrology and climate. http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_LST.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_IMC http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg Tue, 23 Aug 2022 07:30:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg 3DIMG_23AUG2022_0730_L2B_IMC.h5 INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3D. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case

studies and research works carried out, a further refinement of the algorithm was made.
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_SMK http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_SMK.jpg Tue, 23 Aug 2022 08:30:00 GMT 25.000000 60.000000 39.000000 99.000000
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3DIMG_23AUG2022_0830_L2P_SMK.kml This is an Active Smoke product which shows that the pixel is to be qualified as smoke.Inputs to the algorithm will include geo-referenced, corrected Albedo, Digital counts for Visible channel and geo-referenced Brightness temperature for MIR,TIR1, TIR2.
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3DIMG_23AUG2022_0800_L2P_WVW.h5 Water vapour derived wind vectors
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_WVW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1C_SGP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 20.000000 50.000000 130.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg
3DIMG_23AUG2022_0800_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_IRW
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_IRW.gif Tue, 23 Aug 2022 08:00:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_IRW.gif
3DIMG_23AUG2022_0800_L2P_IRW.h5 INSAT-3D Infrared channel derived Wind
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_IRW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_IRW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif Tue, 23 Aug 2022 08:30:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif
3DIMG_23AUG2022_0830_L2P_IRW.h5 INSAT-3D Infrared channel derived Wind
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_SST http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg Tue, 23 Aug 2022 08:30:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg
3DIMG_23AUG2022_0830_L2B_SST.h5 Sea surface temperature is derived from split thermal window channels (TIR1, TIR2) during daytime and using additional mid IR window channel (MIR) during night time over cloud free oceanic regions. The most important part of the SST retrieval from IR observations is the atmospheric correction, especially over tropics. This correction is determined through a suitable characterization of tropical atmospheres in radiative transfer model to simulate the brightness temperatures of INSAT-3D channels a
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_OLR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg
3DIMG_23AUG2022_0800_L2B_OLR.h5 Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3D Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1B_STD http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg Tue, 23 Aug 2022 08:30:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg
3DIMG_23AUG2022_0830_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_VSW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif Tue, 23 Aug 2022 08:30:00 GMT -48.000000 30.000000 45.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif
3DIMG_23AUG2022_0830_L2P_VSW.h5 Winds derived using Visible band data of IMAGER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1B_STD http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000

http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg
3DIMG_23AUG2022_0800_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_UTH http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_UTH.jpg Tue, 23 Aug 2022 08:30:00 GMT -80.000000 1.000000 80.000000 162.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_UTH.jpg
3DIMG_23AUG2022_0830_L2B_UTH.h5 Upper Tropospheric Humidity from IMAGER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_UTH.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2C_CMP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 20.000000 50.000000 130.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg
3DIMG_23AUG2022_0800_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3D imager http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_CMK
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CMK.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CMK.jpg
3DIMG_23AUG2022_0800_L2B_CMK.h5 INSAT-3D VHRR measures radiances in one visible and one SWIR band at 1 km spatial resolution, one MIR and two TIR bands at 4 km resolution, and one WV band at 8 km resolution. Radiances from 3 IR spectral bands TIR-1 , TIR-2 and MIR which are of same resolution of 4km are used in the INSAT cloud mask algorithm to estimate whether a given view of the earth surface is unobstructed by clouds
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CMK.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_IMR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg Tue, 23 Aug 2022 08:00:00 GMT -39.000000 30.000000 40.000000 120.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg
3DIMG_23AUG2022_0800_L2G_IMR.h5 Indian Multi Spectral rainfall from IMAGER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg Tue, 23 Aug 2022 09:12:00 GMT

- **channel**: INSAT-3D Imager ISROCast Feed http://mosdac.gov.in ISROCAST (ISRO Datacasting) 3drimg_datacast MOSDAC Geophysical Products false en-us Copyright 2016 admin admin@mosdac.gov.in Tue, 23 Aug 2022 09:16:41 GMT Datacasting Feed Publishing Tools http://datacasting.jpl.nasa.gov/datacasting.html 30 http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 INSAT-3D Imager 3DIMG_L2P_VSW
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_VSW.gif Tue, 23 Aug 2022 08:00:00 GMT -48.000000 30.000000 45.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_VSW.gif
3DIMG_23AUG2022_0800_L2P_VSW.h5 Winds derived using Visible band data of IMAGER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_VSW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_IMR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_IMR.jpg Tue, 23 Aug 2022 08:30:00 GMT -39.000000 30.000000 40.000000 120.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_IMR.jpg
3DIMG_23AUG2022_0830_L2G_IMR.h5 Indian Multi Spectral rainfall from IMAGER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_IMR.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1C_SGP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 08:30:00 GMT -50.000000 20.000000 50.000000 130.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1C_SGP_IR1.jpg
3DIMG_23AUG2022_0830_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1C_ASIA_MER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_ASIA_MER_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -10.000000 44.000000 45.000000 105.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_ASIA_MER_IR1.jpg
3DIMG_23AUG2022_0800_L1C_ASIA_MER.h5 IMAGER- 6 channel Level1 data in Mercator projection for Asian Sector
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_ASIA_MER_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_AOD
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_AOD.jpg Tue, 23 Aug 2022 08:30:00 GMT -9.000000 45.000000 45.000000 100.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_AOD.jpg
3DIMG_23AUG2022_0830_L2G_AOD.h5 The AOD product provides the aerosol optical thickness, at 650 nm and 4 Km spatial resolution over both land and ocean surfaces with root mean square (RMS) error of ?0.1.
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2G_AOD.jpg Tue, 23 Aug 2022 09:16:00 GMT 3DIMG_L2C_FOG http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2C_FOG.jpg Tue, 23 Aug 2022 08:30:00 GMT -10.000000 44.000000 45.000000 105.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2C_FOG.jpg
3DIMG_23AUG2022_0830_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves

detection of different thresholds following an image based approach to detect FOG
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2C_FOG.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_CTP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CTP.jpg Tue, 23 Aug 2022 08:00:00 GMT -79.000000 1.000000 78.000000 162.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CTP.jpg
3DIMG_23AUG2022_0800_L2B_CTP.h5 Cloud top properties derived using INSAT3D IMAGER
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CTP.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_WDP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_MIDSH.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 30.000000 50.000000 130.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_MIDSH.jpg
3DIMG_23AUG2022_0800_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3D AMVs.
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_MIDSH.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_LST http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_LST.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_LST.jpg
3DIMG_23AUG2022_0800_L2B_LST.h5 Land surface temperature (LST) is a key parameter in the land surface processes. LST is very useful input to various models related to agrometeorology, ecology, hydrology and climate.
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_LST.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_IMC http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg Tue, 23 Aug 2022 07:30:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg
3DIMG_23AUG2022_0730_L2B_IMC.h5 INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3D. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case studies and research works carried out, a further refinement of the algorithm was made.
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_SMK http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_SMK.jpg Tue, 23 Aug 2022 08:30:00 GMT 25.000000 60.000000 39.000000 99.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_SMK.jpg
3DIMG_23AUG2022_0830_L2P_SMK.kml This is an Active Smoke product which shows that the pixel is to be qualified as smoke.Inputs to the algorithm will include geo-referenced, corrected Albedo, Digital counts for Visible channel and geo-referenced Brightness temperature for MIR,TIR1, TIR2.
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_SMK.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2C_FOG http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg Tue, 23 Aug 2022 08:00:00 GMT -10.000000 44.000000 45.000000 105.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg
3DIMG_23AUG2022_0800_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_WVW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_WVW.gif Tue, 23 Aug 2022 08:00:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_WVW.gif
3DIMG_23AUG2022_0800_L2P_WVW.h5 Water vapour derived wind vectors
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_WVW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1C_SGP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 20.000000 50.000000 130.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg
3DIMG_23AUG2022_0800_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_IRW
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_IRW.gif Tue, 23 Aug 2022 08:00:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_IRW.gif
3DIMG_23AUG2022_0800_L2P_IRW.h5 INSAT-3D Infrared channel derived Wind
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_IRW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_IRW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif Tue, 23 Aug 2022 08:30:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif
3DIMG_23AUG2022_0830_L2P_IRW.h5 INSAT-3D Infrared channel derived Wind
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_SST http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg Tue, 23 Aug 2022 08:30:00 GMT -81.000000 0.000000 81.000000 163.000000
http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg

3DIMG_23AUG2022_0830_L2B_SST.h5 Sea surface temperature is derived from split thermal window channels (TIR1, TIR2) during daytime and using additional mid IR window channel (MIR) during night time over cloud free oceanic regions. The most important part of the SST retrieval from IR observations is the atmospheric correction, especially over tropics. This correction is determined through a suitable characterization of tropical atmospheres in radiative transfer model to simulate the brightness temperatures of INSAT-3D channels a http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_OLR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg 3DIMG_23AUG2022_0800_L2B_OLR.h5 Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3D Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1B_STD http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg Tue, 23 Aug 2022 08:30:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg 3DIMG_23AUG2022_0830_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2P_VSW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif Tue, 23 Aug 2022 08:30:00 GMT -48.000000 30.000000 45.000000 128.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif 3DIMG_23AUG2022_0830_L2P_VSW.h5 Winds derived using Visible band data of IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L1B_STD http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg 3DIMG_23AUG2022_0800_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_UTH http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_UTH.jpg Tue, 23 Aug 2022 08:30:00 GMT -80.000000 1.000000 80.000000 162.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_UTH.jpg 3DIMG_23AUG2022_0830_L2B_UTH.h5 Upper Tropospheric Humidity from IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_UTH.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2C_CMP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg 3DIMG_23AUG2022_0800_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3D imager http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2B_CMK http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CMK.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CMK.jpg 3DIMG_23AUG2022_0800_L2B_CMK.h5 INSAT-3D VHRR measures radiances in one visible and one SWIR band at 1 km spatial resolution, one MIR and two TIR bands at 4 km resolution, and one WV band at 8 km resolution. Radiances from 3 IR spectral bands TIR-1 , TIR-2 and MIR which are of same resolution of 4km are used in the INSAT cloud mask algorithm to estimate whether a given view of the earth surface is unobstructed by clouds http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_CMK.jpg Tue, 23 Aug 2022 09:12:00 GMT 3DIMG_L2G_IMR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg Tue, 23 Aug 2022 08:00:00 GMT -39.000000 30.000000 40.000000 120.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg 3DIMG_23AUG2022_0800_L2G_IMR.h5 Indian Multi Spectral rainfall from IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg Tue, 23 Aug 2022 09:12:00 GMT

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- **docs**: http://datacasting.jpl.nasa.gov/datacasting.html
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3DIMG_23AUG2022_0800_L1C_ASIA_MER.h5 IMAGER- 6 channel Level1 data in Mercator projection for Asian Sector
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- **item**: 3DIMG_L2B_IMC http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg Tue, 23 Aug 2022 07:30:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg 3DIMG_23AUG2022_0730_L2B_IMC.h5 INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3D. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case studies and research works carried out, a further refinement of the algorithm was made. http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0730_L2B_IMC.jpg Tue, 23 Aug 2022 09:12:00 GMT
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- **description**: INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3D. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case studies and research works carried out, a further refinement of the algorithm was made.
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- **productName**: 3DIMG_23AUG2022_0830_L2P_SMK.kml
- **description**: This is an Active Smoke product which shows that the pixel is to be qualified as smoke.Inputs to the algorithm will include geo-referenced, corrected Albedo, Digital counts for Visible channel and geo-referenced Brightness temperature for MIR,TIR1, TIR2.
- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_SMK.jpg
- **pubDate**: Tue, 23 Aug 2022 09:12:00 GMT
- **item**: 3DIMG_L2C_FOG http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg Tue, 23 Aug 2022 08:00:00 GMT -10.000000 44.000000 45.000000 105.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg 3DIMG_23AUG2022_0800_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg Tue, 23 Aug 2022 09:12:00 GMT
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- **productName**: 3DIMG_23AUG2022_0800_L2C_FOG.h5
- **description**: Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG
- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_FOG.jpg
- **pubDate**: Tue, 23 Aug 2022 09:12:00 GMT
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- **description**: Water vapour derived wind vectors
- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2P_WVW.gif
- **pubDate**: Tue, 23 Aug 2022 09:12:00 GMT
- **item**: 3DIMG_L1C_SGP http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg 3DIMG_23AUG2022_0800_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT
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- **productName**: 3DIMG_23AUG2022_0800_L1C_SGP.h5
- **description**: Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection
- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1C_SGP_IR1.jpg
- **pubDate**: Tue, 23 Aug 2022 09:12:00 GMT
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- **description**: INSAT-3D Infrared channel derived Wind
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- **item**: 3DIMG_L2P_IRW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif Tue, 23 Aug 2022 08:30:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif 3DIMG_23AUG2022_0830_L2P_IRW.h5 INSAT-3D Infrared channel derived Wind http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_IRW.gif Tue, 23 Aug 2022 09:12:00 GMT
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- **item**: 3DIMG_L2B_SST http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg Tue, 23 Aug 2022 08:30:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg 3DIMG_23AUG2022_0830_L2B_SST.h5 Sea surface temperature is derived from split thermal window channels (TIR1, TIR2) during daytime and using additional mid IR window channel (MIR) during night time over cloud free oceanic regions. The most important part of the SST retrieval from IR observations is the atmospheric correction, especially over tropics. This correction is determined through a

suitable characterization of tropical atmospheres in radiative transfer model to simulate the brightness temperatures of INSAT-3D channels a http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2B_SST.jpg Tue, 23 Aug 2022 09:12:00 GMT

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- **productName**: 3DIMG_23AUG2022_0830_L2B_SST.h5
- **description**: Sea surface temperature is derived from split thermal window channels (TIR1, TIR2) during daytime and using additional mid IR window channel (MIR) during night time over cloud free oceanic regions. The most important part of the SST retrieval from IR observations is the atmospheric correction, especially over tropics. This correction is determined through a suitable characterization of tropical atmospheres in radiative transfer model to simulate the brightness temperatures of INSAT-3D channels a
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- **pubDate**: Tue, 23 Aug 2022 09:12:00 GMT
- **item**: 3DIMG_L2B_OLR http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg 3DIMG_23AUG2022_0800_L2B_OLR.h5 Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3D Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg Tue, 23 Aug 2022 09:12:00 GMT
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- **productName**: 3DIMG_23AUG2022_0800_L2B_OLR.h5
- **description**: Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3D Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions
- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2B_OLR.jpg
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- **description**: Level1 data for Imager 6 channels at half hour interval
- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L1B_STD_IR1.jpg
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- **item**: 3DIMG_L2P_VSW http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif Tue, 23 Aug 2022 08:30:00 GMT -48.000000 30.000000 45.000000 128.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif 3DIMG_23AUG2022_0830_L2P_VSW.h5 Winds derived using Visible band data of IMAGER http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0830_L2P_VSW.gif Tue, 23 Aug 2022 09:12:00

GMT

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- **item**: 3DIMG_L1B_STD http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg Tue, 23 Aug 2022 08:00:00 GMT -81.000000 0.000000 81.000000 163.000000 http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg 3DIMG_23AUG2022_0800_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L1B_STD_IR1.jpg Tue, 23 Aug 2022 09:12:00 GMT
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- **description**: Upper Tropospheric Humidity from IMAGER
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- **description**: Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3D imager

- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2C_CER.jpg
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- **guid**: http://mosdac.gov.in/look/3D_IMG/preview/2022/23AUG/3DIMG_23AUG2022_0800_L2G_IMR.jpg
- **pubDate**: Tue, 23 Aug 2022 09:12:00 GMT

XML Content

- **rss**: INSAT-3DR IMAGER ISROCast Feed http://mosdac.gov.in Datacasting of INSAT-3DR for IMAGER sensor insat3dr_imager MOSDAC Geophysical Products false en-us Copyright 2016 admin admin@mosdac.gov.in Wed, 24 Aug 2022 08:35:07 GMT Datacasting Feed Publishing Tools http://datacasting.jpl.nasa.gov/datacasting.html 30 http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 INSAT-3DR SOUNDER Data 3RIMG_L1C_ASIA_MER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_ASIA_MER_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_ASIA_MER_IR1.jpg 3RIMG_24AUG2022_0745_L1C_ASIA_MER.h5 IMAGER- 6 channel Level1 data in Mercator projection for Asian Sector http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_ASIA_MER_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2P_WVW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_WVW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_WVW.gif 3RIMG_24AUG2022_0745_L2P_WVW.h5 Water vapour derived wind vectors http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_WVW.gif Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2B_CMK http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CMK.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CMK.jpg 3RIMG_24AUG2022_0745_L2B_CMK.h5 INSAT-3DR VHRR measures radiances in one visible and one SWIR band at 1 km spatial resolution, one MIR and two TIR bands at 4 km resolution, and one WV band at 8 km resolution. Radiances from 3 IR spectral bands TIR ?1 , TIR ?2 and MIR which are of same resolution of 4km are used in the INSAT cloud mask algorithm to estimate whether a given view of the earth surface is unobstructed by clouds http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CMK.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_CMP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_CER.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_CER.jpg 3RIMG_24AUG2022_0745_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3DR imager http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_CER.jpg Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2P_VSW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_VSW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 22.000000 31.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_VSW.gif 3RIMG_24AUG2022_0715_L2P_VSW.h5 Winds derived using Visible band data of IMAGER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_VSW.gif Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2P_FIR http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_FIR.jpg Wed, 24 Aug 2022 07:45:00 GMT -29.000000 24.000000 52.000000 118.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_FIR.jpg 3RIMG_24AUG2022_0745_L2P_FIR.kml This is an Active FIRE product which shows that the pixel is warm enough to be qualified as fire. This is derived using MIR (T3) and TIR1 (T5) channel BT from INSAT-3DR imager. http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_FIR.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_INS http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg 3RIMG_24AUG2022_0745_L2C_INS.h5 INSAT-3DR derived INSOLATION http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_SST http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_SST.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_SST.jpg 3RIMG_24AUG2022_0745_L2B_SST.h5 Sea surface temperature is derived from split thermal window channels (TIR1, TIR2) during daytime and using additional mid IR window channel (MIR) during night time over cloud free oceanic regions. The most important part of the SST retrieval from IR observations is the atmospheric correction, especially over tropics. This correction is determined through a suitable characterization of tropical atmospheres in radiative transfer model to simulate the brightness temperatures of INSAT-3DR channels a http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_SST.jpg Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2P_VSW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_VSW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 31.000000 32.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_VSW.gif 3RIMG_24AUG2022_0745_L2P_VSW.h5 Winds derived using Visible band data of IMAGER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_VSW.gif Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2G_WDP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2G_MIDSH.jpg Wed, 24 Aug 2022 07:15:00 GMT -50.000000 30.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2G_MIDSH.jpg 3RIMG_24AUG2022_0715_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-

level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3DR AMVs.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2G_MIDSH.jpg Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2G_AOD http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_AOD.jpg Wed, 24 Aug 2022 07:45:00 GMT -9.000000 45.000000 45.000000 100.000000
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3RIMG_24AUG2022_0745_L2G_AOD.h5 The AOD product provides the aerosol optical thickness, at 650 nm and 4 Km spatial resolution over both land and ocean surfaces with root mean square (RMS) error of ?0.1.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_AOD.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2P_WVW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_WVW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 21.000000 49.000000 128.000000
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3RIMG_24AUG2022_0715_L2P_WVW.h5 Water vapour derived wind vectors
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_WVW.gif Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2B_OLR http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg
3RIMG_24AUG2022_0745_L2B_OLR.h5 Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3DR Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_HEM http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg
3RIMG_24AUG2022_0745_L2B_HEM.h5 This product is derived on the basis of Hydro-Estimator method. It measures precipitation over Indian Region encompassing area between longitudes 30?E -to130?E and latitudes 50?N- 50?S.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_FOG http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg
3RIMG_24AUG2022_0745_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_CTP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg Wed, 24 Aug 2022 07:45:00 GMT -79.000000 -6.000000 78.000000 154.000000
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3RIMG_24AUG2022_0745_L2B_CTP.h5 Cloud top properties derived using INSAT3R IMAGER
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_CMP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg Wed, 24 Aug 2022 07:15:00 GMT -50.000000 20.000000 50.000000 130.000000
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3RIMG_24AUG2022_0715_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3DR imager http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg Wed, 24 Aug 2022 08:14:00 GMT 3RIMG_L1B_STD
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg
3RIMG_24AUG2022_0745_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2G_WDP
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 30.000000 50.000000 130.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg
3RIMG_24AUG2022_0745_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3DR AMVs.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2B_IMC http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg Wed, 24 Aug 2022 07:15:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg
3RIMG_24AUG2022_0715_L2B_IMC.h5 INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3DR. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case studies and research works carried out, a further refinement of the algorithm was made.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg Wed, 24 Aug 2022 08:32:00

GMT 3RIMG_L2P_IRW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif 3RIMG_24AUG2022_0715_L2P_IRW.h5 INSAT-3DR Infrared channel derived Wind http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2P_IRW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif 3RIMG_24AUG2022_0745_L2P_IRW.h5 INSAT-3DR Infrared channel derived Wind http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L1C_SGP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg 3RIMG_24AUG2022_0745_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_UTH http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg Wed, 24 Aug 2022 07:45:00 GMT -80.000000 -6.000000 80.000000 154.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg 3RIMG_24AUG2022_0745_L2B_UTH.h5 Upper Tropospheric Humidity from IMAGER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_LST http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg 3RIMG_24AUG2022_0745_L2B_LST.h5 Land surface temperature (LST) is a key parameter in the land surface processes. LST is very useful input to various models related to agrometeorology, ecology, hydrology and climate. http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg Wed, 24 Aug 2022 08:32:00 GMT

- **channel**: INSAT-3DR IMAGER ISROCast Feed http://mosdac.gov.in Datacasting of INSAT-3DR for IMAGER sensor insat3dr_imager MOSDAC Geophysical Products false en-us Copyright 2016 admin admin@mosdac.gov.in Wed, 24 Aug 2022 08:35:07 GMT Datacasting Feed Publishing Tools http://datacasting.jpl.nasa.gov/datacasting.html 30 http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 INSAT-3DR SOUNDER Data 3RIMG_L1C_ASIA_MER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_ASIA_MER_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_ASIA_MER_IR1.jpg 3RIMG_24AUG2022_0745_L1C_ASIA_MER.h5 IMAGER- 6 channel Level1 data in Mercator projection for Asian Sector http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_ASIA_MER_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2P_WVW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_WVW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_WVW.gif 3RIMG_24AUG2022_0745_L2P_WVW.h5 Water vapour derived wind vectors http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_WVW.gif Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2B_CMK http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CMK.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CMK.jpg 3RIMG_24AUG2022_0745_L2B_CMK.h5 INSAT-3DR VHRR measures radiances in one visible and one SWIR band at 1 km spatial resolution, one MIR and two TIR bands at 4 km resolution, and one WV band at 8 km resolution. Radiances from 3 IR spectral bands TIR ?1 , TIR ?2 and MIR which are of same resolution of 4km are used in the INSAT cloud mask algorithm to estimate whether a given view of the earth surface is unobstructed by clouds http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CMK.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_CMP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_CER.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_CER.jpg 3RIMG_24AUG2022_0745_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3DR imager http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_CER.jpg Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2P_VSW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_VSW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 22.000000 31.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_VSW.gif 3RIMG_24AUG2022_0715_L2P_VSW.h5 Winds derived using Visible band data of IMAGER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_VSW.gif Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2P_FIR http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_FIR.jpg Wed, 24 Aug 2022 07:45:00 GMT -29.000000 24.000000 52.000000 118.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_FIR.jpg

3RIMG_24AUG2022_0745_L2P_FIR.kml This is an Active FIRE product which shows that the pixel is warm enough to be qualified as fire. This is derived using MIR (T3) and TIR1 (T5) channel BT from INSAT-3DR imager.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_FIR.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_INS http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg
3RIMG_24AUG2022_0745_L2C_INS.h5 INSAT-3DR derived INSOLATION
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_SST http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_SST.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_SST.jpg
3RIMG_24AUG2022_0745_L2B_SST.h5 Sea surface temperature is derived from split thermal window channels (TIR1, TIR2) during daytime and using additional mid IR window channel (MIR) during night time over cloud free oceanic regions. The most important part of the SST retrieval from IR observations is the atmospheric correction, especially over tropics. This correction is determined through a suitable characterization of tropical atmospheres in radiative transfer model to simulate the brightness temperatures of INSAT-3DR channels a http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_SST.jpg Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2P_VSW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_VSW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 31.000000 32.000000 128.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_VSW.gif
3RIMG_24AUG2022_0745_L2P_VSW.h5 Winds derived using Visible band data of IMAGER
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_VSW.gif Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L2G_WDP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2G_MIDSH.jpg Wed, 24 Aug 2022 07:15:00 GMT -50.000000 30.000000 50.000000 130.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2G_MIDSH.jpg
3RIMG_24AUG2022_0715_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3DR AMVs.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2G_MIDSH.jpg Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2G_AOD http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_AOD.jpg Wed, 24 Aug 2022 07:45:00 GMT -9.000000 45.000000 45.000000 100.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_AOD.jpg
3RIMG_24AUG2022_0745_L2G_AOD.h5 The AOD product provides the aerosol optical thickness, at 650 nm and 4 Km spatial resolution over both land and ocean surfaces with root mean square (RMS) error of ?0.1.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_AOD.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2P_WVW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_WVW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_WVW.gif
3RIMG_24AUG2022_0715_L2P_WVW.h5 Water vapour derived wind vectors
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_WVW.gif Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2B_OLR http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg
3RIMG_24AUG2022_0745_L2B_OLR.h5 Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3DR Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_HEM http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg
3RIMG_24AUG2022_0745_L2B_HEM.h5 This product is derived on the basis of Hydro-Estimator method. It measures precipitation over Indian Region encompassing area between longitudes 30?E -to130?E and latitudes 50?N- 50?S.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_FOG http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg
3RIMG_24AUG2022_0745_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_CTP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg Wed, 24 Aug 2022 07:45:00 GMT -79.000000 -6.000000 78.000000 154.000000
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3RIMG_24AUG2022_0745_L2B_CTP.h5 Cloud top properties derived using INSAT3R IMAGER
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2C_CMP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg Wed,

24 Aug 2022 07:15:00 GMT -50.000000 20.000000 50.000000 130.000000
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3RIMG_24AUG2022_0715_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3DR imager http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg Wed, 24 Aug 2022 08:14:00 GMT 3RIMG_L1B_STD
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg
3RIMG_24AUG2022_0745_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2G_WDP
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 30.000000 50.000000 130.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg
3RIMG_24AUG2022_0745_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3DR AMVs.
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http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg
3RIMG_24AUG2022_0715_L2B_IMC.h5 INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3DR. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case studies and research works carried out, a further refinement of the algorithm was made.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2P_IRW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif
3RIMG_24AUG2022_0715_L2P_IRW.h5 INSAT-3DR Infrared channel derived Wind
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif Wed, 24 Aug 2022 08:05:00 GMT 3RIMG_L2P_IRW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 21.000000 49.000000 128.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif
3RIMG_24AUG2022_0745_L2P_IRW.h5 INSAT-3DR Infrared channel derived Wind
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif Wed, 24 Aug 2022 08:35:00 GMT 3RIMG_L1C_SGP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 20.000000 50.000000 130.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg
3RIMG_24AUG2022_0745_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_UTH
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http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg
3RIMG_24AUG2022_0745_L2B_UTH.h5 Upper Tropospheric Humidity from IMAGER
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg Wed, 24 Aug 2022 08:32:00 GMT 3RIMG_L2B_LST http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg
3RIMG_24AUG2022_0745_L2B_LST.h5 Land surface temperature (LST) is a key parameter in the land surface processes. LST is very useful input to various models related to agrometeorology, ecology, hydrology and climate.
http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg Wed, 24 Aug 2022 08:32:00 GMT

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- **managingEditor**: admin
- **webMaster**: admin@mosdac.gov.in
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- **docs**: http://datacasting.jpl.nasa.gov/datacasting.html
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http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_INS.jpg Wed, 24 Aug 2022 08:32:00 GMT

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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg
- **productName**: 3RIMG_24AUG2022_0745_L2B_OLR.h5
- **description**: Total outgoing longwave radiation (OLR) flux, thermally emitted from earth atmosphere system, is estimated by applying regression equation relating OLR flux with INSAT-3DR Imager observed WV (6.7µm) and thermal infrared (TIR-1 10.5 µm and TIR-2 11.5 µm) radiances. The coefficients of the regression equations are determined from results of the Radiative Transfer Model simulation with various atmospheric conditions
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_OLR.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2B_HEM http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg 3RIMG_24AUG2022_0745_L2B_HEM.h5 This product is derived on the basis of Hydro-Estimator method. It measures precipitation over Indian Region encompassing area between longitudes 30?E -to130?E and latitudes 50?N- 50?S. http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L2B_HEM
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg
- **productName**: 3RIMG_24AUG2022_0745_L2B_HEM.h5
- **description**: This product is derived on the basis of Hydro-Estimator method. It measures precipitation over Indian Region encompassing area between longitudes 30?E -to130?E and latitudes 50?N- 50?S.
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_HEM.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2C_FOG http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg Wed, 24 Aug 2022 07:45:00 GMT -10.000000 44.000000 45.000000 110.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg 3RIMG_24AUG2022_0745_L2C_FOG.h5 Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L2C_FOG
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg
- **productName**: 3RIMG_24AUG2022_0745_L2C_FOG.h5
- **description**: Night time FOG is derived from TIR-1 and MIR channel brightness temperature over Indian region. However, for day time visible channel reflectance and TIR-1 channel brightness temperature has been used. The algorithm involves detection of different thresholds following an image based approach to detect FOG
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2C_FOG.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2B_CTP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg Wed, 24 Aug 2022 07:45:00 GMT -79.000000 -6.000000 78.000000 154.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg 3RIMG_24AUG2022_0745_L2B_CTP.h5 Cloud top properties derived using INSAT3R IMAGER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L2B_CTP
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg
- **acquisitionStartDate**: Wed, 24 Aug 2022 07:45:00 GMT
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg
- **productName**: 3RIMG_24AUG2022_0745_L2B_CTP.h5

- **description**: Cloud top properties derived using INSAT3R IMAGER
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_CTP.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2C_CMP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg Wed, 24 Aug 2022 07:15:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg 3RIMG_24AUG2022_0715_L2C_CMP.h5 Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3DR imager http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg Wed, 24 Aug 2022 08:14:00 GMT
- **title**: 3RIMG_L2C_CMP
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg
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- **lowerCorner**: -50.000000 20.000000
- **upperCorner**: 50.000000 130.000000
- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg
- **productName**: 3RIMG_24AUG2022_0715_L2C_CMP.h5
- **description**: Day-time cloud microphysical parameters from visible and SWIR channels of INSAT-3DR imager
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2C_CER.jpg
- **pubDate**: Wed, 24 Aug 2022 08:14:00 GMT
- **item**: 3RIMG_L1B_STD http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg 3RIMG_24AUG2022_0745_L1B_STD.h5 Level1 data for Imager 6 channels at half hour interval http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L1B_STD
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg
- **acquisitionStartDate**: Wed, 24 Aug 2022 07:45:00 GMT
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg
- **productName**: 3RIMG_24AUG2022_0745_L1B_STD.h5
- **description**: Level1 data for Imager 6 channels at half hour interval
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1B_STD_IR1.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2G_WDP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 30.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg 3RIMG_24AUG2022_0745_L2G_WDP.h5 Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3DR AMVs. http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg Wed, 24 Aug 2022 08:35:00 GMT
- **title**: 3RIMG_L2G_WDP
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg
- **acquisitionStartDate**: Wed, 24 Aug 2022 07:45:00 GMT
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg
- **productName**: 3RIMG_24AUG2022_0745_L2G_WDP.h5
- **description**: Wind Derived Product, Upper level divergence, lower level convergence, wind shear, mid-level wind shear, 24 hour wind shear tendency, vorticity(200,500,700,850mb) using INSAT-3DR AMVs.
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2G_MIDSH.jpg
- **pubDate**: Wed, 24 Aug 2022 08:35:00 GMT
- **item**: 3RIMG_L2B_IMC http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg Wed, 24 Aug 2022 07:15:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg 3RIMG_24AUG2022_0715_L2B_IMC.h5 INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3DR. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case

studies and research works carried out, a further refinement of the algorithm was made. http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg Wed, 24 Aug 2022 08:32:00 GMT

- **title**: 3RIMG_L2B_IMC
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg
- **acquisitionStartDate**: Wed, 24 Aug 2022 07:15:00 GMT
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg
- **productName**: 3RIMG_24AUG2022_0715_L2B_IMC.h5
- **description**: INSAT multispectral Rainfall Algorithm Technique (IMSRA) is one of the main operational rainfall retrieval algorithms for INSAT-3DR. This algorithm estimates precipitation based on non-linear power law relationship established between infrared (IR) brightness temperatures (Tbs, 10.7 ?m observations) and TRMM-PR surface rain rate. Based on a number of case studies and research works carried out, a further refinement of the algorithm was made.
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2B_IMC.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2P_IRW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif Wed, 24 Aug 2022 07:15:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif 3RIMG_24AUG2022_0715_L2P_IRW.h5 INSAT-3DR Infrared channel derived Wind http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif Wed, 24 Aug 2022 08:05:00 GMT
- **title**: 3RIMG_L2P_IRW
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif
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- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif
- **productName**: 3RIMG_24AUG2022_0715_L2P_IRW.h5
- **description**: INSAT-3DR Infrared channel derived Wind
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0715_L2P_IRW.gif
- **pubDate**: Wed, 24 Aug 2022 08:05:00 GMT
- **item**: 3RIMG_L2P_IRW http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif Wed, 24 Aug 2022 07:45:00 GMT -48.000000 21.000000 49.000000 128.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif 3RIMG_24AUG2022_0745_L2P_IRW.h5 INSAT-3DR Infrared channel derived Wind http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif Wed, 24 Aug 2022 08:35:00 GMT
- **title**: 3RIMG_L2P_IRW
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- **description**: INSAT-3DR Infrared channel derived Wind
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2P_IRW.gif
- **pubDate**: Wed, 24 Aug 2022 08:35:00 GMT
- **item**: 3RIMG_L1C_SGP http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg Wed, 24 Aug 2022 07:45:00 GMT -50.000000 20.000000 50.000000 130.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg 3RIMG_24AUG2022_0745_L1C_SGP.h5 Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L1C_SGP
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg
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- **productName**: 3RIMG_24AUG2022_0745_L1C_SGP.h5
- **description**: Level1 IMAGER 6 channel data of TIR1, TIR2, WV, VIS, SWIR, MIR Bands in Mercator projection
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L1C_SGP_IR1.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2B_UTH http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg Wed, 24 Aug 2022 07:45:00 GMT -80.000000 -6.000000 80.000000 154.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg 3RIMG_24AUG2022_0745_L2B_UTH.h5 Upper Tropospheric Humidity from IMAGER http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L2B_UTH
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg
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- **productName**: 3RIMG_24AUG2022_0745_L2B_UTH.h5
- **description**: Upper Tropospheric Humidity from IMAGER
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_UTH.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT
- **item**: 3RIMG_L2B_LST http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg Wed, 24 Aug 2022 07:45:00 GMT -81.000000 -7.000000 81.000000 155.000000 http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg 3RIMG_24AUG2022_0745_L2B_LST.h5 Land surface temperature (LST) is a key parameter in the land surface processes. LST is very useful input to various models related to agrometeorology, ecology, hydrology and climate. http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg Wed, 24 Aug 2022 08:32:00 GMT
- **title**: 3RIMG_L2B_LST
- **link**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg
- **acquisitionStartDate**: Wed, 24 Aug 2022 07:45:00 GMT
- **where**: -81.000000 -7.000000 81.000000 155.000000
- **Envelope**: -81.000000 -7.000000 81.000000 155.000000
- **lowerCorner**: -81.000000 -7.000000
- **upperCorner**: 81.000000 155.000000
- **preview**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg
- **productName**: 3RIMG_24AUG2022_0745_L2B_LST.h5
- **description**: Land surface temperature (LST) is a key parameter in the land surface processes. LST is very useful input to various models related to agrometeorology, ecology, hydrology and climate.
- **guid**: http://mosdac.gov.in/look/3R_IMG/preview/2022/24AUG/3RIMG_24AUG2022_0745_L2B_LST.jpg
- **pubDate**: Wed, 24 Aug 2022 08:32:00 GMT

XML Content

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XML Content

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- **channel**: INSAT-3D Sounder ISROCast Feed http://mosdac.gov.in ISROCAST (ISRO Datacasting) 3dsnd_datacast MOSDAC Geophysical Products false en-us Copyright 2016 admin admin@mosdac.gov.in Sat, 09 May 2020 04:39:05 GMT Datacasting Feed Publishing Tools http://datacasting.jpl.nasa.gov/datacasting.html 30 http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 INSAT-3D Sounder 3DSND_L1B_SA1
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- **dataSource**: MOSDAC Geophysical Products
- **dataOnlyInFeed**: false
- **language**: en-us
- **copyright**: Copyright 2016
- **managingEditor**: admin
- **webMaster**: admin@mosdac.gov.in
- **pubDate**: Sat, 09 May 2020 04:39:05 GMT
- **generator**: Datacasting Feed Publishing Tools
- **docs**: http://datacasting.jpl.nasa.gov/datacasting.html
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- **image**: http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 INSAT-3D Sounder
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http://mosdac.gov.in/look/3D_SND/preview/2020/08MAY/3DSND_08MAY2020_1200_L2B_SA1_DMI.jpg Fri, 08 May 2020 13:22:00 GMT

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Announcements

Monsoon Onset Prediction over Kerala (2024) | PDF, Tool: PDFViewer, Size: 763.84 KB | 20-May-24
Onset over Kerala - Monsoon 2023 | PDF, Tool: PDFViewer, Size: 463.15 KB | 15-May-23
INSAT Product Version Information | PDF, Tool: PDFViewer, Size: 1.61 MB | 01-Sep-22
SFTP Services for Data Download | PDF, Tool: PDFViewer, Size: 347.33 KB | 08-Nov-21
Amphan, Inundation region due to landfall of Amphan cyclone | PDF, Tool: PDFViewer, Size: 853.28 KB | 19-May-20
MOSDAC: A Decade of Service to the Nation | PDF, Tool: PDFViewer, Size: 930.83 KB | 22-Apr-16
Digital Object Identifier (DOI) | PDF, Tool: PDFViewer, Size: 131.04 KB | 13-Apr-16

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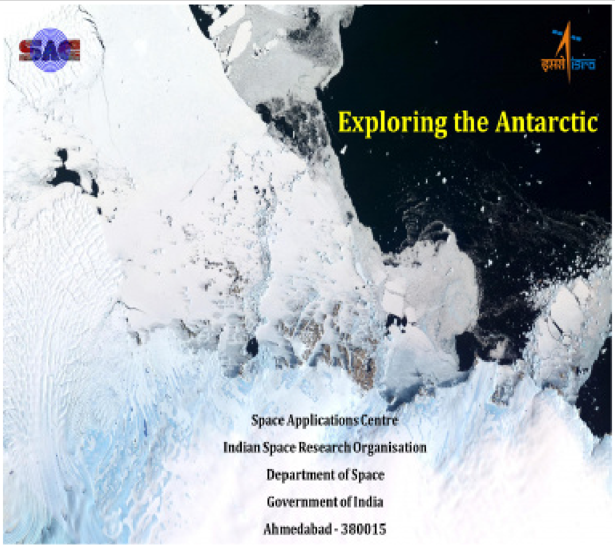
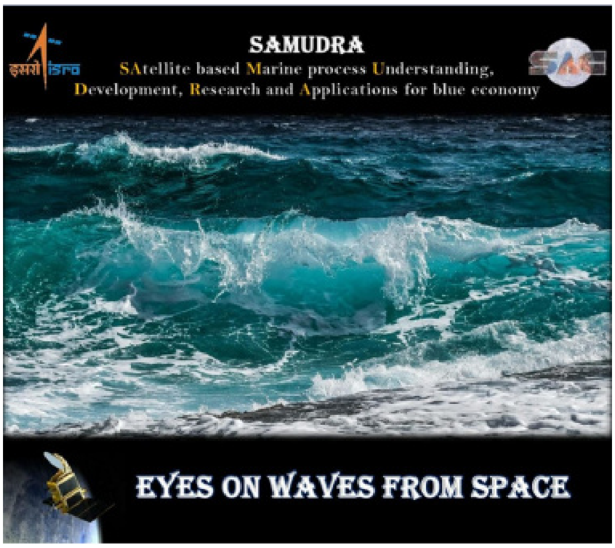


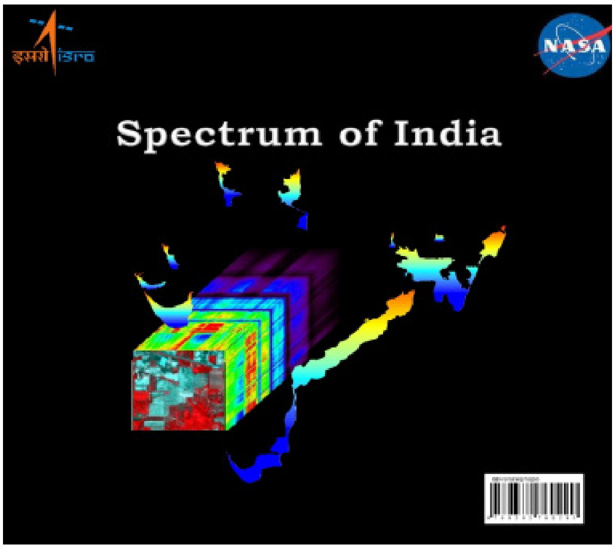
Exploring the Antarctic

Ocean from Space



Wave Atlas

Coral reef Atlas



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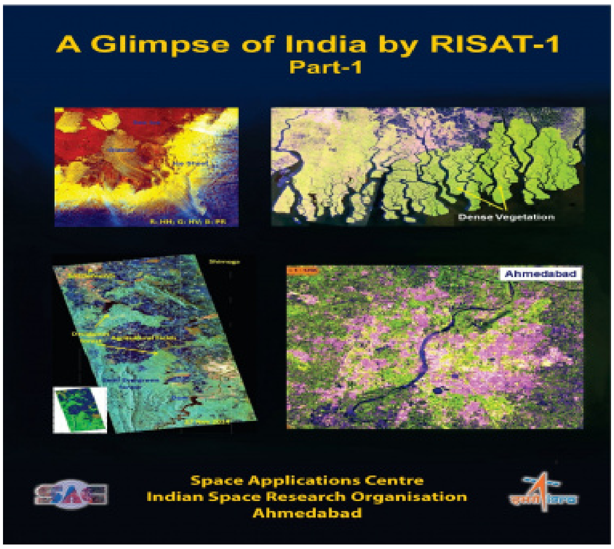
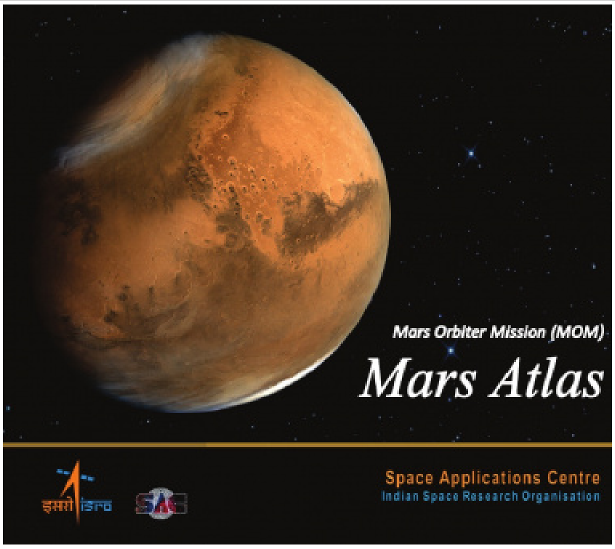
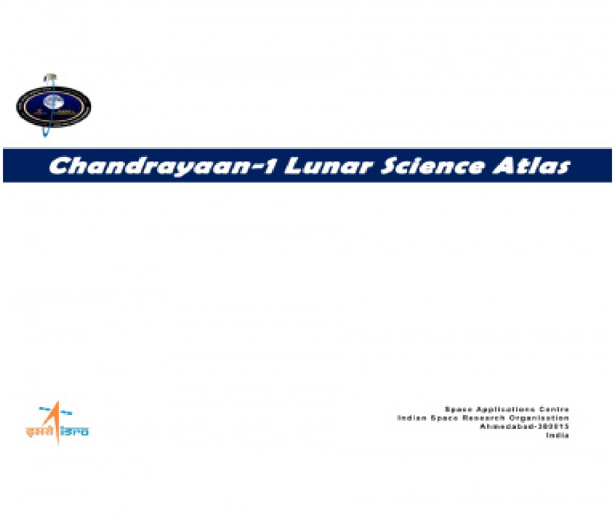


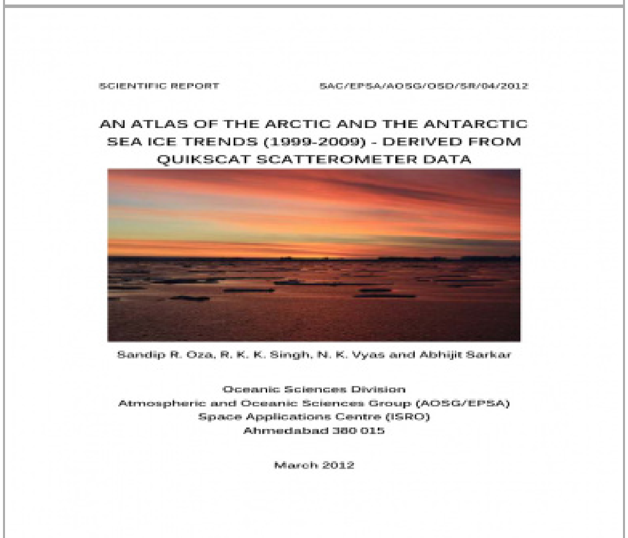
Glimpse of India by RISAT-1



Mars Atlas



Lunar Science Atlas



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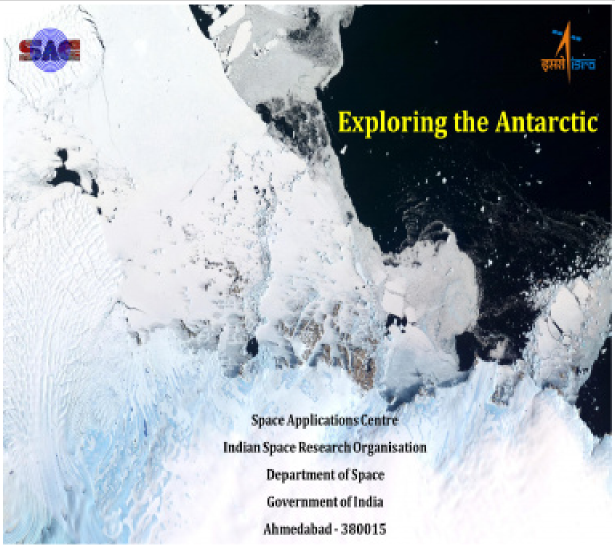

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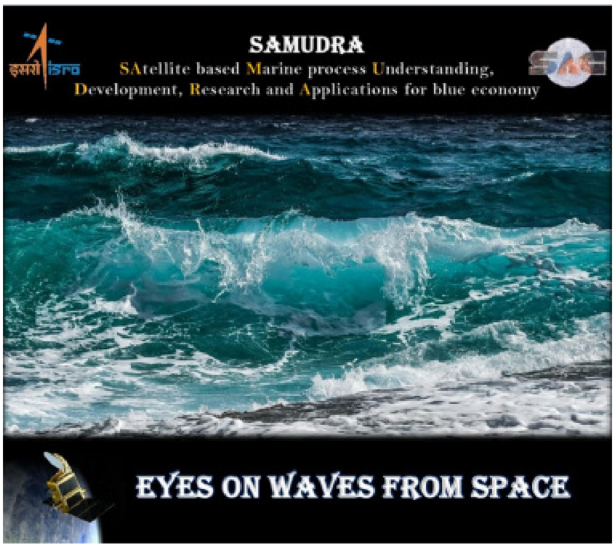
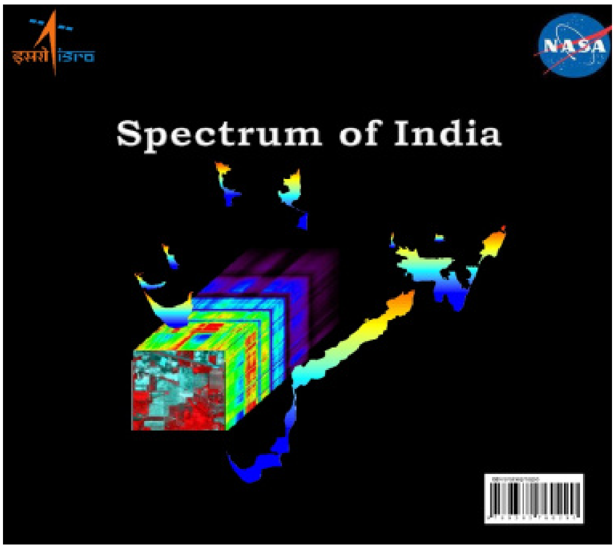
Ocean from Space



Wave Atlas

Coral reef Atlas



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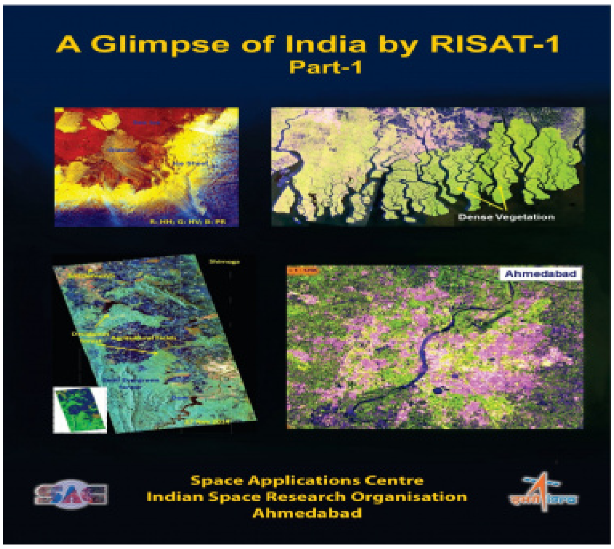

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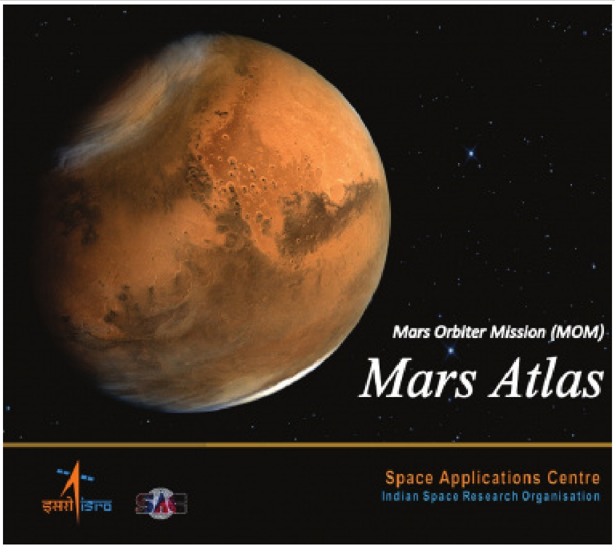
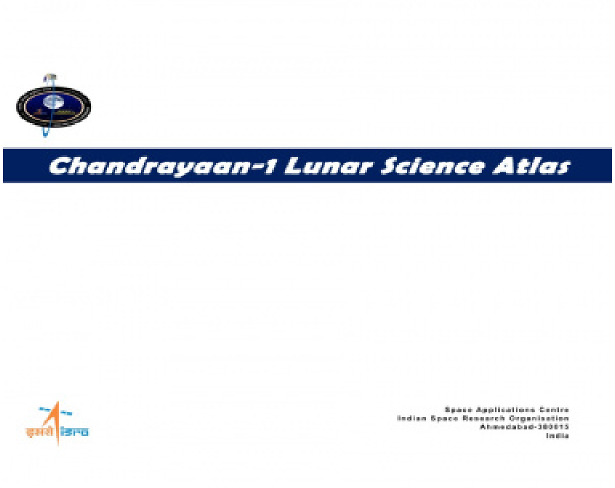
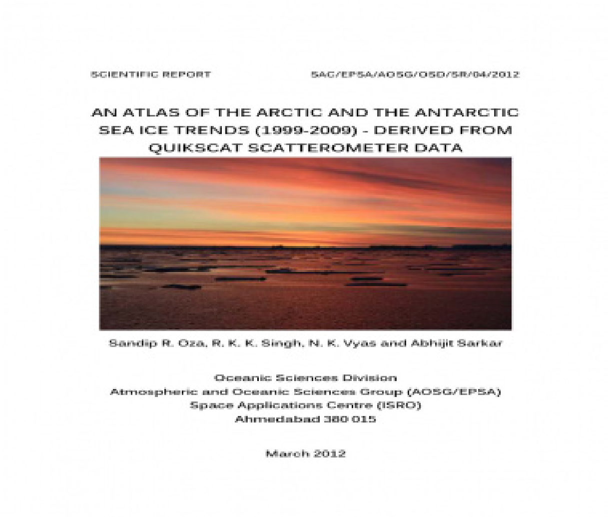


Mars Atlas



Lunar Science Atlas



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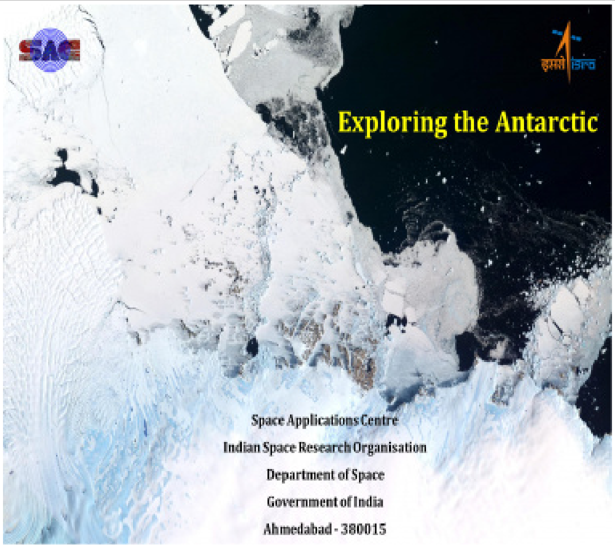

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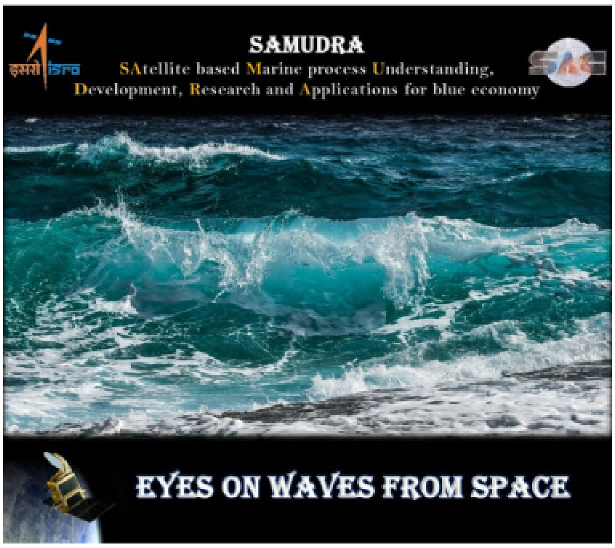
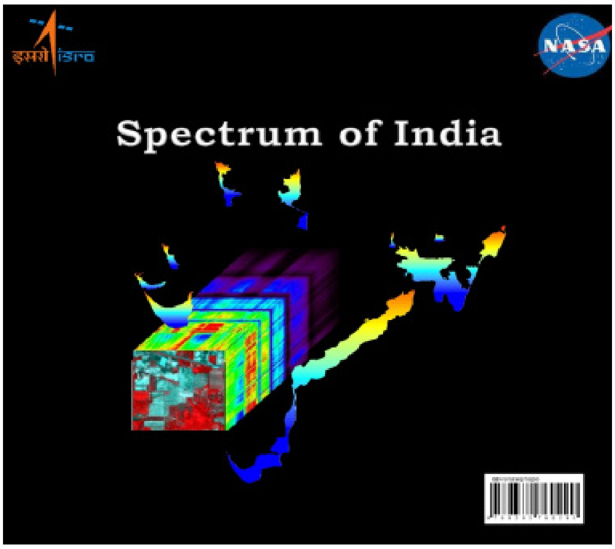


Wave Atlas

Coral reef Atlas



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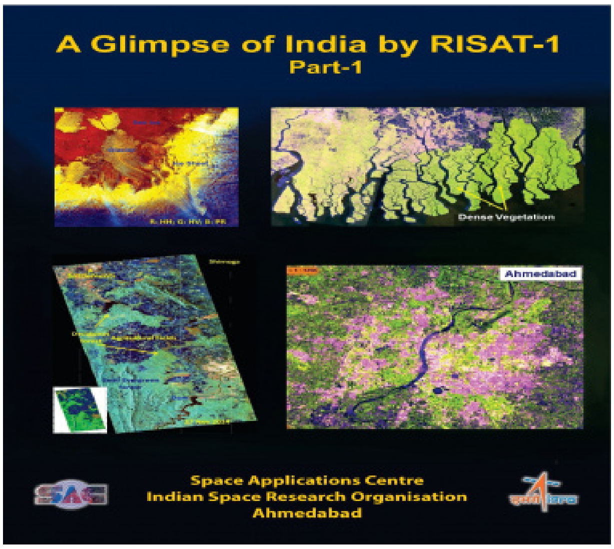

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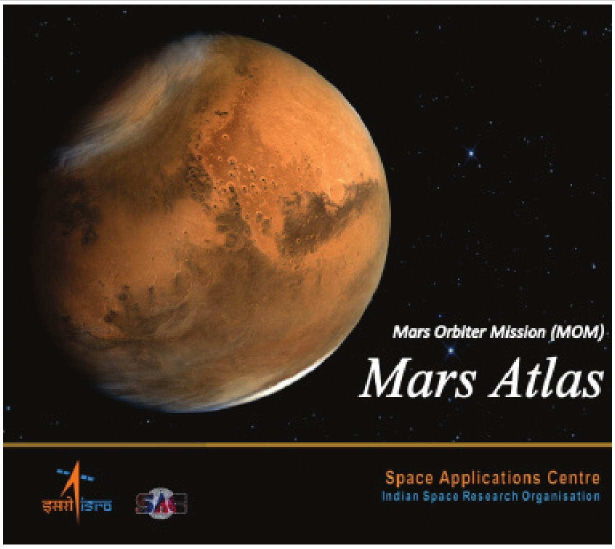

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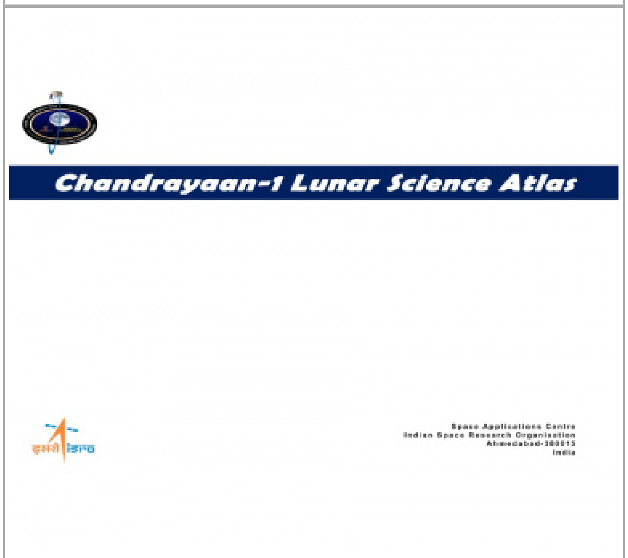
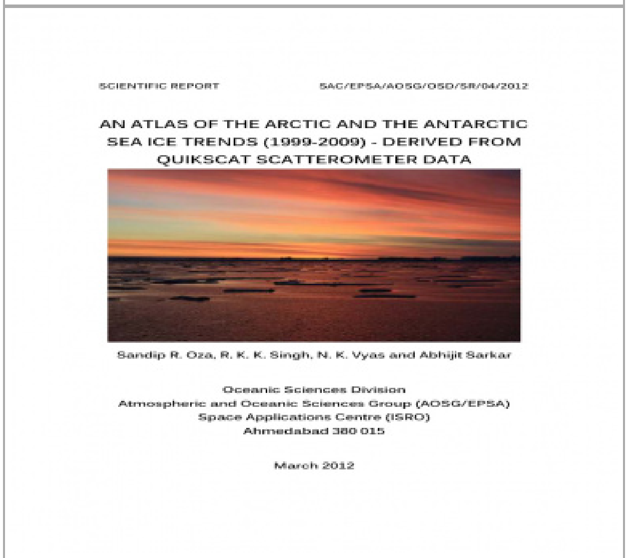


Lunar Science Atlas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AN ATLAS OF THE ARCTIC AND THE ANTARCTIC SEA ICE TRENDS (1999-2009) - DERIVED FROM QUIKSCAT SCATTEROMETER DATA

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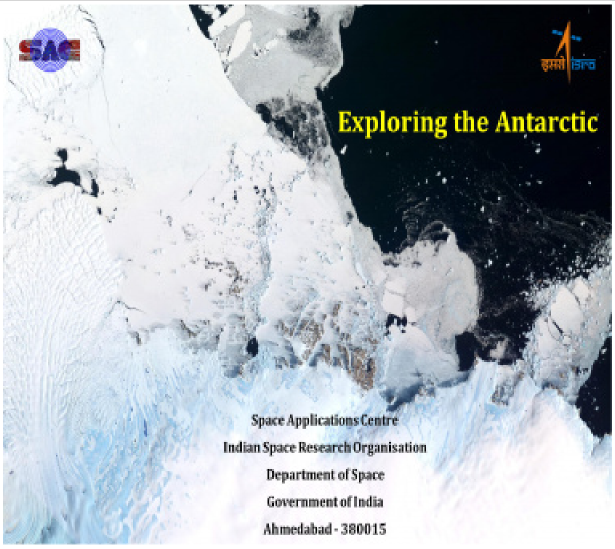

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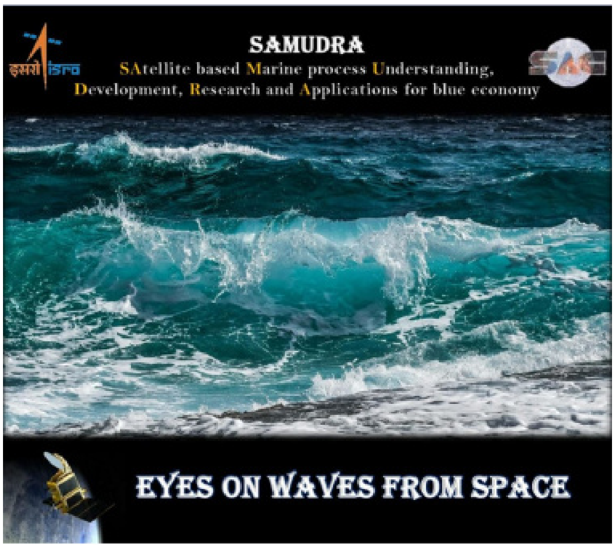

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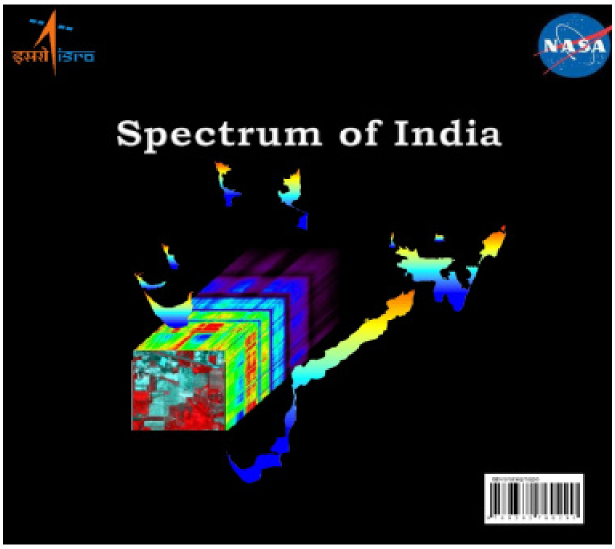

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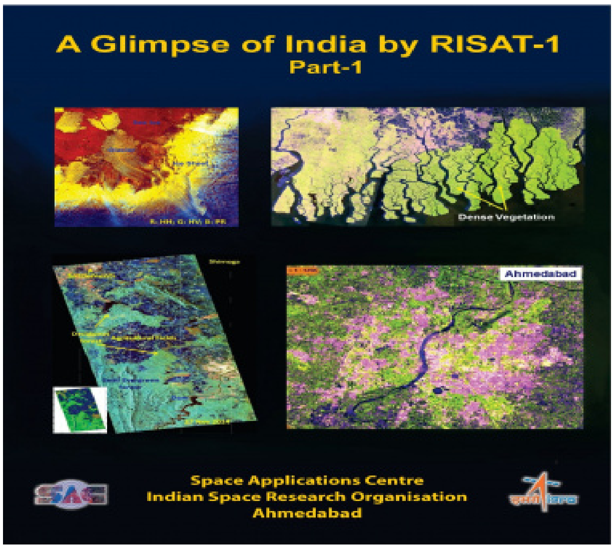

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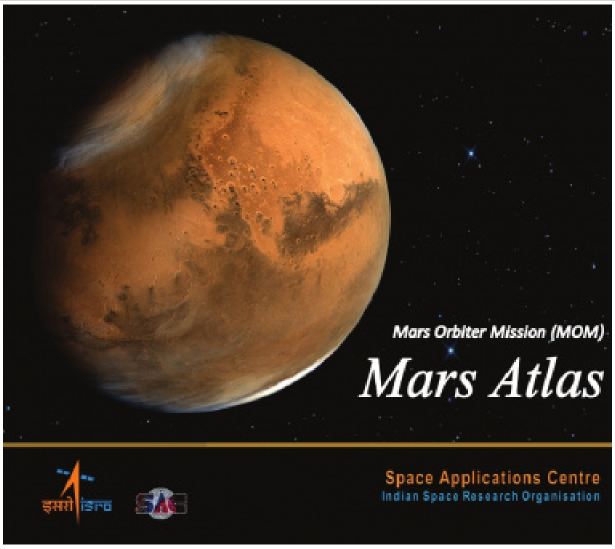

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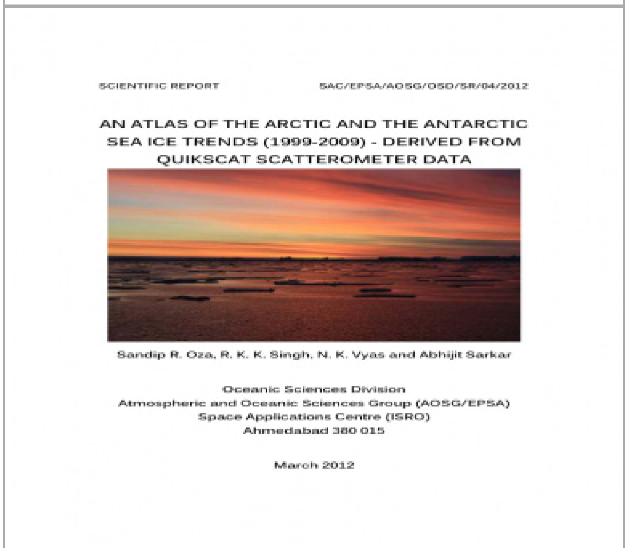

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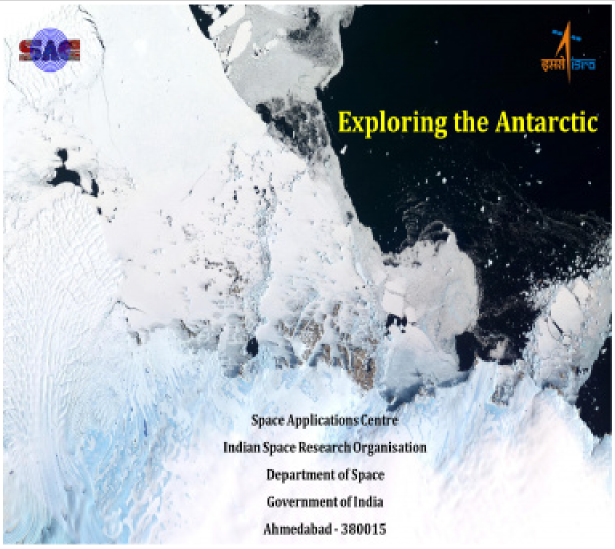

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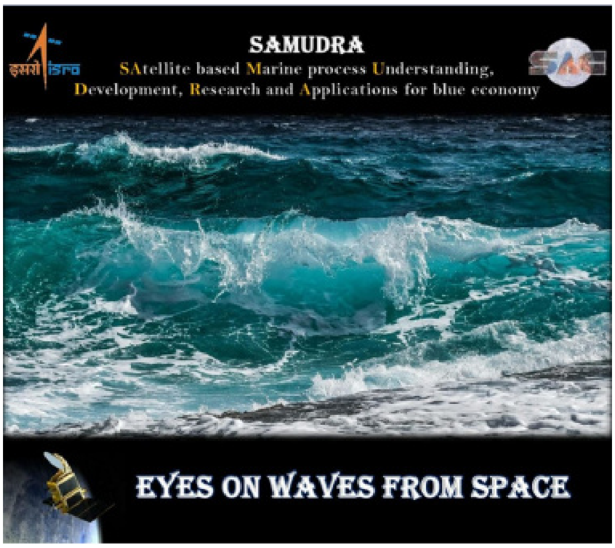

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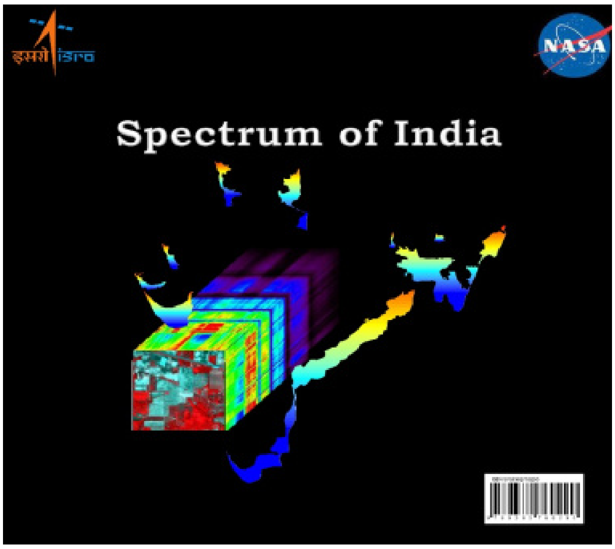

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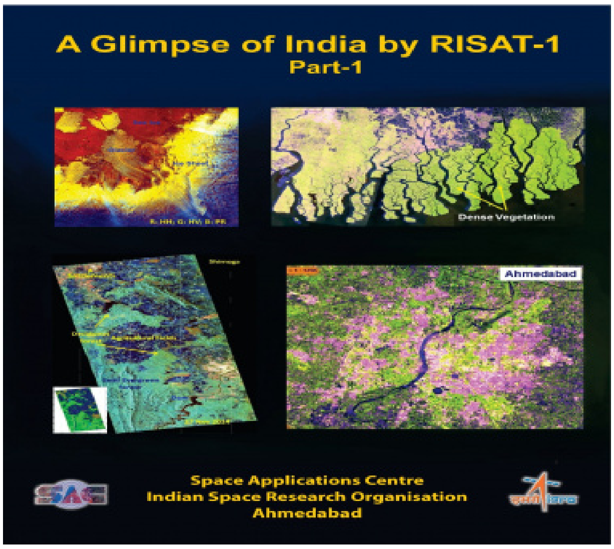

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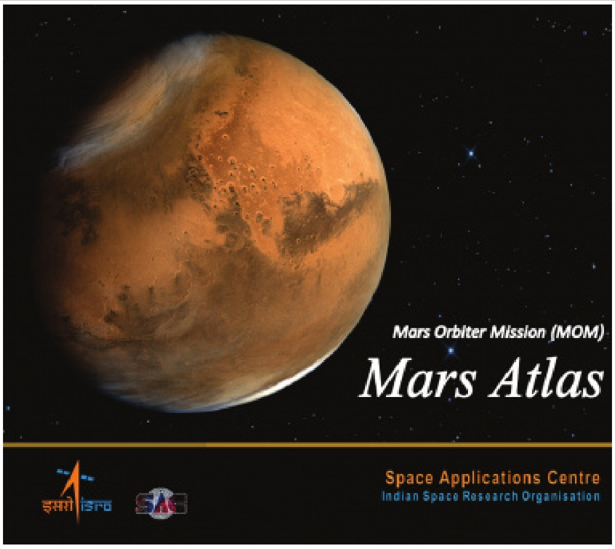

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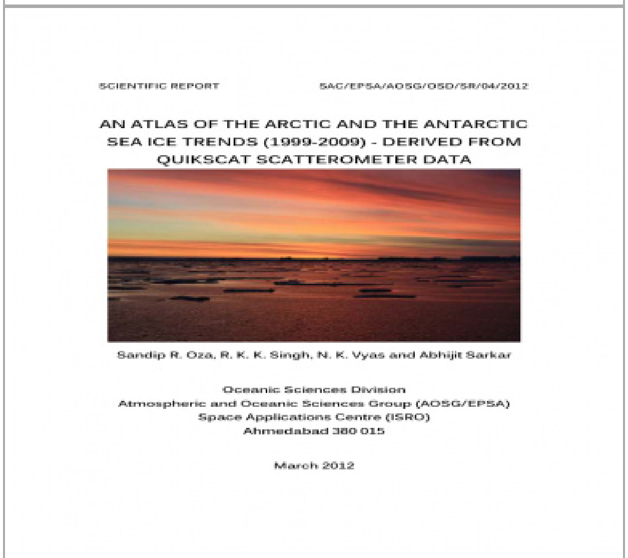

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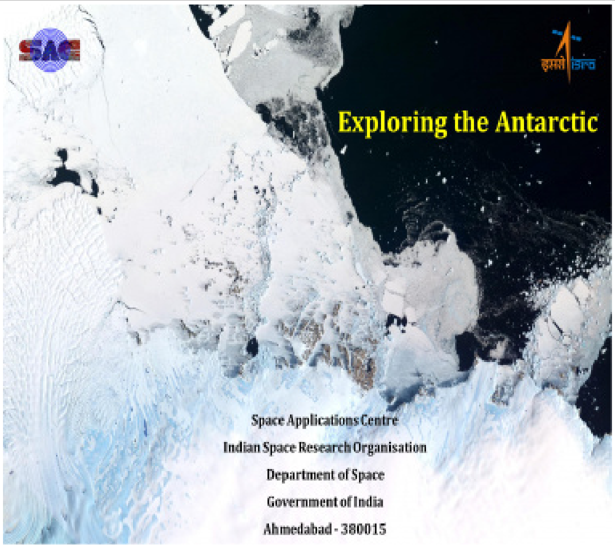

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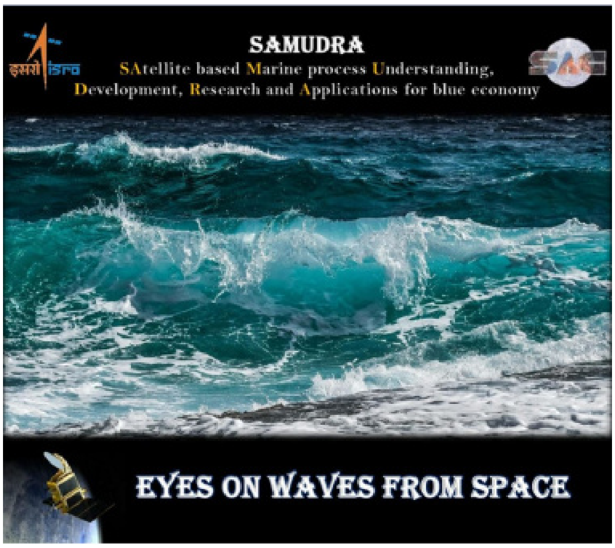

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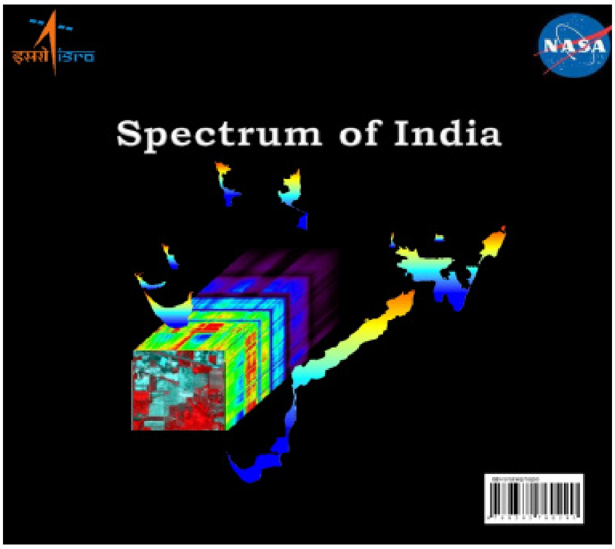

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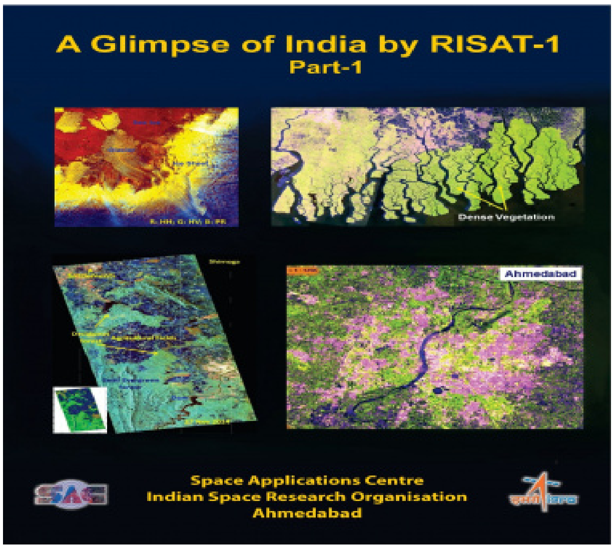

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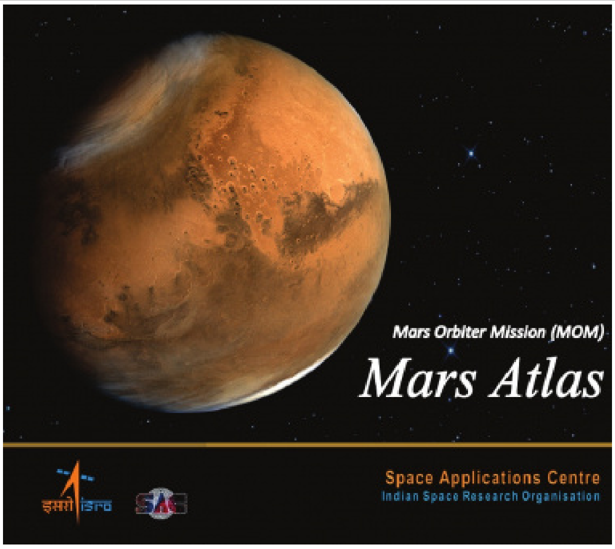

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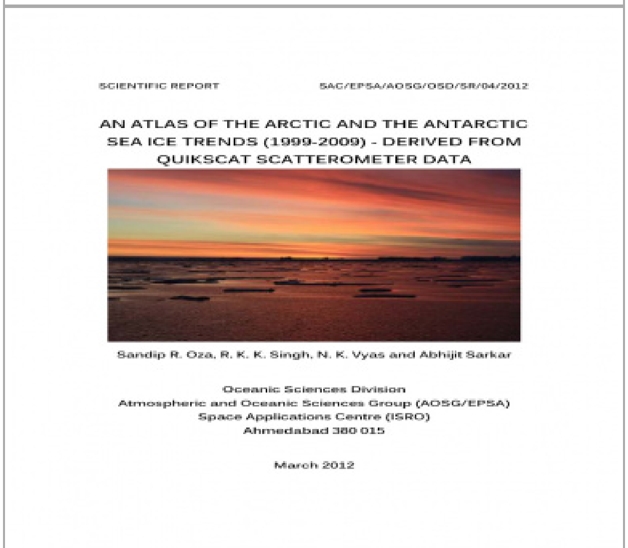
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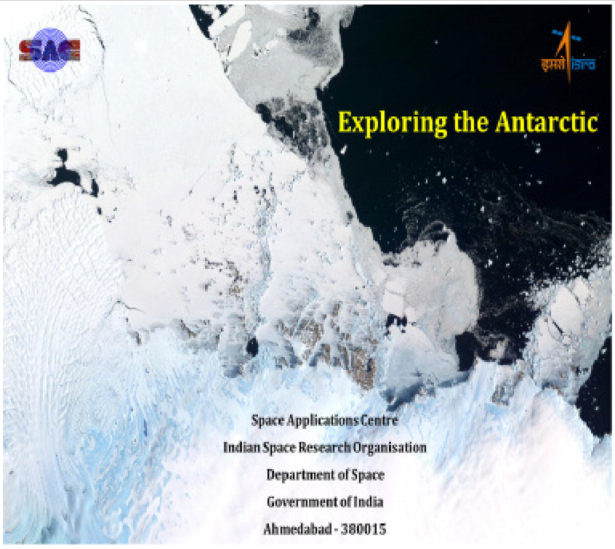

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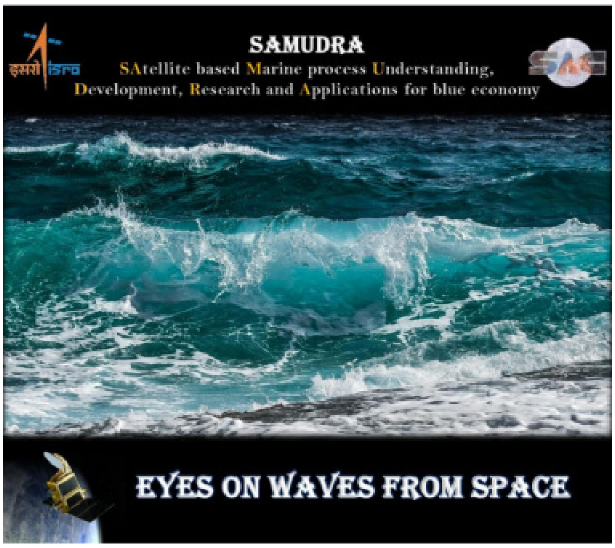

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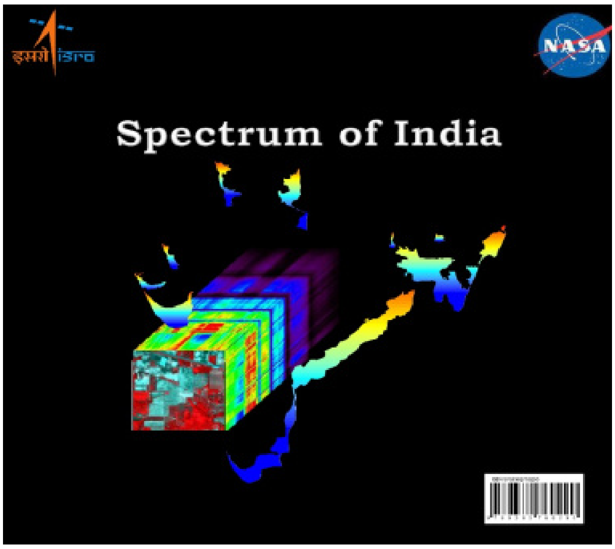

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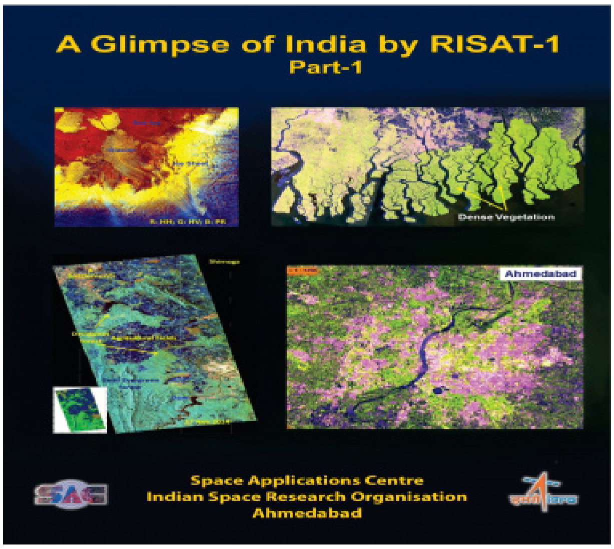

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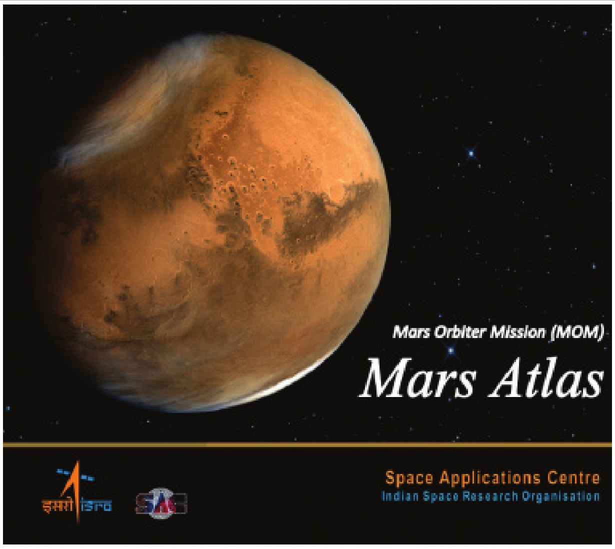

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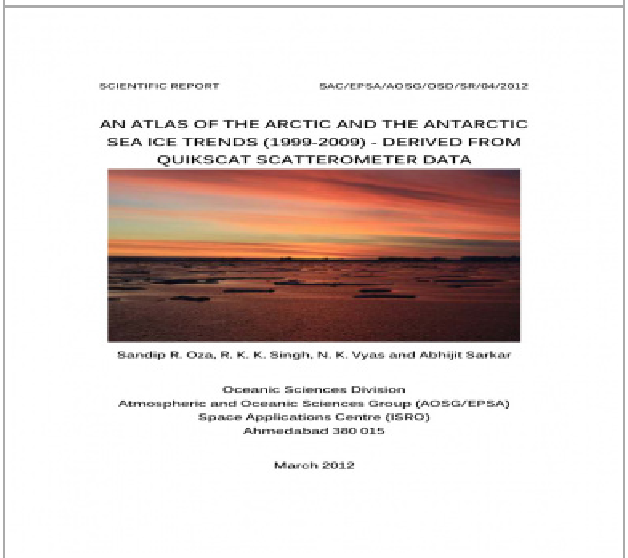

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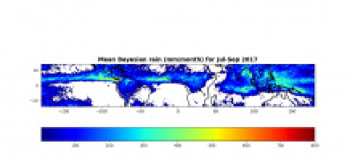
Bayesian based MT-SAPHIR rainfall



Megha- Tropiques (MT) is a joint Indo-French collaborative satellite mission, which is launched on 12 October 2011. The main objective of MT is to get more understanding on convective system, energy exchange and water cycle in the tropical region. It is equipped with Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS) (not in operational), Scanner for Radiation Budget, Radio Occultation Sensor for Atmosphere and Sondeur Atmospherique du Profil d'Humidite Intertropical par Radiometrie (SAPHIR). SAPHIR provides clear sky atmospheric humidity profiles at 6-channels near 183.31GHz water vapour resonance. The observations of SAPHIR provides an opportunity to estimate rainfall using 183.31GHz channels. A Bayesian based rainfall retrieval technique is developed using SAPHIR channel-6 (183.31±11GHz) brightness temperature observations. Estimated rainfall has been validated with IMERG and DPR products during Jan-Dec 2017. The global distribution of rainfall patterns are captured well by the estimation.

Data Access

Click Here to access the Science Products. Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.1 (beta)

Data Sources

SAPHIR Level 1A TB data

Processing Steps

SAPHIR Level-1 brightness temperature of channel-6 (Tb6) and spatial variability of Tb6 (Std-tb6) within ±3 pixels (~30km at nadir and ~60km off nadir) is calculated.
Bayesian algorithm is trained using GPM-IMERG half hourly rainfall Bayesian approach is applied to estimate rainfall from SAPHIR sounder observations.

References

Kummerow, C.D., W. S. Olson, and L. Giglio, A simplified scheme for obtaining precipitation and vertical hydrometeor profiles from passive microwave sensors, IEEE Trans. Geosci. Remote Sens., vol. 34, no. 5, pp. 1213–1232, Sep. 1996.

Pierdicca, N., F. S. Marzano, G. D'Auria, P. Basili, P. Ciotti, and A. Mugnai, Precipitation retrieval from spaceborne microwave radiometers using maximum a posteriori probability estimation, IEEE Trans. Geosci. Remote Sens., vol. 34, no. 4, pp. 831–846, Jul. 1996.

Olson, W.S., C. D. Kummerow, G. M. Heymsfield, and L. Giglio, A method for combined passive-active microwave retrievals of cloud and precipitation parameters, J. Appl. Meteorol., vol. 35, pp. 1763–1789, 1996.

Marzano, F.S., A. Mugnai, G. Panegrossi, N. Pierdicca, E. A. Smith, and J. Turk, Bayesian estimation of precipitating cloud parameters from combined measurements of spaceborne microwave radiometer and radar, IEEE Trans. Geosci. Remote Sens., vol. 37, no. 1, pp. 596–613, Jan. 1999.

Viltard, N., C. Burlaud, and C. D. Kummerow, Rain retrieval from TMI brightness temperature measurements using a TRMM PR–based database. J. Appl. Meteor. Climatol, 45, 455–466, doi:10.1175/JAM2346.1, 2006.

Gopalan, K., N.-Y. Wang, R. Ferraro, and C. Liu, Status of the TRMM 2A12 land precipitation algorithm. J. Atmos. Oceanic Technol., 27, 1343–1354, doi:10.1175/2010JTECHA1454.1, 2010.

Derivation Techniques and Algorithm

User should refer report "Rainfall Estimation from Megha-Tropiques Microwave Sounder-SAPHIR using Bayesian Approach" for complete reference to the algorithm.

Limitations

Rainfall estimates are not provided in the 3 outermost scan positions of the SAPHIR scan.

Known problems with data

No known issues at this time.

File Naming Convention

HDF5 file:

MTSAPS__VVV_*_YYYY_MM_DD_*.Bayesian_RR.h5

VVV is the Level 1 version number

YYYY is the year, MM is the month and DD is the date of the orbit.

MetaData

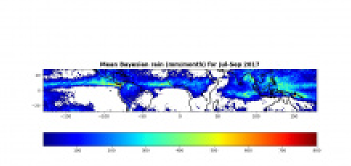
Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	June 2018
4	Data Lineage or Quality	Rain Rate
5	Title	Bayesian based MT-SAPHIR rainfall

6	Abstract	Megha- Tropiques (MT) is a joint Indo-French collaborative satellite mission, which is launched on 12 October 2011. The main objective of MT is to get more understanding on convective system, energy exchange and water cycle in the tropical region. It is equipped with Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS) (not in operational), Scanner for Radiation Budget and Radio Occultation Sensor for Atmosphere and Sondeur Atmospherique du Profil d'Humidite Intertropical par Radiometrie (SAPHIR). SAPHIR provides clear sky atmospheric humidity profiles at 6-channels near 183.31GHz water vapour resonance. The observations of SAPHIR provides an opportunity to estimate rainfall using 183.31GHz channels. A Bayesian based rainfall retrieval technique is developed using SAPHIR channel-6 (183.31±11GHz) brightness temperature observations. Estimated rainfall has been validated with IMERG and DPR products during Jan-Dec 2017. The global distribution of rainfall patterns are captured well by the estimation.
7	Dataset Contact	Neerja Sharma and Kaushik Gopalan, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, kaushikg@sac.isro.gov.in
8	Update Frequency	January 2017 to May 2018 have been processed. Data will be updated daily with ~24 hours lag.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Data is provided at native spatial resolution of the SAPHIR instrument.
11	Language	English
12	Topic Category	Rainfall
13	Keywords	Microwave sounder, Bayesian technique, rainfall
14	Date or period	From January 2017 onwards.
15	Responsible Party	Neerja Sharma and Kaushik Gopalan,GRD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Rainfall retrieval from MT-SAPHIR observations
16b	Individual name	Neerja Sharma, GRD/AOSG/EPSA, SAC(ISRO), Ahmedabad-380015, India. Ph:+91 79 26916115. Email:neerjasharma@sac.isro.gov.in Kaushik Gopalan, GRD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6110. Email: kaushikg@sac.isro.gov.in
16c	Position	Scientist/Engineer, GRD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	NA
17	Geographic Extent	Tropical region (28S to 28N)
18	Geographic name, geographic Identifier	lat_min: 28S, lat_max: 28N, lon_min: 0, lon_max: 360
19	Bounding box	lat_min: 28S, lat_max: 28N, lon_min: 0, lon_max: 360
20	Temporal Extent	January 2017 onwards
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in HDF5 format

23	Processing Level	Level 2 (Data product derived from MT SAPHIR)
24	Reference System	Datum: WGS84

Tags:
Opendata Atmosphere

Bayesian based MT-SAPHIR rainfall



Megha- Tropiques (MT) is a joint Indo-French collaborative satellite mission, which is launched on 12 October 2011. The main objective of MT is to get more understanding on convective system, energy exchange and water cycle in the tropical region. It is equipped with Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS) (not in operational), Scanner for Radiation Budget, Radio Occultation Sensor for Atmosphere and Sondeur Atmospherique du Profil d'Humidite Intertropical par Radiometrie (SAPHIR). SAPHIR provides clear sky atmospheric humidity profiles at 6-channels near 183.31GHz water vapour resonance. The observations of SAPHIR provides an opportunity to estimate rainfall using 183.31GHz channels. A Bayesian based rainfall retrieval technique is developed using SAPHIR channel-6 (183.31±11GHz) brightness temperature observations. Estimated rainfall has been validated with IMERG and DPR products during Jan-Dec 2017. The global distribution of rainfall patterns are captured well by the estimation.

Data Access

Click Here to access the Science Products. Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.1 (beta)

Data Sources

SAPHIR Level 1A TB data

Processing Steps

SAPHIR Level-1 brightness temperature of channel-6 (Tb6) and spatial variability of Tb6 (Std-tb6) within ±3 pixels (~30km at nadir and ~60km off nadir) is calculated.
Bayesian algorithm is trained using GPM-IMERG half hourly rainfall Bayesian approach is applied to estimate rainfall from SAPHIR sounder observations.

References

Kummerow, C.D., W. S. Olson, and L. Giglio, A simplified scheme for obtaining precipitation and vertical hydrometeor profiles from passive microwave sensors, IEEE Trans. Geosci. Remote Sens., vol. 34, no. 5, pp. 1213–1232, Sep. 1996.

Pierdicca, N., F. S. Marzano, G. D'Auria, P. Basili, P. Ciotti, and A. Mugnai, Precipitation retrieval from spaceborne microwave radiometers using maximum a posteriori probability estimation, IEEE Trans. Geosci. Remote Sens., vol. 34, no. 4, pp. 831–846, Jul. 1996.

Olson, W.S., C. D. Kummerow, G. M. Heymsfield, and L. Giglio, A method for combined passive-active microwave retrievals of cloud and precipitation parameters, J. Appl. Meteorol., vol. 35, pp. 1763–1789, 1996.

Marzano, F.S., A. Mugnai, G. Panegrossi, N. Pierdicca, E. A. Smith, and J. Turk, Bayesian estimation of precipitating cloud parameters from combined measurements of spaceborne microwave radiometer and radar, IEEE Trans. Geosci. Remote Sens., vol. 37, no. 1, pp. 596–613, Jan. 1999.

Viltard, N., C. Burlaud, and C. D. Kummerow, Rain retrieval from TMI brightness temperature measurements using a TRMM PR–based database. J. Appl. Meteor. Climatol, 45, 455–466, doi:10.1175/JAM2346.1, 2006.

Gopalan, K., N.-Y. Wang, R. Ferraro, and C. Liu, Status of the TRMM 2A12 land precipitation algorithm. J. Atmos. Oceanic Technol., 27, 1343–1354, doi:10.1175/2010JTECHA1454.1, 2010.

Derivation Techniques and Algorithm

User should refer report "Rainfall Estimation from Megha-Tropiques Microwave Sounder-SAPHIR using Bayesian Approach" for complete reference to the algorithm.

Limitations

Rainfall estimates are not provided in the 3 outermost scan positions of the SAPHIR scan.

Known problems with data

No known issues at this time.

File Naming Convention

HDF5 file:

MTSAPS__VVV_*_YYYY_MM_DD_*.Bayesian_RR.h5

VVV is the Level 1 version number

YYYY is the year, MM is the month and DD is the date of the orbit.

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	June 2018
4	Data Lineage or Quality	Rain Rate
5	Title	Bayesian based MT-SAPHIR rainfall

6	Abstract	Megha- Tropiques (MT) is a joint Indo-French collaborative satellite mission, which is launched on 12 October 2011. The main objective of MT is to get more understanding on convective system, energy exchange and water cycle in the tropical region. It is equipped with Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS) (not in operational), Scanner for Radiation Budget and Radio Occultation Sensor for Atmosphere and Sondeur Atmospherique du Profil d'Humidite Intertropical par Radiometrie (SAPHIR). SAPHIR provides clear sky atmospheric humidity profiles at 6-channels near 183.31GHz water vapour resonance. The observations of SAPHIR provides an opportunity to estimate rainfall using 183.31GHz channels. A Bayesian based rainfall retrieval technique is developed using SAPHIR channel-6 (183.31±11GHz) brightness temperature observations. Estimated rainfall has been validated with IMERG and DPR products during Jan-Dec 2017. The global distribution of rainfall patterns are captured well by the estimation.
7	Dataset Contact	Neerja Sharma and Kaushik Gopalan, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, kaushikg@sac.isro.gov.in
8	Update Frequency	January 2017 to May 2018 have been processed. Data will be updated daily with ~24 hours lag.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Data is provided at native spatial resolution of the SAPHIR instrument.
11	Language	English
12	Topic Category	Rainfall
13	Keywords	Microwave sounder, Bayesian technique, rainfall
14	Date or period	From January 2017 onwards.
15	Responsible Party	Neerja Sharma and Kaushik Gopalan,GRD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Rainfall retrieval from MT-SAPHIR observations
16b	Individual name	Neerja Sharma, GRD/AOSG/EPSA, SAC(ISRO), Ahmedabad-380015, India. Ph:+91 79 26916115. Email:neerjasharma@sac.isro.gov.in Kaushik Gopalan, GRD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6110. Email: kaushikg@sac.isro.gov.in
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16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	NA
17	Geographic Extent	Tropical region (28S to 28N)
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24	Reference System	Datum: WGS84

Tags:
Opendata Atmosphere

Relative

	Display name	modified
	SCATSAT1	Fri, 2017-11-03 15:29

1 folder

Relative

	Display name	modified
	SCATSAT1	Fri, 2017-11-03 15:29

1 folder

Govt. of India
मॉस्डैक MOSDAC
अंतरिक्ष उपयोग केंद्र Space Applications Centre
इसरो isro
अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Relative

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	SCATSAT1	Fri, 2017-11-03 15:29

1 folder

Relative

	Display name	modified
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Space Applications Centre (SAC) is an ISRO Centre located at Ahmedabad, dealing with a wide variety of themes from satellite payload development, operational data reception and processing to societal applications. SAC is responsible for the development, realization and qualification of communication, navigation, earth observation and planetary payloads and related data processing and ground systems in the areas of communications, broadcasting, remote sensing and disaster monitoring / mitigation. Meteorological and Oceanographic Satellite Data Archival Centre (MOSDAC) is a Data Centre of Space Applications Centre (SAC) and has facility for satellite data reception, processing, analysis and dissemination. MOSDAC is operationally supplying earth observation data from Indian meteorology and oceanography satellites, to cater to national and international research requirements.

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MOSDAC Operator

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Meteorological & Oceanographic Satellite Data Archival Centre

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Data Access Policy

Access Profile	Datasets	Latency
Registered General Users	Access to limited	Latency of 3 days
Registered Privileged Users	Access to all data	NRT Access
Anonymous Users	Access to metadata/image and Open Data	NRT Access

Data access will be provided as per above policies (all that applies).

Data Access Guidelines (Bilingual; Size:415KB Format:PDF Tool:PDFViewer) (English; Size:323KB Format:PDF Tool:PDFViewer)

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Data Quality

	Display name	modified
	SCATSAT1	Thu, 2017-04-06 15:31
	INSAT-3DR	Mon, 2017-03-27 11:18
	INSAT-3D	Mon, 2017-03-27 11:18

3 folders

Data Quality

	Display name	modified
	SCATSAT1	Thu, 2017-04-06 15:31
	INSAT-3DR	Mon, 2017-03-27 11:18
	INSAT-3D	Mon, 2017-03-27 11:18

3 folders

Data Quality

	Display name	modified
	SCATSAT1	Thu, 2017-04-06 15:31
	INSAT-3DR	Mon, 2017-03-27 11:18
	INSAT-3D	Mon, 2017-03-27 11:18

3 folders

Data Quality

	Display name	modified
	INSAT-3D	Mon, 2017-03-27 11:18
	INSAT-3DR	Mon, 2017-03-27 11:18
	SCATSAT1	Thu, 2017-04-06 15:31

3 folders

Frequently Asked Questions

What is MOSDAC?

MOSDAC is the short form of Meteorological and Oceanographic Satellite Data Archival Center. It is a ISRO data portal which provides data through its web based service https://mosdac.gov.in

How to be a registered user of MOSDAC?

There is "SignUp" form available on MOSDAC portal. Pl fill up the form and submit. You will be intimated through e-mail about the approval.

I have registered on MOSDAC . i have received an email for email verification. But when I click the link, I get error message.

Please copy the Email verification Hyperlink sent on your registered email id and paste it in a new browser window/tab and open the link to verify your email address.

I have received a 'reset password mail' But when I click the link, I get error message.

Please copy the 'Reset Password Hyperlink' sent on your registered email id and past it in a new browser window/tab and open the link to reset password.

I get error 'Invalid username or password' even though I provide correct credentials.

Your account is locked for one hour after 3 unsuccessful login attempts. Please try after one hour.

How to know forgot password?

Click Forgot Password link on MOSDAC Login Page. Enter username or email. If valid username/email is entered, user will get an email containing 'Reset Password Hyperlink'. please copy 'Reset Password Hyperlink' and paste it in new browser window/tab and open the link and follow the procedure to reset password.

How to change password?

Login with your user name and password. select 'Change Profile'. Your Profile page will be displayed. Select 'Password' from the left panel of Profile Page. Provide old and new password and click save. Your password will be changed.

I don't have username and password of MOSDAC. Can I download data?

Anonymous users (without username and password) can download only open data. In order to download all data from MOSDAC, you need to register on MOSDAC site. There is "SignUp" form available on MOSDAC portal. Pl fill up the form properly and submit. You will be intimated through e-mail about the approval.

How can I get near real time data without data ordering?

If you want near real time data, you can place "standing order" from MOSDAC for Satellite data product/in-situ. Login to MOSDAC site and place standing order. A standing order can be placed for a maximum one month duration. After that you can again place the request. This functionality is available for privileged user only.

How in-situ data can be ordered/requested?

You are required to be a registered user for ordering the data. Be a registered user by filling up on-line form. Login to MOSDAC site. Select either "In-situ data order". Select the data of your interest. Place the order . Sign the agreement. A download link will be provided. After clicking here data will be downloaded on your desk through http.

How Ordered and download the satellite data ?

You are required to be a registered user for ordering the data. Be a registered user by filling up Sing Up form Available on the home page. Login to MOSDAC site with user credentials, Select "Satellite data order" . Select the data of your interest. Add to cart. submit the request. You will be given a request id no. You will be intimated through the mail about readiness of your data. You can also check status of your request from left menu under "My request tab"

Your requested data will be uploaded to your SFTP account atsftp://ftp.mosdac.gov.in. You can download data from sftp://ftp.mosdac.gov.in using your MOSDAC portal user credentials.

Which duration data can be obtained from MOSDAC?

To view availability of data Select "Catalog --> Satellite data" from top menu bar. All data products list of a satellite will be displayed, which contains details of the data products viz: abstract, start date, end date, frequency etc.

How many AWS are installed in each state of India?

Select "Catalog --> In-situ --> distribution" from top menu bar, AWS distribution map and no. of AWS installed in each state of India will be displayed.

Which duration data is available for AWS?

AWS data is available from Jan 2008 till present date.

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Meteorological & Oceanographic Satellite Data Archival Centre
Space Applications Centre, ISRO

Error

The website encountered an unexpected error. Please try again later.

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Error

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Error

The website encountered an unexpected error. Please try again later.

Not Found

The requested URL "/gallery/index.html%3F%26prod%3D3SIMG_%2A_L1B_STD_IR1_V%2A.jpg" was not found on this server.

+
-

Satellite/Forecast

Sensor/Model

Product Type

Product

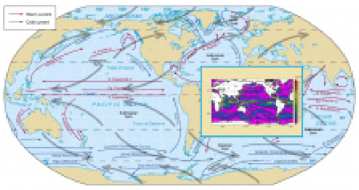
{{AutoLoadmsg}}
{{"AutoLoad" 15}}mins.

Loading...

« ll »

Latest

Global Ocean Surface Current



The Global Ocean Surface Current defined here as the average current for the top 0 to 30m layer is derived from the synergistic use of three different satellite derived parameters. The first one is the Altimeter derived gridded Map of Absolute Dynamic Topography (MADT) generated from the suite of altimeters such as JASON-2, SARAL/ALTIKA, Cryosat etc., the second data set is the gridded ocean surface vector winds derived ASCAT wind data and the last one is the gridded SST data derived from AVHRR. The methodology presented by Bonjean and Lagerloef, (2002) is used to derive ocean surface current by combining the geostrophic component from altimeter data and the ageostrophic component from scatterometer and radiometer data. The method of deriving the surface current is based on the resolution of quasi-steady quasi-linear momentum equations, neglecting local acceleration. Equatorial velocities are obtained by solving a weak formulation of the momentum equations using a basis set of orthogonal polynomials.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

1. The daily gridded map of Absolute Dynamic Topography data is obtained from
   a. AVISO/DUACS ftp site (ftp://ftp.aviso.oceanobs.com)

1. The daily gridded ocean surface vector wind data from ASCAT is obtained from
   a. ftp://ftp.ifremer.fr/ifremer/cersat/products/gridded/MWF/L3/ASCAT/Daily

1. The daily gridded SST data of Reynolds OISST is obtained from

a. ftp://eclipse.ncdc.noaa.gov/pub/OI-daily-v2/NetCDF

Data Citation

This dataset may be cited as "MOSDAC (http://www.mosdac.gov.in)",(Sikhakolli et al., 2013). Sikhakolli, R., R. Sharma, R. Kumar, B. S. Gohil, A. Sarkar, K. V. S. R. Prasad and S. Basu, Improved determination of Indian Ocean surface currents using satellite data, Rem. Sens. Lett., 4, 335-343, 2013.

Processing Steps

1. Using the daily gridded data of MADT, Vector winds and SST data the Geostrophic, wind driven and buoyancy components of the ocean surface current respectively are first calculated for the off-equatorial regions (3°N to 90°N and 3°S to 90°S).
2. Using the polynomial expansion the equatorial currents (±3° latitude band) are derived.
3. The daily ocean surface current at 0.25° resolution is then derived by applying a linear weighted average procedure to the equatorial and off equatorial current solutions with in the latitude band of ± 3° to ± 4° band.

References

1. Bentamy A.; D. Croize-Fillon, 2011: Gridded surface wind fields from Metop/ASCAT measurements. Inter. Journal of Remote Sensing. DOI 10.1080/01431161.2011.600348.
2. Bonjean, F, and G. S. E. Lagerloef (2002), Diagnostic model and analysis of the surface currents in the tropical Pacific Ocean., J. Phys. Oceanogr., 32, 2938-2954.
3. Reynolds, R. W., T. M. Smith,_C. Liu, D. B. Chelton, K. S. Casey, and M. G. Schlax (2007), Daily high-resolution-blended analyses for sea surface temperature, J. Climate., 20, 5473-5496.
4. Sikhakolli, R., R. Sharma, S. Basu, B. S. Gohil, A. Sarkar and K. V. S. Prasad, Evaluation of OSCAR ocean surface current product in the tropical Indian Ocean using in situ data , J. Earth Syst. Sci., 2013.
5. Sikhakolli, R., R. Sharma, R. Kumar, B. S. Gohil, A. Sarkar, K. V. S. R. Prasad and S. Basu, Improved determination of Indian Ocean surface currents using satellite data, Rem. Sens. Lett., 4, 335-343, 2013.
6. SSALTO/DUACS user hand book: (M)SLA and (M)ADT Near Real Time and Delayed Time products, AVISO, Nov 2009.

Derivation Techniques and Algorithm

The methodology follows the work of Bonjean and Lagerloef (2002). The basic equations are those of quasi linear and steady flow in a surface layer where the horizontal velocity U = (u,v) is allowed to vary with vertical coordinate *z*, and where vertical turbulent mixing is characterized by an eddy viscosity *A* uniform with depth. The vertical shear U_z reaches zero at a constant scaling depth *z = - H*. Using complex notations *U(x,y,z,t) = u + iv and ∇ = ∂/∂x + i ∂/∂y* , the basic equations are

$ifU = -(1/\rho_m)\,\nabla p + AU_z$	(1a)
$(1/\rho m)\,p_z = -g + \nabla\theta$	(1b)
$\nabla\theta = g\,\chi_T\,\nabla SST$,	(1c)

with - H ≤ z ≤ 0, and subject to the following boundary conditions

$U_z\,(z=0) = \tau / A$	(2a)
$U_z\,(z=-H) = 0$	(2b)

The characteristic density is $\rho_m = 1025$ kg m $^{-3}$,

The acceleration due to gravity g = 9.8 m s^{-2},
and the coefficient of thermal expansion χT = 3 x 10^{-4} K^{-1},
The vector field τ = τ^x + i τ^y represents the surface wind stress divided by ρ_m,
H has been chosen to be 70 m,
The parameter A is chosen by the empirical formulation as A = a $(|W|/W1)^b$ | w| 1 m s^{-1} where W_1 = 1 m s^{-1} , a = 8 x 10^{-5} m^2 s^{-1} , and b = 2.2
where W_1 = 1 m s^{-1} , a = 8 x 10^{-5} m^2 s^{-1} , and b = 2.2 .
The equation for the velocity shear is

U_z - (if/A) U_z = (1/A)∇θ	(3)

which is a second-order differential equation in velocity shear Uz , subject to the boundary conditions (2a,b). After solving for the shear profiles, one can find an expression for the velocity at the surface, which is

ifU_0= -g ∇ζ + (1/H) q(H/h_e)τ + ((H/2)/q(H/2he))∇θ	(4)

Here the function q is defined by q (x) = x /tanh (x) and h_e = (A/if $)^{1/2}$ is complex and its modulus is proportional to the Ekman depth h_e = sqrt(2A/|f|).

Using equation (4) and the datasets mentioned above, the daily ocean surface currents were generated. Equatorial velocities (±3° latitude band) are obtained by solving a weak formulation of the momentum equations using a basis set of orthogonal polynomials as described in Bonjean and Lagerloef (2002).

Limitations

As the equatorial currents are estimated through an approximation procedure using polynomial coefficients the correlation with in-situ currents in the equatorial region is observed to be relatively poorer especially for the meridional currents.

Known problems with data

As these input satellite data are not very reliable near to the coast, the estimated currents very near to the coast may also have problems.

Related data collections

1. OSCAR Currents: Bonjean, F, and G. S. E. Lagerloef (2002), Diagnostic model and analysis of the surface currents in the tropical Pacific Ocean., J. Phys. Oceanogr., 32, 2938-2954
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File Naming Convention

The typical file name is **'ISRO_CURRENT_TOT_YYYYMMDD.nc'** where

- **'ISRO_CURRENT'** signifies that this product is generated at SAC-ISRO
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- **'YYYY'** corresponds to the year, ex: 2015
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MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	Dr. Rajesh Sikhakolli, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: srajesh@sac.isro.gov.in
3	Metadata date	September 15, 2015
4	Data Lineage or Quality	Daily ocean surface currents derived from satellite data
5	Title	Zonal and Meridional components of Ocean Surface Current (m/s)
6	Abstract	Daily ocean surface currents(m/s) derived from the synergistic use of satellite derived Sea Level, Ocean surface vector winds and Sea surface temperature data.
7	Dataset Contact	Dr. Rajesh Sikhakolli, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: srajesh@sac.isro.gov.in
8	Update frequency	Daily
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	0.25° deg (or) ~25km
11	Language	English
12	Topic Category	Physical Oceanography
13	Keywords	Ocean Currents, Ocean Circulation
14	Date or period	Daily
15	Responsible Party	Dr. Rajesh Sikhakolli, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: srajesh@sac.isro.gov.in
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
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16b	Individual Name	Dr. Rajesh Sikhakolli, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: srajesh@sac.isro.gov.in
16c	Position	Scientist/Engineer, GRD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6052. Email: srajesh@sac.isro.gov.in
17	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Average ocean surface current for 0 to 30 m vertical layer in m/s
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19	Geographic Name, Geographic Identifier	Global Ocean
20	Bounding box	Latitude Range: -90 to 90 deg Longitude Range: 0 to 360 deg

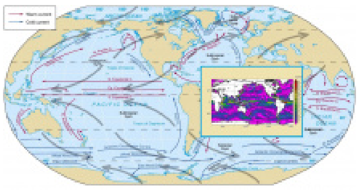
21	Temporal Extent	Daily
22	Distribution Information	Online download of data files in NetCDF format and images in GIF format
23	Processing Level	Level 4
24	Reference System	Projection - Cartesian Co-ordinate System

Tags:
Opendata Ocean

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Global Ocean Surface Current



The Global Ocean Surface Current defined here as the average current for the top 0 to 30m layer is derived from the synergistic use of three different satellite derived parameters. The first one is the Altimeter derived gridded Map of Absolute Dynamic Topography (MADT) generated from the suite of altimeters such as JASON-2, SARAL/ALTIKA, Cryosat etc., the second data set is the gridded ocean surface vector winds derived ASCAT wind data and the last one is the gridded SST data derived from AVHRR. The methodology presented by Bonjean and Lagerloef, (2002) is used to derive ocean surface current by combining the geostrophic component from altimeter data and the ageostrophic component from scatterometer and radiometer data. The method of deriving the surface current is based on the resolution of quasi-steady quasi-linear momentum equations, neglecting local acceleration. Equatorial velocities are obtained by solving a weak formulation of the momentum equations using a basis set of orthogonal polynomials.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

1. The daily gridded map of Absolute Dynamic Topography data is obtained from
a. AVISO/DUACS ftp site (ftp://ftp.aviso.oceanobs.com)

1. The daily gridded ocean surface vector wind data from ASCAT is obtained from
a. ftp://ftp.ifremer.fr/ifremer/cersat/products/gridded/MWF/L3/ASCAT/Daily

1. The daily gridded SST data of Reynolds OISST is obtained from

a. ftp://eclipse.ncdc.noaa.gov/pub/OI-daily-v2/NetCDF

Data Citation

This dataset may be cited as "MOSDAC (http://www.mosdac.gov.in)",(Sikhakolli et al., 2013). Sikhakolli, R., R. Sharma, R. Kumar, B. S. Gohil, A. Sarkar, K. V. S. R. Prasad and S. Basu, Improved determination of Indian Ocean surface currents using satellite data, Rem. Sens. Lett., 4, 335-343, 2013.

Processing Steps

1. Using the daily gridded data of MADT, Vector winds and SST data the Geostrophic, wind driven and buoyancy components of the ocean surface current respectively are first calculated for the off-equatorial regions (3°N to 90°N and 3°S to 90°S).
2. Using the polynomial expansion the equatorial currents (±3° latitude band) are derived.
3. The daily ocean surface current at 0.25° resolution is then derived by applying a linear weighted average procedure to the equatorial and off equatorial current solutions with in the latitude band of ± 3° to ± 4° band.

References

1. Bentamy A..; D. Croize-Fillon, 2011: Gridded surface wind fields from Metop/ASCAT measurements. Inter. Journal of Remote Sensing. DOI 10.1080/01431161.2011.600348.
2. Bonjean, F, and G. S. E. Lagerloef (2002), Diagnostic model and analysis of the surface currents in the tropical Pacific Ocean., J. Phys. Oceanogr., 32, 2938-2954.
3. Reynolds, R. W., T. M. Smith,_C. Liu, D. B. Chelton, K. S. Casey, and M. G. Schlax (2007), Daily high-resolution-blended analyses for sea surface temperature, J. Climate., 20, 5473-5496.
4. Sikhakolli, R., R. Sharma, S. Basu, B. S. Gohil, A. Sarkar and K. V. S. Prasad, Evaluation of OSCAR ocean surface current product in the tropical Indian Ocean using in situ data , J. Earth Syst. Sci., 2013.
5. Sikhakolli, R., R. Sharma, R. Kumar, B. S. Gohil, A. Sarkar, K. V. S. R. Prasad and S. Basu, Improved determination of Indian Ocean surface currents using satellite data, Rem. Sens. Lett., 4, 335-343, 2013.
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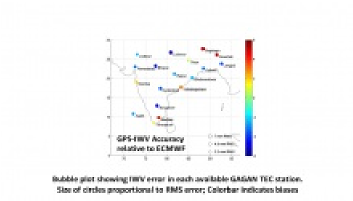
Tags:
Opendata Ocean

GPS derived Integrated water vapour



This dataset contains Integrated Water Vapor (IWV) estimates derived from GPS receivers that comprise the GAGAN TEC network. These receivers have been installed at airports at various locations in India. The Zenith Tropospheric Delay was estimated from the GPS observations using the GAMIT software. Further, IWV was estimated from the ZTD values using surface temperature and pressure from ERA-I reanalysis as additional inputs. The GAGAN-IWV estimates for 1 year – March 2013 to February 2014 – have currently been made available.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

GPS receivers from GAGAN TEC Network

Processing Steps

GAMIT software used to derive Zenith Tropspheric Delay (ZTD)
Integrated Water Vapor (IWV) derived using procedure described in Bevis et. al. (1992)

References

M. Bevis, S. Businger, T. A. Herring, C. Rocken, R. A. Anthes, and R. H. Ware, “GPS Meteorology: Remote sensing of atmospheric water vapor using global positioning system,” J. Geophys. Res., vol. 97, pp. 15, 787-15, 801, 1992.
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Sunda, S., R. Sridharan, B. M. Vyas, P. V. Khekale, K. S. Parikh, A. S. Ganeshan, C. R. Sudhir, S. V. Satish, and M. S. Bagiya (2015), Satellite-based augmentation systems: A novel and cost-effective tool for ionospheric and space weather studies, Space Weather, 13, doi:10.1002/2014SW001103.

Derivation Techniques and Algorithm

Described in the report titled “Demonstration of GNSS-based short-range forecasting of rainfall”

Limitations

The IWV estimates constitute a conical average of variable shape and orientation depending on the location of available GPS satellites.

Known problems with data

No known issues at this time.

File Naming Convention

ASCII files:
Currently, the data for 1 year is provided in the file gagan_iwv_v1.txt

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	November, 2017
4	Data Lineage or Quality	GPS-derived Integrated Water Vapor.
5	Title	GPS-derived Integrated Water Vapor (Indian region)
6	Abstract	This dataset contains Integrated Water Vapor (IWV) estimates derived from GPS receivers that comprise the GAGAN TEC network. These receivers have been installed at airports at various locations in India. The Zenith Tropospheric Delay was estimated from the GPS observations using the GAMIT software. Further, IWV was estimated from the ZTD values using surface temperature and pressure from ERA-I reanalysis as additional inputs. The GAGAN-IWV estimates for 1 year – March 2013 to February 2014 – have currently been made available.
7	Dataset Contact	Kaushik Gopalan, GRD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, kaushikg@sac.isro.gov.in
8	Update Frequency	1 year of GPS-derived IWV is now available. Further data will be added intermittently in caches of 1 year each.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Point data
11	Language	English
12	Topic Category	GNSS meteorology
13	Keywords	GNSS meteorology, GPS meteorology, Integrated Water Vapor
14	Date or period	March 2013 to February 2014

15	Responsible Party	Kaushik Gopalan,GRD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters from satellite altimeter in the coastal region.
16b	Individual name	Kaushik Gopalan, GRD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6110. Email: kaushikg@sac.isro.gov.in
16c	Position	Scientist/Engineer, GRD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	NA
17	Geographic Extent	Indian Landmass
18	Geographic name, geographic Identifier	Indian Landmass
19	Bounding box	lat_min: 0N, lat_max: 30N, lon_min: 60E, lon_max: 100E
20	Temporal Extent	March 2013 to February 2014
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in ASCII format
23	Processing Level	Level 2 (Data product derived from raw GPS data)
24	Reference System	Datum: WGS84

Tags:
Opendata Atmosphere

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अंतरिक्ष विभाग Dept. of Space

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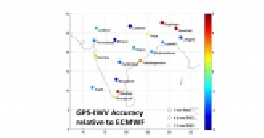
GPS derived Integrated water vapour



Bubble plot showing IWV error in each available GAGAN TEC station.
Size of circles proportional to RMS error; Colorbar indicates biases

This dataset contains Integrated Water Vapor (IWV) estimates derived from GPS receivers that comprise the GAGAN TEC network. These receivers have been installed at airports at various locations in India. The Zenith Tropospheric Delay was estimated from the GPS observations using the GAMIT software. Further, IWV was estimated from the ZTD values using surface temperature and pressure from ERA-I reanalysis as additional inputs. The GAGAN-IWV estimates for 1 year – March 2013 to February 2014 – have currently been made available.

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Data Version

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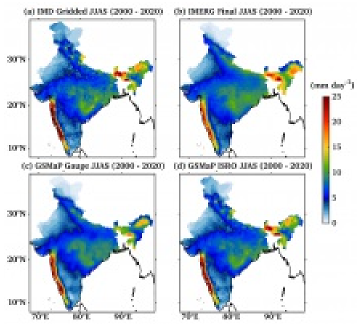
भारत सरकार Govt. of India अंतरिक्ष उपयोग केंद्र Space Applications Centre इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

GSMap ISRO Rain



The GSMaP_ISRO is a precipitation product that was developed through the Indian Space Research Organisation (ISRO) - Japan Aerospace Exploration Agency (JAXA) Implementation of Agreement (IA) specifically for the Indian subcontinent. It is currently available from March 2000 Onwards and offers a horizontal resolution of 0.1°X 0.1° on a latitude/longitude grid with a temporal resolution of 1 hour. The dataset is based on the Global Satellite Mapping of Precipitation (GSMaP) algorithm (Kubota et al. 2020; Kumar et al. 2021, 2022) with Indian Meteorological Department (IMD) gauge correction, and is a specialized product that focuses on the Indian landmass. The GSMaP algorithm, designed by the JAXA, is instrumental in creating a comprehensive view of precipitation using microwave radiometers and cloud moving data from Geostationary Infrared (IR) technology. The algorithm is separated into three primary categories for effective measurement: the microwave imager, microwave sounder, and microwave-infrared (MVK) combined (Mega et al. 2019). A detailed verification of GSMaP_ISRO for the Indian summer monsoon periods of 2000-2020 against ground, satellite and various merge rainfall products is presented in Kumar et al. (2022).

Data Access

Science products are available to download with a Single Sign On on MOSDAC. Click Here to access the data

Data Version

Version 1.0 (beta)

Data Sources

GSMaP_MVK product, NOAA Climate Prediction Center (CPC) rainfall analysis, CPC Infrared brightness temperature, IMD gridded rain (0.25 degree), etc.

Processing Steps

-For gauge adjustment, the software used was JAXA MCD_V05.02, based upon Mega et al. (2019). -Merging NOAA CPC and Indian gauges was accomplished using Matlab software. -The algorithms pertaining to GSMaP_ISRO are provided in Kumar et al. (2022) in detail.

References

Kubota, T., Aonashi, K., Ushio, T., Shige, S., Takayabu, Y. N., Kachi, M., and Oki, R. (2020). Global Satellite Mapping of Precipitation (GSMaP) products in the GPM era. Satellite Precipitation Measurement: Volume 1, 355-373. Kumar, P., Gairola, R., Kubota, T., and Kishtawal, C. (2021). Hybrid assimilation of satellite rainfall product with high density gauge network to improve daily estimation: A case of Karnataka, India. Journal of the Meteorological Society of Japan. Ser. II, 99(3), 741-763. Kumar, P., Varma, A. K., Kubota, T., Yamaji, M., Tashima, T., Mega, T., and Ushio, T. (2022). Long-Term High-Resolution Gauge Adjusted Satellite Rainfall Product Over India. Earth and Space Science, 9(12), e2022EA002595. Mega, T., Ushio, T., Matsuda, T., Kubota, T., Kachi, M., and Oki, R. (2019) Gauge-Adjusted Global Satellite Mapping of Precipitation, IEEE Trans. Geosci. Remote Sens, 57, 4, 1928-1935. Kumar, P., Srivastava, S.S., Jivani, N., Varma, A.K., Yokoyama, C. & Kubota, T. (2024) Long-term assessment of ERA5 reanalysis rainfall for lightning events over India observed by Tropical Rainfall Measurement Mission Lightning Imaging Sensor. Quarterly Journal of the Royal Meteorological Society, 150(761), 2472â€“2488. Available from: https://doi.org/10.1002/qj.4719

Derivation Techniques and Algorithm

The manuscript titled "Long-Term High-Resolution Gauge Adjusted Satellite Rainfall Product Over India" provides a description.

Limitations

The number of gauge stations within a NOAA CPC pixel of 0.5 degree impacts the accuracy of the gauge-adjusted rainfall.

Known problems with data

No known issues at this time.

File Naming Convention

HDF5 file:

Sample name : GPMMRG_MAP_YYMMDDHH00_H_L3S_MCH_03F.h5

YY - Year
MM - Month
DD - Day
HH - Hour

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	November, 2023

4	Data Lineage or Quality	IMD gauge adjusted GSMaP_ISRO Rain
5	Title	GSMaP_ISRO Rain
6	Abstract	The GSMaP_ISRO rain data has been derived through the IMD gauge based gridded rain & NOAA CPC gauge analysis adjustment of the GSMaP_MVK rain product. It offers high-quality rainfall information with excellent spatiotemporal resolution, covering a range spanning from March 2000 Onwards. It has been developed through the ISRO-JAXA Implementation of Agreement (IA). This product provides a lat/long grid with a 0.1° X 0.1° horizontal resolution, along with hourly temporal resolution.
6a	Developer	Prashant Kumar, Atul K. Varma, Takuji Kubota, Moeka Yamaji, Tomoko Tashima, Tomoaki Mega, Tomoo Ushio
7	Dataset Contact	Dr. Prashant Kumar, ASD/AOSG/EPSA Space Applications Centre, ISRO Ahmedabad-380015 prashant22@sac.isro.gov.in
8	Update Frequency	23 years of global GSMaP_ISRO rain. Further data will be added intermittently.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	0.1 degree
11	Language	English
12	Topic Category	Gauge adjusted satellite rainfall
13	Keywords	GSMaP_MVK, NOAA CPC rainfall analysis, CPC Infrared brightness temperature, IMD gridded rain (0.25 degree).
14	Date or period	March 2000 Onwards
15	Responsible Party	Dr. Prashant Kumar, ASD/AOSG/EPSA, Space Applications Centre, ISRO Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Development of high spatio-temporal resolution gauge adjusted satellite rainfall
16b	Individual name	Dr. Prashant Kumar, ASD/AOSG/EPSA, Space Applications Centre, ISRO Ahmedabad-380015, India Email: prashant22@sac.isro.gov.in
16c	Position	Scientist/Engineer - SF
17	Geographic Extent	Global
18	Geographic name, geographic Identifier	Global
19	Bounding box	lat_min: -90 , lat_max: 90, lon_min: 0, lon_max: 360
20	Temporal Extent	March 2000 Onwards
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in HDF5 format
23	Processing Level	Level 3 (Gauge adjusted satellite rainfall product)
24	Reference System	Datum: WGS84

Tags:
Opendata Atmosphere

Skip to main Content

A A A
A A
English

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

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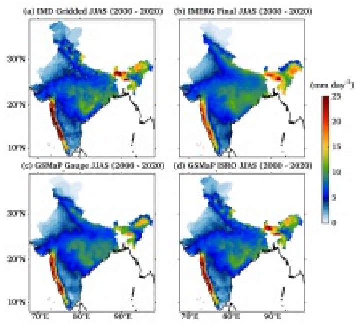
GSMap ISRO Rain



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20	Temporal Extent	March 2000 Onwards
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in HDF5 format
23	Processing Level	Level 3 (Gauge adjusted satellite rainfall product)
24	Reference System	Datum: WGS84

Tags:
Opendata Atmosphere

Help

Accessibility

Know about the accessibility statement, accessibility features, and accessibility options. We are committed to ensure that the SAC website is accessible to all users irrespective of device in use, technology or ability. It has been built, with an aim,to provide maximum accessibility and usability to its visitors.

We have put in our best efforts to ensure that all information on this Portal is accessible to people with disabilities. For example, a user with visual disability can access this Portal using assistive technologies, such as screen readers and magnifiers.

We also aim to be standards compliant and follow principles of usability and universal design, which should help all visitors of this Portal.

This Portal is designed using XHTML 1.0 Transitional and meets priority 1 (level A) of the Web Content Accessibility Guidelines (WCAG) 2.0 laid down by the World Wide Web Consortium (W3C). Part of the information in the Portal is also made available through links to external Web sites. External Web sites are maintained by the respective departments who are responsible for making these sites accessible.

Viewing different file types

Document Type	Download
Portable Document Format (PDF) files	Adobe Acrobat Reader
MP4 files	Windows Media Player / VLC Media Player

Text Size Icons

Following different options are provided in the form of icons which are available on the top of each page:

A+ **Increase text size:**
Allows to increase the text size up to Two levels

A- **Decrease text size:**
Allows to decrease the text size up to Two levels

A **Normal text size:**
Allows to set default text size

Changing the Color Scheme
Changing the color scheme refers to applying a suitable background and text color that ensures clear readability. There are two options provided to change the color scheme. These are:

A
Default contrast scheme

A
Yellow text on Black background

Screen Reader Access

Provides information regarding access to different Screen Readers.

Space Applications Centre fully complies with Guidelines for Indian Government Websites (link is external). Our visitors with visual impairments can access the Portal using Assistive Technologies, such as screen readers.

The information of the Portal is accessible with different screen readers, such as JAWS, NVDA, SAFA, Supernova and Window-Eyes.
Following table lists the information about different screen readers:

Screen Reader	Website	Free / Commercial
Non Visual Desktop Access (NVDA)	http://www.nvda-project.org	Free
Hal	http://www.yourdolphin.co.uk/productdetail.asp?id=5	Commercial
JAWS	http://www.freedomscientific.com/jaws-hq.asp	Commercial
Supernova	http://www.yourdolphin.co.uk/productdetail.asp?id=1	Commercial

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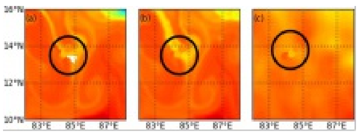
JAWS	http://www.freedomscientific.com/jaws-hq.asp	Commercial
Supernova	http://www.yourdolphin.co.uk/productdetail.asp?id=1	Commercial

High Resolution Sea Surface Salinity



The Bay of Bengal's high-resolution sea surface salinity has been reconstructed using a Lagrangian technique leveraging satellite data. The primary input datasets utilized are sea surface salinity data from the SMAP mission and sea surface currents derived from altimetry. These datasets are obtained at a spatial resolution of 25 km. The SMAP mission has been operational since 2015, whereas altimetry-derived sea surface currents have been available since 1993. Validation of this reconstructed product was conducted against in-situ datasets obtained from thermo-salinographs. Results indicate that the reconstructed product more accurately captures front formation compared to the original SMAP salinity fields.

Data Access

Science products are available to download with a Single Sign On on MOSDAC. Click Here to access the data

Data Version

Version 1.0 (beta).

Data Sources

SMAP Sea Surface Salinity
(https://podaac.jpl.nasa.gov/dataset/SMAP_JPL_L3_SSS_CAP_8DAY-RUNNINGMEAN_V5)
Altimetry-derived sea surface currents
(https://data.marine.copernicus.eu/product/SEALEVEL_GLO_PHY_L4_MY_008_047/).

Processing Steps

i. Remap Sea Surface Currents with a spatial resolution of 5 km.
ii. Backward advection of particles from the final time {t} rsub {f} to the initial time {t} rsub {f} -14 , where 14 is the number of days the particles are advected using Runge-Kutta 4th order method.
iii. The SMAP Sea Surface Salinity observed at {t} rsub {f} -14 is interpolated onto the particle positions that day.

iv. With this, each particle has an SSS value on {t} rsub {f} day that corresponds to the observation at {t} rsub {f} -14 .

References

[1] Barbara, B., Drushka, K., & Gaube, P. (2021), â€œLagrangian reconstruction to extract small-scale salinity variability from SMAP obervationsâ€, JGR Oceans, 126(3), e2020JC016477.
[2] Dencausse, G., Morrow, R., RogÃ©, M., and Fleury, S. (2014). Lateral stirring of large-scale tracer fields by altimetry. Ocean Dynamics, 64(1), 61â€“78.
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[4] Durack, P. J., Lee, T., Vinogradova, N. T., and Stammer, D. (2016). Keeping the lights on for global ocean salinity observation. Nature Climate Change, 6(3), 228â€“231.
[5] Lehahn, Y., d'Ovidio, F., and Koren, I. (2018). A satellite-based Lagrangian view on phytoplankton dynamics. Annual Review of Marine Science, 10(1), 99â€“119.
[6] RogÃ©, M., Morrow, R. A., and Dencausse, G. (2015). Altimetric Lagrangian advection to reconstruct Pacific Ocean fine-scale surface tracer fields. Ocean Dynamics, 65(9), 1249â€“1268.

Derivation Techniques and Algorithm

The algorithm is called Lagrangian Reconstruction Technique. User should refer [1].

Limitations

This algorithm is applicable only in the region with moderate to high eddy kinetic energy and where lateral advection dominates.
High resolution sea surface salinity product generated by Lagrangian technique can have error due to tracer bias (depends on accuracy of initial conditions) and advection bias (Passive stirring can introduce bias due to mixing physics (air-sea fluxes, mixing etc.)).

Known problems with data

Data sets have biases as well as inaccuracy.

File Naming Convention

Netcdf file: HRSSS_bck_YYYYMMDD_14D.nc

MetaData

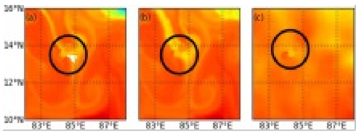
Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	April, 2015
4	Data Lineage or Quality	High resolution sea surface salinity in Bay of Bengal using Lagrangian technique.
5	Title	Dynamic downscaling of Satellite Sea Surface Salinity for the Bay of Bengal

6	Abstract	Lagrangian technique is used for generating high-resolution sea surface salinity fields in the Bay of Bengal. This is achieved through the utilization of Sea Surface Salinity (SSS) data derived from the Soil Moisture Active Passive (SMAP) satellite, in conjunction with sea surface currents obtained from altimetry. By employing forward and backward schemes for the numerical advection of SMAP SSS fields using altimeter-derived geostrophic currents, a Lagrangian reconstruction is produced, capturing smaller-scale features. The reliability of our in-house developed algorithm is assessed by comparing it with an available reconstructed product in the Gulf Stream. Additionally, a preliminary validation is conducted against insitu data obtained from a thermo-salinograph. Further, the developed algorithm was modified to select the advection time dynamically.
7	Dataset Contact	Jai Kumar, POD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, kumarj@sac.isro.gov.in
8	Update Frequency	Six months.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Spatial resolution is 10 km
11	Language	English
12	Topic Category	High resolution sea surface salinity product (SAC-TDP) using satellite data.
13	Keywords	Sea surface salinity, sea surface currents, Lagrangian advection technique, high resolution
14	Date or period	April 2015 - June 2023
15	Responsible Party	Jai Kumar, POD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters from satellite data in the Bay of Bengal region.
16b	Individual name	Jai Kumar, POD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6104. Email: kumarj@sac.isro.gov.in
16c	Position	Scientist/Engineer, POD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Lat_min : 0N, Lat_max : 25N, Lon_min: 78E, Lon_max: 100 E
17	Geographic Extent	Indian Landmass
18	Geographic name, geographic Identifier	Bay of Bengal
19	Bounding box	Lat_min : 0N, Lat_max : 25 N, Lon_min: 78E, Lon_max: 100 E
20	Temporal Extent	April 2015-June 2023
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in netCDF format
23	Processing Level	Level 4

4	Reference System	Datum: WGS84

Tags:
Opendata Ocean

High Resolution Sea Surface Salinity



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6	Abstract	Lagrangian technique is used for generating high-resolution sea surface salinity fields in the Bay of Bengal. This is achieved through the utilization of Sea Surface Salinity (SSS) data derived from the Soil Moisture Active Passive (SMAP) satellite, in conjunction with sea surface currents obtained from altimetry. By employing forward and backward schemes for the numerical advection of SMAP SSS fields using altimeter-derived geostrophic currents, a Lagrangian reconstruction is produced, capturing smaller-scale features. The reliability of our in-house developed algorithm is assessed by comparing it with an available reconstructed product in the Gulf Stream. Additionally, a preliminary validation is conducted against insitu data obtained from a thermo-salinograph. Further, the developed algorithm was modified to select the advection time dynamically.
7	Dataset Contact	Jai Kumar, POD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, kumarj@sac.isro.gov.in
8	Update Frequency	Six months.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Spatial resolution is 10 km
11	Language	English
12	Topic Category	High resolution sea surface salinity product (SAC-TDP) using satellite data.
13	Keywords	Sea surface salinity, sea surface currents, Lagrangian advection technique, high resolution
14	Date or period	April 2015 - June 2023
15	Responsible Party	Jai Kumar, POD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters from satellite data in the Bay of Bengal region.
16b	Individual name	Jai Kumar, POD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6104. Email: kumarj@sac.isro.gov.in
16c	Position	Scientist/Engineer, POD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Lat_min : 0N, Lat_max : 25N, Lon_min: 78E, Lon_max: 100 E
17	Geographic Extent	Indian Landmass
18	Geographic name, geographic Identifier	Bay of Bengal
19	Bounding box	Lat_min : 0N, Lat_max : 25 N, Lon_min: 78E, Lon_max: 100 E
20	Temporal Extent	April 2015-June 2023
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in netCDF format
23	Processing Level	Level 4

4	Reference System	Datum: WGS84

Tags:
Opendata Ocean

Hyperlink Policy

Links to external websites/portals

At many places in this Portal, you shall find links to other websites/portals. This links have been placed for your convenience. MOSDAC is not responsible for the contents and reliability of the linked websites and does not necessarily endorse the views expressed in them. Mere presence of the link or its listing on this Portal should not be assumed as endorsement of any kind. We can not guarantee that these links will work all the time and we have no control over availability of linked pages.

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We do not object to you linking directly to the information that is hosted on this Portal and no prior permission is required for the same. However, we would like you to inform us about any links provided to this Portal so that you can be informed of any changes or updations therein. Also, we do not permit our pages to be loaded into frames on your site. The pages belonging to this Portal must load into a newly opened browser window of the User.

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हिन्दी

भारत सरकार
Govt. of India

मॉस्डैक
M O S D A C
अंतरिक्ष उपयोग केंद्र Space Applications Centre

इसरो isro
अंतरिक्ष विभाग
Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

MOSDAC

Satellite/Forecast

Sensor/Model

Product Type

Product

Fullscreen

+
-

मॉस्डैक
MOSDAC
भारत सरकार
Govt. of India
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भारत सरकार Govt. of India मॉस्डैक MOSDAC अंतरिक्ष उपयोग केंद्र Space Applications Centre इसरो isro अंतरिक्ष विभाग Dept. of Space

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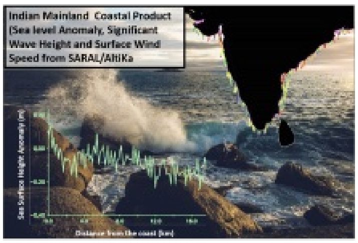
Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Indian Mainland Coastal Product



SARAL/AltiKa was launched on 25 February 2013 as a joint collaboration mission of ISRO and CNES. With smaller footprint than earlier satellite altimeters, SARAL/AltiKa has improved coastal performance. Specific waveform processing has been used in this product to derive along track geophysical parameters (Sea Surface Height, Significant wave height and wind speed) from the altimeter 40-Hz waveform data. This product is generated for Indian mainland coastal region (up to 50 km from the coast). This product is available for 35 cycles of SARAL/AltiKa starting from March 2013 through July 2016.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.1 (Beta)

Data Sources

Altimeter Sensor-Interim Geophysical Data Record (S-IGDR)
Indian Ocean Bathymetry
Indian Ocean Geoid
High resolution coastline

Processing Steps

i. High resolution bathymetry is used to separate the coastal and land waveforms.
ii. Waveforms are classified based on their shape.
iii. Waveforms are retracked with the beta parameter retrackers (BETA5 and BETA9) and BAGP (Brown with asymmetric Gaussian Peak) retracker to get sea surface height (SSH),

sea surface height anomaly (SSHA), significant wave height (SWH) and wind speed.
iv. Using Significant Wave Height (SWH) and wind speed, the wave period is derived based on the data adaptive technique of " Genetic Algorithm " (Remya et al. 2011)
v. Wave power is derived based on SWH and estimated wave period. 40 Hz data is filtered using a lanczos filter to remove high frequency noise.
vi. Wind power is calculated using standard wind power formula. 40 Hz data is filtered using a lanczos filter to remove high frequency noise.

References

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Chelton, D. B., J. C. Ries, B. J. Haines, L. L. Fu, and P. S. Callahan, 2001, “Satellite Altimetry”,
Satellite Altimetry and Earth Sciences, ed. L.L. Fu and A. Cazenave, pp. 1-131.
Chaudhary A., Basu S., Kumar R, Mahesh, C. and Sharma R. 2015.” Shape classification of AltiKa 40-Hz waveforms using Linear Discriminant Analysis and Bayes Decision Rule in the Gujarat Coastal region “Marine Geodesy.
Coastal and Hydrology Altimetry product (PISTACH) handbook, CLS-DOS-NT-10-246, SALP-MU-P-OP-16031-CN 01/00, 1. 0, Oct. 4, 2010
Deng, X., and W. E. Featherstone. 2006. A coastal retracking system for satellite radar altimeter waveforms: Application to ERS-2 around Australia. J. Geophys. Res. 111: doi:10.1029/2005JC003039.
Deng, X. 2003. “Improvement of geodetic parameter estimation in coastal regions from satellite radar altimetry.” PhD. Dissertation, Curtin University of Technology, Perth, Australia.
Halimi, A., C. Mailhes, J. – Y. Tourneret, P. Thibaut, and F. Boy. 2013. Parameter estimation for peaky altimetric waveforms. IEEE Trans. Geosci. Rem. Sens., 51: 1568-1577.
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Nelder, J.A. and Mead R. 1965. A simplex method for function minimization. Computer Journal, vol 7, no. 4, 308-313.
Ray, R. D., 1999, A global ocean tide model from TOPEX/POSEIDON altimetry: GOT99.2, NASA Tech. Memorandum 1999-209478, Goddard Space Flight Center, Greenbelt, MD.
SARAL/AltiKa Products Handbook, SALP-MU-M-OP-15984-CN, 2, 4, December 9, 2013
Remya, G., Kumar, R., Basu, S., & Sarkar, A. (2011). Altimeter-derived ocean wave period using genetic algorithm. IEEE Geoscience and Remote Sensing Letters, 8(2), 354-358.
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Sindhu, B., I. Suresh, A. S. Unnikrishnan, N. V. Bhatkar, S.Neetu and G. S. Michael 2007. Improved bathymetric data sets for the shallow water regions in the Indian Ocean. J. Earth Syst. Sci.,116,61–274.
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Derivation Techniques and Algorithm

User should refer User Handbook “Moving closer to the coast by SARAL/AltiKa: Geophysical Product for Indian Mainland Region” for complete reference to the algorithm and processing steps. For Handbook SARAL/AltiKa: Geophysical Product for Indian Mainland Region (Size: 1.14MB Format: PDF Tool: PDFView) Click Here
For value added wave product:
The wave power (P) is mathematically derived as

$$P = \frac{\rho g^2}{64\pi} H_{m0}^2 T \approx \left(0.5 \frac{kW}{m^3.s}\right) H_{m0}^2 T$$

Where
1. P is Wave power per unit of wave-crest length (in Kilowatt/m)
2. R represents the satellite range
3. H m0 is the significant wave height (in meters)
4. T is wave period (in seconds)
5. ρ is the density of water (in kilogram/cubic meter)
6. g is the acceleration due to gravity (in meters/square seconds)

Wind power is generated by using;
We have assumed unit area in this equation. is density of air and is wind speed.

Limitations

Based on the availability of the Altimeter dataset over the study region (Data Gap, altimeter track loss, bad weather, etc.). Geophysical and atmospheric range corrections have been obtained from the standard 1-Hz product of SARAL/AltiKa.

Known problems with data

Data problems due to bad weather (heavy rain).
Onboard tracker failure leads to unusable data.
Coastal contamination may lead to erroneous estimate of the derived parameters.

File Naming Convention

Netcdf file:
SRL_CCC_TTTT_yyyymmddHHMMSS_yyyymmddHHMMSS_INDIANCOAST_SIGDR_VER1.1.nc;
JPG Files:
ssha_cycCCC_yyyymmdd_yymmdd.jpg (sea surface height anomaly image)
swh_cycCCC_yyyymmdd_yymmdd.jpg (swh image)
wind_speed_cycCCC_yyyymmdd_yymmdd.jpg (wind speed image)
Where
CCC is the cycle number and TTTT is the track number.,
first yyyymmddHHMMSS is the start time of the file., and
second yyyymmddHHMMSS is the end time of the file..
For values added wind wave power product:
wind_power_cycCCC_yyyymmdd_yymmdd.jpg (wind power image)
wave_power_cycCCC_yyyymmdd_yymmdd.jpg (wave power image)

MetaData

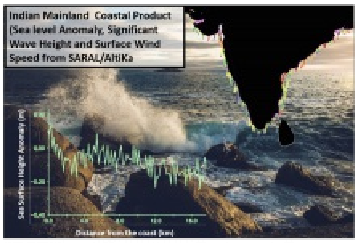
Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	October, 2016
4	Data Lineage or Quality	Sea surface height, Significant wave height, wind speed in coastal regions using radar altimeters and wind wave power derived in coastal region.
5	Title	SARAL/AltiKa Coastal Product (Indian region) and Wind Wave Power product

6	Abstract	SARAL, a joint ISRO-CNES satellite mission, was successfully launched in 2013. It carries a Ka band single frequency satellite altimeter (AltiKa). Satellite altimeters are primarily used to study sea level changes. In the open ocean, the altimetric echo follows a standard shape, with steeply rising leading edge followed by a trailing edge with gradually diminishing power. This standard shape is in agreement with the theoretical Brown model and hence can be easily modeled. However, in the coastal areas, due to the presence of land and other coastal featues in the footprint of the altimeter, contamination occurs and the return is different from open ocean. Up to some extent these contaminations can be modeled. Footprint size of SARAL/Altika is small which is ideal for coastal studies. The available ocean retracker (MLE4) itself shows good performance near the coast. However, further improvemnts can be achieved by using algorithms which can simulate contaminations impact in the coastal areas. In this document we have used various models for the return waveforms at 40 Hz to extract maximum information from the altimeter. Our results show that algorithms which are useful in the coastal areas are BETA5, BETA9 and Brown with Asymmetric Gaussian Peak (BAGP). Additionally, a wind power and wave power product has also been generated from this coastal product.
7	Dataset Contact	Aditya Chaudhary, OSD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad 380015, aditya.osd@sac.isro.gov.in
8	Update frequency	35 cycles of SARAL/AltiKa have been processed. After this, cycles are not in exact repeat mode.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Data is provided at 40 Hz which corresponds to spatial resolution of nearly 180m.
11	Language	English
12	Topic Category	Coastal Altimetry
13	Keywords	Satellite altimetry, waveform retracking, sea level, significant wave height, waveform classification
14	Date or period	Cycle 1 to Cycle 35 of SARAL/AltiKa (March 2013 to July 2016)
15	Responsible Party	Aditya Chaudhary,OSD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Retreival of Geophysical parameters from satellite altimeter over the Indian Coast
16b	Individual name	Aditya Chaudhary, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: Aditya.osd@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: aditya.osd@sac.isro.gov.in
17	Geographic Extent	lat_min: 05N, lat_max: 24N, lon_min: 68E, lon_max: 90E
18	Geographic name, geographic Identifier	Indian Coastal Region
19	Bounding box	lat_min: 05N, lat_max: 24N, lon_min: 68E, lon_max: 90E
20	Temporal Extent	March 2013 to July 2016
21	Access Rights or Restrictions	Open Access

22	Distribution Information	Online download in netcdf formats.
23	Processing Level	Level 3 (Data product derived from altimeter S-IGDR product)
24	Reference System	Datum: WGS84

Tags:
Opendata Ocean

Indian Mainland Coastal Product



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Data Version

Version 1.1 (Beta)

Data Sources

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Indian Ocean Bathymetry
Indian Ocean Geoid
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i. High resolution bathymetry is used to separate the coastal and land waveforms.
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Derivation Techniques and Algorithm

User should refer User Handbook “Moving closer to the coast by SARAL/AltiKa: Geophysical Product for Indian Mainland Region” for complete reference to the algorithm and processing steps. For Handbook SARAL/AltiKa: Geophysical Product for Indian Mainland Region (Size: 1.14MB Format: PDF Tool: PDFView) Click Here
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JPG Files:
ssha_cycCCC_yyyymmdd_yymmdd.jpg (sea surface height anomaly image)
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wind_speed_cycCCC_yyyymmdd_yymmdd.jpg (wind speed image)
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MetaData

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2	Metadata Contact	MOSDAC
3	Metadata date	October, 2016
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5	Title	SARAL/AltiKa Coastal Product (Indian region) and Wind Wave Power product

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7	Dataset Contact	Aditya Chaudhary, OSD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad 380015, aditya.osd@sac.isro.gov.in
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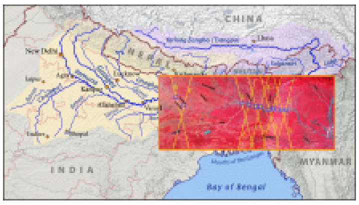
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Data is provided at 40 Hz which corresponds to spatial resolution of nearly 180m.
11	Language	English
12	Topic Category	Coastal Altimetry
13	Keywords	Satellite altimetry, waveform retracking, sea level, significant wave height, waveform classification
14	Date or period	Cycle 1 to Cycle 35 of SARAL/AltiKa (March 2013 to July 2016)
15	Responsible Party	Aditya Chaudhary,OSD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Retreival of Geophysical parameters from satellite altimeter over the Indian Coast
16b	Individual name	Aditya Chaudhary, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: Aditya.osd@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: aditya.osd@sac.isro.gov.in
17	Geographic Extent	lat_min: 05N, lat_max: 24N, lon_min: 68E, lon_max: 90E
18	Geographic name, geographic Identifier	Indian Coastal Region
19	Bounding box	lat_min: 05N, lat_max: 24N, lon_min: 68E, lon_max: 90E
20	Temporal Extent	March 2013 to July 2016
21	Access Rights or Restrictions	Open Access

22	Distribution Information	Online download in netcdf formats.
23	Processing Level	Level 3 (Data product derived from altimeter S-IGDR product)
24	Reference System	Datum: WGS84

Tags:
Opendata Ocean

Inland Water Height



It is crucial to know how the storage of inland water bodies change over time. Also, hydrological modelling studies face the challenge of decreasing availability of in-situ monitoring data. However, application of satellite radar altimetry over the inland water bodies becomes vital tool to estimate water levels through waveform retracking on satellite altimetry?s sensor data. SARAL-Altika was launched on 25 February 2013. It is a joint-mission of CNES France and ISRO to provide continuous monitoring of ocean and continental water surface. It was launched into a Sun synchronous polar orbit at an altitude of 790km with 35 days of orbit repetition and follows same ground track as ENVISAT satellite. It has 98.55 deg of inclination with 75 km of equatorial cross track separation. It has Ka-band (35.75 GHz) radar altimeter. Water level product for inland water bodies (presently for Brahmaputra river and Ukai Reservoir) has been generated using the SARAL-ALTIKA waveform data.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

Altimeter Interim Geophysical Data Record (IGDR)
Geophysical Data Record (GDR)
ECMWF Pressure Fields
Global Ionosphere Maps (GIM) produced Total Electron Content (TEC) maps

Processing Steps

Firstly the waveforms are classified based on their signature, and then these waveforms are

retracked with the suitable retracker.
Dedicated inland range correction algorithms are required to account for the atmospheric delays.Detailed information about the processing can be found in (S. Chanderet. al. 2014, A .Dubey et. al. 2014).

References

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Derivation Techniques and Algorithm

The water level over the inland water bodies can be retrieved using altimeter waveforms data.
The range information is estimated based on the arrival time of the radar pulse.
This range is then corrected for Dry tropospheric correction, wet tropospheric correction, ionospheric correction, and tidal correction, i.e. Load tide, solid earth tide.
Detailed information about the range corrections can be found in the ATBD document (S. Chander and Prakash Chauhan, 2013) of the SARAL mission.

Limitations

Based on the availability of the Altimeter dataset over the study region (Data Gap, altimeter track loss, bad weather, etc.).

Known problems with data

Data problems due to bad weather (heavy rain)

Related data collections

GPS Field trip for water level measurement was conducted over Ukai reservoir on 9th November 2013, 17th January 2014 and 2nd January 2015.
Brahmaputra observed river water level data was collected for 6 locations from upstream to downstream from Inland Waterways Authority (IWAI) and Central Water Commission (CWC) along with the satellite pass synchronous field trips.

File Naming Convention

altimeter_derived_water_height_ukai_yyyymmdd_v1

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	March 05, 2015

4	Data Lineage or Quality	Water height estimation over inland water bodies using radar altimeters
5	Title	Inland Water Bodies Monitoring using Satellite Altimetry over Indian Region
6	Abstract	Inland water bodies? heightshave been estimated using SARAI-Altika and Jason-2 data over the two test sites, i.e. Ukai reservoir and Brahmaputra River (10 sites from upstream to downstream locations within the Indian region). The results were matched with the in-situ data collected from the GPS field trips and observed data collected from IWAI and CWC. In the first phase results of these two sites are presented herewith. Such 29 inland water bodies with (49 locations) are being done in the phase manner
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8	Update frequency	Near real time after the altimeter pass over the study area (35 days repetivity)
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	NA
11	Language	English
12	Topic Category	Inland water bodies monitoring
13	Keywords	Rivers/reservoirs, Satellite altimetry, waveform retracking, geophysical range corrections, water levels
14	Date or period	Since launch of SARAL-Altika (February 2013)
15	Responsible Party	Dr.Prakash Chauhan, Biological and Planetary Sciences Group, EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Retrieval of water level using Remote sensing techniques
16b	Individual name	D. Ram Rajak, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Default value =NaN Unitofmeasurement= meter Datum: WGS84
17	Geographic Extent	UL Coordinates: 40N, 65E. UR Coordinates: 40N, 100E. LL Coordinates: 5, 65E. LR Coordinates: 5, 100E.
18	Geographic name, geographic Identifier	Indian Region
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21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in text, and PNG formats
23	Processing Level	Level 3 (Data product derived from altimeter IGDR/GDR product)

24	Reference System	Datum: WGS84

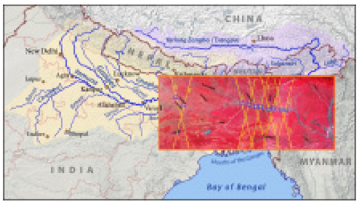
Tags:
Opendata Land

Government of India, MOSDAC, Space Applications Centre, ISRO, Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Inland Water Height



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Tags:
Opendata Land

INSAT-3A

INSAT-3A is a multipurpose satellite for providing telecommunications, television broadcasting, meteorological and search & rescue services. It carries twenty four transponders - twelve operating in the normal C-band frequency, six in Extended C-band and six in Ku-band. Nine of the twelve normal C-band transponders provide expanded coverage and the remaining three have India coverage beam. All the extended C-band as well as the Ku-band transponders has India coverage beams. INSAT-3A also carries a Ku-band beacon. For meteorological observation, INSAT-3A carries a three channel Very High Resolution Radiometer (VHRR) with 2 km resolution in the visible band and 8 km resolution in thermal infrared and water vapour bands. In addition, INSAT-3A carries a Charge Coupled Device (CCD) camera which operates in the visible and short wave infrared bands providing a spatial resolution of 1 km. A Data Relay Transponder (DRT) operating in UHF band is incorporated for realtime hydro-meteorological data collection from unattended platforms located on land and river basins. The data is then relayed in extended C-band to a central location. INSAT-3A also carries another transponder for Satellite Aided Search and Rescue (SAS & R) as part of India's contribution to the international Satellite Aided Search and Rescue programme. INSAT-3A was launched by European Ariane-5G Launch Vehicle into a Geosynchronous Transfer Orbit (GTO) with a perigee of 200 km and an apogee of 35,980 km. The satellite is maneuvered to its final orbit by firing the satellite's apogee motor. Subsequently, the deployment of solar array, antennae and the solar sail is carried out and the satellite is commissioned after in-orbit checkout.

हिन्दी

INSAT-3A Introduction

INSAT-3A, a multipurpose satellite built by ISRO was launched by Ariane in April 2003. It is located at 93.5 degree East longitude. It is third satellite in INSAT-3 series after INSAT-3B & INSAT-3C. It provides communication, weather and search & rescue services.

INSAT-3A Objectives

To provide

- Telecommunications
- Television broadcasting
- Meteorological
- Search and Rescue services

INSAT-3A Payloads

Communication Payload

12 Normal C-band transponders (9 channels provide expanded coverage from Middle East to South East Asia with an EIRP of 38 dBW, 3 channels provide India coverage with an EIRP of 36 dBW and 6 Extended C-band transponders provide India coverage with an EIRP of 36 dBW).

6 upper extended C-band transponders having India beam coverage providing an EoC-EIRP of 37 dBW.

6 Ku-band transponders provide India coverage with EIRP of 48 dBW.

Meteorological Payload

A Very High Resolution Radiometer (VHRR) with imaging capacity in the visible (0.55-0.75 µm), thermal infrared (10.5-12.5 µm) and Water Vapour (5.7-7.1 µm) channels, provide 2x2 km, 8x8 km and 8x8 km ground resolutions respectively.

A CCD camera provides 1x1 km ground resolution, in the visible (0.63-0.69 µm), near infrared (0.77-0.86 µm) and shortwave infrared (1.55-1.70 µm) bands.

A Data Relay Transponder (DRT) having global receive coverage with a 400 MHz uplink and 4500 MHz downlink for relay of meteorological, hydrological and oceanographic data from unattended land and ocean-based automatic data collection-cum-transmission platforms.

A Satellite Aided Search and Rescue (SAS&R) SARP payload having global receive coverage with 406 MHz uplink and 4500 MHz downlink with India coverage, for relay of signals from distress beacons in sea, air or land.

INSAT-3A SpaceCraft

Satellite details

Acronym	INSAT-3A		
Full name	Indian National Satellite - 3A		
Satellite Description	• 4th flight unit of the INSAT-3 series. • Missions: operational meteorology and telecommunication		
Mass at launch	2950 kg	Dry mass/td>	1348 kg
Power	3100 W		
Orbit	Geostationary orbit	Altitude	35786 km
Longitude	93.5° E		

Status	Operational		
Details on Status (as available)	• Nominal operations.		
Launch	2003-04-10	EOL	>2015

INSAT-3A

INSAT-3A is a multipurpose satellite for providing telecommunications, television broadcasting, meteorological and search & rescue services. It carries twenty four transponders - twelve operating in the normal C-band frequency, six in Extended C-band and six in Ku-band. Nine of the twelve normal C-band transponders provide expanded coverage and the remaining three have India coverage beam. All the extended C-band as well as the Ku-band transponders has India coverage beams. INSAT-3A also carries a Ku-band beacon. For meteorological observation, INSAT-3A carries a three channel Very High Resolution Radiometer (VHRR) with 2 km resolution in the visible band and 8 km resolution in thermal infrared and water vapour bands. In addition, INSAT-3A carries a Charge Coupled Device (CCD) camera which operates in the visible and short wave infrared bands providing a spatial resolution of 1 km. A Data Relay Transponder (DRT) operating in UHF band is incorporated for realtime hydro-meteorological data collection from unattended platforms located on land and river basins. The data is then relayed in extended C-band to a central location. INSAT-3A also carries another transponder for Satellite Aided Search and Rescue (SAS & R) as part of India's contribution to the international Satellite Aided Search and Rescue programme. INSAT-3A was launched by European Ariane-5G Launch Vehicle into a Geosynchronous Transfer Orbit (GTO) with a perigee of 200 km and an apogee of 35,980 km. The satellite is maneuvered to its final orbit by firing the satellite's apogee motor. Subsequently, the deployment of solar array, antennae and the solar sail is carried out and the satellite is commissioned after in-orbit checkout.

हिन्दी

INSAT-3D

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellite is monitored and controlled by Master Control Facilities that exist in Hassan and Bhopal. INSAT-3D is a multipurpose geosynchronous spacecraft with main meteorological payloads (imager and sounder). The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3D is monitoring the earth's surface, oceanic observations and also provide data dissemination capabilities. It provides Broadcast Satellite Services (BSS) through two S-band transponders. The data acquisition and processing system is established at Space Applications Centre, Bopal Campus, Ahmedabad, India. The processing of INSAT-3D data is taken place broadly in four steps.

1. Ground receiving system to receive data
2. Data Reception (DR) system to generate raw data (L0) files
3. Data Processing (DP) system to process L0 data and produce L1B data files (Calibrated and Geo located)
4. Product generation and Dissemination system

INSAT-3D Introduction

INSAT-3D is a dedicated meteorological spacecraft designed for enhanced meteorological observation and monitoring of land and ocean surfaces of weather forecasting and disaster warning. INSAT-3D is configured on I-2K bus with Sounder, Imager and Data Relay Transponder (DRT) and Satellite Aided Search & Rescue (SAS&R) Payloads. INSAT-3D was flown on July 26, 2013 with a lift of mass of about 2100 kg by ARIANE-5/GSLV-MK II /Soyuz launcher and expected minimum mission life is seven years. Communication Payload sub systems are configured to support INSAT system for DRT SAS&R and Meteorological Payload services.

The mission goal is stated as "to provide an operational, environmental & storm warning system to protect life & property and also to monitor earth's surface and carryout oceanic observations and also provide data dissemination capabilities"

The satellite has 3 payloads

- Meteorological (MET) - IMAGER and SOUNDER
- Data Relay Transponder (DRT)
- Satellite Aided Search and Rescue (SAS&R)

The geophysical parameters that will be extracted from INSAT3D are Outgoing Longwave Radiation (OLR), Quantitative Precipitation Estimation (QPE), Sea Surface Temperature (SST), Snow Cover, Snow Depth, Fire, Smoke, Aerosol, Cloud Motion Vector (CMV), Water Vapour Wind (WVW), Upper Tropospheric Humidity (UTH), Temperature, Humidity Profile and Total Ozone, Fog, Visible Wind Vector and other value added parameters from Imager and Sounder.

INSAT-3D Objectives

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellites also incorporate transponder(s) for receiving distress alert signals for search and rescue missions in the South Asian and Indian Ocean Region, as ISRO is a member of the Cospas-Sarsat programme.

The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3D will

- Monitor earth's surface and carryout oceanic observations and also provide data dissemination capabilities,
- Provide Broadcast Satellite Services (BSS) through two S-band transponders.,

INSAT-3D Payloads

The satellite has 3 payloads:

- Meteorological (MET) - IMAGER and SOUNDER
- Data Relay Transponder (DRT)
- Satellite Aided Search and Rescue (SAS&R)

Meteorological Payload

The INSAT-3D spacecraft incorporates advanced Imager and Sounder instruments.

IMAGER

The INSAT-3D imager provides imaging capability of the earth disc from geostationary altitude in one visible (0.52 - 0.72 micrometers) and five infrared; 1.55 - 1.70(SWIR), 3.80 - 4.00(MIR), 6.50 - 7.00 (water vapour), 10.2 - 11.2 (TIR-1) and 11.5 - 12.5 (TIR-2) bands. The ground resolution at the sub-satellite point is nominally 1km x 1km for visible and SWIR bands, 4km x 4km for one MIR and both TIR bands and 8km x 8km for WV band.

The Imager is an improved design of VHRR/2 (Very High Resolution Radiometer) heritage instrument flown on the Kalpana-1 and INSAT-3A missions. The instrument features 6 spectral bands (against the 3 bands in previous versions) offering an improved 1 km resolution in the visible band for the monitoring of meso scale phenomena and severe local storms. The two new SWIR and MWIR bands with a resolution of 1 km and 4 km, respectively, will enable better land-cloud discrimination and detection of surface features like snow. One more significant improvement is the split-band TIR channel with two separate windows in 10.2-11.2 and 11.5-12.5 Micrometer regions with a 4 km resolution.

This new element enables the extraction of sea surface temperature over the Indian region with a far greater accuracy since the dual-window algorithm can be applied to eliminate the atmospheric attenuation effects. The 1 km resolution of the visible channel and 4 km resolution of the thermal IR channels indirectly improve the accuracy of the derived products like outgoing longwave radiation and cloud motion vectors.

Key Parameters of the Imager

Telescope aperture	310 mm diameter

Number of bands (6)	0.52 - 0.72 µm, VIS (Visible) 1.55 - 1.70 µm, SWIR (Short Wave Infrared) 3.80 - 4.00 µm, MWIR (Mid Wave Infrared) 6.50 - 7.00 µm, WV (Water Vapor) 10.2 - 11.2 µm, TIR-1 (Thermal Infrared) 11.5 - 12.5 µm, TIR-2 (Thermal Infrared)
Spatial resolution	1 km for VIS and SWIR 4 km for MWIR 8 km for WV 4 km for TIR-1 and TIR-2
Band separation, band definition	Beam splitter, interference filters
IFOV (Instantaneous Field of View)	28 µrad for VIS and SWIR (1 km) 112 µrad for MWIR, TIR-1, & TIR-2 (4 km) 224 µrad for WV (8 km)
Sampling interval	1.75 samples / IFOV for VIS, SWIR,MIR & TIR-1 / -2 3.5 samples / IFOV for WV
Scan step angle	Linear in E-W direction (8 µR step size) Line step 224 µrad in N-S direction
Scan rate Scan linearity Inflight calibration	200º/s +0.2 s turnaround time 56 µR (peak to peak) Full aperture blackbody and spaceview
Scan modes	Full, normal and programmable sector for quick repetivity
Frame time	25 minutes for normal mode
Signal quantization	10 bit/sample
Downlink data rate	4.0 Mbit/s

SOUNDER

The INSAT-3D sounder has 18 infrared channels distributed over longwave and shortwave bands. A visible channel provides synoptic view of the clouds and the earth to aid in generating three dimensional map of temperature and moisture structure of the atmosphere.

The Sounder is a first time instrument of the geostationary INSAT series designed and developed at ISRO. The overall objective is to measure the temperature and humidity profiles (vertical distributions) to obtain a three-dimensional representation of the atmosphere. The instrument requirements call for soundings at 10 km ground resolution every 3 hours for a full frame scan. This enables the derivation of vertical profiles of temperature and humidity. These vertical profiles can then be used to derive various atmospheric stability indices and other parameters such as atmospheric water vapor content and total column ozone amount.

Key Parameters of the sounder

Telescope aperture	310 mm diameter
Number of bands (6)	18 Infrared + 1 Visible
Band definition	Filter wheel with interference filters
IFOV (Instantaneous Field of View)	280 µrad x 280 rad, corresponding to 10 km x 10 km on the surface
Sampling interval	280 µrad E-W / N-S
No of simultaneous soundings	4 per band
Scan step angle	10 km E-W, every 0.1 s, and 40 km N-S after completion of E-W scan, 150 µR rms
Step and dwell time	0.1, 0.2 and 0.4 s
Turnaround time	0.1 s per scan
In-flight calibration	Full aperture blackbody and space view
Scan modes	Options provided to cater to quick dynamic environmental phenomena
Frame time	160 minutes for 6000 km x 6000 km area sounding
Signal quantization	13 bit/sample
Downlink data rate	40 kbit/s
Frame time	90 kg, (without cooler), 100 W

Spectral parameters and sensitivity of the sounder

Band No.	Center wavelength µm (cm-1)	Bandwidth µm (cm-1)	NEDT at 300 K (typical) K
1	14.71 (680)	0.281 (13)	1.5
2	14.37 (696)	0.268 (13)	1
3	14.06 (711)	0.256 (13)	0.5
4	13.96 (733)	0.298 (16)	0.5
5	13.37 (749)	0.286 (16)	0.5
6	12.66 (790)	0.481 (30)	0.3
7	12.02 (832)	0.723 (50)	0.15
8	11.03 (907)	0.608 (50)	0.15
9	9.71 (1030)	0.235 (25)	0.2
10	7.43 (1425)	0.304 (55)	0.2
11	7.02 (1425)	0.394 (80)	0.2
12	6.51 (1535)	0.255 (60)	0.2
13	4.57 (2188)	0.048 (23)	0.2
14	4.52 (2210)	0.047 (23)	0.15
15	4.45 (2245)	0.045 (23)	0.15
16	4.13 (2420)	0.0683 (40)	0.15
17	3.98 (2513)	0.0683 (40)	0.15
18	3.74 (2671)	0.140 (100)	0.15
19	0.695 (14367) 0.05 (1000) (0.67-0.72)		0.1% albedo

Communication Payload

Communication transponders are required to be configured to provide continuity of some of the INSAT services. A total satellite mass of 2000kg is considered for the launch compatibility, and 70 kg (approximately) of mass apportionment is done for the communication payload components. The communication payload components are - Meteorological Transmitter, Data Relay Transponder, Satellite Aided Search and Rescue (SAS&R) Transponder & S-band Broadcast Satellite Services Transponder.

INSAT-3D References

Product Format Compatability with COTS package (Size:796 KB Format:PDF Tool:PDFViewer)

ATBD Document (Size:9.8 MB Format:PDF Tool:PDFViewer)

Revised ATBD Document for SST (Size:1.4 MB Format:PDF Tool:PDFViewer)

Incremental ATBD Document (Size:5.2 MB Format:PDF Tool:PDFViewer)

Format Document (Size:903 KB Format:PDF Tool:PDFViewer)

Product Catalogue (Size:229 KB Format:PDF Tool:PDFViewer)

INSAT Product Version Information (Size:1.61 MB Format: PDF Tool : PDFViewer)

ATBD_HEM_rain_revised (Size:2.14 MB Format: PDF Tool : PDFViewer)

Revised ATBD for AOD (Size:296KB Format: PDF Tool : PDFViewer)

INSAT-3D SpaceCraft

The INSAT-3D is a momentum-biased 3-axis stabilized spacecraft using star trackers for precise pointing control. The spacecraft has a launch mass of 2000 kg with a dry mass of 907 kg. The nominal design life is 7.7 years. It is in Geostationary orbit, altitude of ~35, 786 km, location at 82° East. The three-axis stabilized geostationary satellite carries two meteorological instruments: a six channel Imager and an IR Sounder. Along with the channels in Visible, Middle Infrared, Water Vapor and Thermal Infrared bands, the Imager includes a SWIR channel for wider applications. The Sounder will have eighteen narrow spectral channels in three IR bands in addition to a channel in visible band. It also has a Data Relay Transponder and Satellite based Search & Rescue Payload. Several innovative technologies like on-the-fly correction of scan mirror pointing errors, biannual yaw rotation of the spacecraft, micro-stepping SADA, star sensors and integrated bus management unit have been incorporated to meet the stringent payload requirements like pointing accuracies, thermal management of IR detectors and concurrent operation of both instruments.

A passive radiant cooler is used to cool the infrared detectors of imager and sounder instruments. The detectors temperature is maintained at 95 K (BOL) and 100 K (EOL). The passive cooler is also to maintain the sounder filter wheel temperature at 213 K.

INSAT-3D

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellite is monitored and controlled by Master Control Facilities that exist in Hassan and Bhopal. INSAT-3D is a multipurpose geosynchronous spacecraft with main meteorological payloads (imager and sounder). The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3D is monitoring the earth's surface, oceanic observations and also provide data dissemination capabilities. It provides Broadcast Satellite Services (BSS) through two S-band transponders. The data acquisition and processing system is established at Space Applications Centre, Bopal Campus, Ahmedabad, India. The processing of INSAT-3D data is taken place broadly in four steps.

1. Ground receiving system to receive data
2. Data Reception (DR) system to generate raw data (L0) files
3. Data Processing (DP) system to process L0 data and produce L1B data files (Calibrated and Geo located)
4. Product generation and Dissemination system

हिन्दी

INSAT-3DR

INSAT-3DR is identical to INSAT-3D in terms of Sensors and products.

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellite is monitored and controlled by Master Control Facilities that exist in Hassan and Bhopal. INSAT-3DR is a multipurpose geosynchronous spacecraft with main meteorological payloads (imager and sounder). The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3DR is monitoring the earth's surface, oceanic observations and also provide data dissemination capabilities. It provides Broadcast Satellite Services (BSS) through two S-band transponders. The data acquisition and processing system is established at Space Applications Centre, Bopal Campus, Ahmedabad, India. The processing of INSAT-3DR data is taken place broadly in four steps.

1. Ground receiving system to receive data
2. Data Reception (DR) system to generate raw data (L0) files
3. Data Processing (DP) system to process L0 data and produce L1B data files (Calibrated and Geo located)
4. Product generation and Dissemination system

It is positioned at 74^0 East Longitude.

हिन्दी

INSAT-3DR Introduction

INSAT-3DR is a dedicated meteorological spacecraft designed for enhanced meteorological observations and monitoring of land and ocean surfaces for weather forecasting and disaster warning. INSAT-3DR is configured on I-2K bus with Sounder, Imager and Data Relay Transponder (DRT) and Satellite Aided Search & Rescue (SAS&R) Payloads. INSAT-3DR with a lift of mass of about 2211 kg was flown on September 08, 2016 by GSLV-F05. Communication Payload sub systems are configured to support INSAT system for DRT SAS&R and Meteorological Payload services.

The mission goal is stated as "to provide an operational, environmental & storm warning system to protect life & property and also to monitor earth's surface and carryout oceanic observations and also provide data dissemination capabilities"

The satellite has 3 payloads

- Meteorological (MET) - IMAGER and SOUNDER
- Data Relay Transponder (DRT)
- Satellite Aided Search and Rescue (SAS&R)

The geophysical parameters that will be extracted from INSAT-3DR are Outgoing Longwave Radiation (OLR), Quantitative Precipitation Estimation (QPE), Sea Surface Temperature (SST), Snow Cover, Snow Depth, Fire, Smoke, Aerosol, Cloud Motion Vectors (CMV), Water Vapour Winds (WVW), Upper Tropospheric Humidity (UTH), Temperature, Humidity Profile and Total Ozone, Fog, Visible Wind Vectors and other value added parameters from Imager and Sounder.

INSAT-3DR Objectives

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellites also incorporate transponder(s) for receiving distress alert signals for search and rescue missions in the South Asian and Indian Ocean Region, as ISRO is a member of the COSPAR-Sarsat programme.

The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT-3DR will

- Monitor earth's surface and carryout oceanic observations and also provide data dissemination capabilities,
- Provide Broadcast Satellite Services (BSS) through two S-band transponders.,

INSAT-3DR Payloads

The satellite has 3 payloads:

- Meteorological (MET) - IMAGER and SOUNDER
- Data Relay Transponder (DRT)
- Satellite Aided Search and Rescue (SAS&R)

Meteorological Payload

The INSAT-3DR spacecraft incorporates advanced Imager and Sounder instruments.

IMAGER

The INSAT-3DR imager provides imaging capability of the earth disc from geostationary altitude in one visible (0.52 - 0.72 micrometers) and five infrared; 1.55 - 1.70(SWIR), 3.80 - 4.00(MIR), 6.50 - 7.00 (water vapour), 10.2 - 11.2 (TIR-1) and 11.5 - 12.5 (TIR-2) bands. The ground resolution at the sub-satellite point is nominally 1km x 1km for visible and SWIR bands, 4km x 4km for one MIR and both TIR bands and 8km x 8km for WV band.

The Imager is an improved design of VHRR-2 (Very High Resolution Radiometer) heritage instrument flown on the Kalpana-1 resolution in the visible band for the monitoring of meso scale phenomena and severe local storms. The two new SWIR and MWIR bands with a resolution of 1 km and 4 km, respectively, will enable better land-cloud discrimination and detection of surface features like snow. One more significant improvement is the split-band TIR channel with two separate windows in 10.2-11.2 and 11.5-12.5 Micrometer regions with a 4 km resolution.

This new element enables the extraction of sea surface temperature over the Indian region with a far greater accuracy since the dual-window algorithm can be applied to eliminate the atmospheric attenuation effects. The 1 km resolution of the visible channel and 4 km resolution of the thermal IR channels indirectly improve the accuracy of the derived products like outgoing longwave radiation and cloud motion vectors. The INSAT-3DR Imager payload is a replica of INSAT-3D Imager.

Key Parameters of the Imager

Telescope aperture	310 mm diameter
Number of bands (6)	0.52 - 0.72 µm, VIS (Visible) 1.55 - 1.70 µm, SWIR (Short Wave Infrared) 3.80 - 4.00 µm, MWIR (Mid Wave Infrared) 6.50 - 7.00 µm, WV (Water Vapor) 10.2 - 11.2 µm, TIR-1 (Thermal Infrared) 11.5 - 12.5 µm, TIR-2 (Thermal Infrared)
Spatial resolution	1 km for VIS and SWIR 4 km for MWIR 8 km for WV 4 km for TIR-1 and TIR-2
Band separation, band definition	Beam splitter, interference filters
IFOV (Instantaneous Field of View)	28 µrad for VIS and SWIR (1 km) 112 µrad for MWIR, TIR-1, & TIR-2 (4 km) 224 µrad for WV (8 km)
Sampling interval	1.75 samples / IFOV for VIS, SWIR,MIR & TIR-1 / -2 3.5 samples / IFOV for WV
Scan step angle	Linear in E-W direction (8 µR step size) Line step 224 µrad in N-S direction
Scan rate Scan linearity Inflight calibration	200º/s +0.2 s turnaround time 56 µR (peak to peak) Full aperture blackbody and spaceview
Scan modes	Full, normal and programmable sector for quick repetivity
Frame time	25 minutes for normal mode
Signal quantization	10 bit/sample
Downlink data rate	4.0 Mbit/s

SOUNDER

The INSAT-3DR sounder has 18 infrared channels distributed over longwave and shortwave bands alongwith one visible band. A visible channel provides synoptic view of the clouds and the earth to aid in generating three dimensional maps of temperature and moisture structure of the atmosphere.

The Sounder is a first time instrument of the geostationary INSAT series designed and developed at ISRO. The overall objective is to measure the temperature and humidity profiles (vertical distributions) to obtain a three-dimensional representation of the atmosphere. The instrument requirements call for soundings at 10 km ground resolution every 3 hours for a full frame scan. This enables the derivation of vertical profiles of temperature and humidity. These vertical profiles can then be used to derive various atmospheric stability indices and other parameters such as atmospheric water vapor content and total column ozone amount. The INSAT-3DR Sounder payload is a replica of INSAT-3D Sounder.

Key Parameters of the sounder

Telescope aperture	310 mm diameter
Number of bands (6)	18 Infrared + 1 Visible
Band definition	Filter wheel with interference filters
IFOV (Instantaneous Field of View)	280 µrad x 280 rad, corresponding to 10 km x 10 km on the surface
Sampling interval	280 µrad E-W / N-S
No of simultaneous soundings	4 per band
Scan step angle	10 km E-W, every 0.1 s, and 40 km N-S after completion of E-W scan, 150 µR rms
Step and dwell time	0.1, 0.2 and 0.4 s
Turnaround time	0.1 s per scan
In-flight calibration	Full aperture blackbody and space view
Scan modes	Options provided to cater to quick dynamic environmental phenomena
Frame time	160 minutes for 6000 km x 6000 km area sounding
Signal quantization	13 bit/sample
Downlink data rate	40 kbit/s
Frame time	90 kg, (without cooler), 100 W

Spectral parameters and sensitivity of the sounder

Band No.	Center wavelength µm (cm-1)	Bandwidth µm (cm-1)	NEDT at 300 K (typical) K
1	14.71 (680)	0.281 (13)	1.5
2	14.37 (696)	0.268 (13)	1
3	14.06 (711)	0.256 (13)	0.5
4	13.96 (733)	0.298 (16)	0.5
5	13.37 (749)	0.286 (16)	0.5
6	12.66 (790)	0.481 (30)	0.3
7	12.02 (832)	0.723 (50)	0.15
8	11.03 (907)	0.608 (50)	0.15
9	9.71 (1030)	0.235 (25)	0.2
10	7.43 (1425)	0.304 (55)	0.2
11	7.02 (1425)	0.394 (80)	0.2
12	6.51 (1535)	0.255 (60)	0.2
13	4.57 (2188)	0.048 (23)	0.2
14	4.52 (2210)	0.047 (23)	0.15
15	4.45 (2245)	0.045 (23)	0.15
16	4.13 (2420)	0.0683 (40)	0.15
17	3.98 (2513)	0.0683 (40)	0.15
18	3.74 (2671)	0.140 (100)	0.15
19	0.695 (14367) 0.05 (1000) (0.67-0.72)		0.1% albedo

Communication Payload

Communication transponders are required to be configured to provide continuity of some of the INSAT services. A total satellite mass of 2211kg is considered for the launch compatibility, and 70 kg (approximately) of mass apportionment is done for the communication payload components. The communication payload components are - Meteorological Transmitter, Data Relay Transponder, Satellite Aided Search and Rescue (SAS&R) Transponder & S-band Broadcast Satellite Services Transponder.

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

INSAT-3DR References

Product Format Compatability with COTS package (Size:796 KB Format:PDF Tool:PDFViewer)

ATBD Document (Size:9.8 MB Format:PDF Tool:PDFViewer)

Revised ATBD Document for SST (Size:1.4 MB Format:PDF Tool:PDFViewer)

Incremental ATBD Document (Size:5.2 MB Format:PDF Tool:PDFViewer)

Format Document (Size:903 KB Format:PDF Tool:PDFViewer)

Product Catalogue (Size:229 KB Format:PDF Tool:PDFViewer)

INSAT Product Version Information (Size:1.61 MB Format: PDF Tool : PDFViewer)

ATBD_HEM_rain_revised (Size:2.14 MB Format: PDF Tool : PDFViewer)

Revised ATBD for AOD (Size:296KB Format: PDF Tool : PDFViewer)

INSAT-3DR SpaceCraft

The INSAT-3DR is a momentum-biased 3-axis stabilized spacecraft using star trackers for precise pointing control. The spacecraft has a launch mass of 2211 kg with a dry mass of 907 kg. It is in Geostationary orbit, altitude of ~35, 786 km, location at 74° East. The three-axis stabilized geostationary satellite carries two meteorological instruments: a six channel Imager and an IR Sounder. Along with the channels in Visible, Middle Infrared, Water Vapor and Thermal Infrared bands, the Imager includes a SWIR channel for wider applications. The Sounder will have eighteen narrow spectral channels in three IR bands in addition to a channel in visible band. It also has a Data Relay Transponder and Satellite based Search & Rescue Payload. Several innovative technologies like on-the-fly correction of scan mirror pointing errors, biannual yaw rotation of the spacecraft, micro-stepping SADA, star sensors and integrated bus management unit have been incorporated to meet the stringent payload requirements like pointing accuracies, thermal management of IR detectors and concurrent operation of both instruments.

A passive radiant cooler is used to cool the infrared detectors of imager and sounder instruments. The temperature of the detectors is maintained at 95 K (BOL) and 100 K (EOL). The passive cooler also maintains the sounder filter wheel temperature at 213 K.

INSAT-3DR

INSAT-3DR is identical to INSAT-3D in terms of Sensors and products.

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellite is monitored and controlled by Master Control Facilities that exist in Hassan and Bhopal. INSAT-3DR is a multipurpose geosynchronous spacecraft with main meteorological payloads (imager and sounder). The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3DR is monitoring the earth's surface, oceanic observations and also provide data dissemination capabilities. It provides Broadcast Satellite Services (BSS) through two S-band transponders. The data acquisition and processing system is established at Space Applications Centre, Bopal Campus, Ahmedabad, India. The processing of INSAT-3DR data is taken place broadly in four steps.

1. Ground receiving system to receive data
2. Data Reception (DR) system to generate raw data (L0) files
3. Data Processing (DP) system to process L0 data and produce L1B data files (Calibrated and Geo located)
4. Product generation and Dissemination system

It is positioned at 74^0 East Longitude.

हिन्दी

INSAT-3DS

INSAT-3DS is identical to INSAT-3D in terms of Sensors and products.

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellite is monitored and controlled by Master Control Facilities that exist in Hassan and Bhopal. INSAT-3DS is a multipurpose geosynchronous spacecraft with main meteorological payloads (imager and sounder). The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3S is monitoring the earth's surface, oceanic observations and also provide data dissemination capabilities. It provides Broadcast Satellite Services (BSS) through two S-band transponders. The data acquisition and processing system is established at Space Applications Centre, Bopal Campus, Ahmedabad, India. The processing of INSAT-3DS data is taken place broadly in four steps.

1. Ground receiving system to receive data
2. Data Reception (DR) system to generate raw data (L0) files
3. Data Processing (DP) system to process L0 data and produce L1B data files (Calibrated and Geo located)
4. Product generation and Dissemination system

हिन्दी

INSAT-3DS

INSAT-3DS is identical to INSAT-3D in terms of Sensors and products.

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellite is monitored and controlled by Master Control Facilities that exist in Hassan and Bhopal. INSAT-3DS is a multipurpose geosynchronous spacecraft with main meteorological payloads (imager and sounder). The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3S is monitoring the earth's surface, oceanic observations and also provide data dissemination capabilities. It provides Broadcast Satellite Services (BSS) through two S-band transponders. The data acquisition and processing system is established at Space Applications Centre, Bopal Campus, Ahmedabad, India. The processing of INSAT-3DS data is taken place broadly in four steps.

1. Ground receiving system to receive data
2. Data Reception (DR) system to generate raw data (L0) files
3. Data Processing (DP) system to process L0 data and produce L1B data files (Calibrated and Geo located)
4. Product generation and Dissemination system

हिन्दी

INSAT-3DS Introduction

INSAT-3DS is a dedicated meteorological spacecraft designed for enhanced meteorological observation and monitoring of land and ocean surfaces of weather forecasting and disaster warning. INSAT-3DS is configured on I-2K bus with Sounder, Imager and Data Relay Transponder (DRT) and Satellite Aided Search & Rescue (SAS&R) Payloads. INSAT-3DS was flown on February 17, 2024 with a lift of mass of about 420 Tonnes by GSLV-F14 and expected minimum mission life is seven years. Communication Payload sub systems are configured to support INSAT system for DRT SAS&R and Meteorological Payload services.

The mission goal is stated as "to provide an operational, environmental & storm warning system to protect life & property and also to monitor earth's surface and carryout oceanic observations and also provide data dissemination capabilities"

The satellite has 3 payloads

- Meteorological (MET) - IMAGER and SOUNDER
- Data Relay Transponder (DRT)
- Satellite Aided Search and Rescue (SAS&R)

The geophysical parameters that will be extracted from INSAT3DS are Outgoing Longwave Radiation (OLR), Quantitative Precipitation Estimation (QPE), Sea Surface Temperature (SST), Snow Cover, Snow Depth, Fire, Smoke, Aerosol, Cloud Motion Vector (CMV), Water Vapour Wind (WVW), Upper Tropospheric Humidity (UTH), Temperature, Humidity Profile and Total Ozone, Fog, Visible Wind Vector and other value added parameters from Imager and Sounder.

INSAT-3DS Objectives

INSAT or the Indian National Satellite System is a series of multipurpose Geo-stationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology, and search and rescue needs of India. Commissioned in 1983, INSAT is the largest domestic communication system in the Asia Pacific Region. The satellites also incorporate transponder(s) for receiving distress alert signals for search and rescue missions in the South Asian and Indian Ocean Region, as ISRO is a member of the Cospas-Sarsat programme.

The main objectives for this mission are to provide an operational, environmental and storm warning system to protect life and property. INSAT3DS will

- Monitor earth's surface and carryout oceanic observations and also provide data dissemination capabilities,
- Provide Broadcast Satellite Services (BSS) through two S-band transponders.,

INSAT-3DS Payloads

The satellite has 3 payloads:

- Meteorological (MET) - IMAGER and SOUNDER
- Data Relay Transponder (DRT)
- Satellite Aided Search and Rescue (SAS&R)

Meteorological Payload

The INSAT-3DS spacecraft incorporates advanced Imager and Sounder instruments.

IMAGER

The INSAT-3DS imager provides imaging capability of the earth disc from geostationary altitude in one visible (0.52 - 0.72 micrometers) and five infrared; 1.55 - 1.70(SWIR), 3.80 - 4.00(MIR), 6.50 - 7.00 (water vapour), 10.2 - 11.2 (TIR-1) and 11.5 - 12.5 (TIR-2) bands. The ground resolution at the sub-satellite point is nominally 1km x 1km for visible and SWIR bands, 4km x 4km for one MIR and both TIR bands and 8km x 8km for WV band.

The Imager is an improved design of VHRR/2 (Very High Resolution Radiometer) heritage instrument flown on the Kalpana-1 and INSAT-3A missions. The instrument features 6 spectral bands (against the 3 bands in previous versions) offering an improved 1 km resolution in the visible band for the monitoring of meso scale phenomena and severe local storms. The two new SWIR and MWIR bands with a resolution of 1 km and 4 km, respectively, will enable better land-cloud discrimination and detection of surface features like snow. One more significant improvement is the split-band TIR channel with two separate windows in 10.2-11.2 and 11.5-12.5 Micrometer regions with a 4 km resolution.

This new element enables the extraction of sea surface temperature over the Indian region with a far greater accuracy since the dual-window algorithm can be applied to eliminate the atmospheric attenuation effects. The 1 km resolution of the visible channel and 4 km resolution of the thermal IR channels indirectly improve the accuracy of the derived products like outgoing longwave radiation and cloud motion vectors.

Key Parameters of the Imager

Telescope aperture	310 mm diameter

Number of bands (6)	0.52 - 0.72 µm, VIS (Visible) 1.55 - 1.70 µm, SWIR (Short Wave Infrared) 3.80 - 4.00 µm, MWIR (Mid Wave Infrared) 6.50 - 7.00 µm, WV (Water Vapor) 10.2 - 11.2 µm, TIR-1 (Thermal Infrared) 11.5 - 12.5 µm, TIR-2 (Thermal Infrared)
Spatial resolution	1 km for VIS and SWIR 4 km for MWIR 8 km for WV 4 km for TIR-1 and TIR-2
Band separation, band definition	Beam splitter, interference filters
IFOV (Instantaneous Field of View)	28 µrad for VIS and SWIR (1 km) 112 µrad for MWIR, TIR-1, & TIR-2 (4 km) 224 µrad for WV (8 km)
Sampling interval	1.75 samples / IFOV for VIS, SWIR,MIR & TIR-1 / -2 3.5 samples / IFOV for WV
Scan step angle	Linear in E-W direction (8 µR step size) Line step 224 µrad in N-S direction
Scan rate Scan linearity Inflight calibration	200º/s +0.2 s turnaround time 56 µR (peak to peak) Full aperture blackbody and spaceview
Scan modes	Full, normal and programmable sector for quick repetivity
Frame time	25 minutes for normal mode
Signal quantization	10 bit/sample
Downlink data rate	4.0 Mbit/s

SOUNDER

The INSAT-3DS sounder has 18 infrared channels distributed over longwave and shortwave bands. A visible channel provides synoptic view of the clouds and the earth to aid in generating three dimensional map of temperature and moisture structure of the atmosphere.

The Sounder is a first time instrument of the geostationary INSAT series designed and developed at ISRO. The overall objective is to measure the temperature and humidity profiles (vertical distributions) to obtain a three-dimensional representation of the atmosphere. The instrument requirements call for soundings at 10 km ground resolution every 3 hours for a full frame scan. This enables the derivation of vertical profiles of temperature and humidity. These vertical profiles can then be used to derive various atmospheric stability indices and other parameters such as atmospheric water vapor content and total column ozone amount.

Key Parameters of the sounder

Telescope aperture	310 mm diameter
Number of bands (6)	18 Infrared + 1 Visible
Band definition	Filter wheel with interference filters
IFOV (Instantaneous Field of View)	280 µrad x 280 rad, corresponding to 10 km x 10 km on the surface
Sampling interval	280 µrad E-W / N-S
No of simultaneous soundings	4 per band
Scan step angle	10 km E-W, every 0.1 s, and 40 km N-S after completion of E-W scan, 150 µR rms
Step and dwell time	0.1, 0.2 and 0.4 s
Turnaround time	0.1 s per scan
In-flight calibration	Full aperture blackbody and space view
Scan modes	Options provided to cater to quick dynamic environmental phenomena
Frame time	160 minutes for 6000 km x 6000 km area sounding
Signal quantization	13 bit/sample
Downlink data rate	40 kbit/s
Frame time	90 kg, (without cooler), 100 W

Spectral parameters and sensitivity of the sounder

Band No.	Center wavelength µm (cm-1)	Bandwidth µm (cm-1)	NEDT at 300 K (typical) K
1	14.71 (680)	0.281 (13)	1.5
2	14.37 (696)	0.268 (13)	1
3	14.06 (711)	0.256 (13)	0.5
4	13.96 (733)	0.298 (16)	0.5
5	13.37 (749)	0.286 (16)	0.5
6	12.66 (790)	0.481 (30)	0.3
7	12.02 (832)	0.723 (50)	0.15
8	11.03 (907)	0.608 (50)	0.15
9	9.71 (1030)	0.235 (25)	0.2
10	7.43 (1425)	0.304 (55)	0.2
11	7.02 (1425)	0.394 (80)	0.2
12	6.51 (1535)	0.255 (60)	0.2
13	4.57 (2188)	0.048 (23)	0.2
14	4.52 (2210)	0.047 (23)	0.15
15	4.45 (2245)	0.045 (23)	0.15
16	4.13 (2420)	0.0683 (40)	0.15
17	3.98 (2513)	0.0683 (40)	0.15
18	3.74 (2671)	0.140 (100)	0.15
19	0.695 (14367) 0.05 (1000) (0.67-0.72)		0.1% albedo

Communication Payload

Communication transponders are required to be configured to provide continuity of some of the INSAT services. A total satellite mass of 2000kg is considered for the launch compatibility, and 70 kg (approximately) of mass apportionment is done for the communication payload components. The communication payload components are - Meteorological Transmitter, Data Relay Transponder, Satellite Aided Search and Rescue (SAS&R) Transponder & S-band Broadcast Satellite Services Transponder.

INSAT-3DS References

INSAT-3DS_Operational_Products_V1 (Size:586 KB Format:PDF Tool:PDFViewer)

INSAT-3DS SpaceCraft

The INSAT-3DS is a momentum-biased 3-axis stabilized spacecraft using star trackers for precise pointing control. The spacecraft has a launch mass of 420 Tonnes with Lift-Off Mass of 2275 kg . The nominal design life is 7.7 years. It is in Geostationary orbit, altitude of ~35, 786 km, location at 82° East. The three-axis stabilized geostationary satellite carries two meteorological instruments: a six channel Imager and an IR Sounder. Along with the channels in Visible, Middle Infrared, Water Vapor and Thermal Infrared bands, the Imager includes a SWIR channel for wider applications. The Sounder will have eighteen narrow spectral channels in three IR bands in addition to a channel in visible band. It also has a Data Relay Transponder and Satellite based Search & Rescue Payload. Several innovative technologies like on-the-fly correction of scan mirror pointing errors, biannual yaw rotation of the spacecraft, micro-stepping SADA, star sensors and integrated bus management unit have been incorporated to meet the stringent payload requirements like pointing accuracies, thermal management of IR detectors and concurrent operation of both instruments.

A passive radiant cooler is used to cool the infrared detectors of imager and sounder instruments. The detectors temperature is maintained at 95 K (BOL) and 100 K (EOL). The passive cooler is also to maintain the sounder filter wheel temperature at 213 K.

Insitu

	Display name	modified
	EOS-06_OCM_RadCalNet_Monitoring	Fri, 2025-04-11 14:39
	2020	Tue, 2020-10-27 14:36
	2019	Tue, 2020-10-27 14:36
	2018	Tue, 2020-10-27 14:36
	2017	Tue, 2020-10-27 14:36
	2016	Tue, 2020-10-27 14:36
	2015	Fri, 2017-11-24 11:21
	2014	Fri, 2017-11-24 11:21
	2013	Fri, 2017-11-24 11:20

9 folders

मॉस्डैक MOSDAC
भारत सरकार Govt. of India अंतरिक्ष उपयोग केंद्र Space Applications Centre इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Insitu

	Display name	modified
	EOS-06_OCM_RadCalNet_Monitoring	Fri, 2025-04-11 14:39
	2020	Tue, 2020-10-27 14:36
	2019	Tue, 2020-10-27 14:36
	2018	Tue, 2020-10-27 14:36
	2017	Tue, 2020-10-27 14:36
	2016	Tue, 2020-10-27 14:36
	2015	Fri, 2017-11-24 11:21
	2014	Fri, 2017-11-24 11:21
	2013	Fri, 2017-11-24 11:20

9 folders

Insitu

	Display name	modified
	EOS-06_OCM_RadCalNet_Monitoring	Fri, 2025-04-11 14:39
	2020	Tue, 2020-10-27 14:36
	2019	Tue, 2020-10-27 14:36
	2018	Tue, 2020-10-27 14:36
	2017	Tue, 2020-10-27 14:36
	2016	Tue, 2020-10-27 14:36
	2015	Fri, 2017-11-24 11:21
	2014	Fri, 2017-11-24 11:21
	2013	Fri, 2017-11-24 11:20

9 folders

Insitu

	Display name	modified
	2013	Fri, 2017-11-24 11:20
	2014	Fri, 2017-11-24 11:21
	2015	Fri, 2017-11-24 11:21
	2016	Tue, 2020-10-27 14:36
	2017	Tue, 2020-10-27 14:36
	2018	Tue, 2020-10-27 14:36
	2019	Tue, 2020-10-27 14:36
	2020	Tue, 2020-10-27 14:36
	EOS-06_OCM_RadCalNet_Monitoring	Fri, 2025-04-11 14:39

9 folders

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Username or email

Password

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Log In

संग्रहीत उत्पाद सूची

Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

Sr.No	Version	Description	Start Date	End Date
{{$index + 1}}	{{allversion.version}}	{{allversion.desc}}	--	{{allversion.stdate}}	{{allversion.enddate}}

Sr.No	Version	Description
1	ault Version	Initial Version

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संग्रहीत उत्पाद सूची

Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
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{{name}} Version Detail

Sr.No	Version	Description	Start Date	End Date
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Sr.No	Version	Description
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Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

Sr.No	Version	Description	Start Date	End Date
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Sr.No	Version	Description
1	...ault Version	Initial Version

Feedback (/mosdac-feedback)
Copyright Policy (/copyright-policy)
Privacy Policy (/privacy-policy)
FAQs (/faq-page)

About Us (/about-us)
Data Access Policy (/data-access-policy)
Website Policies (/website-policies)

Contact Us (/contact-us)
Hyperlink Policy (/hyperlink-policy)
Terms & Conditions (/terms-conditions)

(http://www.isro.gov.in) (http://www.sac.gov.in) (http://www.india.gov.in)

(http://mygov.in/) > (http://www.digitalindia.gov.in/) (http://data.gov.in)

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संग्रहीत उत्पाद सूची
Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
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{{name}} Version Detail

Sr.No	Version	Description	Start Date	End Date
{{$index + 1}}	{{allversion.version}}	{{allversion.desc}}	--	{{allversion.stdate}}	{{allversion.enddate}}

Sr.No	Version	Description
1	ault Version	Initial Version

यथास्थिति (AWS) उत्पाद सूची
Insitu (AWS) Catalog

Sr.No	Station Name	State	Station ID	Station Key	Latitude	Longitude	Start Date	End Date	Processing Status	Temporal Resolution
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.state}}	{{allproduct.id}}	{{allproduct.key}}	{{allproduct.latres}}	{{allproduct.longres}}	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduc**

संग्रहीत उत्पाद सूची
Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

Sr.No	Version	Description	Start Date	End Date	
{{$index + 1}}	{{allversion.version}}	{{allversion.desc}}	--	{{allversion.stdate}}	{{allversion.enddate}}

Sr.No	Version	Description
1	ault Version	Initial Version

संग्रहीत उत्पाद सूची
Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

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Sr.No	Version	Description
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{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduduc

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Sr.No	Version	Description
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Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

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Sr.No	Version	Description
1	ault Version	Initial Version

राडार उत्पाद सूची
RADAR Catalog

Sr.No	Product / Acq Calendar	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency | uppercase}}	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allprodu

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Satellite Catalog

Sr.No	Product / Acq Calendar/Version	Product Description	Processing Level	Temporal Resolution	Start Date	End Date	Processing Status	DOI	
{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

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{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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Sr.No	Version	Description
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{{$index + 1}}	**{{allproduct.name}}**	{{allproduct.description}}	{{allproduct.processlevel}}	{{allproduct.frequency	{{allproduct.startdate}}	{{allproduct.enddate}}	**{{allproduct.actv}}**	**{{allproduct.actv}}**	{{allproduc

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{{name}} Version Detail

Sr.No	Version	Description	Start Date	End Date
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Sr.No	Version	Description
1	ault Version	Initial Version

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{{datetimeLoc}} {{datetimeGmt}}

Year: Cyclone:

SCAT Image

Cyclone Info

Quick Layers | Analysis | Tools | Legends

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Satellite/Forecast

Sensor/Model

Product Type

Product

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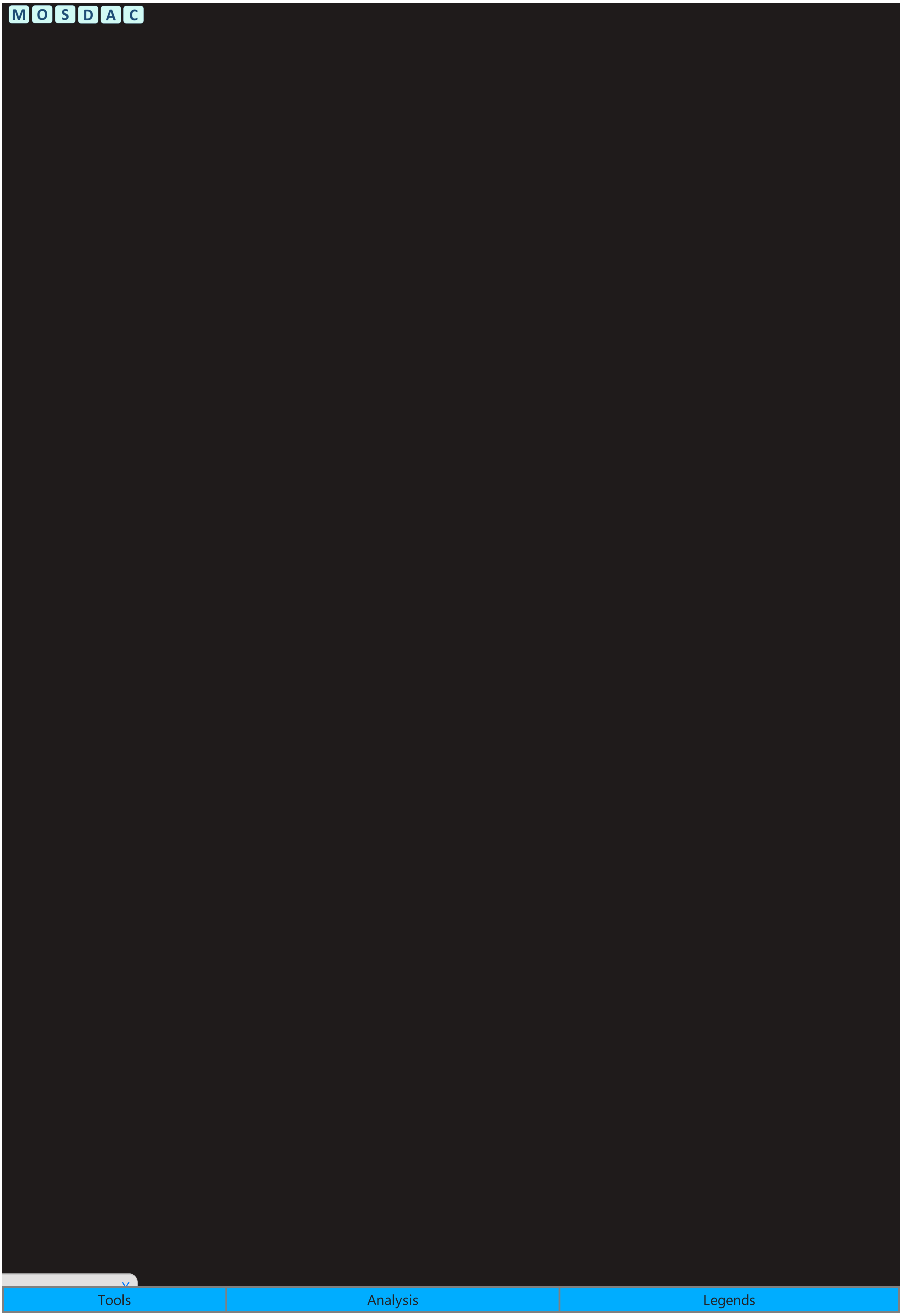
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Tools
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Analysis Chart X

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MOSDAC

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Legends

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Quick Layers	Tools	Animation	Analysis	Legends

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Select Date :

Legends	Analysis

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भारत सरकार Govt. of India
अंतरिक्ष उपयोग केंद्र Space Applications Centre
इसरो isro अंतरिक्ष विभाग Dept. of Space
(/)

साइन अप

SignUp

New User Registration Form

***User Name :**

(#Min 5 Characters, No capital letters and First 3 must be Alphabet)

***Password**

(#Minimum 8 Characters, at least one number, one uppercase, one lowercase letter and one special character)

***Confirm Password**

***Title**

Mr.

***First Name**

***Last Name**

***Email :**

Designation

***Organisation**

***Address**

***City**

*Country

India

*Mobile Number

(#Mobile Number Format Should be like +91-XXXXXXXXXX)

Land Line

(#Landlinenumber Format Should be like +91-XXXXXXXXXX)

*Purpose

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Password

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Quick Layers	Tools	Animation	Analysis	Legends

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Quick Layers	Tools	Animation	Analysis	Legends

Quick Layers	Tools	Animation	Analysis	Legends

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S1SCT_L4_SIG_GLB http://mosdac.gov.in/look/S1_SCT/preview/2021/MAR/L4FULLGLOBE/S1L4SV_2021060_2021061_ASC_GL2_v1.1.4_1.2.jpg Mon, 01 Mar 2021 00:49:00 GMT -90.000000 0.000000 90.000000 360.000000 http://mosdac.gov.in/look/S1_SCT/preview/2021/MAR/L4FULLGLOBE/S1L4SV_2021060_2021061_ASC_GL2_v1.1.4_1.2.jpg S1L4SV_2021060_2021061_ASC_GL2_v1.1.4_1.2.tif SCATSAT-1 high resolution land product over Full Globe generated using multiple SCATSAT-1 L1B products using SIR Algorithm http://mosdac.gov.in/look/S1_SCT/preview/2021/MAR/L4FULLGLOBE/S1L4SV_2021060_2021061_ASC_GL2_v1.1.4_1.2.jpg Wed, 03 Mar 2021 16:32:00 GMT S1SCT_L4_SIG_NP http://mosdac.gov.in/look/S1_SCT/preview/2021/MAR/L4NPOLAR/S1L4SV_2021060_2021062_DES_NP_v1.1.4_1.2.jpg Mon, 01 Mar 2021 00:49:00 GMT 45.000000 0.000000 90.000000 360.000000 http://mosdac.gov.in/look/S1_SCT/preview/2021/MAR/L4NPOLAR/S1L4SV_2021060_2021062_DES_NP_v1.1.4_1.2.jpg S1L4SV_2021060_2021062_DES_NP_v1.1.4_1.2.tif SCATSAT1 high resolution sea ice product over 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multiple SCATSAT1 L1B products using SIR Algorithm
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Mar 2021 09:20:00 GMT S1SCT_L4_SIG_SP
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S1L4SV_2021060_2021062_ASC_SP_v1.1.4_1.2.tif SCATSAT1 high resolution sea ice product over South Pole generated using multiple SCATSAT1 L1B products using SIR Algorithm
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S1L4GH_2021060_2021062_ASC_SP_v1.1.4_1.2.tif SCATSAT1 high resolution sea ice product over South Pole generated using multiple SCATSAT1 L1B products using SIR Algorithm
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S1L4GH_2021060_2021062_DES_NP_v1.1.4_1.2.tif SCATSAT1 high resolution sea ice product over North Pole generated using multiple SCATSAT1 L1B products using SIR Algorithm
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- **webMaster**: admin@mosdac.gov.in
- **pubDate**: Thu, 04 Mar 2021 09:20:51 GMT
- **generator**: Datacasting Feed Publishing Tools
- **docs**: http://datacasting.jpl.nasa.gov/datacasting.html
- **ttl**: 30
- **image**: http://mosdac.gov.in/data/img/MOSDAC_banner.png MOSDAC Logo http://mosdac.gov.in 88 31 SCATSAT
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KALPANA-1

Metsat is an exclusive meteorological satellite of ISRO in geo-synchronous orbit. This satellite is developed out of a small I-1000 bus made of carbon fibre re-enforced plastic light weight structure, a uni power bus employing an 18AH Ni-Cd battery and a single GaAs/Ge solar panel generating 640 watts of power. Metsat uses a 3-axis stabilized momentum biased attitude control system with suitable linearly controlled magnetic torquers for solar radiation pressure compensation. A unified propulsion system of bi-propellant apogee motor of 440 Newtons and the reaction control engines of 22 Newtons has been selected for efficient and versatile mission management.

Metsat carries on-board a Very High ResolutionRadiometer (VHRR) and a Data Relay Transponder (DRT) for weather data transmission. VHRR provides earth imageries in visible band with a resolution of2 km, in thermal infrared and water vapor bands with 8 km. DRT collects weather data from un-attended data collection platforms located throughout India and transmits the same to centrally located Meteorological Data Utilisation Centre. The satellite dry mass is about 495 kg. Metsat was launched on- board upgraded and modified satellite launch vehicle (PSLV) with a lift–off mass of 1060 kgs in September 2002. After successful launch and early orbit operations and in orbit characterization of the Payload, the satellite has been commissioned for routine usage of weather data and imageries.

हिन्दी

KALPANA-1 Introduction

Kalpana-1 is the first dedicated meteorological satellite launched by Indian Space Research Organisation using Polar Satellite Launch Vehicle on 2002-09-12. This was the first satellite launched by the PSLV into the Geo-stationary orbit. The satellite was originally known as MetSat-1. On February 5, 2003 it was renamed to Kalpana-1 by the Indian Prime Minister Atal Bihari Vajpayee in memory of Kalpana Chawla?a NASA astronaut who perished in the Space Shuttle Columbia disaster.

The satellite features a Very High Resolution scanning Radiometer (VHRR), for three-band images and a Data Relay Transponder (DRT) payload.

So far, meteorological services had been combined with telecommunication and television services in the INSAT series. MetSat-1 is a precursor to the future INSAT system that will have separate satellites for meteorology and telecommunication & broadcasting services.

KALPANA-1 Objectives

Major Metsat/Kalpana mission objectives are:-

- To establish a small satellite I-1000 bus system which can meet the exclusive service requirements of a meteorological payload for earth imageries
- Collection of weather data from low cost unattended data collection platforms-to configure Metsat spacecraft within the lift-off mass constraints of upgraded existing polar satellite launch vehicle for deployment in geo-synchronous transfer orbit (GTO) mission.

KALPANA-1 Payloads

VHRR

VHRR/2 is a modified version of the VHRR heritage imagers flown on INSAT-2A, -2B, and -2E. The VHRR observes in VIS, water vapor and TIR bands providing a spatial resolution of 2 km in VIS band and 8 km for the rest. VHRR was developed by SAC (Satellite Application Center), Ahmedabad, India. The instrument operates in three scanning modes:

- Full frame mode (20° North-South x 20° East-West), minimum in about 33 minutes covering the entire Earth disk
- Normal frame mode (14° N-S x 20° E-W), minimum in about 23 minutes
- Sector frame mode in which the sector can be positioned anywhere in steps of 0.5° in the N-S direction to cover 4.5° N-S x 20° E-W. This mode is particularly suited for rapid, repetitive coverage during severe weather conditions like a cyclone.

The nominal frame repetition rates are: 40, 30 and 20 minutes respectively. VHRR is an opto-mechanical system (whiskbroom type imager). The incoming solar radiation is reflected onto a Ritchey-Chretien telescope of 20 cm aperture by a beryllium scan mirror mounted at 45° to the optical axis. The optical system includes a gold-film dichoric beam-splitter that transmits visible light energy and reflects WV/TIR energy, so that the radiation from the Earth is channelized to the visible and IR focal planes simultaneously.

The visible band detector configuration consists of two staggered arrays of four silicon photodiodes each; while two sets of mercury-cadmium telluride (MCT) detector elements operating nominally at 100-110 K sense the WV/thermal radiation. The scan mirror is mounted on a two-axis, gimballed scan mechanism system to generate a 2-D image by sweeping the detector instantaneous field of view (FOV) across the Earth's surface in east to west (fast scan) and north to south (slow scan).

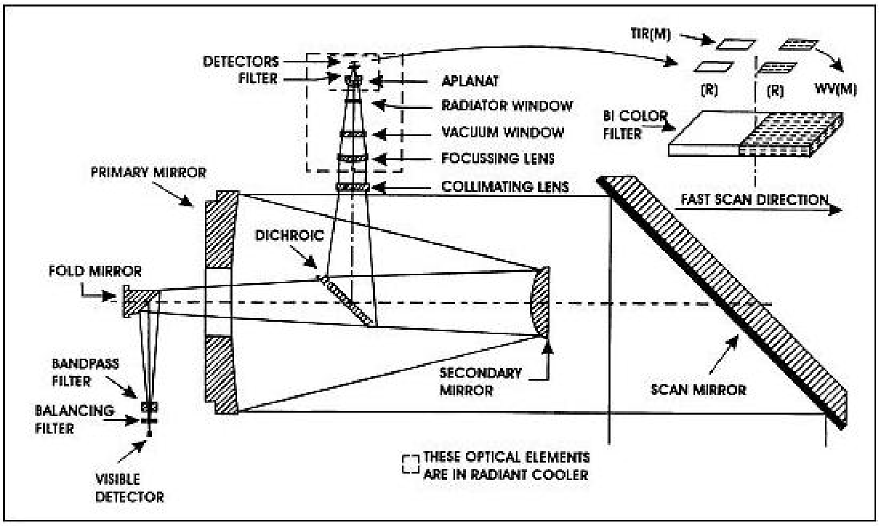
Imaging modes of the VHRR instrument

Imaging mode	Coverage	Repeatability
Full scan	20° N-S and 20° E-W	33 min
Normal scan	14° N-S and 20° E-W	23 min
Sector scan	4.5° N-S and 20° E-W	23 (3 times)

Imaging modes of the VHRR instruments

Channel	No of detectors	MTF (Modulation Transfer Function)	Dynamic range	Noise performance
VIS	4 +4 redundant	> 0.23 approx.	0-100% albedo	6 : 1 min at 2.5% albedo
Water Vapor (WV)	1 + 1 redundant	> 0.21 approx.	4-340 K	0.25 K at 300 K
TIR	1 + 1 redundant	> 0.21 approx.	4-320 K	0.5 K at 300 K

Schematic illustration of the VHRR instrument



VHRR Instrument

Spectral band: VIS Spectral band: TIR Spectral band: MWIR (Water vapor)	0.55 - 0.75 µm; Integrated out-of-band response <3% Inter detector mismatch < 5% 10.5 - 12.5 µm; Integrated out-of-band response <3% Out-of-band response peak < 0.1% 5.7 - 7.1 µm
Spatial resolution VIS Spatial resolution TIR and MWIR	56 µrad (or 2 km x 2 km) 224 µrad (or 8 km x 8 km)
Radiometric performance: SNR Radiometric performance: NEDT	> 6 for VIS at 2.5% albedo < 0.25 K at 300 K for IR channel
Dynamic range of TIR/MWIR channels Dynamic range of VIS channel	4-340 K 0-100%
Misregistration between VIS and IR	<56 µrad
Modulation Transfer Function (MTF)	> 21% for IR and TIR; >23% for VIS channel

DRT (Data Relay Transponder)

The DRT (Data Relay Transponder) is part of a DCS (Data Collection System) of ISRO. The objective is to collect data from unattended meteorological platforms in the ground segment. DRT receives receives signals from unattended weather data collection platforms and retransmits them to the central station. The data from these payloads are being used for comprehensive weather status and forecasting.

RF communication of DRT: Uplink frequency = 402.75 MHz; downlink frequency = 4506.05

MHz; bandwidth =± 100 kHz; EIRP = 21 dBW (min).

Note: MetSat-1 does not carry SAS&R (Satellite Aided Search and Rescue) system. In the INSAT-2 series, the INSAT-2A and -2B satellites carried SAS&R transponders as well as DRTs (Data Relay Transponders). According to ISRO information, INSAT-3A (launch April 9, 2003) and INSAT-3D (to be launched subsequently), will carry SAS&R and DRT payloads.

Govt. of India मॉस्डैक MOSDAC अंतरिक्ष उपयोग केंद्र Space Applications Centre इसरो isro अंतरिक्ष विभाग Dept. of Space

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KALPANA-1 SpaceCraft

The MetSat-1 spacecraft was developed by ISAC (ISRO Satellite Center), Bangalore. MetSat has been designed using a new spacecraft bus (I-1000 bus) employing lightweight structural elements like CFRP (Carbon Fibre Reinforced Plastic). A central structural thrust cylinder provides mounting interfaces propellant tanks, pressurant tank, equipment panels, payload, solar array assembly, and with the launch vehicle.

Structural brackets are provided to mount momentum wheels, reaction wheel, RCS (Reaction Control System) thrusters, earth sensors, sun sensors, LAM (Liquid Apogee Motor), and propulsion components.

MetSat-1 is three-axis stabilized (momentum biased control subsystem). However, unlike its INSAT predecessors, the MetSat-1 spacecraft does not feature a sail/boom design. The attitude is sensed by suite of sensors (gyros, Earth sensors, digital sun sensor, coarse analog sun sensors, and solar panel sun sensor). Magnetic torquers serve as actuators to unload the momentum of the wheels. In addition, active thrusters are used (one 440N LAM for orbit raising maneuvers and eight 22 N thrusters for orbit and attitude control).

The propulsion system employed is a unified bi-propellant with mono-methyl hydrazine (MMH) as fuel and mixed oxides of nitrogen (MON3) as oxidizer. The S/C employs passive thermal control system by utilizing multi-layer insulation blankets, optical solar reflectors, heat sinks, paints, thermal grease, thermal shields etc. The temperature of individual subsystems spread over the satellite is maintained by a bank of 112 heaters.

EPS (Electrical Power Subsystem): Electrical power of 550 W is generated by a single panel solar array of 2.15 m x 1.85 m using GaAS solar cells. The solar panel features a drive mechanism to point it into the sun. A single NiCd battery (18 Ah capacity) provides power for eclipse phases. The SADA (Solar Array Driver Assembly) slip rings and drive mechanism are modified to meet the power transfer and drive requirements, it is mass-optimized.

The spacecraft has a launch mass of 1055 kg including 560 kg of propellant (495 kg S/C dry mass). MetSat-1 has a design life of 7 years with an operational goal of 10 years.

KALPANA-1

Metsat is an exclusive meteorological satellite of ISRO in geo-synchronous orbit. This satellite is developed out of a small I-1000 bus made of carbon fibre re-enforced plastic light weight structure, a uni power bus employing an 18AH Ni-Cd battery and a single GaAs/Ge solar panel generating 640 watts of power. Metsat uses a 3-axis stabilized momentum biased attitude control system with suitable linearly controlled magnetic torquers for solar radiation pressure compensation. A unified propulsion system of bi-propellant apogee motor of 440 Newtons and the reaction control engines of 22 Newtons has been selected for efficient and versatile mission management.

Metsat carries on-board a Very High ResolutionRadiometer (VHRR) and a Data Relay Transponder (DRT) for weather data transmission. VHRR provides earth imageries in visible band with a resolution of2 km, in thermal infrared and water vapor bands with 8 km. DRT collects weather data from un-attended data collection platforms located throughout India and transmits the same to centrally located Meteorological Data Utilisation Centre. The satellite dry mass is about 495 kg. Metsat was launched on- board upgraded and modified satellite launch vehicle (PSLV) with a lift–off mass of 1060 kgs in September 2002. After successful launch and early orbit operations and in orbit characterization of the Payload, the satellite has been commissioned for routine usage of weather data and imageries.

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Fullscreen

Megha Tropiques

Megha-Tropiques is an Indo-French Joint Satellite Mission for studying the water cycle and energy exchanges in the tropics. The main objective of this mission is to understand the life cycle of convective systems that influence the tropical weather and climate and their role in associated energy and moisture budget of the atmosphere in tropical regions. Megha-Tropiques provides scientific data on the contribution of the water cycle to the tropical atmosphere, with information on condensed water in clouds, water vapour in the atmosphere, precipitation, and evaporation. With its circular orbit inclined 20 deg to the equator, the Megha-Tropiques is a unique satellite for climate research that should also aid scientists seeking to refine prediction models. The Megha-Tropiques has day, night and all-weather viewing capabilities; it passes over India almost a dozen times every day, giving scientists an almost real- time assessment of the evolution of clouds.

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Megha Tropiques Introduction

The tropical belt receives more energy from Sun than it radiates back into space. The excess energy is transported to temperate regions by the motion of atmosphere and oceans. Any variation in the energy budget of the tropics will therefore effect the whole planet. The energy exchanges are strongly linked to the water cycle and particularly to the tropical connective systems: huge amount of latent heat are released in the tropical rains, while high humidity and thick clouds strongly affect the radiation budget. Many interactions between radiation, water vapour, clouds, precipitation and atmospheric motion determine the life cycle of convective cloud systems, and the occurrence of extreme events like tropical cyclones, monsoons, flood and droughts. Due to dynamic nature of above parameters, the frequency of observation from low orbiting sun-synchronous orbits is inadequate. Only geo-stationary satellites allow continuous monitoring of the Tropics, but their Vis-IR sensors give limited information on the cloud surface properties or horizontal distribution of water vapour.

Low orbiting (~800 km) satellites with low inclinations provide high repetitivity. An inclination at 20 degrees provides 6 observations of each point on the Inter-Tropical Convergence Zone (ITCZ). The most energetic tropical systems, such as the cloud clusters of ITCZ, the Monsoon systems and the Tropical cyclones, extend over hundreds of kilometers. Hence, a ground resolution of about 10 km is adequate for these observations.

In order to meet most of the above requirements, Megha Tropiques has been envisaged which is low earth orbit (LEO) mission. Megha in Sanskrit is 'cloud' and Tropiques in French is 'tropics'. Megha-tropiques Mission is an ISRO-CNES (Indo-French) collaborative programme intended for studying the water cycle and energy exchanges in the tropics using a satellite platform.

Megha-Tropiques is a one-tonne satellite which will be operated as part of a joint programme between the Indian Space Research Organisation (ISRO) and France's Centre National d'Etudes Spaciales (CNES). The spacecraft was constructed by ISRO, based around the IRS bus developed for earlier Indian satellites, and carries four instruments which will be used to study the Earth's atmosphere.

ISRO is responsible of the system and the satellite. ISRO provides the launcher, the paltform, part of the MADRAS instrument, the GPS receiver and the mission operation center, which will process all the products until level 1. ISRO also performs the integration and test of the MADRAS instrument, of the complete payload and of the satellite.

CNES provides a support for the system activities, the hyperfrequency part of the MADRAS instrument (MARFEQ) developped under contract by ASTRIUM, and the SAPHIR and SCARAB instruments developped by CNES with a support of the LMD, LERMA and CETP laboratories. CNES also provides the data processing algorithms for the SAPHIR and SCARAB instruments and participates to the development of the MADRAS data processing algorithms. A data and instruments performances expertise center will be created in France. For the French part, the level 2 and upper data processing will be realised in the thematic center Icare.

Megha Tropiques Ground Segment

The ground segment is divided into:

1. A satellite operation ground segment providedby India:

   an S-band telemetry and command station

   a satellite monitoring and control center

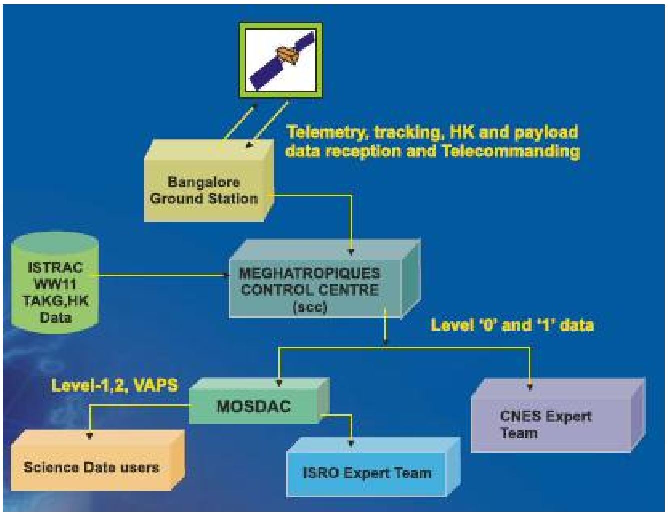
2. A science ground segment including Indian and French parts:

   an S-band mission station for payload telemetry located in India

   a mission operation center located in India

   a level-2 processing center in India such as MOSDAC

   a level-2 processing center named ICARE in France



The Megha-Tropiques satellite is launched by an Indian PSLV launcher in 2011, on a 867 km orbit with an inclination of 20°.

Megha Tropiques Objectives

The main objective of the Megha-Tropiques mission is to study the convective systems that influence the tropical weather and climate. The Megha-Tropiques mission goals are as follows:

- To provide, simultaneous measurements of several elements of the atmospheric water cycle (water vapour, clouds, condensed water in clouds, precipitation and evaporation),
- To measure the corresponding radiative budget at the top of the atmosphere,
- To ensure high temporal sampling in order to characterize the life cycle of the convective systems and to obtain significant statistics.

The payloads have swaths of around 1700-200km. It is necessary to measure the above parameters for a minimum duration of 3 years in order to observe the inter-annual variability and getting an opportunity to observe El Nino-type events in the tropics.

The satellite is launched into a non-sun synchronous orbit, unlike other IRS spacecraft. This Megha-Tropiques satellite carries four payloads namely, MADRAS-a microwave imager, SAPHIR-scanning radiometer instrument, SCARAB-scanner for radiative budget and GPS occultation receiver for atmospheric studies. The major orbit parameters are:

Altitude:	867 km, circular
Inclination:	20°
Period:	102.16 minutes
Repetitivity:	97 orbits in 7 days
No. of Orbits Per day:	14 (approx.)

Megha Tropiques Payloads

Megha-Tropiques carries the following four payloads:

- Microwave Analysis and Detection of Rain and Atmospheric Structures (MADRAS), an Imaging Radiometer developed jointly by CNES and ISRO
- Sounder for Probing Vertical Profiles of Humidity (SAPHIR), from CNES
- Scanner for Radiation Budget (ScaRaB), from CNES
- Radio Occultation Sensor for Vertical Profiling of Temperature and Humidity (ROSA), procured from Italy

MADRAS (Microwave Analysis and Detection of Rain and Atmospheric Structures)

MADRAS system is a five channel, self calibrating, microwave radiometer system. The radiometer is designed to estimate atmospheric water parameters and wind speed in the equatorial belt. The choice of the channels has been driven by their potential contribution to the measurement of the parameters defined above.

Geophysical Parameters

- Rainfall
- Cloud Ice Content
- Wind Speed
- Total Precipitable Water
- Cloud Liquid Water

Channel No.	Frequency	Pol	NEΔT	Spatial Resolution
M1	18.7 GHz	H+V	0.5 K	40km
M2	23.8 GHz	V	0.5 K	40km
M3	36.5 GHz	H+V	0.5 K	40km
M4	89 GHz	H+V	1.0 K	10km
M5	157 GHz	H+V	1.0 K	6km

SAPHIR microwave humidity sounder and radiometer

The mission specifications call for determination of humidity with an accuracy of 10 to 20 percent in 5 to 7 layers of the troposphere, over 10 km pixels. For realizing that performance, it is necessary to choose channels for which the atmospheric contribution to the radiance comes from different levels of the troposphere. This can be obtained by sampling an absorption line of water vapour by channels more or less close to the centre of the line. A candidate line, already chosen for other instruments, is the line at 183.3 GHz. It is possible to get contribution functions peaking from heights of 2 km.up to 10 to 12 km in tropical redundant to use more than 5 channels. A sixth complimentary channel in a window regions has to be used to correct for the surface effects in the lowest channels; the 150 channel of MADRAS can be used for that. This is the principle of SAPHIR instrument, which has been studied in the frame of micro satellites.

Geophysical Parameters

- Humidity Profile

Channel No.	Centre Frequencies(GHz)	Max. Passband (MHz)	ΔT(K)Sensitivity at 300 K	Absolute Calibration (K) Over 180 - 300K	Pol.
S1	183.31 ± 0.2	200	<2 (TBC)	± 1	H
S2	183.31 ± 1.1	350	<2 (TBC)	± 1	H
S3	183.31 ± 2.8	500	<2 (TBC)	± 1	H
S4	183.31 ± 4.2	700	<2 (TBC)	± 1	H
S5	183.31 ± 6.8	1200	<2 (TBC)	± 1	H
S6	183.31 ± 11.0	2000	<2 (TBC)	± 1	H

ScaRaB- Broadband radiation measurement instrument

SCARAB is a four channel instrument mainly measuring in Visible (Sc1), InfraRed (Sc4) along with Solar Radiation (Sc2) and Total Radiation (Sc3). The long-wave irradiance is deduced from the difference between Sc3 and Sc2 measurements. Channels in Visible and IR window, Sc1 and Sc4 are used for scene identification (surface, clouds, partially covered) and for assuring compatibility and comparisons with the images from operational satellites.

Geophysical Parameters

- Radiation Fluxes

Channel	Wavelength	Signal Dynamics	Noise (Crest)
Sc1-Visible	0.5 to 0.7 µm	120 $W.m^2.sr.^{-1}$	< 1 $W.m^2.sr.^{-1}$
Sc2-Solar	0.2 to 4.0 µm	425 $W.m^2.sr.^{-1}$	< 0.5 $W.m^2.sr.^{-1}$
Sc3-Total	0.2 to 100 µm	500 $W.m^2.sr.^{-1}$	< 0.5 $W.m^2.sr.^{-1}$
Sc4-IR Window	10.5 to 12.5 µm	30 $W.m^2.sr.^{-1}$	< 0.5 $W.m^2.sr.^{-1}$

ROSA Radio Occultation Sensor

GPS Radio Occultation sensor enables measurement of water vapour and temperature profiles in the tropics. GPS ROS payload is there to supplement / complement the mission for the atmospheric studies. A GPS ROS payload, ROSA (GPS-ROS) provided by the Italian Space Agency (ASI), is configured as the fourth payload.

Parameter	Specification
Frequency	L1 1.56 to 1.59 GHz; L2 1.212 to 1.242 GHz

GPS code used	C/A and P Code
GPS code used	<300 km
Hor Res	0.3 km (Low Troposphere); 1-3 km (High Troposphere)
Vert Res	<1 K Temperature; 10% or 0.2g/Kg Humidity

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Megha Tropiques References

MADRAS L1-Product definition (Size:2.2 MB Format:PDF Tool:PDFViewer)

SAPHIR L1-Product definition (Size:1.6 MB Format:PDF Tool:PDFViewer)

SCARAB L1-Product definition (Size:1.8 MB Format:PDF Tool:PDFViewer)

ATBD-for-saphir-rain-ver2 (Size:1.3 MB Format:PDF Tool:PDFViewer)

MT_ATBD_ver3 (Size:1.7 MB Format:PDF Tool:PDFViewer)

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Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

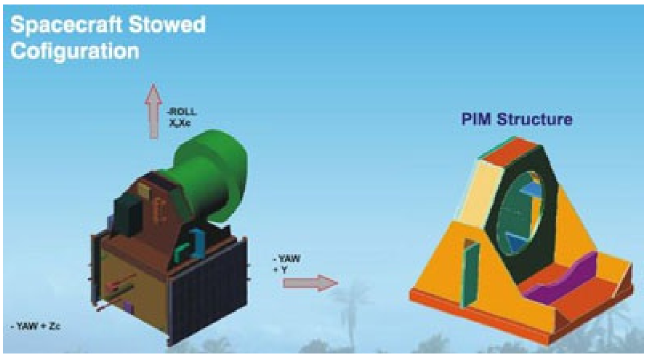
Megha Tropiques SpaceCraft

The Megha-Tropiques system is composed of a mini-satellite developed jointly by France and India, which includes:

- a platform derived from the Indian IRS platform
- a set of four payloads
  - MADRAS, developed jointly by CNES and ISRO
  - SAPHIR, provided by CNES
  - SCARAB, provided by CNES
  - a radio-occulation receiver GPS, provided by ISRO

MADRAS is a conical scanning microwave imager: the incidence has to be constant to take advantage of the polarization information. The spot size is always the same but the scan track follows a circle arc. SAPHIR and SCARAB are cross track scanning radiometers: the scan track is perpendicular to the satellite track and the spots enlarge with the scan angle.

Megha-Tropiques Spacecraft consists of two major modules: a cuboid spacecraft bus derived from the IRS heritage; and the Payload Instrument Module (PIM), housing the payloads and associated elements. The spacecraft deployment mechanism consists of solar array deployment after separation from the launcher; a MADRAS hold-down release mechanism; and the MADRAS scan mechanism. Thermal control system with Optical Solar Reflectors and the Multi-Layer Insulation (MLI) blankets.



A centralised Bus Management Unit (BMU) supports all the functions of the Attitude Orientation Control System (AOCS), sensor processing, TT&C handling, thermal management, onboard data storage logistics, and the Ampere Hour Meter processing.

Megha Tropiques

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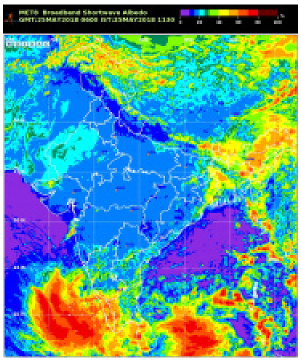
METEOSAT8 Cloud Properties



NASA LaRC is operationally generating global cloud properties products using different geostationary satellites. This Metosat-8 cloud properties products include Cloud Phase, Optical Depth, Effective Water Radius, Effective Ice Diameter, Liquid Water Path, Ice Water Path, Effective Cloud Temperature, Cloud Top Height, Effective Cloud Height, Cloud Base Height, Cloud Top Pressure, Effective Cloud Pressure, Cloud Base Pressure, Broadband Albedo, Broadband Longwave Flux, and Cloud Thickness.

Data Access

Click Here to access the Science Products. Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Format : NetCDF (nc4)
CDO Version : 1.9.3 , Conventions : CF 1.6

Data Sources

1. Cloud Properties Products, downloaded from LaRC, NASA

Processing Steps

https://satcorps.larc.nasa.gov/CERES_algorithms/

References

1. B. A. Wielicki, B. R. Barkstrom, B. A. Baum, T. P. Charlock, R. N. Green, D. P. Kratz, R. B. Lee, P. Minnis, G. L. Smith, T. Wong, D. F. Young, R. D. Cess, J. A. Coakley, D. A. H. Crommelynck, L. Donner, R. Kandel, M. D. King, A. J. Miller, V. Ramanathan, D. A. Randall, L. L. Stowe, R. M. Welch, "Clouds and the Earth's Radiant Energy System (CERES): Algorithm overview", IEEE Trans. Geosci. Remote Sens., vol. 36, no. 4, pp. 1127-1141, Jul. 1998.
2. C. Kummerow, W. Barnes, T. Kozu, J. Shine, J. Simpson, "The Tropical Rainfall Measuring Mission system (TRMM) sensor package", J. Atmos. Ocean. Technol., vol. 15, pp. 809-827, 1998
3. W. L. Barnes, T. S. Pagano, V. V. Salomonson, "Prelaunch characteristics of the moderate resolution imaging spectroradiometer (MODIS) on EOS-AM1", IEEE Trans. Geosci. Remote Sens., vol. 36, no. 4, pp. 1088-1100, Jul. 1998

Derivation Techniques and Algorithm

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Limitations

Refer Paper

Known problems with data

Data will be available with delay

File Naming Convention

Following file naming convention are followed:
NetCDF File Name (NetCDFFileName):
M8SEV_DDMMMYYYY_HHMM_L2B_CP_IND_V04.0.nc
Parameter Chip File Name : NetCDFFilename_CloudParamName(4 Char).jpg
File Nomenclature Details:
SatIdSensorId_AcquisitionDateTime_ProcessingLevel_ProductName_ProductRegion_Version.nc
SatId (2 Char) = M8
SensorId (3 Char)= SEV (SEVIRI sensor)
AcquisitionDateTime (14 Char) = DDMMMYYYY_HHMM
ProcessingLevel (3 Char) = L2B
ProductName (2 Char) = CP (Cloud Properties)
ProductRegion (3 Char) = IND (Indian Region)
Version (5 Char) = V04.0 (Product Version Number)

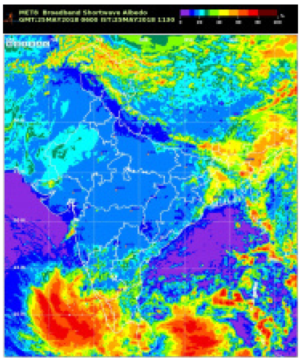
MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	Sazid Mahammad, MRG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
3	Metadata date	May 14, 2018
4	Data Lineage or Quality	Depends on Metosat 8 products, some times some data gaps may be observed
5	Title	Cloud Properties Products from Meteosat-8 over Indian Peninsula

6	Abstract	NASA LaRC is operationally generating global cloud properties products using different geostationary satellites. This Metosat-8 cloud properties products include Cloud Phase, Optical Depth, Effective Water Radius, Effective Ice Diameter, Liquid Water Path, Ice Water Path, Effective Cloud Temperature, Cloud Top Height, Effective Cloud Height, Cloud Base Height, Cloud Top Pressure, Effective Cloud Pressure, Cloud Base Pressure, Broadband Albedo, Broadband Longwave Flux, and Cloud Thickness.
7	Dataset Contact	Sazid Mahammad, MRG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
8	Update frequency	1 hour
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	6 Km (Nominal)
11	Language	English
12	Topic Category	Atmospheric Science
13	Keywords	Cloud Properties, Climate, cloud, cloud remote sensing, Clouds and the Earth's Radiant Energy System (CERES),
14	Date or period	From 01-May-2018 onwards
15	Responsible Party	EPSA/SAC, ISRO and LaRC, NASA
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India and Langley Research Centre (NASA), Hampton, VA, USA
16a	Org. role	SAC: Extraction of Indian region and generation of chips LaRC: Generation of Cloud Properties product
16b	Individual name	Sazid Mahammad, MRG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
16c	Position	Scientist/Engineer, MRG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Cloud top Properties
17	Geographic Extent	UL Coordinates: 38 N, 65 E. UR Coordinates: 38 S, 97.5 E. LL Coordinates: 5.5 N, 65 E. LR Coordinates: 5.5 S, 97.5 E
18	Geographic name, geographic Identifier	Indian Peninsula
19	Bounding box	UL Coordinates: 38 N, 65 E. UR Coordinates: 38 S, 97.5 E. LL Coordinates: 5.5 N, 65 E. LR Coordinates: 5.5 S, 97.5 E Number of Rows i.e. Image Height: 524 Number of Columns i.e. Image Width : 489
20	Temporal Extent	Hourly Product with Given date, time in GMT
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in NetCDF format and images in jpg format
23	Processing Level	Level 2 (Data product derived from Metosat-8)
24	Reference System	Projection: Geographic Latitude,Longitude; Datum: WGS84

Tags:

METEOSAT8 Cloud Properties



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File Nomenclature Details:
SatIdSensorId_AcquisitionDateTime_ProcessingLevel_ProductName_ProductRegion_Version.nc
SatId (2 Char) = M8
SensorId (3 Char)= SEV (SEVIRI sensor)
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4	Data Lineage or Quality	Depends on Metosat 8 products, some times some data gaps may be observed
5	Title	Cloud Properties Products from Meteosat-8 over Indian Peninsula

6	Abstract	NASA LaRC is operationally generating global cloud properties products using different geostationary satellites. This Metosat-8 cloud properties products include Cloud Phase, Optical Depth, Effective Water Radius, Effective Ice Diameter, Liquid Water Path, Ice Water Path, Effective Cloud Temperature, Cloud Top Height, Effective Cloud Height, Cloud Base Height, Cloud Top Pressure, Effective Cloud Pressure, Cloud Base Pressure, Broadband Albedo, Broadband Longwave Flux, and Cloud Thickness.
7	Dataset Contact	Sazid Mahammad, MRG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
8	Update frequency	1 hour
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	6 Km (Nominal)
11	Language	English
12	Topic Category	Atmospheric Science
13	Keywords	Cloud Properties, Climate, cloud, cloud remote sensing, Clouds and the Earth's Radiant Energy System (CERES),
14	Date or period	From 01-May-2018 onwards
15	Responsible Party	EPSA/SAC, ISRO and LaRC, NASA
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India and Langley Research Centre (NASA), Hampton, VA, USA
16a	Org. role	SAC: Extraction of Indian region and generation of chips LaRC: Generation of Cloud Properties product
16b	Individual name	Sazid Mahammad, MRG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
16c	Position	Scientist/Engineer, MRG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Email: sazid@sac.isro.gov.in
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Cloud top Properties
17	Geographic Extent	UL Coordinates: 38 N, 65 E. UR Coordinates: 38 S, 97.5 E. LL Coordinates: 5.5 N, 65 E. LR Coordinates: 5.5 S, 97.5 E
18	Geographic name, geographic Identifier	Indian Peninsula
19	Bounding box	UL Coordinates: 38 N, 65 E. UR Coordinates: 38 S, 97.5 E. LL Coordinates: 5.5 N, 65 E. LR Coordinates: 5.5 S, 97.5 E Number of Rows i.e. Image Height: 524 Number of Columns i.e. Image Width : 489
20	Temporal Extent	Hourly Product with Given date, time in GMT
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in NetCDF format and images in jpg format
23	Processing Level	Level 2 (Data product derived from Metosat-8)
24	Reference System	Projection: Geographic Latitude,Longitude; Datum: WGS84

Tags:

MOSDAC Feedback

Detailed feedback can be sent to Web Information Manager/ Administrator at Contact Page

Are you a registered user of MOSDAC? *

- Yes
- No

Type of use *

- Frequent
- Optional

Purpose of using the data *

- Operational
- Research
- Informational

How would you grade overall design of website *

- Needs Improvement
- Good
- Excellent

How would you grade the data ordering interface of website *

- Needs Improvement
- Good
- Excellent

Email ID *

Enter your valid Email Id

Comments

Math question *

9 + 3 =

Solve this simple math problem and enter the result. E.g. for 1+3, enter 4.

Submit

MOSDAC Feedback

Detailed feedback can be sent to Web Information Manager/ Administrator at Contact Page

Are you a registered user of MOSDAC? *

- Yes
- No

Type of use *

- Frequent
- Optional

Purpose of using the data *

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- Good
- Excellent

How would you grade the data ordering interface of website *

- Needs Improvement
- Good
- Excellent

Email ID *

Enter your valid Email Id

Comments

Math question *

2 + 0 =

Solve this simple math problem and enter the result. E.g. for 1+3, enter 4.

Submit

डेटा अभिगम नीति

अभिगम प्रोफाइल	डेटासेट्स	विलंब अवधि
पंजीकृत सामान्य उपयोगकर्ता	मर्यादित डेटा तक पहुँच	3 दिन का विलंब
पंजीकृत विशिष्ट उपयोगकर्ता	सभी डेटा तक पहुँच	एनआरटी अभिगम
अज्ञात उपयोगकर्ता	मेटाडेटा/ प्रतिबंब और ओपन डेटा का अभिगम	एनआरटी अभिगम

डेटा अभिगम उपर्युक्त नीतियों के अनुसार प्रदान किया जाएगा (जो भी लागू हो)। डेटा अभिगम नीति (Size:415KB Format:PDF Tool:PDFViewer)

प्रतिलिप्यधिकार नीति

इस साइट पर प्रदर्शित सामग्री को बिना किसी विशिष्ट अनुमति लिए, किसी भी प्रारूप या मीडिया में निःशुल्क पुनःउत्पादित किया जा सकता है। बशर्ते सामग्री को परिशुद्धता से दर्शाया जाए और अनादरसूचक या भ्रामक रूप में प्रदर्शित ना किया जाए। जिस स्थान पर सामग्री प्रकाशित की जा रही है या दूसरों को दी जा रही है, वहाँ स्रोत का प्रमुख रूप से उल्लेख किया जाए। हालांकि, सामग्री को पुनःउत्पादित करने का अधिकार इस साइट की उस सामग्री पर लागू नहीं होता, जो तीसरी पार्टी के प्रतिलिप्यधिकार के रूप में स्पष्ट रूप से अभिनिर्धारित है या जो सामग्री हाइपरलिंक की गई साइट पर मौजूद है। इस प्रकार की सामग्री को पुनःउत्पादित करने का प्राधिकार संबंधित प्रतिलिप्याधिकारधारकों से प्राप्त किया जाना चाहिए।

English

हाइपरलिंक नीति

बाह्य वेबसाइट्स/पोर्टल लिंक

इस पोर्टल पर आपको कई स्थानों पर अन्य वेबसाइट्स/पोर्टल के लिंक मिलेंगे। ये लिंक आपकी सुविधा के लिए दिए गए हैं। मोस्डेक लिंक की गई वेबसाइट्स की सामग्री एवं विश्वसनीयता के लिए उत्तरदायी नहीं है और उनमें व्यक्त विचारों का समर्थन नहीं करता है। इस पोर्टल पर लिंक की उपलब्धता या सूचीयन को किसी भी प्रकार का समर्थन नहीं माना जाना चाहिए। हम यह आश्वासन नहीं दे सकते हैं कि ये लिंक हर समय कार्य करेंगे और लिंक किए गए पेजों पर हमारा कोई नियंत्रण नहीं है।

अन्य वेबसाइट्स द्वारा मोस्डेक पोर्टल का लिंक

इस पोर्टल पर दी गई जानकारी का सीधा लिंक प्रदान करने पर हमें कोई आपत्ति नहीं है और इसके लिए किसी पूर्व अनुमति की आवश्यकता नहीं है। लेकिन, हम चाहेंगे कि इस पोर्टल के लिंक की जानकारी हमें दी जाए ताकि इसमें किसी प्रकार के परिवर्तन या अद्यतनीकरण की जानकारी हम आपको दे सकें। साथ ही, हम अपने पेजों को आपकी साइट पर फ्रेम के रूप में प्रदर्शित करने की अनुमति प्रदान नहीं करते हैं। इस पोर्टल के पेज उपयोगकर्ता के ब्राउज़र में एक नए विंडो के रूप में लोड होना चाहिए।

English

गोपनीयता नीति

यह नीति हमारे द्वारा आपके बारे में एकत्रित सूचना के प्रकार और उसके उपयोग की रूपरेखा प्रदान करती है।

हमें ज्ञात है कि आपकी व्यक्तिगत जानकारी बहुत संवेदनशील है और इस जानकारी की गोपनीयता की रक्षा करना हमारी सर्वोच्च प्राथमिकता है। इस साइट द्वारा एकत्रित की गई सभी जानकारी अत्यंत गोपनीय रखी जाएगी। हम आपकी व्यक्तिगत जानकारी किसी तीसरे पक्ष को किराए पर देना, विक्रय अथवा साझा नहीं करते हैं। हम आपकी व्यक्तिगत जानकारी किसी तीसरे पक्ष को तब तक प्रकट नहीं करेंगे जब तक :

• गैरकानूनी और अवैध गतिविधियों, संदिग्ध धोखाधड़ी, किसी भी व्यक्ति की संरक्षा या सुरक्षा के लिए संभावित खतरे की स्थिति, उपयोग के संबंध में http://www.mosdac.gov.in मानदंडों के उल्लंघन या कानूनी दावों के विरुद्ध बचाव के लिए जाँच, रोकथाम या कार्रवाई में सहायता के लिए।

• विशेष परिस्थितियाँ जैसे कि सम्मन का अनुपालन, अदालती आदेश, विधि प्राधिकरणों से या विधि प्रवर्तन एजेंसियों से इस तरह के प्रकटीकरण की आवश्यकता का अनुरोध/आदेश प्राप्त होने पर।

अगर हम कभी गोपनीयता नीति बदलते हैं, तो इसकी जानकारी हम इस पेज पर पोस्ट करेंगे। यदि http://www.mosdac.gov.in की गोपनीयता नीति के बारे में आपके कोई प्रश्न हैं, तो कृपया admin[at]mosdac[dot]gov[dot]in पर हमें ईमेल करें।

निबंधन एवं शर्तें

यह वेबसाइट अंतरिक्ष उपयोग केंद्र, भारतीय अंतरिक्ष अनुसंधान संगठन, अंतरिक्ष विभाग, भारत सरकार द्वारा अभिकल्पित, विकसित और अनुरक्षित है।

यद्यपि इस वेबसाइट की सामग्री की सटीकता और शुद्धता को सुनिश्चित करने के सभी प्रयास किए गए हैं, तथापि इसे कानून सहमत न माना जाए या किसी भी विधि संबंधी उद्देश्यों के लिए प्रयोग में न लाया जाए।

इस वेबसाइट के प्रयोग से या उसके संबंध में डेटा के प्रयोग या डेटा नष्ट होने के कारण अप्रत्यक्ष रूप में या उसके परिणामस्वरूप किसी भी सीमा में हुई हानि, नुकसान या क्षति सहित किसी भी हानि, नुकसान या क्षति के लिए मोस्डेक किसी भी स्थिति में उत्तरदायी नहीं होगा।

ये निबंधन एवं शर्तें भारतीय कानून के अनुसार लागू होंगे। इन निबंधन एवं शर्तों के अंतर्गत उत्पन्न होने वाले विवादों का क्षेत्राधिकार एकमात्र भारतीय न्यायालयों के अधीन होगा।

यह वेबसाइट अन्य वेब पेजों के लिंक प्रदान करती है जो मोस्डेक डोमेन का हिस्सा नहीं हैं और मोस्डेक का इन बाहरी लिंक पर उपलब्ध जानकारी पर कोई नियंत्रण नहीं होता है। बाहरी लिंक आपकी सुविधा और मोस्डेक के उद्देश्य के अनुरूप होने के कारण प्रदान किए जा रहे हैं। जब आप किसी अन्य साइट से लिंक हो जाते हैं, तो आप उस नई साइट के नियम एवं शर्तों तथा गोपनीयता नीति के अधीन होते हैं। मोस्डेक हमेशा ऐसे सम्बद्ध पेजों की उपलब्धता की गारंटी नहीं देता है। मोस्डेक लिंक की गई वेबसाइटों पर दी गई कॉपीराइट सामग्री के उपयोग को अधिकृत नहीं कर सकता है। उपयोगकर्ताओं को सलाह दी जाती है वे लिंक की गई वेबसाइट के मालिक से इस प्रकार के प्राधिकरण हेतु अनुरोध करें। मोस्डेक गारंटी नहीं देता है कि लिंक की गई वेबसाइटें भारत सरकार के वेब दिशानिर्देशों का अनुपालन करती हों।

Weather

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 14:25
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

ओशनसैट-3

ओशनसैट -3 को अर्थऑब्जर्विंग सैटेलाइट (EOS-06) के रूप में भी जाना जाता है, 26 नवंबर 2022 को सतीशधवन अंतरिक्ष केंद्र, श्रीहरिकोटा से PSLV-C54द्वारा लॉन्च किया गया था।ओशनसैट -3 को एक साथ भौतिक, जैविक मापने के लिए एकअनूठा अवसर प्रदान करने केलिए विकसित किया गया है।और तीन उपकरणों से पहलीबार वायुमंडलीय पैरामीटर, (i) 13-बैंड एडवांस्ड ओशनकलर मॉनिटर (OCM-3), (ii) Ku-बैंड स्कैटरोमीटर (SCAT-3) और (ii) 2-चैनल सीसरफेस टेम्परेचर मॉनिटर (एसएसटीएम)। ARGOSफ्रेंचस्पेसएजेंसी (CNES)द्वारा प्रदान किया गया चौथा पेलोड है और विभिन्न महासागरआधारित प्लेटफॉर्म से डेटा संग्रह प्लेटफॉर्म के रूप में कार्यकरता है।ओशनसैट- 3 की परिकल्पना बढ़ीहुई एप्लिकेशन क्षमता के साथ ओशनसैट-1, 2 और स्कैटसैट- 1 मिशन की परिचालन सेवा ओं की निरंतरता प्रदान करने के लिए गईहै।

English

इनसैट-3डीएस

इनसैट-3डीएस सेंसर और उत्पादों के मामले में इनसैट-3डी के समान है।

इनसैट या भारतीय राष्ट्रीय उपग्रह प्रणाली भारत के दूरसंचार, प्रसारण, मौसम विज्ञान और खोज और बचाव की जरूरतों को पूरा करने के लिए इसरो द्वारा लॉन्च किए गए बहुउद्देशीय भू-स्थिर उपग्रहों की एक श्रृंखला है। 1983 में कमीशन किया गया, इनसैट एशिया प्रशांत क्षेत्र में सबसे बड़ी घरेलू संचार प्रणाली है। उपग्रह की निगरानी और नियंत्रण हसन और भोपाल में मौजूद मास्टर नियंत्रण सुविधाओं द्वारा किया जाता है। इनसैट-3डीएस मुख्य मौसम संबंधी पेलोड (इमेजर और साउंडर) के साथ एक बहुउद्देशीय भू-समकालिक अंतरिक्ष यान है। इस मिशन के मुख्य उद्देश्य जीवन और संपत्ति की रक्षा के लिए एक परिचालन, पर्यावरण और तूफान चेतावनी प्रणाली प्रदान करना है। इनसैट 3एस पृथ्वी की सतह, समुद्री टिप्पणियों की निगरानी कर रहा है और डेटा प्रसार क्षमता भी प्रदान कर रहा है। यह दो एस-बैंड ट्रांसपोंडरों के माध्यम से प्रसारण उपग्रह सेवाएं (बीएसएस) प्रदान करता है।इनसैट-3डीएस डेटा का प्रसंस्करण मोटे तौर पर चार चरणों में किया जाता है।

1. डेटा प्राप्त करने के लिए ग्राउंड रिसीविंग सिस्टम
2. कच्चा डेटा (एल0) फ़ाइलों को उत्पन्न करने के लिए डेटा रिसेप्शन (डी. आर.) प्रणाली
3. डेटा प्रोसेसिंग (डी. पी.) प्रणाली एल0 डेटा को संसाधित करने और एल1बी डेटा फ़ाइलों का उत्पादन करने के लिए (कैलिब्रेटेड और जियो स्थित)
4. उत्पाद उत्पादन और प्रसार प्रणाली

English

इनसैट 3डीआर

इनसैट-3डीआर संवेदकों और उत्पादों के मामले में इनसैट-3डी के समान है।

इनसैट या इंडियन नेशनल सैटेलाइट सिस्टम, भारत की दूरसंचार, प्रसारण, मौसम विज्ञान और खोज और बचाव की जरूरतों को पूरा करने के लिए इसरो द्वारा प्रमोचित बहुउद्देश्यीय भू-स्थिर उपग्रहों की एक श्रृंखला है। 1983 में प्रारंभ, इनसैट एशिया प्रशांत क्षेत्र में सबसे बड़ी घरेलू संचार प्रणाली है। उपग्रह की निगरानी और नियंत्रण हासन और भोपाल में स्थित मुख्य नियंत्रण सुविधा द्वारा किया जाता है। इनसैट-3डीआर एक बहुउद्देश्यीय भू-तुल्यकालिक उपग्रह है जिसमें मुख्य मौसम संबंधी नीतभार (प्रतिबिंबित्र और ध्वनित्र) हैं। इस मिशन का मुख्य उद्देश्य जीवन और संपत्ति की सुरक्षा के लिए एक प्रचालनशील पर्यावरण और तूफान चेतावनी प्रणाली प्रदान करना है। इनसैट3डीआर पृथ्वी की सतह, समुद्री प्रेक्षणों की निगरानी कर रहा है और डेटा प्रसार क्षमता भी प्रदान करता है। यह दो एस-बैंड प्रेषानुकर के माध्यम से प्रसारण उपग्रह सेवाएं (बीएसएस) प्रदान करता है। डेटा अधिग्रहण और प्रसंस्करण प्रणाली अंतरिक्ष उपयोग केंद्र, बोपल कैंपस, अहमदाबाद, भारत में स्थापित की गई है। इनसैट-3डीआर डेटा का प्रसंस्करण मोटे तौर पर चार चरणों में किया जाता है।

1.डेटा प्राप्त करने के लिए भूमि अधिग्रहण प्रणाली

2.कच्चा डेटा (L0) फ़ाइलें सृजित करने के लिए डेटा अभिग्रहण (डीआर) प्रणाली

3.L0 डेटा को संसाधित करने और L1B डेटा फ़ाइलें सृजित करने के लिए डेटा प्रसंस्करण (डीपी) प्रणाली (अंशांकित और भू-स्थित)

4.उत्पाद निर्माण और प्रसार प्रणाली

यह 74° पूर्व देशांतर पर स्थित है।

English

स्कैटसैट-1

26 सितंबर 2016 को सतीश धवन अंतरिक्ष केंद्र, श्रीहरिकोटा से पीएसएलवी-सी35 द्वारा स्कैटसैट-1 का प्रमोचन किया गया। इसमें सैक-इसरो द्वारा विकसित केयू-बैंड पेंसिल बीम स्कैटरोमीटर (स्कैट) नीतभार है।

English

Validation

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 11:04
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

मॉस्डैक MOSDAC
भारत सरकार Govt. of India अंतरिक्ष उपयोग केंद्र Space Applications Centre इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Validation

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 13:29
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

Data Quality

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 15:44
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

Data Quality

	Display name	modified
	SCATSAT1	Thu, 2017-04-06 15:31
	INSAT-3DR	Mon, 2017-03-27 11:18
	INSAT-3D	Mon, 2017-03-27 11:18

3 folders

Data Quality

	Display name	modified
	SCATSAT1	Thu, 2017-04-06 15:31
	INSAT-3DR	Mon, 2017-03-27 11:18
	INSAT-3D	Mon, 2017-03-27 11:18

3 folders

Relative

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 14:23
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

इनसैट-3डी

इनसैट या इंडियन नेशनल सैटेलाइट सिस्टम, भारत की दूरसंचार, प्रसारण, मौसम विज्ञान और खोज और बचाव की जरूरतों को पूरा करने के लिए इसरो द्वारा प्रमोचित बहुउद्देश्यीय भू-स्थिर उपग्रहों की एक श्रृंखला है। 1983 में प्रारंभ, इनसैट एशिया प्रशांत क्षेत्र में सबसे बड़ी घरेलू संचार प्रणाली है। उपग्रह की निगरानी और नियंत्रण ह ासन और भोपाल में स्थित मुख्य नियंत्रण सुविधा द्वारा किया जाता है। इनसैट-3डीआर एक बहुउद्देश्यीय भू-तुल्यकालिक उपग्रह है जिसमें मुख्य मौसम संबंधी नीतभार (प्रतिबिंबित्र और ध्वनित्र) हैं। इस मिशन का मुख्य उद्देश्य जीवन और संपत्ति की सुरक्षा के लिए एक प रचालनशील पर्यावरण और तूफान चेतावनी प्रणाली प्रदान करना है। इनसैट3डीआर पृथ्वी की सतह, समुद्री प्रेक्षणों की निगरानी कर रहा है और डेटा प्रसार क्षमता भी प्रदान करता है। यह दो एस-बैंड प्रेषानुकर के माध्यम से प्रसारण उपग्रह सेवाएं (बीएसएस) प्रदान करता है। डेटा अधिग्रहण और प्रसंस्करण प्रणाली अंतरिक्ष उपयोग केंद्र, बोपल कैंपस, अहमदाबाद, भारत में स्थापित की गई है। इनसैट-3डीआर डेटा का प्रसंस्करण मोटे तौर पर चार चरणों में किया जाता है।

1. डेटा प्राप्त करने के लिए भूमि अधिग्रहण प्रणाली
2. कच्च ा डेटा (L0) फ़ाइलें सृजित करने के लिए डेटा अभिग्रहण (डीआर) प्रणाली
3. L0 डेटा को संसाधित करने और L1B डेटा फ़ाइल ें सृजित करने के लिए डेटा प्रसंस्करण (डीपी) प्रणाली (अंशांकित और भू-स्थित)

उत्पाद निर्माण और प्रसार प्रणाली

English

कल्पना-1

मेटसैट भू-तुल्यकालिक कक्षा में इसरो का मौसम संबंधी विशेष उपग्रह है। यह उपग्रह कार्बन फाइबर पुन:सुदृढ़ीकृत प्लास्टिक से बनी हल्के वजन वाली एक छोटी आई-1000 बस संरचना, 18एएच एनआई-सीडी बैटरी वाली एक यूनी पावर बस और 640 वाट बिजली उत्पन्न करने वाले एकल जीएएएस/जीई सौर पैनल से विकसित किया गया है। मेटसैट सौर विकिरण दबाव प्रतिकार के लिए उपयुक्त रैखिक रूप से नियंत्रित चुंबकीय टॉर्कों के साथ त्रि-अक्षीय स्थिर गति अभिनति अभिवृत्ति नियंत्रण प्रणाली का उपयोग करता है। कुशल और बहुमुखी मिशन प्रबंधन के लिए 440 न्यूटन के द्वि-प्रणोदक अपभू मोटर और 22 न्यूटन के प्रतिक्रिया नियंत्रण इंजन की एकीकृत प्रणोदन प्रणाली का चयन किया गया है।

मेटसैट में मौसम डेटा प्रेषण के लिए अति उच्च विभेदन रेडियोमीटर (वीएचआरआर) और डेटा रिले प्रेषानुकर (डीआरटी) है। वीएचआरआर दृश्यमान बैंड में 2 किमी और तापीय अवरक्त तथा जल वाष्प बैंड में 8 किमी के विभेदन के साथ पृथ्वी प्रतिबिंबन प्रदान करता है। डीआरटी भारत-भर में स्थित अरक्षित डेटा संग्रह प्लेटफार्मों से मौसम डेटा एकत्र करता है और इसे केंद्रीय रूप से स्थित मौसम विज्ञान डेटा उपयोग केंद्र तक पहुंचाता है। उपग्रह का शुष्क द्रव्यमान लगभग 495 किलोग्राम है। मेटसैट को सितंबर 2002 में 1060 किलोग्राम के लिफ्ट-ऑफ द्रव्यमान के साथ उन्नत और संशोधित उपग्रह प्रक्षेपण वाहन (पीएसएलवी) द्वारा प्रमोचित किया गया था। नीतभार के सफल प्रमोचन और प्रारंभिक कक्षा संचालन तथा कक्षा लक्षण वर्णन के बाद, मौसम डेटा और इमेजरी का नियमित रूप से उपयोग करने के लिए उपग्रह को चालू किया गया है।

English

भारत सरकार Govt. of India | मॉस्डैक MOSDAC अंतरिक्ष उपयोग केंद्र Space Applications Centre | इसरो isro अंतरिक्ष विभाग Dept. of Space

मौसम विज्ञान एवं समुद्र विज्ञानीय उपग्रह डेटा पुरालेखी केंद्र

अंतरिक्ष उपयोग केंद्र, इसरो

ओशनसैट-2

ओशनसैट-2 उपग्रह मेनफ्रेम प्रणालियां पिछले आईआरएस मिशनों से अपनी विरासत प्राप्त करती हैं। ओशनसैट-2 को 23 सितंबर, 2009 को सतीश धवन अंतरिक्ष केंद्र, श्रीहरिकोटा से पीएसएलवी-सी14 द्वारा प्रमोचित किया गया था। इसमें तीन नीतभार हैं: महासागर रंग मॉनिटर (ओसीएम),इसरो द्वारा विकसित केयू-बैंड पेंसिल बीम प्रकीर्णमापी (एससीएटी) और इतालवी अंतरिक्ष एजेंसी द्वारा विकसित वायुमंडल के लिए रेडियो आच्छादन ध्वनित्र (रोसा)। ओशनसैट-2 को अनुप्रयोग क्षमता में वृद्धि के साथ ओशनसैट-1 (आईआरएस-पी4) की परिचालन सेवाओं की निरंतरता प्रदान करने के लिए परिकल्पित किया गया है।

English

मेघा ट्रॉपिक्स

मेघा-ट्रॉपिक्स उष्णकटिबंधीय क्षेत्रों में जल चक्र और ऊर्जा विनिमय का अध्ययन करने के लिए भारत-फ्रांस का संयुक्त उपग्रह मिशन है। इस मिशन का मुख्य उद्देश्य उष्णकटिबंधीय मौसम और जलवायु को प्रभावित करने वाली संवहनी प्रणालियों के जीवन चक्र और उष्णकटिबंधीय क्षेत्रों में वातावरण की संबद्ध ऊर्जा और नमी बजट में उनकी भूमिका को समझना है। मेघा-ट्रॉपिक्स उष्णकटिबंधीय वातावरण में जल चक्र के योगदान पर वैज्ञानिक डेटा प्रदान करता है, जिसमें बादलों में संघनित पानी, वायुमंडल में जल वाष्प, वर्षा और वाष्पीकरण की जानकारी होती है। भूमध्य रेखा की ओर अपनी 20 डिग्री नत वृत्ताकार कक्षा के साथ, मेघा-ट्रॉपिक्स जलवायु अनुसंधान के लिए एक अनूठा उपग्रह है जो पूर्वानुमान मॉडल को परिष्कृत करने वाले वैज्ञानिकों की भी सहायता करेगा। मेघा-ट्रॉपिक्स में दिन, रात और हर मौसम में देखने की क्षमता है; यह हर दिन लगभग एक दर्जन बार भारत के ऊपर से गुजरता है, जिससे वैज्ञानिकों को बादलों के विकास का निकट वास्तविक काल का आकलन मिलता है।

English

सरल-अल्टिका

सरल मिशन तुंगतामिति प्रणाली का उपयोग करके अंतरिक्ष से महासागर का अध्ययन करने और एआरजीओएस डेटा संग्रहण प्रणाली के अधिकतम उपयोग को बढ़ावा देने में सीएनईएस और इसरो दोनों की सामूहिक रुचि का परिणाम है। उपग्रह द्वारा रेडार तुंगतामिति समुद्र विज्ञान में उपयोग की जाने वाली एक तकनीक है, जो विश्व स्तर पर महासागरों पर, समुद्र के स्तर को मापने के लिए समुद्र के स्तर और इसकी परिवर्तनशीलता को समझने के लिए आवश्यक है। समुद्र के संचलन और पृथ्वी की जलवायु पर इसके प्रभाव को बेहतर ढंग से समझने के लिए तुंगतामितिडेटा के महत्व ने टोपेक्स/ पोसिडॉनऔर जेसन श्रृंखला और तत्पश्चात् ईआरएस1-2, जीएफओऔर एन्विसैटजैसे पूरक उपग्रहों को जन्म दिया। इन मिशनों के शुभारंभ के साथ एक डेटा संग्रह शुरू हुआ जो सदी में लंबे समय तक जारी रहना चाहिए ताकि अंतर-वार्षिक विकास की निगरानी की जा सके और क्षणिक घटनाओं को दीर्घकालिक विविधताओं से अलग किया जा सके। सरल/अल्टिका मिशन वैश्विक तुंगतामिति प्रणाली से संबंधित है और अपने जीवनकाल में समुद्र के संचलन और समुद्र की सतह की ऊंचाई के सटीक और सटीक अवलोकन में भाग लेता है। इस प्रकार सरल मिशन के अल्टिका भाग का उद्देश्य समुद्र परिसंचरण और समुद्र की सतह की ऊंचाई का अध्ययन करने के लिए डिज़ाइन किए गए तुंगतामिति मापन को उसी सटीकता के साथ प्रदान करना है जैसा एन्विसैटमिशन द्वारा प्रदान किया गया है और जैसन मिशन के पूरक है। सीएनईएस द्वारा विकसित अल्टिका परियोजना एक बड़े केए-बैंड तुंगतामापी (35.75 गीगाहर्ट्ज़, 500 मेगाहर्ट्ज) पर आधारित है, जो इतनी उच्च आवृत्ति का उपयोग करने वाला पहला महासागरीय तुंगतामापी है। केए-बैंड आवृत्ति का उपयोग अधिक सटीक माप (स्थानिक और ऊर्ध्वाधर विभेदन में सुधार) प्रदान करेगा जिससे बर्फ, तटीय क्षेत्रों, महाद्वीपीय जल निकायों के साथ-साथ लहरों की ऊंचाई का बेहतर अवलोकन हो सकेगा। इस केए-बैंड आवृत्ति की कमी बारिश के प्रति इसकी संवेदनशीलता है जिससे सिग्नल क्षीणन हो सकता है। सरल/अल्टिका मिशन जेसन-2 के साथ संयुक्त रूप से परिचालन उपग्रह तुंगतामिति प्रणाली का हिस्सा है, और सेवा निरंतरता सुनिश्चित करने में सक्षम बनाता है जो आजकल एन्विसैटतुंगतामापी द्वारा जेसन-2 और जेसन-1 के साथ संयुक्त रूप से प्रदान की जाती है। अवलोकन निरंतरता सुनिश्चित करके और अवलोकन क्षेत्रों को विस्तृत करके, सीएनईएस विवरण लाकर समुद्र विज्ञान समुदाय की इच्छा का जवाब देता है: खुले समुद्र में मेसो-स्केल के लिए, तटीय क्षेत्रों में, मौसमी पूर्वानुमान के लिए, जल विज्ञान के लिए, जलवायु अध्ययन के लिए। इस प्रकार अल्टिका डेटा अन्य तुंगतामिति मिशनों के डेटा के साथ, प्रचालनशील समुद्र विज्ञान के विकास के लिए, हमारी जलवायु समझ के लिए और युग्मित महासागरीय वातावरण युग्मन मॉडल, जैव-रसायन विज्ञान मॉडल, आदि में डेटा आत्मसात विधियों में सुधार के माध्यम से पूर्वानुमान क्षमताओं के विकास में योगदान देगा।

English

इन्सैट-3ए

इनसैट-3ए दूरसंचार, टेलीविजन प्रसारण, मौसम विज्ञान और खोज एवं बचाव सेवाएं प्रदान करने के लिए एक बहुउद्देशीय उपग्रह है। इसमें चौबीस प्रेषानुकर हैं - बारह सामान्य सी-बैंड आवृत्ति में कार्यरत हैं, छह विस्तारित सी-बैंड में और छह केयू-बैंड में। बारह सामान्य सी-बैंड प्रेषानुकर में से नौ विस्तारित कवरेज प्रदान करते हैं और शेष तीन में भारत कवरेज बीम है। सभी विस्तारित सी-बैंड के साथ-साथ केयू-बैंड प्रेषानुकरों में भारत कवरेज बीम हैं। इनसैट-3ए में केयू-बैंड बीकन भी है। मौसम संबंधी प्रेक्षण के लिए, इनसैट-3ए में दृश्य बैंड में 2 किमी विभेदन और तापीय अवरक्त तथा जल वाष्प बैंड में 8 किमी विभेदन के साथ तीन चैनल अति उच्च विभेदन विकिरणमापी (वीएचआरआर) है। इसके अलावा, इनसैट-3ए में आवेश युग्मित युक्ति (सीसीडी) कैमरा है जो दृश्य और लघु तरंग अवरक्त बैंड में 1 किमी का स्थानिक विभेदन प्रदान करता है। यूएचएफ बैंड में कार्यरत एक डेटा प्रसारण प्रेषानुकर (डीआरटी) भूमि और नदी बेसिन में स्थित अप्राप्य प्लेटफार्मों से वास्तविक काल जलीय-मौसम विज्ञान डेटा संग्रह के लिए शामिल किया गया है। फिर डेटा को विस्तारित सी-बैंड में एक केंद्रीय स्थान पर रिले किया जाता है। इनसैट-3ए में उपग्रह सहायता प्राप्त खोज और बचाव (एसएएस एंड आर) के लिए एक अन्य प्रेषानुकर भी है जो अंतरराष्ट्रीय उपग्रह सहायता प्राप्त खोज और बचाव कार्यक्रम में भारत के योगदान का भाग रूप है। इनसैट-3एको यूरोपीय एरियन-5जीप्रमोचनयान द्वारा 200 किमी के उपभू और 35,980 किमी के अपभू के साथ भूतुल्यकाली स्थानांतरण कक्षा (जीटीओ) में प्रमोचित किया गया था। उपग्रह की अपभू मोटर का ज्वालन कर उपग्रह को अपनी अंतिम कक्षा में ले जाया जाता है। इसके बादसौर सरणी, एंटेना और सौर सेल की तैनाती की जाती है और उपग्रह को कक्षा में जांच के बाद चालू किया जाता है।

English

Insitu

	Display name	modified
	EOS-06_OCM_RadCalNet_Monitoring	Fri, 2025-04-11 14:39
	2020	Tue, 2020-10-27 14:36
	2019	Tue, 2020-10-27 14:36
	2018	Tue, 2020-10-27 14:36
	2017	Tue, 2020-10-27 14:36
	2016	Tue, 2020-10-27 14:36
	2015	Fri, 2017-11-24 11:21
	2014	Fri, 2017-11-24 11:21
	2013	Fri, 2017-11-24 11:20

9 folders

Insitu

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 11:15
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Insitu

	Display name	modified
	insitu	Sat, 2022-05-28 23:57
	upload	Mon, 2025-04-28 17:00
	web	Mon, 2024-06-24 11:36
	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 11:23
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

मॉस्डैक MOSDAC
भारत सरकार Govt. of India
अंतरिक्ष उपयोग केंद्र Space Applications Centre
इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

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	lib64	Tue, 2025-01-21 17:28
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	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 10:53
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

भारत सरकार
Govt. of India

मॉस्डैक
MOSDAC
अंतरिक्ष उपयोग केंद्र Space Applications Centre

इसरो isro
अंतरिक्ष विभाग
Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Insitu

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	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 11:37
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
	Go up	Thu, 2025-01-30 08:53

25 folders

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	live	Tue, 2025-01-07 10:08
	srv	Tue, 2024-06-25 19:58
	opt	Fri, 2025-01-17 22:43
	mnt	Tue, 2024-06-25 19:58
	media	Tue, 2024-06-25 19:58
	home	Fri, 2024-12-27 14:51
	afs	Tue, 2024-06-25 19:58
	lib64	Tue, 2025-01-21 17:28
	lib	Thu, 2024-11-28 09:47
	sbin	Fri, 2024-12-13 11:28
	bin	Mon, 2025-01-20 12:04
	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 14:03
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

	Display name	modified
	boot	Thu, 2024-11-28 09:55
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25 folders

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	usr	Thu, 2024-11-28 09:41
	var	Thu, 2025-01-30 09:22
	etc	Thu, 2025-05-01 17:00
	tmp	Sun, 2025-06-29 11:39
	sys	Tue, 2025-02-04 11:08
	run	Thu, 2025-05-01 17:14
	proc	Tue, 2025-02-04 11:08
	dev	Tue, 2025-02-04 11:08
	data	Sat, 2025-04-12 11:14

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25 folders

Insitu

	Display name	modified
	EOS-06_OCM_RadCalNet_Monitoring	Fri, 2025-04-11 14:39
	2020	Tue, 2020-10-27 14:36
	2019	Tue, 2020-10-27 14:36
	2018	Tue, 2020-10-27 14:36
	2017	Tue, 2020-10-27 14:36
	2016	Tue, 2020-10-27 14:36
	2015	Fri, 2017-11-24 11:21
	2014	Fri, 2017-11-24 11:21
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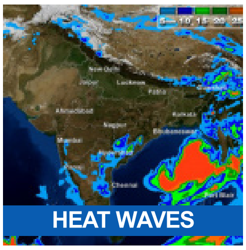

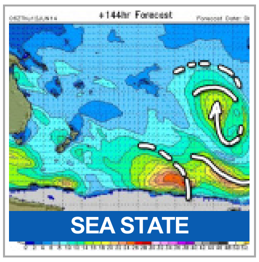

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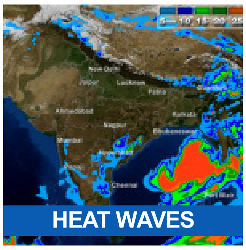

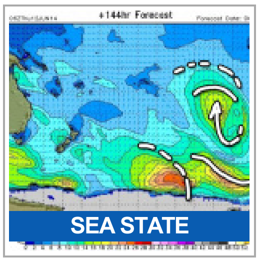

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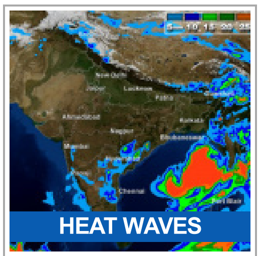

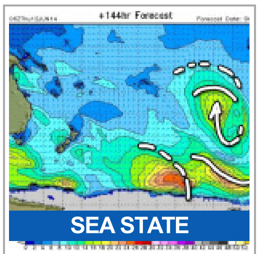

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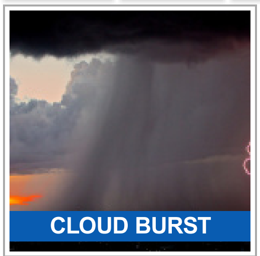
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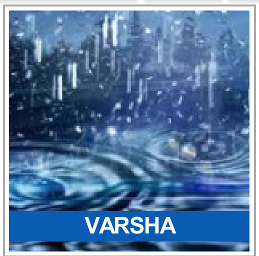

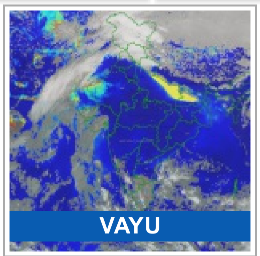

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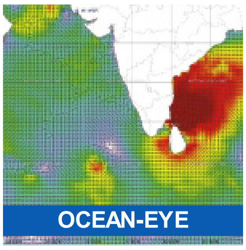
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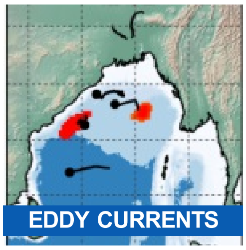
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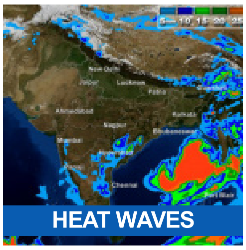

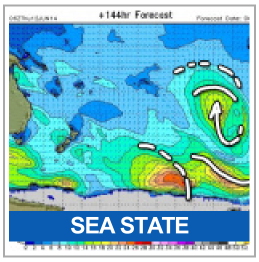

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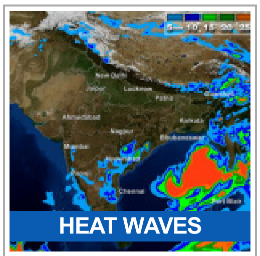

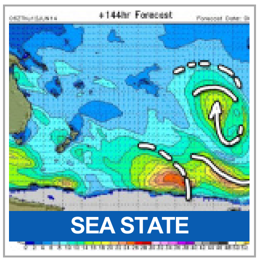

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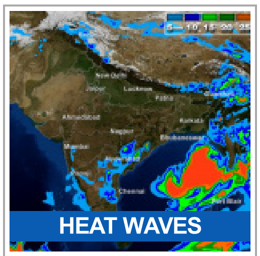

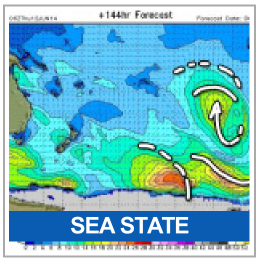

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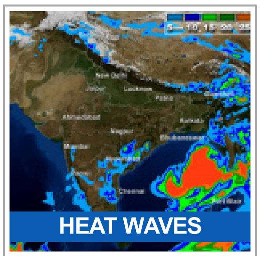

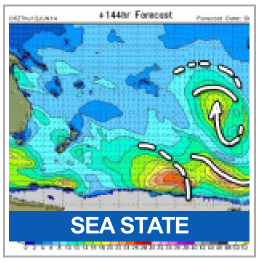

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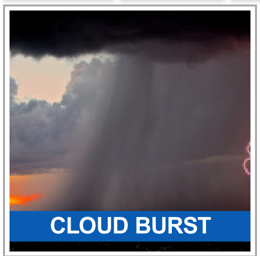

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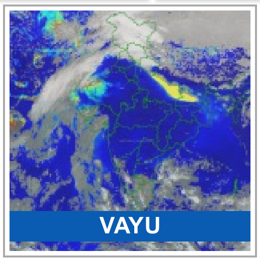

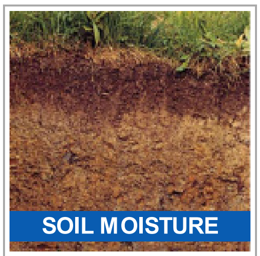

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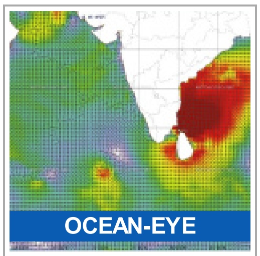

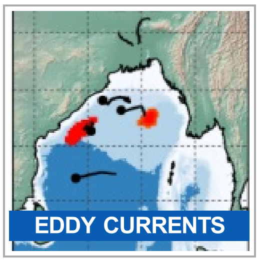

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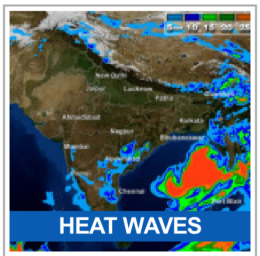
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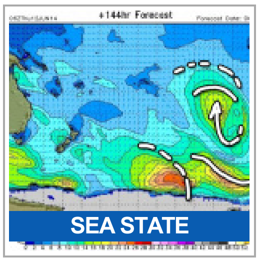

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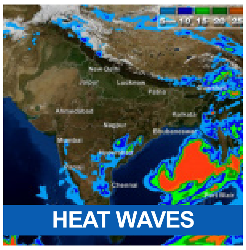
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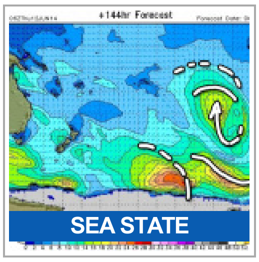

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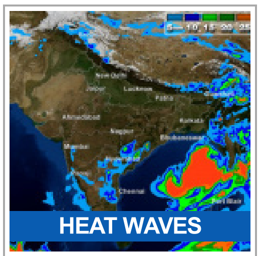

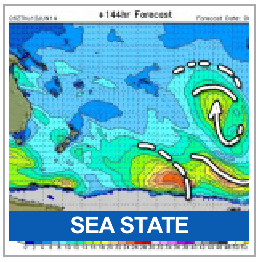

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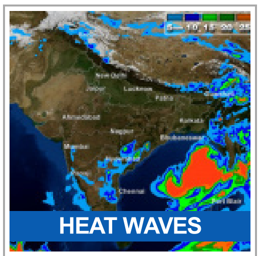

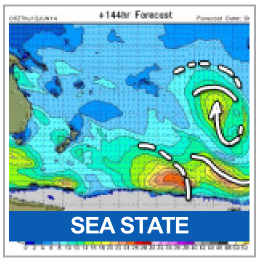

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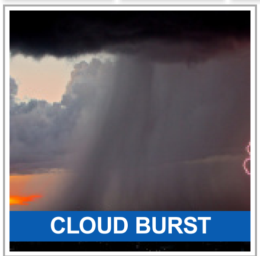

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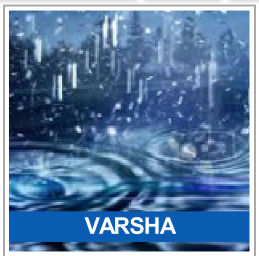

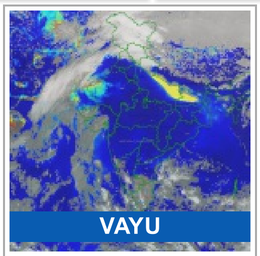

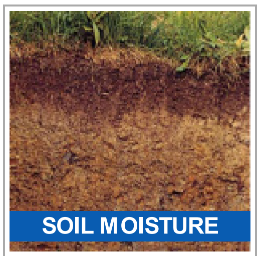

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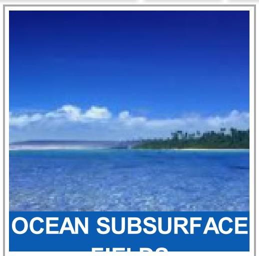

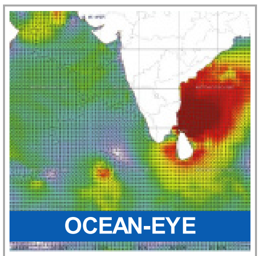

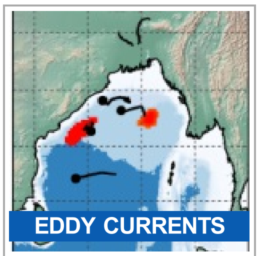

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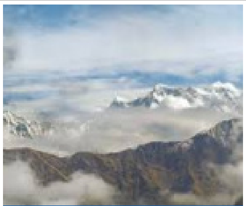

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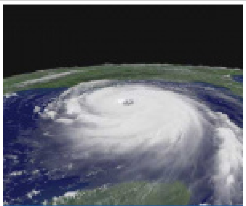

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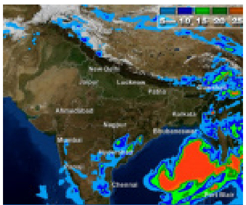

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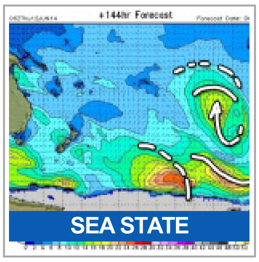

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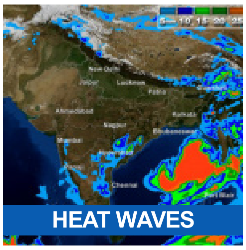

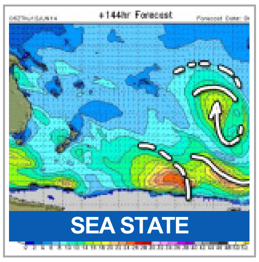

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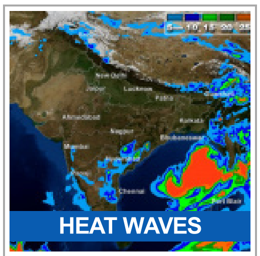
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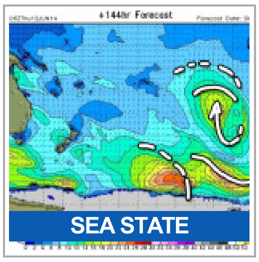

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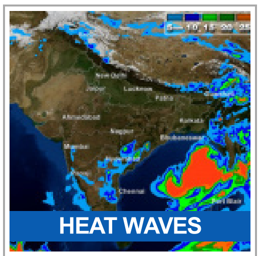

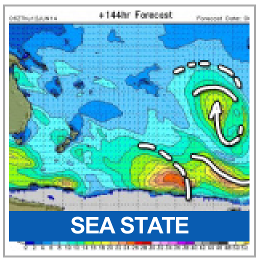

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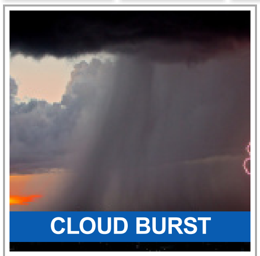

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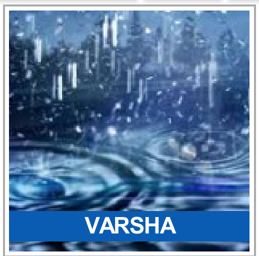

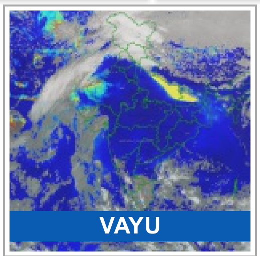

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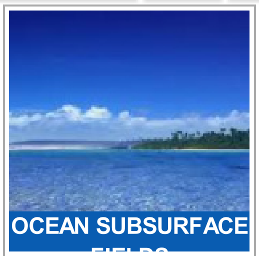

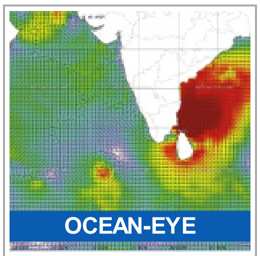

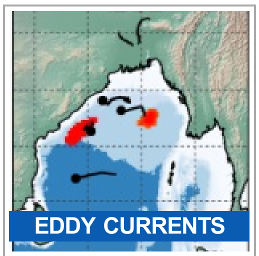

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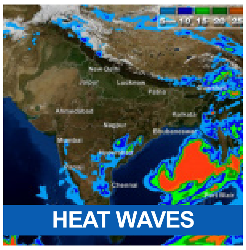

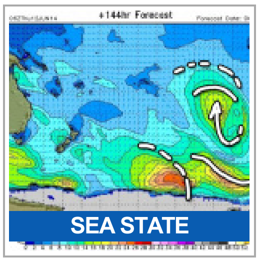

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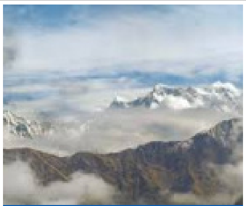
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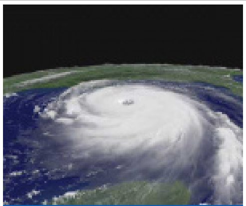
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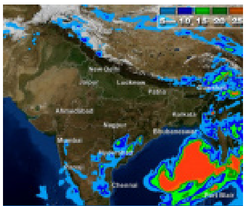
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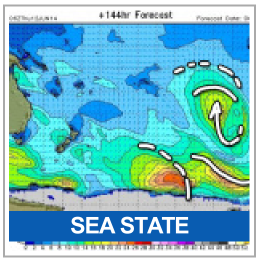

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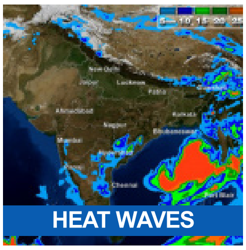

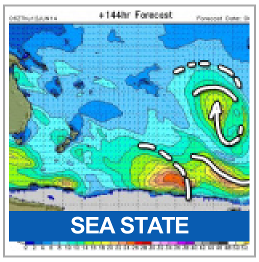

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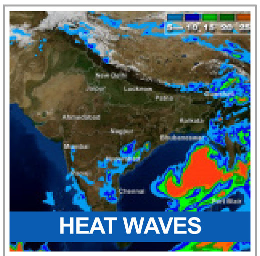
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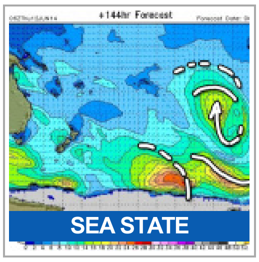

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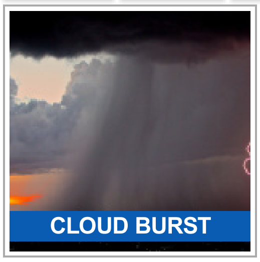

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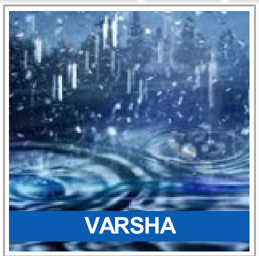

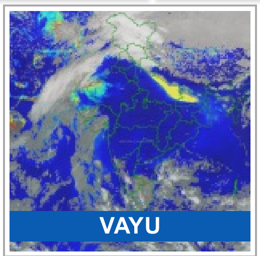

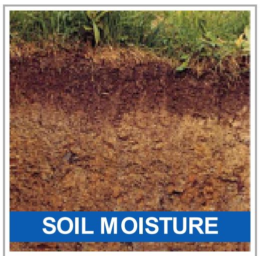

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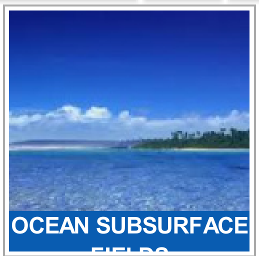

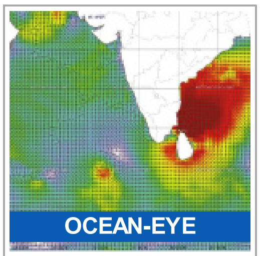

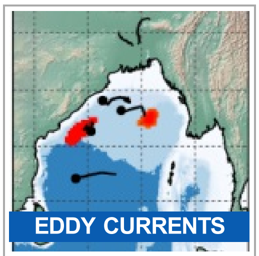

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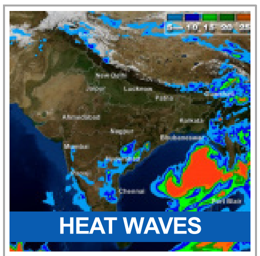

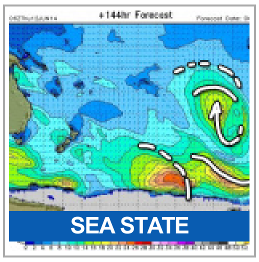

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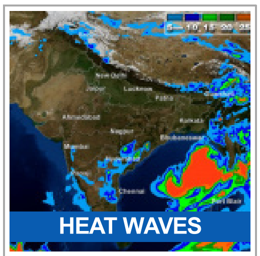
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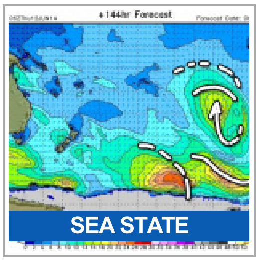

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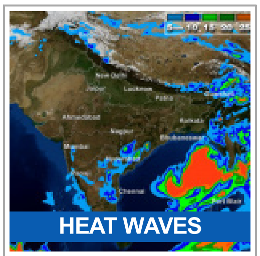
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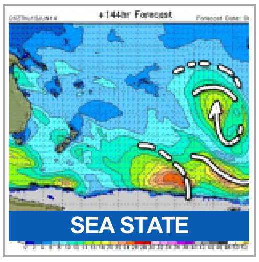

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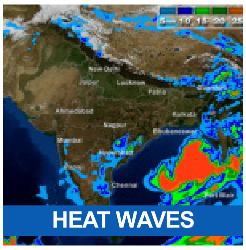

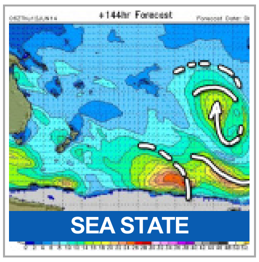

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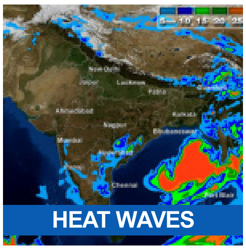
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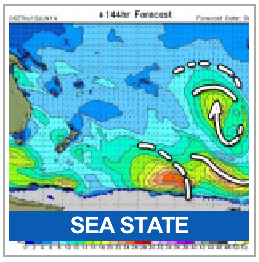

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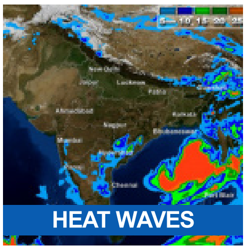

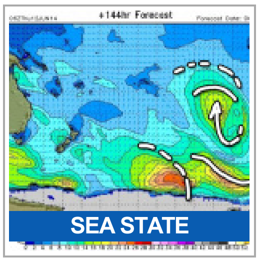

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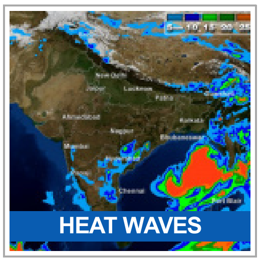

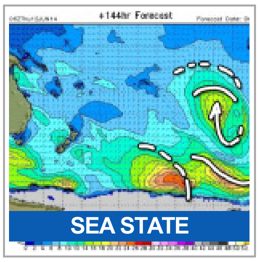

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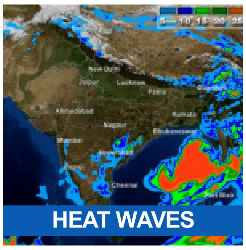

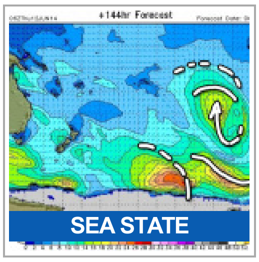

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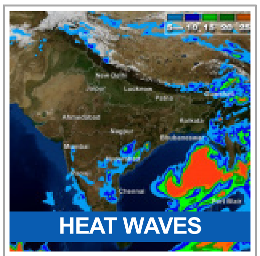

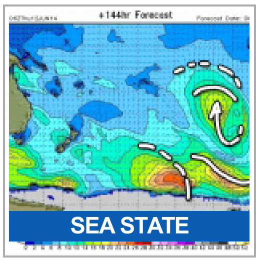

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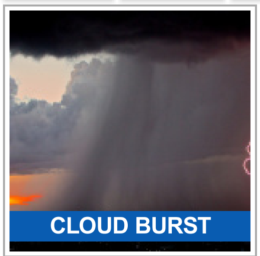
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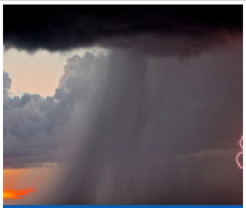
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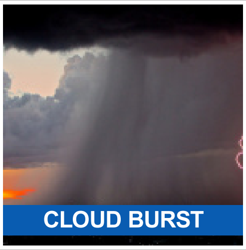

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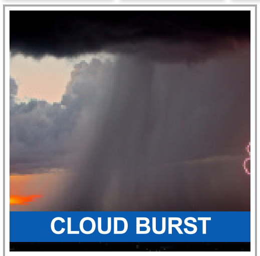

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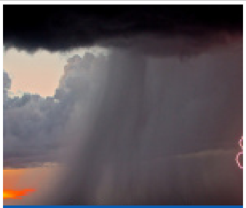

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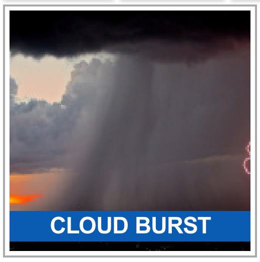

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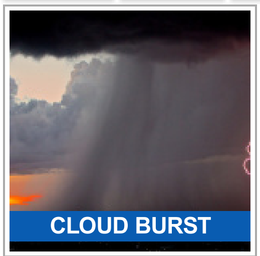

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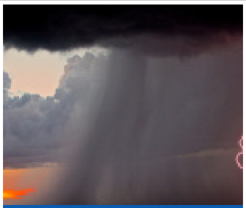
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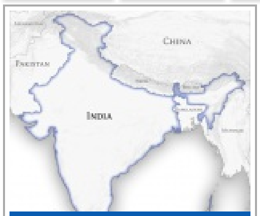

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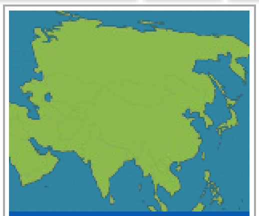

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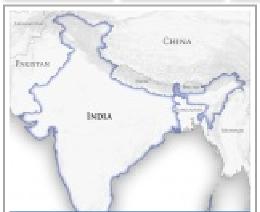

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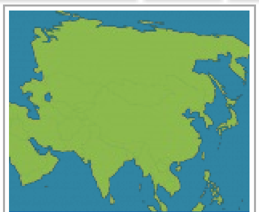

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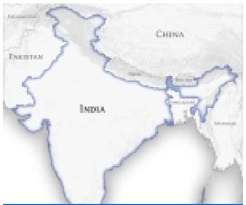

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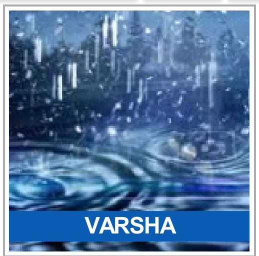

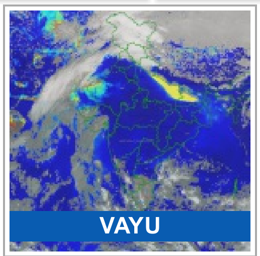

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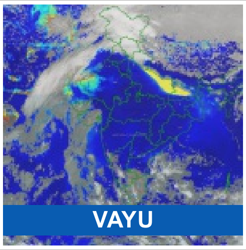

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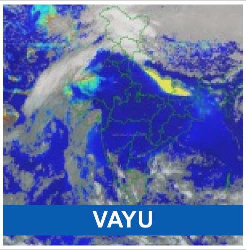

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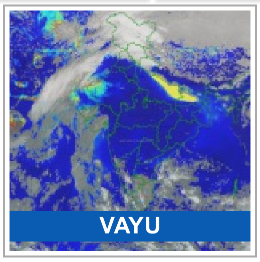

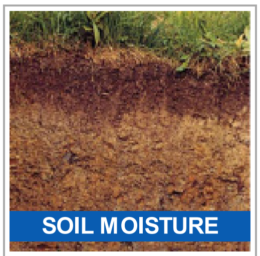

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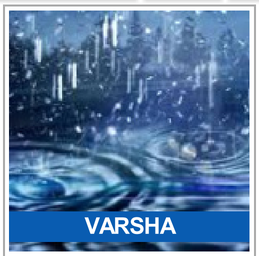

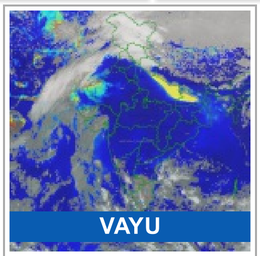

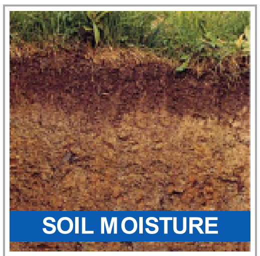

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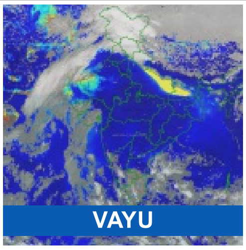

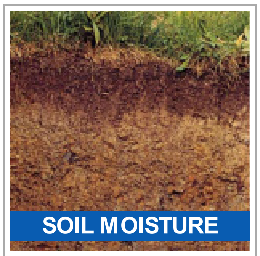

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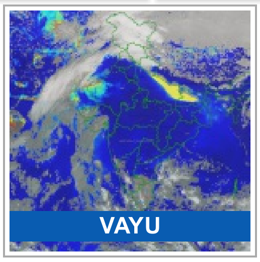

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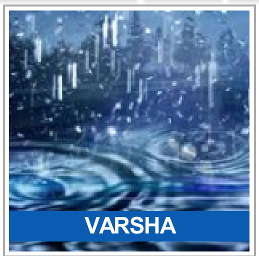

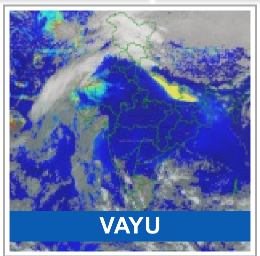

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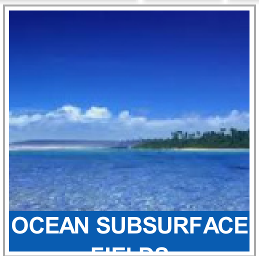

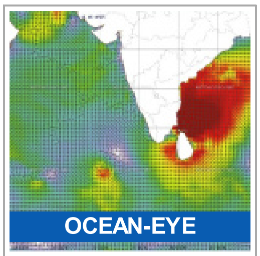

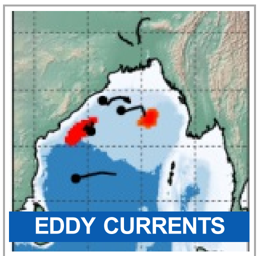

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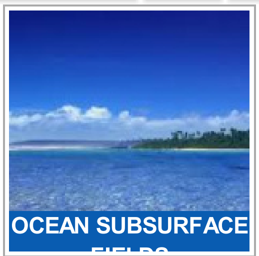
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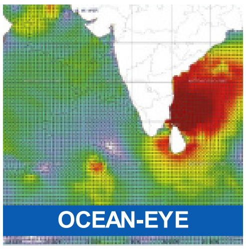
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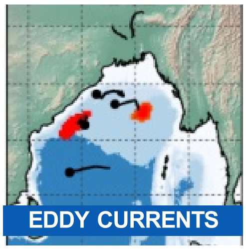
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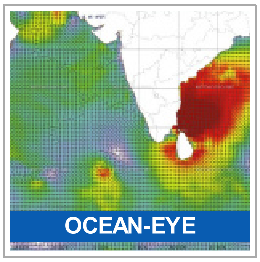

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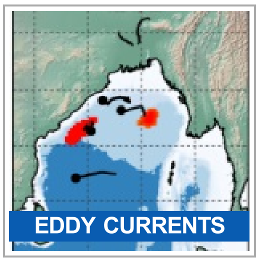

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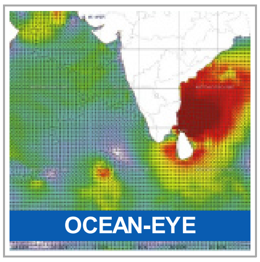

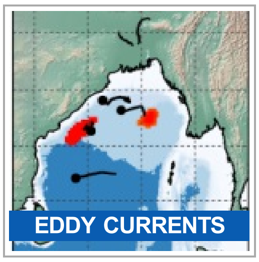

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मॉस्डैक
MOSDAC
अंतरिक्ष उपयोग केंद्र Space Applications Centre

इसरो isro
अंतरिक्ष विभाग
Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

MOSDAC "
×

Satellite/Forecast

Sensor/Model

Product Type

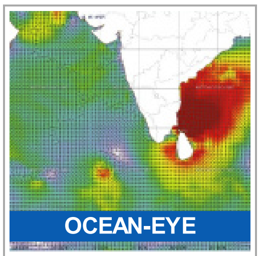
Product

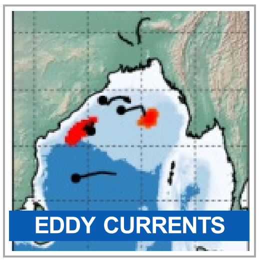
+
-

Fullscreen

Services

Forecast | Nowcast | Current Events | Alerts | Met Applications | Ocean Applications





Announcements

Monsoon Onset Prediction over Kerala (2024) | PDF, Tool: PDFViewer, Size: 763.84 KB | 20-May-24

Onset over Kerala - Monsoon 2023 | PDF, Tool: PDFViewer, Size: 463.15 KB | 15-May-23

INSAT Product Version Information | PDF, Tool: PDFViewer, Size: 1.61 MB | 01-Sep-22

SFTP Services for Data Download | PDF, Tool: PDFViewer, Size: 347.33 KB | 08-Nov-21

भारत सरकार Govt. of India

मॉस्डैक MOSDAC

अंतरिक्ष उपयोग केंद्र Space Applications Centre

इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

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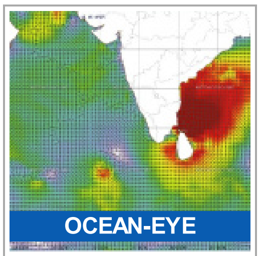

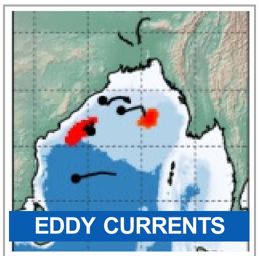

Announcements

Monsoon Onset Prediction over Kerala (2024) | PDF, Tool: PDFViewer, Size: 763.84 KB | 20-May-24

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M O S D A C

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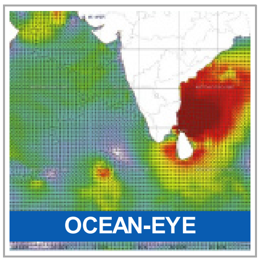
इसरो isro
अंतरिक्ष विभाग Dept. of Space

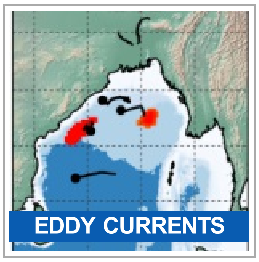
Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Services

Forecast | Nowcast | Current Events | Alerts | Met Applications | Ocean Applications





Announcements

Monsoon Onset Prediction over Kerala (2024) | PDF, Tool: PDFViewer, Size: 763.84 KB | 20-May-24

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Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Satellite Images | RADAR | Weather | OceanState | LIVE

Satellite/Forecast

Sensor/Model

Product Type

Product

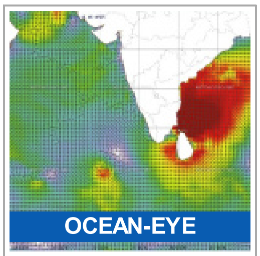
+

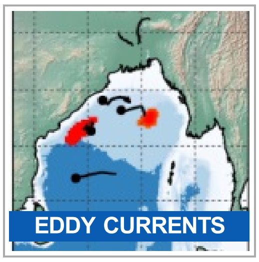
-

Fullscreen

Services

Forecast | Nowcast | Current Events | Alerts | Met Applications | Ocean Applications





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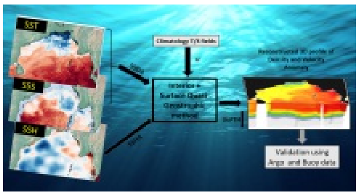
Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Ocean Subsurface



Satellite data has been used to reconstruct ocean interior density and velocity anomalies in the Bay of Bengal through the “interior + surface Quasigeostrophic” (isQG) method. The inputs are sea surface height anomaly (AVISO), sea surface density anomaly; which is calculated using GHRSST sea surface temperature and SMAP sea surface salinity. One more input is the Brunt-Vaisala frequency, calculated from in-situ analysis system (ISAS) climatological data. The results show that isQG retrieved subsurface density anomalies are very promising compared to RAMA buoy data in the cold season when EKE is minimum. Validation of retrieved density has also been performed using ARGO data which reveals that isQG is more promising when the stratification is weak .

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

Reynold's Optimum Interpolated Sea Surface Temperature (OISST) (https://www.ncdc.noaa.gov/oisst)
SMAP sea surface salinity (SSS) (https://smap.jpl.nasa.gov/data/).
AVISO sea surface height (SSH) (https://www.aviso.altimetry.fr/en/data.html).
ISAS-13 temperature/salinity profile (https://annuaire.ifremer.fr/cv/16058).

Processing Steps

Climatological temperature, salinity (T/S) fields are calculated from ISAS-13 data. Also Brunt-Viasala frequency(N) is calculated.
Monthly Sea surface density anomaly(SSDA) is calculated from GHRSST, SMAP and ISAS-

Climatology.
Monthly sea surface height anomaly(SSHA) is calculated using AVISO data.
Using interior + surface Quasi-Geostrophic(isQG) methodology, taking Barotropic and first Baroclinic modes, and taking SSHA and SSDA as boundary conditions, ocean interior density and velocity anomaly are reconstructed.

References

Liu, L., S. Peng, and R. X. Huang (2017), Reconstruction of ocean's interior from observed sea surface information, J. Geophys. Res. Oceans, 122, 1042– 1056, doi:10.1002/2016JC011927.
Wang, J., G. Flierl, J. LaCasce, J. McClean, and A. Mahadevan (2013), Reconstructing the ocean's interior from surface data, J. Phys. Oceanogr., 43, 1611–1626, doi:10.1175/JPO-D-12-0204.1.
Scott, R. B., and D. G. Furnival, 2012: Assessment of traditional and new eigen-function bases applied to extrapolation of surface geostrophic current time series to below the surface in an idealized primitive equation simulation. J. Phys. Oceanogr., 42, 165–178.
Smith, K. S., and G. K. Vallis, 2001: The scales and equilibration of mid-ocean eddies: Freely evolving flow. J. Phys. Oceanogr., 31, 554–571.
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Lapeyre, G., 2009: What vertical mode does the altimeter reflect? On the decomposition in baroclinic modes and on a surface trapped mode. J. Phys. Oceanogr., 39, 2857–2874.
P. Klein, 2006: Dynamics of the upper oceanic layers in terms of surface quasi-geostrophy theory. J. Phys. Oceanogr., 36, 165–176.

Derivation Techniques and Algorithm

The algorithm is called interior + surface Quasi-Geostrophic(isQG) method. User should refer doi:10.1175/JPO-D-12-0204.1.

Limitations

This method is only applicable in a region where the Coriolis parameter does not change abruptly. Also it is not applicable on the equator.
Vertical movement is ignored in isQG framework.
isQG method works well when the eddy kinetic energy (EKE) is low. If EKE is large, it will fail to generate accurate subsurface fields.
We considered the Barotropic and the first Baroclinic modes only in our analysis. This certainly limits our approach.
This method generates less satisfactory subsurface fields if the stratification is strong.
The vertical resolution in our case is 10 m. This is a major drawback since in Bay of Bengal, the mixed layer can be as shallow as 15-20 m.

Known problems with data

Data problems due to bad weather (heavy rain) and extreme events like cyclones etc.

File Naming Convention

Netcdf file: isQG_yyyy.nc

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	May, 2018
4	Data Lineage or Quality	Sea surface height anomaly, Sea surface density anomaly in Bay of Bengal using isQG methodology.

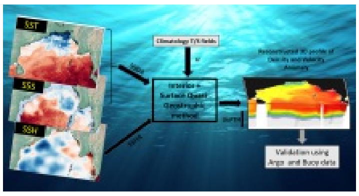
5	Title	Reconstruction of Ocean interior density and horizontal velocity anomaly fields using Satellite data in Bay of Bengal
6	Abstract	Satellite data has been used to reconstruct ocean interior density and velocity anomalies in the Bay of Bengal through the “interior + surface Quasigeostrophic” (isQG) method. The inputs are sea surface height anomaly (AVISO), sea surface density anomaly; which is calculated using GHRSST sea surface temperature and SMAP sea surface salinity. One more input is the Brunt-Vaisala frequency, calculated from in-situ analysis system (ISAS) climatological data. The results show that isQG retrieved subsurface density anomalies are very promising compared to RAMA buoy data in the cold season when EKE is minimum. Validation of retrieved density has also been performed using ARGO data which reveals that isQG is more promising when the stratification is weak .
7	Dataset Contact	Anup Kumar Mandal, OSD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, anupmandal@sac.isro.gov.in
8	Update Frequency	Six months.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Spatial resolution is 25 km, while vertical resolution is 10m
11	Language	English
12	Topic Category	Ocean subsurface product (SAMUDRA Project) using satellite data.
13	Keywords	Density anomaly, Velocity anomaly, subsurface fields, 3D-Ocean fields
14	Date or period	January 2017 - till date
15	Responsible Party	Anup Kumar Mandal,OSD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters from satellite data in the Bay of Bengal region.
16b	Individual name	Anup Kumar Mandal, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: anupmandal@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Lat_min : 05N Lat_max : 25 N Lon_min: 75E Lon_max: 95 E
17	Geographic Extent	Indian Landmass
18	Geographic name, geographic Identifier	Bay of Bengal
19	Bounding box	Lat_min : 05N Lat_max : 25 N Lon_min: 75E Lon_max: 95 E
20	Temporal Extent	January 2017 till date
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in netCDF format
23	Processing Level	Level 4
4	Reference System	Datum: WGS84

Tags:
Opendata Ocean

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Ocean Subsurface



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Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

Reynold's Optimum Interpolated Sea Surface Temperature (OISST)
(https://www.ncdc.noaa.gov/oisst)
SMAP sea surface salinity (SSS) (https://smap.jpl.nasa.gov/data/).
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ISAS-13 temperature/salinity profile (https://annuaire.ifremer.fr/cv/16058).

Processing Steps

Climatological temperature, salinity (T/S) fields are calculated from ISAS-13 data. Also Brunt-Viasala frequency(N) is calculated.
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Climatology.
Monthly sea surface height anomaly(SSHA) is calculated using AVISO data.
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Wang, J., G. Flierl, J. LaCasce, J. McClean, and A. Mahadevan (2013), Reconstructing the ocean's interior from surface data, J. Phys. Oceanogr., 43, 1611–1626, doi:10.1175/JPO-D-12-0204.1.
Scott, R. B., and D. G. Furnival, 2012: Assessment of traditional and new eigen-function bases applied to extrapolation of surface geostrophic current time series to below the surface in an idealized primitive equation simulation. J. Phys. Oceanogr., 42, 165–178.
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Pedlosky, J., 1987: Geophysical Fluid Dynamics. 2nd ed. Springer Verlag, 710 pp.
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P. Klein, 2006: Dynamics of the upper oceanic layers in terms of surface quasi-geostrophy theory. J. Phys. Oceanogr., 36, 165–176.

Derivation Techniques and Algorithm

The algorithm is called interior + surface Quasi-Geostrophic(isQG) method. User should refer doi:10.1175/JPO-D-12-0204.1.

Limitations

This method is only applicable in a region where the Coriolis parameter does not change abruptly. Also it is not applicable on the equator.
Vertical movement is ignored in isQG framework.
isQG method works well when the eddy kinetic energy (EKE) is low. If EKE is large, it will fail to generate accurate subsurface fields.
We considered the Barotropic and the first Baroclinic modes only in our analysis. This certainly limits our approach.
This method generates less satisfactory subsurface fields if the stratification is strong.
The vertical resolution in our case is 10 m. This is a major drawback since in Bay of Bengal, the mixed layer can be as shallow as 15-20 m.

Known problems with data

Data problems due to bad weather (heavy rain) and extreme events like cyclones etc.

File Naming Convention

Netcdf file: isQG_yyyy.nc

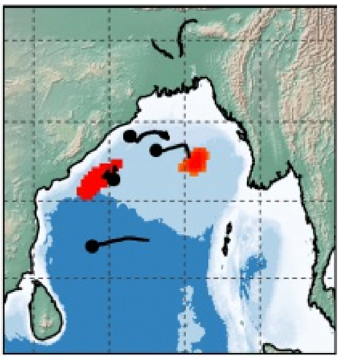
MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	May, 2018
4	Data Lineage or Quality	Sea surface height anomaly, Sea surface density anomaly in Bay of Bengal using isQG methodology.

5	Title	Reconstruction of Ocean interior density and horizontal velocity anomaly fields using Satellite data in Bay of Bengal
6	Abstract	Satellite data has been used to reconstruct ocean interior density and velocity anomalies in the Bay of Bengal through the "interior + surface Quasigeostrophic" (isQG) method. The inputs are sea surface height anomaly (AVISO), sea surface density anomaly; which is calculated using GHRSST sea surface temperature and SMAP sea surface salinity. One more input is the Brunt-Vaisala frequency, calculated from in-situ analysis system (ISAS) climatological data. The results show that isQG retrieved subsurface density anomalies are very promising compared to RAMA buoy data in the cold season when EKE is minimum. Validation of retrieved density has also been performed using ARGO data which reveals that isQG is more promising when the stratification is weak .
7	Dataset Contact	Anup Kumar Mandal, OSD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad, 380015, anupmandal@sac.isro.gov.in
8	Update Frequency	Six months.
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	Spatial resolution is 25 km, while vertical resolution is 10m
11	Language	English
12	Topic Category	Ocean subsurface product (SAMUDRA Project) using satellite data.
13	Keywords	Density anomaly, Velocity anomaly, subsurface fields, 3D-Ocean fields
14	Date or period	January 2017 - till date
15	Responsible Party	Anup Kumar Mandal,OSD/AOGG/ EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters from satellite data in the Bay of Bengal region.
16b	Individual name	Anup Kumar Mandal, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: anupmandal@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Lat_min : 05N Lat_max : 25 N Lon_min: 75E Lon_max: 95 E
17	Geographic Extent	Indian Landmass
18	Geographic name, geographic Identifier	Bay of Bengal
19	Bounding box	Lat_min : 05N Lat_max : 25 N Lon_min: 75E Lon_max: 95 E
20	Temporal Extent	January 2017 till date
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in netCDF format
23	Processing Level	Level 4
4	Reference System	Datum: WGS84

Tags:
Opendata Ocean

Oceanic Eddies Detection



The oceanic eddy parameter information was prepared for 24 years (1993 – 2016) over Bay of Bengal using AVISO. Merged and gridded satellite altimeter product of sea surface height (SSH) anomaly at 7-day interval having special resolution of 0.25o has been used for present study. Mesoscale oceanic eddies have been identified and tracked in weekly merged altimeter product of Sea Surface Height (SSH) from AVISO. Eddies have been identified based on closed contour approach followed by shape criteria. An automated tracking algorithm has been employed to track these eddies with different lifetime. The trajectories of eddies have been computed from their time history. Present method has been used separately for cold core and warm core eddies. There are 24 files each containing weekly eddy data information for individual year.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

The daily gridded map of Absolute Dynamic Topography data is obtained from AVISO
ftp site (ftp://ftp.aviso.oceanobs.com)
Website (http://www.aviso.oceanobs.com/)

Processing Steps

Remove the long wavelength component of the SSH anomaly and retain the mesoscale features with the wavelength 50-500 km scale.
Identified outer most closed contour of SSH anomaly.
The closed contours are sequentially identified, analysed and checked essential criteria.
Size and amplitude based thresholds for eddy detection were fixed after carrying out several trials.
Eddies are detected and calculated the eddy parameters.
Detected eddies are tracked individually.

References

Chelton, D. B., M. G. Schlax, R. M. Samelson, and R. A. de Szoeke (2007), Global observations of large oceanic eddies, Geophys. Res. Lett., 34, L15606, doi:10.1029/2007GL030812.

Derivation Techniques and Algorithm

We have followed Chelton et. Al. 2007 in deriving the eddy census in Bay of Bengal with minor modifications in fixing the thresholds for eddy detection specific to this region. This was achieved after performing several trial experiments with different combinations of size and amplitude values.

Limitations

Accuracy assessment of the dataset has not been carried out. The number of eddies are depending upon the diameter and amplitude threshold. Only mesoscale eddies with maximum diameter of 400km are being considered.

Known problems with data

Less reliability of SSH data near the coast with altimetry is a known problem.

Related data collections

http://www.aviso.altimetry.fr/en/data/data-access/registration-form.html

File Naming Convention

The typical file name is 'eddy_parameter_YYYY.nc' or 'YYYY.gif' where 'eddy_parameter' signifies that this product consists of eddy parameters.
'YYYY' corresponds to the year, ex: 2015.
All the data files are in NetCDF 4 format and the images are in gif format.

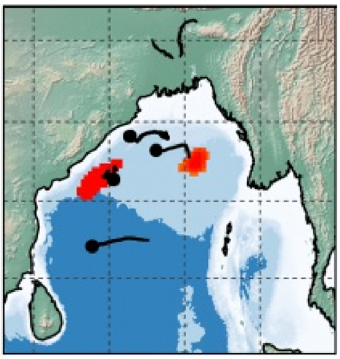
MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	December 12, 2017
4	Data Lineage or Quality	Science product of eddy parameters over Bay of Bengal.
5	Title	Characterizing Ocean Eddy activities in the Bay of Bengal using Altimeter data
6	Abstract	The oceanic eddy parameter information over Bay of Bengal was prepared for 24 years (1993 – 2016) using AVISO merged and gridded satellite altimeter sea surface height (SSH) data. SSH anomaly at 7-day interval having special resolution of 0.25o has been used for present study.

7	Dataset Contact	M. Jishad, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: jishadm@sac.isro.gov.in
8	Update frequency	-
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	0.25o X 0.25o
11	Language	English
12	Topic Category	Physical Oceanography
13	Keywords	Altimter, sea surface height, Oceanic eddy, Bay of Bengal, Cyclonic and anti-cyclonic
14	Date or period	January 01 1993 to December 31 2016 weekly data
15	Responsible Party	Jishad M, Rashmi Sharma and Neeraj Agarwal, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Mesoscale oceanic eddies have been identified and tracked in weekly merged altimeter product of Sea Surface Height (SSH) in the Bay of Bengal during the period 1993-2016.
16b	Individual name	M. Jishad, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: jishadm@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: jishadm@sac.isro.gov.in
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	time(time): units = "days since 1950-1-1 00:00:00" : calendar = "Gregorian"; EddyNumber(EddyNumber): "Number of the eddy"; flag(flag): "1 for anticyclonic and 2 for cyclonic"; eddy_id(time, EddyNumber, flag): "eddy id number"; cent_lat(time, EddyNumber, flag): Eddy centre latitude : units = "degree_north"; cent_lon(time, EddyNumber, flag):Eddy centre longitude : units = "degree_east"; amp_ed(time, EddyNumber, flag):Amplitude of the eddy : units = "cm"; sca_ed(time, EddyNumber, flag):Scale of the eddy : units = "km"; are_ed(time, EddyNumber, flag): Area of the eddy : units = "km^2";
17	Geographic Extent	Longitude: 78OE to 100O E Latitude : 5ON to 25O N
18	Geographic name, geographic Identifier	Bay of Bengal
19	Bounding box	Longitude : 78OE to 100O E Latitude : 5ON to 25O N Resolution : 0.25 O
20	Temporal Extent	Based on input AVISO data from 1993-2016 (24 years)
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in NetCDF format and images in GIF format
23	Processing Level	Level 4 (Data product derived from The weakly gridded map of Absolute Dynamic Topography data)
24	Reference System	Projection: Spherical coordinates

Tags:
Opendata Ocean

Oceanic Eddies Detection



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Data Sources

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Processing Steps

Remove the long wavelength component of the SSH anomaly and retain the mesoscale features with the wavelength 50-500 km scale.
Identified outer most closed contour of SSH anomaly.
The closed contours are sequentially identified, analysed and checked essential criteria.
Size and amplitude based thresholds for eddy detection were fixed after carrying out several trials.
Eddies are detected and calculated the eddy parameters.
Detected eddies are tracked individually.

References

Chelton, D. B., M. G. Schlax, R. M. Samelson, and R. A. de Szoeke (2007), Global observations of large oceanic eddies, Geophys. Res. Lett., 34, L15606, doi:10.1029/2007GL030812.

Derivation Techniques and Algorithm

We have followed Chelton et. Al. 2007 in deriving the eddy census in Bay of Bengal with minor modifications in fixing the thresholds for eddy detection specific to this region. This was achieved after performing several trial experiments with different combinations of size and amplitude values.

Limitations

Accuracy assessment of the dataset has not been carried out. The number of eddies are depending upon the diameter and amplitude threshold. Only mesoscale eddies with maximum diameter of 400km are being considered.

Known problems with data

Less reliability of SSH data near the coast with altimetry is a known problem.

Related data collections

http://www.aviso.altimetry.fr/en/data/data-access/registration-form.html

File Naming Convention

The typical file name is 'eddy_parameter_YYYY.nc' or ‘YYYY.gif’ where
'eddy_parameter’ signifies that this product consists of eddy parameters.
'YYYY' corresponds to the year, ex: 2015.
All the data files are in NetCDF 4 format and the images are in gif format.

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	December 12, 2017
4	Data Lineage or Quality	Science product of eddy parameters over Bay of Bengal.
5	Title	Characterizing Ocean Eddy activities in the Bay of Bengal using Altimeter data
6	Abstract	The oceanic eddy parameter information over Bay of Bengal was prepared for 24 years (1993 – 2016) using AVISO merged and gridded satellite altimeter sea surface height (SSH) data. SSH anomaly at 7-day interval having special resolution of 0.25o has been used for present study.

7	Dataset Contact	M. Jishad, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: jishadm@sac.isro.gov.in
8	Update frequency	-
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	0.25o X 0.25o
11	Language	English
12	Topic Category	Physical Oceanography
13	Keywords	Altimter, sea surface height, Oceanic eddy, Bay of Bengal, Cyclonic and anti-cyclonic
14	Date or period	January 01 1993 to December 31 2016 weekly data
15	Responsible Party	Jishad M, Rashmi Sharma and Neeraj Agarwal, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Mesoscale oceanic eddies have been identified and tracked in weekly merged altimeter product of Sea Surface Height (SSH) in the Bay of Bengal during the period 1993-2016.
16b	Individual name	M. Jishad, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: jishadm@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6117. Email: jishadm@sac.isro.gov.in
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	time(time): units = "days since 1950-1-1 00:00:00" : calendar = "Gregorian"; EddyNumber(EddyNumber): “Number of the eddy”; flag(flag): "1 for anticyclonic and 2 for cyclonic"; eddy_id(time, EddyNumber, flag): “eddy id number”; cent_lat(time, EddyNumber, flag): Eddy centre latitude : units = "degree_north"; cent_lon(time, EddyNumber, flag):Eddy centre longitude : units = "degree_east"; amp_ed(time, EddyNumber, flag):Amplitude of the eddy : units = "cm"; sca_ed(time, EddyNumber, flag):Scale of the eddy : units = "km"; are_ed(time, EddyNumber, flag): Area of the eddy : units = "km^2";
17	Geographic Extent	Longitude: 78OE to 100O E Latitude : 5ON to 25O N
18	Geographic name, geographic Identifier	Bay of Bengal
19	Bounding box	Longitude : 78OE to 100O E Latitude : 5ON to 25O N Resolution : 0.25 O
20	Temporal Extent	Based on input AVISO data from 1993-2016 (24 years)
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download of data files in NetCDF format and images in GIF format
23	Processing Level	Level 4 (Data product derived from The weakly gridded map of Absolute Dynamic Topography data)
24	Reference System	Projection: Spherical coordinates

Tags:
Opendata Ocean

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Oceansat-2

Oceansat-2 satellite mainframe systems derive their heritage from previous IRS missions. Oceansat-2 was launched by PSLV-C14 from Satish Dhawan Space Centre, Sriharikota on Sept. 23, 2009. It carries three payloads: Ocean Colour Monitor (OCM) Ku-band Pencil Beam scatterometer (SCAT) developed by ISRO Radio Occultation Sounder for Atmosphere (ROSA) developed by the Italian Space Agency. Oceansat-2 is envisaged to provide continuity of operational services of Oceansat-1(IRS-P4) with enhanced application potential.

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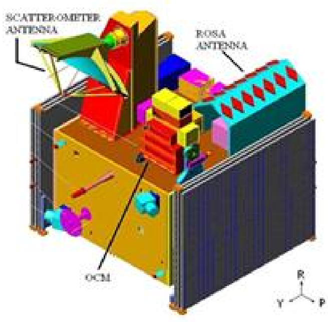
OCEANSAT-2 Introduction

India's Polar Satellite Launch Vehicle, PSLV-C14, in its 16th Mission launched 958 kg Oceansat-2 and six nano-satellites into a 720 km. intended Sun Synchronous Polar Orbit (SSPO) on September 23, 2009.

OCEANSAT-2 mission is an evolution of the OCEANSAT-1. IRS-P4 (OCEANSAT-I), launched in 1999, is a dedicated satellite for Ocean applications and carries two Payloads: Ocean Color Monitor (OCM) and Multi-frequency Scanning Microwave Radiometer (MSMR). Out of these two, OCM is providing valuable data which is used for various applications both within India and by International users. The most significant application areas are identification of Potential Fishery Zones (PFZ) using OCM data & prediction of Monsoon arrival using MSMR data. Experience from OCM data consisted into algorithms developed for atmospheric correction of the data and retrieval of parameters like Chlorophyll concentration, total suspended matter (TSM), estimation of primary productivity, detection of algal blooms.

OCEANSAT-2 provides same operational services as OCEANSAT-1 while adding new ones like atmospheric vertical profiles of temperature, pressure and humidity, wind fields over ocean surface, sea state, Ocean dynamics , and bio-physical parameters.

OCEANSAT-2 is equipped with three payloads: OCM, Scatterometer and ROSA. OCM was also present on OCEANSAT-I, Scatterometer and ROSA are new instruments. The OCEANSAT-2 data is received at the ISRO Ground Segment, located in Hyderabad, and also at the ASI Multimission National Centre (CNM) , located in Matera.



OCEANSAT-2 stowed configuration viewed from +Yaw side

Oceansat-2 Objectives

The Indian satellite Oceansat-2 is designed to provide service continuity for operational users of the Ocean Colour Monitor (OCM)instrument on Oceansat-1. It will also enhance the potential of applications in other areas. The main objectives of OceanSat-2 are to study surface winds and ocean surface strata, observation of chlorophyll concentrations, monitoring of phytoplankton blooms, study of atmospheric aerosols and suspended sediments in the water.

The primary mission objectives of Oceansat-2 are:

- To design, develop, launch and operate a three axis stabilized spacecraft carrying an Ocean Colour Monitor and Ku-band Scatterometer,
- To develop / implement algorithms for retrieval of geophysical parameters like wind vector on an operational basis.
- To promote new applications in the areas of ocean studies including prediction of cyclone trajectory, fisheries, coastal zone mapping etc.

Oceansat-2 gathers systematic data for oceanographic, coastal and atmospheric applications. The main objectives of OceanSat-2 are to study surface winds and ocean surface strata, observation of chlorophyll concentrations, monitoring of phytoplankton blooms, study of atmospheric aerosols and suspended sediments in the water.

Oceansat-2 carries two payloads for ocean related studies, namely, Ocean Colour Monitor (OCM) and Ku-band Pencil Beam Scatterometer. An additional piggy-back payload called ROSA (Radio Occultation Sounder for Atmospheric studies) developed by the Italian Space Agency (ASI) is also included. The major applications of data from Oceansat-2 are identification of potential fishing zones, sea state forecasting, coastal zone studies and inputs for weather forecasting and climatic studies.

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Oceansat-2 Payloads

The scientific payload contains three instruments. Two are Indian and one is from the Italian Space Agency.

- Ocean Colour Monitor (OCM)
- Scanning Scatterometer (SCAT)
- Radio Occultation Sounder for Atmospheric Studies (ROSA)

Ocean Colour Monitor (OCM)

OCM is an 8-band multi-spectral camera operating in the Visible and Near IR spectral range. This camera provides an instantaneous geometric field of view of 360 meter and a swath of 1420 km. OCM can be tilted up to + 20 degree along track.

Scanning Scatterometer (SCAT)

SCAT is an active microwave device designed and developed at ISRO/SAC, Ahmedabad. It is used to determine ocean surface level wind vectors through estimation of radar backscatter. The scatterometer system has a 1-m parabolic dish antenna and a dual feed assembly to generate two pencil beams and is scanned at a rate of 20.5 rpm to cover the entire swath. The Ku-band pencil beam scatterometer is an active microwave radar operating at 13.515 GHz providing a ground resolution cell of size 50 x 50 km. It consists of a parabolic dish antenna of 1 meter diameter which is offset mounted with a cant angle of about 46 degree with respect to earth viewing axis. This antenna is continuously rotated at 20.5 rpm using a scan mechanism with the scan axis along the +ve Yaw axis. By using two offset feeds at the focal plane of the antenna, two beams are generated which will conically scan the ground surface. The back scattered power in each beam from the ocean surface is measured to derive wind vector. It is an improved version of the one on Oceansat-1. The inner beam makes an incidence angle of 48.90^0 and the outer beam makes an incidence angle of 57.60^0 on the ground. It covers a continuous swath of 1400 km for inner beam and 1840 km for outer beam respectively. The inner and outer beams are configured in horizontal and vertical polarization respectively for both transmit and receive modes. The aim is to provide global ocean coverage and wind vector retrieval with a revisit time of 2 days.

Radio Occultation Sounder for Atmospheric Studies (ROSA)

ROSA is a new GPS occultation receiver provided by ASI (Italian Space Agency). The objective is to characterize the lower atmosphere and the ionosphere, opening the possibilities for the development of several scientific activities exploiting these new radio occultation data sets.

Oceansat-2 References

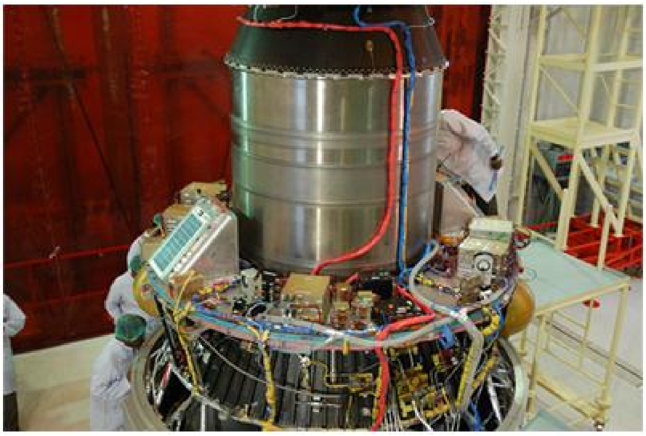
Analysed-Winds (Size:583 KB Format:PDF Tool:PDFViewer)

High Spatial density winds (Size:145 KB Format:PDF Tool:PDFViewer)

ATBD_SCAT_V1 (Size:1.02 MB Format:PDF Tool:PDFViewer)

Oceansat-2 SpaceCraft

Oceansat-2 is envisaged to provide continuity of operational services of Oceansat-1(IRS-P4) with enhanced application potential.



Launch date:	Sept 23, 2009
Launch site:	SHAR, Sriharikota
Launch vehicle;	PSLV - C14
Orbit:	Polar Sun Synchronous
Altitude:	720 km
Inclination:	98.28°
Period:	99.31 minutes
Repetitivity:	2 days
Payloads:	OCM, SCAT and ROSA
Local time of Eq. crossing:	12 noon ± 10 minutes
Mass at lift off:	960 Kg
Power:	15 Sq.m Solar panels generating 1360W, Two 24 Ah Ni-Cd Battries
Mission Life:	5 years

Oceansat-2

Oceansat-2 satellite mainframe systems derive their heritage from previous IRS missions. Oceansat-2 was launched by PSLV-C14 from Satish Dhawan Space Centre, Sriharikota on Sept. 23, 2009. It carries three payloads: Ocean Colour Monitor (OCM) Ku-band Pencil Beam scatterometer (SCAT) developed by ISRO Radio Occultation Sounder for Atmosphere (ROSA) developed by the Italian Space Agency. Oceansat-2 is envisaged to provide continuity of operational services of Oceansat-1(IRS-P4) with enhanced application potential.

हिन्दी

OCEANSAT-3

EOS-06(Oceansat-3)also known as Earth Observing SatelliteEOS-06(Oceansat-3), was launched by PSLV-C54 from Satish Dhawan Space Centre, Sriharikota on 26 November 2022. EOS-06(Oceansat-3) is developed to provide a unique opportunity for simultaneously measuring the physical, biological and atmospheric parameters for the first time from three instruments, (i) 13-band advanced Ocean Colour Monitor (OCM-3), (ii) Ku-band Scatterometer (SCAT-3) and (ii) a 2-channel Sea Surface Temperature Monitor (SSTM). ARGOS is the fourth payload provided by French Space Agency (CNES) and serves as a data collection platform from various ocean based platform. EOS-06(Oceansat-3) is envisaged to provide continuity of operational services of Oceansat-1, 2 and SCATSAT-1 Mission with enhanced application potential.

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Oceansat-3 Introduction

ISRO has launched theEOS-06(Oceansat-3) satellite on 26 Nov 2022 in a polar sun-synchronous orbit at 740km altitude. EOS-06(Oceansat-3) is the third-generation satellite in the Oceansat series. This is to provide continuity services of Oceansat-2 spacecraft with enhanced payload specifications as well as application areas.

EOS-06(Oceansat-3) has three main instruments, 13-band advanced Ocean Colour Monitor, Ku-band Scatterometer and a 2-channel Sea Surface Temperature Monitor. ARGOS is the fourth provided by French Space Agency (CNES). Unfortunately, the SSTM developed a technical problem in scan mechanism and therefore, not in operation at present.

Payloads on EOS-06(Oceansat-3) are :

• Ku-band Scatterometer (SCAT-3)

• 13-band Ocean Colour Monitor (OCM-3)

• 2-band Sea Surface Temperature Monitor (SSTM)

• ARGOS by CNES French Space Agency

Applications planned using EOS-06(Oceansat-3) datasets are as follows :

- Marine Resource Management
- Carbon & Nitrogen Cycling in Ocean
- Phytoplankton biodiversity
- Zooplankton & secondary pro
- Algal bloom detection and monitoring
- Climate change studies
- Phytoplankton physiology
- Atmosphere-Ocean processes and biological productivity
- Sediment dynamics & fluvial fluxes in coastal ocean
- Submarine applications
- Biogeochemical modelling
- Air quality dynamics from Oceansat -3
- Coral reef ecosystem studies
- Land surface NDVI/LST
- Cryospheric Science
- Assimilation of ocean surface winds in NWP models

- Monsoon onset
- Cyclogenesis, track prediction, intensification
- Studies of ocean surface waves
- Modeling surface currents
- Assimilation of winds in coupled ocean circulations models,
- Winds and its effect on oceanic mixed layer
- Air-sea interactions
- Large-scale soil moisture estimation
- Vegetation classifications and their growth assessment.

OCEANSAT-3 Objectives

- To ensure the data continuity of Ocean colour and wind vector data to sustain the operational applications.
- To improve the applications, some additional datasets such as Sea Surface Temperature and more number of bands in Optical region for florescence and in Infrared region for atmospheric corrections are accommodated.
- To develop / improve related algorithms and data products to serve in well- established application areas and to enhance the mission utility.

OCEANSAT-3 Payloads

The scientific payload contains three instruments.

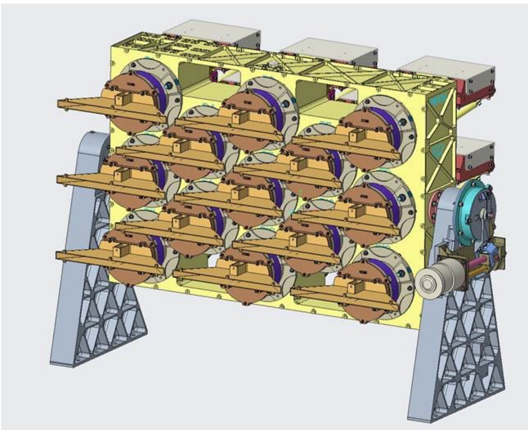
•Ku-band Scatterometer (SCAT-3)

•13-band Ocean Colour Monitor (OCM-3)

•2-band Sea Surface Temperature Monitor (SSTM)

•ARGOS by CNES French Space Agency

Ocean Colour Monitor (OCM-3) :

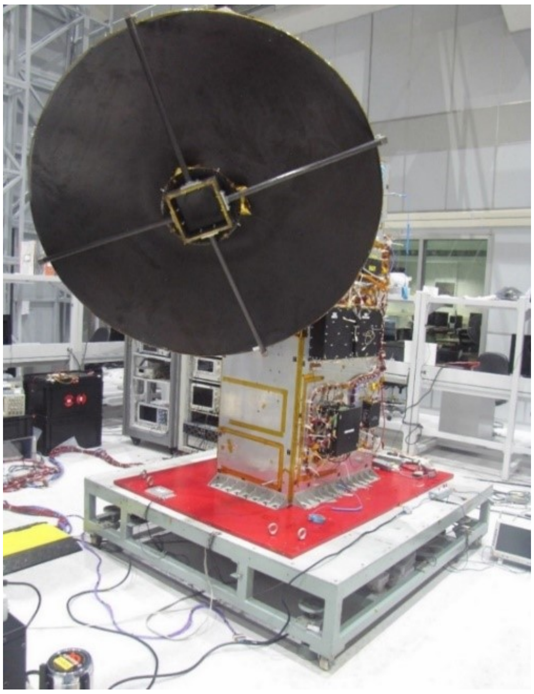


OCM-3 is a 13-band multi-spectral camera operating in the Visible and Near IR spectral range. It has 13 *narrow* (10-20 nm) *spectral bands*. This camera provides an instantaneous geometric field of view of 368 meter and a swath of ~ 15000 km. OCM can be tilted up to + 20 degree along track. OCM-3 is planned to be operated in two modes:

1. Local Area Coverage (LAC) mode at 366 m resolution

2. Global Area Coverage (GAC) mode at 1.1 km resolution

Scatterometer (SCAT-3) :



SCAT-3 is an active microwave device designed and developed at ISRO/SAC, Ahmedabad. It is used to determine ocean surface level wind vectors through estimation of radar

backscatter. Following are the sensor characteristics:

• Ku-band, HH/VV (Swath 1400km), VV (1400-1800km)

• High-resolution mode for ocean surface wind vectors at 12.5 km for the first time in addition to 25 km.

• Experimental mode of high resolution wind @5km

• Accuracy (RMSE): Speed ~ 1.5 m/s, Direction: ~15 deg.

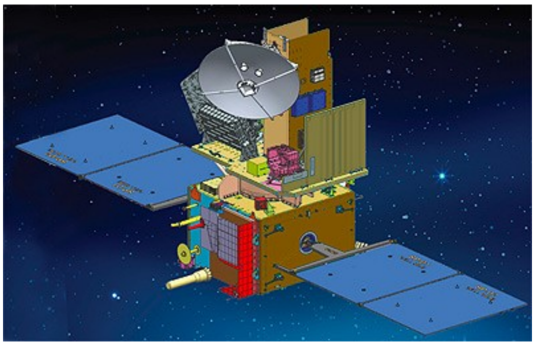
• Noise Equivalent σ_0 improved by ~5dB to -39.5dB (-35dB) for H-beam, and -35dB (-31dB) for V-beam

Sea Surface Temperature Monitoring (SSTM) :

2-band Sea Surface Temperature Monitor (SSTM) is a new instrument on-board Oceansat-3.

SSTM specifications		
S. No.	Parameter	Design Goal
1	Instantaneous Geometric Field of View (IGFOV) at nadir (km)	~ 1.1 km
2	Spectral bands (µm)	10.75 - 11.25 µm 11.75 - 12.25 µm
3	Band Width (µm)	~ 0.5 µm
4	Swath (km)	~ 1500 km
5	NEdT @ 300K	< 0.15 K
6	Saturation temperature (K)	340 K
7	Expected SST Accuracy (K)	~0.5 K

OCEANSAT-3 SpaceCraft



Launch date:	26 November 2022
Launch site:	SHAR, Sriharikota
Launch vehicle;	PSLV – C54
Orbit:	Polar Sun Synchronous
Altitude:	740 km
Inclination:	
Repetitivity:	2 days
Payloads:	OCM, SCAT , SSTM and ARGOS
Local time of Eq. crossing:	12 noon
Mass at lift off:	

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OCEANSAT-3

EOS-06(Oceansat-3)also known as Earth Observing SatelliteEOS-06(Oceansat-3), was launched by PSLV-C54 from Satish Dhawan Space Centre, Sriharikota on 26 November 2022. EOS-06(Oceansat-3) is developed to provide a unique opportunity for simultaneously measuring the physical, biological and atmospheric parameters for the first time from three instruments, (i) 13-band advanced Ocean Colour Monitor (OCM-3), (ii) Ku-band Scatterometer (SCAT-3) and (ii) a 2-channel Sea Surface Temperature Monitor (SSTM). ARGOS is the fourth payload provided by French Space Agency (CNES) and serves as a data collection platform from various ocean based platform. EOS-06(Oceansat-3) is envisaged to provide continuity of operational services of Oceansat-1, 2 and SCATSAT-1 Mission with enhanced application potential.

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OCEANSAT-3 References

OCM_AOD_ATBD (Size:2.67MB Format:PDF Tool:PDFViewer)

OCM_AnalysedCHL_GlobalOcean_ATBD (Size:2.5MB Format:PDF Tool:PDFViewer)

OCM_IOPS_ATBD (Size:1.2MB Format:PDF Tool:PDFViewer)

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मॉस्डैक MOSDAC

भारत सरकार Govt. of India | अंतरिक्ष उपयोग केंद्र Space Applications Centre | इसरो isro | अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

River Discharge

River heights from satellite altimeters (ENVISAT, Jason-2 and SARAL AltiKa) have been derived at two cross-over points along Godavari River. Subsequently, river height discharge stage relationship between altimetry derived heights and In-situ river discharge has been established. Using this relationship, river discharge database for Godavari River for the period i.e. 2002 - 2015 has been generated.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

1. GDR tracked data of ENVISAT and Jason-2 (PISTACH Hydrology) at Yanam (estuarine side) and Bhadrachalam (riverine side) for the entire period of respective missions were obtained from
   a. ENVISAT website(http://earth.esa.int/)
   b.AVISO website(http://www.avisooceanobs.com)(Jason-2)
2. SARAL/AltiKa data were obtained from MOSDAC website (http://www.mosdac.gov.in)

Processing Steps

1. The given range was corrected for
   - path delay in the atmosphere through which the radar pulse passes
   - the nature of the reflecting sea surface
2. All range corrections are added to the range

3. Rating curve methodology was developed between Altimeter river height and in-situ river discharge (Rantz et al. 1982).

References

1. Coastal and Hydrology Altimetry product (PISTACH), handbook 2010.
2. Frappart, F., S. Calmant, M. Cauhope, F. Seyler, and A. Cazenave (2006), Validation of ENVISAT RA-2 derived water levels over the Amazon Basin, Remote Sens. Environ., 100, 252 - 264, doi:10.1016/j.rse.2005.10.027.
3. Rantz, S. E., et al. (1982), Measurement and computation of streamflow: Volume 2. Computation of discharge, Water Supply Paper 2175, U.S. Geol. Surv., pp. 285 - 631.
4. Santos da Silva, J., S. Calmant, F. Seyler, O. C. R. Filho, G. Cochonneau, and W. J. Mansur (2010), Water levels in the Amazon basin derived from the ERS 2 and ENVISAT radar altimetry missions, Remote Sens. Environ., 114, 2160?2181, doi:10.1016/j.rse.2010.04.020.
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Derivation Techniques and Algorithm

The observed river height with respect to geoid is given by

$$\mathbf{Rh= H_{sat}-(R+C_w+C_d+C_i+C_{st}+C_p)} \qquad \mathbf{(1)}$$

Where

1. H_{sat} represents the satellite altitude with respect to reference ellipsoid
2. R represents the satellite range
3. C_w(w for wet tropospheric)and C_d (d for dry tropospheric) are corrections for delayed propagation in the atmosphere
4. C_i is the correction delayed propagation through the ionosphere
5. C_{st} and C_p represents the correction for solid and polar tides respectively.

Limitations

Based on the availability of the Altimeter dataset over the study region (data gap, altimeter track loss, loss of flooding events, etc.).

Known problems with data

Data problems due to bad weather (heavy rain)

Related data collections

1. Limited daily in-situ river discharge data (2007 - 2012) available along Godavari River were obtained from Dowlaiswaram Dam Authorities, Andhra Pradesh.
2. Hourly river heights/water levels were provided by Dr. Prakash Mehra, NIO Radar gauge at Yanam (Godavari Estuary) for the period 2008 - 2010.

File Naming Convention

Altimetername_derived_water_height_river_discharge_
Godavari_stationname_starting_date_ending_date
Envisat_derived_water_height_river_discharge_
Godavari_Bhadrachalam_Oct2002_Sep2010.txt

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	July 20, 2015

4	Data Lineage or Quality	Water height estimation and computation of river discharge over Godavari using radar altimeters
5	Title	Satellite Altimetry derived discharge over Godavari River during 2002-2015
6	Abstract	River heights and river discharge have been estimated using ENVISAT and SARAL/AltiKa over two sites and using Jason-2 over one site along Godavari River. The results arevalidated well with the in-situ data.
7	Dataset Contact	Dr. Rashmi Sharma OSD/AOSG/EPSA (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6044. Email: rashmi@sac.isro.gov.in
8	Update frequency	SARAL/AltiKa and ENVISAT are in 35 day and Jason-2 10 day repetition period
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	NA
11	Language	English
12	Topic Category	Water height estimation and estimation of river discharge
13	Keywords	River, Satellite altimeters, river height, range corrections, rating curve
14	Date or period	ENVISAT (June 2002 to September 2010), Jason-2 (July 2008 to December 2014) and SARAL/AltiKa (March 2013)
15	Responsible Party	Dr. Rashmi Sharma OSD/AOSG/EPSA (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6044. Email: rashmi@sac.isro.gov.in
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Estimation of river discharge using Remote sensing techniques
16b	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Unit of measurement = meter for river height and m3/s for river discharge Datum: WGS84
17	Geographic Extent	UL Coordinates: 19N, 80.5E UR Coordinates: 19N, 82.5E LL Coordinates: 16N, 80.5E LR Coordinates: 16N, 82.5E
18	Geographic Name, Geographic Identifier	Godavari river
19	Bounding box	UL Coordinates: 19N, 80.5E UR Coordinates: 19N, 82.5E LL Coordinates: 16N, 80.5E LR Coordinates: 16N, 82.5E
20	Temporal Extent	Time series plot of water heights and river discharge over Godavari river since 2002.
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in .txt format
23	Processing Level	Level 3 (Data product derived from altimeter GDR data)
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Meteorological & Oceanographic Satellite Data Archival Centre

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RSS Feed

Uses RSS (Rich Site Summary) based technology for dissemination of Satellite Images and Data Products to end users on Internet

Allow Users to subscribe to these feeds automatically and get notified for availability of new data sets

Feed subscription is supported by Standard browsers and on RSS readers available on Mobile Apps

Enhanced Features specific to Satellite Data are Planned in Customized Client, supporting automated download, analysis and visualization of data Currently SCATSAT-1 High Resolution Products are available, soon more products are planned to be added.

Access the feeds using below links:

SCATSAT-1 Feed: https://mosdac.gov.in/isrocast.xml

INSAT3D-Imager Feed: https://mosdac.gov.in/3dimager.xml

INSAT3D-Sounder Feed: https://mosdac.gov.in/3dsounder.xml

INSAT3DR-Imager Feed: https://mosdac.gov.in/3drimager.xml

INSAT3DR-Sounder Feed: https://mosdac.gov.in/3drsounder.xml

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INSAT3DR-Imager Feed: https://mosdac.gov.in/3drimager.xml

INSAT3DR-Sounder Feed: https://mosdac.gov.in/3drsounder.xml

XML Content

- **rss**: Alerts https://www.mosdac.gov.in/rss.xml en Heavy Rain (Nowcast) https://www.mosdac.gov.in/external/nowcast-heavyrain Heavy Rain Alerts in Darlawn Champhai Aizawl ..... cities of India 29 Jun 2025 - 10:18 0 Heavy Rain (Nowcast) Heavy Rain (Forecast) https://www.mosdac.gov.in/external/forecast-heavyrain Heavy Rain Alerts in Bhubaneswar Cuddapah Kurnool ..... cities of India 29 Jun 2025 - 10:18 0 Heavy Rain (Forecast)
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- **item**: Heavy Rain (Nowcast) https://www.mosdac.gov.in/external/nowcast-heavyrain Heavy Rain Alerts in Darlawn Champhai Aizawl ..... cities of India 29 Jun 2025 - 10:18 0 Heavy Rain (Nowcast)
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SARAL-AltiKa

SARAL mission results from the common interest of both CNES and ISRO in studying ocean from space using altimetry system and in promoting maximum use of the ARGOS Data Collecting System. Radar altimetry by satellite is a technique used in oceanography to measure, globally over the oceans, the sea level needed to understand ocean circulation and its variability. The importance of altimetry data to better understand the ocean circulation and its impact on the climate of the Earth led to the TOPEX/Poseidon and Jason series of satellites complemented by ERS1-2, GFO and ENVISAT. With the launch of these missions began a data collection that must continue well into the century in order to monitor the inter-annual evolution and separate transient phenomena from secular variations. SARAL/AltiKa mission belongs to the global altimetry system and then participates to the precise and accurate observations of ocean circulation and sea surface elevation for its life time. Thus it is the aim of AltiKa part of the SARAL mission to provide altimetric measurements designed to study ocean circulation and sea surface elevation with the same accuracy as the one provided by ENVISAT mission and complementary to Jasons mission. The AltiKa project developed by CNES is based on a large Ka-band altimeter (35.75 GHz, 500MHz), 1st oceanographic altimeter using such a high frequency. The use of the Ka-band frequency will supply more accurate measurements (improvement of the spatial and vertical resolution) enabling a better observation of ices, coastal areas, continental water bodies as well as the waves height. The drawback of this Ka-band frequency is its sensitivity to rain that can lead to signal attenuation. The SARAL/AltiKa mission is part of the operational satellite altimetry system, jointly with Jason-2, and enables to ensure the service continuity which is nowadays provided by ENVISAT altimeter jointly with Jason-2 and Jason-1. By ensuring the observations continuity and widening the observation areas, CNES answers the wish of the oceanography community by bringing a description: For the meso-scale in open ocean,, In coastal areas, For the seasonal forecast, For the hydrology, For the climate studies. AltiKa data will thus contribute, along with data from others altimetry missions, to the development of operational oceanography, to our climate understanding and to the development of forecasting capabilities through data assimilation methods improvement in coupled oceanatmosphere coupling models, bio-chemistry models, etc

हिन्दी

SARAL-AltiKa Introduction

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- In coastal areas,
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AltiKa data will thus contribute, along with data from others altimetry missions, to the development of operational oceanography, to our climate understanding and to the development of forecasting capabilities through data assimilation methods improvement in coupled oceanatmosphere coupling models, bio-chemistry models, etc.

SARAL-AltiKa Objectives

SARAL/AltiKa main scientific objective is to provide data products to oceanographic research user community in studies leading to improve our knowledge of the ocean meso-scale variability, thanks to the improvement in spatial and vertical resolution brought by SARAL/AltiKa.

Ocean meso-scale variability is defined as a class of high-energy processes, with wave lengths within a 50km to 500km range, and with periods of a few days to one year. Kinetic energy of mesoscale variability is one order of magnitude more than mean circulation's one. Description of mesoscale is thus essential for understanding ocean dynamics, including mean circulation and its climatic effects (through interactions of meso-scale turbulence with the mean flow).

SARAL/AltiKa main scientific objective is divided in sub-themes including:

- Intrinsic scientific studies of ocean at meso-scale dynamics: observations, theoretical analyses, modelling, data assimilation, parameterization, ...
- Improvement of our understanding of the oceanic component in the climate system: investigation of local processes at small or medium scale poorly known and understood at present, but which have an impact on the modelling of climate variability at large spatial and temporal scales.
- Contribution to the study of coastal dynamic processes, especially small or medium scale phenomena, whose retrieval will enable to anticipate many downstream applications.
- Contribution to operational oceanography which is seeking large amounts of in situ and space observation data.

SARAL/AltiKa secondary objectives are notably the monitoring of the main continental waters level (lakes, rivers, closed seas), the monitoring of mean sea level variations, the observation of polar oceans, the analysis and forecast of wave and wind fields, the study of continental ices (thanks to improved performances of Ka-band) and sea ices, the access to low rains climatology (enabled in counterpart to the sensitivity of Ka-band to clouds and low rains) and the marine biogeochemistry (notably through the role of the meso and sub-meso-scale physics).

SARAL-AltiKa Payloads

SARAL carries the following four payloads:

- Ka-band altimeter with enhanced bandwidth
- Ionospheric effects are negligible
- Better vertical resolution (0.3m)
- Ka-band (35 GHz) authorizes a compact, lightweight instrument easier to accommodate on a wide range of satellite buses.
- Dual-frequency radiometer (24/37 GHz)
- Required for tropospheric correction
- Derived from Madras (Megha-Tropiques) developments.
- Laser Retro-reflector Array
- Useful for orbitography and system calibration.
- DORIS
- For adequate orbitography performances in low earth orbit
- Enable to have similar performance as reference missions like T/P, JASON, ENVISAT
- Required for mean sea level analysis and coastal/inland application.

SARAL-AltiKa SpaceCraft

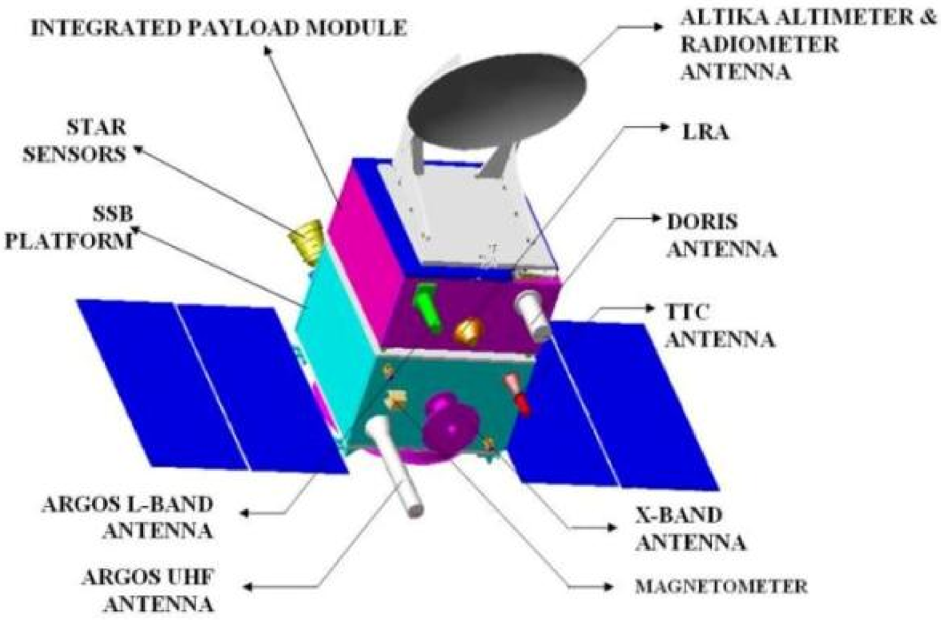
The 450 kg satellite consists of a SSB/ IMS-2 platform and a SARAL/AltiKa specific payload module. The platform provides all housekeeping functions including propulsion, electrical power, command and data handling, telecommunications, and attitude control. The payload module provides mechanical, electrical, thermal, and dynamical support to the SARAL/AltiKa instruments.

The SARAL satellite is mainly composed of:

- A spacecraft bus IMS-2 (Small Satellite Bus). This platform, developed by ISRO, is designed for satellites in the range of about 500 kg at launch.
- a payload developed by CNES.
  The SARAL payload includes the following components:

  - An Altimeter, provided by CNES - the main mission instrument and a dual frequency microwave radiometer, provided by CNES - to correct the altimeter measurement for atmospheric range delays induced by water vapor.
  - The radio positioning DORIS system, provided by CNES - for precision orbit determination using dedicated ground stations
    The AltiKa instrument consists of a Ka-band altimeter and an embedded dual frequency radiometer.

- A Laser Reflector Array (LRA), provided by CNES - to calibrate the orbit determination system.
  And the ARGOS-3 instrument (and associated components) that has its own mission on-board the SARAL satellite as part of the ARGOS system.


INTEGRATED PAYLOAD MODULE
ALTIKA ALTIMETER & RADIOMETER ANTENNA
STAR SENSORS
LRA
SSB PLATFORM
DORIS ANTENNA
TTC ANTENNA
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SARAL References

SARAL Products Handbook (Size:5.6 MB Format:PDF Tool:PDFViewer)

SARAL User Products (Size:957 KB Format:PDF Tool:PDFViewer)

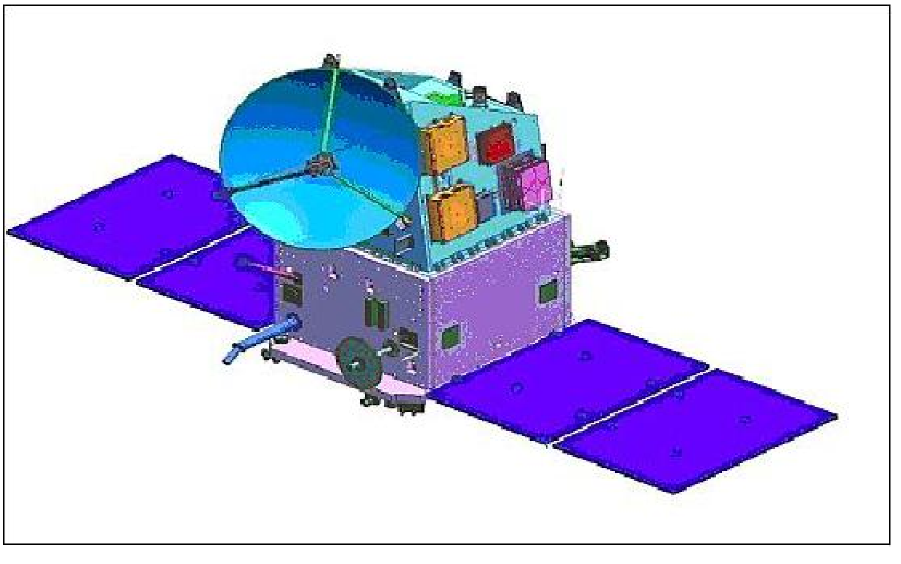
SCATSAT-1

Scatsat-1 was launched by PSLV-C35 from Satish Dhawan Space Centre, Sriharikota on September 26, 2016. It carries the Ku-band Pencil Beam scatterometer (SCAT) payload developed by SAC-ISRO.

हिन्दी

SCATSAT-1 Introduction

Indian Space Research Organisation launched SCATSAT-1 for ocean and weather related studies and seven co-passenger satellites into polar Sun Synchronous Orbit (SSO) on September 26, 2016. The Polar Satellite Launch Vehicle, in its 37th flight, (PSLV-C35) launched the satellites at 9:12 hours on September 26, 2016 from Satish Dhawan Space Centre in Sriharikota. The 377 kg SCATSAT-1 satellite have satellites from Algeria, Canada and USA, as well as two satellites from Indian Universities as its co-passengers. SCATSAT-1 is placed into a 720 km Polar Sun Synchronous Orbit, whereas the two Universities' satellites and the five foreign satellites are placed into a 670 km polar orbit. This PSLV mission is unique in itself as it is for the first time that its payloads are placed into two different orbits. PSLV-C35 launched from the First Launch Pad (FLP) of Satish Dhawan Space Centre and is the 15th flight of PSLV in 'XL' configuration (with the use of solid strap-on motors).



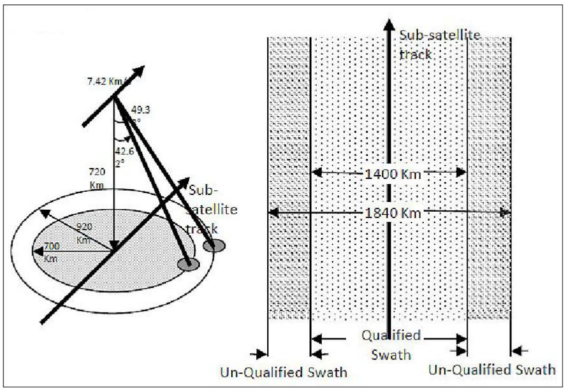
SCATSAT-1 Objectives

The Indian satellite SCATSAT-1 is a miniature satellite dedicated to ocean wind observation. It is preceded by Oceansat-2 which was also dedicated for the same objective. Major objectives of SCATSAT-1 is weather forecasting, cyclone prediction along with ocean state monitoring and prediction. It is currently catering towards weather and climate sector, naval and shipping operations, renewable energy sector along with tracking services to India as well as to the world.

SCATSAT-1 Payloads

The scientific payload contains the Scanning Scatterometer (SCAT) instrument.

Scanning Scatterometer (SCAT)



SCAT is an active microwave device designed and developed at SAC/ISRO, Ahmedabad. It is used to determine ocean surface level wind vectors through estimation of radar backscatter. The scatterometer system has a 1-m parabolic dish antenna and a dual feed assembly to generate two pencil beams and is scanned at a rate of 20.5 rpm to cover the entire swath. The Ku-band pencil beam scatterometer is an active microwave radar operating at 13.515 GHz providing a ground resolution cell of size 25 x 25 km. The parabolic dish antenna of 1 meter diameter is offset mounted with a cant angle of about 46 degree with respect to earth viewing axis. This antenna is continuously rotated at 20.5 rpm using a scan mechanism with the scan axis along the +ve Yaw axis. By using two offset feeds at the focal plane of the antenna, two beams are generated which will conically scan the ground surface. The back scattered power in each beam from the ocean surface is measured to derive wind vector. The inner beam makes an incidence angle of 48.90^0 and the outer beam makes an incidence angle of 57.60^0 on the ground. It covers a continuous swath of 1400 km for inner beam and 1840 km for outer beam respectively. The inner and outer beams are configured in horizontal and vertical polarization respectively for both transmit and receive modes. The aim is to provide global ocean coverage and wind vector retrieval with a revisit time of 2 days.

Parameter	Inner beam	Outer beam
Orbital altitude	720 km	

Instrument frequency	13.515 GHz (Ku-band)	
Wind speed range	3-30 m/s, accuracy of 1.8 m/s (rms) or 10%	
Wind direction	0^0 to 360^0, accuracy of 20^0 rms	
Wind vector cell size (resolution)	25 km x 25 km grid	
Polarization	HH	VV
Swath width	1400 km	1840 km
Scanning circle radius	700 km	920 km
Scanning rate	20.5 rpm	

SCATSAT-1 References

SCATSAT Level4 Products (Size:968 KB Format:PDF Tool:PDFViewer)

मॉस्डैक
M O S D A C
भारत सरकार Govt. of India
अंतरिक्ष उपयोग केंद्र Space Applications Centre
इसरो isro
अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

SCATSAT-1 SpaceCraft

SCATSAT-1 is envisaged to provide continuity of operational services of OSCAT (IRS-P4) with enhanced application potential.

Launch date:	September 26, 2016
Launch site:	SDSC (Satish Dhawan Space Centre), Sriharikota.
Launch vehicle;	PSLV - C35
Orbit:	Sun Synchronous, dawn-dusk orbit
Altitude:	720 km
Inclination:	97.4°
Local Time on Ascending Node	6:00 hours
Repetitivity:	2 days
Payloads:	Scatterometer
Mass at lift off:	310 Kg
Power:	15 Sq.m Solar panels generating 1360W, Two 24 Ah Ni-Cd Battries

Mission Life:	5 years

SCATSAT-1

Scatsat-1 was launched by PSLV-C35 from Satish Dhawan Space Centre, Sriharikota on September 26, 2016. It carries the Ku-band Pencil Beam scatterometer (SCAT) payload developed by SAC-ISRO.

हिन्दी

भारत सरकार Govt. of India मॉस्डैक MOSDAC अंतरिक्ष उपयोग केंद्र Space Applications Centre इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Sea Ice Occurrence Probability

The Sea Ice Occurrence Probability (SIOP36) data were prepared from 36 years (October 1978 to December 2014) NSIDC sea ice concentration (SIC) data over the Antarctic Region (Cavalieri, 1996). The SIC data were downloaded from NSIDC data site(http://nsidc.org/data (link is external)). The SIOP36 data consist of 366 data files corresponding to 366 days with the first file representing 1st January and the last, 31st December. The file naming nomenclature follows SIOP36_MMDD_S.bin[.tif/.png] format; where MM refers to month number (01 to 12, 01 being January), DD refers to date of the month, and the character S refers to Southern Hemishphere.
Data formats are indicated by .bin (Binary), .tif (GeoTIFF), and .png (Portable Network Graphics). Data is freely available to global scientific community and can be downloaded from www.mosdac.gov.in (link is external). Probability values are calculated from the long-term NASA Team algorithm-derived SMMR-SSM/I-SSMIS sea ice concentration product (Cavalieri, 1996). The dataset is given in Polar Stereographic projection with a grid size of 25km x 25km in latitude and longitude. The grid coordinates of the upper left pixel are 39.2 deg S, 42.2 deg W. There are 316 columns and 332 rows. Data values are stored as IEEE floats representing probabilities in the range 0-100%. Pixels with zero values corresponds to either Antarctic land/ice or ocean water.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

SIOP36 (ver BETA)

Data Sources

The major input data is NASA Team algorithm-derived SMMR-SSM/I-SSMIS sea ice concentration data over Antarctic Region (Cavalieri, 1996) for 36 years (October 1978 to December 2014). The data was downloaded from NSIDC data site: (http://nsidc.org/data).

Processing Steps

Following are the three major processing steps :
i. Classification of pixels into sea-ice and non-sea-ice classes.
ii. Determination of sea-ice-pixel frequency over study period
iii. Calculation of Sea Ice Probability
iv. Converting the data into three (.bin, .tif, and .png) formats.

Data Citation

Data Citation
This dataset may be cited as (Rajak et al, 2015). Rajak D. Ram, R.K. Kamaljit Singh, Jayaprasad P., Sandip R. Oza, Rashmi Sharma, and Raj Kumar (2015). Sea Ice Occurrence Probability Data and Its Applications Over the Antarctic. Manuscript submitted to a journal.
References

Cavalieri, D. J., C. L. Parkinson, P. Gloersen, and H. Zwally. 1996, updated yearly. Sea Ice Concentrations from Nimbus-7 SMMR and DMSP SSM/I-SSMIS Passive Microwave Data. [October 1978 to December 2012]. Boulder, Colorado USA: NASA National Snow and Ice Data CentreDistributed Active Archive Centre.

References

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Rajak D. Ram, R.K. Kamaljit Singh, Jayaprasad P., Sandip R. Oza, Rashmi Sharma, and Raj Kumar (2015). PROBABILISTIC SEA ICE OCCURRENCE DATA OVER ANTARCTIC REGION. Manuscript under preparation.

Derivation Techniques and Algorithm

Daily Probability of occurrence of sea ice: Pr = 100 x N / (Y-n)
where,
N, is the number of times the pixel has been classified as sea ice (sea ice concentration => 15%);
Y, is the total possible observations, and
n is the number of years with data loss on that particular date.

Limitations

Accuracy assessment of the dataset has not been carried out.

Known problems with data

The inherent problems of the major input sea ice concentration data (from NSIDC site) may be considered the problems with this dataset.

Related data collections

Northern Hemisphere EASE-Grid 2.0 Weekly Snow Cover and Sea Ice Extent. Version 4. Boulder, Colorado USA: NASA DAAC at the National Snow and Ice Data Center (Brodzik, M. and R. Armstrong. 2013.). [http://nsidc.org/data].

File Naming Convention

The file names follows SIOP36_MMDD_S.bin[.tif/.png] naming convention;
Where
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S refers to Southern Hemisphere.
Data types are indicated by .bin (binary), .tif (geotiff), and .png (portable network graphics).

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	D. Ram Rajak, OSD/AOSG/EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India. Email: rajakdr@sac.isro.gov.in
3	Metadata date	March 05, 2015
4	Data Lineage or Quality	First ever sea ice occurrence probability data available over the Antarctic
5	Title	Sea Ice Occurrence Probability Data over the Antarctic (SIOP36).
6	Abstract	Antarctic Sea Ice Occurrence Probability (SIOP) for each day from January 1st to December 31st is generated from NSIDC sea ice concentration data (Comiso, 2000) which were downloaded from the NSIDC site: (http://nsidc.org/data). The SIOP data for 36 years (October 1978 to December 2014) are named as SIOP36
7	Dataset Contact	D. Ram Rajak, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
8	Update frequency	3 years
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	25 000 m
11	Language	English
12	Topic Category	Polar Science
13	Keywords	Sea Ice, Probability, the Antarctic
14	Date or period	January 01 to December 31 Sea Ice Occurrence Daily Probability calculated from October 1978 to December 2014 data
15	Responsible Party	D. Ram Rajak, R. K. Kamaljit Singh, Jayaprasad P., Sandip R. Oza, Rashmi Sharma, and Raj Kumar, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Calculated Sea Ice Occurrence Probability (SIOP) for each day from January 1st to December 31st using NSIDC sea ice concentration data (Comiso, 2000). Further details are available in Rajak et al, 2015
16b	Individual name	D. Ram Rajak, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
16d	Vertical Extent (minimumValue, maximumValue, unitOfMeasure, vertical datum)	Probability in percentage. Minimum value = 0.0294%. Maximum value = 100.0%. Mask: Antarctica land/ice and open ocean water (value = 0.0)
17	Geographic Extent	UL Coordinates: 40S, 42W. UR Coordinates: 40S, 42E. LL Coordinates: 42S, 135W. LR Coordinates: 42S, 135E
18	Geographic name, geographic Identifier	Ocean surrounding Antarctica

19	Bounding box	UL Coordinates: 40S, 42W. UR Coordinates: 40S, 42E. LL Coordinates: 42S, 135W. LR Coordinates: 42S, 135E. Number of columns i. e. image width: 316 pixels. Number of Rows i.e. Image Height: 332 pixels
20	Temporal Extent	Based on input NSIDC Sea Ice Concentration Data October 1978 to December 2014
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in Binary, GeoTIFF and PNG formats. Binary and GeoTIFF data in Float format
23	Processing Level	Level 4 (Data product derived from sea ice concentration product)
24	Reference System	Projection: Polar Stereographic (0.0 E,70.0 S,0.0 m,0.0 m). Datum: WGS84

Tags:
Opendata Ocean

Meteorological & Oceanographic Satellite Data Archival Centre

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8	Update frequency	3 years
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	25 000 m
11	Language	English
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13	Keywords	Sea Ice, Probability, the Antarctic
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15	Responsible Party	D. Ram Rajak, R. K. Kamaljit Singh, Jayaprasad P., Sandip R. Oza, Rashmi Sharma, and Raj Kumar, Space Applications Centre (ISRO), Ahmedabad-380015, India
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Calculated Sea Ice Occurrence Probability (SIOP) for each day from January 1st to December 31st using NSIDC sea ice concentration data (Comiso, 2000). Further details are available in Rajak et al, 2015
16b	Individual name	D. Ram Rajak, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
16c	Position	Scientist/Engineer, OSD/AOSG/EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 6051. Email: rajakdr@sac.isro.gov.in
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18	Geographic name, geographic Identifier	Ocean surrounding Antarctica

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20	Temporal Extent	Based on input NSIDC Sea Ice Concentration Data October 1978 to December 2014
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in Binary, GeoTIFF and PNG formats. Binary and GeoTIFF data in Float format
23	Processing Level	Level 4 (Data product derived from sea ice concentration product)
24	Reference System	Projection: Polar Stereographic (0.0 E,70.0 S,0.0 m,0.0 m). Datum: WGS84

Tags:
Opendata Ocean

Site map

- Home
- Missions
  - INSAT-3DR
  - INSAT-3D
  - KALPANA-1
  - INSAT-3A
  - MeghaTropiques
  - SARAL-AltiKa
  - OCEANSAT-2
  - OCEANSAT-3
  - INSAT-3DS
  - SCATSAT-1
- Catalog
  - Satellite
  - Insitu (AWS)
  - RADAR
- Galleries
  - Satellite Products
  - Weather Forecast
  - Ocean Forecast
  - RADAR (DWR)
  - Global Ocean Current
- Data Access
  - Order Data
  - Open Data
    - Atmosphere
      - Bayesian based MT-SAPHIR rainfall
      - GPS derived Integrated water vapour
      - GSMap ISRO Rain
      - METEOSAT8 Cloud Properties
    - Land
      - 3D Volumetric TERLS DWRproduct
      - Inland Water Height
      - River Discharge

भारत सरकार
Govt. of India
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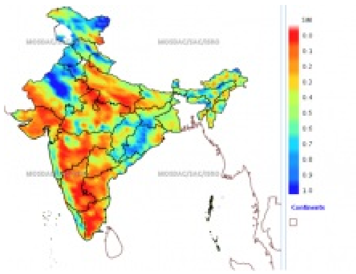
Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Site map

Soil Moisture



Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

SMAP L-band radiometer data

Processing Steps

Following are the three major processing steps :
i. SMAP L1C daily data.
ii. Import previous 3 days data
iii. Generate global mosaic of Tb
iv. Generate Indian mosaic of Tb
v. Generate SWI from Tb and gridding the data

Derivation Techniques and Algorithm

Soil Wetness Index (SWI) is derived using a time series based methodology using SMAP L-band radiometer data, normalized to the extreme values of 0 and 1, corresponding to the dry and saturated soil wetness conditions respectively.

File Naming Convention

The Geotiff file names follows naming convention;
Soil Wetness Index file:
SWI_SMAP_I_YYYYMMD1_YYYYMMD2.tif
SWI : Soil Wetness Index
SMAP : Soil Moisture Active Passive
I : India
YYYY : Year
MM : Month
D1 : Start Date
D2 : End Date
Soil Moisture file :
SWI_SMAP_I_YYYYMMD1_YYYYMMD2.tif
SWI : Soil Moisture
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YYYY : Year
MM : Month
D1 : Start Date
D2 : End Date

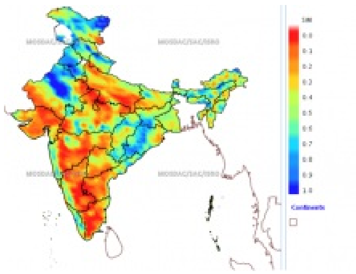
MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	April, 2015
4	Data Lineage or Quality	Soil Wetness Map derived using SMAP L-band Radiometer data
5	Title	Soil Wetness Index.
6	Abstract	Soil Wetness Index (SWI) is derived using a time series based methodology using SMAP L-band radiometer data, normalized to the extreme values of 0 and 1, corresponding to the dry and saturated soil wetness conditions respectively.
7	Dataset Contact	Dharmendra Kumar Pandey, Sasmita Chaurasia, EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, dkp@sac.isro.gov.in, sasmita@sac.isro.gov.in
8	Update frequency	3 day composite
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	40 km (resampled at 0.125 degrees)
11	Language	English
12	Topic Category	Land
13	Keywords	Soil Wetness Index, SMAP. SWI, Soil Moisture Active Passive
14	Date or period	April 2015
15	Responsible Party	Dharmendra Kumar Pandey,EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India

16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters retrieval from satellite
16b	Individual name	Dharmendra Kumar pandeyEPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 4005. Email: dkp@sac.isro.gov.in
16c	Position	Scientist/Engineer, EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 4005. Email: dkp@sac.isro.gov.in
17	Geographic Extent	Indian Land mask
18	Geographic name, geographic Identifier	Indian Region
19	Bounding box	lat_min: 05N, lat_max: 24N, lon_min: 68E, lon_max: 90E
20	Temporal Extent	April 2015 onwards
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in Geotiff format.
23	Processing Level	Level 2
24	Reference System	Datum: WGS84

Tags:
Opendata Land

Soil Moisture



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Data Version

Version 1.0 (beta)

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SMAP L-band radiometer data

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Soil Wetness Index (SWI) is derived using a time series based methodology using SMAP L-band radiometer data, normalized to the extreme values of 0 and 1, corresponding to the dry and saturated soil wetness conditions respectively.

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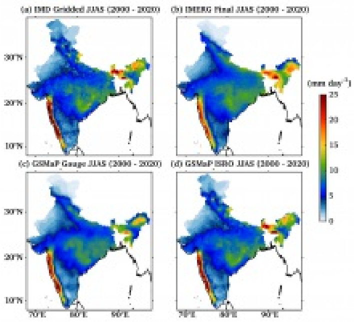
5	Title	Soil Wetness Index.
6	Abstract	Soil Wetness Index (SWI) is derived using a time series based methodology using SMAP L-band radiometer data, normalized to the extreme values of 0 and 1, corresponding to the dry and saturated soil wetness conditions respectively.
7	Dataset Contact	Dharmendra Kumar Pandey, Sasmita Chaurasia, EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, dkp@sac.isro.gov.in, sasmita@sac.isro.gov.in
8	Update frequency	3 day composite
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	40 km (resampled at 0.125 degrees)
11	Language	English
12	Topic Category	Land
13	Keywords	Soil Wetness Index, SMAP. SWI, Soil Moisture Active Passive
14	Date or period	April 2015
15	Responsible Party	Dharmendra Kumar Pandey,EPSA, Space Applications Centre (ISRO), Ahmedabad-380015, India

16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Geophysical parameters retrieval from satellite
16b	Individual name	Dharmendra Kumar pandeyEPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 4005. Email: dkp@sac.isro.gov.in
16c	Position	Scientist/Engineer, EPSA, SAC (ISRO), Ahmedabad-380015, India. Ph: +91 79 2691 4005. Email: dkp@sac.isro.gov.in
17	Geographic Extent	Indian Land mask
18	Geographic name, geographic Identifier	Indian Region
19	Bounding box	lat_min: 05N, lat_max: 24N, lon_min: 68E, lon_max: 90E
20	Temporal Extent	April 2015 onwards
21	Access Rights or Restrictions	Open Access
22	Distribution Information	Online download in Geotiff format.
23	Processing Level	Level 2
24	Reference System	Datum: WGS84

Tags:
Opendata Land

Atmosphere

GSMap ISRO Rain



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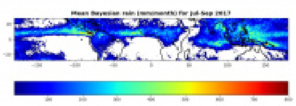

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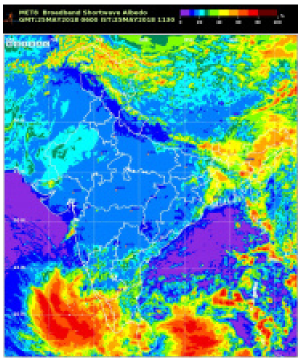

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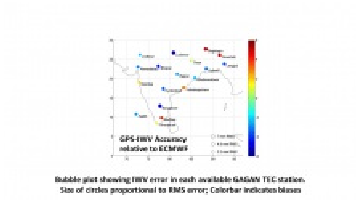

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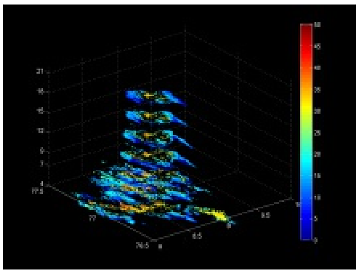

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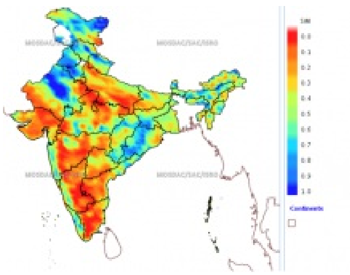

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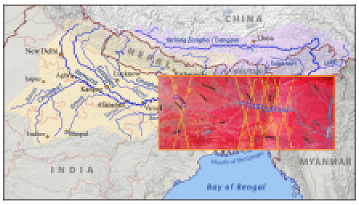

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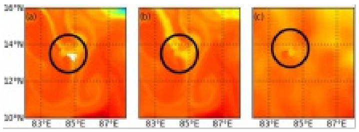
High Resolution Sea Surface Salinity



The Bay of Bengal's high-resolution sea surface salinity has been reconstructed using a Lagrangian technique leveraging satellite data.

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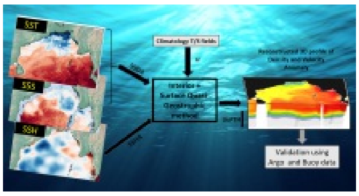

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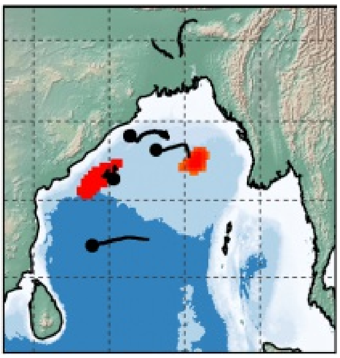

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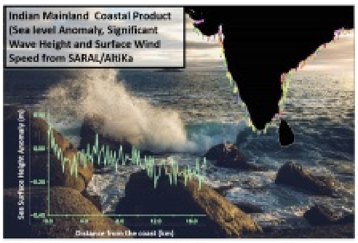
Indian Mainland Coastal Product



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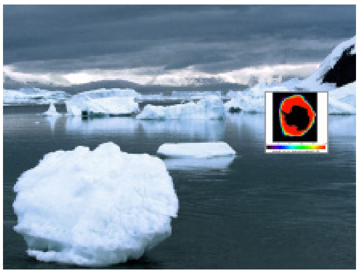

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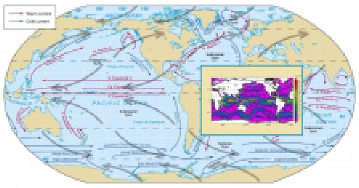

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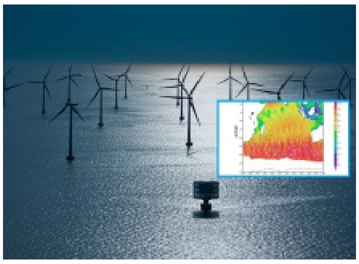

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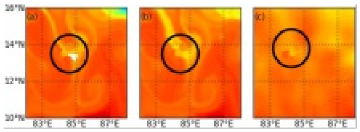

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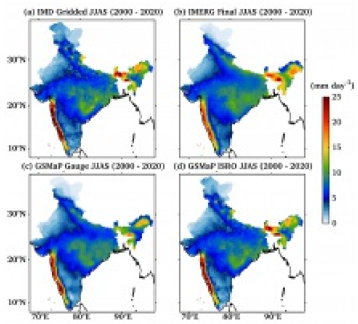

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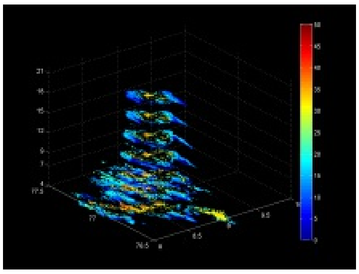

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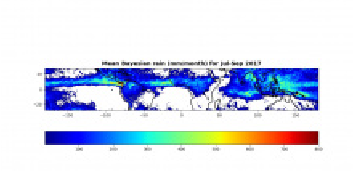

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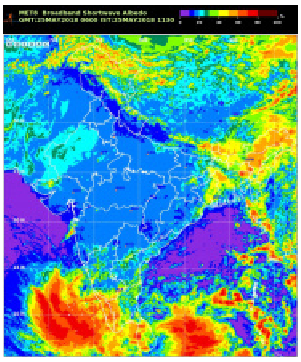

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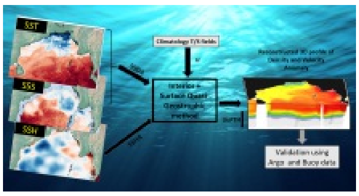

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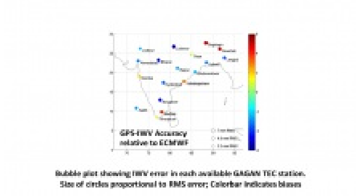

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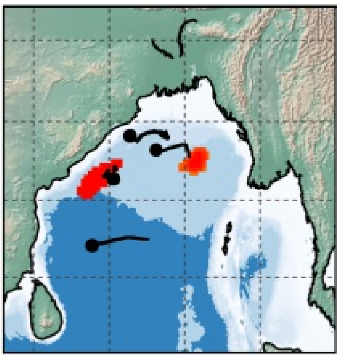

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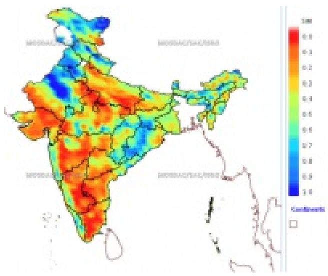

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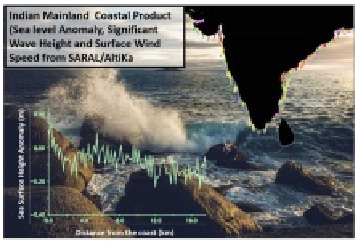

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IDV Plugin for INSAT-3D | 3DR Data Products	IDV Plugin for INSAT-3D | 3DR Data Products	Linux & Windows - 64 bit	https://mosdac.gov.in/software/INSAT_IDV_PLUGIN.jar	Format: JAR, Size: 3.3 MB
Atmospheric Correction Model for Resourcesat-2 AWiFS data (SACRS2)	Atmospheric Correction Model for Resourcesat-2 AWiFS data (SACRS2)	Windows 32 bit	https://mosdac.gov.in/software/SACRS2_Package.rar	Format: RAR, Size: 7.5 MB
Megha Tropiques batch mode HDF5 to Binary/ASCII converter	Megha Tropiques batch mode HDF5 to Binary/ASCII converter	RHEL5 /CentOS5 32 bit	https://mosdac.gov.in/software/mt-hdf-bin-linux.zip	Format: ZIP, Size: 3.3 MB
Megha Tropiques HDF Viewer	Megha Tropiques HDF Viewer	RHEL5 /CentOS5 32 bit	https://mosdac.gov.in/software/hdftool-linux.zip	Format: ZIP, Size: 9.9 MB
Megha Tropiques batch mode HDF5 to Binary/ASCII converter	Megha Tropiques batch mode HDF5 to Binary/ASCII converter	Windows 32 bit	https://mosdac.gov.in/software/mt-hdf-bin-txt.zip	Format: ZIP, Size: 2.9 MB
Megha Tropiques HDF Viewer	Megha Tropiques HDF Viewer	Windows 32 bit	https://mosdac.gov.in/software/HdfTool.zip	Format: ZIP, Size: 6.3 MB

	Description	Platform	Download URL	
HDF5 TO ASCII converter	HDF5 TO ASCII converter for Kalpana1-VHRR PR products	RHEL4 /CentOS4	https://mosdac.gov.in/software/PR_hdf_ascii.tar	Format: TAR, Size: 5.3 MB
HDF5 to ASCII Converter	HDF5 TO ASCII converter for Kalpana1-VHRR DP products	RHEL4 /CentOS4	https://mosdac.gov.in/software/DP_hdf_ascii.tar	Format: TAR, Size: 6.4 MB

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Atmospheric Correction Model for Resourcesat-2 AWiFS data (SACRS2)	Atmospheric Correction Model for Resourcesat-2 AWiFS data (SACRS2)	Windows 32 bit	https://mosdac.gov.in/software/SACRS2_Package.rar	Format: RAR, Size: 7.5 MB
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Megha Tropiques HDF Viewer	Megha Tropiques HDF Viewer	RHEL5 /CentOS5 32 bit	https://mosdac.gov.in/software/hdftool-linux.zip	Format: ZIP, Size: 9.9 MB
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HDF5 to ASCII Converter	HDF5 TO ASCII converter for Kalpana1-VHRR DP products	RHEL4 /CentOS4	https://mosdac.gov.in/software/DP_hdf_ascii.tar	Format: TAR, Size: 6.4 MB

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HDF5 TO ASCII converter	HDF5 TO ASCII converter for Kalpana1-VHRR PR products	RHEL4 /CentOS4	https://mosdac.gov.in/software/PR_hdf_ascii.tar	Format: TAR, Size: 5.3 MB
HDF5 to ASCII Converter	HDF5 TO ASCII converter for Kalpana1-VHRR DP products	RHEL4 /CentOS4	https://mosdac.gov.in/software/DP_hdf_ascii.tar	Format: TAR, Size: 6.4 MB
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Validation

	Display name	modified
	Satellite	Thu, 2018-02-08 10:35
	Forecast	Wed, 2017-01-04 09:46

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	Satellite	Thu, 2018-02-08 10:35
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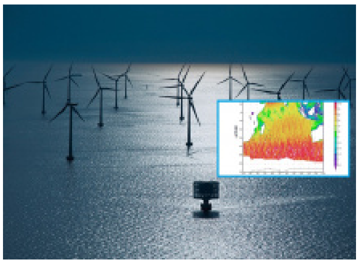
Wave based Renewable Energy



AWARE demonstrates potential renewable energy resource available from ocean waves over Indian Ocean region. The product is based on observations of the recent altimeters Jason-2 (2008-2014) and SARAL/Altika (2013-2014). It is particularly helpful in identification of ocean hotspots for extraction of ocean wave energy, that can be the next generation, environment friendly energy resource.It provides two types of products: Inter-annual monthly product from Jason-2 and SARAL/ALTIKA, Monthly climatology of ocean wave energy.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

1. The significant wave height (SWH) and wind speed for both the altimeters are taken from
a. Jason-2 (http://www.aviso.oceanobs.com)
b. SARAL/ALTIKA (http://www.mosdac.gov.in)

Processing Steps

1. Using Significant Wave Height (SWH) and wind speed, the wave period is derived based on the data adaptive technique of " Genetic Algorithm " (Remya et al. 2011)

1. Wave period hence derived is validated using buoy observations from Indian National Center for Ocean Information Services (INCOIS)

1. Wave power is derived based on SWH and estimated wave period

References

1. R. Govindan, R. Kumar, S. Basu and A. Sarkar. " Altimeter-Derived Ocean Wave Period Using Genetic Algorithm, " IEEE Geosci. Remote Sens. Lett.,VOL 8.NO. 2,pp. 354 - 358, March 2011
2. A. Alvarez, A.Orfila , J.Tintore, " DARWIN: An evolutionary program for nonlinear modeling of chaotic time series, " Computer Physics Communications 136, pp.334- 349 2001
3. A. Soni, " Application of SARAL/AltiKa in extraction of wave power over Indian Ocean Region, " M. Tech Dissertation, Department of Computer Sciences, Ganpat University, Gujarat, March 2015

Derivation Techniques and Algorithm

The wave power (P) is mathematically derived as

$$P = \frac{\rho g^2}{64\pi} H_{m0}^2 T \approx \left(0.5 \frac{kW}{m^3.s}\right) H_{m0}^2 T$$

Where

1. P is Wave power per unit of wave-crest length (in Kilowatt/m)
2. R represents the satellite range
3. H_{m0} is the significant wave height (in meters)
4. T is wave period (in seconds)
5. ρ is the density of water (in kilogram/cubic meter)
6. g is the acceleration due to gravity (in meters/square seconds)

Limitations

The products have gaps as they are based purely on track altimeters data.

Known problems with data

Data problems due to bad weather (heavy rain)

File Naming Convention

For inter-annual monthly product from Jason-2 and SARAL/ALTIKA

- Parametername_Altimetername_month_year
- **Example:** WE_SARL_JUL_2009 represents the wave energy from SARAL/Altika during July 2009.

For Monthly climatology of ocean wave energy

- Parametername_CLIM_month_start year-end year
- **Example:** WE_CLIM_JUL_2008-2014 represents the wave energy climatology during July 2008-2014.

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	August 3rd ,2015
4	Data Lineage	Wave power in Kilowatt/meter from Altimeters over Indian Ocean Region
5	Title	Altimeters for Wave based Renewable Energy (AWARE)

6	Abstract	The wave power is computed from the altimeters (Jason-2 and SARAL/AltiKa) for a period of 2008-2014 at a monthly basis for individual years. Climatology is also prepared in this regard for the Indian Ocean Region.
7	Dataset Contact	Dr Suchandra A. Bhowmick,Space Applications Centre, ISRO, Ahmedabad-380058,INDIA Email: suchandra@sac.isro.gov.in n
8	Update frequency	Yearly Once
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	NA
11	Language	English
12	Topic Category	Water power estimates
13	Keywords	Wave power, non-conventional energy, wave period and Significant Wave Height
14	Data period	2008-2014
15	Responsible Party	Dr. Suchandra A. Bhowmick,Space Applications Centre, ISRO, Ahmedabad-380058,INDIA
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Estimation of non-conventional wave energy using active microwave remote sensing instruments
16b	Unit	Kilowatt/meter

Tags:
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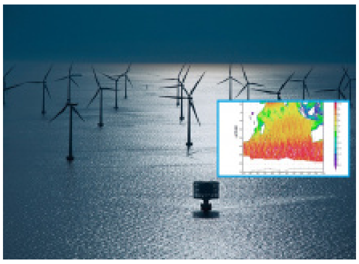
Space Applications Centre, ISRO

Wave based Renewable Energy



AWARE demonstrates potential renewable energy resource available from ocean waves over Indian Ocean region. The product is based on observations of the recent altimeters Jason-2 (2008-2014) and SARAL/Altika (2013-2014). It is particularly helpful in identification of ocean hotspots for extraction of ocean wave energy, that can be the next generation, environment friendly energy resource.It provides two types of products: Inter-annual monthly product from Jason-2 and SARAL/ALTIKA, Monthly climatology of ocean wave energy.

Data Access

Click Here to access the Science Products . Request to use MOSDAC Single Sign On user credentials to download the data.

Data Version

Version 1.0 (beta)

Data Sources

1. The significant wave height (SWH) and wind speed for both the altimeters are taken from

a. Jason-2 (http://www.aviso.oceanobs.com)

b. SARAL/ALTIKA (http://www.mosdac.gov.in)

Processing Steps

1. Using Significant Wave Height (SWH) and wind speed, the wave period is derived based on the data adaptive technique of " Genetic Algorithm " (Remya et al. 2011)

1. Wave period hence derived is validated using buoy observations from Indian National Center for Ocean Information Services (INCOIS)

1. Wave power is derived based on SWH and estimated wave period

References

1. R. Govindan, R. Kumar, S. Basu and A. Sarkar. " Altimeter-Derived Ocean Wave Period Using Genetic Algorithm, " IEEE Geosci. Remote Sens. Lett.,VOL 8.NO. 2,pp. 354 - 358, March 2011
2. A. Alvarez, A.Orfila , J.Tintore, " DARWIN: An evolutionary program for nonlinear modeling of chaotic time series, " Computer Physics Communications 136, pp.334- 349 2001
3. A. Soni, " Application of SARAL/AltiKa in extraction of wave power over Indian Ocean Region, " M. Tech Dissertation, Department of Computer Sciences, Ganpat University, Gujarat, March 2015

Derivation Techniques and Algorithm

The wave power (P) is mathematically derived as

$$P = \frac{\rho g^2}{64\pi} H_{m0}^2 T \approx \left(0.5 \frac{kW}{m^3 . s}\right) H_{m0}^2 T$$

Where

1. P is Wave power per unit of wave-crest length (in Kilowatt/m)
2. R represents the satellite range
3. H_{m0} is the significant wave height (in meters)
4. T is wave period (in seconds)
5. ρ is the density of water (in kilogram/cubic meter)
6. g is the acceleration due to gravity (in meters/square seconds)

Limitations

The products have gaps as they are based purely on track altimeters data.

Known problems with data

Data problems due to bad weather (heavy rain)

File Naming Convention

For inter-annual monthly product from Jason-2 and SARAL/ALTIKA

- Parametername_Altimetername_month_year
- **Example:** WE_SARL_JUL_2009 represents the wave energy from SARAL/Altika during July 2009.

For Monthly climatology of ocean wave energy

- Parametername_CLIM_month_start year-end year
- **Example:** WE_CLIM_JUL_2008-2014 represents the wave energy climatology during July 2008-2014.

MetaData

Sr. No	Core Metadata Elements	Definition
1	Metadata language	English
2	Metadata Contact	MOSDAC
3	Metadata date	August 3rd ,2015
4	Data Lineage	Wave power in Kilowatt/meter from Altimeters over Indian Ocean Region
5	Title	Altimeters for Wave based Renewable Energy (AWARE)

6	Abstract	The wave power is computed from the altimeters (Jason-2 and SARAL/AltiKa) for a period of 2008-2014 at a monthly basis for individual years. Climatology is also prepared in this regard for the Indian Ocean Region.
7	Dataset Contact	Dr Suchandra A. Bhowmick,Space Applications Centre, ISRO, Ahmedabad-380058,INDIA Email: suchandra@sac.isro.gov.in n
8	Update frequency	Yearly Once
9	Access Rights or Restriction	Open Access
10	Spatial Resolution	NA
11	Language	English
12	Topic Category	Water power estimates
13	Keywords	Wave power, non-conventional energy, wave period and Significant Wave Height
14	Data period	2008-2014
15	Responsible Party	Dr. Suchandra A. Bhowmick,Space Applications Centre, ISRO, Ahmedabad-380058,INDIA
16	Organization	Space Applications Centre (ISRO), Ahmedabad, India
16a	Org. role	Estimation of non-conventional wave energy using active microwave remote sensing instruments
16b	Unit	Kilowatt/meter

Tags:
Opendata Ocean

मॉस्डैक MOSDAC
भारत सरकार Govt. of India
अंतरिक्ष उपयोग केंद्र Space Applications Centre
इसरो isro अंतरिक्ष विभाग Dept. of Space

Meteorological & Oceanographic Satellite Data Archival Centre

Space Applications Centre, ISRO

Weather

	Display name	modified
	Cyclone	Wed, 2021-09-01 10:34

1 folder

Weather

	Display name	modified
	Cyclone	Wed, 2021-09-01 10:34

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1 folder

Website Policies

Content Archival Policy

The content components are created with metadata, source and validity date. There would be some content which is permanent in nature and for such content it is assumed that the content would be reviewed in every ten years unless it is edited / deleted based on requirement. The content shall not be displayed on the Website after the validity date. The content components like documents, reports is regularly reviewed as per the Content Review Policy.

The content is reviewed at least two weeks prior to the validity date and if required content will be revalidated and validity date is modified. If content is not relevant, then the content is archived and no longer published on the Website. The above mentioned policy in force and will be followed while maintaining the website.

Content Contribution, Moderation and Approval Policy

Content would be contributed by the authorized Content Manager in a consistent fashion to maintain uniformity and to bring in standardization along with associated metadata and keywords. In order to present the content as per the requirement of the viewer, organize the content in categorized manner and to retrieve the relevant content efficiently, the content is contributed to the website through a Content Management System which would be web-based having user-friendly interface. The content on the website goes through the entire life-cycle process of:- Creation, Modification, Approval, Moderation, Publishing, Expiry Once the content is contributed it is approved and moderated prior to being published on the Website. If the content is rejected at any level then it is reverted back to the originator of the content for modification. **"MOSDAC"** has prescribed the appropriate Moderator & Approver for each of the content element.

Content Review Policy

All possible efforts need to be taken to keep the content on the Website current and up-to-date. This Content Review Policy defines the roles and responsibilities of the website content review and the manner in which it needs to be carried out. Review Policies are defined for the diverse content elements. The Review Policy is based on different type of content elements, its validity and relevance as well as the archival policy. The entire website content would be reviewed for syntax checks once a month by the "MOSDAC" Team.

Website Contingency Management Policy

The presence of the website on the Internet and very importantly the site is fully functional all the times. It is expected of the Government websites to deliver information and services on a 24X7 basis. Hence, all efforts should be made to minimize the downtime of the website as far as possible. It is therefore necessary that a proper Contingency Plan to be prepared in handle any eventualities and restore the site in the shortest possible time. The possible contingencies include:

1. Defacement of the website: All possible security measures must be taken for the website to prevent any possible defacement/hacking by unscrupulous elements. However, if despite the security measures in place, such an eventuality occurs, there must be a proper contingency plan, which should immediately come into force. If it has been established beyond doubt that the website has been defaced, the site must be immediately blocked. The contingency plan must clearly indicate as to who is the person authorised to decide on the further course of action in such eventualities. The complete contact details of this authorised person must be available at all times with the web management team. Efforts should be made to restore the original site in the shortest possible time. At the same time, regular security reviews and checks should be conducted in order to plug any loopholes in the security.

2. Data Corruption: A proper mechanism has to be worked out by the concerned in consultation with their web hosting service provider to ensure that appropriate and regular back-ups of the website data are being taken. These enable a fast recovery and uninterrupted availability of the information to the citizens in view of any data corruption.

3. Hardware/Software Crash: Though such an occurrence is a rarely, still in case the server on which the website is being hosted crashes due to some unforeseen reason, the web hosting service provider must have enough redundant infrastructure available to restore the website at the earliest.

4. Natural Disasters: There could be circumstances whereby due to some natural calamity, the entire data center where the website is being hosted gets destroyed or ceases to exist. A well planned contingency mechanism has to be in place for such eventualities whereby is should be ensured that the Hosting Service Provider has a 'Disaster Recover Centre (DRC)' set up at a geographically remote location and the website is switched over to the DRC with minimum delay and restored on the Net.

5 . Apart from the above, in the event of any National Crisis or unforeseen calamity, Government websites are looked upon as a reliable and fast source of information to the public. A well defined contingency plan for all such eventualities must be in place so that the emergency information/contact help-lines could be displayed on the website without any delay. For this, the concerned person in the MOSDAC responsible for publishing such emergency information must be identified and the complete contact details should be available at all times.

Website Monitoring Policy

"MOSDAC" has a Website Monitoring Policy in place and the website is monitored periodically to address and fix the quality and compatibility issues around the following parameters:

Performance: Site download time is optimized for a variety of network connections as well as devices. All important pages of the website are tested for this.

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User ID and Password Policy

Access to sensitive or proprietary business information on "MOSDAC" websites is limited to users who have been determined to have an appropriate official reason for having access to such data. All registered users who are granted security access will be identified by a user name provided by webmaster. Users who are granted password access to restricted information are prohibited from sharing those passwords with or divulging those passwords to any third parties. User will notify us immediately in the event a User ID or password is lost or stolen or if User believes that a non-authorized individual has discovered the User ID or password. If you have any questions or comments regarding "MOSDAC" Website Security Policy, please contact the Web Information Manager.

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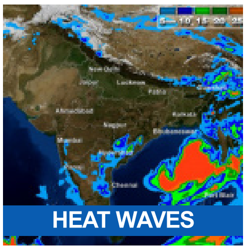

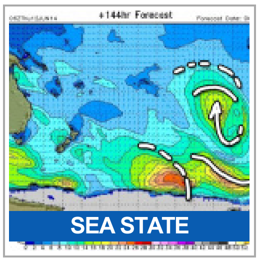

Announcements

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