

BHOONIDHI NEWSLETTER

2023 Edition 1

User Interaction Meet-2023 was conducted on 16 and 17 March 2023 at NRSC, Balanagar to apprise users about the latest developments in its services and applications, unveiling products from new missions and forthcoming satellite launches.

Bhoonidhi with new features was demonstrated to the users at Bhoonidhi stall during User Interaction Meet (UIM - 2023). The theme of UIM - Trends in EO Data Services and Applications- the new geospatial regime.

Bhoonidhi Stall at UIM-2023



EOS-06 Products release at Bhoonidhi (Open data)

Help video of download of E06 products from Bhoonidhi is available at <https://bhoonidhi.nrsc.gov.in/bhoonidhi/help/>

ISRO Oceansat-3 satellite also known as Earth Observation Satellite (EOS-06) launched in 26 Nov 2022, aims to provide service continuity of Oceansat-2 data as well as improve upon existing remote sensing capabilities in the field of Oceanography.

Bhoonidhi hosts the data products of the all the payloads namely OCM (GAC, LAC) and SCAT-3. Data is available from 1st April 2023 onwards.

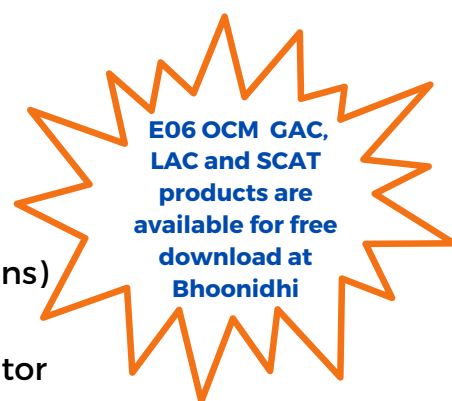
Sensor specifications

OCM-3 Spatial resolution

- 366m (Local Area Coverage- LAC Mode),
- 1080m (Global Area Coverage- GAC Mode)
- 13 spectral bands in optical region (0.402 to 1.030 microns)

Scatterometer

- Nominal mode provides 12.5 X 12.5 km grid for wind vector



The screenshot displays the Bhoonidhi web interface. On the left, the 'Search-Criteria' panel includes filters for 'Area of Interest' (Location, Polygon, Shapefile, Map Sheet, Events), 'Date range' (23 May 2023 to 24 May 2023), 'Product' (Standard), 'Application' (Theme: All, Application: All), and 'Satellite-Sensor' (Resolution: Coarse (100m - 1000m), Source: Optical). The 'Open_Data' section is checked, listing various satellite products like EOS-06_OCM(GAC)_L1C, JPSS1_VIIRS_Level-1_Day-Night, etc. The main area shows a satellite map of India with yellow bounding boxes. Below the map, a 'Search Results' table lists product details such as 'Sat_Sen EOS_06M_OCM_LAC_F_L1C', 'Scene: 2575_58_14', and 'Date: 23-May-2023'. A 'Meta Data Information' panel shows details for 'Product ID: EOS_OCM_LAC_23MAY2023_143065346052_2575_STG000GND_58_14_F', including 'Satellite: E06', 'Sensor: OCM', 'Date of Pass: 23-May-2023', and 'Scene Specification: 2575_58_14'. A 'Download MetaData' button is visible at the bottom right.

Download E06 OCM LAC products at Bhoonidhi

EOS-06 Products release at Bhoonidhi (Open data)

The screenshot displays the Bhoonidhi search interface. On the left, search criteria include 'Area of Interest', 'Location', 'Polygon', 'Shapefile', 'Map Sheet', 'Events', 'Date range' (23 May 2023 to 24 May 2023), 'Product' (Standard), 'Application' (Theme: All, Application: All), and 'Satellite-Sensor' (Resolution: Coarse, Source: Optical). The search results list shows multiple entries for 'Sat_Sen EOS-06_OCM_GAC_F_L1C'. A satellite imagery map shows the search area over the Indian subcontinent. The metadata panel for a selected product includes 'Scene Details' (Satellite: EOS, Sensor: OCM, Date of Pass: 23 May 2023, Imagery Orbit No: 2575, Ground Orbit No: 2575, Path: 60, Scene No: 15, Sensor Specification: EOS_OCM_GAC_F_L1C, Scene Specification: 2575_60_15, Quality: Good) and 'Coverage Details' (Top Left Lon: 20.840205, Top Right Lon: 20.840536, Bottom Left Lon: 86.9809, Bottom Right Lon: 86.9809, Center Longitude: 73.8437).

Download E06 OCM GAC products at Bhoonidhi

The top row shows four screenshots of the Bhoonidhi search interface for EOS-06 SCL products. The search criteria include 'Area of Interest', 'Location', 'Polygon', 'Shapefile', 'Map Sheet', 'Events', 'Date range' (22 May 2023 to 25 May 2023), 'Product' (Thematic), and 'Satellite-Sensor' (Source: Scatterometer). The search results list shows multiple entries for 'Sat_Sen EOS-06_SCT_02600_F_1B_2023-145705-26-42' and 'Sat_Sen EOS-06_SCT_02600_F_1B_2023-145705-25-44'. The bottom row shows two global maps. The left map is titled 'E06SCTL3WW2023143_12km:Wind velocity [ASCENDING] (m/s)' and displays wind vectors over the globe. The right map is titled 'E06SCTL3SV2023143_25km:Sigma0 (dB)' and displays Sigma 0 values over the globe.

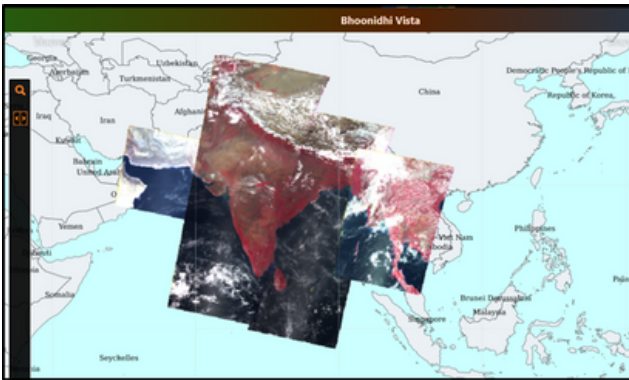
Wind Vector Product @ 25 Km

Sigma 0 Product @ 25 Km

EOS-06 Applications

OCM-3

- OCM-3 has been used for a variety of geophysical and biological applications, including Potential Fishing Zones (PFZs), estimating primary productivity, studying coastal processes etc.
- Calculating aerosol radiative forcing, and studying physical-biological coupled processes.
- LIC OCM products with default CCS projection are enabled for visualization at Vista.



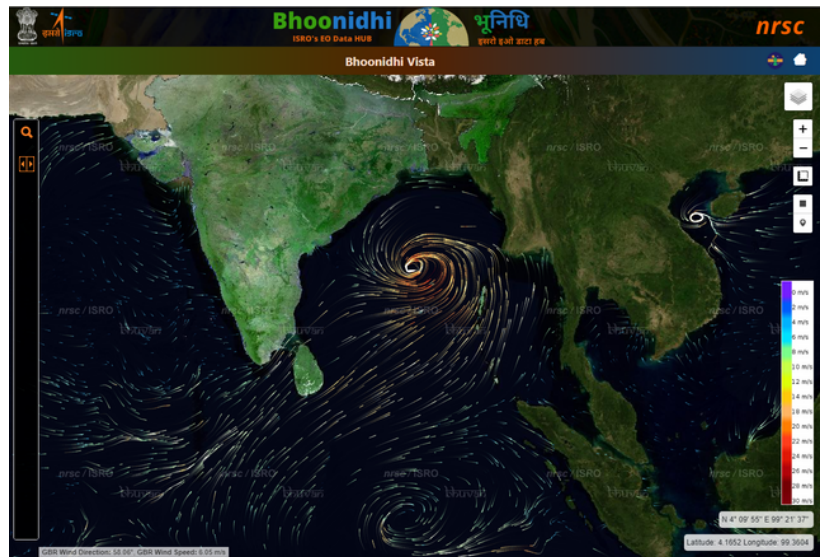
OCM-LAC (14 to 15 May 2023) @ Vista



OCM-GAC (25 to 30 May 2023) @ Vista

Scatterometer

- Visualisation of E06 SCAT data is available at Vista.
- In the picture we can see the wind vector product of Cyclone Mocha on 12th May 2023.
- L3WW product of SCAT is enabled as animation.



Mocha cyclone (SCAT3: 12 May 2023)

Scatterometer Applications

The applications of SCAT-3 are weather forecasting, cyclone prediction, polar ice studies, study of vegetation, soil moisture, global change, effect of surface winds on biological productivity like Potential Fishing Zone (PFZ) changes etc.

Theme Based Satellite-Sensor Selection @ Bhoonidhi

- A new feature is added in Bhoonidhi to search for products based on a Theme and Application as shown in the picture.
- The satellite sensors are displayed, based on the selection of the theme.
- After the selection of satellite and sensor, user can choose to download the open data or go through order processing for the priced products.
- The detailed step wise procedure from searching of products till download is shown in the picture.

Agricultural Sciences
 Coastal Bathymetry Studies
 Coastal Erosion Studies
 Flood Mapping
 Forestry and Ecology
 Geohazards
 Glacial lake Monitoring
 Groundwater studies
 Land Use / Land Cover
 Ocean Applications
 Physical Oceanographic Studies
 Soil Resources
 Urban Hydrological Studies
 Urban Studies
 Wastelands
 Water Resources

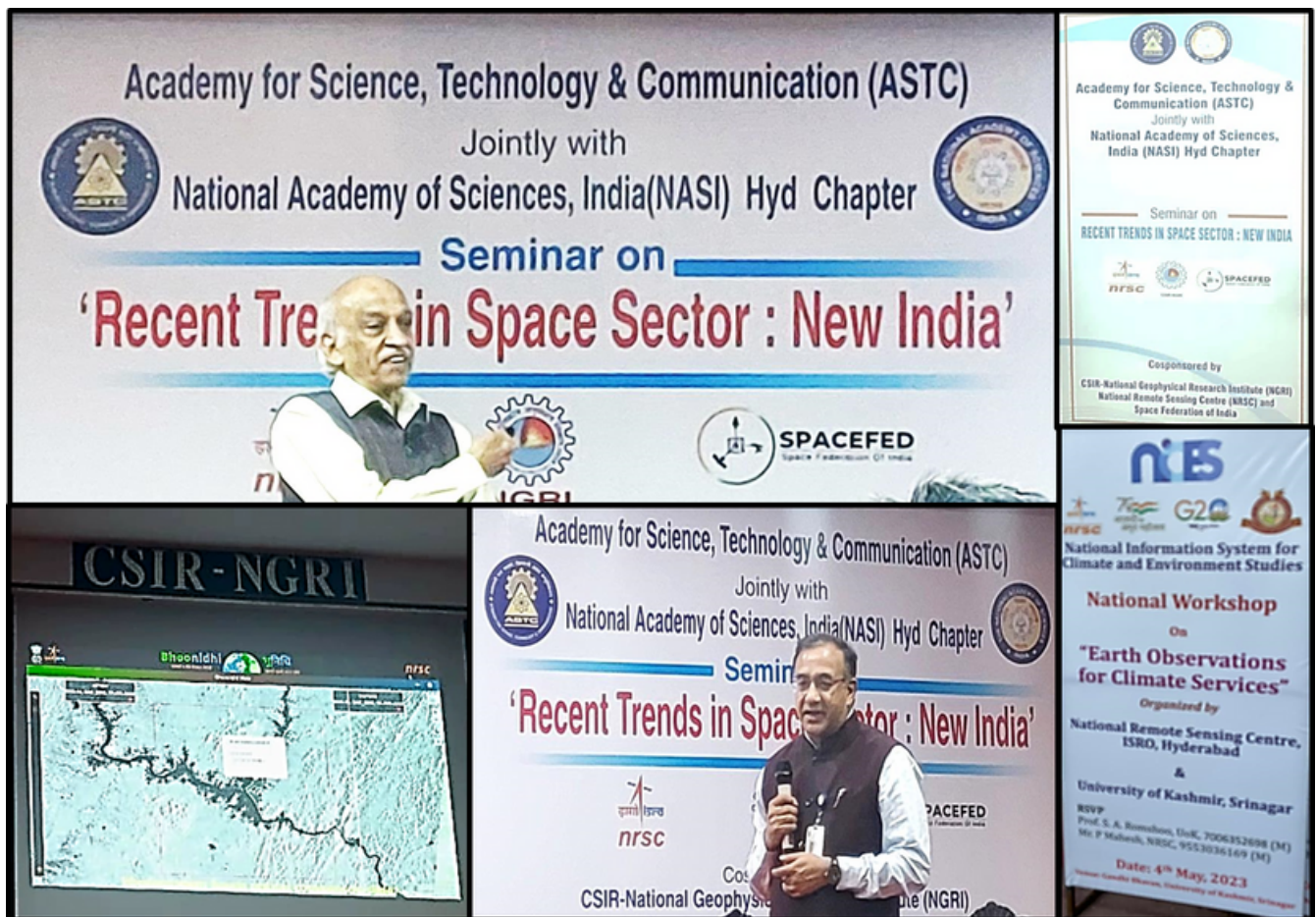
Application Theme: Ocean Applications
 Application: Chlorophyll-a mapping for biological ocean :
 Chlorophyll-a mapping for biological ocean applications
 Ocean Biogeochemistry

The screenshot displays the Bhoonidhi web interface with the following components:

- Search Filters:** Includes search criteria, location, date range (28 March 2023 to 27 April 2023), product type (Standard), application theme (Ocean Applications), and application (Chlorophyll-a mapping for biological ocean).
- Search Results:** A list of satellite data entries with details like satellite name (EOS-01, EOS-02), sensor (OCM), and date of pass.
- Satellite Image:** A map showing the search area with a yellow grid overlay.
- Meta Data Information:** A detailed view of a selected product (E06_OCM_GAC_22MAY2023_142073624029_2561_STG000GND_54_14_F) showing scene and coverage details.
- Downloads:** A list of download links for the selected products.

Step wise procedure for search and download of theme based products

Bhoonidhi: Presence at National Workshops



Bhoonidhi was presented at various National Workshops to familiarize users on data availability and access mechanisms at Bhoonidhi.

- 'Recent Trends in Space Sector: New India' which was organised at National Geophysical Research Institute, NGRI, Hyderabad jointly by Academy for Science, Technology & Communication (ASTC) and National Academy of Sciences, India (NASI) Hyd Chapter on 20th January.
- National workshop on “Earth Observations for Climate Services” at KU, Srinagar, on 4th May, 2023 organised by National Remote Sensing Centre (NRSC), ISRO in collaboration with the Department of Geo informatics, Kashmir University (KU).