

BHOONIDHI NEWSLETTER

<https://bhoonidhi.nrsc.gov.in/>

- Bhoonidhi is a web application providing seamless ordering and dissemination of Open & Priced satellite data products through various interfaces to online users as per policy

HIGHLIGHTS

New Data Sets Added

- EOS-04(C-SAR) data products are free for government users and nominally priced for private and international users @Bhoonidhi. EOS-04 data products are available for visualisation @Bhoonidhi Vista.
- Landsat-9 and Landsat-8 collection-2 Level-1 products are available for free download @Bhoonidhi for all users.
- Ortho products from IRS-1A/1B/1C/1D Liss sensor are released @Bhoonidhi.

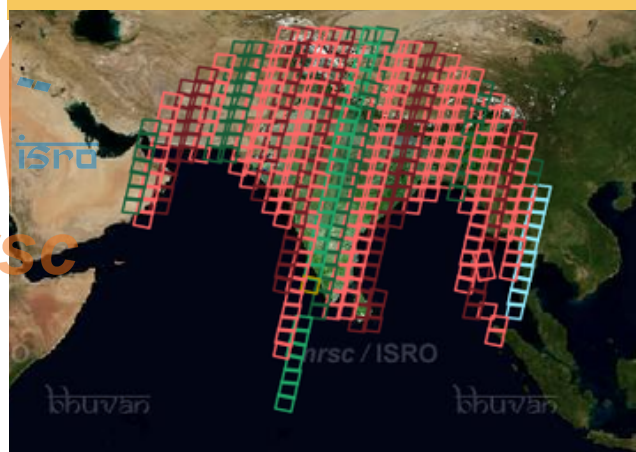
New Features Added

- Context Saving - Continuation of selection based on SID. This option is available under "Utilities" menu.
- Provision to select multiple SID for multi sensor data. Using this feature user can now add items to the CART from multiple SID.
- PI generation is enabled for very high resolution data and merged products @Bhoonidhi for all users.
- The components "Search Results Summary" and "Footprints Controls" are made as collapsible panel.
- City layer and Infrastructure layer option on map is enabled.
- The Non-Tax Receipt Portal (NTRP) is enabled for remitting of funds. It is the one stop services to deposit any fees/fine/other money into the Government Account

EOS-04 (C-SAR) DATA PRODUCTS AND VISUALISATION @ BHOONIDHI



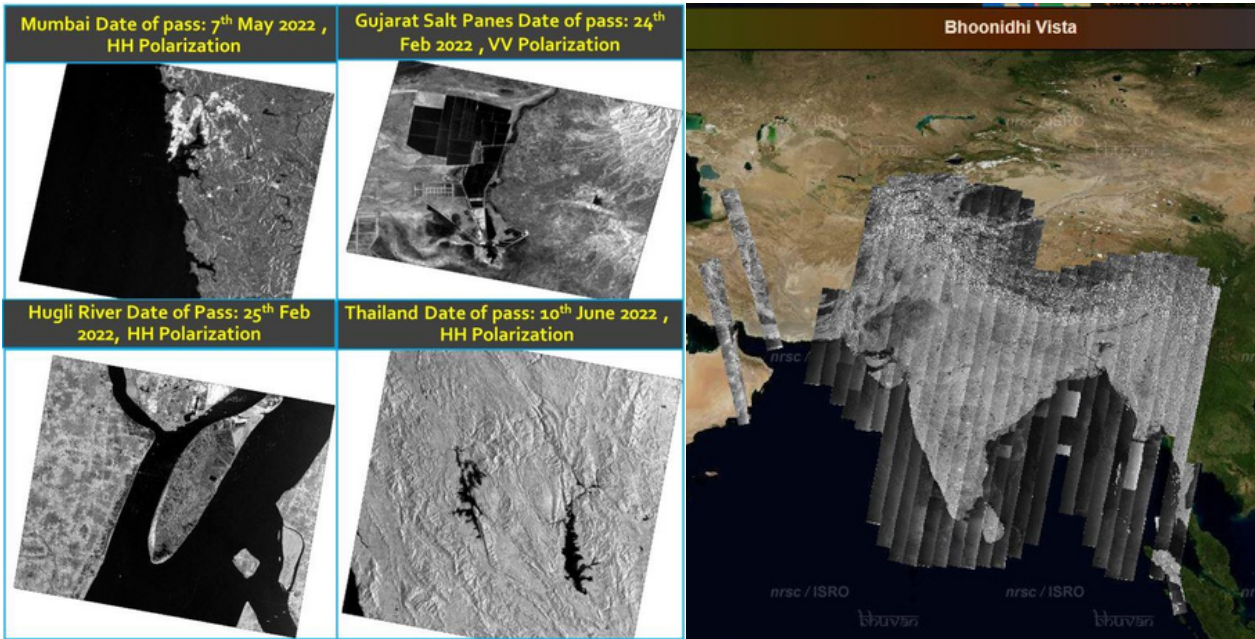
LS-8 AND LS-9 DATA COLLECTION



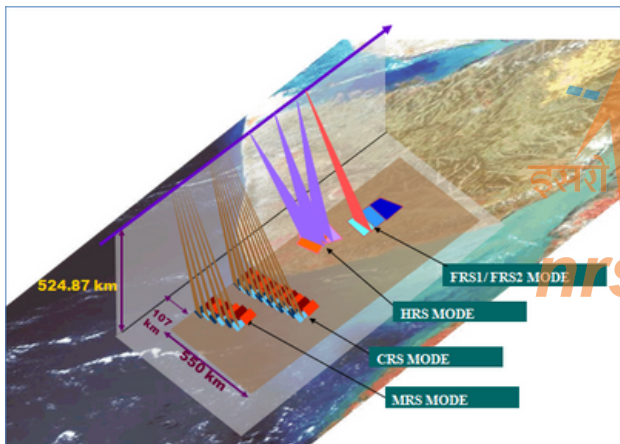
IRS-1C, LISS-3 DELHI ORTHO IMAGE



EOS-04 (C-SAR) PRODUCTS @BHOONIDHI



EOS-04(C-SAR) IMAGING MODES



- EOS-04 is a follow on mission of RADAR imaging satellite-1 with the imaging modes similar to RISAT-1 viz. STRIPMAP, SCANSAR and SPOTLIGHT.
- Visualization of EOS-04 data in near real time in native resolution for the data acquired daily.

EOS-04	FRS-1 (StripMap)	FRS-2 (StripMap)	MRS (ScanSAR)	CRS (ScanSAR)
Swath (km) * Full Pol	25 Km (*20)	25 km (*20)	160 km (*115)	223 km (*168)
Polarization	Single , Dual Circular, Full Pol	Single , Dual , Circular , Full Pol	Single , Dual , Circular, Full Pol	Single , Dual , Circular ,Full Pol
Resolution Azimuth x Slant Range(m)	3 x 2	3 x 4	33 x 8	50 x 8
Worst Sigma Naught (dB)	≤ -18	≤ -19	≤ -18	≤ -18
Off-Nadir (km) * Full Pol	100 – 650 (*100-400)	100-650 (*100 – 400)	100 – 650 (*100 – 400)	100 – 650 (*100 – 400)

FRS - Fine Resolution StripMap; MRS - Medium Resolution ScansAR;
CRS - Coarse Resolution ScansAR; HRS - High Resolution Spotlight;

LANDSAT 8 AND LANDSAT 9 COLLECTION 2 @ BHOONIDHI

<p>Landsat-8 (Gujarat - Maharashtra coast)</p>	<h3>Product Specifications</h3> <p>Number of image bands : 11 Image File Format : GeoTIFF Projection : UTM Datum : WGS-84 Spatial Resolution : 15, 30, 100 m Pixel size in Product : 15, 30, 30 m Radiometric resolution : 12/14 bpp Correction Level : L1TP / L1GT / L1GS Meta Data : Text file Thumbnail Image : Jpeg file</p>	<p>Landsat-8 (Tamilnadu coast)</p>
<p>Landsat-9 (Hirakud Dam)</p>	<p>Landsat-9 (Manas Sarovar)</p>	<p>Landsat-9 (Manas Sarovar)</p>

- LANDSAT-9 launched by NASA & USGS is sensing earth using Operational Land Imager-2 (OLI-2) and the Thermal Infrared Sensor-2 (TIRS-2). It operates in **इसरो ISRO** wavelengths of visible, near infrared, shortwave infrared, and thermal infrared light.
- Level-1 data processing is integrated in IMGEOS and is available for download from NRSC @ bhoonidhi.nrsc.gov.in under open and free category.

- NRSC Ground Station acquires in real time and processes Landsat-8 & Landsat-9 data for the Indian region as per the ISRO-USGS MOU. The Data processing chain at IMGEOS is enhanced to generate Collection 2.
- Level-1 products are with improved geometric accuracy, improved digital elevation modeling, improved radiometric calibration, consistent quality assessment bands and metadata files.

LANDSAT 8 AND LANDSAT 9 FREE DATA DOWNLOAD @ BHOONIDHI

ORTHO PRODUCTS FROM IRS 1A/1B/1C/1D @ BHOONIDHI

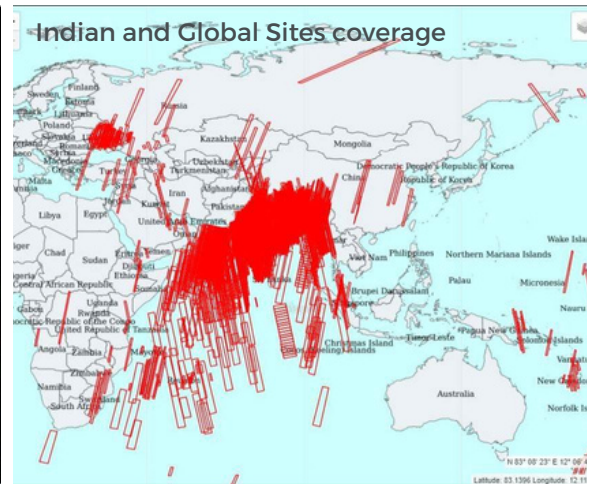
- IRS-1A/1B/1C/1D are ISRO's first generation satellites with a vision of documenting the entirety of Earth from space and were launched in 1988, 1991, 1995 and 1997 respectively. Each mission had multi sensor, multi resolution capability with LISS-I (72.5 m), LISS-II (36.25m) sensors in IRS-1A/1B, LISS-III (23m), PAN(5.8m) and WIFS (5.8m) in IRS1C/1D. Multi decadal data is available with systematic coverage of entire Indian region from 1988 onwards. This data has been extensively used by the remote sensing user community for forestry, drought, urban, agriculture and land resources applications. Data products were being supplied in LGSOWG format with standard georectified spatial correction level which had spatial accuracy around 1.5 km.
- With the advent of many contemporary global satellites today, legacy data can be used along with these latest satellite data sets for various operational time series analysis and projects like change detection, land and water resource monitoring etc.
- Ortho rectified products with enhanced radiometry in GeoTIFF format are now available from NRSC in an operational manner for L1/L2/L3 sensors. The spatial accuracy of these products are validated with standard references and found to be in good agreement (better than 3 pixels).

IRS 1A/1B/1C/1D ORTHO PRODUCTS DATA ORDERING AT BHOONIDHI

Product Format Specification	
Product Code	: STLC000TD / STUC000TD
Number of image bands	: 4 (L-1,L-2, L-3)
Image File Format	: Geo TIFF
Projection	: UTM for L1/L2/L3
Datum	: WGS-84
Spatial Resolution	: 24m for L-3 (G,R,NIR) 70m for L-3(SWIR) 36m for L2 (B,G,R,NIR) 72m for L-1 (B,G,R,NIR)
Radiometric resolution	: 7 bit (L-1,L-2), 8 bit (L-3)
Correction Level	: Ortho Rectified
Data type	: Unsigned byte
Meta Data	: Text file
Thumbnail Image	: Jpeg file

NOVASAR (S-SAR) DATA ACCESS @ BHOONIDHI

<https://bhoonidhi.nrsc.gov.in/>



NOVASAR data is processed at NRSC and login based access is provided to registered users. Data is free for Government users and priced for others as per the policy.

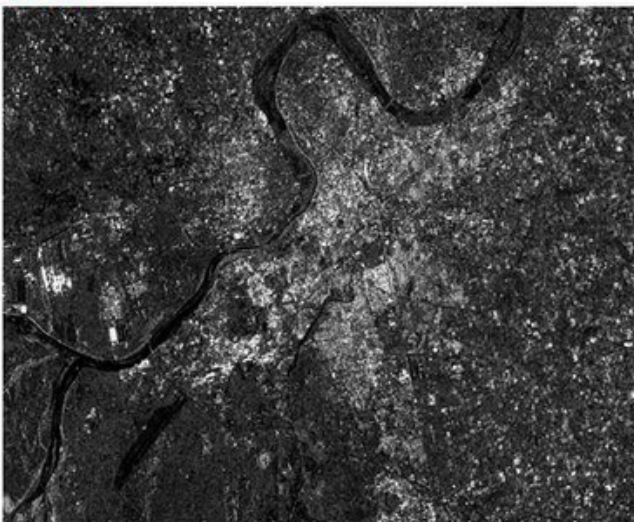
DUBAI- STRIP MAP MODE-6m Resolution-HH



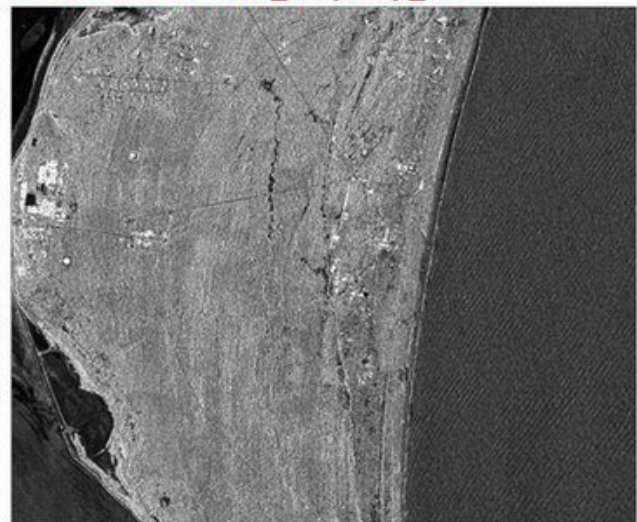
DELHI_6m_Stripmap_VV



SURAT



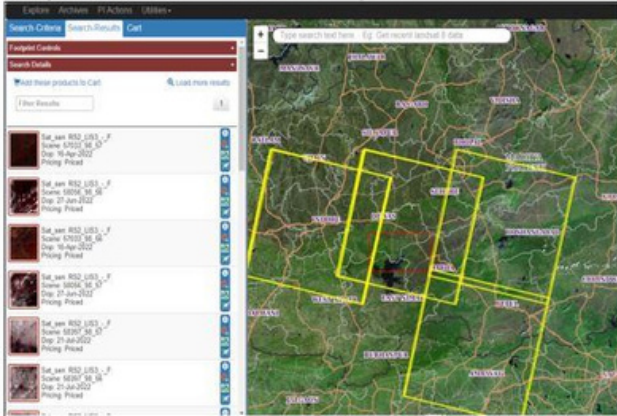
SRIHARIKOTA - 6m_Stripmap_HH



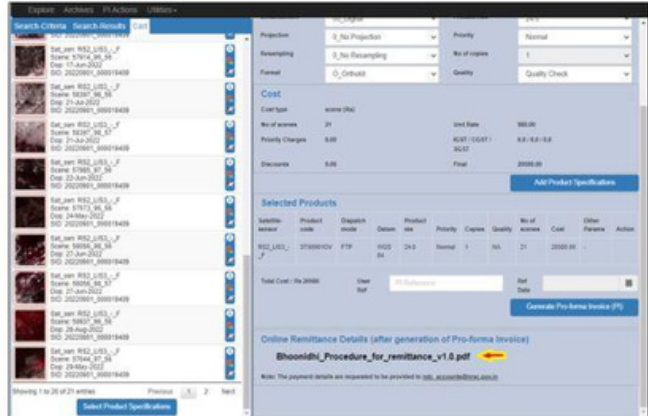
BHOONIDHI NEW FEATURES

<https://bhoonidhi.nrsc.gov.in/vista/>

City and Infrastructure layers



Online Remittance information



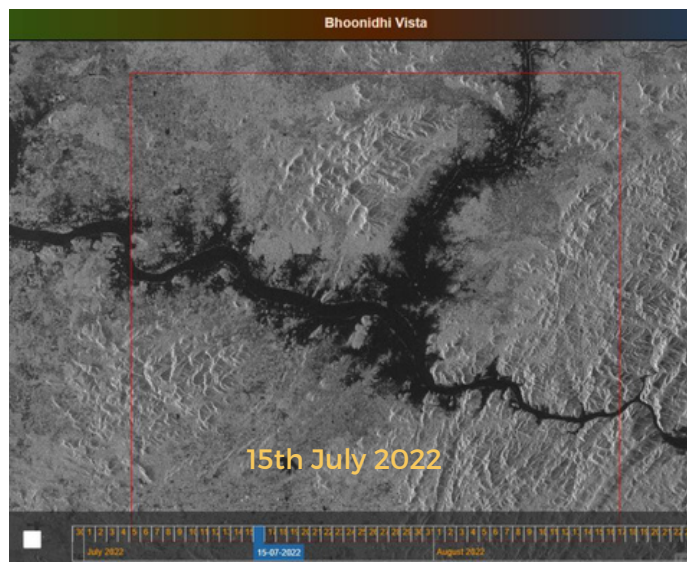
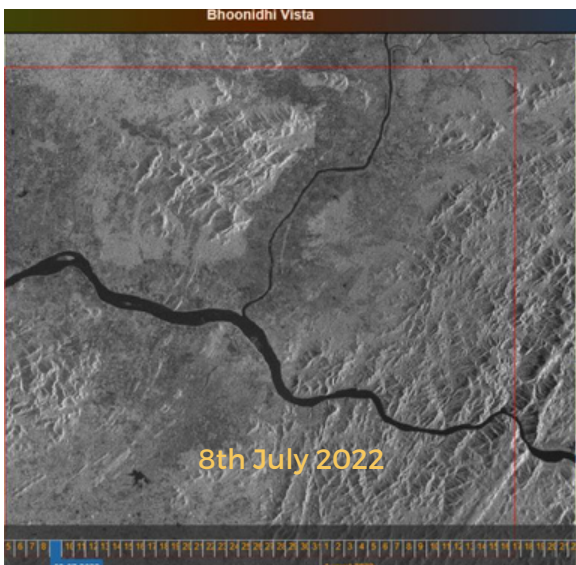
PI generation enabled for very high resolution sensors

PI No.: 37143 PI Date: 01-SEP-2022

ItemNO	Satellite	Sensor	DateOfPass	SceneNo	Path	OrbitNo	Quantity	EstimatedValue	ProductCode	Dispatch Mode	Image Mode
1	CO3	PAN	08-MAY-2022	15		13559	1	920	STUC00GTD	FTP	SP
2	CO3	PAN	10-JUN-2022	13		14060	1	920	STUC00GTD	FTP	SP
3	CO3	PAN	30-MAY-2022	40		13893	1	920	STUC00GTD	FTP	SP

NRSC data Centre (NDC) will generate Order for your PI:37143 within 1-2 days. Order Status can be viewed online at 'Order Status Monitoring' under 'Utilities menu'

BHADRACHALAM FLOODS AS VIEWED BY SENTINEL 1A (C-SAR)



Visualisation of Bhadrachalam pre and post floods as viewed by Sentinel -1A @Bhoonidhi VISTA.