



6th Asia-Oceania Group on Earth Observations (AOGEO) Workshop



Thematic Session 5: Showcase of application and capacity building for local needs

Earth Observation and data sharing platforms: An Indian Experience

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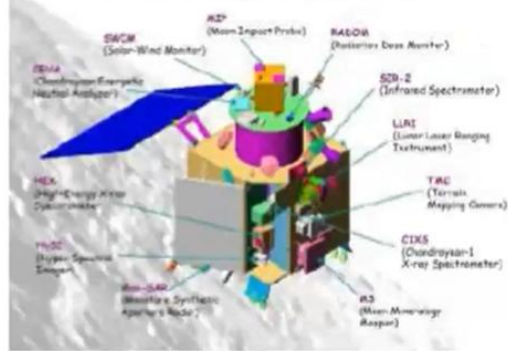
Content

- Earth Observation Data applications
- Earth Observation initiatives of ISRO Govt. of India
- BRICS EO Data Sharing Platform
- Centre For Space Science And Technology Education In Asia And The Pacific
- EO Data Sharing MoU between LASAC, China and DU, India



ISRO Orbital Vehicle

The Chandrayaan-1 Spacecraft



Chandrayaan-1 Mission



IRS Data Application

Data from Indian Remote Sensing satellites are used for various applications of resources survey and management under the National Natural Resources Management System (NNRMS). Following is the list of those applications:

- Drought monitoring and assessment based on vegetation condition.
- Flood risk zone mapping and flood damage assessment.
- Hydro-geomorphological maps for underground water resources.
- Irrigation command area status monitoring
- Snow-melt run-off estimates
- Land use and land cover mapping
- Urban planning
- Forest survey
- Wetland mapping
- Environmental impact analysis
- Mineral Prospecting
- Coastal studies

EO Applications in Diversified Area

Agriculture & Soils



- Crop production forecast
- Saline/sodic soils mapping
- Agro-Met services & disaster surveillance (pest, floods, drought)
- Horticulture development

Bio Resources and Environment



- Forest cover and type mapping
- Wetland inventory & conservation plans
- Bio diversity characterization
- Desertification status mapping
- Coastal, mangroves, Coral Related
- Snow and glacier studies

Cartography



- Large scale mapping
- Satellite based topo-map updation
- Digital Elevation Model (Carto-DEM)
- Cadastral level mapping

Geology and Mineral Resources



- Landslide hazard zonation
- Mineral /oil exploration
- Mining areas
- Seismo-tectonic studies
- Engineering and geo-environmental studies

Rural Development



- National Drinking Water mission
- Wasteland mapping watershed dev. & monitoring
- Land records modernization plan

Ocean and Meteorology



- Ocean primary productivity
- Ocean status forecast
- Storm surge modelling
- Regional weather prediction
- Tropical cyclone and mesoscale studies
- Extended range monsoon prediction

EO Applications in Diversified Area

Urban Development



- Urban sprawl mapping of major cities
- Master / structure plans
- Comprehensive dev. plans of selected cities/ towns
- Base-map genera. for towns

Water Resources



- Irrigation infrastructure assessment
- Water resource information system
- Snow melt run-off estimation
- Reservoir capacity evaluation
- Site selection for hydro-power

Natural Resources Census



- Periodic inventory of natural resources
- Land use/land cover, soil, geomorphology, wetland, land degradation, snow and glacier, vegetation

Disaster Management Support



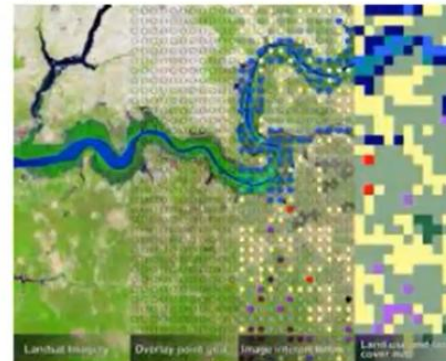
- Operationally addressing various natural disasters like floods, cyclone, drought, landslide, earthquake and forest fire
- Research and development on early warning systems and decision support tools

Climate Change Studies

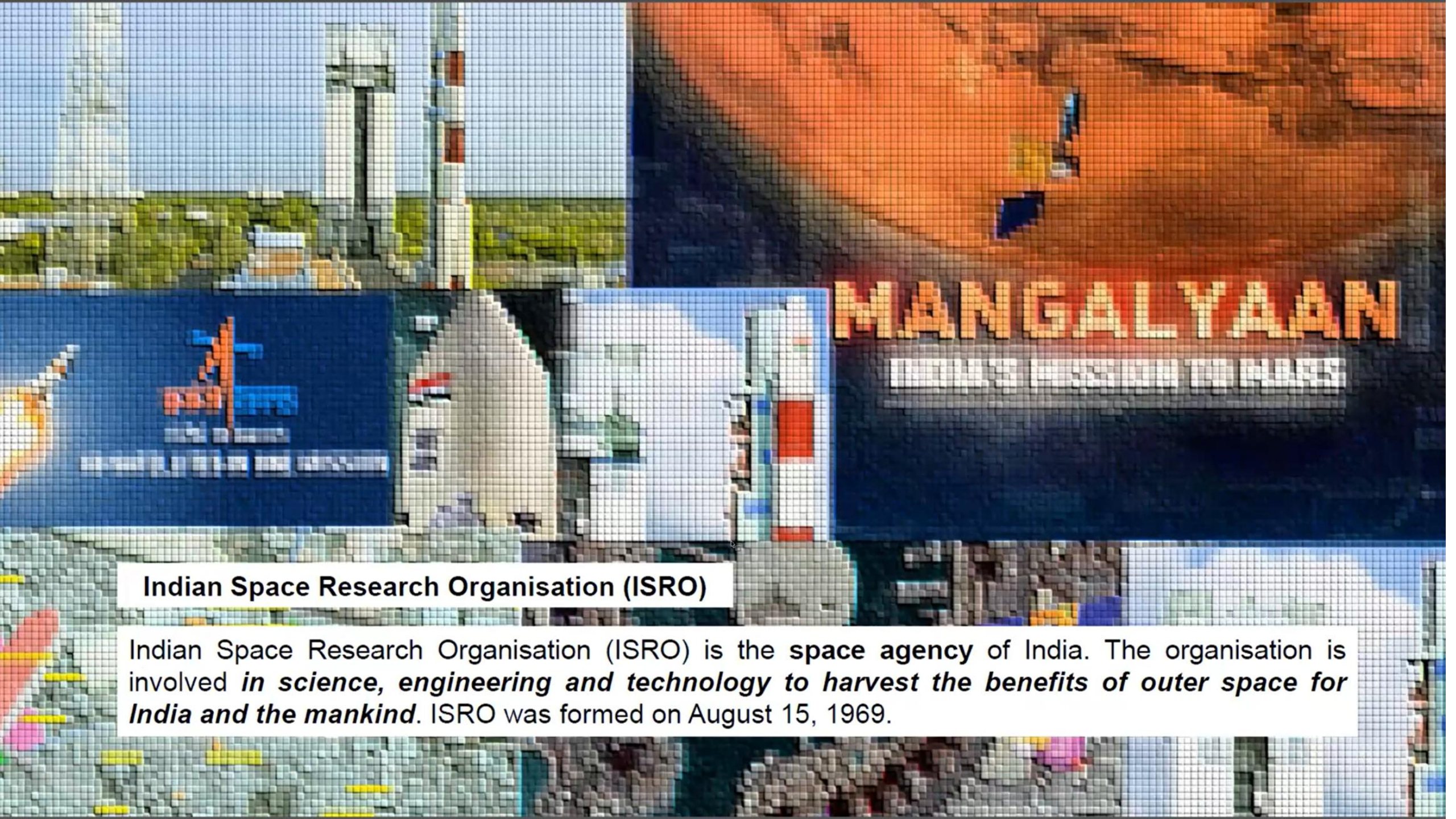


- Mapping the indications, monitoring the agents and modelling the impact
- Characterization of climate variables
- Methane emission and Timberline study

Landuse and Land Cover Studies



- Monitoring LULC change detection especially in forest cover, built-up, plantation land, agricultural Land
- Change detection status
- Periodical LULC change
- Threat for LULC change
- Driving factors for LULC change



Indian Space Research Organisation (ISRO)

Indian Space Research Organisation (ISRO) is the space agency of India. The organisation is involved *in science, engineering and technology to harvest the benefits of outer space for India and the mankind*. ISRO was formed on August 15, 1969.

HOME

ABOUT US ▾

DATA PRODUCTS ▾

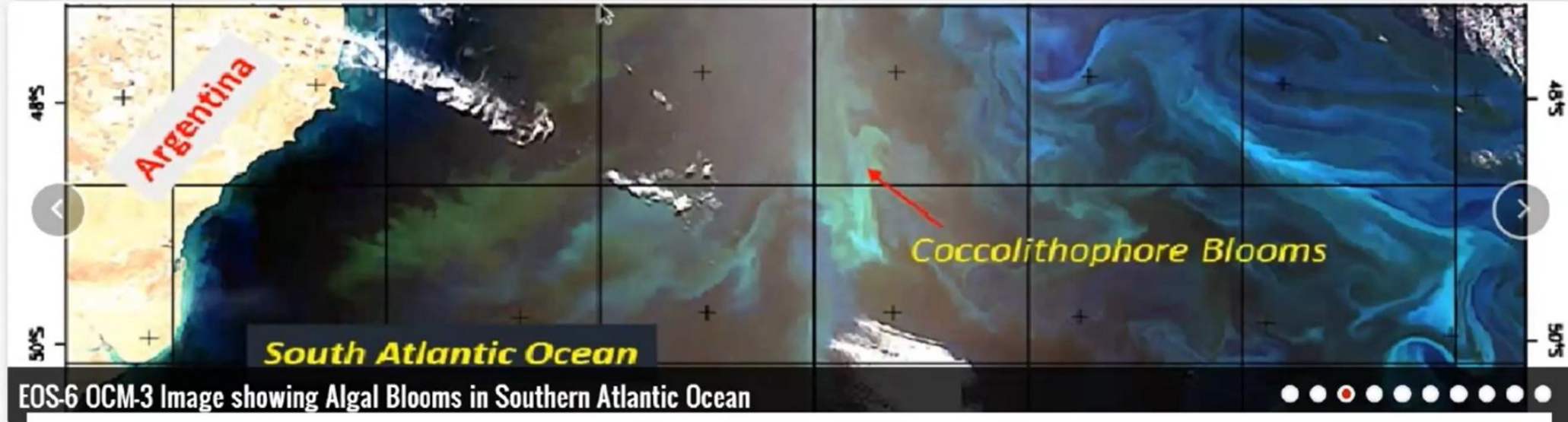
SERVICES ▾

APPLICATIONS ▾

RESOURCES ▾

R & D ACTIVITIES ▾

TRAINING & OUTREACH ▾



Our Mandate

National Remote Sensing Centre (NRSC) has the mandate for establishment of ground stations for receiving satellite data, generation of data products, dissemination to the users, development of techniques for remote sensing applications including disaster management support, geospatial services for good governance and capacity building for professionals, faculty and students.



NRSC Establishments



Satellite Data
Reception



Aerial Services &
Digital Mapping



Data Processing &
Dissemination



Disaster Management
Support



Remote Sensing
Applications



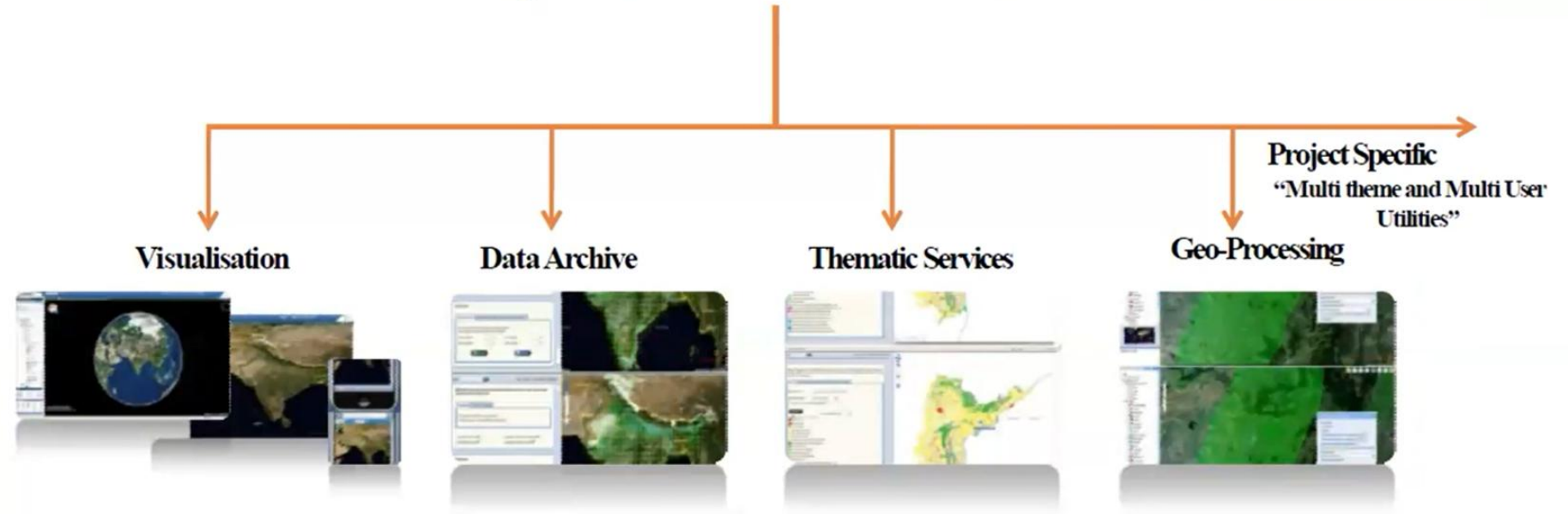
Geospatial Services



Capacity Building

Indian Earth Observation Open Data Services

Gateway to Indian EO Data Products & Services



Multi Resolution



Societal Applications



Thematic Vectors





BhuvanLite - Locate and Connect

Citizen Centric Application

Features: High Resolution Imagery and POI | Location Search and Suggestions | Geo-tracking | Route | Direction | Location Share



Latest Updates

Release of **Night Time Light (NTL)** over India from Space (2012-2021)

Release of **MyBhuvan** Application

Release of **Bhuvan -Timelapse** Application

Visualisation & Free Download

Collaborative applications - Platform to share your data and create governance applications



Bhuvan 2D



Bhuvan 3D



Bhuvan Lite



Open Data
Archive



Climate &
Environment



Bhoonidhi
VISTA

No new notifications (Do not disturb on)

Downloads

Application Sectors

Collaborative applications - Platform to share your data and create governance applications



Agriculture

View the agriculture related applications and its resources



Water

View the water applications and its resources



Forestry

View the forestry applications and its resources



E - Governance

View the e-governance applications and its resources

Maps & OGC Services

Collaborative applications - Platform to share your data and create governance applications



Thematic Services



Ocean Services



Disaster Management Services



Create a Map

[My Map](#) | [My GIS](#)

30 May 2023



NRSC/ISRO Open data and product archive facilitates the user to select, browse and download data from this portal

Select Category : Satellite/Sensor Theme/Products Program/Projects

Select SubCategory : Select under Satellite/Sensor ▼

- Select under Satellite/Sensor
- Cartosat-1
- IMS-1: Hyperspectral Imager(HySi)
- Oceansat-2: OCM
- Oceansat-2: Scatterometer
- Resourcesat-1: AWiFS
- Resourcesat-1: LISS-III

Archives and Ordering Satellite Data

For other Archives and Online Satellite data ordering... [Please Click Here](#)

Super Site for Remote Sensing Analysis

Space based inputs for download from different sources... [Read More](#)



BRICS Space

Under the India's BRICS Chairship, the BRICS Space Agencies Heads have signed an agreement for cooperation in remote sensing satellite data sharing on August 18, 2021.



This Agreement enables building a virtual constellation of specified remote sensing satellites of BRICS space agencies and their respective ground stations will receive the data. This will contribute in strengthening multilateral cooperation among BRICS space agencies in meeting the challenges faced by mankind, such as global climate change, major disasters and environmental protection.

<https://www.isro.gov.in/BRICS%20Space.html>

The 1st meeting of the BRICS Joint Committee on Space Cooperation Successfully Held

On May 25, the 1st meeting of the BRICS Joint Committee on Space Cooperation was successfully held virtually, marking the official establishment of the BRICS Joint Committee on Space Cooperation and opening the new chapter for joint observation and data sharing cooperation of BRICS Remote Sensing Satellite Constellation (RSSC).

The constellation contains six existing satellites

India: Resourcesat-2 and 2A

China: Gaofen-6 and Ziyuan III 02

China & Brazil: CBERS-4

Russia: Kanopus-V type



The space authorities of the five countries introduced the space activities carried out by each country in the past year and the implementation of the "Agreement on the cooperation of the BRICS remote sensing satellite constellation". The Terms of Reference for the BRICS Joint Committee on Space Cooperation, Technical Regulations for Data Exchange of the BRICS Remote Sensing Satellite Constellation, and Implementing Procedures of Joint Observation of the BRICS Remote Sensing Satellite Constellation are adopted by the Joint Committee, and reiterated that Cooperation on BRICS Remote Sensing Satellite Constellation is demonstrating an example for building a sustainable partnership in the field of space activities, which would effectively contribute to the sustainable development of the BRICS countries.

http://brics2022.mfa.gov.cn/eng/dtxw/202205/t20220527_10693358.html

BRICS EO Data Sharing Platform....

Centre For Space Science And Technology Education In Asia And The Pacific (CSSTEP)



CENTRE FOR SPACE SCIENCE AND TECHNOLOGY
EDUCATION IN ASIA AND THE PACIFIC (CSSTEP)
Affiliated to the United Nations

Tuesday, May 30, 2023 - 3:14 pm IST

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Space Science & Technology

On a mission of capacity building, under the initiative of the UN, for Asia and the Pacific region in space science and technology, through excellence in education, training and research.



<https://www.cssteap.org/>

EO Data Sharing MoU between LASAC, China and DU, India



MEMORANDUM OF UNDERSTANDING


This Memorandum of Understanding (“MOU”) is made by and between the Land Satellite Remote Sensing Application Center(LASAC),Ministry of Natural Resources of the People’s Republic of China, and University of Delhi of Republic of India (hereinafter jointly referred to as “the Parties”), Concerning Cooperation in the Field of Geospatial Technology and Its Applications.

With technical support from LASAC Team, Indian cloud node for the data sharing between BRICS countries is now operational. The MoU will contribute in achieving SDG 16 Peace Justice and Strong Institutions and SDG 17 Partnerships for the Goal, apart from contributing to all SDG using EO Data.

EO Capacity Building

Online training program with the theme “Online Training workshop on validation & application of remote sensing products in ecological and environmental monitoring for BRICS countries” was organized between 24th May to 26th 2022 at 11:00-14:00 IST. A total 197 participants registered from India to attend online training workshops.

BACKGROUND-About LASAC



Satellite remote sensing can quickly and widely obtain surface information, including topography, land cover, ecological environment and water resources.

Lasac was merged from three organizations into one under the instruction of Ministry of Natural Resources (MNR) in 2019 and is primarily responsible for MNR's civilian land satellite development planning, R&D, data processing and sharing, market applications etc..

By the end of March 2022, Lasac has **15 on-orbit civilian land remote sensing satellites**, covering a variety type of sensors such as optical, hyperspectral, laser and radar, which can provide real-time investigation and monitoring capability of natural resources, including mountains, waters, forests, farming fields, lakes and grasses etc. with full data coverage under all weather conditions.

One of the tasks of Lasac is to **study the quantity, quality and distribution of water resources**, provide technical support for the development, utilization and protection of water resources.

