

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE**

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**Sub: Monthly Summary of Department of space for the month December 2022**

**PART- I (Unclassified)**

**1. Important policy decisions taken and major achievements during the month**

**A. Space Transportation:**

- The first blow down test of the newly realised Trisonic Wind Tunnel was held on 8<sup>th</sup> December, 2022 at VSSC. The tunnel has an overall length of about 160m and has a maximum cross sectional diameter of 5.4m. The tunnel can simulate flight conditions from 0.2 times the speed of sound (68 m/s) to 4 times the speed of sound (1360 m/s).
- Functional hot test of Scramjet engine using isrosene as a fuel was carried out on 9<sup>th</sup> December 2022 at IPRC.
- Integration activities on the L110 stage identified for the LVM3-M3 mission completed and stage flagged off from IPRC to SDSC on 19th Dec 2022.
- Cryogenic engine (CE 20) successfully undergone hot test for a long duration of 650 seconds with uprated thrust level of 22t thrust on 23<sup>rd</sup> December, 2022.
- Completed integration activities on the Cryogenic Upper Stage (CUS) stage required for the GSLV F12 mission at IPRC.

**B. Space Applications:**

**I. Earth Observation**

- Hon'ble Minister of Agriculture & Farmers Welfare and Hon'ble MoS (Independent Charge) Science & Technology; Earth Sciences, and MoS PMO; PP/DoPT; Atomic Energy; Space, formally **released the data products and services of EOS-04 satellite for the user community.**
- The **Flood Hazard Zonation atlas of Uttar Pradesh was released** by Hon'ble Chief Minister, Uttar Pradesh during the 3rd Regional Conclave held at Lucknow during Nov 30-Dec 01, 2022
- **Agriculture Technology Project (for Govt. of Maharashtra):** Revenue circle wise crop yield estimation is carried out to support technology-based yield estimation in Maharashtra under PMFBY.
- **Geospatial Crop Monitoring System for Crop Insurance Decision Support** (for AICIL): Crop health indicators for kharif maize were generated for 5 districts of west Bengal in collaboration with AICIL
- **Biodiversity characterization at community level in India using Earth observation data** (for DBT): Morphological spatial pattern analysis covering forest fragmentation and connectivity completed for three different forest landscapes.
- **GeoMGNREGA (for MoRD):** Beta version of mobile App for monitoring linear and area attributes of MGNREGA assets is published.
- **Bhuvan Geoportal:** "Decadal change of Night Time Light (NTL) over India from Space (2012-2021)" published
- **Disaster Management Support Programme (for MHA, NDMA, SDMAs):**

❖ **National Database on Emergency Management (NDEM):** (i) PAN India Disaster Alerts/ Warnings is enhanced by adding IMD's Nowcast and Cyclone track in the NDEM homepage (ii) Module is developed to generate hydrographs of flood forecast sites and reservoirs i.e. discharge vs rainfall, and water level vs volume vs inflow for the spatial flood inundation data

❖ **Near Real Time Flood Mapping & Monitoring:**

1. Cyclone MANDOUS was monitored and Value Added Maps were disseminated for Andhra Pradesh
2. A brochure on EOS-4 utilization for Near real time flood mapping and monitoring is prepared and provided to MHA & MoJS

➤ **Support to Sentinel Asia:** Provided Five IRS datasets to emergency requests from Sentinel Asia pertaining to Indonesia Earthquake & Volcano

- **Satellite Data Acquisition and Dissemination:** 2,678 satellite passes were acquired and archived. About 22,453 satellite data products were downloaded through Bhuvan

## II. Satellite Navigation

- Conducted detailed internal review of constellation options for meeting the extended coverage requirements of NavIC
- Agreement between ISRO and Physikalisch-Technische Bundesanstalt (PTB), Germany on collaboration for installing and reception of data from NavIC timing receiver was signed on December 12, 2022.

## C. Human Spaceflight:

Major updates pertaining to **Gaganyaan** Program:

- Structural qualification test for Crew Module Fairing with Grid Fins successfully completed for TV-D1 configuration.
- Aerial recce of drop zone and helipad at SDSC-SHAR carried out by Indian Air Force team for conducting Integrated Air Drop Test (IADT). Discussions were held to finalize the requirements for IADT at SHAR helipad.
- Mid-semester assessment and evaluation for the second semester of crew training completed.
- Crew Recovery trial plans and SOPs firmed up in discussion with Indian Navy. The mock up Crew module hardware for recovery has been realised and load testing is completed.
- Discussions held with NASA delegation on activities related to Human Space Programme Working Group (HSPWG) and Human Research Programme (HRP).

## D. Capacity Building:

- a. Indian Space Research Organisation (ISRO) and Social Alpha signed an MoU to launch **SpaceTech Innovation Network (SpIN)** on 6<sup>th</sup> December, 2022, which is India's first dedicated platform for innovation curation and venture development for the burgeoning space entrepreneurial ecosystem.

Secretary, DOS / Chairman, ISRO launched the platform on 6<sup>th</sup> December, 2022 at ISRO Headquarters. More than 150 space start-ups, members from ISpA,

SIA, DPIIT and senior officials from ISRO centres were participated in the programme.

- b. **National Workshop Cum Consultative meeting on Space Science, Technology and Applications:** As a part of Government of India’s efforts to add depth to the bilateral partnership with United States of America, an India-US initiative on critical and Emerging technologies (iCET) is launched to facilitate outcome oriented cooperation. In this context a Workshop Cum Consultative meeting on Space Science, Technology and Applications was organized on 28<sup>th</sup> December, 2022 with the participation of industry, academia, start-ups, industry bodies and consultants.

Workshop was chaired by Principal Scientific Advisor, Government of India in the presence of Secretary, DOS / Chairman, ISRO. More than 150 participants attended the workshop and shared their views/comments/requirements.

#### E. Training

1.	“Geospatial Input for Enabling Master Plan Formulation” <b>(05-16 Dec, 2022)</b>	19 Officials of Town Planning Department Maharashtra
2.	“Microwave Remote Sensing applications in Agriculture” <b>(Nov 28- Dec 09, 2022)</b>	13 participants
3.	“RS & GIS Applications in Hydrological modelling and Data Assimilation” <b>(Nov 21 – Dec 02, 2022)</b>	12 participants
4	“Advances in monitoring and modelling of hydro-meteorological hazards using geospatial technology & process based models” <b>(05-09 Dec, 2022)</b>	1620 participants from 383 institutions
5	“Geo-data processing in Cloud computation platform-case studies using Google Earth Engine” <b>(Dec 02, 2022)</b>	1527 participants

#### F. Safe & Sustainable Space Operations

- a. 8100 close approach alerts by catalogued space objects were generated using daily SOPA (Space Object Proximity Analysis) including CSpOC/USSPACECOM issued alerts screening Indian space assets (24 LEO and 29 GEO/GSO spacecraft).

524 critical alerts with <1km close approach distances for LEO and GEO spacecraft were analysed to rule out any CAM (collision Avoidance Manoeuvres) requirement.

- b. Second lunar flyby of Orion monitored and conjunction risks assessed for Chandrayaan-2 orbiter and confirmed no close approaches.
- c. Daily assessment of atmospheric re-entry of large catalogued objects. Alerts generated for 8 re-entered objects monitored out of which 6 objects with final ground traces over India.

- d. Responses received from Indian industries to NETRA radar RFP and Technical Evaluation in progress.
- e. Participation in meetings of IADC (Inter Agency Space Debris Coordination Committee), review and feedback on documents pertaining to Long Term Sustainability (LTS).

#### **G. International Cooperation:**

- a. Chairman, ISRO/ Secretary, DOS and Director General, Mexican Space Agency (AEM) had a virtual meeting on December 21, 2022 and discussed on the possibility building and launching Mexican satellite by ISRO/DOS through Line of Credit.
- b. Ambassador of the Czech Republic to India called on Chairman, ISRO/ Secretary, DOS at ISRO HQ on December 01, 2022 and expressed keen interest in enabling space industry level collaboration between the two nations and invited the Indian space delegation to visit Czech Republic and interact with Czech Space institutes and industries.
- c. NASA Associate Administrator, Ms. Kathy Lueders visited ISRO during December 12-14, 2022 and had a meeting with Chairman, ISRO/ Secretary, DOS and visited ISRO facilities.
- d. The 27th Annual General Body meeting of Centre for Space Science and Technology Education for the Asia Pacific Region (CSSTEAP) was organised at New Delhi on December 14, 2022 under the chairmanship of Chairman ISRO/Secretary DOS.
- e. Director General of National Remote Sensing Department (NRSD), Vietnam and his officials visited ISRO during December 12-13, 2022 and discussed on the bilateral space cooperation and also reviewed the progress of ISRO ground station construction at Ho Chi Ming City, Vietnam.
- f. A meeting between Chairman, ISRO/ Secretary, DOS and India's G20 Sherpa was held on December 14, 2022 at New Delhi on the organisation of Space Economy Leaders Meeting events at Bengaluru and Shillong in 2023 under India's G20 presidency.
- g. ISRO virtually participated in the QUAD workshop on Earth Observation Climate Smart Initiative conducted by Australia on December 8, 2022.
- h. The third batch of UNISpace Nanosatellite Assembly & Training by ISRO (UNNATI) by URSC/ISRO was conducted between October 15, 2022, and December 15, 2022, with Thirty-one participants from 19 countries attending the training program. The valedictory session was held at URSC on December 15, 2022.

#### **H. IN-SPACE Activities**

- a. Total of six MoUs are signed (two for space transportation systems, two for ground system and two for satellite systems).
- b. Flight readiness review of the Agnibaan SOrTeD sub-orbital flight of M/s. Agnikul Cosmos was carried out.
- c. Progress was done towards the establishment of IN-SPACE Design Centre in terms of release of purchase order for the procurement of all software related to space mission design, RF and avionic analytical tools.
- d. Critical Design Review guidelines released to all qualifying teams under CANSAT student competition

## **I. NSIL Activities**

- a. In-orbit testing of the GSAT-24 Communication Satellite successfully completed.
- b. Organised a workshop on PSLV familiarisation for Industry Partner (HAL - L&T)
- c. Interface Control Document (ICD) for LVM3-M3/OneWeb India-2 Mission finalized
- d. Combined Operation Planned Document (COPD) meeting for the upcoming missions of TeLEOS-2 and DS-SAR has been completed
- e. Leased out C-Band capacity on GSAT-10 satellite on occasional uses basis to Private Indian Teleport Operator for broadcasting senior women's Australia tour of India 2022, BCCI Domestic Ranji Trophy 2022-23 and IPL 2023 Players Auction
- f. Procured the capacity on IS-33e satellite for providing to Indian Users to meet their VSAT requirements
- g. NSIL provisioned additional HTS capacity on GSAT-11 satellite to Private India Operator for VSAT applications
- h. Provided Launch Vehicle Tracking Support for an international customer from ISTRAC, Bangalore Ground Station
- i. Interview conducted for recruiting Company Secretary, Chief managers & Managers for a total 10 no. of posts at NSIL

**2. No of Cases of ‘Sanction of Prosecution’ pending for more than three months: NIL**

**3. Particulars of cases in which there has been a departure from the Transaction of Business Rules or established policy of the Government: NIL**

**4. Status of ongoing Swachhta Abhiyan (progress under Special Campaign):**

DOS/ISRO Centres/Units/ABs/CPSEs of DOS/ISRO are carrying out various activities meticulously as per the Swachhta Action Plan 2022-23. Swachhta Pakhwada Award 2022 for the best maintained Centre/Unit/AB/CPSE are also being finalized and will be declared shortly. Physical and financial progress are being regularly uploaded on SAP portal. Action plan for Swachhta Pakhwada 2023 to be observed during 1<sup>st</sup> to 15<sup>th</sup> Feb, 2023 has been formulated and communicated to DDWS. The same has been uploaded on Swachhta Samiksha Portal.

**5. Status of Rationalisation of Autonomous Bodies:**

A committee was constituted for review of Autonomous bodies under the department. Based on the recommendations of the committee, it is proposed to continue the 3 ABs namely PRL, NE-SAC & IIST under the department. SCL has been brought under the

administrative control of MeitY, New Delhi. Review of NARL is underway. A report on this has been sent to Department of Expenditure(DoE), New Delhi and the confirmation is awaited.

Treasury Single Account(TSA) has been implemented in PRL, NESAC , NARL and IIST, ABs under DOS

## **6. Information on specific steps taken for utilisation of the Space Technology based tools and applications in Governance and Development:**

### **Support to Ministries/ Departments**

- M/o Rural Development: Under the Integrated Watershed Management Programme (IWMP/ WDC-PMKSY) for monitoring Watersheds using Geospatial Technologies, 875 satellite images were provided to the states. 15,000 locations of watershed development interventions have been geotagged (cumulative 16.83 lakh geotags) and 3110 summary reports were generated.
- MoH&UA: Final version of urban geospatial database for 3 AMRUT cities have been delivered (cumulative completion: 227 / 238).
- CPCB/ States: Daily reporting of active agriculture fires initiated for kharif 2022 season starting 15-Sep-2022. Reports are disseminated for 4 Indian states viz., Punjab, Haryana, Rajasthan and Uttar Pradesh

## **7. Vacancy position of senior level appointments in the Ministry/Department, including Autonomous Bodies/PSUs:**

The detailed status regarding all the posts pertaining to Department of Space has been updated on AVMS. The status of updation of vacancy as on 29.11.2022 is as follows:

- Total number of posts required to be entered on AVMS: - 24
- Number of posts filled as on date: - 22
- Number of posts totally vacant as on date: - 02
- Number of posts under premature repatriation - 00
- Number of posts under additional charge arrangement: - 02
- Number of posts that would fall vacant during the next 06 months: -02

## **8. List of cases in which ACC directions have not been complied with:NIL**

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