

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE**

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**Sub: Monthly Summary of Department of space for the month of December 2023**

**PART- I (Unclassified)**

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

**A. Space Transportation:**

- PSLV-C58 successfully launched XPOSAT Satellite into a low inclination orbit of 650 Km on January 1<sup>st</sup> 2024. Post injection of XPoSAT, the PS4 stage was re-started twice to reduce the orbit to a 350 km circular orbit, positioning the PSLV Orbital Experimental Module-03 (POEM-03) into its designated orbit.

The POEM-3 hosts 9 payloads, out of which, 6 payloads are from 5 Non-Government Entities (NGEs) for carrying out new scientific experiments. Two payloads are from ISRO for conducting technology demonstration and one payload from Physical Research Laboratory, Department of Space, for conducting scientific experiments.

- Vehicle stacking activities for the GSLV F14/ INSAT-3DS mission completed upto GS2 stage. Integrated checks on the Cryogenic Upper Stage completed and stage is ready for further integration to the vehicle.
- Flight acceptance Hot test on the Cryogenic Main engine (A17) identified for the Cryogenic Upper Stage required for the GSLV F15/NISAR mission, was successfully conducted for a duration of 200 seconds on December 13, 2023.
- Stage integration activities for the 2<sup>nd</sup> developmental flight of Test Vehicle (TV-D2) for validation of the Gaganyaan Crew Escape System completed and dispatched to SDSC on December 08, 2023.

**B. Space Applications:**

**I. Earth Observation:**

- **Free and Open Data:** India has opened up all its past satellite datasets archived since 1988 and current data of 5m and coarser to all on 'free and open' basis, through its **Bhoonidhi portal** to global users.
- **Cropped Area Mapping (for MoA & FW):** Rice cropped area for kharif 2023-24 season is generated through automated processing of EOS-04 data in Data Processing chain.
- **Agriculture Technology project** (for State governments): an automated web enabled tool for satellite data download, statistics generation, data visualization and ML based crop yield estimation is developed.

- **Urban Land Use data (1:4K)** for 232 AMRUT towns has been published under Bhuvan Thematic Services.
- **Patent was granted to NESAC/ DoS** and K. J. Somaiya College of Engineering on “A System for an Unmanned Aerial Vehicle for Generating Optimal Path for Image Mapping of a Desired Area”.
- **Geospatial Health Resource Information System** (for Govt of Meghalaya): developed by NESAC/ DoS has been launched by Department of Health, Govt of Meghalaya.

## **II. Disaster Management Support:**

- Flood inundation maps were prepared post Michaung cyclone in Andhra Pradesh and Tamilnadu States. 32 maps/ value added products were disseminated to State / Central disaster management support organizations.
- IRS data was provided to two emergency observation requests pertaining to floods & landslides (Vietnam) and Volcano (Indonesia), under Sentinel Asia.

## **C. Human Spaceflight:**

- Crew Module structure for G-X mission realized at industry and handed over to ISRO.
- Mechanical Interface generation activities initiated on G-X Crew Module structure.
- Service Module structure for G-X mission realized and handed over to ISRO.
- Integrated Air Drop Test (IADT-01) crew module structural test and integration activities are in progress.
- TV-D1 Crew Module structure refurbishment activities are in progress.

## **D. Space Sciences:**

- Halo-Orbit Insertion (HOI) of the solar observatory spacecraft, Aditya-L1, around the Sun-Earth Lagrangian Point L1 was accomplished on January 6, 2024.
- Space science data pertaining to Chandrayaan-2 and AstroSat missions were uploaded to the public portal of the Indian Space Science Data Centre (ISSDC), for scientific analysis by the community.
- 2<sup>nd</sup> User meet for XPoSat was organized on December 18-19, 2023, with participation from about 23 Institute/Universities all across the country. A total of about 180 participants attended the meeting in which 90 attended in-person and others participated through online platform.

- A study was carried out towards investigation of vertical structure of Tropical Cyclones over the Northern Indian Ocean by making use of the 3-dimensional profiles of precipitation rate.

**E. Capacity Building:**

- The 3<sup>rd</sup> batch of Management and Leadership Skill Development Programme (MLSDP) – a specialized and customized training programme for selected scientists/engineers at senior and middle level across ISRO, was completed.
- RESPOND basket 2024 has been released by Secretary, DOS / Chairman, ISRO on 29<sup>th</sup> December, 2023 for obtaining the research project proposal from Academic Institutions.
- During the month, 9 patents were granted and four patent applications are filed at IPO.
- ISRO Technical Training Program (ITTP) training was organized for 130 nos. of ISRO technical staff at 8 National Skill Training Institutes (NSTIs).

**F. Training:**

1.	Two-week short course on “Remote Sensing and GIS applications in forestry and ecology” conducted during Dec 4 - 15, 2023 by NESAC	31 participants from Forest Departments, University faculties and research scholars.
2.	12 <sup>th</sup> small satellite mission short course organized during Dec 4 -15, 2023	20 participants from 10-countries
3.	Online short course on ‘Space laws & policy’ during Dec 04-08, 2023	56 participants from 10 countries
4	Online short course on ‘Fuzzy machine learning & deep learning for Remote Sensing data classification	23 participants from 7 countries

**G. Safe & Sustainable Space Operations:**

- Daily Space Object Proximity Analysis and re-assessment of close approach situation for 3536 Conjunction Data Messages (CDM) received from CSpOC/USSPACECOM were performed for 23 LEO and 29 GSO satellites.
- 3 satellites in LEO and 2 in GEO underwent collision avoidance maneuvers (CAM).
- Re-entry prediction was carried out for 33 large objects that re-entered the atmosphere.

## **H. International Cooperation:**

- Chairman, ISRO and Director General, European Space Agency (ESA) had a virtual meeting on Dec 8, 2023 and reviewed the progress of ongoing cooperation activities.
- A four member ISRO delegation visited PNG from Dec 12–14, 2023 to understand the requirements and infrastructure availability at PNG for establishing the Space Technology Application Center (STAC) announced by the Honorable PM during the FIPIC summit.
- The soft landing of Chandrayaan-3 has won (i) the 2023 Leif Erikson Lunar Prize by The Exploration Museum, Iceland, (ii) 2024 Space Pioneer Award for Science and Engineering by National Space Society, USA, (iii) 66<sup>th</sup> Laureate Award for Space by Aviation Week Networks, USA and (iv) 2024 John L. “Jack” Swigert, Jr. Award for Space Exploration by Space Foundation, USA.
- His Excellency Mr. Philip Green, High Commissioner of Australia to India visited ISRO HQ on December 01, 2023 and had a meeting with Secretary, DOS/ Chairman, ISRO.
- The 28<sup>th</sup> meeting of the Governing Board of the Centre for Space Science and Technology Education in Asia and the Pacific (CSSSTEAP) affiliated to the United Nations was held at ISROHQ, Bengaluru on December 12, 2023.

## **I. IN-SPACE Activities:**

- IN-SPACE authorization for the launch of PSLV-C58, establishment & operations of XPOSAT mission and POEM-3 from SDSC, SHAR by ISRO was issued. PSLV Orbital Experimental Module (POEM-3) carried 9 payloads from NGE and ISRO.
- Provisional authorization was issued to M/s. OrbitConnect India Pvt Ltd for enabling provisioning of SES-12 high throughput capacity in India.
- A Short-Term Course on Orbital Mechanics, Attitude Dynamics and control, Space based navigation and Mission planning was conducted from 18<sup>th</sup> to 22<sup>nd</sup> December 2023. A total of 58 participants from various NGEs attended the course.
- Second leg of Virtual Space Industry Day with Italian Space Agency was conducted.
- Joint Project Implementation Plans(JPIPs) with PixxelSpace (testing of Firefly structural qualification model), Centum (shock testing on electronics hardware) and Dhruva Space (solar panel FM-1 testing) completed at URSC.

## **J. NSIL Activities:**

- Towards production of 5 nos. of PSLV-XL through Indian industry, NSIL conducted familiarization session for the Industry Consortium (HAL-L&T) on Quality control, Testing & Evaluation for AVN components, Actuators and sensors of PSLV.
- Toward realization of 15 nos. of SSLV launches, Techno-commercial bid evaluation for 12 items have been completed. Purchase/ work orders for 8 items have been placed with the selected vendors. Purchase orders for remaining items will be placed shortly.
- NSIL signed the Launch Service Agreement with M/s SpaceX for launching the GSAT-20 [GSAT-N2] on-board Falcon-9 during 2<sup>nd</sup> quarter of 2024.
- NSIL is in process of signing 3 Launch Service Agreements (LSAs) with domestic/ international customer for launching their satellites.
- Payload panel structure of Anvesha S/C has been delivered to User. Trial assembly of Payload module (7 panels) is completed and correction is in progress.
- NSIL issued seven frequency allotment letters to the Broadcast users on Occasional use basis for broadcasting sports events.
- NSIL is in process of providing TTC (Telemetry, Tracking and Command) support to a foreign customer for its satellite through ISTRAC Ground Station
- NSIL is in process of signing two Technology Transfer Agreements (TTAs) with Indian Industries.

**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):**

Swachhta Pakhwada – 2023 has been observed from 1<sup>st</sup> – 15<sup>th</sup> February, 2023 with mass participation from employees, housing colony residents and CISF personnel etc.

Apart from this, Swachhta Action Plan for the year 2023-24 has been finalised with an emphasis on outcome based Swachhta activities and creating awareness about cleanliness and hygiene and an amount of ₹470 lakhs has been allocated for Swachhta Activities. The action plan has been communicated to the DDWS. The Action plan has been communicated to the DDWS and uploaded on Swachhta Action Plan portal of DDWS. The activities are being meticulously carried out at Centres/ Units/ ABs/ CPSEs.

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

EMC has recommended that SCL and NARL be governmentalized out of which SCL has been transferred to MeitY during the year 2021-22. The recommendations of the committee in respect of NARL is under review.

All the AB's under the Department namely, IIST, PRL, NARL & NESAC have been brought under Treasury Single Account.

**6. 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 31.12.2023 is as follows:

- Total number of posts required to be entered on AVMS: - 24
- Number of posts filled as on date: - 21
- Number of posts totally vacant as on date: - 03
- 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: - 04

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

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