

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE**

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

**PART- I (Unclassified)**

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

**A. Space Transportation:**

- GSLV-F12/NVS-01 mission is accomplished successfully on Monday, May 29, 2023. The Geosynchronous Satellite Launch Vehicle (GSLV) deployed NVS-01 navigation satellite, weighing about 2232 kg, into a Geosynchronous Transfer Orbit. The vehicle lifted off at 10:42 hours IST from the second launch pad at SDSC-SHAR, Sriharikota and injected the satellite after about 19 minutes of flight.
- Launch campaign activities for the LVM3-M4/Chandrayaan-3 mission commenced from 3<sup>rd</sup> May 2023 at SDSC SHAR and Stacking of S200 motors (2 nos.) completed. The Cryogenic Upper stage for the LVM3-M4/Chandrayaan-3 mission is completed and is ready for dispatch. Pre-Shipment Review of Chandrayaan-3 spacecraft completed and the spacecraft has reached SDSC-SHAR, Sriharikota.
- ISRO carried out the first integrated test on an intermediate configuration of the 2000kN Semicryogenic Engine at the newly commissioned Semicryogenic Integrated Engine & Stage Test facility at the ISRO Propulsion Complex (IPRC), Mahendragiri on May 10, 2023.

The intermediate configuration, designated as Power Head Test Article (PHTA), comprises all the engine systems except the thrust chamber. The test is the first of a series of tests planned to validate the design of the propellant feed system, including the low-pressure and high-pressure turbo-pumps, the gas generator, and control components.

- Launch campaign activities for the PSLV-C56 mission have commenced.

**B. Earth Observation**

- Agriculture Technology project (for Govt. of Maharashtra & Madhya Pradesh): Development of machine learning algorithm for crop yield estimation using Crop Cutting Experiment data is initiated for Maharashtra state. Cropped area maps for wheat, chickpea and mustard for current & past years were generated for Madhya Pradesh state.

- National Hydrology Project (NHP, for MoJS): National level historical Actual Evapotranspiration (AET) product generation at 750m spatial resolution (since 2019) is initiated.
- Disaster Management Support (for various Ministries): Algorithms are developed and implemented for automating Flood Map generation, demarcating Long Duration Fire Events (LD FE) and Rapid Assessment of Forest Fire Affected Areas (RFAA).

### **C. Human Spaceflight:**

- Phase-I Rail Track Rocket Sled (RTRS) test for Drogue parachutes successfully completed at TBRL, Chandigarh.
- Powering-on checks of avionics packages and instrumentation checks of avionics for TV-D1 flight completed.
- Realization of 2<sup>nd</sup> crew module hardware sub-assembly for 'G1' mission completed and delivered to VSSC.
- For crew module propulsion system, 7<sup>th</sup> test for 602 seconds, simulating nominal re-entry with aero-perturbation, completed.
- Two batch tests for High altitude Escape Motor (HEM) successfully completed.
- Mid-semester evaluation of two courses for 2nd semester of crew training completed

### **D. Space Science:**

- 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.
- An appraisal on Chandrayaan-3 and Aditya L1 was conducted on May 19<sup>th</sup>, 2023, wherein domain experts from various research institutes and academia participated. Further, a National User Meet on the upcoming XPoSat mission was conducted on 25<sup>th</sup> May, 2023.
- Space Physics Laboratory(SPL) has developed the Vegetation Photosynthesis and Respiration Model (VPRM) for the Indian region for the estimation of biospheric CO<sub>2</sub> fluxes over the Indian region.
- Characteristics of both the earth's atmosphere UV emitters as well as the moon's dust particle activities were studied using GRISM (GRating plus prism) based airglow patrol spectrograph by NARL.

#### **E. Capacity Building:**

- ISRO participated in the National Technology Day (NTD)-2023 celebration at Pragati Maidan during May 14 to 17, 2023, which was inaugurated by Hon'able Prime Minister of India. An exhibition showcasing achievements of Indian Space Programme was put up by ISRO and Indian Space-tech Start-ups.
- Secretary, DOS/Chairman, ISRO inaugurated the two weeks residential programme YUVIKA-2023 at seven DOS/ISRO Centres with the participation of 332 students from various States/UTs. As part of the programme, various lectures, practical training, visits to ISRO technical facilities, etc. have been arranged for the participants.
- Three patents are granted during the month of May, 2023.

#### **F. Training:**

1.	One-day workshop on 'Geomatics in Urban Disasters' (24 May, 2023)	2438 participants from 446 institutions
2.	Two week customised/ special programme titled 'YUVIKA-2023' was conducted at IIRS (15-26 May, 2023)	47 participants from Uttarakhand, H.P., Punjab, J&K & Ladakh.
3.	8-weeks duration 'NNRMS' course sponsored by ISRO commenced from May 15, 2023	57 participants

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

- Detailed Design is made for civil infrastructure in Hanle for NETRA Optical Telescope (OT), based on the final approved DDR report submitted by Astelco, Germany.
- Land demarcation completed for NETRA Radar Land in Chandrapur, Guwahati, Assam.
- Daily SOPA (Space Object Proximity Analysis) and re-assessment of close approach situation for 1142 Conjunction Data Messages (CDM) from CSpOC/ USSPACECOM were performed for 25 LEO and 28 GSO spacecraft.
- Two Collision Avoidance Manoeuvres (CAMs) were executed to mitigate collision threats to Hysis by a PSLV-R/B and Scatsat1 with a Iridium fragment.
- Conjunction analyses were carried out to resolve multiple close conjunctions between LRO (Lunar Reconnaissance Orbiter) and CH2O (Chandrayaan-2 Orbiter) in close collaboration and deliberations with JPL NASA team. Based on ISRO's request, LRO has postponed the Momentum Dumping plan to mitigate collision threats between CH2O and LRO.

- IS<sup>4</sup>OM monitored the re-entry of PSLV-C34 rocket body Re-entry which re-entered the atmosphere on 19<sup>th</sup> May 2023 over Pacific Ocean. 22 large objects' uncontrolled re-entry (including 7 PRC objects) into the Earth's atmosphere were monitored and predicted along with alerts for final ground traces passing over Indian land mass.

#### **H. International Cooperation:**

- ISRO developed a web portal with satellite data and products pertaining to Pacific Island Countries named DWIPIC (Data Warehouse for Empowering Pacific Island Countries) which was announced by Hon'ble Prime Minister during the 3<sup>rd</sup> Summit of Forum for India- Pacific Islands Cooperation (FIPIC) on May 22, 2023 at Port Moresby, Papua New Guinea.
- Technology Assistance Agreement with USA (Caltech/JPL) was extended by signing a new document to enable exchange of technical information pertaining to Deep Space Navigation support for Chandrayaan-3 mission.
- President of International Astronautical Federation (IAF) who is also the Chief Revenue Officer (CRO) of Voyager Space Holdings, visited ISRO Centres during May 17-18, 2023 to explore collaboration opportunities.
- ISRO officials have participated in: (i) IAF's Global Space Conference on Climate Change at Oslo, Norway during May 23, 25, 2023; (ii) 1st meeting on Global Ecosystem Atlas using satellite data at Geneva during May 17-18, 2023 (virtual); and (iii) 4th meeting of BRICS Remote Sensing Satellite Cooperation Working Group on May 22, 2023 (Virtual).

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

- Authorization was issued to ISRO for (a) launch of GSLV-F12 from the launch site at SDSC, SHAR and (b) Establishment and operationalisation of NVS-01 satellite mission.
- The first meeting of Standing Committee for Inter-Ministerial Coordination (SC-IMC) was held on May 15, 2023. Three applications from NGEs seeking authorization were reviewed and additional inputs were sought by the committee.
- Post-launch mission support services provided to seven experiments/ payloads flown aboard PSLV C55 POEM-2 mission.
- Catalogue of Standard test facilities finalised which can be offered to NGEs.
- Three Technologies have been approved for transferring to NGEs.
- Co-ordinated with various satellite operators/service providers for exploring the possibility of manufacturing satellite user terminals/SAT Phones in India.
- Held discussions with NSDC and Atal Innovation Mission to workout strategy for skill development of NGE's and Academia.

## **J. NSIL Activities:**

- 4<sup>th</sup> meeting of PMC-PIC (Programme Monitoring Committee for PSLV realization through industry consortium) was held on 16<sup>th</sup> May 2023 to review the overall status of the programme.
- The Preliminary Design Review (DPR) of customer satellite was held at URSC on 9<sup>th</sup> May 2023.
- NSIL entered into an Agreement with KTSAT to procure the capacity of Ku band to meet the IFMC requirements of M/s Nelco Ltd.
- NSIL provided TTC (Telemetry, Tracking and Command) support to an International Customer for Launch Vehicle tracking through ISTRAC Ground Station.
- NSIL supplied 203 nos. of ASICs to CG-Power and Industrial Solutions Limited and 75 nos. of ASICs to Elixir Engineering for use in Locomotives.

**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.

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

**Support to Ministries/ Departments:**

- MoA&FW: Semi-physical yield model for rice and wheat has been selected under PMFBY for crop insurance claim settlement.
- MoRD: Geospatial data of roads prepared for PMGSY project was provided to National Rural Infrastructure Development Agency (NRIDA), New Delhi.

**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 31.05.2023 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: - 05

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

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