

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

Sub: Monthly Summary of Department of space for the month of March, 2024

PART- I (Unclassified)

I. Important policy decisions taken and major achievements during the Month

A. Space Transportation:

- The second autonomous runway landing experiment of the Reusable Launch Vehicle (RLV LEX-02) demonstrated the autonomous landing capability of RLV from off-nominal initial conditions at release from Helicopter on March 22, 2024 at the Aeronautical Test Range (ATR) of DRDO located at Chitradurga, Karnataka.
- Vacuum ignition test of CE20 E13 without nozzle closure has been successfully conducted for a duration of 2.5 seconds in High altitude test condition on March 26, 2024. This is the first of a series of tests to validate the capability for restarting the cryogenic engine in space.
- Hot test of the PS4 engine powering the fourth stage of PSLV wherein the nozzle divergent was realized out of the carbon-carbon material, was successfully carried out for a duration of 60 seconds in the High Altitude test facility on March 19, 2024. The carbon-carbon nozzle divergent provides advantages w.r.t. the current columbium alloy (C-103) being used which are: Enhanced temperature capability offered by the carbon-carbon composite material which results in higher specific impulse and mass reduction to the tune of 55% w.r.t the current columbium alloy (C-103) alloy which translates into payload advantage.
- Hot testing of a Monopropellant thruster realized out of Additive Manufacturing (AM) for a duration of 800 seconds was carried out and the performance achieved was satisfactory. The complete thruster assembly was realized through AM using Inconel - 625 powder.
- The 4th stage of PSLV-C58 vehicle, which functioned as PSLV Orbital Experimental Module-3 (POEM-3) after completing the primary mission launched on January 01, 2024, has successfully re-entered the Earth's atmosphere on March 21, 2024 thereby leaving zero debris in orbit from the PSLV-C58/XPoSAT mission.

B. Space Applications:

I. Earth Observation:

- Agriculture Technology project (for State governments): Assessment of partially and severely affected wheat and gram crop areas by the hailstorm was carried out in seven districts of Madhya Pradesh.
- Soil Resource Atlas: is generated for Madhya Pradesh and soil suitability maps for various crops (Wheat, Soybean, Mustard, Maize and Sorghum) were also generated for MP.
- Development of Satellite-based Regional Evaporative Flux Monitoring System for India (National Hydrology Project, NHP): Daily Actual Evapotranspiration Product (over entire India) is generated at 750 m from 2015 onwards.
- CartoDEM product at 2.5m posting is generated and quality evaluation is done using LiDAR and LFDC DEM as reference.
- 86,228 satellite data products are downloaded by the users from Bhuvan & Bhoonidhi under open & free data access facility.
- User Interaction Meet 2024 was organized by NRSC on the theme; "Indian Space Policy 2023 – for Sustainable Development" during 12-13th, March 2024. IIRS Academia Meet 2024 was organized during 18-19th March 2024 on the theme "Remote Sensing of Earth and Beyond @2047".

II. Disaster Management Support:

- NDEM V5.0: Design and development of a new module for computing Flood/Cyclone Vulnerability and Risk for state Andhra Pradesh is complete and integrated in NDEM dashboard.
- Airborne data acquisition using ALS80 sensor was carried out over 4100 km² area covering Mirzapur, Budaun and Rampur districts of Uttar Pradesh under DMSP.
- 8 IRS data products were disseminated to International Charter for Disaster Management Support.

C. Human Spaceflight:

- Integrated structural qualification test of Crew Escape System (CES) Aft end structures for G1 Mission loads completed.
- HLVM3- L110 stage UDMH tank structural qualification test completed.
- Crew Module Up-righting System secondary float and Active Sea Marker Dye Ejection System interface generation activities completed on G1 Crew Module.

- Crew Module for G1 Mission received at ISITE, Bengaluru for further integration activities.
- Sling load test for IADT-01 completed. Mechanical interface generation activities completed on IADT-01 Crew Module.
- Cable Harness Evaluation System (CHES) completed for IADT-01 Crew Module.
- Media interaction training and Amateur radio training completed for Astronaut designates.

D. Space Sciences:

- The PAPA payload onboard Aditya-L1 has detected coronal mass ejections (CME). Further, studies carried out have brought out new insights on the behavior of solar wind protons and alphas in the stream interaction region in solar cycle 23 and 24.
- An in-house numerical model has been built to study the atmosphere of Exoplanets.
- Workshop on Radio Probing of the Atmosphere was conducted during 11-22 March, 2024 at NARL Gadanki.
- 22nd National Space Science Symposium (NSSS 2024) was conducted at Goa University, Goa during 26th February to 1st March 2024.

E. Capacity Building:

- Secretary, DOS/Chairman, ISRO inaugurated the STIC cell at VNIT, Nagpur on 14th March, 2024.
- As part of Space on Wheels movement in Vidarbha region of Maharashtra state during last eight months, Valedictory programme was organized in the presence of Chairman, ISRO / Secretary, DOS as chief guest at Nagpur.
- 4 nos., of ISRO Technical Training Programme (ITTP) were organized on various topics for 70 ISRO technicians of ISRO Centres/Units.
- During the Month, 5 patents were granted and one patent application is filed at IPO.

F. Training:

1.	One-week certificate course on "Remote Sensing & GIS in Soil Mapping" during March 11-15, 2024.	Organised at IIRS for 20 participants
2.	Two-week certificate course on 'Geospatial Inputs for Enabling Master Plan Formulation.	Completed on March 08, 2024 at IIRS for 19 participants

3.	One-week certificate course on 'Application of Remote Sensing & Geographical Information System in Hydropower Projects'.	Organised at IIRS for 20 . participants during March 18-22, 2024.
----	--	---

G. Safe & Sustainable Space Operations:

- Daily SOPA (Space Object Proximity Analysis) and re-assessment of close approach situation for 3570 Conjunction Data Messages (CDM) from CSpOC/USSPACECOM were performed for 24 LEO and 30 GSO satellites. No Collision avoidance manoeuvres were necessitated in March, 2024.
- Re-entry prediction was carried out for 23 large objects that re-entered the atmosphere.
- Daily Radar tracking data for 100 space objects from LeoLabs were processed and analysed by in-house software at NETRA control centre. The initial assessments show good accuracy for the data processed.
- Factory Acceptance Test for the dome of NETRA telescope at Hanle, Ladakh was carried out at Bengaluru on 19th March 2024 and found acceptable.
- As part of Planetary Defense initiative, SSOM's first hands-on experience on ground-based optical tracking using 43cm telescope was performed at Mount Abu observatory, PRL during 7th - 8th March, 2024. Two asteroids were successfully tracked.

H. International Cooperation:

- ISRO signed the Implementing Arrangements (i) for a strategic framework for human spaceflight cooperation with NASA; (ii) transfer of title of integrated Biak TTC station with BRIN, Indonesia; (iii) operation, maintenance and utilisation of integrated Biak TTC facilities with BRIN, Indonesia; and (iv) joint plan of action on space cooperation with Government Technology Agency, Bhutan.
- The 2nd India – France Strategic Space Dialogue was organised on March 04, 2024 at New Delhi by MEA. The Dialogue was led by Foreign Secretary from Indian Side and Secretary General, Foreign Ministry from French side. Secretary DOS/ Chairman ISRO and President, French National Space Agency participated in the Dialogue and discussed space cooperation.
- The Joint Working Group meetings with (i) ESA for discussing cooperation in short duration human space flight mission (March 13 & 25, 2024) and (ii) JAXA for discussing the proposed joint lunar mission (March 27, 2024), were organised. An ISRO – CNES workshop on launch vehicle cooperation was organised (March 21-22, 2024) to discuss future collaboration.
- Secretary DOS/ Chairman ISRO visited Paris, France (March 25 - 28, 2024) and had discussions with leaders of European and French Space Agencies.

- During the visit, he addressed ESA member State Heads at the ESA Council and also participated in International Astronautical Federation (IAF) meetings.
- The following foreign delegations visited ISRO: Danish Parliamentary Committee for Higher Education and Science; Bavarian Academic Institutes; Ambassador of Norway to India; Undersecretary, MTCIT & Head-National Space Program of Oman; State Secretary (equivalent to Minister of State) for Education, Research and Innovation, Switzerland; NASA Associate Administrator Dr. Nicky Fox; Dr. Swati Mohan, MARS Launch System Chief Engineer of JPL/NASA; and Regional Minister of the Styrian province for Economy, Tourism, Science and Research, Austria.

I. IN-SPACE Activities:

- IN-SPACE Technical Centre: The Technical Labs and co-working space for NGEs has been established and operationalised. The Technical Centre was inaugurated by Honourable MoS Dr. Jitendra Singh on 5th March, 2024.
- The Mission Readiness and Launch Clearance Committee reviewed the Agnibaan SORTeD and cleared for launch on 22nd March, 2024. However, the Launch has been rescheduled owing to anomaly observed during launch countdown. The launch of Agnikul SorTeD has been rescheduled to 06th April, 2024.
- The RFP for SSLV ToT has been finalised and sent to the shortlisted Bidders.
- Static Test on Kalam-250 Motor of Vikram-S orbital flight of Skyroot has been tested successfully at SDSC, SHAR.
- IN-SPACE has executed an MOU with Govt. of Tamil Nadu for establishing the Space Manufacturing Cluster in the state of Tamil Nadu.
- The first IN-SPACE SPAC meeting deliberated on the various promotional schemes and cleared for further processing.
- The provisional authorization issued to (i) M/s. Inmarsat India Private Limited for provisioning C and L Band capacity in MSS payload of INMARSAT-6F1 satellite over India, considering the continuity of the existing critical services being provided through the satellite in the Country was extended for a further period of one month and (ii) M/s. OrbitConnect India Pvt Ltd for authorization of SES-12 satellite to enable provisioning of its Ku-Ka Band HTS capacity for providing communication services over India for a further period of one month till April 07, 2024.
- IN-SPACE has issued advisory note to M/s. HEX20 Labs India Pvt. Ltd. to enable them to apply for the ITU filing through WPC Wing of DOT for the proposed Earth Observation Satellite.
- Hosted payloads from 11 NGE's has been selected by IN-SPACE for the upcoming POEM-3 on-board PSLV-C60.

- IN-SPACE Co-ordinated and organised a short-term course named as A2Z of Satellite Technology from 3rd to 8th March, 2024. In addition to theoretical part practical aspects of satellite technologies were covered. Participants from academia, start up, industries and association were benefitted with this course.
- Letter of Intent issued by National Council for Vocational Education and Training (NCVET) for recognising IN-SPACE as an Awarding body (dual) for conducting Space technology skill development courses.

J. NSIL Activities:

- Preparation of Request for Qualification (RFQ) document for the LVM3 Production through the PPP model is under progress.
- As part of realization of 15 nos. of SSLV, NSIL floated tender for 8 items.
- NSIL is co-ordinating for launch of co-passenger satellites on-board PSLV C-59 (Anvesha Mission).
- NSIL issued five frequency allotment letters to the users for meeting their TV, DSNG and VSAT application.
- NSIL issued five frequency allotment letters to the teleport operators on Occasional use basis for broadcasting live events.
- NSIL is in process of providing TTC support for Launch Vehicle tracking to a foreign customer.
- Request for Proposal (RFP) for Supply, Installation, Commission, Operation and Maintenance of Ground Segment Hub for Maritime Asset Monitoring has been released for public tender.
- NSIL has signed Technology Transfer Agreement with SCL for technology of NavIC Receivers.
- NSIL signed 12 MoUs with various CSR partners to execute the projects/programs identified under its CSR & SD initiatives for FY 2023-24.

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):

As per the guidelines of Government, Department has chalked out an action plan for implementation of Swachhta Pakhwada 2024 during 1st to 15th February, 2024 and communicated to DDWS and uploaded on Swachhta Samiksha portal.

Based on this action plan, DOS/ISRO Centres/ Units/ ABs/ CPSEs have observed Swachhta Pakhwada 2024 from 1st to 15th February, 2024 with active participation of senior officials, employees, housing colony residents, CIFS personnel, etc. The photograph of events carried out during Pakhwada were uploaded on Swachhta Samiksha Portal.

Apart from this, Swachhta Pakhwada awards for the year 2023 are also being finalized shortly.

5. Status of Rationalisation of Autonomous Bodies:

EMC has recommended that NARL be governmentalized. 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 31.03.2024 is as follows:

- Total number of posts required to be entered on AVMS: - 24
- Number of posts filled as on date: - 19
- Number of posts totally vacant as on date: - 05
- 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: - 03

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

* * *