

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

Sub: Monthly Summary of Department of space for the month of August 2023

PART- I (Unclassified)

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

A. Chandrayaan-3 mission:

On 23rd Aug, 2023, Chandrayaan-3 lander, *Vikram*, successfully soft-landed on the Moon. Subsequently, the rover, *Pragyan*, ramped down on the lunar surface. Over the next few days, several experiments, such as measurement of near-surface plasma content, presence of mineral elements, temperature profile of the lunar topsoil, etc. were conducted by the on-board payloads. Currently, the lander and rover are in sleep mode.

B. Space Transportation:

- On September 02, 2023, at 11.50 hrs, the Polar Satellite Launch Vehicle (PSLV-C57) successfully launched the Aditya-L1 spacecraft, from the Second Launch Pad of Satish Dhawan Space Centre (SDSC), Sriharikota. After a flight duration of 63 minutes and 20 seconds, Aditya-L1 spacecraft was successfully injected into an elliptical orbit of 235x19500 km around the Earth.
- 22T uprating demonstration test of CE 20 Cryogenic Engine:
 - CE-20 E13 engine successfully operated with a thrust level of 22t thrust for a duration of 50 seconds on August 11, 2023.
 - Second Hot test on the CE20-E13 Engine with a thrust level of 19.7t thrust successfully completed for a long duration of 720 seconds on August 30, 2023.
- Hot test of a 10N Green Monopropellant thruster based on Ammonium Dinitramide (ADN) developed indigenously, successfully completed with a steady state sea level firing for short duration (5 seconds) and smooth dissociation of ADN achieved in all the tests

C. Space Applications:

I. Earth Observation:

- **Agriculture Technology project** (for State governments and AICIL): Kharif sown area progress mapping has been carried out Maharashtra state. Crop yield estimation of Gram & Mustard was carried out for Madhya Pradesh for Kharif season. Crop map & Crop Health Factor (CHF) were verified for Kharif Groundnut and Wheat in West Bengal.
- 72 flood maps/ value added products were generated and disseminated to the Central and State Disaster Management authorities/ agencies. Thirteen

flood alerts have been issued for the flood prone districts of Assam under FLEWS-Assam.

II. Satellite Navigation

- NavIC time transfer receiver installed at German national metrological institute PTB for accurate determination of offset between NavIC system time and UTC(PTB).

D. Human Spaceflight:

- Acoustic test successfully completed on TV-D1 Crew Module at ISITE, Bengaluru and crew module despatched to SDSC, Sriharikota.
- Vibration test of TV-D1 crew module completed at SDSC, Sriharikota.
- Service Module (SM) Propulsion System Phase-2 test (Test-2E simulating SM based abort) completed for a duration of 670 seconds at IPRC, Mahendragiri.
- Grid Fin functional deployment test with aero assisted load using hydraulic system completed.
- Apex Cover separation test successfully completed at VSSC, Trivandrum.
- Series of Drogue Parachute deployment tests successfully completed at Rail Track Rocket Sled (RTRS) facility of TBRL, Chandigarh.
- Second semester of crew training completed at HSFC, Bengaluru.

E. Space Science:

- Studies carried out for the contextual characterisation of Chandrayaan-3 Primary Landing Site
- For the first time, systematic telescopic observations from PRL's Mount Abu Infrared Observatory were carried out using imaging polarimetry
- Studies using long-term data of summer monsoon rainfall shows trend reversals in Indian South Peninsular region.
- A discrete modulated continuous variable Quantum Key Distribution protocol in free space, which is robust against polarization drift, was demonstrated.

F. Capacity Building:

- Annual Capacity Building Plan for Department of Space (DOS) released by Hon'ble Minister of State Dr. Jitendra Singh on 17th August, 2023.
- CBPO has signed a MoA with NSTI institutes for conducting the ISRO Technical Training Program (ITTP) for the year 2023-24.
- During the month, 4 patents were granted and two new patent applications are filed at the Indian Patent Office.

G. Training

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| 1. | One day awareness training programme on "Remote sensing and GIS applications in forest management" by NESAC | Mobile squad team of Western Arunachal Forest Circle |
| 2. | 4 th basic course on "Application of RS and GIS in Agriculture and Allied Areas" at NESAC | 29 participants |
| 3. | IIRS outreach program/ Distance Learning Programme. | 41214 participants from various institutions |
| 4. | Courses on SAR Data Processing, Agriculture Water Management and Water Resources | 50 participants |

H. Safe & Sustainable Space Operations

- Daily SOPA (Space Object Proximity Analysis) and re-assessment of close approach situation for 1652 Conjunction Data Messages (CDM) from CSpOC/USSPACECOM were performed for 23 LEO and 29 GSO spacecraft.
- No Collision Avoidance Manoeuvres (CAMs) were needed to be executed during the month.
- Collision Avoidance Analysis (COLA) was carried out for PSLV-C56/DS-SAR mission and the launch on July 30th, 2023 was delayed by 1 minute to avoid close conjunction with another space object during the orbital phase of one of the passenger satellites.
- Re-entry of 18 large objects into the Earth's atmosphere were monitored, 12 rocket bodies re-entered the atmosphere.

I. International Cooperation:

- The Hon'ble Mauritius Minister for Information Technology, Communication and Innovation (MITCI), Mr. Darsanand Balgobin along with the Chairman of the Board of the Mauritius Research & Innovation Council (MRIC), Dr. Kaviraj Sharma Sukon visited ISRO on August 17, 2023 and had a meeting with Secretary, DOS/ Chairman, ISRO.
- A delegation from Sultanate of Oman, headed by H.E. Eng. Said Hamood Said Al Maawali, Hon'ble Minister of Transport, Communication and Information Technology (MTCIT), visited ISRO Headquarters for a meeting with Secretary, DOS/ Chairman, ISRO, DOS on August 17, 2023 during which Bhuvan Geo-portal developed for Oman was released by H.E. Eng. Said Hamood Said Al Maawali.

- A high-level delegation from Kenya, led by the Hon'ble Cabinet Secretary, Adan Bare Duale visited ISRO Headquarters and had meeting with Secretary, DOS/ Chairman, ISRO on Aug 30, 2023.
- Dr. Saku Tsunata, Vice-Chair of Japan's Cabinet Committee on National Space Policy (CNSP) and Director General, National Astronomical Observatory of Japan (NAOJ) visited ISRO Headquarters on August 08, 2023 and had a meeting with Secretary, DOS/ Chairman, ISRO.
- Participation in multilateral forums/working groups:
 - a. 5th meeting of Quad Space Working Group (QSWG) on August 04, 2023 and reviewed the ongoing space cooperation activities.
 - b. Space Exploration Working Group meeting of International Space Exploration Coordination Group (ISECG) on August 24, 2023.
 - c. Meetings of International Committee on Global Navigation Satellite System (ICG) during August 28-31, 2023.
 - d. 4th session of the Open Ended Working Group on reducing space threats through norms, rules and principles of responsible behaviour during August 28 – September 01, 2023.

J. IN-SPACE Activities:

- The draft guidelines for major category of authorizations were revised based on the inputs received from the industry and the revised version has been re-circulated to the Industry Associations and other forums for further deliberations.
- Startups for seed fund scheme has been selected.
- Pre-EoI Conference for technology transfer of SSLV held on August 8, 2023 at ISRO HQ, where-in 20 responded party participated along with consortium members. The revised EoI has been cleared for release on IN-SPACE Digital Platform.
- Factory Acceptance Test completed for the Vibration Shaker System. The System is delivered at IN-SPACE, HQ (Technical Centre). Installation is in progress.

K. NSIL Activities

- 6th meeting of PMC-PIC (Programme Monitoring Committee for PSLV realization through industry consortium) was conducted to review the overall status of the programme.
- Completed the technical evaluation of the proposals received from Indian Industry, in response to RFP for "Building and Supply of High-Resolution Optical Earth Observation Micro Satellites."

- Completed the technical evaluation of bids received in response to the RFP for “Supply, Installation and Commissioning of MSS Terminals (Xponders) for Installation of Vessel Communication and Support system in Marine fishing vessels for Monitoring, Control and surveillance (MCS)” and subsequently, opened the financial bid for technically qualified bidders.
- NSIL has issued frequency allotment letter to one of the VSAT provider on GSAT-18 satellite to meet their VSAT requirements and occasional frequency allotment to one of the DSNG user for broadcasting Chandrayaan-3 landing event.
- NSIL is in discussion for providing TTC (Telemetry, Tracking and Command) support for two Indian Industries for their satellites through ISTRAC Ground Station.
- NSIL transferred IMS-1 Satellite Bus Technology and handed over the Technology Transfer Documents to two Indian private players viz. M/s. Alpha Design Technologies Pvt. Ltd. and M/s. Dhruva Space Pvt. Ltd.

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 1st – 15th 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. Information on specific steps taken for utilisation of the Space Technology based tools and applications in Governance and Development:

Support to Ministries/ Departments

- Digital elevation model & Ortho images were generated using Airborne LiDAR and Digital Camera over Kosi basin covering 7930 sq.km on behalf of Govt. of Bihar.
- Data Processing Tools & Mobile Application using Auto-ML are installed and demonstrated to MNCFC/ MoA & FW, for RISAT-1A data processing and classification of Kharif crops.

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 31.08.2023 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: - 03

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

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