

# NEWSLETTER

## INDIAN SPACE ASSOCIATION



## EXPANDING HORIZONS:

**Innovation, Inclusion & Resilience in  
the New Space Age**

Welcome to **ISpA Newsletter**, a trusted conduit for illuminating the latest strategic endeavours, technological innovations and industry insights shaping the future of sustainable space exploration.

# DISCLAIMER

The views and opinions expressed in this newsletter are those of the authors and do not necessarily reflect the official policy or position of the Indian Space Association. While every effort has been made to ensure the accuracy and reliability of the information provided, the Association does not assume any responsibility or liability for any errors or omissions. The content is intended for informational purposes only and should not be considered as professional or legal advice. The association does not accept any liability for errors therein. Reproduction or redistribution of the material in any form without prior permission of the author is prohibited.

# CONTENTS

1. Message from DG-ISpA	3
2. Highlights of the month	4
3. Members Bulletin	7
4. ISpA Activities	11
5. ISRO News	30
6. IN-SPACe News	36
7. ISpA in News	47
8. National News	49
9. International News	53
10. Government Policies / Consultations / Recommendations / Announcements	57
11. ISpA Upcoming Events	58



# MESSAGE FROM DG-ISpA

November has been an extraordinary month for India's space ecosystem, marked by milestone achievements, global collaborations, and the highly successful conduct of the **India International Space Conclave (IISC) 2025**. I extend my sincere appreciation to all members, partners, and delegates whose participation, insights, and leadership made this year's Conclave a truly transformative platform for dialogue, innovation, and strategic vision.

This month, **Agnikul Cosmos** secured a \$17M fundraise at a \$500M valuation, strengthening India's private launch capabilities. **Eutelsat OneWeb** completed all **IN-SPACE** authorisations and now stands technically ready for commercial satcom rollout, pending final spectrum allocation. **Viasat** confirmed the launch of ViaSat-3 F2 poised to significantly expand global multi-orbit capacity while **NELCO's** new UL VNO-GMPCS authorisation positions it for broader satcom market opportunities. These advancements collectively reinforce the rising global confidence in India's private space sector.

IISC 2025 emerged as a significant milestone. We were honoured to welcome **Dr Jitendra Singh, Hon'ble Minister of State** (Independent Charge) for Science & Technology, as the Guest of Honour, whose presence underscored the Government's strong commitment to accelerating India's NewSpace vision. The Conclave also featured the felicitation of ISRO Astronaut **Gp Capt Shubhanshu Shukla**, a moment of immense pride for the entire nation. Along with the felicitation of Astronaut designate **Gp Capt PB Nair** and **Gp Capt Angad Pratap**, these recognitions highlighted India's advancing capabilities in human spaceflight and the aspirations of our next-generation space explorers.

Across two impactful days, the Conclave convened astronauts, global space agencies, industry leaders, and innovators for deep discussions on spectrum reforms, ISAM, sustainability, NavIC expansion, and global partnerships. A special moment was the virtual address by former JAXA astronaut **Naoko Yamazaki** during the session on the Future of Space Exploration. The signing of the **ISpA-ESA Letter of Intent**, **MoUs with Novaspace** and **Amity University**, and the release of landmark publications including the **ISpA-SatSure AgriStack Paper**, the **ISAM Report**, **IDS 2025 Technical Report** and the **TRL-MRL Valuation Framework** further demonstrated the ecosystem's intellectual and technological strength.

I also had the privilege of engaging with strategic institutions throughout the month, including addressing senior military leaders at the Army War College, Mhow, and delivering a keynote on responsible space reporting at the Asia-Pacific Workshop. Joining Skyroot Aerospace for the unveiling of Vikram-I and their Infinity Campus was another proud moment that showcased the dynamism of India's private space industry.

As we now pivot towards the **Indian Defspace Symposium (IDS 2026)**, our focus remains on strengthening India's sovereign space capabilities, accelerating private-sector growth, and deepening international cooperation. I encourage all members to continue engaging closely with Team ISpA, your insights and leadership are vital to shaping the next chapter of India's space journey. Together, we continue to build a more resilient, innovative, and globally influential Indian space ecosystem.

## **Lt Gen A K Bhatt**

PVSM UYSM AVSM SM VSM (Retd)  
Director General,  
Indian Space Association (ISpA)  
(Former DGMO, MS & GOC 15 Corps)



# HIGHLIGHTS OF THE MONTH

- SUCCESSFUL ACCOMPLISHMENT OF KEY DEVELOPMENT TEST IN INTEGRATED MAIN PARACHUTE AIRDROP TEST (IMAT) SERIES FOR GAGANYAAN MISSION
- PM MODI UNVEILS VIKRAM-I, PRAISES INDIA'S JOURNEY TOWARD BUILDING WORLD'S MOST RELIABLE ROCKET LAUNCHER & THE LAUNCH OF NEW FACILITY INFINITY CAMPUS IN HYDERABAD.
- IN-SPACE MODEL ROCKETRY INDIA STUDENT COMPETITION AND IN-SPACE CANSAT INDIA STUDENT COMPETITION
- IN-SPACE & SIDBI VC INK ₹1,000 CRORE FUND DEAL TO BOOST INDIA'S SPACE SECTOR.
- NASA-ISRO SATELLITE SENDS FIRST RADAR IMAGES OF EARTH'S SURFACE
- CHINA LAUNCHES UNCREWED SHENZHOU CAPSULE FOR 3 ASTRONAUTS STUCK ON TIANGONG SPACE STATION
- CHINA LAUNCHES TJS-21 TOWARDS MOLNIYA ORBIT, LOFTS TRIO OF SHIJIAN-30 SPACECRAFT

# HIGHLIGHTS OF THE MONTH

- ISpA INDUSTRY AWARDS 2025 WERE PRESENTED TO LEADING SPACE-SECTOR COMPANIES DURING THE 4TH INDIA INTERNATIONAL SPACE CONCLAVE (IISC 2025) IN NEW DELHI
- ISpA LAUCHED KEY PUBLICATIONS AT THE CONCLAVE:
  - ENABLING THE NEW SPACE ECONOMY: ISAM AS A PILLAR OF ORBITAL SUSTAINABILITY" AUTHORED BY ISPA AND IIFCL PROJECTS LTD.
  - VALUATION AND FUNDRAISING IN AEROSPACE STARTUPS: TRL VS. MRL — INDIA'S ROAD TO SPACE INDUSTRIALIZATION" JOINT PUBLICATION, AUTHORED BY DR. RAVINDER PAL SINGH AND PUBLISHED BY ISPA.
  - INDIA DEFSPACE SYMPOSIUM 2025 TECHNICAL REPORT" JOINTLY DEVELOPED BY ISpA AND AMITY UNIVERSITY
  - ISpA-SATUSURE JOINT PAPAER ON "INDIA'S SOVEREIGN AGRISTACK: POWERING THE FUTURE OF AGRICULTURE FROM FARMERS TO THE CLOUD"



# HIGHLIGHTS OF THE MONTH

- ISpA-ESA LETTER OF INTENT (LoI) SIGNED TO STRENGTHEN COOPERATION IN SPACE SUSTAINABILITY, EXPLORATION, AND CAPACITY BUILDING.
- ISpA-NOVAPSACE MoU ESTABLISHED TO ADVANCE COLLABORATION IN SATELLITE APPLICATIONS, SSA, AND NEWSPACE OPPORTUNITIES.
- NOVASPACE INAUGURATED ITS NEW OFFICE IN BENGALURU, EXPANDING ITS R&D AND INDUSTRY ENGAGEMENT FOOTPRINT IN INDIA.
- ISpA SIGNED AN MoU WITH AMITY UNIVERSITY TO ENHANCE EDUCATION, RESEARCH, AND TALENT DEVELOPMENT IN SPACE TECHNOLOGY.

# MEMBERS BULLETIN



## **AGNIKUL COSMOS**

Agnikul Cosmos has raised \$17M at a \$500M valuation, strengthening momentum in India's private launch sector. The IIT-Madras-incubated startup known for its single-piece 3D-printed rocket engines and small-sat launch vehicles will use the funding to scale manufacturing, increase launch cadence, and advance its stage-recovery programme.

Agnikul is also developing a 350-acre integrated space campus in Tamil Nadu to consolidate design, manufacturing, and testing. With growing customer demand and a dozen upcoming launches, the company says this raise marks a critical step in expanding operational depth.

Investors called Agnikul's progress a strong indicator that India's private space industry has arrived, with global demand for LEO launches making this a pivotal moment for the sector.



## **DIGANTARA**

Digantara U.S. has been notified of its inclusion in the Missile Defense Agency (MDA)'s SHIELD Indefinite Delivery, Indefinite Quantity (IDIQ) programme, marking a significant milestone for the company. The selection reflects confidence in Digantara's advanced space situational awareness and sensing architecture.

Under the SHIELD programme, Digantara aims to demonstrate how its capabilities can enhance decision advantage, strengthen threat awareness, and support time-critical mission outcomes. The achievement underscores Digantara's growing role in delivering persistent space-based awareness for national security and allied partners.

# MEMBERS BULLETIN



## EUTELSAT ONEWEB

Eutelsat OneWeb is now technically ready to begin commercial satellite broadband services in India. All IN-SPACE authorisations and security compliances have been completed, with only spectrum allocation from DoT/TRAI pending before launch.

Once spectrum is assigned, OneWeb will be part of India's first commercial satcom rollout, serving remote, underserved, and backhaul segments as a complement to terrestrial networks. IN-SPACE reiterated its continued focus on security, safety, and regulatory compliance as more global operators seek entry into the Indian market.

Eutelsat OneWeb is now well-positioned to support India's expanding connectivity needs with resilient, high-quality satellite broadband.



## NELCO

NELCO Ltd, a Tata Group company, has received a new UL VNO-GMPCS authorisation from the Department of Telecommunications, enabling it to sell VSAT services of other GMPCS licensees and broaden its satcom service portfolio. The approval—valid for 10 years—marks a key regulatory advancement for the company's satellite communications expansion.

The new authorisation strengthens NELCO's market position as satcom demand scales across enterprise and mobility segments.



# MEMBERS BULLETIN



## **SKYROOT AEROSPACE**

Skyroot Aerospace achieved a major milestone for India's NewSpace sector with the unveiling of the Vikram-I launch vehicle and the inauguration of its new state-of-the-art Infinity Campus in Hyderabad. The ceremony was graced by Hon'ble Prime Minister Shri Narendra Modi, underscoring India's strong commitment to innovation, entrepreneurship, and global leadership in space technology.

The event saw the participation of several distinguished leaders, including Shri Gangapuram Kishan Reddy, Hon'ble Minister of Coal and Mines; Shri TC Bharat, Hon'ble Minister for Industries & Commerce; and Dr Pawan Goenka, Chairman, IN-SPACe.



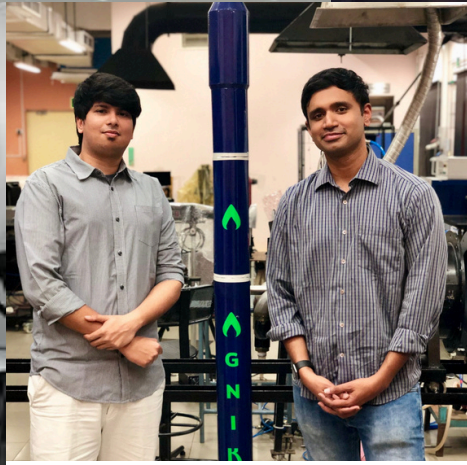
## **VIASAT INMARSAT**

Viasat has confirmed that its ViaSat-3 F2 satellite will launch on November 5, 2025 aboard a ULA Atlas V551 from Cape Canaveral. Designed to more than double Viasat's current network capacity, the satellite will support next-generation platforms including Viasat Amara, NexusWave, and the company's Government Hybrid SATCOM architecture.

Following launch, ViaSat-3 F2 will travel to its GEO orbital slot at 79°W, complete multi-month on-orbit testing, and enter service in early 2026. Covering the Americas, it will add major high-throughput capacity to Viasat's fleet and deliver real-time, on-demand bandwidth for applications such as in-flight Wi-Fi, fixed broadband, and resilient government and defense connectivity.

CEO Mark Dankberg highlighted the satellite's dynamic beamforming and multi-orbit integration as key enablers for meeting rapidly rising global SATCOM demand. CFO Gary Chase emphasized that ViaSat-3 F2's performance will strengthen the company's growth strategy, earnings outlook, and free cash flow.

# MEMBERS BULLETIN



# ISpA ACTIVITIES

## INDIA INTERNATIONAL SPACE CONCLAVE 2025

### Day 1 - Enabling the Space Ecosystem: Services & Opportunities

A Powerful Start to India's Premier Space Conclave

The Conclave opened with high energy as leaders from India, Japan, Italy, and the global space community converged to explore emerging opportunities in the New Space economy. A thought-provoking fireside chat on economic drivers and funding models set the tone, followed by industry showcases from L&T and Vantor, and an expert talk on startup-led self-reliance.

#### Session Highlights - Day 1

- **Fireside Chat: Fuelling Space Innovation – Economic Drivers & Funding Mechanisms -**  
Day 1 began with an impactful fireside discussion featuring **Dr PR Jaishankar** (Chairman, IIFCL Projects Ltd.), **Dr Ravinder Pal Singh** (Member, National Advisory Committee (ISpA)), and **Mr Akshat Johri** (Assistant General Manager, IIFCL Projects Ltd.), who explored India's evolving space financing landscape. They highlighted the need for patient capital, PPP models, and blended finance to accelerate the NewSpace economy and unlock deep-tech innovation.
- **Industry Presentations – L&T & Vantor** - L&T presented India's growing manufacturing capabilities across precision engineering and space systems, while Vantor demonstrated next-gen AI-powered geospatial intelligence for national infrastructure, defence, and space operations. Both presentations underscored India's readiness for scale and global competitiveness.
- **Expert Talk – Opportunities for Startups in India's Space Self-Reliance - Mr Ravi Jain** (Investment Director at TDK Ventures) delivered a crisp insight into how India's startup ecosystem can drive indigenous capability development across launch, EO, components, and in-orbit services.
- **Inaugural Session: Vision, Partnerships & New Milestones** -The inaugural ceremony brought together distinguished dignitaries including **Dr Jitendra Singh** (Hon'ble Minister of State (IC) for Science & Technology), **Dr Pawan Goenka** (Chairman, IN-SPACe), **Air Chief Marshal VR Chaudhari PVSM AVSM VM ADC (Retd)** (Former Chief of the Air Staff, Indian Air Force), **H.E. Antonio Bartoli** (The Ambassador of Italy to India), and **Mr Takashi Ariyoshi** (Minister & Deputy Chief of Mission, Embassy of Japan to India).  
Key highlights included: Felicitation of ISRO Astronaut **Gp Capt Shubhanshu Shukla**, MoU signing between Novaspace & ISpA, Launch of the Viasat India Project, ISpA Industry Awards Ceremony celebrating innovation & excellence  
Release of two major publications:
  - Valuation & Fundraising in Aerospace Startups: TRL vs MRL
  - Indian DefSpace Symposium 2025 – Technical Report



# ISpA ACTIVITIES

## INDIA INTERNATIONAL SPACE CONCLAVE 2025

**Hon'ble Dr Jitendra Singh, Hon'ble Minister of State (IC) for Science &**

**Technology** - Reaffirmed India's emergence as a global space hub, noting that reforms have enabled 300+ startups and strengthened the innovation ecosystem. He highlighted India's role in driving inclusive, technology-led governance and international collaboration.

**Dr Pawan Goenka, Chairman, IN-SPACE** - Emphasised India's accelerating space momentum powered by private-sector innovation. He stressed the need to create demand, think big, and deepen collaboration to build a globally competitive space economy.

**Air Chief Marshal VR Chaudhari PVSM AVSM VM ADC (Retd), Former Chief of the Air Staff, Indian Air Force** - Called for stronger indigenous capability and defence-industry alignment, noting that India must prepare for an era where air and space are strategically inseparable.

**H.E. Antonio Bartoli, The Ambassador of Italy to India** - Highlighted space as a priority area in India-Italy relations and praised India's technological leadership, calling the partnership "naturally complementary and poised for deeper cooperation."

**Mr Takashi Ariyoshi, Minister & Deputy Chief of Mission, Embassy of Japan to India** - Reiterated Japan's commitment to strengthening Indo Japan collaboration in lunar exploration, SSA, climate initiatives, and innovation driven partnerships shaping the future space economy.

- **Fireside Chat – Unlocking India's Private Space Industry Potential** - A powerful dialogue with **Dr Pawan Goenka** (Chairman, IN-SPACE), moderated by **P J Nath** (Managing Director & CEO, Nelco Ltd.) and **Sanjay Nekkanti** (CEO & Founder, Dhruva Space) explored how India can scale private-sector capabilities, strengthen demand creation, and build globally competitive space enterprises.
- **Session 1 – "India-Japan Space Partnership: Fostering a Collaborative Space Eco-System"** - With a keynote by **Dr Saku Tsuneta** (Vice Chair, Committee on National Space Policy, Cabinet Office, Government of Japan) and an expert panel including JAXA, ispace, Digantara, and Augsenselab, the session highlighted: Collaboration on LUPEX and future lunar missions, Joint pathways for SSA, Deep-tech innovation, and global supply chains, Strengthening of long-term Indo-Japanese cooperation.

# ISpA ACTIVITIES

## INDIA INTERNATIONAL SPACE CONCLAVE 2025

- **Session 2 - “Geospatial Data Applications: Turning data into actionable insights for governance and industry”** - ISRO, Esri India, GalaxEye, SatSure, Vantor, and academia discussed: AI-enabled analytics for governance, EO-driven disaster management, Agriculture transformation through geospatial intelligence, Defence and national security applications  
The session also saw the release of the ISpA–SatSure Joint Paper on AgriStack Solutions.
- **Session 3 - “Navigating Spectrum Issues for SatCom and Challenges for India’s Private Sector in providing LEO Satellite Internet Services”** - Hughes, Viasat, OneWeb, DoT, Nelco, and Astrome addressed: Spectrum allocation bottlenecks, LEO broadband deployment readiness, Industry–policy coordination requirements, Pathways for scaling satellite internet across India

# ISpA ACTIVITIES

## DAY - 1





# ISpA ACTIVITIES

## Day 2 Highlights - Governance in the New Space Age

Day 2 began with a presentation on estimating the space economy's contribution to India's GDP, followed by a VIP exhibition walkthrough.

## Session Highlights - Exploration, Sustainability & GNSS

- **Estimation of India's Space Economy Contribution to GDP - Mr Brijesh Soni** ( Deputy Director, PD, IN-SPACE) presented a structured framework to measure the space economy's role in national GDP highlighting private-sector impact, innovation-led multipliers, and downstream economic benefits.
- **Inaugural Session** -Speakers included **Lt Gen AK Bhatt PVSM, UYSM, AVSM, SM, VSM(Retd)**, DG ISpA, **Air Chief Marshal RKS Bhadauria PVSM AVSM VM ADC (Retd)**, (Former Chief of the Air Staff, IAF), **Shri A.S. Kiran Kumar** (Former Chairman, ISRO), **Smt Meenakshi Lekhi** (Former Minister of State for External Affairs & Culture of India, GoI), and **H.E. Marjolijn Van Deelen**, EU Special Envoy for Space (recorded address). **Air Chief Marshal RKS Bhadauria (Retd)** emphasised that India's acceleration in space will depend on mastering next-generation technologies and strengthening indigenous capability. **Smt Meenakshi Lekhi** highlighted India's responsibility to ensure that global space governance remains inclusive, noting that India brings the voice of the Global South to the table. **Shri A.S. Kiran Kumar** reminded delegates that global recognition comes only through demonstrated competence and urged India to continue building capacity and leadership to shape the shared space domain. Their combined insights reinforced the need for innovation, capability, and international cooperation as India advances toward a more influential role in the New Space Age. The session reinforced: India's rising global strategic position, Need for indigenous capability and International cooperation priorities. The session featured the felicitation of ISRO's two Astronauts Designate: **Gp Capt Angad Pratap and Gp Capt PB Nair**

Key publications released were - ISpA-ESA Letter of Intent (LoI), MoU: Amity University & ISpA, Joint Publication on In-Space Servicing, Assembly & Manufacturing (ISAM)

- **From Vision to Reality: Implementing India's Space Decadal Vision** - This session brought together leaders from Pixxel, Novaspace, Digantara, IN-SPACE, and Azista BST Aerospace to discuss the practical pathways needed to operationalise India's Space Decadal Vision. Panelists emphasised regulatory alignment, predictable scale-up opportunities for startups, stronger compliance frameworks, and global market access, underscoring that India's next decade of space growth will require coordinated execution across industry, government, and technology ecosystems.
- **SUHORA – Multi-Sensor High-Resolution EO Insights** - SUHORA showcased how integrated, multi-sensor Earth Observation intelligence can transform decision-making across sectors. With demonstrations of real-time analytics, state-level applications, and defence-focused use cases, the session illustrated how advanced EO systems are reshaping governance, climate resilience, disaster response, and national security planning through precise, actionable insights.

# ISpA ACTIVITIES

- **India and Asia in Orbit: Enhancing Regional Cooperation in Space Exploration and Technology** - This session highlighted the growing importance of regional partnerships in India's space journey, with experts from Amity Dubai, WICCI, Novaspace, ispace, and ADTL discussing collaborative opportunities in lunar exploration, satellite systems, and space manufacturing. Panelists emphasised the need for stronger academic exchanges, co-development models, and an integrated Asian space ecosystem capable of driving innovation and global competitiveness.
- **Launch Vehicles & Propulsion Technologies** - Leaders from Skyroot, Agnikul, L&T, AstroWorks, and Astrobase explored India's rapidly advancing launch and propulsion landscape, from methalox engines and hybrid propulsion to reusability and 3D-printed systems. The session underscored shifting market dynamics toward smallsat launches and rideshare models, while also addressing key challenges such as scaling manufacturing, supply-chain readiness, and ensuring reliability to power India's ascent in global launch services.
- **HabSpace by AstroWorks Ventures - Industry Presentation** - AstroWorks Ventures Founder **George Weinmann** introduced HabSpace, a modular orbital habitat concept designed to enable international cooperation in space. The presentation highlighted HABSPACE1, a co-owned module that seamlessly integrates with CLD stations and supports collaboration with NASA and global space agencies. With strong institutional backing and open access for commercial users, HabSpace aims to create a scalable, shared platform for the next generation of human spaceflight and in-orbit infrastructure.
- **International Partnerships in Space: Catalyzing Growth in the Global Space Economy** - Featuring representatives from ESA, Italy, Australia, France, Safran, and Novaspace, this session showcased how cross-border cooperation is unlocking new opportunities across missions, manufacturing, and market expansion. Discussions highlighted science diplomacy, joint R&D, co-production models, and the strategic value of India's growing role in global space supply chains, reinforcing that international collaboration is central to next-generation space growth.
- **Sustaining Space Operations: In-Orbit Technologies, Debris Management, and Space Weather Hazard Mitigation** - Experts from ISRO, OrbitAID, Digantara, UKSA, PRL, and Kepler Aerospace examined the technologies and frameworks needed to ensure long-term orbital sustainability. The session covered ISAM-driven repair and refuel capabilities, real-time debris tracking, space-weather resilience, and global coordination models — emphasising that sustainable operations will be the foundation of responsible and resilient future space missions.

# ISpA ACTIVITIES

- **The Future of Space Exploration: Humans in space, Space Stations, Habitation on Moon & Mars, Deep Space missions, Human physiology and Health Systems for Space Missions.** - With powerful insights from **Ms Naoko Yamazaki** (Former JAXA Astronaut) and ISRO astronauts designate **Gp Capt PB Nair and Gp Capt Angad Pratap**, this session explored human spaceflight readiness, Moon–Mars habitation, crew health, and the psychological and physiological challenges of long-duration missions. Experts from IAF and ISRO highlighted the life-support, medical, and operational innovations required to sustain humans in deep space.
- **Building India's NavIC Ecosystem: Industry Adoption, Market Challenges, and Strategic Positioning in the Global GNSS Landscape** - Experts from NPL, ISRO, L&T, Elena Geo Systems, and academia discussed the strategic importance of NavIC in strengthening India's PNT (Positioning, Navigation & Timing) architecture. The session highlighted advances in timing accuracy, chipset readiness, dual-frequency receiver development, and rapid adoption across logistics, telecom, mobility, and infrastructure positioning NavIC as a central pillar.
- **Closing Ceremony** - Addresses from senior dignitaries including **Shri. Amit Ghosh, IAS**, Addl Chief Secretary – Medical Health & Family Welfare and Medical Education Department, UP Govt, **Air Vice Marshal Manu Midha VM**, DG DSA, **Dr Ranjana Kaul**, Vice President, International Institute of Space Law; Partner, Dua Associates, Advocates & Solicitors and **Dr W. Selvamurthy**, , President, Amity Science, Technology & Innovation; Foundation, DG for Amity Directorate of Science & Innovation & Chair Professor for Life Sciences; Chancellor, Amity University, Chhattisgarh, who highlighted India's accelerating space momentum and the importance of policy, innovation, and global collaboration in shaping the nation's future in space. They emphasised the need for sustained industry–government partnership, scaling indigenous capability, and nurturing a talent ecosystem aligned with emerging space priorities. Gp Capt Anand Rao (Retd) delivered the Vote of Thanks, marking the close of a transformative edition of IISC 2025.

IISC 2025, A Transformative Milestone- Across two days, the Conclave brought together global leaders, astronauts, innovators, and institutions, showcasing India's rapidly expanding role in shaping the future of the global space economy. IISC 2025 reaffirmed India's commitment to innovation, international collaboration, and strategic leadership in the New Space Age.



# ISpA ACTIVITIES

## DAY - 2



# ISpA ACTIVITIES

## EXHIBITORS

ISpA hosted a dedicated Space Exhibition as part of IISC 2025, featuring leading companies showcasing their most advanced technologies, innovations, and capabilities across the space enterprise. The exhibition highlights cutting-edge, disruptive solutions spanning launch, Earth observation, satellite technologies, geospatial intelligence, propulsion, SSA, and allied domains.

Featured Exhibitors:

- Novaspace
- GalaxEye
- Pixxel
- Italian Trade Agency
- Vantor
- Azista
- BQP
- Digantara
- L&T

These exhibitors represent some of the most dynamic contributors to India's and the global space ecosystem each bringing unique competencies in data intelligence, hyperspectral imaging, international industry collaborations, and advanced manufacturing.

A Platform for Innovation & Collaboration

The exhibition serves as a vital convergence point for:

- Government & Defence stakeholders
- Foreign embassies & international organizations
- Private industry leaders
- Research institutions & academia

Visitors can explore the latest breakthroughs, engage directly with industry innovators, and identify avenues for collaboration in the rapidly expanding New Space economy. By bringing together global and domestic participants, the exhibition reinforces India's growing leadership and technological strength in space.



# ISpA ACTIVITIES

## EXHIBITORS



# ISpA ACTIVITIES

## AWARDS

At the 4th India International Space Conclave (IISC 2025), the ISpA- Indian Space Association proudly honoured the outstanding winners of the ISpA Industry Awards 2025, recognising pioneering innovation, leadership, and technical excellence across India's rapidly expanding space ecosystem.

These awards celebrate transformative achievements in Earth Observation, Geospatial Intelligence, Space Sustainability, Satellite Communications, Advanced Manufacturing, AI for defence, and Academic Excellence, truly reflecting the depth and diversity of India's NewSpace capabilities.

This year's awardees represent the innovators and disruptors driving India's next space leap, strengthening global competitiveness, accelerating deep-tech development, and shaping the future of space technology.

### ISpA Industry Awards 2025 Winners

#### Award Category

Excellence in Space Technology Innovation - **Skyroot Aerospace**

Contribution to Space Exploration - **Agnikul Cosmos**

Earth Observation and Geospatial Excellence - **Pixxel, GalaxEye**

Platform for Public Impact - **Esri India**

Satcom Industry Award - **Eutelsat OneWeb, Ananth Technologies**

Space Manufacturing & Production Excellence - **Larsen & Toubro**

International Collaboration & Market Expansion - **Augsense Lab**

Space Sustainability Champion - **Digantara**

Emerging Technology of the Year - **Astrogate Labs**

Special Award for Operational Imagery Support - **Vantor (Maxar), Suhora Technologies**

Special Award for Manufacturing Excellence - **Azista**

AI for Defence & Geospatial Intelligence - **Cyran AI**

Academic Excellence in Space Education & Research - **Amity University**

ISpA applauds all awardees for their remarkable contributions, unwavering ambition, and global vision. Your efforts continue to elevate India's space ecosystem and inspire the next generation of innovators.



# ISpA ACTIVITIES

## AWARDS



# ISpA ACTIVITIES

## PUBLICATIONS

Also, in its efforts to bring awareness on the topical industry subjects, ISpA launched key publications at the conclave:

### **Enabling the New Space Economy: ISAM as a Pillar of Orbital Sustainability"**

authored by ISpA and IIFCL Projects Ltd.

ISpA and IIFCL outline how ISAM can extend satellite life, reduce debris, and unlock new in-orbit services. Supported by OrbitAID Aerospace and the UK Space Agency.

### **Valuation and Fundraising in Aerospace Startups: TRL vs. MRL — India's Road to Space Industrialization"**

joint publication, authored by Dr. Ravinder Pal Singh and published by ISpA.

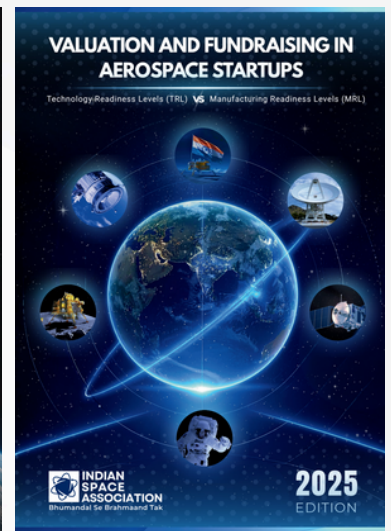
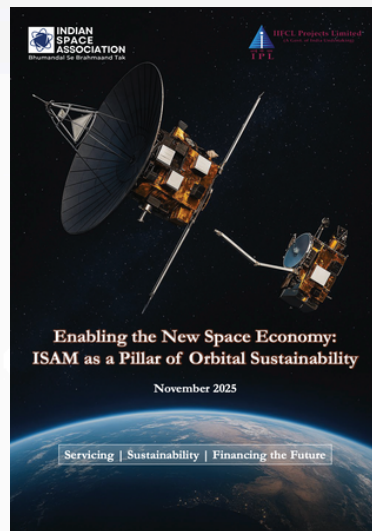
Authored by Dr. Ravinder Pal Singh, this guide helps startups and investors use TRL/MRL frameworks to assess readiness, scale innovation, and strengthen India's space industrial base.

### **India DefSpace Symposium 2025 Technical Report"**

jointly developed by ISpA and Amity University. Summarises key discussions and recommendations from India's premier defence-space forum, developed jointly by ISpA and Amity University.

### **ISpA-Satsure Joint Paper on "India's Sovereign AgriStack: Powering the Future of Agriculture from Farmers to the Cloud"**

Presents a roadmap for a sovereign digital AgriStack using geospatial intelligence to boost productivity and enable farmer-centred innovation.





# ISpA ACTIVITIES

## LT GEN ANIL KUMAR BHATT (RETD), DG ISPA ATTENDS SKYROOT AEROSPACE'S VIKRAM-I UNVEILING AND EXTEND HIS CONGRATULATIONS FOR INFINITY CAMPUS INAUGURATION

Skyroot Aerospace marked a major milestone for India's NewSpace ecosystem with the unveiling of its Vikram-I launch vehicle and the inauguration of its new Infinity Campus in Hyderabad. The ceremony was inaugurated by Hon'ble Prime Minister Shri Narendra Modi, reflecting India's strong commitment to innovation, entrepreneurship, and global competitiveness in the space sector.

The event was attended by several distinguished dignitaries, including Hon'ble Minister of Coal and Mines Shri Gangapuram Kishan Reddy, Hon'ble Minister for Industries & Commerce Shri TG Bharat, and Dr Pawan Goenka, Chairman, IN-SPACe, highlighting broad institutional support for India's private space industry.

Lt Gen Anil Kumar Bhatt (Retd), Director General, ISpA, joined the gathering to extend his congratulations and best wishes to the Skyroot Aerospace team on this landmark achievement.

The unveiling of Vikram-I and the launch of the Infinity Campus underscore the vision and leadership of Skyroot's founders, Mr Pawan Kumar Chandana and Mr Naga Bharath Daka, and mark an important step in strengthening India's commercial launch capabilities and global space presence.



# ISpA ACTIVITIES

## DG ISpA Addresses Future Strategic Leaders at Army War College, Mhow

Lt Gen Anil Kumar Bhatt (retd), PVSM UYSM AVSM SM VSM, DG ISpA, had the honour of addressing the esteemed Higher Command Course students at the Army War College, Mhow.

DG ISpA shared insights on the current space ecosystem in India and the emerging New Space sector, highlighting India's historical approach to space utilization, key challenges, and opportunities for future strategic leadership.

The Higher Command Course, conducted over 42 weeks, is the flagship leadership program for senior officers of the three Services, shaping India's future strategic leaders.

It was a privilege to engage with the next generation of India's military leadership and explore the intersection of space innovation and strategic defence.



# ISpA ACTIVITIES

## **ISpA DG Lt Gen AK Bhatt Headlines Workshop on India's Space Future & Responsible Reporting!**

An insightful keynote was delivered by Lt Gen Anil Kumar Bhatt (retd), Director General, ISpA, at the Asia Pacific Workshop Webinar on "Space & Satellite Journalism."

The theme: Holistic Approach Towards Space Utilisation: Challenges And Way Forward

The session was part of the insightful "Future Ready Space Ecosystem - Equitable Access to Space" workshop, held in collaboration with S (strategic) ASEAN International Advocacy & Consultancy and University of Paramadina, Jakarta.

This vital workshop, held on November 7, 2025, underscored the critical need for training media professionals on space and satellite reporting mechanisms.

We extend our sincere thanks to Ms. Shaanti Shamdasani, President SAIAC, for spearheading this essential initiative.

The series is designed to equip journalists with the skills necessary to report accurately and ethically on the space industry, addressing key challenges like space sustainability and the responsible use of satellites.

The hybrid workshop format successfully brought together a wide array of stakeholders, emphasizing the cross-sector importance of this conversation.

Participants included:

- Journalists (local and international) & Editors,
- Ambassadors & Policy Experts,
- Representatives from Universities,
- Space and Satellite Experts,
- Private Companies & Government entities

This collaborative effort helps cultivate a future-ready space ecosystem built on equitable access to space and informed discourse.





# ISpA ACTIVITIES

## ISpA was honoured to have attended Italy's National Unity and Armed Forces Day Reception.

The Embassy of Italy in India hosted a commemorative event in New Delhi to mark Italy's National Unity and Armed Forces Day, honouring the nation's legacy of courage and resilience. The reception was led by H.E. Mr. Antonio Bartoli, Ambassador of Italy to India, and Defence Attaché Captain (Navy) Armando Paolo Simi, who welcomed guests from across the strategic and diplomatic community. Lt Gen AK Bhatt PVSM UYSM AVSM SM VSM (Retd), Director General, ISpA, attended the event and conveyed his greetings to the Italian counterparts, reflecting the continued warmth and cooperation between India and Italy, including in the space sector.





# ISpA ACTIVITIES

## Strengthening India's Space & Defense Ecosystem | Vimarsh 2025

Director General, ISpA Lt Gen Anil Kumar Bhatt (retd), and Director, ISpA Gp Capt Anand Rao (retd) attended Vimarsh on "Challenges of Governance for Viksit Bharat 2047", where Shri Rajiv Gauba, Member, NITI Aayog Official, shared his vision on India's transformative journey across strategic sectors.

Shri Gauba emphasized how the space and defense sectors, once heavily restricted, have been opened up like never before, driving innovation, efficiency, and global competitiveness.

"The transformation of defense and space sectors exemplifies what is possible when reform meets vision. Private players are now developing advanced defense platforms, rockets, and satellites. In the last decade alone, defense exports have grown 30x, and the space sector has become one of the fastest-growing areas of the economy."

He further underlined that this success underscores the importance of continued public-private collaboration and the need to replicate such reform-driven governance models across other strategic domains.

ISpA remains committed to supporting this vision by enabling India's space industry to thrive as a key pillar of Viksit Bharat 2047.





# ISpA ACTIVITIES







# ISRO

INDIAN SPACE  
RESEARCH  
ORGANISATION

## NISAR MISSION ENTERS SCIENCE PHASE | NOVEMBER 28, 2025

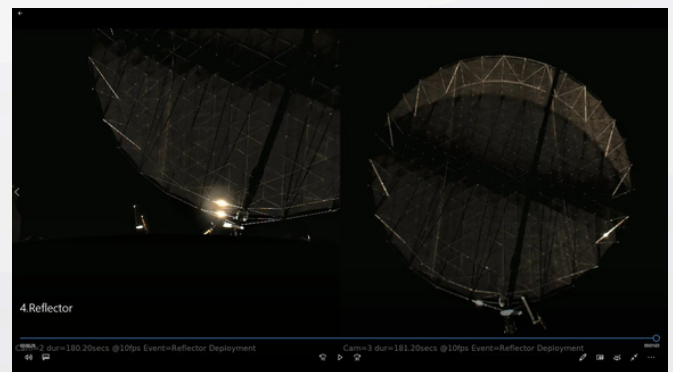
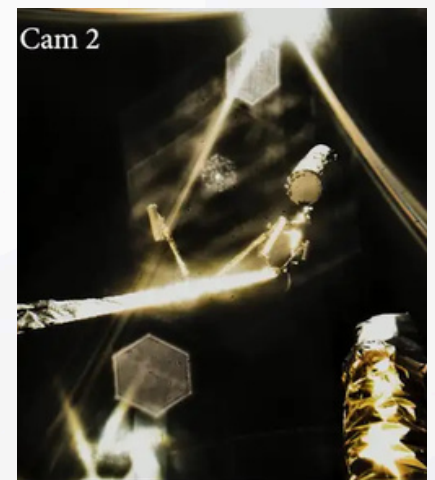
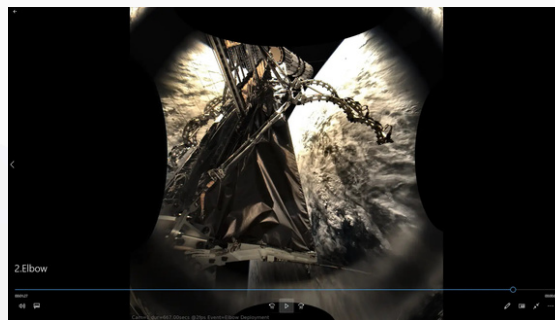
### **RADAR Antenna Deployment**

After the successful launch of NASA ISRO Synthetic Aperture Radar (NISAR) satellite onboard GSLV – F16 on July 30, 2025, the 12m diameter Antenna reflector has been successfully deployed. The 12-meter diameter antenna reflector plays a key role for both ISRO's S-Band and NASA's L-Band Synthetic Aperture Radar (SAR) Payload. The antenna was launched in a stowed condition on a 9m long boom, which was tucked closed to the satellite. The antenna and the 9m boom was developed by NASA.

The unfolding of the joints of the boom commenced on August 09, 2025 and was carried out over a period of five (05) days (Wrist, Shoulder, Elbow and Root deployments). The reflector assembly mounted on the end of the boom was deployed successfully on August 15, 2025 and the performance of the antenna systems are satisfactory.

The entire operations were carried out from ISRO Telemetry Tracking and Command Network (ISTRAC), ISRO with the support of JPL/NASA.

12m dia antenna reflector deployment image





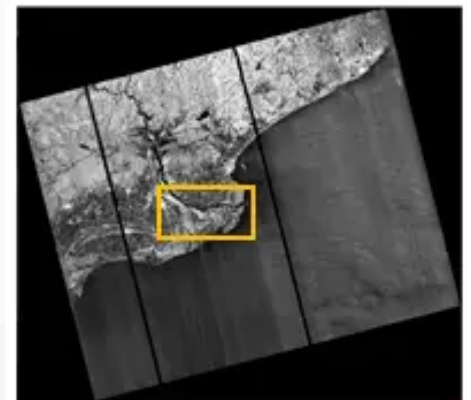
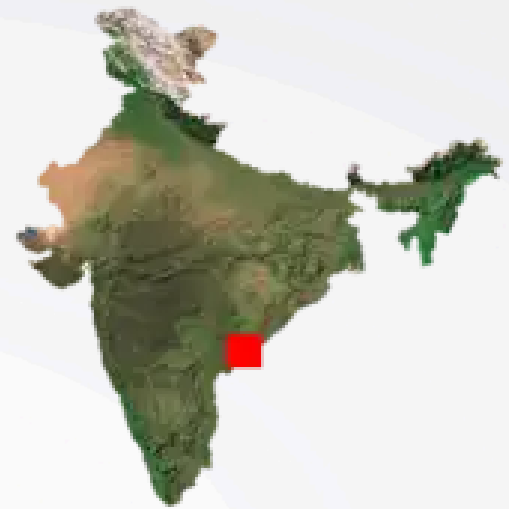
# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### Completion of Commissioning Phase:

Since the first acquisition on 19th August, 2025, NISAR S-Band SAR is regularly imaging over Indian Landmass and Global Calibration-Validation sites in various payload operating configurations. Reference targets such as Corner reflectors were deployed around Ahmedabad, Gujarat and a few more locations in India for calibration of the images. Data acquired over Amazon rainforests were also used for calibration of spacecraft pointing and images. Based on this, payload data acquisition parameters were fine-tuned resulting in high quality images. Initial analysis by scientists and engineers revealed the potential of S-Band SAR data for various targeted science and application areas like agriculture, forestry, geo-sciences, hydrology, Polar/Himalayan ice/snow and oceanic studies. The first image of S-band SAR acquired on 19th Aug 2025 captures the fertile Godavari River Delta in Andhra Pradesh, India. Various vegetation classes like mangroves, agriculture, arecanut plantations, aquaculture fields, etc are clearly seen in the image. The image highlights NISAR's S-Band SAR ability to map river deltas and agricultural landscapes with precision.

In the 100<sup>th</sup> day of NISAR in-orbit, the S-SAR images are released to the public by Chairman, ISRO/ Secretary DOS. With this, the commencement of science phase has also been announced.







# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### **TWO-DAY TRAINING ON UTILIZATION OF REMOTE SENSING AND GIS TOOLS FOR OFFICIALS OF INDIAN INSTITUTE OF PUBLIC HEALTH, SHILLONG | NOVEMBER 26, 2025**

NESAC, ISRO in collaboration with RRSC-North, NRSC, organised a two-day training program on "Utilization of Remote Sensing and GIS Tools" for Officials of Indian Institute of Public Health (IIPH), Shillong during November 6-7, 2025. The training was organised at NESAC Outreach Facility with remote participation from RRSC-North officials. This training is under the ISRO-AHPI collaboration for the project titled "Epidemiology of Scrub Typhus and Other Zoonotic and Vector-Borne Diseases (ZVBDs) in Meghalaya" being executed jointly by RRSC-North/NRSC, IIPH Shillong, and NESAC

Scrub Typhus fever, a vector borne bacterial disease, is on the rise in North Eastern India and is driven by factors like region's humid, subtropical climate and land use patterns that are creating ideal habitats for the vector mites (chiggers). Fever due to bacterial infection, may cause mortality if left untreated at the earliest, leading to lung and kidney failures. GIS systems using EO based analysis can help to monitor and prioritize action to abate the same.

Training programme focused on familiarising officials for application of open-source GIS tools for mapping, monitoring using EO data. It also deliberated on aspects of spatial data modelling including intensive field inventory using open tools. The training program enhanced the geospatial data collection and analytics capacity of public health officials. This would support the broader goals of collaboration to apply space technologies in epidemiology and health monitoring.





# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### VISIT OF MYGOV'S NATIONAL SPACE DAY QUIZ 2025 WINNERS TO SATISH DHAWAN SPACE CENTRE SHAR | NOVEMBER 25, 2025

As part of the National Space Day 2025 celebrations, MyGOV successfully organized an online national-level quiz competition that attracted enthusiastic participants from across the country. The winners of this prestigious quiz, 72 bright students were given an exclusive opportunity to visit the Spaceport of India at Sriharikota on 11<sup>th</sup> November 2025.

During this memorable visit, the students toured key facilities including the First Launch Pad, Second Launch Pad, Mission Control Centre, launch base infrastructures, etc., They also engaged in an insightful interaction session with senior scientists, gaining first-hand knowledge and inspiration about India's space missions and technological advancements & accomplishments. This initiative serves to inspire young minds, foster scientific inquiry, and celebrate India's remarkable journey in space exploration. These efforts will connect citizens with India's space achievements and nurture the next generation of space enthusiasts.







# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

**VICE-CHAIR OF JAPAN'S COMMITTEE ON NATIONAL SPACE POLICY MET CHAIRMAN, ISRO / SECRETARY,  
DOS | NOVEMBER 24, 2025**

Dr. Saku Tsuneta, Vice-Chair of Japan's Cabinet Committee on National Space Policy visited ISRO Headquarters on November 21, 2025 and had a meeting with Dr. V. Narayanan, Chairman, Indian Space Research Organisation (ISRO)/ Secretary, Department of Space (DOS). Status of ISRO-JAXA ongoing Joint Lunar Polar Exploration mission (Chandrayaan-5/ LuPEX) and potential opportunities to work together in: robotic arm for space station; launching of scientific satellites; and in supporting researchers and private companies from both nations for joint activities were discussed.

The Japanese delegation has also visited the technical facilities at the ISRO Satellite Integration and Test Establishment (ISITE) of UR Rao Satellite Centre (URSC).







# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### **SECRETARY DOS/ CHAIRMAN ISRO MEETING WITH STATE SECRETARY TO FEDERAL MINISTER FOR RESEARCH TECHNOLOGY AND SPACE, GERMANY | NOVEMBER 24, 2025**

On the request of the Embassy of Germany, a visit of the German delegation led by Dr. Silke Launert, State Secretary to Federal Minister for Research Technology and Space, Germany was organised at Antariksh Bhavan, Bengaluru on November 19, 2025. The 07-member delegation consisted of other senior officials from the Federal Ministry of Research Technology and Space, Germany and Consulate of Germany in Bengaluru. During the discussions, the German delegation expressed its desire to cooperate with ISRO in the area of human space flight, in-situ resource utilisation, quantum communication, and industry level engagements. It was agreed to take forward the discussions on the above areas through expert level discussions and bring out the implementation plan for each of the areas.





# ISRO

INDIAN SPACE  
RESEARCH  
ORGANISATION

## OBSERVATIONS OF THE INTERSTELLAR COMET 3I/ATLAS WITH THE PRL 1.2M TELESCOPE AT MOUNT ABU

| NOVEMBER 19, 2025

The scientists from Physical Research Laboratory (PRL) observed the interstellar comet 3I/ATLAS currently on its way out of the inner Solar system after perihelion passage. Observations were carried out in imaging and spectroscopic (analysis of the constituent wavelengths of the light emitted) modes with PRL's 1.2m telescope. The images (false colour representation in Fig. 1) show a near-circular coma. The coma of a comet is the large, glowing atmosphere of gas and dust that forms around its nucleus as it gets closer to the Sun. It is created when the Sun's heat causes the frozen ices on the nucleus to vaporize, or "sublimate," releasing gas and dust that form a large, diffuse cloud. In the present observing geometry, the dust tail, if present, would be pointing away from the Sun behind the comet as seen from the Earth, while deep wide field multiband images may show the ion tail. Apart from imaging, scientists also acquired a spectrum of the light from the comet, before the start of morning twilight. The result shows prominent emission features commonly seen in Solar system comets - the CN, C<sub>2</sub> and C<sub>3</sub> bands in the shorter wavelength side of the spectrum (Fig. 2).

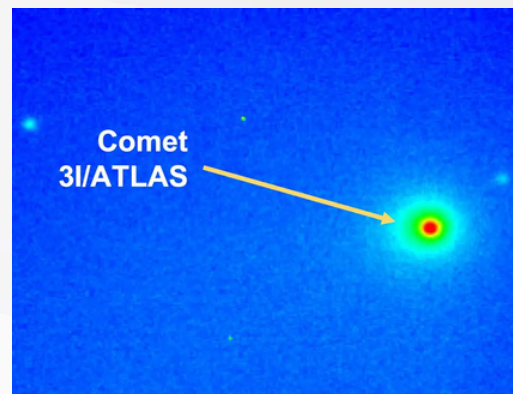


Fig. 1: False colour image of Comet 3I/ATLAS with the 1.2m telescope at Mt Abu using a wide area imager in the red filter. Two fainter background stars are also seen in this image.

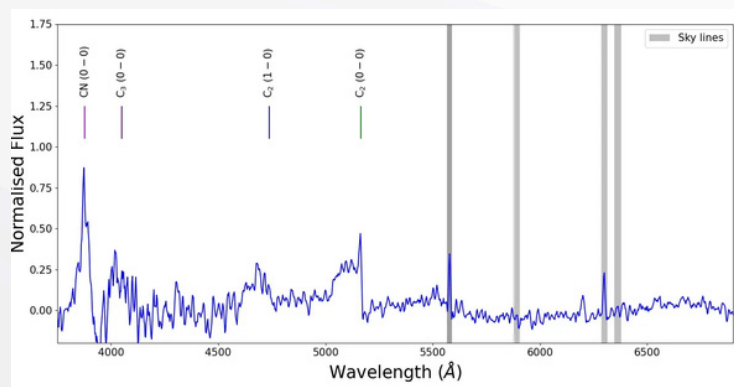


Fig. 2: Flux-normalised spectrum of Comet 3I/ATLAS using the LISA spectrograph.

In case of 3I/ATLAS, the production rates for the prominent bands (emissions pertaining to the constituent molecules) were computed with limiting values around 1025 molecules/sec. The production rate ratios seem to place this comet in the class of 'typical comets' of the solar system. Further observations will be continued as the comet gradually comes into the darker part of the night.

The Physical Research Laboratory (PRL) 1.2 m telescope at Mount Abu, located at an altitude of 1680 m near Gurushikhar, is a ground-based observatory that is used for astronomical research, including exoplanet hunting, high-energy phenomena, and solar system studies.



# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### **SUCCESSFUL DEMONSTRATION OF BOOT-STRAP MODE START OF CE20 CRYOGENIC ENGINE |**

NOVEMBER 19, 2025

The CE20 cryogenic engine, powering the LVM3 upper stage, is already qualified for operation at thrust levels ranging from 19 to 22 tonnes in flight with a single start. The engine has also been qualified for the Gaganyaan missions. During nominal operation, the engine ignition is initiated under tank head conditions, followed by the start of turbopumps using a stored gas start-up system.

For future missions, multiple in-flight restarts of the CE20 engine will be required for mission flexibility towards multi-orbit missions. However, with the present configuration, each restart demands an additional start-up gas bottle and associated systems, leading to a reduction in vehicle payload capability. Hence, achieving boot-strap mode start - where the engine builds up to steady operation without external start-up assistance - is essential.

In this regard, a boot-strap mode start test on the CE20 Cryogenic engine was successfully conducted under vacuum conditions in the High-Altitude Test (HAT) facility at ISRO Propulsion Complex, Mahendragiri on 7<sup>th</sup> November 2025, for a duration of 10 seconds. A multi-element igniter was employed in both the thrust chamber and gas generator to facilitate boot-strap starting. In this test, following the ignition of the thrust chamber, the gas generator was ignited under tank head conditions, and the turbopumps were started without the use of the start-up system. Subsequently, boot-strap mode build-up and steady-state operation of the engine were successfully demonstrated.

With this achievement, ISRO has successfully demonstrated boot-strap mode starting of a gas-generator cycle cryogenic engine without any auxiliary start-up system, perhaps for the first time in the world - a significant milestone towards enhancing the restart capability and mission flexibility of future LVM3 flights.







# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### VISIT OF JAGRITI YATRA PARTICIPANTS TO SPACE PORT OF INDIA, SDSC SHAR | NOVEMBER 14, 2025

On 12<sup>th</sup> November 2025, a group of 580 young students selected through the rigorous selection procedure of Jagriti Sewa Sansthan visited the Indian Space Research Organisation's (ISRO) Satish Dhawan Space Centre - SDSC SHAR. During this exclusive visit, the students had the valuable opportunity to interact with senior ISRO scientists, gaining first-hand insights into cutting-edge space missions and technologies. They toured key facilities including the first and second launch pads, and the Mission Control Centre (MCC), witnessing the integral infrastructure that supports India's space launches.

The students' presence at SDSC SHAR not only enriched their understanding of space science and technology but also inspired them to pursue innovative careers in the science, technology, engineering, and mathematics (STEM) fields. Their selection was based on a comprehensive evaluation process conducted by Jagriti Sewa Sansthan, which identifies exceptional young talent with a passion for entrepreneurship and societal impact. Jagriti Sewa Sansthan organises the annual Jagriti Yatra, a 15-day entrepreneurial train journey covering over 8,000 kilometers, aimed at inspiring youth to see India through the lens of enterprise and innovation. The Yatra spotlights grassroots entrepreneurs, social innovators, and changemakers, motivating participants to become drivers of India's future growth and development.

This visit to ISRO's SDSC SHAR exemplifies the synergy between Jagriti Yatra's mission of nurturing young visionaries and India's advancements in space technology, providing a transformative experience that combines learning, inspiration, and real-world exposure to India's space achievements.





# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

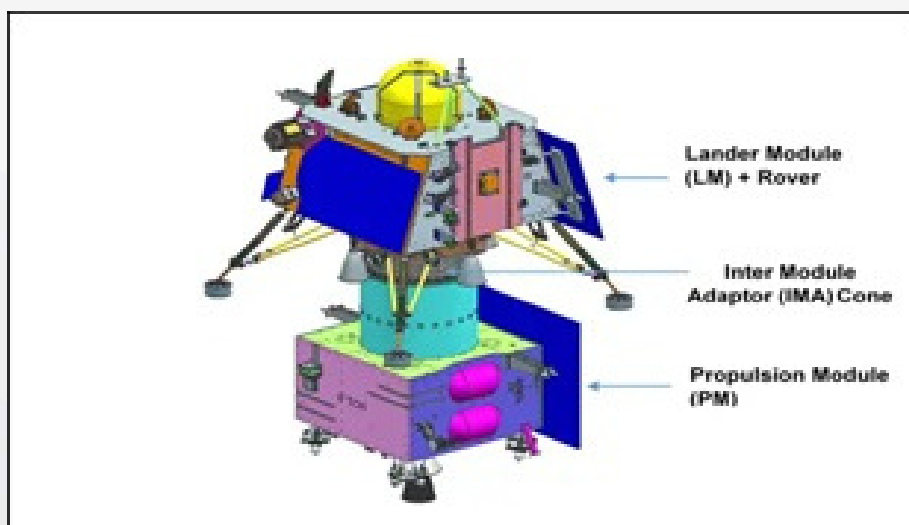
### CHANDRAYAAN-3 FLY-BY | NOVEMBER 13, 2025

The mission of Chandrayaan-3 was to demonstrate a safe and soft landing on Lunar Surface, demonstrate Rover roving on the Moon and conduct in-situ experiments. CH-3 mission consisted the Lander Module, Propulsion Module and a Rover. The satellite was successfully launched on-board LVM3 from SDSC SHAR, Sriharikota on July 14, 2023, at 14:35 Hrs. IST.

After the historic lunar landing of CH3 on August 23, 2023, its Propulsion Module (PM) was operated in its lunar orbit at an altitude of nearly 150 km till October 2023. The PM was then relocated to a high-altitude Earth-bound orbit by executing Trans-Earth Injection (TEI) manoeuvres in October 2023. Since then, CH3-PM was revolving in this orbit under the influence of the Earth's and Moon's gravity fields.

This interplay of gravity fields has led the spacecraft to enter the Moon Sphere of Influence (SOI) on November 04, 2025, where the Moon's gravitation dominates the motion. On November 06, 2025 07:23 UT, the first lunar flyby event took place outside the Indian Deep Space Network (IDSN) visibility at a distance of 3740 km from the Moon's surface. The second flyby event was visible from the IDSN, the closest approach distance was 4537 km from the Moon's surface on November 11, 2025, 23:18 UT. CH3-PM is expected to exit the Moon's SOI on November 14, 2025.

The satellite orbit has changed from 1 lakh x 3 lakh km to 4.09 lakh x 7.27 lakh km in terms of size and its inclination changed from 34 deg to 22 deg due to this flyby events. The flyby event trajectory has been monitored very closely from ISRO Telemetry, Tracking and Command Network (ISTRAC), ISRO. A special care was taken to monitor its trajectory and close proximities from the Beyond Earth Space Objects. The overall Satellite performance is normal during the flyby and no close approach was experienced with the other lunar orbiters. This event garnered valuable insights and experience from mission planning, operations, flight dynamics perspectives, and especially enhanced the understanding of disturbance torques effects.





# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### **SUCCESSFUL ACCOMPLISHMENT OF KEY DEVELOPMENT TEST IN INTEGRATED MAIN PARACHUTE AIRDROP TEST (IMAT) SERIES FOR GAGANYAAN MISSION | NOVEMBER 11, 2025**

ISRO has successfully conducted an important test on Main Parachutes for the Gaganyaan Crew Module at the Babina Field Firing Range (BFFR), Jhansi, U.P. on November 03, 2025. This test is the part of the ongoing series of Integrated Main Parachute Airdrop Tests (IMAT) for the qualification of parachute system for Gaganyaan Mission.

For the Gaganyaan Crew Module, the parachute system comprises a total of 10 parachutes of 4 types. The descent sequence begins with two apex cover separation parachutes that remove the protective cover of the parachute compartment, followed by two drogue parachutes that stabilize and decelerate the module. Upon release of the drogues, three pilot parachutes are deployed to extract three main parachutes, which further slow down the Crew Module to ensure a safe touchdown. The system is designed with redundancy—two of the three main parachutes are sufficient to achieve a safe landing.

The main parachutes of the Gaganyaan mission deploy in a step-by-step process known as reefed inflation. In this process, the parachute first opens partially, which is called reefing, and then fully opens after a predetermined period of time, known as disreefing. This process is carried out using pyro device.

In this test, the one of the possible extreme scenarios of delay in the disreefing between the two main parachutes was successfully demonstrated validating the main parachutes for the maximum design. The test evaluated the system's structural integrity and load distribution under asymmetric disreefing conditions—one of the most critical load scenarios expected during actual mission descent.

A simulated mass equivalent to the Crew Module was dropped from an altitude of 2.5 km using the Indian Air Force's IL-76 aircraft. The parachute system deployed as planned and the sequence was executed flawlessly, and the test article achieved a stable descent and soft landing, validating the robustness of the parachute design.

The successful completion of this test marks another significant step toward qualifying the parachute system for human spaceflight, with active participation from the Vikram Sarabhai Space Centre (VSSC), ISRO, Aerial Delivery Research and Development Establishment (ADRDE), DRDO, Indian Air Force and the Indian Army.

**GAGANYAAN PARACHUTE DECELERATION SYSTEM**  
Integrated Main Parachute Airdrop Test  
(IMAT -03)







# ISRO

## INDIAN SPACE RESEARCH ORGANISATION

### **ISRO OFFERS ADVANCED DATA PRODUCTS FOR DEEPER UNDERSTANDING OF THE LUNAR POLAR REGION | NOVEMBER 08, 2025**

The Chandrayaan-2 Orbiter has been providing high quality data since 2019. Its Dual Frequency Synthetic Aperture Radar (DFSAR) is the first instrument to map the Moon using L-band in full-polarimetric mode and in the highest resolution (25m/pixel). This advanced radar mode sends and receives signals in both vertical and horizontal directions, making it ideal for studying surface properties.

About 1400 radar datasets were collected and processed to create polarimetric mosaics of the north and south polar regions (80–90° latitude). Using these datasets, scientists from Space Applications Centre (SAC), Ahmedabad have developed advanced data products on potential presence of water-ice, surface roughness, and dielectric constant (indicating density and porosity). The algorithm for analysing the full-polarimetric data and generating products is developed indigenously by ISRO.

These data products help gather first-order information about the Moon's polar regions, which may have preserved early chemical conditions of the solar system—important for understanding planetary evolution. Such ready-to-use data products are highly valuable for characterising polar regions for future lunar exploration and complement hyperspectral data.

The polar mosaics include key radar parameters revealing physical and electrical characteristics of the surface and subsurface:

- Circular Polarization Ratio (CPR): Indicator of possible water ice
- Single bounce Eigenvalue Relative Difference (SERD): Surface roughness
- T-Ratio: Related to dielectric constant
- Polarimetric decomposition components: Odd, Even, Volume, Helix scattering

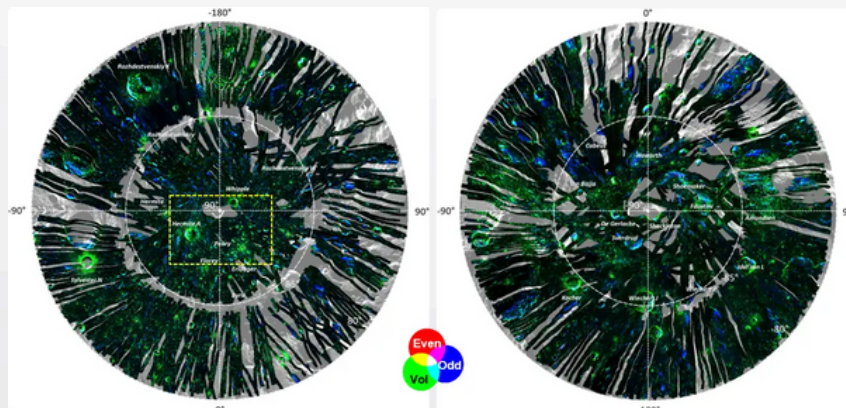
The derived Polar Mosaic products (Level 3C) are released for users and freely available at ISSDC PRADAN:

<https://pradan.issdc.gov.in/ch2/protected/browse.xhtml?id=sar>

They can be visualized in CH2 MapBrowse:

<https://chmapbrowse.issdc.gov.in/MapBrowse/>

ISRO encourages the scientific community to explore these data products.





# ISRO

# INDIAN SPACE RESEARCH ORGANISATION

## **RELEASE OF ROCERS (REMOTE SENSING ENABLED ONLINE CHEMICAL EMERGENCY RESPONSE SYSTEM) FOR KERALA BY GOVERNMENT OF KERALA | NOVEMBER 01, 2025**

Earth Observation Applications have greater role in facilitating management of both natural resources and industrial establishments given the ability to observe dynamics associated with both. Recently, Remote sensing enabled Online Chemical Emergency Response System (ROCERS), a Decision Support System for chemical emergencies was released by Honourable Minister for General Education, Labour and Skills for Kerala state, Shri V. Sivankutty on 11<sup>th</sup> October 2025. It is Joint effort between NRSC, ISRO, IGCAR, DAE and Government of Kerala.

It was released during “International Conclave on Occupational Safety and Health – Surakshitham 3.0”, which was graced by senior dignitaries of the State. Dr S. K. Srivastav, CGM, Regional Remote Sensing Centres represented NRSC, ISRO along with the team of developers of the online information system. ROCERS logo and a concept video were also released on this occasion. (Fig 1). This real time emergency response system ( <https://rocers.fabkerala.gov.in/> ) is developed as a Web-GIS based DSS by NRSC/ISRO with support of Weather and Dispersion models from IGCAR/DAE. ROCERS addresses emergencies using the state-of-the-art Geospatial Technologies, Weather & Dispersion models for monitoring chemical spreads and integration of live sensors for various chemicals like Ammonia, LPG and various hazardous chemicals (Fig 2).



Fig.1. ROCERS Release Function

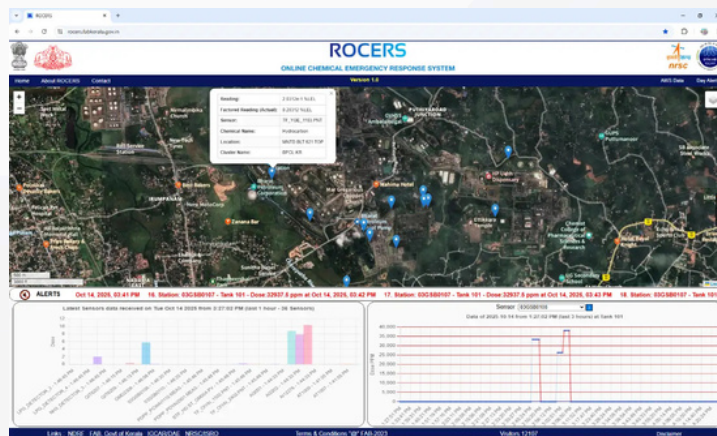


Fig 2. ROCERS Landing Page showing EO visualisation and Dashboard for Status related to Emergencies



# IN-SPACE

INDIAN NATIONAL SPACE  
PROMOTION AND  
AUTHORIZATION CENTRE

## IN-SPACE & SIDBI VC Ink ₹1,000 Crore Fund Deal to Boost India's Space Sector |

NOVEMBER 10, 2025

The Indian National Space Promotion and Authorisation Centre (IN-SPACE) and SIDBI Venture Capital have officially signed a Contribution Agreement to launch a ₹1,000 crore Venture Capital Fund dedicated to India's space sector. This agreement signals the start of the fund's investment operations, coming soon after it received approval from the Securities and Exchange Board of India (SEBI) on October 31, 2025.



The agreement was signed between Shri Lochan Sehra, IAS, Joint Secretary, IN-SPACE and Shri Arup Kumar, Managing Director and CEO, SIDBI Venture Capital Limited (SVCL, a 100% subsidiary of SIDBI). The signing was also attended by Shri Ratnesh Kumar, Deputy Director (F&A), IN-SPACE, and Shri Rajesh Kohli, Assistant Director (F&A), IN-SPACE, who represented the financial and operational leadership involved in structuring the Fund. Dr. Pawan Goenka, Chairman, IN-SPACE, addressed the ceremony virtually and conveyed his support for the activation of the Fund and its role in catalysing India's private space ecosystem.

The Union Cabinet, chaired by Hon'ble Prime Minister Shri Narendra Modi, had approved the establishment of the ₹1,000 crore Venture Capital Fund for the Indian space sector in October 2024. In March 2025, SIDBI Venture Capital was appointed as the Fund Manager, drawing from its deep experience in nurturing early-stage and technology-led enterprises across India.

The Fund is designed to provide critical early-stage and growth capital to startups working across launch technologies, satellites, payload systems, in-space services, earth observation, communication platforms and downstream applications, enabling them to scale and contribute to national space capability.

Shri Lochan Sehra, IAS, Joint Secretary, IN-SPACE, said, "This Fund is a major enabler for India's private space sector. It will support startups with the financial runway needed to test ideas, build indigenous technologies, and scale confidently. Today's signing strengthens our commitment to building a vibrant ecosystem where innovation flourishes and Indian enterprises become global leaders in space technology. We look forward to working closely with SIDBI as we implement this important national initiative."

Shri Arup Kumar, Managing Director and CEO, SVCL, "SVCL is committed to empowering India's deep-tech and frontier technology entrepreneurs, and the space sector represents one of the most promising frontiers of national growth. This dedicated Fund will give young companies the capital and confidence to innovate boldly, commercialise breakthroughs and contribute to India's emergence as a major space power. We are honoured to partner with IN-SPACE and the Govt of India in advancing this mission."





# IN-SPACE

INDIAN NATIONAL SPACE  
PROMOTION AND  
AUTHORIZATION CENTRE

## **SPACETECH STARTUP GRAHAA GETS APPROVAL TO LAUNCH NANOSATELLITE FROM BRAZIL |**

NOVEMBER 24, 2025

Grahaa Space has got permission from the Indian National Space Promotion and Authorisation Centre (IN-SPACe) to launch its first nanosatellite as a technology demonstration at the end of November, said the Bangalore-based space technology startup on Monday.

The nanosatellite (or nanosat) called Solaras S2 will be launched from the Alcântara Space Center in Brazil through the Hanbit-Nano launch vehicle developed by South Korea-based Innospace. A nanosat is a small artificial satellite that typically has a mass between 1 and 10 kilogram. They are popular for scientific research, Earth observation and commercial ventures because of their compact size.

Grahaa, which is co-founded by a former Indian Space Research Organisation scientist and a former IBM executive, is working to provide near-real time Earth observation data on-demand using a constellation of nanosatellites in low-Earth orbit. Grahaa last year signed up with Innospace for its Solaras-S2 technology demonstration mission to get qualification for its systems.

Grahaa, which is backed by the Viskan group of companies, was incubated at the Space Technology Incubation and Innovation Center (STIIC) of the Indian Institute of Space Science and Technology (IIST) in Thiruvananthapuram.

"The upcoming missions — scheduled to be launched in early 2026 with Skyroot — will qualify the communications module, gather geospatial data from the optical payload and establish intersatellite links. Our work is aimed at building a reliable nanosatellite capability that can support various on-ground applications using near-real-time geospatial data," he said.

Grahaa's technology stack includes high-resolution optical payloads, inter-satellite links, and onboard processing to enable live streaming of geospatial data. IN-SPACe is a single-window, autonomous agency that promotes, authorizes, and supervises private sector participation in space activities.





# IN-SPACE

INDIAN NATIONAL SPACE  
PROMOTION AND  
AUTHORIZATION CENTRE

## **EUTELSAT ONEWEB GETS REGULATORY APPROVAL FOR SATELLITE BROADBAND SERVICES |**

NOVEMBER 21, 2025

IN-SPACE has granted approval to Eutelsat OneWeb to roll out its commercial satellite broadband services in India, with service launch expected once spectrum allocation is granted by the Government.

Bharti Group chairman and co-chair of the board of directors of Eutelsat Group, Sunil Bharti Mittal, commented: "We are pleased to note the Indian space regulator's green light to launch Eutelsat OneWeb's commercial satellite broadband services in India. This will be a critical step forward to meet India's ambition of providing internet connectivity for all. Eutelsat OneWeb is ready to deploy as soon as it receives the final spectrum authorization to launch commercial services."



# ISpA IN NEWS

**ISRO's 'Bahubali' rocket launch a monumental achievement for India: Experts**

02 November 2025 | IANSlive

**PM Modi hails ISRO for launch of India's heaviest communications satellite**

02 November 2025 | IANSlive

**Astronauts, policymakers to address ISpA's space conclave on Nov 18-19**

13 November 2025 | PTInews

**India fast emerging preferred destination for space sector engagement: Jitendra Singh**

18 November 2025 | PTInews

**Learning from Axiom-4 mission being compared with planning for Gaganyaan: Shubhanshu Shukla**

18 November 2025 | PTInews

**Jitendra Singh, Astronaut Shubhanshu Shukla attend India International Space Conclave**

18 November 2025 | ANInews

**Astronaut Shubhanshu Shukla On Gaganyaan's Intense Final Preparations**

18 November 2025 | Youtube- India Today

**Shubhanshu Shukla On Rakesh Sharma, The Moon & The Future**

18 November | Youtube - ET Now

**L&T to ramp up electronics, space, defence and semiconductor manufacturing (PDF & Clip Attached)**

20 November 2025 | Business Standard

**Indian Space Association Recognizes Industry Leaders with ISpA Industry Awards 2025 at India International Space Conclave**

24 November 2025 | APN News

**Cyberspace, AI & Space Technology. The Next Frontiers Of Warfare, Defence Personnel, Politicians & Diplomats Draw Consensus At The National Security Conference**

27 November 2025 | Free Press Journal

**The Infinity Campus: Here is everything you need to know about the 3D-printed orbital rocket Vikram-1**

27 November 2025 | The Indian Express



# ISpA IN NEWS

## Learning from Axiom-4 mission being compared with planning for Gaganyaan: Shubhanshu Shukla

PIONEER NEWS SERVICE  
New Delhi

Astronaut Shubhanshu Shukla on Tuesday said engineers at Indian Space Research Organisation (ISRO) were comparing his experiences onboard the Axiom-4 mission to the International Space Station with the planning for Gaganyaan, India's maiden human spaceflight.

Shukla, who became the first Indian astronaut to travel to the International Space Station (ISS), said the formal training for the Gaganyaan mission would begin soon.

Four Indian astronauts have been selected and trained for the Gaganyaan mission which is expected to take place in 2027, when the home-build LVM-3 will place at least two of them in a low earth orbit.

Shukla, the IAF pilot-turned-astronaut, said the engineers at ISRO were identifying the dissimilarities between the Gaganyaan mission and other human



spaceflight to identify the gaps, if any.

"These missions are so complex that you want to be really sure when you send something up. That is the activity that is happening very intensely. All the systems are being discussed, revised. The philosophy is being checked. That kind of debrief is happening," he told reporters on the sidelines of India International Space Conclave organised by the Indian Space Association (ISpA) here.

Shukla said the Gaganyaan

mission was an ongoing programme, and training and development are taking place simultaneously.

He said there will be a formal training process for the Gaganyaan mission, but it will not be as expanded as other missions.

"When I got into training for Axiom-4, I did my training up till the mission. It will not be that compact for the first Gaganyaan mission," he said.

The astronaut said that he was sharing with ISRO engineers his experiences about the Axiom-4 mission and the

systems and information gained from his 18-day stay at the orbital laboratory.

"The change that has occurred is that after my training and my mission, the experience we gained has been used to create a template," he said.

Shukla said the umbrella benefit of the Axiom-4 mission was that Indian engineers were comparing everything they were doing with the experience gathered during his stay at the orbital lab.

"The problem of space missions is that there is no one right answer. You can do it in 10 different ways. What I can do is verify the robustness of what we are doing. That activity is happening," he said.

"I don't think there is any direct change that is happening in anything we are doing in G-1 (the first uncrewed mission under the Gaganyaan programme). Yes, the analysis is happening and if we feel there is a need, the changes will be incorporated," Shukla said.

## Space sector to be important contributor to Indian economy growth; to go upto \$44-45 billion in next decade: Jitendra Singh

ANI  
Updated At : 08:25 PM Nov 18, 2025 IST

f X

FOLLOW US

CONNECT WITH



## Space sector will soon be key contributor to Indian economy: Jitendra Singh

AKSHEEV THAKUR | TRIBUNE NEWS SERVICE  
New Delhi, Updated At : 02:30 AM Nov 19, 2025 IST

f X

FOLLOW US

CONNECT WITH



Union MoS (Independent Charge) Jitendra Singh with astronaut and IAF Group Captain Shubhanshu Shukla during the India International Space Conclave New Delhi on Tuesday, PTI

07/12/2025, 15:37

Learnings from my ISS mission being used for Gaganyaan planning: Shubhanshu Shukla - Times of India

Printed from  
THE TIMES OF INDIA

## Learnings from my ISS mission being used for Gaganyaan planning: Shubhanshu Shukla

TNN | Nov 19, 2025, 02:29 AM IST



New Delhi: India's celebrated astronaut Group Captain Shubhanshu Shukla said with a smile on Tuesday that the "homework given by PM Narendra Modi 'pura hua hai, chal raha hai, aur badta hi ja raha hai' (has been completed, yet it is still going on as the scope of the homework is increasing by the day)". On a serious note, Shukla said that results of the seven Isro-devised microgravity experiments conducted by him on ISS during his 18-day stay there are being analysed after samples of his work have come back to Earth in batches, and that learnings from his ISS mission are being used for Gaganyaan planning.

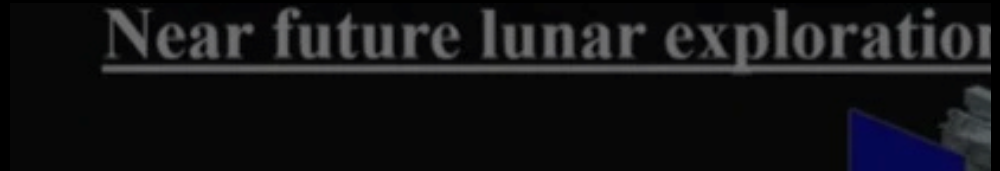
Speaking on the sidelines of India International Space Conclave organised by Indian Space Association (ISpA) here, Shukla told

TOI, "For me, bigger learning from the seven experiments has been how to conduct these tests in space because it is easy to conduct such experiments on Earth, but difficult to do them there. Whatever experience I gained on ISS, we have made a template of that. We are now comparing what we were doing earlier (in Gaganyaan programme) with what is happening now, to identify the gaps."

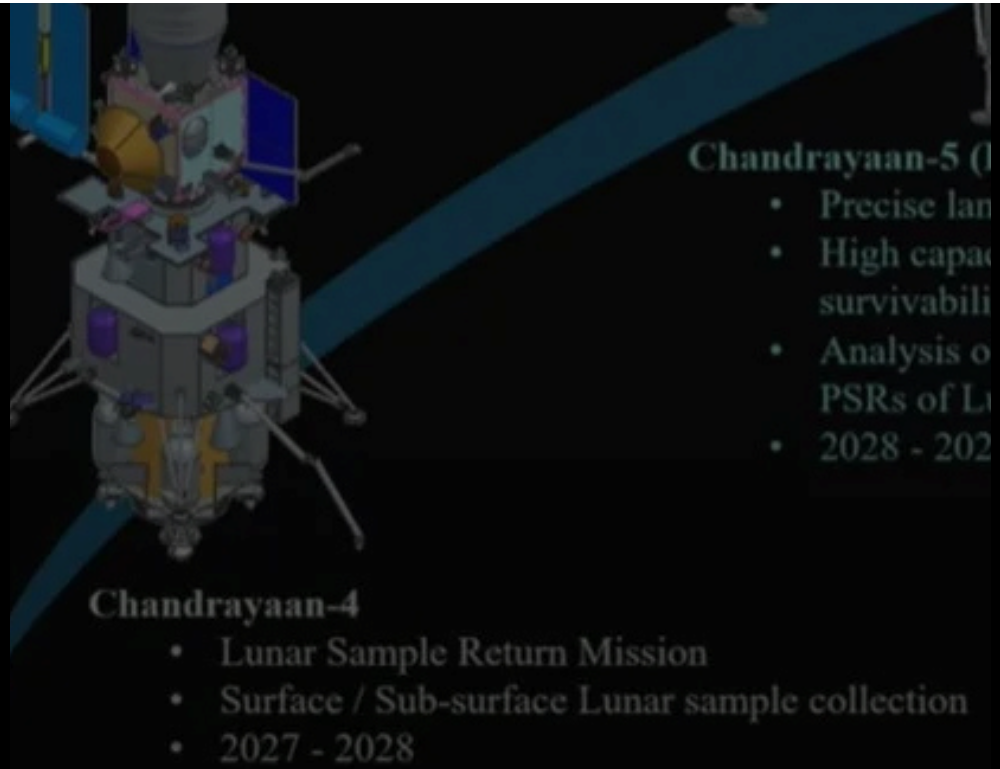
On progress on India's spaceflight mission, Shukla said, "Gaganyaan is a developmental programme — training and development are happening together. As per my knowledge, Gaganyaan-G1 (uncrewed mission) will be conducted early next year and Gaganyaan-G2 (uncrewed mission with humanoid Vyommitra) will be in early

<https://timesofindia.indiatimes.com/india/learnings-from-my-iss-mission-being-used-for-gaganyaan-planning-shubhanshu-shukla/articleshowprint/123421306.cms>

1/2



# NATIONAL NEWS





# NATIONAL NEWS

ISRO plans seven major space missions by March 2026 to boost India's space growth and explore new heights

**03 November 2025**  
**The Times of India**

CMS-03 satellite will provide robust telecom coverage across IOR: Navy

**03 November 2025**  
**ET Satcom**

China launches first GEO Yaogan satellite as India lofts record-mass commsat

**03 November 2025**  
**SpaceNews**

Indigenous SatCom, ISRO partnership driving India's connectivity revolution: C-DOT CEO

**05 November 2025**  
**The Tribune**

ISRO Chief V Narayanan outlines India's expanding space horizon, future missions

**05 November 2025**  
**The Tribune**

NISAR satellite to be declared operational on November 7: ISRO chief

**05 November 2025**  
**Business Standard**

Maharashtra inks pact with Elon Musk's Starlink to bring satellite internet to remote areas

**05 November 2025**  
**The New Indian Express**

India blocks China-linked satellites to bolster security

**06 November 2025**  
**The Economic Times**

AST SpaceMobile sheds more light on sovereign direct-to-device plan for Europe

**07 November 2025**  
**SpaceNews**

Jio urges TRAI to include L and S bands in auction framework for satellite direct-to-device services

**10 November 2025**  
**Moneycontrol**

Aditya-L1 gets a close look at eruptions from the sun

**10 November 2025**  
**The Hindu**

Launching inflatable townships in outer space

**10 November 2025**  
**Hindu BusinessLine**

Chandrayaan-2 Data Enhances Understanding of Moon's Polar Regions

**09 November 2025**  
**India News Network**

Rocket Men: Space for the few, wasteland for the rest?

**09 November 2025**  
**Deccan Herald**

8 Futuristic Companies Building Data Centres in Space

**10 November 2025**  
**Analytic India Magazine**

Paras Defence & Space Tech secures Rs 35.68-cr order from defence ministry

**11 November 2025**  
**The Economic Times**

Isro successfully conducts key parachute test for Gaganyaan mission

**11 November 2025**  
**Business Standard**

ISRO to help Greater Noida authority to protect govt land

**11 November 2025**  
**Hindustan Times**

IN-SPACE, SVCL sign agreement to operationalise 1k cr VC in spacetech

**11 November 2025**  
**The Times of India**

TRAI seeks views on interconnection framework for satellite-based telecom networks

**12 November 2025**  
**The New Indian Express**

HFCL files 33 patent applications in 5G and 6G domains over four years

**12 November 2025**  
**TeleNet**



# NATIONAL NEWS

Global space leaders including India's AgniKul Cosmos and Pixxel to convene in Singapore for Space Summit 2026

**12 November 2025**  
**APN News**

Tidco to set up space propellant park near Isro launch centre in Kulasekarapattinam

**13 November 2025**  
**The Times of India**

Chandrayaan-3 in Moon's dominant orbit: ISRO

**13 November 2025**  
**The New Indian Express**

Ericsson establishes a new RAN software R&D unit in Bengaluru

**14 November 2025**  
**TeleNet**

Phones may soon connect directly to satellites as DoT plans D2D satcom services framework

**14 November 2025**  
**The Economic Times**

India's space programme soars with new milestones, eyes human spaceflight in 2025: Report

**16 November 2025**  
**The Hans India**

Satellite internet firms may get spectrum fee cut for remote coverage

**16 November 2025**  
**Mint**

ISRO To Launch Chandrayaan-4 In 2028, Space Station By 2035: Chairman

**16 November 2025**  
**NDTV**

India's space successes strengthen its place among leading spacefaring nations

**16 November 2025**  
**The News Mill**

ISRO to triple spacecraft output, launch Chandrayaan-4 in 2028: Chairman

**17 November 2025**  
**ET Manufacturing**

India may offer spectrum discount to satellite internet providers

**17 November 2025**  
**Mint**

Anant Raj to invest Rs 45 billion in Andhra Pradesh DC project

**17 November 2025**  
**TeleNet**

Growth-enabling regulatory and economic framework required for satcom

**18 November 2025**  
**Business Standard**

Eutelsat approves nearly \$1 billion capital boost

**18 November 2025**  
**SpaceNews**

'No shortage of talent in space tech': former ISRO Chairman S Somanath

**19 November 2025**  
**Deccan Herald**

Karnataka sets \$3bn investment target in 1st standalone space policy

**19 November 2025**  
**The Times of India**

DoT wants spectrum at 5% of AGR, rejects Digital Bharat Nidhi subsidy for satellite terminals

**20 November 2025**  
**The Economic Times**

ISRO tests bootstrap mode start on CE20 cryogenic engine

**20 November 2025**  
**The Hindu**

TRAI issues direction mandating phase-wise adoption of 1600-series by BFSI sector entities

**20 November 2025**  
**TeleNet**

"Space Was Easier": Shubhanshu Shukla's Jibe At Bengaluru Traffic

**21 November 2025**  
**NDTV**

Government appoints Amit Agrawal as new telecom secretary

**21 November 2025**  
**ET Telecom**

# NATIONAL NEWS

Vi extends three-year IT and cyber-resilience partnership with Kyndryl

**21 November 2025**

**TeleNet**

PM Modi urges G20 to share satellite data with developing nations; India, Australia, Canada launch tech innovation ties

**22 November 2025**

**Deccan Herald**

Space calling: India's first private PSLV is about to take off

**24 November 2025**

**Mint**

Bengaluru Spacetechn firm gets IN-SPACE clearance to launch a nano satellite mission by month end

**24 November 2025**

**The Hindu**

Japanese delegation meets ISRO chief, discuss about Chandrayaan-5/ LuPEX mission

**24 November 2025**

**UNI**

TRAI urges all mobile users to report spam and fraud via the TRAI DND App

**25 November 2025**

**TeleNet**

Aduna and Comviva Partner to Drive Global Enterprise Adoption of Network Intelligence via NGAGE.ai

**25 November 2025**

**TeleNet**

RailTel collaborates with Nokia to modernise its NLD and metro optical transport networks across India

**25 November 2025**

**TeleNet**

India to triple its satellites in orbit: ISRO chief

**25 November 2025**

**The New Indian Express**

ISRO offers satellite support to Railways to boost communication systems

**25 November 2025**

**The Hindu**

AI and weaponising space | Why national space laws are now an essential

**26 November 2025**

**Deccan Herald**

PM Modi to unveil India's first private rocket Vikram-I built by Skyroot Aerospace

**26 November 2025**

**India Today**

'Brightest City': Astronaut Shubhanshu Shukla Describes How Bengaluru Looks From Space

**26 November 2025**

**Times Now**

Human space missions will accelerate India's industrial, R&D growth: Astronaut Shukla

**26 November 2025**

**The New Indian Express**

Next 5-10 yrs defining times for Indian space exploration: Shubhanshu Shukla

**27 November 2025**

**The Week**

₹1-lakh crore RDI fund to integrate private players into India's wider economy: Jitendra Singh

**27 November 2025**

**ET Satcom**

Budget 2026: India's space sector seeks triple budget boost and a satellite mission for remote regions

**27 November 2025**

**The Economic Times**

ICIL offloads 0.56 per cent stake in Bharti Airtel

**27 November 2025**

**TeleNet**

DoT amends TCS rules to strengthen identifier security and device traceability

**28 November 2025**

**TeleNet**

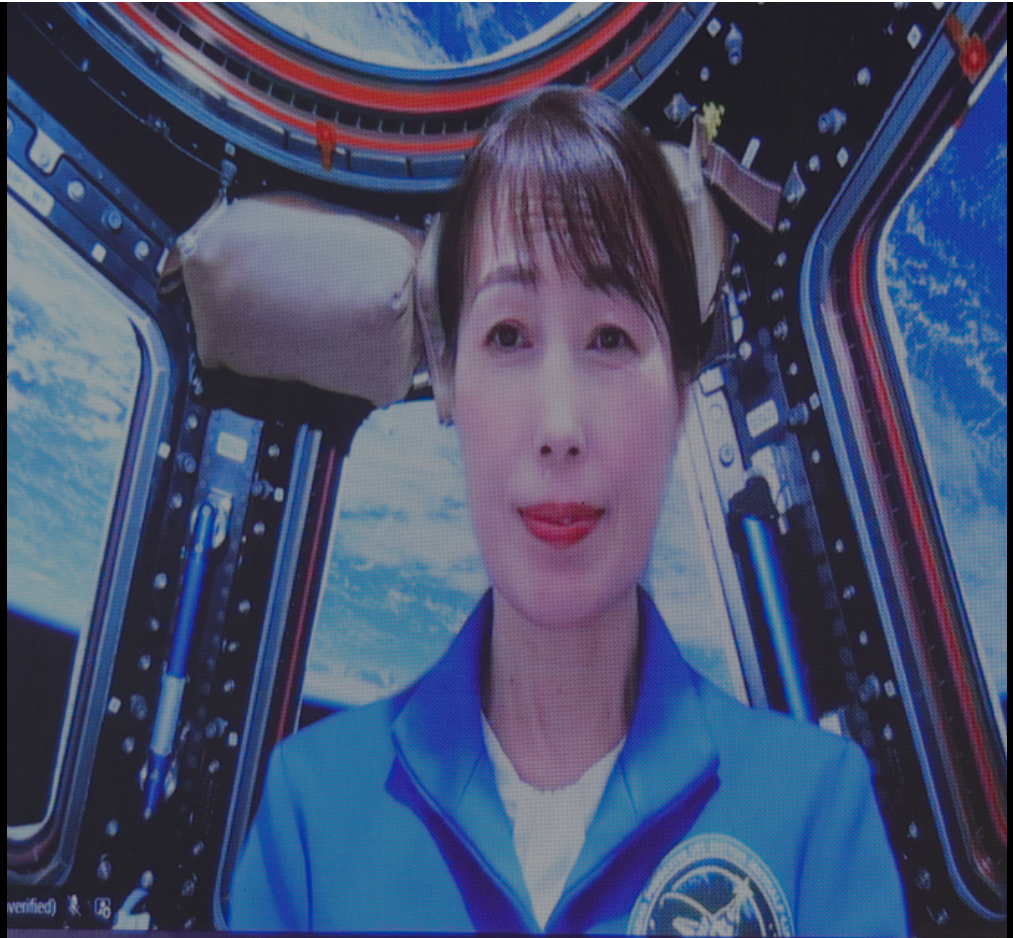
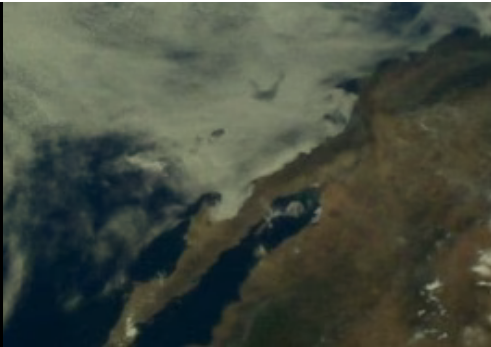
CloudExtel raises Rs 2 billion to expand AI-ready and DC interconnect infrastructure

**28 November 2025**

**TeleNet**



# INTERNATIONAL NEWS





# INTERNATIONAL NEWS

## USA

- [SpaceX Launches Satellite Haven, Paving Way For World's First Private Space Station](#)
- [Elon Musk's SpaceX launches 29 Starlink satellites into space using Falcon 9 rocket](#)
- [After \\$1 trillion package, Musk speaks of Moon & Mars](#)
- [Jeff Bezos's Blue Origin Launches NASA's ESCAPADE Mission To Mars](#)
- [Countering China's Space Silk Road: a U.S. partnership model for the Middle East](#)
- [Power limits are now a key hurdle for LEO growth](#)
- [Blue Origin's New Glenn rocket deploys Mars satellites, sticks booster landing](#)
- [US-licensed satellite to launch on Isro's LVM-3 rocket next month](#)
- [Blue Origin to Integrate Optical Payload on Blue Ring Vehicle for Space Domain Awareness Mission](#)
- [NASA probe captures stunning photos of Earth and moon on the way to infamous asteroid Apophis](#)
- [NASA astronauts take new moonsuit for a swim | Space photo of the day for Nov. 28, 2025](#)
- [SpaceX Launches Satellite Haven, Paving Way For World's First Private Space Station](#)
- [4 key things NASA just revealed about the interstellar comet 3I/ATLAS](#)
- [NASA renews commitment to Europe's life-hunting Mars rover despite Trump budget cuts](#)
- [Watch NASA astronaut, 2 cosmonauts launch to the International Space Station on Thanksgiving morning](#)
- [After 5 years on Mars, NASA's Perseverance rover may have found its 1st meteorite \(photos\)](#)
- [New video takes you into the cockpit for 1st flight of NASA's new X-59 'quiet' supersonic jet](#)
- [SpaceX scrubs launch of 140 satellites atop used Falcon 9 rocket from California coast](#)
- [SpaceX launches 28 Starlink satellites on new Falcon 9 rocket from California \(video\)](#)
- [SpaceX launches Starlink satellites on record-breaking 94th liftoff of the year from Florida's Space Coast \(video\)](#)
- [SpaceX launches used rocket for 500th time, sends Sentinel-6B ocean-mapping satellite to orbit \(video\)](#)

# INTERNATIONAL NEWS

## CHINA

- [China launches first GEO Yaogan satellite as India lofts record-mass commsat](#)
- [China breaks its single-year launch record with weekend flurry](#)
- [China's Shenzhou-20 crew to return on November 14 after space debris delays mission](#)
- [China's Shenzhou 20 astronauts return to Earth on different spacecraft after finding window cracks in their own \(video\)](#)
- [China launches spacecraft to bring back astronauts left stranded in space by damaged vehicle](#)
- [China completes first emergency mission to Tiangong space station](#)
- [Watch China's Shenzhou 22 rescue ship arrive at Tiangong space station \(video\)](#)
- [China launches uncrewed Shenzhou capsule for 3 astronauts stuck on Tiangong space station \(video\)](#)
- [China's rising influence in space prompts Senate to call for new US research institute in post-ISS era](#)
- [China to launch an empty Shenzhou 22 spacecraft to help stranded astronauts on Tiangong space station](#)
- [Leonids Meteor Shower Set To Light Up The Sky Mid-November](#)
- [China's Shenzhou 21 astronauts are stranded aboard the Tiangong space station — for now](#)
- [China's Tianwen 1 Mars probe captures images of interstellar comet 3I/ATLAS](#)
- [China reached out to NASA to avoid a potential satellite collision in 1st-of-its-kind space cooperation](#)
- [Astronaut from Pakistan will be 1st international visitor to China's Tiangong space station](#)
- [China launches classified Shijian-28 spacecraft, reusable Zhuque-3 rocket faces delay](#)
- [China's Shijian spacecraft separate after pioneering geosynchronous orbit refueling tests](#)
- [China moves to integrate commercial space into its national space development plan](#)
- [China set for first orbital launch and landing attempt this weekend with commercial Zhuque-3 rocket](#)
- [China launches TJS-21 towards Molniya orbit, lofts trio of Shijian-30 spacecraft](#)
- [China to launch Shenzhou-22 spacecraft Nov. 25 to provide lifeboat for astronauts](#)
- [Space junk strike on China's astronaut capsule highlights need for a space rescue service, experts say](#)

# INTERNATIONAL NEWS

## OTHER NATIONS

- [India, Luxembourg Pledge to Deepen Science and Space Cooperation](#)
- [Ukraine destroys giant radio telescope used by Russian military](#)
- [Scientists achieve breakthrough in Quantum satellite uplink](#)
- [ISRO delegation's visit to Mauritius boosts bilateral space cooperation](#)
- [Star Wars: Germany, UK say Russia and China are stalking their satellites— space spying explained](#)
- [Sept. 28, 1962: Canada launches its 1st satellite](#)
- [Rohde & Schwarz + partners unveil new satellite payload testing innovation](#)
- ["Space No Longer A Sanctuary, It Has Become Battlefield", Says Macron](#)
- [Vodacom inks Africa internet deal with Musk's Starlink](#)
- [Proximus Global + Starlink to expand Direct-to-Cell satellite connectivity in Europe](#)
- [South Korea launches Earth-observation satellite on homegrown Nuri rocket](#)
- [European Space Agency boosts budget to catch up in space race](#)
- [Australia and UK extend Space Bridge partnership](#)
- [From Startup Nation to Space Nation: Inside Israel's Booming Satellite Industry](#)
- [Ancient Australian rocks may shed new light on the birth of the moon](#)
- [Europe's Ariane 6 rocket blasts off | Space photo of the day for Nov. 13, 2025](#)
- [Sun unleashes strongest solar flare of 2025, sparking radio blackouts across Africa and Europe](#)
- [Europe's powerful Ariane 6 rocket launches Sentinel-1D Earth-observation satellite to orbit \(video\)](#)
- [US-Russian Soyuz crew launches to the International Space Station on Thanksgiving Day](#)
- [Latvia will become 60th nation to sign Artemis Accords for peaceful space exploration](#)
- [Astronaut from Pakistan will be 1st international visitor to China's Tiangong space station](#)
- [German launch startup HyImpulse raises 45 million euros](#)
- [ESA inaugurates new deep space antenna in Australia](#)



# GOVERNMENT POLICIES/ CONSULTATIONS/ RECOMMENDATIONS/ ANNOUNCEMENTS

## **Draft Telecommunications Rules on Spectrum Sharing, Trading & Leasing Released by the Government of India**

The Ministry of Communications has issued the Draft Telecommunications Rules (Sharing, Trading, and Leasing of Spectrum), 2025, marking a major regulatory development for India's satellite communications and telecom ecosystem. DraftTelecommunications rule (S...

Published in the Gazette of India on 28 November 2025, the draft rules outline a comprehensive framework enabling authorised entities to:

- Share spectrum within prescribed limits;
  - Trade assigned spectrum between eligible licensees;
  - Lease spectrum for efficient utilisation across networks;
  - Strengthen overall spectrum governance and compliance mechanisms.
- DraftTelecommunications rule (S...

This consultation represents a significant step forward in:

- Enhancing efficient spectrum utilisation across satellite, broadband, and telecom services;
- Supporting next-generation networks including high-throughput satellites and multi-orbit architectures;
- Enabling greater flexibility for operators, improving service reach and affordability;
- Moving India toward a more dynamic, market-responsive spectrum regime.

The Ministry has invited stakeholders to submit their comments and suggestions to the Joint Secretary (Telecom) at the Department of Communications. Feedback will be evaluated before finalising the new rules. DraftTelecommunications rule (S...

This development has the potential to reshape India's communication landscape—unlocking efficiencies, fostering innovation, and supporting India's rapidly expanding digital and space-based connectivity needs.

# ISpA UPCOMING EVENTS

## **INDIAN DEFSPACE SYMPOSIUM 2026**

The **Indian DefSpace Symposium (IDS 2026)**, the 4th edition of ISpA's premier annual defence-space forum, will convene senior leaders from the Armed Forces, global space agencies, industry, academia, and emerging startups to advance India's defence space capabilities.

The 4th edition of the Indian DefSpace Symposium (IDS 2026) will be announced shortly, bringing together senior leaders from the Armed Forces, industry, academia, global space agencies, and startups to advance India's defence-space agenda.

Join military leaders, policymakers, innovators, and global stakeholders as we shape India's defence space roadmap for the future.

Stay tuned for updates and announcements on [www.ispaevents.space](http://www.ispaevents.space).

## Founding Members

- Alpha Design Technologies
- Bharti Airtel
- CE Info Systems (MapmyIndia)
- Larsen & Toubro
- Nelco (A TATA Enterprise)
- Eutelsat OneWeb
- Walchandnagar Industries

## Associate Members

- Avantel
- AstroWorks Ventures LLC
- Axon Interconnectors & Wires
- BAE Systems India
- BEML Limited
- Bharat Electronics
- Broadcast Engineering Consultants India
- Capella Space
- ESRI India
- HAL – Hindustan Aerospace Division
- ICEYE
- LeoLabs
- Maxar Technologies India
- Nibe Space
- Northstar Earth
- Planet Labs
- SES India
- Tata Advanced Systems
- Tata Consultancy Services
- Viasat

## Core Members

- Ananth Technologies
- Astra Microwave Products
- Azista Industries
- Bharat Forge
- Centum Electronics
- Godrej & Boyce Manufacturing
- Hughes Communications India
- Ipstar (India)

## Start-up Members

- Agnikul Cosmos
- AIDIN Technologies
- Altz Technologies
- Anvikshiki Sarvajna
- Astrobase Space Technologies
- Astrogate Labs
- Astrome Technologies
- Bellatrix Aerospace
- BES Space
- BQP Technologies
- Caliche
- CI-Metrics
- CYRAN AI Solutions
- Codimaths
- Dhruva Space
- Digantara Research
- Elena Geo Systems
- GalaxEye Space
- Geo Solutions India
- SkyServe
- Inbound Aerospace
- Indian Technology Congress Association
- Inspecity Space Laboratories
- KaleidEO Space Systems
- Kawa Space
- KSpace
- Kepler Aerospace
- Kerala Spacepark
- Kristellar Aerospace
- LuminASIC Pvt Ltd
- Maan Defence
- Manastu Space
- Micronet Solutions
- OmSpace Rocket & Exploration
- OnEarth Space TS
- Omnipresent Robot Tech
- OrbitAID Aerospace
- Piersight Space
- Pixxel
- Robinsons Cargo & Logistics
- Saankhya Labs
- Samkalpa Systems
- SatLeo Labs
- SISIR Radar
- Siliconia Technologies
- Skymap Global India
- Skyroot Aerospace
- Spacefields
- Space Machines Co.
- Suhora Technologies
- Sunrise Ventures
- TheSpaceLabs
- ThrustWrks Dynetics
- Transcend Satellite
- TSC Technologies
- Upgraha Space
- VEDCOMSPOC
- Vihaan SpaceTech
- VyomIC
- Xovian Aerospace



@ISpA- Indian Space Association



@ISpA\_India



@Indian\_Space\_Association



@ispa.india

## Contact ISpA



ispa.space



+91 96673 03304



info@ispa.space



United Service Institution (USI) Building, Ground Floor Rao Tula Ram Marg (Opposite Signals Enclave Shankar Vihar), Delhi Cantonment, New Delhi, Delhi 110010