

ISpA-SPACE ACTIVITY YEAR-END SUMMARY

ANNUAL REPORT **2023**



+91 9667 303304



ispa.space



Membership: coord@ispa.space , 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

SPACE ACTIVITY YEAR-END SUMMARY 2023



Mastering India's Quantum Leap in Space: A Landmark Year of Achievements and Transformations (2023)

2023 wasn't just another year in India's space odyssey, it was a quantum leap. Year 2023 has been a period of exciting and significant activities in the Space domain in India. It is a period of Landmark changes in India's Space Odyssey. Bold policy reforms, groundbreaking missions, and a thriving private sector propelled India to a leading position on the global space stage.

This wasn't just a single giant leap; it was a series of strategic steps, each leaving an indelible mark on the nation's celestial aspirations. Let's take a comprehensive look at the defining achievements of this landmark year, a period that redefined India's relationship with the cosmos.

The stupendous success of ISRO in its soft-landing in Chandrayaan 3 along with the forays of Aditya L1 to study the sun have all ensured India's coveted position on the Space High Table.

Happy Reading and a Very Happy New Year once again !

India's Policy and Missions

Policy Powerhouse and Regulatory Landscape

Indian Space Policy 2023:

This game-changing blueprint revolutionized the Indian space landscape, opening doors for private companies to participate in all facets of space activity.

From manufacturing rockets to operating satellites, this paradigm shift promises to unleash an entrepreneurial wave, powering India's space economy to new heights.



National Research Foundation Bill and NDTSP

The passing of the National Research Foundation Bill and the release of the Draft National Deep Tech Startup Policy (NDTSP) emphasize the government's commitment to nurturing innovation and research in the deep tech sector, including space.

Indian Telecommunication Act 2023:

The new Telecommunication Act introduced provisions for the administrative assignment of satellite spectrum, streamlining the process for private players.

GST Exemption on Satellite Launch Services:

The exemption of GST on satellite launch services by both private and public entities will boost the industry's competitiveness.

India's Policy and Missions

IN-SPACe Authorization:

The Indian National Space Promotion and Authorization Centre (IN-SPACe) authorized OneWeb Eutelsat and Jio Satellite to provide communication services in India, marking a significant step towards private participation in the satellite communication sector, both of these companies have been provided the GMPCS license.

G20 Space Economy Leaders' Meeting (SELM):

Hosting this prestigious event solidified India's leadership role in shaping the future of the global space economy. By championing sustainable utilization and responsible growth, India set the stage for international collaboration and a brighter future for space exploration.



India's Policy and Missions

Mission Marvels

01 Chandrayaan-3

This ambitious lunar mission, aiming for the south pole's first soft landing, has already captured the world's imagination.

L&T, Walchandnagar Industries, Ananth Technologies, Godrej Boyce, and Centum Electronics played crucial roles in crafting this lunar marvel, promising to unlock secrets about the Moon's geology and resources.



02 Aditya-L1

India's dedicated solar mission is already peering into the Sun's fiery heart, studying its impact on Earth's space weather and providing invaluable data for climate research.

L&T, Walchandnagar Industries, Ananth Technologies, Godrej Boyce, Astra Microwave Products, and Centum Electronics weren't just contributors; they were co-scientists deciphering the language of our fiery neighbour.



03 XPoSat

The successful launch of XPoSat, India's first privately developed and owned Earth observation satellite, demonstrated the capabilities of the burgeoning domestic space industry.



India's Policy and Missions

International Partnerships Fueling Growth

India Signs the Artemis Agreement:

India officially signed the Artemis Accords, cementing its position as the 27th country to join the US-led lunar exploration project.

The signing ceremony took place during Prime Minister Narendra Modi's visit to Washington, D.C., and was officially signed by NASA Administrator Bill Nelson and Indian Ambassador to the United States Taranjit Singh Sandhu.



Indo-French Collaboration

The Indian Space Association (ISpA) and the French Aerospace Industries Association (GIFAS) signed a Memorandum of Understanding (MoU) to foster collaboration in various areas, such as technology transfer, joint ventures, and market access.

INDUS-X

The launch of the India-U.S. Defense Acceleration Ecosystem (INDUS-X) fosters deeper collaboration between the two nations in space and defence technologies.



India's Policy and Missions

Commercial Successes and Industry Achievements



Dhruva Space

Dhruva Space's launch of its 3U and 6U satellite orbital deployers and DSOL onboard ISRO's PSLV C55 showcased their innovative solutions for small satellite deployment.



Azista-BST

The inaugural launch of ABA First Runner (AFR) by Azista-BST marked another milestone for private satellite development in India.



OneWeb

ISRO/NSIL successfully launched the second batch of 36 OneWeb satellites, further contributing to global internet connectivity.



Digantara

The launch of Digantara's Pushan Alpha satellite aboard SpaceX's Transporter 6 and EarthSights platform for citizen scientists highlighted their commitment to space weather research and Earth observation.



राष्ट्रीय डिजाइन संस्थान
NATIONAL INSTITUTE OF DESIGN

NID-ISRO MoU

The National Institute of Design (NID) and ISRO's Human Spaceflight Centre collaborated on design aspects of the Indian Human Spaceflight Programme, merging design expertise with space technology.

India's Policy and Missions

Commercial Successes and Industry Achievements



iDEX Challenge Winners

Bellatrix Aerospace and Manastu Space, along with Bellatrix and Kepler Aerospace, emerged winners of the iDEX Challenge for micro-propulsion systems and ADCS for CubeSats, respectively, contributing to advancements in miniaturized spacecraft technologies.



Pixxel

Pixxel secured a prestigious National Reconnaissance Office (NRO) contract for commercial hyperspectral capabilities, showcasing their expertise in advanced Earth observation solutions.



IIA Starberry Sense

The Indian Institute of Astrophysics' successful launch of Starberry Sense onboard PSLV-C55 demonstrated their cutting-edge space instrumentation capabilities.



Bellatrix ARKA Series

Bellatrix's successful launch and operation of their HET solar electric propulsion system onboard PSLV-C55 marked a significant step towards in-space propulsion.



MapmyIndia

MapmyIndia's digital crime map project for Chennai showcases the application of geospatial technologies for public safety.

India's Policy and Missions

Commercial Successes and Industry Achievements

Start-up Ecosystem thrives



Kawa Space

Kawa Space's selection for the Amazon Web Services Space Accelerator underlines the potential of Indian space start-ups in the global arena.



Pixxel's Aurora Platform

The launch of Pixxel's easy-to-use geospatial analytics platform, Aurora, empowers businesses to unlock insights from satellite imagery.



GalaxEye Space SAR System

GalaxEye Space's unveiling of their high-resolution drone-based SAR system adds to the diverse portfolio of Earth observation solutions emerging from India. And GalaxEye was also selected in Seraphim Space Accelerator Program 2023.

India's Policy and Missions



Financial Investments

The Indian space sector is recognised for building cost-effective satellites with launch of the Mars probes successfully at first attempt and taking hundreds of foreign satellites to space. India constitutes 2-3% of the global space economy and is expected to enhance its share to more than 10% by 2030.

Source:

<https://www.investindia.gov.in/sector/space>

ISRO budget

Department of Space gets **₹12,500** crore, 8% less than previous year

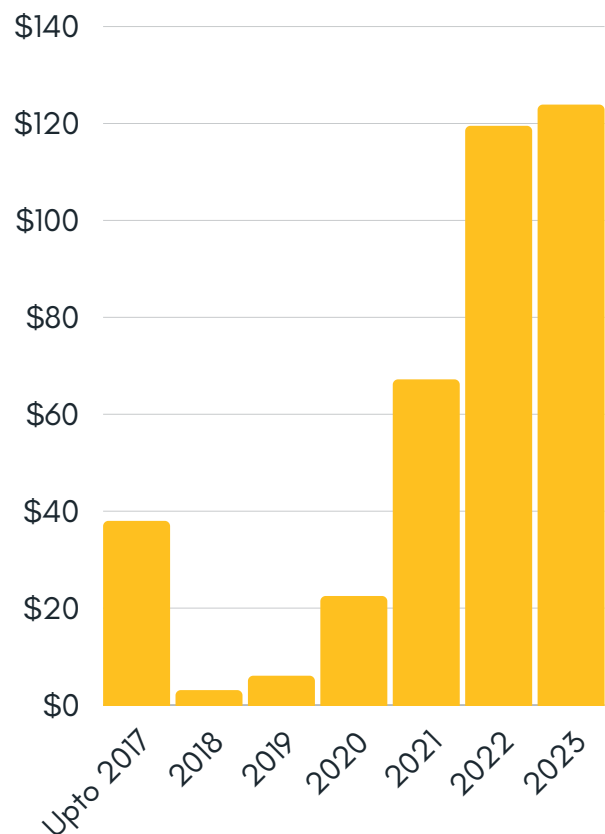
Investment by VCs in 2023

Despite a challenging economic period in 2022, this year's investment into the space tech sector has continued to show signs of recovery.

Space tech has showcased a remarkable resilience amid macroeconomic uncertainty, bucking trends in the broader venture capital tech market. Approximately \$4.8 billion was invested into the space tech industry by the end of Q3, with growth-stage investment activity increasing.

Source:

<https://techcrunch.com/2023/12/19/2024-spacetechn-forecast-rising-investments-lunar-exploration-and-pivotal-spacex-moments/>



Global Stage:

China's Space Strides

China achieves lunar sample return with Chang'e-5, completes Tiangong space station, and demonstrates quantum satellite capabilities, advancing space exploration and communication technologies.



Chang'e-5 Lunar Sample Return

China successfully accomplished the first robotic lunar sample return mission in decades, bringing back precious lunar soil for scientific analysis. This achievement marked a significant step forward in China's ambitious lunar exploration program.



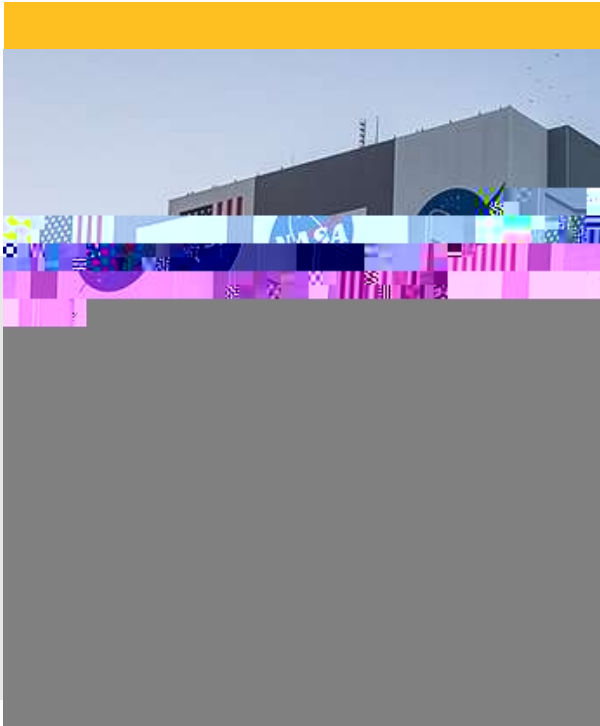
Tiangong Space Station Completion

China completed the construction of its Tiangong space station, showcasing its advancements in long-term human spaceflight capabilities. This station paves the way for further scientific research and technological demonstrations in space.

Quantum Satellite Capability Demonstrated

China continues to make strides in quantum technologies, including demonstrating a quantum satellite network for secure communications, potentially revolutionizing future communication infrastructure.

Global Stage:



USA's Stellar Focus

The USA's Artemis program targets a 2025 Moon return, emphasizing international collaboration and technological strides.

SpaceX's Starship promises cost-effective deep space exploration. NASA achieves a groundbreaking 267 Gbps deep space video stream and a two-way laser system at 1.2 Gbps, revolutionizing high-bandwidth communication for distant spacecraft.

Artemis Program

The USA continues its ambitious Artemis program, aiming to return humans to the Moon by 2025. This program involves international collaboration, technological advancements, and renewed lunar exploration initiatives.

SpaceX Starship Development

SpaceX continues to develop its Starship launch vehicle, a fully reusable system designed for deep space exploration and potentially revolutionizing space travel costs and capabilities.

Tech Demo Streams Deep Space Video

NASA's technology demonstration successfully streamed the first video from deep space via laser at 267 gigabits per second, paving the way for future high-bandwidth communication with distant spacecraft.

NASA's Two-way Laser Communications Relay System

NASA successfully demonstrated a two-way laser communication system capable of transmitting data at 1.2 Gigabits per second, marking a significant advancement in deep space communication capabilities.

World Radiocommunication Conference 2023 (WRC-23)



ITU mega event, World Radiocommunication Conference 2023 (WRC-23) was held at Dubai from 20th November, 2023 to 15th December, marking a pivotal moment for the global wireless communication. Conference was hosted by the Telecommunications and Digital Government Regulatory Authority (TDRA) of the UAE.

Member states tackled intricate questions of spectrum allocation, ultimately achieving remarkable progress, revising the ITU Radio Regulations to support spectrum sharing and technological innovation, updated treaty, allocates new spectrum for broadband connectivity, safety of life, space and earth observation.

WRC-23 puts the world on a solid path towards a more connected, sustainable, equitable and inclusive digital future for all. Few major decisions were taken during WRC-23 are following:

-
-
-
-
-

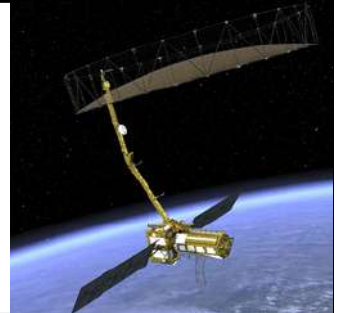
• **The agenda for WRC-27 is includes a wide range of topics, such as:**

-
-
-
-

India's Future Flight

NISAR

The joint NASA-ISRO SAR mission, slated for launch in 2024, will employ advanced radar technology to study Earth's changing ecosystems and natural disasters, providing invaluable data for environmental monitoring, disaster preparedness, and resource management.



SPADEX

This ambitious program aims to develop a fully reusable launch vehicle capable of carrying heavier payloads into space. Its success could revolutionize India's launch capabilities, significantly reducing costs and increasing its competitiveness in the global space market.

The upcoming mission involves launching two spacecraft - the Chaser and the Target - which will engage in a complex and autonomous docking procedure in orbit. This maneuver will showcase ISRO's advanced capabilities in space navigation and robotics.



GAGANYAAN

With the successful mission of Chandrayaan-3 already underway, India's next major milestone lies in sending humans to space. The Gaganyaan program, aiming for a first orbital flight by 2024, signifies a leap forward in India's human spaceflight capabilities, opening doors for future lunar exploration and beyond.



FDI Policy

The revised FDI policy in the space sector is expected to attract greater foreign investment and expertise, fostering further growth and innovation within India's space industry. This influx of capital and knowledge could accelerate technological advancements and propel India's space ambitions to new heights.



India's Future Flight

IN-SPACe Guidelines

Entire Space industry is looking forward to the IN-SPACe guidelines to provide clear pathway for private companies to participate in space activities, further boosting private sector involvement.

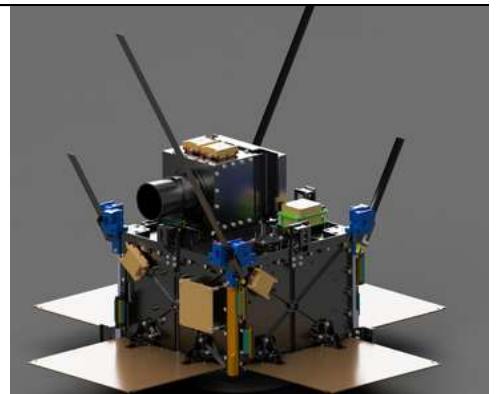
Skyroot Aerospace's Second Launch

Following their successful debut launch in 2022, Skyroot Aerospace plans another launch in 2024, showcasing their capabilities in developing and operating launch vehicles. This milestone could further establish the company as a key player in the private space launch market, both domestically and internationally.



Pixxel Constellation Completion

Pixxel, a leading Indian space startup, aims to complete its constellation of hyperspectral imaging satellites by 2026. This constellation will provide high-resolution data for a wide range of applications, including agriculture, mining, environmental monitoring, and disaster management, offering unprecedented insights into our planet.



Agnikul's First Agnibaan Launch

Agnikul, another prominent Indian space startup, plans to launch its first small satellite launch vehicle, Agnibaan, in 2024. This launch will demonstrate their advancements in developing cost-effective and efficient launch solutions for small satellites, opening up new possibilities for space-based applications.



India's Space Industry Soars to New Heights in 2023



A Year of Collaborations, Advancements, and Private Sector Flourishing

The year 2023 witnessed India's space industry reach new heights, driven by robust collaborations, cutting-edge advancements, and a flourishing private sector.

With a developing policy framework and an ambitious entrepreneurial spirit, the Indian space ecosystem is poised for even greater achievements in the years to come. The transformative events of 2023 have solidified India's position as a global space powerhouse.

Contact Us :



Phone Number
+91 9667 303304



Email Address
coord@ispa.space, info@ispa.space



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