



ESPI

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Policy Institute

ESPI Insights

Space Sector Watch



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**BEYOND DIPLOMACY FOR SPACE:
SPACE FOR DIPLOMACY**
A NEW GEOPOLITICAL ROLE OF SPACE

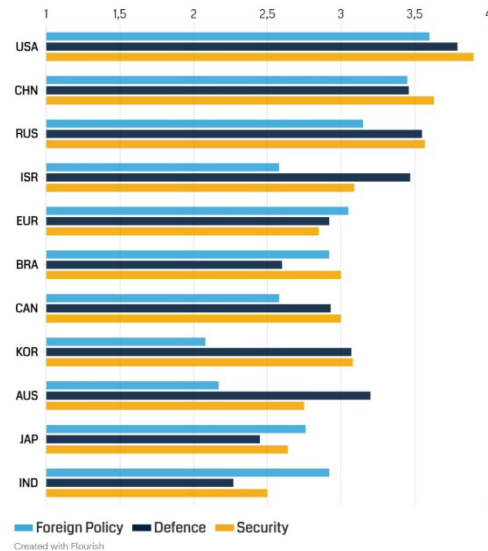
The recent announcement by US President Biden alongside Japan Prime Minister Kishida on the selection of a Japanese astronaut for the Artemis 3 moon landing was presented as a signal for more robust economic and defense ties between the two nations.

The selection at the highest political level, as a direct consequence leaves no place for Europe on the podium of pioneers on the Moon. But maybe more importantly, it is a demonstration of the ever-increasing geopolitical role of space. It marks the move beyond diplomacy for space, towards space for diplomacy. Space has indeed become a tool of political influence in an increasingly multi-polar world. We witness a shift beyond traditionally more programmatic cooperation between space agencies, e.g. via barter agreements, typically focused on synergies between space programmes such as cooperation on payloads and science. A new phase emerges, where space capabilities directly serve diplomatic agendas. This happens one year after the US State Department issued its **Strategic Framework for Space Diplomacy**, which clearly defines **space for diplomacy as leveraging space activities for wider diplomatic goals, to achieve US foreign policy and national security objectives on issues such as climate change, international security and economic competitiveness**. This is distinct from the more classical way of diplomacy for space via UN COPOUS, or concerns on technical cooperation, interoperability, spectrum, data policies and engagement with US space industry. Space for diplomacy has become a key pillar to advance the US position as a global leader.

As space increasingly encompasses broader policy dimensions, the development of **a cohesive approach to space for diplomacy is needed also in Europe**. In the first instance this requires that space indeed is understood by policy leaders in its geopolitical and strategic value, at national and European level. French President Macron, in his recent **Europe speech at La Sorbonne**, identified space as one of the five most emerging and strategic sectors. He called for "a Europe with ambition for space" and to make Europe a global leader by 2030. In the same speech, President Macron more generally called for a wider European cohesion in diplomacy, for Europe as a global continent, as a balanced power, forming strategic partnerships including the Arctic, Indo-Pacific, Latin America and with Africa.

Space indeed is a formidable sector of transformative change, with unique potential as an excellent tool of diplomacy. Remarkably, ESPI's assessment of "Europe as a Space Power" includes soft capacity indicators (25 out of 94) comprising "Space for Diplomacy", "Foreign Aid and International Initiatives" and "International Prestige". These indicators assess the degree to which space actors make use of space: to serve diplomatic purposes, which can be political, strategic, and/or economic in nature; to provide assistance to foreign countries and contribute to international initiatives; to boost its international reputation and image as a major player in the international arena. When applied to

sectors of foreign policy, security and defence, Europe score remarkably low, well below the US, China, Russia and also Israel, more comparable to Brazil and Canada.



This shortfall related to space for diplomatic purposes and to the use of space for security and defence negatively impacts Europe's overall capability to develop the full benefits of space and its space power performance. This applies despite Europe's soft capacity with some positive results related to socio-economic benefits of space (agriculture, environment, energy, mobility etc.).

A genuine strategic cohesion must be created between all actors in Europe on a space strategy, which also embraces space for diplomacy and soft capacities, including economic competitiveness, and in support to climate change, energy, security, disaster management, and agriculture. This needs to be developed together with and next to the traditional focus of space agencies on hard capacity of systems and infrastructures, e.g. satellites and launchers. To echo once again President Macron, Europe today needs a more pragmatic and operational cooperation among its actors as well as a coherent security strategy for the Mediterranean, Africa, the Indo-pacific, and the Arctic.

For its part, ESPI provides support to diplomatic action as a forum and as part of its mandate to promote European space policy globally. ESPI operates the **Vienna Space Diplomat** initiative and organises a number of Interregional Dialogues. These dialogues include partnerships with entities like the Asia-Pacific Regional Space Agency Forum (APRSF), as well as recent collaborations with Argentina's CONAE for the Latin American region. Looking ahead, ESPI plans to enhance its soft capacity activities by more closely integrating them with the support provided to its members, space agencies and ministries. This is especially crucial as Europe develops its space strategies for the 2030s and beyond.

Yours sincerely,

Hermann Ludwig Moeller
Director of ESPI





POLICY & PROGRAMMES

ESPI at the 2024 NewSpace Africa Conference in Angola

The 2024 NewSpace Africa Conference started on April 2 in Luanda, Angola, at the Talatona Convention Centre. Hosted by over 400 delegates from 46 countries, the event, organised by Space in Africa, the African Union Commission, and Angola's National Space Programme, **focuses on using space technologies to address Africa's social inequalities**. The conference began with Minister Mário Augusto da Silva Oliveira and industry leaders discussing the role of space technologies in solving African challenges, **emphasising the importance of partnerships and advancements in satellite technology**. Technical discussions on integrating geospatial data into agriculture and security sectors followed. The event concluded with a focus on collaborative efforts and capacity building to enhance the use of Earth Observation data for sustainable development. ESPI actively participated and supported the NewSpace Africa Conference, demonstrating its ongoing commitment to international engagement in the space sector.



Credit: Space in Africa

Also, various MoU's were signed during this conference. The GMES and Africa Marine and Coastal Areas Management for North and West Africa (MarCNoWA) and the Angola National Space Programme Management Office (GGPEN) formalised an agreement to **enhance EO data utilisation for coastal and marine resources management**. On April 5th, **MSTelecom and GGPEN signed an MOU to boost high-speed broadband connectivity across Angola** by leveraging satellite and terrestrial network infrastructures to provide internet services to remote areas. This collaboration is expected to significantly bridge Angola's digital divide and spur socio-economic growth. Additionally, the Research Institute for Innovation and Sustainability (RIIS) and the SatNav Africa Joint Programme Office (JPO) **concluded an agreement to raise awareness on the use of space-based data for Africa's sustainable development**.

ESPI at the 39th Space Symposium

Between April 8-11, the 39th annual Space Symposium in Colorado Springs gathered over 12,000 attendees from around the globe. Among them was H. Ludwig Moeller, ESPI's Director, who participated in the International SSA STM Policy Exchange, focusing on global strategies for space traffic management. The event showcased major aerospace innovations and **significant announcements, including the Space Force's new Commercial Space Strategy and a collaboration featuring a Japanese astronaut in NASA's Artemis Programme**. The symposium highlighted its role as a crucial platform for advancing international cooperation in space exploration and policy development.

ESA and ISRO to strengthen cooperation

ESA is set to expand its collaboration with ISRO. Following ISRO Chairman S. Somanath's presentation at the ESA Council meeting, which showcased India's space capabilities, **the agencies are exploring deeper cooperation in science, exploration, and operations**. This collaboration will be further defined and proposed for funding at ESA's 2025 ministerial conference. Current partnerships include an agreement that allows ISRO to use ESA ground stations for missions like Chandrayaan-3 and Aditya-L1, with reciprocal ISRO station access for ESA. Additionally, ISRO collaborates with individual ESA member states.



ESA and EU Boost Space Collaboration for Earth's Challenges

ESA and the EU have enhanced their collaboration through a new agreement aimed at utilising space technologies to tackle Earth's pressing issues like climate change and natural disasters. This partnership focuses on three key initiatives: sustainability, crisis response, and asset protection, leveraging ESA's technical capabilities and the EU's policy framework to support Europe's climate neutrality goals and improve emergency management and space asset protection.



Credit: ESA

US-Japan Enhance Space Partnership with Artemis Programme Collaboration

During Prime Minister Fumio Kishida's US visit, an agreement was announced for **Japan to join American moon missions under NASA's Artemis programme**. This partnership will see two Japanese astronauts participate in future missions, with one set to be the **first non-American to land on the Moon**. Japan will contribute a pressurised rover to support extended lunar missions, enabling astronauts to operate for up to 30 days near the lunar South Pole.

China's ILRS Moon Base Initiative Adds Partners

China's International Lunar Research Station (ILRS) initiative continues to expand. **Recent partnerships with Colombia's Asociación de Astronomía and Kyrgyzstan's Arabaev Kyrgyz State University** showcases the project's growing reliance on smaller, subnational entities. **Türkiye has also expressed interest in joining the ILRS**, further indicating the ILRS's appeal to a variety of international actors. Moreover, China announced further expansion of the ILRS's partnership base during the Space Day of China event in Wuhan, adding **Nicaragua, Thailand, Ethiopia, the Asia-Pacific Space Cooperation Organisation, and the Arab Union for Astronomy and Space Sciences** to its roster.

On a similar note, **China's Deep Space Exploration Laboratory recently signed a Memorandum of Understanding with the Kenya Advanced Institute of Science and Technology (KAIST)**.

Strategic push for the integration of commercial space into US military capabilities

On April 2nd, the Department of Defence introduced a **strategy to use commercial space technologies for national security**. This move aims to shift from reliance on custom-built systems to incorporating commercially available technologies, **improving compatibility, and diversifying supply chains**. The strategy, focusing on 13 national security missions, advocates for a balanced use of government and commercial tech to enhance innovation and resilience.

Later on, the **U.S. Space Force published a new commercial space strategy** at the 39th Space Symposium, to better integrate private-sector capabilities into its operations. Announced by Chief of Space Operations Gen. Chance Saltzman, the strategy outlines the Space Force's approach to utilising commercial advancements to develop more resilient, cost-effective, and swiftly deployable space architectures.



Canadian government supports Telesat's Lightspeed with a \$1.6 Billion Loan

The **Canadian government has extended a €1.46B loan to support Telesat's Lightspeed** LEO satellite constellation. The loan has a 15-year term and a floating interest rate of 4.75% above the Canadian Overnight Repo Rate Average (CORRA). Telesat CEO Dan Goldberg highlighted the loan's role in reducing the project's borrowing needs by approximately €684M, with significant cost savings already achieved. Telesat, partnering with MDA, anticipates launching its first satellites by June 2026, targeting global coverage by the end of 2027.

NASA unveils Space Sustainability Strategy

At the 39th Space Symposium, NASA revealed its Space Sustainability Strategy, announced by NASA Deputy Administrator Pam Melroy. The **strategy** aims to enhance space sustainability by collaborating with international stakeholders. It aims to create a framework that considers economic and technological factors for space safety and debris management. Future plans include policy updates, improved coordination with partners, and the appointment of a director to oversee these efforts.



Credit: NASA

NASA's ESCAPEDE Mission awaits Blue Origin's New Glenn launch

The forthcoming Mars small satellite mission, **ESCAPADE, funded by NASA, has been scheduled for launch on September 29th**, subject to the readiness of Blue Origin's New Glenn rocket. Previous projections for the launch period varied from August to November, with uncertainties arising from the preparedness of the New Glenn rocket. Blue Origin has conducted tests utilising a "pathfinder" model of the rocket at Cape Canaveral, indicating advancements towards the intended launch. As the inaugural flight for New Glenn, ESCAPEDE's mission is directed towards the exploration of Mars' magnetosphere interaction with the solar wind through the deployment of small satellites.

JAXA Contracts Astroscale for ADR Mission and Expands Satellite Launch Services

JAXA has chosen Astroscale Japan for Phase II of its Commercial Removal of Debris Demonstration (CRD2) programme, focusing on the removal and deorbiting of large space debris. Astroscale Japan will utilise their ADRAS-J2 spacecraft, equipped with robotic arm technologies, to rendezvous, capture, and deorbit a Japanese upper-stage rocket body. This follows their successful initial mission where the ADRAS-J spacecraft demonstrated safe proximity operations with space debris.

In a separate development, JAXA is also expanding its satellite launch services through collaborations with private-sector entities. This includes the **launch of small satellites under JAXA's Small Satellite Rush Programme (JAXA-SMASH), with Interstellar Technologies designated as a preferred launch operator**. Interstellar's ZERO rocket is set to provide affordable, frequent space transport services, aiming to capture the growing smallsat market in Japan, Asia, and Oceania, and to meet Japan's policy of launching all domestic satellites using domestic rockets by 2028.



Russia Advances New Space Station Plans

Russia has approved preliminary designs for the **Russian Orbital Service Station (ROSS)**, with Roscosmos targeting a deployment window from 2027 to 2032. This development comes as Russia addresses multiple priorities, including its involvement in Ukraine and collaborations on lunar projects with China. The ROSS aims to enhance coverage of Russian territories with an orbital inclination of 97 degrees, differing from the ISS's 51.6 degrees. Initially hosting two cosmonauts, the station is designed to operate autonomously without a crew onboard. Roscosmos projects a cost of approximately \$6.6B for the station's development.

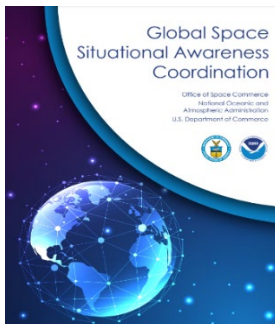
China considers opening Tiangong Space Station to foreign astronauts

China's space programme is contemplating the **possibility of welcoming tourists and foreign astronauts to the Tiangong space station**. Lin Xiqiang, deputy director of the China Manned Space Agency, announced plans to explore this initiative during a recent press conference. Typically operated and maintained by three astronauts, the station is preparing for the Shenzhou-18 mission, which aims to rotate the current crew.



Credit: China Manned Space Agency

NOAA's Office of Space Commerce advocates global collaboration for SSA



Credit: NOAA's Office of Space Commerce

The National Oceanic and Atmospheric Administration's Office of Space Commerce (OSC) outlined its **vision for a global coordination system to streamline space situational awareness (SSA) services**. This system, supported by national or regional hubs and international partnerships, aims to improve the coordination of space traffic by providing consistent SSA data, thereby reducing the risk of spacecraft collisions. The U.S.'s Traffic Coordination System for Space (TraCSS), managed by OSC, will offer SSA information globally to civil and private operators. Its success depends on transparent development and collaboration with international partners, including emerging and traditionally non-collaborative nations, acknowledging differences in satellite observation capabilities.

European Defence Agency's published the Annual Report for 2023

The **European Defence Agency (EDA) released its annual report for 2023**. In its report, EDA highlights its ongoing efforts in space sector initiatives. This includes the Defence in Space Forum, which has been active since 2022, focusing on identifying shortfalls, enhancing collaborations, and implementing the EU Space Strategy for Security and Defence. The report also details the continuation of the GOVSATCOM project that supports satellite communications among member states. Further, the EDA provided analyses on persistent surveillance capabilities using a constellation of small satellites, aimed at improving data interoperability and sharing across member states' space systems. These studies support the Earth Observation Governmental Service and contribute to the European Defence Fund's SPIDER initiative. Additionally, the EDA has advanced its work on artificial intelligence tools in imagery intelligence through the MATRIX project, in partnership with SatCen.



Credit: EDA



UKSA invests in startups and international space projects

UKSA has announced funding initiatives to support space startups and international collaborations. An **£8 million Space Portfolio within the UK Innovation and Science Seed Fund (UKI2S)** targets early-stage companies, providing investments to bridge crucial funding gaps. Managed by Future Planet Capital, this fund offers financial support ranging from £100K to £500K. Additionally, **the UKSA's International Bilateral Fund is promoting projects** like the University of Strathclyde's collaboration with MIT and the Alan Turing Institute, using AI to enhance space operations. Other notable projects include Vertical Future's robotic space farm and a partnership between Rolls-Royce and BWXT on space nuclear power.

Space ISAC Forms Strategic Cybersecurity Alliances with France, Israel, and UK

The US Space Information Sharing and Analysis Centre (Space ISAC) has established significant cybersecurity collaborations with **CNES**, the Israel Space Agency (**ISA**), the **Greek Ministry of Digital Governance**, and **UKSA**. Announced at the Space Symposium, these partnerships aim to enhance global space security and cooperation. The agreements with CNES and ISA focus on sharing cyber and physical threat information and advancing technological development in space cybersecurity. The UK partnership will leverage British capabilities to support international security efforts in space.

Canada Forms National Space Council

Canada has announced the creation of a National Space Council. The formation of the National Space Council marks a significant step in coordinating space exploration, technology development, and research efforts across government sectors. This initiative is part of a broader strategy to strengthen Canada's position in the global space industry, which injects about \$2.8B into the national economy and supports numerous STEM jobs.

Former Italian PM Letta Proposes Major EU Market Reforms



Credit: Council of the EU

Former Italian Prime Minister **Enrico Letta** has proposed significant reforms to the EU's single market, advocating for a "fifth freedom" to facilitate the free movement of research, innovation, knowledge, and education. His recommendations aim to enhance EU competitiveness across various sectors, including space. **The report on single market reforms** has a section dedicated to Europe's space sector, highlighting the need for a cohesive strategy to address challenges facing the European space industry. It proposes an EU-wide state aid mechanism to support the space industry, currently hindered by restrictive competition rules. Additionally, it calls for a re-evaluation of the "geo-return" policy to focus more on R&D and non-commercial ventures, alongside advocating for less fragmented regulations and enhanced public procurement to attract private investment. These changes aim to enhance the space sector's global competitiveness and reduce reliance on fragmented national policies.



Bavarian Ministry Partners with GAF AG for CAP Area Monitoring 2024

The Bavarian State Ministry of Food, Agriculture, Forestry, and Tourism (**StMELF**) has entered into a four-year framework contract with **GAF AG**, a subsidiary of **e-GEOS (Telespazio/ASI)**, for the “**Area Monitoring 2024 – First Pillar of the CAP in Bavaria.**” This partnership will utilize automated analysis of satellite data to monitor agricultural zones throughout Bavaria, ensuring adherence to the European Common Agricultural Policy (CAP). Utilizing optical and radar data from the Copernicus Sentinel Programme, the initiative will assess various crop types and verify compliance with agri-environmental and climate protection measures. Already implemented in five other German federal states since 2023, this system allows for precise and continuous monitoring of subsidy declarations and eligibility requirements over an area of 199,222 km².

Airbus Expands Earth Observation with Pléiades Neo Next Programme

Airbus has launched the **Pléiades Neo Next programme** to enhance its high-resolution Earth observation services. Building on the existing Pléiades Neo constellation, this new initiative will introduce advanced satellites with improved resolution and quicker data processing, supporting diverse sectors like defence and agriculture. The programme aims to improve Airbus’s global geospatial intelligence capabilities, ensuring frequent satellite revisits and top-tier image accuracy.

FAA Enforces Pre-Launch Reentry Licensing for Spacecraft

The FAA requires spacecraft to secure a re-entry license prior to launch approval to ensure public safety and manage the risks associated with spacecraft returning to Earth. This policy, aimed at preventing incidents without prior re-entry clearance, mandates that re-entry missions must demonstrate a risk of casualty of less than one in ten thousand. The change follows the FAA’s re-entry license issues with Varda, whose spacecraft was stuck in orbit until receiving the necessary authorisation. This incident marked the first time the FAA granted a Part 450 re-entry license for a commercial spacecraft to land on U.S. soil. The FAA’s updated approach seeks to streamline future missions and avoid regulatory delays once spacecraft are already in orbit.

Italy and Egypt Sign MoU to strengthen Space Collaboration

During Senator Adolfo Urso’s state visit to Egypt, a MoU was signed between the ASI, represented by President Teodoro Valente, and the Egyptian Space Agency (EgSA), represented by CEO Sherif Mohamed Sedky. The agreement aims to foster long-term investments and develop joint space projects that could benefit Mediterranean and African regions. This partnership will also promote cooperative ventures in space sciences, Earth Observation, and specialised training, enhancing both nations’ roles in the growing space sector.



Credit: ASI

EUMETSAT Meeting Sets Roadmap for Water Challenges

Representatives from African and international bodies convened at EUMETSAT to create a roadmap addressing water-related challenges. The plan prioritises developing early warning systems for floods and droughts and enhancing water resource management. It focuses on improving data access, capacity building, and collaboration with basin organisations.



In other news

Switzerland, Sweden and Slovenia joined the Artemis Accords, becoming the 37th, 38th and 39th country to sign: the move aligns with the plan to reinforce strategic partnerships with the U.S. in space research and industry.

ESA identified Saturn's moon Enceladus as the prime candidate for its next L-class mission: prioritising the exploration of its habitability and the search for evidence of life, the mission aims to collect samples from Enceladus' ocean world.

NASA commissioned SpaceX and Blue Origin to adapt their human lunar landers into cargo versions, capable of delivering large payloads to the Moon: these landers, expected to debut on the Artemis VII mission, will transport 12 to 15 metric tons of equipment without human life support systems. SpaceX and Blue Origin will modify their existing designs, focusing on payload interfaces and deployment mechanisms.

White House directs NASA to establish unified Lunar Time Standard: in an effort to set international norms in space, the White House instructs NASA to develop a Coordinated Lunar Time (LTC) standard by 2026. LTC aims to synchronise timekeeping for lunar spacecraft and satellites, crucial for precision missions.

The Civil Aviation Authority grants a "range licence" to SaxaVord Spaceport in Shetland: this allows control over sea and airspace during launch, ensuring safety, with the aim to launch up to 30 rockets annually.

MDA Space secures a \$250M contract extension from the Canadian Space Agency, expanding its role to include robotics flight controller duties on the ISS until 2030: the move aligns with MDA's shift towards commercial services, exemplified by its new Skymaker technology for space robotics.

UNIDIR and the Paris Peace Forum signed an MoU, marking UNIDIR as the eighth Knowledge Partner of the Forum: the collaboration aims to address global challenges through joint initiatives. UNIDIR brings expertise in disarmament and international security to the partnership, supporting the Forum's mission of fostering dialogue and innovation.

Russia vetoed a UN Security Council resolution concerning the prohibition of nuclear weapons in space: the resolution, supported by 13 members, aimed to reinforce the Outer Space Treaty. Russia and China's proposed amendment, advocating against all weapons in space, was also rejected.

The Senegalese Space Study Agency (ASES) and the Turkish Space Agency (TUA) signed an MoU: The MoU, signed by Mr. Maram Kaire and Mr. Yusuf Kırac at the 2024 Space Technology Conference, aims to strengthen space collaboration between their countries.

U.S. DoD allocated \$14.4M to 5N+ Semiconductors for germanium substrate production, vital for satellite solar cells: the aim is to support national security and domestic supply chain resilience, ensure long-term viability and enhance manufacturing capabilities for four years.

Guimarães Municipality (Portugal) and CEiiA establish Partnership for "Guimarães Space Hub": a Collaboration Protocol was signed to create the Space Hub at the Jordão Theatre. Focused on aerospace research, the hub aims to operate the Atlantic Constellation of 30 satellites by 2026.



INDUSTRY & BUSINESS

Beyond Gravity expands production for satellite steering mechanisms



Credit: Beyond Gravity

Beyond Gravity is enhancing its production capacity in Vienna, Austria, in response to the increased demand for its steering mechanisms designed for electric satellite thrusters. With recent major orders totalling over €24M, the company has seen a surge in demand for its space technology solutions. In response to this escalating requirement, Beyond Gravity augmented its clean room production area, doubling it from 100 to 200 square metres.

This expansion serves to expedite production cycles and effectively meets the increased demands within the space sector.

Exolaunch collaborates with HawkEye 360 for space-based intelligence

Exolaunch signed a **multi-mission agreement with HawkEye 360 to advance space-based technology and geospatial intelligence capabilities**. The inaugural launch under the agreement occurred on April 7th from Kennedy Space Center's Launch Complex 39A via SpaceX's Falcon 9 launch vehicle. Utilising Exolaunch's CarboNIX separation systems, three HawkEye 360 satellites were successfully deployed on the SpaceX Bandwagon-1 mission. These satellites aim to enhance coverage over high-traffic maritime corridors, particularly in the Indo-Pacific region. The agreement encompasses integration and deployment services for at least ten satellites to be delivered into orbit for HawkEye 360. All these missions will utilise Exolaunch's CarboNIX separation systems and EXOpod Nova containerised deployers.

ESA awards GMV contract for LEO-PNT satellite constellation

Spanish company GMV secured a €78.4M **contract from ESA to lead the development of a five-satellite constellation in LEO for PNT services**. GMV will oversee the entire mission, collaborating with key partners including OHB System AG, Alén Space, Beyond Gravity, and Indra. OHB System AG will develop and manufacture four LEO satellites, Alén Space will provide demonstrator cubesat platforms and payload components, Beyond Gravity will contribute to the development of the PNT payloads, and Indra will coordinate the demonstration activities. The project aims to launch the first satellite, based on a 12U cubesat architecture, within 20 months for initial testing, with the full constellation operational by 2027.



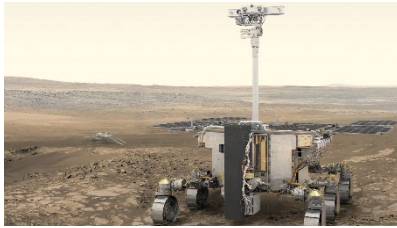
Credit: GMV

ESA revises ClearSpace-1 mission with new lead and target

ESA announced changes to its ClearSpace-1 mission, opting for a new mission lead and target. OHB SE will now lead the ClearSpace-1 consortium, overseeing satellite bus provision, system integration, and launch. ClearSpace will manage close proximity and capture operations post-orbit. Additionally, the mission's target has shifted to PROBA-1, an ESA technology demonstrator launched in 2001 via an ISRO PSLV rocket. ClearSpace-1 will employ a four-armed capture system for satellite retrieval, followed by a deorbit manoeuvre, culminating in atmospheric re-entry for both spacecraft.



ESA contracts Thales Alenia Space for ExoMars Rosalind Franklin mission



Credit: ESA

ESA awarded a contract to **Thales Alenia Space for the ExoMars Rosalind Franklin mission**, with the aim of furthering Europe's exploration of the Martian surface. The mission, in collaboration with NASA, seeks to deepen the understanding of the planet's evolution and potential for life. Scheduled for launch between October and December 2028, the mission will deploy a European rover equipped for autonomous exploration and sample collection. The ExoMars Trace Gas Orbiter (TGO), exceeding its lifespan, will continue to support Mars exploration, aiding communication between rovers and Earth.

NASA advances Artemis rover development with new contracts

On April 3rd, NASA announced the selection of **Intuitive Machines, Lunar Outpost, and Venturi Astrolab to develop lunar rover concepts for Artemis missions**. These companies are tasked with feasibility studies for the Lunar Terrain Vehicle (LTV) under a potential \$4.6B contract, aiming to support future crewed and robotic lunar explorations. Intuitive Machines, alongside Northrop Grumman and Boeing, is developing the Moon RACER rover. Venturi Astrolab, in collaboration with Axiom Space and Odyssey Space Research, is working on the FLEX rover. Lunar Outpost, partnered with Lockheed Martin and General Motors, is focusing on the Lunar Dawn rover, enhancing navigation and safety on the moon. Following these assessments, NASA will choose providers for long-term contracts to deploy these rovers to the lunar south pole, streamlining the development of lunar mobility and scientific research capabilities.

SES reveals operational readiness of O3b mPOWER satellite system

SES officially announced the operational readiness of its O3b mPOWER satellite system, following the deployment of the initial six satellites in MEO. Through this deployment, SES aims to provide high-performance connectivity services on a global scale. The O3b mPOWER system, complemented by an extensive ground infrastructure, is designed to offer connectivity services spanning from tens of Megabits per second to multiple Gigabits per second. SES also implemented satellite ground stations to ensure smooth service delivery across various market segments. Affirming the system's readiness to meet customer demands, SES further disclosed plans to launch the next two satellites by late 2024.

Unseenlabs to launch Next-Generation satellite constellation in 2026

Unseenlabs planned the upcoming launch of a new satellite constellation in 2026. Since 2019, Unseenlabs operated a cutting-edge satellite constellation tailored for maritime surveillance, comprising thirteen monosatellites, with four additional units scheduled for launch in 2024. Unseenlabs is now expanding its surveillance capabilities to encompass terrestrial and space environments alongside maritime surveillance. The new fleet, consisting of advanced 150-kilo satellites, is designed to monitor a broader range of emissions across all domains, bolstering global security and compliance capabilities. This expansion aims to meet evolving global security needs, offering unprecedented coverage and detection capabilities across multiple domains.



— THE BRIGHT SIGHT

Credit: Unseenlabs



Tyvak International secures contract with the European Defence Agency

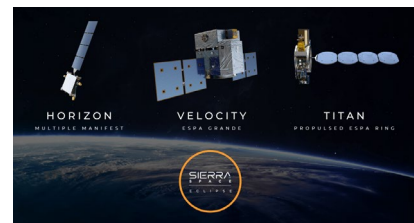
The Italian company Tyvak International SRL, a subsidiary of Terran Orbital Corporation, announced a **subcontract for the European Defence Agency's (EDA) Hub for EU Defence Innovation (HEDI) proof-of-concept prototype 2023**. The project aims to explore VLEO satellite technology, representing advancements in military space capabilities. The contract involves Tyvak International leading alongside prime contractor CNIT, in collaboration with FlySight and Politecnico di Milano. Tyvak will develop critical aspects of the project, from market analysis to feasibility assessment.

Kepler partners with ADS and Tesat-Spacecom in view of ESA's HyDRON Programme

Kepler Communications, in collaboration with Airbus Defence and Space and Tesat-Spacecom, is **venturing into the development of a high-bandwidth optical communications network in LEO**. The initiative aims to cater to emerging opportunities such as the ESA's High Throughput Optical Network (HyDRON) programme. Led by Kepler, the partnership aims to deliver real-time optical communications and seeks to establish an operational optical multi-orbit transport network, augmenting the capabilities of spaceborne and terrestrial networks. Leveraging technology from its LEO optical data relay network, the Kepler Network, the company aims to provide terabit-per-second data relay in space, enhancing connectivity for European and Canadian forces. The consortium's collaboration underscores a commitment to advancing optical communications technology, with a focus on delivering a comprehensive proposal to ESA for further development of optical space and ground network capabilities.

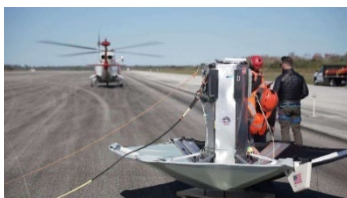
Sierra Space introduces Eclipse satellite bus line and tests Ghost Beta decelerator

Sierra Space unveiled the **Sierra Space Eclipse satellite bus line, comprising three classes**: Eclipse Velocity, Eclipse Horizon, and Eclipse Titan. These cater to various mission needs and offer scalable solutions. Eclipse Velocity, compact with integrated capabilities, suits LEO, MEO, and GEO missions. Eclipse Horizon serves missions like missile warning, defence, EO, and communications. Eclipse Titan is for tasks like cislunar logistics, in-orbit refuelling, and satellite deployment. Each integrates advanced propulsion, communication, and power management systems tailored to specific mission requirements



Credit: Sierra Space

Furthermore, **Sierra Space successfully beta-tested its logistics spacecraft, Sierra Space Ghost**. It aims to transform the delivery of critical defence supplies globally. Sierra Space Ghost Beta, part of Sierra Space Axelerator, features a thermal protection system for safe payload return from space. The vision involves positioning Sierra Space Ghost vehicles globally, accessible within 90 minutes, for precise resource delivery. It enables rapid deployment from on-orbit inventory or rapid launch, ensuring frontline personnel get vital resources promptly. This concept could aid military operations, disaster relief, and humanitarian missions.



Credit: Sierra Space



Airbus launches Pléiades Neo Next Programme for enhanced EO

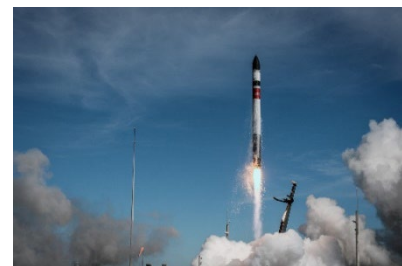
Airbus initiated the **Pléiades Neo Next programme**, aimed at expanding its very high-resolution **EO constellation**. This endeavour will introduce new satellite assets and capabilities, notably an enhanced native resolution. As a primary phase of Pléiades Neo Next, Airbus is in the process of developing a new satellite, slated for launch within the next few years. Funded, manufactured, and operated by Airbus Defence and Space, the Pléiades Neo Next programme will cater to a diverse array of sectors including defence, agriculture, environment, maritime, disaster response, and urban planning. Users will retain the ability to directly task Airbus satellites, receiving images promptly through Direct Receiving Stations (DRS) or the OneAtlas digital platform, facilitating mission-critical applications. Through collaborative efforts, the Pléiades Neo and Pléiades Neo Next satellites will provide increased revisit rates globally, with superior spatial resolution and geolocation accuracy. Furthermore, enhancements in ground segments, DRS, and the OneAtlas platform will streamline imagery requests and reception processes.

China's commercial space sector plans to boost large constellations in LEO

China is **leveraging its commercial space sector to support its plans for large LEO constellations**. The country aims to utilise new launch capacity from commercial players to deploy thousands of satellites, meeting national strategic goals while allowing state-owned entities to focus on civil, military, and lunar missions. The growth of China's commercial space industry is being actively promoted by central and local governments, recognising its potential to drive high-tech innovation and related industries. The rapid expansion of China's annual launch rate, with a target of around 100 launches this year, underscores the country's commitment to space exploration and infrastructure development.

Rocket Lab launches B.T.S mission and secures USSF contracts

On April 24th, **Rocket Lab USA launched its 47th Electron mission, "Beginning Of The Swarm" (B.T.S)**, deploying two satellites into orbits approximately 500km apart. The launch took place from Rocket Lab Launch Complex 1 in Mahia, facilitated by Electron's Kick Stage for precise engine burns and orbital manoeuvres. The main payload, NEONSAT-1 by the Korea Advanced Institute of Science and Technology, aims to provide EO data of the Korean Peninsula, aiding in natural disaster monitoring with AI. The second payload, NASA's Advanced Composite Solar Sail System, demonstrates new materials utilising sunlight for spacecraft propulsion. This mission assesses solar sail deployment in a space equivalent to a small apartment, informing future larger-scale designs for diverse space missions.



Credit: Rocket Lab

Moreover, Rocket Lab secured a **\$14.49M contract from the USSF to deploy an Electron mission named Space Test Program-30 (STP-S30)**. Falling under the Space Systems Command (SSC), this initiative is part of the Orbital Services Program-4 (OSP-4). The Electron launch, slated within 24 months, will take off from Launch Complex 2 at the Virginia Spaceport Authority's Mid-Atlantic Regional Spaceport within NASA's Wallops Flight Facility. STP-S30 aims to deliver research experiments and technology demonstrations to orbit for the U.S. DoD, contributing to future space systems development. The primary payload, DISKSat, will demonstrate sustained VLEO flight and test a unique, 1-meter diameter, disk-shaped satellite bus designed for on-orbit persistence.



ICEYE partners with CDC and Juniper Re

ICEYE entered into a **contract with the Centers for Disease Control and Prevention (CDC) to offer ICEYE Flood Insights for flood events across the U.S. and its territories**. ICEYE will supply flood impact data and analysis to CDC's Geospatial Research, Analysis, and Services Program (GRASP), aiding in disaster response and supporting public health research.

Furthermore, **ICEYE teamed up with Juniper Re** in a partnership aimed towards enhancing the assessment of large-scale events. Juniper Re will harness ICEYE's Flood and Wildfire Insights data



Credit: ICEYE

to evaluate such events, providing their carrier clients with nearly real-time observations to facilitate decision-making. By making use of ICEYE's SAR satellite constellation, this collaboration ensures access to actionable EO data.

D-Orbit partners with Plan-S and SkyServe

D-Orbit partnered with Turkish New Space firm, Plan-S, **to boost global IoT connectivity and EO capabilities**. The agreement includes two missions slated for late 2024 and early 2025, deploying eight 6U satellites using D-Orbit's ION Satellite Carrier for optimal constellation positioning. Additionally, D-Orbit **partnered with SkyServe to enable edge computing through the SkyServe STORM platform**. This venture begins with the ION SCV004 Elysian Eleonora satellite and progresses to a more advanced ION vehicle in 2025. The Mission Matterhorn project integrates SkyServe STORM with D-Orbit's EO data feed, enhancing in-orbit data processing and analytics with AI models deployed on satellites.

Apogeo Space and INNOSPACE collaborate for IoT picosatellite constellation

The Italian company Apogeo Space partnered with the Korean company INNOSPACE to manage multi-unit launches of its IoT picosatellite constellation. This agreement, spanning from 2025 to 2027, will oversee three LEO launches and releases of Apogeo Space's picosatellites, marking relevant advancements towards a global connectivity service for IoT devices. INNOSPACE's small satellite



Credit: INNOSPACE

launch vehicle, HANBIT, will play a relevant role in deploying the IoT picosatellite constellation with precision. With plans for three to four launches annually, Apogeo Space aims to deploy 10x10x3 cm picosatellites to form its constellation, slated for completion by 2027 with 96 active satellites.

Rocket Lab, True Anomaly and Gravitics secures contracts from USSF

Rocket Lab and True Anomaly secured **contracts worth \$32M and \$30M respectively to launch the Victus Haze demonstration mission** for the USSF, enhancing "tactically responsive space" capabilities. The mission aims to deploy an imaging satellite for swift response to space threats, with Rocket Lab managing spacecraft design, construction, launch, and operation, while True Anomaly provides a Jackal spacecraft and command centre. Scheduled for delivery by 2025 atop Rocket Lab's Electron rocket, the funding is provided by the Defense Innovation Unit and SpaceWERX. Additionally, **Gravitics received a \$1.7M SBIR contract from SpaceWERX**, partnering with Space Systems Command's Space Safari Program Office to advance Tactically Responsive Space capabilities. Gravitics will collaborate with Rocket Lab and True Anomaly, refining mission architecture and developing flight hardware for military and civilian applications.



Astrobotic and Mission Control collaborate on lunar rover demonstration



Credit: Chuck Bjaeger

Astrobotic and Mission Control joined forces for a lunar rover demonstration mission, set to deploy aboard Astrobotic's Griffin lander, slated to launch no earlier than the fourth quarter of 2024. The CubeRover, designed by Astrobotic, will integrate with Mission Control's Spacefarer operations platform for real-time monitoring and commanding during the mission. The partnership exemplifies the benefits of commercial approaches to lunar exploration, validating

the emerging cis-lunar economy, and received financial support from the Canadian Space Agency (CSA) through their Lunar Exploration Accelerator Program (LEAP). The contribution from CSA facilitates partnerships between Canadian and American companies in advancing lunar exploration.

Phase Four secured \$14.9M contract from DARPA

Phase Four secured a **\$14.9M contract from DARPA for an "air-breathing" EP system** with the aim to enable prolonged satellite operations in Very Low Earth Orbit (VLEO), as low as 90-450km. Part of DARPA's Otter programme, the project will develop and test "air-breathing" EP technologies, leveraging Phase Four's radio-frequency thruster (RFT). RFTs are propellant agnostic, enabling them to operate on ambient low-density air harvested in VLEO. The contract entails a long-duration in-orbit demonstration, culminating in VLEO's sustained missions, crucial for national security amidst rising LEO congestion. Phase Four's Hawthorne-based team is developing RF-powered electric propulsion for mass production. Additionally, Phase Four announced its advisory board, featuring notable figures from military, government, and space sectors, reinforcing its strategic vision and expertise.

Planet Labs and Carbon Mapper Extend \$20M Hyperspectral Data Agreement

Planet Labs PBC inked a **multi-year \$20M data-license deal with Carbon Mapper to provide hyperspectral core imagery until 2030**. This extension builds on their partnership in developing the Tanager hyperspectral constellation, aiming to enhance understanding and action on global methane and carbon dioxide (CO₂) emissions. The partnership will deliver high-resolution methane and CO₂ data worldwide and sets the stage for expanding the Tanager satellite constellation and advancing Carbon Mapper's mission. The first Tanager satellite, slated for a 2024 launch, will capture hyperspectral imagery across visible and shortwave infrared regions. This agreement extends an existing data-license deal, covering 2026 to 2030, with plans for diverse commercial, civil, and defence applications beyond greenhouse gas detection.

Furthermore, **Planet Labs PBC introduced the Planet Insights Platform**, integrating EO datasets with Sentinel Hub cloud-based analytics and tools. This platform empowers government and commercial users to efficiently analyse, stream, and distribute data. The unified account experience, combining Planet and Sentinel Hub platforms, streamlines access to cloud hosting and imagery analysis tools. Key features include enhanced Analysis-Ready PlanetScope data, global Road & Building Change Detection, and Planetary Variables for agricultural insights. The platform enables time series and statistical analysis, facilitating advanced data science and machine learning models.



Credit: Planet



L3Harris secures USSF contract and awards contracts to Iridium Communications and Mercury Systems

L3Harris Technologies secured **option year five of the MOSSAIC programme, valued at up to \$187M**, from the USSF. This contract aims to modernise and sustain vital space infrastructure for the Space Force's space domain awareness. MOSSAIC supports U.S. military space surveillance and command centres in Colorado, California, and Virginia. It detects, tracks, and identifies deep space objects, offering timely surveillance info for military, civil, and commercial users. Under the contract, L3Harris will upgrade all MOSSAIC systems.

Moreover, L3Harris Technologies **extended Iridium Communications' Iridium Satellite Time and Location (STL) service with a new five-year contract**. This expands STL to over three dozen L3Harris-operated communication nodes and FAA facilities in the U.S. STL is integral to L3Harris's timing architecture, vital for critical infrastructure applications, reducing GPS dependencies. Adtran's Oscilloquartz division provides compact devices to receive STL signals, integrating seamlessly into the network for nationwide timing synchronisation.

Lastly, L3Harris Technologies **awarded Mercury Systems a \$31M contract to provide solid-state data recorders for the U.S. SDA's Tranche 2 Tracking Layer** satellite constellation. Mercury's SSDRs will store data for L3Harris' constellations, aiding Tranche 0, Tranche 1, and now Tranche 2 initiatives. These radiation-tolerant SSDRs process and store sensor data in a compact 3U VPX form factor, ensuring operation in harsh space conditions.



Credit: L3Harris

Muon Space secures \$60M in satellite contracts

Silicon start-up Muon Space **earned over \$60M through contracts to design, build, and operate remote-sensing satellites** for various clients while concurrently constructing its climate-monitoring constellation. The contracts entail the development of 10 satellites, ranging from 150 to 500 kilograms, scheduled for launch between 2025 and 2026. Muon Space's proprietary platform, Muon Halo, integrates hardware and software to optimise missions and enhance performance for LEO satellite constellations. The introduction of Muon Halo follows the recent launch of MuSat2, demonstrating developments in advancing satellite technology and in providing solutions to meet evolving mission requirements.

ST Engineering Geo-Insights partners with EY



Credit: ST Engineering

ST Engineering Geo-Insights and EY **signed an MoU to leverage space technology and geospatial analytics in addressing critical environmental issues**. The partnership aims to utilise geospatial data to co-develop sustainability strategies, focusing on deforestation, water management, compliance with financial disclosures, carbon accounting, and environmental baselining. Additionally, the collaboration seeks to create a joint sustainability product development working

group and explore the development of a geospatial platform. This platform will integrate ST Engineering Geo-Insights' capabilities with EY's infrastructure resilience services, enhancing insights into rail, roads, water utilities, pipelines, and powerlines.



In other news

Eutelsat OneWeb secures a new business aviation customer, ALOFT AeroArchitects, a private Boeing Business Jet operator: the partnership aims to enhance passenger experience with high-speed, low-latency broadband connectivity. ALOFT will install Eutelsat OneWeb's LEO satellite service, aided by Stellar Blu Technologies' ESA terminal and Satcom Direct's distribution.

Comtech and Eutelsat OneWeb partner to trial LEO satellite connectivity in Antarctica: Comtech's Elevate VSAT ground system supports OneWeb's LEO services, enhancing connectivity over multiple satellites. This facilitates real-time support for Antarctic scientists, improving their day-to-day operations and welfare.

French firms Aldoria and Latitude sealed a 3-year partnership to aid the rollout and safeguard Latitude's Zephyr light launcher from collisions: the agreement, inked at the Space Symposium in Colorado Springs, utilises Aldoria's "Altitude" service. Aldoria will assist Latitude with pre-launch permits, trajectory scrutiny, and safe deorbiting, also offering anti-collision protection for 8 weeks pre-launch, reducing debris risks.

Vast collaborates with SpaceX to equip Haven-1 with Starlink broadband connectivity: scheduled for launch next year, Haven-1 will leverage SpaceX's Starlink laser terminal to provide gigabit/s speed, low-latency connectivity to its crew and payload racks. Vast's agreement with SpaceX extends beyond Haven-1 to include future space station projects.

Blue Origin unveiled the six-member crew for its NS-25 mission: the mission marks the seventh human flight for the New Shepard programme and the 25th in its history. The crew comprises individuals from diverse backgrounds, including America's first Black astronaut candidate.

Kongsberg Defence & Aerospace secures a contract from the Norwegian Intelligence Service to provide satellite maritime surveillance data for Norwegian Areas of Interest: the agreement, covering five years from 2025, involves three satellites equipped with AIS receivers and detectors. The constellation, named N3X, aims to bolster maritime security.

The Telecommunications Regulatory Authority granted a third-category license to Oman-owned company Emerging Technologies Company (ETCO) for a satellite ground station: ETCO will utilise it for monitoring and commanding satellites, capturing images for mapping and environmental monitoring. The Aman-1 Satellite, owned by ETCO Space, successfully captured images of Oman, focusing on ground observation and remote sensing.

Astroscale Japan's ADRAS-J satellite completes the rendezvous phase and initiates proximity approach using Angles-Only Navigation: this method estimates relative position and velocity through on-board cameras, advancing debris removal capabilities.

Scout Space unveils Owl, an advanced modular SDA sensor line, enhancing space observation: supported by a \$1.8M AFWERX contract, Owl offers long-range object detection and autonomous operation. Scout aims to meet military demands, prioritising innovation in space surveillance amid growing competition.

SATLANTIS and Encino Environmental Services partnered to monitor infrastructure: using satellite technology for visual applications and methane detection, Encino will gain exclusive access to data from SATLANTIS's GEISAT-Precursor satellite, advancing emissions reporting for various sectors.



In other news

Gilat was awarded different contracts: Gilat's U.S. subsidiary DataPath awarded **\$5M deal with U.S. DoD** for DKET 3421 terminals, providing global connectivity in less than three hours. Another contract worth **\$12M from the U.S. Army** secures Wavestream's Solid State Amplifier products for reliable satellite connectivity. Gilat also received **\$13M orders for SkyEdge IV SATCOM Networks Expansion** and **\$3M for Latin America public Wi-Fi**, emphasizing digital inclusion. Additionally, Gilat secured a multimillion-dollar **order for in-flight connectivity expansion** with its Taurus Aero modems.

Cognitive Space has been awarded a contract by NOAA to conduct demonstrations of next-generation ground systems: this contract underscores the advancement of satellite data processing capabilities, helping to improve environmental monitoring and forecasting.

Open Cosmos secures a €3.4M contract from Institut d'Estudis Espacials de Catalunya (IEEC) to deliver Catalonia's fourth satellite under the Catalonia New Space Strategy: this microsatellite, launching in 2025, will host payloads for various applications, enhancing Catalonia's data access for environmental monitoring and disaster management.

Relativity Space secures an \$8.7M contract with USAF Research Laboratory (AFRL) to explore real-time flaw detection in 3D printing: the two-year project aims to enhance additive manufacturing quality using Relativity's Stargate platform, addressing a legislative directive to accelerate aerospace production and evaluate new technologies.

OHB Digital Connect collaborates with GeoBremen on "Urban AI", leveraging AI for sustainable urban planning: this approach enhances understanding of environmental impacts like flooding and heat islands, enabling proactive measures. The cooperation ensures tailored solutions for effective urban development over the project's 48-month duration.

ispace-U.S. partnered with Blue Canyon Technologies, a subsidiary of RTX, to develop two Venus-class microsatellites for its Mission 3 in 2026: these satellites will facilitate lunar communications relay from the APEX 1.0 lunar lander to the Moon's South Pole, aiding data transmission and future lunar activities.

Interstellar Technologies and D-Orbit partner on rocket launch services, targeting the growing Asian space industry:

D-Orbit's expertise in satellite logistics complements Interstellar's rocket development, offering cost-effective and flexible space transportation. Marubeni Corporation facilitated the partnership, aiming to advance satellite deployment efficiency and expand space applications in Asia.

Comtech and Eutelsat OneWeb partner to trial LEO satellite connectivity in Antarctica: Comtech's Elevate VSAT ground system supports OneWeb's LEO services, enhancing connectivity over multiple satellites. This facilitates real-time support for Antarctic scientists, improving their day-to-day operations and welfare.

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INVESTMENT & FINANCE

SES acquires Intelsat for €2.8B in all-cash deal



Credit: SES

SES has agreed to acquire Intelsat Holdings for €2.8B in a transaction unanimously approved by the boards of directors of both companies and Intelsat's shareholders, but subject to regulatory approval expected in the second half of 2025.

The Luxembourg-based satellite company has agreed to acquire the US-based company through the purchase of 100% of its shares in an all-cash transaction, together with contingent value rights to a portion of the potential future monetisation of collective use rights for up to 100 MHz of C-band spectrum. SES will finance the transaction with existing cash and cash equivalents and through the issuance of new debt, including hybrid bonds.

The combined SES will keep its headquarters in Luxembourg, while maintaining a heavy presence in the U.S. SES expects to benefit from the acquisition primarily through the optimisation of the combined satellite fleets (more than 100 GEO and 26 MEO satellites) and ground infrastructure, as well as through savings in administrative and commercial units, third-party capacity costs and future procurement efficiencies. Capital expenditure plans include a total of approximately €1B in 2024 and an average of €600-650M between 2025 and 2028, with the aim of launching 8 new GEO and 7 new MEO satellites by the end of 2026.

World Economic Forum estimates a \$1.8T Space Economy by 2035

The joint report by the WEF and McKinsey & Company estimates the value of the global space economy to reach \$1.8T by 2035, around the same size of the global semiconductor sector.

The forecast is based on the assumption that demand for satellite internet, AI-enabled services and navigation and timing (PNT) services will increase and that no terrestrial PNT alternatives will emerge. Failure to meet this latter assumption would reduce WEF's estimate of the global space economy to \$1.4 trillion by 2035.

The report analyses the space sector by aggregating activities within "backbone" applications (such as launchers, satellites, etc.) and "reach markets" (i.e. non-space services delivered through space). Accordingly, it estimates a growth rate of 150% for the latter category, suggesting that it will become the dominant one within this timeframe.

Seraphim Space closes new fund with backing from Eutelsat, NEC, and SKY Perfect JSAT

Seraphim Space, a UK-based venture company, **has completed the closing of its new venture fund called Seraphim Space Ventures II**. The fund's backers include France's Eutelsat and Japan's NEC and Sky Perfect JSAT.



Credit: Seraphim Space

The fund will focus on early-stage investment, aiming to fund 30 companies, particularly aiming for value propositions focusing on AI applications related to space data, always-on communication networks, microgravity applications in biotechnology and materials science, and space edge computing. Moreover, Seraphim disclosed that it already invested in nine companies through the new fund, including Bluetooth IoT company Hubble, Delos, a provider of wildfire home insurance based on space data, Atmos, a space cargo return company, and Auriga, which is developing an electromagnetic launch system.



Finnish ICEYE secures \$93M funding round



Credit: ICEYE

ICEYE has closed a \$93M funding round led by Finnish sovereign wealth fund Solidium Oy, with participation from Move Capital Fund I, Blackwells Capital, Christo Georgiev and other investors. The new investment brings the total raised by the company to \$438M since its foundation. The company deploys small synthetic aperture radar satellites to collect data about the Earth's surface and plans to use the additional funds to develop additional products and services.

Varda Space Industries secures \$90M in Series B investment round

U.S.-based Varda Space Industries has raised \$90M in a Series B funding round led by Caffeinated Capital, with participation from Lux Capital, General Catalyst, Founders Fund and Khosla Ventures, bringing total funding to \$145M.

The funding comes after the company successfully returned for the first time in-space manufactured drugs from orbit. Moreover, the company has confirmed its intention to focus exclusively on pharmaceutical customers for the next 10-20 years. The investment will be used to scale-up spacecraft production to meet the goal of launching its mini space drug factories on a monthly cadence. As a result, **initial mission costs are expected to fall from the current \$12M to \$5-6M by Mission 4 and then to \$2.5M by Mission 10.**

HawkEye 360 secures \$40M debt financing to enhance satellite constellation

HawkEye 360, a U.S. based company founded in 2015 to develop space-based radio frequency mapping and analytics, **secured \$40M in debt financing** from Silicon Valley Bank, bringing its total funding to more than \$400M. The company plans to improve its technological infrastructure and continue to build its constellation of satellites, reaching 20 groups of three satellites each by 2025.

Euroconsult and SpaceTec Partners merge into Novaspac and publish report on space defence

Space consultancies **Euroconsult and SpaceTec Partners merged to form Novaspac**. The terms and financial details of the transaction were not disclosed. The newly formed company aims to combine Euroconsult's experience in consulting, market intelligence and executive summits with SpaceTec Partners' expertise in management consulting, including strategy, innovation consulting and market development. Novaspac will have ten offices around the world with a team of 130 people.



Credit: Novaspac

Following the merger, **the company has published its first Space Defense and Security report**, which estimates a record \$58 billion in government spending on defence and security, mainly awarded to industry for space defence and security capabilities, with the US, China, Russia and France as the top four spenders. The report also shows a growing trend for defence and dual-use satellites, with a total of 107 satellites to be launched in 2023, mainly by the US, China and Russia.



Safran Corporate Ventures increases startup investment budget to €130M



Credit: Safran

Safran Corporate Ventures, the venture capital division of the French group Safran, **has announced an increase of €50M** in investment capacity dedicated to startups developing disruptive technologies. The venture will now have a budget of €130M to invest along three strategic lines: decarbonisation, sovereignty and digital. Among the 22 companies already supported by Safran Corporate Ventures is Vyoma, a space debris monitoring startup.

UK Orbex raises €20.7M through convertible loans

UK-based startup Orbex **secured €20.7M through convertible loans**, to be used as bridge funding before raising its Series D round. The investment, with participation of existing investors including Scottish National Investment Bank, Octopus Ventures, will be used to accelerate the development of its two-stage launch vehicle Prime.

Indian aerospace manufacturer Dhruva Space closes \$14.7M funding

The India-based company Dhruva Space **closed a \$14.7M Series A round**, led by Alpha Fund and Blue Ashva Capital. The aerospace manufacturer plans to use the funds to expand its team, improve its infrastructure and capabilities with the initial phase of construction of its spacecraft manufacturing facility, and increase its presence in international markets.

The funds consist of a mix of equity and debt financing, including around \$1.2M of venture debt from the Small Industries Development Bank of India (SIDBI) and approximately \$1.7M of venture debt from the Technology Development Board.

CAS Space Secures €7.8M in Series C Funding

China based CAS Space (also known as Zhongke Aerospace) **has raised approximately €7.8M in a Series C round** led by Shaanxi Aerospace Innovation Fund, a subsidiary of China Galaxy Investment. Founded in December 2018, the company is the first mixed-ownership commercial aerospace company in China and is committed to building an international military-civilian integrated commercial aerospace company.

German startup Vyoma raises €5M for its constellation

The German startup **Vyoma secured €5M in funding** from a space fund backed by the European Investment Fund (EIF). The funds will be used to expand the engineering team and promote the commercialisation of its space-based data. Vyoma is working on a space-based constellation to monitor satellites and space debris. The company aims to support Europe's geostrategic autonomy and space sovereignty by detecting anomalous behaviour and malicious intent and then alerting the relevant defence authorities. The launch of the first units is currently planned for early 2025.



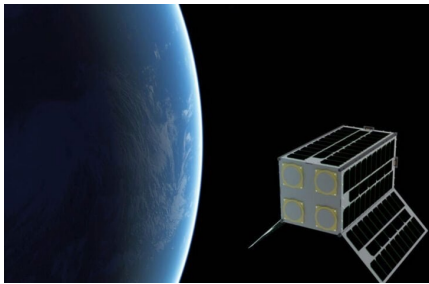
Credit: Vyoma



French startup Dark raises \$6M seed funding for Orbital Defence Platform

French startup Dark **has closed a \$6M seed funding round** led by Long Journey, Frst and Eurazeo. Long Journey has joined Dark's shareholders for the first time, while other lead investors have reaffirmed their interest in the company. The company plans to use the fund to develop its orbital defence platform, a project on which the company has refocused its business, despite its original aim of developing an air-launched rocket.

Blue Skies Space raises €2.3M to launch smallsat for star activity monitoring



Credit: Blue Skies Space

UK-based Blue Skies Space **has secured around €2.3M in funding** in a round led by the Japanese asset management group SPARX and SFC Capital. The funding will enable the launch of BlueSkies Space's first smallsat in 2025, which will measure the activity of nearby stars. Founded in 2014, the company provides satellite-based data on stars, planets, and other areas of science, and aims to build a fleet of operational satellites to provide data to scientists around the world through an annual membership subscription programme.

Italian startup Lithium Lasers Secures €2M Funding Round

Lithium Lasers, an Italian ultrashort pulse laser startup founded in 2019, **has closed a €2M investment round** with Primo Ventures and 360 Capital. The startup plans to use these funds to accelerate the process of commercialisation of its laser, which has applications for material processing, biophotonics and non-linear optics in several industries (including satellites), and to start work on a new line of UV lasers.

Italian startup Ecosmic secures €1.1M for space collision avoidance

Italy based Ecosmic startup **raises €1.1M** by Primo Space. Founded in 2023, the company develops software that promotes space situational awareness and collision avoidance to help space mission operators assess orbital collision threats. The new funds will be used to strengthen the team and develop an updated version of the software, which will allow satellite operators to tailor mission planning to specific contingencies.



In other news

American venture capital firm Andreessen Horowitz raises \$7.2B: the capital will be split between five funds dedicated to late-stage startups in different sectors. Among them, American Dynamism, Infrastructure and Growth are already involved in space investments and will receive \$600M, \$1.25B and \$3.75B respectively.

US-based Ursa Space Systems secures \$6.2M financing round: the company, dedicated to providing insights to businesses and governments, has raised the funding through a mix of equity issued and a conversion of existing debt for \$1.3M.

AIRMO selected for Intel Ignite's startup cohort: the Germany-based startup dedicated to detecting detect greenhouse gas emissions using satellites, was selected for the seventh cohort of startups, which has an average €7M in non-equity funding.

New Zealand-based Starboard Maritime Intelligence closes a \$2.8M seed: the funding, led by the venture capital firm Altered Capital, will be used to expand its customer. The startup helps authorities and NGOs make inspection decisions by analysing vessels using EO and AI.

Chinese company Lightyear Exploration raises \$1.5M in latest funding round: the round was led by Shunrong Capital and Yuyi Capital. The company, founded in 2022, aims to develop stainless steel rocket fuel tanks.

UK's Bright Ascension raises around €890K in convertible note by Scottish Enterprise: the funds will be used to bring its HELIX space software products to market. In addition, an October 2023 loan from the same funder has also been turned into a convertible loan.

Lithuania-based Blackswan Space raises €760K in a pre-seed led by ScaleWolf: founded in 2019, the startup, which provides software for space robotics, plans to use the funding to expand its engineering workforce and scale its commercial operations.

French Geospatial AI company SpaceSense merges with xFarm Technologies and Greenfield Technology: the merger will enable organisations to perform large-scale sustainability analysis such as carbon monitoring on a European scale as the latter two companies are an Italian-swiss agritech startup and a French engineering company.

French space architect SpaceDreamS is acquired by Eiffage Énergie Systèmes for an undisclosed amount: the deal marks the latter's entry into the NewSpace industry, as it mainly designs, builds and operates energy and information networks and systems.

Helicity Space raises an undisclosed amount of funds by Lockheed Martin: the U.S. based startup, is developing in-space propulsion based fusion power.

Starlab Space stipulates a strategic partnership with Mitsubishi: the agreement, the value of which is undisclosed, will also see Mitsubishi become a shareholder in Starlab Space and is expected to leverage its space research and terrestrial product development capabilities while expanding access to space-based technologies.

Starlab Space stipulates a strategic partnership with Mitsubishi: Mitsubishi becomes a shareholder in Starlab Space under an undisclosed deal, enhancing access to space-based technologies.

Aerolab acquires AMOS for an undisclosed amount: with the deal Aerolab plans to extend its market reach, and product offerings. Both companies are based in Belgium.

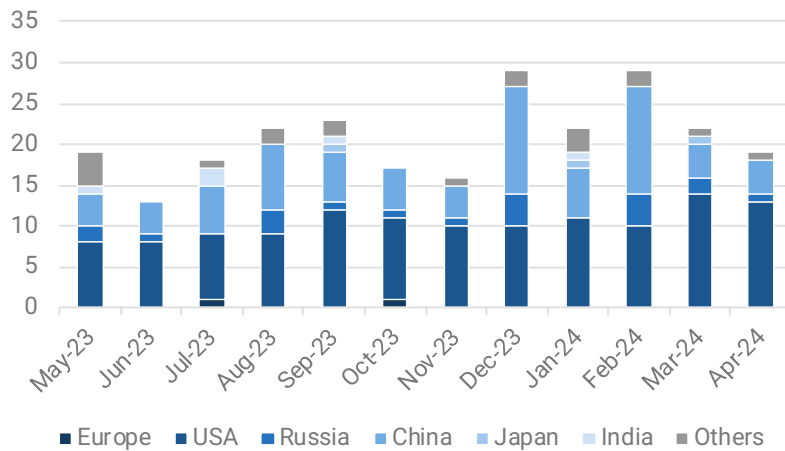


LAUNCHES & SATELLITES

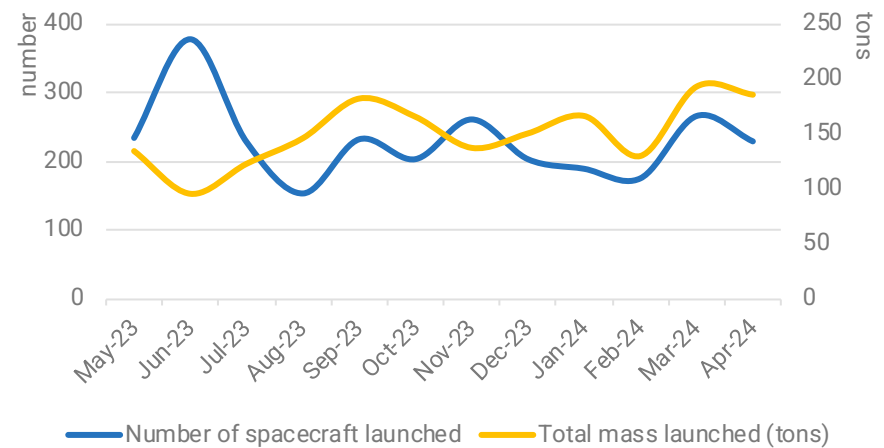
Global space activity statistics

April 2024	USA	China	Russia	Others	Total
Number of launches	13	4	1	1	19
Number of spacecraft launched	219	4	3	2	228
Mass launched (in kg)	173 576	10 068	2051	90	195 785

Launch activity over the year



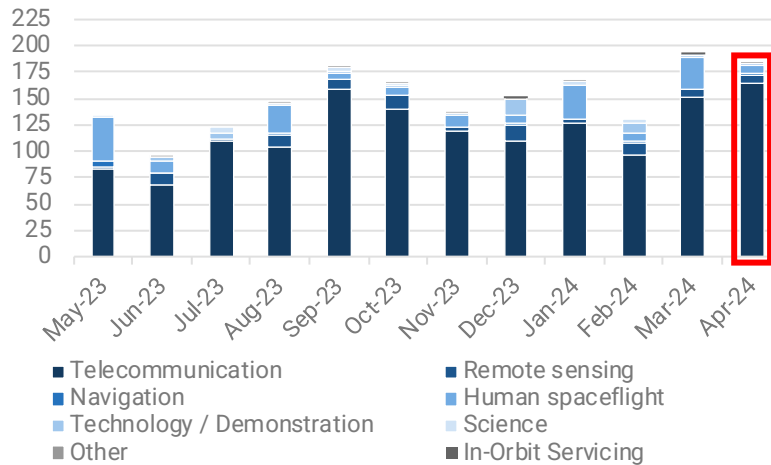
Evolution of the number of launches per launch country



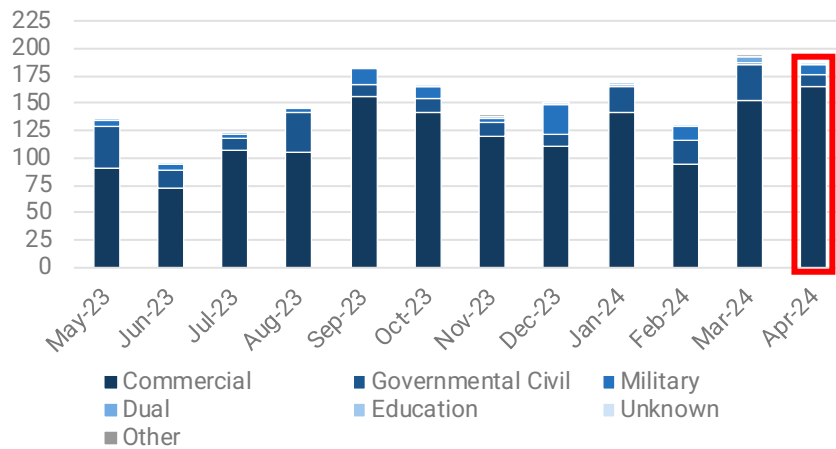
Evolution of launch activity over the year 2023-2024



Satellite missions and markets



Evolution of the total mass launched (tons) per mission (May. 2023-Apr. 2024)



Evolution of the total mass launched (tons), per market (May. 2023-Apr. 2024)

April 2024	Telecom	Remote sensing	Navigation	Human spaceflight	Tech/ Dem	Other
Europe			1466			
USA	164 390	6745			15	
China		540		8028		1500
Russia					2045	6
Japan		100				
India		40				
Others	35	875				

Total mass (kg) launched by mission and customer country

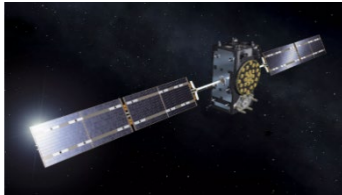
April 2024	Commercial	Governmental Civil	Military	Unknown
Europe		1466		
USA	164 735	15	6400	
China	540	8028	1500	
Russia	3	2042		6
Japan	100			
India	40			
Others	35	75	800	

Total mass (kg) launched by market and customer country



LAUNCH HIGHLIGHTS

Galileo satellites launched by SpaceX



Credit: ESA

On April 27, a **Falcon 9 rocket successfully launched two Galileo navigation satellites** into medium-earth orbit. The European Union Agency for the Space Programme (EUSPA), which manages Galileo operations, confirmed that the satellites were operational in orbit a few hours later. The launch was conducted with an unusual level of secrecy, typically seen only in classified national security missions.

SpaceX did not broadcast any footage from the launch following the stage separation and concluded its live stream after confirming the separation of the payload fairing. The retirement of the Ariane 5 rocket, the loss of access to Russia's Soyuz rocket following Russia's invasion of Ukraine over two years ago, and delays in rolling out the Ariane 6 have left Europe without its own capabilities to launch Galileo satellites. This mission represents the second time a European institutional satellite has been launched aboard a Falcon 9, following ESA's Euclid space telescope launch in July 2023. Later this year, another pair of Galileo satellites, ESA's EarthCARE Earth science mission and the Hera asteroid mission are slated to be launched Falcon 9 rockets. For SpaceX, this mission was notable as the 20th flight for this particular booster, matching a reuse record set earlier this month by the company.

Last launch of Delta rocket family

The **final mission of United Launch Alliance's (ULA) Delta IV Heavy rocket launched from Cape Canaveral into geostationary orbit on April 9th, carrying a classified satellite for the National Reconnaissance Office (NRO)**. This launch marked the 45th and final flight of the Delta IV series, concluding the Delta rocket family's history with a total of 389 missions since 1960. The Delta rockets hold the record for the second-most flights for a US orbital-class rocket, following only the Atlas series. The Falcon family of rockets from SpaceX is quickly approaching this milestone and may exceed it later this year. While details about the payload remain undisclosed, it is speculated that the satellite is designed to monitor communications and radio transmissions, contributing to the NRO's surveillance network. ULA has decided to phase out the Delta IV and Atlas V rockets in favor of the next-generation Vulcan rocket, which successfully completed its first flight in January 2024.



Credit: ULA

First launch of SpaceX's new Bandwagon rideshare programme

On April 7, **SpaceX launched the Bandwagon-1 mission, marking the start of a new series of dedicated rideshare missions** using their Falcon 9 rocket. This mission successfully deployed 11 commercial and military satellites into mid-inclination orbits. Unlike SpaceX's existing Transporter rideshare missions, which target sun-synchronous orbits favored by remote sensing satellites, the Bandwagon missions aim to deliver payloads to low Earth orbits at approximately 45 degrees inclination. The Bandwagon-1 mission's largest payload was likely a "425 Project" SAR satellite, intended for South Korea's military.

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