ESPI
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ESPI Insights

Space Sector Watch

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THIS MONTH IN THE SPACE SECTOR...

Schwarzenbergplatz 16, TOP 1 | A-1010 Vienna, Austria
Phone +43 1 718 11 18 - 0 | E-Mail: office@espi.or.at

Space, Industry, Security & Defence – Need for Institutional Reform (Projects And Funding)

It has been two years since the start of the Russian war on Ukraine, demonstrating the value of space for security & defence. It has been one year since the publication of the EU Space Strategy for Security and Defence. It has been a few days since the EU issued its European Defence Industry Strategy (EDIS), and EC President van der Leyen proposed a dedicated Commissioner for Defence at the 2024 Munich Security Conference (MSC).

The different EU strategies represent a much-needed political will to raise the EU's profile as a credible security and defence player, but so far have not resulted in transformative action, due to lack of funding. The European Defence Investment Programme (EDIP) until 2027 anticipates only 1.5B Euro, 1.5% of its 100B Euro ambition. EC's ambitions face scepticism from some member states and NATO and EDIS does not consider the UK, although a strong defence (and space) industrial player.

Nevertheless, for the first time in decades there might be an opportunity in Europe for an ambitious rethink of defence industrial policy, including space policy. At a time when peace is no longer considered a given, when the EU Green Deal may be paused, priorities may shift towards adapting Europe to the realities of war. To be effective, this will require a reorientation of EU and European priorities and a new scale of institutional reforms.

The incoming European Commission can be expected to prioritise geopolitical objectives, including the development of its statecraft in ensuring economic security and defence. Clearly, the industrial dimension of defence – as addressed by DG DEFIS since 2019 – is critical, but it is only one element in the multi-faceted, geopolitical and foreign policy component, today under the responsibility of the High Representative of the Union for Foreign Affairs and Security Policy. A new defence Commissioner – possibly from an Eastern European member state – will need to demonstrate both competences, and a reshuffling of responsibilities will be required, within the constraints set by the EU Treaties and national sovereignty.

ESPI contributing to a panel of Economic Security aside the MSC

The EDIS aims to contribute to EU's defence readiness, including R&D actions and procurements. It represents an evolution, **beyond the role of a buyer to the role of an enabler**. It aims to minimise European technological dependence, establish European supply chains' reliability, and secure intellectual property, skills, and knowledge. EDIS explicitly mentions Space Domain Awareness as a potential area for the implementation of a Project of Common Interest, but many of EDIS goals are entirely applicable to space at large, such as the development of Rapid Deployment Capacity (RDC) or the repurposing of civilian production lines. While focusing on defence, the EDIS aims to address economic security as well, in that it shall allow to respond to shocks, whether man-made or natural disasters. In particular, the R&D and commercial aspects of space for security and defence are clearly of dual-use nature, and all actors on national and European level, including national space agencies, ESA, EDA should bring in their competencies and joint funding. Recent ideas by the European Investment Bank to finance projects that can be of use to both civilian and the military confirm that trend. National projects, implemented in a national framework or via ESA at the next ministerial conference in 2025, e.g. for civil security and rapid crisis response, could provide funding for urgently needed solutions and innovation, including for food and water security, and disaster management. This will provide opportunities at an earlier stage than the next EU MFF.

It cannot be assumed that EU funding alone will be able any time soon to elevate Europe's investment in space for security and defence to a level comparable to the corresponding investments in the United States and China, with related global public investment estimated at 50B USD per year. In the past 6 months only, the U.S. Space Development Agency spent at least 6B USD in contracts, with additional 26B USD projected for 2025-2028. Only the combination of EU, national, ESA and private funding can contribute to an overall European budget for space reaching 0.15% of its GDP by 2040 (i.e. a doubling of the current funding), as stipulated by **ESPI2040**. Only this increase can truly secure the future of European space industry in a global space race, the resilience of its supply chains, the required innovation and the future of its workforce and talents.

ESPI will further strengthen its agenda for security and defence, reinforce its research team and competencies in its Advisory Council, conduct studies, e.g. on R&D in military space in Europe, will call a Round Table of interested stakeholders including from MoDs and Space Commands, and will dedicate its 2024 Autumn Conference on 1-2 October 2024 under the theme "**Scaling European Space Capabilities for Security & Defence: From Ambition to Implementation**."

Yours sincerely,

Hermann Ludwig Moeller
Director of ESPI

POLICY & PROGRAMMES

2024 Munich Security Conference

Credit: MSC

Held on February 16th and 17th, the 2024 Munich Security Conference convened over 900 leaders, including 50 Heads of State, 100 Ministers, and various NGO, business, and think-tank representatives, to address key global security challenges. Emphasising the "Munich Rule" of direct engagement, the conference tackled issues from Middle East tensions and the situation in Ukraine to advocating for a European security and defence union and examining relations with China and India. With a backdrop of global cooperation concerns, the MSC highlighted Germany's dedication to international law, humanitarian efforts, and fostering positive global relations. **ESPI Director H. Ludwig Moeller was a panellist at the 2024 MSC Space Night,** a major side event with over 250 attendees, discussing Western sovereignty in space.

EU approves budget revision to aid Ukraine and fund defence research

Credit: European Union

On February 1st, EU leaders agreed to a budget adjustment in Brussels, redirecting **€2.1B from Horizon Europe to defence research and earmarking €50B for Ukraine aid**. This reshuffle, part of a €64.6B reorganisation of the EU's multiannual budget, aims to strengthen EU defence capabilities and support Ukraine in its conflict with Russia. The agreement follows a compromise with Hungary's Prime Minister Viktor Orban, moving from a veto to an annual aid review. This reallocation has sparked discussion in the research community, with calls for increased funding for **Horizon Europe's successor, FP10**, to ensure future research and development.

ESA pioneers the future of Earth observation with NanoMagSat Constellation and Tango Scout Mission

The **ESA Earth Observation Programme Board greenlit the NanoMagSat constellation** to advance Earth's magnetic field and ionospheric research with three advanced small satellites. As part of the scout series these missions propel space innovation within a €35M budget. This mission, in collaboration with Open Cosmos and its academic partners, **extends the legacy of ESA's Swarm mission**, aiming to enhance magnetic and ionospheric data applications.

Also, the Tango Scout mission will enhance methane and nitrogen dioxide tracking, complementing Copernicus missions and aiding in Paris Agreement verification. It targets 150–300 major industrial sites every four days, providing high-resolution emission data for accurate assessments. Tango's two 25-kg satellites will specifically measure methane, carbon dioxide, and nitrogen dioxide. Alongside NanoMagSat, Tango expands ESA's Scout missions, which also include HydroGNSS for climate variable observations like soil moisture and biomass using GNSS reflectometry.

Netherlands releases its space agenda

The **Netherlands released its space agenda to enhance its global space sector position by 2035**, supported by five ministries and developed with industry and academic partners. Spearheaded by Maria van der Hoeven, the plan outlines **six missions focusing on security, climate monitoring, scientific innovation, satellite data use, economic growth, and international space agreements**. Minister Micky Adriaansens emphasised the agenda's role in maintaining the Netherlands' leadership in space technology, contributing to infrastructure, safety, and the economy. The proposal has been forwarded to the House of Representatives.

Latvia updates Space Strategy 2021-2027 for sector growth and global alignment

The **Latvia Space Strategy 2021-2027 has been updated** setting a vision for the nation's space sector's growth, emphasising export-oriented products and services and advancing space science knowledge. It aims to enhance education and skills in the space sector, foster international collaborations, engage in scientific research, and integrate satellite services in governmental operations. This strategy update reflects ambitious goals, current trends, and has strong political support, ensuring Latvia's alignment with global space industry advancements.

Portugal updates Space Law to enhance launch centres and attract operators

On February 2nd, Portugal revised its Space Law with **Decree-Law No. 20/2024**, detailing licensing procedures for space launch centres by Anacom (National Communications Authority), following government and Portuguese Space Agency approval. Ricardo Conde, president of Portugal Space, sees this as **key for Portugal's strategic space sector** role, aiming to attract service operators and establish the country as a mature spacefaring nation.

The law sets out rules for commercial space activity licensing, with collaboration between the Portuguese Space Agency and relevant entities, including for sites in maritime zones or the Azores. Safety and environmental conditions are crucial for licensing, with the government setting specific requirements. This positions Portugal among the few EU countries with a legal framework for space operations, aligning with EU discussions on a common space law.

UK Space Agency funds £7.4M for international missions to Moon, Mars, and beyond

Credit: iSpace

The **UK Space Agency is investing £7.4 M into eight international missions** to explore the Moon, Mars, Venus, and the universe. This funding supports the development of scientific instruments and technologies for collaborations with NASA, JAXA, ISRO, and the lunar exploration startup iSpace. Key projects include the International Mars Ice Mapper mission, the Raman Analytical Spectroscopy instrument for lunar exploration, and the CosmosCube project for cosmic microwave background analysis. This initiative aims to **enhance the UK's participation in global space exploration beyond its contributions to ESA**, fostering international partnerships and advancing space science and exploration efforts.

Japan's H3 Rocket Successfully Launched

Credit: KYODO

Japan's H3 rocket, developed by JAXA and Mitsubishi Heavy Industries, successfully launched from Tanegashima Space Center, marking a significant rebound after a previous failure. This launch, carrying a dummy satellite and two microsatellites, is a stride towards cost-effective and competitive space access. The event underlines Japan's ambition to enhance its space industry and attract international partnerships. Celebrations followed the successful deployment of the satellites, one for disaster response imaging and another for supply-chain monitoring, highlighting Japan's advancing role in global space exploration amidst strong competition.

ESA awards €1.3M to PLD Space for Miura 5 payload adapter development

ESA has granted €1.3M to PLD Space for developing a modular payload adapter for its Miura 5 launch vehicle, aiming to enhance payload deployment flexibility. This funding, part of the **Boost! programme**, supports ESA's goal to advance European commercial space transportation. Following its Miura 1's success, PLD Space's Miura 5 is set to launch payloads up to 540 kilograms into orbit, with plans for stage reuse. The project, in collaboration with OCCAM Space, intends to accommodate various satellite types, increasing Miura 5's market competitiveness. **The first Miura 5 launch is anticipated in 2025** from the Guiana Space Centre.

Netherlands boosts Space Tech with €42M laser communication investment

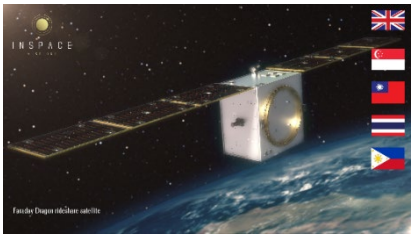
The NSO has partnered with NXTGEN High-Tech to manage a **€42M investment in laser satellite communication**, part of the national space strategy for economic growth. This investment is within a larger €450M funding from the National Growth Fund, aimed at technological advancements. This effort was highlighted by the successful deployment and operation of the NorSat-TD satellite, featuring the innovative SmallCAT laser communication instrument, marking a significant step in the country's space communication capabilities.

Credit: ESA/NSO/T. Abrahamsen

FCC to vote on enabling satellite Direct-to-Smartphone connectivity

On March 14, the **FCC will vote on rules allowing satellites to use mobile operators' radio frequencies for extended smartphone coverage**. This move could enable satellite companies like SpaceX and AST SpaceMobile, in partnership with T-Mobile and AT&T, to offer direct-to-smartphone services in the U.S. The proposed framework requires satellite operators to lease spectrum within certain areas and addresses potential regulatory challenges, including interference concerns raised by companies like Omnispace. Additionally, the FCC plans to mandate location-based routing for satellite-enabled 911 calls to ensure public safety.

UK Space Agency boosts funding for Faraday Dragon satellite programme



Credit: In-Space Missions

In-Space Missions, a subsidiary of BAE Systems, received **additional funding from UKSA to advance its Faraday Dragon rideshare satellite initiative**. This funding, part of the UKSA's International Bilateral Fund Phase 2, will support the development of novel Asia-Pacific payload technologies for the Faraday Dragon mission. Scheduled for launch in 2026, the project garnered attention from both established and emerging space entities in Singapore, Taiwan, the Philippines, and Thailand. Building on the success of previous funding, which facilitated discussions and workshops leading to five MoUs and payload down-selection, the Faraday Dragon mission aims to incorporate cutting-edge technologies from regional partners. These include a hyperspectral imager, VHF Data Exchange System (VDES), inter-satellite links, deep space astronomy payloads, and scientific components, with a focus on applications in agriculture, maritime, connectivity, and humanitarian sectors.

Luxembourg bolsters defence connectivity with new ground stations


Credit: SES

The Luxembourg Directorate of Defence secured **two new ground stations through a competitive tender**, enhancing the country's military resilience by bolstering access to secure satellite communications services. Collaborating with SES and HITEC Luxembourg and installed at the Military Centre in Diekirch, these ground stations will facilitate access to GovSat-1 satellite services in X- and Military Ka-band frequencies, as well as the Wideband Global Satcom (WGS) system, pivotal for U.S. DoD communications. With these additions, the existing Luxembourg Army satellite communication infrastructure, established by SES and HITEC Luxembourg a decade ago, is fortified. The total dedicated antennas now stand at four, enabling scalability and fostering interoperability with NATO partner systems.

Saudi Arabia advances space sector with global partnerships and new council


Credit: Pawan Singh/The National

The Saudi Space Agency has intensified its space monitoring efforts by signing MoUs with **Leo Labs** and **NorthStar during the Space Debris Conference** in Riyadh. These partnerships aim to enhance space situational awareness, develop space industry research, and explore sustainable space exploration practices. **The conference also spotlighted Saudi Arabia's commitment to addressing space debris challenges and promoting international collaboration** for a secure space environment.

Additionally, the Saudi Cabinet, led by Crown Prince Mohammed Bin Salman, **has established the Supreme Space Council**, emphasising the space sector's strategic importance. Saudi Arabia is also **exploring cooperation with Chinese space contractors** and has approved various international agreements, underscoring its ambitious vision for global leadership in space and other sectors in alignment with Vision 2030.

ESA Discusses Slovenia's Path to Full Membership

On February 15th in Ljubljana, ESA official Eric Morel de Westgaver met with Slovenian Economy Ministry State Secretary Matevž Frangež to discuss **Slovenia's progression towards full ESA membership**. This follows Slovenia's formal membership request at the Space Summit in Sevilla, November 2023, focusing on the country's next steps and advancements in space technology.

Leonardo unveils Military Space Cloud Architecture project for the Italian MoD

Italy's Leonardo, in collaboration with Telespazio and Thales Alenia Space, embarked on a venture **to develop the Military Space Cloud Architecture (MILSCA)**, the first of its kind in Europe. This project, commissioned by the Italian Ministry of Defence, aims to establish a space infrastructure equipped with supercomputers, AI, and cloud capabilities directly aboard a constellation of cyber-secure satellites orbiting the Earth. MILSCA seeks to redefine the landscape of defence capabilities by providing government and national Armed Forces with unparalleled access to high-performance computing, storage capacity, and AI-driven analytics in space. With integrated cyber security models, the system promises enhanced speed, flexibility, and security in processing and sharing critical information, including communication, EO, and navigation data.

U.S. House Subcommittee Discusses Future of U.S. Activities in Low-Earth Orbit

On February 14th, 2024, the House Subcommittee on Space and Aeronautics examined NASA's **plans for the ISS and the transition to commercial low-Earth orbit platforms**. Highlighting the importance of LEO for future missions and competition with China, the hearing stressed the need for a clear ISS retirement plan by 2030 and the development of commercial space economies. Concerns were raised **about budget certainty, regulatory frameworks for commercial LEO activities**, and the strategic importance of sustaining a U.S. presence in space. Witnesses included officials from NASA, Axiom Space, The National Academies, and Voyager Space, emphasising the urgency of maintaining American leadership in LEO exploration and commercialisation.

India's space sector leaps forward: new spaceport, enhanced launch schedule, and liberalised FDI policy

Prime Minister Narendra Modi laid the foundation stone of **ISRO's second spaceport in Kulasekarapattinam, Tamil Nadu**, marking a significant step in enhancing India's satellite launch capabilities, particularly for small satellites. The initiative aligns with India's broader space ambitions, including international partnerships and the upcoming 2025 Gaganyaan mission, reinforcing its emergence as a global space power.

In a parallel development, **India is set to conduct 30 space launches in 2024-25**, with half of these missions dedicated to supporting the private sector, marking a significant increase in ISRO's launch activities. This expansion reflects India's broader ambition to enhance its presence in the space industry, fuelled by the government's 2020 decision to allow private companies to participate in space activities. The Indian National Space Promotion and Authorisation Centre (IN-SPACe) announced that these launches aim to bolster the commercial space sector, alongside user-funded projects, scientific explorations, and demonstrations of technological advancements. NewSpace India Limited (NSIL) is spearheading seven commercial missions, including collaborations with industry consortia for Polar Satellite Launch Vehicle (PSLV) launches. India's leading academic institutions are also involved, bridging the gap between academic research and space technology

applications. These missions **will launch from the Satish Dhawan Space Centre (SDSC) SHAR**, India's primary spaceport.

Complementing these technological developments, on February 21, India's Cabinet, under Prime Minister Narendra Modi, approved an amendment to the Foreign Direct Investment (FDI) policy in the space sector to promote **Atmanirbhar Bharat vision.** This revision allows for foreign investment in specific space activities, aiming to attract more FDI, improve the Ease of Doing Business, and boost job creation. Key changes include 100% FDI under automatic route for manufacturing satellite components and systems, up to 74% for satellite operations, and up to 49% for launch vehicles and spaceports, with varying conditions for government approval beyond these limits. This policy adjustment is expected to enhance private sector involvement, stimulate technology transfer, and integrate Indian space companies into global value chains, supporting the 'Make in India' initiative.

Iran Targets Geostationary Satellite Launches Within Decade, Marks Aerospace Advancement

Credit: IRNA

Iran plans to **launch domestically produced satellites into geostationary orbits using homegrown vehicles within ten years**, according to Communications Minister Issa Zarepour. Recent successes include 11 launches, emphasising the nation's advancement in space technology. A 10-year vision aims to elevate Iran's satellite capabilities, including reaching geostationary equatorial orbits. President Ebrahim Raeisi celebrated these advancements, noting Iran's position among the world's leading aerospace nations. The President acknowledged the country's progress with the launch of the Soraya and Mahda satellites, and remarked the capabilities of Iran's space industry and its resilience against international sanctions.

Algeria aims for 2040 space vision with advanced tech push

President Abdelmadjid Tebboune led a meeting on February 12th to chart **the future of the Algerian Space Agency towards achieving the country's 2040 space goals**. The meeting outlined plans for equipping the agency with cutting-edge technologies and fostering strategic partnerships to secure Algeria's position in the global space race. This initiative highlights the nation's commitment to developing its space capabilities and leveraging expertise in mathematics and artificial intelligence. The move comes amidst regional space advancements, notably **Morocco's recent satellite acquisition from Israel**, signalling a competitive space landscape in North Africa.

The World Meteorological Organization aims to enhance cooperation with space agencies to leverage satellite observations for climate resilience

This move, highlighted during the 15th Consultative Meetings on Satellite Matters, focuses on **improving data sharing and utilisation for better Earth System monitoring and early warnings**. With satellite observations being crucial for weather prediction and disaster management, the WMO aims to foster public-private partnerships and leverage innovative technologies to address global challenges like climate change.

National Geospatial-Intelligence Agency unveils “Luno” programme

The National Geospatial-Intelligence Agency is expanding its commercial satellite imagery and analytics capabilities with **"Luno," a programme with an estimated $290 million budget**. By soliciting bids for global monitoring services, Luno aims to observe economic activities, environmental changes, and military movements more efficiently, transitioning to purchasing analysis as a service. This budget increase reflects NGA's commitment to leveraging commercial Earth observation technologies, generating significant interest in the geospatial intelligence community.

In other news

ESA showcased its commitment to space sustainability: ESA safely deorbited the ERS-2 satellite, aligning with the 'ESA Zero Debris approach' for controlled re-entries and emphasising responsible space exploration.

Greece and Uruguay become the 35th and 36th countries to join the Artemis Accords: the signing was attended by NASA Administrator Bill Nelson and Greece's Foreign Minister Giorgos Gerapetritis, and Uruguay Foreign Minister Omar Paganini. They reinforced shared goals for safe, peaceful, and sustainable space exploration.

ThrustMe secures contract with CNES: ThrustMe and CNES contracted for the NPT30-I2, a miniaturised iodine electric propulsion system, merging traditional and new space industries for efficient, responsive space missions.

DLR and WFP renewed their cooperation for five more years, signed by Anke Kaysser-Pyzalla of DLR and Bernhard Kowatsch of WFP Innovation Accelerator.

OQ Technology partners with ESA under Luxembourg's LuxImpulse for a study on enhancing 5G NB-IoT tech for direct mobile connectivity, tackling issues like link budget and Doppler effects, focusing on software, hardware, and advanced antenna technology.

INDUSTRY & BUSINESS

Thales Alenia Space partners with Ball Aerospace, Axiom Space and BlackSky

Thales signs contract with Ball Aerospace for NASA mission

Thales Alenia Space secured a **contract with prime contractor Ball Aerospace to furnish communications equipment for NASA's NEO Surveyor mission**. This five-year initiative aims to bolster Earth's defence against near-Earth objects like asteroids and comets, specifically within a range of 50 million kilometres from Earth's orbit. NEO Surveyor will deploy an infrared space telescope to identify and characterise at least two-thirds of near-Earth objects exceeding 140 metres in size, capable of inflicting significant damage upon impact. Managed by NASA's Jet Propulsion Laboratory, NEO Surveyor will travel 1.5 million kilometres to the L1 Lagrange point. From this point, the spacecraft will employ infrared wavelengths to survey the solar system, detecting comets, asteroids, and gathering vital data on their composition, shapes, rotational states, and orbits. Thales Alenia Space's contribution encompasses providing S-band Transponders, K-band Modulators, and K-band Travelling Wave Tube Amplifiers (TWTA) for the NEO Surveyor spacecraft. These components will facilitate communication functions, including receiving telecommands from NASA's Deep Space Network, transmitting spacecraft telemetry, and relaying images captured by the NEO Surveyor telescope back to Earth.

Thales advances the construction of Axiom's commercial space station module

Credit: Thales Alenia Space

Thales Alenia Space reached an important milestone in **constructing the Axiom Hab One (AX-H1) commercial space station module**. Axiom Space chose Thales Alenia Space for the development of pressure vessels and Micrometeoroid and Debris Protection System for its commercial space station modules and, in a recent announcement, Thales Alenia Space revealed the mating of the forward cone to the cylinder bulkhead of the AX-H1 pressure vessel, marking a development in the module's primary structure. Thales Alenia Space is scheduled to deliver the pressure vessel for AX-H1 by 2025, after which Axiom will undertake final outfitting at its Houston facility. The module is anticipated to be launched in late 2026 and subsequently docked with the ISS's Harmony module, serving Axiom astronauts during their visits.

Thales Alenia Space collaborates with BlackSky to provide satellite services to Indonesia

BlackSky secured a $50M deal to provide satellite imagery services and imaging spacecraft to the Republic of Indonesia. **Partnering with Thales Alenia Space, BlackSky aims to establish a sovereign Earth imaging satellite network tailored to Indonesia's national security needs**. Thales Alenia Space, selected to deliver a dedicated EO constellation to the Indonesian Ministry of Defense, will collaborate with BlackSky to integrate radar and optical sensors into the constellation.

Furthermore, amidst global shifts like climate change and geopolitical tensions, governments require timely, accurate data for effective decision-making. Thales Alenia Space addresses this need with the **launch of their ALL-IN-ONE constellation**, offering near real-time surveillance through a mix of optical and synthetic aperture radar microsatellites. These satellites ensure constant monitoring regardless of weather conditions.

Exolaunch introduces Quadro

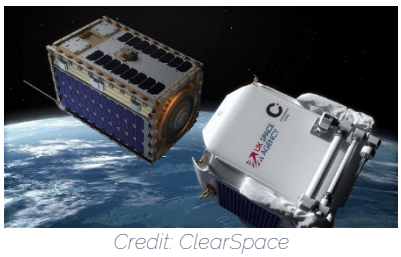
Exolaunch unveiled **Quadro, a four-point separation system designed to meet the demand from small satellite manufacturers**. With its low-shock and low tip-off rate separations, Quadro offers versatility and precision in satellite deployment. The Quadro system comes in three configurations to cater to diverse customer needs: Quadro Arrow, Quadro 4032, and Quadro 2424. Each configuration is tailored for different satellite platforms, accommodating masses ranging from 200 to 500 kilograms. With its scalable architecture, Quadro provides optimal deployment solutions for various launch vehicles and mission requirements. Key features of the Quadro system include a mechanically-synchronised pusher-arm mechanism, ensuring precision in satellite deployment. Additionally, as an ITAR-free system, Quadro offers global compatibility and user-friendly operation. Early orders from undisclosed satellite manufacturers underscore the industry's confidence in Quadro's capabilities, with the inaugural flight scheduled for later this year.

Intuitive Machines lands on the Moon with Nova-C Lander

Credit: Intuitive Machines

On February 15th, Houston-based **Intuitive Machines landed its Nova-C class lunar lander, Odysseus, on the Moon**. The IM-1 mission is part of NASA's Commercial Lunar Payload Services (CLPS) initiative, contributing to Artemis lunar exploration efforts. The lander, measuring 4.3 metres tall and 1.6 metres in diameter, was launched aboard SpaceX's Falcon 9 rocket. It marked the first American landing on the Moon in over 50 years and the first by a privately developed spacecraft. Odysseus arrived on the Moon's south polar region, although it tipped over upon touchdown on the Moon's surface. Steve Altemus, CEO of Intuitive Machines, explained that the lander may have descended faster than anticipated, causing it to catch a foot on the surface and tip over gently. **Despite facing challenges already prior to landing**, Intuitive Machines' team addressed the situation by implementing a software patch to utilise the NASA Doppler lidar payload. They worked to stabilise the lander's configuration and, as the landing face progressed, engineers managed to salvage the mission by replacing malfunctioning laser rangefinders with data from the NASA Navigation Doppler Lidar. This solution ensured the mission's continuity and also validated the readiness of the NASA payload.

UK Space Agency engages ClearSpace for satellite refuelling feasibility study


Credit: ClearSpace

ClearSpace secured a **contract from UKSA to conduct the REFUEL.ME study**. This study, set to continue until September 2024, has the primary goal of evaluating the feasibility of satellite refuelling missions. With this study, ClearSpace also aims to enhance collaboration with industry leaders such as OrbitFab, Satellite Applications Catapult, and Know.space. The main objectives of the study include defining the necessary mission requirements, conceptualising operational procedures, and initiating the design process for the servicer satellite. Initially, the focus will be on refuelling the UK National Debris Removal Mission. However, there are plans to expand these services to commercial satellites in the future.

Astroscale Japan successfully launches ADRAS-J debris inspection satellite

On February 18th, Astroscale Japan **successfully launched its commercial debris inspection demonstration satellite, Active Debris Removal by Astroscale-Japan (ADRAS-J)**. The satellite was launched from Rocket Lab's Launch Complex 1 in Mahia, New Zealand. The spacecraft, selected by JAXA for Phase I of its Commercial Removal of Debris Demonstration programme, aims to safely approach, characterise, and survey a piece of existing large debris through innovative Rendezvous and Proximity Operations (RPO) capabilities. The mission will involve rendezvous with a Japanese H2A upper stage rocket body, demonstrating proximity operations and gathering images to assess the rocket body's movement and structural condition. Despite the challenge of approaching an unprepared object without precise positional data, the mission aims to utilise ground-based observation data to initiate the proximity approach safely. On February 22nd, the company announced **the satellite commenced the rendezvous operations phase**. The operations team, spanning Japan and the UK, will utilise ADRAS-J's propulsion system to manoeuvre towards the designated client orbit meticulously. This crucial phase demands precise planning of orbit raising manoeuvres to ensure a safe and accurate approach. The subsequent stages of the mission are expected to be completed over the next several months.

Credit: Astroscale

Beijing launches 'Rocket Street' to advance aerospace innovation and industry clusters

On February 4th, Beijing's commercial aerospace sector received a major boost with the **unveiling of the "Beijing Rocket Street" project in Yizhuang**, aiming to foster innovation and attract high-quality aerospace projects. The initiative, part of the Beijing Economic and Technological Development Zone, includes a cutting-edge R&D centre and intelligent manufacturing facilities. Announced at the Beijing Commercial Aerospace Industry Conference, the project has already secured 17 key agreements. Additionally, the city plans to enhance reusable rocket technology with the new Beijing Reusable Rocket Technology Innovation Centre and strategic partnerships to promote industry growth. By 2028, Yizhuang aims to lead in reusable rocket technology and develop a significant commercial aerospace industrial cluster.

Satellite operators unite to advance direct-to-smartphone connectivity

Credit: Business Wire

U.S. companies Viasat, Terrestar Solutions, Ligado Networks, Omnispace, and UAE company Yahsat **jointly established the Mobile Satellite Services Association (MSSA)** as a non-profit organisation with the aim of harmonising Mobile Satellite Services for seamless integration with standardised devices. This consortium of satellite operators came together to propel the emerging direct-to-smartphone market utilising their radio waves instead of spectrum from terrestrial mobile network operators. Pooling their resources, they collectively possess over 100 megahertz of L- and S-band spectrum, which they believe could bolster terrestrial cellular networks on a global scale. The MSSA intends to advocate for policies, laws, and regulations conducive to adoption of the service, aligning with standards used by the cellular industry to enable direct-to-smartphone users to roam across their networks.

Argotec expands into Saudi Arabia's aerospace industry

During the World Defense Show 2024 in Riyadh, the Italian aerospace company **Argotec announced the expansion of its operations into Saudi Arabia**. CEO David Avino revealed the company's plans, emphasising the significance of Saudi Arabia's investments in aviation, defence, and space aligned with Vision 2030 and showing the company readiness to collaborate with Saudi Space Agency and Saudi Arabian Military Industries. With plans to establish a subsidiary in Saudi Arabia, Argotec aims to tap into the region's potential, leveraging partnerships and connections to offer innovative solutions in space operations, satellite services, and astronaut training.

Voyager Space and Palantir partner to advance space domain security

Voyager Space and Palantir signed an **MoU to advance national security capabilities in the commercial space sector**. This collaboration focuses on exploring and implementing AI and Machine Learning (ML) for technology demonstration missions on the ISS and the future Starlab commercial space station. The partnership aims to integrate Palantir's AI/ML and edge processing capabilities into the development, manufacturing, and operations of the Starlab station. Potential applications include enhancing space domain awareness, data fusion, and processing at the edge to enable autonomous decision-making and secure collaboration with Allies. Both companies will actively seek opportunities to collaborate with other national security stakeholders, including government agencies, working groups, commercial partners, and partner nations.

Virgin Galactic completes 11th commercial spaceflight and first of 2024

Virgin Galactic successfully completed of its 11th spaceflight, marking the first time all four seats aboard VSS Unity were occupied by private astronauts. The company expressed confidence in the repeatability of its service and plans to expand flight capacity with next-generation Delta-class ships. The recent flight, dubbed 'Galactic 06', featured astronauts from Ukraine, the U.S., and Austria, and was commanded by C.J. Sturckow and piloted by Nicola Pecile. Virgin Galactic's next mission, slated for the second quarter of 2024, will include both a researcher and private astronauts.

Credit: Virgin Galactic

Gilat signs two contracts for satellite communications and connectivity

Gilat Satellite Networks was awarded a **multimillion-dollar defence satellite connectivity project**. The project entails the integration of Gilat's SkyEdge IV platform and Taurus-M modems to enhance the satellite communications capabilities for a governmental defence organisation. The SkyEdge IV Taurus-M is a satellite modem characterised by its low SWAP (Size, Weight, and Power). It facilitates fast deployment and operation, offering highly available, high-speed satellite communications for stationary and on-the-move operations. The satellite represents Gilat's multi-service platform, designed to integrate with multi-orbit (GEO, MEO, and LEO) software-defined satellite constellations. It boasts cloud infrastructure support and incorporates an Elastix-Access Scheme to meet current and future satellite connectivity requirements.

Furthermore, Gilat's U.S.-based subsidiary, **DataPath, was awarded $10M follow-on order from the U.S. DoD**. The new order for DKET 3421 terminals, transportable SATCOM hubs, offers operational flexibility and multi-carrier support with up to 32 modems, deployable in under three hours for global operations.

Geespace launches 11 satellites for its mobility constellation

On February 3rd, Geespace, a satellite technology and commercial services company backed by Zhejiang Geely Holding Group, achieved its **second successful satellite launch from China's Xichang Satellite Launch Center**. The launch saw 11 satellites sent into LEO, forming the second orbital plane of the "Geely Future Mobility Constellation" satellite network. This marks an advancement in the company's endeavour to develop their constellation. The Geely Future Mobility Constellation is advancing the integration of communication, navigation, and remote sensing within a single satellite network, a first in the commercial sector. Geespace plans to launch 72 satellites by 2025 for real-time data services, expanding to 168 for global high-precision positioning.

SatRev and Locus Dynamics partner at Rwanda-Poland economic summit

During the Poland–Rwanda Economic Summit, Polish company SatRev and Rwanda company Locus Dynamics signed an MoU underscoring their **joint commitment to deliver comprehensive satellite solutions for Earth Observation Data in Africa**, with a special focus on Rwanda.

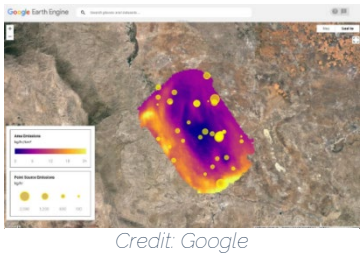
Credit: SatRev

The MoU covers collaboration on microsatellites, high-resolution sensors, and infrastructure in Rwanda, including ground stations and data analytics. It also explores delivering three microsatellites with potential EU financing.

SpaceX initiates controlled deorbit of Starlink satellites

SpaceX announced plans **to retire around 100 Starlink satellites due to identified flaws that could potentially compromise their future functionality**. The affected satellites, part of the early version 1 design, are currently operational. However, SpaceX engineers identified a common issue that could escalate the risk of failure over time. To mitigate potential threats to other spacecraft, SpaceX will conduct controlled, propulsive deorbits for these satellites. The deorbit process will involve maintaining manoeuvrability and collision avoidance capabilities during descent, lasting approximately six months for most vehicles. SpaceX will share position and prediction information multiple times a day to coordinate activities with other operators. In the event of a conjunction risk, the affected satellites will manoeuvre accordingly. To date, SpaceX initiated controlled deorbits for 406 satellites out of nearly 6,000 launched.

Google partners with EDF to combat methane emissions



Credit: Google

Google teamed up with the Environmental Defense Fund **to launch a satellite project aimed at tackling methane emissions**. Scheduled for launch in March, the MethaneSAT satellite will orbit the Earth 15 times a day, collecting data on methane levels worldwide. The new satellite project will focus on methane emissions from oil and gas plants, aiming to identify and quantify methane leaks across the globe. Utilising Google's AI tools, the satellite data will be processed to generate a methane map, pinpointing sources of emissions. Google will not directly notify the responsible companies but will make the information available to governments and regulators, encouraging them to take appropriate action.

In other news

ESA and GSMA Foundry unveil a €15M initiative to foster collaboration between mobile and satellite industries: The partnership focuses on innovative tech for networks, aiming at revenue growth through challenges, lab growth, training, and community engagement.

Ariane 6 arrives at French Guiana's Port of Pariacabo: The ship Canopée, with sails reducing emissions by 30%, transports Ariane 6 components to the spaceport, ensuring safe delivery for integration and launch.

Polish Scanway partners with South Korean Nara Space Technology to develop a microsatellite system for EO: the collaboration aims to enhance the NarSha project, focusing on methane monitoring with a constellation of microsatellites. The K3M microsatellite, equipped with advanced optical instruments, targets real-time detection of methane plumes globally.

SkyFi integrates PlanetScope satellite data, enhancing EO capabilities: This collaboration enables direct access to high-frequency imagery via SkyFi, enhancing agriculture, environmental monitoring, and urban planning decision-making.

Japanese ispace and Thai mu Space sign MoUs for collaborative lunar missions: The agreements aim at cislunar satellite services and market development, accelerating lunar missions and expanding beyond Earth.

Northrop Grumman's Passive Refueling Module was selected by Space Systems Command as the prime refuelling interface standard for satellites: the PRM's maturity and technical feasibility drive its selection, reflecting the need for sustained manoeuvrability in space.

Lockheed Martin and Rhea Group secure contracts from the U.K. Ministry of Defence for satellite control systems: under the ISTARI project, worth $2.5M each, the initiative aims to deploy intelligence satellites by 2031, with an investment of $1B.

Axiom Space and Voyager Space urged NASA and Congress to prevent a potential gap in space station presence: warning of potential loss of leadership to China in LEO, they emphasised the need for funding and policies to ensure a transition from the ISS to commercial space stations, outlining key areas for government support.

Equatorial Launch Australia (ELA) signs an MoU with the Singaporean Equatorial Space Systems (ESS): They are planning suborbital Dorado rocket launches at Arnhem Space Centre in late 2024.

U.S. Space Tango secures a $5M contract from NASA for biological data collection on the Artemis II mission: supporting the Science Mission Directorate, Space Tango aims to enhance scientific data collection for the crewed lunar orbit test flight, contributing to deep space exploration developments.

Rogue Space Systems secures a $1.25M SBIR contract to develop guidance and control solutions for satellite rendezvous operations, aiding the Department of the Air Force: this Direct to Phase Two award enhances spacecraft operations, particularly with low-thrust systems, supporting Rogue's ISAM and RPOD services.

Iridium Communications anticipates extending the operational lifespan of its satellites by five years.

ESA and Hassell propose a sustainable lunar base concept utilising in-situ 3D printing with lunar materials and inflatable pods for long-term habitation.

INVESTMENT & FINANCE

Unseenlabs raises €85M to expand maritime surveillance constellation

The French company Unseenlabs successfully closed a **fundraising round of €85M**. French investors Supernova Invest and ISALT, along with UNEXO, led the Series C funding round. With this funding round, which brings the total raised to €120M since its inception nine years ago, Unseenlabs aims to double its maritime surveillance constellation to 25 nanosatellites. These satellites will enable the tracking of vessels in near real-time, enhancing global maritime monitoring capabilities. The expansion of the satellite fleet will bolster Unseenlabs' presence in LEO and also facilitate the improvement of its radio-frequency geolocation network's capabilities. By increasing the number of satellites,

Credit: Unseenlabs

Chinese space companies raise over $1B over three funding rounds

The Chinese companies Shanghai Spacecom Satellite Technology (SSST), Orienspace and Space Circling, raised three rounds totalling more than $1B, surpassing the total investment raised by the Chinese space sector in 2023.

Shanghai Spacecom Satellite Technology (SSST) raises $933M

The company **SSST (also known as Yuanxin Satellite), founded by Shanghai Municipal Government, completed a Series A financing round of $933M**, led by the National Manufacturing Transformation and Upgrading Fund (NMTUF), a $21B fund set-up in 2019 by the Chinese Ministry of Finance, China's Development Bank and various State-Owned Enterprises. The company will use the investment to develop the LEO broadband constellation G60. The funding comes amidst Chinese ambitions of having its answer to Starlink and several initiatives by Shanghai's Municipal Government to develop the space industry in the city.

Orienspace raises $83.5M Series B round and Space Circling secures $13.9M in Series A

The China-based launch company **Orienspace secured $83.5M in a Series B round** after the successful launch of the Gravity-1, a solid fuel medium-lift rocket from a mobile sea platform. The round saw the participation of old and new shareholders, such as Shanhang Capital and Shenyin Wanguo Investment. Orienspace will use the investment to finance the development and production of a new 100-ton liquid kerosene engine as well as accelerate the development of the Gravity-2 medium and large reusable liquid fuel rocket.

Credit: SSST

Another upstream company, Space Circling (also known as Shaanxi Tianhui Aerospace Technology), **secured over $13.9M in a Series A funding round**. Strategic investors such as Changsha Kaifu District Zhongxin High-tech Fund and Xi'an Talent Fund participated in the funding round. The funding aims to propel the start-up closer to its goal of mass-producing rocket engines and reducing space access costs. The investment will support the construction of an industrial base for the company's rocket engines, including the Qiaolong-1, to meet China's growing demand for high-thrust liquid rocket engines in the domestic aerospace sector.

Reaction Engines secures $47.7M led by UAE's Strategic Development Fund

Credit: Reaction Engines

Reaction Engines successfully closed a **$47.7M funding round, with Strategic Development Fund (SDF), representing UAE's Tawazun Council, as the lead investor**. This investment aims to expedite the development and commercialisation of its thermal management technologies. The partnership between Reaction Engines and SDF aims to explore diverse commercial opportunities, particularly in aerospace, energy, and industrial sectors, and innovative heat exchange applications.

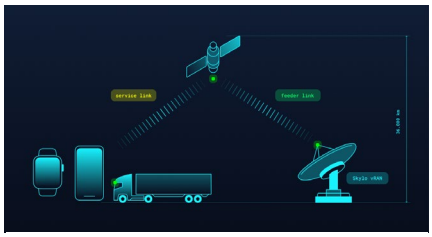
Gilmour Space Technologies secures $55M in Series D funding

Australian space start-up **Gilmour Space Technologies raised $55M in a Series D funding round** led by Queensland Investment Corporation (QIC) and joined by prominent investors including Blackbird, Main Sequence, HostPlus, and Australian pension fund HESTA. The financing round will support Gilmour Space's mission to manufacture, test, and launch from the Bowen Orbital Spaceport in North Queensland. The funding will enable Gilmour Space to pursue multiple launches and strive towards becoming the first Australian-built rocket to achieve orbit, with maiden test flight of Eris scheduled in the coming months, pending regulatory approvals from the Australian Space Agency. Subsequent test flights are scheduled for later this year, with commercial launches slated to commence in 2025.

Start-up K2 Space raises $50M

Los Angeles-based startup K2 Space secured **$50M in new funding led by tech investor Brad Gerstner's Altimeter Capital with the aim to develop Mega class satellites**. K2 Space plans to launch its first satellite on a demonstration mission later this year. The company's Mega class satellite bus is designed to fit into heavy and super heavy rockets, such as SpaceX's Falcon 9 and Falcon Heavy, and United Launch Alliance's Vulcan, among others. With each Mega satellite priced at $15M and capable of supporting up to one ton of payload mass, K2 aims to provide customers with a flexible and modular solution. The upcoming demonstration mission seeks to validate the effectiveness of K2's Mega design and showcase its capabilities to potential customers, including commercial satellite operators and the U.S. DoD.

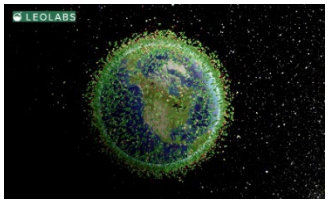
Skylo Technologies secures $37M to expand satellite connectivity services



Credit: Skylo

Skylo Technologies secured $37M in funding co-led by Intel Capital and Innovation Endeavors. This investment round also includes participation from new investors such as BMW i Ventures, Next47, Samsung Catalyst Fund, and Seraphim Space. Skylo aims to enable satellite-based connectivity for wearables and other IoT devices, with plans to introduce voice and data services on the network in the near future. The funding will enable Skylo to expand its scale and business operations, particularly in supporting smartphones, wearables, IoT devices, and mobile network operators.

LeoLabs raises $29M to expand space object tracking and safety capabilities



Credit: LeoLabs

LeoLabs completed a $29M financing round, bringing its total funding to over $120M. The financing round was led by GP Bullhound, with participation from new investors such as 1941 and Dolby Family Ventures, as well as continued support from existing investors. With the new funding, LeoLabs plans to explore advanced radar technologies to enhance coverage of small orbital debris, launch vehicles, and satellites in LEO. Additionally, the company aims to further strengthen its partnerships with government agencies to provide real-time insights on space activities and safety alerts to commercial satellite operators.

BAE Systems completes $5.5B acquisition of Ball Aerospace

Days after receiving the **regulatory approvals**, BAE Systems moved to **complete the $5.5B acquisition of Ball Aerospace**, which will operate under its business as a new sector called Space & Mission Systems. With the acquisition, BAE Systems sought to expand its capabilities in designing, building and operating satellites and satellites systems, as well as increasing its exposure to high priority areas of the U.S. Department of Defence Budget.

Eutelsat Group seeks to fund OneWeb Gen 2 through export-credit financing

The Eutelsat Group revealed that it aims to **fund around two thirds of OneWeb Gen 2 satellite network through low-cost-export-credit financing**. To that end, the company would rely on India, UK, and French Export Credit agencies. The company also adjusted its approach to the implementation of OneWeb Gen 2 network, reducing funding requirements from €4B to €2.8B, representing a 30% decrease. Moreover, **OneWeb recently sold its 50% share of Airbus OneWeb Satellites factory,** where most of OneWeb satellites were being produced and which it had been co-owned by Airbus up until then.

Synthetaic raises $15M for AI image data analysis platform

Synthetaic raised $15M in Series B funding from investors including Lupa Systems, TitletownTech, Booz Allen Hamilton, and IBM Ventures. The investment will accelerate the commercialisation of RAIC, the company's dual-use model-independent classification and detection platform for image data. RAIC offers a streamlined solution for quick and cost-effective object search within raw image data, reducing complexities associated with unlocking the full potential of unstructured image datasets.

Greenerwave raises €15M to development energy-efficient connectivity

The French start-up **Greenerwave closed a €15M fundraising round**, led by the Defence Innovation Fund, underwritten by the Defence Innovation Agency and managed by Bpifrance. Other notable investors include Safran Corporate Ventures, Intelsat, BNP Paribas Développement, and Plastic Omnium. With the funding, Greenerwave aims to accelerate the development of its technology, which has applications across various sectors including defence, space, automotive, and telecommunications.

Credit:

Interlune raises $15.6M for Moon resource mining

The U.S.-based start-up **Interlune raised $15.6M in funding, with plans to secure an additional $2.1M** for its in-space resource mining endeavours. The focus of Interlune's funding strategy is to improve its ability to sort lunar regolith by size, specifically for oxygen extraction systems and 3D printing on the Moon. Their proposed system aims to be more reliable and lightweight compared to traditional sieves, utilising centrifugal motion to guide particles through a screen. This recent funding round for Interlune reflects a growing interest and investment in space resource utilisation, partly driven by NASA's Artemis programme and the broader goal of establishing long-term human presence beyond Earth.

Portuguese start-up Connected raises €2M in pre-seed funding

Portuguese start-up Connected secured €2M in a pre-seed funding led by Shilling VC, Iberis Capital, and FundBox, with additional contributions from Amena Ventures and Octopus Ventures. With the funding, Connected aims to develop a specialised radio system designed for integration into third-party satellites orbiting in LEO. Additionally, the company plans to expand its workforce and conduct space tests aboard partner satellites.

In other news

The U.S. Quindar secures an additional $6M to advance its satellite constellation management software: the recent funding, an extension of its previous $2.5M seed round, was led by Fuse, joined by Y Combinator and Founders Fund. With the funding, the company plans to enhance AI capabilities for autonomous operations.

JAXA Venture Tenchijin finalises a Series A funding round, raising approx. €1.5M: this investment will propel the development of its Tenchijin Compass services, leveraging space big data to tackle societal challenges and drive innovative solutions for a sustainable future.

The German start-up ATMOS Space Cargo secures a €1.3M extension of its seed funding: the funding, led by OTB Ventures, aims at advancing its Phoenix return capsule project and to fuel the company's efforts in ESA's Commercial Cargo Initiative, propelling its vision for sustainable space cargo solutions.

Heliux emerges from stealth with a $2M funding round: the U.S. start-up aims to streamline business operations across industries like space, defence, and clean energy. The platform integrates AI to automate tasks and promises rapid implementation.

The U.S. start-up Nuview acquires U.S. analytics platform Astraea: although the terms of the acquisition remain undisclosed the acquisition of Astraea, with its AI-driven distribution and analysis tools, will help Nuview develop a high-throughput EO data channel.

BlueHalo acquires Eqlipse Technologies enhancing its defence capabilities: the deal combines BlueHalo's innovation in space, autonomous systems, and cyber with Eqlipse's strengths in electronic warfare, signals intelligence, and R&D. The consolidated entity will has nearly 2,400 employees and an annual revenue approaching $1B.

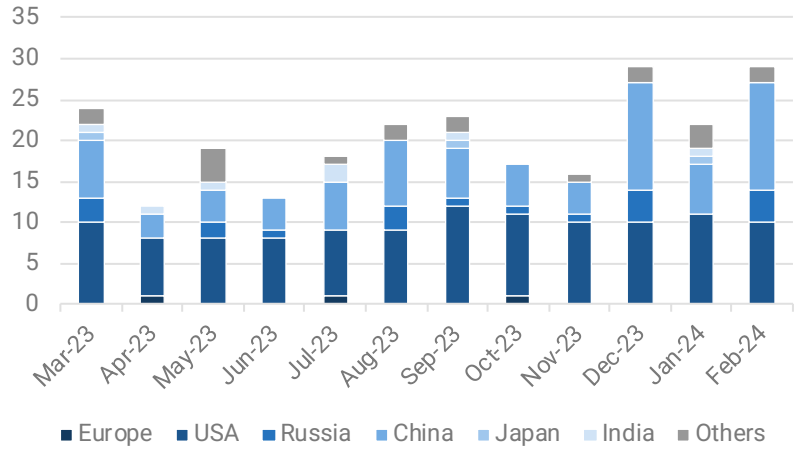
Indias's SpaceFields secures $800K in seed funding: led by HVB 88 Angels and O2 Angels Network, the start-up plans to boost R&D, double is workforce, and commercialise aerospike engines for improved altitude efficiency.

LAUNCHES & SATELLITES

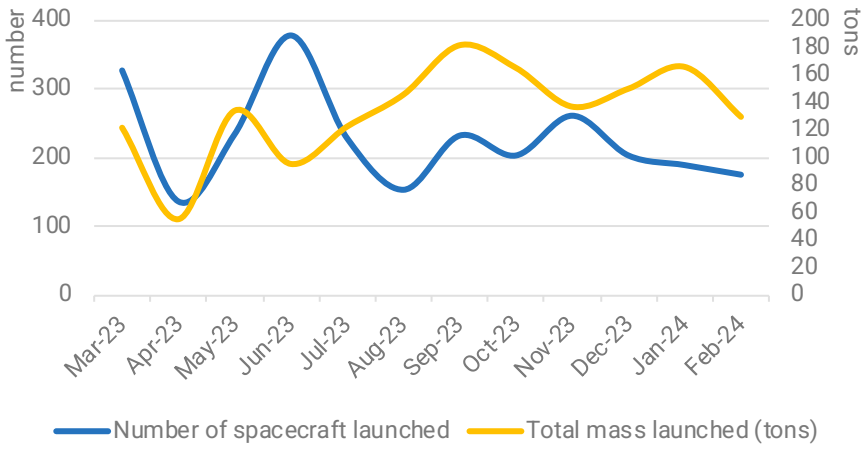
Global space activity statistics

February 2024	USA	China	Russia	Japan	India	Others	Total
Number of launches	9	4	3	1	1	1	**19**
Number of spacecraft launched	124	23	22	3	1	1	**174**
Mass launched (in kg)	105 075.5	8650	10564	3055	2274	150	**129 769.5**

Launch activity over the year

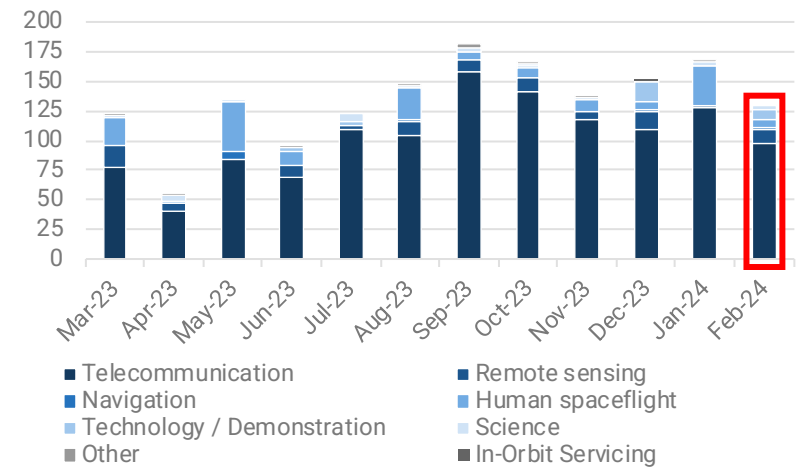


Evolution of the number of launches per launch country



Evolution of launch activity over the year 2023-2024

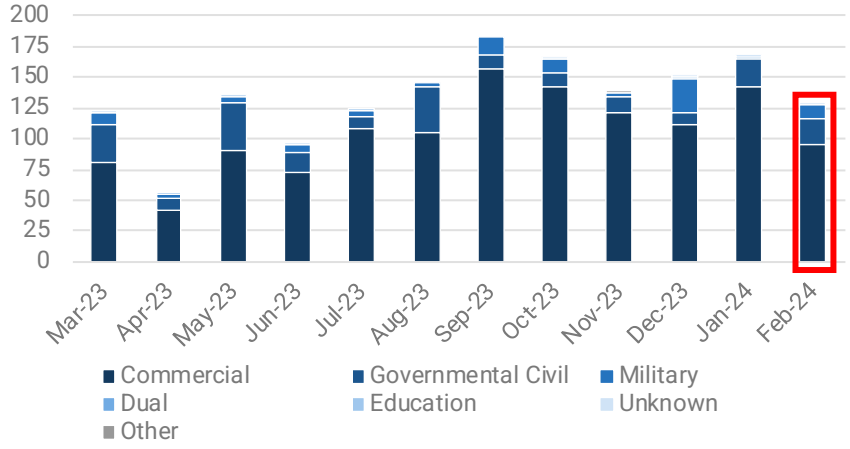
Satellite missions and markets



Evolution of the total mass launched (tons) per mission (Mar. 2023-Feb. 2024)

February 2024	Telecom	Remote sensing	Navigation	Human Spaceflight	Tech/ Dem	Science
USA	91 200	6272				3603.5
China	1500	315	1560		5210	
Russia		2900	80	7280	170	
Japan		50			3155	
India		2274				
Others	4134				65	

Total mass (kg) launched by mission and customer country



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

February 2024	Commercial	Governmental Civil	Military	Unknown
USA	93 109.5	1694	6272	
China	1850	235	5000	1500
Russia	100	10 180	150	
Japan	205	3000		
India		2274		
Others		4199		

Total mass (kg) launched by market and customer country

Launch Log

Launch date	Launch country	Launcher	Spacecraft name	Main customer	Customer country	Prime manufacturer	Manufacturer country	Mass (kg)	Mission	Market
01/12/2023	Russia	Soyuz-2-1a	Progress-MS 25	Roscosmos	Russia	RKK Energia	Russia	7280,00	Cargo Transfer	Gov.Civil
02/02/2024	China	CZ-2C(3)	GeeSAT-2 (12 spacecraft)	Geespace	China	Geespace	China	130 (each)	Navigation	Commercial
03/02/2024	China	Jielong-3	DRO-L	CAS	China	CAS	China	20,00	Tech / Demo	Gov.Civil
			NExSat 1	NARSS	Egypt	NARSS	Egypt	65,00	Tech / Demo	Gov.Civil
			Weihai 1 (01 & 02)	CASIC	China	CASIC	China	95 (each)	Tech / Demo	Gov.Civil
			Xingshidai (18 , 19 & 20)	ADA Space	China	MinoSpace Technology	China	20 (each)	Earth Observation	Commercial
			Yantai 2 / Dongfang Huiyan Gaofen 01	Oriental Spaceport Industrial Park	China	Oriental Spaceport Industrial Park	China	25,00	Earth Observation	Gov.Civil
			Zhixing 2A	Smart Satellite Technology	China	Smart Satellite Technology	China	230,00	Earth Observation	Commercial
08/02/2024	USA	Falcon-9 v1.2 (Block 5)	PACE (1)	NASA	USA	NASA	USA	1694,00	Earth Science	Gov.Civil
09/02/2024	Russia	Soyuz-2-1v	Kosmos 2575 / EO-MKA 6	Ministry of Defense of the Russian Federation	Russia	VNIIEM	Russia	150,00	Earth Observation	Military
10/02/2024	USA	Falcon-9 v1.2 (Block 5)	Starlink (22 spacecraft)	SpaceX	USA	SpaceX	USA	800 (each)	Telecom	Commercial
14/02/2024	USA	Falcon-9 v1.2 (Block 5)	HBTSS (1 & 2)	MDA	USA	Northrop Grumman	USA	1000 (each)	Early Warning	Military
			Tracking Layer Tr.-0 WFOV (5 , 6 , 7 & 8)	SDA	USA	L3Harris Technologies	USA	1068 (each)	Early Warning	Military
15/02/2024	Russia	Soyuz-2-1a	Progress-MS 26	Roscosmos	Russia	RKK Energia	Russia	7280,00	Cargo Transfer	Gov.Civil
15/02/2024	USA	Falcon-9 v1.2 (Block 5)	EagleCam	Embry-Riddle Aeronautical University	USA	Embry-Riddle Aeronautical University	USA	1,50	Planetary Science	Commercial
			Nova C IM-1 / CLPS 2	Intuitive Machines	USA	Intuitive Machines	USA	1908,00	Planetary Science	Commercial
15/02/2024	USA	Falcon-9 v1.2 (Block 5)	Starlink (22 spacecraft)	SpaceX	USA	SpaceX	USA	800 (each)	Telecom	Commercial
17/02/2024	India	GSLV Mk.2(4)	Insat 3DS	Insat	India	ISRO	India	2274,00	Meteorology	Gov.Civil
17/02/2024	Japan	H-3-22S	CE-SAT 1E	Canon Electronics	Japan	Axelspace	Japan	50,00	Earth Observation	Commercial
			TIRSAT	Japan Space Systems	Japan	Japan Space Systems	Japan	5,00	Tech / Demo	Commercial
			VEP 4	JAXA	Japan	JAXA	Japan	3000,00	Tech / Demo	Gov.Civil
18/02/2024	New Zealand	Electron KS	ADRAS-J	Astroscale	Japan	Astroscale	Japan	150,00	Tech / Demo	Commercial
20/02/2024	USA	Falcon-9 v1.2 (Block 5)	Merah Putih 2 / HTS - 113BT	PT Telekomunikasi Indonesia TbK	Indonesia	Thales Alenia Space	France	4000,00	Telecom	Gov.Civil
23/02/2024	USA	Falcon-9 v1.2 (Block 5)	Starlink (22 spacecraft)	SpaceX	USA	SpaceX	USA	800 (each)	Telecom	Commercial

23/02/2024	China	CZ-5	TJS 11	People's Liberation Army	China	CAST	China	5000,00	Tech / Demo	Military
25/02/2024	USA	Falcon-9 v1.2 (Block 5)	Starlink (22 spacecraft)	SpaceX	USA	SpaceX	USA	800 (each)	Telecom	Commercial
29/02/2024	USA	Falcon-9 v1.2 (Block 5)	Starlink (24 spacecraft)	SpaceX	USA	SpaceX	USA	800 (each)	Telecom	Commercial
29/02/2024	Russia	Soyuz-2-1b Fregat	Marafon-D-GVM	Russian Space Systems	Russia	ISS Reshetnev	Russia	150,00	Tech / Demo	Gov.Civil
			Meteor-M 2-4	Roscosmos	Russia	VNIIEM	Russia	2750,00	Meteorology	Gov.Civil
			Pars 1	Iran Space Agency	Iran	ISRC	Iran	134,00	Telecom	Gov.Civil
			SITRO-AIS (16 spacecraft)	Sitronics	Russia	SPUTNIX	Russia	5 (each)	Navigation	Commercial
			Zorkiy 2M-2	SPUTNIX	Russia	SPUTNIX	Russia	20,00	Tech / Demo	Commercial
29/02/2024	China	CZ-3B	Weixing Hulianwang Gaogui-01	Unknown (China, Public)	China	CAST	China	1500,00	Telecom	Unknown

LAUNCH HIGHLIGHTS

Intuitive Machines Nova-C lander launched towards the Moon atop Falcon 9


Credit: Intuitive Machines

A SpaceX Falcon 9 rocket ascended into the sky on **February 15th and successfully deployed the Nova-C lander** setting it on its course to the Moon. NASA serves as the main client for this mission, sending six payloads to the lunar surface via the Commercial Lunar Payload Services (CLPS) program, for which the contract is valued at approximately $118 million. The payloads provided by NASA focus primarily on the advancement of technology, with the main objective of the mission being to demonstrate a safe landing. On February 22nd, **Intuitive Machines announced touchdown on the lunar surface**, the first time a privately developed spacecraft achieved a landing on the Moon. and the first by an American spacecraft since Apollo 17 in 1972. However, the company announced that the lunar lander tipped over during touchdown but was still operational.

Two Japanese success stories


Credit: JAXA

On February 17th, Japan also celebrated the first successful launch of its new H3 rocket, delivering a test payload. This was the second attempt, after the inaugural launch in March 2023 failed due to an electrical problem in the ignition system. The H3 rocket is central to Japan's upcoming space endeavors. It is set to replace the H-2A rocket and will be responsible for launching both civilian and defense-related missions, among them the new HTV-X spacecraft, which is tasked with delivering supplies to the ISS. Just one day after, the Active Debris Removal by Astroscale-Japan **(ADRAS-J) by Astroscale, aimed at developing methods for clearing space debris, was launched on February 18th** on the Electron launch vehicle by US-based Rocket Lab. The mission of the satellite is to close in on and observe the defunct upper stage of an H-2A rocket that was launched in January 2009. ADRAS-J is set to become the first commercial spacecraft to engage with an uncooperative entity, such as a fragment of space debris.

SpaceX launches classified US military mission

On February 14, SpaceX executed a classified mission for the U.S. military, codenamed USSF-124, deploying six missile-detection satellites), manufactured by L3Harris and Northrop Grumman. into orbit. Among these, two satellites represent the initial prototypes developed for the Missile Defense Agency's Hypersonic and Ballistic Tracking Space Sensor (HBTSS) program. The remaining four satellites are part of the Space Development Agency's Tracking Layer Tranche 0, demonstrating to supply test data as the SDA works on establishing a comprehensive constellation for global surveillance, warning, tracking, and engagement of missile threats.

300th successful Falcon 9 launch delivers Indonesian satellite to GEO

The Merah Putih-2 telecommunications satellite was successfully deployed into orbit by a SpaceX Falcon 9 rocket on February 20th. Its purpose is to improve the connectivity across Indonesia. Thales Alenia Space led the project as the main contractor, responsible for the satellite's design, build, testing, and delivery on the ground. This also marked the 300th successful launch for SpaceX Falcon 9 rocket.

ESPI Insights Editorial Team	
Editorial Management	Alberto Rueda Carazo
Policy & Programmes	Alberto Rueda Carazo
Industry & Business	Giusi Discenza
Investment & Finance	João Falcão Serra, Giusi Discenza
Launches & Satellites	Lars Petzold

Schwarzenbergplatz 16 | A-1010 Vienna, Austria
Phone +43 1 718 11 18 - 0 | E-Mail: office@espi.or.at