



ESPI

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Policy Institute

ESPI Insights

Space Sector Watch



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THIS MONTH IN THE SPACE SECTOR...

POLICY & PROGRAMMES.....	1
New Projects, ESPI participation and Partnerships at this year's IAC in Milan	1
European Commission Awards IRIS ² Concession Contract to SpaceRISE	1
ESA's Hera mission launched on schedule, under budget.....	1
ESA signs contracts with D-Orbit, Telespazio, OHB, Thales Alenia Space at IAC	1
NATO introduces two new space projects.....	2
ESA releases new Earth Observation Science Strategy.....	3
Spain to host three more ESA Business Innovation Centres starting 2025.....	3
Pentagon's projects commercial Sat internet services to expand to \$13 billion.....	3
Northrop Grumman gets \$1.8 billion contract extension from US Space Force.....	3
US eases space technologies export control rules	4
US Space Force awards contracts to SpaceX, Millenium Space Systems.....	4
SDA awards \$491.6 million contract modification, announces Sat purchases	4
France and Germany join Operation Olympic Defender.....	5
CNES contracts Cegelec for fluid systems in new launch complex	5
Finland proposes establishment Space Situational Awareness Centre	5
Italy strengthens international partnerships.....	5
ASI awards contract to Telespazio	6
India's CCS approves launch of 52 surveillance satellites	6
UK and Canada team up on Redwing SDA mission	6
Successful second motor test readies Vega C to return to flight	6
Polish projects receive ESA funding.....	7
Türkiye increases space exploration budget.....	7
NASA: Key testing milestone for Lunar Space Station Module complete	7
Impulse Space awarded \$34.5 million in Space Force missions	7
Brazilian Federal Police renews satellite monitoring contract with Planet Labs	8
In other news.....	8
INDUSTRY & BUSINESS.....	9
Spain's PLD Space unveils new rockets and crew capsule	9
Airbus Defence and Space to cut up to 2500 jobs.....	9
Boeing takes \$250 million charges in Starliner, lays off around 17,000 employees	9

Marco Fuchs, CEO of OHB SE, named new President of Aerospace.....	10
Thales Alenia Space and OHB sign contract for radar instruments development	10
Italy's Argotec opens new manufacturing facility in San Mauro Torinese.....	10
Intelsat 33e satellite breaks up in GEO	10
Anduril, Impulse Space, collaborate on US National Security Space Missions	11
CesiumAstro introduces phased array satellite technology.....	11
EUTELSAT first quarter revenues up 9.4%.....	11
mPower selected by Airbus for solar power modules.....	11
German POLARIS Spaceplanes receives Rocket-Powered flight approval	12
Avio to build US-based production facility for solid-rocket motors.....	12
Telesat selects Intellian to build 127 gateway antennae	12
True Anomaly selects Firefly Aerospace to launch Jackal spacecraft	12
Austrian iSEE sets up US subsidiary	13
ULA's Vulcan rocket encounters booster anomaly in test launch	13
Gilat awarded contracts for GEO, LEO, MEO constellations.....	13
THAI Airways selects Neo Space Group for IFC solutions.....	13
In other news.....	14
INVESTMENT & FINANCE	15
Impulse Space raises \$150 million for last-mile transportation	15
Q-CTRL secures \$59 million for quantum software	15
ALL.SPACE secures \$44 million in Series C funding round	15
xFarm Technologies raises €36 million for smarter farm management	15
Yahsat and Bayanat complete merger to establish Space42.....	16
Lumir completes IPO	16
Gogo to acquire Satcom Direct.....	16
OroraTech raises €25 million for fire monitoring	17
Denmark-based VC fundraising €150 million for space and defence start-ups.....	17
OQ Technology secures investment from Luxembourg	17
Vortexa raises \$25 million in debt financing for energy markets monitoring	17
Starfish Space secures \$21 million for satellite servicing	17
Chinese laser communication companies raise hundreds of millions of yuan	18
Freeform raises \$14 million for metal 3D printing.....	18
Yunyao Aerospace raises undisclosed amount for meteorological constellation.....	18

Constellation Technologies & Operations raises €9.3 million	18
Argo Space closes \$7.9 million round for lunar water-powered OTVs.....	19
EarthDaily Analytics acquires Descartes Labs to expand portfolio	19
Wyvern raises \$6 million for hyperspectral imaging	19
In other news.....	19
LAUNCHES & SATELLITES	20
Global space activity statistics.....	20
Launch activity over the year	20
Satellite missions and markets	21
LAUNCH HIGHLIGHTS	22
SpaceX catches super Heavy Booster on Starship test flight 5.....	22
European Planetary Defense mission HERA launched on Falcon 9.....	22
Europa Clipper sent on its way to Jupiter's icy moon by Falcon Heavy	22

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STRENGTHENING GLOBAL TIES: ESPI AT THE IAC IN MILANO

The increased engagement of Europe with the globally growing eco-system of space is crucial to secure its future as a global space power and trusted partner in an increasingly multi-polar world.

This year's International Astronautical Congress (IAC) in Milan provided an excellent platform for ESPI to further strengthen its mandate to promote European Space Policy globally. With almost half of the more than 11.000 IAC participants coming from European countries whose space agencies or governments are members of ESPI and with delegates from 120 countries worldwide attending, the Congress gave an example of a strong Europe, partner to the world.

For the first time, ESPI hosted its own booth, enabling more direct efforts to facilitate informed dialogue and to maintain existing and build new relationships with members, partners and other key stakeholders. The IAC provided the platform for several excellent interactions and events with decision-makers and institutions at the highest level. ESPI welcomed the President of POLSA, as the Polish Space Agency joined ESPI as its 21st member. With Poland joining, ESPI further strengthens its membership from the Central and Eastern European region. Poland will be taking over the presidency of the Council of the European Union, and is poised to elevate security & defence as an integral pillar of Europe's approach to space policy. During the IAC, Poland was also selected as the host the IAC in 2027.



Marking an important step in establishing deeper cooperation in space security policy with the rapidly emerging Asian powerhouse, ESPI strengthened its international cooperation in South Korea, signing a Memorandum of Understanding with the Korean Academy of Space and Security (KASS).

The development of closer ties with the Latin American region was at the focus of further high-level meetings with the Head of CONAE, the Argentinian Space Agency and the Head of AEB, the Brazilian Space Agency, discussing possible collaborative undertakings.

Exploring the nature and behaviour of private capital in the space sector across different continents was subject of a panel with ESPI taking the stage together with the European Centre for Space Economy and Commerce (ECSECO), discussing "Capital Across Continents: Private Investment Dynamics in the Space Sector". The panel was a first in exploring the nature and behaviour of private capital in the space sector across different continents, including Africa. The panel discussed Japan's approach to unlocking corporate venture capital, the US strategy of giving clear direction and market clarity to large institutional investors, and China's model of fostering intra-regional competition to create market champions.



The question on what are the upcoming topics in space was debated at a Global Networking Forum event organised by ESPI together with the Aerospace Centre for Space Policy and Strategy, providing a think tank perspective from the US, Japan, Latin America and Europe.

A highlight of the IAC was the announcement of Gabriella Arrigo as the incoming President of the IAF. Gabriella has been the ASI representative to ESPI and a key driver behind the ASI-ESPI Agreement in 2023. We are confident that her IAF presidency and her active role at ESPI will provide for new synergies and further leverage ESPI's contribution on the international stage.

ESPI's engagement at IAC underlined the increasing role of the institute's international engagement to support diplomacy, cooperation and consensus-building; to help shaping inter-governmental, multilateral and European dialogue; to build understanding and trust; to provide perspectives in support to decision-making bodies of ESPI members, national governments, European institutions and international organisations.

Yours sincerely,

Hermann Ludwig Moeller
Director of ESPI





POLICY & PROGRAMMES

New Projects, ESPI participation and Partnerships at this year's IAC in Milan



Credit: ESPI

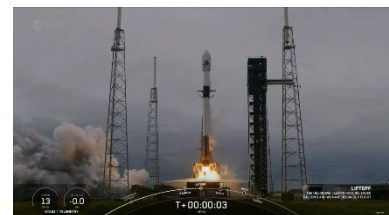
The 75th International Astronomical Congress (IAC) was held in Milan from October 14th through 18th. The Congress, with over 8,000 attendees, featured numerous presentations, stands, announcements and agreements, under the motto "Responsible Space for Sustainability." **ESPI actively participated at the Congress, setting up a booth for the first time, creating a space for discussions and reflections on space policy with our members and international partners.**

European Commission Awards IRIS² Concession Contract to SpaceRISE

The European Commission has awarded the concession contract for the IRIS² to the SpaceRISE consortium. This decision follows the evaluation of the consortium's final offer submitted on the 3rd of September. The concession, structured as a public-private partnership, will oversee the development, deployment, and operation of **over 290 satellites across various orbits** and the associated ground segment, aimed at providing secure connectivity across Europe. **Governmental services are expected by 2030**, alongside future commercial offerings. SpaceRISE, led by Eutelsat SA, SES SA, and Hispasat S.A., includes a network of key European subcontractors like Thales Alenia Space, OHB, and Airbus Defence and Space. According to the press release, the consortium is committed to foster opportunities for SME involvement, enhancing Europe's satellite communications ecosystem. Funded by both the EU and ESA, alongside private investments, the project is moving towards the signing of the **formal concession agreement, anticipated by December 2024**, which will mark the full financial and legal commitment from both parties.

ESA's Hera mission launched on schedule, under budget

On October 7th, ESA's Hera mission to study the binary asteroid system Didymos four years after contract signing and **€ 20 million under budget**. The mission will examine in detail NASA's Dart satellite effects, which intentionally crashed into the Dimorphos satellite in 2022 to modify its trajectory. In September 2020, Germany's OHB SE was awarded a €129.4 million contract to deliver the Hera satellite as the lead of a team comprising 18



Credit: ESA/SpaceX

ESA member nation companies. Initially planned to be launched aboard an Ariane 6 rocket, then a Soyuz one, Hera has finally launched on schedule aboard a SpaceX Falcon 9 rocket. However, despite all setbacks, including the Covid-19 lockdown, Hera has launched on time. Savings will now be invested into the Ramses mission, scheduled to rendezvous with the Apophis asteroid in 2029.

ESA signs contracts with D-Orbit, Telespazio, OHB, Thales Alenia Space at IAC

On October 14th, during the IAC, ESA and D-Orbit signed a contract for **€119.6 million to develop a spacecraft servicing vehicle**. Under its terms, D-Orbit has been tasked with the development, launch and demonstration of a vehicle that can rendezvous, dock and take over the attitude of a GEO satellite. ASI, the UK Space Agency, DLR, the Swiss Space Office, and the Spanish Space Agency are also providing funding. Furthermore, **on October 15th, Telespazio announced it had received a contract worth €123 million with ESA** to implement the first phase of the Moonlight



ESA releases new Earth Observation Science Strategy



On September 30th, ESA released its new **Earth Observation Science Strategy, outlining its vision for Earth science through 2040**. The new strategy involves the use of satellite-based monitoring to provide critical data to guide action and policy, aiming to shift the focus towards understanding feedback and interconnections within the Earth system, instead of specific domain targeting. **It is based around six major thematic objectives** and includes a comprehensive set of Guiding Questions to ease finding a focus for future efforts in the field. The strategy was developed over a year, after consultation with the Earth science community and other key stakeholders.

Spain to host three more ESA Business Innovation Centres starting 2025

On October 4th, Spain's Minister for Science, Innovation and Universities, Diana Morant, announced that the country would be hosting three more of ESA's Business Innovation Centres (BIC) from 2025, with the opening of a new one in Sevilla, where Spain's newly created Space Agency is located, and two more in other parts of the country. The BICs' objective is helping space entrepreneurs bring their ideas to fruition. The new openings would bring the number of centres hosted by Spain to seven. The Minister, who also announced the new logo of the Spanish Space Agency (AEE, in Spanish), claimed the government has already mobilised around €2,800 million for the industry.

Pentagon's projects commercial Sat internet services to expand to \$13 billion

The Pentagon is in the process of increasing the budget of the Proliferated Low Earth Orbit (PLEO) 14-fold, from \$900 million to potentially \$13 billion, reflecting the quick dry-up of current funding in its first year. The PLEO program, an Indefinite Delivery Indefinite Quality contract, supposed to last five years, with the potential of adding five more, had already allocated around \$660 million of its total funds, most for Starshield, the militarized version of the Starlink service. With new vendors like Amazon's Project Kuiper entering the LEO market in the coming years, and current usage numbers, the U.S. Department of Defence is expecting a tenfold increase in LEO satellite service spending.

Northrop Grumman gets \$1.8 billion contract extension from US Space Force

On October 23rd, the U.S. Space Force decided on a \$1.8 billion contract extension for Northrop Grumman to begin producing two early warning satellites aimed at missile threat detection. The polar-orbiting satellites, part of the military's Next-Generation Overhead Persistent Infrared (OPIR) program, will focus particularly on the Northern Hemisphere of the Earth. The modification brings the total contract value to \$4.1 billion, with the project moving into the critical manufacturing, assembling, integration and testing phase. Launch for the first of these satellites is expected by 2028.



Credit: Northrop Grumman



US eases space technologies export control rules

On October 17th, the US Department of Commerce announced changes to export control rules regarding space technologies, aiming to boost their competitiveness globally.

Under the new rules, close allies, such as the AUKUS partners, will no longer require State Department Licenses for exports, thus having easier access to satellites, launch vehicles and other related technologies. Many of such would be reclassified as commercial items, thereby getting them out of the U.S. Munitions List and into the more flexible Commerce Control List.

Other rules proposed involve lifting licensing requirements for certain spacecraft components for roughly 40 allied nations, as well as easing International Traffic in Arms Regulations restrictions.



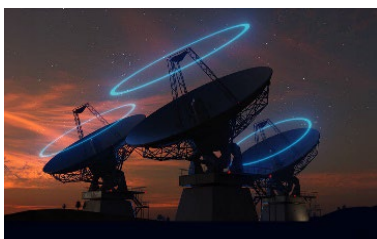
Credit: Department of Commerce

US Space Force awards contracts to SpaceX, Millenium Space Systems

The U.S. Space Force announced on October 18th that it had awarded SpaceX contracts worth \$733.5 million for nine launches under the National Security Space Launch (NSSL) Phase 3 Lane 1 programme. The missions, projected to launch in late 2025 and 2026, are divided into seven for the Space Development Agency (SDA), and two for the National Reconnaissance Office (NRO). The contract is part of the NSSL Phase 3 procurement of launch services contracts, structured as an Indefinite Delivery, Indefinite Quantity with the overall value over five years estimated at \$5.6 billion, and including Blue Origin and United Launch Alliance as primary vendors.

Moreover, Millenium Space Systems, a Boeing subsidiary, received a \$386 million contract to build six MEO satellites to detect and track missiles that could threaten the U.S. and its allies. The contract follows another \$509 million awarded last December for an identical half-dozen satellites. The satellites, the first of which are scheduled to launch late 2026, will carry infrared sensors being developed by Boeing.

SDA awards \$491.6 million contract modification, announces Sat purchases



Credit: GDMS

The U.S. Space Development Agency (SDA) has awarded a \$491.6 million contract modification to General Dynamics Mission Systems (GDMS) and Iridium Communications for the companies' support to ground systems for the SDA's satellite constellation. The initial contract awarded in May 2022 was worth \$324.5 million. The team comprising both companies will manage the ground enterprise's integration with SDA's Tranche 2 constellation, including engineering design, analysis, testing,

maintenance, site support, and infrastructure management.

Furthermore, at the beginning of the month, the SDA announced plans to purchase additional 200 satellites and ground services. The procurement process, expected to begin in 2025, will be focused on the military's LEO satellite constellation, known as the Proliferated Warfighter Space Architecture (PWSA), designed to serve U.S. military operations with critical capabilities such as communications, missile defence, battle management, and navigation. The SDA plans to have launched between 300 to 400 satellites by 2027.



France and Germany join Operation Olympic Defender

On October 14th, the U.S. Space Command announced that France and Germany had formally joined the Operation Olympic Defender, led by the U.S. to bolster international cooperation in space defence. The Operation Olympic Defender was set up in 2013 and coordinates efforts to protect space assets from potential threats, such as anti-satellite weapons, jamming or cyberattacks. The coalition includes the US, UK, Australia, Canada, New Zealand, and now France and Germany.



Credit: U.S. Space Command

CNES contracts Cegelec for fluid systems in new launch complex

On October 14th, CNES contracted Cegelec Projets Espace for the design and manufacture of fluid systems for the new multi-user commercial launch complex (ELM) at the Guiana Space Centre. The new ELM is envisioned featuring four launch zones for commercial launch providers, including shared facilities with power, cryogenic and conventional fluid systems. Cegelec was already involved in the development of such systems for the Ariane 6 launch complex.

Finland proposes establishment Space Situational Awareness Centre

The Government of Finland proposed on October 10th funding for the establishment of a Finnish Space Situational Awareness Centre, to provide trusted space situational awareness in cooperation with international partners and space surveillance organisations. Information would then be disseminated to Defence Forces, relevant authorities, research institutes and universities. Operationally, the proposals see for the centre a civilian leadership in connection with the Finnish Meteorological Institute, alongside a military one with the Defence Forces.

Italy strengthens international partnerships



Credit: Kenya Space Agency

On October 1st, Italy and Kenya agreed to further the execution of their bilateral agreement on the Luigi Broglio Space Centre, approving collaborative projects in benefit of Kenya and the African continent. Kenya is aiming for the centre, which launched nine satellites between 1967 and 1988, to become a hub for future launch operations for African satellites, with feasibility studies already underway.

On October 15th, Italy and the US signed a cooperation agreement during the countries' first bilateral space dialogue in Rome, agreeing to strengthen national security space ties on commercial integration and space domain awareness, among others. Italy and the US are also working on a Technology Safeguards Agreement to allow US commercial space launches from the mediterranean country, and ease commercial partnering on satellite and space systems, pledged to support international voluntary norms of behaviour for in-orbit activities, and reaffirmed their support for the ban on placing nuclear weapons and other weapons of mass destruction in orbit.



ASI awards contract to Telespazio

On October 4th, Telespazio announced it had been awarded a contract by the Italian Space Agency (ASI) to help expand the space capacity of the ASI Sardinia Deep Space Antenna. Under the project, Telespazio will renew its cryogenic systems for reception in X- and Ka-bands in Deep Space Applications and introduce advanced systems for its Near Space ones. The company is also tasked with expanding existing civil infrastructure and constructing new ones. The value of the contract was not disclosed.

India's CCS approves launch of 52 surveillance satellites

On October 11th, India's Cabinet Committee on Security (CCS), headed by Prime Minister Narendra Modi, approved phase III of its Space Based Surveillance (SBS) mission for better land and maritime domain awareness for civilian and military applications. Analysts understand the architecture of at least 52 LEO and GEO surveillance satellites, to be built by public and private companies. Last January, the Indian government signed a letter of intent with France to jointly construct and launch military satellites and aims to detect submarines in the Indo-Pacific, as well as monitor infrastructure development by neighbouring countries.

UK and Canada team up on Redwing SDA mission



Credit: ESA

On October 10th, the UK announced a deal with Canada to cooperate on the Redwing microsatellite space domain awareness (SDA) mission, poised to launch in 2027. The Redwing mission is aimed at tracking objects in congested orbits and providing real-time tasking responsive to space threats. The satellite, developed by Canada, will itself deploy a nanosatellite, named LISSA, incorporating a payload on behalf of the UK's ministry of Defence and Space Command. Magellan

Aerospace will design, build, prepare for launch, and operate the Redwing microsatellite and LISSA nanosatellite. LISSA will be built by the University of Manitoba. On October 21st, the UK also signed a blueprint with New Zealand on the removal and servicing of operational satellites close together or in contact with one another.

Successful second motor test readies Vega C to return to flight

Europe's Vega C, which was grounded nearly two years ago after a launch failure, is poised to fly again after a second successful test of a redesigned motor was announced on October 3rd. According to the announcement, Avio's new Zefiro-40 motor performed as expected, representing the final milestone addressing the problem that arose in the Vega C rocket in December 2022. ESA Director General said Vega C was now on track to return to flight as soon as late November, carrying the Sentinel-1C radar for the Copernicus programme. The operations and marketing of the Vega C service is set to be fully transferred from Arianespace to Avio by the end of 2025.



Polish projects receive ESA funding

Poland's SpaceForest has received €2.4 million from ESA for the development of its Perun rocket. The funding, part of the Agency's **Boost!** initiative will be directed towards upgrade implementations in the combustion chambers of the company's in-house developed SF1000 paraffin-powered hybrid rocket engine. SpaceForest has developed a 11.5 metre rocket capable of delivering up to 50kg payloads to an altitude of 150km. Funding will also go toward designing a mobile refuelling station, ground support station, and tracking and communication system.



Credit: SpaceForest

Moreover, ESA is also funding the Polish branches of the AROBS group for the **Close Proximity Operations Control Unit Development and Qualification (CRIMSON) project**, aimed at developing a generic and flexible control unit for close proximity operations in LEO. AROBS expects the project to allow them to support active debris removal missions and in-orbit servicing. The undisclosed funding will be given under ESA's COSMIC initiative, within its Space Safety programme.

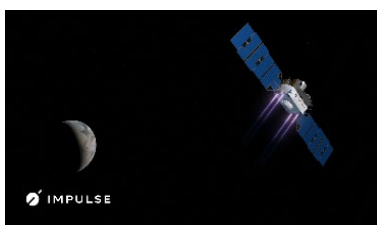
Türkiye increases space exploration budget

On October 19th, Türkiye announced an increase in its space exploration and aviation budget to **\$161.17 million**. The increase in funding, which follows the country's successful first manned space mission in 2023 and reflects its growing commitment to advancing its capabilities in space exploration and technology, looks to support projects lunar projects scheduled for 2026 and the continued development of its Turksat 6A. Further budget increases are expected in the future.

NASA: Key testing milestone for Lunar Space Station Module complete

NASA announced on October 3rd the successful completion of a static load testing campaign for its Gateway space station's **Habitation and Logistics Outpost (HALO) module**. Thales Alenia Space was selected in 2020 by Northrop Grumman to deliver on NASA's Gateway space station's HALO module. The testing phase involved making the structure subject to forces like those encountered in deep space. The HALO Gateway space station is planned for launch in late 2027 on a SpaceX Falcon Heavy rocket.

Impulse Space awarded \$34.5 million in Space Force missions



Credit: Impulse Space

US-based Impulse Space, a startup focused on space transportation services, has reached a **\$34.5 million contract with the U.S. Space Force to support two military missions in 2026**.

The contract is funded through the Defence Innovation Unit, awarded under a Small Business Innovation Research agreement. Impulse has been asked to deploy two Orbital Transfer Vehicles to carry surveillance payloads, one for LEO and one for GTO, as part of the U.S. Space Force's Tactically Responsive Space (TacRS) program, aimed at leveraging commercial technologies for national security needs.



Brazilian Federal Police renews satellite monitoring contract with Planet Labs

The Federal Police of Brazil has renewed its contract with Planet Labs for an additional 12 months to strengthen efforts against illegal deforestation in the Amazon. Through the Brazil MAIS Programme and in collaboration with SCCON Geospatial, this seven-figure contract enables continuous satellite monitoring of 8.6 million square kilometres of land and coastal areas. Planet's daily imagery has been instrumental in helping authorities recover nearly \$3 billion in fines and assets from illegal logging operations, providing a 7,500% return on investment.

In other news

ESA publishes calls to Build an Exercise Machine for lunar Gateway Space Station, Telescope in Far side of the Moon: The exercise machine is part of ESA's contribution to the Gateway Space Station. The Lunar Observatory would be shielded from radio interference from Earth.

Estonia, Dominican Republic, Chile, and Cyprus sign Artemis Accords: The latest signatures bring to 47 the number of nations to join the Accords since 2020.

CNES to perform testing on European Spacesuit, reusable rocket demonstrator: Work on the spacesuit is to be conducted between 2024 and 2027, and should be based on an early study for such a suit, developed between late 2023 and early 2024.

Alarm over brightness of first "Thousand Sails" Chinese satellite constellation: A paper published on September 30th warns the satellites, part of a constellation of over 14,000, are too high over the magnitude 7 brightness threshold recommended by professional astronomers.

Soyuz-5 carrier rocket launch postponed to 2026: Russia made the announcement on Wednesday 2nd to postpone its new medium-class carrier rocket's launch by one year.

In Orbit Aerospace wins \$1.8 million contract from AFWERX: The company is developing machine-learning tools to improve flight operations. Under the contract, it will use AI to detect and manage anomalies in hypersonic flight.

NASA awards Rocket Lab Mars Sample Return contract: Announced on October 7th, and worth \$625,000, Rocket Lab has been tasked to study alternative concepts for a Mars Sample Return, aiming at reducing time and costs, currently estimated at \$11 billion.

Oman eyes December launch from new Etlaq spaceport in Duqm: The country's closeness to the equator translates into higher efficiency in launches. The first spaceport in the MENA region, it is led by Omani National Aerospace Services Company.

Djibouti joins Space Climate Observatory Charter: The announcement follows the country's visit to CNES, where it laid out its vision of becoming a regional leader in climate risk management, as well as its focus on human capital development in the space sector.

African Space Agency to be formally inaugurated in April 2025: The event will occur during the NewSpace Africa Conference, from April 21st to 24th, 2025, in the Egyptian Space Agency, in Cairo. The African Space Agency was established in 2023.

Japanese startup ArkEdge wins JAXA contract: Tasked to study the feasibility of a constellation of position, navigation and timing satellites in LEO, the value of the contract was undisclosed.

NigComSat hosts Nigerian Satellite Week from October 16th-29th: The event brought together private and public stakeholders from the national and international arenas, who discussed industry trends in Nigeria. The week was centred around empowering Nigeria's Digital Future.

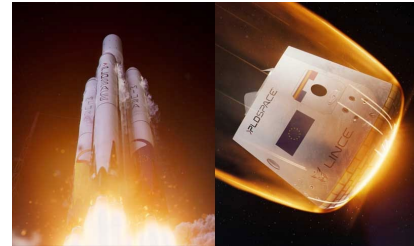


INDUSTRY & BUSINESS

Spain's PLD Space unveils new rockets and crew capsule

PLD Space, a launch provider based in Elche, Spain, announced on October 7th a set of new rockets it plans to introduce beyond its upcoming Miura 5, including heavy and super heavy rockets, as well as a crew capsule named Lince.

The three new vehicles would be capable of transporting payloads ranging from 13,580 kg to 53,000 kg in its super heavy version into ISS reference orbit, aiming at a 2033 first flight. It also plans to have a first orbital flight of its Lince capsule as early as 2033. The company is already working on financial models for its future projects, claiming it does not seek governmental development aid, but rather service contracts, and said it intends to cover needs beyond Europe's Ariane 6 and place Europe at the same launcher level as the US and China.



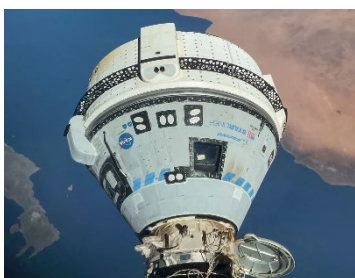
Credit: PLD Space

PLD Space has also announced work on propulsive landing of its first stage, aiming to fly a fully reusable vehicle by 2028. The Elche company is now focused on its Miura 5 rocket, capable of placing around 500kg into sun-synchronous orbit, which it is planning to launch from the French Guiana Space Centre at the end of 2025.

Airbus Defence and Space to cut up to 2500 jobs

Airbus Defence and Space announced on October 16th it plans to cut up to 2,500 job contracts by mid-2026, citing space systems segment losses and restructuring to restore financial stability. The move follows two years of heavy losses, with the company's defence and space division struggling financially despite a strong order catalogue. Recently, the company announced a charge of €900 million, as reported in ESPI's June insights. It also lost two Pleiades Neo satellites in a 2022 launch failure, and other problems with satellite programmes forced it to take additional €600 million charges in 2023.

Boeing takes \$250 million charges in Starliner, lays off around 17,000 employees



Credit: Boeing

Boeing announced on October 11th that it would be taking a \$2 billion charge on its Defence, Space and Security (BDS) units, of which \$250 million were revealed on October 23rd to correspond to the Starliner commercial crew programme. The company now adds these third quarter losses to an additional \$125 million it recorded in the second quarter of the year, totalling to about \$1.85 billion for the Starliner programme alone. The company's CEO declined walking away from troubled fixed-price contracts, though it will evaluate proceeding with multiple-phase contracts and work

in some areas outside commercial aviation and defence. Boeing also announced it would be laying off 10% of its workforce, including in the BDS unit, amounting to around 17,000 employees.



Marco Fuchs, CEO of OHB SE, named new President of Aerospace



Credit: OHB/Markus Meyer

On October 22nd, the Council of Eurospace, the professional association of the European space industry, announced the appointment of Marco Fuchs, CEO of OHB SE, as President, succeeding Jean-Marc Nasr. Eurospace, a non-profit European organization created in 1961, represents 90% of total turnover of the European Space Industry, and promotes its ambitions and concerns to European institutional players. Following his appointment, the new president addressed

challenges in the industry, and claimed his priority will be ensuring the consideration of space as indispensable to any future defence-related programme funded by the EU, as well as contributing to ESA's balancing of competitiveness and profitability.

Thales Alenia Space and OHB sign contract for radar instruments development

Thales Alenia Space and Germany's OHB have signed a contract to develop two Synthetic Aperture Radar (SAR) instruments, as announced on October 15th. The two instruments will be the ones featured on the two-satellite ESA Harmony constellation, planned to be launched in 2029 aboard a Vega-C rocket. The value of the contract was not disclosed. Thales Alenia Space leads the European consortium responsible for the design, development and validation of the SAR instruments. Harmony will be ESA's 10th Earth Explorer mission, collecting data on ocean-ice-atmosphere interactions, as well as ice sheets, sea-level rise, and small land shape shifts. ESA claims these data are critical to get more insight into heat exchanges happening in the ocean as drivers of extreme weather and climate change impacts.

Italy's Argotec opens new manufacturing facility in San Mauro Torinese

Argotec, a smallSat manufacturer based in Italy, inaugurated its new factory in the Italian commune of San Mauro Torinese as it looks at setting up new business opportunities in Europe and the US. On October 18th, the company held an event at the new facility aimed at increasing its production rate, which was attended by regional and national officials, including the president of the Italian Space Agency, ASI. The building features 11,500 m² and is designed to be able to produce one satellite per week, supporting projects like IRIDE, set up by the Italian Government. The Factory adds to the facilities the company already has in Maryland and Florida, where it is seeking expansion. Argotec is looking to having 80% of its satellite subsystems built in-house.

Intelsat 33e satellite breaks up in GEO

Intelsat announced on October 19th that its Intelsat 33e satellite had broken up in GEO, ending communications services for European, African and some Asia-Pacific customers. The company had added that it was conducting work with Boeing, the satellite manufacturer, but later deemed the satellite a total loss. A Failure Review Board has been set up to investigate the reasons behind the break-up, and the company is in talks with government agencies for data analysis. The



Credit: Boeing

US Space Force is tracking at least 20 pieces of debris caused by the incident, with some companies having identified up to 57 related pieces. Intelsat is working to redirect customers to other satellites. The uninsured incident follows the total loss of Intelsat 29e in 2019, after three years in orbit.

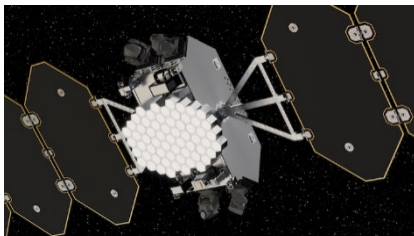


Anduril, Impulse Space, collaborate on US National Security Space Missions

Defence company Anduril and Impulse Space are partnering to integrate both companies' technology for national space security missions, under a new partnership announced on October 11th. Impulse Space will provide Anduril with its Mira orbital transfer vehicle, while the other company will integrate it with its own payloads, software platform, and partner systems in support of classified mission requirements. The companies are planning to offer joint rendezvous and proximity operations and other space domain awareness applications.

Anduril also announced a contract on October 1st with LA-based manufacturing startup Apex to provide it with small satellite buses for its planned military space missions, the first of which is planned to launch in 2025. These moves come after the company recently announced plans to expand into the space industry, as reported in ESPI's September insights.

CesiumAstro introduces phased array satellite technology



Credit: CesiumAstro

CesiumAstro, a communications technology supplier for Rocket Lab and the US Space Development Agency, announced a new reconfigurable satellite based on its phased array technology on September 30th. The satellite, named Element, will be the Texas' company first, bringing together its Nightingale and Vireo antenna products into one LEO platform. Its mass is designed at 700kg, with an in-orbit life of five years, and the company claims it can be used for military and commercial purposes, aiming to compete for both types of

contracts. Around 80% of its components will be made in-house, with CesiumAstro's CEO assuring they will continue to sell its phased arrays as individual products for integration on customer missions.

EUTELSAT first quarter revenues up 9.4%

On October 29th, EUTELSAT released its first quarter revenues, ending on September 30th, confirming its full year financial objectives and reflecting results in line with expectations. Total revenues stood at €300 million, increasing 9.4% on a reported basis. Revenues for the four Operating Verticals (Video, Government Services, Mobile Connectivity, and Fixed Connectivity) represented €297 million.

mPower selected by Airbus for solar power modules

Airbus Netherlands has selected New Mexico startup mPower Technology to provide solar power modules for over 200 satellites, as announced on October 3rd. Under the contract, the value of which was not disclosed, mPower will supply Airbus' MDA Aurora communication satellites, currently under development, with its DragonSCALES solar modules, capable of generating 1.1 megawatts of power for 200 Airbus Sparkwing solar arrays, each covering over 30 m². mPower has said they will expand production to cover this and other contracts.



Credit: mPower Technology



German POLARIS Spaceplanes receives Rocket-Powered flight approval



Credit: POLARIS Spaceplanes

Germany-based startup POLARIS has received approval on October 2nd to proceed with its rocket-powered flight tests for its new MIRA-II demonstrator. The authorisation moves forward the company's development of its AURORA multipurpose spaceplane and hypersonic transport system, which the company claims will also be able to deliver LEO payloads of up to 1000kg. The MIRA-II demonstrator vehicle, five metres long and with a take-off mass of 240kg, features small jet engines and one AS-1 engine for rocket-powered flight.

Avio to build US-based production facility for solid-rocket motors

Italian Avio's recently established US subsidiary announced on October 29th that it had contracted ACMI Properties to select a location for a new factory by the first half of 2025. Avio, which recently signed a contract with Raytheon and a partnership with the U.S. Army, will mainly focus the factory's output on governmental missile needs, though says demand for commercial space launchers is also strong. With the new factory, the company seeks to increase the large solid rocket motor industrial capacity in the US, currently mainly reliant on Northrop Grumman.

Telesat selects Intellian to build 127 gateway antennae

Canadian company Telesat announced on October 23rd that it has contracted Intellian, based in the USA, to build 127 gateway antennae systems at landing stations for its Lightspeed satellite constellation. Intellian will equip each landing station with its 4-metre gateway antenna system, routing customer data and facilitating private interconnections for customer networks. Financial terms of the deal, which comes after both companies previously cooperated on Telesat's LEO demonstration satellites, were not disclosed. The news come after Intellian announced at the beginning of the month that it had achieved Wideband Global Satcom certification for its multi-band, multi-orbit satellite terminal. The company claims it can deliver high capacity satcom services for commercial and military satellites in LEO, MEO, GEO and HEO.

True Anomaly selects Firefly Aerospace to launch Jackal spacecraft

Colorado-based True Anomaly announced on October 17th that it had selected Firefly Aerospace to launch its Jackal spacecraft before fall 2025. The Jackal spacecraft is part of the U.S. Space Force's VICTUS HAZE Tactically Responsive Space (TacRS) mission, for rendezvous and proximity operations countering irresponsible behaviour on orbit. After the development, testing, transport, and entering of the hot-standby phase of the spacecraft, Firefly will have 24 hours to launch within the first window once the US Space Force provides the notice.



Credit: True Anomaly



Austrian iSEE sets up US subsidiary

Impact Space Expedition & Exploration (iSEE), an Austrian space domain awareness startup, announced it had established a US subsidiary seeking proximity to key customers such as the U.S. Space Force and major commercial firms. The company, founded in 2023, will now undergo a regulatory review by the Defence Counterintelligence and Security Agency. iSEE is developing a constellation aimed at providing data for in-space positioning and other capabilities.

ULA's Vulcan rocket encounters booster anomaly in test launch

United Launch Alliance's Vulcan rocket, launched on October 4th in a test flight, suffered an anomaly during its lower atmosphere climb in one of its boosters. The testing was the second of two necessary certification flights prior to usage for high-priority national security payloads for the US Space Force and National Security Office. According to disclosed details, the rocket managed to continue into orbit despite one of its two solid-propellant strap-on boosters, provided by Northrop Grumman, showed sparks appearing and debris falling. The first test for the Vulcan rocket successfully launched in January without problems. The company did not disclose more details, as it analyses data for what it dubbed "the future" of the company.

Gilat awarded contracts for GEO, LEO, MEO constellations

Israel-based Gilat Satellite Networks announced on October 15th that it has secured contracts worth approximately \$15 million for its advanced satellite communications solutions for GEO, LEO and MEO constellations. The company said the orders, from several major satellite operators, are expected to be delivered within the upcoming 18 months. Gilat offers cloud-based platforms and satellite terminals and antennae, including ground systems for commercial and defence field and cybersecurity services, among others.

THAI Airways selects Neo Space Group for IFC solutions

THAI Airways has selected Saudi Arabian commercial satellite services provider Neo Space Group (NSG) for IFC solutions for its fleet, including activating its In-Flight Connectivity solution, which uses Airbus HBCplus and Safran's AeroConnect terminals. NSG claims its IFC solutions will allow in-flight high-speed internet up to 200Mbps, for which the company's integration of the SES Open Orbits network is key. NSG's fully integrated IFC solution, Skywaves has been developed in collaboration with Display Interactive and leverages multi-orbit connectivity.



In other news

HALO Space to test operations in Saudi Arabia: The Spanish startup, focused on near-space tourism, is looking at late 2024 for test flights of its Aurora stratospheric balloon capsule. The company plans to offer commercial near-space flights from 2026, launching from the US, Spain, and Australia.

Finland-based ICEYE unveiled its new 25cm resolution Synthetic Aperture Radar imagery, dubbed "Dwell Precise": based on the 1200MHz radar, the maximum allowed for commercial satellites, it has been announced to combine high quality data and high resolution, allowing it to identify smaller objects or targets, with ample military and intelligence uses.

Planet gets new contract to provide data for agriculture: Under the contract, American Crystal Sugar Company will use Planet's satellite data through its SatAgro interface to analyse harvest progression and yield speed and forecasts, supporting crop management decisions.

Aetherflux, a new US-based startup, announced plans to develop and deploy a LEO satellite constellation aiming to collect and beam solar power to Earth through infrared lasers: The company added it is looking at demonstrating its technology through a smallSat launch in 2026, and said it is initially targeting defence applications.

Astrolab introduces smaller lunar rover as test prior to larger versions for astronaut transport: The company introduced its new FLIP rover during the International Astronautical Congress in Milan, aiming to launch before 2026 with a payload capacity of 30-50 kg. One of its key objectives will be systems testing for larger models, such as the ones for the Artemis missions.

BlackSky reaches to contract to expand into space domain awareness (SDA): The undisclosed customer has tasked the company with delivery of non-Earth imaging under a seven-figure agreement. The data is expected to help with space traffic management.

Space Marketplace, a new company that looks to connect service seekers, investors and providers within the Gulf region's space industry, recently launched, based in the UAE and UK. The company aims to facilitate collaboration and investments between the Gulf countries to propel their share in the space economy.



INVESTMENT & FINANCE

Impulse Space raises \$150 million for last-mile transportation



Credit: Impulse Space

Founded by rocket engineer and former SpaceX employee Tom Mueller, Impulse Space has secured **\$150 million in a Series B round** led by Founders Fund. The company develops two orbital transfer vehicles (OTVs), to provide payloads with last-mile delivery to specific orbits.

The OTV "Mira" can transport payloads up to 100kgs and carried out its first mission, LEO Express-1, in November 2023, with a second one planned towards the end of this year. The larger 5-ton "Helios" is to be tested by mid-2026. Operations are planned to start in 2027, and the company reports a backlog of both commercial and government contracts. Funds will serve in growing the current 140-employees team to 200 and scale up production.

Q-CTRL secures \$59 million for quantum software

The Australian start-up has raised **\$59 million in a second Series B round** led by British firm GP Bullhound. The company had already raised \$54 million in another Series B round last year. Q-CTRL develops software allowing stable and precise control of quantum infrastructure, with both public and private actors having demonstrated interest in the technology. The company also offers quantum-PNT alternative to GPS for safe performance in degraded environments, such as outer space, and quantum sensors for satellites, designed to measure magnetic and gravitational signals. Q-CTRL will invest the funds in scaling R&D and product engineering operations.

ALL.SPACE secures \$44 million in Series C funding round

ALL.SPACE, formerly Isotropic Systems, raised **\$44 million in a Series C round** led by Boka Group. The British firm manufactures multi-layer communication terminals. Their systems ensure signal reliability in evolving environments through simultaneous connections to MEO and GEO and are certified for use on existing investor SES' networks. The money raised will bring to commercial operation ALL.SPACE's first terminal, and further the development of LEO-compatible antenna technology.

xFarm Technologies raises €36 million for smarter farm management

The Swiss company has secured **€36 million in a Series C round** led by Partech. xFarm develops digital solutions integrating satellite imagery to centralise and analyse data relevant to agricultural exploitations. Coupled with recent efforts towards regenerative agriculture, xFarm seeks to enable more efficient and sustainable farming. The company will use the investment to strengthen its leadership in Europe and expand into LATAM, India, Turkey, and the U.S., and further improve the performance of its service.



Credit: xFarm



Yahsat and Bayanat complete merger to establish Space42



Credit: Space42

Telecommunications provider Yahsat and data analytics services provider Bayanat have completed their merger, creating UAE-based Space42 with a market capitalisation of \$4 billion, \$770 million in cash, and a backlog of \$7.4 billion, mostly from the UAE government. The new company's public float amounts to 21% of its equity and its two main shareholders are the parent company of Baynat, G42, and the majority owner of Yahsat, Mubala.

The company aims to enhance its service offerings by leveraging A.I. across satellite connectivity and geospatial analysis. In particular, Space42 will also focus on direct-to-device connectivity to ultimately provide narrowband IoT connectivity. Space42 has also recently expanded its satellite fleet, having ordered three telecommunication satellites from Airbus. Moreover, Space42 will also operate the Earth Observation Space Programme, an existing collaboration between Yahsat and Bayanat, which launched their first SAR satellite this year out of seven satellites bought from Icyey.

Lumir completes IPO

The Korean SAR company Lumir has successfully listed on KOSDAQ, making it the third space startup to go public in South Korea, following Contec in 2022 and Innospace in 2024. In its IPO, Lumir offered a total of 2.4 million shares at the final offering price of 12,000 won, generating 28.8 billion won (approximately €19.7 million) in gross proceeds.

The company manufactures Earth Observation satellites and subcomponents and offers SAR data as a service. The funds raised will support Lumir's proprietary Earth Observation satellite constellation development and reinforce its R&D capabilities.

Lumir's shares debuted at approximately 14,910 won (around €10.20) on October 21, reflecting a 24.3% increase from its IPO price of 12,000 won (about €8.21) and bringing its market capitalisation to approximately €171 million. By the 24th of October the shares dropped to 9,400 won (around €6.43), below IPO levels. Contec and Innospace experienced a decline in their stock price of more than 50% since their IPOs.

Gogo to acquire Satcom Direct

Gogo is set to acquire satellite communication and connectivity provider Satcom Direct, pending regulatory approval. The two companies currently serve an estimated 90% of the business aviation in-flight connectivity market. Both Gogo and Satcom Direct have separately formed partnerships with Eutelsat to provide multi-orbit broadband services, moving away from traditional geostationary only services.



Credit: Satcom Direct

The acquisition comes amid Starlink's growing presence in the commercial aviation connectivity market, where it has secured partnerships with several major airlines like AirFrance and Qatar Airways.



OroraTech raises €25 million for fire monitoring



Credit: OroraTech

The German start-up has raised **€25 million in a Series B round** led by Koris, the European Circular Bioeconomy Fund, and established investor Bayern Kapital. OroraTech operates a network of thermal satellites which feed into an algorithm then leveraged to predict and monitor wildfires. Several countries have already expressed their interest, with Greece government signing a €20 million contract for the construction of a national monitoring infrastructure. OroraTech aims to launch 17 more satellites in 2025 to add to the current two it operates. The final objective is to achieve a 100-satellite constellation. Funds raised will be split between manufacturing, improving predictive models, and expanding operations in North America.

Denmark-based VC fundraising €150 million for space and defence start-ups

A new venture fund based in Denmark, Final Frontier, looks to secure **€150 million to support European start-ups** at the seed stage in the space and defence sectors. Founding partner Niels Vejrup Carlsen explains his initiative by the turmoil caused by the war in Ukraine, the necessity for agile actors to emerge and disrupt the market, and the preservation of European strategic autonomy. The firm will prioritise the Nordic market in its first phase of operations, where half of its investment capital is expected to flow.

OQ Technology secures investment from Luxembourg

The company has secured a **convertible loan investment from the Luxembourg Space Sector Development Fund (LSSD)**, co-led by the Luxembourg government and SES. According to OQ Technology, the undisclosed amount makes up for a significant amount of the €30 million raised in its ongoing Series B round. The company operates a 5G constellation for IoT devices used in remote industrial operations such as maritime, energy, or mining. The investment will be used to add 20 satellites to OQ Technology's current fleet of 10.

Vortexa raises \$25 million in debt financing for energy markets monitoring

The British company has secured **\$25 million in strategic debt financing from CIBC Innovation Banking**. Vortexa provides analytics for the energy and freight markets using satellite imagery and AI-powered software, tracking both vessels and commodities such as crude oil, LNG, and refined products. The investment will be used to improve their platform and accelerate their expansion.

Starfish Space secures \$21 million for satellite servicing

The American start-up has raised **\$21 million in an investment round**. Starfish Space develops a spacecraft capable of in-orbit rendezvous, proximity, and docking operations, allowing, for example, satellite life expansion and disposal. The company recently signed a partnership with Intelsat to provide servicing to GEO satellites and was awarded an SBIR contract by NASA to inspect U.S. defunct satellites in 2027.



Credit: Starfish Space



Chinese laser communication companies raise hundreds of millions of yuan



Credit: Laser Satcom

Laser Satcom closes its Series A+ round

Laser Satcom **raised hundreds of millions of yuan in a Series A+ round** jointly led by several private VCs, such as Furong Capital, Changjiang Capital, and Yarong Capital. The company operates two test satellites, Aurora Constellation 01 and 02, to demonstrate the stability and speed capabilities of its laser communication technology across different orbital spacings. The third and fourth test satellites are planned to be launched in Q2 2025, among "a dozen" of other products. The investment will be used for R&D and to cover operating costs.

HiStarlink secures funds for laser terminals

HiStarlink **secured hundreds of millions of yuan** in a sixth round of financing led by several institutions such as Minsheng Securities Investment, Changzhou Xiangxing Information Technology, and Wuhan Huacang Kexin Venture Capital Partnership. HiStarlink manufactures laser terminals which, the company says, are smaller and allow longer communication distances than Starlink. The company will use the funds to scale production and invest in R&D.

Freeform raises \$14 million for metal 3D printing

The start-up has secured a **\$14 million investment from Nvidia's NVentures and Boeing's AE Ventures**, and will join NVIDIA's accelerator Inception as part of the deal. Freeform seeks to develop 3D metal printers that could manufacture hardware at scale, operating as a service provider rather than selling the machines directly to customers. The technology relies on computer vision feedback and operates on specialised processor arrays, partially supplied by Nvidia. Freeform will use the funds to scale operations, iterate on their machines to accelerate the printing process, and hire additional personnel.

Yunyao Aerospace raises undisclosed amount for meteorological constellation

The Chinese company has secured "**hundreds of millions of yuan**" in a **Series B round** led by Huishan Science and Technology. Yunyao develops and operates weather data satellites, with more than 20 currently in orbit, and an ultimate goal of a 90-satellite constellation. The funding will be invested in R&D, increased production capacity and daily operations.

Constellation Technologies & Operations raises €9.3 million

Constellation has closed its **€9.3 million seed round** led by Expansion Ventures. The French start-up value proposition is to develop a Very Low Earth Orbit constellation that can repurpose telecom operators' terrestrial 5G spectrum for space-based connectivity. Therefore, the start-up proposes a B2B2C business model, assuming that the operators will become clients of its VLEO constellation connectivity to compete with the likes of Starlink and Project Kuiper. The investment will go towards orbit-to-ground connectivity testing and finalising the design of Constellation's first two satellites.



Credit: Constellation Technologies & Operations



Argo Space closes \$7.9 million round for lunar water-powered OTVs



Credit: Argo Space

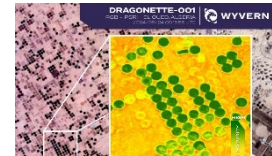
Argo Space finalised its **\$7.9M seed funding round**, with Crosslink Capital leading the investment. The company is conducting R&D on processes to draw water from lunar regolith, which could then be used as propellant by to fuel Argo's OTV Argonaut, whose first demonstration is planned for Q4 2025. The investment will allow the relocation to headquarters allowing the conduct of the complete suite of operations, and support hires.

EarthDaily Analytics acquires Descartes Labs to expand portfolio

The Canadian EO analytics company has bought U.S.-based Descartes Lab in an effort of vertical integration, according to CRO Eric von Eckartsberg. The deal will allow EarthDaily Analytics (EDA) to strengthen its offer in the climate, energy, insurance, and logistics domains, and obtain Descartes' government contracts. Both companies are under the ownership of PE firm Antarctica Capital which worked to facilitate the move. EDA is also set to launch its first satellite in 2025, eventually seeking to operate a constellation of 10.

Wyvern raises \$6 million for hyperspectral imaging

The Canadian start-up has secured **\$6 million in an investment round** led by Squadra Ventures. Wyvern's 3-satellites Dragonette constellation captures high-resolution hyperspectral data, allowing it to map the geochemical properties of the land. The technology is used in various industries and applications like agriculture, mining, defence, or climate change monitoring. The funds will be used to prepare for the 2025 launch of three new satellites, penetrate the U.S. market, work on miniature optics, and grow the team.



Credit: Wyvern

In other news

AIKO secures €3.5 million in a first tranche of its Series A round: AIKO aims to automate in-orbit operations such as satellite manoeuvring or data processing through its AI-powered software suite. The funding led by Deep Ocean Capital and Primo Ventures will permit to grow the Toulouse office and prepare the opening of a U.S. branch by 2025.

Zaitra raises €1.7 million in a pre-seed round: led by Sunfish Partners, the investment will allow the Czech start-up to further develop its product, an AI-based screening software allowing satellite operators to filter out unwanted information before ground transmission.

POLARIS secures an undisclosed round of funding: following an investment from Dienes Holding, the German start-up has reached a total of €7.9 million in funding. POLARIS develops a hypersonic, horizontal take-off and landing spaceplane and aims to test its two demonstrators, MIRA II and MIRA III, before the end of the year.

Proteus Space secures funding from government contractor SAIC: The company secured the undisclosed investment through a partnership which will see both companies work together on Proteus' AI software Mercury. The software allows payload-tailored design of satellite buses.

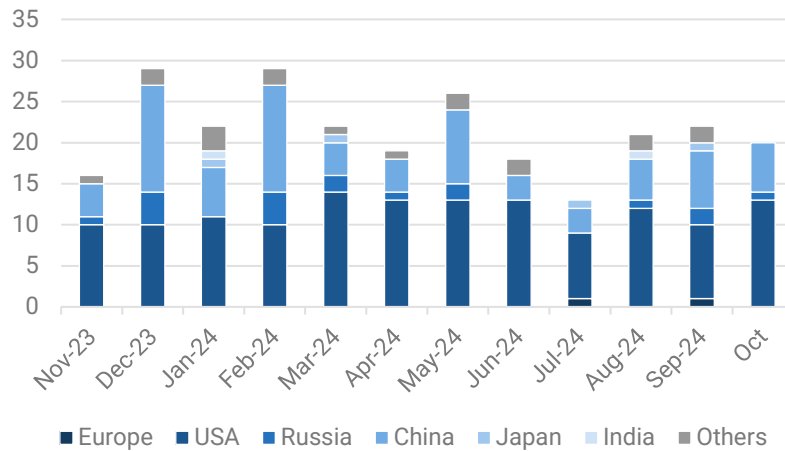


LAUNCHES & SATELLITES

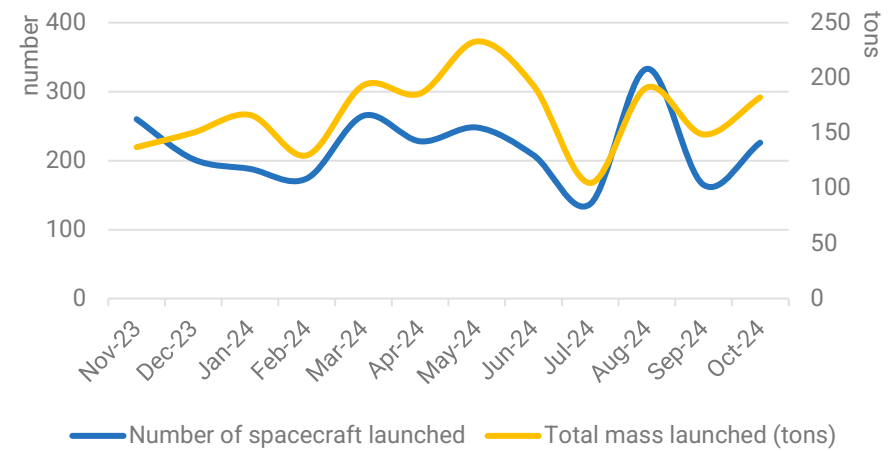
Global space activity statistics

September 2024	USA	China	Russia	Total
Number of launches	13	6	1	20
Number of spacecraft launched	198	27	1	226
Mass launched (in kg)	155 341	22 978	4000	182 319

Launch activity over the year



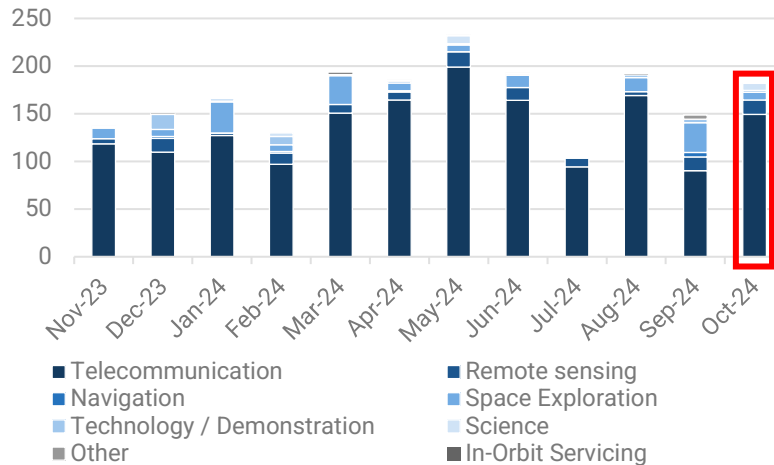
Evolution of the number of launches per launch country



Evolution of launch activity over the year 2023-2024

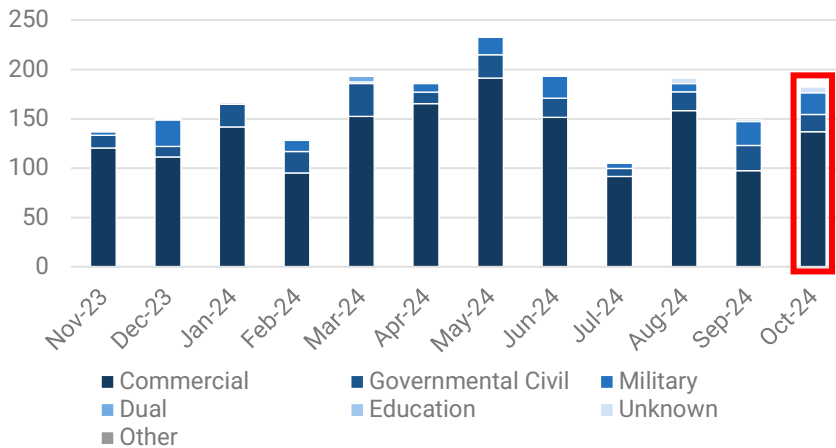


Satellite missions and markets



October 2024	Telecom	Remote sensing	Exploration	Science	Tech/ Dem	Other
Europe	2940			1106		
USA	135 430	8800		6065	1000	
China	10 900	2400	8028		1200	450
Russia		4000				

Evolution of the total mass launched (tons) per mission (Nov. 2023-Oct. 2024)



Total mass (kg) launched by mission and customer country

October 2024	Commercial	Governmental Civil	Military	Unknown
Europe	2940	1160		
USA	128 430	6065	16 800	
China	5400	10 428	1200	5950
Russia			4000	

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

Total mass (kg) launched by market and customer country



LAUNCH HIGHLIGHTS

SpaceX catches super Heavy Booster on Starship test flight 5

On October 13th, SpaceX successfully launched its fifth Starship vehicle, which marked a milestone by performing a controlled "catch" of its Super Heavy booster back at the Starbase launch site. The key objective for this test was for SpaceX to recover the Super Heavy booster using two mechanical arms—referred to as "chopsticks"—installed on the launch tower. After lifting off, the booster, designated Booster 12, executed a precise boostback and landing manoeuvres, guiding it back to the launch pad for the successful catch. Achieving a return to the launch pad is essential to SpaceX's vision for rapid reuse, where a recovered booster could quickly undergo preparation and be ready to launch again, potentially in just days or hours. The Starship vehicle, Ship 30, followed a suborbital flight path similar to that of a previous test in June and completed a controlled descent into the Indian Ocean, where it was not intended to be recovered and was destroyed shortly after splashdown. Test flight six is assumed to follow a similar flight profile as this test and might happen as early as November.

European Planetary Defense mission HERA launched on Falcon 9



Credit: ESA

The European Space Agency's Hera mission launched on October 7th aboard a SpaceX Falcon 9 rocket from Cape Canaveral, Florida. Hera will study the Didymos binary asteroid system, the site where NASA's DART (Double Asteroid Redirect Mission) impacted Dimorphos, which is Didymos' smaller companion, in September 2022. That collision successfully altered Dimorphos' orbit, serving as a proof of concept for planetary defence against potentially hazardous asteroids. The approximately €363 million Hera mission is set to reach Dimorphos in late 2026. It will investigate the size and depth of the crater left by DART, as well as any orbital changes caused by the impact. Accompanying Hera are two cubesats, Milani and Juventas, which will examine Dimorphos' surface composition, gravitational field, and internal structure, helping refine our understanding of asteroid dynamics. The Falcon 9's first stage didn't return to Earth, as it required all its fuel to launch Hera on its long interplanetary trajectory. This was the 23rd mission for this particular booster, which had previously supported multiple Starlink, NASA, and Transporter missions.

Europa Clipper sent on its way to Jupiter's icy moon by Falcon Heavy

The Europa Clipper mission, launched aboard a Falcon Heavy rocket on October 14th, is en route to Jupiter's moon Europa to investigate its potential to support life. With a mission budget of approximately \$5.2 billion, including an operational phase planned for four years after its arrival at Jupiter in 2030, Europa Clipper stands as one of NASA's most ambitious science missions. It has been one of the top priorities by planetary scientists for decades due to Europa's subsurface ocean, hidden beneath a thick layer of ice, which raises the possibility of habitable conditions. Europa Clipper aims to assess the moon's ice shell, potential water plumes, and surface composition to better understand whether it could harbour life.

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