



With the European Space Summit having just happened, the space industry is keeping itself busy right before the end of year. The European Space Agency members met in Seville, and took decisions that should shape the future of Europe’s presence in space. Space X launches many innovative European payloads, South Korea goes to orbit, and NASA needs to keep better track of its belongings. Let’s dive in.

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The space industry in Europe

Framatome Space: the new space nuclear energy supplier

In mid-October, Framatome announced the creation of *Framatome Space*, its new division for space applications. Although the company is not new to contracts with space actors, this move highlights the intention of Framatome to bring forward new nuclear uses in space.

Framatome already supplied space actors with domes for launcher tanks as well as hafnium, a metal for hardened alloys. The creation of this division aims at boosting Framatome's space activities to the next level.

The company ambitions to push for **nuclear propulsion** of space assets, notably for the exploration of our Solar System. Nuclear thermal propulsion is twice as fast as traditional chemical propulsion, which would allow for more efficient space missions.

Framatome Space also researches the feasibility of installing small **modular nuclear reactors (SMRs) on the Moon**. This would provide the reliable energy source necessary for a sustained human presence on our natural satellite.

Framatome has been creating new divisions for specific applications in which the company wants to increase its footprint, such as Framatome Healthcare, created in 2021 to further Framatome's activities in cancer treatments.

PLD Space launches its Miura I for the first time

On the 7th of October, the Spanish NewSpace company PLD Space **successfully launched its Miura I suborbital launcher** from the Spanish base of Huelva.

The micro-launcher flew for 306 seconds and reached a 46km height, before landing in the Atlantic Ocean. This successful launch comes after PLD had to abort two launches in 2023, one for meteorological reasons, and the other because of a technical issue.

This puts PLD Space on the radar as the **first European company to successfully launch a private micro-launcher**. The Miura I serves as a test and proof of concept for the **bigger launcher Miura V**, planned to launch in **2025** from Kourou, French Guiana. PLD Space aims at around **10 launches per year by 2027**.

<p style="text-align: center;">PLD Space</p> <p>Headquarters: Alicante, Spain</p> <p>Team: 115+</p> <p>Implantations: 3 (HQ/ production site, test site, launch site)</p> <p>Funds raised: \$ 50M+</p> <p>Founders: Raúl Torres (CEO and Raúl Verdú (CBDO)</p>
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<p style="text-align: center;">Miura V – PLD Space</p> <p>Launch date: 2025</p> <p>Capacity to LEO: 540kg</p> <p>Launch Site: Guiana Space Centre</p> <p>Commercial exploitation: Late 2025</p>
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Other microlauncher companies are racing to join PLD Space in the exclusive club of those who have launched. The German **Hylmpulse** announced on November 13th the **completion of its SR75 launcher assembly and integration**.

The Unseenlabs family is growing: the company sent its 10th and 11th *Bros* in orbit

On November 11th, two Unseenlabs satellites were released in orbit, joining 9 others to increase the maritime monitoring capabilities of the Rennes-based company.

Unseenlabs' mission is to enhance maritime surveillance through radio-frequency data collection.

Ships have the obligation to be equipped with **AIS** (Automatic Tracking Systems). AIS emits radio VHF signals to provide identification, position, course and speed information to surrounding vessels and maritime authorities.

However, this **AIS can be turned off manually**, allowing vessels to lead criminal and covert activities uncharted. Unseenlabs **tracks these *ghost vessels* by detecting radio frequencies**, emitted by all vessels equipped with electronics, even when the AIS is turned off.

The Unseenlabs constellation is growing, and the company aims at reaching a **constellation of ~25 satellites**, for a revisit time of under an hour for any location.

Unseenlabs
Headquarters: Rennes, France
Team: ~50
Funds raised: € 27,5M
Founders: Clément Galic (CEO) and Jonathan Galic (CTO)

COMAT is extending

The space equipment company announced its SATURNE project to **extend its Flourens manufacturing site by 1 500m²**, bringing the **total surface of the factory at 3 300m²**. The project, which should be entirely **finished by mid-2025**, will cost around **€ 8M**, and create **25 new positions** by the end of 2025.

The company, which historically specialised in microgravity instruments, moved in the 2000s towards the development of **mechanical systems for telecommunications and Earth Observation** space programmes. They recently signed contracts with multiple NewSpace actors such as Kinéis, Héméria or Anywave, and aim at developing **new product lines for smallsats**, which justify the extension of the factory.

Comat published **€14M revenues in 2022**, and aims at reaching **€25M by 2025**.

European Space: the Seville Space Summit

On the 6th and 7th of November, space ministers from all ESA member states (EU members, Norway, Switzerland and the UK) met in Seville for the **2023 European Space Summit**.

The summit was the occasion to draft a **new strategy for Europe in Space**, especially focusing on **Europe's access to space stations**. The summit led to political decisions on the future of European space transportation:

- The ESA member states, led by France, Italy, and Germany, agreed to fund the operations of **Ariane 6 for up to €340M per year**
- **Avio** was authorized to **stop its cooperation with Arianespace** for the operations of the **VEGA** launcher family, and will **operate the launchers itself**.

Apart from these decisions, the ESA presented the **Commercial Cargo Transportation call for tenders**, which should lead to many technological developments.

The Commercial Cargo Transportation Initiative

During the Space Summit, the European Space Agency reiterated its commitment to a **sovereign European access to space, and notably to space stations**. The ministers called for industrials to develop a **space capsule to transport cargo to and from the ISS** and subsequent commercial space stations. The call for tenders requires the capsule to have the capacity to **bring 4T of cargo to LEO, and bring back 2T**. The capsule should be ready for its **maiden flight by 2028**.

These requirements limit the pool of potential applicants, especially given that in May, a first call for Cargo Transportation projects had been announced, with lower requirements (3T to orbit, 1T back). Following the May announcement, the German company **Rocket Factory Augsburg** announced its submitted project, **ARGO**. Unfortunately, the **ARGO space capsule project fits the requirements of the May call, but not the November reevaluation**.

Two clear candidates remain: **ArianeGroup's SUSIE** and **The Exploration Company's Nyx**.

- I. **Susie: will it be enough**

The **SUSIE programme** was announced by ArianeGroup more than a year ago at the International Astronomical Conference, and no news of it were published until just a few weeks before the Seville Space Summit.

In the end of October, ArianeGroup announced that it had built and would begin testing a prototype of the **Smart Upper Stage for Innovative Exploration vehicle (SUSIE)**. The complete vehicle will be 12 metres tall, and able to carry up to **7 tons of cargo/ crew to LEO**. Such capabilities put it on the radar for the Cargo Transportation call of the ESA, although we can express **reservations on the ability of ArianeGroup to deliver SUSIE by 2028**.

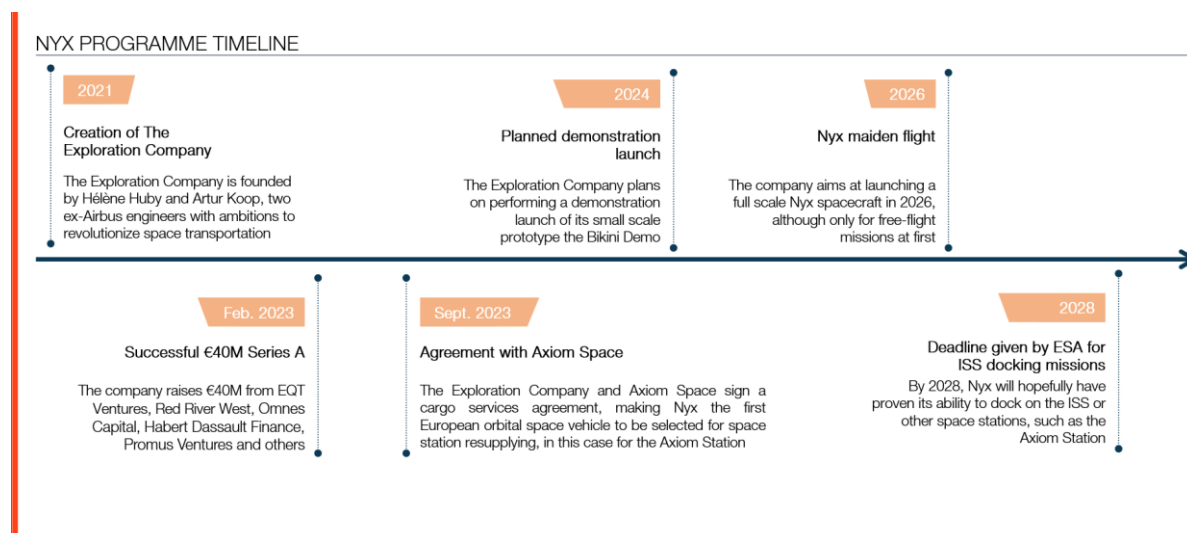
ArianeGroup will not only develop a 7T version of SUSIE, but also a **smaller version with a capacity of 3T**. That smaller version, like the ARGO project of Rocket Factory Augsburg, meets the capacity requirements of May, but not those of the Seville Summit.

II. The Exploration Company, the challenger

The Exploration Company has been developing its space capsule Nyx since the creation of the company, and the project is its raison-d'être. As explained on the company's website, Nyx is made to cover a wide range of missions, from the Exploration Company's core business of **resupplying space stations** to going on the Moon.

According to the company's website, Nyx will have the ability to bring up to 4 tons to LEO for up to 6 months, for €20k/kg.

The Exploration Company
 Headquarters: Planegg, Germany
 Sites: 2 (Planegg and Toulouse)
 Team: >80
 Funds raised: € 40,5M
 Founders: H  l  ne Huby (CEO) and Artur Koop (COO)



Space news across the globe

South Korea's ambitious space strategy

South Korea has never been a leader in terms of space exploration, but is renewing its ambitions amidst intensifying Asian space competition.

Last week, the partnership between South Korea and the US in terms of space defence took a new term, with the announcement that South Korea would launch a **spy satellite with a Space X Falcon 9 rocket**, to monitor North Korea's activities. The satellite should be put in orbit on the **30th of November**, and **4 others should follow in the coming 2 years**. Americans are visibly strengthening their ties in space and defence in Asia, to challenge China's growing power in the region.

The Korean Aerospace Research Institute (KARI)
 Location: Yuseong-Gu Daejeon, Korea
 Creation: 1989
 Revenue (2021): ₩ 615Bn (\$553M)

South Korea's interest and ambitions in space are not limited to military purposes. Its president announced that the country aims at **landing on the Moon by 2032**, and **on Mars by 2045**. It is

clear that South Korea aims at positioning itself on the global space scene. The country had already made a huge step by successfully deploying a satellite from a Korean made rocket, NURI, in May 2023.

Will Starship be an early Christmas miracle?

Starship will attempt a new launch **tomorrow!** On April 20th, a first launch was attempted from Starbase, Texas, but the launcher exploded after a few minutes of flight, as the first and second stages failed to separate.

For this second launch to be more successful than the first, Space X has modified the stage separation process: the second stage will now start firing its engines while still attached to Super Heavy, its first stage.

SpaceX has also taken steps to **limit the damages** caused by take-off to the **launch pad and surrounding nature**, notably by installing a **water wall** meant to limit vibrations and soundwaves. The 33 Raptor engines of the Falcon Heavy had pierced a huge crater in the launch pad in April, and debris had damaged the surrounding space base. Hopefully, the water shield activated at ignition will prevent the damages from happening again.

Fast facts

- **Airbus Defence and Space** announced that two new meteorological satellites would be launched from Kourou in 2025, **MetOp-SG A and B**, to replace the first MetOp satellites, launched in 2002.
- During the Seville Space Summit, The European Space Agency signed a **Memorandum of Understanding with the Starlab Space Station Consortium** (Airbus and Voyager Space) to obtain access to the commercial space station that is under development.
- **Kuva Space**, a Finnish Earth Observation startup, closed a **€16,6M Series A**, which will help them get closer to their goal of a 100 satellites constellation by 2030.
- On the 8th of October, the **23rd VEGA successfully launched** from Kourou, marking the **last European launch of 2023..** The year 2023 saw only 3 launches for Europe, against 84 for SpaceX alone.
- U-Space started the construction of its **1 000m² nanosatellites factory in Toulouse**, which should be operational in Spring 2024, and produce 1 satellite/day by the end of 2026.
- Frank Borman, who was the astronaut commander of the 1968 Apollo 8 mission in Lunar Orbit, died at 95 on November 8th.
- Two NASA astronauts **lost a tool bag** while on a spacewalk on November 7th. Last seen: Floating close to the ISS. If found, please return to the Kennedy Space Centre, Cape Canaveral, Florida.