



Press Release

Planetek Italia launches “Caution: Edge Ahead”: a cornerstone of EO digital transformation

Bari, Italy, Wednesday 15 January 2025. Planetek Italia is proud to announce successful deployment of AIX-1p “Caution: Edge Ahead”, the first mission of the AIX satellite series, which will set the path for the ambitious programme of bringing a new concept of cognitive cloud computing in space.

AIX-1p lifted off on January 14 th, 2025, at 8:09 p.m. (GMT+1) aboard SpaceX Falcon 9 Block 5 rocket from the Space Launch Complex 4 East (SLC-4E) at Vandenberg Space Force Base in California and was successfully deployed almost an hour after launch into a 520km Sun-Synchronous Orbit.

AIX-1p is the first of a series of three satellites (AIX-1p, AIX-1, AIX-1 +) planned for launch in 2025 and developed by Planetek Italia in cooperation with its partners D-Orbit and AIKO.

"The launch of AIX-1p, aptly named 'Caution: Edge Ahead,' represents the most advanced interpretation of Digital Transformation in Earth Observation, setting a new standard for innovation and accessibility in space technology."
, Giovanni Sylos Labini, CEO, Planetek Italia declared *"Caution: Edge Ahead' is more than a mission; it is the cornerstone of our vision for a Digital EO constellation. This launch lays the foundation for a network of smart satellites redefining real-time EO data processing and insight delivery from space."*

AI-eXpress is a project co-funded by the European Space Agency InCubed, an Earth Observation Programme managed by ESA Φ-lab, that uses advanced technologies such as Artificial Intelligence (AI) and Blockchain in Space to enhance satellite capabilities in terms of reactivity, responsiveness, and low-latency information delivery. AIX provides a hybrid edge/cloud ecosystem on a Low Earth Orbit (LEO) platform equipped with Earth Observation (EO) payloads, deployable cubesats and a software framework that autonomously manages sensors and on-board resources.

"AIX is more than just a satellite; it's a complete, integrated ecosystem." observes Giuseppe Borghi, Head of the ESA Φ-lab division. *"From advanced imaging to onboard AI processing and seamless data delivery, ESA has supported the development of a truly end-to-end system that delivers insights faster and more efficiently than any traditional Earth Observation approach. This marks a fundamental change in how we access and utilise space-based information".*

AIX: a new era of opportunities in Earth Observation

Space mission's scenario is rapidly evolving and is raising the need for new operational concepts that must be able to implement novel technologies, and approaches at mission design that comply with the shortening of the



development cycles. AIX answers to these needs thanks to the configurable set of space components it makes available as-a-service, as the advanced imaging of the dual-head camera, the onboard Artificial Intelligence of the high-performance computing platform and the software services secured by Blockchain technologies.

The first mission, named **Caution: Edge Ahead (AIX-1p)** is designed to test and validate the core building blocks of fundamental software services (data processing and execution) directly in space. These functionalities form the backbone of the "satellite-as-a-service" model. AIX-1p is the first step toward creating a space "App Store," offering a simpler and more innovative way to access space resources.

Following to the AIX-1p launch, two more missions are planned: AIX-1 in June 2025, and AIX-1+ in October 2025. Each mission will progressively contribute to the deployment and validation of AIX components and functionalities.

The AIX team

AIX is implemented by a consortium composed by Planetek Italia, D-Orbit, and AIKO and it will complement and add value to the companies' existing services/products.

AIX-based services will be tested and deployed using D-Orbit's ION platform and space cloud infrastructure, AIKO's orbital_OLIVER autonomy framework and AI applications, and Planetek's SPACEDGE™ Earth Observation services for FutureEO.

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Links

- <https://incubed.esa.int/portfolio/aix>
- <https://www.planetek.it/eng/aiexpress>
- https://esamultimedia.esa.int/docs/EarthObservation/AIX_FactSheet_250110.pdf

Attached: Launch details, F.A.Q.

About Planetek Italia

Planetek Italia is a Benefit Company specialised in Geoinformatics, Space solutions, and Earth Observation. Since 1994, we simplify the complexity of Space. From upstream to downstream, we design and develop solutions that exploit the value of geospatial data to help users understand the world better and act sustainably.

<https://www.planetek.it/>

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Images



Company logos





AIX Launch Details

Launch Schedule:

- AIX-1p: 14 January 2025 (Falcon 9, Transporter 12)
- AIX-1: June 2025 (Falcon 9, Transporter 14)
- AIX-1+: October 2025 (Falcon 9, Transporter 15)

Launcher:

- Provider: SpaceX
- Rocket: Falcon 9

Orbit Details:

- Altitude: 561 km \pm 15 km
- LTDN: 10:00 \pm 60 minutes
- SSO: \pm 0.1 degrees

Mission Life:

- 1 year

Satellite Platform:

- Model: D-Orbit's In-Orbit Now (ION)
- Power: 7–25 W (depending on processing and storage configuration)

Instruments:

1. High-Performance Computing Unit: AI-ready for advanced onboard processing.
2. Dual-Head Multispectral VIS-NIR Camera System: For high-resolution imaging across visible and near-infrared bands.
3. Low-Latency Channel: For real-time data transmission.

Revisit Time:

- Variable; target: 1-day RGT SSO



Mission Control:

- Location: D-Orbit Flight Operations Segment in Fino Mornasco, CO, Italy

Operations and Data Processing:

- AIX app-store, powered by Planetek's ERMES, in Bari (Italy), orchestrating autonomy and AI SW by AIKO

Project and Commissioning:

- Prime Contractor: Planetek Italia S.r.l. (Italy)
- Partnership: In collaboration with D-Orbit S.p.A. (Italy) and AIKO S.r.l. (Italy)

Co-funded by the ESA InCubed Programme



The Journey of AIX: A Story of Three Launches

2025 marks a transformative year for Planetek and its partners as they are embarking on an ambitious journey to revolutionise Earth Observation and data processing with the AIX satellite series. This groundbreaking initiative not only lowers barriers to entry into space but also enhances competitiveness and commercialisation of services for small and medium enterprises, boosted by the European Space Agency InCubed programme. In this scenario, each of the three launches tells a unique chapter in this visionary story.

Chapter 1: "The Pathfinder"

January welcomed the launch of AIX-1p, affectionately dubbed "The Pathfinder." A bold foray into new technological frontiers, this mission is designed to test the foundational systems that would pave the way for the AIX series. Equipped with AI-ready computing and innovative App-store ready software infrastructure with a companion imaging payload, AIX-1p embarks on its mission to demonstrate the art of in-orbit processing, reshaping the dynamics of satellite data transmission. Pathfinder's early success sets the tone for what is to come.

Chapter 2: "The Innovator"

As the summer solstice approaches, AIX-1 is roaring into the skies aboard Falcon 9 again. Dubbed "The Innovator," this second chapter brings enhancements and scalability to the AIX platform. Its launch in June will mark the beginning of operational deployment, providing AIX's customers with a cutting-edge end-to-end near real-time information system providing 24/7 access with an interaction time as quickly as 30 seconds. The Innovator demonstrates the power of a truly integrated and information-oriented space-based data ecosystem.

Chapter 3: "The Visionary"

The culmination of this ambitious trilogy will rise in October with the launch of AIX-1+, known as "The Visionary." This final chapter is the pinnacle of AIX's technological achievement. Integrating lessons from its predecessors, The Visionary adds refined performance, from extended imaging capabilities with its dual-head, low and high-resolution, VIS-NIR multi-spectral camera system (provided by TSD Space) to seamless integration with the AIX app-store. Designed for maximum adaptability, AIX-1+ underscores Planetek, its partners D-Orbit, AIKO and ESA's commitment to pushing the boundaries of what's possible in satellite operations.

Together, these three missions weave a narrative of innovation, collaboration, and transformation, charting a new course for Earth Observation, near real-time end-to-end communication, and AI-powered satellite technology. The AIX trilogy is not just a series of launches; it's a testament to the power of vision and strong national and international public and private partnership in reaching for the stars. By lowering barriers to entry into space and fostering competitiveness and commercialization of services, AIX and ESA InCubed are paving the way for a new era of opportunities for small and medium enterprises and innovators.



F.A.Q.

What does Satellite-as-a-Service mean?

Space mission's scenario is rapidly evolving. Several elements are contributing to this evolution, but maybe three can be identified as key points: 1) the lowering of access barriers, 2) the NewSpace approach and 3) the huge, distributed data availability. AIX provides the users with a space asset and a set of onboard resources they can customise and adapt in flight to their specific needs. This feature lets an entirely new class of users to direct access to space-based services and benefit of Earth Observation, and so to create new concepts and opportunities directly designed and managed by the users themselves.

What does Insights-as-a-Service mean?

In most existing service cases, customers focus on their core business process. Users need the right information, at the right time, in the right place. This implements the paradigm we use to define SpaceStream, where many steps of the Earth Observation value chain are shifted from ground to space to transform sensed data into actionable knowledge and insights.

What is the difference between traditional EO and AIX?

This evolving scenario is raising the need for new operational concepts that must be able to implement novel technologies, and approaches at mission design that comply with the shortening of the development cycles. AIX answers to these needs thanks to the configurable set of space components it makes available as-a-service, as the advanced imaging of the dual-head camera, the onboard Artificial Intelligence of the high-performance computing platform and the software services secured by Blockchain technologies.

What is the role of each company of the consortium?

AIX is implemented by a consortium composed by Planetek, D-Orbit, and AIKO and it will complement and add value to the companies' existing services/ products.

AIX-based services will be tested and deployed using D-Orbit's ION platform and space cloud infrastructure, AIKO's orbital_OLIVER autonomy framework and AI applications, and Planetek's SPACEDGE™ Earth Observation services for FutureEO.

How will customers benefit from the “satellite as-a-service” model?

Thanks to its Earth Observation and Earth Intelligence service infrastructure, AIX enables a new satellite as-a-service model to access on-demand in-orbit resources. Institutional and private customers will rely on cutting-edge and cloud-based EO services, to exploit their preferred set of space components, and customise acquisition and



processing workflows. A dedicated marketplace offers a variety of apps that can be deployed, configured, purchased, and exploited by the community. The AIX ecosystem enables customer-driven capabilities, such as need-focused data gathering, reducing costs and barriers to access Space.

Which applications can be developed and deployed?

AIX provides a unique combination of AI at the edge-technologies and an EO integrated and information-oriented space-based data ecosystem, that enables customers to implement various types of applications, such as but not limited to:

- Critical infrastructures monitoring
- Environmental anomalies awareness
- Pollution detection and tracking
- Marine plastic pollution