D-ORBIT

ASCEND
MISSION BOOKLET

Mission name: Ascend
Carrier name: ION SCV Eminent Emmanuel

Fino Mornasco, Italy, January 15, 2025 — On January 14th, 2025, D-Orbit, a leader in space logistics and orbital transportation, successfully launched Endless Sky and Ascend, the 15th and 16th commercial missions of its cutting-edge Orbital Transfer Vehicle (OTV), **ION Satellite Carrier (ION)**.

The two OTVs were launched aboard SpaceX's Transporter-12 mission at **11:09 a.m. PT (07:09 PM UTC)** from **Space Launch Complex 4 (SLC-4E) at Vandenberg Space Force Base in California**. 1h 07m 47 sec after liftoff, the first ION vehicle, SCV Amazing Antonius, was deployed into a 510-km Sun Synchronous Orbit, followed by SCV Eminent Emmanuel four minutes later.

ION Satellite Carrier is a versatile space vehicle capable of transporting and releasing satellites into distinct orbital slots. It can also accommodate third-party payloads, including innovative technologies, research experiments, and instruments requiring in-orbit testing. Additionally, ION can support edge computing and space cloud services, providing satellite operators with advanced storage and computational capabilities in orbit.

D-Orbit's mission control team is now conducting the Launch and Early Orbit Phase (LEOP), setting the stage for the upcoming operational phase.

Photo credit: SpaceX

A note about the name of the satellite carrier

The name of the satellite carrier is "ION Eminent Emmanuel", a combination of the acronym "ION", which stands for "InOrbit NOW", and the satellite's first name. This format follows the naming conventions of naval vessels used in navies around the World. The name "Emmanuel" was drawn at random from a bowl containing the names of all D-Orbit's employees. The company will continue to follow this procedure in the future to honor the skills, energy, passion, and commitment to its people.

ION SCV Eminent Emmanuel (left), ION SCV Amazing Antonius (right). Both IONs were launched on the Transporter-12 Mission.

Space DOTS

Name of payload: Data DOT

Type of payload: Environmental data-gathering unit

POC: Bianca Cefalo
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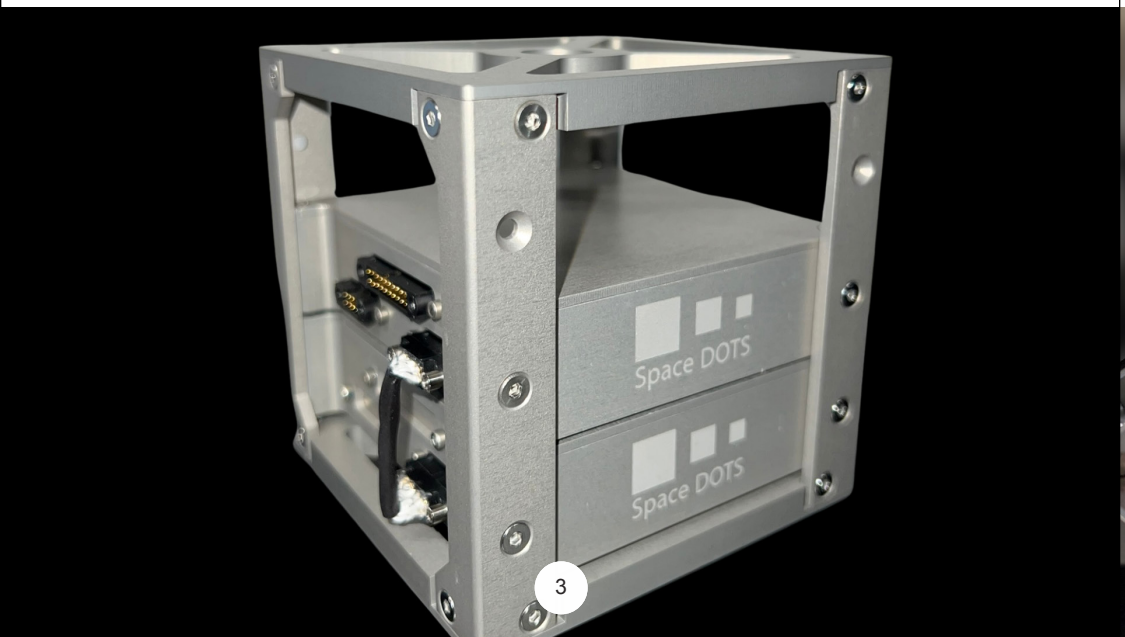
The Data DOT is Space DOTS first space environmental data-gathering unit (form factor 1U), collecting critical data on the environmental events that directly affect spacecraft design, costs, operations and, ultimately, mission success. Understanding these dynamic environments is key to designing smarter, safer, and more cost-efficient missions.

COMPANY PROFILE

Website: www.space-dots.com

London-based Space DOTS is enabling the next leap in the space economy by solving its greatest data challenge: understanding and predicting the environments where humanity will expand. We are building and deploying the first comprehensive platform for space environmental intelligence, seamlessly integrating proprietary sensing hardware (Data DOT) with advanced data aggregation and AI-driven predictive analytics. Our solution transforms fragmented, raw space data into mission-critical insights that empower smarter mission planning, more efficient spacecraft design, and proactive risk mitigation. Our vision is to become the decision-making backbone for space asset design and mission planning, enabling humanity to confidently expand commercial activities beyond Earth - to the Moon, Mars, and eventually Deep Space. By delivering the intelligence needed for sustainable and scalable operations, we are laying the groundwork for the next era of the space economy.

Photo credit: Space Dots



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UK Research and Innovation

Name of payload: SWIMMR

Type of payload: Radiation monitor

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The Space Weather Innovation, Measurement, Modelling and Risk (SWIMMR) programme is a five-year, £20 million investment by the UK Research and Innovation (UKRI) Strategic Priorities Fund, which will improve the UK's capabilities for space weather monitoring and prediction, focusing on space radiation. The SWIMMR Core mission is the second mission of the SWIMMR S1 'Improved in-situ radiation measurements for space and aviation' project, implemented by the Space Physics and Operations Division of the Science and Technology Facilities Council (STFC) RAL Space. The mission will consist of a radiation monitor, HardPix, integrated on ION Satellite Carrier to provide radiation data to the Met Office Space Weather Operations Centre, from altitudes between 330km and 1200km. HardPix was procured by the Czech Technical University, and is the same hardware which was flown during the first SWIMMR S1 mission in June 2023, on D-Orbit's ION Satellite Carrier SCV-011.

ORGANIZATION PROFILE

Website: www.ukri.org

The UKRI brings together seven research councils, Research England, and Innovate UK to deliver an ambitious agenda through collaboration and expertise across diverse disciplines. It supports sector-specific priorities and communities, providing grants and resources for research, higher education, and innovation, while maintaining the vitality and breadth of the research and innovation landscape.

Photo credit: CVUT

albaorbital

Name of payload: AlbaPod PocketQube satellite deployer

Type of payload: Deployer and PocketQubes

POC: Tom Walkinshaw
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Albapods are satellite deployers specifically designed by Alba Orbital for PocketQube satellites, supporting various formats from 1p to 3p. Onboard this mission, the AlbaPod is hosting the following PocketQube satellites:

SKYLINK-1 & SKYLINK-2 - SKYLINK-1 and SKYLINK-2 are the newest additions to Hello Space's IoT Pico-satellite series. These identical 3P (5x5x15cm) PocketQubes operate together as part of a wider fleet of picosats, delivering global IoT data services via LoRaWAN network.

HYPE AGH - HYPE AGH is a 1P PocketQube by SatLab AGH, a student club from AGH University of Science and Technology in Krakow, and the first PocketQube from Poland. It features a UV-VIS spectroscope to analyse light pollution, volcanic ash, and forest degradation, plus a camera and OLED screen for "space selfies" with Earth in the background. This project offers students valuable experience and serves as a scientific and educational tool.

PROMETHEUS - PROMETHEUS-1 is an open-source 1P PocketQube developed by Universidade do Minho, Instituto Superior Técnico, and Carnegie Mellon University under the "PROMETHEUS" project. Funded by the Portuguese Foundation for Science and Technology, this initiative aims to enhance research and educational access to space.

POQUITO - "PocketQube for In Orbit Technology Operations" (POQUITO) is the first PocketQube mission by the Interdisciplinary Center of Security, Reliability, and Trust (SnT) at the University of Luxembourg. This tiny 5cm3 1P satellite hosts an even smaller 5×5×0.2 cm satellite the size of a computer chip. POQUITO aims to test inter-satellite communications between a PocketQube and a 'Chipsat' via LED in visible light and transmit a CW beacon to Earth to promote Luxembourgish space activities for radio amateurs.

HADES-R - HADES-R (AKA 'SmartSat') is a 1.5p PocketQube by Hydra Space Systems S.L., and operated by AMSAT-EA. Its primary objectives are to serve as an FM repeater for global radio amateur communications and to test an experimental low-power graphene radiator payload developed by SmartIR, a spin-out from the University of Manchester's Graphene Engineering Innovation Centre.

HYDRA-T - HYDRA-T is a 1.5P PocketQube mission, also developed and operated by Madrid-based Hydra Space Systems and AMSAT-EA, that will offer commercial communication capabilities. This will be achieved by implementing an SDR based FM and FSK repeater. UHF and VHF bands will be used for downlink and uplink respectively. An educational payload is also included.

COMPANY PROFILE

Website: www.albaorbital.com

Alba Orbital (UK, USA, Germany) is the world's leading PocketQube company that has delivered 41 pico-satellites on-orbit to date. Alba is a vertically integrated NewSpace company 'democratising access to space', providing turnkey solutions from advanced pico-satellite platforms, low-cost launch opportunities, and ground station services. Alba has worked with over 30 customers across three continents, including prestigious clients such as Stanford University, Carnegie Mellon University and TU Delft.

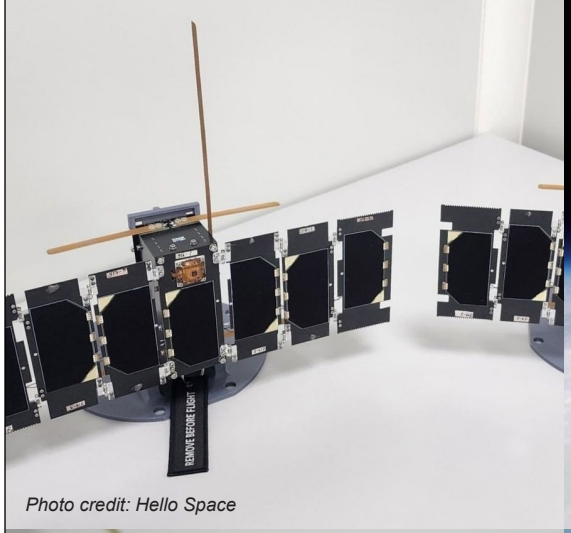

Photo credit: Hello Space

Photo credit: SatLab AGH

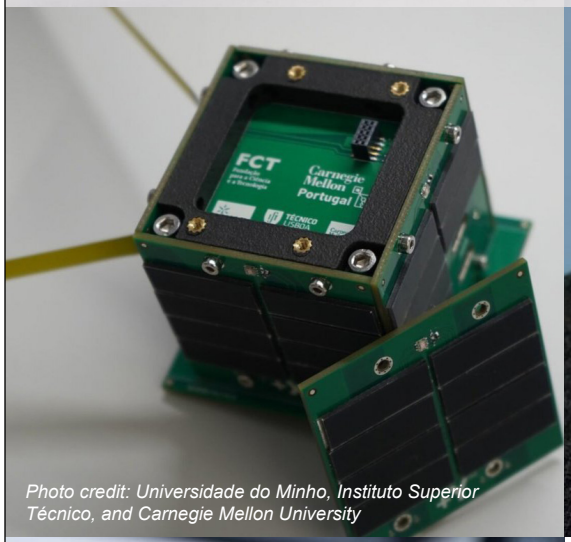

Photo credit: Universidade do Minho, Instituto Superior Técnico, and Carnegie Mellon University

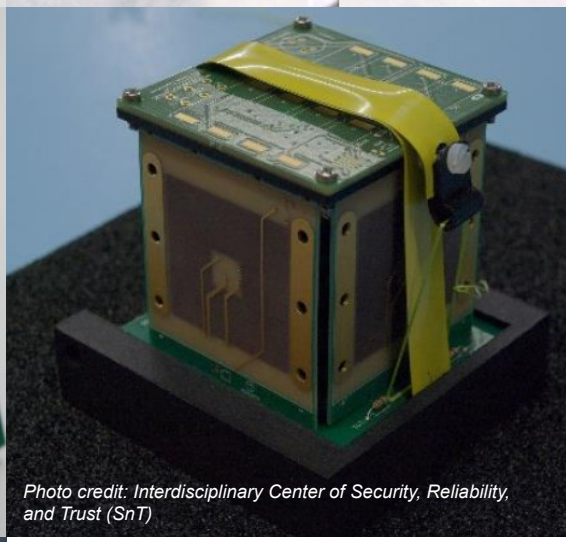

Photo credit: Interdisciplinary Center of Security, Reliability, and Trust (SnT)

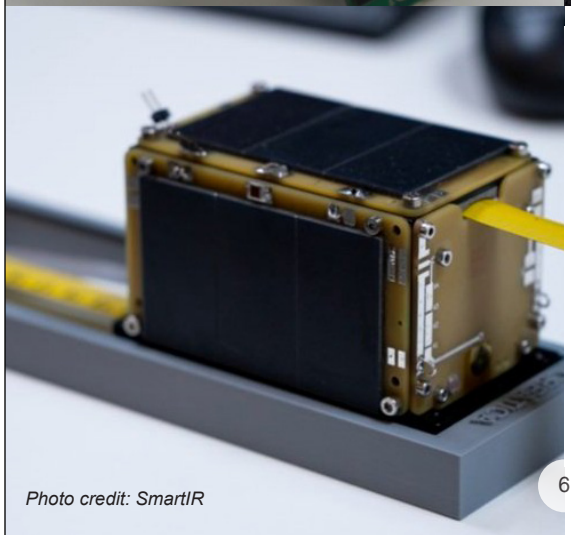

Photo credit: SmartIR

Photo credit: Hydra Space Systems

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