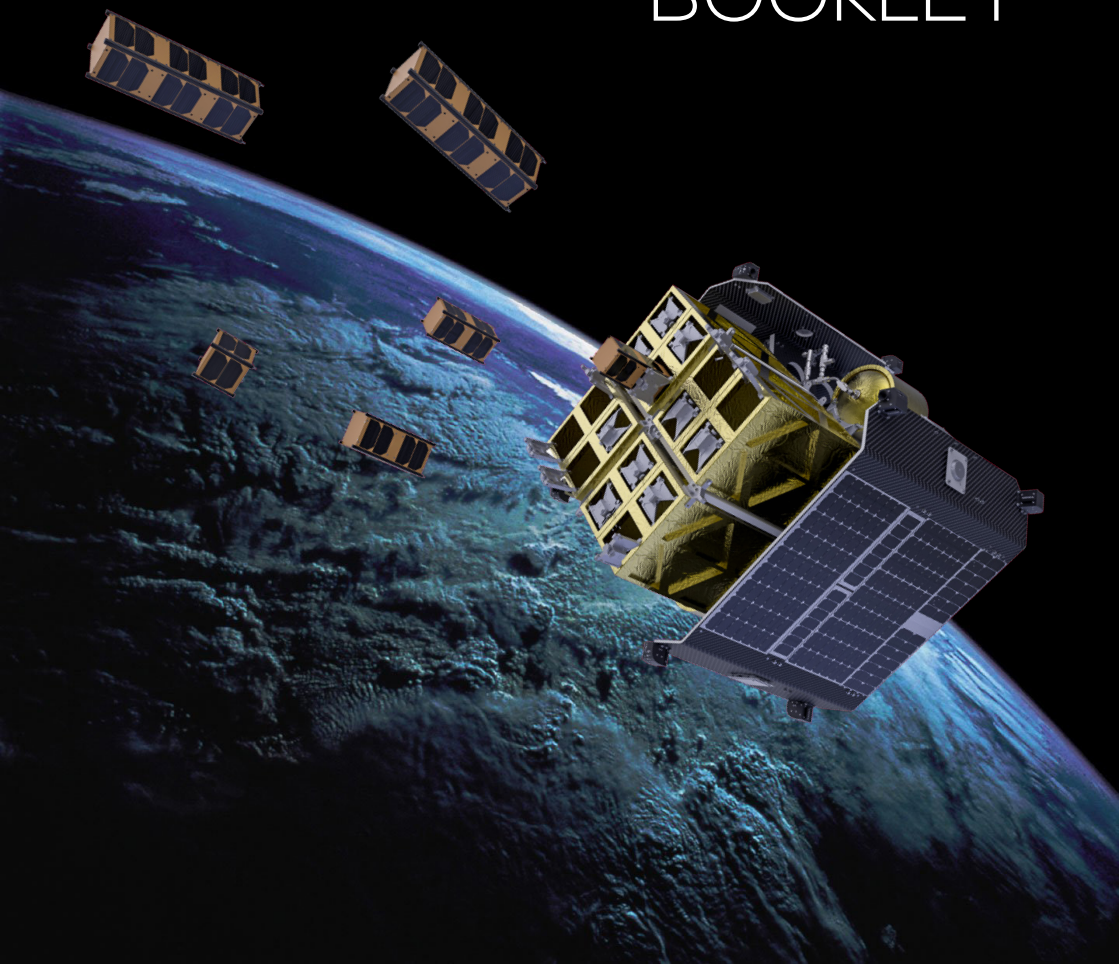
D-ORBIT
NEW SPACE SOLUTIONS

WILD RIDE MISSION BOOKLET



Mission name: Wild Ride
Carrier name: ION SCV Dauntless David

Scheduled to lift-off in June 2021, ION SCV Dauntless David will deploy six satellites into multiple orbits and perform the in-orbit demonstration of three payloads developed by third parties. This mission, which serves clients from eleven different nationalities, increases the total number of payloads launched by D-Orbit to 545.

The mission manifest includes international clients like the Spanish Elecnor Deimos, the Bulgarian EnduroSat, and the Kuwaiti Orbital Space, which will launch the country's first radio amateur satellite. Also on board, under contract with ISILAUNCH and integrated into a QuadPack from Dutch satellite manufacturer ISISPACE, are Finnish Reaktor Space, Marshall Intech Technology from UAE, and the Royal Thai Airforce.

The mission, which will start on a 500 km Sun synchronous orbit (SSO), will go through four phases: satellite deployment, in-orbit demonstration of the payloads hosted onboard, testing of D-Orbit's advanced services, and decommissioning.

During the deployment phase, ION will deploy each satellite into a distinct orbit. The release of the seven satellites onboard will follow a highly customized plan that defines the moment of release, and the direction and speed of ejection of each spacecraft.

During the in-orbit demonstration phase, ION will operate LaserCube, by the Italian Stellar Project, a payload hosted onboard through an innovative plug-and-play system that streamlines the integration of instruments and experiments developed independently by third parties.

The third phase will be focused on testing Nebula, a payload at the core of D-Orbit's upcoming advanced services. The first iteration of Nebula, an on-demand, on-orbit cloud computing and data storage service being developed by D-Orbit UK, features Unibap's SpaceCloud iX5-100 radiation tolerant computing module. A range of innovative applications will be demonstrated using sophisticated, artificial intelligence/machine learning (AI/ML) techniques; some of these experiments will feature video compressing techniques from industry specialist V-Nova. Another Machine Learning payload, called "Worldfloods" and eveloped by the Frontier Development Lab (FDL) has the ability to identify flooding and send down a flood map to emergency responders seconds after image acquisition.

During the fourth and final phase, decommissioning, D-Orbit's operations team will deploy ADEO, a small 1U-size de-orbit sail subsystem by the German HPS.

The mission will also feature a SETI (Search for Extraterrestrial Intelligence) experiment in collaboration with media artist Daniela de Paulis and INAF (Istituto Nazionale di Astrofisica). The experiment, which investigates the possibility to communicate with other kinds of life in the universe, consists in the transmission of simulated alien messages to be received and decoded by radio telescopes worldwide.

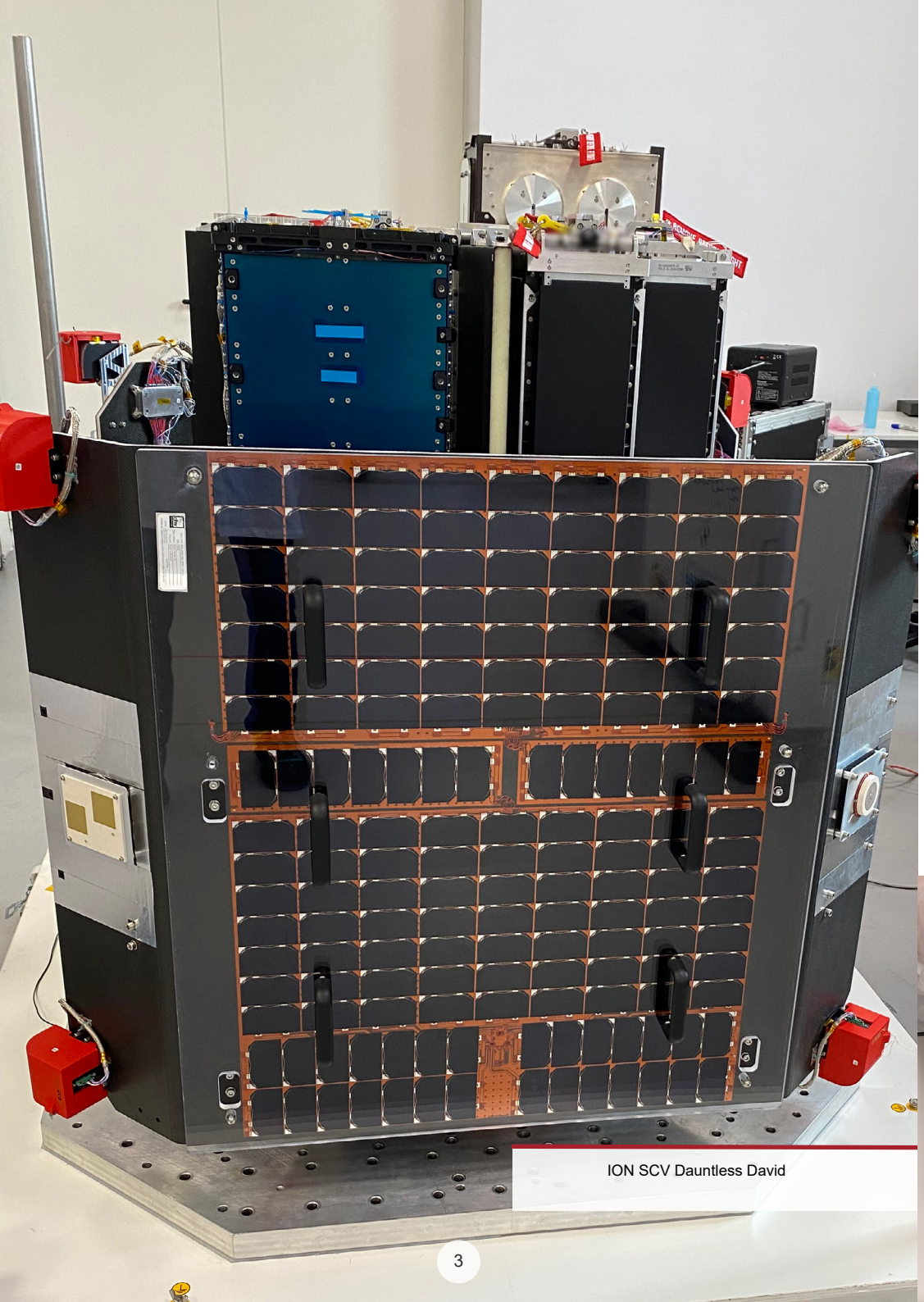
The entire mission, including operations on payloads, will be managed by D-Orbit's mission controllers through AURORA, the company's proprietary cloud-based mission control software suite that enables satellite operators to manage and control multiple payloads simultaneously, from any location in the World, saving all the expenses connected with software design, development, testing, deployment, and maintenance.

While getting ready to launch this mission, the D-Orbit team is already working on future missions, with the next planned for Q4 2021.

Passenger	Form Factor	Payload	Nationality	Page
Elecnor Deimos	3U	Neptuno	Spain	4
Endurosat	6U	Spartan	Bulgaria	5
Orbital Space	1U	QMR-KWT	Kuwait	6
ISISPACE			Netherlands	7
Reaktor Space Lab	3U	W-Cube	Finland	8
Marshall Intech Technology	2U	Ghalib	UAE	9
Royal Thai Airforce	6U	NAPA-2	Thailand	10
Stellar Project	2U	LaserCube	Italy	11
D-Orbit UK - Unibap - Trillium - V-Nova	1U	Nebula	UK - Sweden	12
HPS	1U	ADEO-N2	Germany	13

A note about the name of the satellite carrier

The name of the satellite carrier is "ION SCV Dauntless David", a combination of the acronym "ION", which stands for "InOrbit NOW", the acronym "SCV," which stands for "Space Carrier Vessel," and the satellite's first name. This format follows the naming conventions of naval vessels used in navies around the World. The name "Davide," translated into its Latin equivalent, 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 of its people.



ION SCV Dauntless David

Name of payload: Neptuno

Form factor: 3U

POC: Elsa Alexandrino
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Neptuno is the prototype satellite for a LEO cubesat constellation dedicated to maritime surveillance. The satellite has an automatic real-time monitoring system for alert detection of potentially criminal behaviour patterns, assigning dangerous profiles. The satellite was developed by Elecnor Deimos, together with DHV technology and AEROUM, with the support of several national security institutions of the Spanish Government. Neptuno was built using innovative technologies such as 3D printing, AI, intelligent sensing and new materials, in Deimos facilities in Puertollano, Spain. The project has been co-funded by the European Regional Development Fund (ERDF).

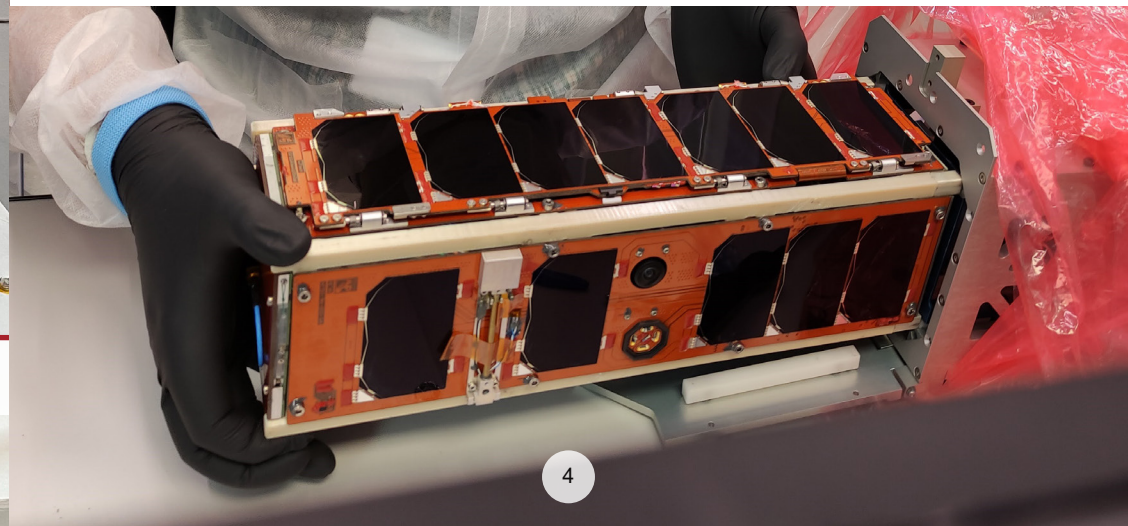
COMPANY PROFILE

Website: www.elecnor-deimos.com

Elecnor Deimos is a European space systems engineering group founded in 2001, with about 400 staff, headquartered in Spain with subsidiaries in five countries. The company has developed multiple space technologies and tools stemming from more than 500 contracts with ESA, NASA and other agencies. In addition to engineering work, the company has developed and operated two Earth Observation satellites (DEIMOS-1 and DEIMOS-2) and currently operates its Deimos Sky Survey Centre, providing Space Surveillance and Tracking services.

Elecnor Deimos' successful track record in R&D, engineering, industrial integration, space and ground operations services led the group to establish a business strategy to become an end-to-end New Space services company, covering small satellite design and integration, micro-launcher subsystems development and operations, Earth Observation satellite operations and end-user applications and services.

Neptuno



ENDUROSAT

Name of payload: SPARTAN

Form factor: 6U

POC: Delyan Momchilov
delyan@endurosat.com

SPARTAN is the first of several upcoming Shared Satellite Missions, empowering EnduroSat's commercial partners and their space capabilities. It enables the easiest way to perform technology demonstrations as well as scientific and commercial programs without the need to operate your own satellite or ground infrastructure.

Our unique satellite architecture allows for multiple payloads to operate together reliably on a single NanoSat. Each of the payloads has access to onboard processing, power and pointing capability, making multi-tasking in space possible.

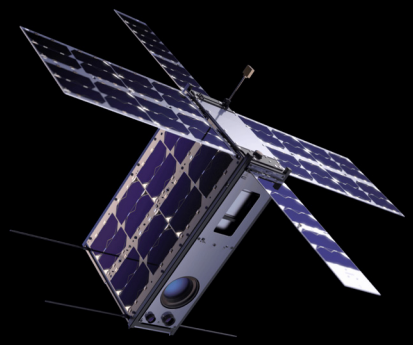
The Shared Satellite Service includes integration, validation & testing, launch and operations of the satellite and all the payloads, thereby opening a paradigm improvement in space accessibility and simplifying space operations. Direct access to the payload data is instantly available in the cloud via EnduroSat's own Digital Ground Station.

COMPANY PROFILE Website: www.endurosat.com

EnduroSat provides high-end NanoSats and space services for business, exploration, and science teams. The Shared Sat Service enables streamlined space operations at a fraction of the current market cost. Its goal is to help drive innovation at the final frontier by providing easy access to space for multiple payloads and diverse mission concepts.

EnduroSat is one of the fastest growing space companies in Europe. The team exceeds 75 talented developers, engineers, and scientists, currently serving more than 100 customers and partners worldwide.

EnduroSat's online Satellite store includes a comprehensive catalogue of space modules, the industry's first satellite configurator and Shared Sat Mission planner.



"We are excited to start cooperation with the team of D-orbit. Expanding further our Shared Satellite Missions catalogue will open new opportunities for our partners and customers to access space at a fraction of the cost and complexity. We can't wait to see their innovations materialize at the final frontier."

Raycho Raychev
Founder & CEO of EnduroSat

الفضاء المداري
ORBITAL SPACE

Name of payload: QMR-KWT

Form factor: 1U

POC: Nada AlShammari
media@orbital-space.com

According to Nada Alshammari, Director of Educational Programmes at Orbital Space, QMR-KWT space mission is to empower students to contribute to the advancement of satellite communication technology, and to prepare them as future professionals to operate the next generation of communication satellites.

"Orbital Space is undertaking this pioneering mission in order to create educational opportunities for students from around the world to learn more about satellite communications. We are already seeing engagement from students with our QMR-KWT educational program 'Code in Space'" added Nada Alshammari. "Code in Space is an opportunity for students to develop and test new software solutions by writing software code to be uploaded and executed on the satellite's onboard computer. We are currently accepting student proposals for this out of the world opportunity."

COMPANY PROFILE Website: www.orbital-space.com

Orbital Space is a UAE company based in Dubai and the first in the Arab World to provide access to space through educational missions and activities. The company's focus is to make Low Earth Orbit (LEO) accessible to all by facilitating space missions from concept to deployment in orbit.

Orbital Space's mission is to support the transformation of the Arab World into space-faring nations by promoting space research and technology development through educational programs for the Arab youth.

"Our goal is to make space accessible to all, and we are excited and honoured to be working with our partner, Endurosat, in achieving this. QMR-KWT's functional testing has been done at EnduroSat facilities and it has now been integrated with ION Satellite Carrier, D-Orbit's OTV, as part of the plan to put it in orbit."

Bassam Alfeeli,
Founder & General Manager
of Orbital Space

POC: Andra Gentea
a.gentea@isispace.nl

Also on board, under contract with ISILAUNCH and integrated into a QuadPack from Dutch satellite manufacturer ISISPACE, are W-Cube from Finnish Reaktor Space, a 3U satellite designed to demonstrate the feasibility of using new higher frequency bands for future telecom satellites, Ghalib from Marshall Intech Technology from United Arab Emirates (UAE), a 2U satellite designed for space-based tracking of falcon bird migration, and Napa-2 for the Royal Thai Air Force (RTAF), planned to enhance the monitoring and response to natural disasters, including fires, floods, earthquakes, and landslides.

COMPANY PROFILE Website: www.isispace.nl

ISISPACE is a vertically integrated small satellite company, focused on providing high value, cost-effective space solutions by making use of the latest innovative technologies. The company specializes in satellites ranging from 1 to 30 kilograms, providing contract research, innovative small satellite parts, sub-systems, platforms, and turnkey space solutions to a broad range of customers. Based in Delft, Netherlands - ISISPACE employs over 125 specialists and maintains a development branch office in Somerset West, South Africa. The vertical integration of nanosatellite activities within ISISPACE ensures that customer specific requirements can be accommodated, and flight hardware delivered quickly when customers are faced with a short delivery schedule. A large multi-disciplinary team enables the company to provide hands-on training for its customers, often in cooperation with educational partners in small satellite engineering. Through ISILAUNCH, its launch services subsidiary, it launches all sizes of small satellites.

Reaktor Space Lab

Name of payload: W-Cube

Form factor: 3U

POC: Andra Gentea
a.gentea@isispace.nl

The W-Cube mission is an ESA ARTES mission to study the propagation of extremely high frequency W-band radiowaves through the ionosphere and upper atmosphere. The satellite carries two radio beacons and conducts measurements over the mission prime, Joanneum Research's groundstation in Graz. The payload development has been led by VTT Technical Research Center of Finland. The mission will demonstrate the feasibility of using new higher frequency bands for future telecom satellites which will offer more bandwidth and data rates to the user.

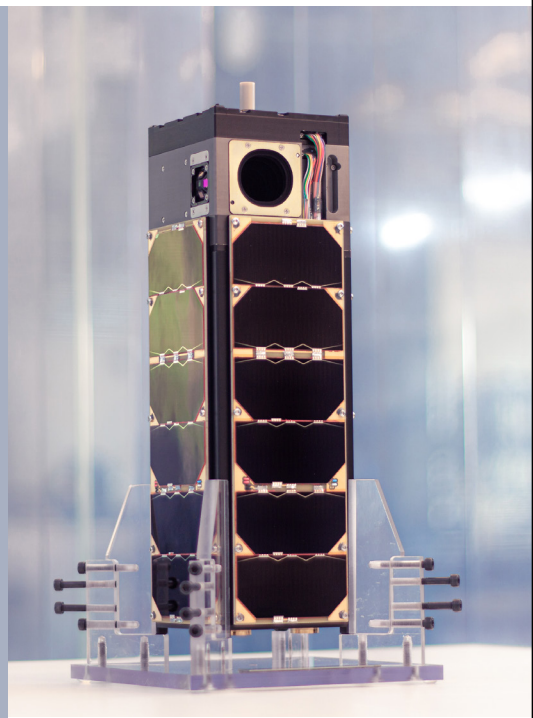
COMPANY PROFILE Website: www.reaktorspace.com

Reaktor Space Lab is a Finnish satellite mission provider dedicated to deliver reliable satellite services to the earth observation and telecom industries. Joanneum Research is one of Europe's leading research organizations and a provider of innovation and technology. VTT has led the way in the millimetre-wave satellite hardware development and in terrestrial 5G telecommunications radios.

"RSL is excited to have this groundbreaking mission ready for flight, and looking forward to continue the well-established co-operation with ISISPACE in the future. With the mutual efforts of all players involved in the field, CubeSats can reach their full potential!"

Jarkko Antila
CEO of Reaktor Space Lab

W-Cube in flight ready condition



Name of payload: Ghalib

Form factor: 2U

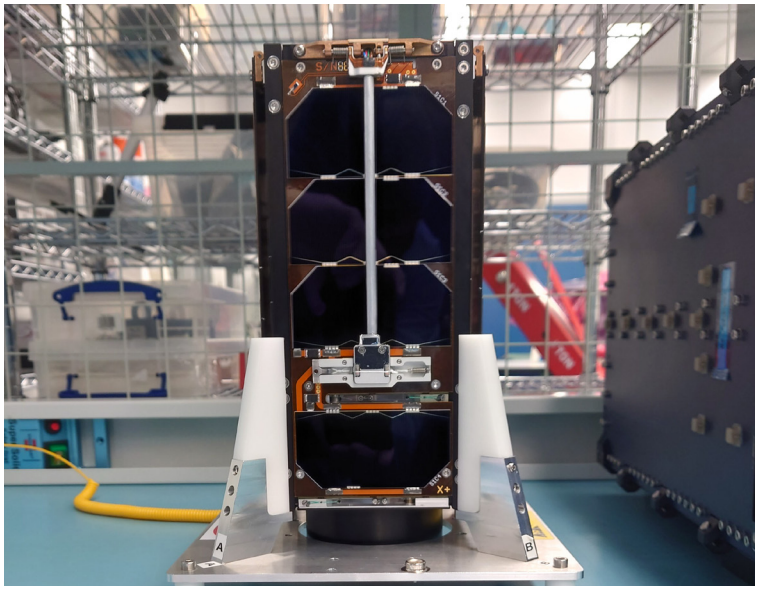
POC: Andra Gentea
a.gentea@isispace.nl

GHALIB is a demonstrator turn-key mission for space-based tracking of falcon migration. From feasibility study to designing and building a nanosatellite that is capable of tracking migrating falcons, ISISPACE built the 2U platform and integrated the payload. The payload consists of a radio receiver, manufactured by our customer, and a camera to take pictures of the Earth on demand. While this mission entails a single satellite for demonstration purposes, the ultimate goal is to launch a constellation of multiple nanosatellites for continuous tracking. The satellite system is capable of global tracking of large birds and wildlife with small transmitters.

COMPANY PROFILE Website: www.marshallradio.com

Marshall Intech, under the name of Marshall Radio Telemetry, designs and supplies premium GPS long-range tracking and recovery equipment to customer around the world for tracking of birds and other animals, amateur rocketry, balloons and other purposes. Marshall provides reliable tracking transmitters for falconry, to track such birds of prey over long distances and monitor their migration behaviour. By adding satellite tracking of such transmitters, Marshall can offer its customers more precise and continuous monitoring.

Ghalib satellite readied for deployer integration



Name of payload: NAPA-2

Form factor: 6U

POC: Andra Gentea
a.gentea@isispace.nl

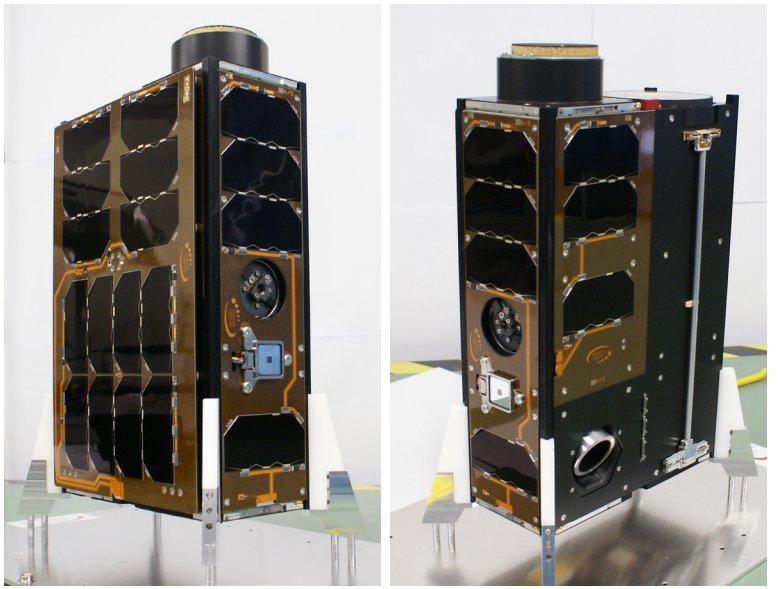
NAPA-2 is the second Earth Observation CubeSat of the Royal Thai Air Force. ISISPACE has designed, built, and tested the satellite platform and ground segment, and will deliver the satellite once “in orbit” to the RTAF after commissioning.

The satellite will be part of the Thai government space capabilities program to enhance the monitoring and response to natural disasters, including fires, floods, earthquakes, and landslides.

PROFILE Website: www.rtaf.mi.th

The Royal Thai Air Force, or RTAF, the air force of the Kingdom of Thailand, one of the earliest air forces of Asia established in 1913, is responsible not only for the air defence of the Kingdom, but also for the aerial monitoring of the country, supporting and coordinating rapid response actions in case of natural disasters together with the Ministries of Interior and Agriculture. Adding to the aerial monitoring capabilities with manned and unmanned aircraft, the RTAF has created a space operations centre, with satellite-based monitoring of the country as its primary goal. The first satellites missions, of which the Napa-2 mission is part, are to train and build up the capability of the space operations team.

Napa-2 in flight ready condition



Name of payload: LaserCube

Hosted payload - Form factor: 2U

POC: Federica Fistarollo
federica.fistarollo@stellarproject.space

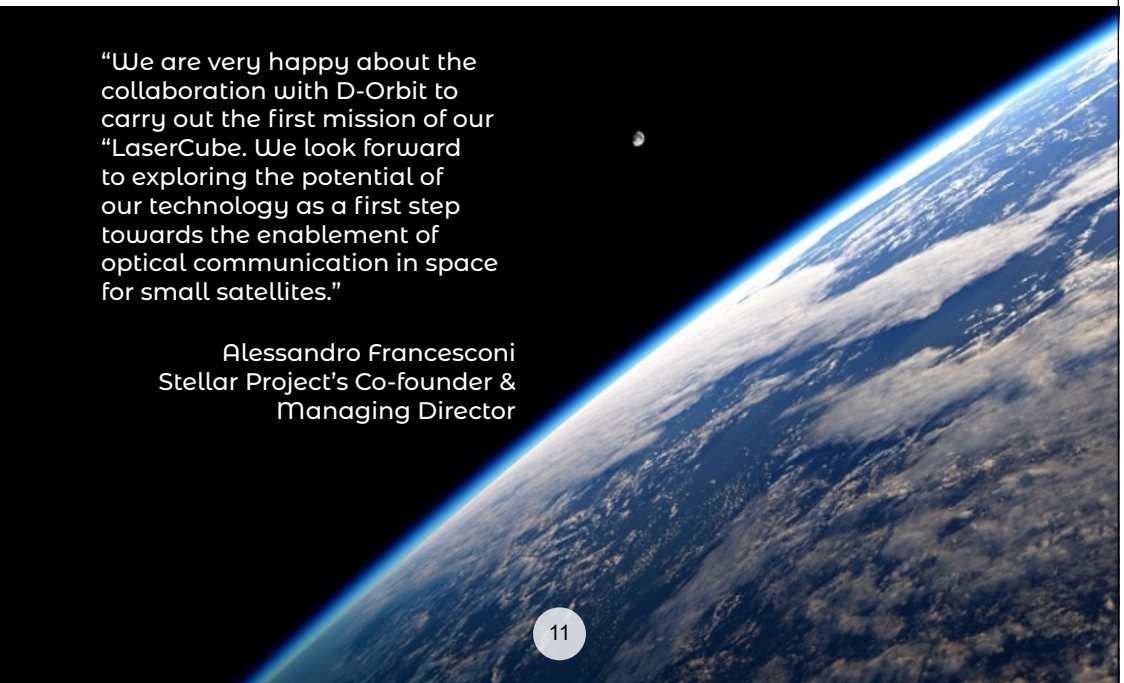
LaserCube is a patented miniature low power high performance laser communication terminal specifically designed for small satellites including CubeSats. With its independent pointing capability which allows throughput performance more than 10 times higher than traditional radio devices, it will enable innovative business opportunities in fields like Earth imagery, weather forecasting, global telecommunications, and internet services.

LaserCube as the optical telecommunication highway for small satellites, will deliver an unprecedented increase in data volume, communication security and speed: another step towards accessible and affordable space technology for all.

COMPANY PROFILE Website: www.stellarproject.space

Stellar Project is a space technology startup created in 2016 as a spin-off of the University of Padova, Italy, offering game-changing solutions for light satellites with a high degree of care towards space environmental sustainability. Stellar Project aims to fill the gap in performances and capabilities between small satellites and large spacecraft providing original and proprietary technology.

The company vision embraces the global space democratization, bringing together the best talent and creativity to develop bright ideas to fit into smart satellites products and services.



"We are very happy about the collaboration with D-Orbit to carry out the first mission of our "LaserCube. We look forward to exploring the potential of our technology as a first step towards the enablement of optical communication in space for small satellites."

Alessandro Francesconi
Stellar Project's Co-founder &
Managing Director

Name of payload: Nebula

Hosted payload - Form factor: 1U

POC: Caterina Cazzola
caterina.cazzola@dorbit.space

Nebula is a payload at the core of D-Orbit's upcoming advanced services. The first iteration of Nebula, an on-demand, on-orbit cloud computing and data storage service being developed by D-Orbit UK, features Unibap's SpaceCloud iX5-100 radiation tolerant computing module. A range of innovative applications will be demonstrated using sophisticated, artificial intelligence/machine learning (AI/ML) techniques; some of these experiments will feature video compressing techniques from industry specialist V-Nova. Another Machine Learning (ML) payload called, "Worldfloods", is a precursor to a future where rapid insight is delivered almost instantaneously from space. Worldfloods has the ability to identify flooding and send down a flood map to emergency responders seconds after image acquisition.

COMPANY PROFILE - D-ORBIT Website: www.dorbit.space

D-Orbit is a market leader in the space logistics and transportation services industry with a track record of space-proven technologies and successful missions. The company is a space infrastructure pioneer with offices in Italy, Portugal, UK, and the US; its commitment to pursuing business models that are profitable, friendly for the environment, and socially beneficial, led to D-Orbit becoming the first certified B-Corp space company in the world.

COMPANY PROFILE - UNIBAP Website: www.unibap.com/en

Unibap is a high-tech company that aims to automate and streamline industries on earth as well as in space. With smart solutions based on AI and robotics, we want to increase quality and productivity for our customers while eliminating dangerous tasks that today are performed manually. Unibap strives to have a positive impact on both society and the environment. The company's Quality Management System is certified according to SS-EN ISO 9001:2015. The company is listed at Nasdaq First North Growth Market.

COMPANY PROFILE - V-NOVA Website: www.v-nova.com

V-Nova, a London based IP and software company, is dedicated to improving data compression by building a vast portfolio of innovative technologies based on the game-changing use of AI and parallel processing for data, video, imaging, point cloud compression, with applications across several verticals. This is achieved through deep-science R&D (300+ international patents) and the development of products that test, prove and continuously enhance the technology portfolio.

COMPANY PROFILE - TRILLIUM / FDL Website: www.trillium.tech

Trillium Technologies aims to accelerate the adoption of intelligent technologies in planetary stewardship, space exploration and human health. The company's Frontier Development Lab (FDL) is an applied AI research lab for space exploration and all humankind. is a public / private researcher partnership between NASA, ESA and leaders in commercial AI and private space. FDL was developed and is co-ordinated by Trillium with NASA in the US and ESA in Europe.

HPS

Name of payload: Adeo-N2

Hosted payload - Form factor: 1U

POC: Daniel Stelzl
stelzl@hps-gmbh.com

ADEO, the world's only industrial NewSpace de-orbit drag sail of its kind for the multiple accelerated return of retired satellites, is available from HPS in different versions tailored to the size and weight of the spacecraft in question. In the case of the WILD RIDE Mission, it is one of the smallest versions (ADEO-N), weighing less than one kilogram, with dimensions of only 10x10x10 centimetres (1U) and a sail area of 3.6 square meters. This ADEO's mission is called "Show me your Wings" because, at the end of the nominal ION-mission, in front of the "eyes" of the integrated cameras, the ADEO braking sail module unfolds, shows its "wings" and leads ION to residue-free disposal by incineration in the atmosphere much quicker than without the sail. The first 100km of descent will be monitored intensively and correlated with the mathematical models for a better de-orbit prediction for future customers.

COMPANY PROFILE

Website: www.hps-gmbh.com

HPS GmbH, Munich, Germany, was founded in 2000 and has evolved into an independent group of three sites with 70 employees. In May 2016 HPS-S.R.L. was founded in Bucharest, Romania, which also contributes to the production of ADEO-modules. In 2020 HPtex was founded in Northern Bavaria for the production of RF-reflective mesh for small and large deployable satellite antennas. HPS Group is developing high end space technology and delivering flight hardware on equipment up to subsystem-level across its business areas of Solid Reflector Antennas with focus on high frequencies like Ka-/Q/V-band (up to 2.5 m), Large Deployable Reflector Subsystems (up to 20 m), Deployable Sail Subsystems for De-orbiting (up to 100 m2), Nanosatellite-Equipment (RF, mechanical, thermal), Thermal Hardware (MLI, Radiators, on-site OSR Bonding Services, Thermal Washers, etc.), Composite & Metal Structures, Radiation Protection and Mechanical Ground Support Equipment (MGSE). HPS Group is currently onboard of more than 20 space-missions, such as EUCLID, Copernicus-CIMR, Heinrich Hertz, SENTINEL 4 and ExoMars 2016.

Artist impression of a deployed 25m2 ADEO-L on a medium sized satellite

Artistic representation on ION Satellite Carrier in orbit. Background picture taken with D-Orbit's multi-sensor module D-Sense.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