

ATLAS Project Takes Off: HiLASE Centre's Leap into Space Laser Innovation

With the launch of the ATLAS project, the HiLASE Centre is pioneering advanced laser technologies to protect Earth and its orbit, enhance climate monitoring, and drive the future of a circular space economy. This groundbreaking initiative positions Czechia as a leader in space-borne laser research.

The HiLASE Centre has officially launched the ATLAS project, an ambitious initiative set to advance space laser technologies and position Czechia as a leader in space-borne laser applications. Supported by the European Research Executive Agency (REA), the project will focus on developing innovative solutions to protect Earth and its orbit, enhance climate monitoring, and contribute to a circular space economy.

To achieve these goals, ATLAS will establish a dedicated research group within the HiLASE Centre, working under the leadership of ERA Chair Massimiliano Vasile. This newly formed team will focus on cutting-edge applications of space-borne laser technology, strengthening the scientific excellence of the HiLASE Centre—part of the Institute of Physics of the Czech Academy of Sciences—and increasing its national and international visibility.

The project's official **kick-off meeting took place on 13 February 2025** at the HiLASE Centre, bringing together leading experts and stakeholders to discuss the project's scientific vision and implementation strategy. The event provided an opportunity for in-depth discussions on key research areas, strategic partnerships, and the broader impact of ATLAS on the future of space technology.

“At the Kick-Off Meeting, we had the opportunity to meet with all key partners, and we firmly believe that this collaboration will strengthen HiLASE's research capabilities and enhance the Czech Republic's position in space research,” shares Radek Pobořil, Space Systems Engineer at the HiLASE Centre, reflecting on the project launch. *“This also marks the beginning of an exciting new chapter for HiLASE, as we look forward to working with Massimiliano Vasile, the ERA Chair of the project, whose expertise will be invaluable in pushing the boundaries of laser applications in space.”*

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Pioneering Laser Technologies for a Sustainable Future in Space

ATLAS is designed to support the long-term sustainability of space activities through laser-based solutions in three key areas:

- **Sustainability from Space** – Using laser technologies for Earth Observation, climate monitoring, and green energy applications.
- **Sustainability in Space** – Enhancing space traffic management and debris removal to ensure safe and responsible use of orbital environments.
- **Sustainability of the Space Sector** – Advancing a circular space economy by promoting in situ resource utilization, space-based manufacturing, and recycling, reducing dependency on Earth-based supplies.

By addressing these challenges, ATLAS aligns with the EU's commitment to space sustainability and supports key objectives in environmental monitoring, space infrastructure protection, and future space exploration.

A Milestone in HiLASE's Space Research Strategy

The ATLAS project marks the HiLASE Centre's **first major space research programme**, following years of strategic expansion into space and defence laser technologies. In 2023, the Centre outlined a long-term vision to develop advanced laser solutions for space applications, establishing strong partnerships in the field.

Among its recent achievements, the HiLASE Centre was a key partner in the **LASAR project**, which successfully launched its first cubesat into orbit in December 2024. Additionally, a collaboration with **Crytur** led to the development of a high-power SWIR laser for space communication at 2.1 micrometres.

The successful securing of ATLAS funding through the **HORIZON-WIDERA-2023-TALENTS-01** call of the European Research Executive Agency is a testament to the Centre's growing influence in space research.

"At HiLASE, we have always dared to push the boundaries of laser technology, and now we are taking a bold step beyond Mother Earth," comments HiLASE Centre Head Tomáš Mocek. *"With ATLAS, we are venturing into space, harnessing the power of Czech lasers to make space exploration, settlement, and sustainability a reality. The future belongs to those who dream big and have the courage to turn those dreams into action - and that is exactly what we, HiLASIANS, are doing. Onward to Space!"*

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For more details on the ATLAS project and its upcoming milestones, visit the project website or contact marie.thunova@hilase.cz.

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