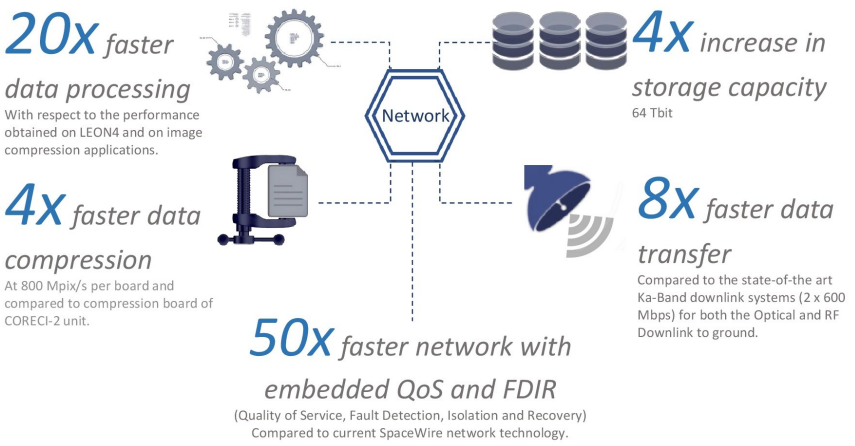
This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 776151.

Hi-SIDE

Demonstration

Demonstration of the full data chain will take place at STAR-Dundee in June 2022. The functional system shall primarily demonstrate:

- The capability for high-speed data processing and data storage in the range performance figures,
- That such a system can provide this performance without penalties in power, mass, and volume,
- That the thermal design can cope with these high-performance demands.



The high-speed data chain comprises of several essential elements:

- Instruments or payloads that provide the data,
- Payload processors which process the data from an instrument in a manner specific to that instrument,
- A data storage unit for storing the data until it can be transmitted to ground,
- A data compression processor for reducing the volume of the data, saving space in the data storage unit and reducing the downlink data-rate requirements,
- An RF or optical downlink,
- An instrument control unit used for managing the operation of the instruments and payload data-handling equipment,
- An on-board network for connecting these elements together.

The Hi-SIDE project is a collaboration between the following companies, universities and research institutes. Find out more about the partners involved in the project at www.hi-side.space/project-partners.

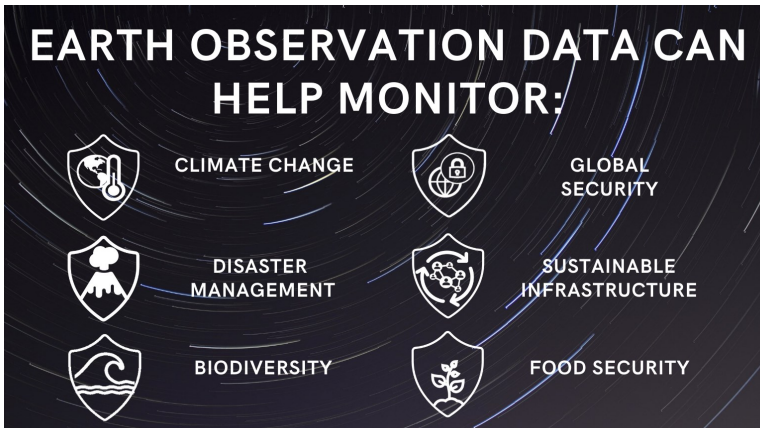
- **AIRBUS DEFENCE AND SPACE**
- **TESAT SPACECOM**
- **DLR**
- **STAR DUNDEE**
- **STAR-BARCELONA**
- **INTEGRATED SYSTEMS DEVELOPMENT**
- **KONGSBERG SPACETEC**
- **ERZIA TECHNOLOGIES**
- **UNIVERSITAT AUTONOMA BARCELONA**
- **NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS**
- **MODUS RESEARCH AND INNOVATION**

@HiSIDE_EU

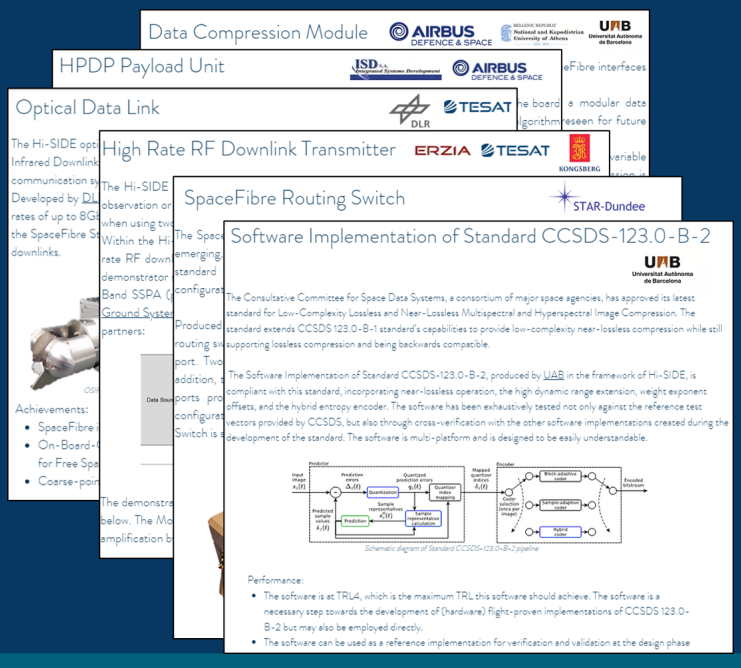
Hi-SIDE

Future of Earth Observation

Earth Observation satellites have been employed to examine the earth for a variety of scientific purposes including tracking real-time land and carbon changes due to climate change, human impact, food production, agriculture and environmental disasters even across remote and inaccessible areas. This data holds the potential to influence environmental decision-making.



The overarching aim of Hi-SIDE is to increase the amount of information that can be collected, processed, stored, and delivered to ground by satellites through enabling high-speed data chain technology. This data is of immense social and economic value, being used in applications that include climate, environmental and disaster monitoring, and weather forecasting.



NEW Website Pages

Are you interested in learning more about the individual HSDC elements?

The latest information can be found on the Hi-SIDE website:

www.hi-side.space/hi-sideproducts

Industry Standards

A single set of standards for all European space activities is required to ensure compatibility of all space projects and guarantees parts from different companies are fully interoperable. Hi-SIDE is in a unique position to align outputs with existing and emerging standards, and make an impact on future standards based on the project's outputs. The results of the project will be used to support:

- The definition of standards for SpaceFibre data transport, time-distribution, synchronization, application event signalling, error reporting, and network control. STAR-Dundee is working with the VITA 78 SpaceVPX standards group to integrate SpaceFibre into SpaceVPX systems, and the Space Power Consortium on the design and standardisation of power systems for space applications
- The definition of CCSDS standards for a novel file protection scheme based on packet-level coding and for advanced PHY layer coding for the high-speed RF link and the standard CCSDS 123.0-B-2 on near-lossless data compression for multi/hyperspectral images. UAB is contributing to the development of Green Book 120.2-G-2, the Green Book for this novel standard, which extends CCSDS-123.0-B-1 (intended only for lossless compression).
- Compliance with the upcoming CCSDS-standard, currently developed in the CCSDS -SLS-OPT-LC (Low Complexity) group. DLR is participating in the CCSDS Standardization meetings for the preparation of the upcoming O3K CCSDS Standard for Free Space Optical Communications.

Keep up to date with our upcoming events, accomplishments and results by signing up to our mailing list and following our Twitter and LinkedIn pages

Hi-SIDE @HiSIDE_EU hi-side.space/