

Space Strategic Research Project
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MAGAL Constellation brings Oceans Radar Altimetry to New Space

MAGAL project is an end-to-end solution that redefines Radar Altimetry for global oceans monitoring using a new approach based on a constellation of six small satellites and an innovative radar altimeter, that will improve the understanding of ocean circulation variability on local, regional, and global scales by improving the spatiotemporal resolution of sea surface topography measurements, all aligned with the European "New Space" agenda and UN Sustainable Development Goals. MAGAL project is the first proof of concept of such an approach. Conclusion is YES, MAGAL can be the cornerstone for ocean monitoring, bringing it to a more cost-effective Earth Observation due to its reduced production, launch and operational costs, making more frequent and spread ocean data available.

MAGAL Status & Results

MAGAL project ends at CDR level for its critical payloads and developments. All its other payloads are between PDR and CDR. All COTS to manufacturer MAGAL are identified and selected, except deployable antenna, which is to be a new development.

MAGAL key improvement is its time resolution of 5 days repetition cycle, with all the other parameters identical. Also, being in "New Space" domain, all costs are much lower.

Key developments were a fully functional and operational Radar Altimeter prototype and the Data Analysis Center (DAC), using Copernicus data.

Also, simulators of radar altimeter and MAGAL orbit mechanics were developed to support future integration of the algorithms in the DAC.

Data Analysis Center

MAGAL developed a DAC for data storage and processing. DAC combines and aggregates MAGAL data with other data sources to provide the end-user with a complete set of services and products. DAC frontend layer also allows the display of the data in various graphical interfaces.

This asset can be explored independently.

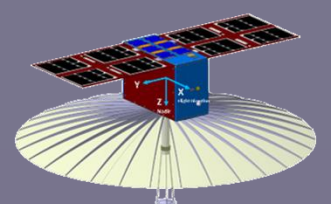
Radar Altimeter Prototype



DAC Architecture & Demonstrator



Satellite Design & Integration



Radar Altimeter Prototype

Developed, manufactured and tested a compact Radar Altimeter prototype, using FMCW technology at 13GHz. Includes a new functionality, range profile, that shall allow a more efficient coastal detection and operation. Key budgets: 1.5 U; < 18 W; < 3 kg – compatible with New Space satellites.

This asset can be explored independently.

Promoters & Partners:



MAGAL Website



Funded By:

