Contribution of NewSpace to Disaster Risk Management: space infrastructure and use cases

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NewSpace strategy of Catalonia



Generation, attraction and retention

The NewSpace strategy of Catalonia was approved on October 2020









NewSpace Strategy <mark>of Catalonia</mark>

Mission as a Service

- What is Mission as a Service? EO mission cases
 - IEEC designs and contracts a mission through a service provision framework
 - IEEC and the Government of Catalonia has exclusive satellite (or satellites) EO data over Catalonia
 - The Contractor retains the ability to commercialize the remaining satellite capacity
- Why this approach?
 - Cost efficiency: shared investment reduces the overall mission cost
 - Focused data: tailored EO data to our specific needs
 - Industry boost: enabling commercialization of data and risk sharing
- Additional advantages:
 - IEEC and the Government of Catalonia is involved in all aspects of the project, from definition to operations
 - Defining the platform allows IEEC to enable and In-Orbit Demonstration and Validation program for hosted payloads



Infrastructures: Space assets

New assets to increase the competitiveness of the sector in Catalonia

Space missions:

- [IEEC] GENIOT-01/Enxaneta IoT/5G (22 March 2021 deorbited July 2024)
- [IEEC] GENEO-01/Menut EO & IOD (3 January 2023)
- [I2CAT] GENIOT-02/Minairó IoT/5G (15 April 2023)
- [IEEC] GENEO-02 EO & IOD (launch Q4-2025)

IOD opportunities

- GENEO-1/Menut Payload for on-board AI processing
- GENEO-02 Payload for In-orbit LISA Diagnostics Demonstrator (ILIADA)







Infrastructures: Ground-based assets

Space Data Platform

• [ICGC] Data access for the development of applications and services

Teleport Sant Esteve de la Sarga, at the Montsec Observatory

• [IEEC] Ground Stations: S band, UHF/VHF band, X/S band







Adoption of NewSpace Services

Use cases to promote innovation from the public sector (total budget > 800 k€, 2022-24)

- Innovative public procurement (3 contracts, 200 k €/contract)
- Challenges (3 prizes, 15 k€/prize)
- Open innovation services (2 prizes, 50 k€/prize)
- DCA NewSpace Challenge (2 prizes, 50 k€/prize)

<u>Open innovation service procurement</u> to promote new space applications for the private sector

opean funds in Catalonia

raencat

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First edition of the RIS3CAT 2030 Public Innovation Procurement Program

• Generalitat de Catalunya buys innovative technological solutions to address 20 challenges with co-financing m the 2021-2027 FEDER operational program of Catalonia. These solutions, which are implemented in a test ase, must improve processes or services and, as far as possible, must have an impact on society (people, manies and the territory).

Although the technological solutions may not be available on the market, they must be sufficiently developed to be implemented in the prototype. test or first commercial deployment phase. In the years 2023 and 2024. During the implementation phase of the projects the solutions are co-developed and adapted to the needs detected by the Administration.

The amount of the tender is 200.000 euros (VAT included) per challenge and solution. This amount is fixed, given that the functionality of the technological solutions is prioritized in the evaluation of the proposals.

As part of the preliminary market consultation, companies have submitted proposals.

The information collected in the preliminary market consultation process is key to adjusting the procurement documents to the solutions that the market can offer. It should be borne in mind, however, that the fact of participating does not generate any obligation or commitment to participate in the tenders, nor any advantage or impediment. Tender procedures will be open to all companies.

#ChallengeDCA

Concurs de projectes de casos d'ús amb comunicacions satel·litàries per al sector privat Status of projects and tenders

(PDF document) Date of update: 30 April 2024 Innovative public procurement to promote new space applications: rail transport & GNSS, agriculture & IoT/5G, livestock & IoT/5G

Menut for Disaster Risk Management

Menut is able to offer quick tasking adjustment to target specific areas after an emergency occurs

Coastline monitoring: evaluation of damaged area after a cold drop that caused floods in Delta de l'Ebre - 5th September 2023

Wildfire damage evaluation: delimitation of total burnt area in the Cabacés (Priorat) area -16th September 2024

Menut for Disaster Risk Management

NewSpace Strategy of Catalonia

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Monitoring Remote Water Reservoirs for Rapid Response to Mountain Fires

The Challenge

Monitoring the water level of reservoirs for emergency use in fire situations is a manual task that involves frequent trips to remote areas or the risk of being unaware of the water level.

The Solution

With satellite monitoring, this information can be obtained remotely, ensuring that firefighters always have updated information on the available resources (water quantity) before acting.

- Execution: 2023 2024
- Location: Maçanet de Cabrenys, Tremp, la Bisbal d'Empordà
- Collaborating Entities: Firefighters of the Generalitat and GRAE
- Satellite Technologies: Enxaneta and SWARM

Key Technologies & Areas of Expertise

IoT

Satellite Connectivit

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Monitoring Remote Water Reservoirs for Rapid Response to Mountain Fires

Firefighters need to monitor their remote water reservoirs

Water depth monitored from IoT devices

Deployment of three stations

Decrease of water depth due to usage (yellow line)

Big wildfire emerged in Catalonia

Key Technologies & Areas of Expertise

Real-Time Data Collection for the Prevention of Forest Fires

The Challenge

The lack of real-time data on environmental conditions in remote forest areas increases the risk of fires, making rapid response in these situations more difficult.

The Solution

With satellite connectivity and data collection through sensors, **information on humidity and other environmental variables can be obtained**, allowing to take preventive action.

- Execution: 2024-2025
- Location: Móra d'Ebre
- Collaborating Entities:
 AUBE
- Satellite Technologies: SWARM and Minairó

Key Technologies & Areas of Expertise

Entorn Natural - Salut - Societat

Thank you!

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