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PROJECTE DE DOCTORAT INDUSTRIAL EXPEDIENT 2015 DI 039

DADES DE L'EMPRESA I DE L'ENTORN ACADÈMIC

Títol del projecte

DOME: Development of operational missions for Earth Observation based on 6U satellite technologies

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BREU DESCRIPCIÓ DEL PROJECTE DE RECERCA

The beginning of the 21st century has set the geoinformation society on the challenge to focus and balance their activity on the technology-information knowledge triangle. Therefore, and based on the results of a series of studies carried out during the last 6 years, ICGC has decided to become involved, in depth, in a program for the deployment and exploitation of an Earth Observation (EO) mission based on a small satellite platform of 6units. The conclusions and recommendations of previous studies relevant for this document can be summarized as follows:

- The recommended approach for the involvement of Catalonia in space EO activities is based on the use of small satellites, not only in the strict sense of a low-mass spacecraft but also in the use of the "smallsat philosophy", allowing cost-efficient and short development time missions.
 - In addition, a long term EO space program with several focused missions is considered clearly preferable to a one-shot high-profile mission.
 - EO space program has been defined as a small satellite mission with a multispectral optical EO sensor, with additional secondary payloads to reinforce the E.O mission in terms of climate change and environmental impact assesment
 - Finally, the data processing and distribution segment of MOTS_6U is critical for providing the EO products that constitute the main goal of the mission, and therefore have to be properly designed, organised and funded



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The EO program for this industrial Ph.D has been defined with a clear primary and some secondary objectives with the will to boost EO using 6U satellite technologies:

Primary objective

To identify, monitor and map, on a repetitive and stable basis, the vulnerability and changes of our Mediterranean territory.

Secondary objectives

- Boost to the EO activities in Catalonia
- Develop EO based information services for the society
- Team up with other agencies doing similar projects
- Support other countries with similar environmental conditions and problems

This industrial Ph.D. will be driven by the following main technical requirements:

- It should carry a multispectral EO payload with:
 - o GSD between 5 and 10 m
 - o Swath → 50km
 - o 5 or more spectral bands in VNIR
- Secondary payload is mandatory to reinforce the main one on environmental and climate impact assessment
- LEO circular heliosynchronous orbit at a height around 450 - 550 km
- The provider cost for the MOTS_6U system, including flight model, ground station(s), launch, launch insurance and formation of the EO program local team should be around 1.1 M€

