

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
In Orbit - Postgraduate Space Education (4)

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11 YEARS OF HANDS-ON EXPERIENCE ON SPACE EDUCATION AT VIGO UNIVERSITY
THROUGH 4 CUBESATS PROJECTS FOLLOWING SYSTEMS ENGINEERING ESA-ECSS
STANDARDS

Abstract

The University of Vigo has been developing aerospace technology for 11 years through educational programs that involve undergraduate, master and doctoral students. The main innovation was to let students participate in the development of real satellites using processes based on ESA-ECSS. This has allowed them to achieve a degree of experience that has allowed them to join positions of responsibility in international organizations or create their own aerospace technology companies.

The first project was XaTcobeo that put into orbit the first Spanish CubeSat and the first Galician satellite. The XaTcobeo was coordinated by UVIGO and monitored by INTA. Most of the regular members of the staff were students from the University of Vigo, leading PhD students all the work-packages supervised by professors from the University of Vigo and staff from INTA. 60 students and 32 teachers participated in this project. The launch was on February 13, 2012 in the maiden flight of the ESA Vega launcher.

The second satellite launched was Humsat-Demo, an initiative of the University of Vigo, CalPoly, UNAM and CRECTEALC. This was the first satellite of HUMSAT constellation, that was an international educational initiative for building a constellation of nanosatellites providing worldwide communication capabilities to areas without infrastructure.

These two projects allow University of Vigo to participate the first satellite of the SERPENS program, an initiative financed by the Brazilian Space Agency and coordinated by the University of Brasilia. Serpens was also a satellite of the Humsat constellation that allowed them to improve the system.

The fourth satellite built by the University of Vigo, Lume 1, has been launched at the end of 2018 from the Russian Vostochni cosmodrome. Lume 1 and the Fire RS project as a whole is closer to an application in a real environment and addressed to a problem as worrisome as fires.

The impact reached has been high, because not only has it allowed its postgraduate students from the University of Vigo to develop their careers, but also from the other universities with which we have collaborated. In addition, the knowledge acquired has also been used in the teaching of undergraduate and master's subjects.