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THE DSPACE NANOSATELLITE PROJECT: DEFINITION AND IMPACT IN THE PROMOTION OF
THE AEROSPACE FIELD IN COSTA RICA

Abstract

The Central American Association for Aeronautics and Space (ACAE, in Spanish) is a non-profit organization, which leads the efforts to introduce the Central American region in the world's technological paradigm of aerospace development. Its vision is to inspire the Central American talent to participate in the development of the aerospace industry. ACAE is working with the private sector, the government and academia of Costa Rica through initiatives as the development of the aerospace related law framework, the promotion of research, the generation of innovative projects and the promotion and diffusion of knowledge in the aerospace field. Several initiatives in all these fields are led by ACAE since its creation in 2010. ACAE concluded that one of the most efficient ways to promote space development in Costa Rica is to show the potential to develop a space engineering project in the country via the development of the first satellite of Central America: Daedalus Space (DSpace), a nanosatellite based in the Cubesat standards. In 2012, the DSpace project was defined with the participation of actors interested in the development of space engineering in industry, academia and government. It was concluded that in order to efficiently demonstrate to the Costa Rican society the benefits of space engineering development, DSpace should accomplish a mission of scientific value in orbit. Costa Rica defined via its Development National Plan of 2006-2010, the objective of becoming the first carbon-neutral country of the planet in 2021. In this context, it is an utmost interest of the government to promote all initiatives that will support the accomplishment of this objective. In this way, it was defined that the DSpace satellite will be designed to become the space segment of a platform for gathering environmental data in remote locations in Costa Rica. The data that DSpace will transmit will be the values of carbon in the atmosphere measured in remote points of interest for scientist and political decision-makers. The aim is that DSpace will be a platform that could be possible to implement in other countries with the same necessity, especially in developing countries. This paper will explain how the actors in industry, academia and government have played a fundamental role in the definition of the DSpace project, what will be the function of everyone of them in the design and construction of this nanosatellite, and what is the expected direct and indirect impact of the success of the mission.