

25th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
19th Workshop on Small Satellite Programmes at the Service of Developing Countries (1)

Author: Mr. Alejandro Lopez Telgie
Universidad de Concepción, Chile, alelopez@udec.cl

Ms. Isidora Casas del Valle Pacheco
International Space University, Chile, isicasasdelvalle@gmail.com

NANO-SATELLITES ROLE IN CHILE'S SPACE CAPACITY BUILDING ROADMAP

Abstract

Discussions regarding a Space Agency creation as well as its location within the government have been sustained over the years. Actually, a Presidential Advisory Committee (Council of Ministers for Space Development) and its Executive Secretariat are the coordinating bodies for space activities in Chile. The objective of the Council is:

“To advise the President for the elaboration of public policies, plans, programs and specific actions designed to contribute to the diffusion, development of space activity and the use of space technologies and applications.” (MINISTERIO DE TRANSPORTES Y TELECOMUNICACIONES, 2015)

In parallel, development of technologies and specifically CubeSats have enabled them to become platforms for education, technology development, and science. Their evolution and increased capabilities, since the first launch, have made possible to host more demanding payloads onboard, making them a key tool for capacity building in space developing countries like Chile.

To date, each satellite project has followed its particular path and no clear National Space Program exists. The article addresses Chile's past: Fasat-Alfa (Deployment failure 1995); Fasat-Bravo (Inactive 1998-2001); and active missions: Fasat-Charlie (2011 to date); Suchai (2017 to date).

Special emphasis is placed on collecting available information regarding the next step in those two active missions. This is the replacement earth observation capabilities by a new spacecraft due to end of life of Fasat-Charlie, and the two triple-unit CubeSats Suchai-2 and 3 which already have secured funding. A proposal for a stepwise capacity building, taking into account the context, constraints, and limitations of Chilean Space activities is presented. It then discusses how some of the applications for space technology envisioned for Chile: Earth Observation; Satellite Communications, Maritime Air Traffic Monitoring could be pushed forward through the use of nano-satellites as one step towards operational systems and where actors from Academia, Government and Industry could cooperate.

Nano-satellites developed in parallel lines by different organizations are proposed to validate key components for next level as well as perform research and validations on this organizations' interest lines. Feasibility of certain milestones will follow from designing to cost, use of Commercial-Off-the-Shelf component and relevant design practices from the small satellite philosophies. It is envisioned funding will come from existing government grants, and in the future, from a Civil Space Agency or Science Ministry. An effort to include industry in the development of the programmes is encouraged in order to inject more resources, encourage spin-offs, and support technology adoption by local firms.