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NANO-SATELLITE AS A CAPACITY BUILDING TOOL FOR CHILE'S SPACE CAPABILITIES

Abstract

An ad honorem Scientific Technical Committee with 9 members, was created in 2015, to provide advice to the Executive Secretariat of the Chilean Council of Ministers for Space Development and release technical reports about subject where their expert opinion is required was (http://espacial.subtel.cl/). One of the lines being explored by members of this committee is the use of Nano-satellites based on the CubeSat standard as tools for capacity building. The article discusses two nano-satellite platforms/programs related to capacity building:

- The Delfi program: "a development line of nano-satellites at the Delft University of Technology, to provide hands-on education and training of students as well as technology demonstration for... space industry and research and development on the nano-satellite spacecraft bus." [Guo 2014] started on 2004 and with successful launches of Delfi-C3 on April 2008 and Delfi-Next on November 2013 and currently designing DelFFi mission (www.delfispace.nl).
- Satellite of the University of Chile for Aerospace Investigation (SUCHAI): first Chilean CubeSat developed by undergraduate students, engineers and professors of Electrical Engineering, Physics and Mechanical Engineering Departments of the Faculty of Physical and Mathematical Sciences (FCFM) at Universidad de Chile witch's "main goal is to learn the whole process of designing, building/integrating, launching and operating a picosatellite." (http://spel.ing.uchile.cl/suchai.html)

After describing both a review of those two programs is performed with respect to the proposed approach by ISU in the Guidebook on Small Satellite Progammes written by the Team Project (GoSSP) of the International Space University Space Studies Programme 2011 session, held at TÜ Graz (Austria), in cooperation with UN/OOSA. "The Guidebook includes information that assists decision makers to justify, establish, develop, and sustain a small satellite program." [GoSSP 2011] A proposal for a step wise capacity building, taking into account the context, constrains, and limitations of Chilean Space activities is presented. In this, nano-satellites developed in parallel lines by different organizations (mainly Universities) are proposed to validate key components for next level as well as perform research on this organizations' interest lines. It is envisioned starting funding will come from existing government funding, and in the future some should come from the Civil Space Agency project currently under discussion by the Ministerial Council. Effort to include industry in the development of the programmes are encourage in order to inject more resources, encourage spin-offs, and support technology adoption by local firms.