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OVERVIEW OF PAST, PRESENT AND FUTURE BRAZILIAN SMALL SATELLITES MISSIONS

Abstract

Since 2003 Brazil has produced six small satellites: "UNOSAT 1" that was destroyed in the rocket explosion of the VLS-1; "Tancredo 1", with educational purposes, their main objective was sending a beacon to Earth; "NCBR 1" with the goal to conduct research on climate and phenomena that impact the Earth, such as the South Atlantic Anomaly (SAA).; "AESP 14" encountered communication failures due to the fact that the antennas were not opened; "SERPENS 1" was working in space with data collection and communication with the ground station; and the latest one, "ITASAT" with several missions, including being an experiment for amateur radio communications.

But for the next two years, Brazil has six other cubesats launches planned: FloripaSat, 14BisSat, NCBR-2, ConnaSat A, ConnaSat B and Garatea . As the national cubesat production is growing, Brazil faces some challenges to make the transition between educational production to the commercial one. In 2018 at São José dos Campos a joint initiative among the Brazilian Space Agency and Brazil industrial development agency has discussed the next step for aerospace commercial application where they categorize the Brazilian aerospace demands in Earth observation, data gathering, meteorology, communication, GPS and science missions.

This paper describes the goals and status of the already launched brazilian cubesat missions and analyzes the goals of the next six planned missions. By doing so, it shows the gap between the academic production and the private sector production. So the analysis focused on what the industry can do to supply that gap. As a result, this paper indicates some paths that brazil can take to build a solid small satellites industry.

Some of the examples taken were the results presented by Planet Labs and Spire in commercial CubeSats production that launched over 450 small satellites. With the analysis of brazilian planned missions and the history of these companies, this paper gives also a business analysis that can support the future planned missions.