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THE NANOSATC-BR1 LAUNCHING AND PROGRESS IN THE NANOSATC-BR2 FROM THE BRAZILIAN INPE-UFSM NANOSATC-BR CUBESAT PROGRAM

Abstract

This paper aims to present the results of the NANOSATC-BR1 Launching and the recent Progress in the NANOSATC-BR2, from the Brazilian INPE-UFSM NANOSATC-BR Cubesat Program. This paper is a follow up paper from previous ones that have already been presented at IACs - UN/IAA workshops. The 1U Cubesat – NANOSATC-BR1, the first Brazilian CubeSat launching, is expected for 2014's first semester, and the 2U CubeSat – NANOSATC-BR2, is been finalized and its launching, is expected for 2015's first semester. These two events marked the beginning of, what we can call now, a Brazilian NANOSATC-BR Program. This paper describes the Program already consisting of the development of NANOSATC-BR 1 & 2 cubesats and its planned operation for at least 12 months each. This paper focuses on the development and the results of the NANOSATC-BR1 launching and on the progress of the INPE-UFSM NANOSATC-BR CubeSat Development Capacity Building Program (CBP). The NANOSATC-BR 1 & 2 Projects Ground Stations (GS) with the VHF/UHF band and S-band antennas, are described in three specific papers at this IAC 2014. The Projects' concepts were developed to: i) monitor, in real time, the Geospace, the Ionosphere, the energetic particle precipitation and the disturbances at the Earth's Magnetosphere over the Brazilian Territory, and ii) the determination of their effects on regions such as the South American Magnetic Anomaly (SAMA). It explains the Program institutional arrangement and its technical characteristics. The Brazilian INPE-UFSM NANOSATC-BR CubeSat Development Capacity Building Integrated Program (CBP) on space science, engineering and computer sciences for the development of space technologies using CubeSat satellites, starting with a first Brazilian Scientific Nanosatellite, the NANOSATC-BR1. The INPE-UFSM's CBP Cooperation is basically among: (i) the Southern Regional Space Research Center (CRS), from the Brazilian INPE/MCTI, where acts the Program's General Coordinator and Projects Manager, having technical collaboration and management of the Mission's General Coordinator for Engineering and Space Technology at INPE's Headquarter (HQ), in São José dos Campos, São Paulo; (ii) the Santa Maria Space Science Laboratory (LACESM/CT) from the Federal University of Santa Maria – (UFSM); (iii) the Santa Maria Design House (SMDH); (iv) the Graduate Program in Microelectronics from the Federal University of Rio Grande do Sul (MG/II/UFRGS); and (v) the Aeronautic Institute of Technology (ITA/DCTA/CA-MD). The INPE-UFSM's CBP has the involvement of UFSM' undergraduate students and graduate students from: INPE/MCTI, MG/II/UFRGS and ITA/DCTA/CA-MD. These Program and Projects have support from the Brazilian Space Agency (AEB).