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PAST, PRESENT AND FUTURE OF THE ROMANIAN NANOSATELLITES PROGRAM.

Abstract

The paper presents the main objectives of the Romanian nanosatellites program. Started as an educational program under the supervision of the Romanian Space Agency in 2005, the plan's main objective is to increase young professional's interest to space science and industry. Since nanosatellite missions became affordable in terms of cost, they proved to be an effective tool for training and knowhow assimilation. Last decade demonstrated that nanosatellites, and cubesats in special, are more than simple educational instruments. Cubesats became an interesting platform for Earth observation and near Earth monitoring missions. In this context, the Romanian Nanosatellites Program has extended from educational to more complex, formation flying demonstrative mission. A major objective represents the development of a cubesat formation flying platform on which can accommodate both scientific and commercial payload on demand. In terms of international cooperation, the main Romanian scientific and research institutions involved in the nanosatellites program have established collaborations with international partners from either industry or research organisations. Moreover, since general interest in nanosatellites has increased, the number of workshops and conferences with this topic is much bigger from year to year. The initial objective of the program was the design and development of a single nanosatellite, Goliat. It includes three payloads: a digital camera, a space dust detector and a total radiation dose detector. The spacecraft bus integrates a low noise electronic power supply unit, a dedicated on board computer and two radio transceivers. The first part of the program ends with the launch of the Goliat cubesat, the first Romanian satellite, scheduled for late 2011. Currently in progress, the second stage is focused on the development of a multi-purpose close orbital formation flying platform that utilizes cubesat class satellites. The satellites are to identical in hardware and the ability to accommodate different payloads is a requirement. During this phase the satellite system will be built up to an on ground demon unit. The launch and operation of a demonstrative close orbital formation flying mission is the near term objective of the nanosatellite program. The final goal is the long term exploitation of nanosatellite missions in both scientific and commercial missions.