

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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A MULTI-NATIONAL MULTI-INSTITUTIONAL EDUCATION FRAMEWORK: APSCO SSS-2B
CUBESAT PROJECT

Abstract

APSCO Student Small Satellite Mission (SSS) was initiated in early 2015 and officially started by the end of 2016 in order to promote the awareness of space science and technology among the faculty members and students from APSCO Member States (Bangladesh, China, Iran, Mongolia, Pakistan, Peru, Thailand and Turkey). To realize this long term objective, the program aims to train students and faculties from Member States, by involving them in a real project where they can experience the whole life cycle of a space mission. With this, the program also targets capacity building and human resource development.

Within the scope of the program, three satellites, one micro (SSS-1) satellite and two 3U cube (SSS-2A and SSS-2B) satellites, will be designed and manufactured. These 3 satellites are led by Beihang University of China, Shanghai Jiao Tong University of China and TUBITAK UZAY (Space Technologies Research Institute of the Scientific and Technological Research Council of Turkey), respectively. Here, the missions of the SSS-2B cubesat are monitoring the radiation environment in orbit, collecting images of Earth, establishing intersatellite communication while performing relative motion with SSS-1 and SSS-2A satellites. For the development, universities, institutions and companies from different Member States cooperate and, therefore, the project is implemented through a multi-national multi-institutional cooperation and development framework.

In order to enhance capacity building and human resource development, three summer camps are organized to train student and faculties. First one was held in Beijing/China in 2017, the second one will be held in Turkey in 2018 and the last one is planned for 2019 with the focus on design and analysis, integration and test and operations respectively. In these summer camps, students are given practical assignments where they can directly contribute to the SSS projects.

In this paper, educational and technical activities of the APSCO SSS project will be presented from

the perspective of SSS-2B cube satellite. The framework for an effective education program will be discussed considering the dynamics and common interests between the international actors ranging from governmental and public institutions to universities and non-governmental organizations. In the first part, the program of summer camps and the education approach will be presented. In the second part, the outputs of the students' studies on SSS-2B satellite specifications, design and analysis will be summarized. Finally, summer camp outputs focusing on the integration and test will be presented.