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ARLISS'S CONTRIBUTION TO SPACE EDUCATION - INTERNATIONAL CANSAT COMPETITION

Abstract

In this paper, we introduce the international Can Satellite (CanSat) competition- A Rocket Launch for International Student Satellites (ARLISS), and describe how ARLISS has contributed to the space education in Japan. Before the description of ARLISS, we explain about the brief histories of the Japanese space engineering in general and of University Space Engineering Consortium (UNISEC) in specific.. These histories are deeply related to the nature of ARLISS, which would be contributed to its understanding. At first, we describe the outline of ARLISS. Secondly, its history and the origin are stated. Thirdly, we introduce participating teams and laboratories which have won the prizes in the past. Then, we will touch on how ARLISS, has contributed to Japanese space education from several viewpoints. As is the case with many counties, CanSat is used as a practical and educational tool in order to understand the function of the satellite systems and to utilize our accumulated know-hows for a satellite. This is a good educational step to be taken before we learn a real satellite. Of course, ARLISS is the CanSat competition and has a long history with several achievements. In this sense, it is clear that ARLISS is one of the programs which has made valuable contribution to space education. Especially, in ARLISS, a rocket is used to send CanSat up, so participants have to design CanSat with higher reliability, which makes it much more difficult to achieve the mission. In Japan, ARLISS has a special meaning. It gives university students unique experiences of not only making something new, but also learning "System Engineering" and "Project Management", such as "V-model" of the System Engineering and "Work Breakdown Structure". These are important factors which would help participants to achieve the mission, and these experiences will be applied to several situations. This is very practical and effective method for space education. Moreover, the framework, "SPindle (SE/PM introductory lesson)", has contributed to help students to learn them by mentors. ARLISS is one of the international CanSat competitions, but it has some characteristics when compared with other competitions. This paper describes the difference, and then makes clear the strong points and some issues. Finally, the future plans for ARLISS are mentioned: for example, the collaboration between the rocket team and the CanSat team in collaboration with UNISEC, and the CanSat competition for technical validation tests which will lead to interplanetary exploration.