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PLANET WATCH: RUSSIAN NATIONWIDE AEROSPACE EDUCATION PROGRAM

Abstract

The work describes the effect of implementation of the Russian nationwide STEM program "Planet watch". This program was initiated by a number of top level stakeholders in Russia, each playing its own role: "Sirius" education center, Skolkovo institute of science and technology (Skoltech), State space corporation "Roscosmos" and the Foundation for Assistance to Small Innovative Enterprises (FASIE). The 5-year program is aimed at educating 100 000 school children through various contests, educational programs and space technology outreach programs. The program was initiated in 2018 and attracted more than 20 000 pupils in the first year being the largest space education outreach program in Russia.

The main goals of "Planet watch" are both to ensure popularization of space activities and select top talented and motivated students for the industry and professional community. Thus, "Planet watch" is a new education initiative that is a pyramid-model talent development program with different educational mechanisms for various levels of audience, from mass population to talented kids. Student engagement for mass audience is done through popularization programs, quizzes and online formats. For students interested in STEM and space technologies specifically there is a number of contests and project-based education formats. Finally, those interested in professional space projects are selected through immersion programs, olympiads and project activities. This program structure ensures that all the participants are assisted in outlining their individual career and education path.

The program shows the full technological cycle for students: some contests are focused on upstream, mainly constructing cubesats and their subsystems; others are working on ground stations and data reception; thirdly, the program includes courses and contests on applications of remote sensing technologies. Thus, the main purpose of the program is to demonstrate the full range of technologies, applications, programs and careers in modern commercial space industry. 5 contests were launched in 2018, with 3 contests focusing on space hardware (cubesats, cubesat subsystems and space systems), 1 on ground stations and 1 on remote sensing and data applications.

The paper analyzes current progress and key advances in the program implementation and considers the main institutional challenges hindering the program growth.