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AN INNOVATIVE APPROACH TOWARD PROMOTING STEM EDUCATION THROUGH THE SALLY RIDE EARTHKAM PAYLOAD ONBOARD THE INTERNATIONAL SPACE STATION

Abstract

Sally Ride EarthKAM (Earth Knowledge Acquired by Middle school students) is a program that allows for K-12 students from countries around the world to observe the Earth from a digital camera payload housed on the International Space Station (ISS) and use the data in their classrooms to enhance STEM education. The EarthKAM payload functions during 4-6 weeks out the year, known as mission weeks. During these mission weeks, the EarthKAM operations team, consisting of both graduate and undergraduate students from the University of Alabama in Huntsville (UAH), collaborates with Teledyne Brown Engineering and NASA Marshall Space Flight Center to control the camera aboard the station. Additionally, the team at UAH uses the images taken by the K-12 students to create teaching aids for schools around the globe to help instructors teach about subjects such as geography, climate, mathematics, and space sciences. Students have the chance to learn more about the ISS and the technologies utilized by the various space agencies through the EarthKAM program. This outreach aids in the understanding of the importance of science racks aboard the ISS, specifically Earth observation technologies, and the international cooperation required to maintain them. The EarthKAM program also collaborates with the U.S. Space and Rocket Center, where each mission is housed as an exhibit for families, students, and educators to learn more about the program. The latest EarthKAM mission, Mission 59 which took place in November 2017, broke records of participation as 375 schools representing over 31,000 students from 40 different countries signed up to make a total of approximately 22,000 image requests of the Earth. The EarthKAM program is unique in that it is the only program that links NASA and the ISS to STEM outreach focused on Earth observations by incorporating an active payload on board the station.