EarthKAM: Learning about Earth from a Unique Perspective

Emily Wisinski, Christine Evans, Joshua Huggins, Isabel Skelton, Greta Paris, Dr. Robert Griffin, Atmospheric and Earth Science, UAH

Overview

Sally Ride Earth Knowledge Acquired by Middle school students (EarthKAM) is a NASA educational outreach program that aims to provide K-12 students with a unique view of the Earth through digital photography. A Nikon DSLR camera payload aboard the International Space Station (ISS) allows students and teachers from around the world to request images of the Earth along the orbit of the ISS. The camera only has the capacity to capture visible light, so no photos are taken at night and cannot penetrate clouds. The opportunity to request images is offered in the form of missions that take place approximately 4-5 times a year, and are operated by students from The University of Alabama in Huntsville (UAH) at an operations center within the United States Space and Rocket Center (USSRC).

Each mission lasts approximately 6 days with 16,000 image requests per mission. During the most recent mission in November 2019, EarthKAM reached 22,080 students from 215 schools in 31 countries. The images are downloadable and can be used to help educate students about geography, mathematics, space sciences, and climate. Thanks to partnerships with NASA, all images taken during missions are uploaded to the EarthKAM website where they are accessible to the public. Images can be accessed on the website dating back to 2001.

Impact

Research Opportunities

In addition to being a beneficial program for middle school students to learn about Earth from a new perspective, EarthKAM also allows research opportunities for older students involved in the missions.

- Undergraduate and graduate students gain experience in the operational aspect of each mission through website and software development.
- Students are given the opportunity to practice communication skills through the EarthKAM help desk.
- Students create annotated images and numerous STEM modules for EarthKAM as well as increase their knowledge base of the world through research of the documented locations.

EarthKAM and the ISS

- EarthKAM uses a Nikon D2X Digital SLR camera that is controlled by a Lenovo (IBM) T61p laptop.
- The EarthKAM camera is currently set up in the Node 2 deck on the station.
- Node 2, also known as Harmony, is a "utility hub" within the station that connects the laboratory modules of the United States, Europe, and Japan. It also provides electrical power and electronic data.

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