EarthKAM in the Classroom: Enhanced STEM Learning Through Earth Observations

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Introduction

The Sally Ride EarthKAM (Earth Knowledge Acquired by Middle School Students) is a Nikon DSLR camera aboard the International Space Station. It allows students and teachers to request images along the orbit of the ISS during one of its 4-6 annual missions, which are operated by UAH students at the U.S. Space and Rocket Center in Huntsville, AL. Teachers and youth organization leaders can then use these images, or any images from past missions in the Image Gallery at www.earthkam.org, as educational tools in their classrooms.

Explanation & Impact

• New EarthKAM lesson plan were created so that students using EarthKAM could easily be introduced to the most important scientific topics of today while also studying the images they have requested from a previous mission, creating a more interactive experience.
• The lesson plans were each themed after one of the nine GEOSS (Global Earth Observation System of Systems) Societal Benefit Areas, which are subjects that the international data collection group has deemed to be the most important research areas (GEO, earthobservations.org).
• The activities for each subject direct students and teachers in detailed analysis of EarthKAM images to show how satellite observations are an important asset to scientific research.
• The lessons also align with Objectives 1.2: “Conduct research on the International Space Station...for the benefit of humanity,” 2.2: “Advance knowledge of Earth as a system to meet the challenges of environmental changes, and improve life on our planet,” and 2.4: “Advance the Nation’s STEM education and workforce pipeline by working collaboratively with other agencies to engage students, teachers, and faculty in NASA’s missions and unique assets,” from NASA's Strategic Plan (NASA, 2014).
• The variety of subjects ensures that any teacher can find an activity to easily incorporate into their curriculum.

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