EarthKAM: ArcGIS Helps Map the Distribution of K-12 Student Photographs from the ISS

Jeremy Frost, Leah Cooper, Tim Klug, Tyler Finley
Dr. Robert Griffin, Earth System Science, UAH

What is EarthKAM?
Sally Ride EarthKAM is a digital camera payload on the International Space Station (ISS) that provides a platform for science, technology, engineering, and mathematics (STEM) outreach and education. This nadir-facing camera system allows K-12 students around the world to control the camera and task it to take photographs of Earth, which they can then download and use in the classroom.

Statistics
- Average 5,500 photos per mission
- 28,721 unique photograph request locations
- Participating schools from 95 countries
- 148,000+ interactive students

Methodology
We used historical data on EarthKAM requests and ESRI ArcGIS 10x Desktop to determine the most popular photo locations. Over 28,000 unique photograph requests from students in 95 countries during ISS Increments 46-51 were collected, geo-referenced, and analyzed using a weighted count approach according to the number of times the camera was tasked to take a photograph. The results of this study illustrate patterns about request geographies, such as places of interest for classrooms in different countries and at different grade levels, in addition to demonstrating a GIS workflow for information from a NASA ISS-based camera system.

Acknowledgements
- Scott Harbour (USSRC), Brien Au (TBE), Dr. Sara Graves (ITSC), Sally Ride Science, Timothy Klug (UAH ESS), and Tyler Finley (UAH ESS) Leah cooper (UAH ESS)
- Funding and program support provided by NASA ISS National Lab Office/UAC
- Cooperative Agreement Number NNX15EU14A

Point Density of Photo Requests

- High: 52
- Low: 0