EarthKAM

In-Cabin

Prime: Kevin Kregel
Backup: Dom Gorie

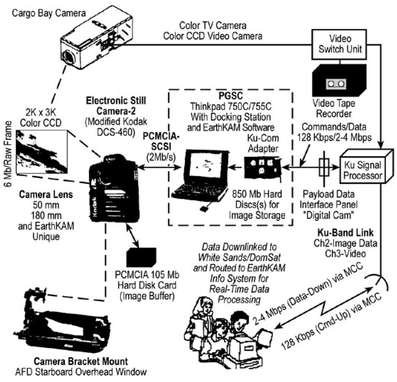
Overview

EarthKAM is a NASA-sponsored program that enables middle school students to take photographs of the Earth from a camera aboard the Space Shuttle. During missions, students work collectively and use interactive web pages to target images and investigate the Earth from the unique perspective of space.

An electronic still camera (ESC) bracket-mounted to the overhead starboard window of the orbiter aft flight deck will face the nadir to observe various student-selected sites on Earth. Other than equipment setup, initial camera pointing, and possible camera lens changes, no crew intervention is required for nominal operations.

The University of California at San Diego houses the EarthKAM Mission Operations Center (MOC). Most participating schools (or group of schools) establish a Student Mission Operation Center (SMOC) whose computers are connected to the Internet for a number of purposes:

· To communicate with other SMOC teams and EarthKAM personnel
· To obtain the latest weather information
· To track the Shuttle's orbit
· To select and submit target requests



How EarthKam Works

Before the mission, students select a topic of interest, such as human settlement patterns, mountain ranges, or agricultural patterns. Then they define investigations that will be supported by the EarthKAM images.

During the mission, each SMOC submits a number of photo requests through specialized EarthKAM web pages. The requests are processed and uplinked to the EarthKAM ESC aboard the Shuttle.

After the ESC takes the pictures, digital images are sent back to Earth and posted on the data system for the students to use in their investigations. For their final reports, students use these new images along with other relevant images from the full EarthKAM image set. Scientists and educators review the original proposal and the final report to provide feedback to the students.

The EarthKAM program also is preparing to mount a camera aboard the International Space Station.

History/Background

During the first four missions of EarthKAM, students took more than 2,000 high-resolution digital images of the Earth. These photographs included the Himalayas, clouds over the Pacific, volcanoes, and recent forest fires in Indonesia.

The following schools are participating in the EarthKam observations being conducted during STS-99:

Pacific Union School, Redwood, Fieldbrook CA
Challenger Middle School, Escondido, CA
Irvine Unified School District
Sierra Vista Middle School, Irvine, CA
Lakeside Middle School, Irvine, CA
Rancho San Joaquin Middle School, Irvine, CA
South Lake Middle School, Irvine, CA
Venado Middle School, Irvine, CA
Vista Verde Elementary School, Irvine, CA
AG Bell Junior High School, San Diego, CA
Marston Middle School, San Diego, CA
Olive Peirce Middle School, Ramona, CA
Valley Junior High School, Carlsbad, CA
M.L. King Middle School, San Diego, CA
Gompers Middle School, San Diego, CA
Southern High School, Baltimore, MD
Brunswick Junior High School, Orr's Island, ME
McCarthy Middle School, Chelmsford, MA
Parker Middle School, Chelmsford, MA
Diamond Middle School, Acton, MA
Jonas Clarke Middle School, Lexington, MA
F.A. Day Middle School, Arlington, MA
Carthage Junior High School, Webb City, MO
Ino Junior High School, Japan
Meikei Junior High School, Japan
Yamamuro Jr. High School, Japan
Kansai Soka Jr/Sr. High School, Japan
Kimbrough Middle School, Mesquite, TX
Maria-Sibylla-Merian Gymnasium, Germany
Kiewit Middle School, Omaha, NE
Russell Middle School, Omaha, NE
Santa Fe Trail Junior High School, Olathe, KS
California Trail Junior High School, Olathe, KS
Frontier Trail Junior High School, Olathe, KS
Indian Trail Junior High School, Olathe, KS
Pioneer Trail Junior High School, Olathe, KS
Patrick Henry Middle School, Baltic, SD
Putnam City Schools, Oklahoma City, OK
Kenneth Cooper Middle School, Oklahoma City, OK
Mayfield Middle School, Oklahoma City, OK
Western Oaks Middle School, Oklahoma City, OK
Sankt Ursula-Gymnasium Bruhl, Germany
Seabrook Intermediate School, Seabrook, TX
South Ripley Elementary School, Versailles, IN
Harrison Elementary, Omaha, NE
Skinner Magnet Center, Omaha, NE
McMillan Magnet Center, Omaha, NE
Webster Intermediate School, Webster, TX
West Middle School, Colorado Springs, CO
Ronald McNair Middle School, Cocoa, FL
Space Coast Middle School, Cocoa, FL
Davis Drive Middle School, Apex, NC
East Lee Middle School, Sanford, NC
North Carolina State University, Fuquay-Yarina, NC
Wake Forest-Roleville Middle School, Wake Forest, NC
Cedar Creek Middle School, Youngsville, NC
Dunn Middle School, Dunn, NC
Magellan Charter School, Raleigh, NC
"Ecole Nationale de Chimie, Physique, Biologie," Paris, France
Pine Hall Elementary School, Pine Hall, NC
Belle Hall Elementary, Isle of Palms, SC
Cario Middle School, Mt. Pleasant, SC
College Park Middle School, Hickory, SC
Hanahan Elementary, Goose Creek, SC
Porter-Gaud Lower School, Charleston, SC
Drayton Hall Middle School, Charleston, SC
Point Option, Gloucester, VA
Davis Middle School, Hampton, VA
Hickory Middle School, Norfork, VA
James Island Middle School, Charleston, SC
Jones Magnet Middle School, Norfolk, VA
Yorktown Middle School, Hayes, VA
Warwood Middle School, Wheeling, WV
F. D. Roosevelt Middle School, Cleveland, OH
Spring Harbor Environmental, Madison, WI
John Trotwood Moore Middle School, Nashville, TN
Warrensburg Middle School, Warrensburg, MO
Cassville Middle School, Cassville, MO
Clearwood Junior High School, Lacombe, LA
Our Lady of Lourdes Academy, Slidell, LA

Benefits

Students use the EarthKAM images in classroom projects to learn about Earth science, geography, mathematics, and space science. They also develop skills in investigation and image analysis, as well as learning how to use the Internet.