High Definition Earth-Viewing payload reaches end-of-life on station, surpassing life expectancy

November 13 2019, by Mark Garcia

The International Space Station's High Definition Earth-Viewing (HDEV) payload officially reached end-of-life Aug. 22, 2019, after delivering live Earth views to more than 318 million viewers across the globe.

HDEV was delivered to the International Space Station in the trunk of SpaceX Dragon on April 19, 2014. Nearly two weeks later, four commercial-off-the-shelf (COTS) high definition video cameras were installed and activated on the External Payload Facility of the Columbus module on the International Space Station April 30, 2014.

The HDEV installation was notable because it was the first large payload to be delivered and robotically maneuvered from the SpaceX Dragon's unpressurized trunk section and installed on the International Space Station. No spacewalks, crew interaction or Extra Vehicular Robotics maintenance was required for this external payload.

Until HDEV, the International Space Station flew with standard definition external cameras and internal high definition cameras, which downlinked a combination of six independent video streams to flight controllers on Earth. HDEV provided four high definition cameras continuously operating on the exterior that cycled automatically to provide near-constant live views of the Earth from space to anyone with an internet connection.

High school students helped design some of the cameras' components and through the High Schools United with NASA to Create Hardware (HUNCH) program. The four cameras chosen were from Panasonic, Sony, Hitachi and Toshiba.

"It was a new way of getting payloads to station," said Susan Runco, co-principal investigator of HDEV. "The payload went from design to delivery in nine months. We had a truly incredible team that paved the way for this agile process without compromising safety."

One of the experiment goals was to evaluate the longevity of COTS cameras in the space environment. The entire payload was enclosed in a pressurized box to provide a level of protection to the electronics from the space environment. Originally anticipated to last one to three years, HDEV surpassed its life expectancy and operated continuously for five years.

HDEV's secondary goal was to provide high definition video of Earth to the public. Over a period of five years, the HDEV Ustream delivered Earth views to more than 318 million viewers across the world, including students participating in the Columbus Eye Project.

"When HDEV first came on line, we were surprised and amazed to learn about the thousands and thousands of people around the globe who discovered and embraced this wonderful Earth imagery," said Carlos Fontanot, co-principal investigator of HDEV. "The fan base grew rapidly and sent in many comments about the positive impact that it had on their lives, in classrooms as teaching material, and in general as an uplifting and optimistic view of our home planet."

In addition to live Internet streaming, HDEV views were used by several media outlets during hurricanes to deliver unique views of the storms.

Now that the payload has reached end-of-life, a continuous loop of previously recorded views from HDEV will continue to stream on available public sites. Future opportunities for utilizing the live stream will be assessed. The payload itself will be retrieved on a future spacewalk to be loaded onto a cargo vehicle for a destructive re-entry into Earth's atmosphere next year.

More information: eol.jsc.nasa.gov/ESRS/HDEV/

Provided by NASA

Citation: High Definition Earth-Viewing payload reaches end-of-life on station, surpassing life expectancy (2019, November 13) retrieved 23 June 2024 from https://phys.org/news/2019-11-high-definition-earth-viewing-payload-end-of-life.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.