

NASA Astrophysics E/PO: A Quarter Century of Discovery and Inspiration with the Hubble Space Telescope

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April 24, 2015 marked the 25th anniversary of the launch of the Hubble Space Telescope. In its quarter-century in orbit, the Hubble Space Telescope has transformed the way we understand the Universe, helped us find our place among the stars, and paved the way to incredible advancements in science and technology. In this paper, we explain how NASA, the European Space Agency (ESA) and the Space Telescope Science Institute (STScI) and partners, used the 25th anniversary of Hubble's launch as a unique opportunity to communicate with students, educators, and the public on the significance of the past quarter-century of discovery with the Hubble Space Telescope.

1. Introduction

With this article, we report on various programs, resources, and experiences that were utilized to enhance the public understanding of Hubble's many contributions to the scientific world. These include exhibits, events, traditional and social media, and resources for educators (formal k-12, informal, and higher education). Also highlighted are many of the opportunities by which students, educators, and the public joined in the anniversary activities, both in-person and online. Find out more at hubble25th.org.

2. Education Programs

Two decades ago, the leaders of the Space Telescope Science Institute (STScI) posed a question to themselves: could a small group of scientists and educators transform the breathtaking discoveries from the *Hubble Space Telescope* into meaningful and measurable educational products for America's schools, potentially reaching millions of youths at a time? In asking this question, we recognized that *Hubble's* discoveries offer unprecedented opportunities to inspire, engage, and educate students of all ages and backgrounds in the fundamental concepts of science, technology, engineering, and mathematics (STEM). We embraced the potential as we saw it, and committed the Institute to making it a reality. Since then, the scope of our efforts has grown to include the wealth of compelling narratives associated with the *James Webb Space Telescope*. Over the years, we have learned much about the practical links between basic education and advanced scientific research, and we have made substantial contributions to national STEM goals. Today, more than half the state departments of education in the U.S. have integrated the Institute's educational materials into their programs. Our formal educational program now serves a half-million teachers and six million students across the country each year. What makes this program such a success is that educator-scientist partnerships are central to producing all education material from design to implementation.

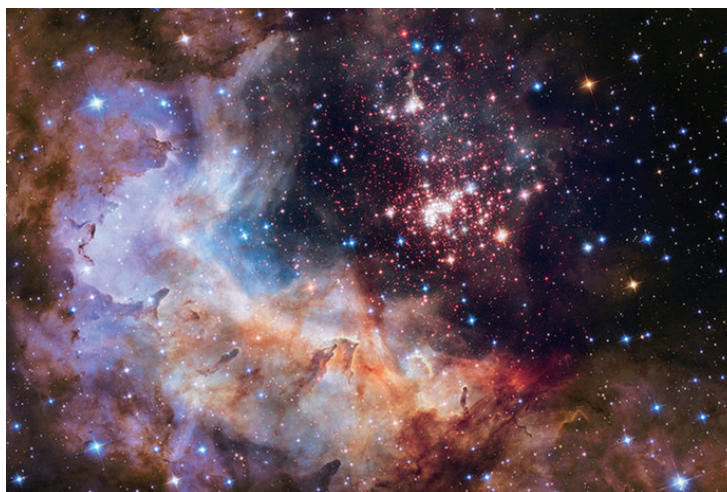


Fig. 1 Hubble Space Telescope 25th anniversary image of Westerlund 2 Credit: NASA, European Space Agency, the Hubble Heritage Team (STScI/AURA), A. Nota (ESA/STScI), and the Westerlund 2 Science Team



Fig. 2 –25th anniversary exhibit at Dulles International Airport in Washington, D.C

To celebrate the Hubble’s 25th anniversary, the education team at STScI created an online exploration program to showcase the remarkable history and still-bright future of a telescope that has transformed both the way we do astronomy and our understanding of the universe. This national Teach-in program enabled schools across the U.S. to participate in a conversation about NASA’s first Great Observatory, learn about some of its remarkable scientific achievements, and experience a compendium of some of the greatest imagery the universe has ever known.

Table 1 Examples of Hubble 25th anniversary

25th Anniversary Website	The Website http://hubble25th.org lists the anniversary events, videos images and activities
Seminars & Lectures	Seminars and lectures held around the world to celebrate the anniversary
NASA Goddard	Hubble Space Telescope 25th Anniversary Celebration
Social Media	A social media campaign fir the anniversary
Electronic book	An electronic book “A Quarter-Century of Discovery with the Hubble Space Telescope” with images and videos was published
Videos	A series of videos dedicated to science and the people behind the telescope are being released; one a month through out 2015
Images	Three anniversary images were released: One at the 2015 AAS meeting, one at anniversary date and one later in the
Resources	A resource page was created for downloading logos, banners, exhibit material, videos and presentations
Education Products	A set of special education products prepared for the anniversary.

3. Public Exhibits

The anniversary provided a perfect opportunity to widely showcase Hubble scientific achievements and vision for the future of the telescope in the context of JWST and beyond. The Gallery Walk at Reagan National Airport and the Gateway Gallery at Washington Dulles International Airport now greet visitors the world over momentarily transporting the imaginations of those visitors across the universe. STScI provided a collection of images, artifacts, and student artwork for the displays. From a distance, the images convey an impression of the great variety of astronomical subjects that are studied by Hubble. Viewing them close-up, visitors are able to enjoy the great beauty of the images and learn more about their scientific significance. The display cases at Gallery Walk also houses artifacts that illustrate how Hubble has become the People’s Telescope, including tools astronauts used to service Hubble, technological spinoffs, student artwork and elements of Hubble incorporated into popular culture. Exhibits were also ingeniously created for the captive audiences at baggage claim areas at Baltimore Washington Thurgood Marshall, Reagan National and Washington Dulles airports.

To enable numerous other sites to share in the celebration and create their own custom exhibits, STScI created a site with source material including the “Visions of the Universe” imagery as well as slides and images for public lectures for the general public.

4. Summary

With the Hubble 25th anniversary events, we had an opportunity to showcase the observatory’s discoveries, provide new education products and create public engagement activities and exhibits. The general public also participated in telling the story of one of the greatest observatories of all time.