



Office of Public Outreach

SPACE TELESCOPE SCIENCE INSTITUTE + 3700 SAN MARTIN DRIVE + BALTIMORE, MD 21218

OPO and Citizen Engagement



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What We Do

- **OPO is all about engaging the public**
 - Publicizing Hubble discoveries (News)
 - Providing educators with astronomy-related materials for the classroom (Amazing Space)
 - Being the public-friendly online resource for Hubble and JWST (HubbleSite & WebbTelescope)

What We Want

- **Expanding how we engage the public**
 - We want to take advantage of emerging trends in social media and the public's desire to be involved in science discoveries (Citizen Science).

We Can't Do It Alone

- **Citizen Science Needs Scientists**

- OPO does a great job of making polished products but we aren't a research organization. We need your help to find real research opportunities that can take advantage of the public's enthusiasm.
- Successful projects are the ones that treat the public as true partners in the scientific discovery process.
- OPO is positioned to help develop the interfaces and publicize citizen science projects – let us be your partner.

Office of Public Outreach

What We Have Done

- **Messages to Hubble**

HUBBLESITE Search all of HubbleSite

HOME NEWSCENTER GALLERY HUBBLE DISCOVERIES HUBBLE TELESCOPE EXPLORE ASTRONOMY EDUCATION & MUSEUMS REFERENCE DESK THE FUTURE: WEBB TELESCOPE

MESSAGES TO HUBBLE [SHARE](#)

HUBBLE SPACE TELESCOPE 1990-2010 YEARS

20TH ANNIVERSARY HUBBLE 3D: THE IMAX FILM

TEACHERS A 20th ANNIVERSARY CLASS ACT

STAR WITNESS
READ HUBBLE'S STORY
Then have your class send Hubble a message!

HUBBLE on the Amazing Space Web site

Your voice is now part of Hubble history

Message Snapshots

Since I was a little girl outer space fascinated me. One day I hope we

Great world! Keep up the amazing discoveries for years to come!

Twenty years ago, my space dreams started too. Thank you HST. Now, hi ...

Showcase

BASEBALL'S ALL-TIME IRONMAAN, CAL RIPKEN, JR.
7/12/2010

"Happy Anniversary to the Hubble telescope! Outer space is still such a mystery, but thanks to Hubble we know so much more now than we did two decades ago. Not enough of us fully appreciate all that Hubble has done and continues to do. I am sure we will discover even more in the next twenty years!"

NASA ASTRONAUT TJ CREAMER
4/26/2010

ASTRONAUT JOHN GRUNSFELD

To celebrate Hubble's 20th anniversary, HubbleSite collected messages from the public about the human side of the telescope's saga. Thousands of people took the time to share the ways Hubble had touched their lives. This project is now closed, but you can see a sampling of the messages received under "Message Snapshots." All messages that were sent are now stored in the Hubble archive alongside the full collection of the telescope's science data. Generations from now, researchers looking for Hubble's impact on society may use these messages to better understand how one telescope changed the face of astronomy.

Leave your message and become a part of Hubble history

There are several ways to include your message in the Hubble archive.
Type your message below:

Click "submit" to send your comment to Hubble's archives. [Submit](#)

PRIVACY POLICY
By participating in "Messages to Hubble," you give HubbleSite and NASA the right to use your message on our Web site and share it with the public. E-mail addresses will not be shared or stored.

More ways to leave your message:

Visit the "Messages to Hubble" Facebook page to post your message to your wall archive.

HUBBLESITE Search all of HubbleSite

HOME NEWSCENTER GALLERY HUBBLE DISCOVERIES HUBBLE TELESCOPE EXPLORE ASTRONOMY EDUCATION & MUSEUMS REFERENCE DESK THE FUTURE: WEBB TELESCOPE

MESSAGES TO HUBBLE [SHARE](#)

Message Snapshots

Previous 1 2 3 4 5 ... 71 Next

MESSAGES TO HUBBLE

MESSAGE HIGHLIGHTS

1 I live in England where the night sky is seems cloudy most of the year the hubble has given me pictures and dreams no words can describe

2 Thank you, Hubble. You've shown us the edge of the universe — but there is so much more to be seen!

3 Hubble has affected me by showing me the true beauty of the galaxy.

4 Such a statement by mankind. Wow. Greg

5 hubble has inspired me, astounded me, and taken my breath away. if it wasn't for hubble i wouldn't have a passion.

6 I'm keen on the Universe since I was a little child. Everything is so beautiful, fabulous, gorgeous... I have no words to express how much I love Space. I adore Hubble because of everything it has showed and continues showing us. Hubble is like a part of me and when I understood it's coming back to Earth... Honestly, I was upset. Thank you, Hubble and all the people who are responsible about it and everything that he "sees" up there! You're awesome. Thank you!!!

7 Saw the 3D film "HUBBLE" whilst on vacation in Canada. A truly religious experience for an old atheist like myself, the majesty and splendor brought tears to my eyes. Everyone should be made to view it, including our world leaders, could stop a few wars.. Thankyou Hubble

8 Thank you to everyone involved in the exploring of our universe and solar system. Sending you all lots of love!

9 Many thanks to those whose persistence made Hubble possible. You have changed the World!

10 Thanks for making that little flicker of excitement and turning it into passion. We all love the pictures and learning a little more how space works.

11 hi hubble my name is alex and this is my mate will (he says hi) we would just like to say we really like you and all the space crew working with you

12 Greetings HUBBLE! I wish my backyard telescope was such a beast as yours! Thank you for the stunning images of our universe!

Tell Your friends

Use the hashtag #hst20 in your **Twitter** post to include your message

Visit the "**Messages to Hubble**" **Facebook** page to post your message to your wall archive.

Text the word "Hubble" to (632-18) for instructions on sending your message to the archive.

Share link to your friends or post it to your favorite Web site using the "Share" link above.

MESSAGE TOTALS

61042

Office of Public Outreach

What We Have Done

- **STEM Education Student Projects and Traveling Exhibits**



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What We Have Done

- **Galaxy Zoo – Hubble Edition**

The screenshot shows the Galaxy Zoo Hubble Edition website. At the top, it says "Galaxy Zoo is a ZOO UNIVERSE project" and "Just like MOON ZOO". The main header features "GALAXY ZOO" and "HUBBLE". A navigation bar includes links for Home, The Story So Far, How To Take Part, Classify Galaxies, Explore Galaxies, The Science, FAQ, Forum, Blog, and Contact Us. The main content area features a large image of the Hubble Space Telescope with a "Pictures" link. Below the image is a welcome message: "Welcome to Galaxy Zoo, where you can help astronomers explore the Universe". It explains that Hubble uses gorgeous imagery of hundreds of thousands of galaxies drawn from NASA's Hubble Space Telescope archive. A "Classifier Log In" section includes a "Click here to log in" button and links for Register and Forgotten Password?. An "Explore galaxies" section has a search bar with the text "Enter a search term" and a "Search" button. A "Latest News" section features a "Merger Zoo" article dated 15/11/2011, stating that the Merger Zoo project has come to a close and that over 27,000 volunteers have supported it. Below the news are links for "What we still don't know", "Designing the Lens Zoo: Have Your Say!", "Merger Zoo", and "We got Radio Observing Time". At the bottom, there are "Galaxy Zoo Quick Links" (Classify, How To Take Part, Galaxy Zoo Forum, Galaxy Zoo Blog, Galaxy Zoo Twitter) and "Astronomy Links" (Sloan Digital Sky Survey, SDSS Database Access, Oxford University, University of Nottingham, University of Portsmouth, Yale University, Johns Hopkins University). The footer contains copyright information for Galaxy Zoo 2010 and Sloan Digital Sky Survey, along with links for The Team, Privacy Statement, and Copyright Notice.

Office of Public Outreach

What We Have Done

- Hubble Image Processors Site & Facebook Group

HUBBLESITE Search all of HubbleSite

HOME NEWSCENTER GALLERY HUBBLE DISCOVERIES HUBBLE TELESCOPE EXPLORE ASTRONOMY EDUCATION & MUSEUMS REFERENCE DESK THE FUTURE WEBB TELESCOPE

gallery Hubble Image Processors

▼ GALLERY

- PICTURE ALBUM
- WALLPAPER
- ASTRONOMY PRINTSHOP
- BEHIND THE PICTURES
- SPACECRAFT HUBBLE
- MOVIE THEATER
- IMAGE TOURS
- WALL MURALS
- HUBBLE IMAGE PROCESSORS

HUBBLE IMAGE PROCESSORS

RAIDERS OF THE HUBBLE ARCHIVE

Only some of the pictures captured by Hubble are processed into the stunning color images the world has grown to know. Many more reside in the Hubble archives, black-and-white data that are accessible to the public but usually ignored.

That's where amateur image processors come in. Experts in photography, science or both, they mine Hubble's trove of more than a million observations for the unacknowledged gems within and shine them to the same brilliance as the more famous Hubble images.

If you're an astronomical image processor, this page is for you. Need help and advice? Join the community on our Facebook page, where professional processors and amateurs can mingle, trade tips, and share their work. Curious and want to know more? Check the resources below for how-to guides and tools.

On this page:

- [Hubble's Hidden Treasures](#)
- [Processing Hubble Images](#)
- [Data Archives](#)
- [Image Processing Tools](#)

Facebook Hubble Image Processors on Facebook

Amateur astronomical image processors gather here to exchange information and advice, and show off their work. Professional Hubble processors visit the community to answer questions and share their thoughts. Post a picture, ask a question, and enjoy the discussion.

Processing Hubble Images

Processing Hubble images from archived data takes skill, care, and technical know-how. Processors must be familiar with combining multiple images, reducing noise, applying color, and adjusting brightness and contrast, among other critical steps. They must have a working knowledge of image processing software and a basic understanding of Hubble instruments and data in order to pick out useful datasets, and to appropriately scale intensities and assign colors to images. Finally, they must be able to take into account the multiple challenges of creating a visually accurate image, an informative image, and a beautiful image.

Visualizing Hubble Data

This article presents the basics for creating a Hubble image from unprocessed data. The steps in this article have been outlined by Zolt Levay, Imaging Group Lead in the Office of Public Outreach at the Space Telescope Science Institute. For the past 16 years, Levay has primarily been responsible for producing publicly accessible images from Hubble Space Telescope data to illustrate Hubble's science discoveries. He is Principal Investigator of the Hubble Heritage Team, which strives to establish a repository of the visually finest Hubble imagery.

Download Article: [Visualizing Hubble Data \(PDF\)](#)

Creating a Hubble Galaxy in Two Minutes

Video: **Creating a Hubble Galaxy in Two Minutes**

Hubble images are made, not born. Images must be woven together from the incoming data from the cameras, cleaned up and given colors that bring out features that eyes would

facebook Search for people, places and things

Hubble Image Proc

Hubble Image Processors

Timeline Now Highlights

HUBBLE IMAGE PROCESSORS

RAIDERS OF THE HUBBLE ARCHIVE

Hubble Image Processors

455 likes · 37 talking about this

Community

Amateur astronomical image processors meet here to exchange information, tips and techniques, and share their work. Ask a question, post a picture, and let everyone know how your projects are coming along.

About Photos Likes Videos

Highlights

Status Photo / Video Event, Milestone +

What's on your mind?

Hubble Image Processors shared a link.

July 5


In case folks are interested, here's a little background about the HH 110 image. The datasets used to construct the image were a combination of existing data in the HST archive (ACS H-alpha observations) and additional data from the small ...See More

Recent Posts by Others on Hubble Image Processors See All

- Amr Istanbul
whats your opinion about aliens ?!
July 5 at 11:03am
- Marc Lluell Gallart
First image after 2 years of inactivity.
June 30 at 6:46pm
- Gennadiy Gayanskyy
До відома громадян я хочу довести те, що Місяць ц...
June 20 at 3:58am
- Ivan Suchodolski
Ivan posted a photo.

What We Have Done

- **You Decide**

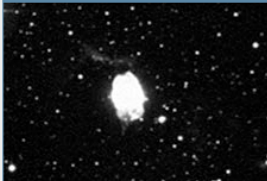


Hubble's Next Discovery

Click on one of the six choices below to cast your vote.
Vote by March 1, 2009.

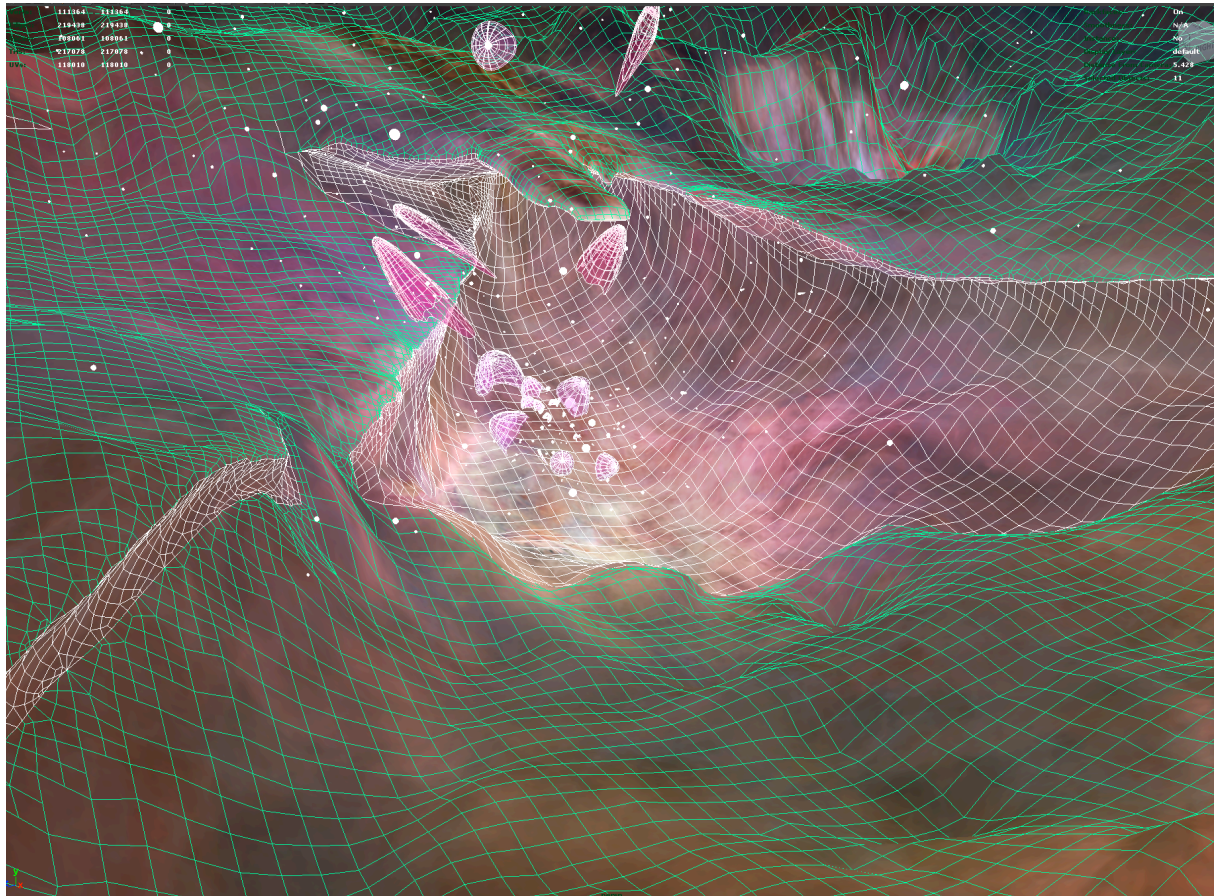
[Show image descriptions](#)

[Watch the video: Trying to decide? Let a Hubble astronomer tell you about the science highlights and enticing features of your six choices.](#)

Star-Forming Region: NGC 6334  Vote! Currently in 3rd place.	Planetary Nebula: NGC 6072  Vote! Currently in 6th place.	Planetary Nebula: NGC 40  Vote! Currently in 5th place.
Spiral Galaxy: NGC 5172  Vote! Currently in 2nd place.	Edge-on Galaxy: NGC 4289  Vote! Currently in 4th place.	Interacting Galaxies: Arp 274  Vote! Currently in 1st place.

What We Have Planned

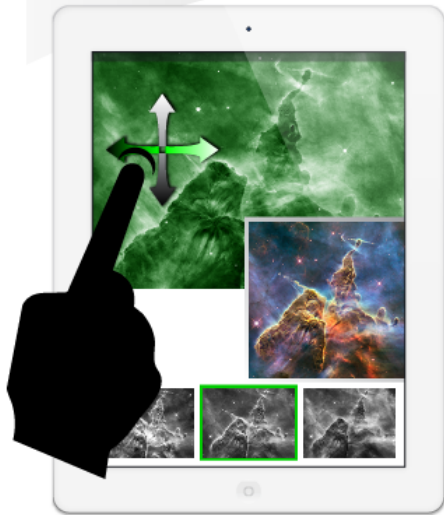
- **Heritage Legacy Project**



What We Have Planned

THE ARCHIVE FOR EVERYONE

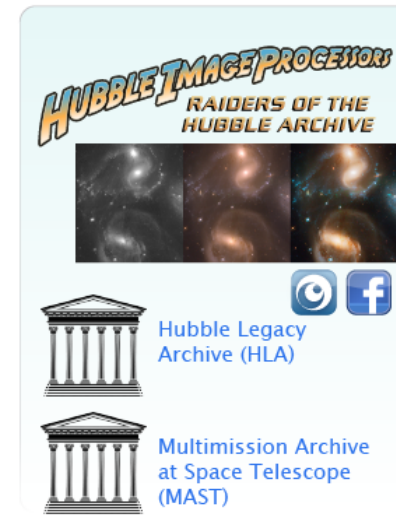
PUBLIC IMPACT



Novice



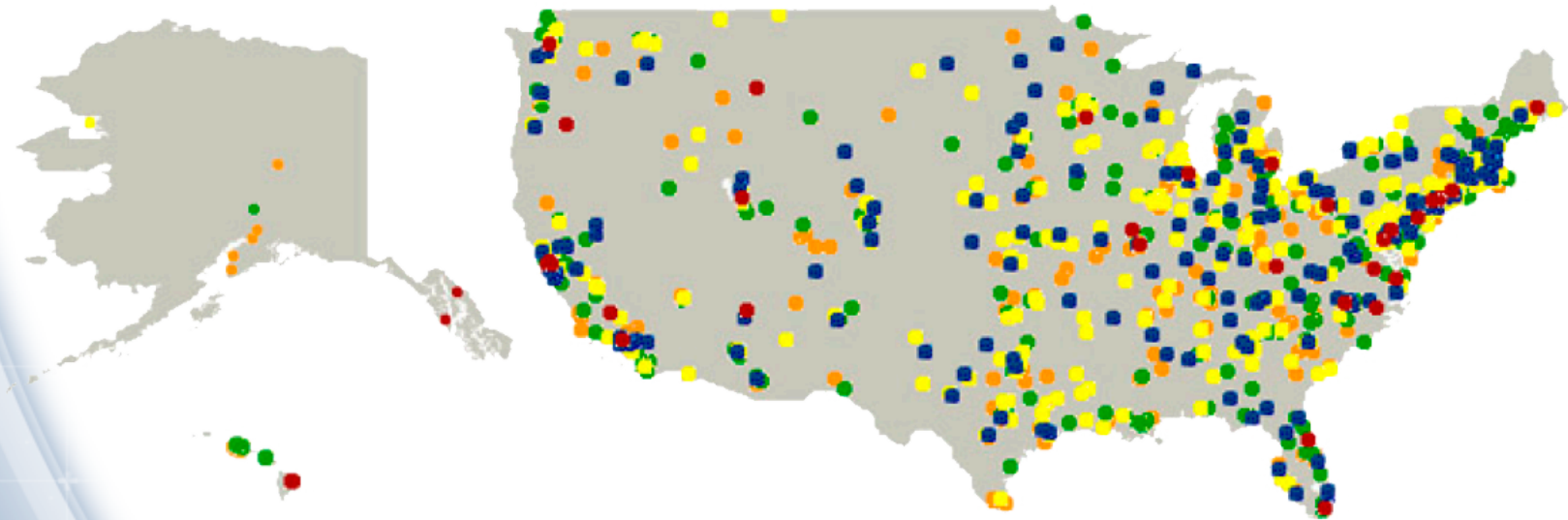
Interested & Directed



Expert

OPO Resources

- **National Education Program**
 - Amazing Space
 - ViewSpace
 - Teacher Workshops
 - Cycle E/PO Grants



OPO Resources

- **Online Media**



OPO Resources

- **Astrophysics Forum**

The screenshot shows the NASA Science Mission Directorate Education and Public Outreach Community Workspace. The header features a banner with the NASA logo and the text "SMD E/PO Science Mission Directorate Education and Public Outreach Community". Below the banner is a navigation menu with links for Home, About, Get Involved, and Documents, along with a search bar. The main content area is divided into several sections:

- Left Sidebar:** Includes a "SMD Education Collection Search" section with a search box and a "Find a Resource" section with a search box and a "SEARCH" button. Below this is a "MY NASA DATA" section with a "MY NASA DATA Contributed Lesson..." link and a "NASA LARC" section with a description of the lesson.
- Center:** A large blue box contains a "Welcome to the NASA Science Mission Directorate Education and Public Outreach Community Workspace!" message. Below this is a "News from NASA SMD Headquarters" section featuring a news item about "NASA.gov Wins Two 2012 Webby Awards" with a "View Archive" link.
- Right Sidebar:** Contains a "Calendar" section for July, a "Log In" section with fields for "Username:" and "Password:" and a "Log in" button, and links for "Forgot your password?" and "Request an account".

At the bottom of the page, there is a "Community Announcements" section.

OPO Resources

- **Let's Talk**

