

Welcome to the Space Telescope Science Institute's Public Lecture Series

- Your host: Max Mutchler
- Lithographs on table
 - Please take one per person



TONIGHT

TransNeptunian Binaries and
Collision Families: Probes of
Our Local Dust Disk

Susan Benecchi

May 5, 2009

8 PM

STScI Auditorium

Upcoming Talks

- June 2, 2009 – Jason Tumlinson, The Invisible Galaxy: New Views of the Milky Way
- July 7, 2009 – Douglas Long, The Mystery of the 'Be' Stars

Web Site & Webcast

- Google “hubble lecture”
- <http://hubblesite.org/go/talks>
- List of upcoming speakers
- Link to current webcast
- Links to previous webcasts



Upcoming Lectures

| Date | Speaker |
|---------------|--|
| March 7, 2006 | Speaker: Dr. Adam Riess, STScI Title: Dark Energy and the Fate of the Universe |
| April 4, 2006 | Speaker: Dr. Massimo Robberto, STScI Title: Star Formation in the Orion Nebula |
| May 2, 2006 | Speaker: Dr. Keith Noll, STScI Title: The Kuiper Belt |

Upcoming Hubble Public Talk

Speaker: Dr. Frank Summers, STScI
"Astronomy Visualization: The State of the Art"

Broadcast will begin at 8:00 pm (EST), February 7, 2006
Replays of this broadcast will be available at 10:30 am (EST),
February 7, 2006

Speaker: Ian Jordan, STScI

December 6, 2005

"Distant Screens: From Extrasolar Planets to Eclipsing the North Star"



[Watch the Introduction](#)



[Introduction](#)



[Watch the Talk](#)



[Presentation Materials](#)

Scientific Symposium May 4-7



THE SEARCH FOR
LIFE
IN THE UNIVERSE

Public Lecture May 8 at 7:00 PM
at the Maryland Science Center:
Dr. Steven Squyers (Cornell):
Roving Mars

Hubble Servicing Mission 4

Launch currently set for

May 11, 2009

Two Space Shuttles sitting on the launch pad



Hubble was deployed and is serviced by the Space Shuttle

1990

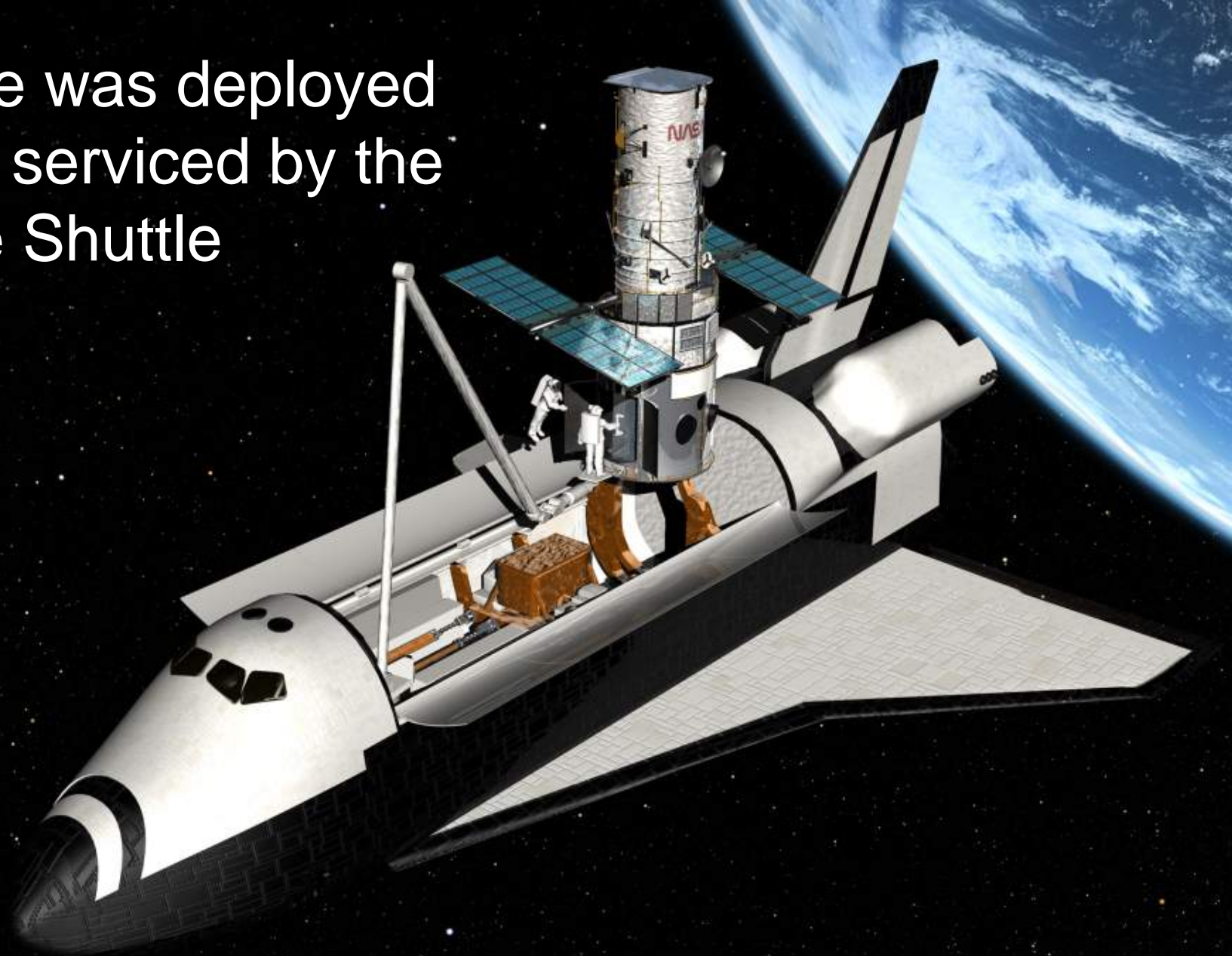
1993

1997

1999

2002

2009



5 days of spacewalking!



COMING SOON

STS 125 HUBBLE SERVICING

DREW
FEUSTEL

MEGAN
McARTHUR

GREG
JOHNSON

SCOTT
ALTMAN

MIKE
MASSIMINO

MIKE
GOOD

JOHN MACE
GRIMSFIELD

ATLANTIS 125



Hubble mission milestones as
chronicled by it's workhorse:

Wide Field Planetary Camera 2

(WFPC2, to be replaced with WFC3)

Hoiles HR lifts Orioles in 10th, 6-3: 1D

SCORER TAKES ERROR AWAY FROM CAL RIPKEN: KNICKS PICK TERPS' MUSTAF: 1D

THURSDAY

JUNE 28, 1990

THE SUN



SPORTS
FINAL

VOL. 307 NO. 37

BALTIMORE, MARYLAND

25 CENTS

Justices uphold Md. law shielding children in court

Victim not forced to face alleged abuser

By Lyle Denniston
Washington Bureau of The Sun

WASHINGTON — Children who accuse an adult of abusing them do not have to face that adult in court at a criminal trial, the Supreme Court ruled 5-4 yesterday as it upheld a Maryland law permitting child victims to appear via one-way television.

The court — rejecting an approach taken by Maryland's highest court — also ruled that the child need not be required to face the accused attacker before the trial, in an experiment to test how the child would react to a face-to-face meeting in court.

The decision, which produced a bitter dissent that accused the majority of giving in to popular sentiment, is expected to give prosecutors across the nation more opportunity to use children as key witnesses in the increasing number of child-abuse cases. Some estimates are that 2 million children a year are victims of abuse.

Although the specific case dealt with charges of sex abuse at a Clarksville day-care center, the ruling appears to reach all kinds of

child-abuse accusations and applies nationwide because it is based on the Constitution.

And, while the ruling applied directly only to Maryland's law allowing child witnesses to appear on one-way television instead of in court, it appeared to support similar laws in 23 other states. Citing those laws, the majority said they reflected "a widespread belief" that child witnesses should be protected from being forced to face accused attackers.

Upholding the Maryland law, Justice Sandra Day O'Connor's opinion declared: "We will not second-guess the considered judgment of the Maryland Legislature regarding the importance of its interest in protecting child-abuse victims from the emotional trauma of testifying."

The court indicated, however, that child witnesses may not be excused entirely from testifying — unless the child is not capable of giving testimony under any circumstances.

Before a child is allowed to appear as a witness via one-way television, the court stressed, a state judge must conclude that keeping that particular child out of the courtroom is "a necessity." It added: "The trial court

See ABUSE, 13A, Col. 1

Day-care operator Sandra Craig "extremely disappointed" by ruling. 13A

Congress gains authority to use 'affirmative action'

Hubble telescope crippled

Mirror flaw likely to go uncorrected for 2 to 3 years

By Warren E. Leary
New York Times News Service

WASHINGTON — In a stunning setback, engineers have found a major flaw in the main mirrors of the \$1.5 billion Hubble Space Telescope that is likely to cripple its ability to view the depths of the universe for several years, the National Aeronautics and Space Administration said yesterday.

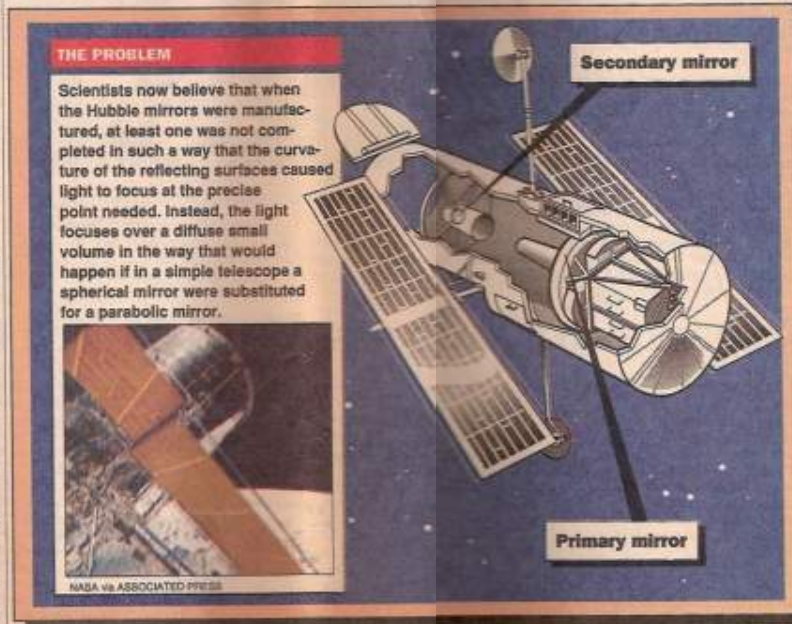
The engineers for the space agency said at a news conference that there was distortion in at least one of the two mirrors used to focus light aboard the orbiting observatory.

Although there may be ways for ground controllers to compensate for some of the problems caused by the distortion, a permanent correction in the largest and most complex scientific instrument ever put into space probably will have to wait two or three years for astronauts to visit the craft and replace some parts, they said.

Some of the instruments on the spacecraft, which was proposed 45 years ago and has been in the active planning and building phase for 12, will be unaffected by the problem. But the wide-field and planetary camera that was to perform 40 percent of the craft's scientific work will not be usable.

And the camera for making extremely precise images of faint objects will not function as designers had hoped. Astronomers hoped that these cameras, orbiting far above the Earth's murky light-distorting atmosphere, would collect light coming from near the edge of the universe.

"It's a tragedy; it's incredibly disappointing," said Dr. Sidney C. Wolff, director of the National Optical



SUN GRAPHICS/CHARLES HAZARD

Institute optimistic despite Hubble woes

Half of experiments to go on as planned

By Michael Olovey

Ray Villard, spokesman for the Space Telescope Science Institute in

generated. "While scientists and officials at the institute expressed disappointment, they nonetheless put a brave face on the setback, insisting that in the long run, their expectations for the telescope have not been diminished.

Horvey S. "Peter" Stockman, the

projects that are dependent on the instrumentation still working.

One of the institute's main functions is to schedule time on the telescope for astronomers and other scientists from around the world who have designed programs for the telescope to perform. The institute is the receiving point for the scientific data



“Top 10 reasons why the Hubble telescope isn’t working...”





WFPC2 installed during servicing mission 1 in December 1993



WFPC2 from 1993-2001:

*The camera that
made Hubble famous*

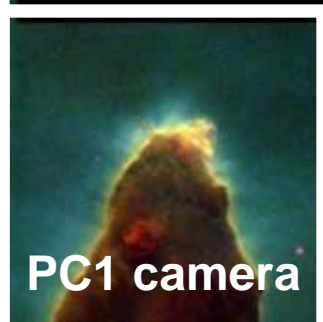


Comet Shoemaker-Levy 9 impacts Jupiter...
and Hubble's comeback story begins!

WF2 camera



PC1 camera



WF3 camera



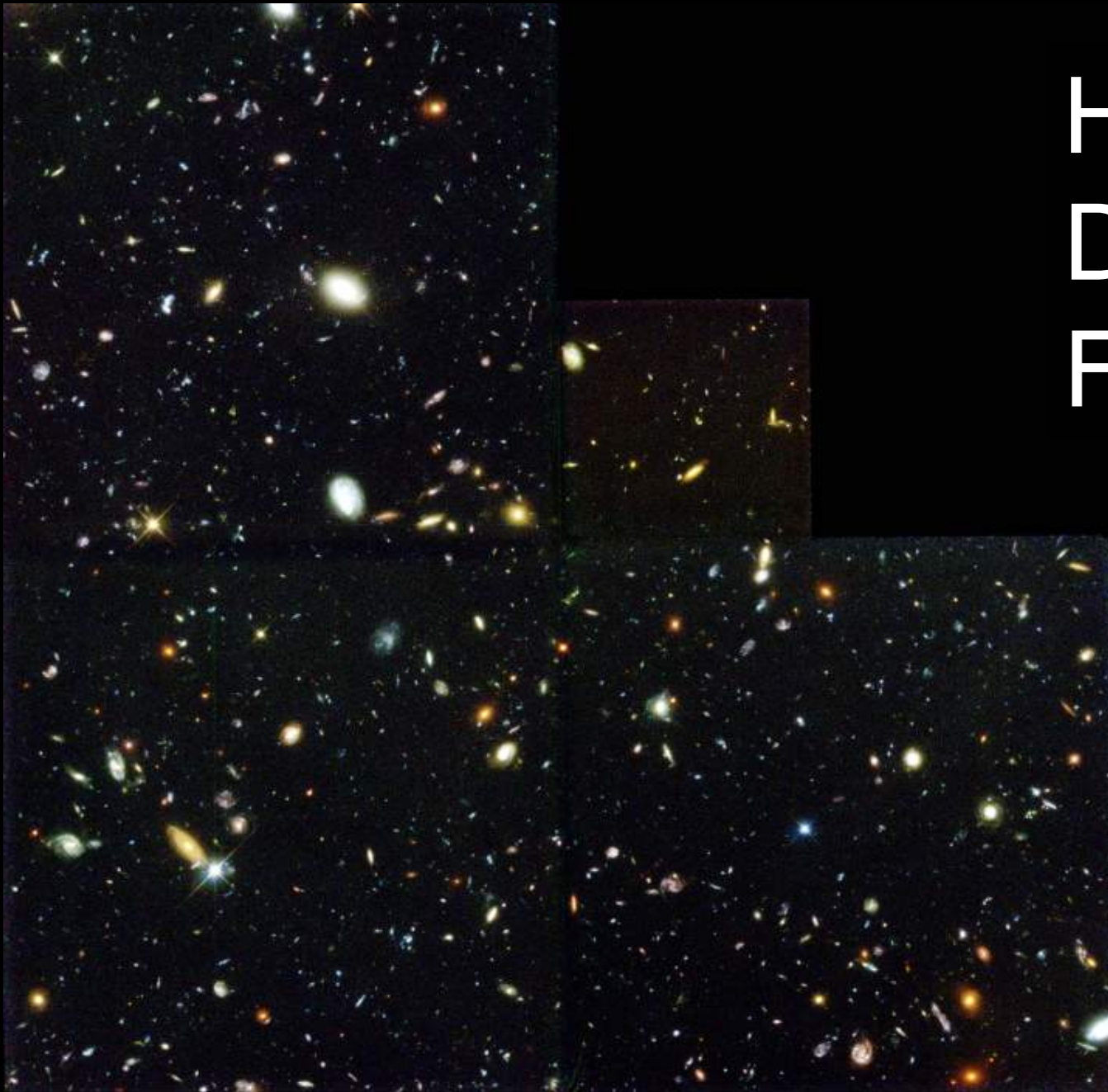
WF4 camera



Eagle Nebula

*Hubble's quirky
WFPC2 images
become icons*

Hubble Deep Field



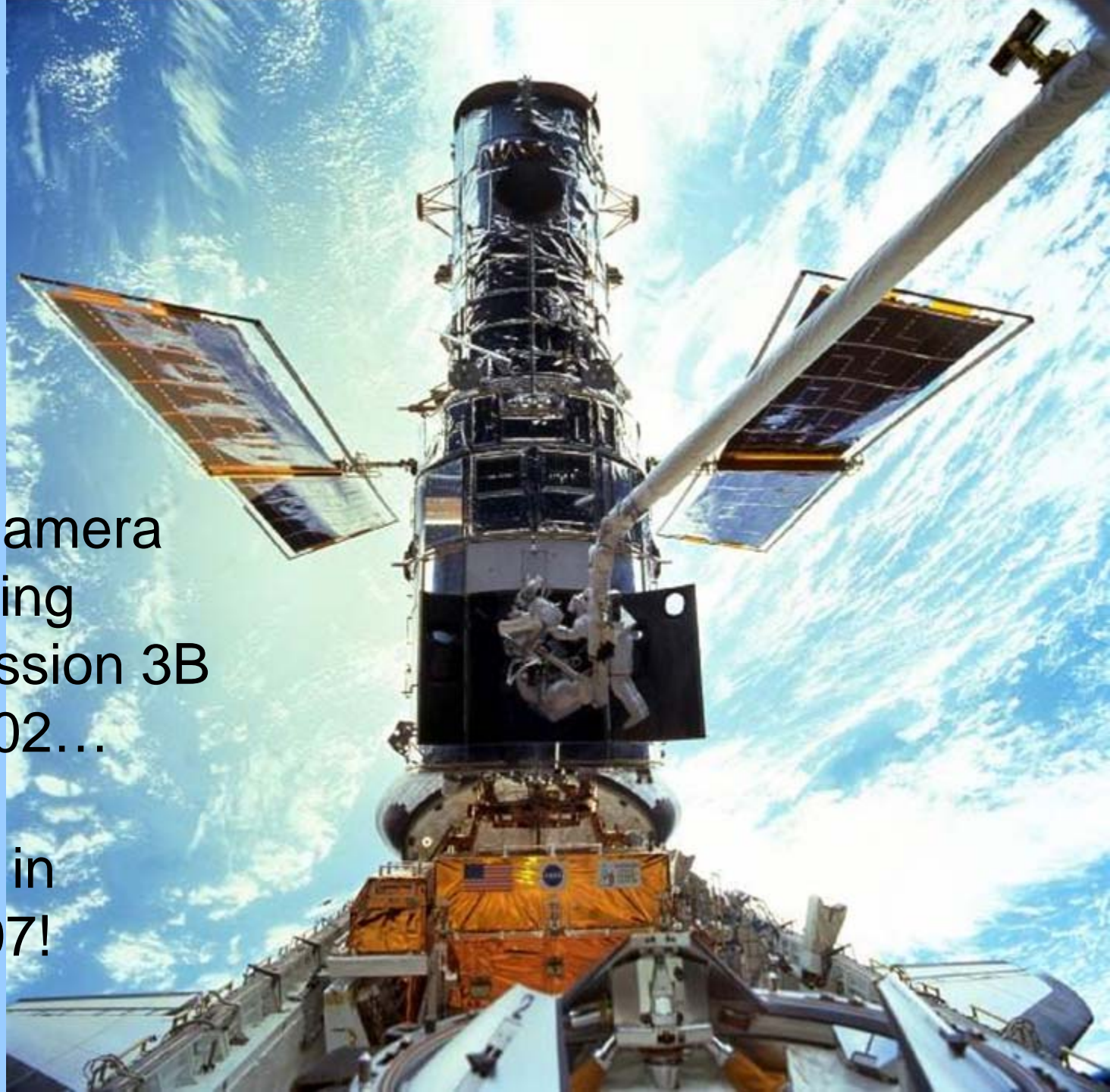
Hubble Deep Field

ST ScI OPO January 15, 1996 R. Williams and the HDF Team (ST ScI) and NASA

HST **WFPC2**

Advanced Camera
installed during
servicing mission 3B
in March 2002...

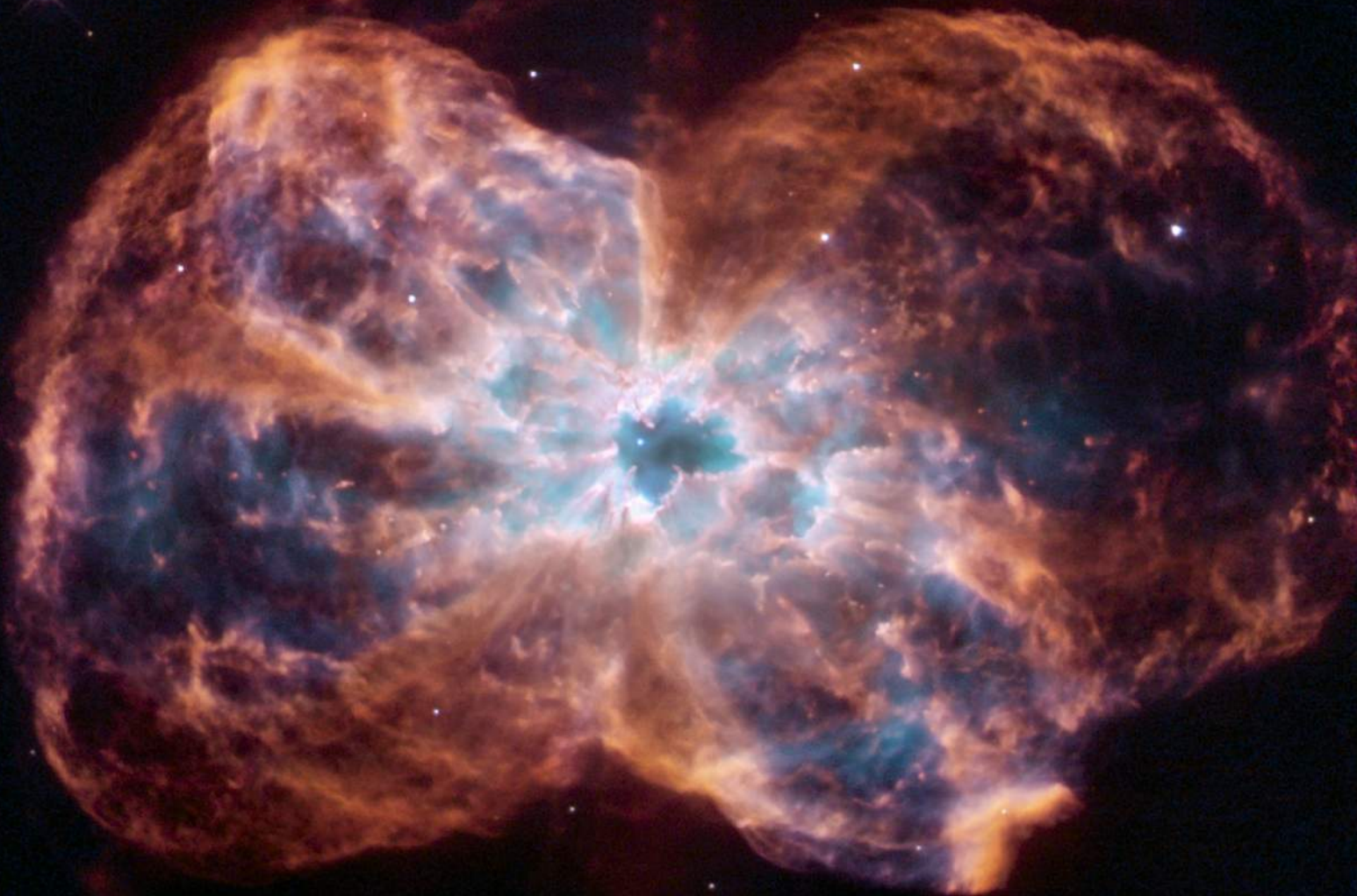
...and failed in
January 2007!



WFPC2 from 2007-2009:

*Back to the future,
and finishing strong!*

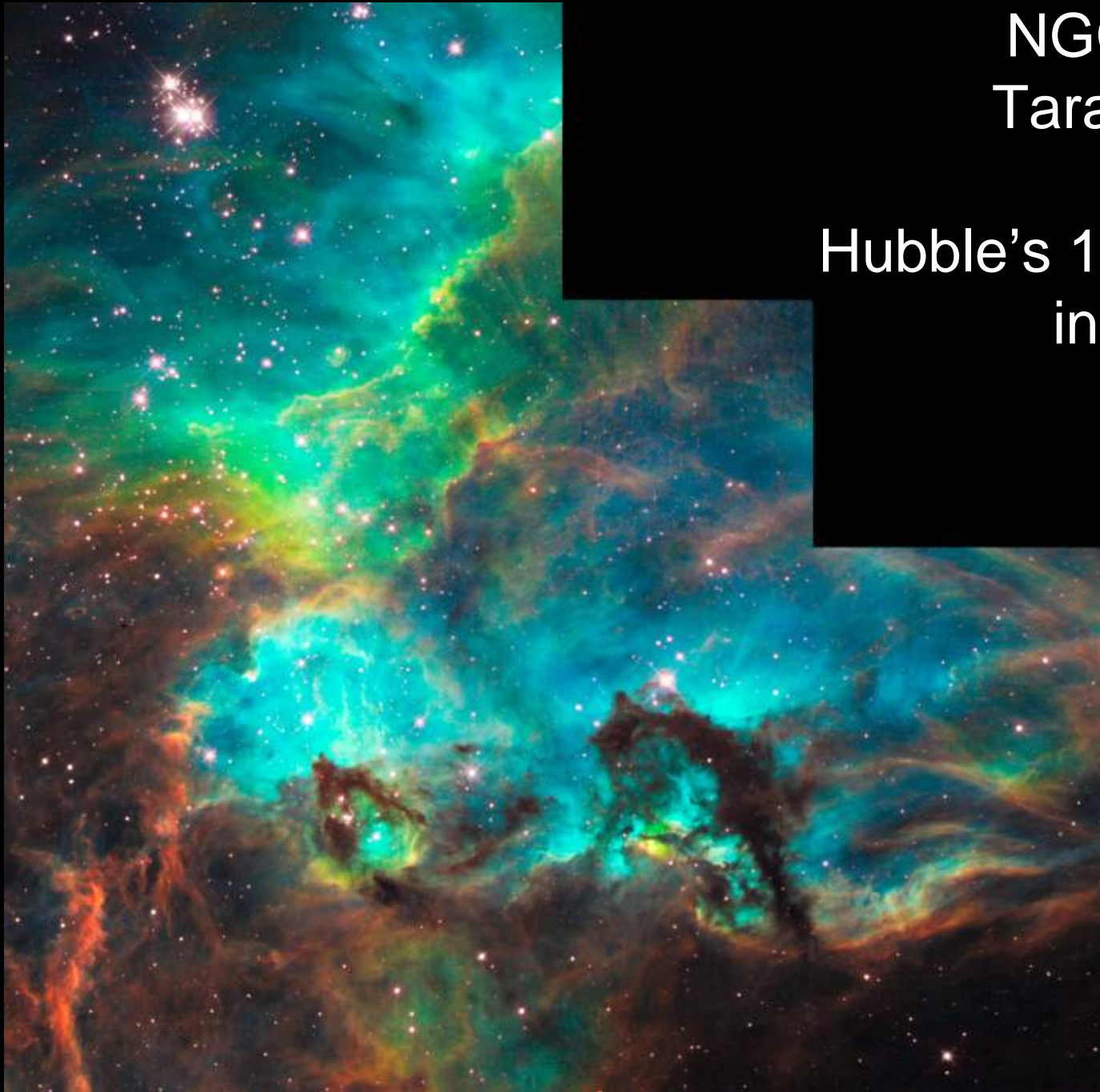
NGC 2440 in January 2007



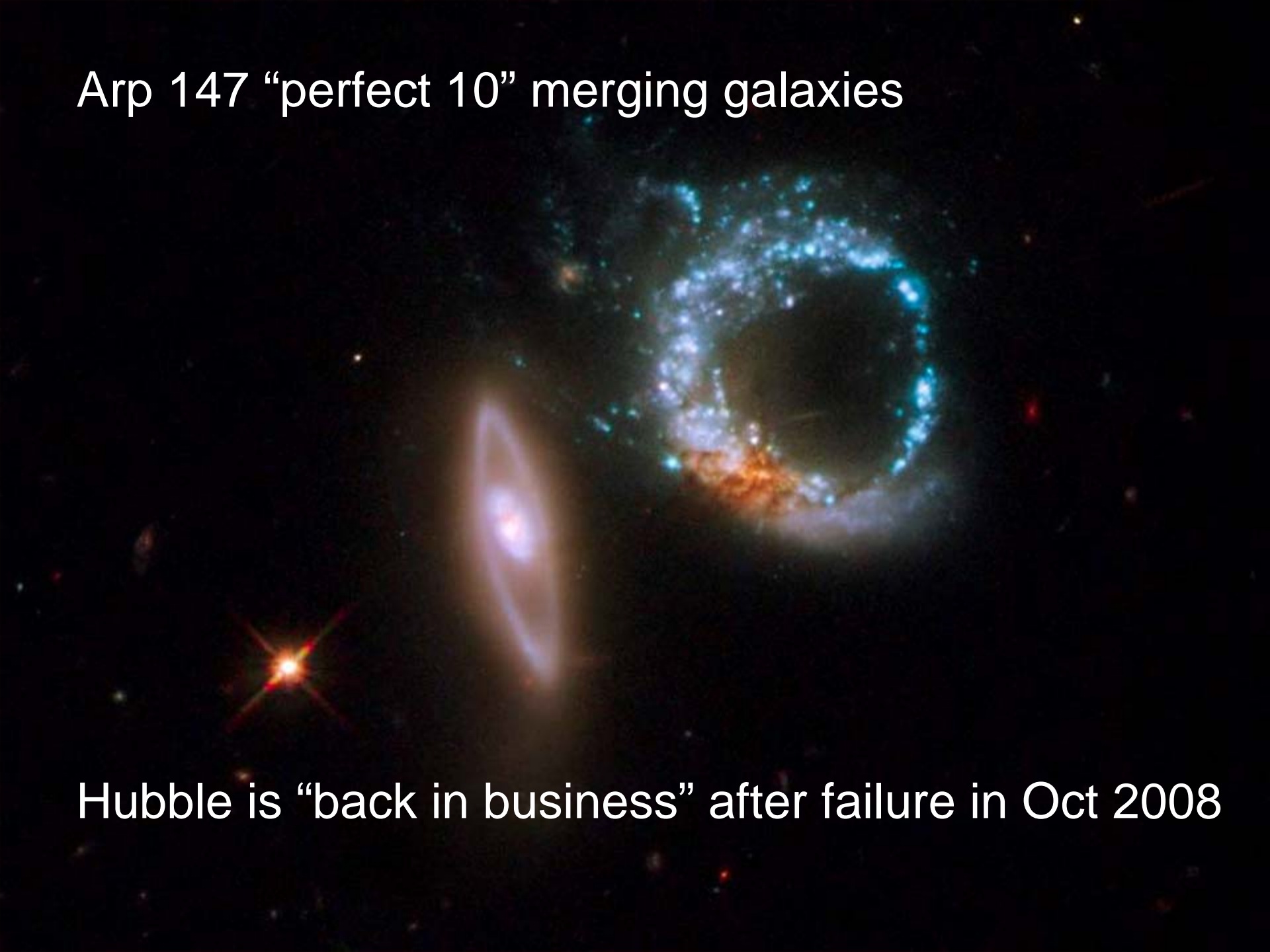
First image taken after ACS failure

NGC 2074 in the
Tarantula Nebula

Hubble's 100,000th orbit
in August 2008



Arp 147 “perfect 10” merging galaxies



Hubble is “back in business” after failure in Oct 2008

Arp 194
merging galaxies

Hubble's
19th Anniversary
on April 24, 2009



Our Featured Speaker

Susan Benecchi

TransNeptunian Binaries and
Collision Families: Probes of
Our Local Dust Disk