Director’s Report
October 2007

- STUC Issues
- Science and highlights
- The Challenges
  - SM4
  - Budget and Staffing
- Multi-cycle treasury programs
- Lunar Science initiative
STUC Issues

- HST & SM4
  - August 7, 2008 is the new STS 125 launch date
  - EVA priorities “look ok”

  “Thank the STUC on behalf of the division and SMD for their efforts at looking into the SM-4instrument repair prioritization. We appreciate the hard work and the strong scientific cases that were made for both STIS and ACS.”
  
  Jon Morse

- Budget
- Hubble Legacy Archive (HLA)
- Early Release Science - the process
- New initiatives
  - Multi-cycle Treasury Programs
  - Lunar Science “pump priming”
Mass in stars $\sim 10^6 - 10^8 M_{\text{sun}}$
Size $\sim 1 \text{kpc}$  (c.f. 30kpc for our galaxy)
Age $< 2 \times 10^6 \text{ yr}$

“They are likely to be some of the least massive high redshift galaxies observed to date”

Norbert Pirzkal (ESA-STScI)
Planetary Nebulae

NASA, ESA, and The Hubble Heritage Team (STScI/AURA) • *Hubble Space Telescope* WFPC2 • STScI-PRC07-33b
I love these summer evening reality checks from Oliver!

Hold out a speck of sand at arm’s length...

That’s the portion of the night sky at which they pointed the Hubble Telescope for a week.

It was there—deep within that dot of dark nothingness—ten billion light years distant—that they found the unexpected:

Galaxies! Thousands! Thousands!

...with billions of stars! ...and trillions of new worlds.

And beyond those...More!

All in the space of a single grain of sand on the vast beach of the cosmos.

Which nicely frames the question man has been asking for millennia.

What question?

What’s the center of it all?

Me. Me. Baby.
YET ANOTHER REASON TO GET GOOGLE EARTH

Hubble Teams With Google to Bring The Cosmos Down to Earth

"Imagine cruising the heavens from your desktop and seeing all the spectacular images from NASA’s Hubble Space Telescope. Exploding stars and faraway galaxies are just a mouse click away through Sky in Google Earth. Sky in Google Earth is produced by Google, the company that hosts the popular Internet search engine, through a partnership with the Space Telescope Science Institute in Baltimore, the science operations center for Hubble. To access the new feature, users will need to download the newest version of Google Earth, available free of charge."

launched 22 August 2007
A Workshop to raise awareness in Europe on the expanded scientific capabilities of Hubble after Servicing Mission 4

29-31 January 2008
Bologna, Italy
The Challenges

Space Telescope Science Institute
SM4 Priorities from SMD:

- Gyro’s
- WFC-3
- COS
- Batteries
- FGS
- STIS & ACS repair
- NOBL’s
This is only 10 months away!
Budgets and Staffing
Staffing Trend
## STScI Mission Operating Budgets

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<tbody>
<tr>
<td><strong>HST</strong></td>
<td>$44.9M</td>
<td>$42.6M</td>
<td>$44.5M</td>
<td>$42.6M</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>(incl. I/F upgrades)</td>
<td>(inc. HLA)</td>
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<tr>
<td><strong>JWST</strong></td>
<td>$9.4M</td>
<td>$8.4M</td>
<td>$8.5M</td>
<td>$15.2M</td>
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<tr>
<td><strong>Other Missions</strong></td>
<td>$1.9M</td>
<td>$3.0M</td>
<td>$3.0M</td>
<td>$2.9M</td>
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<tr>
<td><strong>Total</strong></td>
<td>$57.4M</td>
<td>$54.0M</td>
<td>$56.0M</td>
<td>$60.7M</td>
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STScI Staffing Profile

The diagram illustrates the staffing profile for different projects over a span of years, specifically STScI (Space Telescope Science Institute), JWST (James Webb Space Telescope), and HST (Hubble Space Telescope). The graph shows the number of Full-Time Equivalents (FTEs) for each project from 2007 to 2014.
Multi-cycle treasury programs

From Trenti & Stiavelli (2007)

The effect of cosmic variance on high-redshift galaxy counts observed with HST

150 NICMOS orbits
50 WFC3 orbits
800 NICMOS orbits (from HST archive)
1 field NICMOS
1 field WFC3
6 independent fields NICMOS

z-dropouts
J-dropouts
Poisson noise

Time to break the cycle:

“and now for something completely different”

• solicit direct community input
• use the TAC
• leverage the best ideas with DDT

http://www.stsci.edu/institute/org/spd/HST-multi-cycle-treasury
“Hubble's exquisite resolution and sensitivity to ultraviolet light, which is reflected off the Moon have enabled the search for minerals that may be critical for the establishment of sustained human presence on the Moon”
- Garvin et al 2005

Is there a Lunar Science community we are not serving?

• Issue call for White Papers
• Allocate ~30 orbits DDT in Cycle 18
• NASA SMD will cover additional costs (scheduling, visiting scientist)