# Program Update

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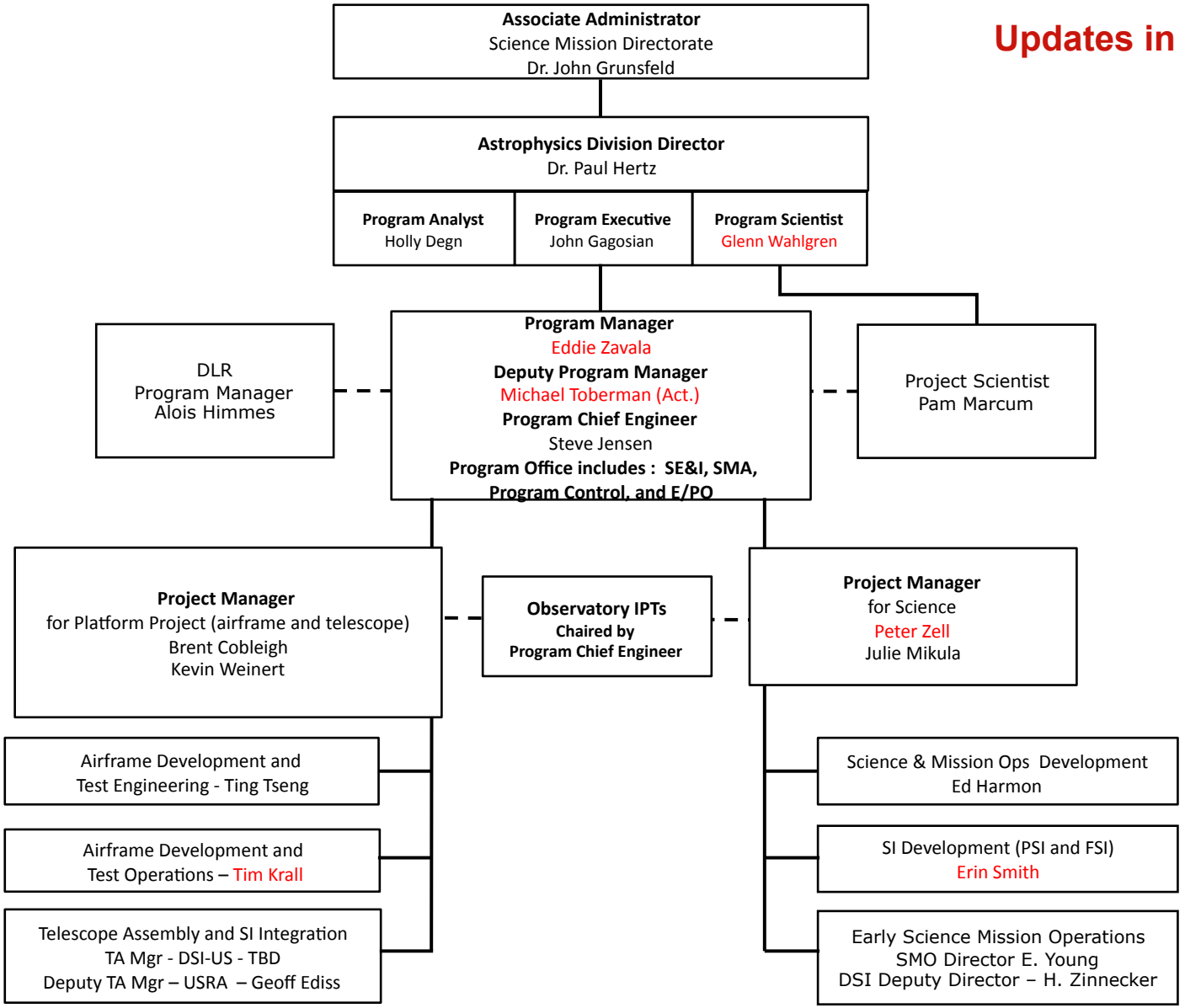
2nd SOFIA Users Group (SUG) Meeting
September 17, 2012

# SOFIA Programmatic Organization (Development Phase)

**Updates in red font**



# SOFIA Early Science Published

- Special Section in the U.S. publication *Astrophysical Journal*
  - Features FORCAST results from Early Science
  - 8 papers published in the April 2012 issue

- Special Issue of European Journal *Astronomy & Astrophysics*
  - Features GREAT results from Early Science
  - 22 papers published in June 2012

***That's 30 papers published in refereed journals from 330 hours of science and engineering flights***

# Program Announcements

- Second Generation instrument announcement was made on April 17, 2012 by NASA HQ
  - Science instrument upgrade involving HAWC instrument which includes:
    - Polarimetric capability to make observations at far-infrared wavelengths
    - More sensitive, large-format detector array

- Cycle 1 selection announced August 28, 2012 with 39 U.S. and 10 German proposals selected for a total of 200 community science hours
  - Detailed science plans are progressing well

# Observatory Improvement Status

- **Program is on-track to start Cycle 1 Science this Fall**
  - Segment 3 Avionics upgrade effort is ongoing and has been concurrently phased with remaining formal testing effort
  - Considerable technical risk has been reduced through recent line operations
- Design improvements to the MCCS to address stability issues are working
  - As a result, test team has been able to focus on observatory performance improvements
- Line ops testing conducted throughout July & August 2012. Preliminary results indicate that Observatory capabilities are satisfactory to start Cycle 1 science observations. (Ground test results)
  - Pointing and tracking improvements are significantly better compared to Segment 2
  - TA alignment was very successful – developed capability to perform in-flight alignment
  - A few additional issues were identified, but **No Show-Stoppers**
  - Full performance of the observatory will be ongoing and will be characterized during upcoming engineering flights

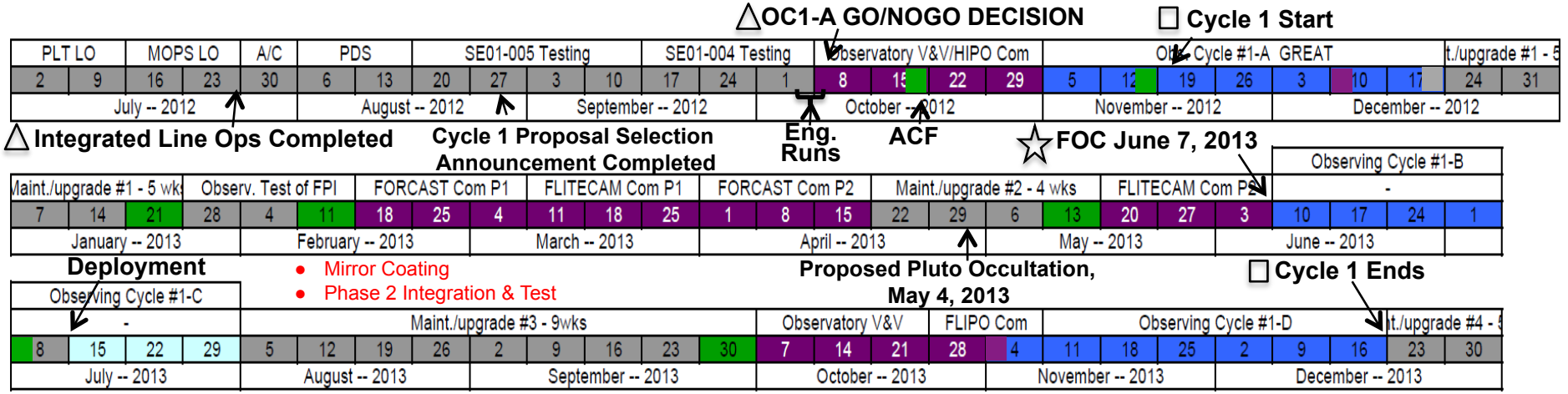
# Program Priorities are Shifting!

- Program has begun the transition from a development-driven schedule to a **Science-driven schedule** from this point forward
- Science campaigns will become fixed in time and duration to provide increase schedule stability
- There will continue to be a considerable Development / Operations overlap during this transition. Observatory development, integration, testing, and SI commissioning will be prioritized to meet science schedule
- All Science Instrument efforts are continuing and are on-track for Cycle 1 commissioning and science

# Program Priorities are Shifting!

- Program has funded the full staffing of Mission Operations and Aircraft Operations to support the ramp up to the max flight rate (4 flights/wk) in Cycle 1
- Program has fully funded all planned science and commissioning flights in Cycle 1
- Program accelerated the Southern Hemisphere deployment by 1 year to July 2013
- **Program Operation capabilities should be at full strength by the start of Cycle 2!**

# Schedule Overview: Cycle 1 Science




## Observing Cycle #1 flts/wk

| OC | WK 1 | WK 2 | WK 3 | WK 4 | WK 5 | WK 6 | Tot |
|---|---|---|---|---|---|---|---|
| 1-A | 1 | 2 | 2 | 1 | | | 6 |
| 1-B | 2 | 2 | 3 | 3 | | | 10 |
| 1-C | 0 | 3 | 4 | 2 | | | 9 |
| 1-D | 3 | 3 | 4 | 2 | 4 | 4 | 20 |
| FLIPO | 1 | | | | | | 1 |

☆ **Program**
△ **Observatory**
☐ **Project**

Observing Flights
Instrument Commissioning
Platform / Engineering Flights
Aircraft Maintenance / Observatory Upgrade
Deployment

**Cycle 1: 18 weeks, 46 flights, 200.9 CfP Hours (8.00 RH per flight, 327.5 RH)**

# Completed Reviews / Testing

- Completed design review of upgraded FPI on June 20-21, 2012. Anticipate system delivery in late-September 2012, with installation planned for January 2013
- Aluminum secondary mirror (new spare) informational brief to the Program Management Board (July 9, 2012)
- SOFIA Pointing Optimization Team (SPOT) meeting held August 20-21, 2012
- Mirror Coater dismantled, transported to Palmdale on July 20, 2012
  - Completed acceptance testing last week
  - System upgrades to start this week
  - Commissioning in December 2012
- First water wash of primary, secondary and tertiary mirrors was completed on August 30, 2012, measurements were taken and show good improvement in emissivity and reflectivity

# Program Summary

- Considerable technical risk has been reduced through successful line operations, which indicate all key capabilities required for Cycle 1 science should be available
- Residual risk associate with remaining Verification and Validation testing
- Program priorities from this point forward will emphasize the transition from a Development-driven schedule to a Science-driven schedule
- Cycle 1 selection announced with 39 U.S. and 10 German proposals selected for a total of 200 community science hours
- Program investments focused on transitioning from development to science operations, achieving maximum flight rate during Cycle 1
- **Program is on-track to start Cycle 1 Science in November 2012**