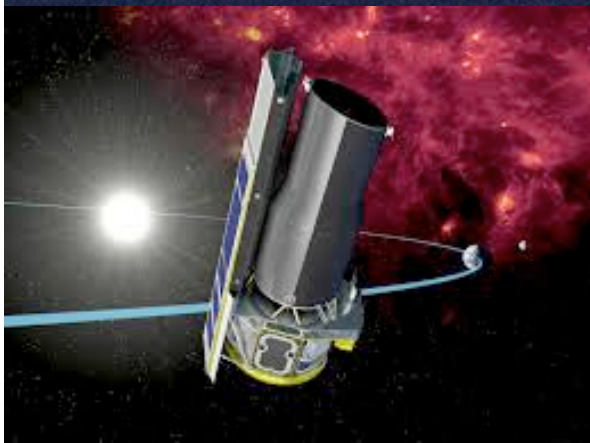


Cosmic Origins Program Analysis Group

Ken Sembach
(STScI)



2015 COPAG Executive Committee



Daniela
Calzetti



Dennis
Ebbets



James
Green



Sally
Heap



Lynn
Hillenbrand



Mary Beth
Kaiser



Joseph
Lazio



David
Leisawitz



James
Lowenthal



Pamela
Marcum



Ken
Sembach

2014 COPAG Ex-Officio Members



Susan Neff
(GSFC COR Program Office)



Deborah Padgett



Mario Perez



Michael Garcia

(NASA HQ)

COPAG Exec Committee members recently completing service:

Julianne Dalcanton

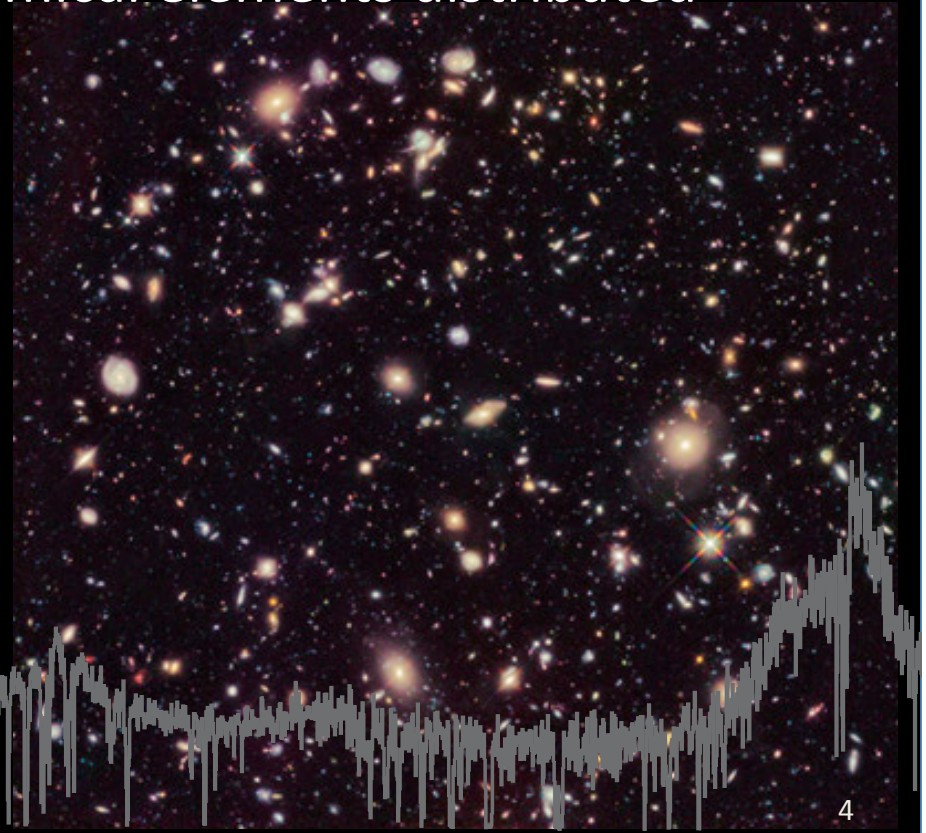
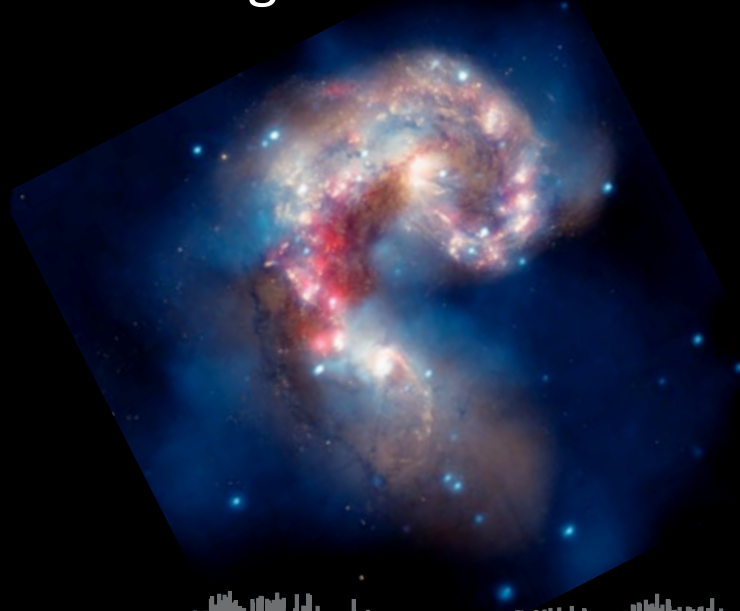
Paul Scowen

David Leisawitz (rotating off in February 2015)

James Lowenthal (rotating off in March 2015)

Cosmic Origins Questions

- How did we get here?
 - How and when did galaxies form?
 - How do stars form, evolve, and eventually die?
 - How are matter and the chemical elements distributed throughout the universe?



COPAG Tasks

(Anyone in the scientific community may participate)

- Solicit and coordinate community input into the development and execution of NASA's Cosmic Origins (COR) Program
- Analyze input in support of the planning of future COR activities
- Specific types of tasks include
 - Articulating and prioritizing key science drivers for COR research
 - Evaluating capabilities of potential missions for achieving COR science goals
 - Providing input and analysis on related activities (e.g., theory, laboratory astrophysics, suborbital investigations, data archiving, etc) needed to achieve COR science goals
 - Identifying focus areas for technologies needed to advance COR science
- All input is provided to the NASA Astrophysics Subcommittee, which reports to the Director of NASA's Astrophysics Division

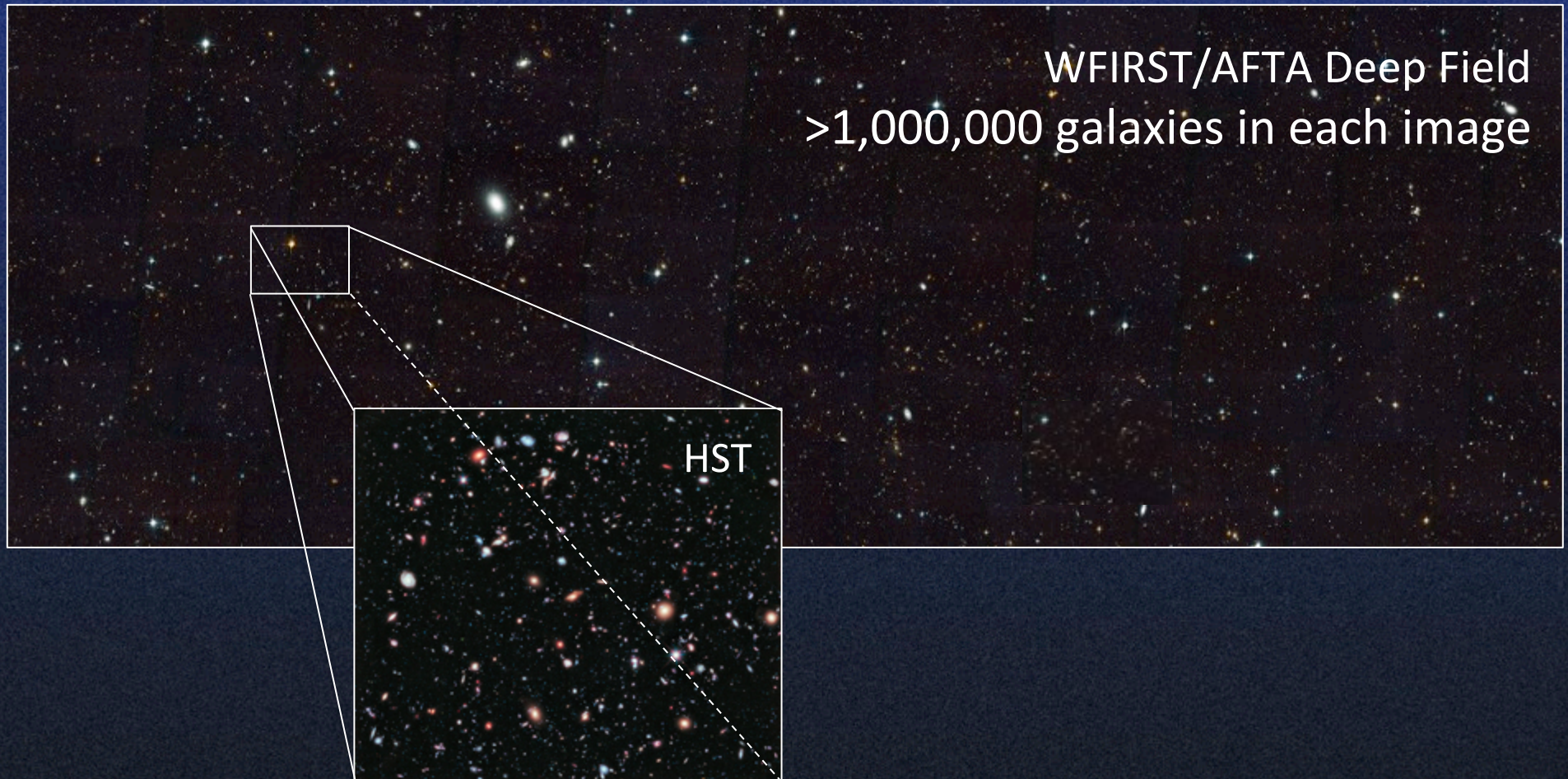
2015 Science Analysis Groups (SAGs) and Science Interest Groups (SIGs)

- **SAG #8:** Science Enabled by the WFIRST-AFTA Data Archive
- **SAG #9:** Science Enabled by Spitzer Observations Prior to JWST Launch
- **SIG #1:** Far-Infrared Cosmic Origins Science and Technology Development
- **SIG #2:** Ultraviolet and Visible Cosmic Origins Space-Based Science and Technology Development

Interested? **Join the COPAG.** Contact a COPAG EC member,
email COPAG_contact@bigbang.gsfc.nasa.gov,
or see us at the NASA booth here at the AAS!

SAG #8: Cosmic Origins Science Enabled by the WFIRST-AFTA Data Archive

- WFIRST-AFTA will produce a huge archive for research related to Cosmic Origins



SAG #8: Cosmic Origins Science Enabled by the WFIRST-AFTA Data Archive

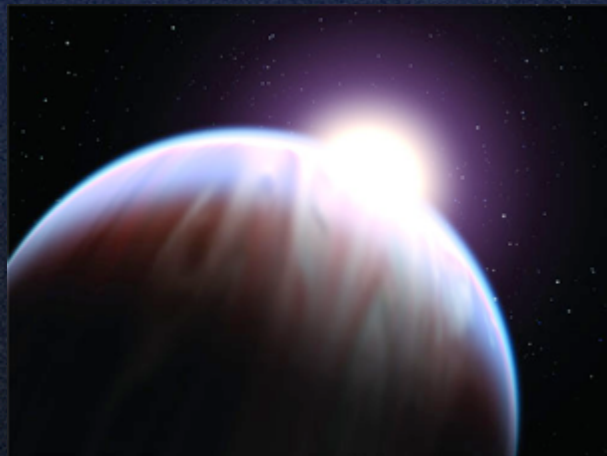
- Analyze how the archive is to be used and scope the data requirements necessary to conduct COR science
- Solicit community input to identify the types of investigations and the kinds of data products that are valued and needed
- Consider what other assets or efforts may be needed to maximize the science return from the WFIRST archive
 - E.g., Coordination with LSST, Euclid, or JWST; GO funding for ground-based observations or theoretical studies
- COPAG Lead is Sally Heap (sally.heap@nasa.gov)

SAG #9: Science Enabled by Spitzer Observations Prior to JWST Launch

- Engage the astronomical community in identifying compelling science to be done with JWST that is enabled by or benefits from large blocks of Spitzer observing time.

Science areas to be explored include:

- Extrasolar planets and planetary systems
- Properties and structures of the Milky Way
- Nearby galaxies
- Galaxy evolution and cosmology



Within these areas, the unique contributions that Spitzer observations can offer are being considered.

COPAG Lead is Daniela Calzetti (calzetti@astro.umass.edu)
Or email: copag.sag9@gmail.com

Decadal Survey Planning for Large Missions

The initial short list (in alphabetical order):

[Paul Hertz chart]

- **FAR IR Surveyor** – The Astrophysics Visionary Roadmap identifies a Far IR Surveyor as contributing through improvements in sensitivity, spectroscopy, and angular resolution.
- **Habitable-Exoplanet Imaging Mission** – The 2010 Decadal Survey recommends that a habitable-exoplanet imaging mission be studied in time for consideration by the 2020 decadal survey.
- **UV/Optical/IR Surveyor** – The Astrophysics Visionary Roadmap identifies a UV/Optical/IR Surveyor as contributing through improvements in sensitivity, spectroscopy, high contrast imaging, astrometry, angular resolution and/or wavelength coverage. The 2010 Decadal Survey recommends that NASA prepare for a UV mission to be considered by the 2020 Decadal Survey.
- **X-ray Surveyor** – The Astrophysics Visionary Roadmap identifies an X-ray Surveyor as contributing through improvements in sensitivity, spectroscopy, and angular resolution.

Decadal Survey Planning for Large Missions

- **Far IR Surveyor**
- **Habitable Exoplanet Imaging Mission**
- **UV/Optical/IR Surveyor**
- **X-ray Surveyor**

All of these missions would enable Cosmic Origins science.

The COPAG Executive Committee will be soliciting your input on these missions and any others you believe address the charge given to the PAGs by NASA HQ.

http://cor.gsfc.nasa.gov/copag/



National Aeronautics and Space Administration
Goddard Space Flight Center

- Goddard Space Flight Center
- Sciences and Exploration Division
- Astrophysics Science Division



COSMIC ORIGINS

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- SIGs and SAGs
- Contact the COPAG

Links

- Sign up for COR News and Announcements
- Paul Hertz message, Sept 2014
- Newsletters
- NASA Astrophysics Program Offices
- Multimedia Library
- Request for Information RFI2012 - UV/Visible Science Investigations
- Documents

Cosmic Origins Program Analysis Group (COPAG)

NOTE: The COPAG is an analysis arm of the **Astrophysics Subcommittee** of the **NAC Science Committee**. The COR Program Office maintains the web page as a service to the community.

Objectives

The Cosmic Origins Program Analysis Group (COPAG) is constituted by the NASA Astrophysics Subcommittee (**ApS**) to support community coordination and analysis of scientific and technological issues impacting NASA's Cosmic Origins (COR) Program (**COPAG Charter**). In the past, the COPAG has supported analysis of technological priorities for potential future Cosmic Origins strategic missions, organized workshops on future missions' science goals, constituted Science Analysis Groups to identify ways to maximize COR science returns from future missions such as JWST and WFIRST, and explored ways for the US science community to pursue Spica-like science. The COPAG organizes **open meetings and workshops** for science community members.

All COPAG substantive activities—meetings, workshops, Science Analysis Groups, Science Interest Groups, telecons, or other core work—are open to participation by the community. The COPAG is coordinated by an Executive Committee, which meets biweekly by telecon.

Executive Committee

	<u>Start Date</u>	<u>Institution</u>
Kenneth Sembach (Chair)	September 2010; as Chair July 2013	Space Telescope Science Institute
Daniela Calzetti	December 2013	University of Massachusetts
Dennis Ebbetts	December 2013	Ball Aerospace
James Green	December 2013	University of Colorado
Sara Heap	December 2013	NASA/Goddard Space Flight Center
Lynne Hillenbrand	October 2011	Caltech
Mary Elizabeth Kaiser	November 2014 –October 2017	Johns Hopkins
Joseph Lazio	November 2014 –October 2017	NASA/JPL
David Leisawitz	October 2011	NASA/Goddard Space Flight Center

Program News

3 Dec 2014
COR Science Interest Group (SIG) for UV/Vis Space-Based Science and Technology Approved » **Announcement | Charter**

18 Nov 2014
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1 Oct 2014
2014 COR Program Annual Technology Report (PATR) now available » **[PDF]**

Project News

Hubble News
13 Nov 2014
The Party's Over for These Youthful Compact Galaxies » **Details**

Spitzer News
24 Sep 2014
NASA Telescopes Find Clear Skies and Water Vapor on Exoplanet » **Details**

Herschel News
17 Jun 2013
Herschel Decommissioned » **Details**

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17 Jun 2013
Herschel Decommissioned » **Details**

Please join us!
If you have questions or comments, email us at **COPAG_Contact@bigbang.gsfc.nasa.gov**