

# Implementing Portals of the Universe – A Missions “Lessons Learned” Workshop

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# Background

NASA commissioned the NRC to conduct a thorough review of NASA Science Centers in 2007

Resulted in NRC Report “Portals of the Universe” with three major recommendations:

1. **NASA should establish a large new center only when the following criteria are met: (1) the existing centers lack the capacity to support a major new scientific initiative and (2) there is an imminent need to develop a new infrastructure to support a broad base of users.**
2. **NASA should adopt a set of best practices as guiding principles to ensure the effectiveness of existing flagship and archival NASA astronomy science centers and to select the operational functions of any future centers.**
3. **NASA should ensure that NASA astronomy science centers cooperate among themselves and with other agencies to develop strategies and plans for**
  - ◆ **Developing common protocols and formats for proposal entry;**
  - ◆ **Developing a universal infrastructure for data formats and metadata, archiving, and retrieval and analysis tools; and**
  - ◆ **Providing curriculum materials and professional development programs for K-12 teachers.**

# Timeline:

- 30/7/2011: Jon Morse commissions NRC study for late 2011/early 2012 to complement “Portals” by
  - ◆ examining the processes used by each science center, and comparing these processes between the science centers, for reviewing and awarding telescope observing time, access to scientific data, and funding.
  - ◆ The timing of this study is driven by several factors....
    - ◆ the startup of the SOFIA science center. ..
    - ◆ Spitzer is coming closer to the end of its observational life
    - ◆ .... see how each of the science centers might learn and benefit from the work of the others.
- Morse steps down & replaced by Geoff Yoeder, as acting director
  - ◆ Agrees to delay (then drop) NRC study in favour of workshop to be held in early 2012
- Paul Hertz takes over as Director, Astrophysics Division, in early March
  - ◆ Workshop confirmed, hosted by STScI for NASA HQ
  - ◆ Scheduled for April 25, 2012
  - ◆ Coordinated by Lia LaPiana @ NASA HQ, INR @ STScI

# Workshop focus

## ■ Participants

- ◆ Representatives from HST, Spitzer, Swift, Chandra, Kepler, NexSci, Herchel, SOFIA, Fermi & JWST + NASA HQ personnel
  - ◆ Addresses recommendation #3 from Portals of the Universe

## ■ Workshop addresses two issues:

- ◆ What activities do each science center feel they are doing well that they want to share with the other centers & that should be emulated by developing/future missions?
- ◆ Setting aside budget issues, what does each science center feel are constraints in current policies that impede their ability to do better?

## ■ Workshop products

- ◆ A document summarising best practices for establishing science operations centers for future NASA missions
  - ◆ Addresses recommendation #2 from Portals in the Universe
- ◆ A report to NASA HQ summarising possible policy changes

# Workshop format

## ■ One-day meeting

- ◆ Morning – brief (20-minute) presentations from HST, Spitzer, Chandra, Swift, NExSci, Herschel, Kepler & SOFIA
  - ◆ Basic mission parameters, 3 recommended best practices, 1-2 concerns
- ◆ Afternoon – open discussion on 6 topics
  - ◆ Proposal Processes – TAC, grant/contract funding
  - ◆ Community Interaction – User committee, reports, social media
  - ◆ User Support – documentation, help desk, data reduction & analysis tools
  - ◆ Operational Processes – mission planning/scheduling, instrument calibration
  - ◆ Archival Support – Data storage, reprocessing, long-term curation
  - ◆ Science Policy issues

# Participants

- Spitzer/IPAC/NexSci: Chas Beichman, Rachel Akeson, Dawn Gelino, George Helou, Lisa Storrie-Lombardi, Mike Werner
- Swift: Frank Marshall (HST-GSFC)
- Kepler: Martin Still, Steve Howell (remote)
- SOFIA: Erick Young, Bill Reach, B.-G. Andersson, Neil Callis, Pam Marcum (maybe)
- Chandra: Belinda Wilkes, Roger Brissenden
- HST: Ken Sembach, Brad Whitmore, Jennifer Wiseman (HST-GSFC), Ken Carpenter (HST-GSFC)
- NASA HQ: Paul Hertz, Lia LaPiana, John Gagosian, Hashima Hasan, Christopher Davis, Mario Perez, Michael Moore (possible), Jaya Bajpayee, Glenn Wahlgren,
- Fermi: Julie McEnery
- JWST: Massimo Stiavelli
- STScI: Matt Mountain, Kathy Flanagan, Neill Reid

# Preparations

- 3 preparatory telecons so far + information sharing
- Several issues emerging as common themes:
  - ◆ Early integration of science operation & instrument team members
  - ◆ Active research staff involved in instrument development & support to enhance capabilities
  - ◆ Adequate planning for archival support from the start of a mission
  - ◆ Adequate support for production of high-level science products during a mission
  - ◆ Diverse range of science programs
  - ◆ Use of workshops to engage & educate community
  - ◆ Software support – revise & re-use; engage community where possible

# Products

- Policy report to NASA HQ within 1 week of meeting
- Best practices document completed by end of May