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