



# Implementing Portals to the Universe

A workshop held at STScI, 25/4/2012

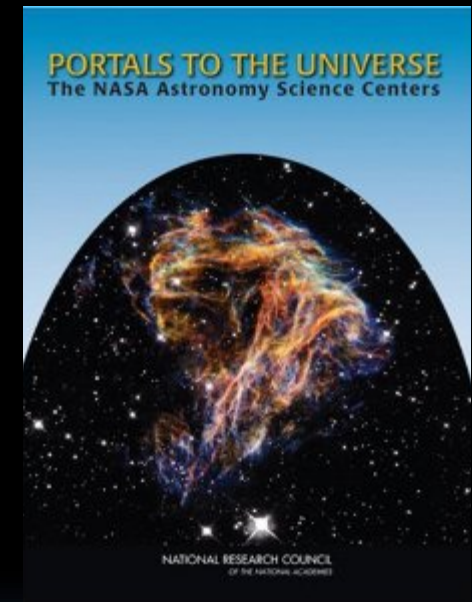
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# Research staff at NASA Astronomy Centers: Portals to the Universe

NRC study commissioned by NASA in 2007 to *“examine current astronomy science centers with respect to their roles and services, to identify lessons learned and best practices, and to consider whether there are optimum sizes or approaches for such centers”*.

The NRC panel concluded that current science centers are well suited to supporting NASA’s on-going mission activities.

In particular, the committee commented that it *“viewed the presence of research scientists and visiting scientists at the NASA astronomy science centers as enhancing the role of those centers..”* and that it *“believes that all scientists at a center should be involved, at some level, in facilitating the mission with which the center is involved.”*



# Recommendations

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.



**Astronomy science centers were “*established by NASA to serve as the interfaces between the missions and the community of scientists who utilize the data*”**

**Their mission is to maximize the scientific return of the NASA missions we operate.**

**Active researchers at each center play a vital role in instrument development and innovative operational support.**

# 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 + 10-12 NASA HQ personnel
  - Addresses recommendation #2 from Portals to 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 to 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

Program & presentations at <http://www.stsci.edu/~inr/portals.html>

# Workshop conclusions

- Broad consensus among missions on all major issues
  - Reaffirmed primary goal of maximizing the science return from NASA missions for the community
  - Active research staff is vital at all phases
  - Missions should be planned from inception to closeout
    - International missions planning must start early
  - Missions should develop models to quantify the impact of reduced resources
  - All observing time should be allocated through well-defined, verifiable processes
  - Science input is crucial at all operational levels
  - Early integrations for science and operations teams
  - User support in place 2-3 years before launch
  - Data reduction software must be in place at launch
  - Missions should exploit all avenues for community information and involvement
  - Archives are not afterthoughts



# Summary

- Workshop was useful for all missions
  - First opportunity for multilateral discussions and information exchange
  - Effective mechanism for supporting newer missions
  - Direct feedback to NASA HQ
- Good basis for future meeting
  - Working on scheduling follow-up meeting in ~2 years