Update: Meeting of the Ad Hoc Subcommittee on Funding and Governance of Future Major Multi-user Facilities

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Motivation

- Many future science objectives depend on construction of new, expensive facilities
- NSF is likely to be one of multiple partners
- What can we learn from NSF experience and that of others that will help us be wiser?

Organizing Framework

- NSF organizing committee representatives
  - GEO – ocean sciences
  - MPS – physics
  - MPS – astronomy
  - BFA Large Facilities Office
- Broad subcommittee (Tom Kirk – chair):
  - 3 high energy physics or particle astrophysics
  - 2 from earth sciences
  - 1 from astronomy

Other participants

- About 35 external participants + NSF staff
  - Astronomy, nuclear physics, condensed matter physics, environmental science, materials science, oceanography, earthquake engineering, seismology
  - International representation
    - National Research Council of Canada
    - European Strategy Forum on Research Infrastructure
    - National Astronomical Observatory of Japan
    - Organization for Economic Cooperation and Development
    - German Ministry for Education and Research
    - France – CNR
  - Other agencies:
    - DOE Office of Science, NIST

Meeting Agenda

- Introduction by NSF Acting Deputy Director - Dr. Cora Marrett
- 2 days of moderated discussion between panel and participants
- No Power Point presentations!
- ½ day of interaction between panel and NSF
- Written material submission before and after meeting (>53 so far, many of very high quality)

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Follow up

- Subcommittee to produce written report with recommendations
  - Report submitted to B&O Advisory Committee before year end
  - B&O to review and decide on whether to accept report, endorse recommendations, in 2011

Informal list of main points from subcommittee meeting

- Strategic Planning:
  - Important distinctions between agency facility road maps and strategic plans – what is the agency going to be like in 5 or 10 years and how does facility selection and prioritization further that goal?
- Earth Observing is a special opportunity
  - Inherently international, low entry cost,
  - Coordinated field campaigns and resulting data are “fluid” major infrastructure
- Preconstruction planning is a problem
  - US partnering is often reactionary to budget surprises after planning is well advanced
  - Early involvement of science ministers and project proponents in multi-lateral discussions can better involve partners in intellectual activity and synchronize selection and approval processes

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More high points

- Concern about science goals that may be too narrow when selecting a facility:
  - Time from a grand challenge question to a facility + data set ~25 years?
  - Question might already be answered by that time.
  - Important to think of generality of investment. Build in capacity to do broader science. Maintain ability to exploit facilities for science.
  - Older facilities often do new science.
- Consider graded procedures for incremental commitment
  - Additional NSB steps in assessment process prior to Preliminary Design Review?
  - “Letter of intent” understood internationally, Keck II started this way.

Still more high points

- Open access
  - NSF early involvement creates this expectation. Some prospective international partners lose interest since they get data and access for free without paying for construction/ops
  - MOU's can define difference between data access and intellectual activities that create and apply analysis tools
- Cost management
  - Recognition of need for US-like approach to cost/risk management and no overrun policy
  - Widespread skepticism of science cost estimates in Europe
- MOU's should be crafted with great care
  - Important lessons learned from ALMA/Gemini/LHC/Iter/IODP
  - In-kind contributions, common funds, partition of work and valuation
- Praise for NSF in organizing/facilitating community through workshops, getting community moving