

**Astro2010 NWNH Midterm Assessment**

**Report to the Astronomy and Astrophysics Advisory Committee**

**Jacqueline N. Hewitt, Chair**

**28 January 2016**

# Committee Membership

**Jacqueline N. Hewitt**, Massachusetts Institute of Technology (Chair)

**Adam S. Burrows**, Princeton University

**Neil J. Cornish**, Montana State University

**Andrew W. Howard**, University Hawaii-Manoa

**Bruce Macintosh**, Stanford University

**Richard F. Mushotzky**, University of Maryland

**Angela V. Olinto**, University of Chicago

**Steven M. Ritz**, University of California, Santa Cruz

**Alexey Vikhlinin**, Harvard-Smithsonian CfA

**David H. Weinberg**, Ohio State University

**Rainer Weiss**, Massachusetts Institute of Technology

**Eric M. Wilcots**, University of Wisconsin

**Edward L. Wright**, University of California, Los Angeles

**A. Thomas Young**, Lockheed Martin, retired

## **Statement of Task**

In the context of funding circumstances that are substantially below those assumed in NWNH, the committee's review will include the following tasks:

1. Describe the most significant scientific discoveries, technical advances, and relevant programmatic changes in astronomy and astrophysics over the years since the publication of the decadal survey;
2. Assess how well the Agencies' programs address the strategies, goals, and priorities outlined in the 2010 decadal survey and other relevant NRC reports;
3. Assess the progress toward realizing these strategies, goals, and priorities; and
4. In the context of strategic advice provided for the Agencies' programs by Federal Advisory Committees, and in the context of mid-decade contingencies described in the decadal survey, recommend any actions that could be taken to maximize the science return of the Agencies' programs.

The review should not revisit or alter the scientific priorities or mission recommendations provided in the decadal survey and related NRC reports but may provide guidance on implementation of the recommended science and activities portfolio and on other potential activities in preparation for the next decadal survey.

# Midterm Assessment Timeline

8-10 October 2015	First meeting, Washington, DC
12-14 December 2015	Second meeting, Irvine, CA (Science symposium on December 12)
5 January 2015	AAS session, Kissimmee, FL
11-13 January 2015	Third meeting, Washington, DC
1 March 2015	Report delivered to NRC for review
May 2015	Report released
June 2015	AAS presentation (Town Hall scheduled)

## Connecting with A&A Community

- The three Committee meetings – open session material posted
- Committee meetings have time set aside for public comment
- AAS splinter session
- Open letter to community inviting input – distributed via AAS
- Email input via [astromidterm2015@nas.edu](mailto:astromidterm2015@nas.edu) - is publicly available

**Need to strike a balance between information gathering and study scope; keep focus on NWNH *implementation***

**(We are not doing another survey/prioritization!)**

# First Meeting - Summary

- Presentations from agencies
  - NASA/Astrophysics – Paul Hertz
  - NSF/AST – Jim Ulvestad
  - DOE/HEP – Kathy Turner
- OSTP – Meredith Drosback
- JAXA – Kazuhisa Mitsuda
- ESA – Fabio Favata
- Presentations from activities and projects
  - WFIRST/AFTA – Neil Gehrels+
  - MSIP – Vern Pankonin
  - U.S. LISA – Tuck Stebbins
  - U.S. Athena – Rob Petre

## Second Meeting - Summary

- Roger Blandford keynote presentation
- Science symposium - organized around NWNH Science Frontier Panel areas, SFP members presented, panel discussions
- Discussion with OMB
- Continued project presentations
  - TMT - Ed Stone and Gary Sanders
  - GMT – Pat McCarthy
  - LSST – Steve Kahn
  - CTA – David Williams
- Exoplanet technology development – Jeremy Kasdin
- European LISA theme – Karsten Danzmann
- Committee deliberations

# Telecon Presentations

- OIR system – Debra Elmegreen
- JWST status – Eric Smith
- CMB status and technology development – Amber Miller
- CCAT status – Terry Herter
- Athena status and possibilities for US role – Randall Smith
- DESI status – Daniel Eisenstein



## **Third Meeting - Summary**

- Open sessions with Jim Ulvestad, Vern Pankonin, Paul Hertz, and Kathleen Turner
- Closed session for Committee deliberation

## Some Observations...

- Science has progressed significantly!
- The current reality is in many ways different from what NWNH assumed
  - Budgets available for NWNH activities much lower
  - NSF Portfolio Review difficult to implement
  - ESA has made mission decisions, allowing a limited U.S. role
- NASA first 2010 decadal new start occurring later in decade than anticipated
- Some mid-decade decision points not reached (eg., LPF results not yet in, no B-mode detection)
- NWNH advised DSIAC to deal with many issues – did not happen
  
- *The landscape is complicated*
- *There are many unresolved issues, some requiring detailed study, some now in 2020's*
- *Committee is treating scope carefully, could recommend further study of some topics*

# Issues Facing the Committee

*The Committee has not reached conclusions yet – input welcome*

- Evaluating NSF and NASA alignment to, and making recommendations for progress on, NWNH priorities when budget realities are different from NWNH assumptions
- Impact of AFTA mirrors and coronagraph on WFIRST budget, risk, schedule, scope
- Impact of operations costs (ALMA, DKIST, soon LSST) on NSF/AST program
- Effectiveness of NSF Portfolio Review, and process for the future
- Pressures on individual grant programs
- How to make progress beyond top-ranked priorities – eg., LISA, IXO, MSIP, GSMT, CCAT
- Maintaining program balance when budgets are declining

*We look forward to the final report of the Proposal Pressures Study group.  
Preliminary results have already informed our discussions.*