

Activities of and Prospective Issues before the Committee on Astronomy and Astrophysics

Report by David Spergel, CAA Co-Chair

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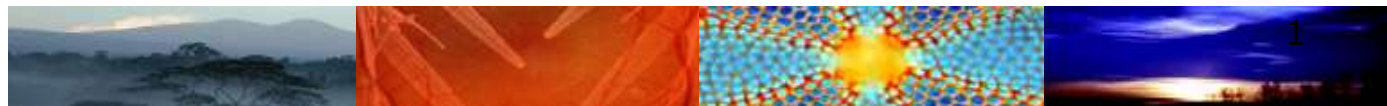
CAA Statement of Task

The overarching purpose of the Committee on Astronomy and Astrophysics (CAA) is to support scientific progress in astronomy and astrophysics and assist the federal government in integrating and planning programs in these fields. The CAA scope spans the full range of astronomy and astrophysics research, including space- and ground-based observations. The committee's domain encompasses stellar, galactic, and extragalactic astronomy, particle astrophysics, cosmology, the search for extra-solar planets, and aspects of fundamental physics relating to astronomical objects. The CAA's scope also includes appropriate cross-disciplinary areas. The CAA provides an independent, authoritative forum for identifying and discussing issues in astronomy and astrophysics between the research community, the federal government, and the interested public.

The CAA will also monitor the progress in implementation of the recommendations of the New Worlds New Horizons (NWNH) decadal survey--building on the survey that was tasked with "surveying the field of space- and ground-based astronomy and astrophysics and recommending priorities for the most important scientific and technical activities of the decade 2010-2020" and with formulating a decadal research strategy with recommendations for initiatives in priority order within different categories related to size of activities and their home agencies--and the consequences to NWNH and the research community of the changes in budget structure anticipated in the near future. The need for careful monitoring is underscored by the fact that some of the survey's recommendations are associated with a set of triggers and decision rules. Other developments that trigger the need for reassessment include cost growth and/or changes of scope in the project baseline.

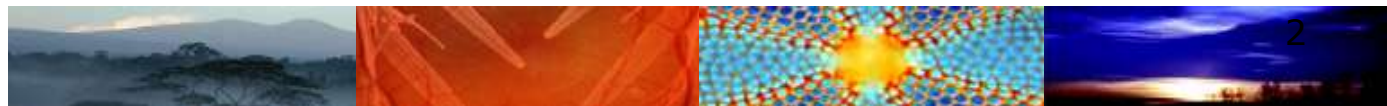
In fulfilling these responsibilities, the committee may formulate and oversee ad-hoc studies related to the implementation of the NWNH survey and on issues in astronomy and astrophysics more broadly, including:

- The scientific quality and the potential for discovery in the field;
- The scientific impact of a change in the technical design, cost estimate, schedule, or programmatic sequencing of one or more of the decadal survey recommended activities;
- The impact of scientific advances on the technical design, schedule, or programmatic sequencing of one or more decadal survey recommended activities;
- The impact of changing budget priorities, especially those that challenge the fundamental assumptions of NWNH, on the implementation of decadal survey priorities and on astronomy and astrophysics research more broadly; and
- The potential impact on a recommended course of action at a decision point described in the decadal survey.



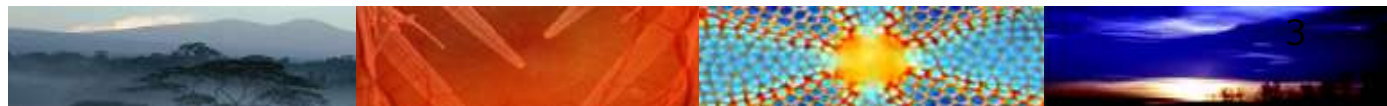
Issues (1)

- The overall budget outlook for astronomy and astrophysics has not kept up with the budget guidance provided to and used by the *NWNH* decadal survey.
- WFIRST is the top ranked, large-class, *space-based* priority in *NWNH*.
 - The WFIRST SDT report created two mission scopes: DRM1 & DRM2.
 - NASA Astrophysics received two telescopes with 2.4-meter mirrors, with the potential to do some or all of the science of WFIRST using the first.
 - ESA adopted Euclid as an M-class mission in June 2012.
 - NASA intends to contribute to ESA's Euclid mission.
 - NASA has begun to study how one of the 2.4-m telescopes could be used and what the concepts would cost.



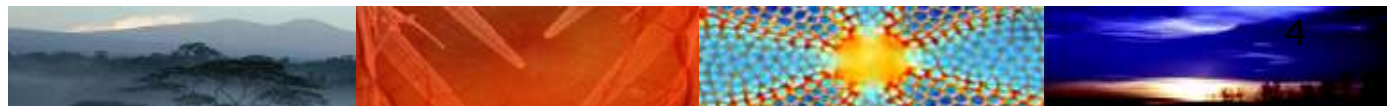
Issues (2)

- A number of issues/questions were raised about future surveys, including:
 - When to carry out the mid-decade review
 - Whether future decadal (and perhaps even CAA in the interim) should consider prioritizing ongoing programs along with new initiatives
 - How to balance programs of different sizes, and how, in particular, to deal with the very large programs that Astro2020 will be asked to consider.
 - Recent emphasis on “science-only” decadal surveys.
 - NASA is working on an Astrophysics Implementation Plan which maps out its plans for FY13-17. An NRC mid-decade review could be part of this process in FY15.



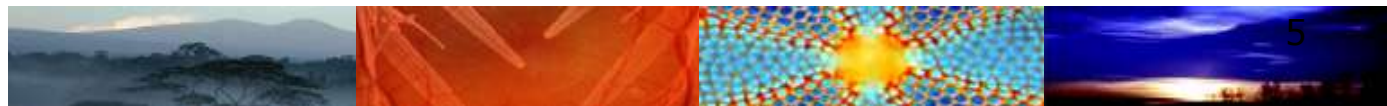
Issues (3)

- A committee commissioned by NSF/AST produced a Portfolio Review of its entire program, identifying specific observatories and programs for reduction or closure, in order to free up resources for new initiatives recommended in *NWNH*.
 - An Implementation Plan, developed by the NSF, is expected to follow.
 - Possible additional CAA meeting to hear concerns of the astronomy community and get CAA up to speed on the issues.
 - Possible NRC review of the Implementation Plan.



Other Very Important Issues

- ESA selected JUICE as its L-class mission over ATHENA (x-ray) and NGO (gravity-wave).
 - Although ranked highly in *NWNH*, there may not be significant funding in the U.S. to support a large effort toward large, space-based, high-energy astrophysics or gravitational wave capabilities.
- JWST remains a driving force for Astrophysics and NASA.
- The NSF NSB granted permission to the NSF Director to include funds for construction of the Large Synoptic Survey Telescope (LSST) in a future budget request.
 - LSST is the top-ranked, large-class, *ground-based* priority in *NWNH*.



Past & Future Activities

- Meetings
 - In-person committee meeting held on June 4-6, 2012.
 - Co-chairs visited Hill and EOP staff on July 25.
 - Telecon meeting on July 27 with Paul Hertz and staff (NASA HQ), and Neil Gehrels (NASA-GSFC) to hear about the WFIRST Science Definition Team's final report.
 - Telecon meeting on Sept 7 with NSF to hear about the Portfolio Review Committee's report.
 - Telecon meeting on Oct 16 with NASA and recent report chairs on gravity-wave and x-ray astrophysics.
 - Telecon meeting on Nov 5 with NASA to discuss a draft of NASA's Astrophysics Implementation Plan.
 - Participation in decadal survey lessons learned workshop on Nov 12-13.
 - Possible review of NSF Implementation Plan, associated winter CAA meeting
 - Possible joint budget briefing with the AAAC in Feb 2013.
 - SSB Standing Committee Meeting Jamboree, Mar 6-8, 2013

