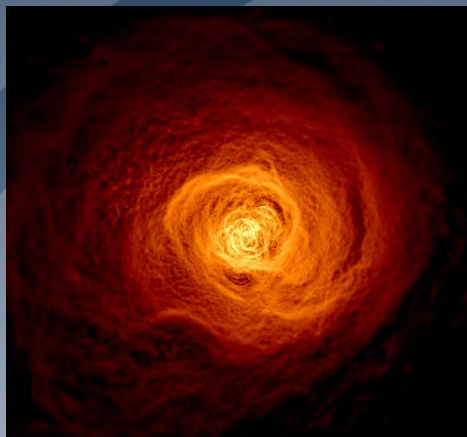
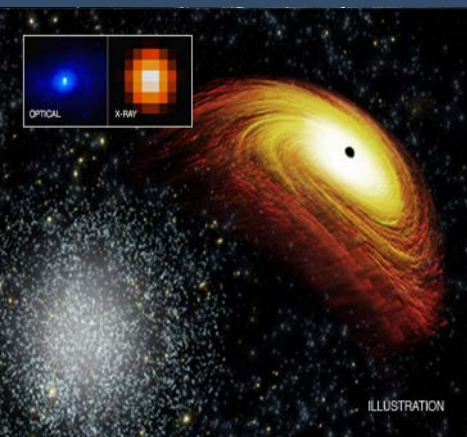


Astrophysics



NASA Astrophysics Update

Astronomy and Astrophysics Advisory Committee
September 27, 2017

Paul Hertz

Director, Astrophysics Division
Science Mission Directorate
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2017 AAAC Report



FINDING: US agencies are working well together to support the priorities of the astronomy and astrophysics research community, both in collaboration on large managed projects and through coordination of diverse research programs.

FINDING: All current and planned cosmic surveys intend to publicly release their data and to provide suitable access tools which will further enhance the impact of these experiments.

RECOMMENDATION: We recommend that DOE, NSF, and NASA continue their successful cooperation in Astronomy and Astrophysics.

RESPONSE

- NASA, NSF, and DOE will continue to coordinate their programs, working jointly where appropriate, which will lead to continued successful cooperation in astronomy and astrophysics.

2017 AAAC Report



FINDING: The tri-agency group considering LSST, WFIRST, and Euclid has begun the important process of coordinating between agencies by considering key parts of the dark energy science case for these missions and possible means of increasing the effectiveness of the missions in this area.

RECOMMENDATION: We recommend that the three agencies begin to develop a plan for including multiple stakeholders to consider the costs and benefits of coordination of LSST, WFIRST, and Euclid on the broad science areas these missions will advance.

RESPONSE

- NASA, NSF, and DOE have formed a Tri-Agency Group to discuss the possible implementation – and cost – of joint pixel analysis for data from LSST, Euclid, and WFIRST.
- NASA, NSF, and DOE have all charged and funded their implementation centers with developing a set of requirements, as well as a cost proposal, for implementing joint pixel analysis.

2017 AAAC Report



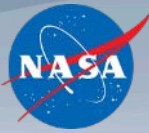
FINDING: The AAAC finds the movement of WFIRST toward Phase B start in October 2017 to be encouraging progress toward completing development of WFIRST in the mid-2020s.

RECOMMENDATION: The AAAC supports the recommendations of NWNH and NWNH-AMA that the NASA Astrophysics Division execute at least four Announcements of Opportunity for the Explorer program this decade, followed by Mission of Opportunity calls and mission selection, to preserve this valuable program of agile, low-cost missions in space.

RESPONSE

- NASA plans to issue four Explorers AOs during 2012-2021, each of which will be concurrent with an AO for Missions of Opportunity. These AOs are
 - Fall 2014 SMEX AO; IXPE and GUSTO downselected
 - Fall 2016 MIDEX AO; ARCUS/FINESSE/SPHEREx and CASE/COSI-X/ISS-TAO selected for Phase A studies
 - Spring 2019 SMEX AO planned
 - Fall 2021 MIDEX AO planned

2017 AAAC Report



FINDING: There is broad participation by members of the astronomy and astrophysics community, with agency support, in developing ideas for future experiments, missions, and programs to be undertaken in the coming decades, with the goal of producing well developed and well costed ideas and concepts to be considered by the 2020 decadal survey.

RECOMMENDATION: The AAAC supports the continued exploration, with the support of the agencies, into future directions and experiments, missions, and programs to be considered for support by the 2020 decadal survey.

RESPONSE

- NASA has initiated four large mission concept studies, each of which will be well studied, by a community-based STDT and a Center-led engineering team, and independently costed before being submitted to the Decadal Survey Committee for consideration.
- NASA has initiated ten medium mission concept studies, each of which will be studied by a PI-led science and engineering team and receive an independent cost assessment before being submitted to the Decadal Survey Committee.

2017 AAAC Report



RECOMMENDATION: The AAAC recommends that the agencies work with the National Academies to ensure a timely beginning to the next decadal survey, along with updates to the structure as recommended by NWNH-AMA.

RESPONSE

- NASA, NSF, and DOE have been working with the Committee on Astronomy and Astrophysics for two years to ensure a timely beginning to the next Decadal Survey.

2017 AAAC Report



FINDING: Major flight and construction programs may be harmed by continued uncertainty in the budget, leading to cost overruns and schedule slips. The AAAC urges that special attention be paid to these programs at the time that the FY 2017 budget is finalized and the FY 2018 budget is formulated.

RECOMMENDATION: In formulating their programs for FY 2018, NSF, NASA and DOE should strive to maintain viable research grant programs and preserve the highest priority decadal survey recommended programs.

RESPONSE

- The President's budget request for NASA Astrophysics maintains the funding levels of recent years and includes funding for growth in the research grant programs and continued execution of NASA's plan for implementing the 2010 Decadal Survey.

2017 AAAC Report



FINDING : The AAAC commends NSF/AST and NASA for devising and implementing plans aimed at reducing proposal pressure.

RECOMMENDATION: The committee recommends that NASA carefully monitor the impact of the planned changes to the prize fellowship and ATP solicitations (reduction in the number of prize fellowships offered annually and change in the frequency of ATP solicitations to every other year) to ensure that specific subfields within astronomy and astrophysics, such as theory, are not disproportionately affected.

RESPONSE

- NASA will monitor the breadth of subfields supported through the NASA Hubble Fellowship Program and the Astrophysics Theory Program, and NASA will report back to the AAAC annually.

- Formulation
- Implementation
- Primary Ops
- Extended Ops

+ MIDEX/MO (2023),
SMEX/MO (2025), etc.

Spitzer
8/25/2003

Kepler
3/7/2009

WFIRST
Mid 2020s

Webb
2018

Euclid (ESA)
2020

XMM-Newton (ESA)
12/10/1999

TESS
2018

Chandra
7/23/1999

NuSTAR
6/13/2012

Swift
11/20/2004

Fermi
6/11/2008

IXPE
2021

Hubble
4/24/1990

XARM (JAXA)
2021

GUSTO
2021

ISS-NICER
6/3/2017

ISS-CREAM
8/14/2017

SOFIA
Full Ops 5/2014

+ Athena (ESA; late 2020s),
LISA (ESA; mid 2030s)