National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001

Charge to the Astrophysics PAGs regarding Large Mission Concept Studies
January 4, 2015

Background

One of the important tasks of the 2020 Decadal Survey will be to prioritize large missions to follow JWST (the highest priority large space mission of the 2000 Decadal Survey) and WFIRST (the highest priority large space mission of the 2010 Decadal Survey). To enable this prioritization, NASA will provide information on several candidate large mission concepts for consideration by the 2020 Decadal Survey Committee.

Existing strategic planning documents, including the 2010 Decadal Survey, *New Worlds, New Horizons in Astronomy and Astrophysics*, and the NASA Astrophysics Visionary Roadmap, *Enduring Quests, Daring Visions: NASA Astrophysics in the Next Three Decades*, provide candidate mission concepts for the large missions that will follow JWST and WFIRST and could be developed in parallel to ESA's Euclid, Athena, and L3 missions in which NASA is participating. These documents have been developed by the astrophysics community and provide the starting point for planning future missions.

Taking into account current programmatic considerations, NASA has identified a small set of candidate large mission concepts to be studied sufficiently to provide appropriate information for the consideration of the 2020 Decadal Survey Committee. The members of the small set follow, in alphabetical order.

- Far IR Surveyor – The Astrophysics Visionary Roadmap identifies a Far IR Surveyor with improvements in sensitivity, spectroscopy, and angular resolution.
- Habitable-Exoplanet Imaging Mission – The 2010 Decadal Survey recommends that a habitable-exoplanet imaging mission be studied in time for consideration by the 2020 decadal survey.
- UV/Optical/IR Surveyor –The Astrophysics Visionary Roadmap identifies a UV/Optical/IR Surveyor with improvements in sensitivity, spectroscopy, high contrast imaging, astrometry, angular resolution and/or wavelength coverage. The 2010 Decadal Survey recommends that NASA prepare for a UV mission to be considered by the 2020 decadal survey.
- X-ray Surveyor – The Astrophysics Visionary Roadmap identifies an X-ray Surveyor with improvements in sensitivity, spectroscopy, and angular resolution.

The rationale for this small set of candidate large mission concepts is provided in the Astrophysics Division White Paper, *Planning for the 2020 Decadal Survey*[1].

[1] http://science.nasa.gov/astrophysics/documents

Specific Charge to the Program Analysis Groups

Each of the three Astrophysics Program Analysis Groups (PAGs) – the Cosmic Origins Program Analysis Group (COPAG), the Exoplanet Exploration Program Analysis Group (ExoPAG), and the Physics of the Cosmos Program Analysis Group (PhysPAG) – are charged with reviewing this small set of candidate large mission concepts and suggesting additions, subtractions, and other useful commentary. The results of this review shall be reported to the NAC Astrophysics Subcommittee in the form of a report.

In particular,

1. Each PAG, under the leadership of its Executive Committee, shall broadly solicit the astronomy and astrophysics community for input to the report in an open and inclusive manner. To accomplish this, each PAG is empowered to envision and use its own process.
2. Each PAG will consider what set of mission concepts should be studied to advance astrophysics as a whole; there is no desire for mission concepts to be identified as "belonging" to a specific Program or PAG. Each PAG shall keep the number of large mission concepts in the set as small as possible. Each PAG is specifically charged to consider modifications and subtractions from the small set, and not just additions.
3. Each PAG shall produce a report, where it shall comment on all large mission concepts in its small set of large missions, including those in the initial small set and those added or subtracted. Where there is existing analysis to support it, PAGs are encouraged to comment on the cost range anticipated for large mission concepts. A suggested template for the report is given below. The PAGs may choose to work together and submit coordinated or joint reports.
4. Each PAG may choose to have one or more face-to-face or virtual meetings or workshops in developing its report; said meetings may be scheduled in proximity to existing community meetings or conferences. Limited funding is anticipated by the Astrophysics Division to support a dedicated face-to-face workshop. The Astrophysics Program Offices will support the PAGs in any logistics required to facilitate these activities.
5. Although there is no page limit for the report, each PAG shall strive to be succinct.
6. Each PAG shall submit its report in writing to the NAC Astrophysics Subcommittee no later than two weeks prior to its fall 2015 meeting (meeting schedule not yet known).

Suggested Report Format

Every PAG is asked to submit a short public report of its analysis to the NAC Astrophysics Subcommittee by the date specified above. While there are no prescriptions for the format of the report (other than being succinct), some guidelines are provided. Each PAG will be free to structure its report as it sees fit.

It is suggested that each PAG report include the following:

1. Process followed by the PAG to solicit input from community (meetings, white papers, emails, etc.);
2. Brief description of the community response;

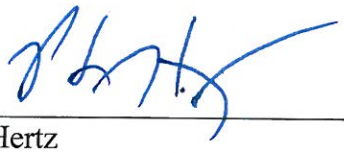
3. Procedure and criteria used for PAG analysis of the community response;
4. Outcome of the analysis and final small set of mission concepts submitted to the NAC Astrophysics Subcommittee; every mission concept that is retained, added, or subtracted must be accompanied by a short rationale; and
5. Any additional considerations for NASA.

Should a PAG wish to provide NASA information regarding potential probe-class missions, to inform any future process for considering probe-class mission studies, such information may be appended to the report.

Points of Contact

The NASA HQ points-of-contact are

COPAG	Mario Perez, COPAG Exec Secretary (mario.perez@nasa.gov)
ExoPAG	Douglas Hudgins, ExoPAG Exec Secretary (douglas.m.hudgins@nasa.gov)
PhysPAG	Rita Sambruna, PhysPAG Exec Secretary (rita.m.sambruna@nasa.gov)



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Science Mission Directorate

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date