2023 Astrophysics Probe Explorer (APEX) Preproposal Conference

August 18, 2023

Starts at 11AM Eastern time

2023 Astrophysics Probe Explorer (APEX) Preproposal Conference

Conference Goals and Overview of the Solicitations

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Conference Goals

Goals today are to:

- Provide an overview of the 2023 Astrophysics Probe Explorer (APEX) solicitation
- Provide an overview of the evaluation, categorization, and selection process for the solicitation
- Address questions

Questions

- Answers to questions already received are included in presentations and/or will be addressed on the Q&A web site.
- Questions submitted today will be addressed as time permits and as appropriate answers can be generated.
- At this meeting, please submit questions via the WebEx chat (preferred) or wait until lines are un-muted for phone questions. Questions in writing help us to best understand your intent.
- Questions may also be sent to Pat Knezek at: **patricia.m.knezek@nasa.gov** and Victor Lucas at: **victor.f.lucas@nasa.gov**
- Questions may be submitted until 14 days before the proposal due date. Questions and answers will be posted on the Probe page at the Astrophysics Explorers Acquisition site:

  https://explorers.larc.nasa.gov/2023APPROBE/

Agenda

Topic	Start (Eastern)	Duration	Presenter
1) Conference goals and overview 2) Overview: Evaluation, Categorization, & Selection 3) Science Evaluation	11:00 AM	1:00	Patricia Knezek Program Scientist, Astrophysics Division Science Mission Directorate (NASA/HQ)
AO-Provided Launch Services for Probe	12:00 PM	0:20	John Calvert; Launch Services Program (NASA/KSC)
break	12:20 PM	0:10	
TMC Evaluation	12:30 PM	1:00	Victor Lucas Astrophysics Explorers Acquisition Manager Science Office for Mission Assessments (NASA/LaRC)
Explorers Program Office Overview	1:30 PM	0:15	Mark Goans; Explorers Program Office (NASA/GSFC)
break	1:45 PM	0:10	
Space Communications and Navigation Program	1:55 PM	0:20	Jeffrey Hayes, Mission Integration and Commitment Office, SCaN, Network Services Division, SOMD (NASA/HQ)
International Participation	2:15 PM	0:15	Peyton Blackstock; Office of International and Interagency Relations (OIIR: NASA/HQ)
Export Control	2:30 PM	0:15	Juan Santos; OIIR (NASA/HQ)
Q&A	2:45 PM	0:45	
Adjourn	3:30 PM		

Astrophysics Probe Explorer: A New Solicitation

2023 Astrophysics Probe Explorer Announcement of Opportunity: 2023 APEX AO = NNH23ZDA021O

Solicits proposals for **science investigations.** These must support the goals and objectives of the Explorers Program, and must be implemented by Principal Investigator (PI) led investigation teams, through the provision of **complete spaceflight missions**.

It is a 2-step competition: KDP-A is the selection of a Step-1 proposal for a Phase A concept study, KDP-B is the downselection of a mission to enter Phase B following evaluation of Concept Study Reports.

Important Note: This solicitation incorporates many changes relative to the draft APEX AO and previous Explorers solicitations, including both policy changes and changes to proposal submission requirements. All proposers must read the solicitation carefully, and all proposals must comply with the requirements, constraints, and guidelines contained within.

Dates and Deadlines

Milestone	Date
Notice of Intent to Propose	September 13, 2023
Proposal Submission Deadline 11:59 pm Eastern time	November 16, 2023
Letters of Commitment due (w/proposal)	November 16, 2023
Deadline for Receipt of Augmented Submission via the NASA Box service at 4:30 p.m. Eastern	November 27, 2023
Step 1 Selections announced, initiate Phase A Concept Studies (target)	Q4 CY2024
Phase A Concept Study Reports due	12 months later
Down-selection of Investigation(s) for flight (target)	Q2 CY2026
Launch Readiness Date for APEX	NLT July 2032

APEX AO Highlights

2023 APEX AO is based on the Simplified SMD Standard AO template.

- **Requirements** are identified, numbered, and specific.
  - There are 112 requirements in the 2023 APEX AO main body
  - When Sections do not levy requirements, they do not have numbered requirements.
- **Evaluation Factors** are identified, numbered, and specific.
  - 4 for Science Merit
  - 7 for Scientific Implementation Merit and Feasibility
  - 5 for Technical, Management, and Cost (TMC) Feasibility
- Appendix B has numbered **requirements on Proposal Preparation**
  - There are **83*** specific requirements for the format and content of Step 1 proposals [more altogether, as some Appendix B requirements have more than one part]

*In section E.3 of Appendix B, a requirement number was inadvertently dropped during formatting. An amended AO will be issued with requirement **B28A: This section shall discuss the quality and quantity of data delivered and processed, demonstrate the degree to which the proposed instruments and mission can provide the necessary data, and demonstrate the sufficiency of the data gathered to complete the PI-led scientific investigation (within the GTO allocation if applicable).**

APEX AO Highlights

- The AO Cost Cap for an APEX mission is $1000M in NASA Fiscal Year (FY) FY2023 dollars (FY23$), not including the cost of standard launch vehicle and launch services or any contributions.
- This AO is in response to the National Academies' 2020 Decadal Survey in Astronomy and Astrophysics recommendation that probe missions to be competed in broad areas identified as important to accomplish the 2020 Decadal Survey's scientific goals and objectives.
  - For the coming decade, the 2020 Decadal Survey recommends a far-infrared mission or an X-ray mission as a Probe-class mission.
- Responses to the APEX AO are limited to one of those two mission themes recommended by the Decadal Survey. These areas are
  - A far-infrared imaging or spectroscopy mission, and
  - An X-ray probe.
- Proposals must be responsive to the preponderance of the mission theme's objectives as provided in Sections 7.5.3.2 through 7.5.3.4* of the 2020 Decadal Survey. (***Proposals do not need to be responsive to the portion of section 7.5.3.4 of the Decadal Survey that recommends an X-ray probe mission to complement ESA's Athena Observatory objective.)**

APEX AO Highlights

- Prime mission is 5 years.
- NASA expects contributions to be a minority of the project element costs, with the total value of all contributions not exceeding one-third of the PI-Managed Mission Cost (PIMMC).
  - The size and nature of contributions will be considered during the selection process (Section 7). For size, NASA expects contributions to be a minority of the project element costs, with the total value of all contributions not exceeding one-third of the PIMMC. Within that constraint, it is further expected that contributions to lower-level project elements will be of a similar scale, for example with contributions to the science team being no more than approximately one-third of the PI-managed cost of WBS 4, and contributions to the instrument complement being no more than approximately one-third of the PI-managed cost of WBS 5
- Any selected mission is intended to launch no later than July 2032.

APEX AO Highlights (cont.)

- APEX payloads are Category 2, Class C.
- Proposers selected through this AO will be awarded a contract, capped at $5M Real Year dollars (RY$), to conduct a 12-month Phase A concept study.
- Launch services may not be arranged by the proposer: all access to space will be AO-provided. Standard launch services, as described in the summary document in the Program Library, will be provided at no charge against the PI-Managed Mission Cost. The cost of “performance upper” standard launch vehicle and launch services will appear as a decrement to the Adjusted AO Cost Cap. Any additional launch services must be funded out of the PIMCC.
  - High performance upper at $50M reduction to AO Cost Cap, longer fairing for an additional $15M reduction to the AO Cost Cap

APEX Guest Observer/Guest Investigator (GO/GI) Highlights

- The selected APEX mission will include a General Observer (GO) and/or Guest Investigator (GI) program during its prime mission. The GO/GI program, if fully implemented, would allow additional science objectives to be accomplished, assuming the Baseline Science Requirements necessary to achieve the full science objectives of the mission are met.
- If the APEX mission proposed is a Pointed Observatory, it will have 70% of its observing time made available to the community for General Observers (GO). The NASA-managed GO program will be funded outside of the PIMMC. The PI-led science team will conduct science investigation(s) with a limited amount of Guaranteed Time Observing (GTO); the PI-led science investigations will be funded within the PIMMC.
- If the APEX mission proposed is a Survey Observatory, all of its survey data will be made available to the community for Guest Investigators (GI). The NASA-managed GI program will be funded outside of the PIMMC. The PI-led science team will conduct science investigation(s) with the survey data; the PI-led science investigations will be funded within the PIMMC.
- A proposed mission that is a hybrid of a survey and a pointed observatory mission will then have 70% of the pointed observatory program required to be available to general observers.
- All data will be made public as soon as practical through a NASA-managed astrophysics data archive. There is no limited data use period.

APEX GO/GI Highlights (cont.)

For a GO and/or GI program these items will be outside the PI-managed mission cost:

- General Observer/Guest Investigator Facility (GOF) user support for community users
- Managing the GO/GI process to select community participants
- Managing the GO/GI award process and the award funding

All other items will be inside the PIMMC, including:

- 5 years of mission operations; all SCaN-provided communications costs (DSN/LEGS/NEN) will be reflected as a reduction to the AO cost cap
- 5 years of science operations, including scheduling observations and pipelining data to create standard data products and deliver it to the archives
- Provision of tools necessary to analyze the standard data and data products
- Funding for the PI-led science team to carry out their science investigation

The proposing team is expected to make available to the GO/GI community the tools they develop to work with their PI-led investigation data. The proposing team may propose to provide data processing beyond those that are used or validated for the PI-led science program, as Science Enhancement Options (SEOs) (**deferred to Step 2;** see Section 5.1.6). SEOs do not count towards the science merit of a proposal. Otherwise, NASA will be responsible for the development of any additional data analysis tools to enable the GO/GI investigations, and these will be funded outside of the PIMMC.

APEX: Science Enhancement Option

- GO/GI programs requiring instrument modes, data processing or mission operations beyond those of PI-led program may be proposed as SEOs, outside AO Cost Cap, not part of baseline mission (see section 5.1.6)
- GO/GI programs requiring instrument modes, data processing or mission operations beyond those of PI-led program may also be proposed as part of baseline mission and will be evaluated as such
- Other types of SEOs may be proposed

➢ **SEOs are deferred to Step 2.**

  – Costs for proposed SEO activities must be defined in Concept Study Reports, but will not count as part of the PIMMC. Proposed SEOs that are for GO/GI instrument modes or data processing beyond those that are used or validated for the PI-led science program should justify the budget profiles. Concept Study Reports will also need to describe any additional effort required by the baseline investigation team to accommodate the SEOs. All other proposed SEO activities should minimize funding prior to Phase E and may not include flight hardware.

APEX: Citizen Science Option

- **Evaluation of any proposed Citizen Science** (APEX AO Section 5.1.7) **is deferred to Step 2. No extra pages are allowed in the proposal to describe it.**

- Mission science teams may propose citizen science projects to be included in PI-led missions as a fully-separable component. "Citizen Science Projects," or CS Projects, are defined in Science Mission Directorate Policy Document SPD-33 as science projects that rely on volunteers.

- CS projects are NOT outreach or purely engagement activities. Citizen science projects shall be held to the same rigorous standards as any Science Mission Directorate science program. Documented project goals must include advances in science, the merit of which shall be determined by peer review and the results of which shall be disseminated in refereed scientific journals.

- The Step 2 Science and Technical, Management and Cost panels will only evaluate the CS for its impact on mission feasibility. A separate Step 2 panel will evaluate the merit of the CS, as is done for the optional student collaborations.

- See APEX AO Section 5.1.7 for details.

APEX: Student Collaboration, Education, Communication & Public Outreach

- **Evaluation of any proposed Student Collaboration** (APEX AO Section 5.5.2) **is deferred to Step 2. No extra pages are allowed in the proposal to describe it.**

- **No Education Plan is required, nor will one be reviewed if provided.**

- **No information on a Communications and Outreach Program Plan is required for the proposal.** A Communications Plan must be developed during Phase B of the mission. The plan must include topline messaging, target audiences, and media processes linked to reaching target audiences; with associated detailed budgets, milestones, metrics and timelines, and reporting requirements. PIs of selected investigations are required to work in conjunction with a NASA Center or JPL, and with NASA HQ to communicate mission updates, science, and new discoveries: see Section 4.1.3.

APEX: Inclusion, Diversity, Equity, and Accessibility (IDEA)

- **NASA has core value of Inclusion** (AO Section 5.3.8) **that**
  - Supports the benefits of inclusive and diverse communities scientific, engineering, and technology communities
  - Expects that inclusion, diversity, equity, and accessibility values will be reflected in composition and culture of all proposal teams, as well as peer review panels (science, engineering, and technology); science definition teams; and science investigation, mission, and instrument teams
- For more details, see the published NASA Strategic Plan for Diversity, Equity, Inclusion, and Accessibility, https://www.nasa.gov/sites/default/files/atoms/files/nasa_deia_strategic_plan-fy22-fy26-final_tagged.pdf .

APEX: Inclusion, Diversity, Equity, and Accessibility (IDEA) (cont.)

- **Proposals must include a Diversity and Inclusion Plan (Req. 61)**
  - Clearly state goals for creating and sustaining a positive and inclusive working environment and describe activities to achieve these goals including:
  - Describe any training that the team would participate in (e.g., bystander intervention training, micro-aggression awareness training, etc.) to equip and train team members in such a way that they can go on to lead and contribute to other teams that are inclusive;
  - Describe any formal mentoring or professional development activities to be offered;
  - Describe any agreements among the team members to be developed such as an Agreement on Acceptable Behavior; and
  - Describe quantitative and/or qualitative approaches for assessing the success of these activities including any planned surveys or formal evaluations.

The review of the merit of the Diversity and Inclusion Plan (see Section 7.2.3) will be led by individuals with practical and/or research experience in IDEA topics and the application of IDEA principles to teams as Factor B-6.

APEX AO Highlights

Be on Time: NOI and Proposals

Section 6.1.2: NOIs are REQUIRED. They are due by 11:59pm Eastern time on 13 September 2023, via NSPIRES. Proposals will not be accepted without prior submission of a NOI.

Requirement 1: Proposals submitted in response to this solicitation shall be submitted electronically no later than the Electronic Proposal Submittal Deadline (11:59pm Eastern on 16 November)

Requirement 96: Every Proposal Team member shall indicate his/her commitment to the proposed investigation and specifically to the role, responsibilities, and participating organization proposed for him/her, through NSPIRES. The Proposal Team is defined to include... all named Key Management Team members, all Co-Is, and all collaborators.
No Institutional Letters of Commitment are required for individuals in the Step-1 proposal, unless the individual's effort is contributed and the individual is part of the Proposal Team (see Requirements 90 and 94), collaborators excepted. (APEX Section 5.7.2; see TMC presentation for updated language)

Requirement 65: Proposals shall identify and designate all collaborators and describe the role of each collaborator in the development of the investigation. This shall include the expected fraction of time the collaborator will be involved in the mission over the course of Phases A-D. Inclusion of collaborators with less than 10% of their time allocated to the mission over the course of Phases A-D must be justified.
Requirement 66: Proposals shall identify the funding source for each collaborator; the costs shall be included as a contribution in the Total Mission Cost.

APEX AO Highlights
BOX

Requirement 2: In addition to electronic proposal submission, there shall be an augmented submission of the proposal and relevant files described in Section 6.2.3. Augmented submissions in response to this solicitation shall be made no later than the Deadline for Augmented Submission. Augmented submissions shall be made via the NASA Box service, which is FIPS 140-2 certified, with Advanced Encryption Standard (AES) 256-bit encryption at rest and in transit. Electronic proposal submitters will be provided with details regarding use of the NASA Box service after the Electronic Proposal Submittal Deadline.

APEX AO Highlights
Export-Controlled Material

Requirement 97: If the proposal contains export-controlled material, the material shall be presented in a red font or enclosed in a red-bordered box, and the following statement shall be prominently displayed in Section A of the proposal (following the Proposal Summary Information):
"The information (data) contained in [insert page numbers or other identification] of this proposal is (are) subject to U.S. export laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the proposer under the terms of an applicable export license or technical assistance agreement. The identified information (data) is (are) printed in a red font and figure(s) and table(s) containing the identified information (data) is (are) placed in a red-bordered box."

Proposers are required to be specific about export-controlled material. Science panels often include non-US scientists. Proposers should expect that **all science reviewers will see a version of the proposal with the export-controlled material removed.**

Questions?