ASTROPHYSICS EXPLORER PROGRAM
ANNOUNCEMENT OF OPPORTUNITY
2025 ASTROPHYSICS SMALL EXPLORER

STEP-1 QUESTIONS & ANSWERS

Please submit your Questions regarding the 2025 Astrophysics Small Explorer (SMEX) Announcement of Opportunity (AO) to Doris Daou, Lucien Cox, James Florance, and Omar Torres by email at:
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We will work to develop Answers to your Questions, and post those Answers to this document. Please check back for the latest version, as you may not be notified that your Question has been answered.

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Additions are in bold text and deletions are struck through in amendments.

Q1: The Community Announcement (CA) says that the "standard launch performance capability will be consistent with the available certified Launch Vehicles on the NASA Launch Services II (NLS II) contract." Should proposers assume the launch performance

will be consistent with previous Astrophysics SMEX solicitations which only offered the smallest expendable launch vehicle on NLS II?

A1: No, **two** performance scenarios ~~compatible with all available certified Launch Vehicles on the NLS II contract~~ will be offered~~, but there may be adjustments to the AO Cost Cap associated with the various scenarios~~. ~~These AO Cost Cap adjustments will not be set until the release of the draft 2025 Astrophysics SMEX AO.~~ **The draft 2025 Astrophysics SMEX AO, Requirement 106 requires the discussion of an investigation's compatibility with both scenarios but does not require an investigation to be compatible with both. The *Launch Services Information Summary* (*LSIS*) provides performance curves for several possible SMEX investigations which are not meant to cover every possible situation. Proposers should contact the Launch Services Program (LSP) Point Of Contact (POC) listed in the *LSIS* for guidance on their access to space needs if those needs are not covered in the *LSIS*. [Amended March 4, 2025]**

Q2: The CA did not specify required minimum unencumbered reserves for development and operations. Will there be required minimum percentages for unencumbered reserves in the AO?

A2: Yes, there will be minimum unencumbered reserves percentages for Phases A-D and Phase E required in the AO. The minimum percentage has not been determined, but proposers should expect them to be comparable to past Astrophysics SMEX AOs.

Q3: The CA states that the AO will be based on an AO Template that is available on the SOMA website. However, the template currently available appears outdated relative to recent NASA Science Mission Directorate (SMD) AOs. Is there a more recent version of the template to use as reference until the Astrophysics SMEX AO is finalized and published?

A3: The Standard AO Template (SAOT) available on the SOMA website is the most recent version approved by NASA for public release. Proposers may review recent Explorer AOs (https://explorers.larc.nasa.gov) that reflect updates to the SAOT, however any changes may be specific to a particular AO and may not be reflected in the upcoming 2025 Astrophysics SMEX AO.

Q4: Will the AO offer a reimbursement on the cost of implementing ANSI/EIA-748-compliant Earned Value Management (EVM) for contracted work? If so, will there be any limits to PI-Managed Mission Cost (PIMMC) to be eligible for this reimbursement?

A4: Yes, in order to ensure fair competition between NASA in-house and contracted efforts, the Astrophysics Explorers Program will provide a limited reimbursement to projects with a PIMMC greater than $120M in Fiscal Year 2025 dollars (FY25$). The reimbursement will be up to $1.5M (FY25$) and will not exceed the difference in cost

between implementation of validated EVM and application of the performance measurement basic best practices referenced in the document SPD-48: *NASA Science Mission Directorate (SMD) Category3/Class-D Projects Implementation Policy*, available at https://soma.larc.nasa.gov/StandardAO/ClassD.html.

Q5: The CA states that the AO Cost Cap is $170M. Is it possible that the Cost Cap will be increased to $175M?

A5: No, the $170M AO Cost Cap is the approved funded amount and NASA is not considering increasing the amount for the upcoming 2025 Astrophysics SMEX AO, which NASA is not obligated to issue.

Q6: For commercial communication services such as ground network services, may proposers directly work with commercial providers for a proposal estimate, or do proposers need to go through the Space Communications and Navigation (ScaN) Program Office during Step 1 for proposing the use of commercial providers?

A6: For the upcoming 2025 Astrophysics SMEX AO, NASA is planning to encourage proposers to engage with SCaN as early as possible, using the following point of contact (POC): exploration-enabled@lists.hq.nasa.gov. When the use of non-NASA communication services is proposed, NASA plans to reserve the option of contracting for those services directly through its ScaN office. Further information may be obtained from the ScaN POC.

Q7 The Astrophysics Probe AO specified that the use of mission funds for new network infrastructure or facilities was strongly discouraged. Will it be the same for this AO?

A7 NASA is considering prohibiting the use of mission funds for the construction of new communications network infrastructure or facilities; mission-unique and duplicative assets run counter to wider Agency cost and efficacy objectives.

Q8: What communication and navigation capabilities will be available from the Near Space Network (NSN), and from which sites, for the mission duration (CY2031 and onward)?

A8: For the upcoming 2025 Astrophysics SMEX AO, NASA is considering offering services similar to those offered in this NSN brochure.

Q9: Will the services of the Lunar Exploration Ground Sites (LEGS) be available and which of its capabilities will be offered in this AO?

A9: NASA is considering offering LEGS in the upcoming 2025 Astrophysics SMEX AO. Proposals for missions operating above geostationary Earth orbit (GEO) and below two

million kilometers, should be compatible with the LEGS. The capabilities offered will be similar to those offered in this LEGS brochure.

Q10: Will NASA consider relaxing the proposal due date, so that proposal teams have a few more months to produce compelling proposals?

A10: The intended timeframe published in the CA for the Astrophysics SMEX AO is NASA's best available estimate. Until the release of the final AO, the proposal due date is unknown. The date will be No Earlier Than (NET) 90 days after the release of the final AO. Proposers should expect the duration between final AO release and proposal due date to be similar to past Explorer AOs.

Q11: Will there be a limit on the percentage of the PIMMC that projects may spend prior to KDP-C (confirmation)?

A11: NASA is considering not settting a limit on the percentage of the PIMMC that projects may spend prior to KDP C in the upcoming 2025 Astrophysics SMEX AO. However, proposers will be required to justify any significant spending before KDP C.

Q12: For the upcoming 2025 Astrophysics SMEX AO, can NASA provide any guidance on the expected performance scenarios to be offered? Do proposers need to demonstrate compatibility with all launch service scenarios, or is demonstrating compatibility for one launch service scenario sufficient?

A12: NASA plans to publish the Astrophysics SMEX *Launch Services Program (LSP) Information Summary* with the upcoming draft 2025 Astrophysics SMEX AO. The Astro SMEX *LSP Information Summary* will describe the launch services scenarios that NASA anticipates will be available at the time of the launch vehicle procurement. This Astro SMEX *LSP Information Summary* is currently in development and details are not available for public release. Due to the volatility of the launch services market, NASA cannot ensure which launch vehicles will be available at the time of the launch vehicle procurement. Accordingly, proposers are advised to plan for compatibility with vehicle families that provide the required performance and are expected to be available through spacecraft Preliminary Design Review. It is recommended that payload designs accommodate launch environments for these vehicle families.

NASA is considering requiring proposers to define the required launch vehicle capability and demonstrate that the mission is compatible with at least one of the specified launch service scenarios. NASA is also considering requiring proposers to discuss compatibility with the launch vehicle characteristics and capabilities of all scenarios, noting that it is not required that the investigation be compatible with all scenarios.

Q13: What is the timeframe for SCaN to provide a technical assessment of the mission needs and the estimated cost?

A13: Proposers should allow 9-12 weeks to receive technical and cost information from SCaN. Proposers are encouraged to contact the SCaN Mission Commitment Office (MCO) to facilitate conversation and review of the proposed mission's needs, and to provide the opportunity for SCaN to give preliminary guidance on possible network support, using the following point of contact (POC): exploration-enabled@lists.hq.nasa.gov.

Q14: When will the draft 2025 Astrophysics SMEX AO be released on NSPIRES?

A14: The draft 2025 Astrophysics SMEX AO is currently in the release process and publication is forthcoming.

Q15: NASA SMD has recently changed its policy on what is required for Class D mission proposals by no longer deferring the naming of the Project Manager (PM) and Project Systems Engineer (PSE) until Step 2. The draft 2025 Astrophysics SMEX AO states that the naming of the PM and PSE are deferred until Step 2. Since the SMEX AO solicits Class D missions, will the naming of the PM and PSE still be deferred to Step 2 in the final SMEX AO?

A15: No, in the final 2025 Astrophysics SMEX AO, the PM and PSE will be required to be named in the Step-1 proposal. The policy change occurred after approval was provided for publication of the draft SMEX AO, but the policy change will be implemented in the final SMEX AO.

Q16: With the release of the draft 2025 Astrophysics SMEX AO occurring after the planned date of December 2024, will the release date of the final SMEX AO and the due date of the proposals also be later than planned?

A16: Yes, the final 2025 Astrophysics SMEX AO planned release date will now be April 2025, and the due date for proposals will be no earlier than 90 days after the release of the final SMEX AO.

Q17: What is the impact on the 2025 Astrophysics SMEX AO of the recent Executive Orders on DEI activities?

A17: Pursuant to the Executive Order dated January 20, 2025, and its revocation of Executive Order 13985, factor B-6 "Merit of the Inclusion Plan…" will not appear in the final 2025 Astrophysics SMEX AO. Inclusion Plans will not be required. The final AO, anticipated in April, will be revised, and updated appropriately.

Q18: In the draft 2025 Astrophysics SMEX AO, Requirement 44 states "Investigations with proposed orbit altitudes between 400 km and 1200 km shall discuss the resources and capabilities needed to be capable of executing at least three collision-avoidance maneuvers during their prime mission (see Requirement B-31.6)." Does that mean spacecraft must have a propulsive capability to meet Requirement 44?

A18: No, a propulsive capability is not required to satisfy the collision avoidance maneuver requirement. OCE-51, *NASA Spacecraft Conjunction Assessment and Collision Avoidance Best Practices Handbook*, discusses spacecraft collision mitigation capability and recommends various specific practices, some of which do not require a spacecraft to possess propulsive capability. OCE-51 states, "spacecraft operators should choose a mitigation option when they select their mission orbit and ensure that the capability is built into the system appropriately…" For additional information regarding CARA, including potential input on orbit and trajectory trade studies, proposers may contact Dr. Alinda Mashiku (Telephone: 301-286-6248; email: alinda.k.mashiku@nasa.gov).

Q19: Our spacecraft was designed with a specific-sized separation system. What are the options for an LV-provided separation system that would support the interface? Also, would there be any mission unique costs associated with a Payload Processing Facility (PPF) required to support hydrazine fueling operations?

A19: LSP recommends that proposers not specify an explicit brand of separation system to maintain flexibility and allow the LV provider to propose a solution that is compatible and flight qualified. The separation system, PPF, and hazardous support are considered standard services covered by the Astrophysics Explorer Program, with the recommendation that PPF occupancy be no more than 30 days.

Q20: Are the launch vehicle environments provided for Scenario 2 in the *LSIS* applicable to investigations with payload masses in the 300 kg range.

A20: No, an updated *LSIS* has been posted to the Program Library (Prog04_APSMEX25_LSIS-20250219.pdf) with the sine vibration environment and enveloping design load factors for payloads under 500 kg

Q21: Is it acceptable for the primary payload to be comprised of multiple spacecraft that separate upon deployment? What options are available for multiple spacecraft deployment, and who bears responsibility for orbital phasing?

A21: Yes, it is acceptable for the primary payload to be comprised of multiple observatories that separate upon deployment. Each observatory will likely be required to provide the entirety of its needed delta-V for orbit phasing. Guidance on the ability of the launch service to accommodate particular missions requires details of the specific design and

Concept of Operations. Contact the 2025 Astrophysics SMEX AO LSP mission manager for information on availability and compatibility of deployment scenarios that apply to your specific mission.

Q22: The draft 2025 Astrophysics SMEX AO states that the down-selected team will be required to submit a communications plan in Phase B. As NASA HQ and program office personnel provide necessary support, what aspects of the communications budget should be included in the PIMMC?

A22: Proposed budgets are expected to include the cost of the investigation team's effort to implement a Communications Plan. NASA HQ and the program office efforts in the implementation of the Communications Plan will not need to be funded by the selected mission.

Q23: SPD-48 establishes an increased streamlining of the formulation and development approach for SMD Cat 3/Class D projects. What's the cost cap in FY25$ that makes SPD-48 applicable to APSMEX proposals?

A23: For the purposes of the 2025 Astrophysics SMEX AO, proposers should assume that SPD-48 applies to projects with a proposed PIMMC of less than $120M (FY25$).

Q24: The draft 2025 Astrophysics SMEX AO Requirement B-3 seems to constrict the horizontal spacing (in characters per inch) of the text within tables and figures. Does NASA plan to update the requirement to reflect a spacing that aligns with standard text and enables improved readability?

A24: Yes. The requirement will be updated in the final APSMEX AO to state that "Type fonts within tables shall be no smaller than 10-point and no more than 18 characters per horizontal inch (5 characters per horizontal centimeter). Fonts used within figures shall be no smaller than 8-point and no more than 22.5 characters per horizontal inch (4 characters per horizontal centimeter)".

Q25: Will NASA adjust the 2025 Astrophysics SMEX calendar in the event of a government shutdown?

A25: In the event of a government shutdown, upon reopening, the Astrophysics Division will assess the resulting impact to the 2025 Astrophysics SMEX calendar and adjust key dates to alleviate any significant negative effects to the proposing community.

Q26: 2025 Astrophysics SMEX AO proposing teams may benefit from the capabilities of the Lunar Exploration Ground Sites (LEGS) for mission concept planning. What timeline can

proposers assume for LEGS sites to be at full operational capability? Where can proposers obtain more information on LEGS plans?

A26: SCaN plans to have the LEGS GOCO sites (LEGS 1-3) available for use NLT Q3 CY28. Information about LEGS functional performance capabilities beyond what is available in the program library may be discussed with the 2025 Astrophysics SMEX SCaN POC at exploration-enabled@lists.hq.nasa.gov.

Q27: The orbital characteristics of a 2025 Astrophysics SMEX mission impose specific and varying demands on the data downlink requirements necessary to meet the mission objectives. While the documents in the program library offer an overview of the operational services available through SCaN, these documents contain limited information on the applicability and flexibility of these SCaN services to meet specific mission needs. How do I confirm the compatibility of a 2025 Astrophysics SMEX mission with the communication services offered by NASA?

A27: The information on communication services available to 2025 Astrophysics SMEX proposers through the program library offers a complete overview of the operational services available through SCaN. This information is intended to inform proposers on current capabilities, but it does not intend to cover all possible mission scenarios. To best understand the compatibility of a specific mission with SCaN services, proposers are advised to contact the 2025 Astrophysics SMEX SCaN POC at exploration-enabled@lists.hq.nasa.gov to discuss compatibility and operational coverage of specific missions.

Q28: The program library offers brochures for private vendors of communication services, but these services are not listed in the current NSN catalog. For the purposes of the 2025 Astrophysics SMEX AO, are these services considered future NASA capabilities that must be secured through SCaN, or should proposers treat these options as private services that must be purchased outside NASA?

A28: Proposers are encouraged to discuss mission-specific needs with SCaN to explore NASA-provided solutions. In the event a NASA-provided solution exists, the cost of SCaN services is considered a reduction to the cost cap. Alternatively, proposers have the option to contract the use of communication services outside NASA. If this option is exercised, the proposal must treat the private communications vendor as a major partner in the proposal and the costs incurred for such services must be reflected in the PIMMC.

Q29: Section 5.2.6.1 of the 2025 Astrophysics SMEX AO states “This AO allows for investigations to baseline use of radiological sources for science instrumentation. No radioactive material may be used for supplemental heating or power.” Can this statement be interpreted as that only low-activity radioactive sources (i.e., with an A2 mission multiple less than 1, as defined in Appendix D of NPR 8715.26) are permitted?

A29: Yes. Only low-activity radioactive sources (i.e., with an A2 mission multiple less than 1, as defined in Appendix D of NPR 8715.26) are permitted for missions proposed as a result of the 2025 Astrophysics SMEXAO. This information will be reflected in the final 2025 Astrophysics SMEXAO.