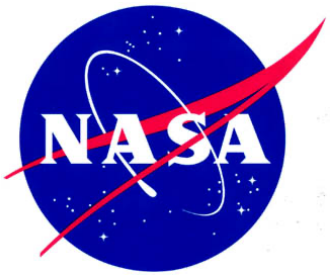

HELIOPHYSICS EXPLORERS PROGRAM
CONCEPT STUDY REPORT (CSR)

2022 SMALL EXPLORER (SMEX)

STEP 2
QUESTIONS & ANSWERS

Updated
April 3, 2025

~~March 7, 2025~~
~~February 28, 2025~~
~~February 10, 2025~~
~~January 22, 2025~~
~~October 24, 2024~~
~~October 22, 2024~~
~~July 24, 2024~~
~~July 11, 2024~~
~~June 17, 2024~~
~~June 12, 2024~~
~~May 13, 2024~~
~~March 18, 2024~~
~~January 26, 2024~~
~~December 5, 2023~~
~~November 17, 2023~~

HELIOPHYSICS EXPLORERS PROGRAM
ANNOUNCEMENT OF OPPORTUNITY

2022 SMALL EXPLORER (SMEX)
CONCEPT STUDY REPORTS (CSRs)

STEP 2
QUESTIONS & ANSWERS

Please submit your Questions to Dr. Friedel, Dr. Naseri, Dr. McKenney, and Dr. Wu by email at:

reinhard.h.friedel@nasa.gov
asal.naseri@nasa.gov
joe.mckenney@nasa.gov
k.c.wu@nasa.gov

We will work to develop Answers 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.

Q&A 26 amended on April 3, 2025
Q&A 27 posted on March 7, 2025
Q&A 26 posted on February 28, 2025
Q&A 25 posted on February 10, 2025
Q&A 24 posted on January 22, 2025
Q&A 23 posted on October 24, 2024
Q&A 22 amended on October 24, 2024
Q&As 19-22 posted on October 22, 2024
Q&A 18 posted on July 24, 2024
Q&A 17 posted on July 11, 2024
Q&A 14 amended on June 17, 2024
Q&As 14 - 16 posted on June 12, 2024.
Q&As 13 posted on May 6, 2024.
Q&As 11- 12 posted on March 18, 2024.
Q&A 10 posted on January 26, 2024.
Q&As 5- 9 posted on December 5, 2023.
Q&As 1- 4 posted on November 17, 2023.

Additions are in bold and/or *italicized* text and deletions are struck through in amendments.

Q1: How should the proposer include Step-1 Scientific Merit (Form A) Potential Major Weakness (PMW) clarification responses in the Step-2 CSR submission?

A1: Any updates from the Step-1 Form A PMW clarification responses must be incorporated in the Science Investigation section. Step-1 Form A PMW clarifications shall be incorporated appropriately throughout Section D of the CSR and identify that they were provided in Step 1 (i.e., not new changes in Step 2). The Step-1 Form A PMW clarifications must be identified using different methods from any Step 2 changes. The proposer can color code text, highlight using a specific color, highlight in bold, column mark, or use any combination to identify the PMW clarification responses. An identification key must be provided. If the Step-1 Form A PMW clarification response affects any of the science objectives it must be included in the change matrix described in G&C Requirement CS-20.

Q2: Are there new requirements for the Diversity and Inclusion Plan?

A2: The G&C document has been updated to reflect the latest NASA language and guidance to clarify what Diversity and Inclusion Plan information the proposers need to submit as part of their Concept Study Report (See G&C Appendix L.15).

Q3: Proposers are requesting a LSP summary update, a lot has changed and been learned over the last few years. They are hoping to get new more realistic requirements and information. Will new guidance be available?

A3: Proposers should work directly with the LSP contact provided in the G&C document to get the latest guidance. The LSP contact for this evaluation is: Mr. Shaun Daly, 321-867-8400, shaun.m.daly@nasa.gov.

Q4: Is the use of Ka-band required for future NASA missions?

A4: NASA intends to transition all space missions to the use of Ka-band for science data return. Telemetry, tracking, and commanding (TT&C) data may still be transmitted using X-band or S-band. To better manage the Agency's transition to Ka-band service, proposed investigations are highly encouraged to baseline the use of Ka-band for science data return, unless it is inappropriate.

Q5: Will the $2M 2022 Heliophysics SMEX Phase A budget be in FY2022 or Real Year dollars?

A5: NASA requests that the 2022 SMEX Phase A CSR proposals be scoped to remain within the cost cap of $2M total in real year (FY24) dollars. As all teams are subject to the same cost cap, this scope adjustment cannot be considered a competitive disadvantage. However, if there are unique cases where this cost cap imposes a significant hardship, the proposers are invited to provide a writeup detailing the situation to the Program Scientist.

Q6: Is there a Citizen Science Incentive?

A6: If a Citizen Science component is proposed as part of the Baseline Science Mission, the CS component shall be described and the cost included in the PI-Managed Mission Cost.
The funding level for this incentive is defined to be 1% of the PI-Managed Mission Cost. Contributions to the CS are permitted. The proposed NASA cost of this CS, up to the CS incentive, will be outside of the PI-Managed Mission Cost. If the CS costs NASA more than the CS incentive, then the balance of the NASA cost of the CS must be within the PI-Managed Mission Cost. (Reference AO Requirement 60).

Q7: Is there a page limit for the Citizen Science Plan?

A7: There is a 5 page limit for the Citizen Science Plan (G&C Requirement CS-4)

Q8: With the anticipated delay of the downselect date relative to the AO, will the launch date be revised?

A8: Yes, the new "launch date" (DRD: delivery readiness date /LRD: launch readiness date) is expected to be NLT Q1 CY2029.

Q9: Is there a cost cap for the optional Science Enhancement Options?

A9: There is not a cost cap. Costs for proposed SEO activities must be defined in CSRs, but will not count as part of the PI-Managed Mission Cost (PIMMC). Funding requested for SEO activities prior to Phase E should be minimized and flight hardware *may not* be proposed as SEOs. (Reference AO 5.1.8).

Q10: Phase B and the six-month Bridge Phase are expected to start NLT 15 April 2025 (https://explorers.larc.nasa.gov/HPSMEX22/SMEX/pdf_files/03-Moses-SMEX22-Step2-Kickoff-revA.pdf, page 8). Currently, a priced option for a six-month Bridge Phase is negotiated as part of the Phase A contract. Will NASA accept delivery of the Bridge Phase cost proposal with the CSR?

A10: No, for programmatic and budgetary planning purposes, the Program Office requires the Bridge Phase priced option as part of the Phase A contract, to facilitate a timely transition for the continued project into Phase B. During the Bridge Phase, NASA and the continued project will negotiate and sign a contract modification necessary for the remaining portion of Phase B, on the basis of information provided in the CSR. Each SMEX Phase A study team should generate a program schedule for the CSR to meet the stated milestones.

Q11: The *Guidance for Distributed Satellite System (DSS) Architectures for Class D Missions* document in the 2022 Heliophysics Small Explorer (SMEX) Program Library provides additional guidance for multiple-satellite mission configurations and mission designs. Is there a possibility that extra pages for multiple-satellite missions can be allowed to address these?

A11: To allow proposers with multiple-satellite missions (with more than one spacecraft) to provide more detail with the CSRs, an additional two pages are allowed in addition to the 110-page limit specified for Sections E through H in the Table 2, CSR Structure and Page Limits of the G&C document.

Q12*:* How are Diversity, Equity, Inclusion, And Accessibility (DEIA) and Citizen Science (CS) going to be evaluated?

A12*:* Diversity, Equity, Inclusion, And Accessibility (DEIA) is part of Form B (Scientific Implementation Merit and Feasibility of the Proposed Investigation). The specific factor is B-10: Merit of the Diversity and Inclusion Plan. This plan will be evaluated by DEIA experts and the results included as part of the Form B rating.

The Citizen Science (CS) evaluation criteria are defined by SPD-33, Section IV and will be evaluated by CS experts. There are three scenarios for the CS evaluation.

1. If the CS is part of the baseline mission, it will be evaluated as part of the Form A/B evaluation.
2. If the CS is not part of the baseline mission, the evaluation results will be captured on a new Form F which will also be added to the G&C evaluation criteria. The final result of Form F will be Grades: Meritorious or Not Meritorious.
3. If the CS includes items that are both part of the baseline and outside the baseline, both of the above methods will be used.

The G&C document will be updated to reflect this information.

Q13*:* Can the page limit for the Diversity, Equity, Inclusion, And Accessibility plan be increased to allow proposers to better define their plan?

A13*:* The page limit has been increased from 2 pages to 5 pages to allow for more detail.

Q14: Are proposers with a PIMMC under $200M (FY22) eligible for the (up to) $1.5M (FY22) reimbursement for the delta cost between performance measurement best practices cited in the Class D guidance vs implementation of validated EVM?

And if so:

1. Where should proposals show an estimate for a difference in cost?
2. How should proposals show an estimate for a difference in cost?

A14: The goal of the reimbursement allowance is to level the playing field to meeting NPR 7120.5 requirements for projects with an LCC between $150M and $250M (RY, equivalent for the purposes of this AO to a PIMMC between $120M and $200M in FY22), so that the same EVM cost expectations apply to all proposers, regardless of the portion of NASA in-house work.

The $1.5M (FY22) is not an allowance, but the maximum reimbursement that could apply. NASA will only reimburse the difference in cost between the application of the practices referenced in the document and Expectations for Small Category 3, Risk Classification D (Cat3/ClassD) Space Flight Projects with Life-Cycle Cost Under $150M; and meeting the NFS requirements on all contracted portions of the work. This leads to the following answers for the sub-questions.

1. This line item must be included in the Enhanced PIMMC, outside of the PIMMC. A line has been added to the Table B3 template.
2. Show the estimated difference, up to the $1.5M (FY22) maximum, in the budget tables as part of the Enhanced PIMMC. If the estimated difference exceeds $1.5M (FY22), include the remainder within the PIMMC. Briefly explain the basis of estimate in Section ~~H~~ **I Cost and Cost Estimating Methodology (Amended 6/17/24).**

Q15: Do Step 1 clarifications affecting Science Merit need to be incorporated appropriately throughout Section D of the CSR even if they have been superseded by new work done during the Phase A study and there are no changes to the mission objectives?

A15: Because NASA will perform a new evaluation of the submitted CSR, all new Science Merit (Form A) information throughout the entirety of Section D from the Phase A study (and

any information supplied as a Step 1 PMW clarification, even if superseded by new information) needs to be clearly identified as per the instructions in this requirement. Rationale for changed or superseded clarifications must be provided. The Program Scientist and evaluators need to understand any new Science Merit information and the clarifications as part of the Step 2 evaluation. Changing the science objectives may require a Form A re-evaluation and any changes shall be identified in the change matrix also described in this requirement.

Q16: Requirement CS-20 refers first to "science objectives" but then to "science mission objectives, requirements, implementation, details, measurements and data, etc.". Please clarify what needs to be included in the science change matrix.

A16: The science change matrix shall cover, at a minimum:

- any change made to the baseline investigation's science objectives, or to the text of Section D that supports those objectives;
- any change made to the threshold investigation's science objectives, or to the text of Section D that supports those objectives; and
- any change made to the Science Traceability Matrix (STM), or to the text of Section D that supports the STM requirement flow-down.

The latter is the context for the "requirements, implementation, details, measurements and data" portion of CS-20.

Q17: Who is the appropriate NASA point of contact for Cyber Security?

A17: Questions concerning Cyber Security may be addressed to: Mr. Jerry Esper, SMD Program Executive for System Security, E-mail: jerry.s.esper@nasa.gov.

Q18: For a Proposed SEO, Requirement CS-28 states "a justification and a cost plan for SEO activities are required in Section L of this document." Is this the correct section?

A18: The correct section for this information is Section J.

Q19: What guidance can NASA provide on questions during the Site Visit?

A19: Guidance:

a. The Evaluation Team meets before the Site Visit to review the Early Written SQRL responses. For any questions that arise at that point, the Evaluation Team will present such questions during NASA's requested 15 min at the beginning of Site Visit day 1 and

will document them on the BOX site for the Concept Study Team. These questions are meant to be clarifying and informational for the Evaluation Team. The Concept Study Team can then decide how to respond – not at all, a new response at the Site Visit , or modify an existing response. Anything not resolved at the Site Visit may result in a post-Site Visit SQRL.

b. The Evaluation Team meets at the end of Site Visit day 1 to caucus on the information presented in response to the SQRLs answered at Site Visit day 1. For any questions that arise at that point, the Evaluation Team will present such questions during NASA's requested 15 min at the beginning of Site Visit day 2 and will document them on the BOX site for the Concept Study Team. These questions are meant to be clarifying and informational for the Evaluation Team. The Concept Study Team can then decide how to respond – not at all, a new response at the Site Visit , or modify an existing response. Anything not resolved at the Site Visit may result in a post-Site Visit SQRL.

c. The Evaluation Team meets at the end of Site Visit day 2 to caucus on the information presented at the Site Visit. Any new SQRLs that arise at that point will be presented as post-Site Visit SQRLs.

d. Any Evaluation Team questions (both in person and virtual) will be documented by the Evaluation Team and presented with the post-Site Visit SQRLs. Please note: NASA requests that no recordings of the site visit events be made.

Q20: What guidance can NASA provide on handling hybrid Evaluators at the Site Visit?

A20: Guidance:

a. Concept Study teams are in charge of running all aspects of the Site Visit and should plan on moderating the virtual attendees. Please provide instructions to virtual attendees on how you intend to handle virtual participation (e.g., raised hands). Note some virtual participants will only participate at designated times (i.e., presentation of Inclusion Plan, Citizen Science Plan, Student Collaboration Plan, or Export Control material).

b. Accommodation of virtual attendees during Site Visit tours.
Please provide a presentation of the information that will be presented during the tour. A majority of the Evaluation Team is attending in person and will document all questions and answers discussed during the tour. This information will be provided to the entire Evaluation Team. Pre-made videos are allowed as long as they are presented to the entire Evaluation Team. Video and live streaming are at the discretion of the Concept Study team. Both presentation and video material should ensure the exclusion of any ITAR/EAR concerns with certain locations.

Q21: What SQRLs "must" or "may" be responded to by the Concept Study Team before and during the Site Visit?

A21: The Concept Study Report (CSR) Evaluation Plan indicates that there are four types of responses to the Significant Weaknesses, Questions, and Requests for Information List (SQRLs):

- Early Written Response Only
- Written Only at Site Visit
- Presentation Only
- Early Written Response and Presentation

As the Concept Study Team is in charge of their Site Visit and agenda, the Concept Study Team will need to triage the SQRLs and decide which ones that they can/will answer at their time-constrained Site Visit. While it may be prudent to adhere to the request type from the Evaluation Team, these requests are not an imperative. The Concept Study Team may exercise full flexibility in how and when they respond. The Evaluation Team would favor thoughtful responses. If a response is not "ready" at the Site Visit, it could be deferred to a post-Site Visit SQRL.

Q22: What changes are allowed during the site Visit Agenda planning?

A22: The early draft agenda provided by the team was used to schedule participation of evaluators who do not participate in the full site visit (e.g. those for the Inclusion Plan, Citizen Science Plan and Student Collaboration Plan). Once their participation times have been confirmed, we would like those times to then remain static.

Once the Concept Study Team receives the SQRLs we fully expect significant updates to other parts of the agenda. While the team has full control over the agenda, we may request certain SQRLs to be addressed on certain days or at certain times of the day to accommodate Evaluation Team availability, esp. for our foreign virtual evaluators. Similarly we may ask that SQRLs that either contain Export Control material or will need Export Control material in their answer to be grouped together and be presented towards the end of the Site Visit days, so that we can excuse our foreign national evaluators.

Otherwise, Concept Study Team can alter their draft agenda in whatever way they see fit. For example, a previously scheduled Site Visit Tour may be deleted ~~if the Team has more productive uses for that time~~ **(Amended 10/22/24)**. Agenda can change dynamically during the site visit in response to discussions and /or Evaluation Team Questions.

We would like to request the latest agenda to be made available to the NASA POCs for the site visit by noon before the first day of the Site Visit.

Q23: What additional guidance can NASA provide on "Significant Weaknesses" in SQRLs and final Forms A/B/C?

A23: The Per the HE22 SMEX Step 2 Evaluation Plan:

- Unlike in Step 1, minor findings can influence ratings. Significant minor findings are those minor findings that do influence ratings and will be marked as such in the [final] Form A*/B/C. The term "Significant Weakness" includes both Major Weaknesses and Significant [m]inor Weaknesses.
- Significant weaknesses [in SQRLs] are preliminary and may change based on Site Visit information and further discussion by Evaluation Panels.

"Significant Weaknesses" in SQRLs include both potential Major Weaknesses and potential Significant minor Weaknesses, and may influence a Concept Study's ratings. At this time, potential Major Weaknesses have bolded first sentences, and potential Significant Minor Weaknesses have italicized first sentences.

Q24: Is there any more information on the March dates for potential SQRLs. Specifically, a narrower window than the two weeks would be extremely helpful.

A24: Those dates are the weeks of our final Science and TMC plenaries, and your team will need to be prepared for additional questions at any time during that period. Unfortunately, to ensure a thorough review we cannot reduce that time period.

Q25: The Evaluation Plan states: "Additional SQRLs may be sent once during the time period of February 18-21, 2025, with responses due within 48 hours (exact dates for this set will be communicated to each study team)." Can you provide more detailed information about this set of SQRLs?

A25: For this set of SQRLs (February 18-21, 2025) we will be sending out any needed SQRLs on February 19, 2025 at 12 PM EST. Responses for this set of SQRLS is due on February 21, 2025 at 12 PM EST.

Q26: Please provide more details about the PI Briefings.

A26: The times and dates on our SMD leadership calendar for the H22-SMEX PI Briefings here at NASA HQ are as follows:.

CSR	Date	Time
CSR1	April 22, 2025 Tuesday	**10:00 AM – 11:00 AM**
CSR4		**11:00 AM – 12:00 PM**
CSR2	April 23, 2025 Wednesday	**9:00 AM – 10:00 AM**
CSR3		**10:00 AM – 11:00 AM**

(Briefing times amended 4/3/25)

Please note that these dates/times may still change, subject to unexpected demands on our SMD leadership's time.

The meeting will be in person at NASA HQ. Each PI may bring 2 other team members to the briefing. Only the PI and the 2 identified members may speak at the briefing. In addition, the PI may utilize a virtual meeting option to allow the remote team to answer questions. With the virtual option, the PI could ask questions to remote participants but NASA would not be responsible for any time lost due to technical issues. Also note that the use of remote participants may take away from the limited 50 minute presentation time.

Please let us know well in advance who will be at your briefing (three weeks needed for foreign nationals).

Every Team has the same amount of time to speak and to answer questions:

0-5 min: Setup time, introductions
5-55 min: Presentation and Questions. There will be a hard break at the 55 min mark.
55-60 min Break

The primary goal of the talk should be to discuss the science of the mission. Teams shouldn't spend too much time on the engineering or architecture of the mission.

You should be prepared to answer some big picture questions such as

- "what is it about your mission that keeps you up at night?"
- "what would be the single most significant advance in Heliophysics Science resulting from your mission?"
- "what would your cover of Scientific American say that celebrates your mission success?"

Q27: Will DEIA still be one of the selection considerations for this evaluation?
A27: Per the Executive Order issued on January 20, 2025, DEIA will not be a selection consideration. In the Guidelines and Criteria document this removes Factor B-10. This also removes Factor B-02 from Student Collaboration (Form D) and Factor B-01 from Citizen Science (Form F).