

# 2018 Heliophysics Technology Demonstration Mission of Opportunity

## Concept Study Step-2 Questions & Answers

Change Log		
Rev.	Date	Description of Changes
01	10/28/2019	Added Q&As 1-3
02	12/05/2019	Added Q&As 4-9
03	01/09/2020	Added Q&A 10
04	02/21/2020	Added Q&As 11-14
05	03/30/2020	Added Q&A 15
06	04/15/2020	Added Q&A 16
07	04/29/2020	Added Q&A 17
08	05/01/2020	Added Q&A 18
09	05/07/2020	Added Q&A 19
10	05/18/2020	Added Q&As 20-21
11	06/02/2020	Added Q&A 22
12	06/10/2020	Added Q&As 23-24
13	06/25/2020	Added Q&As 25-26

**Q-1: Page 1 of the guidelines and criteria document states:**

*NASA recognizes and supports the benefits of having diverse and inclusive scientific, engineering, and technology communities and fully expects that such values will be reflected in the composition of all proposal teams as well as peer review panels (science, engineering, and technology), technology and science definition teams, and mission and technology teams.*

**How will diversity be evaluated?**

A: Diversity is not explicitly evaluated under Evaluation Criteria Factors A, B, or C; however, the panel may write a comment to the selection official if deemed important. Also, please note the evaluation criteria for Student Collaboration does include a diversity component; see Part 1 of the guidelines and criteria document, Merit of the Student Collaboration section.

**Q-2: Appendix M.19 Space Systems Protection is a relatively new requirement for Concept Study Reports. Is there a document with details on these new requirements?**

A: Yes, information can be found in the document: FIPS PUB 140-2 Security Requirements for Cryptographic Modules. This document has been posted to both the Helio Science and TechDemo Program Libraries.

**Q-3: Is there a page limit for Science Enhancement Options (SEOs) in the Concept Study Report (CSR)?**

A: Plans for SEO activities are to be addressed in Section F of the CSR (see Requirement CS-25), and there is a page count for Sections F through J. However, Section L of the CSR is not page limited and is to be used to provide the justification and cost proposal for any SEO activities (see Requirement CS-77).

**Q-4: What is the procedure for obtaining concurrence on the replacement of Key Management Team members, as specified in SALMON-3 Section 4.2.5, during and subsequent to Phase A?**

A: Requests for changes to team members during Phase A shall be submitted to the NASA Program Scientist for the 2018 Heliophysics Science Mission of Opportunity – STP Component (HPSMO-STP) for concurrence at least 2 weeks before the due date for submission of the CSR. The Program Scientist for HPSMO-STP is Dan Moses (dan.moses@nasa.gov). Such requests should identify and designate all changes to the original team members and should justify the necessary nature of the requested changes. After Phase A, concurrence will be required from the TBD Program Scientist for any down-selected investigations.

**Q-5: May baseline mission operations duration be extended beyond that specified in the proposal?**

A: Yes. All investigations may extend their baseline mission operations duration beyond that specified in their proposal, as long as the PI-Managed Mission Cost remains within 20% of the PI-Managed Mission Cost specified in the proposal and the applicable PEA M Cost Cap. Note that any changes in the baseline mission operations profile as a result of the Phase A concept study may lead to a reevaluation of the scientific merit of the investigation (Form A) following submission of the CSR.

**Q-6: When should Phase B be assumed to start?**

A: The start of HPSMO-STP Phase B is expected to be no earlier than January 2021.

**Q-7: CSR Requirement CS-58 seems out of place in Section J. PRELIMINARY DESIGN AND TECHNOLOGY COMPLETION (PHASE B) PLAN. May the material identified in the requirement be addressed elsewhere?**

A: Statements of Work (SOWs) for each organization requiring a separate contractual arrangement should be provided as part of Appendix M.4 (Phase B Contract Implementation Data), as addressed in Requirement CS-83. Budget breakouts for each organization should be provided in Section K (Cost Proposal).

**Q-8: Please clarify what is required and what is allowed in Appendix M.21 References List.**

A: References to the scientific and technical literature that are cited in the CSR should be included in Appendix M.21 (References). Literature references and the required program and project management standards should be listed in separate sections of this Appendix. As stated in the Appendix instructions, "Investigation teams are encouraged to provide an active URL for those documents available through the Internet". This includes references to the scientific and technical literature.

**Q-9: Will the specification of an SEO that was not included in the Step-1 proposal, due to the allowance in PEA M Section 5.2.4, result in reevaluation of the scientific merit of the investigation (Form A), given Factor A-5 "Merit of any Science-Exploration-Technology Enhancement Options (SEOs), if proposed"?**

A: Factor A-5 is not considered in the overall criterion rating, so a new evaluation or reevaluation of it in Step 2 will not constitute a Form A reevaluation.

**Q-10: What is the possibility of using the IMAP LV disposal burn to help put our spacecraft on an acceptable trajectory?**

A: The STP Mission of Opportunity rideshare investigation Concept Studies should only assume those resources specifically provided in the NASA Heliophysics Mission Specific SPA SIS (currently Rev 3), as posted in the Program Library. NASA cannot guarantee or provide a commitment for the use of any amount of delta-V that may be provided by the Launch Vehicle upper stage until after vehicle selection. The trajectory mission solution will not be known until the procured launch vehicle can analyze the trajectory and all propulsion/commodities needed for the final rideshare payload configuration (to include IMAP, and all the selected rideshares).

**Q-11: Section 3.4 of the LSIRD requests requirements on orbit insertion and separation. Since these parameters are established by the primary launch payload, can you provide the orbit insertion parameters (C3, RA, DE, etc.) as established by the primary payload?**

A: The STP Mission of Opportunity rideshare investigation Concept Studies should only assume those resources specifically provided in the NASA Heliophysics Mission Specific SPA SIS (currently Rev 3), as posted in the Program Library. The current C3 is stated in the SIS. The other requested parameters will not be known until the procured launch vehicle can analyze the trajectory and all propulsion/commodities needed for the final rideshare payload configuration (to include IMAP, and all the selected rideshares).

**Q-12: What SCaN assets will be available to the multiple RPLs immediately after separation from the launch vehicle? How will these SCaN assets be allocated amongst the primary mission (IMAP) and the multiple RPLs?**

A: This information is dependent on the launch vehicle separation characteristics and sequence. Therefore, this information will not be known until after the launch vehicle selection. The details of the SCaN asset allocations at each separation will be worked with IMAP and the selected rideshares after selection of the launch vehicle.

**Q-13: The Student Collaboration (SC) incentive is outside of the PI-Managed Mission Cost. However, since it is “dependent upon the proposed mission being implemented”, is it correct to assume the funding, contracting, and management of the SC would be through the project management organization rather than NASA? What, if any, specific role and responsibilities will NASA have with a selected SC?**

A: Implementation of an SC is analogous to that of the baseline investigation, with PI leadership augmented, as necessary, with NASA support (e.g., contracting). Note, however, that NASA reserves the right to direct implementation of SC activities not proposed by the PI.

**Q-14: The CSR Guidelines and Criteria document states “The CSR evaluation process will include visits by the evaluation team to each investigation team’s chosen site, to hear oral briefings and, if needed, to receive updates and clarification of material in the CSRs. These briefings will be conducted no earlier than three months following submission of the CSRs.” When will NASA provide teams the dates that Site Visit could occur?**

A: The timing of the Site Visits was established to accommodate all of the PEA L and M CSRs evaluated together. The amendment to the CSR Guidelines and Criteria document that changed the due date of the HPSMO-E CSRs should have also reduced the period between CSR submittal and Site Visits to approximately two to three months. Concept study teams will be contacted shortly with options for Site Visit dates.

**Q-15: Please clarify that only the DSN aperture fees may be excluded from the PIMMC and that all other DSN costs, such as standard support services, must be included in the PIMMC.**

A: Requirement 47 of the SALMON-3 AO states “If use of NASA's network services is proposed, costs for services, as described in the NASA’s Mission Operations and Communications Services document, including the cost of any development but excluding DSN Aperture Fees, must be included in the PI- Managed Mission Cost and the proposal’s cost plan. Cost estimates for DSN Aperture Fees shall be included in the proposal but not in any cost table.” There is no exclusion for any DSN services other than the aperture fees.

**Q-16: May SEOs include flight hardware that is contributed? And if so, if the provision of the hardware is not to be decided until after down-selection, would it be acceptable/appropriate to include the SEO in the CSR? What level of description would be required in the main body of the CSR?**

A: The SEO language for SALMON-3 allows hardware in SEOs—in contrast to the default prohibition in the Standard AO Template. However, SALMON-3 Requirement 23 states “[i]f SEO activities are proposed, they shall be clearly separable from the Baseline Investigation and Threshold Investigation.” As such, the CSR must include sufficient definition of the SEO to determine separability. Please note that the SEO is not part of the baseline mission and, therefore, is not considered in the evaluation of the compelling nature of the science enabled by the MO investigation technology demonstration. This is relevant in the case that Selection Criterion A is re-evaluated for the CSR in the Step-2 competition.

**Q-17: Please clarify the following:**

**Requirement CS-6. Five CD-ROMs (CDs) or single-layer DVD-ROMs (DVDs) containing unlocked, bookmarked, searchable PDF file(s) of the CSR – limited to the main body of the CSR, all tables, all appendices (except for any classified one), and the MEL – as well as a separate PDF of the Fact Sheet and Microsoft Excel files of cost tables and the MEL, shall be provided. Animations shall not be included in these PDFs. When electronic versions in the *CSR Structure and Page Limits* table above are required, these files shall be identical to the hardcopy originals. Additionally, materials identified as subject to U.S. export laws and regulations, in accordance with PEA L and M Section 6.2.1 and SALMON-3 Section 5.9.3, shall be redacted to create separate versions of the files that are collected in a Redacted folder. In addition, file size limits from Step 1 are removed.**

**Is the intent that figure captions and other associated identifiers (e.g., table of contents, list, etc..) be searchable but that individual words, identifiers, axes, etc. contained within the body of the figure are *not* required to be searchable?**

A: While the limits of machine-encoded text using optical character recognition are acknowledged, investigation teams are advised that accurate searchable text throughout the CSR—including within materials that are otherwise represented by images—will ensure a thorough evaluation of *all* submitted materials. In addition, searchable Letters of Commitment are necessary to prevent delayed Conflict of Interest assessments that could impact the evaluation schedule.

**Q-18: COST TABLE TEMPLATES 3a and 3b on Pages 44 and 45 of the CSR Guidelines and Criteria document show the Student Collaboration Incentive on two lines: contributing to the Total Mission Cost and also contributing to the Enhanced PIMMC. Similar language exists in SALMON-3 Sections 4.3.2 and 4.3.3, placing the costs in both locations. Please verify where the costs should be located.**

A: The Student Collaboration funding, up to the incentive limit of 1% of the PIMMC, is an addition to both the Total Mission Cost—representing the value of the investigation upon downselection, less Program-provided GFE items (e.g., PEA-provided access to space)—and the Enhanced PIMMC—representing the maximum Program funding required, if all optional components are accepted.

**Q-19: Will there be any change in the requirements to make a physical delivery of the CSR (physical copies and CDs/DVDs)? Given the potential that printing and reproduction facilities might remain difficult to access, would it be possible to switch to an electronic-only submission?**

A: Yes, electronic submission of CSR materials will replace all references to CDs or DVDs, in an amendment to the Guidelines and Criteria document. Additionally, Requirement CS-5 for hardcopies will be amended to only require images of the original signatures of the Principal Investigator and an official of the PI's institution who is authorized to commit its resources. Electronic submission will require the utilization of the NASA NOMAD Large File Transfer (LFT) service, which is FIPS 140-2 certified for Data-in-Transit (DIT) and Data-at-Rest (DAR). To submit CSRs through LFT, investigation teams must provide an email list of no more than three (3) individuals requiring access to LFT to submit proposals. This email list must be provided to the Program Scientist no more than five calendar days before the CSRs are due. Individuals on the list will then receive an emailed invitation to LFT by NASA. Upon logging into LFT, the "Send File" tab will give these individuals the ability to send an LFT email—including multiple secured attachments. Investigation teams are encouraged to send a test email with attachments via LFT to ensure functionality prior to CSR submittal.

**Q-20: In light of the impacts of COVID-19 on communications, access to modeling tools, access to lab resources, and other considerations prioritizing team health, could additional time be provided for CSR development?**

A: Yes. Due to the ongoing impacts of COVID-19, NASA will extend the CSR due date *from* June 5, 2020 *to* July 2, 2020. Both the *Guidelines and Criteria for the Phase A Concept Study* and the *Concept Study Report (CSR) Evaluation Plan* will be updated to reflect this change. Please identify in the CSR, any status updates that are planned to be provided at the Site Visit, which is expected to take place approximately two months after CSR submission.

**Q-21: Has the Phase B start of no earlier than January 2021 from Q&A-6 been revised?**

A: No. And due to a measure of conservatism in the estimate, the start of Phase B is not expected to slip.

**Q-22: Given the COVID-19 situation, what is the current NASA plan to address site visits?**

A: NASA is currently planning for in-person site visits, but with a virtual capability for those participants who are “at-risk” or concerned about possible contact from in-person site visits. Any in-person participation will have a reduced number of participants and will follow appropriate distancing guidelines. Since site visit tours and demonstrations tend to cause participants to gather together these will be changed to virtual activities, even for evaluators who are present at the site visits. Plan for approximately 15 in-person participants from the evaluation team.

In-person attendance will be revisited closer to the site visits to be possibly reconsidered dependent on the government meeting guidelines at the time. Details regarding site visit logistics will be provided at a later date, closer to the site visits.

**Q-23: What changes are provided in revision 4 of the Program Library document *NASA’s Mission Specific Launch Vehicle Secondary Payload Adapter System Interface Specifications For Heliophysics Missions of Opportunity*?**

A: There are no major changes to the document. Changes include more up-to-date information and standardization of wording for clarification. The changes should not impact study team implementation, but study teams need to notify the appropriate NASA Program Scientist in the event any new information does create an impact. The change log section upfront provides a detailed list of all the changes to date.

**Q-24: The answer to Q-19 states that “the email list must be provided to the Project Scientist no more than five calendar days before the CSRs are due.” Is it intended to say that you want at least five days to get concept study teams the login information, i.e., “no later than”? Can you confirm the deadline that the CSRs are due?**

A: While the email list may be provided to the Project Scientist more than five days before CSRs are due, Large File Transfer (LFT) send capability timeout will constrain the emailed invitations to no earlier than five days before CSRs are due. As stated in the *Guidelines and Criteria for the Phase A Concept Study* document amended on May 19, 2020, the CSRs are due by 4 p.m. Eastern Time, July 2, 2020.

**Q-25: Are there any updates to the current NASA plan to address site visits? Is there any specific guidance for Site Visits?**

A: As an update to Q-22, it has been decided that all site visits will be entirely virtual over two partial days. Details of the virtual schedules will be provided at a later date. Please note that the nature of Site Visits has evolved in CSR evaluations. While an impressive demonstration of the proposed investigation concept and the institutional capabilities was traditionally a significant part of Site Visits in the past, in recent years the focus has increasingly been upon addressing the questions and significant weaknesses posed by the evaluation team prior to and during a Site Visit. Observation of problem solving ability remains one of the driving reasons to conduct Site Visits; these are not typically improved through extensive rehearsals prior to a Site Visit.

**Q-26: Given that revision 4 of the document *NASA's Mission Specific Launch Vehicle Secondary Payload Adapter System Interface Specifications For Heliophysics Missions of Opportunity (SIS)* was recently posted in the Program Library, will the CSRs be evaluated against revision 3 or revision 4 of the SIS?**

A: Revision 4 was posted primarily to provide concept study teams with more up-to-date information and standardization of wording for clarification. CSRs will be evaluated using revision 3, which was the version in effect at the Step-2 kickoff and will therefore be re-posted. However, CSRs will not be penalized for utilization of revision 4 (e.g., the updated volume specification) as part of their baseline investigation. Any impacts to the baseline investigation, as provided in the CSR, or ones expected after down-selection must be addressed during the Site Visit. If there are any potential future costs, they may drive the PI-Managed Mission Cost above the PEA Cost Cap with justification, and only if the justification is compelling will funding be provided for the difference in planned work. Other future impacts, such as schedule, must be similarly justified. These impacts will be evaluated as part of the down-select process (e.g., may result in Site Visit questions), but will not contribute to any criterion grade.