

Heliophysics Explorers Program (HEP) 2022 Heliophysics Small Explorer (SMEX) NNH22ZDA016O

Concept Study Report (CSR) Evaluation Plan

Rev. A, September 20, 2024

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Approvals recorded in the NASA Partnership Agreement Maker (PAM) system



Introduction

Introduction

- The Explorers Program is the oldest continuous program in NASA. It comprises a longstanding series of space science missions that are independent but share a common funding and NASA oversight/ insight management structure. Initiated with the Explorer 1 launch in 1958 and including the Nobel Prize-yielding Uhuru and Cosmic Background Explorer (COBE) missions, the Explorers Program has launched over 100 missions.
- The goal of NASA's Heliophysics Explorers Program (HEP) is to provide frequent flight opportunities for high quality, high value, focused Heliophysics science investigations that can be accomplished under a not-to-exceed cost cap and that can be developed relatively quickly, generally in 48 months or less.
- The purpose of this evaluation plan is to define the ground rules, processes, organizations, and schedules to be used in evaluating the 2022 Heliophysics Small Explorer (SMEX) Concept Study Reports (CSRs).
- Four investigations were selected for Concept Studies, which constitute each investigation's Concept and Technology Development Phase (Phase A) of the Formulation process as outlined in NPR 7120.5F, NASA Spaceflight Program and Project Requirements.

\$2M (FY22) and 9 months are allocated for each 2022 Heliophysics Small Explorer (SMEX) Concept Study selected in Step 1.

Evaluation Plan Overview

- The Heliophysics Explorers Program (HEP) 2022 Heliophysics Small Explorer (SMEX) Announcement of Opportunity (AO) NN22ZDA016O, under which the investigations to be evaluated were selected, was issued on September 7, 2022. and amended on September 29, 2022.
- The Science Office for Mission Assessments (SOMA) at NASA Langley Research Center (LaRC) developed this 2022 Heliophysics SMEX Concept Study Report (CSR) Evaluation Plan for the Science Mission Directorate (SMD) at NASA Headquarters.
- This 2022 Heliophysics SMEX CSR Evaluation Plan has been cleared for public release by SMD.
- The 2022 Heliophysics SMEX Program Scientist is responsible for validating all evaluation processes, responsibility assignments, assumptions, and ground rules.
- Four selected Small Explorer Missions were selected for competitive Phase A concept studies. These four selected missions are Class D.

Selected Missions

Cross-scale Investigation of Earth's Magnetotail and Aurora (CINEMA)

PI: Dr. Robyn Millan, Dartmouth College, Hanover, New Hampshire

The Cross-scale Investigation of Earth's Magnetotail and Aurora (CINEMA) mission would work to understand the structure and evolution of Earth's plasma sheet – a long sheet of denser space plasma in the magnetic fields flowing behind Earth, known as the magnetotail — using a constellation of nine CubeSats flown in Sun-synchronous, low Earth orbit. The primary purpose of this mission is to study the role of plasma sheet structure, as well as how Earth's magnetic fields transfer heat and change over time at multiple scales. CINEMA will complement current heliophysics missions, such as the THEMIS (Time History of Events and Macroscale Interactions during Substorms), MMS (Magnetospheric Multiscale) mission, and the planned Geospace Dynamics Constellation mission.

Selected Missions

Chromospheric Magnetism Explorer (CMEx)

PI: Dr. Holly Gilbert, National Center for Atmospheric Research, Boulder, Colorado

The Chromospheric Magnetism Explorer (CMEx) mission would attempt to understand the magnetic nature of solar eruptions and identify the magnetic sources of the solar wind. CMEx proposes to obtain the first continuous observations of the solar magnetic field in the chromosphere – the layer of solar atmosphere directly above the photosphere or visible surface of the Sun. These observations would improve our understanding of how the magnetic field on the Sun's surface connects to the interplanetary magnetic field.

Selected Missions

EUV CME and Coronal Connectivity Observatory (ECCCO)

PI: Dr. Katharine Reeves, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts

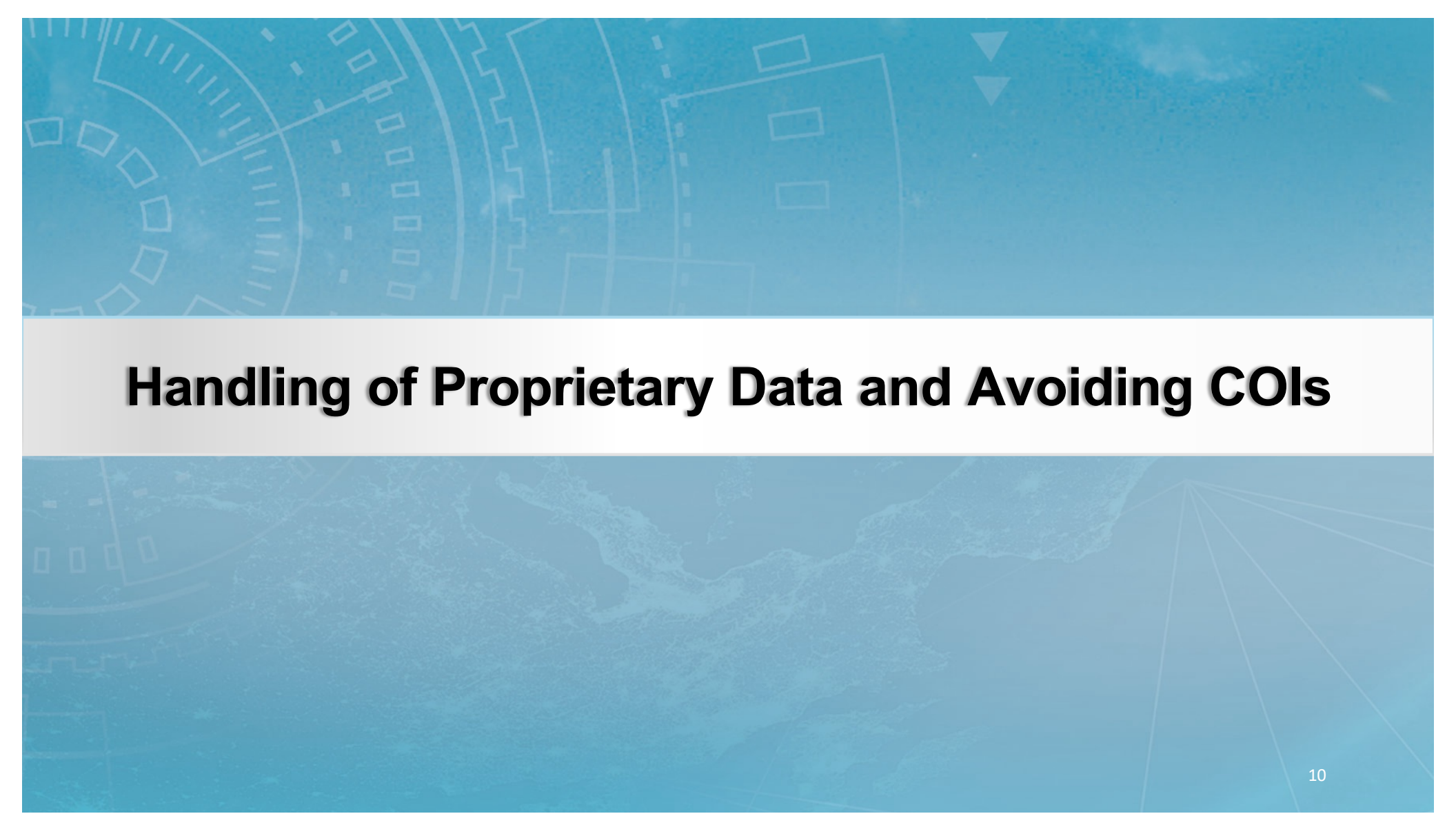
The Extreme Ultraviolet Coronal Mass Ejection and Coronal Connectivity Observatory (ECCCO) consists of a single spacecraft with two instruments, a wide-field extreme ultraviolet imager and a unique imaging EUV spectrograph. ECCCO's observations would contribute to understanding the middle corona, the dynamics of eruptive events leaving the Sun, and the conditions that produce the outward streaming solar wind. The mission would address fundamental questions about where the mass and energy flow linking the Sun to the outer corona and heliosphere originate.

Selected Missions

Magnetospheric Auroral Asymmetry Explorer (MAAX)

PI: Dr. Michael Liemohn, University of Michigan, Ann Arbor, Michigan

The primary objective of the Magnetospheric Auroral Asymmetry Explorer (MAAX) mission is to improve our understanding of how electrodynamic coupling between Earth's magnetosphere and ionosphere regulates auroral energy flow. The mission would use two identical spacecraft equipped with dual-wavelength ultraviolet imagers to provide global imaging of the northern and southern auroras.



Handling of Proprietary Data and Avoiding COIs

Handling of Proprietary Data

- All CSR related materials will be considered proprietary.
- Only those individuals with a need to know will be allowed to view CSR materials.
- Each evaluator who is not a Civil Servant (CS) or Intergovernmental Personnel Act (IPA) Assignee will sign a NASA Non-Disclosure Agreement (NDA) which must be on file with the NASA Research and Education Support Services (NRESS) Contractor, or the Evaluations, Assessments, Studies, Services, and Support 3 (EASSS 3) Contractor prior to any CSRs being distributed to that evaluator.
- CS and IPA evaluators are under statutory obligations and are not required to sign an NDA.
- A record will be kept of who has been supplied with what materials.
- Evaluators will be briefed at a Kickoff web conference on how to handle the CSR material. Evaluators will be briefed that they are not allowed to discuss CSRs with anyone outside the Evaluation Panels ever, unless authorized by NASA. Evaluators will be briefed to not contact anyone outside of the Evaluation Panels to gain insight on any CSR-related matter without express authorization from the 2022 Heliophysics SMEX Program Scientist. If authorized by the Program Scientist (Dr. Reinhard Friedel), the SMD Deputy AA for Research should be notified.

Handling of Proprietary Data (continued)

- SMD Policy Document SPD-17 detailing Observers at Review Panels will be followed. Observers will not have access to CSR or evaluation materials during the evaluation.
- During the evaluation, all proprietary information that needs to be exchanged between evaluators will be transferred securely via the Remote Evaluation System (RES) website maintained by SOMA, via the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES), via NASA Google Docs drive, via the secure ScienceWorks system maintained by SMD, via controlled WebEx, via NASA's Box file transfer capability, or via encrypted email, parcel post, fax, or regular mail. Proprietary information will not be sent via unencrypted email.
- Virtual meeting information is confidential. The meeting numbers and pass codes are posted in a file on the RES or on Google Drive. Participants will be briefed to ensure they do not provide this information to anyone or distribute this information via unencrypted email or text messages.
- When the evaluation process is complete, CSR and evaluation materials will be collected from the evaluators and deleted or destroyed. Some copies (for archival purposes) will be maintained by the Program Scientist at NASA HQ, and in the SOMA vault. Also, all CSR material from the down-selected mission(s) will be provided to the Heliophysics Explorers Program Office located at NASA's Goddard Space Flight Center. All other CSR materials will be destroyed.
- Evaluators' electronic and paper evaluation materials will be deleted/destroyed when the evaluation process is complete. Archival copies will be maintained in the SOMA vault.

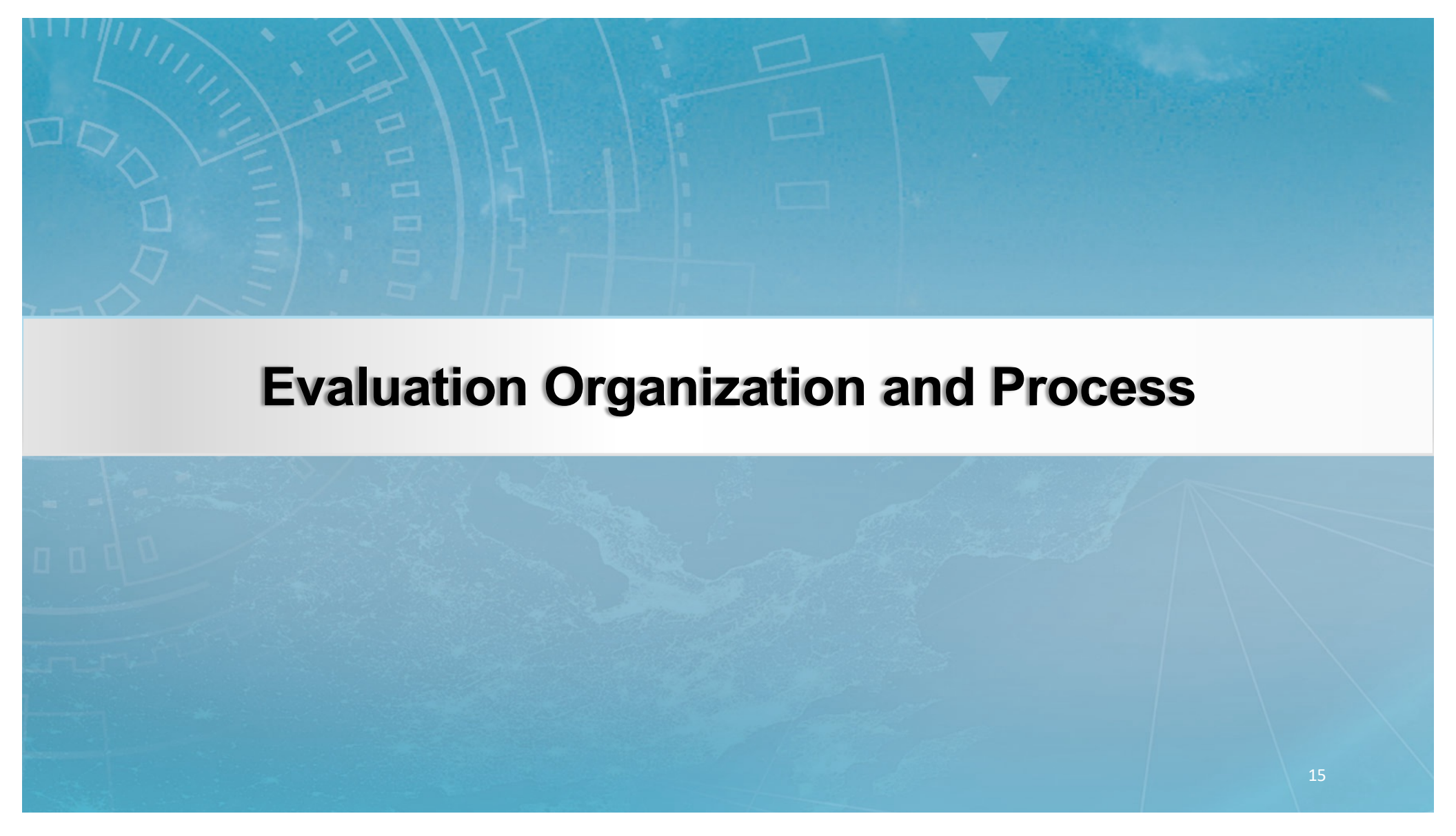
Plan to Avoid Conflicts of Interest (COIs)

- Members of Evaluation Panels are cross checked against the draft list of organizations and individuals provided by the Phase A Concept Study Teams* to ensure no individual or organizational COI exists with the planned evaluators. Evaluators are required to raise any potential COIs.
- After the Concept Study Reports (CSRs) are received, all members of the Evaluation Panels will again be cross checked against the final lists of organizations and individuals on each CSR to ensure no individual or organizational COI exists on the list of evaluators.
- In addition, all evaluators will review the final lists of conflicted organizations and individuals and be required to divulge whether they have any financial, professional, or personal potential conflicts of interest and whether they work for a profit-making company that directly competes with any profit-making proposing organization.
- Community standards for conflicts of interest will be applied to all evaluators as directed in SMD Policy Document SPD-01A, Handling Conflicts-of-Interest for Peer Reviews. Standards for financial conflicts of interest as specified in 18 U.S.C. § 208 will be applied to Civil Servant evaluators. The HQ Office of General Counsel will be consulted as necessary.

**Phase A Concept Study Team will be referred to as "study team" throughout the remainder of this document*

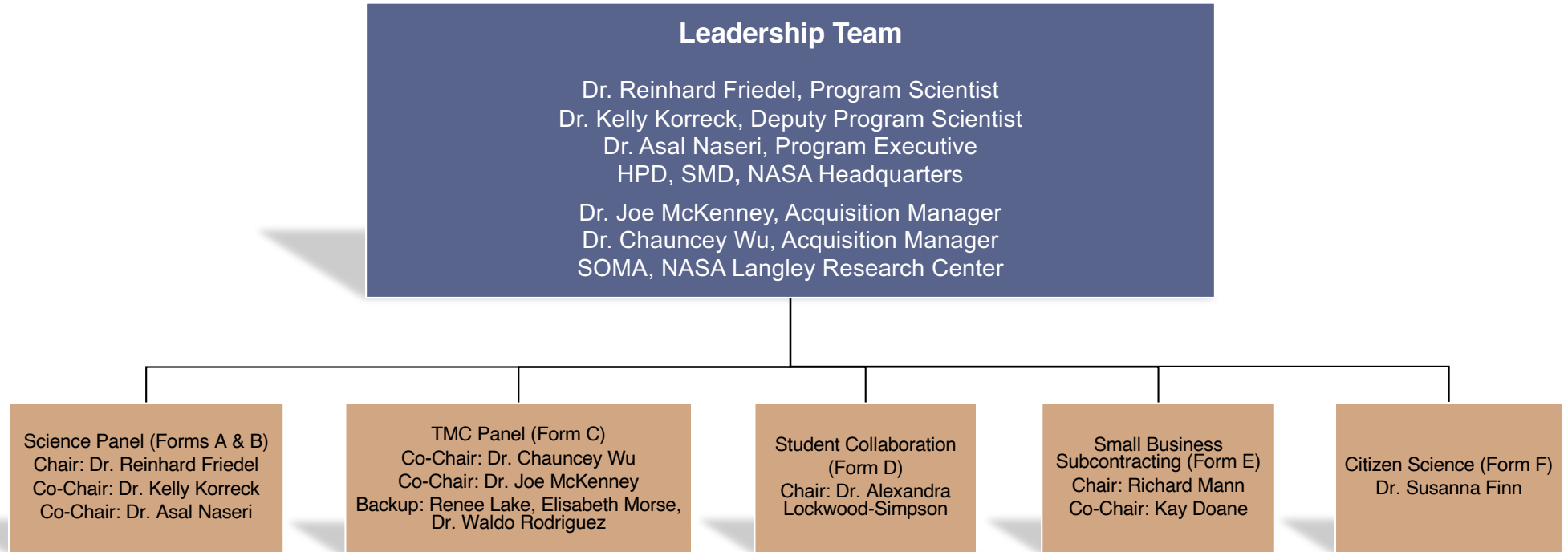
Plan to Avoid COIs (continued)

- Any potential COI issue is discussed with the 2022 Heliophysics SMEX Program Scientist and the SMD Deputy AA for Research and documented in the 2022 Heliophysics SMEX Downselect COI Mitigation Plan.
- All Civil Service evaluators will self-certify their COI status by reviewing a combined listing of individuals and organizations associated with the CSRs. The TMC evaluators must notify the TMC Panel Chair in case of a potential conflict. The Science evaluators must notify the Science Panel Chair in case of a potential conflict.
- If any evaluators with potential organizational COI must be used, their respective organizations must submit a plan, as required by their contract or SMD waiver, and also provide a mitigation plan.
- If during the evaluation there is any actual conflict of interest noted, the conflicted member(s) will be notified to stop reviewing CSRs immediately and the 2022 Heliophysics SMEX Program Scientist and TMC Panel Chair will be notified. Steps will be expeditiously taken to remove any actual or potential bias imposed by the conflicted member(s). Permissions to access electronic media for the review (Box, Google Drive, RES) will be revoked until COI resolved.



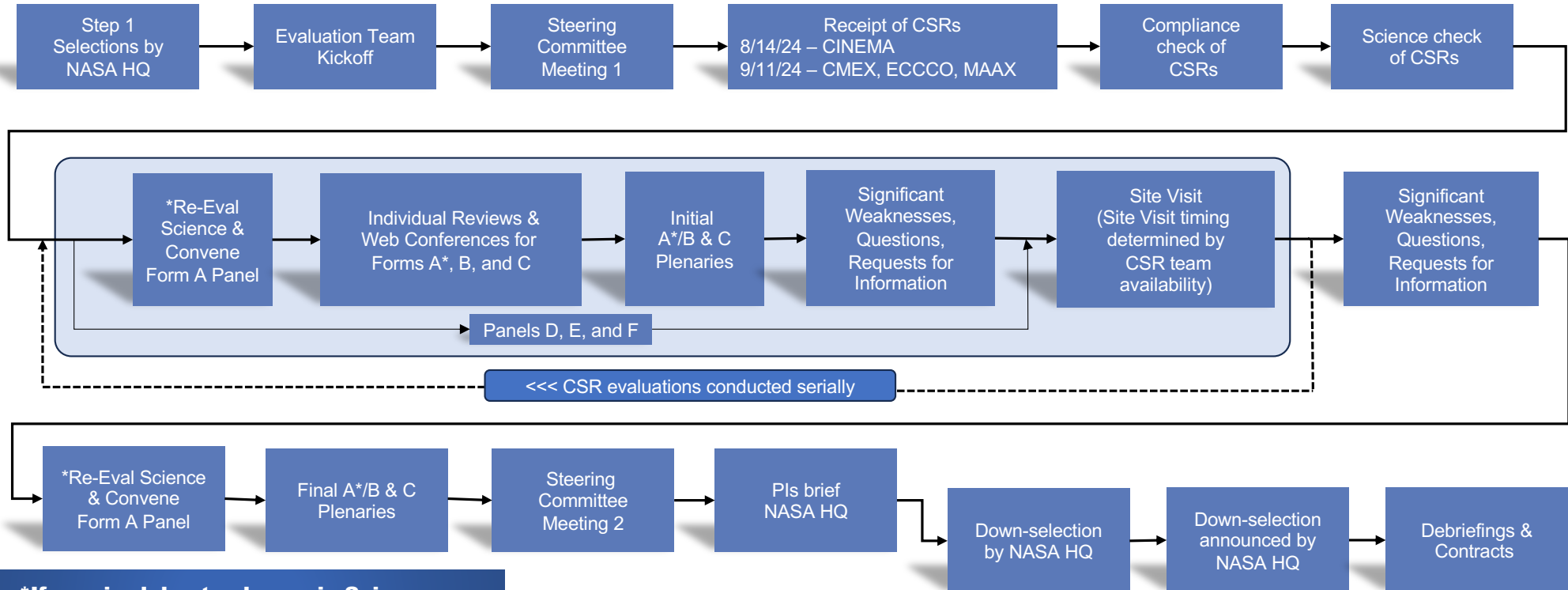
Evaluation Organization and Process

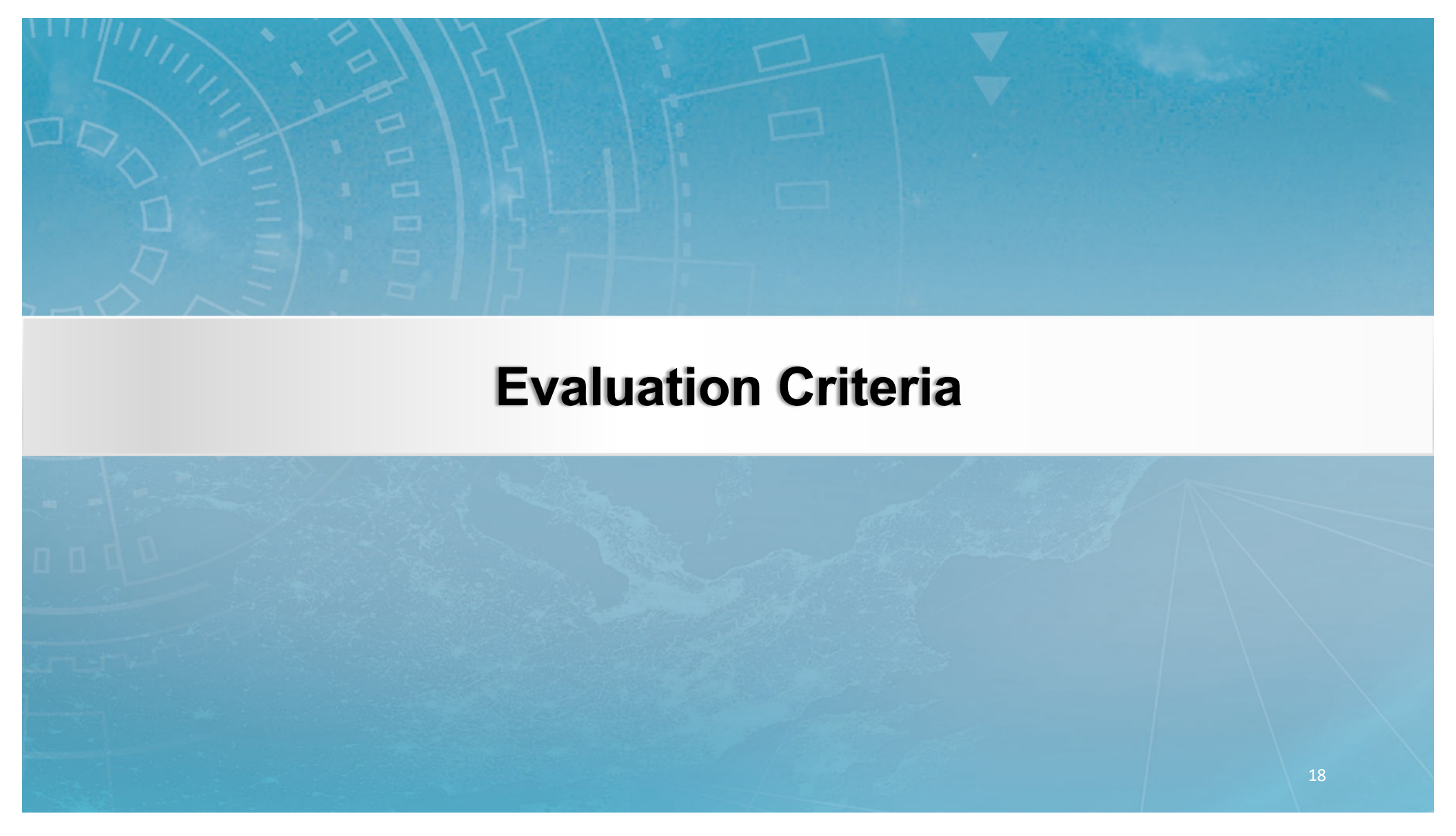
Evaluation Organization



CSR Evaluation Flow

9/23/23





Evaluation Criteria

Evaluation Criteria and Additional Selection Factors

- The criteria to evaluate the CSRs are documented in the 2022 HELIOPHYSICS SMALL EXPLORER ANNOUNCEMENT OF OPPORTUNITY GUIDELINES AND CRITERIA FOR THE PHASE A CONCEPT at:

https://explorers.larc.nasa.gov/HPSMEX22/SMEX/pdf_files/Guidelines%20and%20Criteria_Step_2_Helio-SMEX_20240513_RevC.pdf

Evaluation criteria for the Concept Study: approximate significance of each criterion is indicated by the percent weighting.

- Criterion A: Scientific Merit of the Proposed Investigation (will not be reevaluated unless it is determined that the science has changed from that described in the Step 1 proposal) (approximately 20%)
- Criterion B: Scientific Implementation Merit and Feasibility of the Proposed Investigation (approximately 40%)
- Criterion C: TMC Feasibility of Mission Implementation (approximately 40%)
- Criteria D, E, and F: Student Collaboration (SC, Criterion D), Small Business Subcontracting (Criterion E), and Citizen Science (CS, Criterion F) plans will be evaluated as separate factors and considered during the selection process.
- **Additional Selection Factors that may be considered by the Selection Official**
 - At the Step-2 down-selection, the Selection Official may consider a wide range of programmatic factors in deciding whether to select any proposals and in selecting among top-rated proposals, including, but not limited to, planning and policy considerations, available funding, career development opportunities, programmatic merit and risk of any proposed partnerships, the size and nature of any contributions, workload balance among NASA's Centers, and maintaining a programmatic and scientific balance across SMD. While SMD develops and evaluates its program strategy in close consultation with the scientific community through a wide variety of groups, SMD programs are evolving activities that ultimately depend upon the most current Administration policies and budgets, as well as program objectives and priorities that can change based on, among other things, new discoveries from ongoing investigations.

Evaluation Criterion A

Scientific Merit of the Proposed Investigation

The 2022 Heliophysics SMEX Program Scientist will determine whether any issues that may have emerged in the course of the Concept Study have effected significant changes to the science objectives or other aspects of the proposed Baseline and Threshold Science Missions (see Requirement CS-20 in Part II of the 2022 Heliophysics SMEX *Guidelines and Criteria for the Phase A Concept Study*) in such a manner as to have impacted the basis for the evaluation of the scientific merit of the investigation as determined by the peer review panel for the Step 1 proposal. If there are no significant changes to the proposed investigation that undermine the basis of this rating, the peer review panel rating for scientific merit of the Step 1 proposal will be the rating for scientific merit of the CSR. If there are significant changes, the 2022 Heliophysics SMEX Program Scientist will convene a peer review panel to reevaluate the scientific merit of the objectives in light of these changes. The factors for re-evaluating this criterion will be the same as those used for the Step 1 proposal review (Section 7.2.2 of the AO).

Evaluation Criterion B

Scientific Implementation Merit and Feasibility of the Investigation

All of the factors defined in Section 7.2.3 of the 2022 Heliophysics SMEX AO apply to the evaluation of the CSR. Note that details have been added to a subfactor of Factor B-1. An additional subfactor has also been added to Factor B-2. Factor B-3 has been renamed from “Merit of the data analysis, data availability, and data archiving plan” to the “Merit of the Open Science and Data Management Plan including Data Analysis, Data Management Plan, Software Management Plan, and Open Science Plan”. *New subfactors and details added to Step-1 AO factor definitions are highlighted using italicized text for the evaluation of the CSR.*

- **Factor B-1. Merit of the instruments and mission design for addressing the science goals and objectives.** This factor includes the degree to which the proposed mission will address the goals and objectives; the appropriateness of the selected instruments and mission design for addressing the goals and objectives; the degree to which the proposed instruments and mission can provide the necessary data, *including details on data collection strategy and plans*; and the sufficiency of the data gathered to complete the scientific investigation.
- **Factor B-2. Probability of technical success.** This factor includes the maturity and technical readiness of the instruments or demonstration of a clear path to achieve necessary maturity; the adequacy of the plan to develop the instruments within the proposed cost and schedule; the robustness of those plans, including recognition of risks and mitigation plans for retiring those risks; the likelihood of success in developing any new technology that represents an untested advance in the state of the art; the ability of the development team both institutions and individuals to successfully implement those plans; and the likelihood of success for both the development and the operation of the instruments within the mission design. *This factor includes assessment of technology readiness, heritage, environmental concerns, accommodation, and complexity of interfaces for the instrument design.*

Evaluation Criterion B (continued)

- **Factor B-3. Merit of the Open Science and Data Management Plan (OSDMP) including Data Analysis, Data Management Plan (DMP), Software Management Plan (SMP), and Open Science Plan (OSP).** This factor includes the merit of plans for data analysis and data archiving to meet the goals and objectives of the investigation; to result in the publication of science discoveries in the professional literature; and to preserve data and analysis of value to the science community. Considerations in this factor include assessment of planning and budget adequacy and evidence of plans for well-documented, high-level data products and software usable to the entire science community; assessment of adequate resources for physical interpretation of data; reporting scientific results in the professional literature (e.g., refereed journals); and assessment of the proposed plan for the timely release of the data to the public domain for enlarging its science impact.
- **Factor B-4. Science resiliency.** This factor includes both developmental and operational resiliency. Developmental resiliency includes the approach to descoping the Baseline Science *Investigation Mission* to the Threshold Science *Investigation Mission* in the event that development problems force reductions in scope. Operational resiliency includes the ability to withstand adverse circumstances, the capability to degrade gracefully, and the potential to recover from anomalies in flight.

Evaluation Criterion B (continued)

Note that the Diversity and Inclusion aspects have been removed from AO Factor B-5 and included in a new evaluation Factor B-10. The text deleted from Factor B-5 is the basis for the new Factor B-10.

- Factor B-5. Probability of science team success.** This factor will be evaluated by assessing the experience, expertise, and organizational structure of the science team and the mission design in light of any proposed instruments. The scientific expertise of the PI will be evaluated but not their experience with NASA missions. The role of each Co-Investigator will be evaluated for necessary contributions to the proposed investigation; the inclusion of Co-Is who do not have a well-defined and appropriate role may be cause for downgrading during evaluation. The inclusion of career development opportunities to train the next generation of science leaders will also be evaluated. ~~This evaluation factor also includes an evaluation of the Diversity and Inclusion Plan (see AO Requirement B-70). The Science Panel will evaluate the Diversity and Inclusion Plan focusing on how executable and effective the Plan is expected to be. Additional reviewers with expertise in diversity and inclusion initiatives may also provide comments to NASA on the Diversity and Inclusion Plans.~~

Comments about the managerial experience of the PI, and whether appropriate mentoring and support tools are in place, will be made to the Selecting Official but these comments shall not impact the investigation's Scientific Implementation Merit rating.

AO Factor A-3 will also be re-evaluated in Step 2 as a factor for Scientific Implementation Merit and Feasibility; it has been renumbered as Factor B-6 below.

- Factor B-6. Likelihood of scientific success.** This factor includes how well the anticipated measurements support the goals and objectives; the adequacy of the anticipated data to complete the investigation and meet the goals and objectives; and the appropriateness of the mission requirements for guiding development and ensuring scientific success.

Evaluation Criterion B – Additional Factors

Four new evaluation Factors B-7, B-8, B-9, and B-10 are not described in the AO, and therefore were not evaluated for Step-1 proposals. These new factors will be evaluated for the CSRs in addition to the factors specified in AO Section 7.2.3 (repeated or updated above as Factors B-1 through B-6).

- **Factor B-7. Maturity of proposed Level 1 science requirements and Level 2 project requirements.** This factor includes assessment of whether the Level 1 science requirements are mature enough to guide the achievement of the objectives of the Baseline Mission and the Threshold Mission, and whether the Level 2 requirements are consistent with the Level 1 requirements. The Levels 1 and 2 requirements will be evaluated for whether they are stated in unambiguous, objective, quantifiable, and verifiable terms that do not conflict and for whether they are traceable to the science objectives. They will be evaluated for the adequacy, sufficiency, and completeness, including their utility for evaluating the capability of the instruments and other systems to achieve the mission objectives. The stability of the Level 1 science requirements and Level 2 project requirements will be assessed including whether the requirements are ready, upon initiation of Phase B, to be placed under configuration control with little or no expected modifications for the lifecycle of the mission.
- **Factor B-8. Scientific implementation merit and feasibility of any Science Enhancement Options (SEOs), if proposed.** This factor includes assessing the potential and appropriateness of the selected activities to enlarge the science impact of the mission and the costing of the selected activities. Although evaluated by the same panel as the balance of Scientific Implementation Merit and Feasibility factors, this factor will not be considered in the overall criterion rating.

Evaluation Criterion B – Additional Factors

- **Factor B-9. Scientific implementation merit and feasibility of any PI-Team-Developed Enhancing Technology Demonstration Opportunities (TDOs), if proposed.** This factor includes assessing the potential and appropriateness of the TDO to enlarge the impact of the investigation and/or add value to future investigations. There will be no penalty for potential low inherent maturity of the TDO itself. Although evaluated by the same panel as the balance of Scientific Implementation Merit and Feasibility factors, this factor will not be considered in the overall criterion rating.

Any impact to the Baseline Science Mission due to the inclusion of TDOs and/or SEOs will also be included in the evaluation factors above.

- **Factor B-10. Merit of the Inclusion Plan** (see AO Requirement B-70). This factor includes the alignment of the proposal with NASA's core value of inclusion, the effectiveness of the plan in achieving its objectives in the context of mission success, the inclusion of mentoring and career development opportunities to train the next generation of science leaders, and transparency of annual reporting to NASA.

Evaluation Criterion C

TMC Feasibility of the Proposed Mission Implementation

- All of the Technical, Management, and Cost (TMC) Feasibility factors defined in 2022 Heliophysics SMEX AO Section 7.2.4 apply to the evaluation of the CSR. All of these factors are interpreted as including an assessment as to whether the CSR's technical, management, and cost feasibility are at least at a Phase A level of maturity. Note that details have been added to subfactors of Factor C-1 and Factor C-2. Additional subfactors and details have also been added to Factor C-3.
- *Italicized text* shows details that have been added to several C-factor definitions below for the evaluation of the CSR.
- Note that the risk management aspects of Factor C-4, Adequacy and robustness of the management approach and schedule, including the capability of the management team, have been removed from Factor C-4 and included in a new evaluation factor, Factor C-6. Adequacy of the risk management plan.
- The capability of the management team will be evaluated as a whole, as opposed to assessing the capabilities of each of the Key Management Team members independently. The panel evaluating the "Technical, Management, and Cost Feasibility" will provide comments to the Selection Official about the mission experience of the PI and whether appropriate mentoring and support tools are in place.

Evaluation Criterion C (continued)

Factor C-1. Adequacy and robustness of the instrument implementation plan. The maturity and technical readiness of the instrument complement will be assessed, as will the ability of the instruments to meet investigation requirements. This factor includes an assessment of the instrument design, accommodation, interface, heritage, and technology readiness. This factor includes an assessment of the instrument hardware and software designs, heritage, and margins. This factor includes an assessment of the processes, products, and activities required to accomplish development and integration of the instrument complement. This factor also includes adequacy of the plans for instrument systems engineering and for dealing with environmental concerns. This factor includes an assessment of plans for the development and use of new instrument technology and plans for advanced engineering developments, *and the adequacy of backup plans* to mature systems within the proposed cost and schedule when systems having a TRL less than 6 are proposed, as applicable.

Evaluation Criterion C (continued)

- **Factor C-2. Adequacy and robustness of the mission design and plan for mission operations.** This factor includes an assessment of the overall mission design and mission architecture, the spacecraft design and design margins (including margins for launch mass, delta-V, and propellant), the concept for mission operations (including communication *and ground systems, operational scenarios and timelines for each mission phase, operations team roles and responsibilities, and navigation/tracking/trajectory analysis*), and the plans for launch services (*including the approach the PI will utilize to make the flight worthiness determination if proposing PI-provided launch services, ensuring the adequacy of the technical work performed by the launch provider*) (~~for PI-provided access to space, only the aspects that are under the control of the PI will be assessed under this factor~~). This factor includes mission resiliency—the flexibility to recover from problems during both development and operations—including the technical resource reserves and margins, system and subsystem redundancy, and reductions and other changes that can be implemented without impact to the Baseline Science *Investigation Mission*.

Evaluation Criterion C (continued)

Factor C-3. Adequacy and robustness of the flight systems. This factor includes an assessment of the flight hardware and software designs, heritage, and margins. This factor includes an assessment of the plans, *processes*, products, and activities required to accomplish maturation, development, integration and verification of all elements of the flight system. This factor includes an assessment of the adequacy of all elements of flight system resiliency, including flight software/hardware fault management, system and subsystem redundancy, and hardware reliability. *This factor includes an assessment of the adequacy of the plans for spacecraft systems engineering, qualification, verification, mission assurance, and launch operations.* This factor includes the plans for the development and use of new technology, plans for advanced engineering developments, and the adequacy of ~~those~~ backup plans, to ensure success of the ~~investigation mission~~ when systems having a TRL less than 6 are proposed. The maturity and technical readiness of the spacecraft, *operations systems*, and subsystems will be assessed. *The adequacy of the plan to mature systems within the proposed cost and schedule, the robustness of those plans, including recognition of risks and mitigation plans for retiring those risks, and the likelihood of success in developing any new technologies will be assessed.*

This factor also includes assessment of elements such as the relationship of the work to the project schedule, the project element interdependencies, the associated schedule margins, and an assessment of the likelihood of meeting the proposed launch readiness or delivery readiness date. Also evaluated under this factor are the proposed project and schedule management tools to be used on the project.

Evaluation Criterion C (continued)

Factor C-4. Adequacy and robustness of the management approach and schedule including the capability of the management team. This factor includes: the adequacy of the proposed organizational structure *and WBS; project level systems engineering*; the management approach including the roles, commitment, qualifications, and experience of *the PI, PM, PSE, and any other* named Key Management Team members, the implementing organization, and the known partners; the spaceflight experience of *the PM, PSE, and any other* named Key Management Team members (PI excepted); *relevant performance of the implementing organization and known partners against the needs of the investigation; the prior working relationship of the implementing organization and known partners; the commitments of partners and contributors; and the scope of work covering all elements of the mission, including contributions.* ~~Also evaluated under this factor is the adequacy of the proposed risk management approach, including any risk mitigation plans for new technologies, any long-lead items, and the adequacy and availability of any required manufacturing, test, or other facilities. The management of the risk of contributed critical goods and services will be assessed, including the plans for any international participation, the commitment of partners and contributors, as documented in Letters of Commitment, and the technical adequacy of contingency plans, where they exist, for coping with the failure of a proposed cooperative arrangement or contribution.~~ This factor also includes assessment of elements such as the relationship of the work to the project schedule, the project element interdependencies, the associated schedule margins, and an assessment of the likelihood of meeting the proposed delivery readiness or launch readiness date. Also evaluated under this factor are the proposed project and schedule management tools to be used on the project, *along with the effect of the small business subcontracting plan including small disadvantaged businesses.*

Evaluation Criterion C (continued)

Factor C-5. Adequacy and robustness of the cost plan, including cost feasibility and cost risk. This factor includes elements such as cost, cost risk, cost realism, and cost completeness including assessment of the basis of estimate, the adequacy of the approach used to develop the estimated cost, *the methods and rationale used to develop the estimated cost*, the discussion of cost risks, the adequacy and allocation of cost reserves by phase, and the scope of work (covering all elements of the mission, including contributions and all elements associated with a PI-provided *access to space [if applicable] launch or rideshare provider*, such as launch site payload processing and mission unique services). The adequacy of the cost reserves and understanding of the cost risks—including those associated with PI-provided access to space associated delay and/or opportunity uncertainty—will be assessed. This factor also includes an assessment of the proposed cost relative to estimates generated by the evaluation team using parametric models and analogies. *Also evaluated under this factor are the proposed cost management tools to be used on the project. If the project plans to spend more than 25% of the PI-Managed Mission Cost prior to KDP-C (Confirmation), the rationale/justification for this spending must also be detailed.*

Evaluation Criterion C (continued)

Factor C-6. Adequacy of the risk management plan. The adequacy of the proposed risk management approach will be assessed, including any risk mitigation plans for new technologies; PI-provided access to space, if proposed; any long-lead items; and the adequacy and availability of any required manufacturing, test, or other facilities. The approach to any proposed descoping of mission capabilities will be assessed against the potential science impact to the proposed Baseline Science Investigation. The management of the risk of contributed critical goods and services will be assessed, including the plans for any international participation, the commitment of partners and contributors, as documented in Letters of Commitment, and the technical adequacy of contingency plans, where they exist, for coping with the failure of a proposed cooperative arrangement or contribution; when no mitigation is possible, this should be explicitly acknowledged. The stability and reliability of proposed partners, and the appropriateness of any proposed contribution, is not assessed as a management risk but will be assessed by SMD as a programmatic risk element of the investigation.

Evaluation Criterion C (continued)

Two new evaluation Factors C-7 and C-8 are not described in the AOs and therefore were not evaluated for Step-1 proposals. These new factors will be evaluated for the CSRs in addition to the factors given in Section 7.2.4 of the AOs (repeated or updated above as Factors C-1 through C-6).

- **Factor C-7. Ground systems.** This factor includes an assessment, including heritage and planned new development, of the proposed operations facilities, hardware and software (*i.e.*, those for mission operations and science operations), and a telecommunications analysis, ground network capability and utilization plan, and navigation plans.
- **Factor C-8. Approach and feasibility for completing Phase B.** The completeness of Phase B plans and the adequacy of the Phase B approach will be assessed. This assessment will include evaluation of the activities/products, the organizations responsible for those activities/products, and the schedule to accomplish the activities/products.

The panel evaluating the “Technical, Management, and Cost Feasibility” will provide comments to NASA regarding the extent to which the proposed investigation provides career development opportunities to train the next generation of engineering and management leaders. While these comments will not be considered in the evaluation, they may be considered during selection.

For the purpose of the CSR, investigation teams are not required to hold reserves against Government Furnished Equipment (GFE) such as an AO-provided Launch service. They should assume the Government will deliver as promised on factors such as Launch Vehicle (LV) performance and schedule. The Government is holding separate reserves on its promises.

Evaluation Criteria D, E, and F

The following are new evaluation factors that are not described in the AO and therefore were not evaluated for Step-1 proposals. These factors will be evaluated for CSRs.

D, E, & F

Evaluation Criterion D

Merit of Student Collaboration (SC), if proposed. This factor will include an assessment of whether the scope of the SC follows the guidelines in Section 5.5.2 of the AO. The criteria to be used to evaluate the SC component and a discussion of those criteria are found in the above AO section and follow Science Policy Document SPD-31 available in the Program Library.

- There is no minimum and no maximum allowable cost for a SC. NASA is providing a SC incentive that is defined to be 1% of the PIMMC. The proposed cost of the SC, up to the SC incentive, is considered outside of the PIMMC. If the SC costs more than the SC incentive, then the rest of the cost of the SC must be within the PIMMC. The SC incentive shall not be used for the investigation's implementations, nor to solve cost overrun issues. The SC provides no cost savings to a NASA investigation.
- TMC and the Science panel will review the SC and if an SC is deemed separable, no comments will be provided in Form C. If a SC is not deemed separable then TMC and Science will both review the impact like any other aspect of the mission.

Evaluation Criterion E

Merit of the Small Business Subcontracting Plans. This factor will be evaluated on the participation goals and quality and level of work performed by small business concerns overall, as well as that performed by the various categories of small business concerns listed in FAR 52.219-9.

A large, light blue, stylized letter 'E' graphic that serves as a background element for the evaluation criterion section.

Evaluation Criterion F

Merit of the Citizen Science Plan. As detailed in SPD-33 Section IV, Evaluation, all proposed and funded citizen science projects shall be evaluated on: scientific merit; appropriate team expertise to foster broad participation; communication and dissemination of results, provision of a budget that includes appropriate resources to carry out the objectives of the project; utilization of existing platforms and/or existing enthusiast communities to maximize collective impact; use of beta testing; inclusion of a sunset plan that ensures citizen scientist volunteers are informed about the results when the project is completed and are provided opportunities to be retained as part of the larger NASA citizen science community, and provision of links to the project's results and publications and other relevant NASA citizen science projects; and inclusion of a data management plan.

If CS is part of the baseline mission it will be evaluated as part of the Form A/B evaluation. For CS outside of the baseline mission it will be evaluated using Form F (Merit of the Citizen Science Plan). For proposals that include items that are both part of the baseline and outside the baseline, both methods will be used.

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).



Evaluation Products and Ratings

CSR Evaluation Panel Products

Form A (if necessary) and Form B for all CSRs

- Grades: Excellent, Very Good, Good, Fair, or Poor
- Polling is held for the 5 categories above.
- The reported grade reflects the median.
 - A median score that falls between two grades will be reported as the combination of those two grades (e.g., 10 Excellent votes and 10 Very Good votes = Excellent/Very Good grade)

Form C for all CSRs

- Risk rating range: Low Risk, Low/Medium Risk, Medium Risk, Medium/High Risk, or High Risk
- Polling is held for the 5 categories.
- The reported Risk Rating grade reflects the median.
 - A median score that falls between two risk ratings will be “rounded” to the higher risk rating.

CSR Evaluation Panel Products (continued)

Form D (Student Collaboration)

- Separable from the main mission: Yes or No (evaluated by Criterion B and C panels)
- Grades: Meritorious or Not Meritorious

Form E (Small Business Subcontracting Plans)

- Grades: Acceptable or Needs Work

Form F (Citizen Science)

- Separable from the main mission: Yes or No (evaluated by Criterion B panel)
- Grades: Meritorious or Not Meritorious

Definitions of Criterion A*/B Findings

Major Strength: A facet of the response that is judged to be well above expectations and substantially contributes to the Science Implementation Merit and Feasibility of the Investigation.

Minor Strength: A strength that contributes to the Science Implementation Merit and Feasibility of the Investigation.

Major Weakness: A deficiency or set of deficiencies taken together that are judged to substantially detract from the Science Implementation Merit and Feasibility of the Investigation.

Minor Weakness: A weakness that detracts from the Science Implementation Merit and Feasibility of the Investigation.

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 Form A*/B. The term “Significant Weakness” includes both Major Weaknesses and Significant Minor Weaknesses.

**If required due to change in Science. If not required, use Form A from Step 1.*

Form A and B Grade Definitions

Excellent: A comprehensive, thorough, and compelling CSR of exceptional merit that fully responds to the objectives of the AO as documented by numerous and/or significant strengths and having no major weaknesses.

Very Good: A fully competent CSR of very high merit that fully responds to the objectives of the AO, whose strengths fully outbalance any weaknesses.

Good: A competent CSR that represents a credible response to the AO, having neither significant strengths nor weaknesses and/or whose strengths and weaknesses essentially balance.

Fair: A CSR that provides a nominal response to the AO, but whose weaknesses outweigh any perceived strengths.

Poor: A seriously flawed CSR having one or more major weaknesses (e.g., an inadequate or flawed plan of research or lack of focus on the objectives of the AO).

Evaluators are polled on the grades defined above and may also use half-grades between these defined above.

Criterion C Panel Evaluation Principles

- **CSR Feasibility and Risk Assessment in Step 2:**
 - The Criterion C Panel's task is to assess the feasibility of implementing the mission or investigation based on all the material provided by the study team.
 - *The study team is not given the benefit of the doubt in the down-select.*
- All CSRs will be reviewed to identical standards.
 - All CSRs shall receive same evaluation treatment in all areas.
- The Criterion C Panel is made up of evaluators who are subject matter experts in the areas of the CSRs that they evaluate.
- The Criterion C Panel develops findings for each CSR that are based on individual comments and reflect the general agreement of the entire Panel.
 - Comments that are *as expected* are not included as findings.
 - Comments that are *above expectations* result in Strengths.
 - Comments that are *below expectations* result in Weaknesses.

Definitions of Criterion C Findings

Major Strength: A facet of the response that is judged to be well above expectations and can substantially contribute to the ability to meet technical commitments on schedule and within cost.

Minor Strength: A strength that is substantial enough to be worthy of note and brought to the attention of the study team in debriefings.

Major Weakness: A deficiency or set of deficiencies taken together that are judged to substantially affect the ability to meet the proposed technical objectives within the proposed cost and schedule.

Minor Weakness: A weakness that is substantial enough to be worthy of note and brought to the attention of the study team in debriefings.

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 Form C. The term “Significant Weakness” includes both Major Weaknesses and Significant Minor Weaknesses.

Risk Ratings Grade Definitions - Form C

The following definitions are indicators of risk. Evaluators must consider these definitions and input available for their consideration (e.g., cost model applicability, uncertainty of the cost models error bars and schedule analyses, uncertainty of the cost threats, mitigating factors such as major strengths, etc.) together with their judgement in determining the appropriate risk for a particular investigation.

Rating	Definition
Low Risk	Resources for technical, management, schedule, and cost are at or above the appropriate levels, with at least one resource significantly above, even after taking into account any problems that have been identified in the Phase A evaluation. No risks with unquantified cost threats* have been identified.
Low/Medium Risk	No problems have been identified in the Phase A evaluation that reduce the technical, management, schedule, and cost resources below the appropriate levels. Any identified risks with unquantified cost threats* have a low probability of occurrence.
Medium Risk	Problems have been identified in the Phase A evaluation that reduce one of the resources slightly below the appropriate levels for: technical, management, schedule, or cost. Sound management and effective application of engineering resources will be required to solve the problems. Any identified risks with unquantified cost threats* have a probability of occurrence that is not high.
Medium/High Risk	Problems have been identified in the Phase A evaluation that reduce one or more of the resources below the appropriate levels for: technical, management, schedule, and/or cost. The problems identified may not be solvable within the resources proposed, even with the use of sound management and effective application of engineering resources.
High Risk	Problems have been identified in the Phase A evaluation that reduce one or more of the resources significantly below the appropriate levels for: technical, management, schedule, and/or cost. The problems identified are deemed unsolvable within the resources proposed.

**A risk with an unquantified cost threat is a major weakness whose cost to fix cannot be quantified but is large. The impact of an unquantified cost threat is significant because it could lead to not achieving the baseline mission with the resources available.*

Cost Evaluation

- All information from the entire evaluation process will be considered in the final cost assessment.
- An independent cost verification of the proposed cost for Phases A-D will be performed using at least three independent cost models.
- An independent cost verification of the proposed cost for Phase E will be performed using at least two cost models.
- The evaluation will assess the cost risk, cost realism, and cost completeness, including the basis of estimate, the adequacy of the approach, the methods and rationale used to develop the estimated cost, the discussion of cost risks, the allocation of cost reserves by phase, and the team's understanding of the scope of work.
- The likelihood and cost impact of significant weaknesses and cost analysis findings will be assessed.
- Cost threat impacts to the proposed unencumbered reserves will be assessed (see Cost Threat Matrix slide 48).
- The adequacy of the remaining unencumbered reserves will be assessed.
- Draft Forms C and Cost Evaluation Summaries (CESSs) will be completed on all CSRs prior to the Initial Form C Plenary.
- During the Form C Plenaries, the entire panel will participate in cost deliberations.
- All significant Cost Findings will be included on the Form C and considered in the TMC Risk Rating.

Cost Evaluation

- A comparison of the cost of analogous missions* will be accessed if:
 1. The TMC Base ICE does not validate the proposed cost for a given WBS level.
 2. The WBS level is one for which the TMC Base ICE error bars are unusually wide, regardless of validation results.
 3. There is direct system-level heritage for a WBS level, and that heritage corresponds to an actual data point that is outside of the TMC ICE Error Range as shown in the pre-evaluation cost study results.

**Analogous missions will be chosen based on contents of the CSR and the experiences of the TMC evaluators.*



Cost Threat Matrix

- The *likelihood* and *cost impact*, if any, of each Weakness is stated as “This finding represents a cost threat assessed to have an Unlikely/Possible/Likely/Very Likely/Almost Certain likelihood of a Very Minimal/Minimal/Limited/ Moderate/Significant/Very Significant cost impact being realized during development and/or operations, which results in a reduction from the proposed unencumbered reserves.”
- The *likelihood* is the probability range that the *cost impact* will materialize.
- The *cost impact* is the current best estimate of the range of costs to mitigate the threat.
- The cost threat matrix defines the adjectives that describe the *likelihood* and *cost impact*.
- The minimum cost threat threshold is \$1M for Phases B/C/D and *\$250K for Phase E*.

			Cost Impact (CI) % of PI-Managed Mission Cost to complete Phases B/C/D or <i>Phase E</i> not including unencumbered cost reserves or contributions						
		Likelihood of Occurrence	Weakness	Very Minimal \$1M < CI ≤ 2.5% <i>\$0.25M < CI < 2.5%</i>	Minimal 2.5% < CI ≤ 5% <i>2.5% < CI ≤ 5%</i>	Limited 5% < CI ≤ 10% <i>5% < CI ≤ 10%</i>	Moderate 10% < CI ≤ 15% <i>10% < CI ≤ 15%</i>	Significant 15% < CI ≤ 20% <i>15% < CI ≤ 20%</i>	Very Significant CI > 20% <i>CI > 20%</i>
Likelihood (L, %)	Almost Certain (L > 80%)								
	Very Likely (60% < L ≤ 80%)								
	Likely (40% < L ≤ 60%)								
	Possible (20% < L ≤ 40%)								
	Unlikely (L ≤ 20%)								

Note: For each CSR, the percentages in the above table will be converted to dollars by the cost estimator.

Grade Definitions - Form D, Student Collaboration (SC)

The merit of any Student Collaboration (SC) will be given a Yes/No grade and one of two adjectives: Meritorious, or Not Meritorious

- **Is the SC separable from the Baseline and Threshold missions?** (Yes/No)

The Criterion B and Criterion C panel both evaluate if SC is Separable from the main mission and this information

- **Meritorious:** The student collaboration proposed has achievable education goals and objectives and an implementation/oversight/management approach that will provide students with a rich hands-on education experience.
- **Not Meritorious:** The student collaboration proposed has not articulated achievable education goals and objectives and/or the implementation/oversight/management approach limits the likelihood of success for student's opportunities for hands-on experience.

Grade Definitions - Form E, Small Business Subcontracting

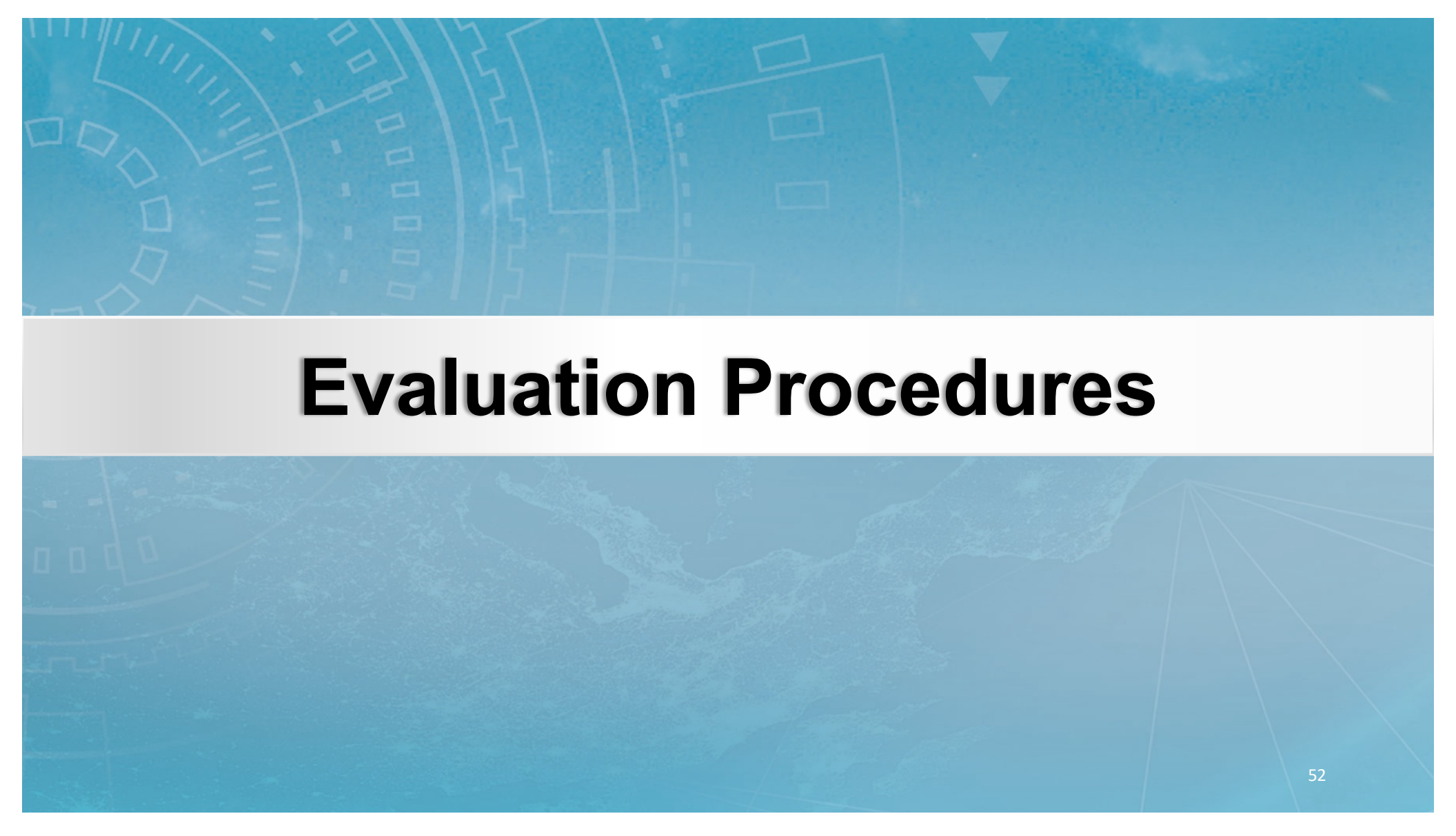
The merit of the Small Business Subcontracting Plans will be rated as either Acceptable, or Needs Work

- **Acceptable:** The subcontracting plan adequately addresses all required elements of a subcontracting plan, and the proposed subcontracting percentage goals and the quality level of the work to be performed by small business concerns is sufficient.
- **Needs Work:** The subcontracting plan does not address all required elements of a subcontracting plan, or the proposed subcontracting percentage goals and quality of work to be performed by small businesses is not sufficient, and further participation must be negotiated if this mission is selected.

Grade Definitions - Form F, Citizen Science (CS)

The merit of the Citizen Science Plan (CS) will be given a Yes/No grade and one of two adjectives: Meritorious, or Not Meritorious

- **Is the CS separable from the Baseline and Threshold missions?** (Yes/No)
- **Meritorious:** The citizen science proposed adequately addresses all required elements of a Citizen Science plan, and the proposed science goals and the quality level of the work to be performed by citizen scientists is sufficient.
- **Not Meritorious:** The citizen science proposed adequately addresses all required elements of a Citizen Science plan, and the proposed science goals and the quality level of the work to be performed by citizen scientists is not sufficient, and further participation must be negotiated if this mission is selected.



Evaluation Procedures

Criteria A*, B & C Panel Evaluation Processes

- Evaluation panel members review assigned CSRs and perform an individual review before discussing findings with other members of the panel.
- NASA Google Drive will be used for:
 - Entering individual evaluation panel members' comments for Criteria A* and B.
 - Developing draft and final Forms A* and B for each CSR.
- Evaluation and polling on Forms A* and B will be restricted to Form A* and B Evaluators.
- Only Evaluators who have participated in the Form A*/B Initial Plenary, the Site Visits, and the Form A*/B Final Plenary may participate in polling on Form A*/B.
 - Participation is defined as in-person or virtually
 - Specialist Evaluators** are not polled
 - Note that Form C evaluators may also be designated as Form B evaluators by the 2022 Heliophysics SMEX Program Scientist.
- The SOMA RES will be used for:
 - Entering individual evaluation panel member's comments for Criterion C.
 - Developing draft and final Forms C for each CSR.
 - A repository for all final Forms for the evaluation (Forms A*, B, C, D, and E).
- Only Evaluators who have participated in the Form C Initial Plenary, the Site Visits, and the Form C Final Plenary may participate in polling on Form C.
 - Participation is defined as in-person or virtually.
 - Specialist Evaluators** are not polled.
 - Note that some Form B evaluators may also be designated as Form C evaluators by the 2022 Heliophysics SMEX Program Scientist.

* If required due to change in Science.

** Specialist Evaluators (to provide specific technical expertise to Criterion B/C/D/E Panels) may be utilized, based on the specific technology and science that is proposed.

Criteria B & C Panel Evaluation Processes (continued)

Consistency Review for Form C findings and Form B findings to ensure similar findings are treated the same across different CSRs (*e.g.*, major vs minor for similarly worded findings) or conflicts between strengths and weaknesses within an individual form.

- **Form C consistency**

- A Form C Consistency Group will review all Form Cs and questions at the Initial Plenary, and all Form Cs at the Final Plenary.
 - Form C Evaluators will review all CSRs. Specialist Evaluators may review a subset of CSRs.

- **Form B consistency**

- Form B Consistency Evaluators will review all Form Bs and questions at the Initial Plenary, and all Form Bs at the Final Plenary.

- **Form B and Form C consistency**

- At least one Form B Evaluator for each CSR will participate in the Form C discussions for each mission at the plenary meetings
- Some Form C instrument experts will participate in Form B discussions.
- Consistency of findings between Forms B and C will be reviewed and adjudicated at the Initial and Final Plenaries.

Initial Plenary

The Initial Plenary is used to identify significant issues related to Criterion A (if needed), Criterion B and Criterion C based on the initial evaluation of the CSR. Initial Form Bs and Cs are reviewed.

- The Goal of the Initial Plenary is:
 1. Identify the Major Weakness, Minor Weaknesses, Major Strengths and Minor Strengths of each CSR.
 2. If necessary, develop questions and/or requests for information in addition to the Significant Weaknesses to give each study team an opportunity to clarify any misunderstanding.
- The main topic areas are the implementation issues in Criterion B and Criterion C.
- No polling on grades occurs at the Initial Plenary (Criterion B and Criterion C).
- The Significant Weaknesses, Questions, and Requests for Information List (SQRL) will be sent to each Study Team at least 7 days prior to its Site Visit.
- Criterion D (Student Collaboration), Criterion E (Small Business Subcontracting), and Criterion F (Citizen Science) are reviewed as required by Criterion-specific panels prior to the Initial Plenary. Site Visit questions for Criterion D, Criterion E, and Criterion F are prepared and provided no later than the Initial Plenary to the 2022 Heliophysics SMEX Program Scientist.

Significant Weaknesses, Questions, and Requests for Information List (SQRL)

- **Site Visits SQRLs**
 - All SQRLs developed at the Initial Plenary, and by the Form D, E, and F panels, will be sent to each study team at least 7 days prior to its Site Visit, excluding federal holidays.
 - Significant weaknesses are preliminary and may change based on Site Visit information and further discussion by Evaluation Panels.
 - Questions may also be sent to the study team or verbalized during the Site Visit.
 - Questions must be of significance to a Form A*, B, C, D, E, or F rating.
- **The 2022 Heliophysics SMEX Program Scientist will approve all SQRLs developed at the Initial Plenary. Four types of responses are planned for SQRLs. These types may be used for any given Significant Weakness (SW), Question (Q), or Request For Information (RFI).**
 - **Early Written Response Only**: SQRLs provided to the study team that must be addressed in writing prior to the Site Visit. The nature of some SQRLs require data that must be reviewed prior to the Site Visit.
 - **Written Only at Site Visit**: SQRLs that require documentation, but not extensive review.
 - **Presentation Only**: SQRLs that must be addressed the day of the Site Visit by way of presentation.
 - **Early Written Response and Presentation**: A combination of the two response types.
- Evaluation Team members will ask questions during the Site Visit to ensure they understand the response to a SQRL, or to clarify any significant issues.

* If required due to change in Science.

Site Visits

- Site Visits with Oral Briefings will be used to clarify implementation details and commitments. The study team may address significant weaknesses identified in the CSR and provide updates on the CSR developed after submission of the CSR.
- Site Visits for the 2022 Heliophysics SMEX down-select will be hybrid [in-person/virtual].
- Briefings at each Site Visit will be limited to 7 presentation hours and up to 1 additional hour for an optional tour/demonstration equally divided over 2 days, with 15 additional minutes for a Student Collaboration briefing and 15 additional minutes for a Citizen Science briefing on one of the 2 days. Breaks are not included in the 7-hour maximum time for the Site Visit presentations/discussions or the 1-hour maximum time for an optional tour/demonstration. Break durations (up to two per day) will be limited to a maximum of 15 minutes each.
- All Site Visit presentations/briefings should be in a plenary session with all Evaluation Team members attending – no splinter sessions – unless authorized by the 2022 Heliophysics SMEX Program Scientist.
- Written SQRLs will be submitted to the PI 7 days before the Site Visit. All teams will have the same lead time, excluding federal holidays, with responses due within 5 days.
- During the Site Visit, NASA may ask additional SQRLs. The team has the option to answer these during the site visit if possible or include them with the additional SQRLs sent to the team 12 PM the day after Site Visit Day 2 concludes.
- As part of the Site Visit process, NASA may send additional SQRLs to the study teams 12 PM the day after Site Visit Day 2 concludes*, with responses due within 5 days. 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). A final set of SQRLs may also be sent during the time period of **March 3-14, 2025**, with responses due within 24 hours.
- All information provided by the study team is relevant to the evaluation. Information contained in the CSR, information presented during the Site Visit, and information provided in response to SQRLs will all be treated as updates to the CSR and will be considered during the evaluation.

* To avoid providing study teams SQRLs during a possible government shutdown, NASA may delay SQRLs that are scheduled to be provided 5 days or less prior to the start of the fiscal year. NASA will provide SQRLs on the first business day of the fiscal year or end of a government shutdown, whichever is earliest.

Final Plenary Products

- Finalize all evaluation Forms based on the information in the CSRs, as well as updates and clarifications to the CSRs.
- Both Major and Minor Strengths and Weakness will be considered in the Grade for all Forms.

Form B

- Polling will be held twice on the Form B grade. The final polling is recorded. For the final polling, the individual grades are recorded, and the median grade is calculated and recorded as the final polling. A median score that falls between two grades will be reported as the combination of those two grades (e.g., 10 Excellent votes and 10 Very Good votes = Excellent/Very Good grade). If there is a divergence of opinion, there may be additional rounds of discussion and polling.
- SWs, Qs, and/or RFIs generated during the Final Plenary may result in additional rounds during or after the Final Plenary.

Form C

- Form C will be reviewed three times. Polling will be held twice on the Form C risk rating. The final polling is recorded and reported. For the final polling, the individual grades are recorded, the median calculated and the final grade recorded which reflects the Form C risk rating of the median of the polling. A median score that falls between two risk ratings will be “rounded” to the higher risk rating.
- If there is a divergence of opinion, there may be additional rounds of discussion and polling.
- SWs, Qs, and/or RFIs generated during the Final Plenary may result in additional rounds during or after the Final Plenary.

Form D, Student Collaboration

- Representatives from the Student Collaboration Panel will consider the merit of proposed Student Collaborations.

Form E, Small Business Subcontracting

- Representatives from the Small Business Subcontracting Panel will evaluate the Small Business Subcontracting plans.

Form F, Citizen Science

- Representatives from the Citizen Science Panel will consider the merit of proposed Citizen Science plans.

Observers and Transition Briefing

- Civil Servants (CSs), Intergovernmental Personnel Act Assignees (IPAs), and Contractors with downstream implementation responsibilities may be invited to attend panel meetings and Site Visits as Observers.
- All invited observers must be approved by both the SMD Program Officer and Deputy AA for Research.
 - Observers must comply with SMD Policy Document SPD-17, *Statement of Policy on Observers at Panel Reviews of Proposals*. This policy will be provided to all approved observers.
- Approved Observers include: (this list will be updated as Observers are approved):

<u>Name</u>	<u>Affiliation</u>	<u>Name</u>	<u>Affiliation</u>
Sridhar Manthripragada	EHPD, NASA/GSFC	Christine Hinkle	EHPD, NASA/GSFC
Mark Goans	EHPD, NASA/GSFC	Robert Jenkins	EHPD, NASA/GSFC
Dr. Dan Moses	HPD, NASA/HQ	Dr. Lisa Winter	HPD, NASA/HQ

The above listed individuals are invited due to their positions in organizations which will oversee implementation of the down-selected mission(s). Their participation as Observers will provide early knowledge of any potential implementation challenges for the down-selected mission(s).

- After down-selection is announced, Transition Briefings will be provided by a subset of the Evaluation Team to CSs, IPAs, and Contractors in the Program Office and at NASA HQ who have implementation responsibilities.

Change Log

Rev #	Date	Change
-	8/15/24	Released
A	9/13/24	- Slide 16 Updated Student Collaboration (SC) chair from Clarence Bostic to Alexandra Lockwood-Simpson - Slide 56 Updated SQRL response types to include “Early Written Response and Presentation”. Defined the four typical response types. - Slide 59 Added Robert Jenkins EHPD, NASA/GSFC, Dr. Dan Moses HPD, NASA/HQ and Dr. Lisa Winter HPD, NASA/HQ as Observers

