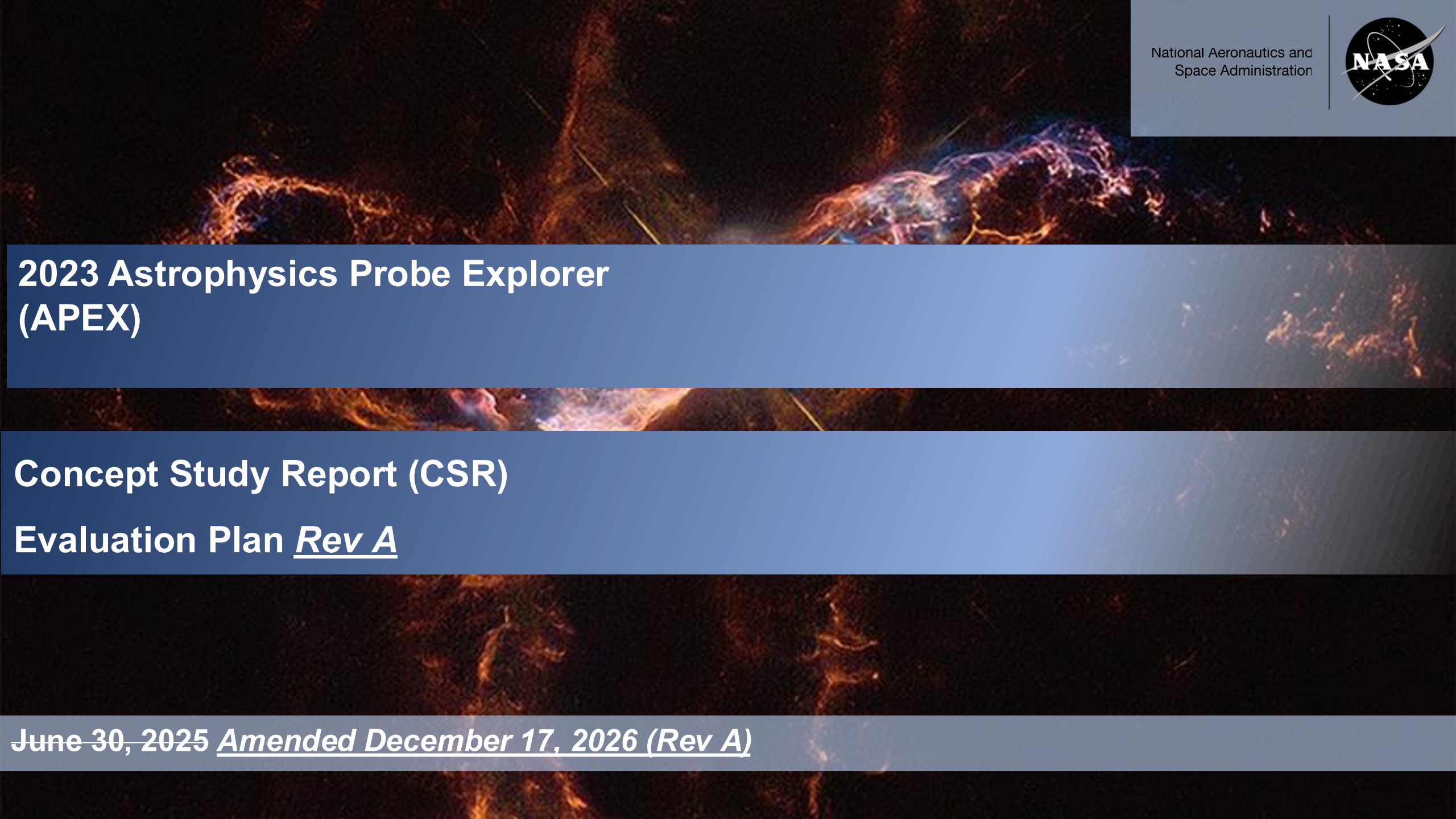

National Aeronautics and Space Administration

2023 Astrophysics Probe Explorer (APEX)

Concept Study Report (CSR)

Evaluation Plan *Rev A*

~~June 30, 2025~~ *Amended December 17, 2026 (Rev A)*

Outline

Approval

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~~***Ms. Elisabeth Morse***~~
Acquisition Managers
Science Office for Mission Assessments

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Acting *Director*
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Acting *Deputy Director*
Astrophysics Division, SMD

Dr. Michael New
Deputy Associate Administrator for Research, SMD

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

[Amended in Rev A: NASA staff]

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 common funding and NASA oversight/insight management structures. The program currently administers Principal Investigator (PI)-led science investigations for the Heliophysics and Astrophysics Divisions of NASA's Science Mission Directorate (SMD). Competitive selection ensures that the most current and best science that can be done within the cost cap will be accomplished.
- In 2021, the National Academies' 2020 Decadal Survey in Astronomy and Astrophysics, *Pathways to Discovery in Astronomy and Astrophysics for the 2020s* (https://www.nap.edu/catalog/26141/pathways-to-discovery-in-astronomy-and-astrophysics-for-the-2020s) (2020 Decadal Survey), recommended probe missions to be competed in broad areas identified as important to accomplish the 2020 Decadal Survey's scientific goals and objectives. Thus, the Probe class of mission was added to the Explorers Program portfolio.
- The purpose of this evaluation plan is to define the ground rules, processes, organizations, and schedules to be used in evaluating the 2023 Astrophysics Probe Explorer (APEX) Concept Study Reports (CSRs).
- Two missions were selected for concept studies, which constitute each project's Concept and Technology Development Phase (Phase A) of the Formulation process as outlined in NPR 7120.5F, NASA Spaceflight Program and Project Requirements.

~~*$5M*~~ *$5.625* M (RY$) and ~~12~~ *14* months *were* ~~are~~ allocated for each 2023 Astrophysics Probe Explorer (APEX) Concept Study that resulted from the Step-1 competition.

[Amended in Rev A: Phase budget and duration]

Evaluation Plan Overview

- The 2023 Astrophysics Probe Explorer (APEX) Announcement of Opportunity (AO NNH23ZDA021O), under which the missions to be evaluated were selected, was issued on July 31, 2023, and amended on September 8, 2023.
- The Science Office for Mission Assessments (SOMA) at NASA Langley Research Center (LaRC) developed this 2023 Astrophysics Probe Explorer CSR Evaluation Plan for the Science Mission Directorate (SMD) at NASA Headquarters.
- This 2023 Astrophysics Probe Explorer CSR Evaluation Plan has been cleared for public release by SMD.
- The 2023 Astrophysics Probe Explorer Program Scientist is responsible for validating all evaluation processes, responsibility assignments, assumptions, and ground rules.
- Two missions were selected for competitive Phase A concept studies. These two missions are Class C with a minimum five-year mission life.

Selected Missions

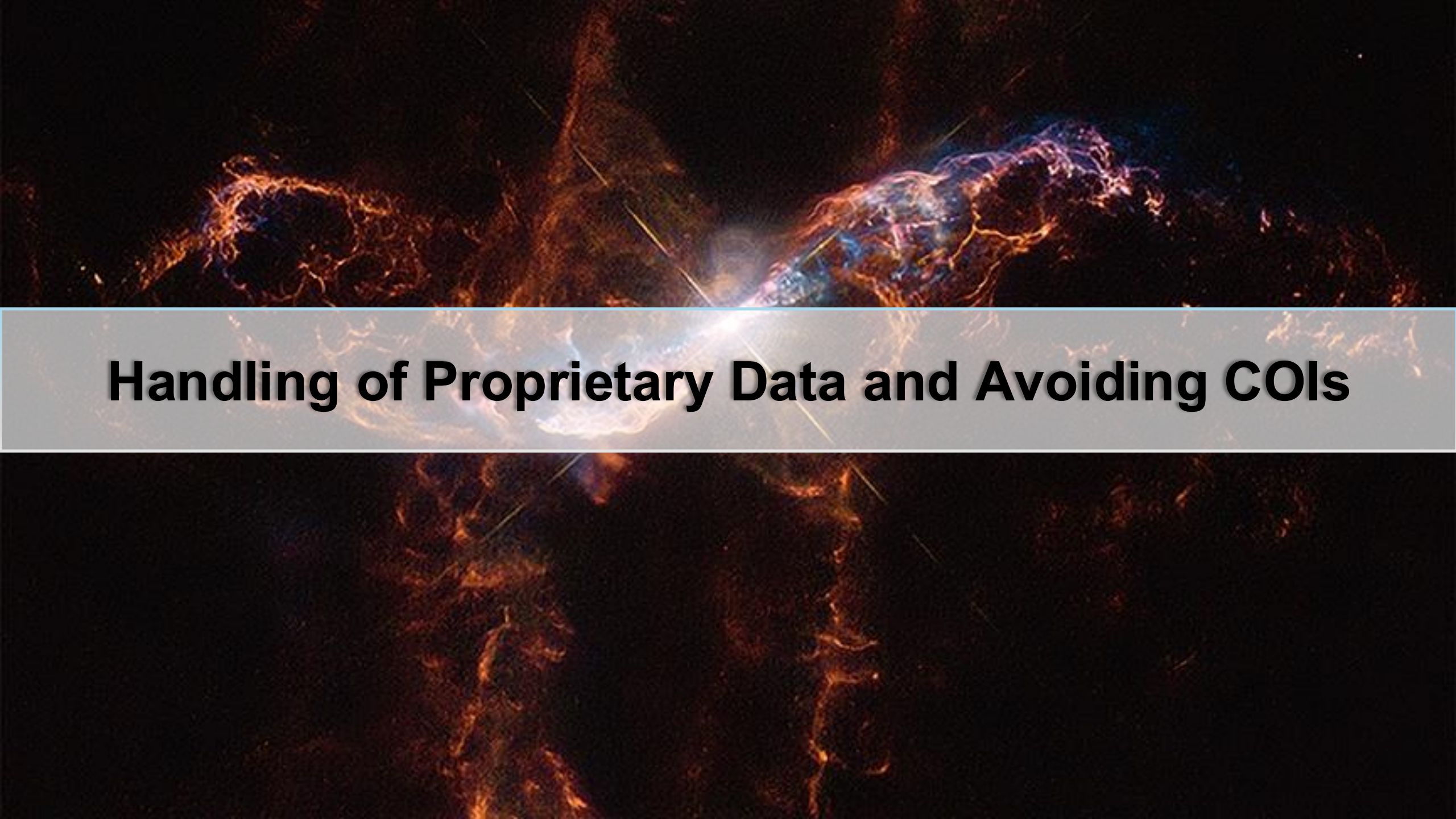
Advanced X-ray Imaging Satellite (AXIS)
PI: Christopher Reynolds, University of Maryland, College Park, Maryland

This mission would be an X-ray imaging observatory with a large, flat field-of-view and high spatial resolution. It would study the seeds of supermassive black holes; investigate the process of stellar feedback, which influences how galaxies evolve; and help determine the power sources of a variety of explosive phenomena in the cosmos. The observatory would build on the successes of previous X-ray observatories, capturing new capabilities for X-ray imaging and imaging spectroscopy.

Selected Missions

Probe Far-Infrared Mission for Astrophysics (PRIMA)
PI: Jason Glenn, NASA Goddard, Greenbelt, Maryland

This observatory would be a 5.9-foot (1.8-meter) telescope studying far-infrared wavelengths, helping bridge the gap between existing infrared observatories, such as NASA's James Webb Space Telescope, and radio telescopes. By studying radiant energy that only emerges in the far-infrared, the mission would address questions about the origins and growth of planets, supermassive black holes, stars, and cosmic dust.



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 II (NRESS-II) 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 which materials have been provided to each evaluator.
- 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 expressly getting authorization from the APEX Program Scientist (***Dr. Hannah Jang-Condell*** ~~*Dr. Patricia Knezek*~~). If authorized by the Program Scientist, the Deputy AA for Research should be notified.

[Amended in Rev A: NASA staff]

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, 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 SharePoint system, via NASA's Teams, via controlled Webex, via NASA's Box, 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 NASA's Box. 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/destroyed. Some copies (for archival purposes) will be maintained by the Program Scientist at NASA HQ, and in an SMD archive. Also, all CSR material from the down-selected mission(s) will be provided to the Explorers & Heliophysics Projects Division (EHPD) at the NASA Goddard Space Flight Center (GSFC). All other CSR materials will be deleted/destroyed.
- Evaluators' electronic and paper evaluation materials will be deleted/destroyed when the evaluation process is complete. Archival copies will be maintained in an SMD archive.

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 personal 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 personal 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 APEX Program Scientist and the SMD Deputy Associate Administrator for Research and documented in the APEX 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 there is 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 APEX 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 (NASA's Box, RES, NSPIRES) will be revoked until the COI is resolved.

Evaluation Organization and Process

Evaluation Organization [Full Slide Update In Rev A]

Program Scientist
Dr. Hannah Jang-Condell
Astrophysics Division, SMD, NASA Headquarters

SMD Division
Ms. Doris Daou, Deputy Program Scientist
Dr. John Wisniewski, Deputy Program Scientist
Dr. Amber Young, Deputy Program Scientist
Dr. Dan Moses, Program Scientist Advisor

SOMA
Mr. Washito Sasamoto, Acquisition Manager
Dr. Joe McKenney, Acquisition Manager
Ms. Elisabeth Morse, Acquisition Manager
NASA Langley Research Center

Science Panel (Forms A* & B)
Co-chair: Dr. Hannah Jang-Condell
Co-chair: Ms. Doris Daou
Deputy Chair: Dr. John Wisniewski

TMC Panel (Form C)
Co-chair: Mr. Washito Sasamoto
Co-chair: Dr. Joe McKenney
Backup: Ms. Elisabeth Morse

Student Collaboration (Form D)
Chair: Dr. Amber Young

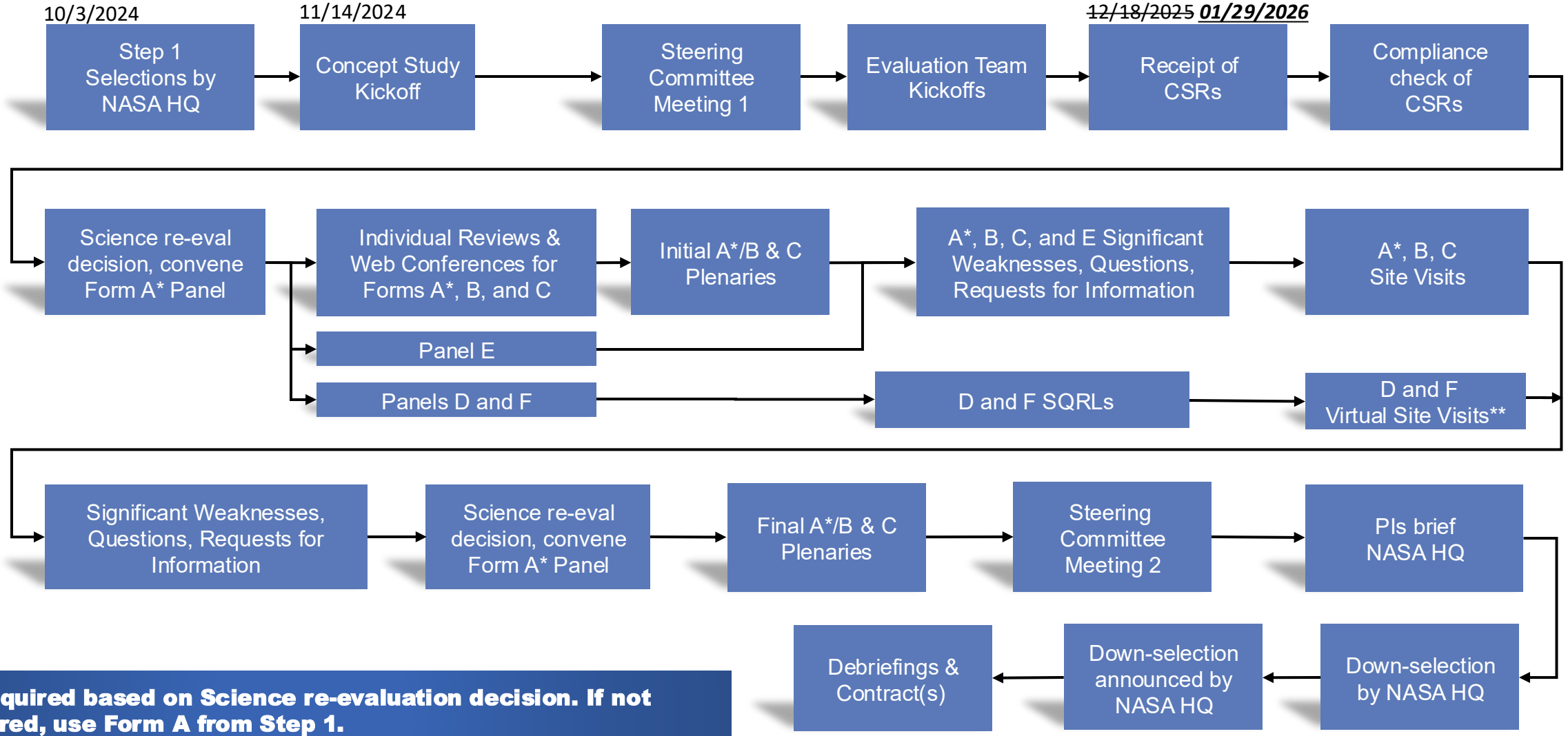
Small Business Subcontracting (Form E)
Co-chair: Chris Hall
Co-chair: Romain Tumarrow

Citizen Science (Form F)
Chair: Dr. Amber Young

* *If required based on Science re-evaluation decision.*

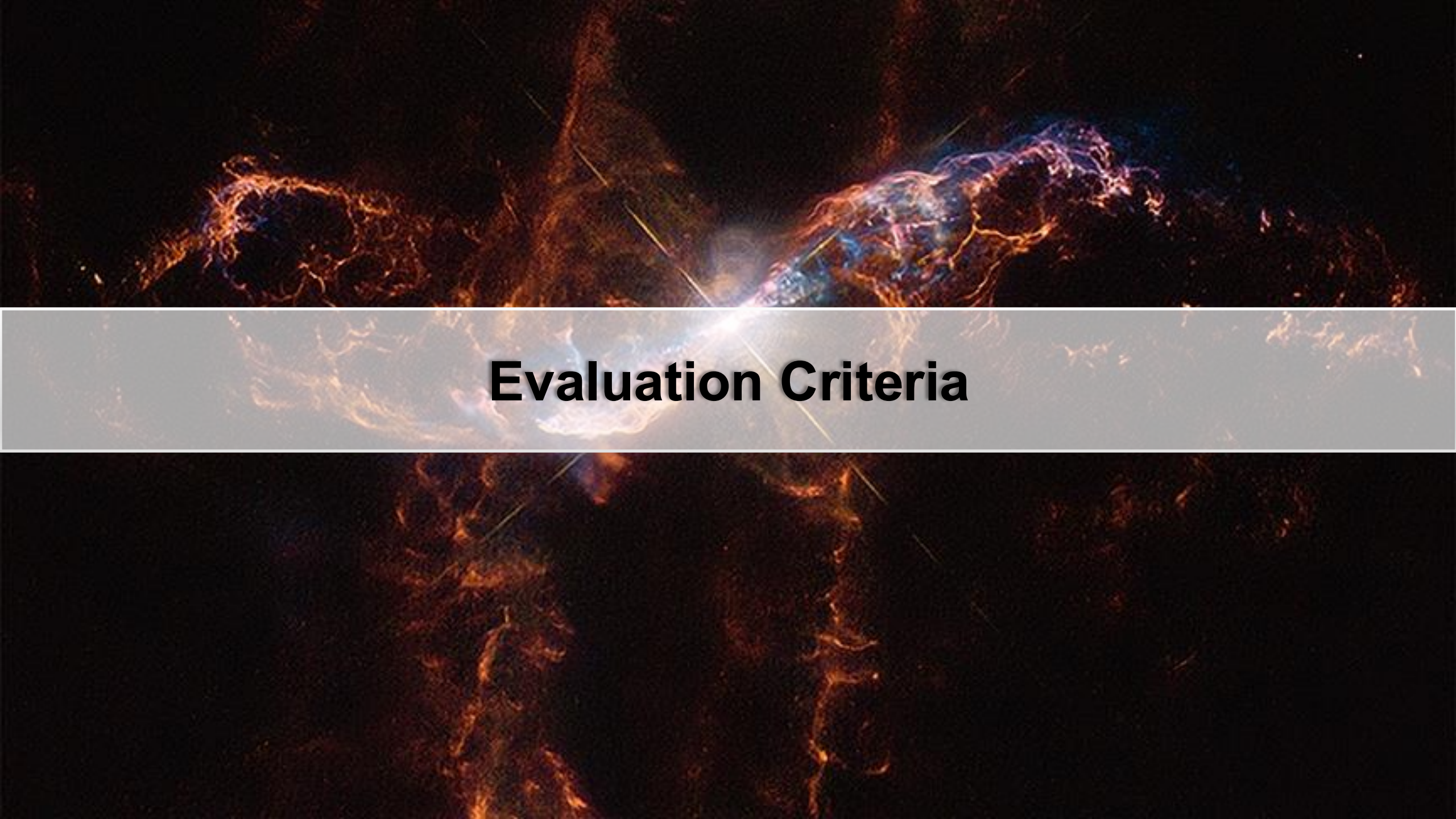
[Amended in Rev A: NASA staff]

CSR Evaluation Flow



***If required based on Science re-evaluation decision. If not required, use Form A from Step 1.**
****For CSRs with Student Collaboration and/or Citizen Science**

[Amended in Rev A: Phase A duration]



Evaluation Criteria

Evaluation Criteria and Additional Selection Factors

- The criteria to evaluate the CSRs are documented in the 2023 ASTROPHYSICS PROBE EXPLORER (APEX) CRITERIA AND REQUIREMENTS FOR THE PHASE A CONCEPT STUDY at:

  *https://explorers.larc.nasa.gov/2023APPROBE/pdf_files/**FinalRevA_APEX_CandR_2025-12-17.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 down-select any CSRs, 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 contributions, the distribution of work across NASA Centers and JPL, 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.

[Amended in Rev A: C&R link]

Evaluation Criterion A

Scientific Merit of the Proposed Investigation

The APEX Program Scientist will determine whether any issues that may have emerged in the course of the concept study have resulted in 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 APEX Criteria and Requirements 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 APEX Program Scientist may convene a peer review panel to re-evaluate the *Scientific Merit of the Proposed Investigation* 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 Factors

Scientific Implementation Merit and Feasibility of the Investigation

All of the factors defined in Section 7.2.3 of the APEX AO apply to the evaluation of the CSR, except factor B-6. *New factors and details added to Step-1 AO factor definitions for the evaluation of the CSR are highlighted using blue italicized text.*

- **Factor B-1. Merit of the proposed mission architecture, instruments and measurement techniques for addressing the science goals and the science objectives**. This factor includes how well the anticipated measurements support the goals and objectives; the appropriateness of the selected instruments and mission design for addressing the goals and objectives; and the appropriateness of the mission requirements for guiding development and ensuring scientific success.
- **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 Factors (continued)

- **Factor B-3. Data adequacy, analysis, and archiving.** This factor includes the degree to which the proposed mission and instruments can provide the quality and quantity of data necessary to complete the investigation and meet the proposed science objectives. Additionally, it includes the merit of data analysis plans, including the fidelity of physical models required to connect the measurements to the science objectives; and plans for archiving, to preserve data and analysis of value to the science community. Considerations include planning and budget adequacy, with plans for well-documented, high-level data products and software usable to the entire science community; adequate resources for physical interpretation of data; reporting scientific results in the professional literature (e.g., refereed scientific journals); and timely release of the data to the public domain.
- **Factor B-4. Science resiliency.** This factor includes both developmental and operational resiliency. Developmental resiliency includes the approach to descoping the Baseline Science Investigation to the Threshold Science Investigation 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 Factors (continued)

- **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 role of each Co-Investigator (Co-I) 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.*
- **Factor B-6. N/A**
- **Factor B-7. Merit of the proposed mission architecture, instruments, and measurement techniques for addressing the potential General Observer or Guest Investigator science.** This factor includes how well the anticipated measurements for the PI-led proposed science would demonstrate the capability of the Observatory to successfully perform the potential General Observer or Guest Investigator program.

Evaluation Criterion B – Additional Factors

Two new evaluation factors that are not described in the AO and therefore were not evaluated for Step-1 proposals, will also be considered

- ***Factor B-8. Maturity of proposed Level 1 and Level 2 requirements.*** *This factor includes assessment of whether the Level 1 requirements are sufficient and mature enough to guide the achievement of the objectives of the Baseline Science Investigation and the Threshold Science Investigation, and whether the Level 2 requirements are a sufficient decomposition of 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 their 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-9. 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. The panel will provide comments to NASA on their findings for this factor.*

Evaluation Criterion C

TMC Feasibility of the Proposed Mission Implementation, including Cost Risk

- All of the factors defined in Section 7.2.4 of the APEX AO apply to the evaluation of the CSR. All of these factors are interpreted as including an assessment as to whether technical, management, and cost feasibility are at least at a Phase A level of maturity.
- *New factors and details added to Step-1 AO factor definitions are highlighted using blue italicized text.*
- Note that the risk management aspects of the Step-1 AO Factor C-4 have been removed from Factor C-4 (highlighted using ~~struck-through text~~) and included in *a new evaluation Factor C-6, Adequacy of the risk management plan*.
- When appropriate, Factor C-2 will include an assessment of proposed planetary protection provisions to avoid potential biological contamination (forward and backward) that may be associated with the mission. An evaluation of the implementation of these provisions in the preparation or processing of proposed instruments, the development of the flight system, in project management and to proposed costs will be included in the evaluations of Factors C-1, C-3, C-4, and C-5, as appropriate.

Evaluation Criterion C Factors

- **<u>Factor C-1.</u> 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, *including where applicable the approach to multiple builds*. 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, 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 Factors (continued)

- **<u>Factor C-2.</u> 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, *ground systems, navigation/tracking/trajectory analysis, operational scenarios and timelines for each mission phase, operations team roles and responsibilities, and GO/GI interfaces and operational coordination),* and the plans for launch services. 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.

Evaluation Criterion C Factors (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, *including the approach to multiple builds if applicable*. 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 backup plans*, to ensure success of the investigation when systems having a TRL less than 6 are proposed. The maturity and technical readiness of the spacecraft, subsystems, and *operations systems* 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*.

Evaluation Criterion C Factors (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 Work Breakdown Structure (WBS); project level systems engineering*; the management approach including the roles, the commitment, qualifications, and experience of ~~any~~ *the PI, PM, PSE, and other* named Key Management Team members, the implementing organization, and ~~the~~ known partners; the spaceflight experience of ~~any~~ *the PI, PM, PSE, and all other* named Key Management Team members; *and relevant performance of* the implementing organization and known partners against the needs of the investigation; the prior working relationships of the implementing organization and known partners; the commitments of partners and contributors; and the scope of work covering all elements of the project, including contributions. *If multiple builds are proposed, this factor includes the ability to build, test, and integrate the required number of flight units with repeatable quality and performance standards on the required schedule, the system design's impact on the repeat manufacturability, the proposer's management of any subcontracted manufacturer, and the ability to capture and apply lessons learned for the effective production of subsequent units.* ~~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 *(including the resiliency of the production and test schedule to problems appearing in multiple-unit builds, if applicable),* the associated schedule margins, and an assessment of the likelihood of meeting the proposed launch readiness date. *Also evaluated under this factor are the proposed project and schedule management tools to be used on the project.*

Evaluation Criterion C Factors (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 *(including how multiple unit builds are costed), 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). The adequacy of the cost reserves and understanding of the cost risks 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.*

Evaluation Criterion C Factors (continued)

The following evaluation factor has been removed as a subset of Factor C-4 described in the AO and has been revised for the evaluation of the CSR.

- ***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; 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.* 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 Additional Factors

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 including GO/GI), and a telecommunications analysis, ground network capability and utilization plan, and navigation plans.*
- ***Factor C-8.*** ***Approach and feasibility for completing Phase B.*** *This factor includes the completeness of Phase B plans and the adequacy of the Phase B approach. 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 *TMC Feasibility of the Proposed Mission Implementation* will also provide comments to NASA regarding appropriateness of the allocation of the additional data volume proposed for the potential GO data. While these comments will not be considered in the evaluation, they may be considered during down-selection.

Evaluation Criteria D, E, & F

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

- ***Merit of the Student Collaboration, if proposed (Form D)***
- ***Merit of the Small Business Subcontracting Plans (Form E)***
- ***Merit of the Citizen Science, if proposed (Form F)***

D&E&F

Evaluation Criterion D

Merit of the Student Collaboration, if proposed (Form D). *This factor will include an assessment of whether the scope of the SC follows the guidelines in Section H. The two criteria to be used to evaluate the SC component and a discussion of those criteria are:*

- *Scope, Realism/Appropriateness. Student level and the project's SC research objectives are both clearly defined. SC mentors and supervisors are identified and have clear lines of responsibilities. A description of what constitutes, to the proposer, a successful SC effort.*
- *Evaluation. The SC includes evaluation of the student development impact. The SC has proposed evaluation methodology based on techniques appropriate to the SC activities proposed. The evaluative processes will document outputs and intended outcomes and use metrics to demonstrate progress or explain the lack of achievement by the SC component.*

Evaluation Criterion E

Merit of the Small Business Subcontracting Plans (Form E). *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.*

Merit of the Citizen Science, if proposed (Form F). *This factor will include an assessment of whether the scope of the CS follows the guidelines in Section H. The criteria to be used to evaluate the CS component and a discussion of those criteria are described in SPD-33 available in the Program Library.*

SPD-33 Section IV states that evaluation of all proposed citizen science projects shall include the following elements:

a) Scientific merit, including how to proposed project relates to the mission. If the proposed project would take new data during the mission to address science problems unrelated to the mission, the rationale must be described and justified.

b) A team that includes appropriate expertise in order to foster broad participation, communication and dissemination of results (e.g., two-way communication between volunteers and NASA scientists, with scientists giving feedback to and receiving feedback from the volunteers).

c) A budget that includes appropriate resources to carry out the objectives of the project.

d) Utilization of existing platforms and/or existing enthusiast communities to maximize collective impact. Development of new platforms and/or building of new communities will be considered on a case-by-case basis by the review panel.

e) Use of beta testing: testing the project on a group of citizen scientist volunteers before launch to ensure data quality and positive participant experience.

f) Inclusion of a sunset plan that ensures:
   i. 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.
   ii. Inactive websites include a statement: “This site is no longer actively updated…” and provide a link to the project’s results and publications and a link to at least one other relevant NASA citizen science project.

g) Inclusion of a data management plan.

Evaluation Products and Ratings

CSR Evaluation Panel Products

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

- Grades: Excellent, Excellent/Very Good, Very Good, Very Good/Good, Good, Good/Fair, Fair, Fair/Poor, or Poor
- Polling is held for the 9 categories above.
- The reported grade reflects the median.
  - A median score that falls between two grades will be “rounded” in the direction of the mean score; if mean and median are equal, the score will be “rounded” towards the less favorable 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 baseline mission?
  - Yes: evaluated by Criterion D panel
    - Grades: Meritorious or Not Meritorious
  - No: additionally, impact on baseline mission will be evaluated by Criterion B and C panels

- **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.

CSR Evaluation Panel Products (continued)

Form E (Small Business Subcontracting Plans)

- Grades: 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.

CSR Evaluation Panel Products (continued)

Form F (Citizen Science)

- Outside the baseline mission?
  - Yes: Evaluated by Criterion F panel.
    - Grades: Excellent, Very Good, Good, Fair, or Poor (see slide 42 for definitions of the grades)
  - No: Additionally, the part of the Citizen Science that is included in the baseline mission will be evaluated by Criterion A*/B panels. This may result in:
    - the Form A* being re-evaluated, and
    - some to all of the Citizen Science incentive being withheld.

* *If required based on Science re-evaluation decision.*

Definitions of Criterion A*/B and F Findings

Major Strength: A facet of the response that is judged to be well above expectations and substantially contributes to the Scientific Merit of the Proposed Investigation* / Science Implementation Merit and Feasibility of the Proposed Investigation / Citizen Science (CS) Plan.

Minor Strength: A strength that contributes to the Scientific Merit of the Proposed Investigation* / Science Implementation Merit and Feasibility of the Proposed Investigation / CS Plan.

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

Minor Weakness: A weakness that detracts from the Scientific Merit of the Proposed Investigation* / Science Implementation Merit and Feasibility of the Proposed Investigation / CS 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 Form A*/B or F. The term "Significant Weaknesses" includes both Major Weaknesses and Significant Minor Weaknesses.

If required based on Science re-evaluation decision. If not required, use Form A from Step 1.

Form A, B, and F Grade Definitions

Excellent: A comprehensive, thorough, and compelling CSR or CS plan 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 or CS plan of very high merit that fully responds to the objectives of the AO, whose strengths fully outbalance any weaknesses.

Good: A competent CSR or CS plan 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 or CS plan that provides a nominal response to the AO, but whose weaknesses outweigh any perceived strengths.

Poor: A seriously flawed CSR or CS plan 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 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.

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.

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 Weaknesses" includes both Major Weaknesses and Significant Minor Weaknesses.

Risk Rating 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 mission.

Rating	Definition
Low Risk	The CSR strongly supports accomplishment of the investigation well within the proposed resource envelope. Benefits associated with the identified strength(s) significantly outweigh the negative impacts associated with any identified weakness(es). The information presented instills high confidence in the team's ability to accomplish the investigation.
Low-Medium Risk	The CSR supports accomplishment of the investigation within the proposed resource envelope. Benefits associated with any identified strength(s) outweigh negative impacts associated with any identified weakness(es). Any identified weakness is considered to be within the team's abilities to correct.
Medium Risk	Accomplishment of the investigation within the proposed resource envelope may be challenging. Benefits associated with any identified strength(s) essentially balance negative impacts associated with identified weakness(es). Identified weakness(es) are considered to be within the team's abilities to correct with effective management and application of engineering resources.
Medium-High Risk	Accomplishment of the investigation within the proposed resource envelope will be challenging. Benefits associated with any identified strength(s) are outweighed by negative impacts associated with the identified weakness(es). One or more weaknesses are of sufficient magnitude and complexity to be considered difficult for the team to correct within the proposed resources.
High Risk	Accomplishment of the investigation is expected to significantly exceed the proposed resource envelope. Benefits associated with any identified strength(s) are significantly outweighed by negative impacts associated with the identified weakness(es). One or more weaknesses are of sufficient magnitude and complexity as to be deemed unsolvable by the team within the proposed resources.

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 B-D will be performed using 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 (CESs) 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 or for the total of modeled WBS levels.
    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.

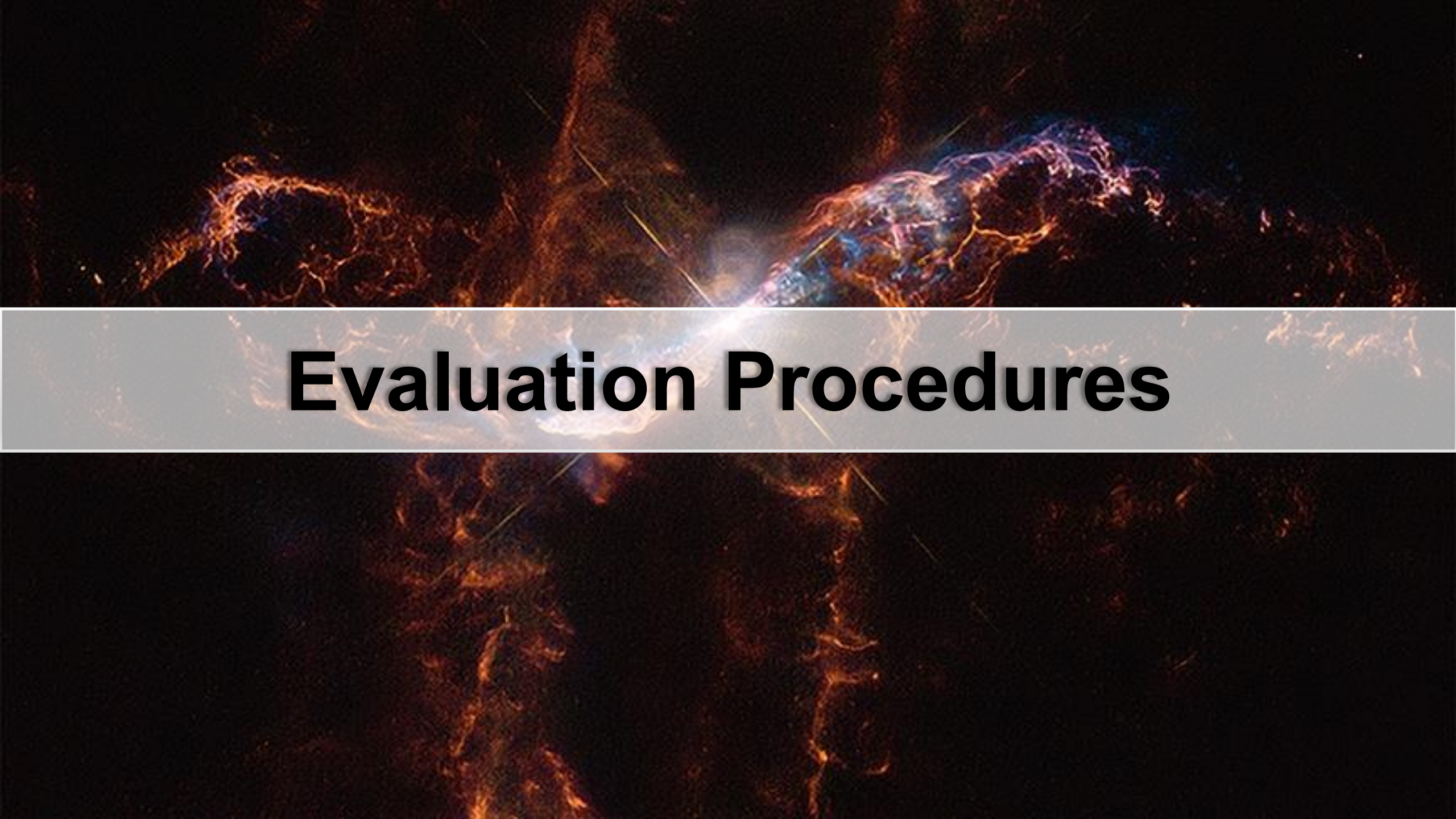
**Analogous missions will be chosen based on contents of the CSR and the experiences of the TMC evaluators.*

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 Minimal/Limited/ Moderate/Significant/Very Significant cost impact being realized during development and/or operations, which results in a reduction from the proposed unencumbered cost 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. A weakness with an *unquantified cost threat* represents a risk for which the cost of retiring cannot be quantified. The impact of a weakness with an *unquantified cost threat* may be significant since the identified risk may prevent the accomplishment of the baseline investigation within the proposed resource envelope.
- The cost threat matrix defines the adjectives that describe the *likelihood* and *cost impact*.
- The minimum cost threat threshold is $2M for Phases B/C/D *and $1M for Phase E*.

			Cost Impact (CI) **% of PI-Managed Mission Cost to complete Phases B/C/D or *% of Phase E* not including unencumbered cost reserves or contributions**					
	Likelihood of Occurrence	**Weakness**	**Very Minimal** $2M < CI ≤ 2.5% *$1M < CI < 2.5%*	**Minimal** 2.5% < CI ≤ 5% *2.5% < CI ≤ 5%*	**Limited** 5% < CI ≤ 10% *5% < CI ≤ 10%*	**Moderate** 10% < CI ≤ 15% *10% < CI ≤ 15%*	**Significant** 15% < CI ≤ 20% *15% < CI ≤ 20%*	**Very Significant** CI > 20% *CI > 20%*
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.



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.
- 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 Forms A*/B.
  - Participation is defined as in-person or virtually
  - Specialist Evaluators** are not polled
  - Note that some Form C evaluators will also be designated as Form B evaluators by the APEX Program Scientist.
- 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 APEX Program Scientist.

* *If required based on Science re-evaluation decision.*

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

Criteria A*, B & C Panel Evaluation Processes (continued)

Consistency Review for Form C findings and Form B findings will be conducted 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 Forms C and questions at the Initial Plenary, and all Forms C 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 Evaluator(s) will review all Forms B and questions at the Initial Plenary, and all Forms B 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 Initial and Final Plenaries.
  - Some Form C Evaluators will participate in Form B Initial and Final Plenaries.
  - Consistency of findings between Forms B and C will be reviewed and adjudicated at the Initial and Final Plenaries.

** If required based on Science re-evaluation decision.*

Initial Plenary

The Initial Plenaries are 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 Forms A* (if needed), Forms B, and Forms C are reviewed.

- The Goals of the Initial Plenary are:
  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 A* (if needed), Criterion B, and Criterion C.
- No polling on grades occurs at the Initial Plenaries (Criterion A* (if needed), Criterion B, and Criterion C).
- The Significant Weaknesses, Questions, and Requests for Information Lists (SQRLs) for Factor A*, Factor B, and Factor C will each 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 APEX Program Scientist.

* *If required based on Science re-evaluation decision.*

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

- **Site Visits SQRLs**
  - All SQRLs developed at the Initial Plenaries, 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 APEX Program Scientist will approve all SQRLs developed at the Initial Plenary.**
- **Three types of responses are planned for SQRLs. These types may be combined for a given Significant Weakness (SW), Question (Q), or Request For Information (RFI).**
  - Early Written response: 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.
  - Presentation at Site Visit: 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 based on Science re-evaluation decision.*

A*, B, C 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 APEX down-select will be held in-person with a remote participation option.
- Briefings at each Site Visit will be limited to 7 presentation hours, and up to 1 additional hour for an optional tour/demonstration. Additional time will include two 15-min breaks plus one 1.5-hour lunch break.
- All Site Visit presentations/briefings should be in a plenary session with all Evaluation Team members attending – no splinter sessions – unless authorized by the APEX Program Scientist.
- Written SQRLs for Form C will be submitted to the PI at least 7 days before the Site Visit. All teams will have the same lead time, excluding federal holidays, with responses due within at least 5 days after receipt of the SQRLs.
- Written SQRLs for Forms A*, B, and E will be submitted to the PI at least 7 days before the Site Visit. All teams will have the same lead time, excluding federal holidays, with responses due within at least 5 days after receipt of the SQRLs.
- During the Site Visit, NASA may provide additional SQRLs. The team has the option to answer these during the site visit or to include them with the additional SQRLs sent to the team mid-day the day after the Site Visit concludes.
- As part of the Site Visit process, NASA may send additional SQRLs to the study teams mid-day the day after the Site Visit concludes, with responses due within 5 days. Additional SQRLs may be sent once during the time period of TBD, 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 TBD, 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.

* *If required based on Science re-evaluation decision.*

D and F Site Visits

If a Student Collaboration and/or Citizen Science is/are proposed:

- SQRLs relating to Criteria D and F will be sent to each study team with the A*, B, C SQRLs.
- A virtual meeting with Oral Briefings (“D and F Site Visit”) will be held at least one week after the A*, B, C Site Visit to present the proposed Student Collaboration and/or Citizen Science.
  - The study team may address significant weaknesses identified in the Student Collaboration and/or Citizen Science and provide updates on the SC/CS developed after submission of the CSR.
  - Oral briefings at the D and F Site Visit will be limited to one hour (TBR) for SC and one hour (TBR) for CS, including at least 15 min reserved for a question-and-answer session. Additional SQRLs may be sent once during the time period of TBD, with responses due within 48 hours (exact dates for this set will be communicated to each study team).
  - Discussions during the virtual meeting will be limited to Criteria D and F.

* *If required based on Science re-evaluation decision.*

Final Plenary Products

- At the Final Plenary, the evaluation panels finalize all evaluation Forms based on the information in the CSRs, as well as updates and clarifications to the CSRs (i.e. information presented during the Site Visit, and information provided in response to the SQRLs).
- Both Major and Minor Strengths and Weakness are considered in the Grade for all Forms.

Form A*

- Polling will be held twice on the Form A* 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 "rounded" in the direction of the mean score; if mean and median are equal, the score will be "rounded" towards the less favorable grade (e.g., 10 Good votes and 10 Good/Fair votes = Good/Fair grade). Evaluator discussions are held after each round of polling, which may lead to additional rounds of polling.
- SWs, Qs, and/or RFIs generated during the Final Plenary may result in additional rounds during or after the Final Plenary.

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 "rounded" in the direction of the mean score; if mean and median are equal, the score will be "rounded" towards the less favorable grade (e.g., 10 Good votes and 10 Good/Fair votes = Good/Fair grade). Evaluator discussions are held after each round of polling, which may lead to additional rounds of polling.
- SWs, Qs, and/or RFIs generated during the Final Plenary may result in additional rounds during or after the Final Plenary.

* *If required based on Science re-evaluation decision.*

Final Plenary Products (cont'd)

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.
- Evaluator discussions are held after each round of polling, which may lead to additional rounds of 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 SC Panel will consider the Merit of proposed Student Collaborations.

Form E, Small Business Subcontracting

- Representatives from the Small Business Subcontracting Panel will evaluate this criterion.

Form F, Citizen Science

- Representatives from the CS Panel will consider the Merit of proposed Citizen Science. The CS Panel may include some Form B panelists.
- Polling will be held once on the Form F grade. The individual grades are recorded, and the median grade is calculated and recorded. A median score that falls between two grades will be recorded as a half score (e.g., 4 Good votes and 4 Fair votes = Good/Fair grade). Evaluator discussions are held after each round of polling, which may lead to additional rounds of polling.

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 APEX Program Scientist and Deputy Associate Administrator 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):

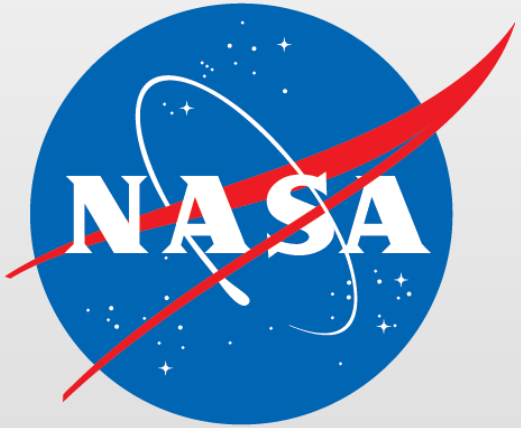
Name	Affiliation	Name	Affiliation
Mark Sistilli	APEX Program Executive	[Observer Name]	[Observer Affiliation]
Sridhar Manthripragada	***Associate Director, EHPD***	[Observer Name]	[Observer Affiliation]

  - The above listed Program 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 Briefing(s) 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.

[Amended in Rev A: observer added]

Change Log

Rev #	Date	Change
-	June 30, 2025	Baseline
Rev A	December 17, 2025	• Slides 3, 10, 15: Evaluation approvers and leadership changes • Slides 5, 16: Update to CSR due date with associated increase in Phase A duration and Phase A funding • Slide 18: Updated link to *Guidelines and Criteria* Document that reflects analogous changes to those in this revision. • Slide 58: EHPD Observer added Changes are indicated in ***bold, italics underlined*** for convenience were possible.


NASA