National Aeronautics and Space Administration

Dynamic Neutral Atmosphere-Ionosphere Coupling (DYNAMIC) Solicitation: Concept Study Phase

Phase A Kick-Off:
Evaluation Process Overview

Jared Leisner – DYNAMIC Program Scientist
Heliophysics Division
Science Mission Directorate
NASA HQ

August 12, 2024

Questions, Conduct during the Kick-off

- Questions are welcome and encouraged
  - Ask questions on the material in a presentation at the end of that presentation
  - Please hold questions on topics not addressed in a presentation until the end of the kick-off
- Questions will be captured by NASA and posted in the Q&A, as appropriate
  - If you have follow-up questions after the kick-off, please email them to Jared Leisner

- This meeting may not be recorded. NASA will not be recording.
- Mics are to be muted unless you are actively speaking
- Camera usage is encouraged, as appropriate
  - Cameras are not expected to be always on
  - Cameras are encouraged when you are asking a question

- Please be courteous and understanding
  - Virtual meetings may have technical glitches or people talking over one another

Agenda

Time	Topic	Speaker	Affiliation
11:00	Welcome	Joseph Westlake	Science Mission Directorate, NASA HQ
11:10	STP Program, Overview	Heather Futrell	Science Mission Directorate, NASA HQ
11:20	Evaluation Overview	Jared Leisner	Science Mission Directorate, NASA HQ
12:00	Concept Study Criteria and Requirements	Washito Sasamoto	Science Mission Directorate, NASA HQ
12:20	Mission Operations and Communication Services	Jeffrey Hayes	Space Comm. and Nav. (SCaN), NASA HQ
12:35	Access to Space	Rex Engelhardt	Launch Services Program (LSP), NASA KSC
12:50	Safety and Mission Assurance	Jesse Leitner	Safety and Mission Assurance, NASA GSFC
13:20	*BREAK*		
13:30	International Participation	Peyton Blackstock	Office of Int'l and Interagency Rel., NASA HQ
13:40	Export Control	Michael Y. Tu	Office of Int'l and Interagency Rel., NASA HQ
13:50	Writing Level 1 Requirements	Jared Leisner	Science Mission Directorate, NASA HQ
14:30	General Question and Answer		
14:45	*End of Kick-Off*		

All times given in U.S. Eastern Time

References Annotation

- Discussions may reference relevant solicitation documents/materials
  - AO §#.# AO Section
  - AO Req. ## AO Requirement
  - C&R §#.# Criteria and Requirements for the Phase A Concept Study Report (C&R) Section
  - Req. CS-## C&R Requirement
  - §#.# C&R Section (section within C&R Part II)
  - EP ## CSR Evaluation Plan slide
  - PhAKO *XYZ* ## Phase A Kick-Off presentation, slide
  - PIMF *XYZ* ## PI Masters Forum presentation, slide
  - PL *XYZ* Program Library document
  - PPC *XYZ* ## Pre-Proposal Conference presentation, slide
  - Q&A *X*-## CSR Questions & Answers entry

Outline

Evaluation Organization

Evaluation Panel

Dr Jared Leisner, Program Scientist
Heather Futrell, Program Executive
Science Mission Directorate (SMD), NASA Headquarters

Science Evaluation Panel

Dr Jared Leisner, Program Scientist
Heather Futrell, Program Executive
Heliophysics Division, SMD

TMC Evaluation Panel

Elisabeth Morse, Acquisition Manager (AM)
Washito Sasamoto, Backup AM
NASA Science Office for Mission Assessments (SOMA)

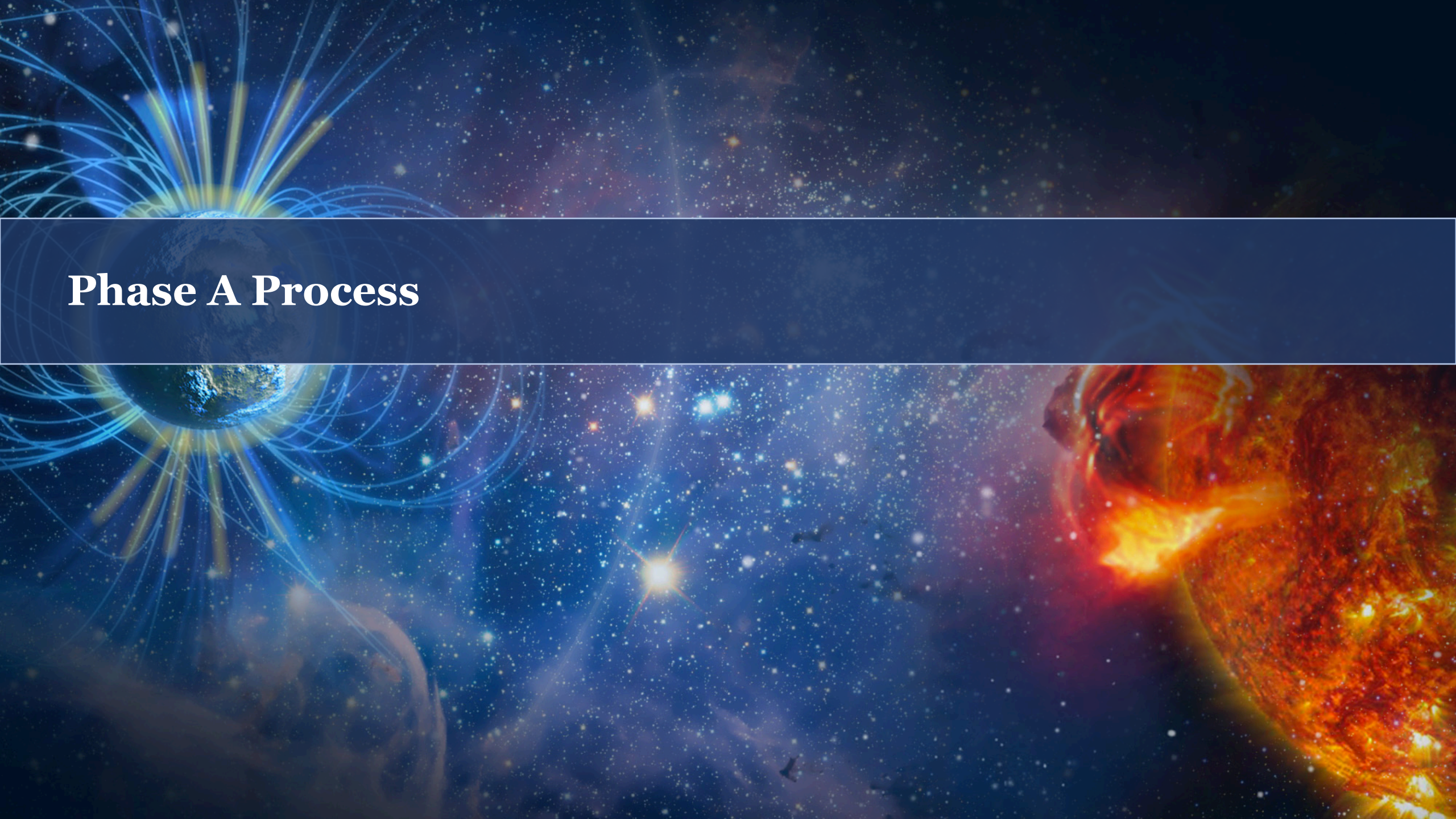
DYNAMIC Phase A Teams

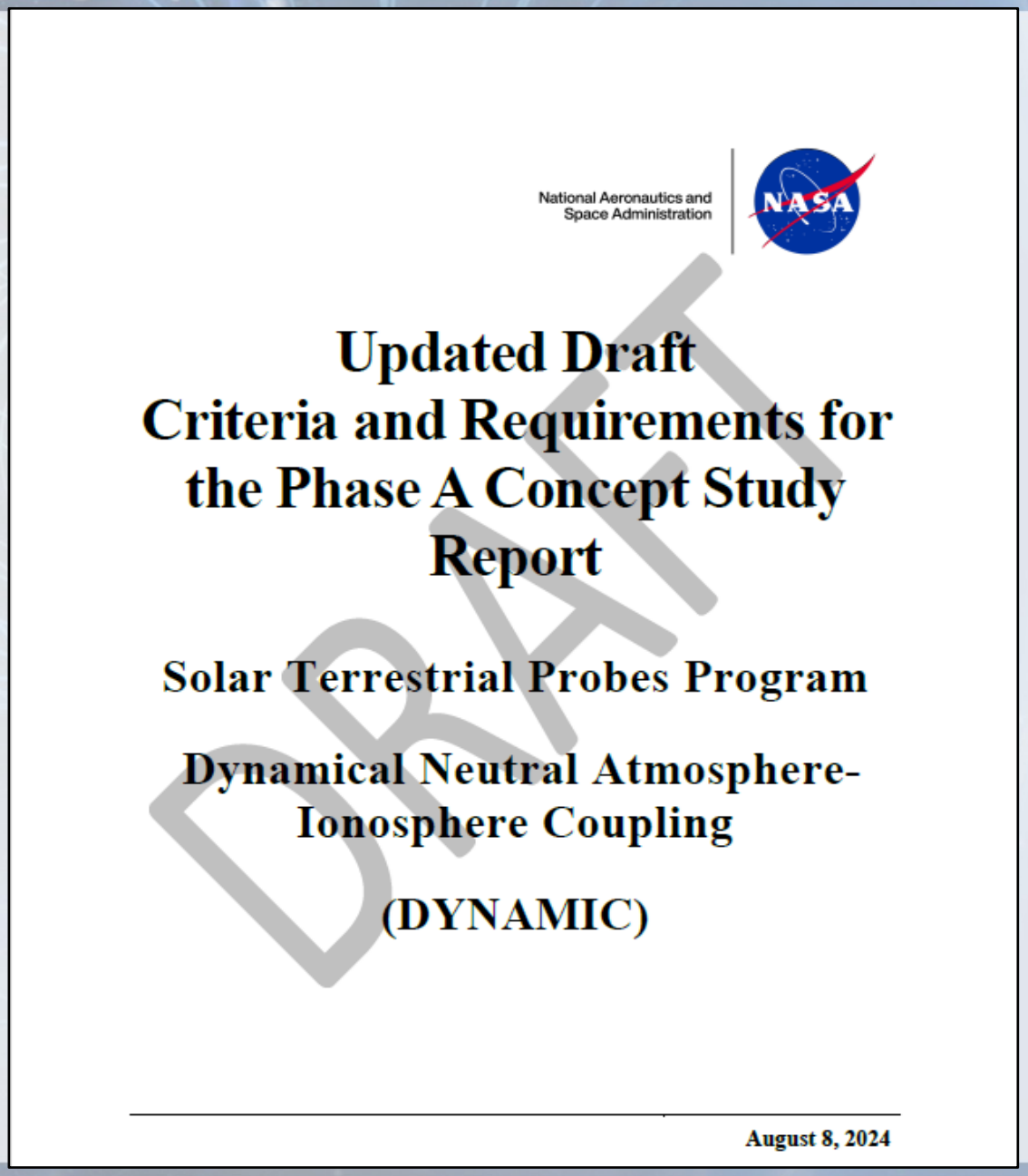
- *DAPHNE*
  - PI Aimee Merkel (Univ. of Colorado, Boulder)

- *DYNAMIC*
  - PI Tomoko Matsuo (Univ. of Colorado, Boulder)

- *DYNAMIC-X*
  - PI Scott Bailey (Virginia Polytechnic Institute and State University)

Phase A Process

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NASA

Updated Draft Criteria and Requirements for the Phase A Concept Study Report

Solar Terrestrial Probes Program

Dynamical Neutral Atmosphere-Ionosphere Coupling

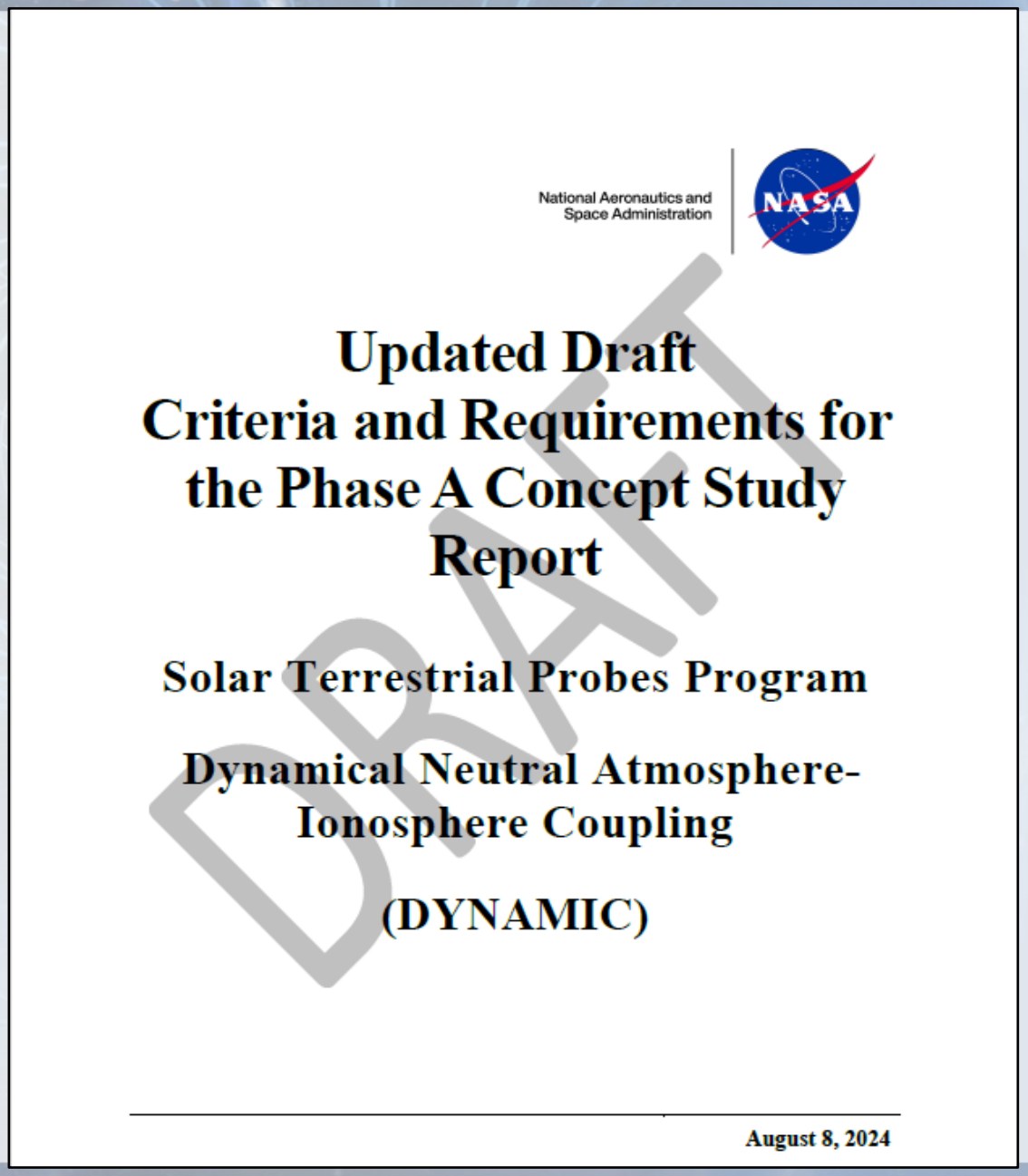
(DYNAMIC)

DRAFT

August 8, 2024

Draft C&R are posted, update coming
https://soma.larc.nasa.gov/STP/DYNAMIC

- Criteria and Requirements
  - Provide reqs for Concept Study Reports
  - Describe Phase A process, evaluation
  - Provide Phase A schedule (see SOMA ppt)
  - Accompanied by Q&A
- Concept Study Reports
- Site Visits (see PhAKO *C&R for CSR* 26)
  - Dates, logistics TBC in Nov/Dec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Updated Draft Criteria and Requirements for the Phase A Concept Study Report

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DRAFT

August 8, 2024

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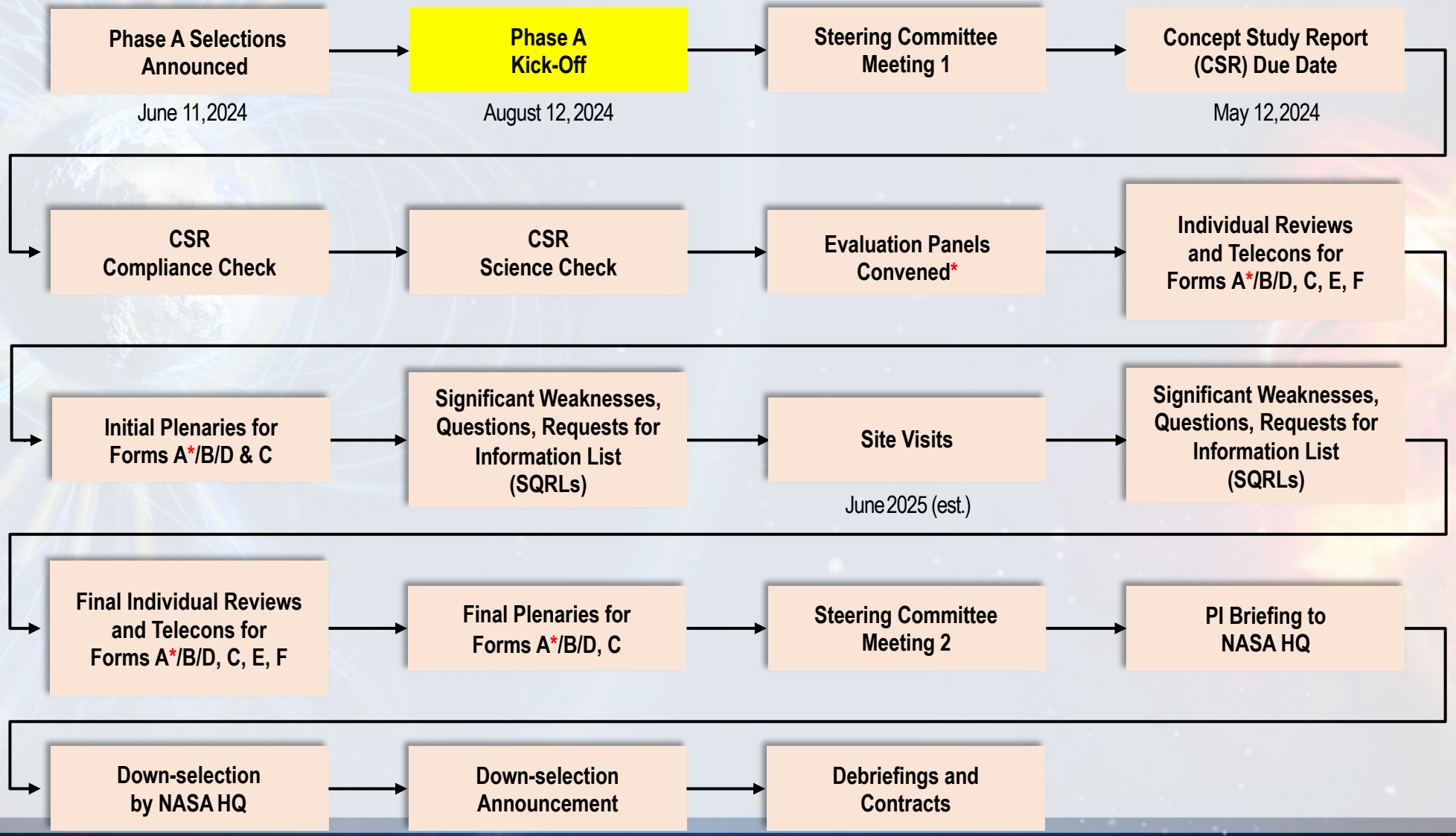
- All program constraints, guidelines, definitions, and requirements specified in the AO apply to the CSR *except as noted in the C&R*
  - Evaluation criteria and weighting
  - Level 1 requirements
    - see: PhAKO *Writing Level 1 Requirements*
  - (discussions in PhAKO *C&R for the CSR)*

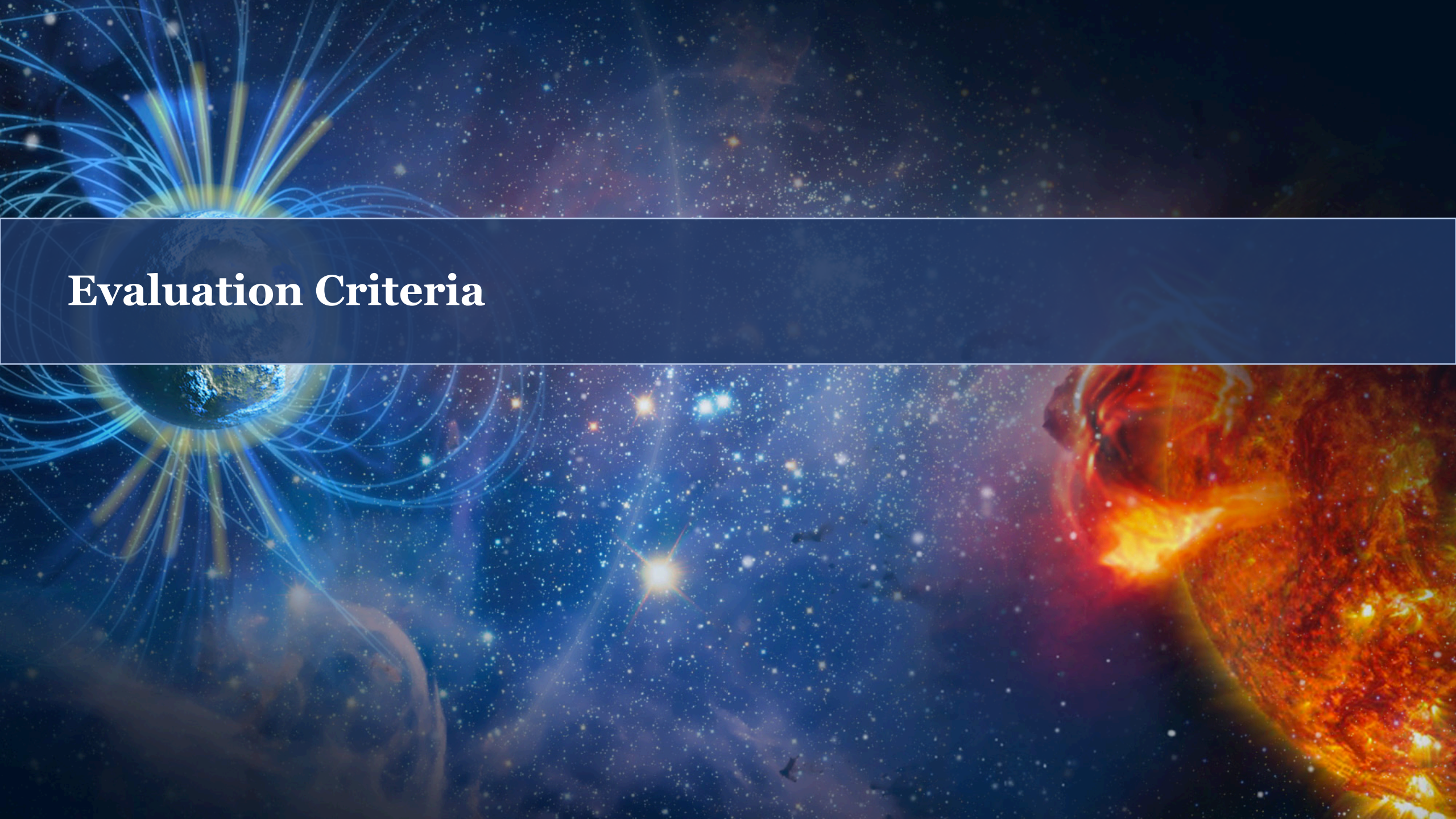
Phase A Timeline



*Evaluation of Form A will only occur due to change in Science. Step-1 Form A will be used otherwise.

See Slide 14 for more information.

Evaluation Criteria



Evaluation Criteria

The *Criteria & Requirements for the Phase A Concept Study Report* (C&R) document describes the six evaluation criteria (Part I).

- Form A: Scientific Merit of the Proposed Investigation *[unchanged from Step 1]*
- Form B: Scientific Implementation Merit and Feasibility of the Proposed Investigation
- Form C: Technical, Management, and Cost (TMC) Feasibility of the Proposed Mission Implementation
- Form D: Programmatic Value of the Proposed Investigation *[unchanged from Step 1]*
- Form E: Merit of the Student Collaboration Plan
- Form F: Merit of the Small Business Subcontracting Plan

Details on Evaluation Panel Processes will be posted in CSR Evaluation Plan

Evaluation Criteria – Weighting

The *Criteria & Requirements for the Phase A Concept Study Report* (C&R) document describes the six evaluation criteria (Part I).

- ~18% Form A: Scientific Merit of the Proposed Investigation *[unchanged from Step 1]*
- ~40% Form B: Scientific Implementation Merit and Feasibility of the Proposed Investigation
- ~40% Form C: Technical, Management, and Cost (TMC) Feasibility of the Proposed Mission Implementation
- ~2% Form D: Programmatic Value of the Proposed Investigation *[unchanged from Step 1]*
- Form E: Merit of the Student Collaboration Plan
- Form F: Merit of the Small Business Subcontracting Plan

Not weighted, but potential down-select considerations

Evaluation Criteria – Forms A, D

- Step 1 evaluation results will carry over absent a relevant change between the Step-1 proposal (inclusive of PMW responses) to the CSR
  - A change to the research plan or Physical Parameters will trigger a Form A/D re-evaluation
  - Any change in the STM will flow leftward, modifying all columns it passes, until it reaches an unchanged validateable requirement
  - *Note: If there is ambiguity about a change's impact on Form A or D, there will be a re-evaluation*
- For re-evaluations, Forms A and D will be treated separately
  - Form A re-eval does not necessarily trigger a Form D re-eval, or vice versa
- CSR packages document changes [Req. CS-20, CS-132]
  - PL *Science Change Matrix Example* illustrates a method to document

Not prescriptive, but suggestions to make it easier for proposers, evaluators, and PS

Evaluation Criteria – Form B [B-1 to B-5]

- Factor B-1. Merit of the proposed mission design and measurement techniques for providing the anticipated data sets. This factor includes the ability for the anticipated measurements to lead to the anticipated data sets, *including details on data collection strategy and plans*; the ability for the proposed mission architecture and mission design to support the acquisition of the anticipated measurements; and the degree to which the measurement techniques can use the anticipated instrument observations to provide the anticipated scientific measurements. The mission architecture and mission design include the number and arrangement of spacecraft, the spacecraft trajectories and orbits during science operations, and observation targets.

- Factors B-2 through B-5 are unchanged from Step 1

Evaluation Criteria – Form B [B-6]

- Factor B-6. Merit of the ~~Diversity and~~ Inclusion Plan. ~~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.~~ *This factor includes the extent to which the Inclusion Plan provided appropriate processes and goals for both creating and sustaining a positive and inclusive working environment for the investigation team; the extent to which the Inclusion Plan demonstrates awareness of systemic barriers to creating inclusive working environments that are or may be specific to the proposal team; whether the Inclusion Plan contains appropriate activities for equipping team members to build and maintain inclusive working environments; whether roles and responsibilities for those participating in the proposed activities are well described and justified; whether the proposed timeline is reasonable for the proposed Inclusion Plan activities; whether the Inclusion Plan provides reasonable and appropriate assessment mechanisms for measuring progress in and success of the proposed activities; and whether reasonable resources are requested to carry out the proposed activities and if funds are requested, with appropriate justification.*

Evaluation Criteria – Form B [B-7]

- Factor B-7. 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. Level 1 requirements will be evaluated on whether they are scientific determinations/results traceable to the science objectives and are sufficient to represent completion of the science objectives. Level 2 requirements will be evaluated for the adequacy, sufficiency, and completeness, including their utility for evaluating the capability of the mission profile, instruments, other mission systems, and other project-developed and non-project supporting capabilities to enable completion of the Level 1 requirements. The stability of the Level 1 and Level 2 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.*

see C&R §E.1, Req. CS-21, PIMF Writing Level 1 Requirements

Evaluation Criteria – Form B [B-8]

- 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. The panel will provide comments to NASA on their findings for this factor.*

Use of GDC Data

Appendix – Impact if GDC Data are not Available

- CSRs shall quantify the impact to the Baseline Science Investigation if the GDC data are not available during DYNAMIC science operations
  - Baseline Science Investigation is defined by checkmark on Step-1 proposal front matter (NSPIRES submission info), Section D discussion, and the Science Traceability Matrix
  - In cases of ambiguity, GDC data will be perceived as necessary

- Appendix will be outside of evaluation criteria
  - Evaluators may submit comments to the Selection Official

Questions?