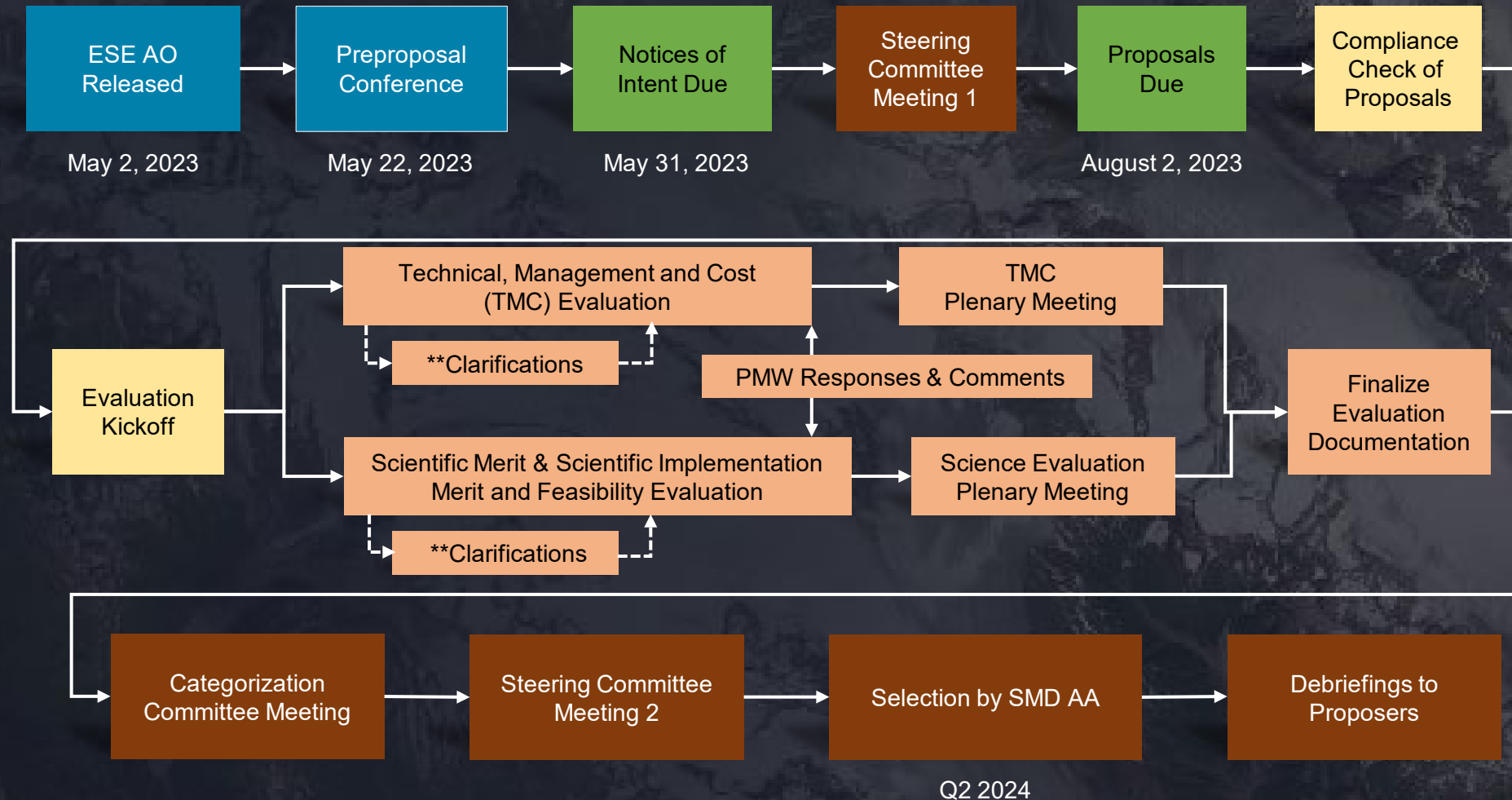




Science Evaluation

Evaluation, Categorization, and Selection Process

Proposal Evaluation Flow



ESE Evaluation Criteria

The evaluation criteria as defined in the ESE AO will be used to evaluate proposals.

- Scientific merit of the proposed investigation;
- Scientific implementation merit and feasibility of the proposed investigation; and
- Technical, management, and cost (TMC) feasibility of the proposed mission implementation, including cost risk.

The proposal categorizations will be based on these criteria. For categorization, scientific merit is weighted approximately 40%, scientific implementation merit and feasibility is weighted approximately 30%, and TMC feasibility, including cost risk, is weighted approximately 30%.

A Science Panel will evaluate the Scientific merit of the proposed investigation and the Scientific implementation merit and feasibility of the proposed investigation.

The 2017 Decadal Survey will serve as the guide for the Scientific Merit of the proposal.

Science Evaluation Criteria and Factors (1 of 2)

Scientific Merit of the Proposed Investigation*

Factor A-1. Compelling nature and scientific priority of the proposed investigation's science goals and objectives.

Is this great science?

Factor A-2. Programmatic value of the proposed investigation.

Puts the mission in the context of what else is going on.

Factor A-3. Likelihood of scientific success.

Adequacy of anticipated data.

Factor A-4. Scientific value of the Threshold Science Mission.

Evaluate the value of the **Threshold** mission. Is it still worth doing at the full cost?

Science Evaluation Criteria and Factors (2 of 2)

Scientific Implementation Merit and Feasibility of the Proposed Investigation*

Factor B-1. Merit of the instruments and mission design for addressing the science goals and objectives.

Do the instruments and specs meet the scientific goals?

Factor B-2. Probability of technical success.

How challenging is it to build the instrument?

Factor B-3. Merit of the data analysis, data availability, and data archiving plan.

Factor B-4. Science resiliency.

What happens if instrument performance, operations are not going as planned?

Factor B-5. Probability of science team success.

Evaluation of science team composition and expertise.

Factor B-6. Merit of Diversity and Inclusion Plan

The adjectival summary scores

Summary Evaluation	Basis for Summary Evaluation
<u>Excellent</u>	A comprehensive, thorough, and compelling proposal 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.
<u>Very Good</u>	A fully competent proposal of very high merit that fully responds to the objectives of the AO, whose strengths fully outbalance any weaknesses.
<u>Good</u>	A competent proposal that represents a credible response to the AO, having neither significant strengths nor weakness and/or whose strengths and weaknesses essentially balance.
<u>Fair</u>	A proposal that provides a nominal response to the AO, but whose weaknesses outweigh any perceived strengths.
<u>Poor</u>	A seriously flawed proposal having one or more major weaknesses (<i>e.g.</i> , an inadequate or flawed plan of research or lack of focus on the objectives of the AO).

Strength and Weaknesses

Findings are a series of Findings that are classified as strengths or weaknesses, and further classified as major and minor.

- Major Strength: An aspect of the proposal that is judged to be of superior merit and can substantially contribute to the ability of the project to meet its scientific objectives.
- Major Weakness: A deficiency or set of deficiencies taken together that are judged to substantially weaken the project's ability to meet its scientific objectives.
- Minor Strength: An aspect of the proposal that is judged to contribute to the ability of the project to meet its scientific objectives.
- Minor Weakness: A deficiency or set of deficiencies taken together that are judged to weaken the project's ability to meet its scientific objectives.

Potential Major Weaknesses

- NASA will request clarification in a uniform manner from all proposers. Proposers will be allowed up to eight pages (with some restrictions) for clarifications of PMWs associated with the *Scientific Merit of the Proposed Investigation* and the *Scientific Implementation Merit and Feasibility of the Proposed Investigation* evaluation criterion and up to six pages (with some restrictions) for clarifications of PMWs associated with the *TMC Feasibility of the Proposed Mission Implementation* evaluation criterion.
- These clarifications may include text, tables and figures to address the PMWs and to provide additional information. The requirements and constraints of the clarification process will be addressed in the Pre-proposal Web Conference (SOMA presentation) and in the Earth Systems Explorers Evaluation Plan found in the Earth Systems Explorers Homepage.

Categorization

- Category I. Well conceived and scientifically and technically sound investigations pertinent to the goals of the program and the AO's objectives and offered by a competent investigator from an institution capable of supplying the necessary support to ensure that any essential flight hardware or other support can be delivered on time and data that can be properly reduced, analyzed, interpreted, and published in a reasonable time. **Investigations in Category I are recommended for acceptance and normally will be displaced only by other Category I investigations.**
- Category II. Well-conceived and scientifically or technically sound investigations which are recommended for acceptance, but at a lower priority than Category I.
- Category III. Scientifically or technically sound investigations which require further development. Category III investigations may be funded for development and may be reconsidered at a later time for the same or other opportunities.
- Category IV. Proposed investigations which are recommended for rejection for the particular opportunity under consideration, whatever the reason.

Questions

All questions pertaining to the ESE AO

MUST

be addressed to:

Thorsten Markus

Thorsten.markus@nasa.gov

Potential Major Weakness Clarifications

PMWs Clarification Process: Modified from Previous AOs

Section 7.1.1 of the EVM-3 AO states that “Proposers should be aware that, during the evaluation and selection process, NASA may request clarification of specific points in a proposal; if so, such a request from NASA and the proposer’s response must be in writing. ... Proposers will be allowed up to six pages (with some restrictions) for clarifications of PMWs associated with the Scientific Implementation Merit and Feasibility of the Proposed Investigation evaluation criterion and up to six pages (with some restrictions) for clarifications of PMWs associated with the TMC Feasibility of the Proposed Mission Implementation evaluation criterion. These clarifications may include text, tables and figures to address the PMWs and to provide additional information.”

Please note that the Potential Major Weaknesses (PMWs) clarification process is a significant modification from the process previously utilized for AO Step 1 or Single-Step evaluations.

PMWs Clarification Process Requirements (2 of 4)

Requirement 3: The Clarification Response Document shall be presented in 8.5 x 11 inch paper (or A4). Text shall not exceed 5.5 lines per vertical inch and page numbers shall be specified. Margins at the top, both sides, and bottom of each page shall be no less than 1 inch if formatted for 8.5 x 11 inch paper; no less than 2.5 cm at the top and both sides, and 4 cm at the bottom if formatted for A4 paper. Type fonts for text, tables, and figure captions shall be no smaller than 12-point (i.e., no more than 15 characters per horizontal inch; six characters per horizontal centimeter). Fonts used within figures shall be no smaller than 8-point.

Requirement 4: The Clarification Response Document shall not exceed a total of six pages per criteria , i.e., six for Scientific Implementation Merit and Feasibility of the Proposed Investigation, and six for the TMC Feasibility of the Proposed Mission Implementation. Text, table(s) and figure(s) are permitted, however all material shall be within the six page limit per criteria and limitations in Requirement 3.

PMWs Clarification Process Requirements (1 of 4)

Clarifications Responses must conform to the following requirements:

Requirement 1: Proposers shall submit only one Clarification Response Document per criteria , i.e., one for Scientific Implementation Merit and Feasibility of the Proposed Investigation and one for the TMC Feasibility of the Proposed Mission Implementation.

Requirement 2: The Clarification Response Document shall be a single unlocked (e.g., without digital signatures) searchable Adobe Portable Document Format (PDF) file, composed of the response text, figures, and/or tables. Images (e.g., figures and scans) shall be converted into machine-encoded text using optical character recognition. Animations shall not be included. Links to materials outside of the response are not permitted. Do not insert any comment fields.

PMWs Clarification Process Requirements (3 of 4)

Requirement 5: The Clarification Response Document shall not contain International Traffic in Arms Regulations (ITAR), Export Administration Regulations (EAR), or classified material.

Requirement 6: Each PMW shall be addressed and each clarification response labelled with the PMW number provided. Each PMW clarification response shall only contain information relevant to the PMW.

Requirement 7: The proposers are free to provide any additional information on any criteria or requirements relevant to the proposed mission, e.g., for TMC Feasibility of the Proposed Investigation Implementation, advances in proposed technologies since proposal submission. However, this response together with the PMW clarification responses shall fulfill requirements above and not exceed the six total page limitation per Clarification Response Document.

PMWs Clarification Process Requirements (4 of 4)

Requirement 8: In support of each PMW clarification response, proposers shall not provide more than two references; references are restricted to peer reviewed literature. In support of any additional information response, proposers shall not provide more than three additional references; references are restricted to peer reviewed literature. Proposers shall not provide URLs with any of the responses.