



EVM-3 Announcement of Opportunity and Science Evaluation

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Introduction

Purpose of this Presentation

1. Present to the community the EVM-3 (EVM-3) Announcement of Opportunity (AO), and highlight the evaluation process.
2. To collect comments and answer questions.

Important Note: This EVM-3 AO is based on SMD's Standard PI-Led Mission AO. However, it incorporates a large number of changes relative to the standard template as well as previous ESSP Program AOs including both policy changes and changes to proposal submission requirements. **All proposers must read this AO carefully, and all proposals must comply with the requirements, constraints, and guidelines contained within this AO.**



EVM-3 AO Overview

- The EVM-3 AO has many similarities to the EVM-2 AO and SMD's Standard PI-Led Mission AO
 - **Single-Step Evaluation & Selection Process**
- **PI-managed Mission Cost Cap** - \$190M in FY 2022 dollars
- **Life Cycle Schedule** - Development not to exceed 5 years from selection announcement to launch readiness
- **Access to Space available to Proposers**
 - NASA-provided launch for ELV related payloads (reduces PI Managed Cost Cap by \$61M)
 - NASA-provided launch for Commercial FAA Licensed Launch Vehicle related payloads (reduces PI Managed Cost Cap by \$12M or \$22M, pending the payload mass and orbit desired)
 - Non NASA-provided launch US or non-US primary, secondary, or co-manifested payload
 - NASA-provided ride share on an ESPA-type launch provided with costs up to \$25M against the PI Managed Cost Cap
 - Non NASA-Provided (PI arranged) ride share.
 - **Potential hosted Payloads (both ISS and other platforms) are solicited in the EVI element and not in this AO**
- **Standard NASA Earth Science Data Policy**
- **Education/Public Outreach Plan:** costs only must be identified



EVM-3 AO Overview

Complete Spaceflight Mission

- Complete PI led mission and is cost capped at \$190M in FY 2022 dollars
- Proposals must identify and define an access to space identification, may be either PI-provided or NASA-provided with a multiple options to be held against the PI-managed Cost Cap.
- All phases of the project life must be identified scheduled and costed (formulation, development, implementation, operations and support of data archiving and closeout).
- All missions must collect data from a spaceborne platform

Principal Investigator led Mission

- The PI is accountable to NASA for the success of the investigation, with full responsibility for its scientific integrity and for its execution within committed cost and schedule.
- Essential NASA oversight to ensure that the implementation is responsive to NASA requirements and constraints.
- Technology development is not expected.



EVM-3 AO Overview

- **Limits on non-NASA or non-US contributions**
 - The Standard AO limit of 1/3 of the PIMCC of non-NASA contributions is allowed, including a contribution of access to space is permitted
 - Enabling partnerships are encouraged, however the stability & reliability of the partnership will be considered as a risk element in the proposal

- **Risk Classification** - Mission Category 3 (<\$250M, low priority), Payload Class D allowable

- **Applied Science**
 - Proposers shall describe a plan and budget for applications. In some science investigations, applications are not possible. In such cases, the proposer shall explain and justify why there is no viable application dimension to the investigation.



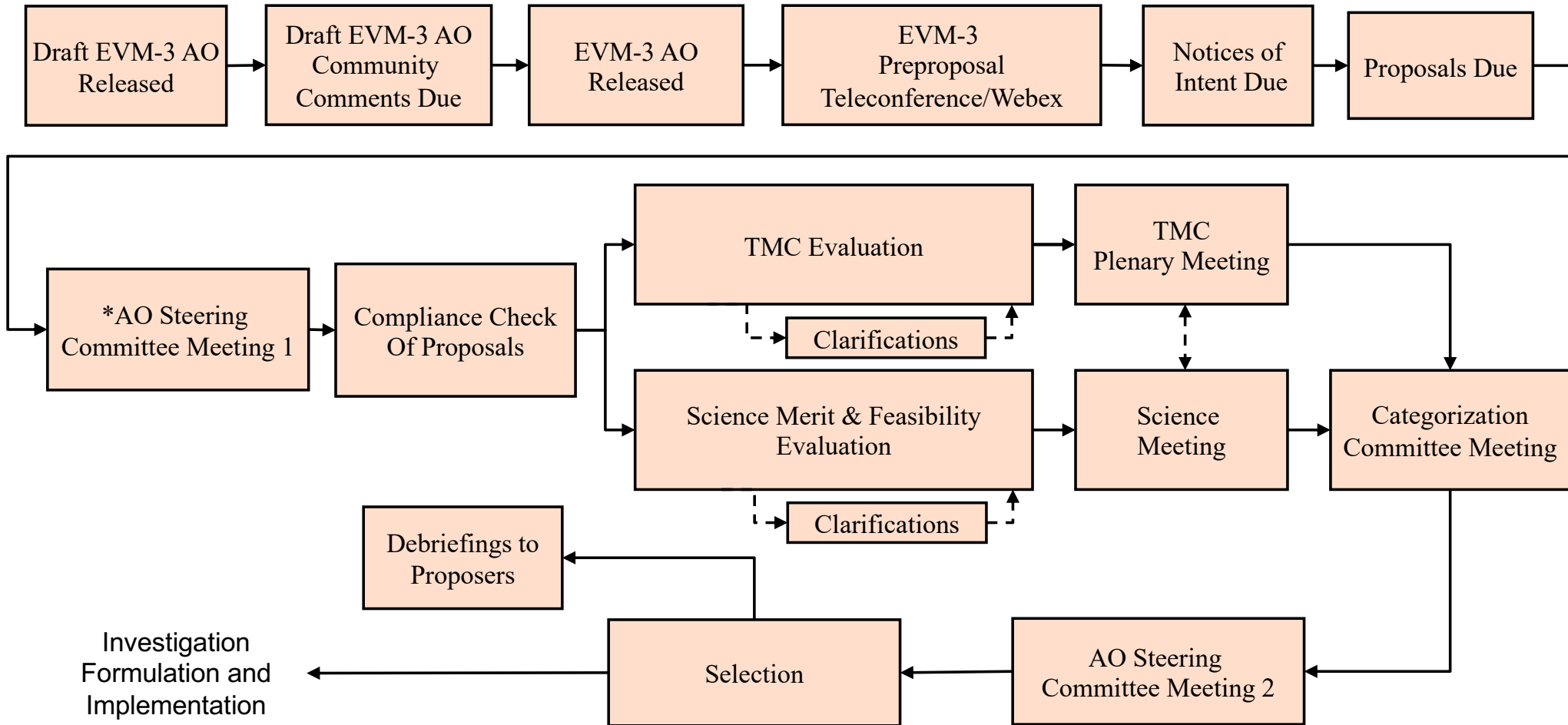
NOAA's Operational Enhancement Opportunity

Earth Venture Mission-3
Prospective Bidders
Teleconference/WebEx

NOAA is interested in investing into the selected investigation **IF** it aligns with their mission **AND** the selected investigation team wishes to enhance the operational use of their data. We are calling this an Operational Enhancement Opportunity (OEO)

- The proposers are invited to include, separate from the proposal, a short description of their concept for the potential operational use of the mission data set and an envisioned budget.
- This addition will NOT be part of the NASA evaluation criteria.
- The NASA evaluators will NOT see the OEO addendum.
- NOAA will use this document to make an initial assessment of the selected proposal to decide if they wish for the team to submit a complete proposal for the OEO.
- If an OEO is “selected” from the selected NASA mission, details of how the procurement will work will vary depending on the institution.
- NOAA will invest up to \$20M into the OEO activity.

EVM-3 AO Solicitation, Evaluation and Selection Flow



*Or an alternative simplified procedure such as one or more direct meetings with the NASA SMD DAAR.



Compliance

- All proposals will be initially screened to determine their compliance to requirements and constraints of this AO.
- Proposals that do not comply may be declared noncompliant and returned to the proposer without further review. A submission compliance checklist is provided in Appendix F.



EVM-3 Applications Plan Requirement

Like EVM-2, a requirement exists regarding an Applications Plan. In particular:

“To enable the realization of societal and economic benefits from Earth observations, proposals are required to articulate, to the extent possible, potential innovative and practical applications of the mission data and a plan to engage those users that would use mission data to inform their decisions and actions. Proposers are referred to the *2016 Directive on Project Applications Program* in the EVM-3 Library for further information.

NASA recognizes that, in some science investigations, applications are not possible. In such cases, the proposer is required to explain and justify why there is no viable application dimension to the investigation.”

Requirement 12. The proposal shall describe:

- Innovative and practical applications of the data that will be collected and disseminated.
- How users will be engaged.
- How the project will adapt to new application opportunities that may emerge.
- How the project will coordinate applications activities with NASA.
- A budget for implementation of the activities listed in the above bullets.
- Or, a justification as to why there is no viable application dimension to the investigation



EVM-3 AO Review Highlights

Earth Venture Mission-3
Prospective Bidders
Teleconference/WebEx

Proposal Evaluation, Selection, and Implementation (Section 7)

7.1 Overview of the Proposal Evaluation and Selection Process

7.2 Evaluation Criteria

7.2.1 Overview of Evaluation Criteria

7.2.2 Scientific Merit of the Proposed Investigation (4 factors)

7.2.3 Scientific Implementation Merit and Feasibility of the Investigation (5 factors)

7.2.4 TMC Feasibility of the Mission Implementation, Including Cost Risk (5 factors)



EVM-3 Evaluation Criteria

The evaluation criteria as defined in the EVM-3 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.

- This Science Panel will evaluate proposals relative to NASA ESD Research Goals, emphasizing innovative science.
- All Earth Science topics are applicable. The science questions as defined in the 2017 Decadal Survey will serve as a 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.
- Factor A-2.** Programmatic value of the proposed investigation.
- Factor A-3.** Likelihood of scientific success.
- Factor A-4.** Scientific value of the Threshold Science Mission.

Factors A-1 through A-3 are evaluated for the Baseline Science Mission assuming it is implemented as proposed and achieves technical success. Factor A-4 is similarly evaluated for the Threshold Science Mission.

*Refer to Section 7.2.2 of the EVM-3 AO for details.



EVM-3 Applications Plan Criteria

“7.2.2 Scientific Merit of the Proposed Investigation

The information provided in a proposal will be used to assess the intrinsic scientific merit of the proposed investigation. Scientific merit will be evaluated for the Baseline Science Mission and the Threshold Science Mission; science enhancement options beyond the Baseline Science Mission will not contribute to the assessment of the scientific merit of the proposed investigation. The factors for scientific merit include the following:

Factor A-1. Compelling nature and scientific priority of the proposed investigation's science goals and objectives. This factor includes the clarity of the goals and objectives; how well the goals and objectives reflect program, **Agency, and national priorities; the potential scientific impact of the investigation on program, Agency, and national science and applications objectives;** and the potential for fundamental progress, as well as filling gaps in our knowledge relative to the current state of the art.

Factor A-2. Programmatic value of the proposed investigation. This factor includes the unique value of the investigation to make scientific progress in the context of other ongoing and planned missions; the relationship to the other elements of NASA's science **and applications programs; how well the investigation may synergistically support ongoing or planned missions by NASA and other agencies;** and the necessity for a space mission to realize the goals and objectives.

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.
- Factor B-2.** Probability of technical success.
- Factor B-3.** Merit of the data analysis, data availability, and data archiving plan.
- Factor B-4.** Science resiliency.
- Factor B-5.** Probability of science team success.

*Refer to Section 7.2.3 of the EVM-3 AO for details.

Potential Major Weaknesses 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 (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 (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 (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.



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 (e.g., an inadequate or flawed plan of research or lack of focus on the objectives of the AO).



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 draft EVM-3 AO

MUST

be addressed to:

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