

Dynamical Neutral Atmosphere-Ionosphere Coupling Frequently Asked Questions

Categories of Questions

Science (S)
 Technology (T)
 Management and Schedule (M)
 Cost (C)
 Proposal Evaluation (E)
 Proposal Submission (P)
 Other (O)

Change Log		
Rev.	Date	Description of Changes
01	10/25/21	Added S-1, M-1, P-1
02	12/07/21	Updated P-1; added S-2, T-1, T-2, M-2, C-1, E-1, E-2
03	12/9/22	Updated M-1, M-2, C-1, E-1, E-2
04	1/17/23	Added S-3, S-4, T-3
05	3/10/23	Added T-4, T-5
06	3/29/23	Added S-5
07	4/12/23	Added S-6
08	4/19/23	Added S-7, M-3, E-3, E-4, O-1
09	4/21/23	Added S-8 through S-16 as well as T-6, C-2
10	4/27/23	Corrected S-7 question.
11	5/19/23	Added C-3, C-4.
12	5/25/23	Added P-2.
13	6/1/23	Added S-17
14	6/15/23	Added questions received at the Pre-Proposal conference: S-18 to S-19, M-4 to M-6, E-5 to E-7, and O-2.
15	7/10/23	Added C-5

Science

S-1. The DYNAMIC Acquisition Process Planning Information (released October 19, 2021) references the 2013 Solar and Space Physics Decadal Survey's description of DYNAMIC's goal to "substantially advance understanding of the variability in

space weather driven by lower-atmosphere weather on Earth". What specific meaning does "lower-atmosphere weather" have in this context?

NASA does not intend to conduct any refinement or redefinition of the scope of the DYNAMIC science from the decadal survey. The 2013 Solar and Space Physics Decadal Survey described the meaning of "lower-atmosphere weather" in its discussion of the DYNAMIC science investigation (p. 99 of that document).

S-2. The Community Announcement (released 10/19/21) states an incentive to accommodate a Government-Furnished Equipment (GFE) auroral imager. If the cost of accommodating the instrument exceeds the incentive, does NASA expect proposals to descope the DYNAMIC science to accommodate the instrument?

No.

S-3. The Community Announcement (released 12/9/2022) stated that “[i]nvestigations must propose focused science objectives that they would complete and that would make specific advances on the broad science questions prioritized for the DYNAMIC mission by the 2013 Solar and Space Physics Decadal Survey (p. 100).” The 2013 Solar and Space Physics Decadal Survey’s discussion of DYNAMIC Science Question #5 in the AIMI (Atmosphere-Ionosphere-Magnetosphere Interactions) panel report included the quantification of the effect of increasing CO2 on global thermospheric circulation. Is there an expectation that a three-year DYNAMIC investigation would definitively quantify long-term, global changes?

As stated, the decadal survey identified high-level goals (phrased as science questions), which can not be completed by any single mission. Each individual investigation has science objectives, which are a narrowly focused part of a strategy to achieve a goal.

Proposed investigations must achieve their proposed objectives in their prime Phase E (e.g. three years), and are expected to make progress towards a goal without fully achieving it.

S-4. Would a proposal be deemed non-compliant if it uses historical data in the completion of the DYNAMIC science objectives?

NASA has not given a blanket prohibition on the use of non-DYNAMIC data, and previous versions of the Standard AO Template have not included such a prohibition. The use of data provided outside of the mission would be examined in the context of risks.

S-5. The Draft AO, in Requirements 3 through 5, do not provide enough detail on requirements flow-down and what is expected from proposals. This leads to the following sub-questions:

- 1. Why does the AO not include a section on scientific hypotheses on how they should be incorporated in the proposal?**

2. Can the page count be increased (either directly or by the addition of an Appendix) to permit the inclusion of a full requirements matrix??

The Draft AO includes a level of detail appropriate for the requirements on and expectations for Step-1 proposals. This leads to the following answers for the sub-questions:

1. The Draft AO requires that the proposal include investigation science objectives. Those objectives may focus on the testing of a hypothesis, but that is not the only type of objective permitted.
2. Step-1 proposals are not required to include the full requirements flow-down. The Step-1 proposal instead focuses on the Science Traceability Matrix (Requirement B-17) and the Mission Traceability Matrix (Requirement B-29). By contrast, Step-2 submissions typically include a full section on Level 1 Requirements and a full Appendix on Level 2 Requirements. The draft *Criteria and Requirements for the Phase A Concept Study Report* document is planned for release with the final AO.

Additional guidance on Level 1 and Level 2 Requirements, and the associated traceability, can be found in the PI Masters Forum materials.

- PI Masters Forum #11: <https://soma.larc.nasa.gov/pi-masters-forums/pi-masters-forum-10/index.html>
- Level 1, Level 2 Requirements: https://soma.larc.nasa.gov/pi-masters-forums/pi-masters-forum-10/pdf_files/11_Level_1-2_Reqs_Leisner_20201007.pdf.

S-6. The Draft AO, in Section 5.1.6, states that Citizen Science may only be included “for the anticipated scientific results...that will provide a necessary contribution to project-managed activities.” This leads to the following sub-questions:

1. What are considered “project-managed activities”?
2. Is public communications and outreach a valid project-managed activity?

The Draft AO identifies specific activities that may be proposed as part of the project during pre-Phase A and Phase A (Step 1 and Step 2). This leads to the following answers for the sub-questions:

1. The project-managed activities for which Citizen Science may be included in Step-1 proposals and Step-2 CSRs are defined in AO Section 5.1.6. They are the Baseline Science Investigation, incentivized activities (e.g., Student Collaboration), and invited Option/Opportunity (e.g., SEO).
2. Public communications and outreach is not a project activity that is discussed in a Step-1 proposal or Step-2 CSR. The Draft AO, in Section 4.1.3, states that communications and outreach will be developed in Phase B as part of the Communications Plan. A Citizen Science activity aimed solely at public communications and outreach can be considered at that time.

S-7. The Draft AO in Section 5.1.5 states “NASA assumes that all down-selected missions will be accompanied by Guest Investigator/Guest Observer/Participating Scientist programs, as applicable” and “SEOs will only need to be described in Concept

Study Reports if they are atypical”. This leads to the following sub-questions [corrected 4/27/2023]:

- 1. Does NASA intend to say that it assumes that proposals will include a Guest Investigator/Guest Observer/Participating Scientist (GI/GO/PS) program? If so, does that mean NASA requires proposals to include them?**
- 2. Would a proposed GI/GO/PS program have an advantage for funding ahead of other SEOs that a proposal includes?**
- 3. In the second quoted sentence, what is the definition of "atypical"?**

Section 5.1.5 identifies Guest Investigator, Guest Observer, and Participating Scientist programs, and also mission extensions. These activities are not proposed as parts of investigations. They are activities formulated and managed by SMD, and they are funded outside of the project budget. This leads to the following answers for the sub-questions:

1. No. Investigations do not control those programs and should not propose them.
2. These programs are not proposed, managed, or funded by a project. They do not affect the selection decision for proposed SEOs.
3. The word “atypical” refers to activities that are neither a Guest Investigator/Guest Observer/Participating Scientist program nor a mission extension.

These points will be clarified in the Final AO.

S-8. The Draft AO discusses the evaluation of Citizen Science (CS) for different aspects of a proposal. Section 5.1.6 states “The execution of CS that is included in the Baseline Science Investigation will be evaluated in the A and B Factors”. Section 5.1.5 states “The requirements associated with Science Enhancement Options (SEOs) are deferred to Step 2”. Section 5.5.2 states “The requirements associated with Student Collaboration (SC) are deferred to Step 2”. Section 5 does not discuss CS as a part of communications and outreach activities. This leads to the following sub-questions:

- 1. For CS that is not part of the Baseline Science Investigation, are proposals required to discuss the CS in the Step 1? If not, when will proposers be required to provide that information?**
- 2. If CS is part of a proposal aspect that is delayed to Step 2, should the proposal still include the CS Plan appendix in Step 1?**

Evaluation of Citizen Science is part of the evaluation of the project activities it supports. This leads to the following answers for the sub-questions:

1. No. CS that is proposed as part of an SEO will be described and evaluated with the SEOs in Step 2. CS that is proposed as part of a SC will be described and evaluated with the SC in Step 2. Question S-6 addresses CS that has communication and outreach as the sole goal.
2. No. A CS Plan appendix is required in Step 1 only for CS that is part of the Step-1 proposal. CS that is part of an SEO or a SC will be described in the CS Plan appendix that accompanies the Concept Study Report (CSR) in Step 2.

- S-9. The Draft AO in Section 5.1.6 states “CS may only be included in a proposal for the anticipated scientific results that it would produce and that will provide a necessary contribution to project-managed activities. It is held to the same rigorous standards as any other aspect of a project”. This leads to the following sub-questions:**
- 1. Does the term “necessary” contradict the stated framework of CS being an optional part of an optional SEO or SC, or of communications and outreach?**
 - 2. What does “rigorous standards” mean in the context of a flight project?**

Both the terms “necessary” and “rigorous standards” refer to the proposer's description of and the evaluation of CS. This leads to the following answers for the sub-questions:

1. No. For CS proposed as part of a Science Enhancement Option (SEO) or a Student Collaboration (SC), “necessary” means necessary to achieve the objectives of the SEO or SC. (Note: Question S-6 addresses CS that has communication and outreach as the sole goal.)
2. For CS proposed as part of the Baseline Science Investigation, the same standards apply as for the Baseline Science Investigation. For CS proposed as part of a SEO, the same standards apply as for SEOs. For CS proposed as part of a SC, the same standards apply as for SCs.

- S-10. The Draft AO for DYNAMIC addresses Citizen Science (CS) differently than the recently released Heliophysics SMEX 2022. Does this change in solicitation imply a change in expectations and/or desires on the part of NASA? This leads to the following sub-questions:**

- 1. How is CS beyond the Baseline Science Investigation supposed to be funded without a separate incentive option?**
- 2. Will a CS-specific incentive be offered for CSRs?**

No, the change in solicitation is not reflective of a change in expectations or desires. It transitions CS from something outside of normal AO structures to something that is in-scope for established NASA activities. This leads to the following answers for the sub-questions:

1. CS can be proposed as part of an optional activity in the CSR (e.g., Student Collaboration, Science Enhancement Option) or as part of the Communications and Outreach Plan (see Draft AO Section 4.1.3, Question S-6). As these activities are outside of the PIMMC, a selection by NASA of these activities would be accompanied by additional funding.
2. No.

- S-11. The Draft AO in Section 5.5.2 discusses Student Collaborations, but does not mention Citizen Science. Is that a deliberate omission that signals that NASA is not soliciting Citizen Science as a part of a Student Collaboration?**

No. In Section 5.1.6, the draft AO explicitly states that Citizen Science can be part of a Student Collaboration provided that the Citizen Science is necessary for the Student Collaboration's completion.

S-12. The Draft AO discusses the Citizen Science (CS) content in both Section 5.1.6 and Appendix J.16. These two parts of the AO are not completely identical, and they are both similar but not identical to SPD-33, Section V (Procedures). Why are there differences?

Section 5.1.6 provides a high-level framing for CS in a proposal and requires that proposals with CS include a Citizen Science Plan (described in Appendix J.16). Appendix J.16 then provides the specific details that must be provided.

These are similar but not identical to text in SPD-33 because they are documents with different audiences and different purposes. The AO is aimed at proposers and requires a plan for how the CS activities would be conducted. SPD-33, Section V, levies requirements on how SMD Divisions manage CS activities after selection. A selected CS activity's progress against the plan would be assessed at the one-year review (identified in Section 5.1.6).

S-13. The Draft AO in Appendix J.16 uses the term “plan” in a way that may be confusing. The appendix calls for the “Citizen Science Plan” (all capitalized), an “engagement and utilization plan” (all lower case), a “back-up plan” (for proposed new platforms), and a “sunset plan” (all lower case). How many different plans are required?

The Draft AO requires one Citizen Science Plan, which consists of two parts: an engagement and utilization plan (see Requirement B-76), and a sunset plan (see Requirement B-77). With regards to the development of new platforms, “backup plan” means a backup/alternative/contingency plan in the same way as in other sections of the AO.

This language will be clarified in the Final AO.

S-14. The Draft AO in Requirement B-76, item (c)(iii), calls for “a backup to existing platforms [...] if new developments are not approved.” This leads to the following sub-questions:

- 1. What is the approval process for new platforms for Citizen Science (CS)?**
- 2. Can a proposal argue, in response to item (c)(i), that there is no existing platform that meets the CS' needs and a new platform needs to be developed? If so, can that proposal's Citizen Science Plan not address item (c)(iii)?**

Requirement B-76, item (c)(iii), logically follows from the statement in SPD-33, Section IV(d), that the “[d]evelopment of new platforms and/or building of new communities will be considered on a case-by-case basis by the review panel.” As in other activities solicited by the AO, NASA has the right to select some, all, or none of a proposed CS effort. This leads to the following answers to the sub-questions:

1. The evaluation process will consider any proposed development of new platforms. The approval of that development belongs to NASA.

2. Yes, a proposal can make that argument. However, a proposal's Citizen Science Plan must still address item (c)(iii). Requirement B-76, item (c)(iii), also calls for a "discussion of project degradation [...] if new developments are not approved."

S-15. The Draft AO in Section 5.1.6 states "As part of ensuring project compliance with requirements and standards, SMD will perform an assessment after the first year of open collaboration with citizen scientists." Does SMD work with the Science Engagement and Partnerships (SE&P) Division for this, as detailed in SPD-33?

Yes. The SE&P Division is part of SMD.

S-16. The Draft AO in Section 5.1.6 invites proposals to incorporate Citizen Science (CS). Does the Heliophysics Division have a strategy for CS that the proposers can use as a reference?

The Heliophysics Division's CS strategy applies at the Division level and does not include specific guidance for proposers. Links to NASA CS resources will be added to the Program Library.

S-17. The AO in Section 5.1.6 discusses how Citizen Science (CS) can be incorporated into a proposal. This leads to the following sub-questions:

1. Does NASA expect or recommend every proposal to include a CS component?
2. How should a proposal team go about finding potential CS collaborators?

The AO provides instructions on how proposals can include CS as a modality to complete the proposed project activities. This framework enables proposers to leverage CS within their proposal, but does not prescribe any particular use of CS. This leads to the following answers for the sub-questions:

1. NASA does not have expectations or recommendations for proposers with regards to CS. Proposers should determine the most appropriate use, if any, within their proposal.
2. NASA is not a party to the development of partnerships. For general teaming interests, NASA provides the [Teaming Interest](#) page as a resource for interested organizations. Not linked to this competition, the NASA Citizen Science Leaders Series and the [NASA Citizen Science](#) page list individuals involved in and projects involving CS.

S-18. The AO in Section Factor A-1 (Section 7.2.2) assesses the "[s]cientific value and priority of the proposed investigation's goals". However, the DYNAMIC goals (also called science questions) are defined in the 2013 Decadal Survey. This leads to the following sub-questions:

1. Can the investigation goals be different than the Decadal Survey-defined DYNAMIC goals?
2. If the investigation goals are a verbatim subset of the Decadal Survey-listed DYNAMIC goals, will Factor A-1 be assessed as "as expected"?

The AO defines the relationship between investigations goals and the 2013 Decadal Survey. Requirement 3 states that proposals “shall describe a science investigation with goals and objectives that address the program science objectives described in Section 2”. Section 2.3 states that “investigations must address the decadal-recommended DYNAMIC science questions” and requires “investigations to complete focused science objectives that would represent a compelling advance on the high-level DYNAMIC science goals identified in the [2013 Decadal Survey].”

This leads to the following answers to the sub-questions:

1. Proposals are expected to tailor their investigation goals within the umbrella provided by the 2013 Decadal Survey, but to reflect scientific advances since the decadal survey’s completion and to better align with their investigation objectives. The AO references above require that investigation goals address the high-level DYNAMIC science goals in the 2013 Decadal Survey. There is no requirement that a proposal address all decadal-recommended science goals or every aspect of any particular decadal-recommended science goal.
2. Proposers are responsible for ensuring that investigation goals align with the AO requirements and expectations, including those assessed in Factor A-1. Section 2.3 refers to the 2013 Decadal Survey's DYNAMIC goals as “high-level” and Requirement 3 calls for investigation goals that address them. Factor A-1 includes the assessment of “the specificity of investigation goals such that measurable progress could be made against them” separately from “the significance of the investigation goals in making progress on the program priorities.” For the DYNAMIC AO, one program priority is addressing the decadal-recommended DYNAMIC science goals.

S-19. The AO states in Section 5.1.2.2 that proposals that would accommodate the NASA-provided Auroral Imager may use those data in their science investigations. NASA provided the *Auroral Imager Accommodation Parameters and Measurement Capabilities* document that listed enveloping technical and science observation specifications.

Will a revised performance table be provided with updated capabilities tied to an actual instrument?

The *Auroral Imager Accommodation Parameters and Measurement Capabilities* document states these further details will follow during Phase A.

NASA has not yet identified a particular instrument from which to draw specific details. The AO, and accompanying document, provided scientific, technical, and programmatic information that envelopes a set of likely, potential instruments.

Technology

- T-1. The Community Announcement (released 10/19/21) states an incentive to accommodate a Government-Furnished Equipment (GFE) auroral imager. However, this leads to the following sub-questions:**
- 1. Should proposals assume that one or two instruments would be provided?**
 - 2. Would the instrument provider provide support to the DYNAMIC project?**
 - 3. How would the instrument data be handled? Would the instrument provider be responsible for processing and delivering the final data products? Would DYNAMIC be responsible for archiving the data products?**

The answers for each of the sub-questions are as follows:

1. Two.
2. Yes. The instrument provider would engage in pre-integration discussions during development, provide on-site support during integration, and provide post-integration support (through operations).
3. The instrument provider would be responsible for data processing and for delivering the final data products. The DYNAMIC project would be responsible for delivering of the downlinked data, and for receiving and archiving the final data products.

- T-2. The Community Announcement (released 10/19/21) states that investigations could assume the use of up to two ESPA ports. Can an investigation propose using only one spacecraft?**

The Community Announcement does not specify a particular mission implementation. The SALMON-3 AO requires an investigation that would be completed using the accompanying mission implementation. The Community Announcement stated that "[i]nvestigations must propose focused science objectives that they would complete and that would make specific advances on the broad science questions prioritized for the DYNAMIC mission by the 2013 Solar and Space Physics Decadal Survey (p. 100)." Further details on requirements on the proposed DYNAMIC science investigation would be in a draft DYNAMIC solicitation.

- T-3. The Community Announcement (released 12/9/22) states that investigations could assume the use of up to two ESPA ports. Is an investigation required to have exactly two observatories and have one observatory on each ESPA port?**

No. NASA limits investigations to two ESPA ports, but does not prescribe the number of observatories or their distribution across the ESPA ports.

- T-4. The Community Announcement (released 12/9/2022) provides launch considerations and states that the proposed flight system must be able to accomplish the proposed investigation following an initial injection anywhere in the provided ranges. This leads to the following three sub-questions:**
- 1. Can an investigation require that NASA inject the proposed flight system into a specific subset of the provided ranges? (e.g. altitude of 500-600 km, inclination of 80 to 82 deg)**

2. **Can an investigation require that NASA inject the proposed flight system into an orbit outside of the provided ranges? (e.g. inclination of 75 deg)**
3. **How will a flight system that requires injection into a subset of the provided ranges or outside of the provided ranges be evaluated?**

The Community Announcement stated that the proposed flight system must be able to accomplish the proposed investigation following an injection anywhere in the provided ranges. The flight system would then be required to include any propulsive capability to transition to the proposed science orbit(s). This leads to the following answers to the sub-questions:

1. No.
2. No.
3. A proposal that does not meet a specific requirement of an AO should be expected to receive a weakness on its evaluation form.

- T-5. The Community Announcement (released 12/9/2022) provides launch considerations and states that the proposed flight system must be able to accomplish the proposed investigation following an initial injection anywhere in the provided ranges. What was the source of those ranges?**

Those ranges envelope an anticipated Government primary launch that could be available for the DYNAMIC rideshare. The range was provided to require investigations to remain flexible with regards to launch opportunities.

- T-6. The Draft AO has deferred some technical requirements until Step 2 (e.g., Space Systems Protection, compliance with RF bandwidth limits, critical events coverage). Can a proposal team postpone the development of those aspects of the design to Phase A, as long as we envelop the key technical design elements in Step 1 at a level sufficient to establish feasibility of the overall mission concept within the proposed resources (technical, schedule and cost)?**

Yes. A project proposed in Step 1 must be designed and planned to meet all applicable requirements, with a level of design maturity consistent with pre-Phase A. The evaluation criteria, including the Form C criteria (AO Section 7.2) apply in that context. For AO requirements that are marked deferred, the intent is not to waive technical requirements on the project as they may have to be considered early in development for proper planning. What NASA has deferred is discussion of specific details in the proposal, and the evaluation of those details. For costing aspects, see question C-2.

Management and Schedule

- M-1. The DYNAMIC Acquisition Process Planning Information (released October 19, 2021) describes a two-step solicitation process with a competitive Phase A and down-selection for Phase B. The selection for the competitive Phase A in May 2023 (est.), but when would the down-selection for the non-competitive Phase B occur?**

[Updated 12/9/22, clarified that the expected schedule is given in the Third Community Announcement.]

The expected date for the down selection is now listed as part of the Third DYNAMIC Community Announcement. All dates are subject to change.

- M-2 The Community Announcement (released 10/19/21) states that DYNAMIC would be formulated as a rideshare to launch with GDC. How would a delay in the GDC schedule affect DYNAMIC? [Updated 12/9/22, pointed to updated planning information in the Third DYNAMIC Community Announcement.]**

The schedule aspects of the DYNAMIC formulation are discussed in the Third DYNAMIC Community Announcement [*Science/GDC constellation, measurements; Technology/Rideshare Payload (RPL) parameters; Technology/Launch considerations; Cost/Storage costs*].

- M-3. The Draft AO sets expectations for a DYNAMIC launch coordinated with the GDC launch. Can the DYNAMIC schedule be decoupled from GDC?**

No. Proposals shall assume the launch opportunity described in the AO (Sections 5.9.2 and 5.9.3).

- M-4. The AO in Section 2.3 invites proposals where a DYNAMIC investigation would be dependent on GDC. Does this link to GDC mean that the DYNAMIC solicitation must wait on GDC selections?**

NASA is moving forward with the DYNAMIC schedule described in the AO. There is no active or planned GDC acquisition that would impact the DYNAMIC solicitation schedule.

- M-5. The AO in Section 5.9.3 suggests that only monitoring activities are allowed within the required storage plan. This appears to be in tension with Requirement 104's call for the "retention of necessary expertise". Can project funds be used to support the project team during this storage period?**

As the AO states in Section 5.9.3, the storage plan must be sufficient to maintain the project team's readiness during the storage period (Requirement 104). Monitoring is provided as an example of a permitted activity, not as the only permitted activity. The plan can include "any necessary activities of key personnel to maintain the integrity of the investigation".

However, the storage period is not funded schedule reserve. It is not available for any essential development activities. (Also see M-6.).

- M-6. The AO discusses in Section 5.9.3 when projects are ready to deliver to the launch vehicle integrator, storage of the observatories, and retaining flexibility in launch**

dates. Requirement 102 states that projects must be ready to deliver to the launch vehicle integrator no later than 31 December 2028. Requirement 103 states that proposals must include a plan for twelve months of storage followed by three months of ramp-up to launch. Do Requirement 103's fifteen months begin or end on the delivery readiness date?

The fifteen months begin on the delivery readiness date.

Cost

- C-1. The Community Announcement (released 10/19/21) states a \$10M incentive to accommodate a Government-Furnished Equipment (GFE) auroral imager. How will that \$10M be applied against the cost cap? [Updated 12/9/22, pointed to updated planning information in the Third DYNAMIC Community Announcement.]**

As stated in the Third DYNAMIC Community Announcement, the \$10M incentive is to be considered an adjustment to the AO Cost Cap. Any additional cost requirements specific to this incentive will be included in the DYNAMIC solicitation.

- C-2. The Draft AO says in Section 1.1 that “Proposals are expected to account for expected resources needed to meet the requirements that have been deferred to Step 2.” and in Requirement B-51 that “These costs shall encompass the resources necessary to meet the requirements that have been deferred to Step 2, even though detailed bases of estimates for those elements are not required in Step 1.” What information does NASA expect proposals to include for cost elements that are not discussed in the proposal?**

NASA will not perform cost validation at the individual requirement level and does not expect cost information at that granularity. NASA expects proposals to include the costs associated with requirements that have been deferred to Step 2 at the level of accuracy most appropriate to the maturity of the mission design and project plans. The resources needed to meet the requirements (whether technical, schedule or cost) can be indicated as allocations in the proposal sections most relevant.

- C-3. The Draft AO in Section 4.6.2 indicates a \$1.5M reimbursement if a proposer implements ANSI/EIA-748-compliant EVM. This leads to the following sub-questions:**
- 1. Does the reimbursement apply to proposed projects with a PIMMC greater than \$200M (FY23)?**
 - 2. Does the reimbursement apply to proposed projects with a PIMMC lower than \$120M (FY23)?**
 - 3. For a project with a proposed PIMMC lower than \$200M (FY23), ANSI/EIA-748-compliant EVM is optional on NASA in-house portions of the**

work. If the project chooses to perform it nonetheless, does the reimbursement apply?

The goal of the reimbursement allowance is to level the playing field to meeting NPR 7120.5 requirements for projects with an LCC between \$150M and \$250M (RY, equivalent for the purposes of this AO to a PIMMC between \$120M and \$200M in FY23), so that the same EVM cost expectations apply to all proposers, regardless of the portion of NASA in-house work. This leads to the following answers for the sub-questions.

1. No. As Section 4.6.2 states, proposed projects with a PIMMC greater than \$200M (FY23) will be considered to have an LCC greater than \$250M. For these projects NPR 7120.5 requires ANSI/EIA-748-compliant EVM for all portions of the work, including NASA in-house and contracted portions of the project. EVM is not a choice for projects above that threshold, but a requirement for which the PIMMC must cover all applicable costs.
2. No. As Section 4.6.2 states, proposed projects with a PIMMC lower than \$120M (FY23) will be considered to have an LCC lower than \$150M (RY). These projects may apply deviations per the document *Approved Deviation from FAR and NFS EVMS Policy for SMD Class D*.
3. No. The reimbursement applies to meeting the minimum requirements. Proposers may exceed minimum requirements as part of their proposed management and cost control approach, but the PIMMC must cover the associated cost.

C-4. The Draft AO in Section 4.6.2 indicates the possibility of reimbursement of up to \$1.5M for the difference in EVM cost between application of the NFS requirements on contracts over \$20M and the practices referenced in the document *Guidance and Expectations for Small Category 3, Risk Classification D (Cat3/ClassD) Space Flight Projects with Life-Cycle Cost Under \$150M*. This leads to the following sub-questions:

1. **Where should proposals show an estimate for a difference in cost?**
2. **How should proposals show an estimate for a difference in cost?**
3. **The level of effort to estimate the difference in cost may be beyond the scope of a pre-Phase A activity. In this case is it appropriate to use \$1.5M (FY23) as an allocation in Step 1? If so, what basis of estimate should the proposal provide in Section H?**

[Note: This question was asked about the Draft AO. The Final AO and Cost Table B3 have been updated to clarify the instructions given below. See Sections 4.3.3 and 4.6.2 of the Final AO and the Cost Table B3 template in the Program Library.]

This answer is relevant for projects with a proposed PIMMC between \$120M and \$200M (FY23) (see Question C-3). The \$1.5M (FY23) is not an allowance, but the maximum reimbursement that could apply. NASA will only reimburse the difference in cost between the application of the practices referenced in the document *Guidance and Expectations for Small Category 3, Risk Classification D (Cat3/ClassD) Space Flight Projects with Life-Cycle Cost Under \$150M*; and meeting the NFS requirements on all

contracted portions of the work. This leads to the following answers for the sub-questions:

1. This line item must be included in the Enhanced PIMMC, outside of the PIMMC. A line has been added to the Table B3 template.
2. Show the estimated difference, up to the \$1.5M (FY23) maximum, in the budget tables as part of the Enhanced PIMMC. If the estimated difference exceeds \$1.5M (FY23), include the remainder within the PIMMC. Briefly explain the basis of estimate in Section H.
3. Yes, it is appropriate to use an allocation in Step 1. State in Section H that the maximum allocation was used for Step 1. The Step-2 CSR will need to develop and justify a project-specific estimate.

C-5. The AO in Requirement 52 states what should be included in the Diversity and Inclusion Plan, but the AO does not provide specific instructions on the associated budget requirements. This leads to the following sub-questions:

- 1. Is the cost associated with the activities in the Diversity and Inclusion Plan required to be supported within the PIMMC?**
- 2. Why is there no line item in Cost Table Template B3 for these activities?**
- 3. If some of the activities in the Diversity & Inclusion Plan are not appropriate for a single WBS (using the NASA WBS Handbook definitions), within what WBS should these costs be bookkept?**

Proposals must follow AO requirements on costs with regards to the Diversity and Inclusion Plans, including when the requirements for additional details are deferred to Step 2 or future phases.

This leads to the following answers to the sub-questions:

1. Yes.
2. There is no requirement to itemize the costs associated with the Diversity and Inclusion Plan activities in the Step-1 proposal.
3. In this situation, WBS 1 (Project Management) would be appropriate.

Proposal Evaluation

E-1. How does accommodating or not accommodating the Government-Furnished Equipment (GFE) auroral imager affect the selectability of a proposal? This question breaks down into the following sub-questions:

- 1. Is accommodating the auroral imager a requirement?**
- 2. For proposals that accommodate the auroral imager, how would that accommodation affect the selection criteria?**
- 3. Would NASA consider selection of a DYNAMIC investigation proposal with lesser science value that accommodates the auroral imager, over a DYNAMIC investigation proposal with higher science value that does not accommodate the auroral imager?**

[Updated 12/9/22, 1) replaced references to SALMON-3 AO to the Standard AO, and 2) added the consideration of the auroral imager in the selection process.]

The answers for each of the sub-questions are as follows:

1. No.
2. The Standard AO in Section 7 describes the selection process. The Selection Official may take into account programmatic factors; however, as stated in Section 7.3, “the overriding consideration for the selection of proposal submitted in response to this AO will be to maximize science [...] return and minimize implementation risk while advancing NASA's science [...] goals and objectives within the available budget for the program.”.
3. The Selection Official weighs a range of factors, per the Standard AO section listed in (2), above. Partnerships is one of the listed considerations. The outcome of a particular selection decision depends on the specifics of the involved proposals.

E-2. How will the selection process consider proposals restructuring of the 2013 Decadal Survey-identified DYNAMIC science priorities for this solicitation? [Updated 12/9/22, replaced references to SALMON-3 AO to the Standard AO.]

The selection process, as described in Section 7 of the Standard AO, states that "the overriding consideration for the selection of proposal submitted in response to this AO will be to maximize science [...] return and minimize implementation risk while advancing NASA's science [...] goals and objectives within the available budget for the program".

The decadal survey identified high-level goals (phrased as science questions), which can not be completed by any single mission. The Community Announcement (released 10/19/2021) states that "[i]nvestigations must propose focused science objectives that they would complete and that would make specific advances on the broad science questions prioritized for the DYNAMIC mission by the 2013 Solar and Space Physics Decadal Survey (p. 100)."

The focused science objectives are central to the science return of an investigation.

E-3. The Draft AO states that NASA expects DYNAMIC to use GDC measurements (e.g. Sections 5.1.2.1 and 5.1.4), but does not discuss how a proposal that does not use the GDC measurements would be treated during the evaluation and selection processes. This leads to the following sub-questions:

1. **Would a proposal be expected to receive a Form A/B weakness solely for not requiring the use of GDC data?**
2. **Would NASA consider a proposal less compelling for selection solely for not requiring the use of GDC data?**

The stated expectation was based on the science discussion in the 2013 Decadal Survey. It was made explicit so that proposers were aware of NASA's stance on the use of these

non-DYNAMIC measurements, with a focus on a lack of programmatic risk to DYNAMIC for their use (see Section 5.1.2 and subsections). The answers for each of the sub-questions are as follows:

1. No.
2. The Draft AO in Section 7.3 states that the overriding consideration for selection is “maximiz[ing] scientific value”. The “wide range of programmatic factors [...] in selecting among top-rated proposals” depends on the particulars of the proposals involved.

E-4. The Draft AO evaluation Factor D-1 is labeled “Programmatic value of the proposed science investigation”. However, the final sentence states “This factor will not consider programmatic value that this solicitation requires, expects, or incentivizes.” This leads to the following sub-questions:

- 1. Does that exclusion contradict the purpose of the factor?**
- 2. Why are those excluded from evaluation?**

Factor D-1 addresses only programmatic aspects beyond the completion of the science objectives, as stated in the first paragraph of Section 7.2.5. This leads to the following answers for the sub-question:

1. No, it does not contradict the purpose of the factor.
2. They are excluded so as to not assess a proposal twice on the same point. Requirements and incentivized activities are evaluated as part of the other Forms. Programmatic considerations other than “maximiz[ing] science value” are generally considered directly by the Selection Official (see Section 7.3).

E-5. The DYNAMIC AO in Section 5.6.7 states that NASA expects that contributions will be a minority of the project element costs (with a stated 1/3 threshold). However, the AO does not contain a numbered requirement for contributions to be smaller than that threshold, nor does the Evaluation Plan describe how the 1/3 threshold would be used. This leads to the following sub-questions:

- 1. Would a proposal that exceeds the 1/3 threshold automatically receive a Form C weakness, and would a proposal that remains under the 1/3 threshold not receive a weakness?**
- 2. Is crossing the 1/3 threshold both necessary and sufficient to be considered over-reliant on contributions?**

The DYNAMIC AO in Section 5.6.7 states that NASA considers the over-reliance on contributions to be a programmatic factor in selection. In the consideration of the “size and nature of contributions”, the 1/3 threshold was provided as an expectation for size. As this expectation is not a firm limit, it does not appear in a numbered requirement or in the Evaluation Plan. This leads to the answers to the sub-questions:

1. Proposals do not receive weaknesses on an evaluation form for programmatic factors that are considered only in the selection process.
2. No. The Selection Official's consideration of over-reliance incorporates both the size and nature of contributions.

E-6. The AO in Section 7.3 states that programmatic factors are considered in the selection process. Could a proposal’s reliance on GDC measurements to complete its science objectives be a programmatic factor that renders it less compelling for selection?

No. The AO states in Section 5.1.2 that NASA expects proposals to require the use of GDC measurements for their science objectives. Requirements 6, 13, and 14 describe the reliance on GDC measurement that proposers may assume.

E-7. Could a proposal receive a weakness on an evaluation form if it lists GDC measurements as required to meet the Baseline or Threshold Investigation science objectives?

A proposal will not receive a weakness on an evaluation form for the use of GDC measurements to complete science objectives provided that their use is consistent with Requirements 6, 13, and 14, and with the GDC documents in the Program Library (Program Specific, Item 6).

Proposal Submission

P-1. The DYNAMIC Acquisition Process Planning Information (released October 19, 2021) describes a two-step solicitation process that uses a Notification Proposal. What is a Notification Proposal and how is it involved in the process?

The Notification Proposal is a mandatory Notice of Intent. It is used by NASA for planning purposes and is not evaluated for science, technical, or programmatic merit. More information on mandatory Notices of Intent can be found in recent SMD solicitations (e.g., [Geospace Dynamics Constellation](#), [Astrophysics 2021 Mission of Opportunity](#)). The requirements for this submission will be described in any draft solicitation.

P-2. The AO in Appendix B Section J.11 calls for “no document formatting” for the Master Equipment List (MEL). This leads to the following sub-questions:

- 1. Can the Microsoft Excel version of the MEL include formulas?**
- 2. Can the Microsoft Excel version of the MEL include variation in font sizes, bolding, and shading of rows, as done in the MEL Template provided in the Program Library?**
- 3. Can the numerical fields in the Microsoft Excel version of the MEL (number of units, mass, power, contingency percentage) be formatted as text?**
- 4. Can the Appendix J.11 version of the MEL, included with the main proposal file in Adobe Portable Document Format (PDF), use a different formatting than that applied to the Microsoft Excel file?**

The intent of the “no document formatting” is twofold: reduce the workload to develop proposals; and ensure the Microsoft Excel version of the MEL is a numerically usable version of the Adobe PDF copy. This leads to the following answers for the sub-questions:

1. Yes. Formulas are not required but are acceptable within the Microsoft Excel version of the MEL.
2. Yes. Formatting similar to the one provided in the MEL Template is preferred.
3. No. Numerical fields (number of units, mass, power, contingency percentage) must have a number format in Microsoft Excel.
4. No. The PDF version must be a copy of the Microsoft Excel version.

Other

O-1. The Draft AO in Section 5.3.8 states “Proposers are encouraged to leverage institutional resources when available.” What guidance does NASA provide for proposers in states where such institutional resources are unavailable or even illegal?

NASA does not encourage any illegal activities. Offerors are responsible for ensuring that proposed activities comply with applicable laws.

O-2. Does a proposer necessarily have a conflict of interest if they are involved in a GDC investigation or other award?

No. All GDC information used in the DYNAMIC solicitation has been published on the DYNAMIC Acquisition Homepage. The key members of the LWS Program Office and GDC Project Office have been identified and firewalled.