

Geospace Dynamics Constellation Frequently Asked Questions

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Change Log		
Rev.	Date	Description of Changes
01	2/1/21	Added S-1, S-2, S-3, T-1, T-2, T-3, E-1, P-1
02	2/16/21	Updated S-1, T-1, T-2; added S-4, E-2
03	3/9/21	Updated E-2; added T-4
04	3/16/21	Added S-5, S-6, S-7, S-8

Science

- S-1. Does the Community Announcement (Acquisition Process, posted 1/12/21) supersede the GDC STDT report? If the Community Announcement (or a subsequent document) levies a requirement or constraint that the STDT report does not (or in a different way), is an investigation that follows the STDT report and not the Announcement (or subsequent document) compliant? [Updated 2/16/21, generalized the question.]**

The Community Announcement and subsequent documents supersede the GDC STDT Final Report. Investigations must follow requirements and constraints in the Announcement, even if the STDT report does not have that requirement or constraint (or describes it differently).

- S-2. Is there a minimum number of GDC Science Objectives that an investigation must address?**

There is not a minimum number of GDC Science Objectives that a single investigation is required to address.

- S-3. The Community Announcement (Acquisition Process, posted 1/12/21) states “Investigations must include a single instrument type and may not include an**

instrument suite. NASA will follow community standards for the identification of instrument suites, and proposals will need to convincingly show adherence to this requirement (as appropriate and necessary for each proposal)". What distinguishes a single instrument from an instrument suite?

The difference between a single instrument and a suite is governed by community standards, and the exact demarcation between the two may be different for different instrument systems. For the GDC solicitation, a single instrument is one that is composed of one of the following:

- a) A single sensor
- b) Multiple sensors that are not physically separable
- c) Multiple sensors that have interdependencies for a significant fraction of the GDC physical parameters to be measured by the instrument

S-4. For specified measurement requirements without an accompanying altitude range, is there a restriction on the altitude that the measurement is made at?

Unless an altitude range is specified, the measurement must be made at the spacecraft.

S-5. If a single institution wants to propose flight hardware that measures multiple physical parameters, will that require multiple proposals? Does it depend on whether multiple institutions are involved?

Investigations are restricted from proposing suites (see PEA, Section 1.1), which is not the same as proposing an instrument that measures multiple physical parameters, and the guidelines for suites are given in Question S-3 (of this document). This restriction applies regardless of the number of institutions involved.

S-6. Are the parameters and their measurement characteristics (e.g., dynamic range, accuracy, precision, sample rate, energy range, other identified quantities) in Table 1 of the PEA (repeated as Table 2-1 of the Proposal Information Package) restrictive of what can be proposed or do they represent the minimum capability that should be proposed?

Proposed instruments must measure at least one of the identified physical parameters (see Section 1.1) and proposals must "detail each physical parameter's measurement characteristics (accuracy, precision, resolution, etc.; including those given in the aforementioned table)" (see Requirement 7). There is no requirement that constrains an instrument to particular values for the identified measurement characteristics.

S-7. Are investigations required to acquire measurements for the entire orbit, or just the sections of the orbit necessary for their proposed science investigation?

The GDC Science Objectives require the use of data not acquirable by a single instrument; therefore, the mission science return as a whole is maximized by ensuring as complete data coverage as possible, even if that implies that a single investigation acquire measurements outside of the spatial/temporal range required for the completion of its own proposed science. Section 2.2, *GDC Measurement Requirements*, of the PIP states, “All measurements are expected to be acquired globally, although it is understood that some Physical Parameters will only be significant at high latitudes.”

S-8. Can investigation proposal teams include Co-Investigators who also submit to the IDS if it can be convincingly demonstrated that there is no overlap in the proposed duties?

No, the prohibition on the same individual participating on an investigation team and an IDS team is complete. Section 4.2.2, *Ineligibility of GDC Interdisciplinary Scientists*, of the PEA states, “Proposals may not designate individuals as Principal Investigator or Co-Investigator who are part of a selected IDS team.”

Technology

T-1. Is an investigation responsible for providing the boom for the proposed instrument’s deployment on the spacecraft? What is the maximum boom length that can be proposed? [Updated 2/16/21, clarified definition of ‘boom’.]

Investigations are not responsible for providing a boom that is required only for their instrument’s deployment. Booms for instrument deployment will be provided by the spacecraft; investigations may propose using a spacecraft-provided boom that is 1.2m long (as defined in the *Proposal Information Package*, which can be found in the Program Library).

- Note: There was a typographical error in the original Community Announcement (Acquisition Process, posted 1/12/21), under *Technology/Deployables*, that stated that the planned boom length was 1.5m. The correct length is 1.2m, and has been fixed in the announcement.
- Note: In the Announcement and other GDC documents, the term “boom” refers to purely structural unit that is separable from the instrument. Anything that is inherently part of the instrument function (e.g., is a non-separable part of the sensor) is referred to as a deployable and not as a boom.

T-2. May an investigation include a deployable that is not a boom? [Updated 2/16/21, clarified definition of ‘boom’.]

Yes, an investigation can include a non-boom deployable that is inherent to the function of the instrument. Investigations are responsible for the delivery of all such deployables.

- Note: In the Announcement and other GDC documents, the term “boom” refers to purely structural unit that is separable from the instrument. Anything that is

inherently part of the instrument function (e.g., is a non-separable part of the sensor) is referred to as a deployable and not as a boom.

- T-3. The Community Announcement (Acquisition Process, posted 1/12/21) states that investigations should propose to deliver six instrument flight units (twelve for potential additional observatory options). Does that imply that the GDC satellites will be identical in terms of science payloads? Is there a possibility that a proposal is selected but will only be asked to supply instruments for a subset of the constellation?**

NASA intends to implement GDC as six identical observatories. NASA does not intend to solicit or select investigations to deliver instruments for a subset of the observatories.

- T-4. The GDC Instrument Mission Assurance Requirements (IMAR) requires Level 2 parts, but NASA policy (NPR 8705.4, GSFC 8705.4) does permit the use of Level 3 parts. Can investigations propose to use Level 3 parts?**

The GDC IMAR's requirement of Level 2 parts is correct. Any relaxation of that requirement for an investigation would be through a waiver process after investigation selection.

Management and Schedule

No questions at this time.

Cost

No questions at this time.

Proposal Evaluation

- E-1. The Community Announcement (Acquisition Process, posted 1/12/21) states "Investigations must include a single instrument type and may not include an instrument suite. NASA will follow community standards for the identification of instrument suites, and proposals will need to convincingly show adherence to this requirement (as appropriate and necessary for each proposal)". What is the process that NASA will utilize for assessing whether an investigation has proposed a single instrument or an instrument suite?**

A proposed investigation's adherence to this requirement will be assessed at multiple points in the proposal evaluation and selection process. This assessment will be based on the proposed design, any arguments offered by the proposal, and community standards.

- Notice of Intent (NOI) submissions
 - NASA will review NOIs for a description of the instrument system. Any proposer whose NOI appears to deviate from the single instrument requirement, i.e., describes an instrument suite, will receive a notification from NASA.
 - A notification would not prevent a proposer from submitting a full proposal that fulfills the single instrument requirement.
 - The lack of a notification would not constitute an affirmation that the proposed instrument system is not a suite.
 - NOI submitters that were deemed to deviate from the single instrument requirement may decide to split their instrument system to be submitted in multiple investigations (i.e., multiple proposals) . The initial single NOI will be taken by NASA to meet any NOI requirement for all resulting proposals.
- Full proposal submissions
 - NASA reserves the right to deem a proposal that includes an instrument suite as non-compliant and to return it without review.
- Proposal evaluation process
 - On the event that an Evaluation Panel deems that the proposal deviates from the single instrument requirement, the evaluation findings regarding an instrument system being an instrument suite will be communicated to the proposer during the Potential Major Weaknesses clarification process. Proposers will have the opportunity to respond to any such findings.
- Selection process
 - Affirmation of proposals adherence to the single instrument requirement (prohibition on instrument suites) will be part of the process that begins with the Categorization Committee and ends with the Selection Decision.

E-2. In light on the prohibition of an individual being a member of both a GDC investigation team and a GDC Interdisciplinary Scientist (IDS) team (draft GDC PEA, Section 4.2.2), what happens if a member of the investigation team is part of a selected IDS team? [Updated 3/9/21, clarified question and added reference to GDC PEA language.]

During the review process, the investigation will receive a Preliminary Major Weakness (PMW) due to that individual not being available to complete the assigned tasks. The investigation would then be able to respond to that finding within the PMW process.

Proposal Submission

P-1. Is there a limit to the number of proposals that can be submitted by a single institution?

No, NASA does not intend to limit the number of proposals a single institution may submit.

Other

No questions at this time.