APPENDIX B. HELIOPHYSICS RESEARCH PROGRAM

NOTICE: April 6, 2020. Section 1.5 has been corrected in a number of ways. New text is in bold and deleted text is struck through.

Please note the major changes in the Heliophysics program in 2020 listed in Section 1.1.1.

B.1 HELIOPHYSICS RESEARCH PROGRAM OVERVIEW

1. Overview

NASA’s Heliophysics’ overarching goal is to understand the Sun and its interactions with the Earth and the Solar System, including space weather. In this framework, the Heliophysics Research Program is guided by the NASA 2014 Science Plan (available at https://science.nasa.gov/about-us/science-strategy) and by the 2013 National Research Council Decadal Strategy for Solar and Space Physics report, Solar and Space Physics: A Science for a Technological Society (www.nap.edu/catalog.php?record_id=13060). Heliophysics research addresses these recommendations by implementing a program to achieve all of the goals and objects in the science plan and DS report, summarized by these combined objectives:

- Explore and characterize the physical processes in the space environment from the Sun to the heliopause and throughout the universe
- Advance our understanding of the Sun’s activity, and the connections between solar variability and Earth and planetary space environments, the outer reaches of our solar system, and the interstellar medium
- Develop the knowledge and capability to detect and predict extreme conditions in space to protect life and society and to safeguard human and robotic explorers beyond Earth.

The Heliophysics Research Program supports investigations in all research regimes of Heliophysics. The program supports investigations of the Sun, including processes taking place throughout the solar interior and its atmosphere, as well as the evolution and cyclic activity of the Sun. It supports investigations of the origin and behavior of the solar wind, transient structures, energetic particles, and magnetic fields in the heliosphere and their interaction with the Earth and other planets, as well as with the interstellar medium. The program supports investigations of the physics of magnetospheres, including fundamental interactions of plasma wave-particle interactions and particles with guide fields, as well as coupling to the solar wind and ionospheres. It supports investigations of the physics of the terrestrial mesosphere, thermosphere, and ionosphere, neutral and ionized, and coupling of these phenomena to the lower atmosphere and magnetosphere. It supports investigations focused on processes that create space weather events, and investigations to enable a capability for predicting future space weather events.

The Heliophysics Research Program also supports investigations that span the regimes and address a systems approach – emphasizing the understanding of fundamental processes and interconnections across the traditional science disciplines, on a broad range of spatial and temporal scales. In concert with the other NASA science divisions (Planetary Science, Astrophysics, and Earth Science), the program shares responsibility
for learning about the Earth, our Solar System, the Universe, and their interrelationships.

1.1 Solicited Programs

ROSES-2020 program elements are listed below. It is the overall purpose of each of these program elements to contribute as effectively and directly as possible to the achievement of the NASA Heliophysics’ overarching goal and three science objectives. Priority for selection is given to those proposals that most clearly demonstrate the potential for such contributions.

The program elements are as follows:

- B.2 Heliophysics Supporting Research (HSR)
- B.3 Heliophysics Theory, Modeling, and Simulations (HTMS) – not solicited this year
- B.4 Heliophysics Guest Investigators Open (HGIO)
- B.5 Living With a Star Science (LWS)
- B.6 Living With a Star Strategic Capabilities (LWS-SC)
- B.7 Space Weather Science Applications Operations 2 Research (SWO2R)
- B.8 Heliophysics Technology and Instrument Development for Science (H-TIDeS)
- B.9 Heliophysics Low Cost Access to Space (H-LCAS)
- B.10 Heliophysics Flight Opportunities Studies (H-FOS)
- B.11 Heliophysics Flight Opportunities for Research & Technology (H-FORT)
- B.12 Heliophysics Data Environment Enhancements (HDEE)
- B.13 Heliophysics U.S. Participating Investigators (H-USPI)
- B.14 Heliophysics Early Career Investigators Program (ECIP)
- B.15 GOLD/ICON Guest Investigator (GIGI)
- B.16 Parker Solar Probe Guest Investigator (PSPGI)

Each element above contains element-specific requirements, e.g., scope, content, length. General Heliophysics-specific requirements are included in this document in Section 1. Common requirements for all ROSES elements are fund in the ROSES Summary of Solicitation and the Proposer’s Guidebook (https://www.hq.nasa.gov/office/procurement/nraguidebook).

The order of precedence is the following: ROSES Element B.2 through B.16 followed by the Heliophysics Overview, ROSES Element B.1 (this document), followed by the ROSES Summary of Solicitation, followed by the Proposer’s Guidebook. Proposers should be familiar with all of these resources and should especially read each element (above) carefully.

1.1.1 What's New in Appendix B This Year

Please note the three major changes in the Heliophysics program in 2020: First, the Heliophysics Flight Opportunities for Research and Technology program is now split into three program elements – Low Cost Access to Space (HLCAS, Section 2.9), Flight Opportunities Studies (HFOS, Section 2.10), and Flight Opportunities: SmallSats and Ridershare (HFORT, Section 2.11). Second, proposals submitted to the Guest Investigator Open program will be evaluated using dual-anonymous peer review in
which, not only are proposers unaware of the identity of the reviewers, but the reviewers are not given the identity of the proposers. This is described in Sections IV(b)i and VI(b) of the ROSES-2020 Summary of Solicitation and Section 1.8, below. Third, the sufficiency of the data management plan (DMP) will be evaluated as part of Merit and thus may have a bearing on whether or not the proposal is selected (see Section 1.5).

Other changes in or additions to the Heliophysics program in 2020 include:

Two targeted guest investigator programs – GOLD/ICON (Section 2.15) and PSP (Section 2.16) in addition to the guest investigator open program (Section 2.4); for the open program, GOLD, ICON, and PSP are excluded.

Early Career Investigators Program (ECIP) is solicited in 2020 (Section 2.14).

Citizen Science projects are accepted into any ROSES Element (Section 1.9).

High-risk/high impact proposals are accepted into any ROSES Element (Section 1.10).

1.2 General Proposal Content

Proposals require three core aspects: (1) a clear statement of the specific objective(s), (2) a justification of why the objective(s) is important, and (3) a description of how the objective(s) will be achieved. Successful proposals clearly lay out each aspect for reviewers. They often lead with clear, achievable objectives and then just enough background to justify why the objectives are important, followed by an extensive detailed description of how the objectives will be achieved.

Proposals should be focused enough to be achievable within the lifetime of the award. Proposals should include adequate personnel commitments to ensure achievable results.

1.3 Two-Step Process

Proposal submission to elements in Heliophysics will use a two-step proposal submission process unless otherwise specified in a specific program call. Use of the two-step process increases the notice provided to potential reviewers. The overall description of a two-step process can be found in Section IV(b)vii of the ROSES Summary of Solicitation.

In the two-step process a Step-1 proposal is required. Potential reviewers are solicited based on the Step-1 proposal. The proposal team members may not be changed between the Step-1 and Step-2 proposals, unless prior approval is obtained from the Program Officer of the element. The title and broad science goals of the proposal may not be changed such that they would significantly affect the scientific or technical expertise required to properly evaluate a proposal. Changes in a proposal that impact the review will result in a proposal being declared non-compliant.

All Step-1 and Step-2 proposals for the Heliophysics elements must be submitted electronically by the due date (see Table 2 and Table 3 of ROSES). Both Step-1 and Step-2 proposals must be submitted by the organization’s Authorized Organizational Representative (AOR). No budget or other elements are required for a Step-1 proposal. Only proposers who submit a Step-1 proposal are eligible to submit a Step-2 proposal.
All Heliophysics programs with Step-1 proposals will review the Step-1 proposals for compliance and will require a description that is limited to the 4000-character text box on the NSPIRES cover page that includes (1) the science goals and objectives, and (2) the proposed methodology. All compliant proposals submitted to these calls will be "invited" to submit a Step-2 proposal.

1.4 Multiple Submissions and Duplication

Proposers are limited to one submission per Principal Investigator (PI or Science PI) per program element, i.e., they can submit one and only one proposal as PI to each, unless otherwise specified in the program call.

Proposers may not submit Step-2 (or full) proposals for the same or essentially the same work to more than one program element concurrently. Each proposal should be submitted only once until it is accepted, declined, or withdrawn. This covers all program elements in Appendix B and also all cross-divisional ROSES program elements (Appendix E) supported by the Heliophysics Division. This prohibition includes switching the PI and a Co-I while submitting the same or essentially the same work.

This prohibition is active for a particular submitted proposal until the PI is notified that the proposal was accepted or declined, or until the proposal is withdrawn. The prohibition on duplicate proposals applies across ROSES years as well (e.g., a duplicate of a pending ROSES-2019 proposal may not be submitted in response to ROSES-2020). If a second proposal is submitted while a duplicate proposal is still pending in another program element, only the first proposal will be evaluated; the duplicate proposal may not be evaluated or considered and may be returned without review.

1.5 Data Management Plans and Archiving

New in ROSES-2020: The data management plan (DMP) will be evaluated as part of the Intrinsic Merit of the proposal and must be included in a special section (see below).

To broaden access to the results of NASA-funded research, proposals submitted to program elements in Appendix B must include a data management plan (DMP). The philosophy behind this requirement is that all relevant taxpayer-supported data should be made publicly available (i.e., without fee or restriction of use) at the time of publication, or at the earliest practical time thereafter, through a stable and long-term supported public data repository. If the proposed work would not produce data suitable for deposition in a public archive, then that should be explicitly justified in the proposal. Individual program elements may provide instructions that amplify the following requirements, but those stated below are the minimum.

For some program elements, the nature of the work is inexorably linked to the handling of data so DMP is part of the page-limited Scientific/Technical/Management (S/T/M) section of the proposal, e.g., B.7 Space Weather Science Applications and B.12 Heliophysics Data Environment Emphasis. With the exception of elements like those listed above where it explicitly says otherwise, all proposals to any of the ROSES elements that require DMPs must place it in a special section of the proposal, not to exceed two pages in length, entitled "Data Management Plan" immediately following the references and citations for the S/T/M portion of the proposal. Formatting requirements
for DMPs are the same as for the S/T/M section. When appropriate or required by the program element, letters of support from the Heliophysics Data Archives: the Solar Data Analysis Center (SDAC), and the Space Physics Data Facility (SPDF) must **may** be included in a Statements of Commitment and Letters of Support, Feasibility and Endorsement section of the proposal (see ROSES *Summary of Solicitation*, Table 1).

Proposers requiring a DMP are strongly encouraged to use the HPD DMP template, that may be downloaded as a Word document, from the SARA web page at: https://science.nasa.gov/researchers/templates-heliophysic-division-appendix-b-roses-proposals.

The DMP must cover any data needed to validate the scientific conclusions of peer-reviewed publications, particularly data underlying figures, maps, and tables. It also needs to cover any other data and software that would enable future research or the replication/reproduction of published results.

For proposals that use non-mission data (e.g., laboratory results, Earth-based observations) that are not publicly available (in any publicly accessible archive, in the literature, etc.), the project is expected to make the data available following the Data Management Plan guidelines.

"Data" does not include preliminary and other unpublished data, data in prepublication documents, private communications, or certain other types of information that have been specifically exempted from the DMP requirement.

In the case of a project that would produce no data, as defined above, or only data specifically exempted, the DMP must state that no data preservation or data sharing is needed and must also explain why. In a case where no appropriate archive exists for a particular data set, the DMP should discuss alternative methods for making the data publicly available.

DMPs will be reviewed as part of the proposal review process. Proposals that do not address each of these items in their DMP, even if determined to be selected or selectable for funding, may not be funded until an adequate DMP is submitted. Funded researchers, research institutions, and NASA centers are responsible for ensuring and demonstrating compliance with the DMPs approved as part of their awards. Awardees who do not fulfill the intent of their DMPs may have continuing funds withheld and this may be considered in the evaluation of future proposals.

Software, whether a stand-alone program, an enhancement to existing code, or a module that interfaces with existing codes, created as part of a ROSES award, should be made publicly available when it is practical and feasible to do so, and when there is scientific utility in doing so. Stand-alone code that is not straightforward to implement, or whose utility is significantly outweighed by the costs to share it, is not expected to be made available. SMD expects that the source code, with associated documentation sufficient to enable use of the code, will be made publicly available in the Heliophysics section the NASA GitHub (https://github.com/nasa), either of the two Heliophysics Archives (for mission-specific code, when appropriate), or an appropriate community-recognized depository (for instance, the homepage of the code base for which a module was developed). Archiving software in a public repository does not require the proposer
to maintain the code. Awards that derive from proposals that include plans to post code in GitHub will contain a Rights in Data clause permissive open source license reflecting this expectation. This expectation extends to three types of software, defined as follows:

<table>
<thead>
<tr>
<th>Short Name</th>
<th>Name</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libraries</td>
<td>Libraries and toolkits</td>
<td>Generic tools implementing well-known algorithms, providing statistical analysis or visualization, and so on, that are incorporated in other software categories.</td>
<td>Numerical Recipes, NumPy, general FFTs, LAPACK, scikit-learn, AstroPy, GDAL</td>
</tr>
<tr>
<td>Analysis software</td>
<td>Analysis, post-processing, or visualization software</td>
<td>Generalized software (not low-level libraries) used to manipulate measurements or model results to visualize or gain understanding.</td>
<td>Stand-alone image processing, topology analysis, vector-field analysis, satellite analysis tools, and so on</td>
</tr>
<tr>
<td>Frameworks</td>
<td>Modeling frameworks</td>
<td>Multicomponent software systems that incorporate a variety of models and couple them together in a complex way.</td>
<td>Community Earth System Model (CESM) is a collection of coupled models including atmospheric, oceanographic, sea ice, land surface, and other models</td>
</tr>
</tbody>
</table>

1.6 Data Eligibility

All spacecraft mission data must be available in the SDAC, SPDF, or an equivalent, publicly accessible archive, at least 30 days prior to the full proposal submission deadline, unless otherwise specified in the program call. If proposers are utilizing a publicly accessible archive other than SPDF or SDAC, then a link to that archive must be included.

1.7 Organizing Science Reviews

Heliophysics has established two questions that must be answered for all proposals submitted to Elements in Appendix B on the NSPIRES cover page. The answers define the Research Regime and Science Topic for the proposal and help to organize the evaluation and peer review. Unless otherwise specified in the program call, the values will default to what is listed here. The default values for Research Regime are Sun, Heliosphere, Magnetosphere, Ionosphere-Thermosphere-Mesosphere (ITM) and System-Interdisciplinary. The default values for Science Topic are listed below.

1. Solar Interior
2. Photosphere
3. Solar Transient Events
4. Solar Atmosphere - Corona
Note: Do not choose Heliosphere meaning Heliophysics; they are not synonymous. This wastes time and resources to redirect; such misdirected proposals may be returned without review.

1.8 Dual-anonymous Reviews

SMD is strongly committed to ensuring that the review of proposals is performed in an equitable and fair manner that reduces the impacts of any unconscious biases. To this end and motivated by a successful pilot program conducted for the Hubble Space Telescope, Heliophysics Guest Investigator Open proposals (see Section 2.4) will be evaluated using dual-anonymous peer review. Under this system, not only are proposers unaware of the identity of the members on the review panel, but the peer reviewers are not told the proposing teams or organizations until after they have evaluated the scientific merit of all of the anonymized proposals. Proposers to HGIO must adhere to the instructions in the call on how to prepare proposals so as to allow dual-anonymous peer review, and detailed instructions for the preparation of proposals will be posted on the NSPIRES page for this ROSES element and at https://science.nasa.gov/researchers/dual-anonymous-peer-review. Note that GIGI (Section 2.15) and PSP-GI (Section 2.16) are not using dual-anonymous reviews.

1.9 Citizen Science Projects

Citizen science is a form of open collaboration in which individuals or organizations participate voluntarily in the scientific process. Proposers to any ROSES program element are invited to incorporate citizen science and crowdsourcing methodologies into their submissions, where such methodologies will advance the objectives of the proposed investigation. The current SMD Policy on citizen science, describes standards for evaluating proposed and funded SMD citizen science projects. For more information see Section 3 H.R.6414 - Crowdsourcing and Citizen Science Act of 2016, which authorizes federal agencies to utilize crowdsourcing and citizen science and the https://science.nasa.gov/citizenscience webpage, that provides information about existing SMD-funded projects, including how to sign up for the NASA-SOLVE email
Proposers who are including a Citizen Science element must select the NSPIRES checkbox indicating Citizen Science, to ensure an appropriate review of the citizen science methodology.

1.10 High-Risk/High Impact

Proposers to any ROSES program element are invited to submit proposals that are high risk – high impact, or include high risk – high impact components, as appropriate for the scope or conduct of the investigation. For more information see Section VI(b) of the ROSES Summary of Solicitation.

1.11 Award Types

NASA Heliophysics primarily awards grants, Inter-Agency Transfers (IATs), and awards to NASA centers, as these are the most appropriate to the nature of the work. These are the default for program elements in Appendix B, unless stated otherwise in a specific program element.

2. Program Elements

2.1 Introduction

A brief description of each program element offered in the Heliophysics Research Program is given below. The intent of the following summaries is to give the prospective proposer some insight into the element’s purpose within the context of the overall program structure. Detailed descriptions of each element are to be found in Program Elements B.2 through B.16. Please note that the numbering and names of the program elements may have changed from ROSES-19.

2.2 Heliophysics Supporting Research (HSR)

The HSR program solicits research investigations of significant magnitude that employ a variety of techniques to address Heliophysics goals and objectives. The investigations that will be of highest priority to the HSR program will be those that use data from current or historical NASA spacecraft, or from non-NASA data, together with theory, modeling and/or numerical simulation to address one of the four Heliophysics Decadal Survey goals. Theory, modeling, and simulation must be substantiated with, and guided by, data. Innovative ideas and techniques are welcome. The Heliophysics Supporting Research program is described in Program Element B.2.

2.3 Heliophysics Theory, Modeling, and Simulations (HTMS)

The Heliophysics Theory, Modeling, and Simulations Program uses numerical simulations and modeling synergistically with data analyses and rigorous theory development to solve the fundamental problems of Heliophysics. The HTMS program is described in Program Element B.3.

The HTMS Program is not being solicited in ROSES-2020. It is only solicited every third year. It is anticipated that it will be next solicited in 2022.

2.4 Heliophysics Guest Investigators (H-GIO)

The Heliophysics Guest Investigator Open (H-GIO) program is intended to maximize the scientific return from operating missions of the Heliophysics System Observatory (HSO)
by providing support for research that is beyond the scope of work of the mission science teams. All H-GIO investigations must be intensive data analysis efforts that provide specific justification how any additional resources (e.g. simulations, secondary data sets, or machine learning tools) help analyze HSO observations. H-GIO will be implemented in 2020 using Dual-Anonymous Reviews (see Section 1.8). The Heliophysics Guest Investigators open program (H-GIO) is described in Program Element B.4.

Note that proposals that use eligible GOLD, ICON or PSP data (see Section 1.1.1 above) are not allowed to be submitted to this ROSES-2020 H-GIO.

2.5 LWS Science (LWS)

The Living With a Star (LWS) Program emphasizes the science necessary to understand those aspects of the Sun and Earth’s space environment that affect life and society. The ultimate goal of the LWS Program is to provide a scientific understanding of the system that leads to predictive capability of the space environment conditions at Earth, other planetary systems, and in the interplanetary medium. To ensure this, the LWS Science program solicits proposals for Focus Teams to conduct coordinated large-scale investigations that cross discipline and technique boundaries and have a direct impact on life and society. The details of the Living With a Star (LWS) Science program are described in Program Element B.5.

2.6 Living With a Star Strategic Capabilities (LWS-SC)

A primary goal of NASA’s LWS Program is the development of first-principles-based models for the coupled Sun-Earth and Sun-Solar System, similar in spirit to the first-principles models for the lower terrestrial atmosphere. Such models can act as tools for science investigations, as prototypes and test beds for prediction and specification capabilities, as frameworks for linking disparate data sets at vantage points throughout the Sun-Solar System, and as strategic planning aids to enable exploration of outer space and testing new mission concepts. The development of these models is generally conducted in terms of Strategic Capabilities and is described in Program Element B.6.

2.7 Space Weather Science Applications

In response to the National Space Weather Action Plan (SWAP), NASA established the Space Weather Science Applications Program (SnAP). The component of SnAP that addresses the aspect of transitioning knowledge between research and operations is reflected in the SnAP Operations-to-Research (O2R) program. For the purpose of this opportunity, NASA, NOAA, and NSF working under the tri-agency Space Weather MOU, have determined that the focus of this year’s call is open. Please note that the proposal, in order to demonstrate relevance to O2R, must address how the research will directly advance the information needed by users of space weather information in the proposed focus area. The Space Weather Science Applications O2R Program Element is described in B.7.

2.8 Heliophysics Technology and Instrument Development for Science (HTIDeS)

The HTIDeS program seeks to advance the development of technologies and their application to enable investigation of key heliophysics science questions. This is done through incubating innovative concepts and development of prototype technologies. It is
intended that technologies developed through HTIDeS then be proposed to H-LCAS, H-FOS, or H-FORT to mature by demonstration in a relevant environment. HTIDeS utilizes the following sub-elements:

- Laboratory Nuclear, Atomic, and Plasma Physics (LNAPP) Program: The LNAPP program supports studies that probe fundamental nuclear, atomic, and plasma physical processes and produce chemical and spectroscopic measurements that support spacecraft observations and atmospheric models.

- Instrument Technology Development (ITD) Program: This includes innovative technology development and instruments that may be proposed as candidate experiments for future space flight opportunities.

The HTIDeS program is not soliciting Step-1 proposals or NOIs in 2020. Only a full proposal is solicited. HTIDeS with sub-elements ITD and LNAPP is described in Program Element B.8.

2.9 Heliophysics Low Cost Access to Space (H-LCAS)

H-LCAS was previously part of Flight Opportunities for Research and Technology (H-FORT) but now has been split out on its own. Like H-FORT, H-LCAS seeks to advance the development of technologies and their application to enable investigation of key heliophysics science questions. H-LCAS includes technology and associated science investigations that can be carried out with instruments flown on suborbital rockets, stratospheric balloons, or NASA airborne platforms, collectively referred to as Low Cost Access to Space.

The H-LCAS program is not soliciting Step-1 proposals or NOIs in 2020. Only a full proposal is solicited. H-LCAS is described in Program Element B.9.

2.10 Heliophysics Flight Opportunities Studies (H-FOS)

H-FOS was previously part of Flight Opportunities for Research & Technology (H-FORT) but now has been split out on its own. Like H-FORT, H-FOS seeks to advance the development of technologies and their application to enable investigation of key heliophysics science questions. H-FOS includes technology and associated science investigations that can be carried out with instruments flown on Smallsats (including CubeSats), or as payloads on the International Space Station (ISS), Department of Defense (DoD), or other rideshare opportunities. H-FOS awardees will receive a 10-month grant to conduct a concept study. After completion, H-FOS awardees can propose for a flight opportunity to, e.g., H-FORT (Section 2.11).

The H-FOS program is not soliciting Step-1 proposals or NOIs in 2020. Only a full proposal is solicited. H-FOS is described in Program Element B.10.

2.11 Heliophysics Flight Opportunities for Science & Technology (H-FORT)

H-FORT is the flight opportunity for SmallSats and Rideshare that is now on its own. H-FORT is limited to proposers who had a successful H-FOS proposal and received a formulation phase 10-month grant. Such proposers may submit to this program element a proposal that includes a Concept Study Report (CSR) and if successful, proceed with the implementation phase.
H-FORT seeks to advance the development of technologies and their application to enable investigation of key heliophysics science questions. This is done through demonstration of innovative technologies and associated science investigations in a relevant environment. H-FORT includes technology and associated science investigations that can be carried out with instruments flown on SmallSats (including CubeSats), or as payloads on the International Space Station (ISS), Department of Defense (DoD), or other rideshare opportunities.

The H-FORT program is not soliciting Step-1 proposals or NOIs in 2020. Only a full proposal is solicited. H-FORT is described in Program Element B.11.

2.12 Heliophysics Data Environment Enhancements (H-DEE):

The goal of the H-DEE program is to enable breakthrough research in Heliophysics by providing both a state of the art data environment and necessary supporting infrastructure to maximize the scientific return of the NASA missions. It is essential that observations be properly recorded, analyzed, released to the general public, documented, and rapidly turned into scientific results. This year, continuing from last year, the call solicits proposals (Value Added Enhancements) to advance the goal of a robust, vital, and cohesive Python environment for Heliophysics.

The Heliophysics Data Environment Enhancement program is described in Program Element B.12.

2.13 Heliophysics U.S. Participating Investigator (H-USPI):

The purpose of the Heliophysics U.S. Participating Investigator (H-USPI) program element is to solicit potential Heliophysics investigations in which investigators participate as a Co-Investigator (Co-I) for an instrument, experiment, or technology demonstration that is being built and flown by a sponsor agency other than NASA. The Heliophysics U.S. Participating Investigator program is described in Program Element B.13.

2.14 Early Career Investigators Program (ECIP):

The Early Career Investigator Program (ECIP) in Heliophysics is designed to support outstanding scientific research and career development of scientists and engineers at the early stage of their professional careers. The program aims to encourage innovative research initiatives and cultivate diverse scientific leadership in Heliophysics. This program is designed to foster the empowerment, inspiration, and education of the next generation of space researchers. The ECIP Program is described in Program Element B.14.

2.15 GOLD/ICON Guest Investigator (GIGI)

The Global Observations of Limb and Disk (GOLD) and Ionospheric Connection Explorer (ICON) Guest Investigator program solicits proposals that focus on analysis of data from the GOLD and ICON missions separately or together. This program is intended to maximize the scientific return from these missions by providing support for
research beyond presently funded investigations. The GIGI Program is described in Program Element B.15.

2.16 Parker Solar Probe Guest Investigator (PSPGI)

The Parker Solar Probe (PSP) Guest Investigators (PSP-GI) program solicits proposals that focus on analysis of data from the PSP mission in the inner heliosphere. This program is intended to maximize the scientific return from the mission by providing support for research beyond presently funded investigations. Funded investigators (PIs and Co-Is) of this solicitation will be considered Guest Investigators of PSP for the duration of the award and will be invited to attend and present progress at PSP team meetings. The PSPGI program is described in Program Element B.16.