

### A.3.5 SUN-EARTH CONNECTION GUEST INVESTIGATORS

#### 1. Scope of Program

A multiple-year Sun-Earth Connection (SEC) Guest Investigator Program (GIP) is offered for investigations that extensively draw upon the data sets from the SEC missions operating during the current solar maximum. The solar maximum objectives include solving the more complex and varying problems associated with this period of increased activity. SEC Guest Investigator Programs are intended to maximize the return from currently operating missions by providing support for research of breadth and complexity beyond that of presently funded investigations. Therefore, investigations proposed for this program element ideally should be designed to use data from multiple spacecraft and other related sources, and to carry out the associated interpretative data analysis, theory, and modeling. While global system problems utilizing as much of the SEC mission data as appropriate are of special interest, problems of all scales within the SEC realm may be addressed by the solicited investigations.

The objectives of this SEC GIP are defined as:

- the solar interior and the solar atmosphere, including the evolution of mass and energy ejected from the solar atmosphere;
- the propagation of disturbances in the three-dimensional as well as the distant heliosphere;
- the flow of mass, energy, and momentum throughout the near space environment of the Earth; and
- the effects of solar activity on the Earth's atmosphere and ionosphere.

Proposals to any of the SEC program elements are expected to present within their Scientific/Technical/Management Section a clear description of a specific scientific problem, a description of how the attack on this problem will be carried out, an estimation of the anticipated achievement during the period of performance, and a discussion of the relevance of the proposed research to NASA's strategic goals and objectives. It will be to the advantage of the proposer to explain the relation of the proposed effort to any other significant current and pending support of an apparently similar nature.

Efforts focused on those particular aspects of the Sun-Earth system that directly affect life and society are not appropriate for the SEC GIP, but may be appropriate for the Living with a Star Targeted Research and Technology, Program Element A.3.7 in this NRA.

Specific information on the SEC missions, key personnel, and data sets is found via the SEC home page ([http://sec.gsfc.nasa.gov/sec\\_missions.htm](http://sec.gsfc.nasa.gov/sec_missions.htm)). Prospective guest investigators are strongly encouraged to demonstrate that the effort proposed can be accomplished using the data that is identified. This may entail contacting the PI team or teams who are familiar with the data in an early stage of their proposal preparation in

order to achieve early clarification. The following two questions should be clearly addressed in the proposal:

- 1) If new observations are required, are the proposed observations feasible using data from currently operating missions, and, if so, can they be carried out with a reasonable amount of effort and time?
- 2) What procedures will the prospective guest investigator follow for obtaining mission data necessary to conduct the proposed investigation?

Each proposal submitted to the GIP should clearly address these questions.

## 2. Information on Specific SEC Mission Data Sets

This section describes specific terms and conditions relating to proposed SEC GIP investigations on the use of data from the individual SEC missions. Since it was just launched and is in its prime mission phase, data from TIMED are not to be considered in this solicitation but will be included in future SEC GIP solicitations.

### A. Geospace Missions

Incorporated into this SEC GIP is correlative scientific research--data analysis, theory, and simulations--that heavily utilize the databases from Geotail, Wind, Polar, as well as associated ground-based and theory investigations. Additional databases are those of IMP-8, SAMPEX, FAST, ACE, Equator-S, SNOE, IMAGE, and Cluster. For proposals necessitating Cluster data, a letter(s) from the instrument PI(s) indicating data accessibility is required. The analysis of relatively new mission data may be limited to "quick-look" products accessible on the World Wide Web (or other, appropriate and openly available data archives).

Questions concerning the geospace missions may be addressed to the following Discipline Scientists:

Dr. James Sharber  
Telephone: (202) 358-0894  
E-mail: [james.sharber@hq.nasa.gov](mailto:james.sharber@hq.nasa.gov)

or

Dr. James Spann  
Telephone: (202) 358-0888  
E-mail: [james.spann@hq.nasa.gov](mailto:james.spann@hq.nasa.gov)

both having the same facsimile number of (202) 358-3987 and mailing address as follows:

Sun-Earth Connection Division  
Code SS  
Office of Space Science  
NASA Headquarters  
Washington DC 20546-0001

## B. Solar and Heliospheric Missions

The missions contributing to our knowledge of the heliosphere include IMP-8, Voyager, Ulysses, SAMPEX, and ACE. Proposals combining data from these heliospheric missions with other data from active and past SEC missions are especially pertinent.

The set of solar missions includes HESSI, SOHO, TRACE, and Yohkoh:

- High Energy Solar Spectroscopic Imager (HESSI). The launch of HESSI is anticipated in early 2002. Proposals that will employ data from the publicly open HESSI database (all data from HESSI, regardless of age) are invited to the SEC GIP. Information on HESSI is available online at <http://soleil.ssl.berkeley.edu>.
- Transition Region and Coronal Explorer (TRACE). Proposals are invited as part of the SEC GIP for TRACE scientific research that heavily utilize the publicly open database (all data from TRACE, regardless of age). Information on TRACE may be found on line at <http://vestige.lmsal.com/TRACE/>
- Solar and Heliospheric Observatory (SOHO). SOHO is a mission of international cooperation between ESA and NASA. Proposals are invited as part of the SEC GIP requiring new SOHO observations, analysis of existing data, theoretical analysis in relation to SOHO observations, and/or ancillary ground-based observations. Proposals combining data from SOHO with other SEC mission data are especially pertinent and welcome. Proposals from non-U.S. institutions are expected to obtain funding for their research from their national institution (see Section (I) in Appendix B of the *NASA Guidebook for Proposers*). All SOHO data are publicly open and accessible through the SOHO archive. Interested parties may consult the detailed SOHO information and link to archives found at the World Wide Web site <http://sohowww.nascom.nasa.gov>
- Yohkoh. Proposals are invited as part of the SEC GIP for Yohkoh scientific research that utilizes its database, which is entirely open. See [http://umbra.nascom.nasa.gov/yohkoh/data\\_availability.html](http://umbra.nascom.nasa.gov/yohkoh/data_availability.html)

Note that the Instrument PI's on SOHO, the U.S. PI for Yohkoh, and the mission PI's for TRACE and HESSI may not receive funding from, nor propose as a PI to, this Guest Investigator Program.

Questions concerning the Solar and Heliospheric Physics missions may be addressed to any of the following Program Scientists:

Dr. Todd Hoeksema  
Telephone: (202) 358-0897  
E-mail: [todd.hoeksema@hq.nasa.gov](mailto:todd.hoeksema@hq.nasa.gov)

or

Dr. Madhulika Guhathakurta  
Telephone: (202) 358-1992  
E-mail: [mguhatha@hq.nasa.gov](mailto:mguhatha@hq.nasa.gov)

or

Dr. William Wagner  
Telephone: (202) 358-0911  
E-mail: [william.wagner@hq.nasa.gov](mailto:william.wagner@hq.nasa.gov)

All having the same facsimile number of (202) 358-3987 and mailing address as follows:

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Code SS  
Office of Space Science  
NASA Headquarters  
Washington DC 20546-0001

### 3. Programmatic Information

Proposals whose intent or purpose is to extend or directly supplement existing investigations already funded for approved space flight missions or other SEC research programs are not appropriate for this SEC GIP. Investigators who are members of the science teams of ongoing missions and who propose to use data from those missions must clearly demonstrate that the research proposed is distinct from the existing efforts. A PI or Co-I on a qualifying SEC mission may also propose as a PI or Co-I to this SEC GIP with the one exception noted in section A.3.5.2.B above. However, such SEC mission personnel must include in their proposal a description of their mission responsibilities, which are not to duplicate the research proposed for the SEC GIP.

Approximately \$1.5-2.5M will be available for this solicitation and the proposed investigations may be for one to three years. Historically, awards have averaged a funding level of about \$75K per year. For multiple year awards, funding approval for the subsequent year(s) will be based upon the tangible scientific achievements of the first year and the continued program need and funds thereafter.

### **IMPORTANT INFORMATION**

As discussed in the *Summary of Solicitation* of this NRA, the Office of Space Science (OSS) is now using a single, unified set of instructions for the submission of proposals. This material is contained in the document entitled *NASA*

*Guidebook for Proposers Responding to NASA Research Announcement – 2001* (or *NASA Guidebook for Proposers* for short) that is accessible by opening URL <http://research.hq.nasa.gov>, and linking through the menu item "Helpful References," or may be directly accessed online at URL <http://www.hq.nasa.gov/office/procurement/nraguidebook/>. This NRA's Summary of Solicitation also contains the schedule and instructions for the electronic submission of a *Notice of Intent* (NOI) to propose and a proposal's *Cover Page/Proposal Summary*, which now also includes the required *Budget Summary*, and the mailing address for the submission of a proposal.