

## C.4 SUN-EARTH CONNECTION THEORY

### 1. Scope of Program

The Sun-Earth Connection Theory (SECT) program is explicitly designed to support theory and modeling investigations of problems that fall within the Sun-Earth Connection science theme but that are of sufficient breadth that their successful completion requires the efforts of a synergistically interacting group of investigators led by a single Principal Investigator.

All NASA research proposals are expected to demonstrate relevance to NASA Goals and Research Focus Areas (RFAs) as stated in the latest version of its Strategic Plan (follow links from the Web site <http://spacescience.nasa.gov/>); see also the discussion in Section I of the Summary of Solicitation of this NRA. In the case of the SECT program, proposals are expected to address one or more of the RFAs under Goal II SEC science objectives (1) Understand the changing flow of energy and matter throughout the Sun, heliosphere, and planetary environments; and (2) Explore the fundamental physical processes of space plasma systems. These RFAs are:

- II.SEC.1.a: Understand the structure and dynamics of the Sun and solar wind and the origins of magnetic variability;
- II.SEC.1.b: Determine the evolution and the heliosphere and its interaction with the galaxy;
- II.SEC.1.c: Understand the response of magnetospheres and atmospheres to external and internal drivers;
- II.SEC.2.a: Discover how magnetic fields are created and evolve and how charged particles are accelerated,; and
- II.SEC.2.b: Understand coupling across multiple scale lengths and its generality in plasma systems.

Proposals that serve only as an umbrella for a variety of separate research tasks, even though they each may be related by a common theme and each of high scientific merit, are not appropriate for the SECT program. Proposals for narrowly focused and/or smaller scope theoretical efforts should be submitted to the individual SEC science discipline program elements described in this appendix. Efforts focused on the science of those particular aspects of the Sun-Earth system that directly affect life and society, that is, RFAs for Science Objective 1 of Goal I for the Sun-Earth Connection science theme in Table 1 in the *Summary of Solicitation* of this NRA are not appropriate for the SECT program, and should instead be submitted to the Living With a Star program.

### 2. Programmatic Information

Selections for the SECT program are nominally for a three-year period of performance with annual funding allotments contingent upon the submission of satisfactory progress reports and available funding. The total budget for this program element is about \$3.8 M

and the program usually supports on the order of 10 groups. This NRA solicits proposals for Fiscal Years 2005-2007 funding for this program; all of the funding for this program will be competed in this cycle.

Questions about this program element may be directed to the Program Officers:

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