

B.9 PLANETARY ATMOSPHERES

1. Scope of Program

The Planetary Atmospheres program supports scientific investigations that contribute to the understanding of the origins and evolution of the atmospheres of planets and their satellites and of comets. Its broad objectives include the determination of compositions, dynamics, energetics, and chemical behaviors of planetary atmospheres. Investigations that may be submitted to this program are those that seek to study the sources and mechanisms for deposition of energy; the characterization and understanding of dynamical processes and circulation, both global and local; relationships between currently observed properties and/or states of matter including clouds, particles, and ices; interaction of atmospheres with the solar wind and the effects of magnetic fields both permanent and induced on these processes; interactions of planetary atmospheres with planetary surfaces; and the chemical abundance, physical conditions, and processes that may have prevailed at the time the planets were formed, as they pertain to atmospheres.

The scope of the Planetary Atmospheres activity also includes laboratory investigations that supply basic physical measurements that are currently needed to interpret planetary data, including measurements and calculations of spectroscopic, optical, and thermodynamic properties of materials found in planetary atmospheres. Investigations of the atmospheres of extrasolar planets also are included within the scope of the Planetary Atmospheres activity, provided that they address the same features, properties, and behaviors listed in the preceding paragraph. Astronomical searches for extrasolar planets are not appropriate for the Planetary Atmospheres program. In addition, while comparative studies of various planet atmospheres (including the Earth) are appropriate, investigations that focus primarily on the Earth's atmosphere are not. Proposals for the analysis of atmospheric data from NASA space science missions that are calibrated and archived and in the public domain on the Planetary Data System (PDS) are encouraged.

In all cases, a Planetary Atmospheres investigation should propose to attack a specific problem of the highest intrinsic scientific value as well as of interest to NASA's objectives in its Solar System Exploration science theme. Proposals that serve as an umbrella for a variety of research tasks are not appropriate if the proposed tasks are without a clear focus.

Finally, note that to enable the NASA Office of Space Science to properly evaluate the relevance of proposals submitted to its programs, as well as track its progress towards achieving its goals as mandated by the Government Performance Review Act (GPRA), all research supported by NASA's programs must now demonstrate its relationship 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. Therefore, all proposers to this program element are asked to state their perception of this relevance in terms of the Goals, Science Objectives, and RFAs given in Table 1 found in the *Summary of Solicitation*. In particular, this program element is designed to help fulfill RFAs 1(a),

(b), (c), and (d), and RFAs 3 (a), (b), (c), and (d) of Goal II of Solar System Exploration science theme.

2. Programmatic Information

Proposals are sought for new projects that fall within the scope of the Planetary Atmospheres program. Presently, about \$8M is budgeted for this program, which supports approximately 100 investigations. Since most of these proposals have a three year period of performance, approximately a third of the budgeted total for the program is completed each year. Thus, a budget of about \$2.6M is available to support approximately 30–35 new proposals selected through this NRA.

- *Instrumentation*

The *Planetary Major Equipment* program described in Appendix B.12 of this NRA allows proposals for upgrading the analytical, computational, telescopic, and other instrumentation required by investigations for certain programs sponsored by the Solar System Exploration Division, including this one. New, analytical instrumentation requests, as well as requests for upgrades to existing instruments, costing more than \$25,000 should be identified and requested in a special section of each proposal, to be titled "Major Equipment Request." However, note that a Planetary Major Equipment proposal must be affiliated with a "parent" OSS research proposal in order to be considered; see Appendix B.12 for details.

IMPORTANT INFORMATION

The *Summary of Solicitation* of this NRA points out that NASA Headquarters now uses a single, unified set of instructions, entitled *NASA Guidebook for Proposers Responding to NASA Research Announcements*, that provides detailed guidance for the preparation and submission of proposals to most of its NRAs. By reference is the current edition, *Guidebook for Proposers– 2004*, is incorporated into this Office of Space Science solicitation and is accessible by linking through the menu item "Helpful References" at the Web site <http://research.hq.nasa.gov> or it may be directly accessed at <http://www.hq.nasa.gov/office/procurement/nraguidebook/>. Proposers to this Program Element are urged to familiarize themselves with this document, in particular its Chapters 1, 2, and 3, before preparing a proposal. This NRA's *Summary of Solicitation* also contains the schedule and instructions for the electronic submission of both a *Notice of Intent* (NOI) to propose, as well as a proposal's *Cover Page/Proposal Summary/Budget Summary* for the proposal, and the mailing address for the submission of proposals.

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