

### A.3.1 Cosmochemistry Program (CCP)

#### 1. Scope of Program

The Cosmochemistry Program (CCP) supports scientific investigations that are cosmochemical in nature that may involve laboratory studies of a variety of extraterrestrial materials (meteorites, cosmic dust, and lunar samples); or that are aimed at understanding the geochemical nature of the solar system bodies (planets, satellites including the Earth's Moon and satellites of the outer planets, and small solar system bodies); or cosmochemical studies concerned with the formation and chemical development of the solar system. The goals of this program are to support cosmochemical research projects that increase the understanding of the origin of the solar system, and the processes by which its planets and small bodies have evolved to their present state; and/or yield direct information about the formation of the solar system, the exact time scales for planetary formation and history, the nature and development of planetary surfaces, and the past activity of the Sun and cosmic rays. NASA is particularly interested in proposals for sample research projects that closely support its activities for exploring the solar system; determining its nature, origin, and history; and/or that contribute to the development of techniques for such further exploration. Individual investigations may involve direct measurements of physical and chemical properties, or research efforts that contribute new data, that analyze and synthesize existing data, or that combine both kinds of activities.

Examples of the kinds of research supported by this program include:

- cosmochemical studies of solar system formation;
- studies of chemical differentiation of planetary bodies;
- laboratory studies of phase stability, thermal emission, chemical partitioning, and other processes necessary to interpret planetary data;
- synthesis of previously obtained geochemical data;
- direct measurements of mineral compositions, major and trace element chemistry, isotopic compositions, radiometric ages, magnetism, radiation exposure effects;
- petrologic studies of materials from Solar System bodies;
- lunar geochemical and petrologic studies, lunar craters and microcraters, lunar physical and mechanical properties; and
- proposals that are designed to obtain basic scientific information that might enable the utilization of extraterrestrial resources.

However, the CCP will not consider proposals that are designed to demonstrate a technology that could be important to extraterrestrial resource utilization. Though no priorities are imposed on the general kinds of investigations, an ideal program is envisaged as a balance among these objectives, consistent with the quality of submitted proposals and their relevance to the current CCP.

This program is also interested in supporting certain types of research on terrestrial samples or with terrestrial analogs when such efforts contribute to overall program goals in cosmochemistry. Specific objectives of such terrestrial research should address key geochemical processes in early terrestrial evolution, terrestrial history in terms of general solar system processes, or the reasons for differences in evolution among the various planetary bodies, including Earth, the Moon, and parent bodies of meteorites. Proposals to analyze terrestrial samples or their analogs should clearly develop the nature of the planetary connection. The specific connection to the wider range of planetary processes is a key factor in determining the success of such proposals.

Proposals for topical conferences, workshops, symposia, or other new initiatives related to the Cosmochemistry Program are also solicited through this NRA. For more information about the type of research supported by this program, abstracts for currently funded investigations are available on the World Wide Web at URL <<http://www.hq.nasa.gov/office/oss/codesr/welcome.html>>.

An important goal of the Astronomical Search for Origins and the Solar System Exploration efforts is to facilitate access to data and extraterrestrial sample material for certain scientific and educational purposes, in addition to NASA-supported research projects. The NASA Johnson Space Center, Houston, TX, is responsible for the security and access to the lunar sample collection, as well as the interplanetary dust particles collected by high altitude aircraft and meteorites collected in the Antarctic by field parties supported by the National Science Foundation (NSF). For information on how to obtain any of the specimens in these collection, contact:

Office of the Curator  
Code SN21  
Johnson Space Center  
National Aeronautics and Space Administration  
Houston, TX 77058-3696.

## 2. Programmatic Considerations

The National Science Foundation (NSF) may consider a wide range of proposals (from domestic organizations only) that contribute new knowledge in the area of cosmochemistry and related fields. The same proposal may be submitted to both NASA and NSF if desired; however, such proposals must clearly state they are being submitted to both agencies in the proposal section entitled *Current and Pending Support* (see Section 5.3 of Appendix C).

It is estimated that the funding level for this program for Fiscal Year 2000 will be approximately \$12.3M and that this level of funding will support approximately 100 research investigations, including both new proposals, as well as in-progress multiple year awards for which progress reports are due.

Holders of existing Cosmochemistry multiple year awards (e.g., the second or third year of a three-year award from a previous NRA) must submit a request for an annual funding allotment of their award in the form of a *Progress Report* by the same deadline as given in Table 1 for new proposals for this program element. These *Progress Reports* will be screened by the peer review panel that will be reviewing new proposals to aid NASA's evaluation of progress. The Project Description in such a request for allotment, including a report of progress made during the past year, should be limited to no more than five single-spaced, typewritten pages and include a brief statement of planned work for the coming year, a report of progress made during the previous year, a budget, and an estimate of the amount of previously awarded funds that will remain available at the end of the award year. The five page limit does not include a *Cover Page*, a listing of proposal personnel, *Proposal Summary* (Abstract), *Budget Summary*, *Table of Contents*, references, figures, requests for equipment augmentations, detailed budgetary information, reprints, or appendices.

NOTE: Appendix C contains critical information necessary for the preparation and submission of proposals submitted in response to this NRA. In particular, Section C.5.3 contains detailed standards concerning the format, page limits, and contents of a proposal. The submission of a proposal not in compliance with these standards may complicate and/or hinder its efficient and complete evaluation. Therefore, deficiencies in format and/or omission of key information may result in a proposal being found unacceptable for evaluation, or if evaluated, being adversely affected during the evaluation process.

The schedules for submission of the Notice of Intent and proposal are given in Table 1 of the cover letter of this NRA. The World Wide Web site for submitting both the NOI and the *Cover Page/Proposal Summary* is <<http://cass.jsc.nasa.gov/panel/>>; proposers without access to the Web or who experience difficulty in using this site should contact The Lunar and Planetary Institute by E-mail at <[panel@lpi.jsc.nasa.gov](mailto:panel@lpi.jsc.nasa.gov)> or by phone at (281) 486-2137 for assistance. Hard copies of the proposals are to be delivered to:

ROSS-99 NASA Research Announcement  
Cosmochemistry Program  
The Lunar and Planetary Institute  
3600 Bay Area Boulevard  
Houston, TX 77058  
Phone number for commercial delivery: (281) 486-2189

Obtain additional information from the Discipline Scientist:

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