

A.5.2 Applied Information Systems Research Program

1. Scope of Program

The Science Information Systems Program supports all the OSS science themes by providing the globally distributed research community with access to data, high performance computing, and communications services. The program also conducts information systems research to apply new developments in computer science and information technology to improve and enhance on-going support for OSS science programs. The goals of the Applied Information Systems Research (AISR) Program are to:

- Increase the scientific return on research within OSS by making advanced tools and capabilities available for the acquisition and utilization of science data and information;
- Support an evolutionary environment to exploit advances in information technology; and
- Promote strong collaborations involving the space science community, computer science community, data system engineers and technologists, academia, and the private sector and technology innovators.

OSS seeks proposals through this program element of the ROSS-98 NRA to apply state-of-the-art computer science and information technology to improve efficiency and effectiveness of OSS scientific research endeavors. Note that this solicitation consolidates proposals formerly solicited under separate announcements for the AISR Program, the Astrophysical Data Program Type II (Tools), and the Sun-Earth Connection Data Restoration Program.

2. Areas of Interest

A. Advanced Tools and Capabilities

OSS seeks innovative applications of information technology across a broad range of areas that span the scientific process, including:

- Modeling, simulation, and design;
- Science planning, operations, and data product generation;
- Science data management; and
- Science data analysis and visualization.

A wide spectrum of information technology fields may be applied in the above areas, that include, but are not limited to, computational methods and algorithms; data storage and distribution; data mining and exploration; data compression; software technology; collaborative tools; and adaptive techniques such as genetic algorithms and neural networks. Proposers are encouraged to propose original, innovative applications of information technology that will be more generally applicable across multiple science disciplines and/or projects. In particular, proposals that foster and facilitate interdisciplinary research, with specific emphasis on contributions to an interoperable space science data services environment, providing expedient location, access, retrieval, and analysis of widely distributed science data sets will be given priority consideration.

B. Science Data Products

Original proposals are sought that identify valuable space science data products that should be prepared in a readily accessible and usable form and made available to the entire science community via OSS data centers. This includes restoration of current space science data sets, either those in danger of being lost to scientific community or of such value that they should be more readily available, and generation of new, higher level products deemed of value to the overall OSS data environment. Also relevant to this activity are compilations of electronically accessible data bases of other data relevant to the space sciences such as nuclear/atomic/molecular cross-sections and rate coefficients, equations of state and thermodynamic calculations, etc.

3. Documentation and Delivery

All resulting products developed under this program will be made openly available to the community at the end of the award period. Therefore, adequate documentation must accompany the product to allow use by the general community, which includes complete description of application, explanations of algorithms, user instructions, demonstration examples, etc. Proposals must clearly describe how they plan to assure the quality of such final products.

It is expected that successful products and capabilities resulting from this program will be registered in and made available through the Space Science Data Services (SSDS) infrastructure. Information on current resources, services, and data centers can be found at URL <<http://www.hq.nasa.gov/office/oss/ssds/>>.

4. Programmatic Information

It is anticipated that approximately \$3.5M will be available through this ROSS-98 NRA for the funding of new awards for this program element, which is expected to be sufficient to fund between 20 and 25 grants of nominally 3 years duration each.

The schedules for submission of the Notice of Intent and for proposals is given in Table 1 of the cover letter of this NRA. The World Wide Web site for submitting both the *Cover Page/Proposal Summary* (see Appendix C.5) is <<http://cass.jsc.nasa.gov/panel/>>; proposers without access to the Web or who experience difficulty in using this site may contact The Lunar and Planetary Institute by E-mail at <panel@lpi.jsc.nasa.gov> or by phone at (281) 486-2156 or -2166 for assistance . Hard copies of the proposals are to be delivered to:

ROSS-98 NASA Research Announcement
Applied Information Systems Research Program
The Lunar and Planetary Institute
3600 Bay Area Boulevard
Houston, TX 77058
Phone number for commercial delivery: (281)486-2166

For further information, contact the Discipline Scientist for this program element:

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Background information on the AISR program and current investigations being conducted can be found on the World Wide Web at <<http://www.hq.nasa.gov/office/oss/aisr/>>. Further background information can also be found in the *Science Information Systems Newsletter* at <<http://www-sisn.jpl.nasa.gov>>.