

C.6 SOLAR SYSTEM OBSERVATIONS

NOTICE: Suborbital investigations and the Near Earth Object Observations component are not being solicited in this program element under ROSES-2015. However, It is expected that suborbital investigations will be solicited under ROSES-2016.

Proposals to this program will be taken by a two-step process, in which the Notice of Intent is replaced by a required Step-1 proposal submitted by an organization Authorized Organizational Representative. No PDF upload is required for the Step-1 proposal. Step-1 proposers merely must fill in the Proposal Summary text box on the NSPIRES cover pages. Only proposers who submit a Step-1 proposal are eligible to submit a Step-2 (full) proposal. See Section 4 for details.

1. Scope of Program

Solar System Observations supports both ground- and space-based astronomical observations and suborbital investigations of our Solar System involving sounding rockets and balloons. Proposals are solicited for observations over the entire range of wavelengths, from the ultraviolet to radio, that contribute to the understanding of the nature and evolution of the Solar System and its individual constituents. Additionally, Solar System Observations supports NASA's commitment to discover and inventory potentially hazardous near Earth objects with sizes down to at least ~100 meters and to characterize that population through determination of their orbital elements. This program element will also consider proposals that characterize a representative sample of these objects by measuring their sizes, shapes, and compositions.

Suborbital investigations are not being solicited in this program element under ROSES-2015. It is expected that suborbital investigations will be solicited under ROSES-2016.

Solar System Observations contains two primary components: Planetary Astronomy and Near Earth Object Observations. The Near Earth Object Observations component is not being solicited under ROSES-2015. It is expected that the Near Earth Object Observations component will be solicited under ROSES-2016.

1.1 Planetary Astronomy

Planetary Astronomy investigations must contain a primary element of new Solar System observation and must support those NASA Solar System program objectives that cannot be met by current spacecraft missions or that directly support specific flight missions. The proposal must also include scientific analysis and publication. Ground-based observations that supplement NASA missions returning significant amounts of data within the next three years are especially encouraged. Such observations may be made at any currently operating ground-based facility, public or private, including those supported by NASA. Support for investigations proposing to use existing space-based assets is only permitted if those missions do not already provide a funded observer program.

Proposals to utilize data to be obtained from large surveys, or other sources where the data is obtained in a routine manner for general use, should include a member of the data collection team as a Co-Investigator (Co-I) or as a Collaborator in order to meet the requirement for an element of new observation.

1.2 Near Earth Object Observations

Near Earth Objects (NEOs) are defined as asteroids or comet nuclei whose perihelia are less than 1.3 AU. This subelement covers NEO survey and characterization and impactor characterization and mitigation, and is not being solicited under ROSES-2015. Solicitation of this subelement is expected under ROSES-2016. Details on this subelement as previously solicited under ROSES 2014 can be found in [ROSES-2014 C.6 Solar System Observations](#).

Investigations of NEOs may be proposed to Solar System Observations under ROSES-2015 provided they meet the scope and science requirements covered under the Planetary Astronomy subelement above.

1.3 Suborbital Flight Investigations

Solar System Observations supports science investigations and technology development utilizing payloads flown on sounding rockets, balloons, or reusable suborbital vehicles. Suborbital flight investigations are not being solicited under ROSES-2015. It is expected that suborbital investigations will be solicited under ROSES-2016.

2. Programmatic Considerations

2.1 Instrumentation: Construction or Upgrade

The Planetary Major Equipment (PME) program element described in C.17 of this NRA allows proposals for upgrading the analytical, computational, telescopic, and other instrumentation required by investigations for certain programs sponsored by the Planetary Science Division (PSD) Research and Analysis Program, including this one. All new analytical instrumentation requests, as well as requests for upgrades to existing instruments, costing more than \$40,000, must be requested according to the PME guidelines in C.17. Two types of instrumentation requests are permitted. (1) A PME request to PSD may be made as a special section that is appended to a new research proposal to this program. This appendix is to be titled "Planetary Major Equipment Request" and should be separate from the Scientific/Technical/Management section of the research proposal, and (2) A stand-alone PME proposal may be prepared and submitted to this program. Such a stand-alone proposal must be explicitly affiliated with an existing "parent" PSD award and should explain the relevance of the parent award to this program. See C.17 for details on how to prepare both types of PME requests.

2.2 Proposals Utilizing Goldstone Planetary Radar

Proposals intending to use the planetary radar capabilities of the Deep Space Network Goldstone complex must contact the JPL Goldstone Solar System Radar (GSSR) Task Manager listed below for information on costs associated with using the Goldstone radar, which must be included in the proposal.

GSSR Task Manager:

Martin Slade

M/S 238-420

Jet Propulsion Laboratory

4800 Oak Grove Drive

Pasadena, CA 91109

Telephone: (818) 354-2765

Email: Martin.A.Slade@jpl.nasa.gov

2.3 Early Career Fellowship Program

Early career researchers are encouraged to apply for the Early Career Fellowships (ECF) Program. The purpose of the ECF program (see C.16) is to support the development of individual research programs of outstanding scientists early in their careers and to stimulate research careers in the areas supported by the Planetary Sciences Division. This Program is based on the idea that supporting key individuals is a critical mechanism for achieving high impact science that will lead the field forward with new concepts, technologies, methods, and more. In the case of the NEOO Program, the ECF award is named for Dr Stephen J. Ostro, a pioneer in NEO observation research using planetary radar techniques.

Applicants requesting consideration for ECF may include an additional page to their Curriculum Vitae to provide information that can be used by reviewers to evaluate the Principal Investigator's (PI's) future research contributions and the potential for leadership within the scientific community. Please see C.16 of ROSES for more information on the two-step process for the ECF program and the criteria for evaluating candidates.

3. Resources: Information, Data, and Facilities

3.1 Limits on Use of Mission Data

For proposals that contain mission data analysis, planetary spacecraft mission data to be used in proposed investigations must be available in the Planetary Data System (PDS) or equivalent publicly accessible archive at least 30 days prior to the proposal submission date. Spacecraft data that have not been obtained yet (i.e., future mission data) or those that have not been accepted for distribution in approved archives are not eligible for use in investigations. Regardless of the archive(s) used, if the data to be analyzed have issues that might represent an obstacle to analysis, the proposers must demonstrate clearly and satisfactorily how such potential difficulties will be overcome. Investigators funded by spacecraft missions who wish to apply must demonstrate clearly how the proposed research does not overlap and is not redundant with data

analysis, duties, or responsibilities already funded by their respective mission(s). Please see Appendix C.1, The Planetary Science Division Research Program Overview, for more information.

3.2 Facilities and Data Sources Available to Proposers

Proposers are advised to read Appendix C.1, The Planetary Science Division Research Program Overview, for information on facilities and data sources that are available to supported investigators. If their use is anticipated, this should be discussed and justified in the submitted proposals (especially note the provision for such discussion in the proposal section entitled Facilities and Equipment). Also note that, per the directions in Section 2.3 of the *NASA Guidebook for Proposers*, a letter of support may be required from any facility required for the proposed effort.

3.3 Data Management Plans and Map Publication

Selected investigations may result in data products that are of broad use to the science community, including maps, data with improved calibrations, etc. Proposers are strongly advised to read C.1, The Planetary Science Division Research Program Overview, for information on the new mandatory data management plans.

Proposed investigations of any planetary or satellite surface that are intended to result in the publication of a Scientific Investigations Map (SIM) by the U.S. Geological Survey (USGS) should check the relevant box on the proposal Cover Page and clearly indicate this intention in the Proposal Summary, as well as in the text of the proposal. The scientific goal of such a geologic map product should be clearly explained and justified. Proposers are advised to read Appendix C.1, The Planetary Science Division Research Program Overview, for the USGS' information on and requirements for map production and publication.

4. The Two-Step Submission Process

To facilitate the early recruitment of a conflict-free review panel, and to ensure proposals are submitted to the appropriate program, this program will use a two-step proposal submission process (see Section IV. (b) vii of the *ROSES Summary of Solicitation*.)

A Step-1 proposal is required and must be submitted electronically by the Authorized Organizational Representative (AOR). No budget is required. Only proposers who submit a Step-1 proposal are eligible to submit a Step-2 proposal. Full (Step-2) proposals must broadly contain the same scientific goals proposed in the Step-1 proposal. The PI cannot be adjusted and proposers that want to add funded investigators between the Step-1 and Step-2 proposals must inform the point(s) of contact below and cc sara@nasa.gov at least two weeks in advance of the Step-2 due date. Submission of the Step-1 proposal does not obligate the proposer to submit a Step-2 (full) proposal later.

4.1 Step-1 Proposal

Proposers should refer to the "Instructions for Submitting a Step-1 Proposal" under "Other Documents" on the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) web page for this program. The Scientific/Technical/Management section of the Step-1 proposal is restricted to the 4000 character Proposal Summary text box on the NSPIRES web interface cover pages and should include a description of the science goals and objectives to be addressed by the proposal, a brief description of the methodology to be used to address the science goals and objectives, and the relevance of the proposed research to this call. The Step-1 proposal may be used to determine whether the proposal was submitted to the appropriate program element. No evaluation of intrinsic merit will be done on Step-1 proposals.

NSPIRES will notify proposers whether their Step-2 proposal is encouraged or not, at which point they will be able to submit Step-2 proposals.

4.2 Step-2 Proposal

All proposals submitted to ROSES must strictly conform to the formatting rules in Section IV of the *Summary of Solicitation* and Chapter 2 of the *NASA Guidebook for Proposers*. Those that violate the rules may be rejected without review. In previous years, problems with the following aspects of formatting proposals have been noted. Proposers should pay particular attention to:

- Length of the Scientific/Technical/Management section: 15 pages normally, but 20 pages for Suborbital investigations, when solicited.
- Margins: 1 inch on all sides, with a standard page size of 8.5 × 11 inches.
- Font: The *NASA Guidebook for Proposers* requires that proposers use a 12-point or larger font. The selected font must meet the requirement of having, on average, no more than 15 characters per inch (e.g., Times New Roman and Arial). Proposers may not adjust the character spacing or otherwise condense a font from its default appearance.
- Line spacing: Font and line-spacing settings should produce text that contains no more than 5.5 lines per inch. Proposers may not adjust line spacing settings for a selected font below single spaced.
- Figure captions: must follow the same font and spacing rules as the main text.
- Figures and tables: for text in figures and tables, font and spacing rules listed above do not apply, but all text must be judged to be legible to reviewers without magnification above 100%. Do not place expository text in tables or figures in order to gain space.

5. Summary of Key Information

Expected program budget for first year of new awards	~\$2M
Number of new awards pending adequate proposals of merit	10-12
Maximum duration of awards	Typically 3 years. Up to 5 years permitted.
Due date for Step-1 proposals	See Tables 2 and 3 in the <i>ROSES Summary of Solicitation</i> .

Due date for Step-2 proposals	See Tables 2 and 3 in the <i>ROSES Summary of Solicitation</i> .
Planning date for start of investigation	~7 months after Step-2 proposal due date.
Page limit for the central Science-Technical-Management section of proposal	15 pp.
Relevance	This program is relevant to the Planetary Science questions and goals in the NASA Science Plan. Proposals that are relevant to this program are, by definition, relevant to NASA.
General information and overview of this solicitation	See the <i>ROSES Summary of Solicitation</i> .
Detailed instructions for the preparation and submission of proposals	See the <i>NASA Guidebook for Proposers</i> at http://www.hq.nasa.gov/office/procurement/nraguidebook/ .
Submission medium	Electronic proposal submission is required; no hard copy is required or permitted. See Section IV of the <i>ROSES Summary of Solicitation</i> and Chapter 3 of the <i>NASA Guidebook for Proposers</i> .
Web site for submission of Step-1 and Step-2 proposals via NSPIRES	http://nspires.nasaprs.com/ (help desk available at nspires-help@nasaprs.com or (202) 479-9376)
Web site for submission of Step-1 and Step-2 proposals via Grants.gov	http://grants.gov/ (help desk available at support@grants.gov or (800) 518-4726)
Funding opportunity number for downloading an application package from Grants.gov	NNH15ZDA001N-SSO
NASA point of contact concerning this program	Kelly E. Fast Planetary Science Division Science Mission Directorate NASA Headquarters Washington, DC 20546-0001 Telephone: (202) 358-0768 E-mail: kelly.e.fast@nasa.gov