

FY14 SURP Proposal Guidelines

The deadline for SURP proposal submission is Monday, June 24th, 2013, by 4 PM PDT.

Introduction

The JPL Strategic University Research Partnership (SURP) Program provides resources to initiate and cultivate collaborative efforts of mutual strategic value for NASA research and missions, between JPL and our strategic university partners listed below. Proposed activities can be either **Research Initiatives** for collaborative basic and applied research or collaborative **Student Research Initiatives** in basic and applied research that facilitate group research projects for undergraduate and graduate students. The collaborative **Student Research Initiatives** will involve a JPL PI, a university faculty collaborator and one or more students.

In addition, Research Initiatives may include an application for a collaborative SURP **Graduate Research Award**, which, if selected, could provide up to three years of funding.

Arizona State University

Carnegie Mellon University

Dartmouth College

Georgia Institute of Technology

Massachusetts Institute of Technology

Princeton University

Stanford University

University of Arizona

University of California, Los Angeles

University of Michigan

University of Southern California

University of Texas, Austin

To strengthen the relationships between JPL and our strategic university partners, we encourage proposals describing research efforts that include activities to be performed jointly at JPL or at the partnering university via the exchange of personnel. Possible exchanges include students working at JPL under the co-supervision of the JPL Principal Investigator and university faculty, JPL investigators working at the strategic partner university, and faculty working at JPL. We also invite proposals that describe research performed jointly by a JPL team and by the academic faculty investigator while on sabbatical leave at JPL.

JPL has identified science and technology **topic areas** that are essential for JPL's continuing contribution to NASA's future success and for which JPL's leadership is key. In your proposal, please designate one of the subcategory areas as primary, and if desired a secondary subcategory area. Do not designate a major category area, but only a subcategory. Enter the topic area subcategory on the proposal template.

1. Solar System Science

Solar system origin, structure and evolution

Planetary Atmospheres and Geology

Solar System characteristics and origin of life

Primitive solar systems bodies

Lunar science

Preparing for returned sample investigations

2. **Earth Science**

- Atmospheric composition and dynamics
- Land and solid earth processes
- Water and carbon cycles
- Ocean and ice
- Earth analogs to planets
- Climate Science

3. **Astronomy and Fundamental Physics**

- Origin, evolution, and structure of the universe
- Gravitational astrophysics and fundamental physics
- Extra-solar planets and star and planetary formation
- Solar and Space Physics
- Formation and evolution of galaxies

4. **In-Space Propulsion Technologies**

- Chemical propulsion
- Non-chemical propulsion
- Electric propulsion

5. **Space Power and Energy Storage**

- Power generation
- Energy storage
- Power management & distribution

6. **Robotics, Tele-Robotics and Autonomous System**

- Sensing
- Mobility
- Manipulation technology
- Human-systems interfaces
- Autonomy
- Autonomous rendezvous & docking
- Systems engineering

7. **Communication and Navigation**

- DSN Science
- Optical communications & navigation technology
- Radio frequency communications
- Internetworking
- Position, navigation and timing
- Active radar instruments
- Distributed spacecraft formation
- Revolutionary concepts
- Pointing systems

8. **Human Exploration Destination Systems**

- In-situ resource utilization
- Cross-cutting systems

9. **Science Instruments, Observatories and Sensor Systems**

- Science Mission Directorate Technology Needs
- Remote Sensing instruments/sensors

Observatory technology
Advanced optics and telescopes
In-situ instruments/sensor technologies
Visible/IR/submillimeter, in-situ and remote sensing instruments
Focal planes

10. Entry, Descent and Landing Systems

Aerobraking, aerocapture, and entry systems
Descent
Precision Landing
Vehicle system technology

11. Nanotechnology

Engineered materials
Energy generation and storage
Electronics, devices and sensors

12. Modeling, Simulation, Information Technology and Processing

Flight and ground computing
Modeling
Simulation
Information processing

13. Materials, Structures, Mechanical Systems and Manufacturing

Materials
Structures
Mechanical systems

14. Thermal Management Systems

Cryogenic systems
Thermal control systems
Thermal protection systems

Program Constraints

SURP proposals are intended to support collaborations with one or more of the Strategic Partner Universities listed above

There can be only one Principal Investigator for each proposal and the PI must be a full time JPL employee (submissions by external investigators are not allowed). JPL contractors cannot be PIs on SURP proposals.

The SURP program requires that the funding allocated in any fiscal year be fully costed (i.e. all Labor charged, all procurements and services fully billed and paid, etc.), not just obligated in that current fiscal year. Any encumbrance balance at fiscal year-end must be zero.

No funds can be carried-over into the following fiscal year. (There are no exceptions.)

The JPL PI must also inform their university collaborators that SURP funds cannot be carried over into the next fiscal year, and that any unused funding in the current fiscal year will be

returned to JPL.

There is no constraint on how the funds are split between JPL and the university partner.

The policies and restrictions concerning the use of SURP funds can be found at the Policies link within the R&TD web site.

SURP funds can **not** be used to:

- Substitute for or increase funding for any specific tasks that are funded by any other source.
- Fund projects that will require the addition of non-SURP funds to accomplish the technical goals of the SURP project.
- Fund general purpose capital expenditures with the exception of acquisition of general purpose equipment that is clearly required for the SURP project and is not otherwise readily available from the Laboratory inventory. (Proposals must contain any capital equipment requests. Equipment not listed in the proposal will not be approved.)

Multi-Year Awards

SURP awards are nominally for one-year duration, however, Student Research Initiative proposals that span up to three years may be accepted, providing that there is adequate justification for the benefit of an extended award. Multi- year awards will be made, based on the strength of the proposal and the availability of funds.

Research Initiative proposals may include an application for a collaborative SURP Graduate Research Award.

SURP Graduate Research Awards are available for up to three years, as part of a Research Initiative award. Each year, we anticipate awarding 2-3 SURP Graduate Research Awards to proposals that demonstrate a significant contribution to the thesis topic of a named graduate student. To be eligible, Research Initiatives must allocate sufficient funds to the graduate student to cover more than 40% of their tuition and stipend and the student's supervisor must be a Co-Investigator on the proposal.

A separate template is provided for SURP Graduate Research Award proposals, to be used in addition to the main proposal template. If selected, a SURP Graduate Research Award and associated Research Initiative can be funded for up to 3 years, contingent on a successful annual review and available funds.

Note: The SURP funds are now awarded on a fiscal year basis (~ October to September), and this award period applies to the external partner as well. The funds cannot carry over into the next fiscal year (no exceptions). Any funds not spent, both at JPL and at the external partner, will be returned to JPL's general fund.

SURP Travel Policy for FY2014:

The use of SURP funds for travel is allowed subject to the following restrictions:

- **Domestic or foreign travel for research purposes** (i.e., travel to a destination

required to accomplish the technical goals of the task) is allowed. **The total budget amount per year for such travel cannot exceed 10% of the total task budget. All foreign travel for research purposes must be forecasted in the proposal, otherwise the foreign travel cannot be approved (no exceptions).**

- **Domestic and foreign conference travel is allowed up to 3% of the total task budget, per year, whatever number is less. In addition, only one (1) foreign-conference travel per year will be allowed (no exceptions). Please note that specifying a conference location as "TBD" is not acceptable. Any conference travel not planned in the proposal cannot be approved (no exceptions).**
- All travel must be submitted as part of the SURP proposal package within the proposal template budget section.
- All travel requires the approval of the JPL Chief Scientist/Chief Technologist, or their designee.

All travel whether for programmatic or conference reasons must be planned as part this proposal, including specific conference titles and destinations. Any foreign or conference travel that is not planned in your proposal cannot be approved (no exceptions). Only essential travel should be requested and each request is subject to a line-item veto within each proposal. Investigators should also note that NASA reserves the right to reject any travel request and potentially any award they deem has unreasonable travel plans.

- University collaborators will also be required to project their proposed travel in the External Domestic Collaborator Budget Sheet (found in the proposal template).

Who may submit a SURP proposal

Only those JPL Principal Investigators who received an email notification that their Concept Papers were approved will be allowed to submit a new SURP proposal. Principal investigators of approved multi-year proposals may submit their renewal to this call.

Required Forms

The proposal template, optional Graduate Research Award template, and Assurance of Compliance form are provided at <https://surp.jpl.nasa.gov/collaborations/downloads>. The Assurance of Compliance Form summarizes the constraints of the program. In addition, any special equipment needed for the research should be listed on this form. The principal investigator must sign this form.

Required Export Compliance Review:

- Your SURP proposal will be required to identify ITAR issues as instructed in the JPL ITAR training. These areas must be marked in the proposal by changing the font color to red and italicizing the text. For additional information contact the Launch Approval Engineering & Launch Services Office.
- These Proposals are required to have export compliance marking. All project/task documentation is presumed to contain ITAR or EAR controlled information. These proposals should be marked as EITHER controlled or not controlled. You will need to have your proposal reviewed for ITAR content and approved by your line organization's export document reviewer and signed off in the proposal template.
 - **Don't submit your SURP proposal into the URS system.** Give it to your

- ITAR compliance Document Reviewer. This is the normal person who reviews your documents for ITAR compliance (e.g. your immediate supervisor).
- **The ITAR compliance Document Reviewer must sign the SURP proposal whether or not** it contains export-controlled information. By signing, the reviewer indicates that he or she has reviewed the proposal for export-controlled information.
 - If your SURP proposal **DOES** contain export controlled information, the default red footers (The technical data in this document is controlled under the U.S. Export Regulations, release to foreign persons may require an export authorization) should remain in place and the export information itself in the body of the proposal is denoted by using a red, italicized font.
 - If your SURP proposal **DOES NOT** contain export-controlled information, the footer is changed to "This document has been reviewed and determined not to contain export controlled technical data." To indicate that the proposal contains no export-controlled information, and the text in the proposal body is left unchanged.

Proposal Template Instructions

Please limit your proposal to 6 pages, not including budget information

1. **Title:** Enter the full title of the proposal
2. **JPL Principal Investigator:** Enter the first and last name of the PI with JPL line organization number and email address. The PI must be a JPL employee and only one PI can be listed.
3. **Co-Investigator(s):** Enter the first and last name(s) of all external partner and JPL investigators with affiliation and email address.
4. **Total Budget Request for FY14:** Enter the total FY14 budget request from your budget sheet. If the proposal will request more than one year of support for a Student Research Initiative, or will be accompanied by a Graduate Research Award proposal, also indicate this here.
5. **Student Participants:** For Research Initiatives enter the student name(s), email addresses, and academic level (undergrad, grad) of students participating in this proposed effort. If names are not yet known, enter TBD and the planned academic levels for student participation. Names are not required for Student Research Initiatives.
6. **Topic Areas:** Enter a "1" next to the primary topic area for the proposed work. If you wish to designate a secondary topic, place a "2" next to your secondary area. You may delete unwanted entries.
7. **Objectives:** State clearly and concisely the goals and objectives of your proposal and your expected deliverables.
8. **Technical Approach:** Describe your plan to achieve your objectives. List specific tasks, responsibilities, and milestones.
9. **Renewal Proposal:** If this is a renewal proposal, describe the achievements of the previous year's work.
10. **Multi-Year Rationale:** If you are proposing a multi-year Student Research Initiative, please describe the benefits of an extended award.
11. **Innovative Features:** What new ideas are being applied in this proposal? Innovation refers to any new evolutionary or revolutionary change in thinking, processes, products, and/or organization. Relate these innovative features to current approaches inside and outside of JPL.
12. **Team Strengths:** Describe the experience, skills and capabilities the team members bring to the proposed effort. List the specific responsibilities of each team member.
13. **Exchange of Personnel:** Describe any plans to have work done at JPL by university

students or faculty or work to be done at the university by JPL employees. Please note that the expenses incurred for any exchange must be included in the budget request.

14. **Significance and Impact of Results:** Discuss the significance of this proposed effort and the impact this work may have on JPL missions and programs. How does the effort contribute to the primary and secondary strategic topic area? How does the effort help strengthen the relationship between JPL and the strategic university?
15. **Plans for Follow-on Funding:** Provide a realistic assessment of the potential of the task for follow-on funding and possible sources for such funding. Discuss how the proposal may enhance the probability of such funding.
16. **JPL Principal Investigator Signature:** The JPL PI must sign the proposal.
17. **Document Reviewer Signature:** Line organization's export document reviewer must sign the proposal, after reviewing it for export sensitive material.
18. **JPL PI Division Manager Approval Signature:** The Division Manager or Manager III equivalent for Program Office submissions, or their designee, of the JPL Principal Investigator must sign and approve the proposal
19. **External Co-Investigator Signature:** The lead university Co-I must sign the proposal. A scanned or faxed signature is acceptable.
20. **University Authorizing Signature:** A university representative with contractual or procurement authority must sign the proposal. It is also acceptable for the university to submit a signed letter stating willingness to participate in the proposed research in lieu of a signature in this box. A scanned or faxed signature is acceptable.
21. **Figures, Graphics, Tables:** All figures, graphics, and tables should be placed at the end of the proposal. Please do not use "text wrapping" when incorporating graphics at the end of the report. The PI is responsible for ensuring that figures, graphics, and tables are legible.
22. **Budget Sheet:** A separate budget sheet is required for JPL, and for each university partner. Please note that the budget should be reported on a Direct Cost basis (Raw Cost + Fringe Benefits, excluding other burdens). SURP tasks are funded and monitored on a Direct Cost basis.
 1. **JPL Labor** - itemize (Note: You are not required to list each person's JPL salary within the budget. You only need to itemize the person names (or job classifications) and the number of hours for each, and then provide one total salary \$ figure for JPL Labor.)
 2. **Labor Fringe** (multiply the total JPL Labor \$ figure in line "a." by the labor fringe rate of 51%)
 3. **Cat-A Labor** (On-Lab contractors) -- itemize
 4. **Procurement -- Equipment** (only as allowed by the SURP program, and all proposed JPL equipment costs must be itemized). Any equipment not listed in your proposal cannot be approved.
 5. **Procurement--RSA (or PS)** for University Subcontract(s). Use an "RSA" type of subcontract to send funds to your university partner, except for the following circumstances: If your proposal involves hardware or software deliveries or if government furnished property will be sent to the university, then a RSA subcontract will not be allowed. Under these circumstances, use a "PS" type of subcontract.
 6. **Procurement** - itemize equipment subcontracts
 7. **Procurement** - itemize materials and supplies, etc. subcontracts
 8. **Services** itemize any "in-house" services at JPL.
 9. **Travel**

Any budgeted Travel must be itemized into the following categories:

- **Domestic Conference Travel** (specify conference title, travel destination, and total budgeted cost for each conference). **Please note that specifying a conference location as "TBD" will not be acceptable. Any conference travel not planned in the proposal cannot be approved (no exceptions).**
- **Domestic Programmatic Travel** (estimate probable domestic programmatic travel, including destination and total budgeted cost for each trip).
- **Foreign Conference Travel (only one foreign conference travel is allowed per year**, specify conference title, travel destination, and total budgeted cost for the conference). **Please note that specifying a conference location as "TBD" will not be acceptable. Any conference travel not planned in the proposal cannot be approved (no exceptions).**
- **Foreign Programmatic Travel** (specify travel destination and total budgeted cost for each trip). **All foreign programmatic travel for research purposes must be planned in the proposal, otherwise the foreign travel cannot be approved (no exceptions).**

10. **Other** (Chargebacks, etc.) -- itemize

11. **TOTAL JPL BUDGET** (sum of lines 1 through 10)

23. Budget Details for University Partners

- a. **Salaries (Itemize)** -- You only need to "itemize" the person names and job classifications and the number of hours for each. You can show one total \$ salary figure for labor.
- b. **Employee Benefits** -- This line is the employee benefits associated with the salary total in line a. for the university or other outside organization.
- c. **Procurements - Equipment, Materials and Supplies (Itemize)** - List any planned procurements of equipment, materials, and supplies.
- d. **Procurements - Subcontracts (Itemize)** - List any planned subcontracts.
- e. **Services - (Itemize)** -- Include any "in-house" services.
- f. **Travel - (Itemize)** -- List planned travel.
- g. **Other - (Itemize)** -- Include Tuition Remission here
- h. **Overhead - external** -- Overhead costs associated with the university or other outside organization.
- i. **Total Budget** (sum of lines a. through h.) -- The total budget for this university partner - include this in your JPL budget sheet.

Submission of your proposal

Once you have completed your proposal template, you will then access the electronic submissions site in order to first obtain your assigned proposal number, and then electronically submit your proposal file into the SURP submission site:

- **Instructions for obtaining your proposal number and then electronically submitting the completed proposal file** can be found in the [Submissions](#) link within the SURP web site, <https://surp.jpl.nasa.gov/>.
- **You need to obtain your assigned proposal number prior to electronically submitting your completed proposal file.** Your proposal number will be assigned and shown to you in the submissions site, once you have filled out the required information in the submissions site.

- After having obtained your assigned proposal number from the submission site, then **enter it on the upper right-hand corner of your** proposal.
- **You will then electronically submit your** proposal file into the SURP submission site.
- You will be required to write a summary of your proposal (100 word maximum) within one of the input fields of the Submission Site.

IMPORTANT -- We strongly recommend that you submit the proposal file early to allow for potential problems.

Deliver a signed original of your proposal, and compliance form to Vivian Molina (office location 180-600C, mail stop 180-600, ext. 4-5923) prior to the submission deadline.

Evaluation Process

Proposals will undergo a technical peer review and also be evaluated by Program Directorates and Technical Divisions. The final selections will be approved by the JPL Chief Scientist and Chief Technologist.

The technical selection criteria are as follows:

- Innovation
- Merit of the technical approach
- Strength of the investigation team
- Impact on JPL capabilities for future missions and programs
- Cost and schedule realism
- Possibility of follow-on funding

If your proposal is not funded, the principal investigator will be given a written summary of the technical comments for the proposal. Programmatic and institutional reviews that affect the proposal decisions will not be made available to the investigator.