

FY14 SURP Concept Paper Guidelines

The deadline for SURP concept paper submission is Wednesday, February 27, 2013, by 4 PM PST.

A. 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 to 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.

Arizona State University	Stanford University
Carnegie Mellon University	University of Arizona
Dartmouth College	University of California, Los Angeles
Georgia Institute of Technology	University of Michigan
Massachusetts Institute of Technology	University of Southern California
Princeton University	University of Texas, Austin

JPL has identified science and technology areas that are essential for JPL's continuing contribution to NASA's future success and for which JPL's leadership is key. Please designate only 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. Type the topic area subcategory on the concept paper 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

B. Program Constraints

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

Additional constraints of the program:

SURP funds will 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 are possible, based on the strength of the proposal and the availability of funds. Research Initiatives may include an application for a collaborative SURP Graduate Research Award, which, if selected, could provide up to three years of funding. Please indicate in your concept paper if you intend to apply for a multi-year

award.

Note: The SURP funds are awarded on a fiscal year basis (~ October to September). 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.

C. Who Needs to Submit a SURP Concept Paper

All investigators who would like to propose a full SURP proposal need to submit a concept paper.

D. Required Forms

A one-page concept paper template is provided in <https://surp.jpl.nasa.gov/collaborations/downloads/> on the SURP website, <https://surp.jpl.nasa.gov/>. On this form you must provide the title of the concept, a list of the investigators with their organization, the FY14 budget, the primary and if desired secondary topic area you are proposing in (found in the list above), and a description of the concept that includes the objective, approach, innovation, impact on JPL and a description of the value of the external collaboration.

The concept paper must be limited to one-page only.

E. Electronic Submission of Your Concept Paper (Attachment A):

Once your Attachment A concept paper template has been completed, you will then access the electronic submissions site in order to first obtain your assigned concept paper number, and then electronically submit your Attachment A concept paper write-up file (with your assigned concept paper number typed on the upper right-hand corner of your write-up) into the SURP submission site:

- **Instructions for obtaining your concept paper number and then electronically submitting the completed Attachment A concept paper file** can be found in the [Submissions](#) link within the SURP web site, <https://surp.jpl.nasa.gov/>.
- **You need to obtain your assigned Concept Paper Number prior to electronically submitting your completed Attachment A file. Your concept paper 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 concept paper number in the submissions site, then **type your concept paper number on the upper right-hand corner of your Attachment A concept paper write-up file.**
- **You will then electronically submit your Attachment A concept paper write-up file (that includes the typed concept paper number)** into the SURP submission site.

No the Hard-Copies of Your Concept Paper are required.

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

F. Evaluation Process

An evaluation of all concept papers will be carried out by an institutional evaluation board chaired by the SURP Program Manager.

The recommendations will then be submitted to the Chief Scientist and Chief Technologist, who will review the recommendations and then approve which concepts will go forward to full proposals.

The principal investigators of the approved concepts will be asked to write and submit a full SURP proposal and these proposals will be due approximately the middle of May 2013.

The technical selection criteria are as follows:

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

G. Debriefing

Due to the large number of concept papers that are anticipated to be received, it will not be feasible to provide written feedback to each principal investigator.