

**Keck Institute for Space Studies
Solicitation for 2016 Study Program Proposals**

Solicitation Release Date: 02 October 2015

Overview

Proposal Concept Due Date: NOON 06 November 2015

Study Program Proposal Due Date: NOON 22 December 2015

The Keck Institute for Space Studies (KISS) is soliciting proposals for Study Programs to be carried out during the 2016 calendar year.

The goal of the Keck Institute is to develop ideas and concepts that have the potential to revolutionize future space missions. The Institute will do this by convening study programs and workshops that bring together the best engineers and scientists from JPL and Campus along with leading scientists and engineers from the external research community.

The Keck Institute is looking for approaches that would not happen without KISS sponsorship. We are looking for technically oriented studies that significantly advance a field. Proposals for incremental advances will not be funded. We are interested in bringing people together in new ways on in-depth collaborations that will pursue new scientific and technical directions.

Study program proposals are solicited in the areas of space engineering, planetary science, remote sensing and earth system science, astrobiology, and astronomy and physics from space.

Caltech Campus faculty and JPL scientists and engineers are eligible to serve as co-leads on proposals to KISS. External research community members should be included as core participants in the Study Program and one external participant should be identified as a co-lead.

The Study Programs described in this solicitation are aimed at fostering new ideas for future KISS Technical Development Follow-on Programs while broadening the participation of Campus, JPL, and external scientists and engineers in KISS. We intend to select and support 4-5 Study Programs for the 2016 calendar year. At this time there is no opportunity to propose for follow-on technical development funding in CY2017. However, if additional KISS funding becomes available for extension of its programs, we may solicit technical development proposals in Spring of 2017 for funding in the 4th quarter of CY2017.

Characteristics and Components of a KISS Study Program

Study programs will have the following characteristics. They:

- are stimulated by recent scientific or technical advances,
- show promise for making a significant impact on future space missions,
- illustrate strong participation by both Campus and JPL,
- include participation by key elements of the external scientific and technical communities, including industry as appropriate, and
- provide significant opportunities for frequent and sustained technical interaction between participants.

Components of a Study Program:

- One or more workshops
 - o If only one workshop is held, it must be a minimum of 5 days duration and up to a maximum of two weeks duration
 - o If more than one workshop is anticipated for the study, the first (opening) workshop must be a minimum of 4 days in duration
- Short course at the start of the first workshop for interdisciplinary exchange and building a common vocabulary
- Recommended study periods for face-to-face interaction between core participants, including visitors
- Opportunities for junior members to participate
- Open technical talk or public lecture
- Final report

Criteria for Selection

The selection of the KISS Study Programs will be based on the following criteria:

- potential for generating innovative new ideas with significant promise to impact the way that future space missions are carried out
- quality of the core-group participants, and of letters of commitment from the co-leads and participants indicating their willingness to fully participate in and/or lead the study
- balance between, and diversity of, Campus, JPL, and external participants,
- quality of the plans for formal and informal technical interactions between the core-group participants – including in particular how ties between JPL and Campus will be strengthened
- quality of the plans for how the Study Program events will be implemented, e.g., plans for a workshop, talks and seminars, and other possible events, and

- opportunities for junior members of the community to participate in program activities.

Quality of the proposed study program is the primary criterion. Preference will be given to those study program proposals that provide specific plans for significant technical interaction between participants.

Proposers may wish to look at the descriptions of previously funded Keck Institute programs that can be found at: <http://www.kiss.caltech.edu/>.

Proposal Requirements

Proposals for Study Programs should be no more than 5 pages in length plus the required appendices (no page length constraint). Additional supporting material may be attached, but all essential information must be included in the five-page **Program Description and Rationale** primary proposal **plus the required appendices** (core participant listing, letters of commitment).

The proposal should include the following information:

Program Description and Rationale (i.e. 5-page primary proposal)

- Name of the Study Program
- Name of the Co-Leads (one must be from JPL, one from Caltech Campus, and one from an external organization)
- Description of the goals of the Study Program
- Rationale of why the Study Program has the potential to develop innovative new ideas for future space missions
- Proposed format of Study Program
 - o Proposed dates and schedule for the Study Program
 - o Include plans for talks, seminars, and workshop(s)
 - o Include plans for formal and informal interaction sessions among participants – note: KISS workshops should be 50% discussion based (either in small groups or plenary lead discussions)
 - o Include plans for other proposed events (e.g. social events, public lecture, short course)
 - o Plans for team member communication (e.g. team-managed Google doc site or KISS-provided wiki, team teleconferences, etc.)
- Description of how the program will benefit collaborations and interactions between Campus and JPL, and between external participants and JPL/Campus
- Strength of study team, including description of how the diversity of proposed study team reflects the diversity of the various disciplines
- Opportunities for junior members of the community to participate

Required Appendices:

A. Study at a Glance (see template)

- a. Workshop Information - # of workshops and first workshop length (number of workshop days? See minimums on page 7 below.)
- b. Short course planned?
- c. Plan to include junior members?
- d. Open technical lecture or public lecture planned?
- e. Planning a study period?
- f. Study interaction period(s) – as applicable

B. List of Core Participants and Contact Information (see template)

Names of a candidate group of 18 core participants (including the three co-leads) with home institution, discipline, e-mail and telephone contact information; (A final addition of 6 core core-group participants will be negotiated / finalized upon acceptance of the proposal with members of the KISS steering committee. The final number of core participants is expected to be around 24.)

C. Letters of Commitment

Letters of commitment from the 18 candidate co-leads and participants indicating their willingness to fully participate in and/or lead the study are required. One of the selection criteria will be the strength of these letters of commitment, and in particular – the strength of the letters from the co-leads. No more than 18 letters of commitment may be submitted.

Optional Appendix:

D. References

Study programs may submit papers or any other reference material that they think will provide the steering committee with information that will strengthen their proposal.

A proposal concept (see template on website) is also required by NOON 06 November 2015. Proposal concepts may be shared with JPL Directorate Chief Scientists and Chief Technologists. Proposals are due by NOON 22 December 2015. Proposal concepts and final proposals should be submitted electronically via instructions located at <http://www.kiss.caltech.edu/>.

KISS Support for Study Programs

Typical study program funding support:

Cost per first workshop in study	\$20k
Cost per subsequent workshop	\$15k

Workshops: The Keck Institute will support costs associated with workshops. A typical 5-day local workshop for 24-30 people may incur expenses of about \$20k.

Local participants should expect to cover their own costs incurred while attending the workshops.

The Institute has limited travel funds for visiting attendees to workshops; it provides partial support travel for the few who need it. The Institute gives funding preference to graduate students, postdocs, and early career scientists, engineers, and technologists who may not have much of a travel budget. Funding preference is also given to those folks who can pay a portion of their travel and share costs with the Institute. Travel support is generally not provided for people who do not attend the entire workshop.

KISS does not provide labor support to participate in a study program.

Visitors: Full support is provided for external core-group participants in study interactions that take place outside any of the proposed workshop(s). Typically a study will spend up to \$6k on travel support for 20 visitor days.

Support from Keck Institute personnel: Keck Institute personnel will provide support for organizing the workshop associated with the Study Program as well as support for visiting participants.

Facility Support: The Keck Institute is now in its permanent location at the Keck Center on the NW side of the Caltech campus (just NW of Beckman Auditorium). A think tank room, a conference room and a number of interaction spaces are available.

Web support: The Keck Institute will provide web support for a public website for study program activities including providing templates and space for workshop registration, archiving of talks, etc. A password protected wiki is also available for the team members to have a shared workspace on the web.

Co-Lead Support: A small amount of discretionary support will be awarded to the Campus Co-Lead of study programs, in accordance with the scope of the program.

Final Report Support: A small amount of discretionary support will be awarded to the team under the Campus Co-Lead of study program, in order to provide for illustrations, copyediting and writing support as deemed necessary by the team leads.

JPL Support for Study Programs

KISS is a joint institute between Campus and JPL. JPL supports its own participation in Institute activities through the JPL R&TD Program. In addition to submitting a proposal to KISS, JPL Co-Leads must request R&TD funding to support JPL participation in the study – please contact Kathy Dumas at JPL to understand the process to obtain JPL support.

Additional Information and Comments

Format:

Successful formats for past study programs include, but are not limited to:

Focused study

5-day format where the challenge is extremely clear and little time is required to bring an interdisciplinary team up to speed in order to attack the problem. May or may not include a follow-up study period.

Intense, community-building study

2-week format in which the first week focuses on exchange of information via a set of scheduled talks/seminars (still encouraging significant interaction), while the second week allows for less-structured interaction and brainstorming among core-group participants. May or may not include a follow-up study period.

Long term study

- 4-5 day opening workshop to frame the challenge and outline the path of further investigation with an opening short course and an open/public lecture
- Follow up study program with sub-team meetings
- 3-5 day closing workshop to finalize the recommendations of the study. This workshop may also be used to build community support for the program by inviting funding agencies to attend the final day of the workshop.

Organizers should consider the above formats but are allowed to propose other study formats as long as the minimum opening workshop meets the requirement for workshop length.

The Institute is looking for a range of proposals that encompass the various formats described above.

Associated Participants: Study participants often wish to have young scientists and engineers accompany them when they participate. KISS encourages such participation and will work with the study organizers to provide support and accommodation for younger scientists and engineers.

KISS Steering Committee Members: Proposers are encouraged to contact members of the KISS Steering Committee for further information or advice. A list of the members can be found here:

<http://www.kiss.caltech.edu/people/index.html>.