

Advancing Geographic Information Science (AGIS)

PROGRAM SOLICITATION NSF 15-999



Nascent Science Foundation
Directorate for Geospatial Research, Learning and Fun

Full Proposal Deadline(s) (due by 8 p.m. proposer's local time):

Thursday July 2, 2015

Second Tuesday in March in Leap Years Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

Revision Notes

None

Important Information

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 15-1).

SUMMARY OF PROGRAM

REQUIREMENTS General

Information

Program Title:

Advancing Geographic Information Science (AGIS)

Synopsis of Program:

The AGIS program seeks to:

- promote scientific research that advances theory and basic understanding in geographic information science and that addresses challenges facing science and society.
- * support the enhancement of geospatial sciences research and education activities through community-driven development and implementation of databases; tools for data integration, interoperability, and visualization; software development and code hardening; and data-intensive or new computing methodologies.
- promote integration of research in geographic information science with interdisciplinary research.
- promote the development and use of scientific methods and tools for geographic information science research.
- promote education and training of geographic information scientists in order to enhance the capabilities of current and future generations of researchers.

Projects on a variety of topics qualify for support if they offer promise of contributing to scholarship by enhancing geographic information science knowledge, concepts, theories, methods, and their application to societal problems and concerns.

Cognizant Program Officer(s):

- Werner Kuhn, email: werner@ucsb.edu
- Harlan Onsrud, email: harlan.onsrud@maine.edu

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 3

For FY2015, NSF expects to make 1 to 3 awards.

Anticipated Funding Amount: \$250,000 to \$1,000,000 per award.

For FY2015, it is expected that \$1.5 million in mock money will be allocated for new awards with maximum award duration of two years.

Eligibility Information

Who May Submit Proposals:

Any group of three or more interdisciplinary researchers participating in the Vespucci Institute 2015 titled *Advancing Geospatial Science: The Past and Next Twenty Years*.

Who May Serve as PI:

There are no restrictions or limits. Maximum of 1 PI and 4 Co-PIs per proposal. Further senior personnel may be added.

Limit on Number of Proposals per PI or Co-PI: 1

An individual may serve as Principal Investigator or Co-Principal Investigator for no more than one proposal. No exceptions will be made.

Proposal Preparation and Submission Instructions

Each proposal should contain:

- A. Project Summary with Title
- B. Project Description
- C. References Cited
- D. Biographical Sketch(es) [Optional]
- E. Budget and Budget Justification

A. Project Summary

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an **overview**, a statement on the **intellectual merit** of the proposed activity, and a statement on the **broader impacts** of the proposed activity.

The overview includes a description of the activity that would result if the proposal were funded and a statement of objectives and methods to be employed. The statement on intellectual merit should describe the potential of the proposed activity to advance knowledge. The statement on broader impacts should describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes.

The Project Summary should be written in the third person, informative to other persons working in the same or related fields, and, insofar as possible, understandable to a scientifically or technically literate lay reader. It should not be an abstract of the proposal.

B. Project Description

(i) Content

The Project Description should provide a **clear statement of the work** to be undertaken and must include: objectives for the period of the proposed work and expected significance; relation to longer-term goals of the PI's project; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to work in progress elsewhere.

The Project Description should outline the **general plan of work**, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures. Proposers should address what they want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified. These issues apply to both the technical aspects of the proposal and the way in which the project may make broader contributions.

The Project Description must contain, as a separate section within the narrative, a section labeled "**Broader Impacts of the Proposed Work**". This section should provide a discussion of the broader impacts of the proposed activities. Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to the project. NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of our nation; and enhanced infrastructure for research and education.

Plans for data management and sharing of the products of research, including preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and education products should be described.

(ii) Page Limitations and Inclusion of Uniform Resource Locators (URLs) within the Project Description

Brevity will assist reviewers and Foundation staff in dealing effectively with proposals. Therefore, the Project Description may not exceed 15 pages. Visual materials, including charts, graphs, maps, photographs and other pictorial presentations are included in the 15-page limitation. Conformance to the 15-page project description limitation will be strictly enforced and may not be exceeded unless a deviation has been specifically authorized.

The typeface must be Times New Roman at a font size of 11 points or larger. Line spacing should be single-spaced. Each paragraph of text may be indented or blank lines may be inserted between paragraphs or both. Page margins on all sides must be at least one inch. Pagination must be provided starting with the summary through to the final page of the proposal.

PIs are cautioned that the Project Description must be self-contained and that URLs that provide information related to the proposal should not be used because 1) the information could circumvent page limitations, 2) the reviewers are under no obligation to view the sites, and 3) the sites could be altered or abolished between the time of submission and the time of review.

C. References Cited

Reference information is required. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, the website address also should be identified. Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the 15-page Project Description.

D. Biographical Sketch(es) [OPTIONAL FOR VESPUCCI EXERCISE]

A biographical sketch (limited to two pages) is required for each individual identified as senior personnel. (See GPG Exhibit II-7 for the definitions of Senior Personnel.) The following information must be provided in the order and format specified below. Inclusion of additional information beyond that specified below may result in the proposal being returned without review.

(a) Professional Preparation

A list of the individual's undergraduate and graduate education and postdoctoral training (including location) as indicated below:

Undergraduate Institution(s)	Location	Major	Degree &Year
Graduate Institution(s)	Location	Major	Degree &Year
Postdoctoral Institution(s)	Location	Major	Inclusive Dates (Years)

(b) Appointments

A list, in reverse chronological order, of all the individual's academic/professional appointments beginning with the current appointment.

(c) Products

A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, whether or not related to the proposed project. Acceptable products must be citable and accessible including but not limited to publications, data sets, software, patents, and copyrights. Unacceptable products are unpublished documents not yet submitted for publication, invited lectures, and additional lists of products. Only the list of ten will be used in the review of the proposal.

Each product must include full citation information including (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, website and URL or other Persistent Identifier.

If only publications are included, the heading "Publications" may be used for this section of the Biographical Sketch.

(d) Synergistic Activities

A list of up to five examples that demonstrate the broader impact of the individual's professional and scholarly activities that focuses on the integration and transfer of knowledge as well as its creation. Examples could include, among others: innovations in teaching and training (e.g., development of curricular materials and pedagogical methods); contributions to the science of learning; development and/or refinement of research tools; computation methodologies, and algorithms for problem-solving; development of databases to support research and education; broadening the participation of groups underrepresented in STEM; and service to the scientific and engineering community outside of the individual's immediate organization.

(e) Collaborators & Other Affiliations

i. Collaborators and Co-Editors.

A list of all persons in alphabetical order (including their current organizational affiliations) who are currently, or who have been collaborators or co-authors with the individual on a project, book, article, report, abstract or paper during the 48 months preceding the submission of the proposal. Also include those individuals who are currently or have been co-editors of a journal, compendium, or conference proceedings during the 24 months preceding the submission of the proposal. The total number of collaborators and co-editors also must be identified. If there are no collaborators or co-editors to report, this should be so indicated.

ii. Graduate Advisors and Postdoctoral Sponsors.

A list of the names of the individual's own graduate advisor(s) and principal postdoctoral sponsor(s), and their current organizational affiliations. The total number of graduate advisors and postdoctoral sponsors also must be identified.

iii. Thesis Advisor and Postgraduate-Scholar Sponsor.

A list of all persons (including their organizational affiliations), with whom the individual has had an association as thesis advisor, or with whom the individual has had an association within the last five years as a postgraduate-scholar sponsor. The total number of graduate students advised and postdoctoral scholars sponsored also must be identified.

The information in this section (e) is used to help identify potential conflicts or bias in the selection of reviewers.

E. Budget and Budget Justification

Each proposal must contain a budget for each year of support requested. The budget justification must be no more than three pages per proposal. The amounts for each budget line item requested must be documented and justified in the budget justification.

As a general policy, NSF limits the salary compensation requested in the proposal budget for senior personnel to no more than two months of their regular salary in any one year.

Merit Review Principles and Criteria for Reviewers

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge; and

Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education. Proposers are reminded that reviewers will also be asked to review the Data Management Plan.

Reviewers will be provided with a standard form to complete for each proposal under review. In addition to the written proposal submissions, research teams will present their proposals orally to the Review Panel. All senior scholars not actively engaged in the proposal competition serve on the Review Panel which will decide on the successful proposals and present awards.