Water Cycle Research (WCR)

Program Solicitation

NSF-02-101

DIRECTORATE FOR GEOSCIENCES

FULL PROPOSAL DEADLINE(S): June 18, 2002

NATIONAL SCIENCE FOUNDATION

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SUMMARY OF PROGRAM REQUIREMENTS

GENERAL INFORMATION

Program Title: Water Cycle Research (WCR)

Synopsis of Program:

Cognizant Program Officer(s):

- Dr. L. Douglas James, Program Director, Hydrologic Sciences, Earth Sciences, Room 785, telephone: 703-292-8549, e-mail: ldjames@nsf.gov.
- Dr. Sumant Nigam, Program Director, Large-scale Dynamic Meteorology, Atmospheric Sciences, Room 775, telephone: 703-292-8522, e-mail: snigam@nsf.gov.
- Dr. Rodey Batiza, Program Director, Marine Geology and Geophysics, Ocean Sciences, Room 725, telephone: 703-292-8581, e-mail: rbatiza@nsf.gov.

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.050 --- Geosciences

ELIGIBILITY INFORMATION

- **Organization Limit:** None
- **PI Eligibility Limit:** None
- **Limit on Number of Proposals:** None

AWARD INFORMATION

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 10-20 awards
- **Anticipated Funding Amount:** $5 million in FY03 pending availability of funds.

PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

- **Full Proposals:** Standard Preparation Guidelines
    - Standard GPG Guidelines apply.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Deadline/Target Dates

- **Letters of Intent (*optional*):** None
- **Preliminary Proposals (*optional*):** None
- **Full Proposal Deadline Date(s):** June 18, 2002

D. FastLane Requirements

- **FastLane Submission:** Required
- **FastLane Contact(s):**
    - Brian Dawson, Computer Specialist, GEO, telephone: 703.292.4727, e-mail: bdawson@nsf.gov.

PROPOSAL REVIEW INFORMATION

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full program announcement/solicitation for further information.

AWARD ADMINISTRATION INFORMATION

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.

I. INTRODUCTION

The vitality of all life on Earth and our economic prosperity depend on water. The maintenance of a reliable water supply will be one of the greatest challenges to the future of our cities, agriculture and the well being of people throughout the world. Water continuously circulates through the Earth's oceans, atmosphere, biosphere, land surface and subsurface layers. This movement of water is termed the global water cycle. The water cycle, however, involves much more than the fluxes of water itself. The water cycle sustains life and through latent heat exchange and radiative effects plays a central role in the planet's energetics. When it condenses in the atmosphere it produces clouds and precipitation. Clouds influence the amount of solar radiation reaching the earth's surface and precipitation controls surface run-off. Moving water carries nutrients and dissipates wastes through dilution, deposition, or chemical transformation. Water couples the Earth's physical, chemical and biological systems. Nevertheless, the characterization of the water cycle from evaporation and precipitation to transportation and storage is poorly understood. Effective management of our water resources will require a deeper understanding of hydrologic systems and the factors that determine the distribution, availability, and quality of water.

Building on recent advances in the Geosciences, this solicitation is in keeping with the goal to advance "the scientific understanding of the integrated Earth systems through supporting high quality research..." ("Geosciences Beyond 2000", NSF 00-27; http://www.geo.nsf.gov/adgeo/geo2000.htm). Determining how natural fluctuations and anthropogenic factors may impact the water cycle is a major scientific challenge of the Geosciences for the coming years. The challenge is heightened as global environmental changes alter the water cycle. In order to meet this challenge, geoscientists must probe more deeply into the interactive processes within the water cycle, quantify inherent variabilities and alterations caused by global change, and determine the impacts of these processes on water resources.

The U.S. Global Change Research Program (USGCRP) has placed a high priority on research into the water cycle. Specific recommendations are detailed in "A Plan for a New Science Initiative on the Global Water Cycle" (USGCRP, 2001, http://www.usgcrp.gov/usgcrp/ProgramElements/water.htm). The water cycle research envisioned for support by NSF focuses on those fundamental processes and interactions where NSF can contribute basic understanding that complements the other activities in the total Federal program. Considerable community interest is also evidenced by publication of "Grand Challenges in Environmental Sciences" (NRC, 2001; http://www.nap.edu/books/0309072549/html/). This document identifies Hydrologic Forecasting as one of the four priority research areas recommended for immediate investment. The Water Science and Technology Board (NAS) also has described priority research needs related to water availability, quality and hydrologic prediction in the publication "Envisioning the Agenda for Water Resources Research in the Twenty-First Century" (NRC, 2001; http://www.nap.edu/books/0309075661/html). These reports have provided guidance to NSF and the other Federal agencies on the range of leading edge research directions that are critical to making progress in our understanding of the Earth's water cycle, and that will help NSF in meeting its goals in the environmental sciences.

For research opportunities on the Water Cycle in the Arctic region, please see the NSF Program Announcement: "Arctic Freshwater Cycle: Land/Ocean Linkages" (NSF 02-071, http://www.nsf.gov).

II. PROGRAM DESCRIPTION

The scope of this Program Announcement encompasses research that contributes to an enhanced understanding of water cycle processes. Federal agencies other than the National Science Foundation bear the primary responsibility for developing and maintaining an observational infrastructure required for the day to day assessment of water distribution, movement and quality. With this announcement, the NSF Directorate for Geosciences introduces a new competition in support of innovative basic research into the science of the water cycle. The Directorate anticipates this as the first of a series of announcements over the next several years to support investigations of the fundamental processes that underpin our understanding of the full dimension of the water cycle. The selected priority science issues are understanding and quantifying:

· Pathways and fluxes of water among hydrologic reservoirs;
· Causes of water cycle variability;
· Prediction of water cycle variations;
· Linkages between the water cycle and geochemical constituents.

TOPICAL AREAS

1. Pathways and Fluxes of Water among Hydrologic Reservoirs

Water is stored in oceans, the atmosphere and clouds, surface reservoirs including rivers, lakes, wetlands, vegetation, snow and ice, and in subsurface reservoirs such as soils, aquifers, and rocks. Water flows between these reservoirs across interfaces and along many pathways. Proposals are encouraged on research focusing on the pathways and interfaces at various scales that connect moisture reservoirs. Examples would include how water at the Earth's surface influences atmospheric processes above (evaporative flux) and processes in the subsurface (recharge flux); and water discharges and transport from continental areas to coastal and ocean waters. Proposals giving specific attention to cross-scale mass transfer at the boundaries between land-atmosphere (such as Earth surface moisture), land-ocean (such as groundwater discharge to the sea) and ocean-atmosphere are especially encouraged.

Quantification of fluxes along these pathways, including estimation of uncertainties, will be a high priority. Research proposals also are invited that address scaling issues in connecting climate to hydrologic models and in applications to water resources management issues. The topics of interest include, but are not limited to:

· Transport processes of atmospheric water vapor from evaporation sources to precipitation sinks.
· Precipitation partitioning among land surface stores with different residence times.
· Evapotranspiration from heterogeneous watershed surfaces during wet and dry periods.
· Subsurface storage and flow within soils, alluvial aquifers, and through eological formations.
· Processes of subsurface discharge into the sea.

2. Causes of water cycle variability.

Because of natural variability, or human impact, each of the fluxes described above varies in space and time. In order to understand hydrologic variability and enhance our predictive capabilities from local to global scales, we must understand how component fluxes and land, ocean, and atmospheric reservoirs operate and interact with each other.

Of interest are studies of variability in water fluxes from land, atmosphere and oceans. For example, estimation and characterization of regional groundwater recharge and extreme hydrologic events might be improved by a better understanding of the geographical distribution of precipitation, land surface and vegetation characteristics, and subsurface flow pathways through unsaturated and saturated zones. In turn, areal precipitation patterns may be examined from the point of view of storm type, seasonal variations, impacts on runoff, and how these change with climate, watershed characteristics, or human-induced causes. System representation of these dynamic interactions is encouraged.

Quantitative studies into the causes of water cycle variability might include:

· Characterization of the physical processes and mechanisms controlling water cycle variability in time and space.
· Numerical simulation of observed water cycle variability in the atmosphere, and over land and ocean.
· Methodologies for distinguishing between human-induced and natural variations of the water cycle.
· Characterizing shifts in regional and local hydrologic properties using a variety of recent and paleohydrologic records.

3. Prediction of water cycle variations.

Predictions of the water cycle may range from deterministic forecasts based on physical models to probabilistic estimates of extreme events. The prediction problem is particularly challenging because of the scale disparity at which atmospheric, land, and groundwater processes interact and because of differences in the inherent predictability in each domain. Further, there is a wide range in the lead times for which predictions are needed - over a few days in response to weather, over a few months in response to seasonal change, and over a few years to decades in response to climate variations and land and water use. Hydrologic prediction also must anticipate the consequences of extreme events. The ultimate aim is to use the enhanced understanding of linkages in the variability of global and regional systems as the basis for producing improved and useful hydrologic predictions at all these scales.

Studies that contribute to improved prediction of hydrologic systems might include:

· Identification and quantification of the predictable components (precipitation, runoff, and recharge) of the water cycle at pertinent temporal and spatial scales.
· Development of numerical models and statistical techniques for predicting droughts, floods and transport events.
· Characterization of the impacts of remote ocean surface characteristics on hydrologic variability on distant land areas (teleconnections)
· Characterization of local and regional feedback mechanisms that affect the response of hydrologic systems to local and external forcing factors.
· More effective methods for coupling component models and for representing subgrid-scale processes in system models.

4. Linkages between the water cycle and geochemical constituents.

Water plays a central role in the transport of solids and solutes in the Earth system. Thus, the water cycle is closely linked with the cycles of carbon, nitrogen, phosphorous, oxygen, and other environmentally sensitive elements. Changes in climate, and land and water use are modifying water cycling and storage in terrestrial reservoirs. These, in turn, affect the disposition of dissolved and particulate constituents and have a variety of impacts on water quality and aquatic ecosystems.

Proposals are invited for study topics that include, but are not limited to:

· The effects of changes in land use and land cover on the cycling of water and the transport of dissolved and particulate constituents.
· Ecosystem feedbacks to cycling of water and nutrient fluxes.
· Impacts of discharges of ground and surface waters on the physical, biogeochemical and ecological processes of coastal and nearshore marine waters.

GENERAL GUIDANCE

This announcement opens a way for investigators to integrate research and build research teams from the disciplinary sciences to pursue topics that cannot be readily addressed by on-going programs within the Foundation. Proposals should work from clear theoretical foundations grounded in relevant literature and specify the research methods to be used, the expertise that each team member would bring to the project, and how and where results would be disseminated. Additionally, use of simulation, analysis, and visualization in quantitative studies are encouraged as valuable tools to elucidate fundamental principles at both process and systems levels. Studies should quantify uncertainties and, as practical, define limits of precision.

Where appropriate, investigators are encouraged to work in association with existing projects, experimental watersheds, or research centers, whether supported by NSF or other agencies. In such proposals, the project description should make clear how the proposed work differs from and augments activities already supported. A letter stating the specifics of cooperation or support from the on-going activity for the proposed project should be included as Supplementary Documentation.

Research into processes within the water cycle may be constrained by the absence of reliable data. The Water Cycle Program will support the development of innovative instrumentation and associated software for observing, modeling and analyzing complex water cycle processes. Proposals are invited for the development of in situ instrumentation or remote sensing technologies that minimize environmental impact while increasing real-time data-gathering opportunities. Proposals with such elements should clearly demonstrate the link of the new measurement techniques or strategies to the science questions outlined above.

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the Grant Proposal Guide are eligible to submit proposals under this program announcement/solicitation.

IV. AWARD INFORMATION

Funds to support Water Cycle Research are expected to be about $5.0 million in FY2003 pending the availability of funds. Proposals will be accepted from both individual and multiple investigators and may be submitted for projects up to 4 years duration. It is anticipated that no project will be supported for more than $250,000 per year; an average research award might be $100,000-150,000/year with a 3-year duration. A few small awards may support developmental activities such as workshops targeted to build and strengthen the community or interdisciplinary teams, or to initiate exploratory proof-of-concept, small-scale pilot, or high-risk studies. The estimated program budget, number of awards and average award size and duration are subject to the availability of funds.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Web Site at: http://www.nsf.gov/cgi-bin/getpub?gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program solicitation number (NSF-02-101) in the program announcement/solicitation block on the *Cover Sheet For Proposal to the National Science Foundation*. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost sharing is not required in proposals submitted under this Program Solicitation.

C. Deadline/Target Dates

Proposals must be submitted by the following date(s):

Full Proposals *by 5:00 PM local time*: June 18, 2002

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this Program Solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: http://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this Program Solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane website at: http://www.fastlane.nsf.gov.

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The two merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgements.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria
Responsiveness to the Program Announcement will be a criterion in the evaluation of the proposals.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the identities of reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Mail Review followed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation or the date of proposal receipt (whichever is later). The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at one's own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter;

(4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1)* or Federal Demonstration Partnership (FDP) Terms and Conditions;* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Web site at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Web site at http://www.nsf.gov/cgi-bin/getpub?gpm. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Web site at http://www.gpo.gov.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented an electronic project reporting system, available through FastLane. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding Water Cycle Research should be made to:

- Dr. L. Douglas James, Program Director, Hydrologic Sciences, Earth Sciences, Room 785, telephone: 703-292-8549, e-mail: ldjames@nsf.gov.
- Dr. Sumant Nigam, Program Director, Large-scale Dynamic Meteorology, Atmospheric Sciences, Room 775, telephone: 703-292-8522, e-mail: snigam@nsf.gov.
- Dr. Rodey Batiza, Program Director, Marine Geology and Geophysics, Ocean Sciences, Room 725, telephone: 703-292-8581, e-mail: rbatiza@nsf.gov.

For questions related to the use of FastLane, contact:

- Brian Dawson, Computer Specialist, GEO, telephone: 703.292.4727, e-mail: bdawson@nsf.gov.

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF E-Bulletin, which is updated daily on the NSF web site at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement/solicitation for further information.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 or (800) 281-8749, FIRS at 1-800-877-8339.

The National Science Foundation is committed to making all of the information we publish easy to understand. If you have a suggestion about how to improve the clarity of this document or other NSF-published materials, please contact us at plainlanguage@nsf.gov.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Pursuant to 5 CFR 1320.5(b), an agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230, or to Office of Information and Regulatory Affairs of OMB, Attention: Desk Officer for National Science Foundation (3145-0058), 725 17th Street, N.W. Room 10235, Washington, D.C. 20503.

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