



## National Science Foundation

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### Small Grants for Exploratory Research: Hurricane Katrina

Small Grant for Exploratory Research (SGER) proposals are for small-scale, exploratory, high-risk research in the fields of science, engineering, and education normally supported by the NSF. The SGER is one mechanism NSF will use to support fundamental science and engineering projects whose results may enable our country to better mitigate, prepare for, respond to, and recover from catastrophic events. SGER proposals may be submitted to individual programs. Research suitable for SGERs is characterized as:

- preliminary work on untested and novel ideas;
- ventures into emerging and potentially transformative research ideas;
- application of new expertise or new approaches to "established" research topics;
- having a severe urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events; or
- efforts of similar character likely to catalyze rapid and innovative advances.

In the case of hurricane Katrina, a SGER award would allow for the rapid collection of ephemeral data—data that must be gathered rapidly in the aftermath of disasters before their validity are compromised with the passage of time.

SGER awards cannot exceed \$200,000 for a period of two years, however most are for smaller amounts and/or for shorter durations. Interested researchers are strongly encouraged to contact program directors in their disciplines to discuss the opportunities for SGER awards.

Described below are a few specific examples of SGER topics:

Within the NSF priority area, Human and Social Dynamics (HSD), program directors are accepting SGER proposals that are multidisciplinary in nature, involving a research team of at least three investigators who represent at least two distinct disciplines, one of which must be a social science. (Note: the HSD SGER submission due date is September 23<sup>rd</sup>). The proposals may focus upon such issues as decision-making under crisis conditions, human and organizational preparedness for and response to social crises, risk assessment and vulnerability analysis, societal responses to warnings, evacuation notifications, search and rescue, and community resilience.

Within the Directorate for Engineering (ENG), program directors are accepting SGER proposals from the research community to support reconnaissance teams to enter the Gulf Coast disaster areas, when open, to capture data from Hurricane Katrina. Three ENG divisions are supporting this effort: the Division of Bioengineering and Environmental Systems (BES), the Division of Civil and Mechanical Systems (CMS), and the Division of Electrical and Communications Systems (ECS).

- BES is interested in funding research on environmental impact assessment, including public health and disease effect, petrochemical and other contamination, damage to the potable water and wastewater systems, damage to municipal solid waste and hazardous waste containment facilities, and erosion.

- CMS is focusing upon wind speeds and storm surge; spatial damage distribution; damage to residential structures; impact damage to larger engineered structures; damage to the levee systems and documentation of the repair efforts; damage to coastal bridges and highways, railroad, and pipelines; and damage to onshore and offshore industrial facilities. In addition, CMS is interested in supporting research into issues of emergency management, including effectiveness of disaster planning, effectiveness of warning and evacuation systems, social vulnerability analyses, establishment and operation of emergency shelters, infrastructure restoration management, search and rescue and the delivery of medical care, and urban versus rural effects of the storm.
- ECS is focusing its efforts on four areas. The first is electrical power systems, which includes incipient failure detection, restoration processes, power quality issues, and fault data. The second category is telecommunications, which includes fiber optic, wired, and wireless link assessment and restoration, and sensor networks for integrated damage assessment. Research on intersystem dependencies between communication and power systems is also encouraged. Third, proposals on robotics and sensor networks that focus on autonomous damage assessment, sensor fusion, and decision systems, are also sought. And fourth, proposals on the use of adaptation and computational intelligence to accelerate response are being sought.

Within the Directorate for Social, Behavioral and Economic Sciences (SBE), program directors are accepting proposals that focus on the human and social dimensions of the Katrina catastrophe and recovery from it. (Note: for these SBE proposals, a submission due date of September 23<sup>rd</sup> has been established.) They may address the entire range of individual and social responses in anticipation of, during and after Katrina; for example: decision making and political mobilization before during and after Katrina, economic and psychological impacts of Katrina, including the economic and psychological dimensions of recovery from Katrina on children and adults; sources of differential impacts on different social groups; the breakdown of law and order following Katrina, and its effects on recovery efforts and on victims; altruistic responses to Katrina by people and organizations, including faith-based organizations, and geographical, political, cultural, social and psychological dimensions of the dispersion of residents from the affected areas following Katrina. SGER proposals dealing with any of the preceding topics are appropriate if information needed for research will disappear or degrade if not soon collected. Researchers are also encouraged to submit standard grant proposals dealing with responses to and effects of Katrina if data collection need not begin for some months.

- Within the Division of Social and Economic Sciences (SES), the programs most likely to entertain Katrina-related proposals are Decision, Risk and Management Sciences, Economics, Innovation and Organizational Change, Law & Social Science, Political Science and Sociology.
- Within the Division of Behavioral and Cognitive Systems (BCS) the Programs most likely to entertain Katrina-related SGERs are: Social Psychology, Geography, Developmental and Learning Sciences, and Cultural Anthropology.

While the opportunities described above are specific examples of SGER proposals, SGERs are an NSF-wide mechanism. Therefore investigators are strongly encouraged to contact the NSF program(s) most germane to the SGER proposal topic before submitting a SGER proposal. This will help to determine whether the proposed work meets the guidelines described above (and in the NSF Grant Proposal Guide at [http://www.nsf.gov/pubs/gpg/nsf04\\_23/2.jsp#IID1](http://www.nsf.gov/pubs/gpg/nsf04_23/2.jsp#IID1)) or whether the proposed work is more appropriate for submission as a fully reviewed proposal.

