

**Office of Science
Financial Assistance
Funding Opportunity Announcement
DE-PS02-08ER08-05**

***Abrupt Climate Change Modeling:
Climate Change Prediction Program***

The Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for research grants on the topic of predictive modeling of abrupt climate change in the Climate Change Prediction Program (CCPP). Applications should describe research projects supporting the development and application of climate and earth system models for abrupt climate change modeling. Applications should clearly describe how that research will contribute to a measurably improved ability to use climate and earth system models for studying abrupt climate change.

PREAPPLICATIONS

Potential applicants are **required** to submit a two-page preapplication by email to anjuli.bamzai@science.doe.gov. Preapplications must be received by **DOE by 4:30 p.m., Eastern Time, November 5, 2007**. The subject line of the email should be: "CCPP Abrupt Climate Change Modeling Preapplication". The preapplication should be a Word file attached to the email, having 1 inch margins when printed.

The first page of the preapplication should identify (1) the Principal Investigator's name, telephone number, and e-mail address; (2) the name of the Principal Investigator's employing institution; and (3) a clear and concise description of the proposed research. Item (3) should include a one-sentence description of the overall project goal. Background and significance of the proposed project should be limited to two sentences. A one-sentence description of the main expected outcome of the research should be included. The approximate (i.e., +/- 10%) budget for each year of the proposed research should be included at the end of the first page of the preapplication. The second page of the preapplication must be a curriculum vita that highlights the Principal Investigator's expertise and background in successful research related to climate modeling expertise relevant to the proposed research.

Preapplications must be **received by November 5, 2007** (preapplications received after this date will not be considered). Preapplications will be screened and preapplicants will be notified if a formal application is encouraged. Preapplications will be reviewed for conformity with the guidelines given in this Announcement and suitability in the technical areas specified in this Announcement. It is expected that a response to the preapplications will be communicated, by **reply email**, by November 19, 2007 (hence, **the preapplication should be sent from the email address that will be monitored for the response**). Applicants who have not received a response regarding the status of their preapplication by this date are responsible for contacting the

program to confirm this status. Note that notification of a successful preapplication is not a guarantee that an award will be made in response to a formal application. **Formal applications will be accepted only from preapplicants encouraged to submit a formal application.**

APPLICATION DUE DATE: December 17, 2007, 8:00 p.m. Eastern Time

Applications must be submitted using Grants.gov, the Funding Opportunity Announcement can be found using the CFDA Number, 81.049 or the Funding Opportunity Announcement number, DE-PS02-08ER08-05. Applicants must follow the instructions and use the forms provided on Grants.gov.

GENERAL INQUIRIES ABOUT THIS NOTICE SHOULD BE DIRECTED TO:

Agency Contact:

Dr. Anjuli S. Bamzai

Phone: (301) 903-0294

Email: anjuli.bamzai@science.doe.gov

SUPPLEMENTARY INFORMATION:

DOE BER is a member of the interagency U.S. Climate Change Science Program (CCSP), focusing on understanding the principal uncertainties of the causes and effects of climate change, including the possibility of abrupt climate change. The Climate Variability and Change Interagency Working Group of the CCSP has identified Abrupt Climate Change as a priority focus area for FY 2008.

Technically, an abrupt climate change occurs when the climate system is forced across some threshold, triggering a persistent transition to a new state at a rate determined by the climate system itself and faster than the cause (*Abrupt Climate Change: Inevitable Surprises*, National Research Council, 2002). DOE interest is on events where large (i.e., subcontinental) and widespread change occurs within a short period (i.e., a decade). The DOE Abrupt Climate Change Modeling activity is focusing on examining both attribution of recent past abrupt climate change, as well as potential future abrupt climate change based on climate change projections using dynamical coupled climate models. Abrupt climate modeling applications prior to the Holocene are not encouraged under this announcement

Proposed research should include the following activities: articulating the thresholds, nonlinearities and fast feedbacks in the climate system with a focus on abrupt climate change, incorporating causal mechanisms into coupled climate models and testing the enhanced models against observational records of past abrupt climate change. Examples of abrupt climate change of interest to DOE are mega droughts, rapid changes in Arctic sea-ice extent and duration, and potential rapid increase in sea level rise.

Program Funding

It is anticipated that approximately \$1.8 million will be available under this announcement for multiple awards to be made in FY 2008. The number of awards will be contingent on satisfactory peer review, the availability of appropriated funds, and the size of the awards. Requests should be commensurate with the level of work involved; they may range from \$50K/yr to 200K/yr. Applications may request project support for up to three years, with out-year support contingent on the availability of funds, progress of the research, and programmatic needs. DOE is under no obligation to pay for any costs associated with the preparation or submission of an application. DOE reserves the right to fund, in whole or in part, any, all, or none of the applications submitted in response to this Notice.

Merit Review

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria which are listed in descending order of importance codified at 10 CFR 605.10(d):

1. Scientific and/or Technical Merit of the Project;
2. Appropriateness of the Proposed Method or Approach;
3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
4. Reasonableness and Appropriateness of the Proposed Budget.

The evaluation process will include program policy factors such as the relevance of the proposed research to the terms of the announcement and the agencies' programmatic needs. Note that external peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Both Federal and non-Federal reviewers may be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

All applications submitted in response to this Announcement must explicitly state how the proposed research will support accomplishment of the BER Climate Change Research Division's (CCRD) Long Term Measure which is to "Deliver improved scientific data and models about the potential response of the Earth's climate and terrestrial biosphere to increased greenhouse gas levels for policy makers to determine safe levels of greenhouse gases in the atmosphere."

Proposed projects that would integrate across DOE/BER research programs to build on DOE investments in climate change research as well as current capabilities in the DOE national laboratories, are particularly encouraged.

To ensure that the CCPP meets both the broad needs of the climate modeling research community and the specific needs of the CCRD, successful applicants will participate as members of the CCPP Science Team. Costs for participation in Science Team annual meetings and workshops should be included in each application. Yearly estimates for Science Team travel should be based on one trip of five days to Washington, DC.

Submission Information

The following is a list of essential items that an application must contain:

1. The Cover Sheet SF-424 (R&R) - completed by appropriate officials.
2. Research and Related Budget Page(s) (OMB Number: 4040-0001) using U.S. dollars, with supporting written justification sufficient to evaluate the costs of the proposed project. List and explain cost-sharing arrangements, if any. If the application is for a multi-year period, submit a cumulative budget and one budget page for each year of requested support.
3. Research & Related Other Project Information
 - a. **Project Narrative:** A detailed description of the proposed project, including the objectives of the project, its relationship to the Office of Science program and the applicant's plan for carrying it out. Use English only.
 - b. **Biographical Sketches:** Detailed information about the background and experience of the principal investigator(s) including references to publications.
 - c. **Facilities and Resources:** Include information on the experience of the applicant organization, its facilities and resources.
 - d. **Bibliography of Literature.**
 - e. **Statement of all current and pending support** for the project and all related projects, and description of support for all projects which involve the principal investigator(s) and the period of time and percent of time devoted to each project.

In addition, for this FOA, applications must conform to the following requirements:

- f. **The Project Narrative** comprises the research plan for the project and is limited, including charts, graphs, maps, photographs, and other pictorial presentations, to 15 pages maximum (8.5x11-inch pages of single-spaced, standard 11-point type with 1-inch margins pages), exclusive of attachments such as figures or references. It should contain enough background material in the Introduction, including review of the relevant literature, to demonstrate sufficient knowledge of the state of the science. The major part of the narrative should be devoted to a description and justification of the proposed project, including details of the method to be used. It should also include a timeline for the major activities of the proposed project, and should indicate which project personnel will be responsible for which activities.
- g. **Inclusion of an abstract or project summary** on a separate page with the name of the applicant, mailing address, phone number, FAX number, and E-mail listed.
- h. **Inclusion of a Table of Contents.**
- i. **Inclusion of letters of intent from collaborators** (briefly describing the intended contribution of each to the research), and short curriculum vitas for the applicant, collaborators, and any co-PIs.

j. Inclusion of a Conflict of Interest Document (no page limit): This document should be provided in table or spreadsheet form only as an appendix to the full application at the time of submission. The document should consist of a list, in the form of a single alphabetized table, with the full names (Last name, first name, middle initial) of all people having a conflict of interest with any senior personnel (PI and Co-PIs) and any named personnel member whose salary is requested in the project budget. Conflicts to be identified are (1) Ph.D. thesis advisors or advisees, (2) collaborators or co-authors for the past 48 months, including postdoctoral advisors or advisees, and (3) any other individuals or organizations with which the investigator has financial ties (please specify type). Members of current Advisory Committees who receive reimbursement for travel or honoraria should be included in this last category.

k. Inclusion of a plan that describes how the project results or resources will be disseminated in a timely manner and in an accessible and usable form to the broader scientific community.

Posted on the Office of Science Grants and Contracts Web Site
October 3, 2007.