



National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230

Dear Colleague Letter: Multi-scale Modeling (MSM)

February, 2009

Directorate for Geosciences and Directorate for Biological Sciences
NSF 09-032

Dear Colleague:

The Directorate for Geosciences (GEO) and the Directorate for Biological Sciences (BIO) are enhancing support for interdisciplinary research which bridges from the biological to the earth system sciences in the area of multi-scale modeling.

We seek to support projects that focus on the ***development and/or integration of environmental models that link local, regional and global scales***. Competitive projects should address key problems linking biological and Earth system processes over a variety of spatial and temporal scales. These projects will develop theoretical foundations for the modeling and simulations of existing data and data collected by the ***new and envisioned NSF environmental observatories***. ***[These include, for example, EarthScope, Critical Zone Observatories (CZO), the National Ecological Observatory Network (NEON), the Ocean Observatories Initiative (OOI), and many other projects and centers.]*** Proposals are encouraged that ***have the potential to dramatically improve our understanding of how*** small and large scale processes lead to non-linearities and activation thresholds as well as to improve our predictive capabilities. Projects could address, but are not limited to, topics such as the carbon cycle, climate, population dynamics, foodwebs, biodiversity, biogeochemical cycles, and hydrological processes.

These types of emerging and challenging problems require integration of concepts and observations across diverse fields. A goal of the Biological Sciences and Geosciences Directorates is to enhance such integration. Successful proposals will develop intellectual excitement in the participating disciplinary communities. Also encouraged are proposals that have broad educational, diversity, or societal impacts that capitalize on this interdisciplinary opportunity.

Proposals must bridge the biological and the geosciences disciplines and be relevant to at least one program in the BIO Directorate and at least one program in the GEO Directorate. Proposals involving programs in two different divisions in GEO are also permitted, but they must address the goals of this Dear Colleague Letter.

This is not a special competition or new program. MSM proposals should be submitted to an existing GEO or BIO program according to the program's regular target or deadline dates. Target and deadline dates for applicable programs may be found at: http://www.nsf.gov/funding/pgm_list.jsp?org=GEO&ord=date and http://www.nsf.gov/funding/pgm_list.jsp?org=BIO&ord=date. Since MSM proposals are by design interdisciplinary, indicate other relevant programs as secondary programs in GEO, BIO or other NSF Directorates on the proposal cover page. ***For full proposals submitted via FastLane, standard Grant Proposal Guidelines apply. For full proposals submitted via Grants.gov, see NSF Grants.gov Application Guide; A Guide for the Preparation and Submission***

of NSF Applications via Grants.gov (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at:
<http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>)

Titles of proposals should be prefaced with MSM. Investigators are strongly encouraged to contact one of the GEO or BIO program officers listed at http://www.nsf.gov/bio/etbc_msm_contacts.jsp to determine if their proposed ideas respond to the MSM goals, discuss relevant topics of interest, and gain advice on how best to prepare a proposal for this activity. Decisions about the MSM eligibility of submitted proposals will be made by the cognizant Program Directors. The review process will follow standard NSF practices agreed upon by the participating programs.

Information on making a facilities request is available on the NSF GEO website at <http://www.nsf.gov/geo/atm/ulafos/laof/> for lower atmospheric facilities and at http://www.nsf.gov/geo/oce/pubs/IPS_Guidelines.pdf for oceanographic resources and at <http://www.nsf.gov/geo/ear/if/facil.jsp> for Earth Sciences facilities. Standard practice for facilities requests will be used.

Sincerely

Timothy Killeen, Assistant Director/Directorate for Geosciences

James Collins, Assistant Director/Directorate for Biological Sciences