



Approaches to Multi-scale Ecological Assessment in the Middle Atlantic Region

U.S. Environmental Protection Agency Announcement of Opportunity
97-NCERQA-16

CLOSING DATE: March 28, 1997

Introduction

Much of the ecological information generated today comes from intensive investigations of single sites or relatively small geographic areas. Yet many of the management questions being asked of the ecological assessments are focused over broad geographic regions. The specific purpose of this solicitation by EPA's Environmental Monitoring and Assessment Program (EMAP) is to request proposals for cooperative research which will lead to the development and demonstration of approaches to link site specific information with regional survey data and remote sensing imagery for conducting regional level ecological assessments. Proposals must focus on terrestrial systems in the mid-Atlantic area.

Description

Ecologists have learned an extensive amount about ecosystems and how they function by long-term studies at individual locations. Research conducted at the Long-Term Ecological Research sites (LTER) (funded primarily by the National Science Foundation) is outstanding among the many examples of these types of studies. Among the questions raised during the 10 year review of the LTER network was the question of "representativeness" or "regionalization" of site findings. How extrapolatable is information obtained at one site at a particular level of analysis to other sites where analyses are conducted at different scales? The primary issue is the need to determine how broadly applicable the results of studies at these individual sites might be. Some knowledge of the important system drivers at the site is needed along with a knowledge of how those drivers are distributed over broader geographic areas containing apparently similar types of systems.

Another dimension of this concern comes in applying the multi-scale monitoring framework proposed by EPA's Environmental Monitoring and Assessment Program (EMAP) in 1990 and recently proposed by the White House Office of Science and Technology's Committee on the

Environmental and Natural Resources (CENR) for its national monitoring and research framework. These frameworks suggest that monitoring and research must make use of three approaches: (1) remote sensing which provides "complete coverage" of a geographic area, (2) sample surveys which evaluate a geographic region using a statistical sub-sample of the area, and (3) intensive studies at individual locations or a small network of individual locations. Unfortunately, few examples exist which demonstrate how these different approaches and tools can be linked carefully to provide a more comprehensive assessment of a geographic region.

EMAP requests proposals for cooperative research and demonstration in terrestrial systems of novel approaches for determining the "representativeness" of an intensively studied site within a region and for "regionalizing" assessment results by combining data from intensive investigations, regional surveys, and remotely sensed data. Research and demonstration must focus on terrestrial ecosystems in the mid-Atlantic region (Delaware, Pennsylvania, Maryland, Virginia, West Virginia). Substantial interaction with the EMAP investigations being conducted as part of MAIA (Mid-Atlantic Integrated Assessment) is also encouraged.

Funding

A total of \$2.2M will be available for proposals under this solicitation with annual funding on the order of \$750,000 per year available for up to 3 years. Awards are subject to the availability of funds.

ELIGIBILITY

Academic and not-for-profit institutions located in the U.S., and state or local governments are eligible under all existing authorizations. Profit-making firms and other federal agencies are not eligible to receive assistance from EPA under this program.

Federal employees may cooperate or collaborate with eligible applicants within the limits imposed by applicable legislation and regulations. However, federal agencies, national laboratories funded by federal agencies (FFRDCs), and federal employees are not eligible to receive funding through this program and may not serve in a principal leadership role on a grant. An exception may occur when the principal investigator's institution subcontracts to a federal agency to purchase unique supplies or services unavailable in the private sector. Examples are purchase of satellite data, census data tapes, chemical reference standards, unique analyses not available elsewhere, etc. A written justification for such federal involvement must be included in the application, along with an assurance from the federal agency which commits it to supply the specified service.

Potential applicants who are uncertain of their eligibility should contact **Dr. Robert E. Menzer** in NCERQA, phone (202) 260-5779, EMail: menzer.robert@epamail.epa.gov

INSTRUCTIONS FOR SUBMITTING AN APPLICATION

At various places within the application, applicants are asked to identify this topic area by using the Sorting Code, **97-NCERQA-16**. The Sorting Code must be placed at the top of the abstract (as shown in the abstract format), in Box 10 of Standard Form 424 (as described in the section on SF424), and must also be included in the address on the package that is sent to EPA (see the section on how to apply).

The Application

The initial application is made through the submission of the materials described below. **It is essential that the application contain all the information requested and be submitted in the formats described.** If it is not, the application may be rejected on administrative grounds. If an application is considered for award, (i.e., after external peer review and internal review) additional forms and other information will be requested by the Project Officer. **The application should not be bound or stapled in any way.** The Application contains the following:

A. Standard Form 424: The applicant must complete Standard Form 424 (see attached form and instructions). This form will act as a cover sheet for the application and **should be its first page**. Instructions for completion of the SF424 are included with the form. The form must contain the original signature of an authorized representative of the applying institution. Please note that both the Principal Investigator and an administrative contact should be identified in Section 5 of the SF424.

B. Key Contacts: The applicant must complete the Key Contacts Form (attached) as the **second page** of the submitted application.

C. Abstract: The abstract is a very important document. Prior to attending the peer review panel meetings, some of the panelists may read only the abstract. Therefore, it is critical that the abstract accurately describe the research being proposed and convey all the essential elements of the research. Also, in the event of an award, the abstracts will form the basis for an Annual Report of awards made under this program. The abstract should include the following information:

- 1. Sorting Code:** Use the correct code, **97-NCERQA-16**.
- 2. Title:** Use the exact title as it appears in the rest of the application.
- 3. Investigators:** List the names and affiliations of each investigator who will significantly contribute to the project. Start with the Principal Investigator.
- 4. Project Summary:** This should summarize: (a) the **objectives** of the study (including any hypotheses that will be tested), (b) the experimental **approach** to be used (which should give an accurate description of the project as described in the proposal), (c) the **expected results** of the project and how it addresses the research needs identified in the solicitation, and (d) the estimated improvement in risk assessment or risk management that will result from successful completion of the work proposed.

D. Project Description: This description must not exceed fifteen (15) consecutively numbered (center bottom), 8.5 x 11 inch pages of single-spaced standard 12-point type with 1 inch margins. The description must provide the following information:

- 1. Objectives:** List the objectives of the proposed research and the hypotheses being tested during the project and briefly state why the intended research is important. This section can

also include any background or introductory information that would help explain the objectives of the study (one to two pages recommended).

2. **Approach:** Outline the methods, approaches, and techniques that you intend to employ in meeting the objective stated above (five to 10 pages recommended).

3. **Expected Results or Benefits:** Describe the results you expect to achieve during the project and the benefits of success as they relate to the topic under which the proposal was submitted. This section should also discuss the utility of the research project proposed for addressing the environmental problems described in the solicitation (one to two pages recommended).

4. **General Project Information:** Discuss other information relevant to the potential success of the project. This should include facilities, personnel, project schedules, proposed management, interactions with other institutions, etc. (one to two pages recommended).

5. **Important Attachments:** Appendices and/or other information may be included but must remain within the 15-page limit. References are in addition to the 15 pages.

E. Resumes: The resumes of all principal investigators and important co-workers should be presented. Resumes must not exceed two consecutively numbered (bottom center), 8.5 x 11 inch pages of single-spaced standard 12-point type with 1 inch margins for each individual.

F. Current and Pending Support: The applicant must identify any current and pending financial resources that are intended to support research related to that included in the proposal or which would consume the time of principal investigators. This should be done by completing the appropriate form (see attachment) for each investigator and other senior personnel involved in the proposal. Failure to provide this information may delay consideration of your proposal.

G. Budget: The applicant must present a detailed, itemized budget for the entire project. This budget must be in the format provided (see attachment) and not exceed two consecutively numbered (bottom center), 8.5x11 inch pages with 1 inch margins. Please note that institutional cost sharing is not required and, therefore, does not have to be included in the budget table. If desired, a brief statement concerning cost sharing can be added to the budget justification.

H. Budget Justification: This section should describe the basis for calculating the *personnel, fringe benefits, travel, equipment, supplies, contractual support, and other* costs identified in the itemized budget and explain the basis for their calculation (special attention should be given to explaining the *travel, equipment, and other* categories). This should also include an explanation of how the indirect costs were calculated. This justification should not exceed two consecutively numbered (bottom center), 8.5x11 inch pages of single-spaced standard 12-point type with 1 inch margins.

I. Quality Assurance Narrative Statement: For awards that involve environmentally related measurements or data generation, a quality system that complies with the requirements of ANSI/ASQC E4, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," must be in place. This statement should not exceed two consecutively numbered, 8.5x11 inch pages of single-spaced standard 12-point type with 1 inch margins. This is in addition to the 15 pages permitted for the Project Description. The Quality Assurance Narrative Statement should, for each item listed below, either present the required information or provide a justification as to why the item does not apply to the proposed research.

1 .The data collection activities to be performed or hypothesis to be tested (reference may be made to the specific page and paragraph number in the application where this information may be found); acceptance criteria for data quality (precision, accuracy, representativeness, completeness,

comparability).

- 2 .The study design including sample type and location requirements and any statistical analyses that were used to estimate the types and numbers of samples required.
- 3 .The procedures for the handling and custody of samples, including sample identification, preservation, transportation, and storage.
4. The methods that will be used to analyze samples collected, including a description of the sampling and/or analytical instruments required.
5. The procedures that will be used in the calibration and performance evaluation of the sampling and analytical methods used during the project.
6. The procedures for data reduction and reporting, including description of statistical analyses to be used.
7. The intended use of the data as they relate to the study objectives or hypotheses.
8. The quantitative and or qualitative procedures that will be used to evaluate the success of the project.
9. Any plans for peer or other reviews of the study design or analytical methods prior to data collection.

ANSI/ASQC E4, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" is available for purchase from the American Society for Quality Control, phone 1-800 248-1946, item T55. Only in exceptional circumstances should it be necessary to consult this document.

J. Postcard: The Applicant must include with the application a self-addressed, stamped 3 x 5 inch post card. This will be used to acknowledge receipt of the application and to transmit other important information to the applicant.

HOW TO APPLY

The original and nine (10) copies of the fully developed application and five (5) additional copies of the abstract (15 in all), must be received by NCERQA no later than **4:00 P.M. EST** on the closing date, **March 28, 1997**.

The application and abstract must be prepared in accordance with these instructions. Informal, incomplete, or unsigned proposals will not be considered. The application should not be bound or stapled in any way. The original and copies of the application should be secured with paper or binder clips. Completed applications should be sent via regular or express mail to:

U.S. Environmental Protection Agency
Peer Review Division (8703)
Sorting Code: 97-NCERQA-16
Room 2411

**401 M Street, SW
Washington DC 20460
Phone: (202) 260-0563 (for express mail applications)**

The sorting code must be identified in the address (as shown above).

GUIDELINES, LIMITATIONS, AND ADDITIONAL REQUIREMENTS

Projects which contain subcontracts constituting more than 40% of the total direct cost of the agreement for each year in which the subcontract is awarded will be subject to special review and may require additional justification.

Researchers will be expected to budget for and participate in an annual All Investigators Meeting with EPA scientists and other grantees to report on research activities and to discuss issues of mutual interest.

Review and Selection

All applications are initially reviewed by EPA to determine their legal and administrative acceptability. Acceptable applications are then reviewed by an appropriate technical peer review group. This review is designed to evaluate each proposal according to its scientific merit. In general, each review group is composed of non-EPA scientists, engineers, social scientists, and/or economists who are experts in their respective disciplines and are proficient in the technical areas they are reviewing. The reviewers use the following criteria to help them in their reviews:

1. The originality and creativity of the proposed research, the potential contribution the proposed research could make to advance scientific knowledge in the environmental area, the appropriateness and adequacy of the research methods proposed, and the appropriateness and adequacy of the Quality Assurance Narrative Statement
2. The qualifications of the principal investigator(s) and other staff, including knowledge of pertinent literature, experience, and publication records as well as the probability that the proposed research will be successfully completed
3. The availability and/or adequacy of the facilities and equipment proposed for the project
4. The responsiveness of the proposal to the research needs set forth in the solicitation
5. Although budget information is not used by the reviewers as the basis for their evaluation of scientific merit, the reviewers are asked to provide their view on the appropriateness and/or adequacy of the proposed budget and its implications for the potential success of the proposed research. Input on requested equipment is of particular interest.

Applications that receive scores of excellent and very good from the peer reviewers are subjected to a programmatic review within EPA in relation to program priorities and their complementarity to the ORD intramural program.

A summary statement of the scientific review of the panel will be provided to each applicant. Funding decisions are the sole responsibility of EPA. Cooperative agreements are selected on the

basis of technical merit, relevancy to the research priorities outlined, program balance, and budget.

Proprietary Information

By submitting an application in response to this solicitation, the applicant grants EPA permission to share the application with technical reviewers both within and outside of the Agency. Applications containing proprietary or other types of confidential information will be returned to the applicant without review.

Funding Mechanism

The funding mechanism for all awards issued under this solicitation will consist of cooperative agreements from EPA and depends on the availability of funds. In issuing a cooperative agreement, EPA anticipates substantial involvement between EPA and the cooperator.

Contacts

Additional general information on the EPA's grants programs, forms used for applications, etc., may be obtained by exploring our Web page at <<http://www.epa.gov/ncerqa>>. EPA does not intend to make mass-mailings of this announcement. Information not available on the Internet may be obtained by contacting:

**U.S. Environmental Protection Agency
National Center for Environmental Research
and Quality Assurance (8703)
401 M Street, SW
Washington DC 20460**

Phone: 1-800-490-9194

A contact person for this solicitation has been identified below. He will respond to inquires regarding the solicitation and can respond to any technical questions related to your application.

Steve Paulsen
Phone: 541-754-4428
Internet: Paulsen@mail.cor.epa.gov

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