

POLICY, PROCEDURES AND GUIDELINES FOR SCIENCE PROGRAMS THAT REQUIRE FIELD FACILITIES

Final Version (February 2005)

I. OVERVIEW

The Atmospheric Sciences Division (ATM) of the National Science Foundation (NSF) has limited funds to support the science and facilities required to accomplish field research. ATM desires to optimize the process for coordinating with the scientific community and other sponsors of scientific research in order to effect the best allocation of facility resources in support of meritorious science. This optimization also allows more effective planning for maintenance and technical improvements to the NSF Facilities. Accordingly, the following procedures have been established.

II. APPROACH

In carrying out its responsibility for establishing priorities and resolving resource allocation conflicts, ATM seeks to obtain as much input as possible regarding the merits and feasibility of proposed projects. Procedures for resolving conflicts and establishing priorities take into account scientific merit evaluated through standard NSF procedures, programmatic considerations, and evaluation of experimental design from Facility Managers, the Observing Facility Advisory Panel (OFAP) and the Facility Assessment Council (FAC).

The process for considering requests and setting priorities differs on the basis of the cost of deploying NSF supported facilities and/or the complexity of the field component of the research. With respect to costs, generally requests that seek deployment pool funds on the order of \$1.0 Million will be defined as “large” requests (Section IV), while those requests for less than this amount typically will be referred to as “small” requests (Section V). Very complex programs (e.g., those which involve many facilities, require difficult deployment logistics or require interagency or international coordination) also may be required to follow the review process for “large” programs. Exceptions to these general guidelines will occur. Principal Investigators should discuss all proposed field activities with the relevant NSF Program Officer and Facility Managers in a timely manner.

III. ROLES OF NSF, FACILITY MANAGERS, OFAP AND FAC

NSF is solely responsible for the conduct of the scientific review of all submitted NSF proposals and, with concurrence from Facility Managers, for final decisions on support of all aspects of research involving field campaigns (including deployment of observational assets). In the case where only NCAR scientists are involved, the relevant NCAR Division Director is responsible for review of the program and appropriate coordination with NSF Program Officers and Facility Managers. Input to the NSF decision process

includes scientific peer review using normal NSF procedures, and advice and analysis from Facility Managers, OFAP and the FAC.

Facility Managers provide planning advice and consultation to the research community and to NSF. Facility Managers provide feasibility analyses to NSF and OFAP/FAC for each facility request as well as preliminary cost estimates for proposed projects. They have primary responsibility for the safe execution of field campaigns.

In the context of the scientific objectives, the OFAP and FAC provide evaluations to NSF concerning experimental design, optimal asset utilization and resource issues. This and other OFAP/FAC responsibilities are provided in the *OFAP Terms of Reference and Operating Procedures* (http://www.atd.ucar.edu/dir_off/OFAP/info/procedures.html).

IV. LARGE FIELD PROGRAMS (DEPLOYMENT COSTS >\$1.0 MILLION; OR COMPLEX PROGRAMS)

For large programs, before submission of individual scientific proposals, researchers will be required to submit two antecedent documents: a Scientific Program Overview (SPO) and an Experimental Design Overview (EDO). The SPO and the EDO are considered complementary documents.

The purpose of the SPO is to establish the overall justification of the scientific program (Section IV.B). The SPO will be submitted to NSF with a copy of the SPO or an equivalent document to the Co-Chairs of the FAC/OFAP and to the relevant Facility Managers (see Appendix A for the requirements of an “equivalent” document).

The EDO describes the overall concept of the experimental design, resource needs and management of the field campaign (Section IV.C). The EDO will be submitted to the Co-Chairs of the FAC with a copy to the relevant Facility Managers and NSF Program Officers.

A. Timeline for Major Field Campaigns:

There will be only one target date per year for submission of required documents. FY is the fiscal year in which the field campaign will be conducted and, for example, FY-2 is the year of the field campaign minus two years.

- *Fall of FY-3 or earlier.* Initial contacts between Principal Investigators and NSF Program Officers and Facility Managers. Please note that it will not be possible for the Principal Investigators to construct the SPO or the EDO without consultation with NSF Program Officers and Facility Managers. The Principal Investigators, therefore, must contact the relevant NSF Program Officers and Facility Managers in a timely manner, so that feedback can be developed and considered before submission of the SPO and EDO.
- *15 January of FY-2.* SPO and EDO submitted to NSF and FAC/OFAP, respectively with copies of each to relevant Facility Managers.

- *May of FY-2.* Review of SPO by NSF and evaluation of EDO by FAC/OFAP completed. FAC/OFAP analysis transmitted to NSF.
- *June of FY-2.* Final NSF action on SPO. Reviews of SPO and EDO evaluation transmitted to PIs. At this time NSF will encourage or discourage submission of proposals associated with the SPO.
- *1 July of FY-2.* If appropriate, facility requests submitted to Facility Managers.
- *August of FY-2.* If appropriate, individual science proposals submitted to NSF.
- *November of FY-1.* FAC/OFAP considers facility requests and provides analysis to NSF.
- *January of FY-1.* Final actions on proposals and facility requests.
- *FY (October – September).* Field campaign conducted.

B. Scientific Program Overview:

Principal Investigator(s) are required to contact the relevant NSF Program Officer before submitting a SPO to NSF. This initial contact should occur at least two months prior to the submission of the SPO. The SPO will be in the form of a formal proposal to NSF and must follow the requirements specified in the NSF Grant Proposal Guide (<http://www.nsf.gov/pubsys/ods/getpub.cfm?gpg>). Because field programs can differ significantly in organization and complexity, overview documents may vary considerably. Nonetheless, the SPO should provide the following information in the cited sections of the Proposal:

- Section D, *The Project Description*, should contain:
 - Overall scientific rationale and goals of the project.
 - The scientific issue(s) to be addressed including hypotheses to be tested.
 - How the research will be conducted including a brief description of the experimental techniques and distribution and use of observing systems and platforms (a more complete description is to be provided in the EDO). Additionally, the PI should state the optimal time frame for field operations.
 - A section on related prior field campaigns and a discussion of how the proposed effort will advance scientific knowledge beyond what was learned from the prior research and in what ways the proposed data collection effort will be superior to existing data.
- Section G, *Budget*. The budget may contain a nominal request for funds to support program planning and execution (e.g., nominal salary and travel support for PI; funds for site surveys. Contact NSF Program Officer to discuss budget before submitting proposal).
- Section I, *Facilities, Equipment and Other Resource*. A table should be included that shows all field facilities to be requested (from all sources), the anticipated sponsors of those facilities (organization and a specific contact person), and the status of those requests (e.g., to be submitted; under consideration; approved). For all facilities that NSF will be asked to sponsor, this table also must contain an estimate of the cost of deploying this facility. This estimate must be made by the relevant facility manager. The Principal Investigator is responsible for requesting

this estimate from the facility manager in a timely manner (at least two months before submission of EDO). Principal Investigators also should be aware that Facility Managers can provide invaluable advice to the proposed program in the planning stages, so the Principal Investigators are strongly urged to contact the relevant Facility Managers early in the planning process.

- Section J, *Special Information and Supplementary Documentation*, should contain information on scientific participants and sponsors. This information will be limited to one page per participant and should include a brief description of the role the participant will play in the project and their anticipated sponsor. For investigators who will be submitting proposals to NSF an estimated cost of their research and field support should be included.
- Sections F and H, *Biographical Sketches* and *Current and Pending Support*, are required only for the PI, Co-PI and Senior Personnel of the SPO and not for every participant in the program.

In addition to the normal NSF review criteria, reviewers of the SPO will be asked to comment on:

- Importance/Uniqueness of the Research
- Adequacy of experimental and research plan for hypothesis testing or problem definition. (The experimental design also will be thoroughly reviewed by the OFAP in their review of the EDO)
- Readiness
- Structure of program
 - Major gaps or flaws (if any)
 - Essential components of the overall effort
- Qualifications of all participants.

C. Experimental Design Overview:

Principal Investigator(s) are required to contact the FAC Co-Chairs and relevant Facility Managers before submitting an Experimental Design Overview (EDO) to FAC/OFAP. As noted previously, it will not be possible for the Principal Investigator to develop an EDO without early involvement of the relevant Facility Managers. In the context of the scientific objectives, the EDO is the primary vehicle for review of the project's overall experimental design by the OFAP and FAC. It is the intent for the EDO to be holistic in nature; therefore, NSF and non-NSF facilities should be treated in the EDO in the same manner. The review procedures and criteria used by the OFAP and FAC can be found in the *OFAP Terms of Reference and Operating Procedures* (http://www.atd.ucar.edu/dir_off/OFAP/info/procedures.html). The EDO should briefly explain the scientific issues to be addressed (note that the FAC/OFAP will have access to the SPO or equivalent document) and provide substantial details of experimental design and program management. If non-NSF facilities also will be part of the overall project, the EDO should describe the role of these facilities in the experimental design.

A suggested outline for the overview document is provided below although the Principal Investigators may adjust the format as necessary. The page limits for each section are

provided for guidance only. **The overall page limit for the EDO, however, is twenty-five (25) pages and this limit will be strictly enforced** (page limit does not include figures, tables, references and the copies of Sections I and J of SPO, see below). Additionally, each page must have no less than 2.5 cm margins at the top, bottom and on each side. Type size must not be smaller than 10 point. An electronic copy of the EDO should be submitted to the FAC Co-Chairs with a copy to the relevant Facility Managers and NSF Program Officers.

Suggested Outline of the EDO:

Executive Summary	1 page
Program Rationale and Scientific Hypotheses	2 pages (May refer to SPO)
Scientific Objectives	2 pages (May refer to SPO)
Experimental Design and Observational Requirements	10 pages
<i>This section should include information on all facilities to be involved in the field campaign, not just NSF supported facilities. Also a description of the research objectives to be satisfied by the deployment of each facility should be included.. This section must specify the time period of the field campaign and discuss possible alternate time sand time flexibility.</i>	
Project Management including Management in the Field	5 pages
Data Management Plan	5 Pages
Section I of SPO	No Page Limits
Section J of SPO	No Page Limits

V. “SMALL” FIELD CAMPAIGNS (DEPLOYMENT COSTS <\$1.0 M)

Principal Investigators are encouraged to contact NSF Program Officers and relevant Facility Managers before submitting proposals and facility requests.

A. For Deployments between October and March of the Fiscal Year (FY):

- *1 July of FY-2* – Facility requests submitted to appropriate Facility Managers.
- *August of FY-2* – Individual science proposals submitted to NSF.
- *November of FY-1* – Facility requests evaluated by OFAP/FAC completed. OFAP/FAC analysis transmitted to NSF.
- *January of FY-1* – Final NSF action on proposals.
- *October of FY through March of FY* – Field campaign conducted.

B. For Deployments between April and September of the Fiscal Year (FY):

- *1 December of FY-2* – Facility requests submitted to appropriate Facility Managers.
- *15 January of FY-1* – Individual science proposals submitted to NSF.
- *May of FY-1* – Facility requests evaluated by OFAP/FAC. OFAP/FAC analysis transmitted to NSF.
- *July of FY-1* – Final NSF action on proposals.
- *April to September of FY* – Field campaign conducted.

VI. OUT OF CYCLE REQUESTS

Any field program not meeting the above-described schedules will be considered “out of cycle” requests. As the situation allows, these will be accommodated on a non-interference basis with fully approved projects. Out of cycle requests also will have low priority for deployment pool funds.

VII. COST RECOVERY PROJECTS

Cost recovery projects will be considered for support on a non-interference basis as described in the OFAP Terms of Reference.

APPENDIX A – EQUIVALENT DOCUMENT:

The EDO cannot be reviewed without a thorough understanding by the reviewers of the scientific issues that will be addressed via the fieldwork. The Principal Investigators, therefore, must provide to the FAC Co-Chairs and the Facility Managers a document that contains a description of the program’s scientific objectives that is sufficiently complete to allow a proper evaluation of the EDO. The SPO will satisfy this requirement, but, given that the SPO is a formal proposal to NSF and such proposals are not public information, the PI is not required to provide an exact copy of the SPO to the Co-Chairs of the FAC or the Facility Managers. If the SPO is not provided, then the Principal Investigators must supply an equivalent document that adequately describes the scientific content of their program.