

National Aeronautics and  
Space Administration

April 20, 1998

---

NRA-98-OES-05

## **RESEARCH ANNOUNCEMENT**

# **INSTRUMENT INCUBATOR PROGRAM**

---

Letters of Intent due May 22, 1998  
Proposals due June 22, 1998

# **INSTRUMENT INCUBATOR PROGRAM**

**NASA Research Announcement  
Soliciting Research Proposals  
For  
Period Ending  
May 20, 1998**

**NRA 98-OES-05  
Issued April 20, 1998**

**Office of Earth Science  
National Aeronautics and Space Administration  
Washington, DC 20546**

## **OFFICE OF EARTH SCIENCE (OES) INSTRUMENT INCUBATOR PROGRAM (IIP)**

The National Aeronautics and Space Administration (NASA) announces the solicitation of proposals for a new technology development program in support of the Office of Earth Science (OES). The Instrument Incubator Program (IIP) seeks proposals for technology development activities leading to new system and subsystem level airborne and space-based measurement techniques to be developed in support of OES science research.

### **Introduction**

#### Office of Earth Science

##### Objectives

NASA's OES is studying how our global environment is changing. Using the unique perspective available from space and airborne platforms, NASA is observing, documenting, and assessing large-scale environmental processes, with current emphases on seasonal-to-interannual climate variability, land-cover, land-use changes and global productivity, long-term climate change, atmospheric ozone research, and studies related to the monitoring and prediction of natural hazards in order to minimize the loss of human life and mitigate property damage. OES satellite data, complemented by aircraft and ground data, are enabling us to better understand environmental changes, to determine how human activities may have contributed to these changes and to understand the consequences of such changes.

A major objective of the OES space flight program is to implement the program with small spacecraft and instruments. This leads to greater program flexibility. A major part of this enabling process is the rapid development of small, less costly instruments.

The OES program is and will continue to operate in a restrictive budget environment for the foreseeable future. It is anticipated that commercial rather than custom spacecraft will be used for many missions. These commercial spacecraft will only support smaller payloads. Large, expensive scientific instruments are not affordable in this new environment and innovation is absolutely essential to the future success of the Earth science program.

#### Instrument Incubator Program:

##### Objectives

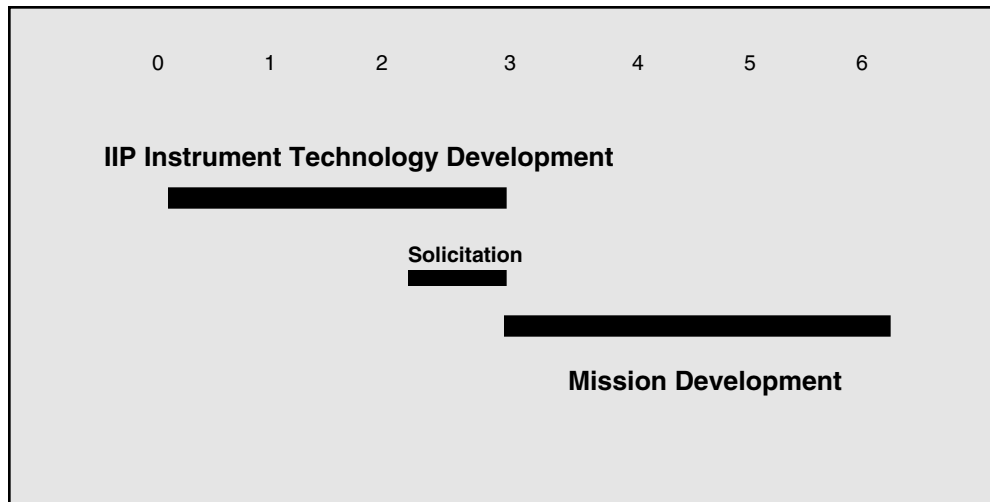
The objectives of the IIP are to identify, develop and (where appropriate) demonstrate new measurement technologies which:

- Reduce the risk, cost, size, and development time of Earth observing instruments, and
- Enable new earth observation measurements.

##### Description

The OES Enterprise is committed to improving the technology development and infusion process by developing and evolving new, innovative approaches such as the Instrument Incubator Program. It is anticipated that future IIP solicitations will be tailored as we learn from this prototype.

The IIP is designed to bring instrument systems to a demonstrated technology readiness level consistent with successful science Announcement of Opportunity (AO) competition in today's fast track (3 year) development environment. Figure 1 shows the idealized relationship between the IIP and development of future missions and field studies.



*Figure 1. Idealized Relationship between IIP and Future Flight Missions*

The IIP is envisioned to be flexible enough to accept instrument and measurement concepts at various stages of maturity (see figure 2), and through appropriate risk reduction activities (such as analytical studies, requirements analysis, design, laboratory breadboards and engineering models, and/or field demonstrations on the ground or on airborne platforms), advance the systems technology readiness level to that necessary to compete successfully in future science AOs. The proposer must define the starting point for the instrument or measurement technique and the exit or success criteria for their proposal activity. The proposer must also define a set of milestones (one per year minimum) at which the contract progress will be evaluated to determine if continuation is warranted.

### **NASA Research Announcement :**

#### *Goals*

This NASA Research Announcement solicits analytical studies, lab demonstrations, and field demonstrations, instrument requirements analysis, instrument design, and engineering model construction for innovative measurement techniques which have the highest potential to meet the goals of the IIP and the measurement capability requirements of OES.

#### *Proposal Research Topics*

The Mission to Planet Earth Science Research Plan (September 1996) describes five specific research areas:

- Land-Cover and Land-Use Change and Global Productivity Research,
- Seasonal-to-Interannual Climate Variability and Prediction,
- Natural Hazards Research and Applications,
- Long-Term Climate: Natural Variability and Change Research, and
- Atmospheric Ozone Research.

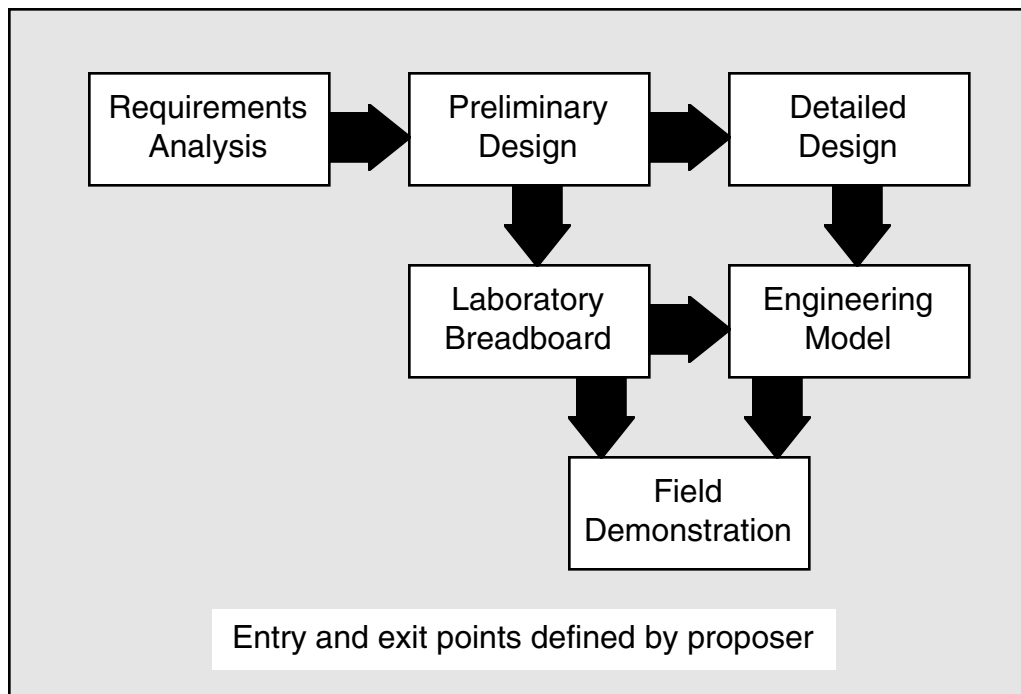


Figure 2. Instrument technology development

The plan also describes the ongoing core research programs which provide the science disciplinary strength necessary to address the program's many interdisciplinary challenges. As is pointed out in the plan's introduction, OES must find ways to simplify instrument design and infuse new ideas and technologies to enable lower cost future missions.

Innovative proposals are encouraged in all areas addressed by the OES Science Research Plan. This includes systematic and process measurements already planned as part of the OES science program, including the Earth Observing System (EOS), and new measurements for which no current capability exists. Proposals should indicate what areas of the Science Research Plan are addressed by the proposed measurement technique, what specific measurements would be made, and what algorithmic approach would be used to produce data products.

### Objectives

This NRA solicits proposals for highly innovative techniques for making Earth remote sensing (space based and airborne) or in situ (airborne) measurements which are required to address OES science priorities. The IIP is designed to fill a gap in the existing OES technology program between the various "core" technology activities currently in place which generally validate component and subsystem technologies in a relevant environment and system prototype demonstrations in a relevant environment; that is, the IIP will construct full measurement systems and demonstrate them in the laboratory, or in the field, as appropriate.

Successful proposers must present concepts which have great potential for enabling new science measurements and/or reducing instrument cost, size, mass, and resource use. These concepts are expected to be immature and include associated developmental risk. The IIP proposal must reduce instrument and measurement concept development risk sufficiently to allow the concept to be competitive in an OES Science Announcement of Opportunity consistent with the OES mission development paradigm. This paradigm requires the entire "mission" development to be accomplished in less than 36 months from selection to launch.

Proposals should cover the entire range of activity from entry point to AO competitive readiness level. The entry point should be determined by past and ongoing work on the measurement technique concept. Space qualification will not be done in the IIP. The results at the exit point should provide convincing evidence that the instrumentation can make the proposed measurements and that an operational instrument can be built in 18 months or less.

As appropriate, each proposed instrument development should include an evaluation of feasibility, requirements analysis, instrument design, construction of breadboards, and/or construction of an engineering model. All proposed efforts should include evaluation of anticipated performance, estimation of cost and schedule to develop a flight quality instrument, and documentation of technology dependencies. An instrument or measurement design concept or actual design should be produced as well as a concept for data product generation. These items will be documented as contract deliverables.

Laboratory and field demonstrations may be funded and are expected to produce a working instrument or specific instrument subsystems (breadboard or engineering model) and data documenting performance measured either in the laboratory or in the field. The final report should document these measurements.

### Relationship to Other Programs

For technology infusion to take place according to some predetermined time table, appropriate funding must be applied at each stage or readiness level associated with the development of a specified end item. Although sufficient funding sources exist, ability to consistently supply a steady stream of flight worthy products has not been altogether successful to date. A more focused, requirements driven approach with direct project connectivity is proposed to effectively harness supplier capabilities and leverage available funds. There are a number of special initiatives whose charter is to promote new ideas or technology development for the OES program.

### Core Technology Program

The Advanced Technology and Mission Studies Division of NASA's Office of Space Science has chosen several field centers to help focus advanced, cross-cutting, component technology efforts. These lead centers establish and prioritize needs, negotiate with participating centers and their industrial, university, and external agency partners to develop the required products, and recommend funding. The GSFC Systems Technology and Advanced Concepts Directorate has been designated as the lead organization for OES related Code S sponsored technologies. The IIP will draw on the components developed in the Core Technology Program and will provide a list of needs to the Core Technology Program to support IIP instrument development.

### New Millennium Program

NASA has recently inaugurated the New Millennium Program (NMP), managed by the Jet Propulsion Laboratory, to enable exciting 21st century missions by the identification, development, and flight validation of emerging technologies. In order to fulfill program goals, affordable missions with highly focused objectives are chosen that also enhance scientific capability. The program encourages revolutionary and breakthrough technologies that traditionally have been difficult to incorporate into a science mission because of the inherently high risk associated with their first use. Key areas include lower mass systems to reduce launch costs, greater autonomy in space and on the ground to cut operations overhead, and shorter project life cycles to increase mission frequency.

The first NMP Earth Orbiting mission has been selected for launch in May 1999. An advanced land imager is featured that will compare the performance of multispectral and hyperspectral focal plane detector arrays. This instrument has the potential to reduce mass, power, and volume by a factor of 7 for follow on Landsat-type measurements.

The Instrument Incubator will depend on NMP for space flight validation, where necessary, of instruments developed in IIP.

### Performance Measurements

Proposals covering more than twelve months must define clear, measurable milestones to be achieved in order to warrant continuation of funding. The total proposed period of performance for all stages should not exceed 36 months. Proposers may enter at any point but must submit a proposal that meets the AO presolicitation readiness criteria. It is expected that awards covering

more than one year of work will be handled as contract options with continuation based on performance and no guarantee that all stages will be funded.

#### International Participation:

This announcement is open to the international science and technology community. International cooperative proposals, with co-investigators from U.S. institutions participating in foreign-led proposals or with co-investigators from non-U.S. institutions on the teams of proposals from U.S. institutions, are also encouraged. These proposals should be on a "no-exchange-of-funds" basis for their non-U.S. elements and should identify any requirements for NASA financial support for U.S. participants. Proposals from non-U.S. institutions are encouraged, but only on a "no-exchange-of-funds" basis. Specific instructions for proposals from non-U.S. institutions are included in Appendix C.

#### Funding

The U.S. Government obligation to make awards is contingent upon the availability of appropriated funds from which payment for award purposes can be made and the receipt of proposals which are determined to be acceptable by the Government for award under this announcement. Funding of the successful proposals will be on a contract basis. No grants will be considered at this time.

#### Links

This announcement and appendices are available on the Office of Earth Science home page on the World Wide Web. The URL address is:  
<http://www.hq.nasa.gov/office/mtpe/> (look under "Research Announcements")

An excellent source of information on planned measurements is the EOS Project Science Office Web site at: <http://eospsogsf.nasa.gov/>

The complete text of the Science Research Plan is available on the World Wide Web at location:  
<http://www.hq.nasa.gov/office/mtpe/draftsciplan/toc.htm>

#### Guidance to proposers; Procedures

Participation in this NRA or a subsequent similar NRA is not a prerequisite to selection as a science investigation as part of any future OES Announcement of Opportunity (AO). Similarly, participation in this NRA does not guarantee continued participation in IIP nor success in any future OES AO competition. Successful participation in this NRA is intended to give innovative measurement techniques the scientific and technical pedigree they need to compete in relevant OES solicitations against any good ideas developed elsewhere. Solicitations similar to this announcement will be issued periodically to select additional instruments for development and demonstration.

All prospective proposers are strongly encouraged to submit a letter of intent to propose to NASA in response to this announcement as per the schedule below. This letter will help to scope NASA's planning for the peer review process. The letter of intent may be submitted electronically through the Internet by completing the forms at URL: <http://www.mtpe.hq.nasa.gov/LOI/form.html>. Use the electronic letter of intent forms unless you do not have access to the Internet. In that case, we will accept a FAX copy sent to 202-554-3024 with the following information:

- NRA Identifier;
- Title of proposal;
- Proposal type (concept study, laboratory demonstration, field demonstration);
- PI and CoI names and addresses, (including Zip + 4);
- PI Telephone number;
- PI Fax number;
- PI e-mail address; and
- A brief summary of your proposal (1 to 2 pages)

Proposals should be prepared and submitted in accordance with specific information provided in Appendices A-D of this Announcement. Appendix A provides additional instructions for proposers to this announcement. Appendix B contains the general instructions needed for preparation of solicited proposals in response to NASA Research Announcements. Appendix C

provides guidance for international participation. Appendix D provides the list of required declarations and the proposal cover sheet. Appendix E contains a list of acronyms used. All proposals submitted to NASA in response to this announcement must have a completed cover-sheet-form and information on current and pending research support from all other sources (see Appendix D) attached. All proposals from investigators from the U.S. and other countries will be reviewed and evaluated by NASA.

*Submit proposals to:* OES IIP NRA  
Code Y  
400 Virginia Avenue, SW  
Suite 700  
Washington, DC 20024  
(For overnight delivery purposes only,  
the recipient telephone number is 202-554-2775)

*Selecting Official:* Associate Administrator , Office of Earth Science  
NASA Headquarters

*Point of Contact for Program Planning and Solicitation:*  
John Kelley, Program Executive  
OES Code YF  
NASA Headquarters  
Washington, DC 20546-0001  
Tel: (202) 358-0197  
Fax:(202) 358-2769  
john.kelley@hq.nasa.gov

*Point of Contact for Implementation:*  
George Komar, Program Manager  
ESTO  
NASA Goddard Space Flight Center  
Greenbelt, MD 20771  
Tel.: (301) 286-0007  
Fax: (301) 286-1690  
george.komar@gsfc.nasa.gov

*Selection Schedule:*

All proposals submitted in response to this announcement are due in accordance with the schedule shown below. Late proposals will not be considered for review and funding, unless it is judged to be in the interest of the U.S. Government.

A complete proposal schedule is given below:

Preproposal / Bidders Conference .....May 12, 1998  
Letter of Intent to Propose due.....May 22, 1998  
Proposals due ..... June 22, 1998  
Peer Review .....June 22, 1998 - July 23, 1998  
Announcement of Final Selections.....August 17, 1998

Your interest in participating in this opportunity is heartily welcomed.



Ghassem Asrar  
Associate Administrator for  
Office of Earth Science

Enclosures:

- Appendix A. Specific Guidelines for Proposers
- Appendix B. Instructions for Responding to NASA Research Announcements
- Appendix C. Guidelines for International Proposals
- Appendix D. Proposal Cover Sheet, Formats, Forms, And Required Declarations
- Appendix E. List of Acronyms Used in this Research Announcement

## **Appendix A**

### **Specific Guidelines for Proposers**

In addition to addressing all of the requirements of section 7 of Appendix B, each proposal should address each of the following items under the project description:

- the OES science theme and science questions to be addressed by future measurements that could be produced with the proposed technique,
- the anticipated resolutions, accuracy, etc., of such measurements, and a comparison to corresponding requirements driven by the science questions addressed,
- a description of the proposed measurement technique and associated technologies,
- the current state of work on this measurement technique,
- the anticipated benefits of this technique versus existing or currently planned sensors, e.g., reduction of size, mass, power, volume, data rate, cost, improved resolution, or enabling of a new measurement not previously possible.
- a description of the contents of anticipated deliverables which must include monthly reports and a final report as described above,
- a discussion of any possible commercial benefits.

The length section of Appendix B is revised as follows:

The maximum length of each proposal is limited to 15 non-reduced, single-space typewritten pages for the total of the project description, management approach, personnel, and facilities and equipment sections (that is, the whole proposal, excluding the forms in Appendix D and cost information, is limited to 15 pages). Each side of a sheet of paper containing text or figures is considered a page. Use type font 10 point or larger, minimum one inch margins, and standard 8.5 x 11 inch paper.

The proposer shall submit 10 paper copies and one 3 1/2" magnetic disk (Macintosh or IBM PC compatible format) with the proposal in Microsoft Word or comparable word processor format.

Appendix B, paragraph (c) (8) (i) is changed to add this statement at the end:

## Appendix B

### INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS

(JANUARY 1997)

#### (a) General.

(1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a pre-award synopsis published for individual proposals.

(2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

(3) NRAs contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRAs.

(4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument. Contracts resulting from NRAs are subject to the Federal Acquisition Regulation and the NASA FAR. Supplement. Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).

(5) NASA does not have mandatory forms or formats for responses to NRAs; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

(6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

**(b) NRA-Specific Items.** Several proposal submission items appear in the NRA itself: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in these instructions may be supplemented by the NRA.

(c) The following information is needed to permit consideration in an objective manner. NRAs will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

#### (1) Transmittal Letter or Prefatory Material.

(i) The legal name and address of the organization and specific division or campus identification if part of a larger organization;

(ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;

(iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;

(iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

(v) Identification of other organizations that are currently evaluating a proposal for the same efforts;

(vi) Identification of the NRA, by number and title, to which the proposal is responding;

(vii) Dollar amount requested, desired starting date, and duration of project;

(viii) Date of submission; and

(ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

**(2) Restriction on Use and Disclosure of Proposal Information.** Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

## **Notice**

### **Restriction on Use and Disclosure of Proposal Information**

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

**(3) Abstract.** Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

### **(4) Project Description.**

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) **Management Approach.** For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) **Personnel.** The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) **Facilities and Equipment.**

(i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.

(ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non-research purposes should be explained.

## **(8) Proposed Costs.**

(i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontracts; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.

(ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.

(iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

(9) **Security.** Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

(10) **Current Support.** For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

## **(11) Special Matters.**

(i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

## **(d) Renewal Proposals**

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award.

(e) **Length.** Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

**(f) Joint Proposals.**

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

**(g) Late Proposals.** A proposal or modification received after the date or dates specified in an NRA may be considered if doing so is in the best interests of the Government.

**(h) Withdrawal.** Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

**(i) Evaluation Factors**

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

(i) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(ii) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(iii) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(iv) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

(4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost and available funds.

**(j) Evaluation Techniques.** Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

**(k) Selection for Award.**

(1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

(2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model award instrument and other information pertinent to negotiation.

(1) **Cancellation of NRA.** NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.



**Appendix C.**  
**GUIDELINES FOR FOREIGN PARTICIPATION**

NASA accepts proposals from entities located outside the U.S. in response to this NRA. Proposals from non-U.S. entities should not include a cost plan. Non-U.S. proposals, and U.S. Proposals that include non-U.S. participation, must be endorsed by the respective government agency or funding/sponsoring institution in the country from which the non-U.S. participant is proposing. Such endorsement should indicate the following points: (1) The proposal merits careful consideration by NASA; and (2) If the proposal is selected, sufficient funds will be made available by the sponsoring foreign agency to undertake the activity as proposed.

Proposals, along with the requested number of copies and Letter of Endorsement must be forwarded to NASA in time to arrive before the deadline established for this NRA. In addition, one copy of each of these documents should be sent to:

NASA Headquarters  
Office of External Relations  
Earth Science Division, Code IY  
Washington, DC 20546  
USA

Any materials sent by courier or express mail should include the street address 300 E Street, S. W., and substitute 20024 for the indicated ZIP code.

All proposals must be typewritten in English. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the U.S. Non-U.S. proposals and U. S. Proposals that include non-U.S. participation, must follow all other guidelines and requirements described in this NRA. Sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to the above address, if review and endorsement are not possible before the announced closing date. In such cases, however, NASA's Earth Science Division of the Office of External Relations should be advised when a decision on the endorsement is to be expected.

Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating the NRA. Copies of these letters will be sent to the sponsoring government agency.

## Appendix D

### Proposal Cover Sheet, Formats, Forms, and Required Declarations

Proposal Cover Sheet  
NASA Research Announcement 98-OES-05

Proposal No. \_\_\_\_\_ (Leave Blank for NASA Use)

Title: \_\_\_\_\_

**Principal Investigator:**

Name: \_\_\_\_\_

Department: \_\_\_\_\_

Institution: \_\_\_\_\_

Street/PO Box: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Country: \_\_\_\_\_ E-mail: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Co-Investigators:**

Name	Institution	Telephone
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Budget:**

1st Year: \_\_\_\_\_ 2nd Year: \_\_\_\_\_ 3rd Year: \_\_\_\_\_

Total: \_\_\_\_\_

**Proposal Type (check all that apply):**

Analytical Study \_\_\_\_\_  
Laboratory Demonstration \_\_\_\_\_  
Field Demonstration \_\_\_\_\_  
Requirements Analysis \_\_\_\_\_  
Instrument Design \_\_\_\_\_  
Engineering Model Construction \_\_\_\_\_

**Authorizing Official:** \_\_\_\_\_ (Name) \_\_\_\_\_ (Institution)

**Proposal Summary (1-page only)**

**NASA Research Announcement 98-OES-05**

PRINCIPAL INVESTIGATOR

(Name, Address,  
Telephone, Email)

---

---

---

---

Co-INVESTIGATORS:

(Name and Affiliation Only)

---

---

---

PROPOSAL TITLE:

---

---

---

PROPOSAL COST:

---

**ABSTRACT:** (Single-space, typed). Include: (a) Objectives and justification for work; (b) Accomplishments of prior year's work; (c) Outline of proposed work and methodology; (d) One or two relevant recent publications authored by the PI or Co-I. **DO NOT USE ADDITIONAL SHEETS.**

## **Current And Pending Research Support From All Other Sources**

All proposals must include this information. This list should include all current and pending research support from the following sources:

1. Any proposal for which the PI of this proposal is also the Principal Investigator.
2. Any proposal, regardless of the PI, which accounts for more than 20% of the time of the Principal Investigator of this proposal and other personnel essential to this proposal.

Please provide this information in the following format:

### **I. Principal Investigator**

#### **A. Current Fiscal Year Support**

1. Source of Support and Principal Investigator
2. Award Amount and Period of Performance
3. Person-Months and Level of Effort
4. Project Title and Short Abstract (50 words or less)

#### **B. Pending Proposals (Excluding this proposal but including other proposals).**

1. Source of Support and Principal Investigator
2. Award Amount and Period of Performance
3. Person-Months and Level of Effort
4. Project Title and Short Abstract (50 words or less)

For both current and pending support provide information on:

### **II. Co-Investigators**

As outlined above, provide information on all Current and Pending Support. Disclosure of current and pending research support is not required for collaborators.

### **III. Other agencies to which this proposal, or parts thereof, has been submitted.**

## APPENDIX D

### CERTIFICATIONS, DISCLOSURES, AND ASSURANCES REGARDING LOBBYING, DEBARMENT & SUSPENSION, AND DRUG-FREE WORKPLACE REQUIREMENTS

#### 1. LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 14 CFR Part 1271, as defined at 14 CFR Subparts 1271.110 and 1260.117, with each submission that initiates agency consideration of such applicant for award of a Federal contract, grant, or cooperative agreement exceeding \$ 100,000, the applicant must certify that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit a Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

#### 2. DRUG-FREE WORKPLACE

The applicant **agrees** that it will or will continue to provide a drug-free workplace as required by the Drug-Free Workplace Act of 1988, P.L. 100-690, as amended.

#### 3. GOVERNMENTWIDE DEBARMENT AND SUSPENSION

As required by Executive Order 12549, and implemented at 14 CFR 1260.510, for prospective participants in primary covered transactions, as defined at 14 CFR Subparts 1265.510 and 1260.117—

(1) The prospective primary participant **certifies** to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency.

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph ( 1 )(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

-----  
(signature)