National Aeronautics and Space Administration
July 26, 1994
NRA 94-OSS-12

RESEARCH ANNOUNCEMENT

Long-Term Space Astrophysics (LTSA) Research Program

Proposals Due: October 25, 1994

OMB Approval No. 2700-0042

NASA Research Announcement Soliciting Proposals for Research in Space Astrophysics for period ending October 25, 1994

NRA 94-OSS-12 Issued: July 26, 1994

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

This NASA Research Announcement (NRA) solicits basic research proposals relating to the analysis of data from space astrophysics observations.

The dominant objectives of this program, which was initiated five years ago, are to enhance the scientific return from space astrophysics missions by supporting long-term (typically five years) funding and to strengthen the United States (U.S.) long-term research base in space astrophysics.

Participation in this program is open to all categories of organizations, domestic or foreign, including educational institutions, for-profit and not-for-profit organizations, NASA centers, and other Government agencies. Proposals may be submitted at any time during the period ending October 25, 1994. Proposals received after October 25, 1994, will be held for the next review cycle, which is planned to commence one year after the current cycle. Proposals will be evaluated by scientific peer review panels with a goal of announcing selection by January 1995.

Further details relevant to this program are included in the appendices to this Announcement. In response to the increased awareness of ecological issues on the parts of both NASA and the scientific community, NASA will conserve paper and reduce waste by providing these appendices through anonymous file-transfer-protocol from Internet host ftp.astrophysics.hq.nasa.gov. The command "ftp ftp.astrophysics.hq.nasa.gov" should be used from the host machine. The user will then be prompted for a user name (use "anonymous") and a password (please use your own host name). ASCII, Postscript, and Microsoft Word files for all Appendices and required forms are located in the directory "nras/ltsa". In addition, a file named "readme" resides in this directory and gives detailed instructions on obtaining the necessary files electronically. Paper copies of the appendices will be available at the address shown below only if the prospective proposer's institution lacks access to ftp.

Further details relevant to this program are included in the appendices. Appendix A provides programmatic information relevant to the Long-Term Space Astrophysics (LTSA) Research Program. Appendices B and C contain instructions for preparation of solicited proposals in response to this NRA. Appendix D contains forms for use in preparing proposals in response to this NRA. (Note that electronic submission of these forms is required in this proposal cycle.)

Identifier: NRA 94-OSS-12

Submit Proposal To:

Long-Term Space Astrophysics
Infrared Processing and Analysis Center, 100-22
California Institute of Technology
770 S. Wilson Avenue
Pasadena, CA 91125

Submit Proposals By: October 25, 1994

Number Required: 20 copies

Selecting Official:
Director, Astrophysics Division
Office of Space Science

Obtain Appendices Electronically via "anonymous ftp" from:
ftp.astrophysics.hq.nasa.gov

Obtain Additional Information From:
Dr. Guenter Riegler
Astrophysics Division
Code SZ NASA Headquarters
Washington, DC 20546-0001 U.S.A.

E-mail: ltsa@gm.ossa.hq.nasa.gov
Telephone: (202) 358-0370

Your interest and cooperation in participating in this effort are appreciated.

Wesley T. Huntress, Jr.
Associate Administrator for Space Science

Enclosure List Of Appendices And Attachments

Appendices are available electronically via anonymous ftp from ftp.astrophysics.hq.nasa.gov

Appendix A - Program Description

Appendix B - Guidelines for Responding to NASA Research Announcements (NRA's) for Solicited Basic Research Proposals

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#001#
National Aeronautics July 26, 1994 and Space Administration NRA 94-OSS-12

RESEARCH ANNOUNCEMENT

Long-Term Space Astrophysics (LTSA) Research Program

APPENDICES

Appendix A to NRA-94-OSS-12

Program Description

Long-Term Space Astrophysics (LTSA) Research Program

Objectives of this Program
The Long-Term Space Astrophysics Research Program is intended to enhance research in space astrophysics by providing a stable long-term source of support, typically for five years; and to strengthen the United States (U.S.) long-term research base in space astrophysics.

Types of Proposals
This program is open to researchers at all categories of organizations, domestic and foreign, including educational institutions, for-profit and not-for-profit organizations, NASA centers, and other Government agencies. For the purpose of this NRA, NASA recognizes two groups of researchers, "Junior Researchers" and "Senior Researchers":

Category-1: "Junior Researchers," researchers who are early in their careers and still establishing themselves, such as postdoctoral fellows (beyond their first postdoctoral fellowship) and tenure-track faculty. Based on recommendations from peer reviewers of prior cycles of the LTSA program, we define "Junior Researchers" as those more than two years after having received their PhD, and fewer than eight years after PhD. The rationale for the lower threshold is that many programs exist for first postdoctoral fellowships with a duration of at least two years. The rationale for the upper threshold is that most universities with tenure-track positions decide on awarding, or not awarding, tenure by the seventh year after the candidate's PhD.

Category-2: "Senior Researchers," researchers who are more experienced as well as better established, such as tenured faculty at the university level, and senior scientists at universities and research labs. This distinction between Junior, untenured researchers and Senior researchers should be clear for most potential proposers. Any questions regarding eligibility for Junior or Senior categories should be directed via email to ltsa@gm.ossa.hq.nasa.gov. Support for the Junior Researchers is essential to the long-term health of the U.S. research effort in space astrophysics, while the experience of the Senior Researchers is needed to maximize the near-term research results in space astrophysics. Therefore, the allocation of funding for this NRA will be apportioned so that two-thirds (2/3) of the available funding for the LTSA program shall support proposals from Category-1 "Junior Researchers" and the remaining one-third (1/3) shall support Category-2 "Senior Researchers." All proposals must be endorsed by the proposer's sponsoring institution. Where a scientist is prevented from proposing as Principal Investigator because of institutional restrictions, a Sponsoring Principal Investigator may submit the proposal on behalf of the Actual Principal Investigator, provided that the latter's name and individual research program are clearly identified. In addition, this NRA neither solicits nor shall support research/work of graduate students. The rationale for this restriction is that there are many other avenues of support for graduate work, including NASA's Graduate Student Researchers Program.

Scope of Proposals for Long-Term Space Astrophysics Research
This Announcement solicits proposals for research in astrophysics whose dominant emphasis is the analysis and interpretation of data from past, current, and future space astrophysics missions. In support of that activity, but as a secondary emphasis, the proposed research may include theoretical research, numerical modeling, use of existing data from ground-based or suborbital observations, and laboratory astrophysics measurements. In addition, NASA will

consider requests for support for new ground-based observations, provided that the requests are clearly described, the observations are crucial to the success of the proposed effort, and their expense (including salary, travel, etc.) constitutes no more than 10% of the proposal's total budget.

The LTSA Research Program is intended to support research in space astrophysics that is substantial and cohesive and whose duration and scope go beyond those of the typical proposal funded by other NASA space astrophysics programs, such as the Astrophysics Theory Program, the Astrophysics Data Program, and mission-oriented observing programs.

The LTSA Research Program is not intended to support
- investigations whose primary emphasis is theoretical research, numerical modeling, the use of existing data from ground-based or suborbital observations, or laboratory astrophysics measurements; there exist other NASA programs that support research with these kinds of emphases;
- investigations whose primary focus is on solar system objects or on the solar-terrestrial interaction; other NASA programs support this kind of research;
- primarily the education and training of students;
- the organizing and hosting of scientific meetings;
- substantial computing facilities or resources, beyond the workstation requests described below. NASA recognizes that a proposal for a five-year research program cannot be as specific as a proposal for a small near-term research task. The proposer should, however, describe the research program with enough clarity to allow a peer reviewer to obtain an understanding and an appreciation of the proposed effort and its long-term goal.

Funding for the Long-Term Space Astrophysics Research Program
The program was begun during the FY 1990 award cycle and currently provides support for 57 research groups and individuals, with a budget level of approximately $6M per year. The additional level of funding for new awards in response to this NRA is planned to be approximately $2M per year, beginning in FY 1995. Funds for awards under this NRA are expected to be available, subject to the annual NASA budget cycle. The Government's 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 the Government determines are acceptable for award under this NRA.

Review Process
Because of the scientific breadth of the LTSA program, the panels reviewing the proposals will consist of members whose expertise ranges across the various subdisciplines of astronomy. Their task will be to evaluate the scientific merits of each proposal and to compare them with those of

other proposals in the same, as well as in the other, specialty areas.

Relationship Between the LTSA Program and Mission-Specific Observing Programs

Because of the long duration of LTSA research projects, it is assumed that a substantial portion of the necessary data will be obtained from future space astrophysics observations. However, approval of a proposal in the LTSA Research Program does not constitute approval of the specific observing programs contemplated or described by the proposer. It will be the researchers' responsibility to propose specific observations and to obtain the desired data via the appropriate mission-specific observing programs or archival research programs. The cost portions of such observing or archival-data proposals should be very low; it may include requests for travel support or other costs, but may not duplicate any salary costs.

Program Duration

While this NRA solicits proposals for investigations of up to 5-years in duration, awards will only be made for one year at a time. This is necessary because of the Government's annual appropriations cycle. Accordingly, NASA is only obligated to fund research for the period designated in any grant, without regard to the duration of a project as specified in a proposal.

Annual Continuation Proposals

According to Government regulations, annual continuation proposals will be required for each approved multiyear grant. Continuation proposals should be submitted to Darrell E. New, Astrophysics Division, Code SZ, NASA Headquarters, Washington, DC 20546, 3 months prior to the start of each future-year budget period. Continuation proposals should be in the form of a letter that describes progress made during the preceding year, research plans for the coming year, and any changes in the technical parts of the proposed research. A budget for the grant year under consideration and consistent in dollar amount with the original award must be included. Any major changes in the budget allocations compared to the allocations of the original award must be explained in the letter. The letter should be concisely written and not exceed five pages, including a list of published articles or articles submitted for publication (not planned or in progress). Reprints of articles published in refereed journals may be appended to the letter. NASA will review the progress made and the research plans. If a continuation proposal receives a favorable review, then the grant will be continued, subject to the availability of appropriated funds as stated above.

GUIDELINES FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS FOR SOLICITED BASIC RESEARCH PROPOSALS

(AUGUST 1988)

1. Foreword

a. NASA depends upon industry, educational institutions, and other nonprofit organizations for most of its research efforts. While a number of mechanisms have been developed over the years to inform the research community of those areas in which NASA has special research interests, these instructions apply only to "NASA Research Announcements," a form of "broad agency announcements" described in 6.102(d)(2) and 35.016 of the Federal Acquisition Regulation (FAR). The "NASA Research Announcement (NRA)" permits competitive selection of research projects in accordance with statute while at the same time preserving the traditional concepts and understanding associated with NASA sponsorship of research.

b. These instructions are Appendix I to 18-70.203 of the NASA Federal Acquisition Regulation Supplement.

2. Policy

a. NASA fosters and encourages the submission of research proposals relevant to agency mission requirements by solicitations, "NASA Research Announcements," which describe research areas of interests to NASA. Proposals received in response to an NRA will be used only for evaluation purposes.

b. 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.

c. 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 requests; however, information or materials that NASA and the awardees 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. Purpose

These instructions are intended to supplement documents identified as "NASA Research Announcements." The NRA's contain programmatic information and certain "NRA-specific" 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 NRA's.

4. Relationship To Award

a. A grant or other agreement may be used to accomplish an effort funded on the basis of a proposal submitted in response to an NRA.

b. Grants are generally used to fund basic research in educational and nonprofit institutions. Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Research Grant Handbook (NHB 5800.1).

5. Conformance To Guidance

a. NASA does not have any mandatory forms or formats for preparation of responses to NRA's; however, it is requested that proposals conform to the procedural and submission guidelines covered in these instructions. In particular, NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

b. In order to be considered responsive to the solicitation, 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. NASA reserves the right to reject any or all proposals received in response to an NRA when such action is considered in the best interest of the Government.

6. NRA-Specific Items

a. Several proposal submission items will appear in the NRA itself. These include: the unique NRA identifier, when to submit proposals, where to send proposals, number of copies required, and sources for more information.

b. Items included in these instructions may be supplemented by the NRA, as circumstances warrant. Examples are: technical points for specific emphasis; additional evaluation factors; and proposal length.

7. Proposal Contents

a. The following general information is needed in all proposals in order to permit consideration in an objective manner. NRA's 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.

b. Transmittal Letter or Prefatory Material

1. The legal name and address of the organization and specific division or campus identification if part of a larger organization;

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

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

4. Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;

5. Identification of any other organizations that are currently evaluating a proposal for the same efforts;

6. Identification of the specific NRA, by number and title, to which the proposal is responding;

7. Dollar amount requested of NASA, desired starting date, and duration of project;

8. Date of submission; and

9. 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).

c. Restriction on Use and Disclosure of Proposal Information

It is NASA policy to use information contained in proposals for evaluation purposes only. While this policy does not require that the proposal bear a restrictive notice, offerors or quoters should, in order to maximize protection of trade secrets or other information that is commercial or financial and confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting appropriate identification, such as page numbers, in the notice. In any event, information (data) 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 an 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 agreement. This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

d. Abstract

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

e. Project Description

(1) 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 in the field, and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the general plan of work, including the broad design of experiments to be undertaken and an adequate description of experimental methods and procedures. The project description should be prepared in a manner that addresses the evaluation factors in these instructions and any additional specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Note, however, that subcontracting significant portions of a research project is discouraged.

(2) When it is expected that the effort will require more than 1 year for completion, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should, of course, 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.

f. Management Approach

For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and any necessary arrangements for ensuring a coordinated effort should be described. Aspects of any required intensive working relation with NASA field centers that are not logical inclusions elsewhere in the proposal should be described in this section.

g. Personnel

The principal investigator is responsible for direct supervision of the work and participates in the conduct of the research regardless of whether or not compensation is received 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 name 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.

h. Facilities and Equipment

(1) 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 on the project.

(2) 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 to purchase. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for both research and nonresearch purposes should be explained.

i. Proposed Costs

(1) 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, subcontractors, 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 nonprofessional personnel). Estimate all manpower data in terms of man-months or fractions of full time.

(2) 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 (Standard Form 1411 may be used).

(3) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 18-31 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

j. Security

Proposals should not contain security classified material. However, if the proposed research requires access to or may generate security classified information, the submitter will be required to comply with applicable Government security regulations.

k. Current Support

For other current and pending projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

l. Special Matters

(1) 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.

(2) 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 officer, when applicable.

8. Renewal Proposals

a. Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. It is not necessary that renewal proposals repeat all of the information that was in the original proposal upon which the current support was based. 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 extended support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposals should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

b. NASA reserves the right to renew an effort either through amendment of an existing arrangement or by a new award.

9. Length

Unless otherwise specified in the NRA, every effort should be made to keep proposals as brief as possible, concentrating on substantive material essential for a complete understanding of the project. Experience shows that few proposals need exceed 15-20 pages. Any necessary detailed information, such as reprints, should be included as enclosures rather than in the main body of the proposal. A complete set of enclosures is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" enclosures; their availability may be mentioned in the proposal.

10. Joint Proposals

a. Some projects involve joint efforts among individuals in different organizations or mutual efforts of more than one organization. Where multiple organizations are involved, the proposal may be submitted by only one of them. In this event, 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.

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

11. Late Proposals

A proposal or modification thereto received after the date or dates specified in an NRA may still be considered if the selecting official deems it to offer NASA a significant technical advantage or cost reduction.

12. Withdrawal

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

13. Evaluation Factors

a. 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.

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

c. Evaluation of its intrinsic merit includes the consideration of the following factors, none of which is more important than any other:

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

(2) The offeror's capabilities, related experience, facilities, techniques, or unique contributions of these which are integral factors for achieving the proposal objectives;

(3) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel who are critical in achieving the proposals objectives;

(4) Overall standing among similar proposals available for evaluation and/or evaluation against the known state-of-the-art.

d. Evaluation of the cost of a proposed effort includes the consideration of the realism and reasonableness of the proposed cost and the relationship of the proposed cost to available funds.

14. 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, however, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house where NASA has particular competence; others are evaluated by a combination of in-house people 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. Regardless of the technique, the final decisions are always made by a designated NASA selecting official. A proposal which is scientifically and programmatically meritorious, but which is not selected for award during its initial review under the NRA, may be included in subsequent reviews unless the proposer requests otherwise.

15. Selection For Award

a. When a proposal is not selected for award, and the proposer has indicated that the proposal is not to be held over for subsequent reviews, the proposer will be notified that the proposal was not selected for award. NASA will notify the proposer and explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

b. 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 with the submitter. Formal RFP's are not used to obtain additional information on a proposal selected under the NRA process. However, the contracting officer may request certain business data and may forward a model agreement and other information which will be of use during the negotiation.

16. Cancellation Of NRA

NASA reserves the right to make no awards under this NRA and, in the absence of program funding or for any other reason, to cancel this NRA by having a notice published in the Commerce Business Daily. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised NRA, since amendment of an NRA is normally not permitted.

Additional Guidelines For The Preparation Of Proposals In Response To This NASA Research Announcement

The information contained in Appendix C augments and supersedes Appendix B and is applicable only to NRA-94-OSS-12.

Proposal Format and Content The proposals must have a Cover Page and a General Form; both are enclosed in this NRA. All proposals must be endorsed by the proposer's sponsoring institution. The General Form, which should follow the Cover Page, contains space for this endorsement. When completing these forms, please note that, for proposals in response to NRA's, NASA recognizes only one Principal Investigator (PI) for each proposal. Other investigators are designated Co-Investigators (Co-I's), even if their proposal and science responsibilities are comparable to that of the PI. Note further that, for approved proposals, NASA plans to enter information contained in these two forms into electronically accessible data bases, and to make these data bases accessible to potential proposers for this and other related Astrophysics Programs. If substantial collaborations with other institutions are involved, letters of endorsement should be submitted by the responsible officials from those institutions. Each endorsement letter should indicate agreement with the nature of the collaboration detailed in the proposal, which should be identified by title and date of submission. All endorsement letters should refer to the Long-Term Space Astrophysics Research Program of the Astrophysics Division of the Office of Space Science. Each proposal should include, in the order listed, the following parts:

1. Cover Page (form is provided in this NRA).
2. General Form (provided in this NRA).
3. Table of Contents.
4. A summary of the proposed science program.
5. A detailed description of the proposed science program, including objectives, work plan, schedule, and expected results. This description should provide sufficient detail to enable a reviewer to judge the scientific merits of the proposed research in relation to the objectives of the LTSA Research Program.
6. Completed Proposal Budget Form(s) (provided in this NRA).
7. Completed Current and Pending Federal Support Form(s) (provided in this NRA).
8. Biographical Sketch(es).
9. Management Plan (for team efforts only).

Note that the Budget Form(s) is (are) not required for proposals originating outside the United States, since such proposals would be accepted on a no-exchange-of-funds basis only.

Page Limit

Proposals are expected to be concisely written in order to minimize the burden on the reviewers and to facilitate the overall evaluation process. The total length of the science section of the proposal, including Cover Page, General Form, figures, tables, list of references, and workstation request may not exceed 15 single-spaced, typewritten pages (point size 10 or larger, with 1-inch margins). The number of pages describing budgets, current and pending Federal support statement, biographical sketches, etc. should be 10 or less. Double-sided printing is encouraged. Any part of a proposal beyond 25 pages will be detached and returned to the proposer. To facilitate the recycling of proposals after review, proposals should be submitted on plain, white paper only. This precludes the use of cardboard stock, plastic covers, colored paper, etc.

Budget Section

The budget section should include a budget breakdown for each year of the proposed work, not to exceed 5 years. The periods from February 1 to January 30 of the succeeding year should be used for each of the budget years, starting February 1, 1995. The total yearly amounts, including amounts requested for workstations, should be entered in the General Form. The budget should be presented in the Proposal Budget Form enclosed in this NRA. The budget breakdown requested in these forms will be used by the Government to evaluate costs as to reasonableness, allowability, and allocability.

If collaborations with Co-I's who are at institutions different from that of the PI are involved, and if those Co-I's anticipate support, the budget total of each participating institution should be listed under category F.4. Subgrants/Contracts in the Proposal Budget Form of the PI. Details of the budgets of such participating institutions should be provided in separate Proposal Budget Forms (which may be obtained by printing the enclosed form). As indicated in the Proposal Budget Form, direct labor costs should be segregated by titles or disciplines (e.g., PI, Co-I) with estimated hourly or monthly rates, number of months, and total dollar amounts for each. Indirect costs should be explained to an extent that will allow the Government to understand the basis of the estimates.

With regard to other costs, each significant category should be detailed, explained, and substantiated. For example, proposals for research equipment purchases should specify the type of equipment, number of units, and unit cost. Requested travel allowances should include the destination, number of travelers, number of days, and the total cost per trip.

Current and Pending Federal Support

Following the budget section, the proposal must contain, for the PI and for each Co-I for whom support is requested, a summary of current and pending Federal support of all projects in which he or she is substantially involved. The required information must include: Funding agency, grant number, project title, award amount for FY 1995 and FY 1996 and total award amount, award period, and level of effort (percent). The Current and Pending Federal Support Form enclosed should be used for providing this information.

Biographical Sketches

A brief biographical sketch, along with a list of relevant scientific publications covering the past 5 years, should be included. The biographical sketch and publications list should not exceed one page per PI or Co-I.

Management Plan

For team effort proposals, a management plan should be included that outlines the specific responsibilities of the PI and other members of the research team. If multiple institutions are involved, the institutional responsibilities and/or other terms of agreement necessary for achieving the objectives of the program should be specified.

Proposal Quantity, Mailing Address, and Due Date

Twenty copies of the proposals should be sent to the following address:

Long-Term Space Astrophysics
Infrared Processing and Analysis Center, 100-22
California Institute of Technology
770 S. Wilson Avenue
Pasadena, CA 91125

Proposals should be mailed so as to arrive at the above address by October 25, 1994. Proposals received after October 25, 1994, will be held for the next review cycle, which will commence one year after the current cycle.

Electronic Data Entry

In order to avoid errors in data entry and to increase the efficiency of proposal management, it is required that all proposers with access to the U.S. electronic mail (e-mail) system submit the Cover Page and General Form information electronically. To do so, obtain electronic copies of the forms via anonymous ftp from ftp.astrophysics.hq.nasa.gov. The command "ftp ftp.astrophysics.hq.nasa.gov" should be used from the host machine. The user will then be prompted for a user name (use "anonymous") and a password (please use your own host name). The required forms are located in the directory "nras/ltsa". In addition, a file named "readme" resides in this directory. Follow the enclosed instructions and return the forms via email to ltsa@ipac.caltech.edu. You will receive an acknowledgment.

Please note that receipt of only the electronic version of your proposal forms is not sufficient to meet the deadline for proposal submission. You must submit paper copies of your proposals by that date including a Cover Page and General Form, as described in this NRA. Questions regarding electronic proposal submission should be addressed to:

Dr. Guenter Riegler
Astrophysics Division
Code SZ NASA Headquarters
Washington, DC 20546 U.S.A.
E-mail: ltsa@gm.ossa.hq.nasa.gov
Telephone: (202) 358-0370

Comments and suggestions concerning electronic proposal submission would be appreciated.

Guidelines for Foreign Participation NASA accepts proposals from all countries in response to this NRA. Proposals from non-U.S. entities should not include a cost plan. Proposals from outside the U.S. and U.S. proposals that include non-U.S. participation, must be endorsed by the respective government agency or funding/sponsoring institution in that country from which the non-U.S. participant is proposing. Such endorsement should indicate that:
1. the proposal merits careful consideration by NASA; and,
2. if the proposal is selected, sufficient funds will be made available to undertake the activity as proposed. In addition to sending twenty copies of the proposals to the Long-Term Space Astrophysics Research Program at the above given address, one copy of the proposal along with the Letter of Endorsement must be forwarded to:

Ms. Helen Lambert
(NRA 94-OSS-12)
International Relations Division
Code IR NASA Headquarters
Washington, DC 20546 U.S.A.

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. All proposals must be received before the established closing date; those received after the closing date will be treated in accordance with NASA's provisions for late proposals. Sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to the above address, if endorsement is not possible before the announced closing date. In such cases, however, NASA's International Relations Division should be advised when a decision on endorsement can be expected. Successful and unsuccessful proposers will be contacted directly by the NASA Astrophysics Division. Copies of these letters will be sent to the sponsoring government agency. Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected, NASA's International Relations Division will arrange with the non-U.S. sponsoring agency for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency will each bear the cost of discharging their respective responsibilities. Depending on the nature and extent of the proposed cooperation, these arrangements may entail

1. a letter of notification by NASA; and/or
2. an exchange of letters between NASA and the sponsoring governmental agency.

Evaluation Criteria

The following criteria, listed in descending order of importance, will be used in evaluating proposals for the LTSA Research Program:

1. The overall scientific merits of the proposed research, consistent with the Scope of Proposals for LTSA Research described in Appendix A.
2. The technical feasibility of accomplishing the stated scientific goals, and the probability of success of the proposed research.
3. The competence and relevant experience of the PI and any collaborators, as an indication of their ability to carry the investigation to a successful conclusion, including timely publication of peer-reviewed journal articles.
4. The commitment of the institution(s) of the investigator(s) as measured by its (their) willingness to provide the support necessary to ensure the satisfactory completion of the investigation.
5. Cost and management factors. Cost factors include the consideration of the realism and reasonableness of the proposed cost as well as any cost sharing or support by the institution(s) of the investigator(s) or by other sources to the proposed effort. Management aspects include the time and attention the PI plans to devote personally to the investigation.

Requests for Workstations

As has been our policy in recent years, NASA may provide some investigators with the computational resources needed for the analysis selected under this NRA. The objective is not to enhance general computing capability, but rather to support research at the investigator's home institution. Preference will be given to computer systems which can support existing portable data analysis environments such as the Interactive Reduction and Analysis Facility (IRAF). Requests for workstations should be attached to the proposal on a single, separate page. The request should briefly describe the computing capabilities which are expected to exist at the proposer's institution during the period in which the research will be performed. The proposer must also explain the scientific impact if the request for the workstation is declined. The budget request for workstations should be included in the Budget Form.

Funding Instrument

Grants in conformance with NASA Research Handbook (NHB 5800.1c) will be generated in order to fund successful proposals.

Other Conditions

NASA may desire to select only a portion of a proposer's investigation, in which case the proposer will be given the opportunity to accept or decline such partial support. Under this Program, salary requests may be made for research, but may not be made for teaching.

Schedule

The schedule for the release, due date, selection, and start of funding of proposals for this NRA is as follows:

July 26, 1994	Release of the NRA
October 25, 1994	Proposals due
January 1995	Target date for announcement of selection
February 1995	Target date for start of funding

Successful and unsuccessful proposers will be contacted directly by the NASA Astrophysics Division.

Further Information

Questions regarding proposal preparation and submission, policies, and evaluation procedures should be sent via e-mail to: ltsa@gm.ossa.hq.nasa.gov, or to Dr. Guenter Riegler at griegler@gm.ossa.hq.nasa.gov (202-358-0370), Astrophysics Division, Code SZ, NASA Headquarters, Washington, DC 20546, U.S.A.