



**Stratospheric Observatory for Infrared Astronomy
(SOFIA)
Archival Research Program**

Call for Proposals

January 27, 2021

Version 2.1

Documentation for this SOFIA *Archival Research Program* (this document) and other relevant information may be found at <https://www.sofia.usra.edu/science/proposing-and-observing/proposal-documents>.

Key Dates

Release of Call for Proposals	December 4, 2020
Call for Proposals Update on Website	January 5, 2021
Proposals Due	February 12, 2021 21:00 PST (February 13, 2021 05:00 UTC)
Anticipated Announcement of Selections	March 31, 2021
Performance Period	May 1, 2021 – April 30, 2023

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Change Log:

November 30, 2020: Initial release

January 8, 2021: The CfP has been updated to clarify that a simple budget is required also for Small Proposals.

January 27, 2021: The CfP has been updated to clarify that an extra page is allowed for references

1. SOFIA Archival Research Program Description

1.1. New Policies

- This call continues the SOFIA Archival Research Program (SARP) introduced in Cycle 8.
- Two distinct types of proposals for the archival research program are solicited in this round: Regular Proposals requesting up to \$150,000 per year, or more in exceptional cases, and lasting up to two years and Small Proposals requesting up to \$50,000 and lasting for one year.
- SOFIA is implementing dual-anonymous review by removing the names of PIs and co-Is from the proposals prior to presentation to the reviewpanels. Proposers should thus avoid referring to PIs and co-Is by name in the proposal body and should ensure that the biography section and budget are uploaded as a separate PDF. For additional information on the Dual Anonymous Review procedures, please see <https://www.sofia.usra.edu/science/proposing-and-observing/proposal-calls/cycle-9/cycle-9-dual-anonymous-review>.

1.2. Introduction

With this call the SOFIA Science Missions Operations (SMO) continues the SOFIA Archival Research Program (SARP). This program will fund archival research projects primarily using SOFIA data to encourage the use of available SOFIA archival data and to realize the full potential of the SOFIA data archive.

This call provides specific information for the structure and submission requirements for SARPs, which differ from the regular Guest Observer proposals (e.g., explicit budgets are required for SARP proposals). General information regarding the SOFIA project, its instruments and the proposal process can be found at <https://www.sofia.usra.edu/science/proposing-and-observing/proposal-documents>.

The SARP Call is open to all US institutions. This complements the Astrophysics Data Analysis Program (ADAP) under the NASA Research Opportunities in Space and Earth Sciences (ROSES) solicitation.

1.3. Accessing SOFIA Archival Data

SOFIA's scientific data archive can be found at the Infrared Science Archive (IRSA; <https://irsa.ipac.caltech.edu/frontpage/>), which is hosted by the Infrared Processing and Analysis Center (IPAC). SOFIA data from Guest Observer programs past the proprietary period, Director's Discretionary Time observations, and Legacy Programs are searchable through the IRSA SOFIA Archive (<https://irsa.ipac.caltech.edu/applications/sofia/>). Instructions for downloading SOFIA archival data, as well as documents relating to data products and data tools, can be found at <https://sofia.usra.edu/science/data/science->

[archive](https://sofia.usra.edu/science/data/selected-highlights-data-archive). Selected examples of SOFIA archival data sets can be found at <https://sofia.usra.edu/science/data/selected-highlights-data-archive>.

2. The SOFIA Archival Research Program

SOFIA is pleased to invite proposals for SOFIA Archival Research Programs (SARP), aimed at maximizing the scientific return of the SOFIA Science Archive

This call provides specific information for the structure and submission requirements for the SARPs, which differ from the regular Cycle 9 proposals (e.g. explicit budgets are required for SARP proposals). Requests for new observations are not allowed under this call. General information regarding the SOFIA project, its instruments, and the proposal process can be found at <https://www.sofia.usra.edu/science/proposing-and-observing/proposal-documents>.

As a funding call, the SARP is open to all U.S. institutions, although access to the SOFIA Science Archive is freely available and not limited to those eligible to apply for this funding.

2.1. Description

The purpose of the SOFIA Archival Research Program is to encourage the use of SOFIA archival observations for impactful science. Such projects are funded for a duration of up to two years, with the possibility of a no-cost extension (NCE). In addition to support for the scientific analysis of archival data, these programs may request support for the development of new tools for theory or for laboratory efforts (excluding laboratory equipment) that *directly* support the science goal of the SARP. Only proposers with a U.S. affiliation will be eligible for funding.

The SARP will consider two distinct types of proposals. The Regular Proposals are larger programs funded at up to \$150,000 per year, or more in exceptional cases. Regular Proposals may request funds for up to two years. The Small Proposals are smaller, targeted programs funded at up to \$50,000. Small Proposals may request funds for up to one year. Early career researchers, including graduate students and postdocs, are encouraged to apply to this call. If early career researchers are not permitted by their institution to hold grants, a faculty member at the same institute should be designated as the ‘US Lead Investigator’ in USPOT.

2.2. General Guidelines and Policies

2.2.1 General Proposal Guidelines

The SOFIA Archival Research Program is intended to facilitate the timely publication of data already publically available in the SOFIA Science Archive. This may be either

through the analysis and publication of previously unpublished observations, or through the re-analysis and/or consolidation of several data sets. The data sets to be used should be clearly identified in the proposal body. The generation of software tools that can be used for future research are also allowed as part of this call.

The proposal should clearly state the scientific problem that will be addressed and its relevance. The proposals should describe the specific activities proposed and the relevant expertise of the PI and proposal team. A clear path to timely publications is critical.

The utilization and analysis of supporting data sets from other observatories or the laboratory may be part of the supported effort, but only as relevant to the analysis and publication of the SOFIA data. Any supplementary data sets proposed or required should be described as to relevance, structure, and status (for instance; open access, pipeline processed archives; existing, but not fully processed; or proposed, but not acquired observations – accepted or pending). The proposal should describe why the supplementary data sets are necessary to interpret the SOFIA archival data and to achieve the science goals of the proposal.

Limited amounts of directly relevant theoretical work, including model development, or “laboratory work” may also be proposed. For such program components, the methodology and procedures and their relevance to the SARP should be clearly described, including why they are necessary to interpret the SOFIA archival data and to achieve the science goals of the proposal

Proposals for new observations are not solicited or allowed as part of the SARP call; these should be submitted via the standard Guest Observer call or as SOFIA Legacy Programs. Where a SARP proposal builds on previously-funded research, the proposal must identify that work and summarize its results. The proposal should make it clear how the proposed work will extend the work previously carried out.

In contrast to the regular SOFIA cycle proposals, SARP proposals must include a budget request. This allows the proposal PI to match the proposed effort and products to the resources needed to accomplish the work and should be described in the budget narrative. A budget template is provided. The SMO Director may choose to select parts of a SARP program and offer only partial funding. The budget, along with the biographical information, should be included in the Team PDF Attachment rather than in the Science PDF Attachment.

2.2.2. Who May Propose

Participation in the SOFIA Archival Research Program is open to scientists from all categories of U.S. organizations, including educational institutions, industry, nonprofit

institutions, NASA Centers, and other U.S. government agencies. Only U.S.-affiliated proposals are eligible for funding through this call.

The PI of the regular or Legacy program under which the data targeted by the Archival Research Program was acquired may be the PI or team-member of the Archival Research Program, but only if well justified. In any case, he/she may not propose for archival funding until the full funding period (including all no-cost extensions) of the observing program has expired and the final report for that program has been submitted and accepted by the SMO.

Each SOFIA Archival Research Program proposal must identify a single PI. All members of a proposal team must have clearly identified roles, responsibilities and tasks, with well-defined time and resource allocations and commitments. Junior members may be identified by positions only (e.g. to-be-identified post-doctoral fellows).

If the PI is an early career researcher who is not permitted by their institution to hold grants, a faculty member at the same institute (who will be the formal grant-holder if an award is made) should be designated as the ‘US Lead Investigator’ in USPOT.

2.2.3. Late Proposals

Consistent with USRA and NASA policy, no late proposals will be considered. A proposal will be considered “on time” only if all necessary components have been received by the published deadline. Note that processing delays at the proposer's home institution, shipment delays of the proposal, or Internet delays do not excuse the late submission of a proposal.

2.3. Proposal Evaluation and Selection Process

The proposals for SARP funding will be evaluated by a review committee, which will advise the SMO Director. This review will be separate from the general Cycle 9 Time Allocation Committee (TAC). As with other SOFIA proposals, the SMO Director is the selection official for the SARP proposals.

The following factors will be used in evaluating proposals for the SOFIA Archival Research Program participation.

- The scientific merit of the proposed activities
- The realism of the path-to-publication, and likely impact or applications of the resulting papers or tools.
- The feasibility of accomplishing the objectives of the investigation.
- The competence and relevant experience of the Principal Investigator and collaborators.

The SMO director may select part of the proposed work and offer a concomitantly modified budget.

2.4. Funding for U.S.-based Investigators

Funds for awards are expected to be available to investigators at U.S. institutions subject to the annual NASA budget cycle. It is expected that the total funding available for SOFIA Archival Research Programs will be approximately \$1.5M. The grant period for Regular Proposals will be up to two years and for Small Proposals no more than one year.

The budget and disbursement should be fully justified in the budget narrative. Funding can be allocated for salary support, including student or post-doctoral researcher support. Direct costs (such as computer hardware, software licenses, travel support, etc.) are also allowed. Proposals in response to this call must include an itemized budget outlining the costs and assignments required to complete the proposed work.

Only researchers with U.S. affiliations are eligible to receive financial support through the SARP. All funding will be disbursed through the proposal PI's institution.

2.5. Implementation of Dual-Anonymous Peer Review

SOFIA is implementing dual-anonymous peer review. In the SARP proposals, the names of the PI and co-Is and other identifying information will be removed from the cover sheet prior to the presentation of proposals to the review panel and the biographical sketches, implementation plan and budget previously included with the proposals will be uploaded separately. These elements will be assessed by the review panel separately, following their scientific review of the proposals.

SARP proposals must, therefore, include the budget and biographical information as a *separate* “Team PDF Attachment” file, rather than as part of the proposal body (“Science PDF Attachment”), as specified in section 3.2.2 Proposers must also avoid mentioning the roles of the proposers in the main body of the proposal. Non-compliant proposals may be returned without review.

For additional information on the Dual Anonymous Review procedures, please see <https://www.sofia.usra.edu/science/proposing-and-observing/proposal-calls/cycle-9/cycle-9-dual-anonymous-review>.

3. Proposal Preparation

Each SOFIA Archival Research Program proposal must be prepared using the Unified SOFIA Proposal and Observation Tool (USPOT). The proposal information is entered directly, while text sections including the scientific justification, feasibility analysis, budgets and budget narrative, should be uploaded via USPOT¹ as a two PDF files (the

¹ <https://dcs.arc.nasa.gov/observationPlanning/installUSPOT/uspotDownload.jsp>

Science PDF Attachment and the Team PDF Attachment). SARP proposals should be submitted using USPOT without any Astronomical Observation Requests (AORs). The proposer should select “Archival” as the proposal type in USPOT.

Proposals must be written in English. The length of each section of the proposal should not exceed the page limits indicated in Section 3.2, using single-spaced 8.5x11 inch or A4 format with 1 inch (2.5 cm) margins. Proposals must be printed to PDF files with a font size no smaller than 11 points (about 6 characters per cm). Reviewers will only be provided the portion of each proposal that complies with the page limits.

The abstract provided using USPOT is limited to 300 words.

3.1 The Unified SOFIA Proposal and Observation Tool (USPOT)

The Unified SOFIA Proposal and Observation Tool (USPOT) provides the user with a form-based interface for preparing a proposal and for electronic submission to the SOFIA SMO. After downloading the appropriate package and following the installation instructions, the user starts a new proposal by launching the USPOT application. The proposer then fills out the necessary form fields including proposer information, abstract, instrument(s), and target lists. The Science and Technical Justification may be prepared using any text editor (e.g. MS Word, LaTeX, etc...) and saved as a PDF file. Using USPOT, the proposer then identifies this PDF file on a local disk for attachment to the proposal summary information. When the proposal is complete, the user submits the complete proposal directly to the SMO using USPOT. Details about USPOT may be found in the Observer’s Handbook and the USPOT Manual. On-line help for USPOT is available as a pop-up function in the application.

3.2 Proposal Text Sections (To be uploaded as a single PDF file)

3.2.1. Main Body (to be uploaded as a single PDF file)

Proposal Sections – The uploaded “Science PDF Attachment” must contain the following sections in the order indicated for each proposed observing program. The page length limits are indicated.

The SMO will remove the names of the proposers before presenting proposals to the review panel. Proposers should therefore avoid any mention of members of the team in the proposal text that identifies them as such, including references to ‘our earlier work’, etc. **Information on team members should be confined to the separate Biographical Information and Budget document, which must be uploaded separately (see Section 3.2.2).**

FOR THE REGULAR PROPOSALS THE FOLLOWING SECTIONS ARE REQUIRED AND PAGE LIMITS APPLY:

1. **Scientific Context (up to 1 page)** – Briefly summarize the proposed investigation with the following elements:
 - Context* – What is the context and significance of this proposal to the broader field of astronomy?
 - Aims* – How will the archival study address the specific scientific questions in this proposal?
 - Methods* – What are the key measurement techniques utilized in this investigation? How do they pertain to the unique capabilities of SOFIA?
 - Synergies* – How does the proposed work share synergies with observations from other observatories or other laboratory/theory efforts?
 - Anticipated results* – What are the expected results that will be produced in this investigation and what will be their impact?
2. **Scientific Justification (up to 3 pages + 1 additional for references only)** – The proposals should describe the observations and activities proposed. Any supplementary data sets proposed or required should be described as to relevance, structure and status (for instance; open, pipeline processed archives; existing, but not fully processed; or proposed, but not acquired observations – accepted or pending). The purpose, structure and implementation of software tools for processing beyond the standard SOFIA pipeline processing should be described in detail. For theoretical work, the importance and relevance to the specific SARP should be clearly described.
3. **Feasibility and Path to Publication (up to 1 page)** – This section forms the basis for assessment of the technical feasibility of the proposed observations. For SARPs, the technical feasibility section should include a brief discussion of the anticipated data analysis, new tools, and laboratory/theoretical work needed to accomplish the investigation. Specifically, describing all tasks performed by proposers to enhance the calibrated data from the SOFIA Science Center will assist the reviewers in assessing the scope of the proposed effort.

Describe the plans for and constraints on the generation and timely submittal of research publications based on the proposed archival study. If the requested SARP project depends on synergies with other observations or theoretical work, describe the status of those efforts.

FOR SMALL PROPOSALS, THE FOLLOWING SECTIONS AND PAGE LIMITS APPLY

1. **Scientific Context (up to 1 page)** – Briefly summarize the proposed investigation with the following elements:
 - Context* – What is the context and significance of this proposal to the broader field of astronomy?
 - Aims* – How will the archival study address the specific scientific questions in this proposal?
 - Methods* – What are the key measurement techniques utilized in this

investigation? How do they pertain to the unique capabilities of SOFIA?
Synergies – How does the proposed work share synergies with observations from other observatories or other laboratory/theory efforts?
Anticipated results – What are the expected results that will be produced in this investigation and what is their impact?

2. **Scientific Justification (up to 2 pages + 1 additional for references only)** – The proposals should describe the observations and activities proposed. Any supplementary data sets proposed or required should be described as to relevance, structure and status (for instance; open, pipeline processed archives; existing, but not fully processed; or proposed, but not acquired observations – accepted or pending). The purpose, structure and implementation of software tools for processing beyond the standard SOFIA pipeline processing should be described in detail. For theoretical work, the importance and relevance to the specific SARP should be clearly described.
3. **Feasibility and Path to Publication (up to 0.5 pages)** – This section forms the basis for assessment of the technical feasibility of the proposed observations. For SARPs, the technical feasibility section should include a brief discussion of the anticipated data analysis, new tools, and laboratory/theoretical work needed to accomplish the investigation. Specifically, describing all tasks performed by proposers to enhance the calibrated data from the SOFIA Science Center will assist the reviewers in assessing the scope of the proposed effort.

Describe the plans for and constraints on the generation and timely submittal of research publications based on the proposed archival study. If the requested SOFIA data depend on synergies with other observations or theoretical work, describe the status of those efforts.

3.2.2 Biographical Information and Budget

This information should be uploaded in USPOT *separately* from the main body of the proposal as the “Team PDF Attachment”, as project roles and information such as lead institution will not be provided to the TAC until after the scientific assessment of the proposal. No reference to project roles, lead institutions, etc. should be included in the main body of the proposal.

Please note that for SOFIA Archival Research Program proposals with a ‘Team PDF’ longer than 7 pages total, DCS will return a warning about a too long proposal. If all individual section limits have been adhered to, this warning may be ignored.

FOR THE REGULAR PROPOSALS THE FOLLOWING SECTIONS ARE REQUIRED AND PAGE LIMITS APPLY:

1. **Budget (budget form(s) + up to 2 pages of Budget Narrative)** – A budget outlining the requested support, in salary and other direct costs, as well as requested overheads is required. For the purpose of the proposal, a budget form is provided at https://www.sofia.usra.edu/Science/SLP-budget_Form (for accepted proposals, the SOFIA/USRA Contracts Manager will work with the proposer's Sponsored Research Office to generate a mutually acceptable budget format). A budget narrative of up to two pages is also required. For multi-institution programs, the lead institution shall describe the tasking and support for each collaborating organization, but may use separate budget forms. Funding profiles deviating significantly from an evenly distribution over the two-year period should be explicitly justified.
2. **Principal Investigator and Co-Investigator Biographical and Publication Data (one page for the PI with one-half additional page per Co-I)**. A short biographical sketch for the PI should be provided and include a list of the most recent refereed publications relevant to the scientific proposal. Short biographical data, including their roles in the proposed project, should be provided for the Co-Is.

FOR SMALL PROPOSALS, THE FOLLOWING SECTIONS AND PAGE LIMITS APPLY

1. **Budget (budget form + up to 0.5 pages of Budget Narrative)** – A simple budget, outlining the intended use of the requested support is required. For the purpose of the proposal, a budget form is provided at https://www.sofia.usra.edu/Science/SLP-budget_Form (for accepted proposals, the SOFIA/USRA Contracts Manager will work with the proposer's Sponsored Research Office to generate a mutually acceptable budget format). For multi-institution programs, the lead institution shall describe the tasking and support for each collaborating organization. Funding profiles deviating significantly from a one-year period should be explicitly justified.
2. **Principal Investigator and Co-Investigator Biographical and Publication Data (one page for the PI with one-half additional page per Co-I)**. A short biographical sketch for the PI should be provided and include a list of the most recent refereed publications relevant to the scientific proposal. Short biographical data, including their roles in the proposed project, should be provided for the Co-Is.

3.3. Proposal Submittal

Proposals must be submitted using the USPOT application. Upon successful upload, the system will generate an automatic message acknowledging the submittal, and generating a unique identifier for later reference. A confirmation email will be sent to the email address provided in the proposal.



Proposals that have been submitted to the SMO can be edited and *resubmitted* using USPOT at any time up to the proposal deadline (note that old versions are not retained).

4. SOFIA Archival Research Program Schedule

The nominal schedule for the SOFIA Archival Research Program (SARP) observing program is as follows:

4 December 2020	Release of Call for Proposals
5 January 2021	Call for Proposals update
12 February 2021, 21:00 PST	Proposal Submission deadline
13 February 2021, 05:00 UTC	Proposal Submission deadline
March 31, 2021	Proposal Selections Announced

5. Contacts and Further Information

For further information about the SOFIA Archival Research Program Call for Proposals or help in preparing proposals, please see the “Information for Researchers” (<https://www.sofia.usra.edu/science>) section of the SOFIA website, or contact the SOFIA help desk at sofia_help@sofia.usra.edu.

Questions about the SOFIA Archival Research Program (SARP) can be directed to the SOFIA User Support lead, Dr. Arielle Moullet (amoullet@usra.edu), or the Associate Director for Research, Dr. James M. Jackson (jjackson@sofia.usra.edu).