



**Stratospheric Observatory for Infrared Astronomy
(SOFIA)
Betelgeuse Data Archival Research**

Flash Call for Proposals

April 7, 2020

Version 1.5

Key Dates

Release of Call for Proposals

April 7, 2020

Proposals Due

April 24, 2020, 6 pm PDT

Anticipated Announcement of Selections

May 2020

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Change Log:

March 23: v1.0. Initial Release

April 7: v1.5.



1. SOFIA Betelgeuse Data Archival Research Program

1.1. Introduction:

The Stratospheric Observatory for Infrared Astronomy (SOFIA) is pleased to invite proposals for archival research based on observations acquired of Betelgeuse in the winter/spring of 2020 under a series of Director's Discretionary Time (DDT) programs. With the unprecedented visual light dimming of Betelgeuse seen in the Fall of 2019, continuing into the new year 2020, many scientific questions arose as to the cause and nature of this event and its characteristics at other wavelengths. The SOFIA Mission Operations (SMO) Director received two individual proposals for DDT time, and in addition decided that SOFIA would observe Betelgeuse with all scheduled instruments in the Winter/Spring of 2020. Under these programs SOFIA has observed the object as follows (as of April 7):

EXES: Observed about 50 min total, centered on the [Fe II] line at 25.9884 microns and [S I] at 25.2516 microns

FIFI-LS: Observed about 45 min covering [O I] 63 microns, [O I] 145 microns, [C II] 157 microns and a number of CO lines.

GREAT: Observed about 1 hour covering the [OI] 63 microns and [C II] 157 microns lines.

Acquired as DDT observations, these data have no exclusive use ("proprietary") period and are publicly available through the IRSA archive <https://irsa.ipac.caltech.edu/applications/sfia/>. This Archival Research Flash Call invites proposals for funding to support the analysis and publication of one or more of these datasets. This call provides specific information for the structure and submission requirements for such proposals. Requests for new observations are not part of this call.

As a funding call, this Flash Call is open to qualified astronomers with U.S. affiliations, although access to the SOFIA archive is freely available and not limited to those eligible to apply for this funding.

The SOFIA program expects that a total budget of up to approximately \$100k will be available for 2-4 programs selected through this call. Note that larger funding requests for research on SOFIA archival public data can be submitted through the Astrophysics Data Analysis ([ADAP](#)) NASA program.

1.2. General Guidelines and Policies

1.2.1 General Proposal Guidelines

The SOFIA Betelgeuse Data Archival Research program is intended to facilitate the timely publication of the data acquired of Alpha Orionis in the Winter/Spring of 2020. This may be either through the analysis and publication of previously unpublished observations, or through the re-analysis and/or consolidation of several datasets.

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 Principal Investigator (PI) and proposal team. A clear path to timely publications is critical.

The utilization and analysis of supporting datasets may be part of the proposed effort, but only as relevant to the analysis and publication of the SOFIA data. Any supplementary datasets proposed or required should be described as pertaining 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 datasets are necessary to interpret the SOFIA archival data and to achieve the science goals of the proposal.

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

Where a 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.

The 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. As with regular proposals, the SMO Director may choose to select parts of a Betelgeuse Data Archival Proposal and offer only partial funding.

1.2.2. Who May Propose

Participation in the SOFIA Archival Research Program is open to scientists from all categories of U.S. and non-U.S. organizations, including educational institutions, industry, nonprofit institutions, NASA Centers, and other Government agencies. Only U.S.-affiliated proposals are eligible for funding through this call. **Employees of the SOFIA Science Center who through the SOFIA (NASA-USRA) contract receive a research time allocation as part of their position, are not eligible for funding through this call.**

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).

1.2.3. 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.



1.3. Proposal Evaluation and Selection Process

The proposals will be evaluated by an ad hoc review committee, which will advise the SMO Director. As for other SOFIA proposals, the SMO Director is the selection official.

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 of the resulting papers
- The feasibility of accomplishing the objectives of the investigation.
- The competence and relevant experience of the PI and collaborators.

1.4. Funding for U.S.-based Investigators

Funds for awards are expected to be available to investigators at U.S. institutions. It is expected that the total budget available will be up to approximately \$100k. The grant period for these awards will be one year with funding disbursed on completion of all required contract components.

The budget 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.

All funding will be disbursed through a single proposal PI's institution.

2 Proposal Preparation

For the Betelgeuse Archival Research Program, each proposal shall be prepared and submitted as a single .pdf file in an e-mail attachment to flash_call@sofia.usra.edu.

A MS Word proposal template file, as well as a budget template, is available at the Proposal Web page (<https://www.sofia.usra.edu/science/announcements/flash-funding-call-betelgeuse-archival-research>). Proposers are welcome to use other editors (e.g. TeX) but should aim to mimic the proposal structure of the provided template.

Proposals must be written in English. The length of each section of the proposal should not exceed the page limits indicated in Section 2.1, 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.

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

Proposal Cover Page:

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

1. **Abstract/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 observations/analysis address the specific scientific questions in this proposal?
Methods – What are the key analysis techniques utilized in this investigation?
Synergies – How does the proposed work share synergies with observations with other observatories, such as ALMA, and other laboratory/theory efforts?
Anticipated results – What are the expected results that will follow from this investigation?

2. **Scientific Justification (up to 2 pages)** - The proposals should describe the activities proposed. Any supplementary datasets 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 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 analysis.

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.

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

4. **Principal Investigator and Co-Investigator Biographical and Publication Data (one page for the PI with one additional page for Co-Is)**. 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 project, should be provided for the Co-Is.

5. **Budget (budget form(s) + up to 1 page 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.sfia.usra.edu/science/announcements/flash-funding-call-betelgeuse-archival-research> (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 one page is also required.
Only a single grantee per proposal will be accepted for this Flash Call. Sub-contracting by the proposing institution will be allowed and should be described in the budget and budget narrative.

2.3. Proposal Submittal

Proposals must be submitted as a single .pdf file to the e-mail address:
flash_call@sfia.usra.edu

3. Contacts and Further Information

For further information about the Betelgeuse Call for Proposal or help in preparing proposals, please see the “Information for Researchers” (<https://www.sfia.usra.edu/science/announcements/flash-funding-call-betelgeuse-archival-research>) section of the SOFIA web site, or contact the SOFIA help desk at sfia_help@sfia.usra.edu.

For further information about the SOFIA Science project, please contact the Science Mission Operations Interim Director, Dr. James Jackson (jjackson@sfia.usra.edu).