



Stratospheric Observatory for Infrared Astronomy (SOFIA)

Director's Discretionary Time

Proposals for Director's Discretionary Time (DDT) observing projects are welcome at any time. Up to 7% of the observing time may be used for such projects. Usages for DDT, as opposed to the normal annual proposal Cycle, may include the following:

- Newly discovered celestial phenomena, such as stellar explosions or new comets. Be sure to check the list of approved Target of Opportunity programs from the current Cycle to see if your idea is potentially covered, and consider contacting the proposer or Director to find out if it is already being done.
- Time-critical observations in support of other projects or missions that were not anticipated during the prior Call.
- Experimental techniques for which pilot observations are needed.
- Observations that fill gaps in flight plans that would otherwise be "dead legs".
- Short (one to two hour) observations that are necessary to complete a publication or PhD dissertation.

Other possibilities not included in this list may be considered by the Director.

DDT proposals will be confidential unless mutually decided by the Director and the PI otherwise. DDT proposals will be handled in a manner similar to regular proposals, so the documentation from the previous or current Call for Proposals should be consulted. This document describes only policies and procedures specific to DDT.

As of May 2021 the process for submitting SOFIA DDT proposals has changed. DDT proposals should now be submitted using the USPOT software. When a regular observing call is open, a selection will be offered in USPOT between the regular call and DDT requests (labeled Cycle 75). Please always use the latest USPOT version — as of November 2021, version 4.4.1.

To request a DDT observation on SOFIA, therefore please simply generate and submit a proposal via the USPOT tool (as for regular Cycle proposals). In USPOT, please select the US queue, independent on the affiliation of the DDT PI. Please select Cycle 75 - DDT as the Cycle ID. Please follow, in applicable parts, the instructions for content and format in the most recent regular cycle Call for Proposals (Some aspects, such as Thesis Enabling Programs, are not applicable and the biographical sketches etc., may be simplified. However science justification, feasibility and nominal AORs are required as for regular proposal cycles.) Target duplications with approved programs and instrument Reserved Observations Catalog targets must be clearly justified and will only be allowed after review and inputs from the existing observation's PIs/leads.

The SMO is monitoring the proposal submission daily and will get back to you with a decision as soon as possible. You can verify the successful submission of your proposal by checking the "My Proposals" page in DCS.

Once accepted, a DDT project will quickly enter Phase II (described in the annual Calls), wherein a detailed observing plan is developed with the relevant Instrument Scientist. Flight planners will assess how to accommodate the new observations, and the Director will weigh the consequences of inserting the new projects against the scientific promise of the displaced observations. Even if a DDT program is accepted, observing time is not guaranteed to be performed because the full impact is not known until Phase II and preliminary flight planning is complete.

Because DDT projects usually address time-critical phenomena that are of high interest to the community, there will generally not be any exclusive use period where the data can only be accessed by the proposing team. In exceptional circumstances the SMO Director can grant a short exclusive use period (typically no more than 3 months). Requests for such should be addressed in the “Feasibility and Path to Publications” section.

When developing an observing plan that requires a rapid response, keep the following issues in mind and include relevant justification in your proposal.

- A turnaround time as fast as 10 days is possible, and sometimes an even more rapid turnaround can be accomplished. For a highly-justified observation, the single most important factor in determining the speed and complexity of observatory response is the state and availability of the required scientific instrumentation (SI). If the new observation uses the SI already on the observatory, the fastest and easiest response is possible. Proposers are welcome to request specific observatory schedule information (including planned observing campaigns for the near future) through the Helpdesk.
- Facility science instruments (FORCAST, FIFI-LS, and HAWC+) are at the disposal of the science center and should generally be ready for usage with varying requirements on readiness to fly.
- Principal Investigator instruments (EXES, GREAT) may be requested as part of a DDT proposal, but their availability cannot be guaranteed because they require the SI team for operations. It is not required to work with the PI team when developing a proposal utilizing their instrument, but such contact is recommended in particular for urgent observations.
- The most disruptive observing proposals to the already-accepted observing program and staff schedules are those that require urgent and/or coordinated observations with multiple instruments. Be sure to justify such observing proposals carefully.
- For fast turn-around DDT requests, please briefly discuss the utility of observing with each of the Facility Science Instruments — especially the ones currently on the aircraft or planned for the near-term flight series.

FIFI-LS Flash Call, January 2022

The SOFIA project is pleased to invite proposals for a “Flash Call”, for Director’s Discretionary Time (DDT) observations with the **FIFI-LS** instrument in a celestial region, to be observed in the March 2022 Suitcase Deployment to Chile. The available sky area is approximately spanned by: **RA=11h - 15h and Dec= -5° - +25°**.

A total of **~14h** of observing time is available.

The region available corresponds to extended “dead legs” late in the flight plans focused on observations of the 30 Doradus Legacy program, and will thus generally correspond to high flight altitudes.

All advertised modes of FIFI-LS are available for these observations.

Scientific observations with the FPI+ guide camera are also possible.

Proposals should be submitted through the USPOT tool to “Cycle 75”, using the proposal process for Director’s Discretionary Time observations. The Observers Handbook details properties of FIFI-LS.

Please note that the ingest of Cycle 10 proposals is active during this period. Proposers are therefore urged to verify that these proposals are submitted to Cycle 75 and not to Cycle 10.

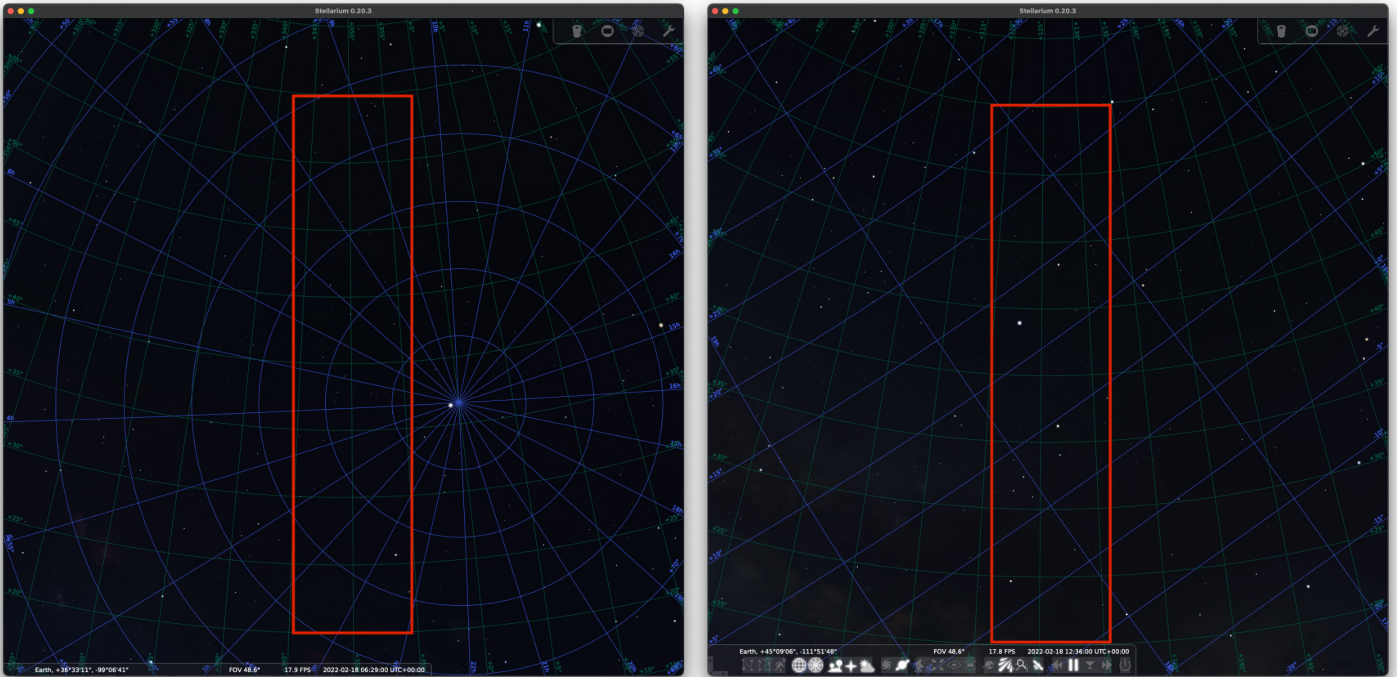
Proposals are due on Jan 21, 2022, 9 pm PST. The proposals will be evaluated through an abbreviated, dual anonymous, review process. Proposers are therefore reminded to anonymize their texts accordingly. Selections are expected to be announced by the week of January 31.

FORCAST Flash Call, January 2022

Through this “Flash Call”, the SOFIA program invites Director’s Discretionary Time (DDT) proposals for observations with the **FORCAST** instrument in two celestial regions, to be observed in the week of February 14, 2022. The two available sky areas are approximately centered on: **RA, Dec: {5h, 85°} and {17h, +5°}**, (with significant extent in the SOFIA elevation direction). The regions available (at the mid-point of the each flight leg) are illustrated in the images below.



The approximate sky areas available for the two dead-legs on flight #1.



The approximate sky areas available for the two dead-legs on flight #2.

The regions available correspond to extended “dead legs” in two flight plans focused on observations of the Moon and therefore the target location and observation duration are significantly constrained.

A total of **up to** ~3h of observing time is available in the first area with ~4h of observing time in the second sky area.

For the first area all FORCAST instrument modes are available, while for the second area, only LWC observations (imaging or spectroscopy) are available as detector persistence from the Moon observations are likely to make the SWC uncalibratable for the remainder of the flight.

Because of the observing constraints required for the Moon observations, we ask that proposals in response to this Flash Call explicitly discuss the benefit of and robustness to observation-duration changes up to ~25% of the nominal solicited time.

Proposals should be submitted through the USPOT tool, using the proposal process for Director’s Discretionary Time observations. The Observers Handbook details properties of FORCAST.

Proposals are due on Jan 9, 2022, 9 pm PST. The proposals will be evaluated through an abbreviated, dual anonymous, review process. Proposers are therefore reminded to anonymize their texts accordingly. Selections are expected to be announced by the week of January 17.

Flash Call for Far-Northern SOFIA/HAWC+ Observations

Through this “Flash Call”, the SOFIA program invites Director’s Discretionary Time (DDT) proposals for observations with the **HAWC+** instrument in the celestial region: **23 hr < RA < 10 hr for Dec>50 degrees, or any RA for Dec>75 degrees**, to be observed in January-February 2022. A total of up to ~5h of observing time is available. These observations will balance the flight plans for already-accepted guest observer programs. Scientific observations with the FPI+ guide camera are also possible.

Proposals should be submitted through the USPOT tool, using the proposal process for Director’s Discretionary Time observations. The Observers Handbook details properties of HAWC+.

Proposals are due on Nov 15, 2021, 11:59 pm PST. The proposals will be evaluated through an abbreviated, dual anonymous, review process. Proposers are therefore reminded to anonymize their texts accordingly.

Flash Call for FORCAST Observations

Flash Call for Proposals for SOFIA/FORCAST Long Wavelength Camera/Grisms Observations.

The SOFIA program invites Director's Discretionary Time (DDT) proposals, through this "Flash Call", for observations with the **FORCAST Long Wavelength Camera in the celestial region: RA, Dec: 13h - 19h, > +70°**, to be executed during **flights at the end of June 2021**. A total of up to ~6h of observing time is available, depending on detailed flight planning constraints.

The defining observations for three of the flights in the upcoming SOFIA/FORCAST series (OC8O), June 28 - July 3, are of the Moon, using the Short Wavelength Camera. Because of array latency, scientific observations with that camera are not viable for the rest of each flight. Based on initial flight plans, a set of end-of-flight, return-legs are, however, available for observations with the Long Wavelength Camera (LWC), in imaging or grism mode. Scientific observations with the FPI+ camera are also possible.

The headings of the available flight legs correspond to a general sky-area of Right Ascension = 16h-19h and Declination above +70°. Minor deviations from this target area may be possible but cannot be guaranteed. The typical duration of each flight leg is 2h, for a total possible observing time of up to ~6h.

Because the details of flight legs are only settled once flight plans are laid out (relatively close to the flight dates), the turn-around for this Flash Call is short and proposals are due by 11:59pm on Wednesday May 26, 2021 (PDT).

All scientifically justified proposals compatible with the above constraints and the capabilities of FORCAST LWC (or FPI+) are welcome.

This Flash Call will use the new proposal process for Director's Discretionary Time observations.

We have endeavored to make the new DDT proposal process as close to the regular call process as possible, to simplify the proposal generation, submittal, and review.

The proposals will be evaluated through an abbreviated, dual anonymous, review process. Proposers are therefore reminded to anonymize their texts accordingly.

Proposals solicited and awarded through the DDT process do not, generally, have exclusive use periods for their data, or associated data analysis grants. Well-motivated requests for either will be considered by the Science Missions Operations Director. Any such requests should be explicitly discussed and justified in the proposal text.

Filters F315, F336, F348, and F371 are current available with the LWC, as are grisms G227 and G329. Characteristics of these and further details of the FORCAST imaging and spectroscopic performance can be found in the SOFIA Observer's Handbook for Cycle 9.

As a non-exclusive possible starting point for your considerations, we note that a cursory review of infrared bright targets in this part of the sky yield a number of possible options, including:

- NGC 5640 Spiral Galaxy
- NGC 6217 Starburst galaxy
- NGC 6251 Elliptical galaxy with extreme Seyfert 2 nucleus
- NGC 6503 Isolated Starburst galaxy
- NGC 6621 Interacting galaxies
- NGC 6654 barred spiral galaxy
- Ursa Minor Dwarf Dwarf Galaxy
- NGC 6543 (Cat's Eye) Planetary nebula (slightly outside the nominal area)
- S UMi AGB star

Flash Funding Call for Betelgeuse Archival Research

With the unprecedented visual light dimming of Betelgeuse seen in the fall of 2019, going into the new year 2020, many scientific questions arose as to the nature of this event and its characteristics at other wavelengths. Under several DDT programs, SOFIA has recently observed Betelgeuse as follows:

- EXES: Observed about 50 min total, centered on the [Fe II] line 25.9884 microns and [S I] at 25.2516 microns, also including water features at 25.32 microns (note that comparable data obtained in 2015 and 2017 is also available in the archive). Proposal ID: 75_0051
- FIFI-LS: Observed about 45 min covering [O I] 63 microns, [O I] 145 microns, [C II] 157microns and a number of CO lines. Proposal ID: 75_0052
- GREAT: Observed about 1 hour covering the [OI] 63 microns and [C II] 157 microns lines. Proposal ID: 75_0050

These data will have no exclusive use period and are publicly available through the IRSA archive once the pipeline processing and quality control is complete.

This Archival Research Flash Call invites proposals for funding to support the analysis and facilitate timely publication of one or more of these data sets. As a funding call, this Flash Call is open to qualified astronomers with US 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 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.

Each proposal shall be prepared and submitted as a single .pdf file in an e-mail attachment to flash_call@sofia.usra.edu, before April 24, 2020 — 6 pm PDT. A proposal template and a budget template are available.

More detailed information about the scope of the proposal and proposal guidance can be found in the Betelgeuse Data Archival Research Call For Proposals.

Flash Call for FIFI-LS Observations

After a successful Spring 2019 flight series with FIFI-LS, we are facing a dearth of sources to observe on certain headings in our upcoming Fall series. In order to fill dead legs in our Fall series flight plans, we are therefore inviting Director's Discretionary Time proposals in a "flash call", with responses needed by Monday September 23, 2019.

Targets should be in the region RA 21–00 hours and north of Dec +20. We anticipate scheduling up to four to six hours on legs observing this region. Proposers should provide target details and a brief scientific case as described on the Director's Discretionary Time page.