

Response to SUG 18 Report

Bill Reach

December 2021

SUG18-1: SUG Charter Revision

Revised charter posted [DONE]

SUG18-2,3: FORCAST, GREAT

We acknowledge feedback on efforts to retain these instruments for observations. Both instruments were offered in Cycle 10.

SUG18-4: Instrument Roadmap

SUG advises aggressive pursuit of enabling technologies for future instruments.

SMO is empowering a Facility Scientist and recommending a Technology Assessment Review by mid-2022, to down-select the type of instrument to be solicited in Step 2 of the Roadmap.

SUG18-5: Community Science Support

SUG concurred with proposed changes in grant funding.
Those changes are now in effect for Cycle 10 (Call released 2021 October).

SUG18-6: Programmatic Balance

- *SUG endorsed 25-30% Legacy projects.*

SMO is maintaining this as target for Cycle 10 selection.

- *SUG encouraged practices to get Legacies to >75% completion.*

SMO prioritizing legacy completion and is on track.

Need to maintain balance for regular GO proposals.

ProgId	Title	Award (hr)	Started	Observed+Scheduled through 2021-Dec
07_0077	FEEDBACK	96	2019-May	71%
07_0189	FORCAST Galactic Center	32	2019-May	83%
08_0012	Extragalactic Magnetic Fields	156	2020-Jan	66%
08_0038	HyGAL	81	2021-Feb	43%
08_0186	FIELDMAPS	41	2020-Sep	52%

SUG18-7: Multi-Cycle Science

SUG endorsed solicitation of multi-cycle projects in the Cycle 10 call.

This new proposal type was included in the Cycle 10 call.

SUG18-8: Survey Science

SUG endorsed maintaining survey proposals.

Surveys were included in the Cycle 10 call.

SUG18-9: Suitcase Deployments

SUG encourages continued use of suitcase deployments.

SOFIA is planning its first March/April suitcase southern deployment in 2022 (Cy 10), with two more in Cycle 11.

SUG18-10: 3-Year Deployment Schedule

SUG endorsed adoption of 3-year notional deployment schedule.

Schedule was included in the Cycle 10 Call, covering through 2024

When	Instrument	Flights
2022-Nov	FIFI-LS	8
2023-Mar	EXES	8
2023-Jul	HAWC+/GREAT	32
2023-Nov	GREAT	8
2024-Mar	FIFI-LS/HAWC+	32
2024-Jul	FORCAST	8

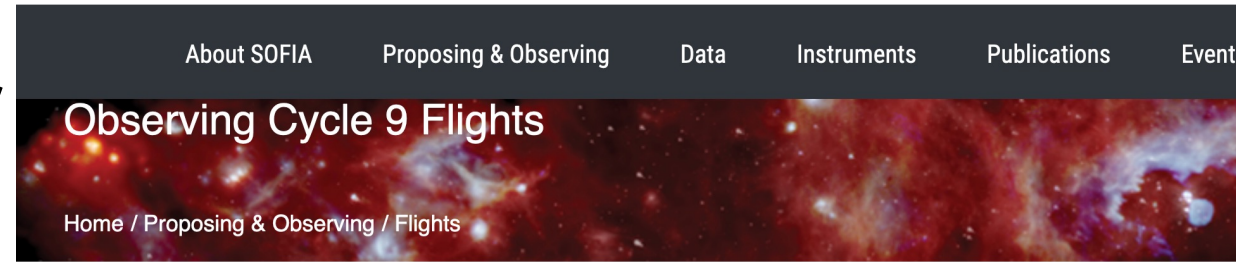
SUG18-11: Archival Calls

SUG endorsed continuing funding archival research at \$1.5M/year, and synchronizing with the observing call.

A stand-alone archival research call will be in 2022 late spring. Synchronization can be discussed.

SUG18-12: Investigator

Please see next slide



Flight schedules are subject to change. To track SOFIA's flights in real time, search our tail number 'N747NA' on a flight tracking website.

Cycle 9 Flight Series				
Series ID	Instrument	Flight Date	Flights	Location
OC9A	FORCAST	Tue, Jul 6, 2021 to Thu, Jul 8, 2021	3	Palmdale
OC9B	GREAT	Mon, Jul 12, 2021 to Tue, Jul 13, 2021	2	Palmdale
OC9C	GREAT	Fri, Jul 23, 2021 to Fri, Aug 20, 2021	20	French Polynesia
OC9D	HAWC+	Wed, Aug 25, 2021 to Fri, Sep 10, 2021	11	Palmdale
OC9E	HAWC+	Thu, Oct 28, 2021 to Thu, Nov 4, 2021	6	Palmdale
OC9F	GREAT	Mon, Nov 8, 2021 to Tue, Nov 23, 2021	10	Palmdale
OC9G	EXES	Tue, Nov 30, 2021 to Fri, Dec 3, 2021	4	Palmdale
OC9H	HAWC+	Mon, Dec 6, 2021 to Wed, Dec 22, 2021	11	Palmdale
OC9I	FIFI-LS	Wed, Jan 5, 2022 to Fri, Jan 14, 2022	7	Palmdale
OC9J	HAWC+	Tue, Jan 18, 2022 to Fri, Feb 11, 2022	16	Palmdale
OC9K	EXES	Mon, Feb 14, 2022 to Fri, Feb 25, 2022	8	Palmdale

SUG advises SMO to communicate more effectively with observers on pending flight schedules, execution time of targets, and data releases.

Flight schedule: <https://www.sofia.usra.edu/science/proposing-and-observing/flights/cycle-9>

Execution time of targets: communicated after director's review of flight plans, about 4 weeks before series. A predictive version could be made as part of long-range planning, but it would be misleading given frequent changes in flight schedule.

SUG18-12: Investigator Communications (2/2)

- Data releases: Observers are automatically notified as soon as data are sent to IRSA, and they receive quality assessment report from the instrument scientists after all processing of a series. If data processing will take more than 3 weeks from the end of a flight series, a note goes to all affected observers including an offer to send the unfinished processing to them.
- SMO is considering an improved guest observer experience using third-party software, to replace the present email-driven practice.

SUG18-13: Community engagement

SUG delighted at increased outreach and encouraged to continue and include traditionally overlooked institutions for diversity. Encourage continuing virtual workshops.

Separate presentation on Outreach at this SUG meeting.

SUG18-14: Python Pipeline Releases (1/2)

SUG applauds the release of FORCAST and FIFI-LS pipelines and endorses future delivery of Python pipelines.

- The FLITECAM pipeline was released 9/27/21 with accompanying documentation and tutorials. HAWC+ and EXES Python pipelines are expected to be released in FY22.

SUG recommends advising the proposing community about the release status of pipeline code and documenting differences between self-reduced and archival data products.

- New pipeline releases are announced in the SOFIA newsletter.
- Differences between archived and self-processed data are addressed in the FAQ on the [Data Pipelines](#) page. User manuals and change notes are posted for every version of the pipeline, to assist users in evaluating whether reprocessing would be beneficial.

SUG18-14: Python Pipeline Releases (2/2)

SUG recommends advising the proposing community about the release status of pipeline code and documenting differences between self-reduced and archival data products.

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SUG advises tracking internal FTE demands associated with external requests related to the pipelines.

- The SOFIA DPS team plans to track internal FTE demands associated with external requests; so far, they have been minimal. The initial plan is to respond to requests on a best effort basis, prioritizing internal support over external requests as needed.

SUG18-15: SOFIA IRSA Data Products

SUG noted deficiencies in metadata with some SOFIA products. Effort continues on repairing the metadata for older data products. For the vast majority of data (Cycle 4 and later) there are very few issues.

SUG recommends ability to search by object type. A keyword/abstract search mechanism was deployed in the 2021 IRSA release. Object type itself is not presently a keyword but could be a future upgrade that SMO will suggest for IRSA.

SUG18-15: SOFIA IRSA Data Products

SUG suggests IRSA needs detailed explanation of data file structures, fits header keywords, and quality assurance flag definition

Detailed information is available on the front page of the IRSA/SOFIA archive: <https://irsa.ipac.caltech.edu/Missions/sofia.html>

Screen shots are included in the following two pages to guide to the relevant information. Suggestions for packaging changes are welcome.

Stratospheric Observatory for Infrared Astronomy (SOFIA)



[SOFIA Archive](#)



[Abstract Search](#)



[Documentation](#)

Mission Characteristics

Description:	SOFIA is a Boeing 747SP aircraft modified to accommodate a 2.5 meter reflecting telescope. Its instruments provide researchers with access to a wavelength coverage from the optical to the submillimeter (0.35 - 655 microns).
Wavelength:	0.35 - 655 μm
Area Coverage:	Targeted
Instruments:	2.5-m telescope with <ul style="list-style-type: none"> FORCAST mid-infrared camera and spectrograph (Herter et al. 2018) GREAT heterodyne spectrometer (Risacher et al. 2018) FIFI-LS far-infrared spectrometer (Fischer et al. 2018) EXES echelle spectrograph (Richter et al. 2018) FPI+ focal plane imager (Pfuller et al. 2018) HAWC+ far-infrared camera and polarimeter (Harper et al. 2018) FLITECAM near-infrared camera and spectrograph (McLean et al. 2006) HIPO high speed imaging photometer for occultations (Dunham et al. 2004)
Time Coverage:	25 May 2010 - present
Science Products Generated:	Observation data and calibration files
Acknowledgement:	Information for Authors

IRSA Services

NASA SOFIA Archive (Help)	Interface to the NASA SOFIA Archive
HIPO Data	Occultation data from HIPO
Abstract Search	Search abstracts that reference SOFIA products

SOFIA Legacy Programs:

Radiative and Mechanical Feedback in Regions of Massive Star Formation	GREAT spectra	Data Access
Constraining Recent Star Formation in the Galactic Center	FORCAST imaging	Data Access
HyGAL: Characterizing the Galactic Interstellar Medium with Hydrides	GREAT spectra	Data Access
FIELDMAPS: Filaments Extremely Long and Dark: A Magnetic Polarization Survey	HAWC+ imaging	Data Access
SOFIA Heralds a New Era of Measuring the Magnetic Fields of Galaxies	HAWC+ imaging	Data Access

Other Resources:

SOFIA Science Center	SOFIA home page
Proposal Information	SOFIA proposal information, including the SOFIA Archival Research Program
SOFIA Observing Documentation	Observer's Handbooks and other documentation for all instruments
SOFIA Data Processing Documentation	Data Handbooks
SOFIA Data Analysis Documentation	Cookbooks and analysis tools
Youtube Tutorials	Tutorial videos about the SOFIA Archive
Known Data Product Issues	List of known issues with SOFIA data products
SOFIA Archive Known Issues	List of known issues with the SOFIA Archive

Data Processing

Home / Data

Information about the publicly available FIFI-LS and FORCAST data pipelines [is available here](#).

▼ Data Handbooks

The Guest Observer (GO) Data Handbooks and pipeline Users Manuals describe data products, processing steps, calibration procedures, and known issues.

EXES [\[pdf\]](#)

FIFI-LS [\[pdf\]](#)*

FLITECAM [\[pdf\]](#)*

FORCAST [\[pdf\]](#)*

HAWC+ [\[pdf\]](#)

* - The pipeline Users Manuals are provided for FIFI-LS, FLITECAM, and FORCAST. These include all of the information found in the GO Handbooks plus additional information about the pipeline software.

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Information about the publicly available FIFI-LS and FORCAST data pipelines [is available here](#).

› [Data Handbooks](#)

› [Levels](#)

› [Data Products Timeline](#)

▼ [Quality Assurance and Known Issues](#)

[Summary of QA Process and Keywords](#)

Calibrated FORCAST imaging data processed before Cycle 3 (2015) do not include the on-source integration time listed in their headers. The document [FORCAST Imaging Exposure Time](#) outlines the procedure for calculating the on-source integration time in Level 2 and 3 merged and co-added data files for these observations.

[Catalog of Known Issues for each Observing Series.](#)

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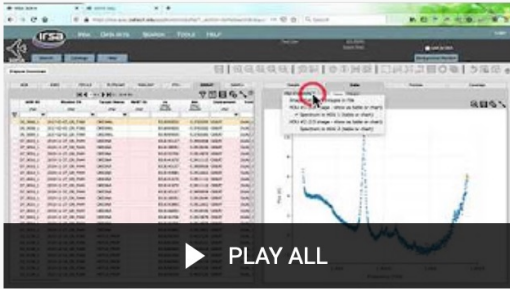
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MORE FROM YOUTUBE



SOFIA Science Archive at IRSA

17 videos • 426 views • Last updated on Oct 15, 2021



IRSA IPAC

SUBSCRIBE

- 1 **IRSA Tutorial 1101v3: SOFIA Basic Search Introduction**
IRSA IPAC 4:21
- 2 **IRSA Tutorial 1102v3: More about the SOFIA Science Archive**
IRSA IPAC 10:16
- 3 **IRSA Tutorial 1103v3: SOFIA and Solar System Objects**
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- 4 **IRSA Tutorial 1104v3: SOFIA data products**
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- 7 **IRSA Tutorial 1106v2: SOFIA proprietary data**
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- 8 **IRSA Tutorial 1107: SOFIA spectroscopy visualization**
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