

SOFIA

Science Newsletter



May 2020

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New Science Mission Operations Director

The Universities Space Research Association (USRA) appointed Dr. Margaret Meixner as the Director of SOFIA's Science Mission Operations, effective April 13, 2020. As director, Meixner will provide scientific, technical and management guidance to SOFIA. She will work in partnership with the German SOFIA Institute (DSI), and in close collaboration with NASA, to maximize the scientific productivity and impact of the observatory.

Meixner believes SOFIA holds a unique capability for astronomers. Half of the light of star forming galaxies is emitted in the infrared to sub-millimeter wavelengths. SOFIA is the only current observatory capable of making observations at these far-infrared wavelengths. SOFIA provides synergistic observations with NASA's great observatories, Hubble, and Chandra, and ground based observatories like ALMA. SOFIA will provide complementary data to JWST.

A full profile of Dr. Meixner is available on the Science Center [website](#).

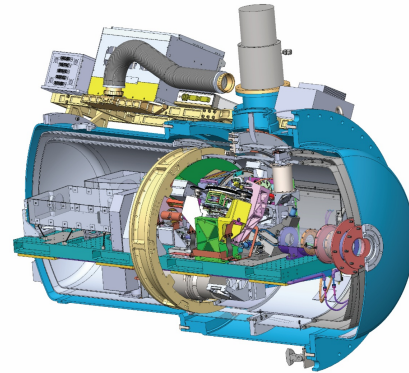


HIRMES Instrument Development Terminated

On April 1st, 2020, the decision was made by Paul Hertz, Director of the Astrophysics Division of NASA's Science Mission Directorate (SMD), to

terminate the HIRMES instrument development and commissioning activity. It was determined that the technical, cost and schedule risks associated with HIRMES completion are significant, and that unidentified technical challenges remain.

HIRMES detector technology may be valuable for future astrophysics needs, for both SOFIA and other future mission needs. A proposal is requested by NASA Astrophysics Division from the HIRMES team at Goddard Space Flight Center for technology maturation funding beginning in FY 2021, to be funded using funding external to the SOFIA project as part of the astrophysics strategic technology program.



Following the guidance from NASA SMD, the SOFIA Science Center will be developing a roadmap for future instrumentation, upgrades, and capabilities.

Find Us at the Virtual AAS Meeting June 1-3

The AAS meeting will be an all virtual format, including the exhibit hall. Science Center staff will be available at a virtual SOFIA booth to discuss recent scientific results, archival datasets, and current observing and funding opportunities via an online chat.



Example of Virtual Meeting and Exhibit Space

Two 15-minute webinars will also be held:

- SOFIA Community Update (with Q&A)
- Introduction to Building Legacy Proposals (with Q&A)

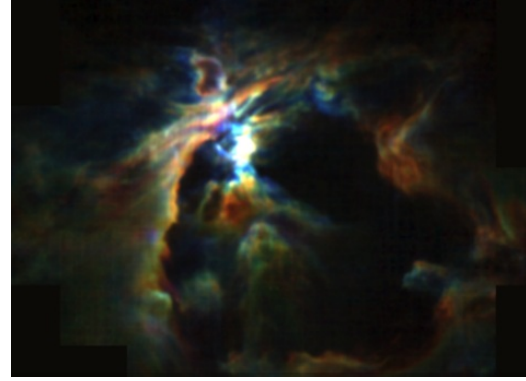
More information about the webinars, including timing, will be available soon on our [workshops page](#).

Featured Public Archival Data: Orion Molecular Cloud (OMC-1)

Combined analysis of mid- and far-IR spectroscopic and photometric data is key to the study of the chemistry, kinetics and thermal structure of star forming regions, probing warm dust as well as ionized and molecular gas. One of the nearest massive star forming regions, OMC-1, is situated just behind the Orion Nebula and has been extensively observed with all SOFIA instruments.

Through the [SOFIA public data archive](#), anyone can access a large number of infrared high-quality infrared maps and spectra of OMC-1. Some of those datasets explore previously never observed wavelengths, and many cover

regions of interest such as the Orion Bar, considered to be the prototypical photon dominated region. These datasets include:



- HAWC+ photometric and polarization maps at 53, 89, 154, and 214 microns (proposal ID: 70_0609). [Chuss and al. \(2019\)](#) derived the large-scale polarization structure of OMC-1, confirming the global hour-glass shape of its magnetic field. With a spatial resolution of 5-19", the Orion Bar and other sub-structures can also be clearly resolved.
- GREAT ionized carbon [CII] velocity-resolved map at 158 microns (proposal ID: 04_0066): this wide maps provide unique information on ISM kinematics near massive stars. [Pabst et al. \(2019\)](#) focused their analysis on the region of the stellar wind-bubble associated to the Orion Veil.
- FORCAST and FLITECAM imaging of the Orion Bar at 3.3 and 11.2 microns (proposal ID: 04_0058), targeting PAH's emission signatures and diagnostic of PAH's size and abundance.
- FIFI-LS maps of mid-J CO lines between 69 and 200 microns (proposal ID: 03_0044), which can trace the thermal structure of shocked gas.

Other available data include high resolution spectra of dust obscured compact sources observed with EXES, and large mid-IR photometric maps obtained with FORCAST.

Response to COVID-19

In response to COVID-19, observations will be temporarily suspended effective Thursday, March 19, 2020 to ensure the safety of all staff and to comply with state and local county orders.

While we are not conducting science observations at this time, the Science Center remains active.



Services such as data pipeline operations, the Helpdesk, and user support are fully functioning. We will provide further updates about the status of the observatory, including the Southern Hemisphere deployment to New Zealand, as we know more.

Join Science Talks Remotely: Tele-Talks & Colloquia

Tele-Talks are scientific presentations given via phone, with slides distributed ahead of time. The talks are held approximately twice a month on Wednesdays

at 9:00 a.m. Pacific, noon Eastern. For information on how to participate in the Tele-Talks, please check the [SOFIA Tele-Talk webpage](#).

Upcoming Tele-Talk Schedule

- May 27: Dust Production in Carbon Stars; Kathleen Kraemer (Boston College)
- June 17: Carbon Chains Toward SgrB2; Thomas Geisen (University of Kassel)
- June 24: Optical Depth in [C II]; Christian Guevara (University of Cologne)
- July 1: Survey of Giant HII regions- M17; Wanggi Lim (SOFIA/USRA)

Virtual Colloquia

The SOFIA Colloquia will now take place virtually via WebEx on Wednesdays at 3:30 p.m. Pacific. More information about how to participate is available on the [Colloquia webpage](#).

Upcoming Colloquia Schedule

- May 20: Pierre Haenecour (University of Arizona)
- May 27: Lucas Paganini (NASA Headquarters)

e-Newsletter Editors: Kassandra Bell and Arielle Moullet

Please direct questions and comments to the SOFIA Science Center help desk:
sofia_help@sofia.usra.edu.

