

Welcome SOFIA Users Group!

Dr. Margaret Meixner, Director of SOFIA Science Missions Operations
August 10, 2021 • SUG meeting

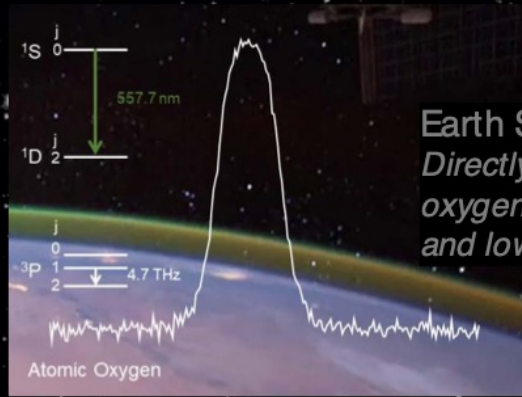


Outline

- Recent SOFIA Science
- New Associate Director for Project Management and Integration
- New SUG Charter
- SOFIA publications

SOFIA touches all aspects of NASA Science

SOFIA Interdisciplinary Impact

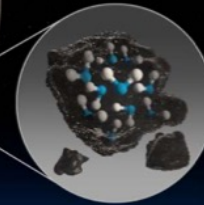


Earth Science
Directly measuring atomic oxygen in the mesosphere and lower thermosphere

Nature, 2021



Planetary
Water on Sunlit Surface of the Moon



Nature Astronomy, 2020

Heliophysics
Magnetic fields in a starburst galaxy



Submitted to the Astrophysical Journal Press Conference, AAS, 2021

Astrophysics
Magnetic collapse leading to star formation



Nature Astronomy, 2020

A magnetic collapse

SOFIA touches all aspects of NASA Science



SOFIA's wavelength range is the most untapped in astronomy, enabling astronomical discovery



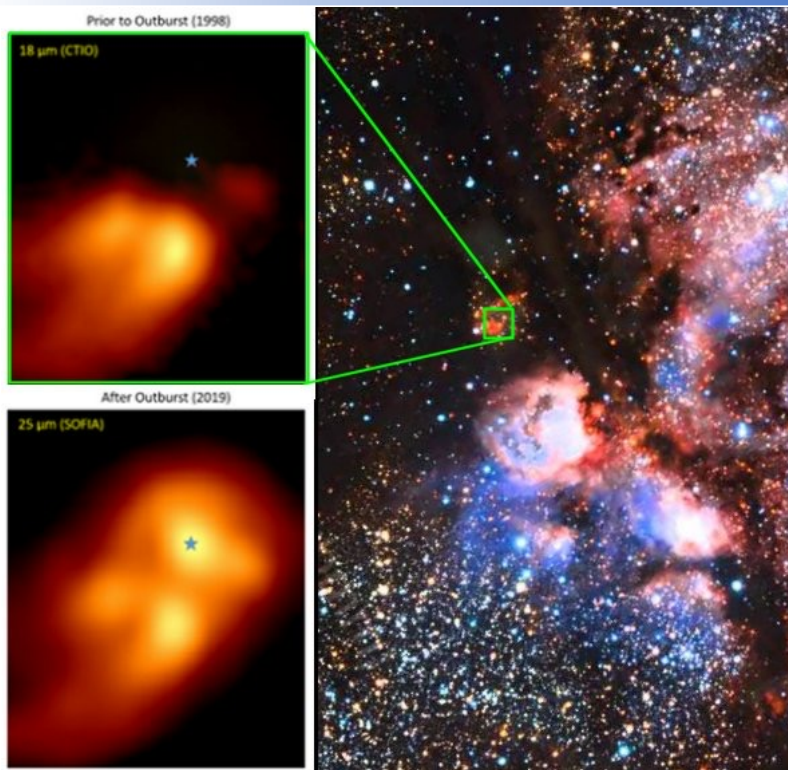
2021 Highlights: Magnetic Field in Centaurus A



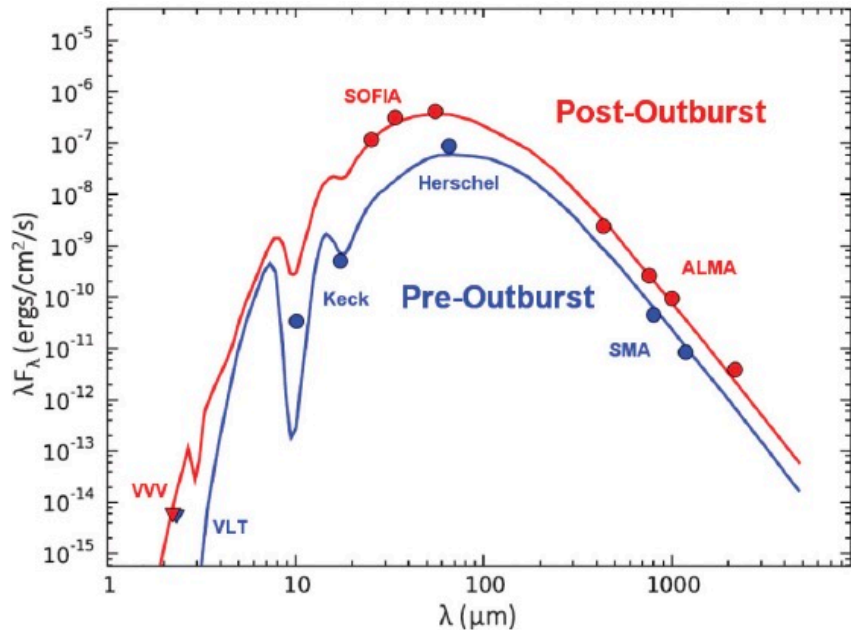
Lopez Rodriguez et al., 2021,
Nature Astronomy, HAWC+

- Centaurus A is the remnant of a galaxy merger. What is the effect of mergers on magnetic fields?
- Polarimetric observations from the **GalMagFields Legacy program** show the magnetic field globally aligned with the disk, but with significant dispersion of orientation at small scales
- Small-scale turbulence must be distorting and enhancing the original large-scale magnetic field

2021 Highlights: Cat's Paw Accretion

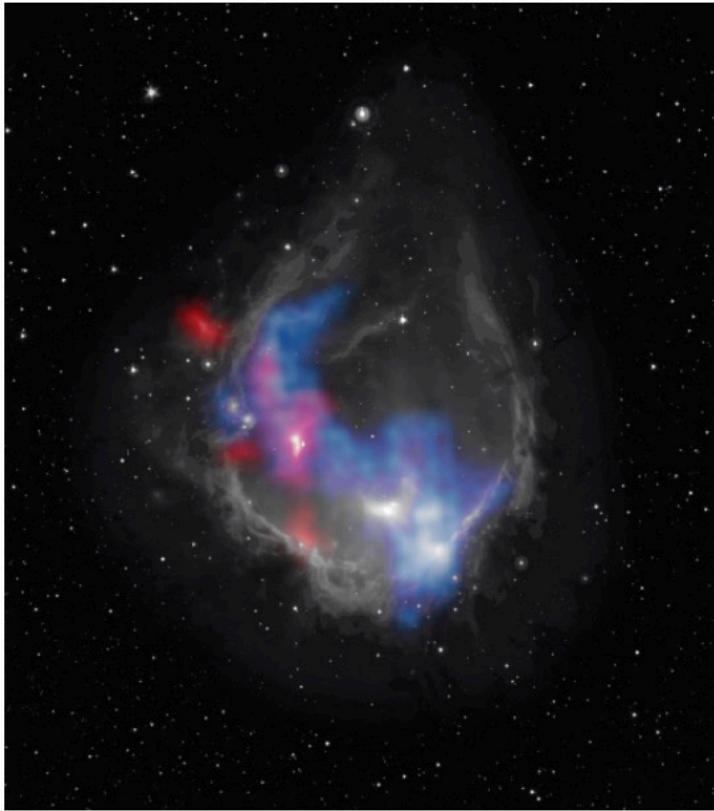


Only far-IR can access the total mass accreted during a burst, by probing deep in the YSO's envelope.



Hunter et al. 2021. FORCAST and HAWC+

2021 Highlights: FEEDBACK RCW 120

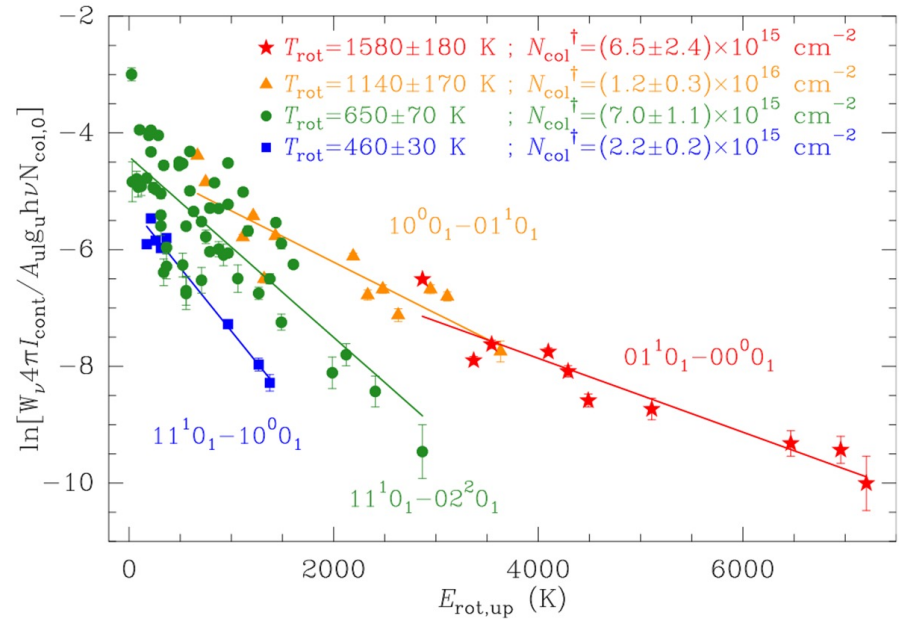
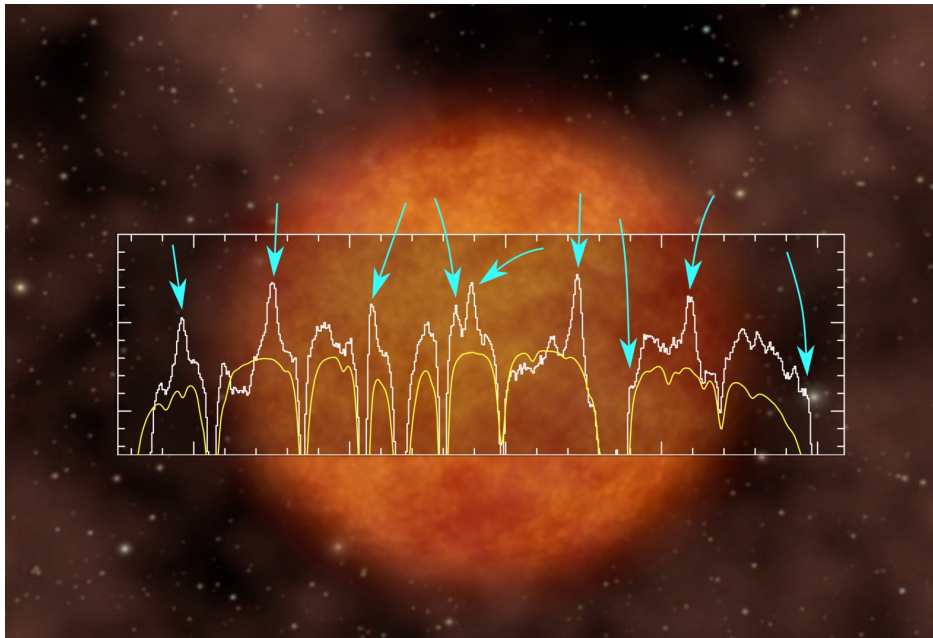


- GREAT [CII] spectral maps on Spitzer image (Grey scale)
- Red and blue shifted gas measures expansion speed and age
- Expansion triggered by birth of stellar neighbors

Luisi et al., 2021. GREAT

Rleonis: Carbon dioxide detections; 3 components

EXES



Hello & welcome!

New Associate Director for Project Management and Integration



• Elizabeth Barker

- MS Physics - UC Santa Cruz
 - Masters thesis – “Adaptive Smoothing and Colors of Large, Disky Galaxies”
- Professional Experience
 - Programs
 - Midcourse Space eXperiment (MSX) satellite
 - Hubble Space Telescope (HST) – NICMOS, WFC3
 - James Webb Space Telescope (JWST) – NIRCcam, Onboard Scripts Subsystem, Wavefront Sensing & Control
 - Artemis Gateway Power and Propulsion Element (PPE)
 - Roles
 - Infrared astronomical data reduction pipelines and research
 - Science instrument development and testing
 - Software engineering manager and subsystem team lead
 - Science systems integration and support
 - Systems architect and technical liaison
 - Research
 - High redshift galaxy morphologies
 - Comets, comet trails, Kuiper Belt Objects

New SUG Charter:

The Stratospheric Observatory for Infrared Astronomy (SOFIA) is a major facility developed by NASA and DLR to further advance our quest for the origin of stars, galaxies, and planets, and the field of astrophysics in general. SOFIA collects data for the astronomical community that publishes the data. A committee of users is essential to maximize the science return of SOFIA. This committee advises the Science Mission Operations (SMO) Director who works with NASA SOFIA project, Deutschen Zentrum für Luft- und Raumfahrt (DLR, German Aerospace Center), and Deutsches SOFIA Institut (DSI) to implement advice.

New SUG Charter: scope

The SUG is empowered to establish agenda items, call in outside experts, and write advisory reports. The SMO requests specific feedback from the SUG in order to validate its approaches toward the scientific program of the observatory. Issues that the SUG should consider include, but are not limited to:

- Feedback on (released) Proposal Calls
- Observer support (helpdesk, workshops, operations)
- User--friendliness of the observatory and of its interfaces to the community
- Effectiveness of outreach to the scientific community
- Assessing and reporting performance and efficiency of the observatory and instruments
- Balance of observatory capabilities and scientific needs of the community.
- Observation preparation tools
- Data quality
- Publication of data
- Data analysis methods

New SUG Charter: Membership & Leadership

- SUG members will be drawn from the US and German science communities in approximately an 80/20 ratio. The SUG shall normally comprise 10 members, with 2 from German institutions, and 8 from US queue institutions. The membership shall span scientific disciplines and include members from sister science centers.
- Members will be appointed by the SMO Director (US queue) and the Deputy Director (German queue) in consultation with the SOFIA Project Scientist. To allow for balance between continuity and new input, the nominal term of membership shall be 3 years starting on the date of the first meeting attended.
- The SUG leadership has a chair-elect, chair and chair emeritus structure to provide continuity and backups. New chair-elects will be appointed by the SMO Director in consultation with the Deputy Director and SOFIA project scientist. The chair-elect overlaps with the current chair, then serves as chair for one year and then serves for one additional year as chair emeritus.

New SUG Charter: Reporting, communicating and meetings

- The SUG will report to the SMO Director.
- The Chair shall communicate with the SUG members to obtain agenda items and feedback.
- The SMO Associate Director for Science Research and Outreach will serve as Executive Secretary for the SUG, organizing invitations and the agenda.
- The SUG will write a report for each meeting (minimally, an emailed summary to the Executive Secretary). The SMO shall publish a report for each meeting on the SOFIA website.
- Meetings, either face--to--face or virtually through use of telecommunication technologies, should occur at least twice per year.
- In person meetings will be primarily at NASA Ames.

SUG and Community publications

- Number of science publications needs to be increased
- SOFIA's community is key to achieve this result
- Paper drive this summer to support senior review
 - August 27 submission deadline
- See community engagement presentation - Moullet
- Senior review presentation - De Buizer
- Interested in your support in communicating out SOFIA's amazing science achievements
- Feedback on our engagement of SOFIA community to prioritize their SOFIA publications