

SOFIA Science Operations

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SOFIA Users Group #10

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Purpose of Presentation

- Summary of SciOps support of the User Community
- NASA has tasked the SMO to
 - Increase the number of received proposals
 - Increase the number of published papers and citations
 - Increase the impact of SOFIA publications
- Question to SUG: Where could the most cost-effective addition/changes be implemented, both for experienced observers and for newcomers to ground-based or airborne infrared observations?
- Side issue: Cycle 6 Call for Proposals planning is about to get under way. Advise SMO on any issues related to upcoming Cycle 6 Call for Proposals



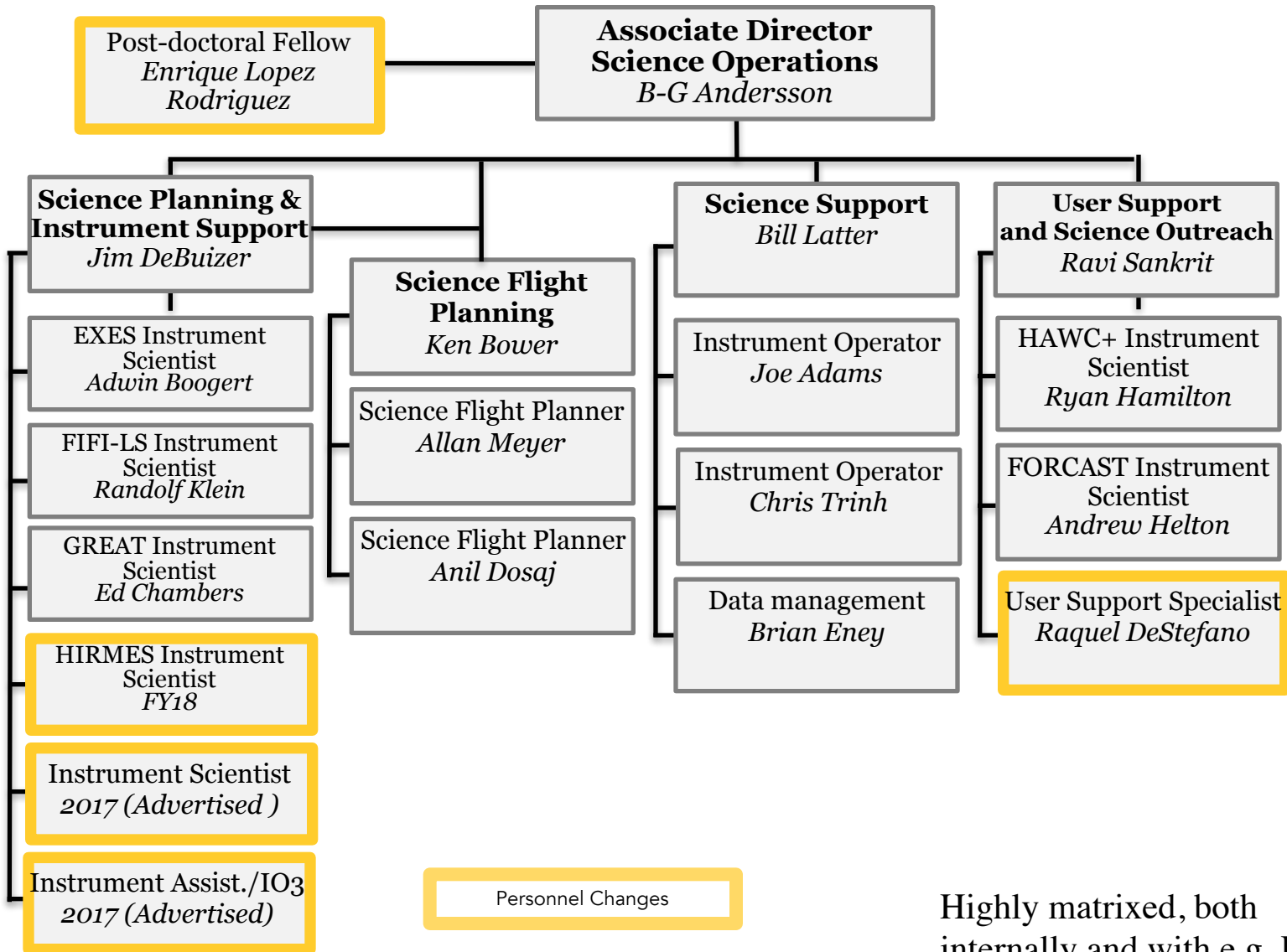
SOFIA Science Operations Responsibilities:



- *Outreach to the Science Community*
 - User Support
 - Conferences, workshops etc.
 - GI flyer participation
 - Web pages, documentation
- *Science Proposal Process*
 - Support annual Call for Proposals development
 - Technical reviews of proposals
 - Support proposal evaluation and selection
- *Observing Program*
 - Observation planning and execution
 - Science flight planning and tracking
 - Observation optimization (scripting)
 - Instrument support (advice on modes, filters, analysis)
- *Scientific Research (administration)*
 - SOFIA Colloquia



SOFIA Science Operations



Highly matrixed, both internally and with e.g. DPS

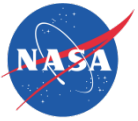


Communications with SOFIA User Community



- Web site
 - Recent redesign into “For Researchers” and “For the Public”
- E-mail and graphical newsletters
 - Electronic as-needed, graphical twice a year
- Help Desk e-mail
 - RT database managed e-mail site monitored by User Support
- Assigned Contact Scientists
 - Primary SMO staffer for the development of each program
- Presence at scientific conferences
 - AAS, DPS, AGU, topical meetings
- Call for Proposals
 - Formal document in standard NASA format





Observation Support





Observing Support. 1: Instrument Scientists

Instrument	Instrument Class	Allocation, Cy 5 [%]	Primary Instrument Scientist	Secondary Instrument Scientist
EXES	PSI (US)	17	Adwin Boogert	
FIFI-LS	FSI	12	Randolf Klein	Christian Fischer (DSI)
FLITECAM	FSI	1	Vacant (Shenoy/Vacca)	-
FORCAST	FSI	17	Andrew Helton	James De Buizer
GREAT	PSI (DE)	26	Ed Chambers	Göran Sandell
HAWC+	FSI	23	Ryan Hamilton	Enrique Lopez-Rodriguez (postdoc)
FPI+	FSI		Enrico Pfüller	
HIRMES	FSI	-	Advertised	





Observing Support

- Proposal and Observation Preparations:
 - User Support
 - Web pages, Instrument Handbook, Community days, Help desk
 - Instrument Support
 - Technical questions, Instrument Handbook
- Observation execution:
 - Instrument Support
 - Phase II, AOR design, Observation optimization, Observing scripts
 - Instrument Operators
 - Execution of observations
 - Science Flight Planning
 - Efficient use of flights, prioritization of high-ranks programs
 - GI Flight Participation
- Post-observing support:
 - Pipeline processing (DPS/Vacca)
 - **Data analysis Cookbooks**
 - **Friend of Telescope**





[The role of SciOps in] the life of a SOFIA observation - 1



- Once a proposal is approved:
 - Phase II instructions are sent out, and a Contact Scientist is assigned for each program
 - Long range planning is performed laying out the instrument cadence and a likely observing window for each observation
 - Phase II inputs (AORs) are generated.
 - For some instruments the Instrument Scientists generate the AORs
- At the time of Flight Planning (Flight -11 weeks)
 - The Instrument Scientist and Science Flight Planner work closely together (with GIs as needed) to optimize flight plans to
 - Maximize flight efficiency
 - Maximize the execution of the highest ranked programs
 - Adjust observation to allow the above (spit, shorten, or modify)
 - Subject to approval by SMO Director





[The role of SciOps in] the life of a SOFIA observation - 2



- At the time of Science Approval of flight series
 - Flights are posted to the SOFIA Web-site
 - User Support and B703 Science Support invite GI flyers
 - Medical, flight participation and badging requirements (foreign nationals require minimum of one month notice)
 - We now have up to 3 seats per flight available for GI flyers
 - Updated informational GI-flyer materials being worked
- At time of flight
 - B703 Science Support manager meets and escorts GI flyer to egress training and mission briefs
 - Instrument Scientist escorts to and from aircraft
 - Instrument Scientist manages observations, including scientific conflicts in flight (access to observations) and allowed in-flight modifications of observations
 - Has to consider possible conflicts and risk of “going off script”





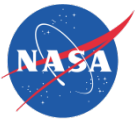
From “SOFIA Guest Investigator Guidelines”

In-flight changes to an observation are discouraged as observations with most SOFIA instruments are executed via pre-validated observing scripts, and as SOFIA observations are also intended to populate a well documented and calibrated data archive.

- Changes that would request in a change of flight plan will not be considered in flight, except in exceptional circumstances. Authority to approve/reject such changes rests with the Mission Director.
- In-flight observation changes that do not require a change in the flight plan (e.g. modification to the selection or relative exposure times in different photometric filters) may be requested and will be considered if they do not violate proprietary rights of other observers and can be implemented at an acceptable risk to execution of the observation. Authority to approve/reject such changes rests with the Instrument Scientist.

Issued by W. T. Reach, April 2014





[The role of SciOps in] the life of a SOFIA observation - 3



- Post Flight
 - SOFIA usually returns to Palmdale outside of normal office hours
 - MOps and SciOps crews (Instrument Scientists) are normally on “crew rest” schedule and cannot stay at B703.
- Post Series
 - The SMO (DPS) or the Instrument teams produces pipeline processed (calibrated) data with an agreed amount of time
 - Staffing limitations restrict the amount of direct analysis support
 - No SOFIA specific analysis tools
 - Amount of data analysis documentation (Cookbooks)
 - Very limited supported GI visits to the SMO





Going Forward

- The SMO is planning to meet the NASA requirements (increased proposals, publications) by:
 - Policy changes in Call for Proposals [*Yorke presentation*]
 - Additional Community Days (pre-deadline) [*Sankrit*]
 - Improved, enhanced, user documentation
 - Instrument handbook, data analysis cookbooks
 - Friend-of-Telescope function
 - Need to staff for and identify support scientists also for the post-observation process
 - GI visits to the SMO for data analysis
 - Bi-annual science conferences (Alternate years to the German Ringberg meetings)
- SUG: What else?
 - We are staffing up by several new hires (but moderated by additional instruments and tasks)
 - What is the best use of these resources?

