

SOFIA Basic Science Plans



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SO FIA Early Science



Short Science has 3 flights each with FORCAST and GREAT to allow the instrument teams to get on the sky at the earliest possible opportunity.

FORCAST flew in Dec 2010

GREAT flies in March 2011

Basic Science is a series of 15 flights (12 US & 3 German) that will be open to the astronomical community

- US time was openly competed via a call for proposals
- German time will be used by the GREAT consortium

Begins Spring 2011

German Science Demonstration Time

- Because of the delay in commissioning of the FIFI-LS instrument which was originally scheduled for Summer 2011, the SOFIA Program has decided to use that time for additional science observations
 - 3 Flights will be awarded in a German open competition
 - These flights will take place in Summer 2011 during the Basic Science period
 - 3 Flights will be available to the US community
 - The exact scheduling of these flights will depend on progress leading up to Basic Science
 - We anticipate a decision on when to schedule by March 2011.
- There will be a workshop on February 28 – March 1 in Stuttgart for the German science community.

Layout of Basic Science

	FORCAST	GREAT
US Basic Science Time	8 Flights	4 Flights
German Basic Science Time		3 Flights
German Science Demonstration Time (est)	2 Flights	1 Flight
Total	10 Flights	8 Flights

Scheduling of 3 additional US flights will be finalized later this Spring.

US Basic Science Proposal Response

12 Flights available

- Call for Proposals released April 2010
- 60 unique proposals were received
 - 53 with US PIs (26 Institutions)
 - 7 with International PIs (5 Institutions)
- 49 FORCAST Proposals and 11 GREAT Proposals
- Requested Time
 - 234 hours requested for FORCAST
 - 42 hours requested for GREAT

Panels

- There were two panels of 7 reviewers each
 - Interstellar Medium, Evolved Stars & Extragalactic Astronomy
 - Star Formation and Planetary Science
- Primary and secondary reviewers assigned for each proposal
 - Based generally on the areas of expertise of the panel members
 - They were responsible for generating the final evaluation forms for their proposals.
 - We assumed, though, that all panel members were knowledgeable about all the topics in their panels.
- The detailed organization and how the panels reach their conclusions was left up to the Chairs.

Selection Criteria

- The overall scientific merit of the proposed investigation.
- The degree to which the investigation uses SOFIA's unique capabilities
- The suitability of the SOFIA observatory and data products for the proposed investigation.
- The feasibility of accomplishing the objectives of the investigation given the early stage in the characterization of the observatory and instruments.
- The competence and relevant experience of the Principal Investigator and any collaborators to carry the investigation to a successful conclusion.

Outputs of the Review

- Rank-ordered list of proposals from the panels
 - In addition, each proposal has an indication of whether it falls in the “Must do”, “Do if possible”, or “Don’t do” category.
- Filled out evaluation forms

- Additional considerations
 - Target visibility
 - Program balance
 - Technical difficulty

FORCAST US Basic Science Awards

PI	Institution	Title	Country	Hours
Tan	U Florida	Peering to the Heart of Massive Star Birth	US	4.5
Rubin	NASA/ARC	SOFIA's Opportunity to Solve the Nebular Abundance Problem	US	2.3
Rebull	JPL	SOFIA Observations of the Gulf of Mexico Cluster	US	2.5
Werner	JPL	FORCAST Imaging of Planetary Nebulae	US	4.0
Shuping	USRA	Mid-Infrared imaging of the W40 Star Forming Region using SOFIA-FORCAST.	US	1.5
Looney	U. Illinois	Resolving Class 0 Binaries in the Mid-Infrared	US	4.0
Grady	Eureka Scientific	Spatially-Resolved Far-Infrared Imaging of Bright Debris Disks	US	2.7
Sarre	U. Nottingham	FORCAST Study of 21 Micron Sources	UK	0.6
Harvey	U Texas	Far-IR Interferometry With SOFIA: A Test of Lunar Occultation Observations	US	0.4
Bally	U. Colorado	FORCAST imaging of the mini-starburst in W43	US	5.0
Armus	IPAC	Observations of the Nearby Starburst Galaxy NGC 2146 with FORCAST on SOFIA	US	2.8
Hill	CEA Saclay	SOFIA 24 and 35um imaging of the OB young stellar objects in Cygnus-X	France	2.8
Vacca	USRA	Uncovering Buried Star Clusters in Nearby Starburst Galaxies	US	3.0
Huard	UMD College Park	Resolving Protostars in the Serpens South Protocluster	US	2.1
Kobulnicky	U Wyoming	Intermediate-Mass Star Formation Regions: Defining a High-Latitude Sample	US	1.3
Nikola	Cornell	Probing The AGN-Starburst Connection	US	2.0
Sandell	USRA	The nature of Young High-mass (proto)stars in NGC7538	US	3.4
Rushton	U Central Lancashire	SOFIA observations of recurrent novae	UK	2.0
Meixner	STScI	FORCASTing Evolved Star Mass Loss in the Galactic Bulge	US	2.0
Humphreys	U. Minnesota	Cool Dust and the Mass Loss Histories of Cool Hypergiants	US	2.0
Orton	JPL	19-37 Micron Photometry of Outer Planets	US	1.2
				52.1

<http://sofia.usra.edu/Science/>

GREAT US Basic Science Awards

PI	Institution	Title	Country	Hours
Sahai	JPL	Using GREAT to Probe [CII] emission in the Ring Nebula	US	3.2
Neufeld	JHU	Search for interstellar mercapto radicals (SH) with SOFIA	US	3.0
Kaufman	CalState SJ	High frequency water masers with SOFIA/GREAT	US	3.0
Schneider	CEA Saclay	Pillars of Creation: physical origin and connection to star formation	France	2.4
Hewitt	GSFC	GREAT Diagnostics of Molecular Shocks in Interacting Supernova Remnants	US	1.0
Li	JPL	Mapping "Dark Gas" in Rho Ophiuchus A	US	4.8
				17.4

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Anticipated Schedule

- April 2011 GREAT Early Science Flights
- April-May 2011 FORCAST Basic Science Flights
- June 2011 Observatory Engineering Flights
- June-July 2011 GREAT Early Science



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