

SOFIA Status

American Astronomical Society

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SOFIA Director, Science Mission Operations



Outline

- SOFIA OBSERVATORY Progress 2008
- Current SOFIA OBSERVATORY Status
- Instrument Status

SOFIA Observatory Progress for 2008



SOFIA Flight Tests



SOFIA begins flight tests at DFRC, October 2007

Mirror Removed from A/C



NASA Dryden Flight Research Center Photo Collection

<http://www.dfrc.nasa.gov/Gallery/Photo/index.html>

NASA Photo: ED08-0041-203 Date: April 18, 2008 Photo By: Tony Landis

Technicians carefully guide SOFIA's primary mirror assembly on its transport cradle into a clean room where it is being prepared for shipment to NASA Ames.

Mirror Coating



SOFIA Mirror with aluminum coating applied at ARC,
June 2008

Reinstalling Mirror on Aircraft



October 2008

Mirror on Aircraft for Line Ops

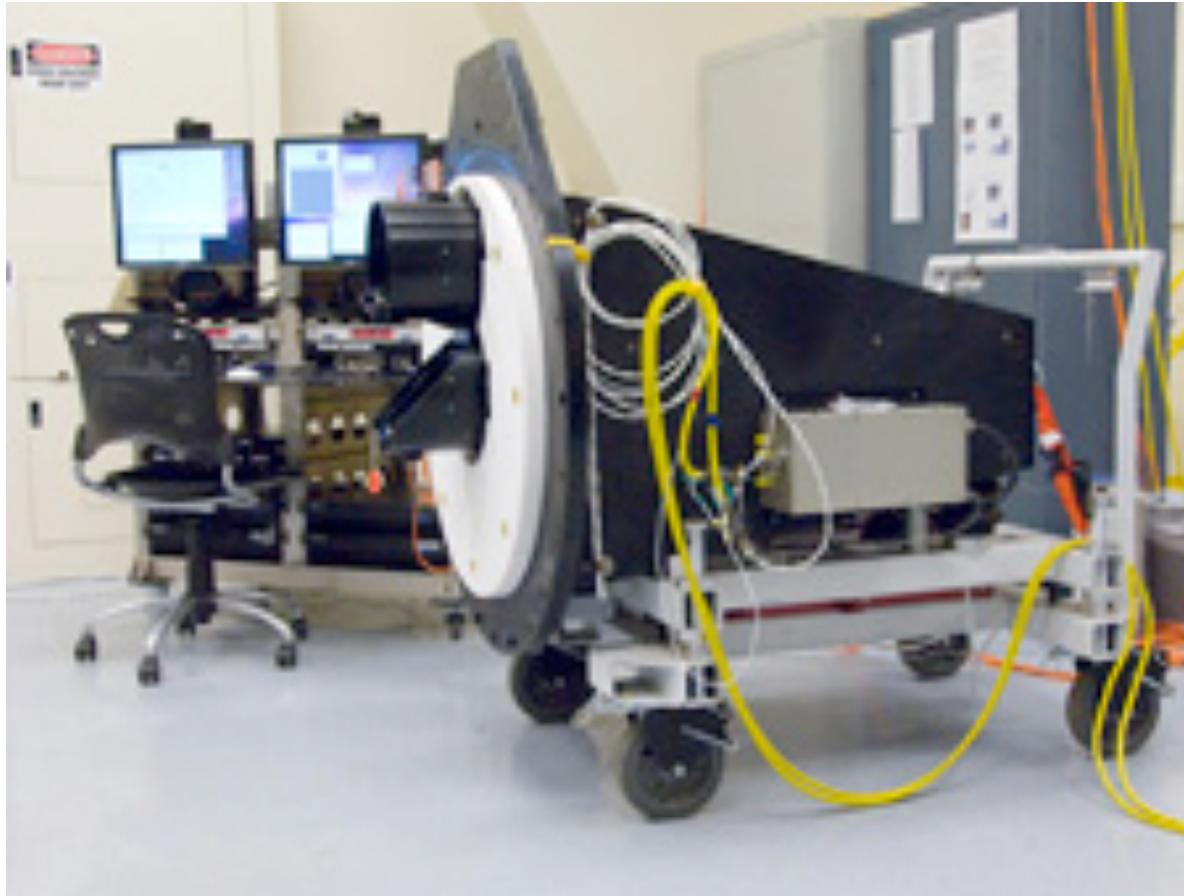


Image during TA Characterization



November 2008

HIPO



High-speed Imaging Photometer for Occultations

Using HIPO in Line Ops



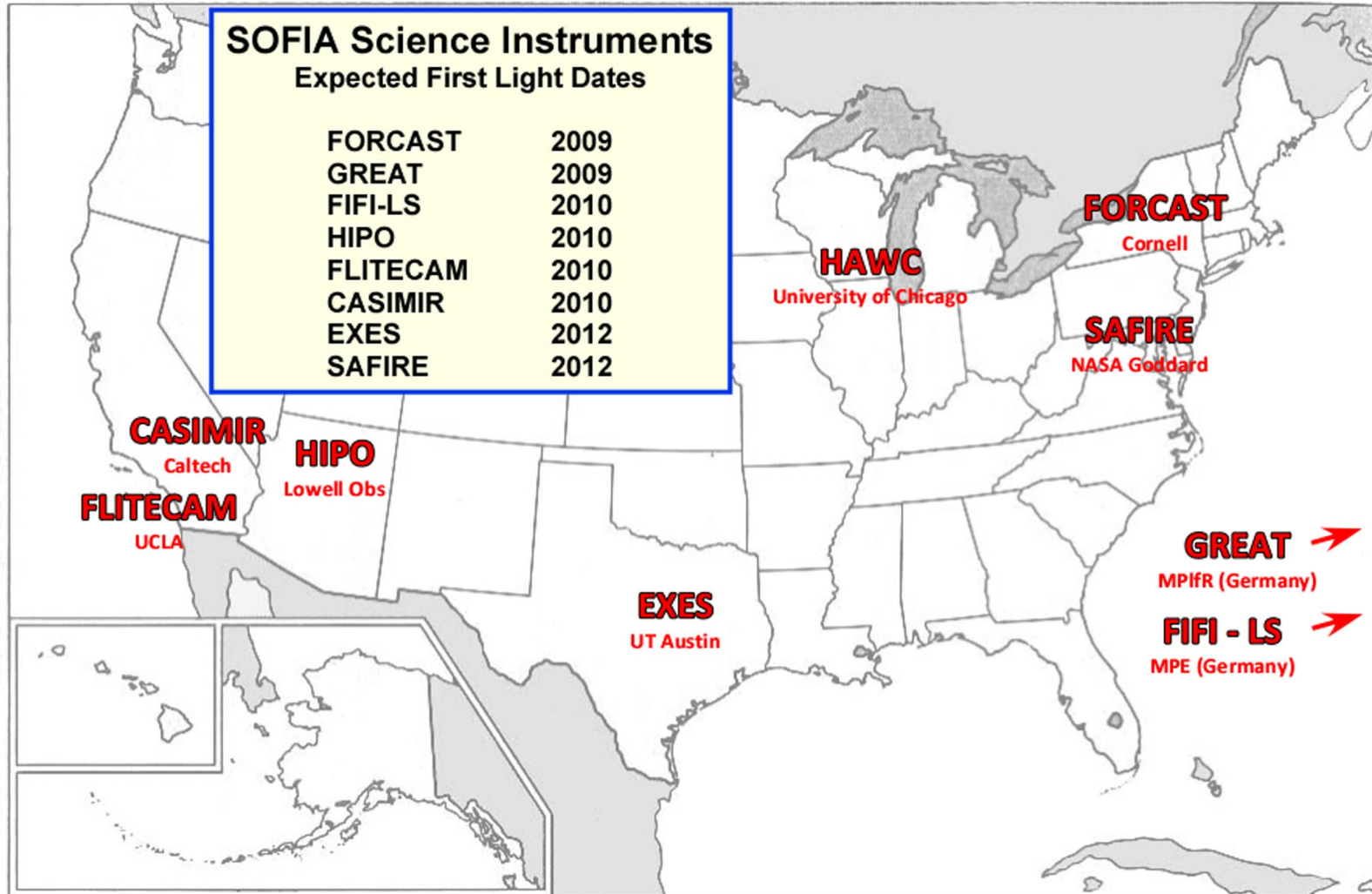
NASA Dryden Flight Research Center Photo Collection
<http://www.dfrc.nasa.gov/Gallery/Photo/index.html>
 NASA Photo: ED08-0296-40 Date: November 12, 2008 Photo By: Tom Tschida

Scientists carefully examine data being received during nighttime line operations testing of the SOFIA airborne observatory's 2.5-meter infrared telescope.

Major Progress in 2008

- Completion of closed door flights
- Coating of primary mirror
- Re-installation of primary mirror on aircraft
- Installation of aperture door and drive system
- Major progress on the Command and Control System
- Major progress on the user interface including the archiving and data retrieval system and GO proposal submittal system
- Completion of pre-ship reviews for HIPO, FORCAST and GREAT
- Selection of participants in the Short Science observations with FORCAST and GREAT
- Completion of ground open door line operations with HIPO to align and characterize the telescope

Geographic Distribution of SOFIA Instruments



Instruments currently planned for SOFIA

SOFIA Instrument	Description	Built by	λ range (μm) spec res ($\lambda_0/\Delta\lambda$)	Available
FORCAST	Faint Object InfraRed CAmera for the SOFIA Telescope Facility Instrument - Mid IR Camera and Grism Spectrometer	Cornell	5 - 40 R ~ 200	2009
GREAT	German Receiver for Astronomy at Terahertz Frequencies PI Instrument - Heterodyne Spectrometer	MPIfR, KOSMA DLR-WS	60 - 200 R = $10^5 - 10^8$	2009
FIFI LS	Field Imaging Far-Infrared Line Spectrometer PI Instrument w/ facility-like capabilities - Imaging Grating Spectrometer	MPE, Garching	42 - 210 R = 1000 - 3750	2009
FLITECAM	First Light Infrared Test Experiment CAmera Facility Instrument - Near IR Test Camera and Grism Spectrometer	UCLA	1 - 5 R~2000	2010
HIPO	High-speed Imaging Photometer for Occultation Special PI Instrument	Lowell Obs.	.3 - 1.1	2010
HAWC	High-resolution Airborne Wideband Camera Facility Instrument - Far Infrared Bolometer Camera	Univ of Chicago	50 - 240	2010
CASIMIR	CAtech Submillimeter Interstellar Medium Investigations Receiver PI Instrument - Heterodyne Spectrometer	Caltech	200 - 600 R = $3 \times 10^4 - 4 \times 10^5$	2010
EXES	Echelon-Cross-Echelle Spectrograph PI Instrument - Echelon Spectrometer	Univ of Texas	5 - 28 R = $10^5, 10^4, \text{ or } 3000$	2012
SAFIRE	Submillimeter And Far InfraRed Experiment PI Instrument - Bolometer array spectrometer	GSFC	145 - 655 R ~ 1000	2012

Schedule

- SOC Ready for Early Science, 9/29/08, complete
- HIPO Available for Installing on A/C for Optics V&V, 11/01/08, complete
- SSC Ready for Early Science, 12/19/08, complete
- Open Door Flights Begin, Spring 2009
- Final Airworthiness Approval for FORCAST, Spring 2009
- Early Science MCCS Complete, Summer 2009
- Initiation of Science Flights, Summer 2009
- Final Airworthiness Approval for GREAT, Summer 2009
- Short Science Flights Complete, Fall 2009
- Final Airworthiness Approval for FIFI-LS, Winter 2009/2010
- Basic Science Flights, Winter 2009/2010

Backup Slides



SOFIA's Instrument Complement

As an airborne mission, SOFIA supports a unique, expandable instrument suite

- SOFIA covers the full IR range with imagers and low to high resolution spectrographs
- 5 instruments at Initial Operations; 9 instruments at Full Operations.
- SOFIA will take fully advantage of improvements in instrument technology. There will be one new instrument or major upgrade each year.

