

SOFIA
Stratospheric Observatory
for Infrared Astronomy

Program Update



Presented to: SOFIA NASA
Observatory and Program
Assessment Council
(SNOPAC)

Presented by:
SOFIA Program Manager
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February 7, 2017

First Images Demonstrate the Capabilities of SOFIA's New Instrument, HAWC+

This image shows how dust grains are aligned in the W3 star-forming region, a giant molecular cloud in the constellation Cassiopeia approximately 6,200 light years from Earth. Researchers are now comparing data from these observations with models that predict how stars form.

Credit: NASA / SOFIA / Caltech / Darren Dowell

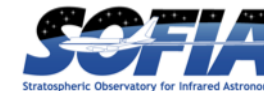
Program Operations Activities Since October 2016



- Program Complete Science Cycle 4
 - Satisfied Level 1 Requirement to provide 80% of planned research hours
 - Completed commissioning and initiated observations with new science capability
 - upGREAT High Frequency Array (HFA); October 3, 2016
 - HAWC + science instrument December 15, 2016
 - Completed planned Observatory Maintenance/Upgrades
 - Observatory System Software updates, including Telescope Systems
 - Avionics Communication System Upgrade – required for international operations

- Ready to start Science Cycle 5 on February 7, 2017
 - 758 Research Hours Schedule
 - 116 total flights: 102 science, 2 commissioning, 12 engineering/ferry, and increased contingency flight opportunities (22%)
 - Southern Hemisphere Deployment (June 21st – August 13th, 2017) in Christchurch, New Zealand
 - NASA HQ-directed Kuiper Belt Object (MU69) Occultation during deployment on July 10th, 2017 in support of New Horizons Mission, provided path is within operational range for return-to-base to Christchurch, New Zealand
 - Science Community / Public Engagement Opportunities
 - L.A. County Airshow, March 25-26, 2017; To be confirmed
 - Tours in support of AA Education request for Great American Eclipse, August 21, 2017
 - American Astronomical Society (AAS) Meeting in Washington D.C. area, January 6-12, 2017
 - Planned Observatory Maintenance/Upgrades
 - 2 Channel Cryo-cooler upgrade is installed during March/April Maintenance/Upgrade Period #13 to support upGREAT/4GREAT commissioning and New Zealand operations
 - HAWC+ ADR vibration heating issue is repaired between May 19th and September 11th, 2017
 - Aircraft C-Check planned for November 18th – December 30th, 2017

Cycle 5 Daily Overview – Page 2 of 2



OC#5 J (FORCAST)																		Tour Eclipse	Maintenance / Upgrades #14																		MS	DC#5 K (HAWC+)				
Down	Prep						Ferry PMD			Crew Rest						SI Rem.			MD Inst.	CR																		Eng LO	Chk Fit	MD Rem	SI Install	S
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S								
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9								
August -- 2017																					September -- 2017																					

OC#5 K (HAWC+)																		Triton Occul	OC#5 L (FLIPO)																		OC#5 M (FORCAST)		
SI Install	9 Flights									SI Rem			SI Install	SI Install			Ferry	Triton			Ferry	3 Flights			SI Rem			SI Install	SI Install	SI Install	S								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S					
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14					
September -- 2017															October -- 2017																								

OC#5 M (FORCAST)																		OC#5 N (HAWC+)																		MD Inst.
6 Flights						SI Rem			SI Install			SI Install			9 Flights									SI Rem			FerryHAM									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
October -- 2017															November -- 2017																					

A/C in dock/ prep for maint.																		Maintenance / Upgrades #15 w/ 'C Check'																	
C-Check / Warranty C/PCP / Deferred Items																																			
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
November -- 2017															December -- 2017																				

Maintenance / Upgrades #15 w/ 'C Check'																		AAS 231st Meeting - National Harbor, MD																		OC#5 'O' (EXES)																	
Schedule Margin			Gnd Chk	FCF Fit	Release	FerryPMD	SI Rem			Eng LO	MD Rem	SI Install	SI Install	Ferry DC	Tour -Strategic Capacity			Prep	Ferry	SI Rem			SI Install			SI Install			8 Flights																								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S																			
24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27																			
December -- 2017															January -- 2018																																						

OC#5 'O' (EXES)																		OC#6 A																		OC#6 B																	
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S																			
28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3																			
January -- 2018															February -- 2018													March -- 2018																									

Key Observing Cycle: 5																		Baseline Science Flights: 102																		Baseline RHs*: 758																		Planned Science Flights: 102																		Planned RHs*: 758																		* Max available research hours PMB sequence approval: 1/30/17																	
S	7	Weekend day	H	4	US or German Holiday	F	6	Instr. Commissioning Flight	F	6	Observing Flight	F	6	Ferry/Maint./Non-Sci Flight	★	6	Educator on Flight	⊗	6	Return to Base (RTB) Flight	F	6	Work day	F	6	Line Operations	F	6	Contingency Instr. Comm. Flight	F	6	Contingency Obser. Flight	F	6	Contingency Ferry/Maint./Non-Sci Flt	★	6	Media/VIP on Flight	⊗	6	Canceled Flight	F	6	AFRC Regular Day Off	F	6	Possible Maint/Up. Check Fit	F	6	Deployment Observing Flights	S	28	Short Flight	S	13	Half Sci. & Half Ferry/Maint./Non-Sci	✓	6	Restored Flight	F	6	Strategic Capacity																																													
black text with no fill		day of week box H or GH w/ red fill		bold white text, purple fill, bold border		bold white text, blue fill, bold border		bold white text, green fill, bold border		white star on day of week		single slash through day and date		black text w/ day box grey fill		bold border		day box with purple fill		day box with blue fill		day box with green fill		yellow star on date		x through day and date		day and date shown in red		day and date box filled with lt. green		bold white text, light blue fill, bold border		colored fill only lower half, bold bdr.		two colored fill		check mark below day		orange fill on day of week																																																																			