



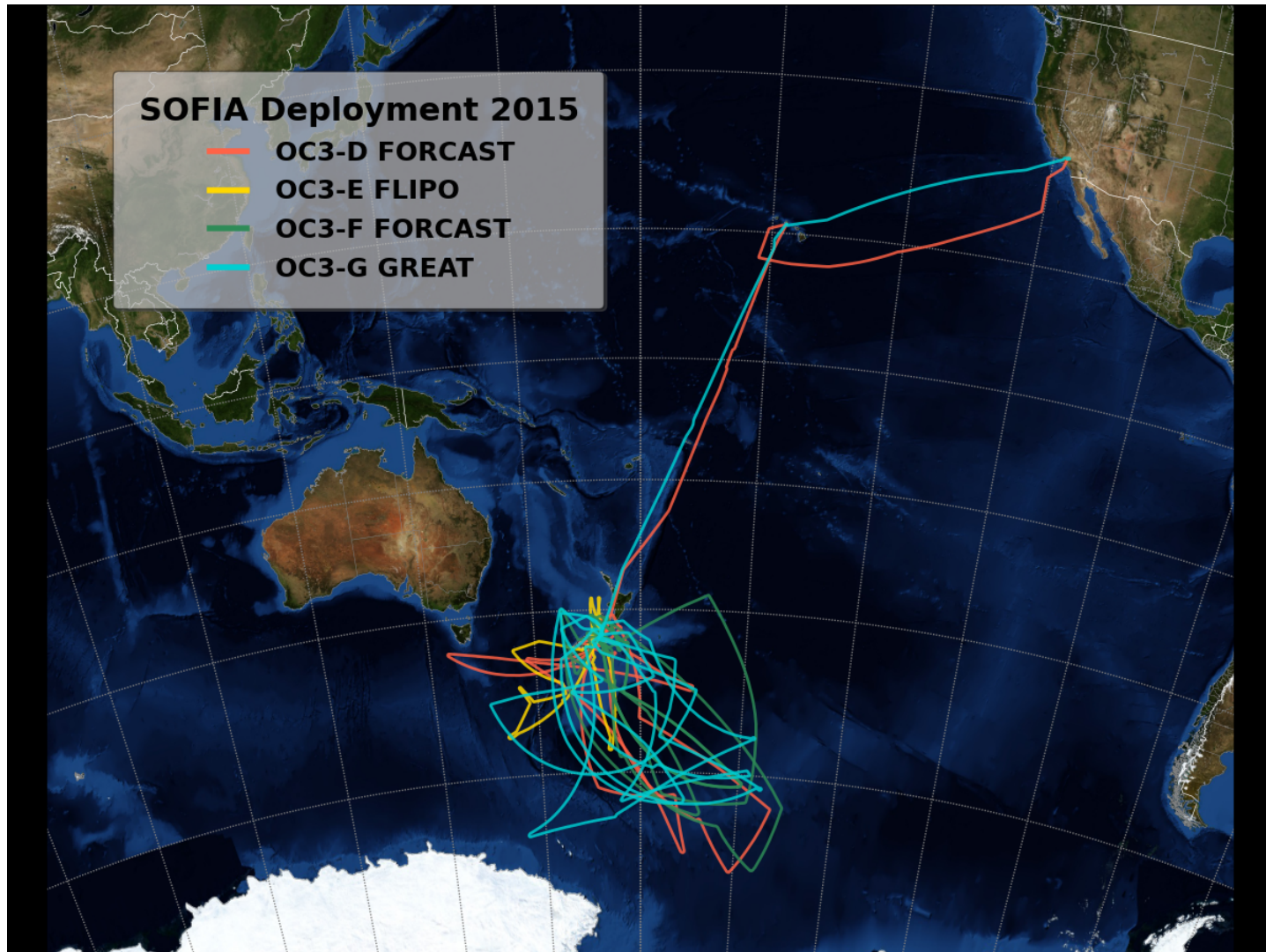
Southern Hemisphere Deployment Plans

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2015 Deployment



SOFIA Users' Group 18 November 2015

Ryan Hamilton





Assumptions

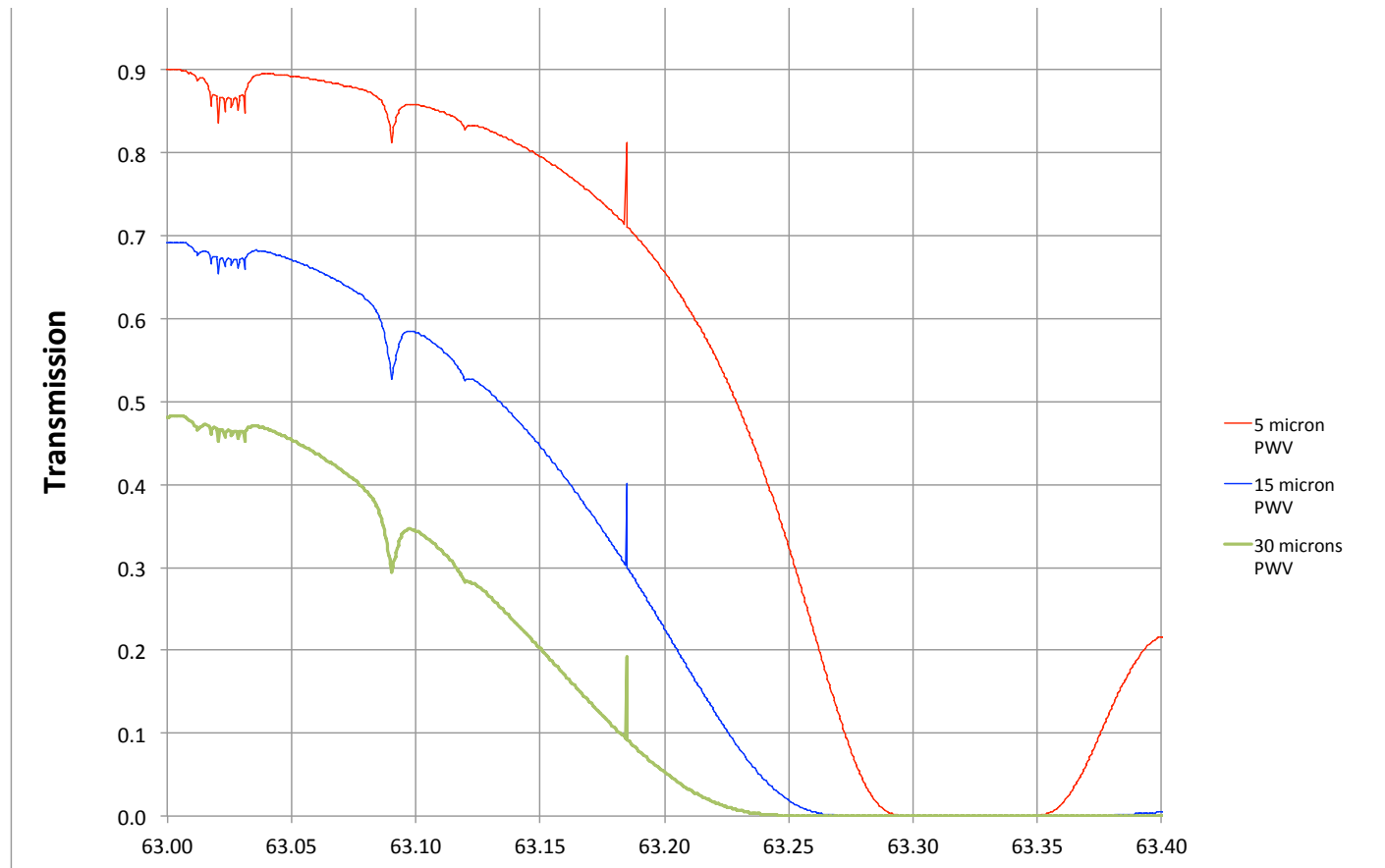


- Two instruments to be taken on deployment
 - For the Cycle 3 Southern Hemisphere deployment, SOFIA developed the capability to ship one of the instruments on the airplane with the other instrument mounted on the Telescope Assembly
 - Instrument changes demonstrated in Christchurch demonstrated during Cycle 3
- Instrument Selection Criteria
 - Demand from the Cycle 4 Proposal Call
 - Benefit of Southern Hemisphere to selected program
 - Observing conditions
 - Scheduling efficiency





[O I] 63 mm Atmospheric Transmission



Difference between winter in Christchurch vs. summer in Northern Hemisphere results in ~20x difference in integration time.



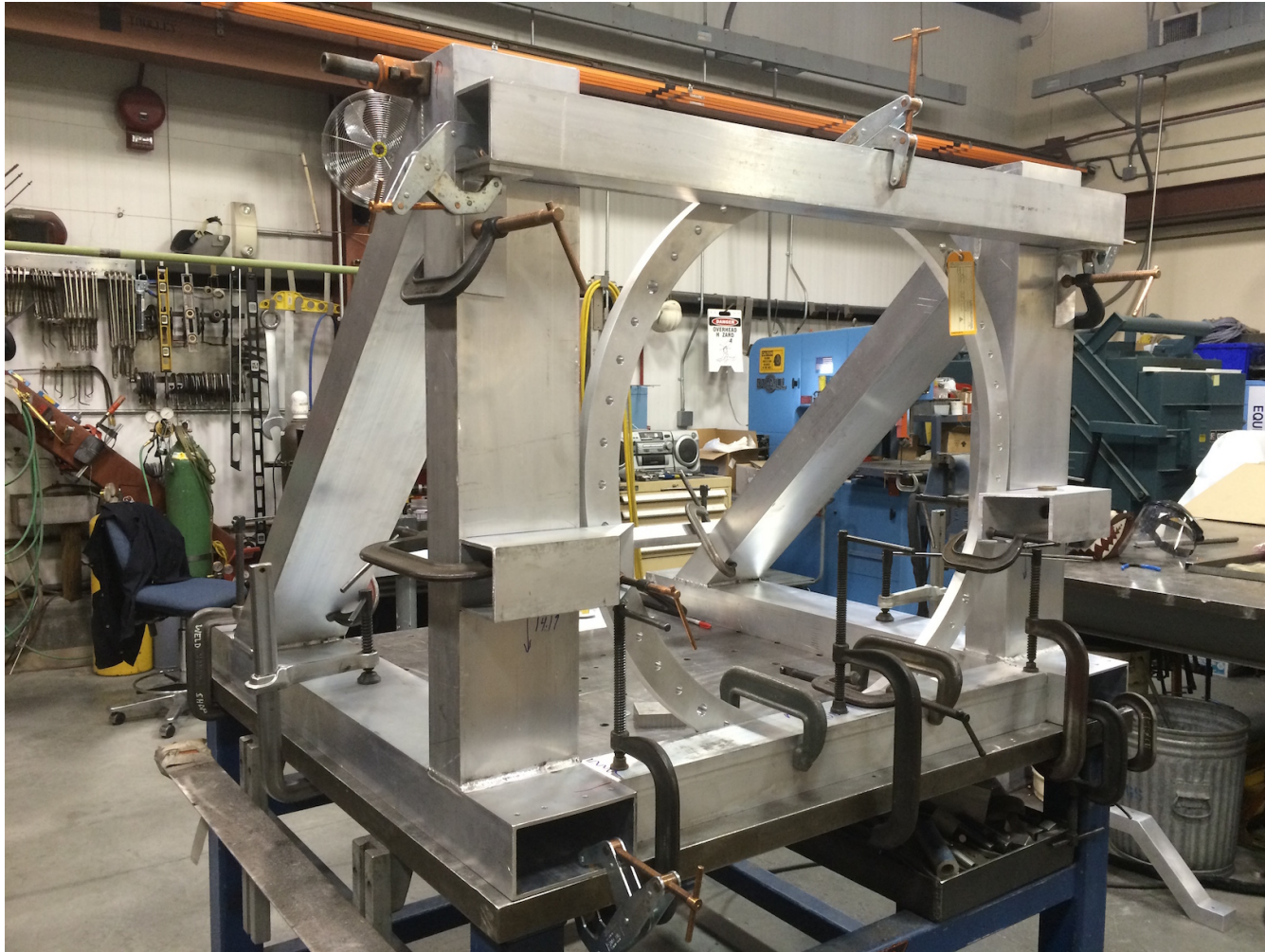


Photo taken on 20 April 2015

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Cycle 4 High Priority Selections



- Observations that *require* observations from Southern Hemisphere
 - FORCAST - ~70 hours
 - FIFI-LS - ~45 hours
 - GREAT - ~17 hours
 - EXES, FLITECAM, and HIPO had negligible demand for Southern Hemisphere targets
 - HAWC+ was not considered since it would not be commissioned in time for the deployment
- Based on the demand, FORCAST and FIFI-LS were selected for the deployment



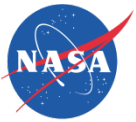


Three-Instrument Option



- Considered option of 3-instrument complement for Southern Hemisphere deployment
 - Cycle scheduler examination of GREAT targets found significantly higher scheduling success rate for 3-instrument version because of the high concentration of GREAT targets in the southern skies
 - Some highly ranked GREAT investigations are enabled
 - Shifting GREAT observations to the deployment opened up the possibility of shifting the May Maintenance/Upgrade period before the HAWC+ Part 1 commissioning
 - Provides ~1 month of extra schedule for HAWC+
 - This variant of the schedule is not currently proposed, but is a possibility.
- Option under detailed investigation has fewer flights (103 vs. 106.5), but sky visibility for GREAT Southern Milky Way is much better, resulting in more high priority hours.





GREAT Observations Enabled by Deployment

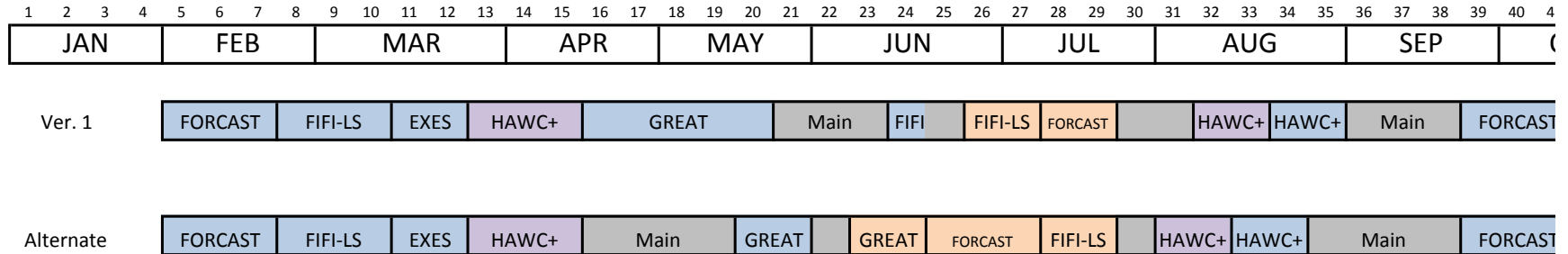


PropID	TAC Queue	Title	PI	Institution	Instruments	Targets
04_0101	US	Measuring the Outflows from Massive Young Stellar Objects in the Large Magellanic Cloud (LMC)	Meixner, Margaret	STSci	GREAT	N159W (5.7, -70) N79-YSO (4.9, -69)
04_0082	US	Large Magellanic Cloud observed by SOFIA/GREAT	Israel, Frank	Leiden	GREAT	LMC-N15 (5.0, -66) LMC-N197(5.3, -72) LMC-N68 (5.6, -68) LMC-N87 (4.9, -69)
04_0041	DE	Molecular excitation of a strongly irradiated pillar in the Carina Nebula	Preibisch, Thomas	Universitäts-Sternwarte Munchen	GREAT	Pillar Position 1 Pillar Position 2 Pillar Position 3 (10.8h, -60)
04_0095	DE	Ammonia as a probe of infall in high-mass star forming clumps, Part III	Wyrowski, Friedrich	Max-Planck-Institut für Radioastronomie	GREAT	AG337.17-0.03 AG337.26-0.10 AG337.29+0.01 AG337.70-0.05 AG351.16+0.7 AG351.44+0.6 AG351.77-0.5
04_0104	DE	Far-IR cooling in massive YSOs	Leurini, Silvia	Max Planck Institut für Radioastronomie	GREAT	AG337P17 AG337P26 AG337P29 AG337P70 AG351P16 AG351P25 AG351P42 AG351P44 AG351P77





Alternate Schedule





Impacts and Costs Being Investigated

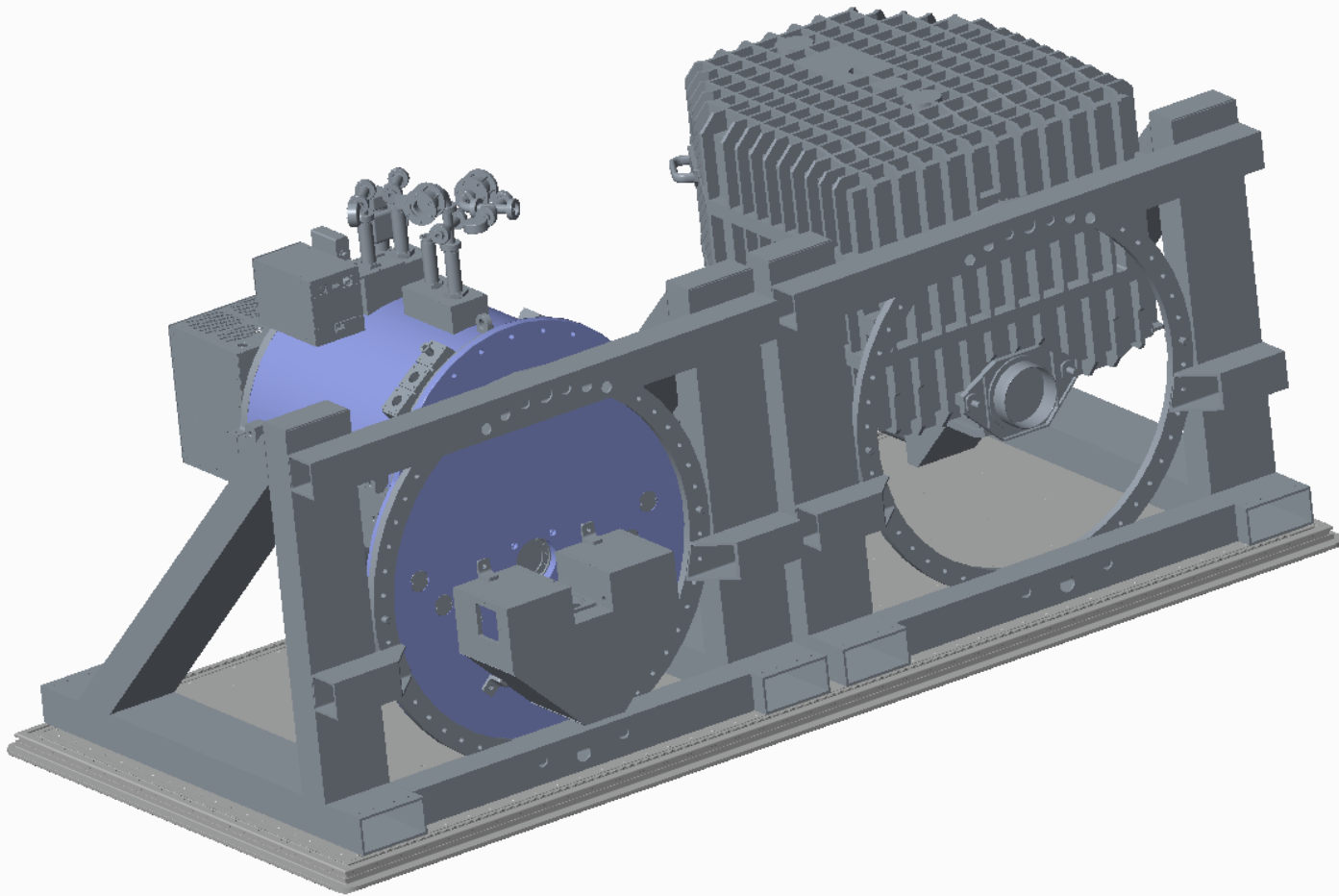


- Deployment time is extended by 1 week
- Shipping fixture for 3rd instrument
- Logistical support for upGREAT
- Maintenance/upgrade readiness for March 2016
- Overall cost of option





FORCAST and FIFI-LS Shipping Concept



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Impacts and Costs Being Investigated



- Deployment time is extended by 1 week
 - Shipping fixture for 3rd instrument
 - Logistical support for upGREAT
 - Maintenance/upgrade readiness for March 2016
 - Overall cost of option
-
- Expect final decision by end of year





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