



Scientific Productivity

William T. Reach

SOFIA Users Group #11

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SUG Question: Productivity vs Completeness

- Productivity of accepted proposals of various degrees of completeness
 - What percentage of accepted proposals is finally receiving the requested data?
 - *Assessment based on Cycle 4 in this presentation*
 - How useful are the received data for carrying out the proposed project, measured by comparing the publication to completeness?
- How proposal ranking compare with chance of project completion.

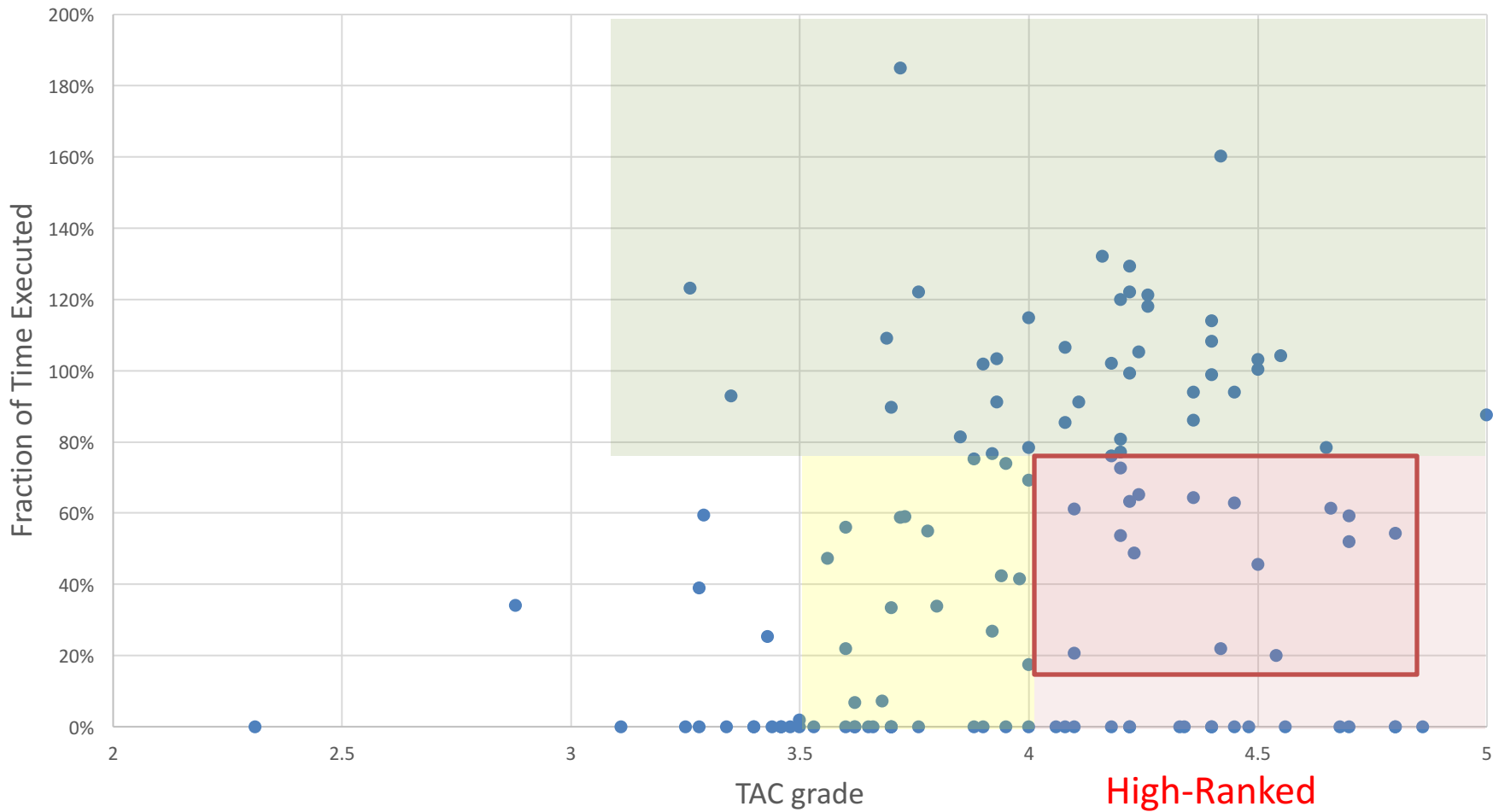


Highly-Ranked but Not Started

- 17 Projects
 - HAWC+ not possible due to commissioning delay (7)
 - GREAT lost due to engine problems (3)
 - ToO not triggered (2)
 - GREAT not scheduled; crowding in gal center (2)
 - Withdrawn; already executed in prior Cycle (1)
 - GREAT not scheduled; configuration unavailable (1)
 - Bookkeeping: German component of Joint Impact (1)
- Potential Remedies
 - Don't accept shared risk proposals for new science instruments
 - Radical contingency plans for long-term outages
 - Stringently control acceptance of crowded-region proposals



Completeness vs TAC grade



High-Ranked
Incomplete





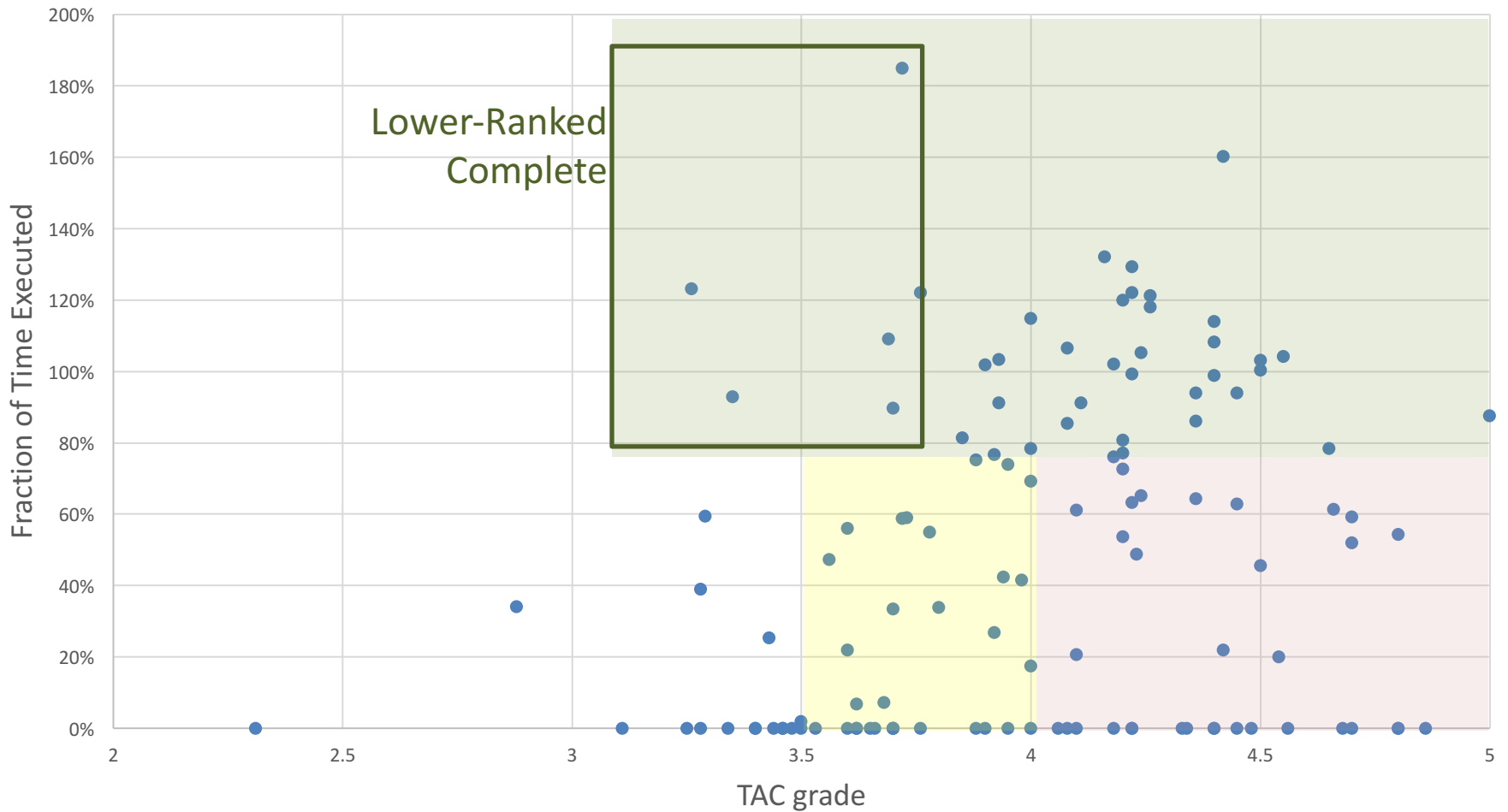
High-ranked but Incomplete

- Only 3 less than 40%, likely unusable without more
 - GREAT: crowding in inner galaxy, carried to Cycle 5 (1)
 - GREAT: loss of flight (1)
 - HAWC+: delay of commissioning (1)
- 20 Projects completed 40-80%, questionable utility
 - Miscellaneous scheduling conflicts among programs (12)
 - HAWC+ delay of commissioning (3)
 - Solar System object completed to degree possible (2)
 - Impact project planned carryover to Cycle 5 (2)
 - GO agreed repropounded project was complete with addition (1)
- Remedies:
 - More aggressive screening before acceptance
 - OR more clear explanation of probability of incompleteness due to crowding in queue schedule





Completeness vs TAC grade





Lower-ranked but Complete

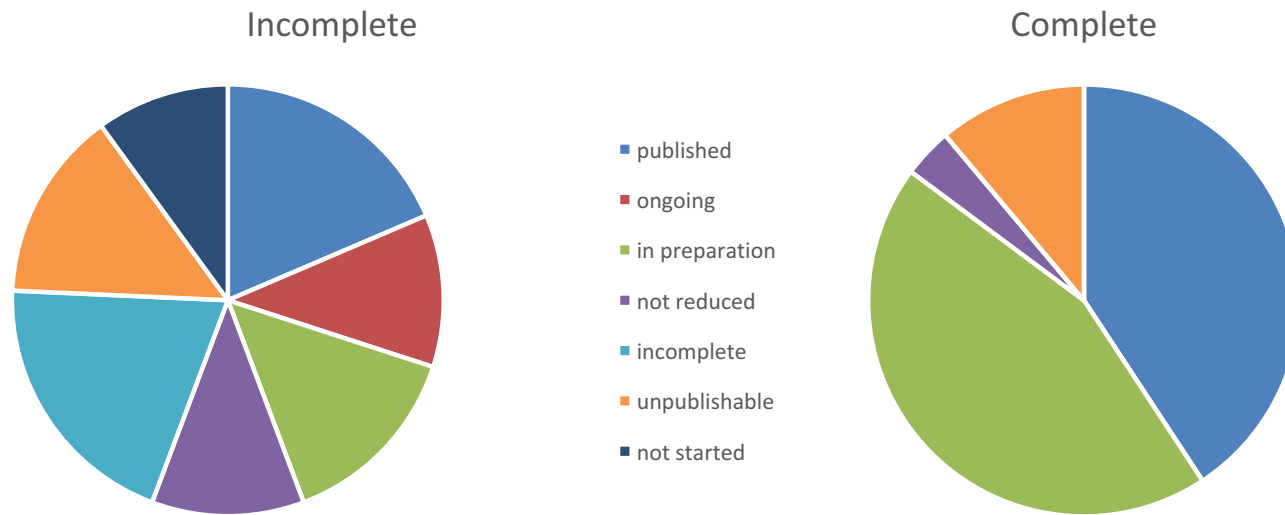
- 6 projects with TAC < 3.8 and executed > 80% of award
- Range of Science Instruments
 - 2 EXES, 2 FORCAST, 1 FIFI-LS, 1 GREAT
 - 2 Do if Time
- Why these programs got completed:
 - Targets were conveniently located and got flight-planned for complementary headings to high-ranked targets
 - These programs are useful to increase efficiency of flight plans
 - We encouraged these projects in Cycle 6, providing map of locations where targets are more likely to be scheduled





Publication vs Completeness

- Cycle 2 programs should be “mature” to publication
- Complete (>80% observed) programs have
 - Higher publication rate (41% vs 19%)
 - Significant remaining publishable data (44% “in preparation”)





Status of SOFIA GO Projects





Status of Guest Investigator Projects

Each project dispositioned into one of these categories:

- **Published:** refereed journal article using data
- **Ongoing:** will be combined with upcoming observations
- **In preparation:** GI working on draft/plans to write
- **Not reduced:** calibrated data not yet available
- **Incomplete:** less than half of proposed observations complete, or GI indicates cannot publish subset
- **Unpublishable:** GI or SMO believe scientific results will never be obtainable with the acquired data



Productivity by Science Instrument

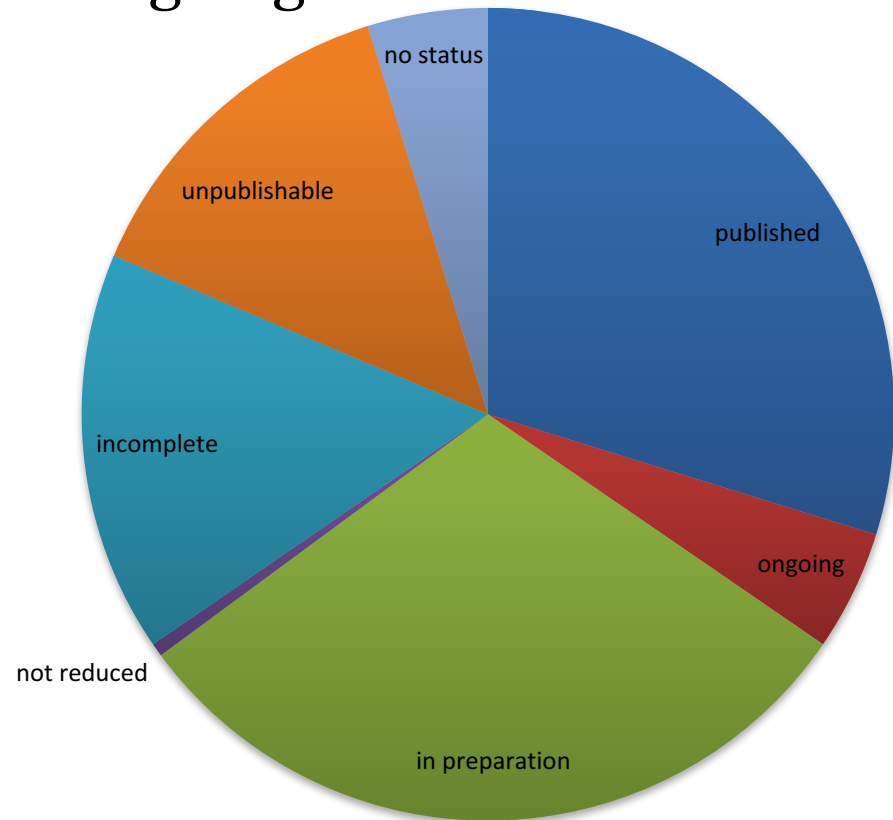
- GREAT and FORCAST dominate time, publications
- EXES and FIFI-LS still lagging
 - FIFI-LS Principal Investigator engaging team

SI	#Papers	Flights	Hours/Paper
GREAT	45	86.5	12
FORCAST	32.75	83.5	15
HIPO	2	3	18
FLITECAM	1.5	10	38
EXES	3	23	48
FIFI-LS	0.75	43	360



Project status through Cycle 3

- 30% of projects with data have published
- 35% "in preparation" or "ongoing"





Trends in Publication Status

	BS	Cycle1	Cycle2	Cycle3	Cycle4
published	14	17	19	6	3
ongoing	4	1	0	4	2
in preparation	5	9	15	28	20
not reduced	0	0	1	0	0
incomplete	2	9	6	13	3
unpublishable	5	2	5	14	2
no status	1	0	0	8	58
published/total	45%	45%	41%	8%	3%



Looking to the near future

- Increase in observing time in Cycle 3
 - Increase in number of publications expected “soon” (2017)
- GO Funding increased significantly in Cycle 4
 - Increase in publication rate expected for Cycle 4 (2018)

