

Maximizing Science on SOFIA

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Outline



- SOFIA Science in Perspective
- Ways to increase the Science Output
- My personal views based in part from discussions with our senior science staff including Erick Young, Bill Reach, and Hans Zinnecker
- These are for today's discussion only and have no management backing



SOFIA Science in Perspective



- After ~17 years of Development, SOFIA is now fully operational
- Early Science results show some interesting science, but there are some concerns.
- Since 2012, SOFIA has had ~40 publications with SOFIA data; Herschel in 2010, 2011 and 2012 had over 500 publications with Herschel data.
- We were out of the budget at NASA in FY2015 to some extent because of lack of science productivity.
- Within the US community there are many questions being asked about SOFIA's science output.
- Erick Young and Eddie Zavala have asked me to see what can be done to increase SOFIA's science output.





SOFIA Science in Perspective

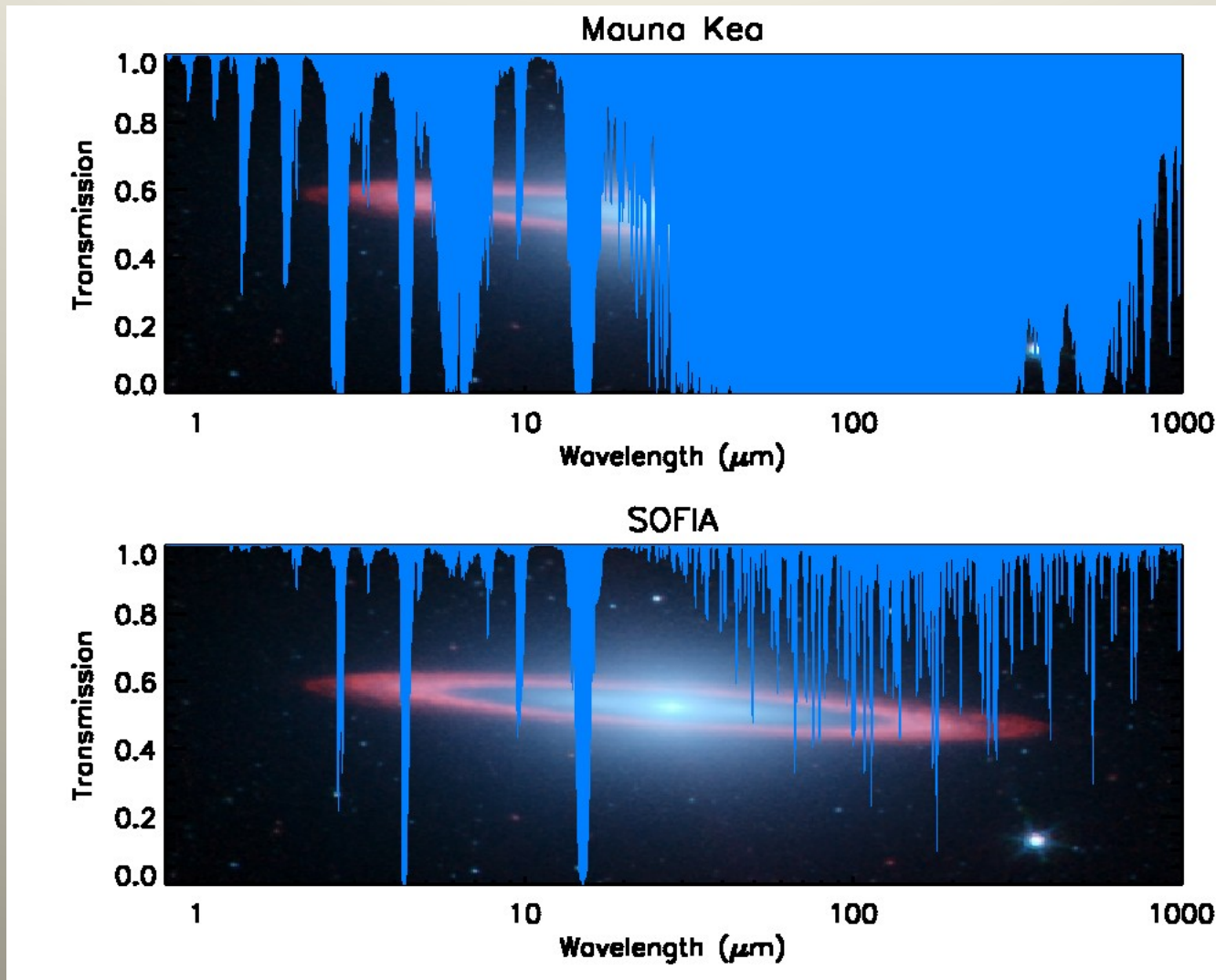


- To date almost all of the published SOFIA papers are with GREAT and FORCAST.
- GREAT has about 60% of the papers and another 20 are planned for submission by the end of the year 2014.
- GREAT also has higher citations (~1.5 times per paper)
- The core of SOFIA is 30 to 300 microns, where no other observatory operates for at least the next ~15 years; GREAT works in the core wavelength region, FORCAST only reaches low wavelength portion of this region (30–40 microns)
- Outside the core, unique capabilities are needed such as EXES high resolution





The Core of SOFIA (30–300 microns)





Ways to Improve Science Output



- I personally feel we could be more productive with more papers and in particular more significant papers. Here are some ideas to discuss:

- 1) put in place a plan to decommission old/non-core instruments. >>best on a 2-3 year time scale before JWST is launched
- 2) Get started now on a Core Advanced Instrumentation to be on the observatory in under 4 years (for example, a high-resol. Grating Spectrometer in 30 to 100 micron region). This also requires getting new instruments on to the observatory at lower cost and without the complexity
- 3) Do upgrades only if they make a very significant and large science improvement.





Ways to Improve the Science Output



4) Erick Young and Bill Reach are tracking and contacting investigators. I am sure this does some good, but how effective it is? Would it be better to team SMO Scientists working with key GI teams or some other ideas?

5) More money to General Investigators (GI's). If we get back in the full budget, there is a plan to increase from \$3K/hr to \$5K/hr. Is this enough \$ and are there better ways to distribute the money to get more publications?

6) Get the GI's more involved in the data and data reduction. How do we see this happening?

- More communication between the GI team and SMO?
- Regular visits to the SMO by GI team members?
- More data reduction workshops?





Ways to Improve Science Output



7) Have a way to get risky, high impact observations on SOFIA without using DDT time. Or increase DDT time? Other ideas?

8) Be smart about scheduling

-- More June July Aug flights in New Zealand: GREAT 63 micron observations >20 times faster than in US continent

-- Mini deployments to Iceland, Alaska or Seattle.

* Any other suggestions are welcome!!



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