



SOFIA's 2022 Santiago Deployment

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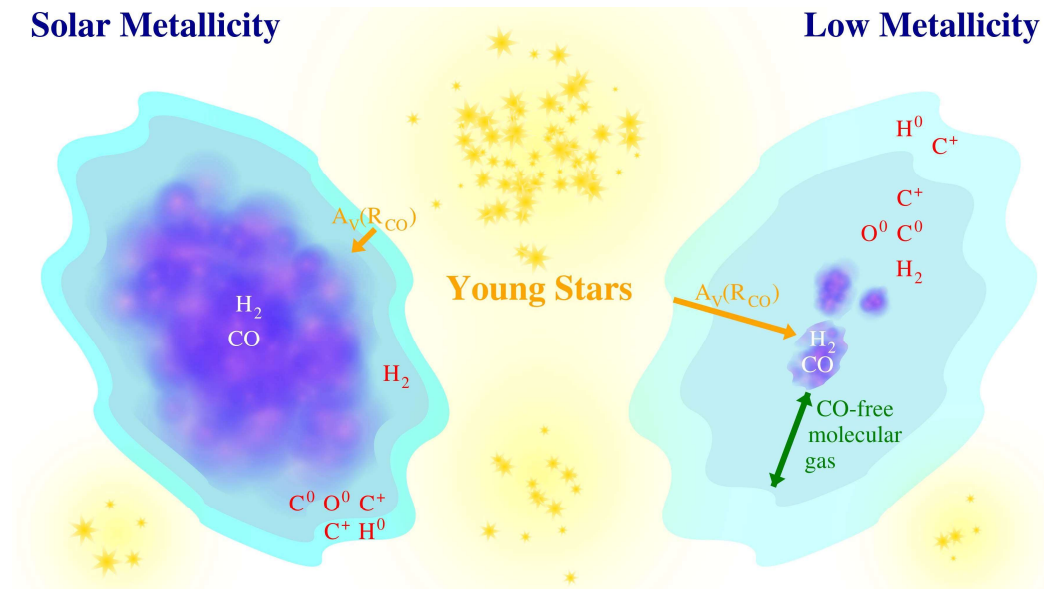
May 2022



Why a Spring Deployment?

- In order to allow for multiple instruments in the south, SOFIA adopted 2 “suitcase” and one long deployment as its annual plan
- Advertised in Cycle 9 call for proposals, and a high-ranked Legacy proposal was recommended by TAC for FIFI-LS in Spring 2022

The LMC+ Legacy program would address the nature of star-forming clouds in a dwarf galaxy, as a template for understanding differences between high-redshift galaxies and the Milky Way.

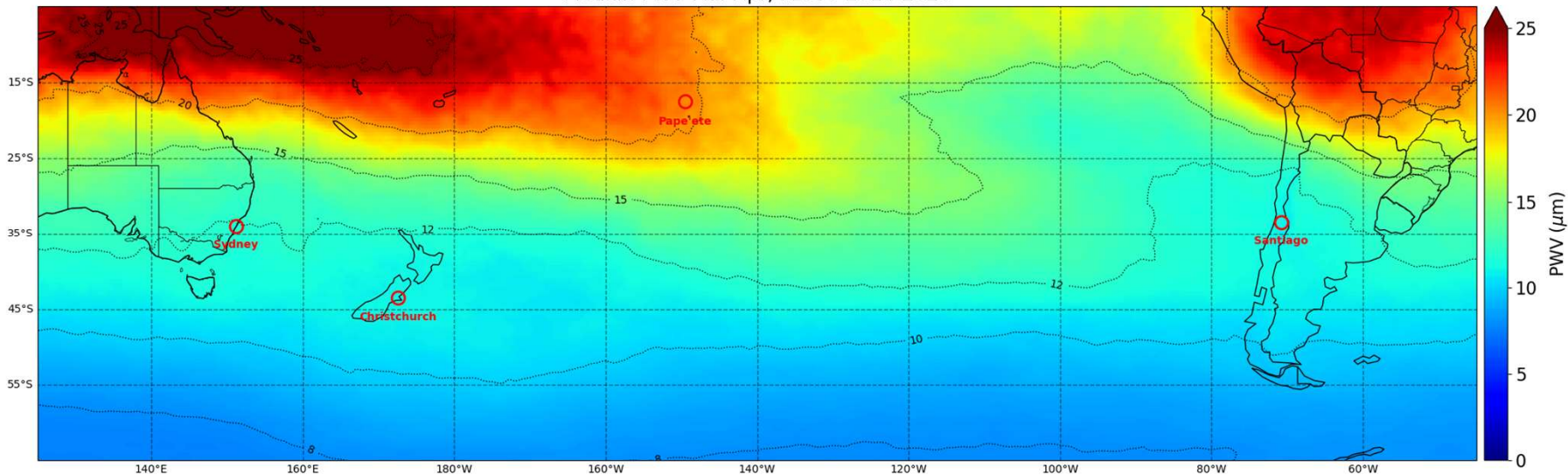


Assessment of Bases for 2022 Spring

- Several bases were considered
- Water vapor and LMC visibility ruled out Papeete, which had been used in summer of 2021
- Closed border ruled out NZ, Australia
- Santiago passed all science and site criteria

Location	Hours at 60°-30°	Hours at 30°-20°	Complete pilot program?	Water Vapor
Christchurch	6.5	2	Yes	Excellent
Papeete	0	2	No	Poor
Sydney	4.5	2	Yes	Good
Santiago	4.5	2	Yes	Good

Median PWV Mar-Apr, FL390 2014-2020





Santiago Operations

- 2 science flights from Palmdale to obtain boresight and verify performance
- Minimum crew and equipment utilized to minimize cost and schedule impact
- Executed 7 of the 8 planned flights, March 22 through March 30, 2022
- Observed 11 Guest Observer programs
 - Cycles 6, 7, 8, 9 and DDT

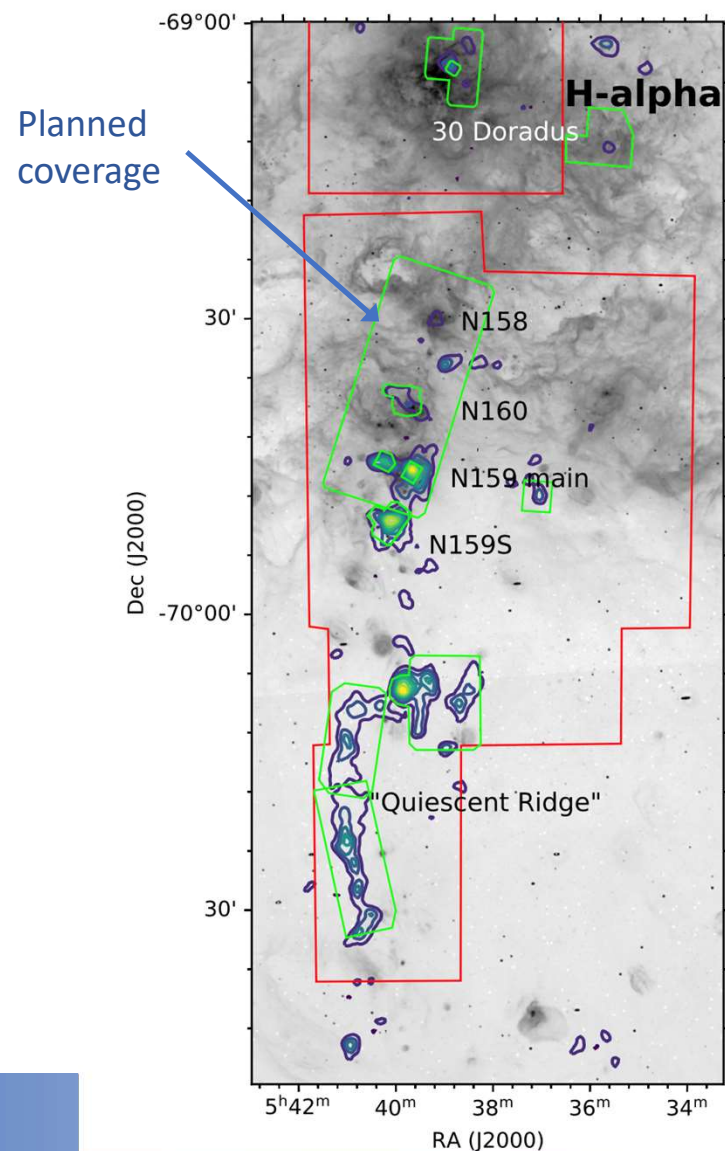
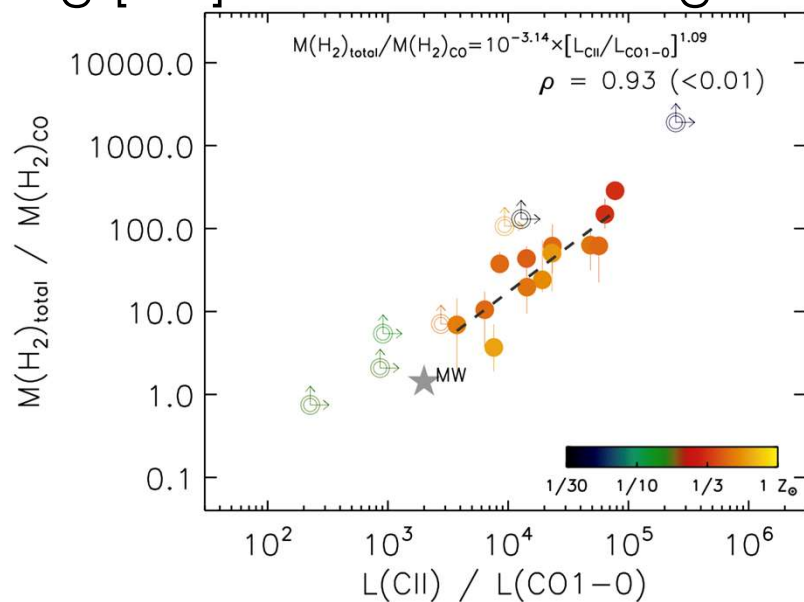


LMC+

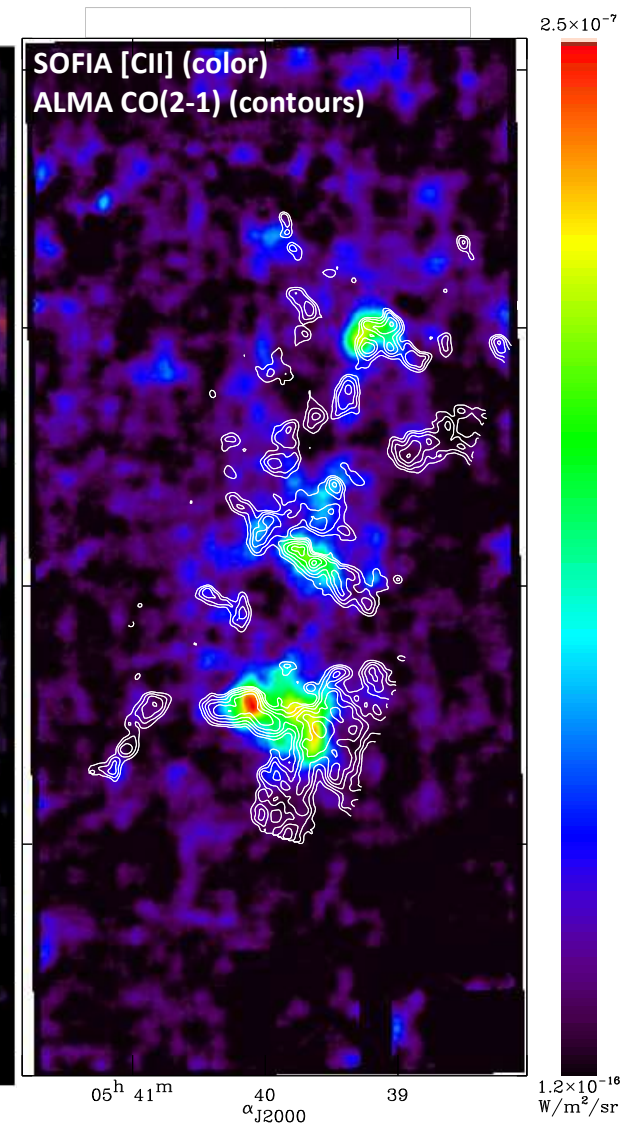
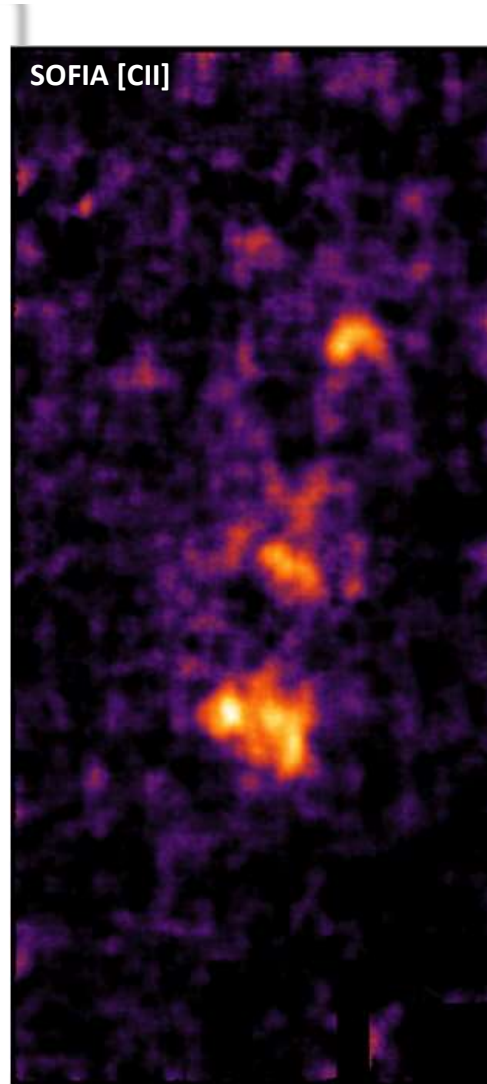
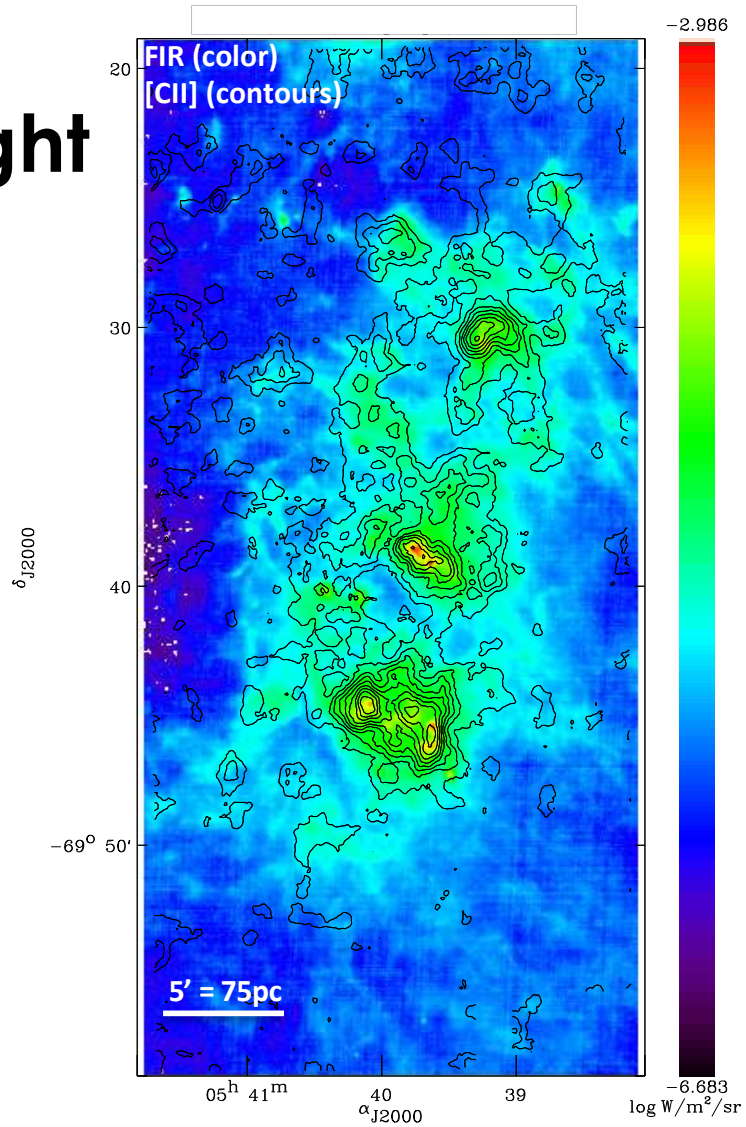
PI: Suzanne Madden (CEA Saclay)

- 30% of proposal was observed in Chile

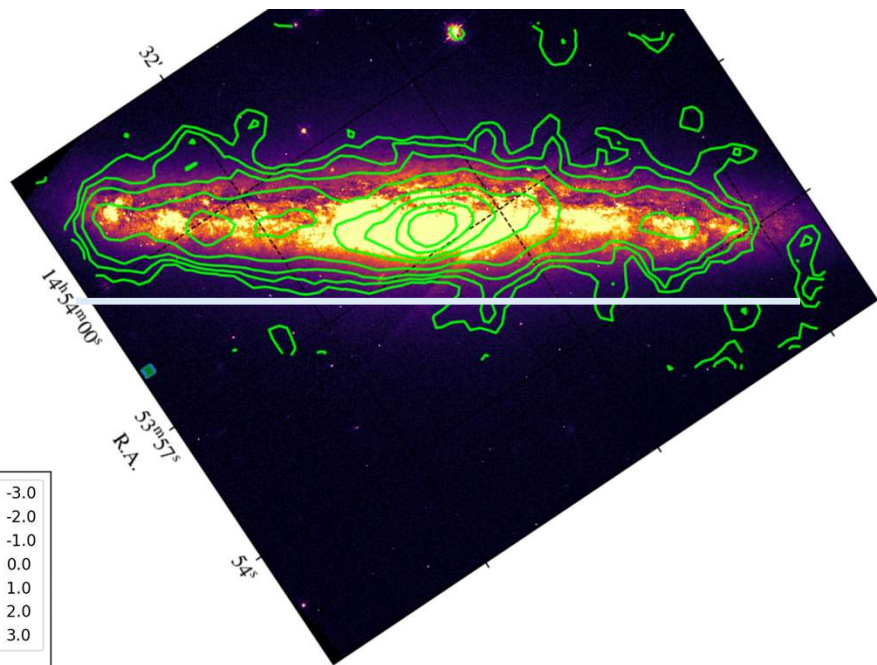
Using [C II] as tracer of dark gas



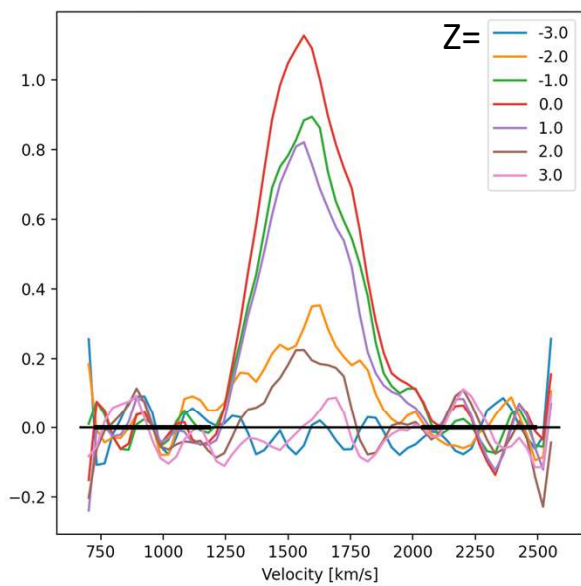
LMC+ first light



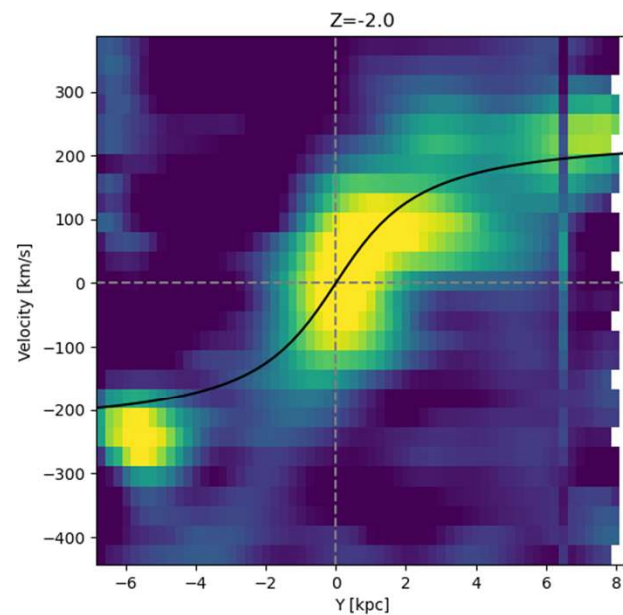
NGC 5775



Extraplanar [C II] 2 kpc from midplane



Filler project that observed on aircraft headings complementing LMC legs.



Conclusions: Santiago deployment

- The deployment was a big success
- SOFIA was able to deploy to South America with no significant issues
- The observations addressed 11 Guest Observer projects and will yield multiple scientific results that would not have been possible, had SOFIA not deployed with FIFI-LS to the southern hemisphere.