



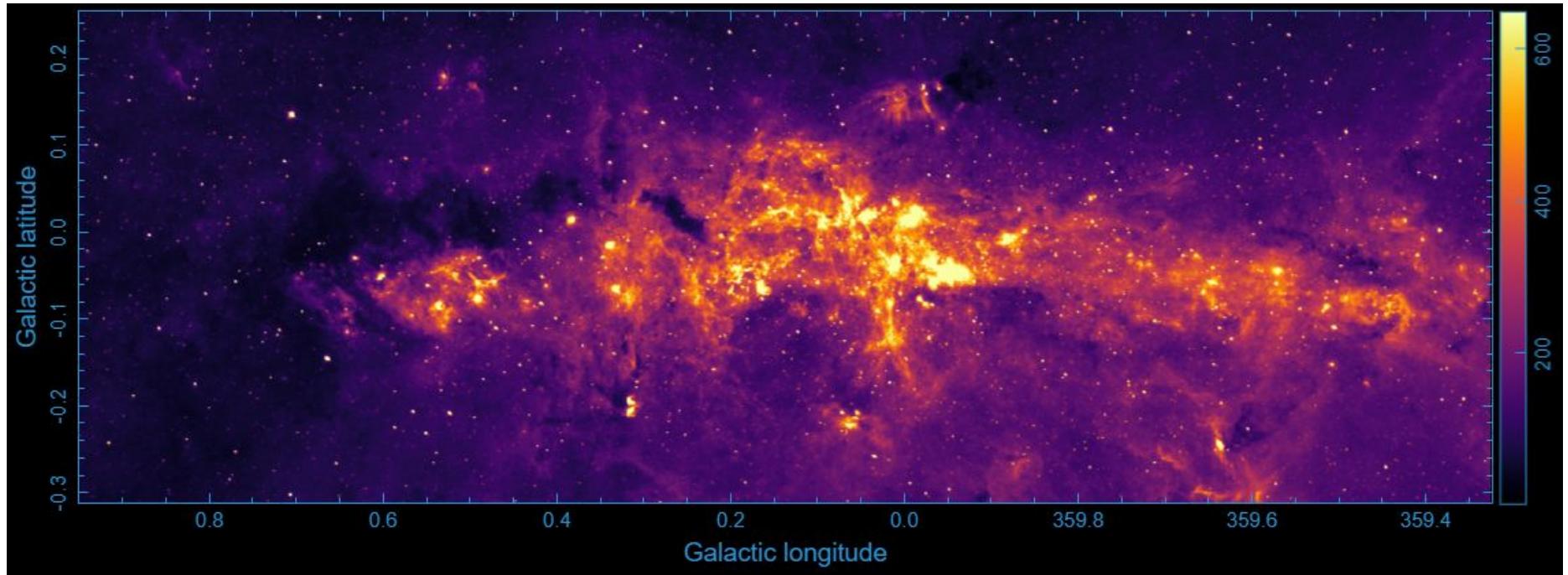
ACES and Dust Ridge Cloud C JWST

Savannah Gramze

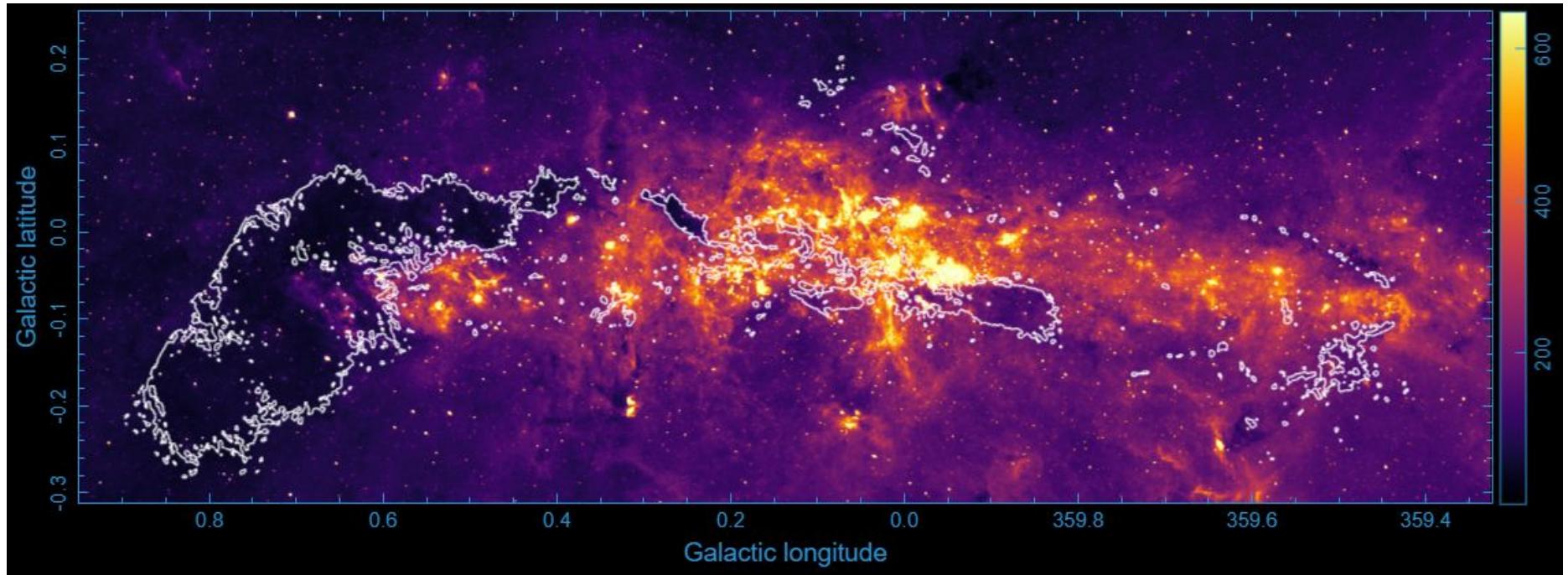
Introduction

- Savannah Gramze
- PhD Student
- University of Florida
- Advisor: Adam Ginsburg
- WP1 and WP2
- Research Interests:
 - Star Formation in the Galactic Center Dust Ridge
 - Galactic Center Structure and Dynamics
- Hobbies: Playing Pokemon, Sculpture, Digital Art, Writing

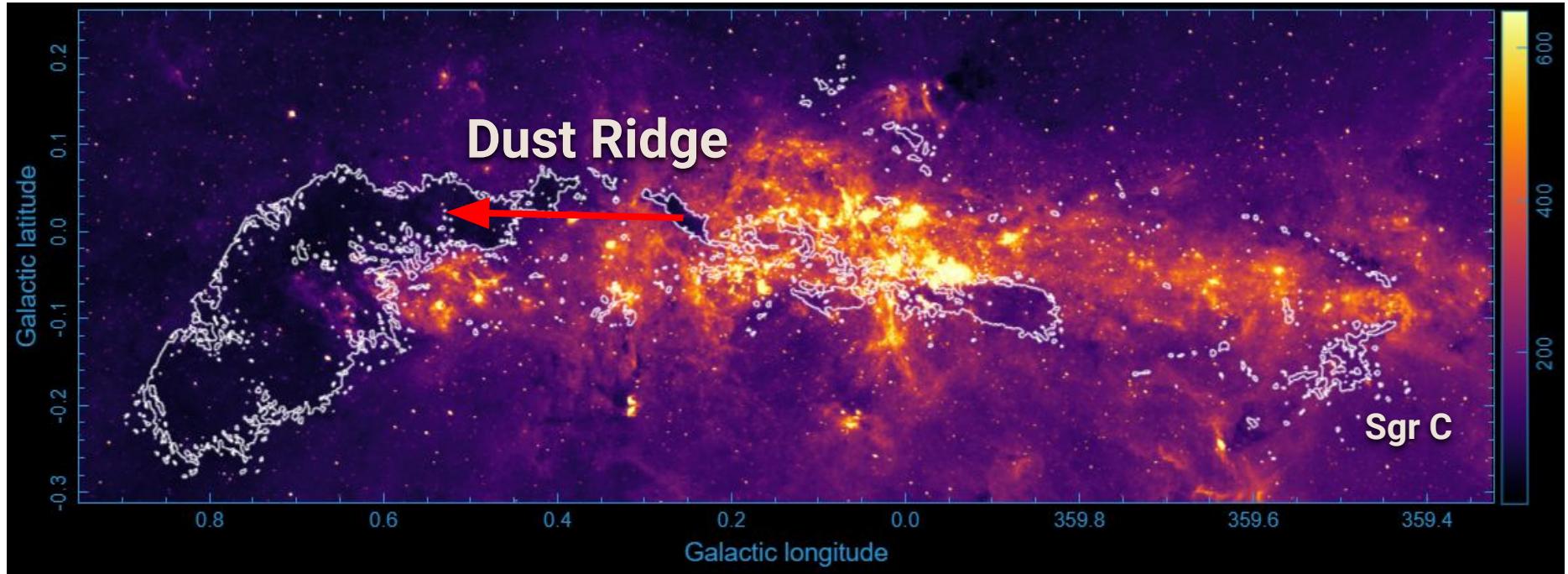




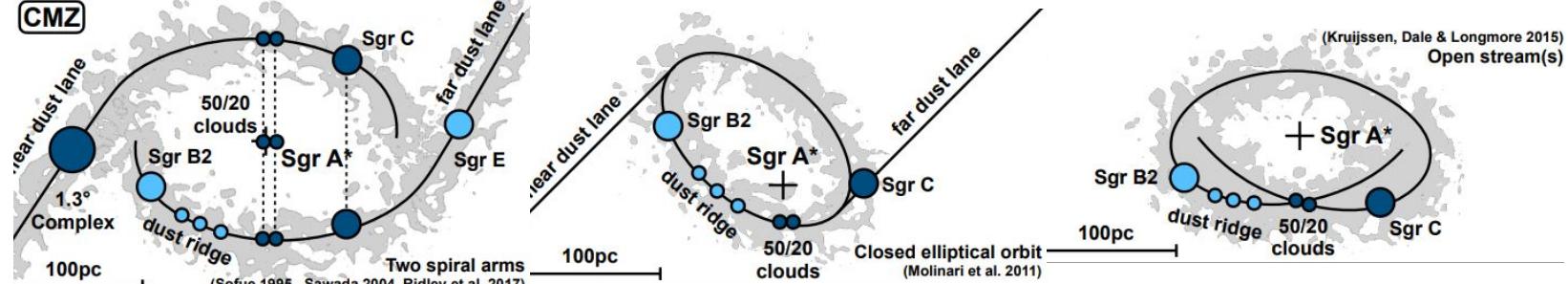
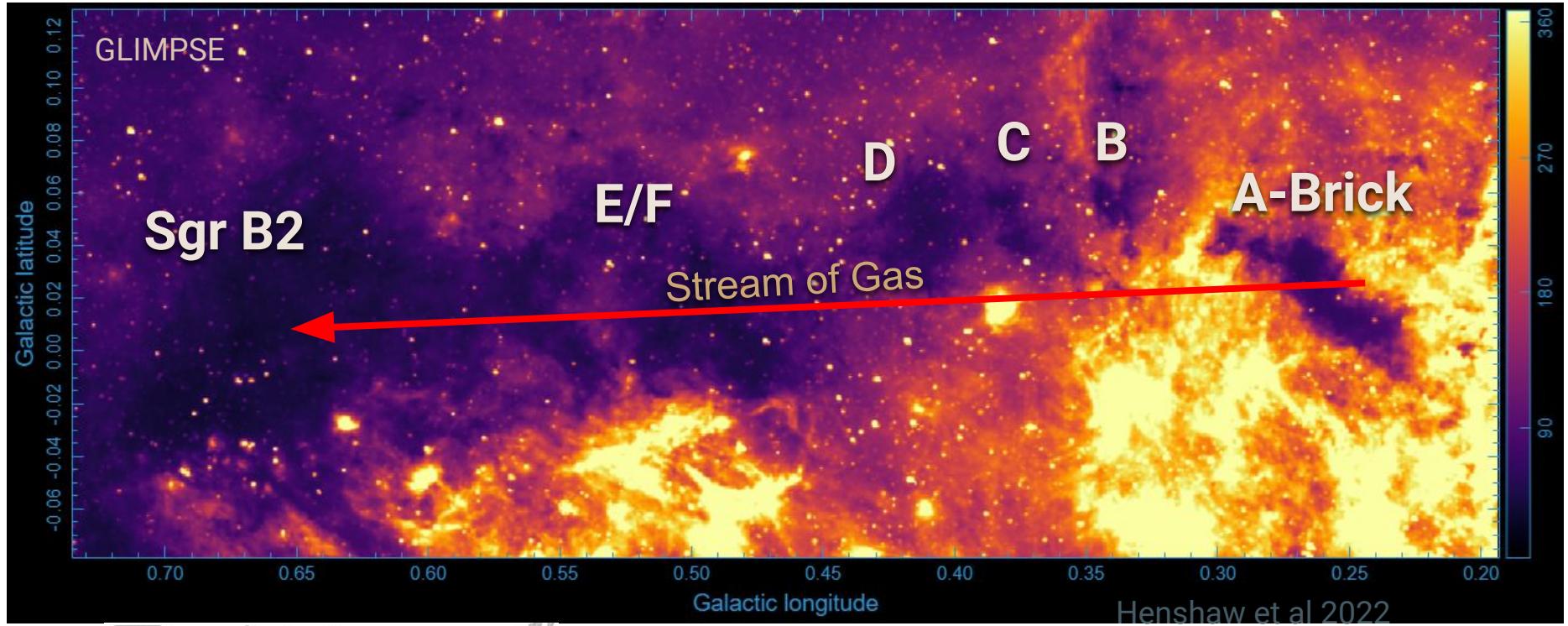
Spitzer 8.0 μ m

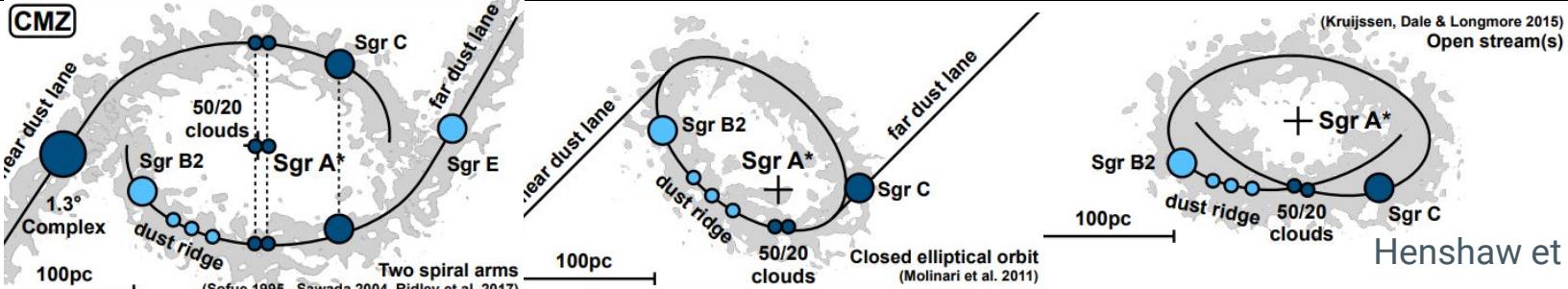
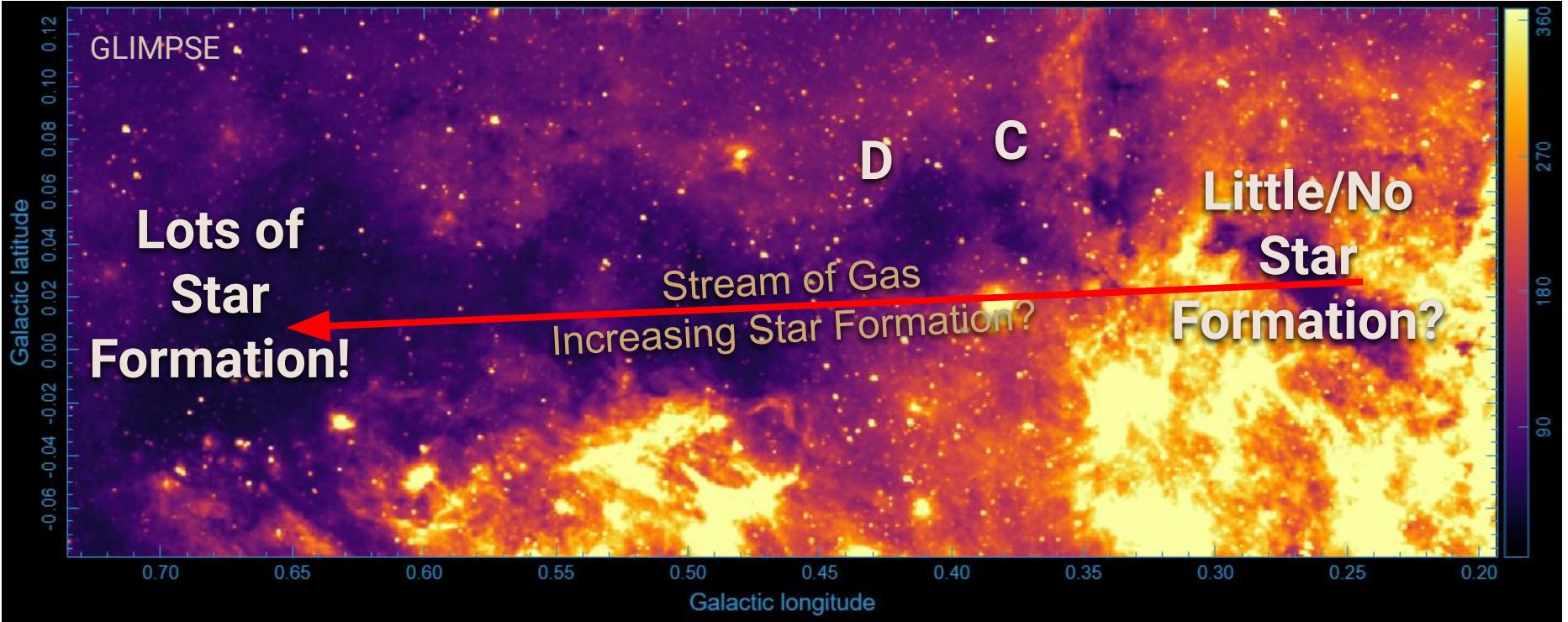


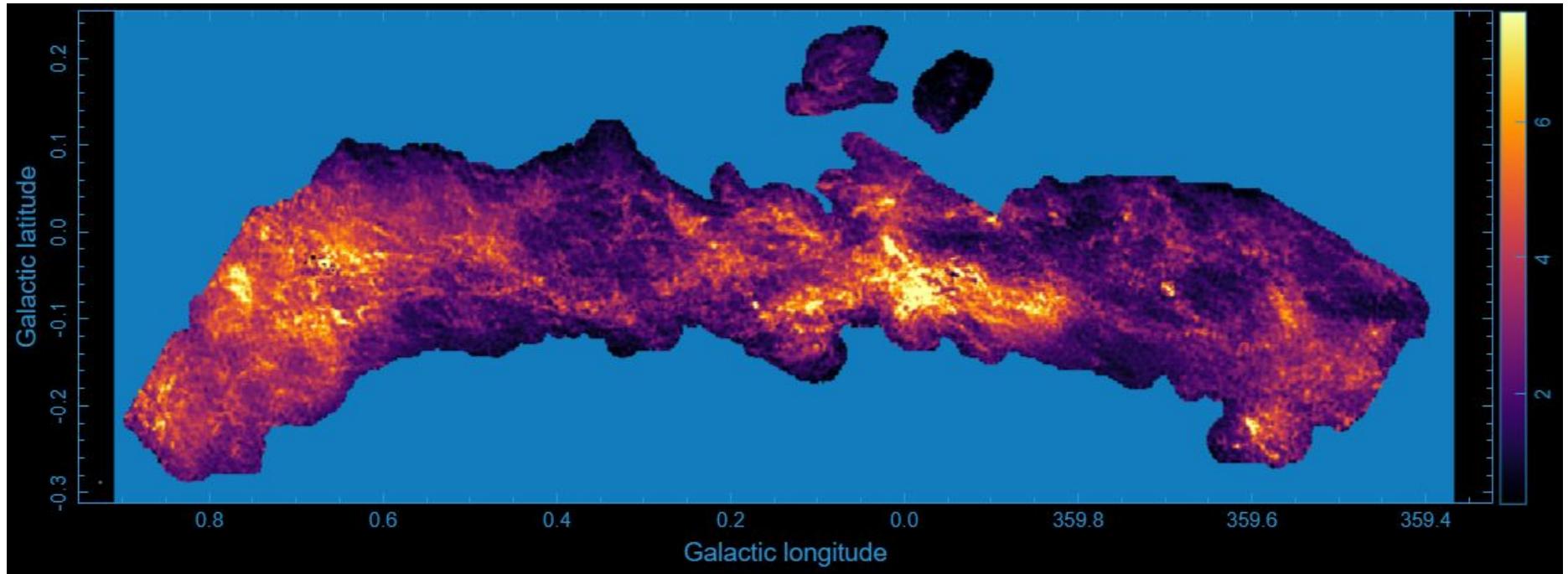
HNCO 4-3



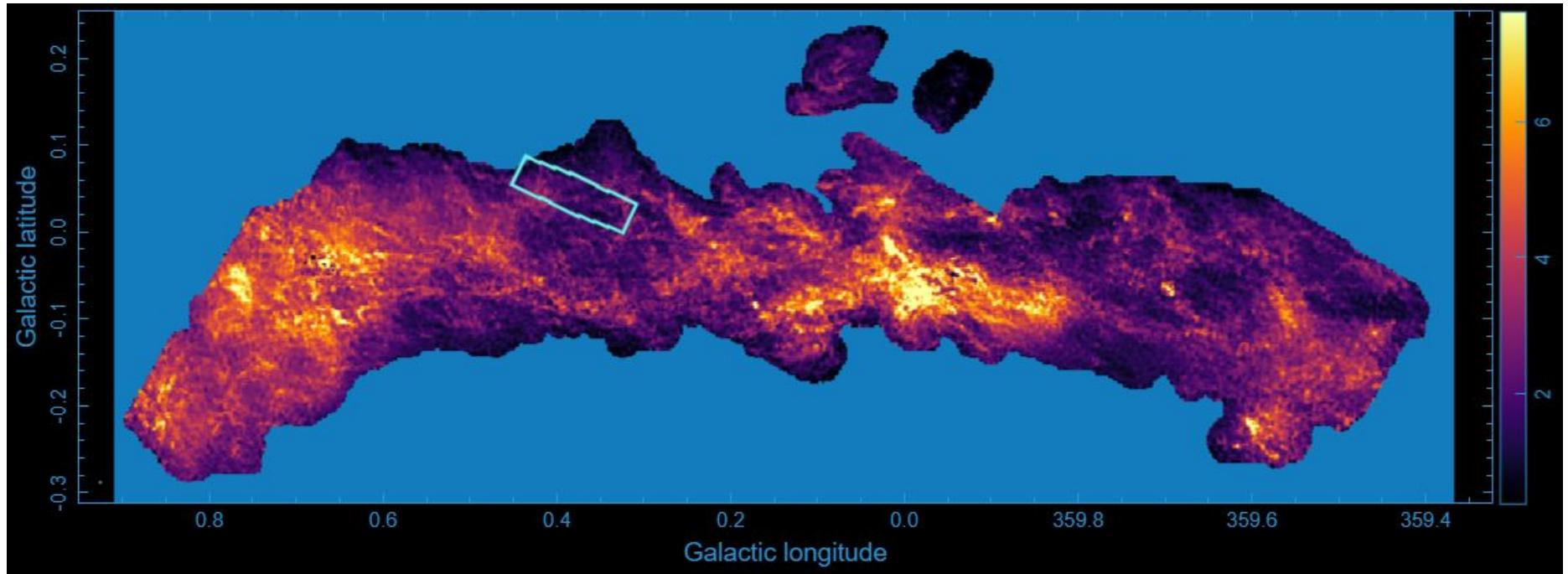
Dust Ridge



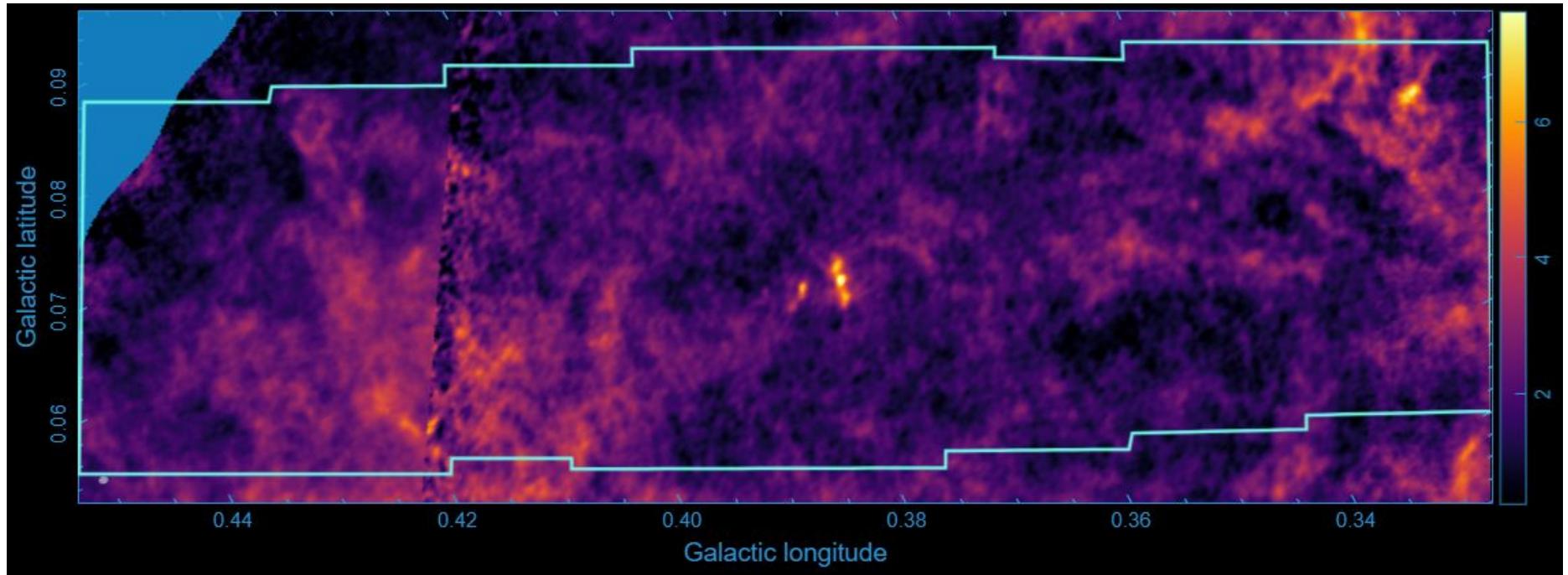




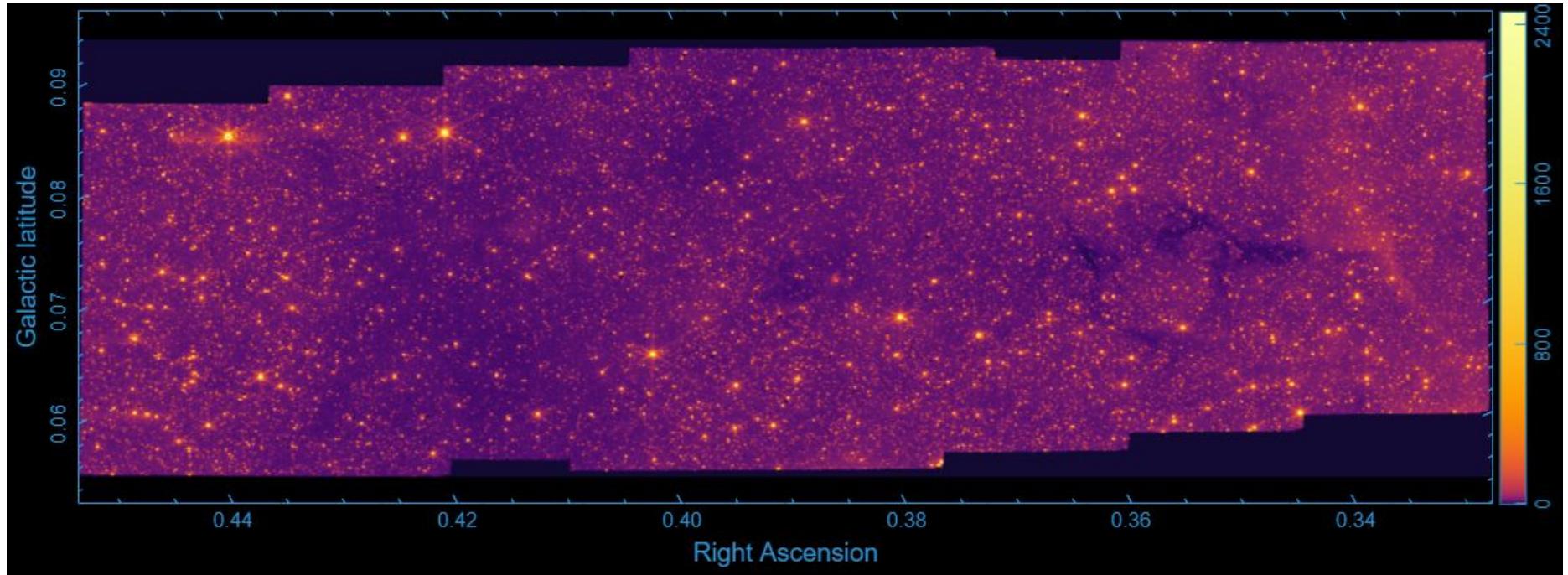
CS 2-1 Integrated Intensity



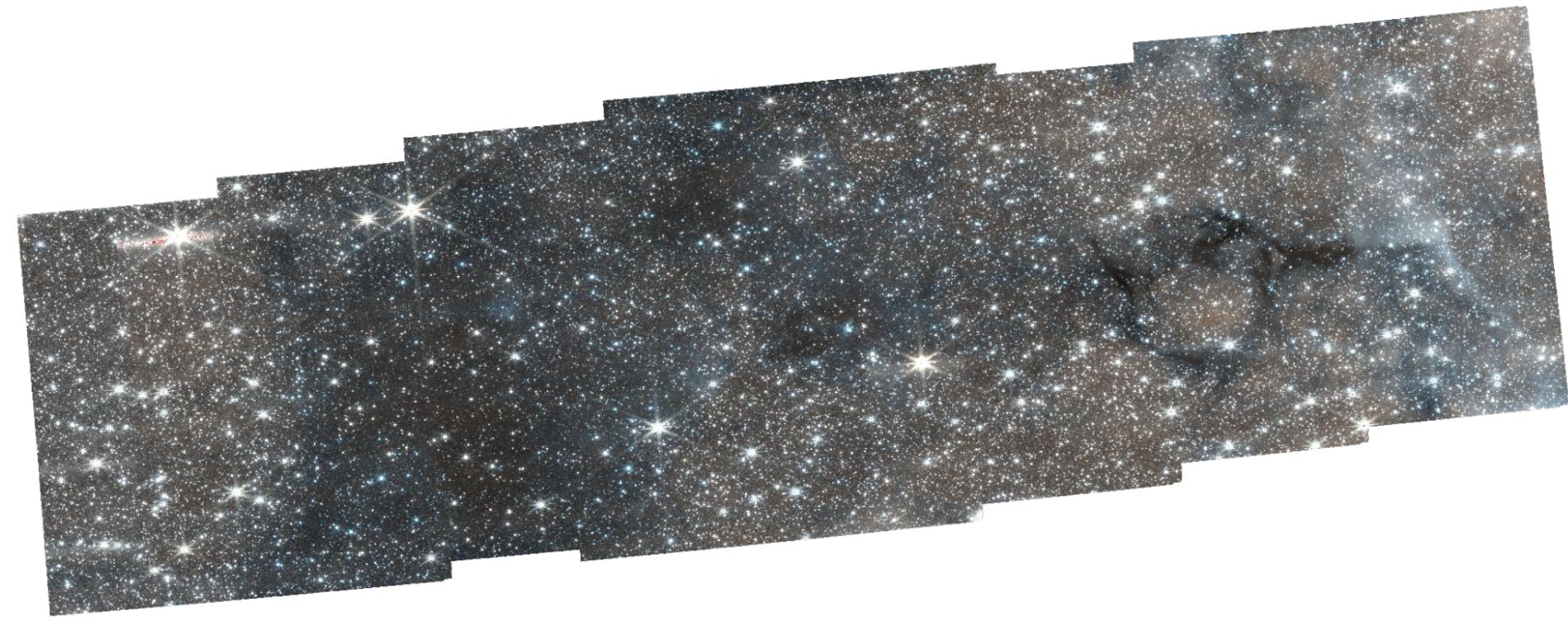
CS 2-1 Integrated Intensity



CS 2-1



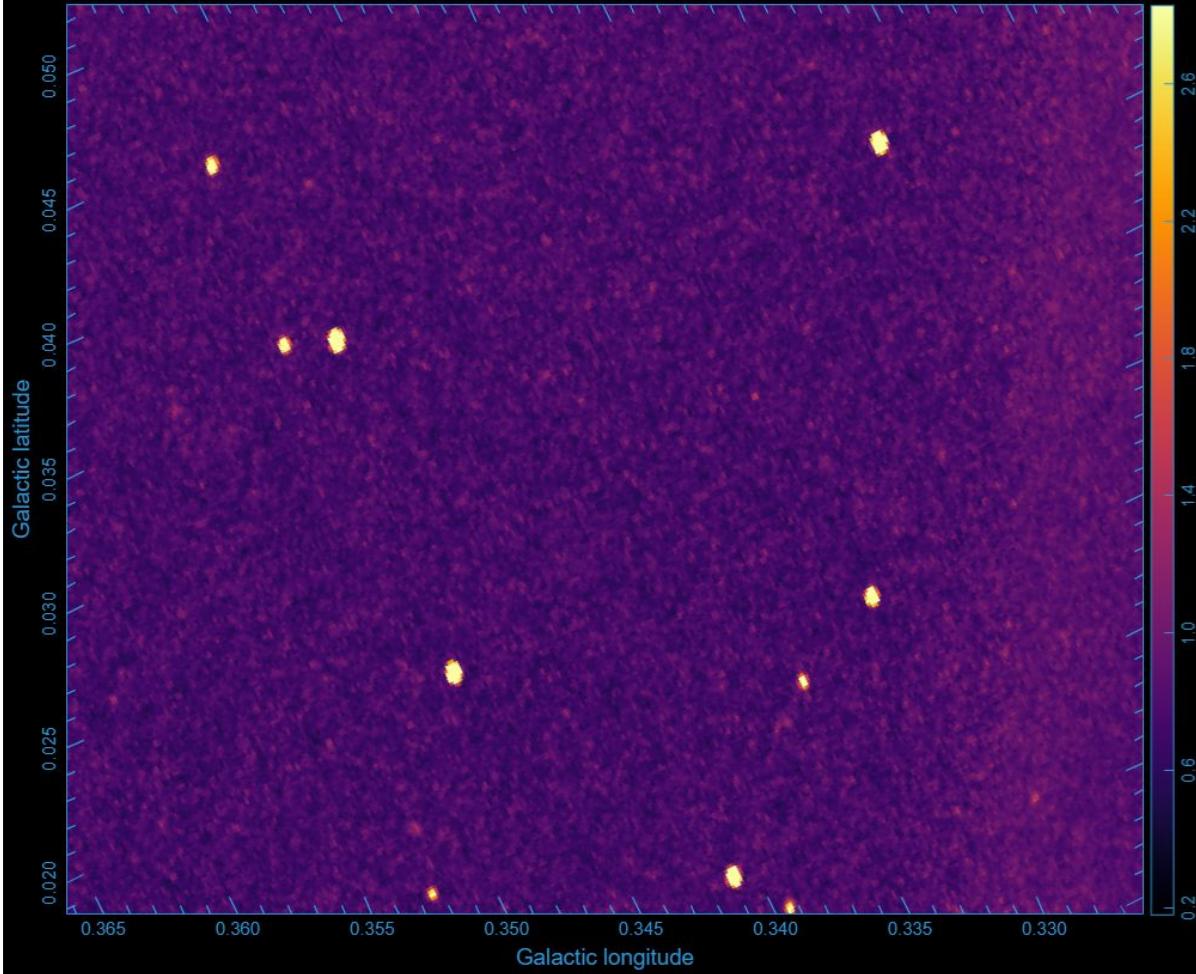
JWST Nircam F405N



Use Cases for ACES Data Products

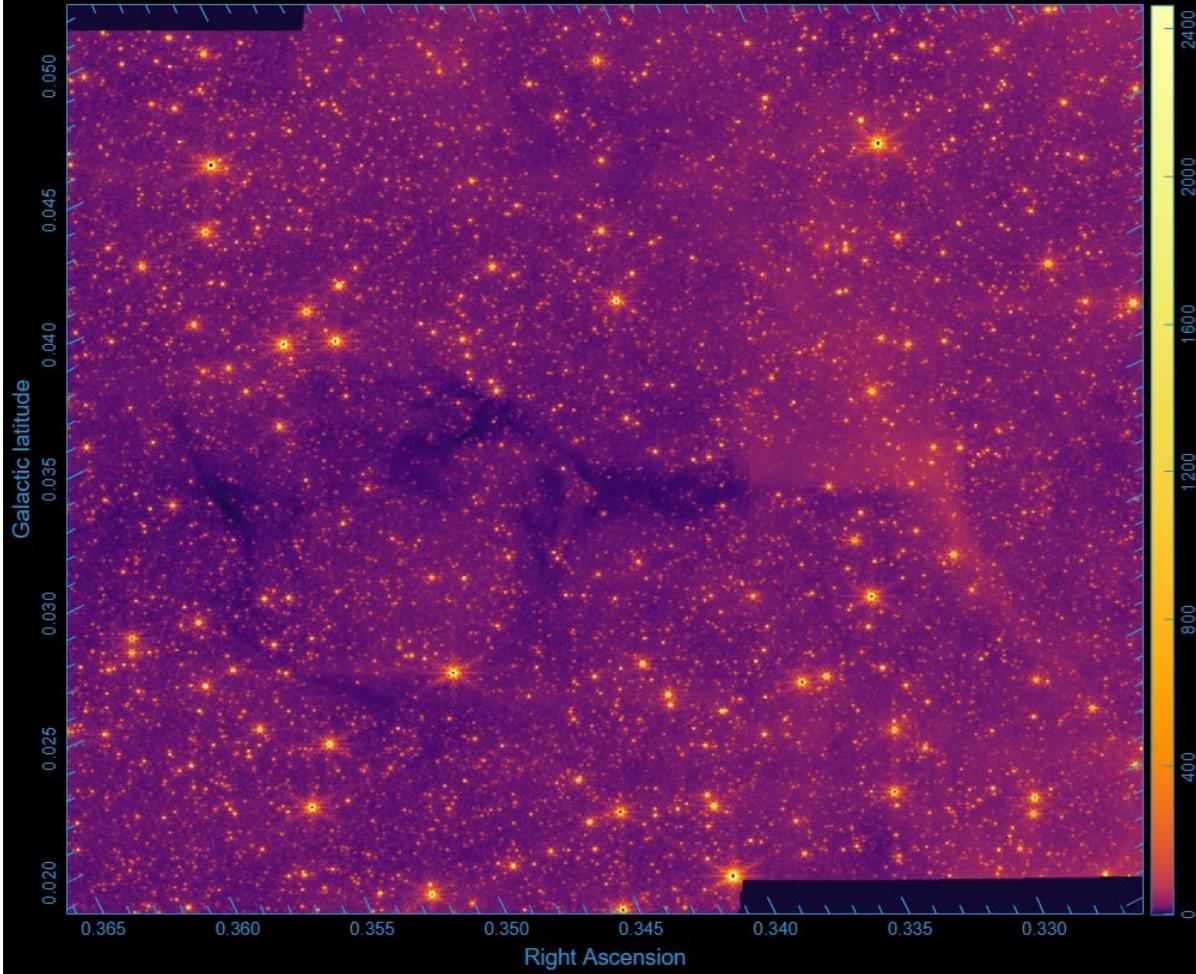
SiO 2-1 $\nu=1$ Maser Catalog

- SiO masers are generally found in the atmospheres of AGB stars
- AGB stars are very bright in IR data!
- ACES observes these masers across the whole Galactic Center
- A catalog of these masers could be used for astrometric correction of JWST and other IR observations of the GC



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Outflow Tracers

Declination

-28°35'10"

20"

30"

40"

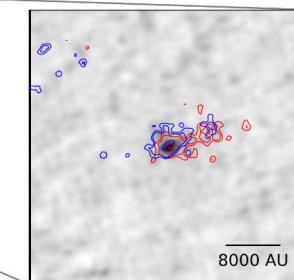
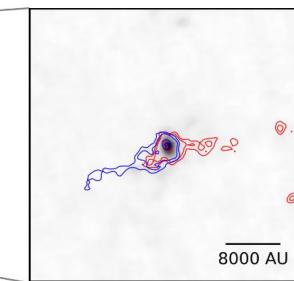
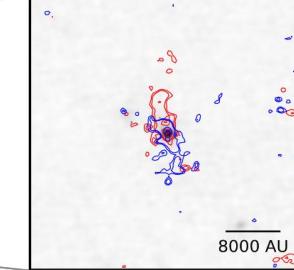
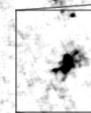
17^h46^m23^s

22^s

21^s

20^s

Right Ascension



Declination

-28°35'10"

20"

30"

40"

50"

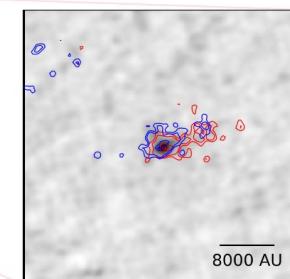
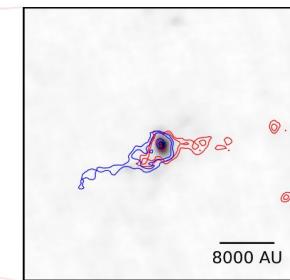
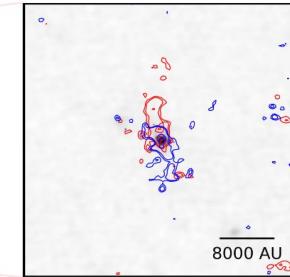
17^h46^m23^s

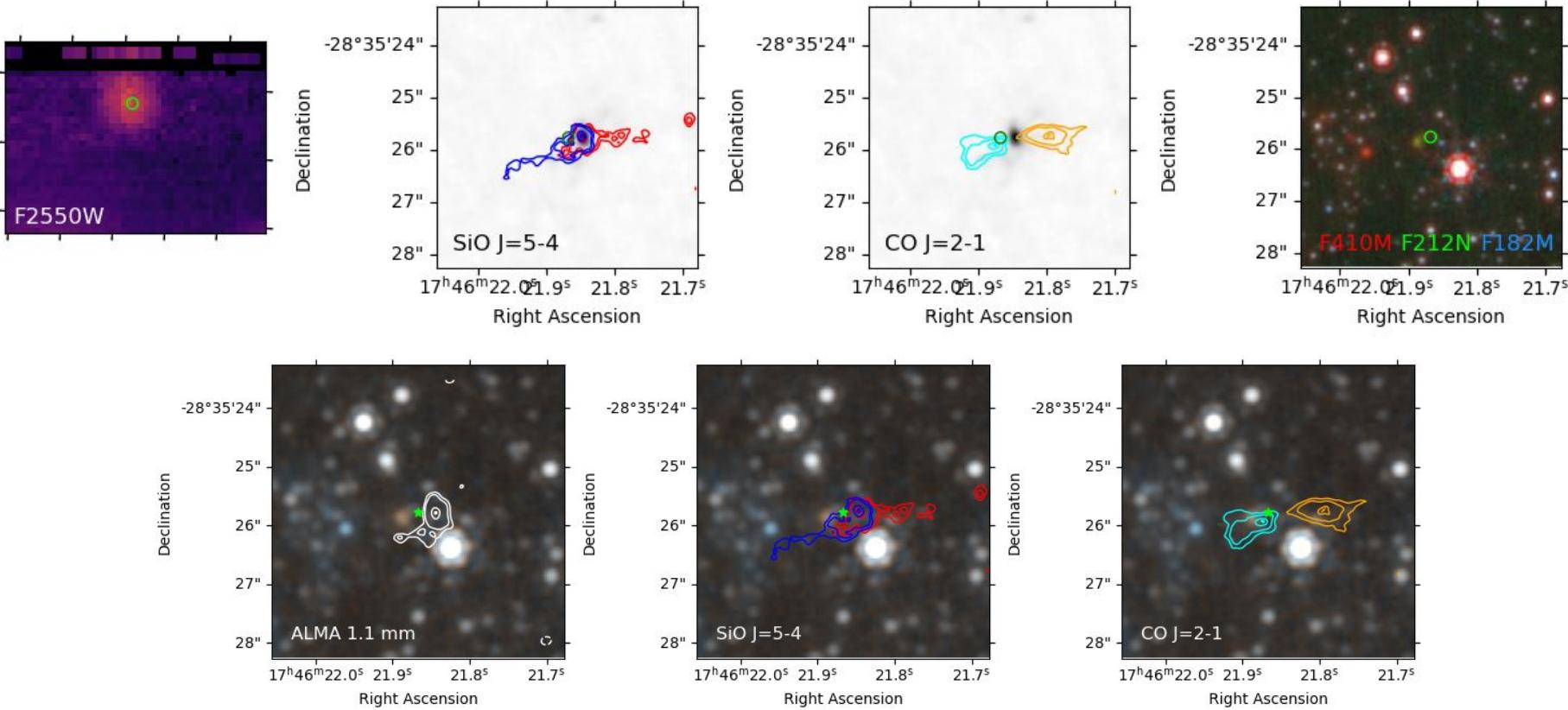
22^s

21^s

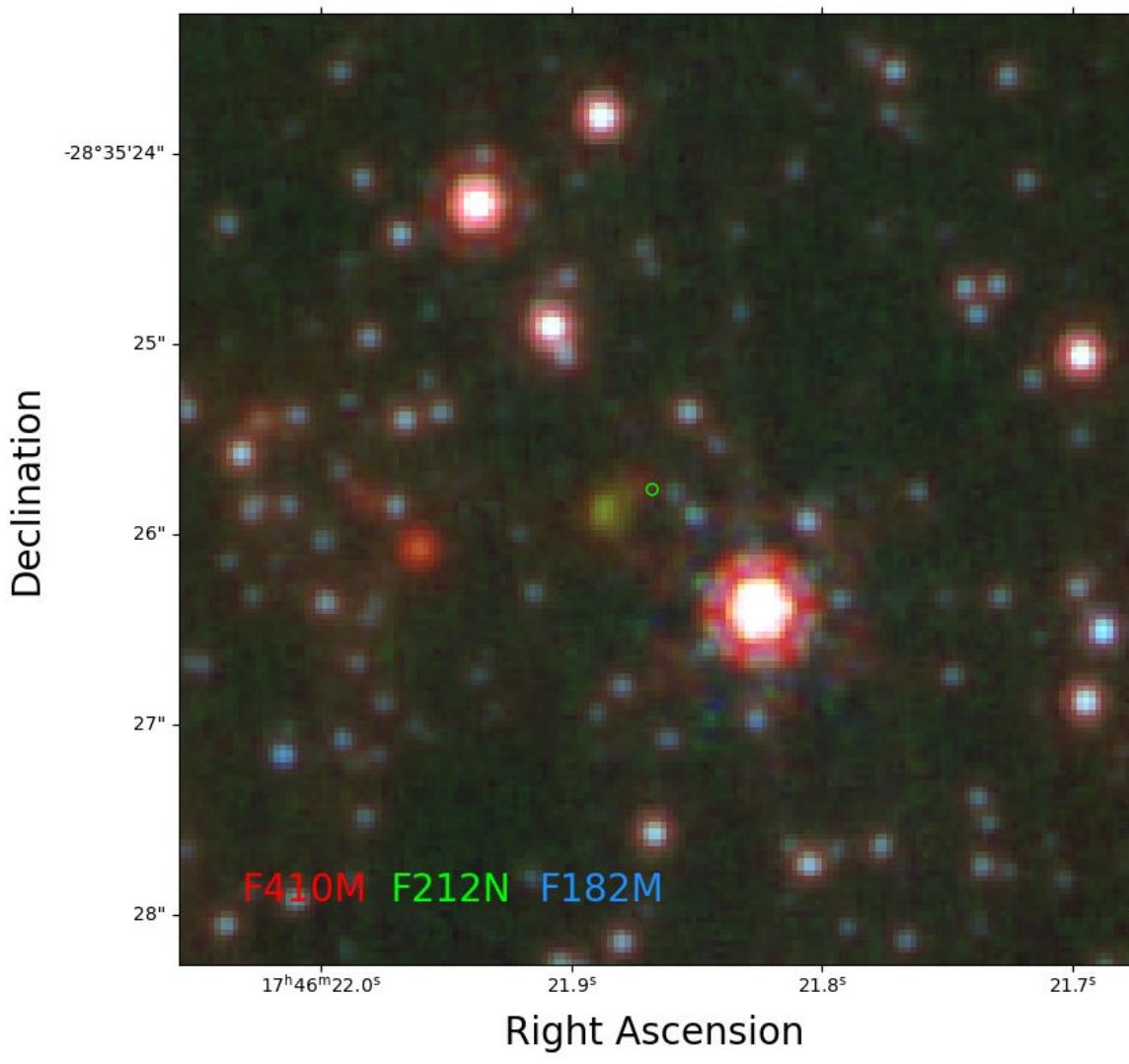
20^s

Right Ascension



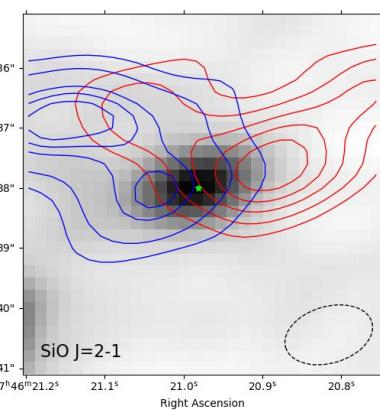
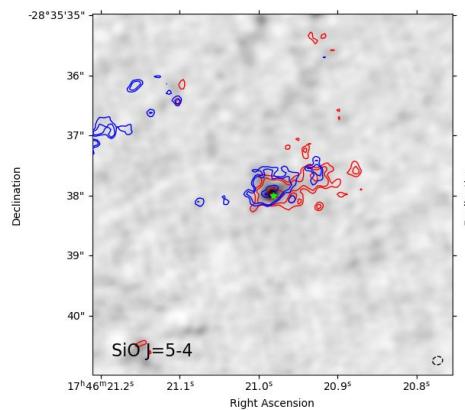
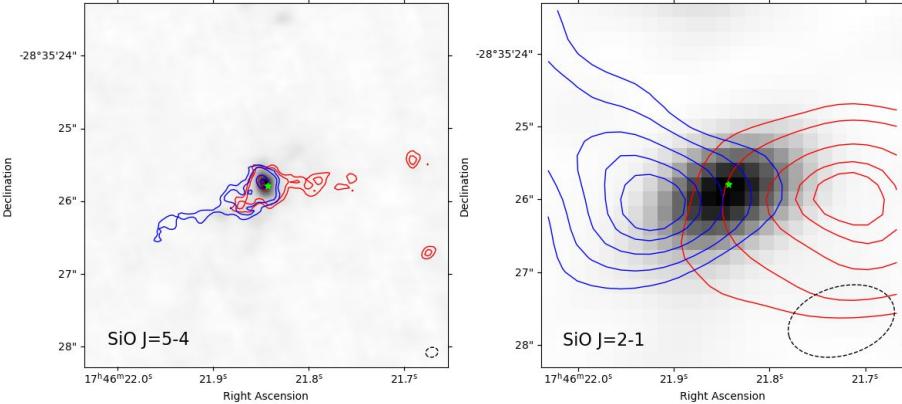
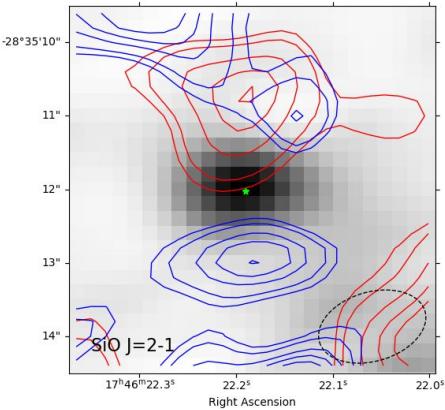
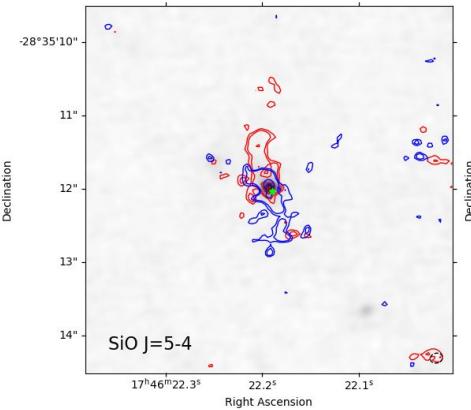


Outflow Signature Association Between JWST & ALMA



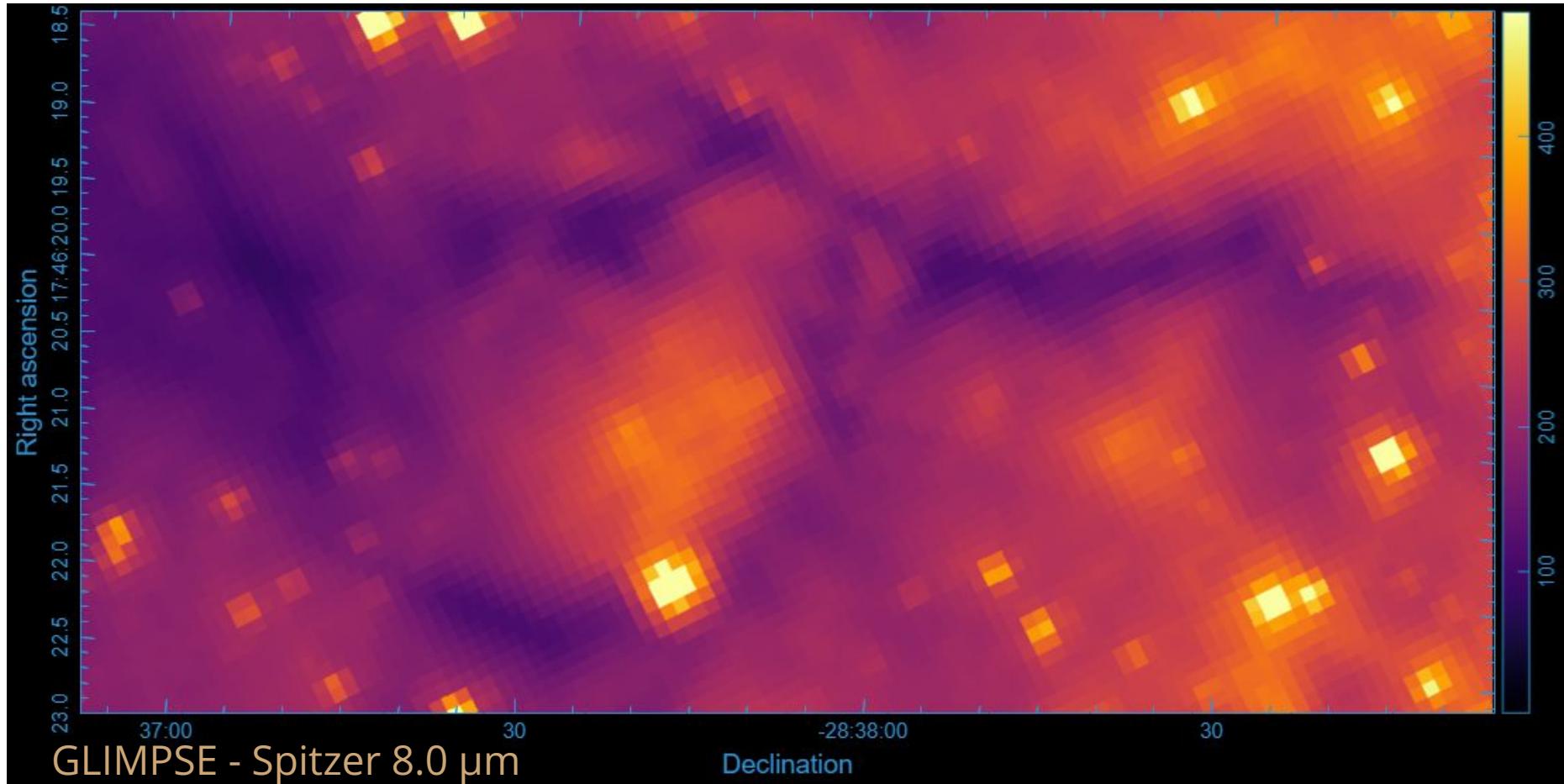
Outflow Tracers

- ACES has several lines which act as outflow tracers
- When comparing ACES data with our ALMA data, we see that there is an association between outflow features.

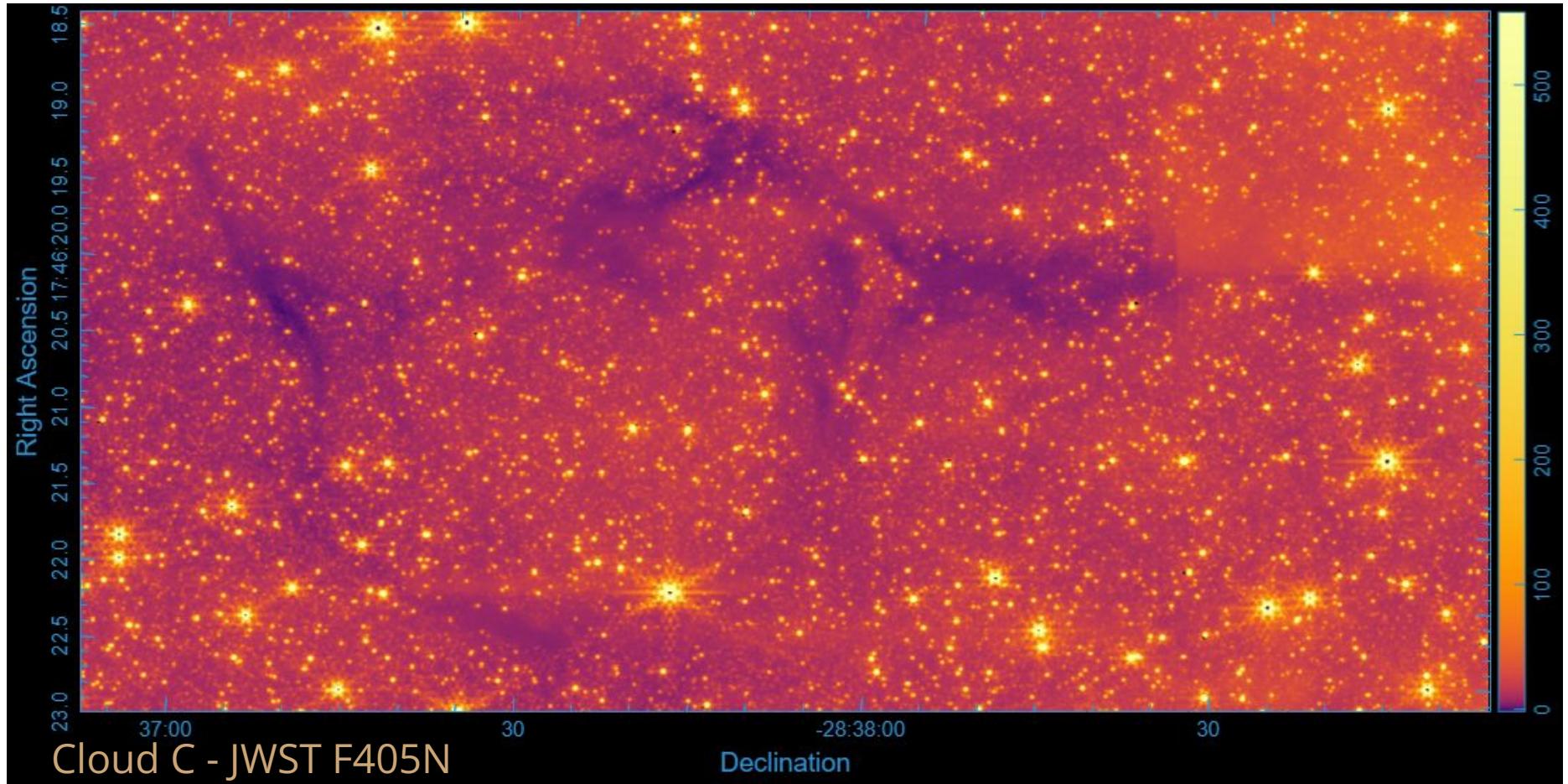


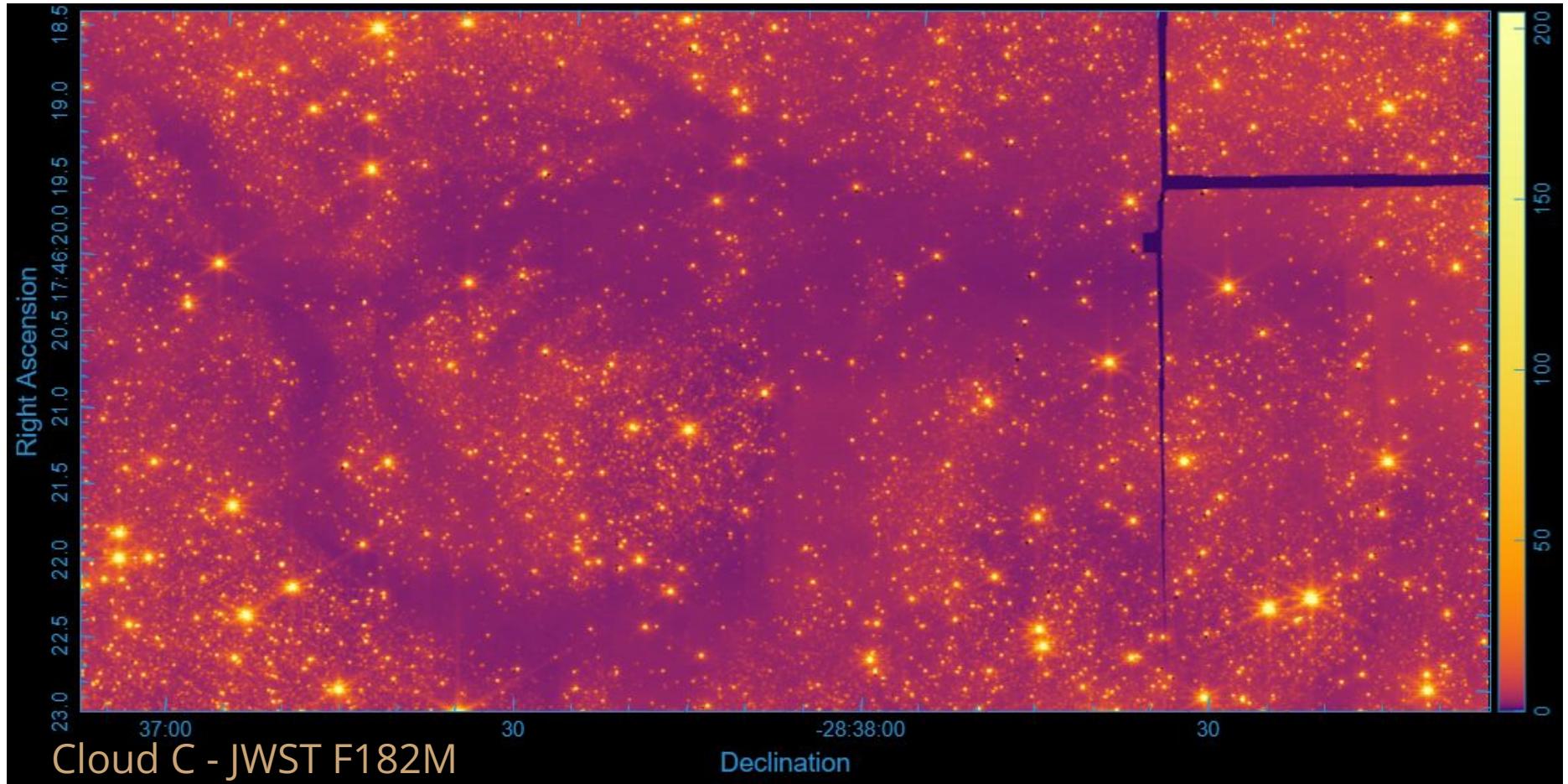


Spotlight: Star Forming Filament



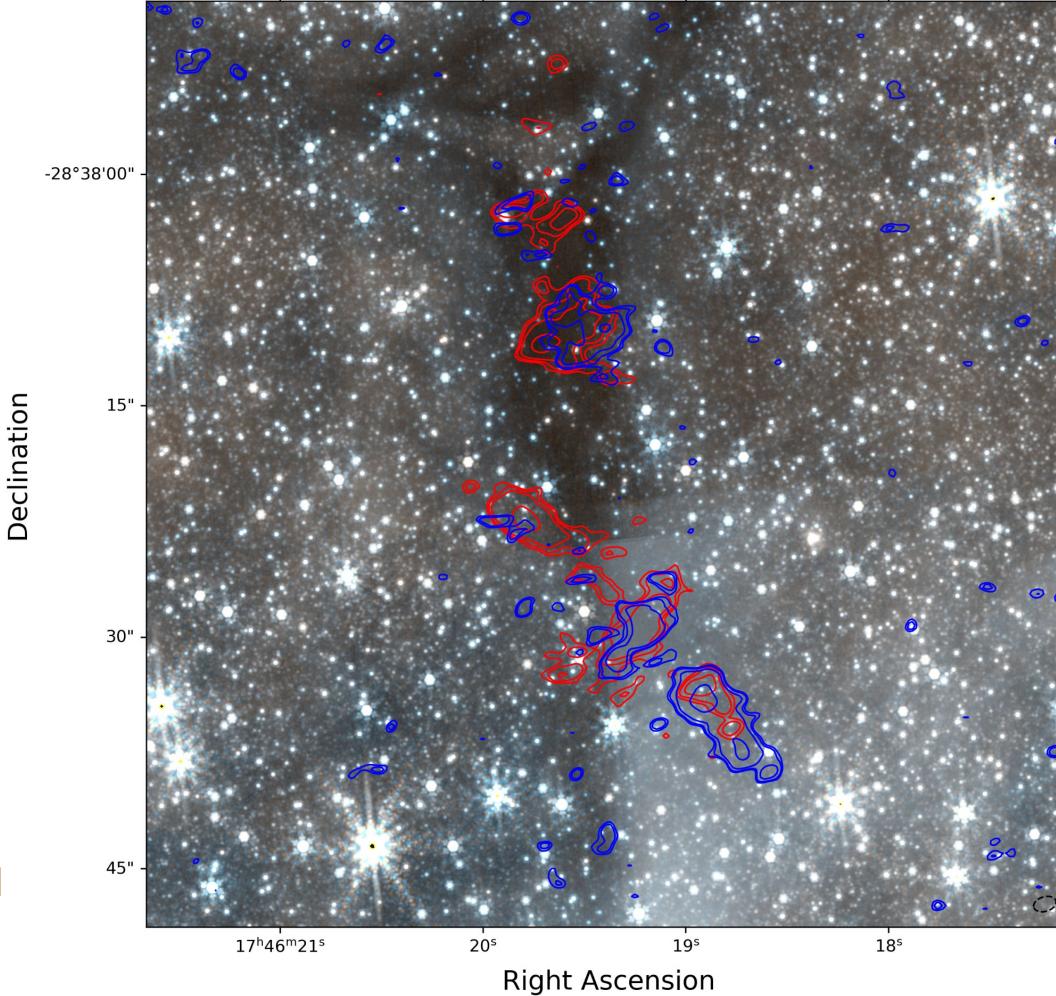
GLIMPSE - Spitzer 8.0 μ m



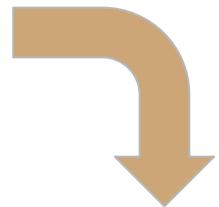


ALMA Band 3 & CS 2-1

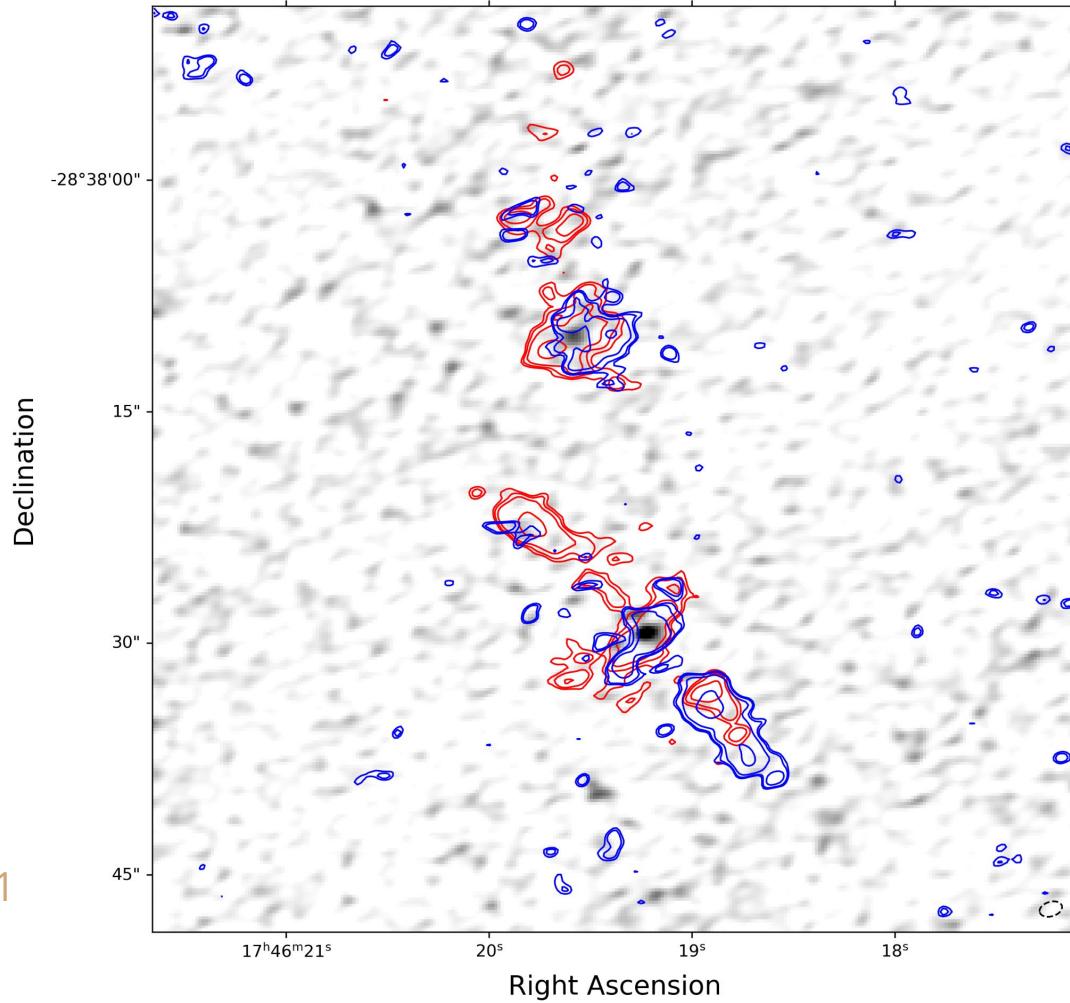
-60 to -55
-55 to -50



Rotate POV

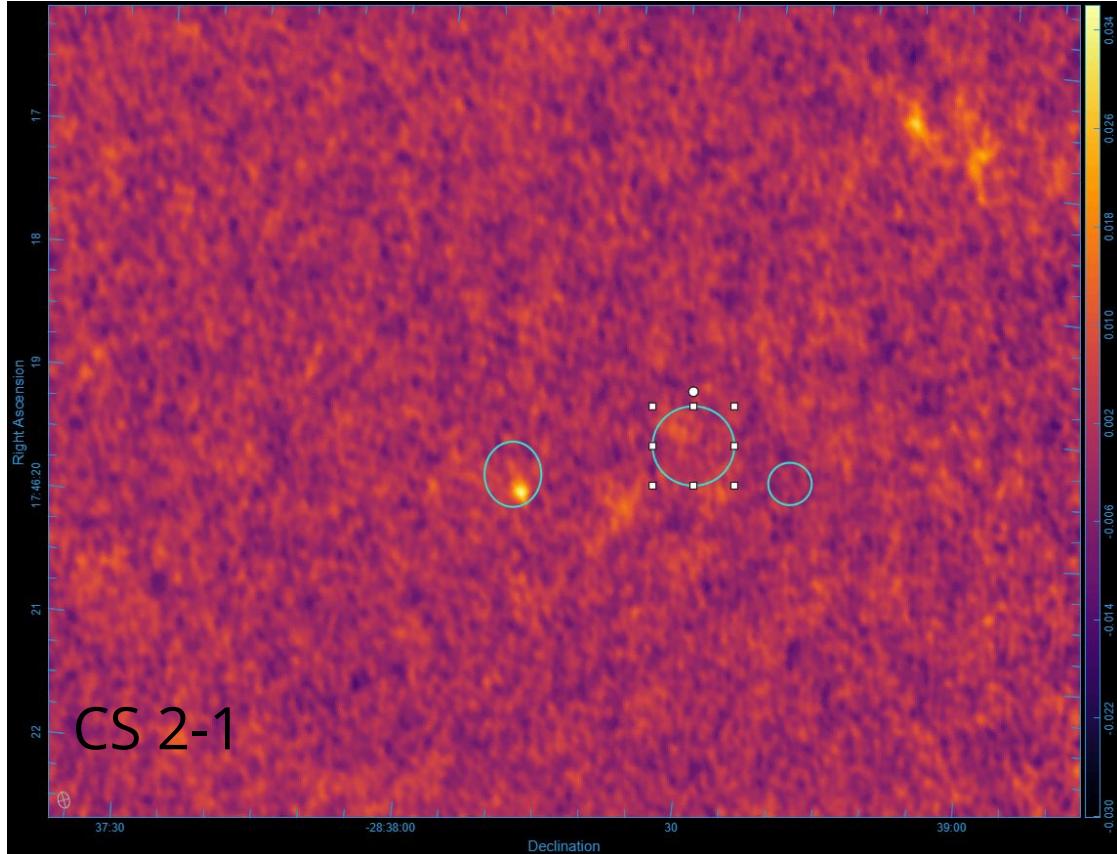


ALMA Band 3 & CS 2-1

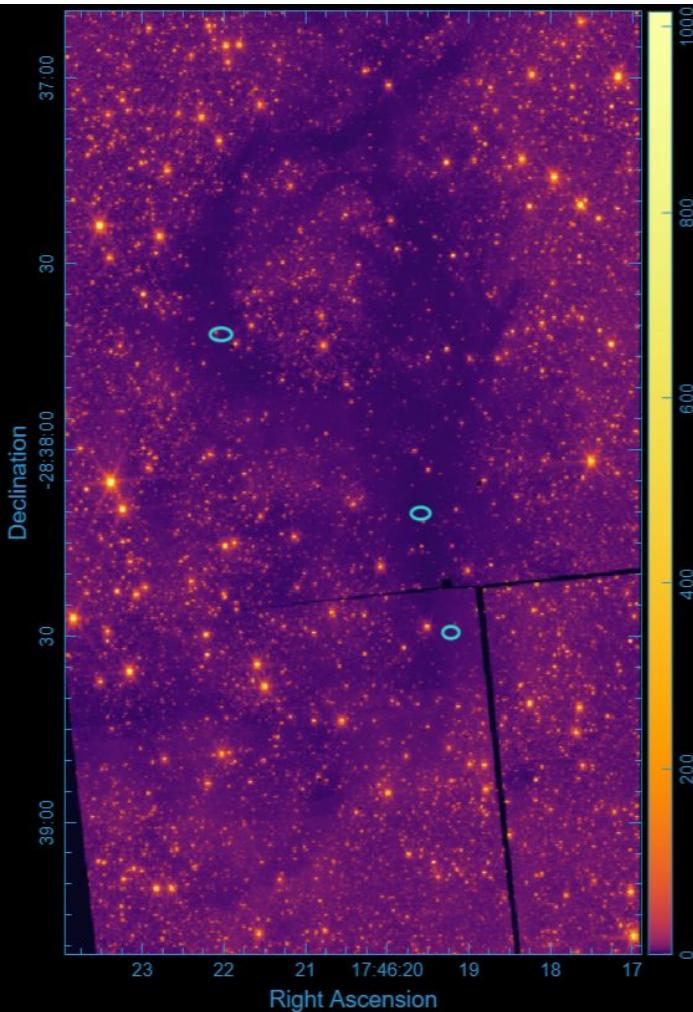
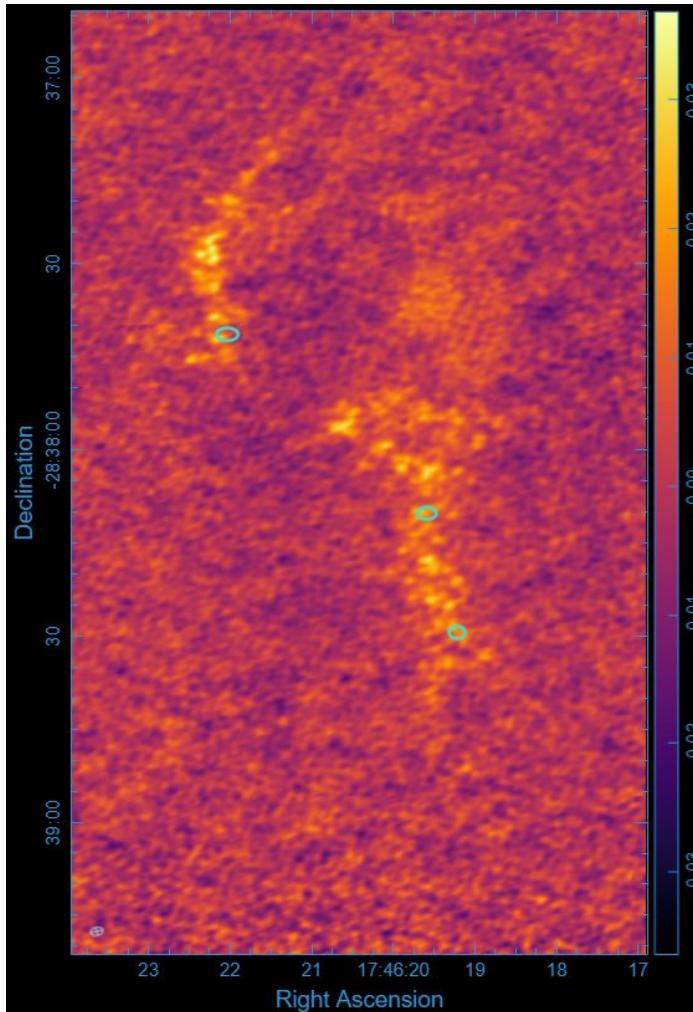


Lines Detected

- Some are very low S/N detections
 - CS 2-1
 - HNCO 4-3
 - HCO+ 1-0
 - SiO 2-1
 - H13CO+ 1-0
 - ***HN13C 1-0
 - SO 3_2 - 2_1
 - HC3N 11-10
 - H13CN 1-0
- No emission in JWST, but the gas is associated with a dark filament
- Line of sight velocity
~ 3kpc ring?

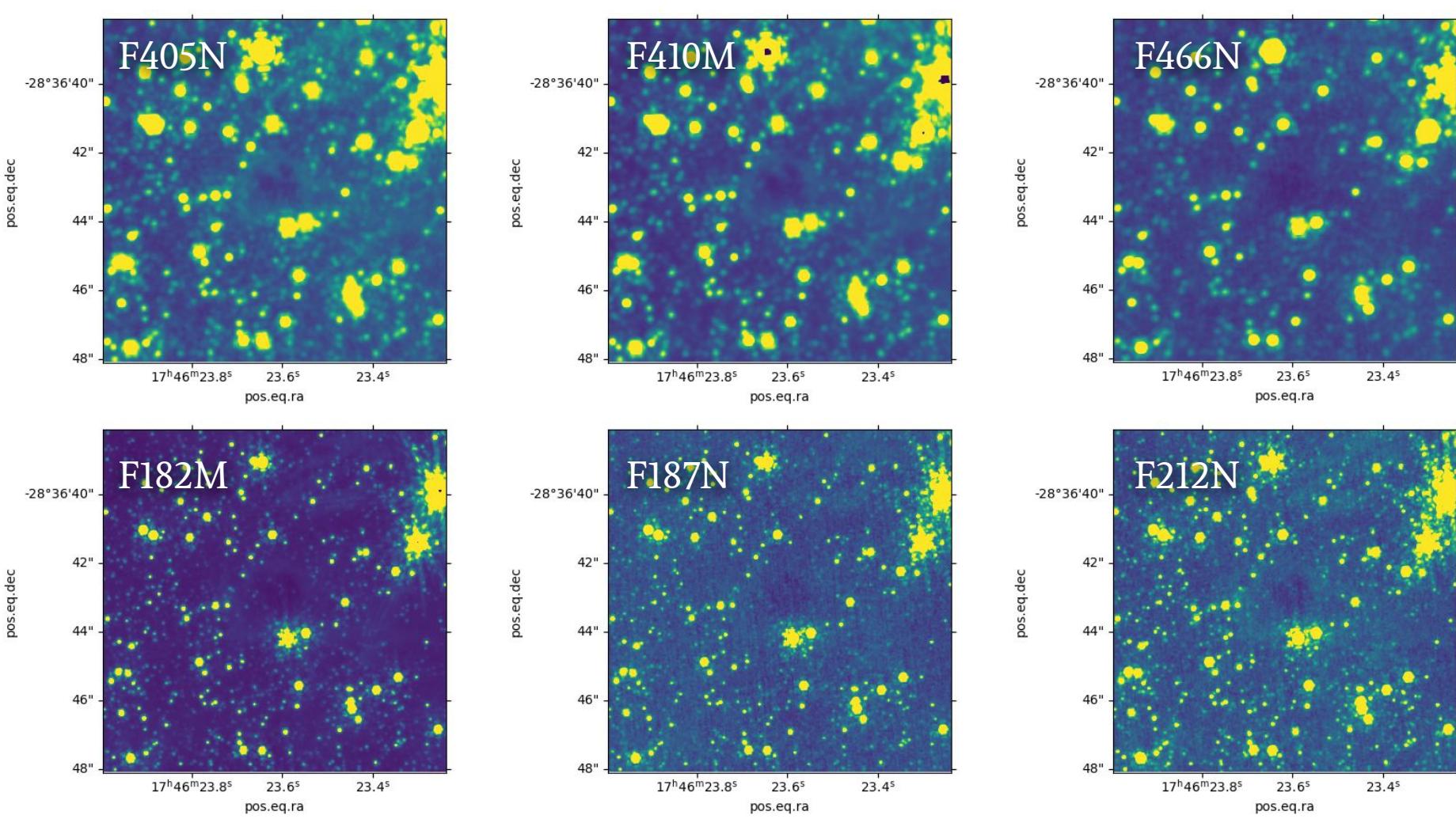


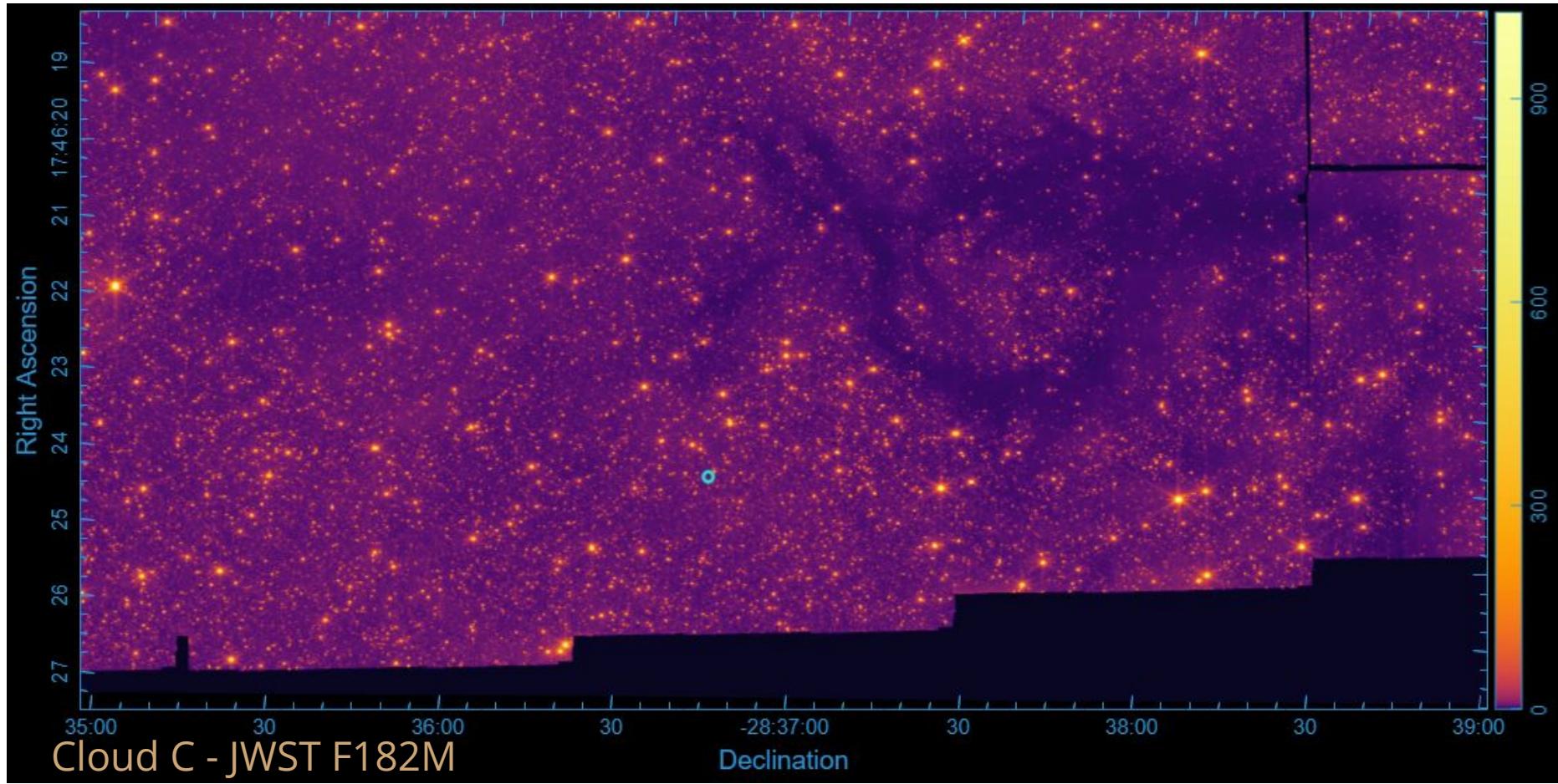
HN¹³C 1-0

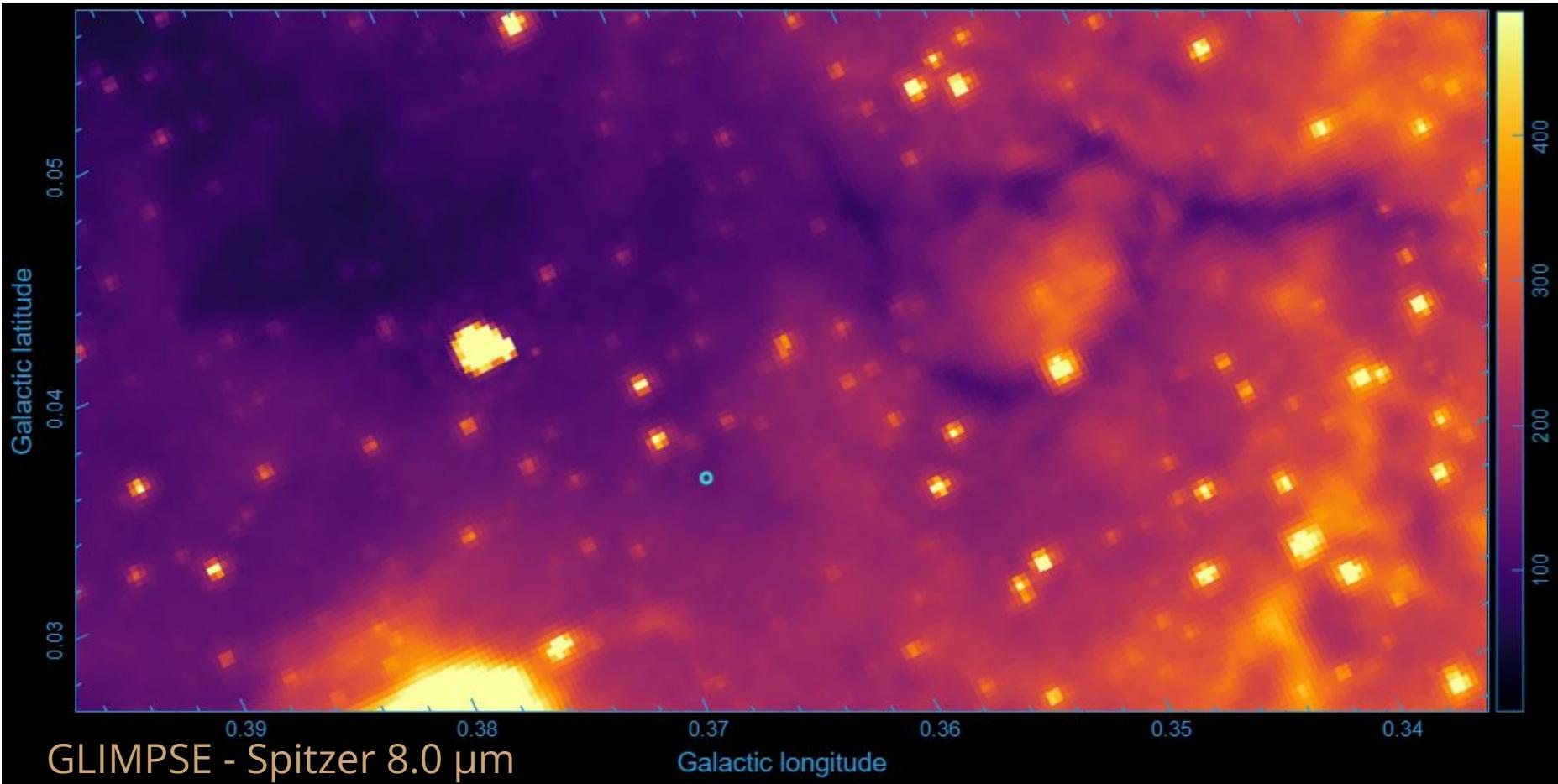


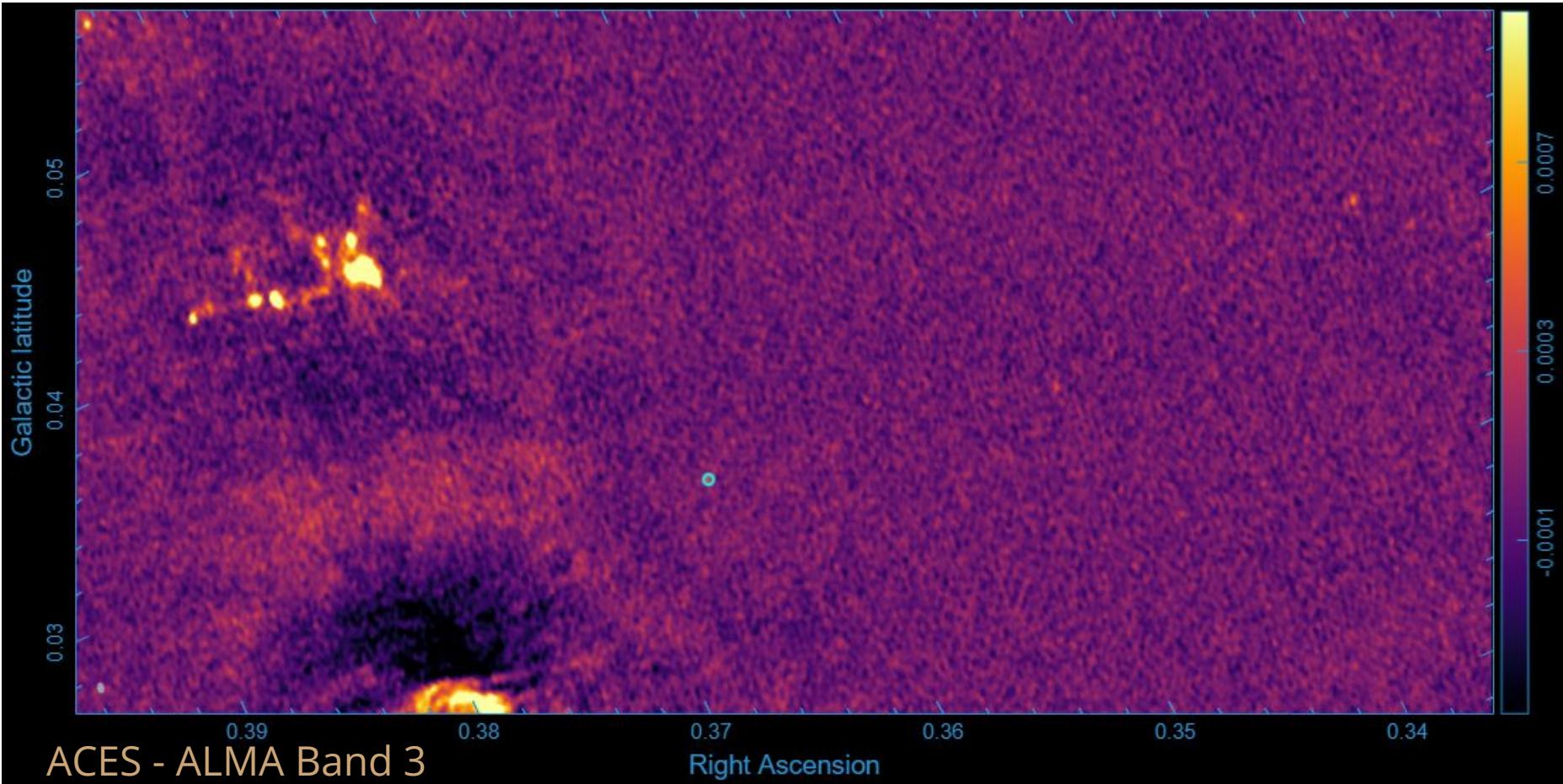
Rotate POV

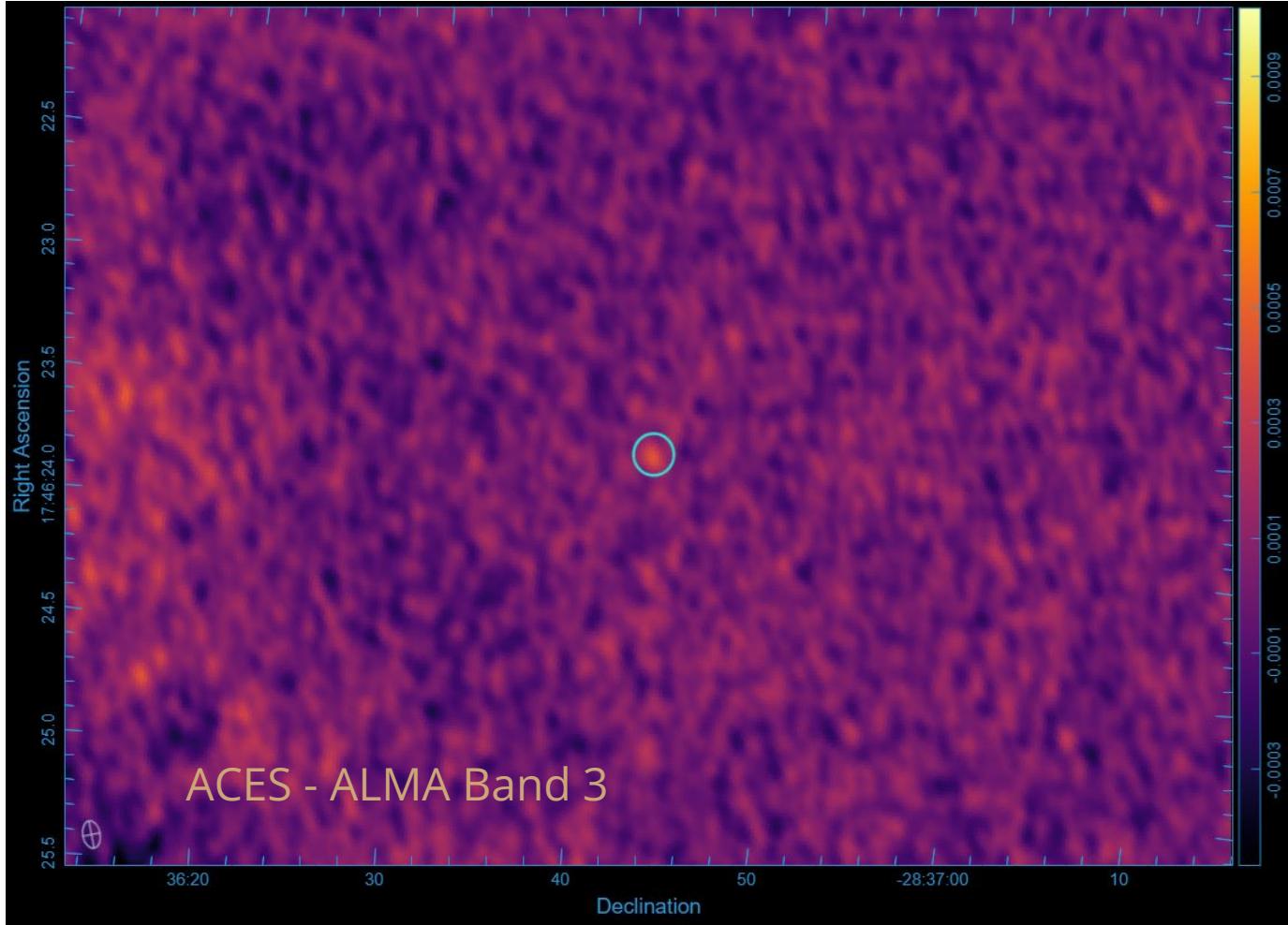
Spotlight: The Smudge

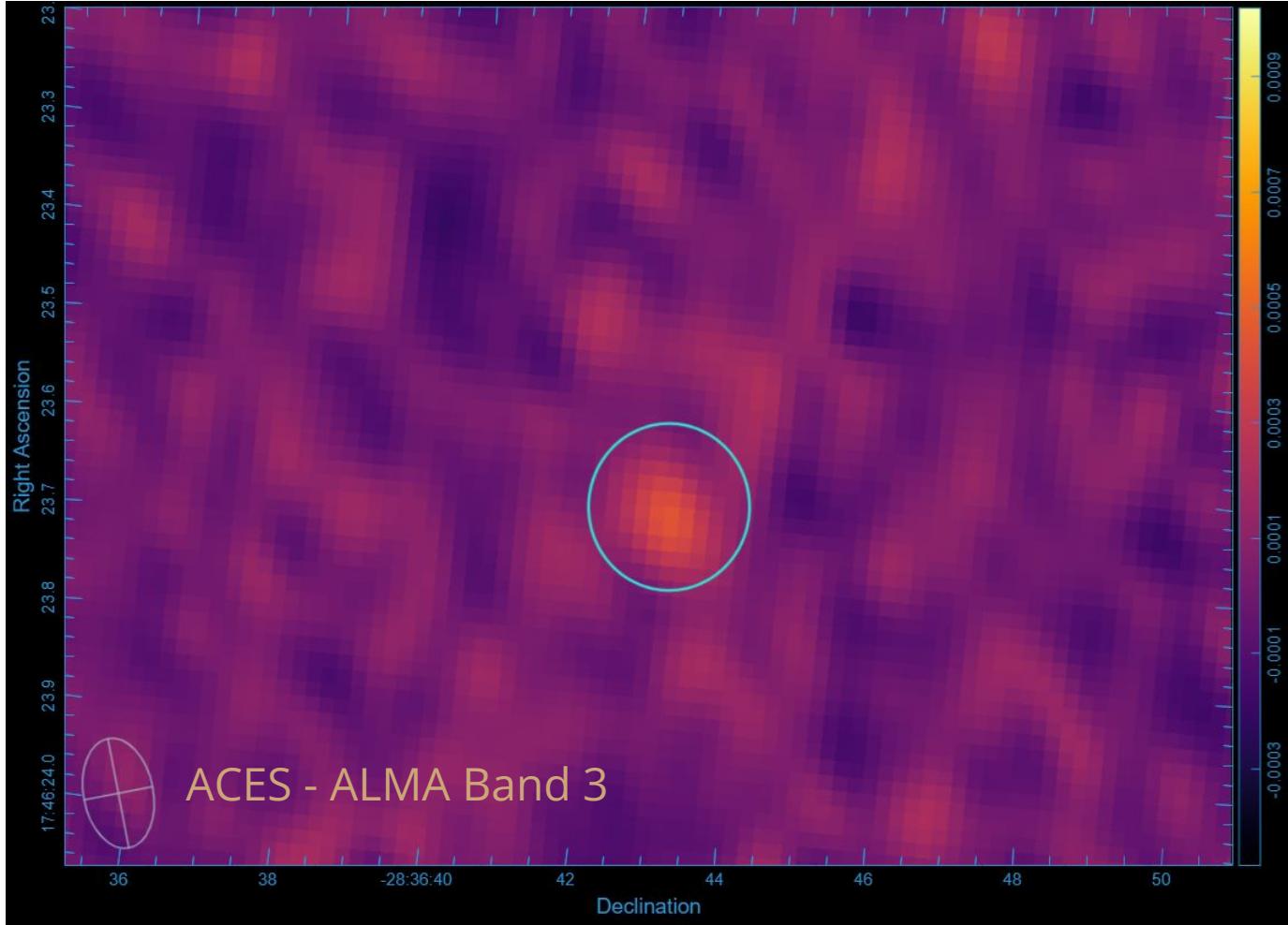






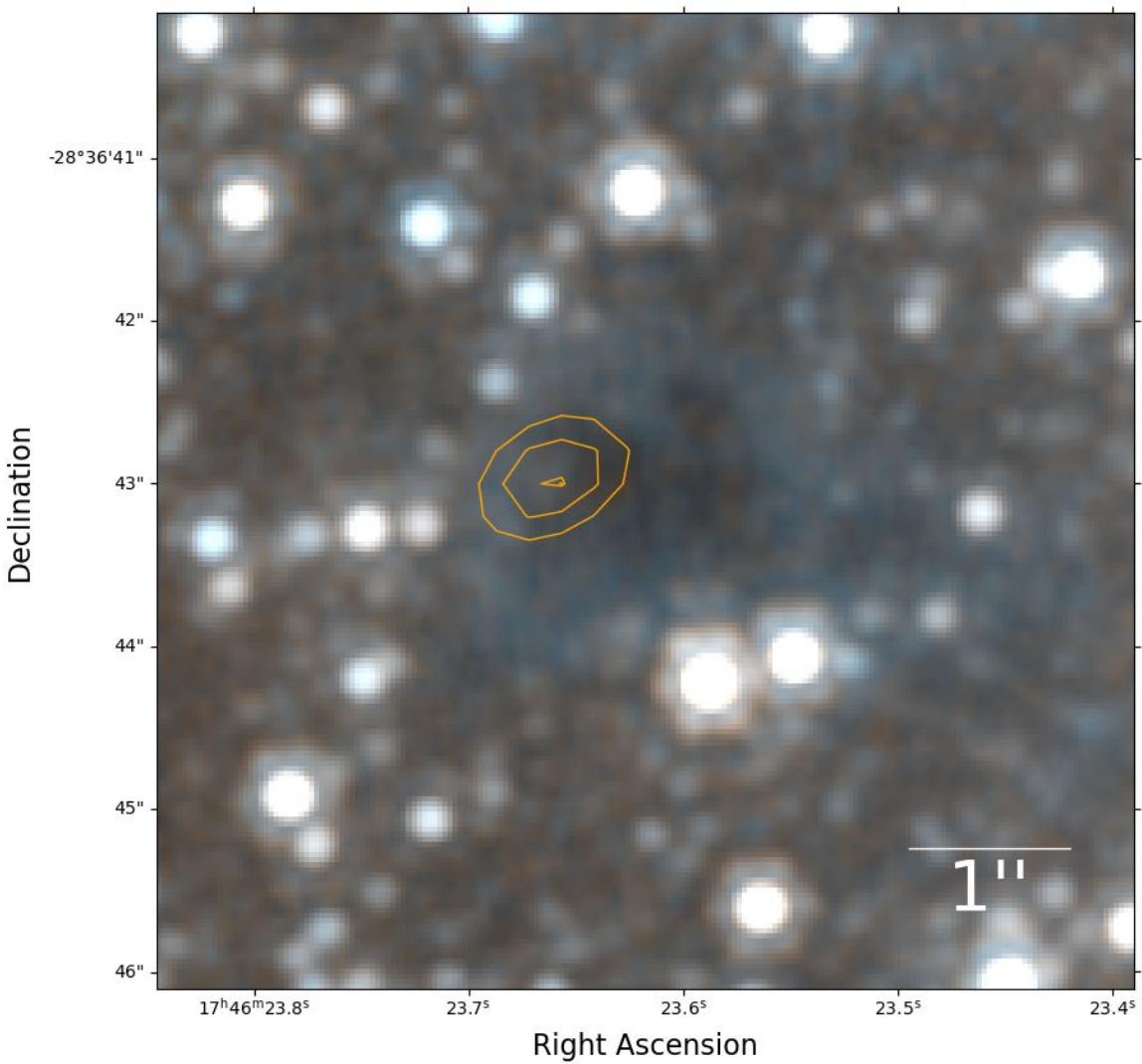






Spotlight: The Smudge

- Center of radio continuum source is offset from center of extinction in infrared
- No infrared source
- 10 mJy Band 6
- 0.48 mJy Band 3
- Spectral Index = 3.75
 - Dusty!
- Mass ~ 10 Msun
- Line of sight velocity ~ 33 km/s
- FWHM ~ 10 km/s
- Seems to be in the GC based on velocity and wide FWHM



Conclusions

- An ACES SiO maser catalog will be helpful for astrometric correction across the CMZ
 - Outflow tracers in ACES data correspond with those in other data
 - Isolated ACES continuum sources are likely real.
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