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# **Accretion and Disk Irradiation in TW Hydrae: Insights from JWST/MIRI and AstroSat Observations**

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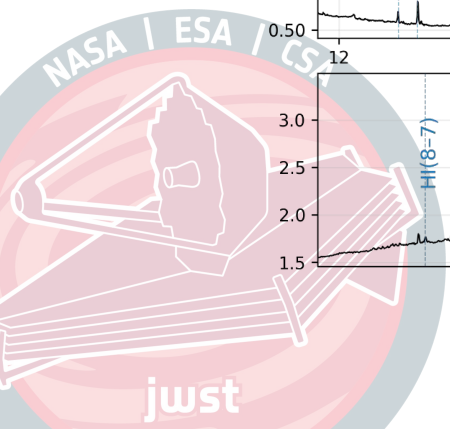
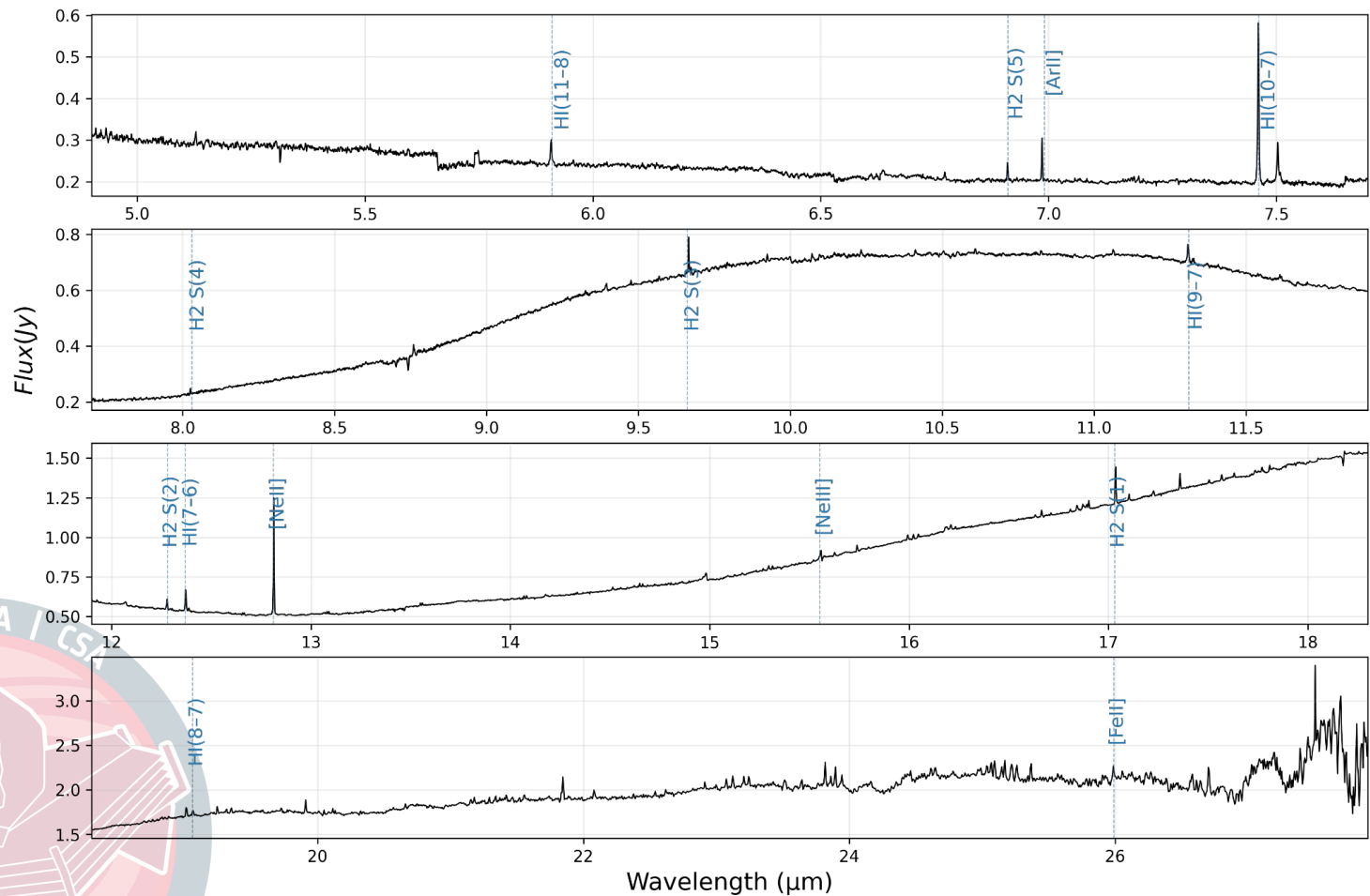
**Cysil Tom Baby**

**CHRIST (Deemed to be University)**

**Supervisors**

**Dr Javier Alvarez Marquez / Dr Prajwel Joseph**

**Data Analysis Help – Dr Shridharan B**



*JWST/MIRI-MRS Line Flux Analysis*

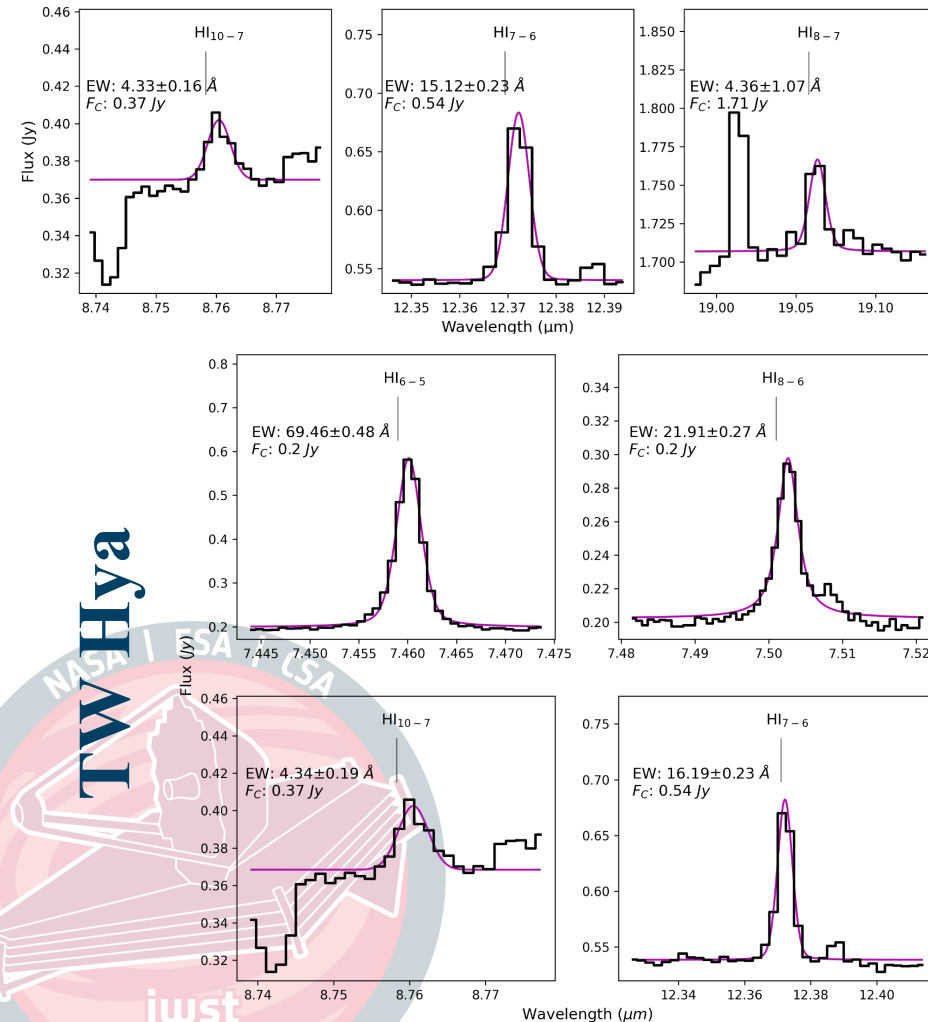
(Emp. Model from Tofflemire et al. 2025)

Transition	Central $\lambda$ ( $\mu\text{m}$ )	$\log L_{\text{acc}}$	$\dot{M}_{\text{acc}}$ ( $\times 10^{-9} \text{M}_{\odot} \text{yr}^{-1}$ )
HI 10 - 7	8.758	-1.73 $\pm$ 0.27	1.210 $\pm$ 0.765
HI 7 - 6	12.37	-1.94 $\pm$ 0.16	0.7601 $\pm$ 0.3048
HI 8 - 7	19.058	-1.57 $\pm$ 0.68	1.776 $\pm$ 2.782

(Emp. Model from Shridharan et al., under review)

Transition	Central $\lambda$ ( $\mu\text{m}$ )	$\log L_{\text{acc}}$	$\dot{M}_{\text{acc}}$ ( $\times 10^{-9} \text{M}_{\odot} \text{yr}^{-1}$ )
HI 6 - 5	7.459	-0.79 $\pm$ 0.08	10.60 $\pm$ 2.63
HI 8 - 6	7.501	-1.06 $\pm$ 0.10	5.675 $\pm$ 1.578
HI 10 - 7	8.758	-1.23 $\pm$ 0.09	3.863 $\pm$ 1.027
HI 7 - 6	12.37	-1.40 $\pm$ 0.13	2.608 $\pm$ 0.873

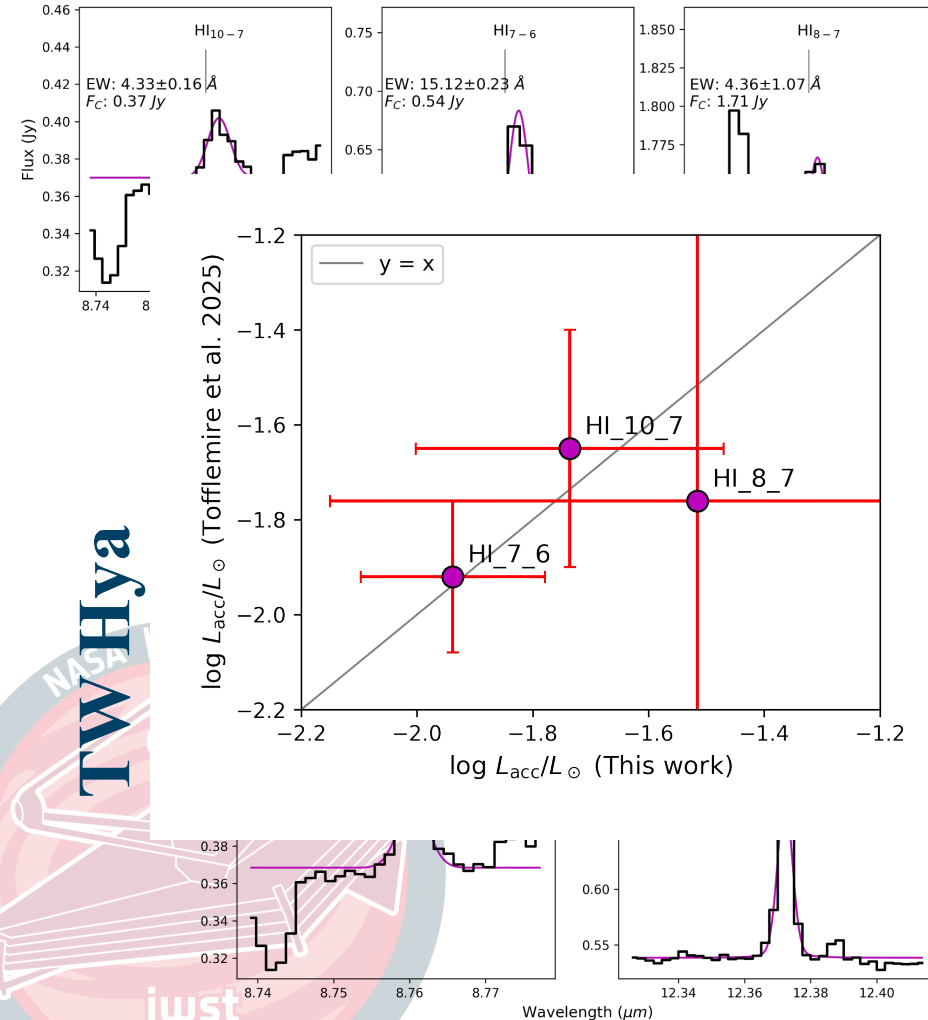
*JWST/MIRI-MRS Line Flux Analysis*



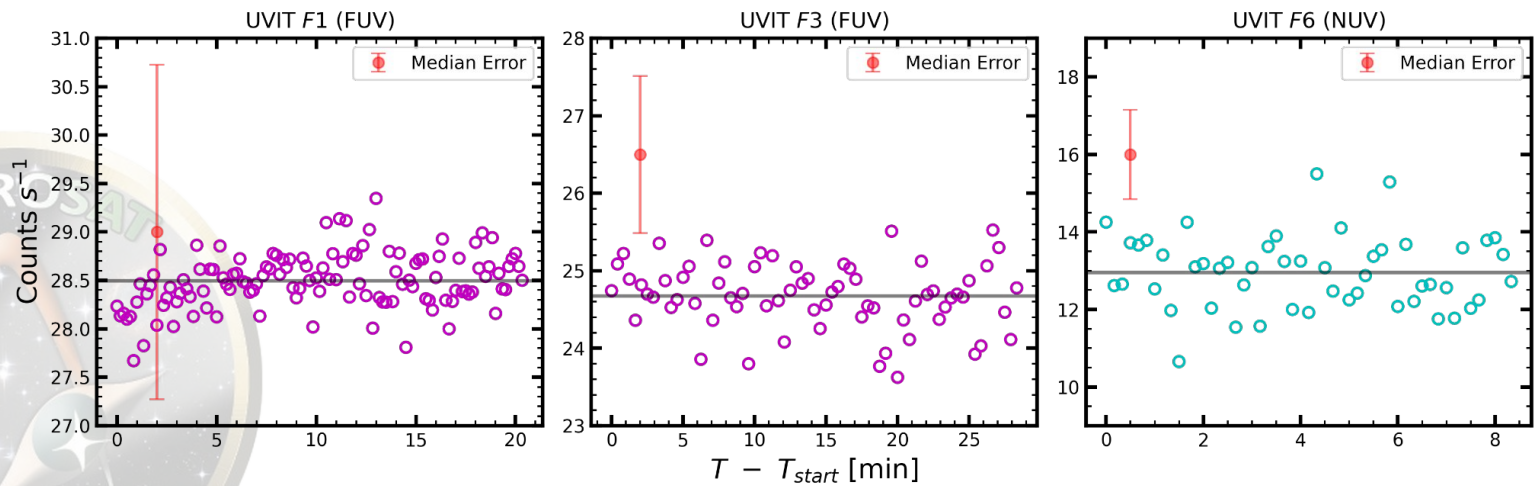
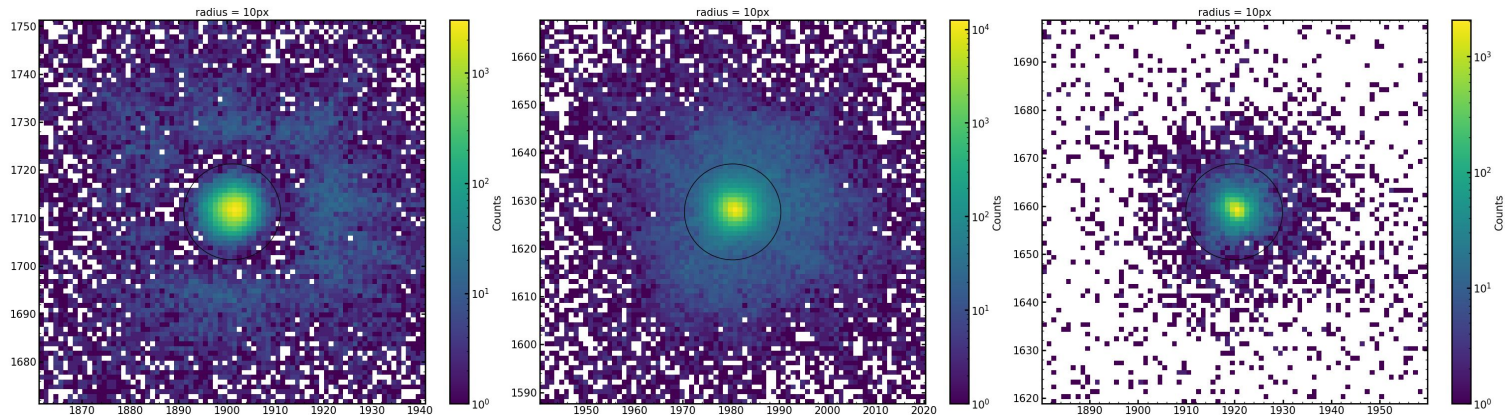
(Emp. Model from Tofflemire et al. 2025)

Transition	Central $\lambda$ ( $\mu\text{m}$ )	$\log L_{\text{acc}}$	$M_{\text{acc}}$ ( $\times 10^{-9} M_{\odot} \text{yr}^{-1}$ )
			0.765
			0.3048
			2.782
			review)
			c ( $\text{yr}^{-1}$ )
			2.63
			1.578
			1.027
HI 7 - 6	12.37	-1.40 +/- 0.13	2.608 +/- 0.873

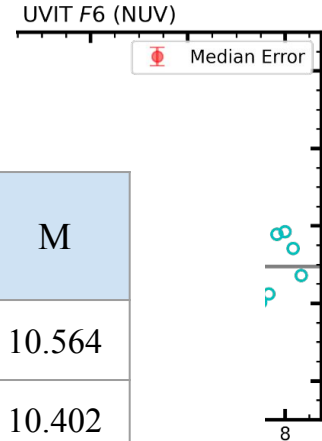
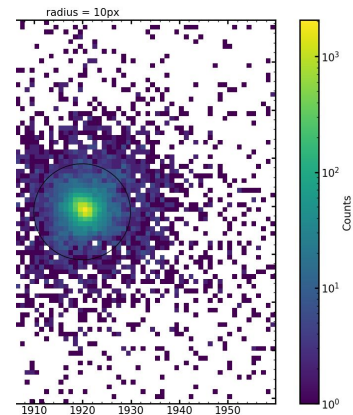
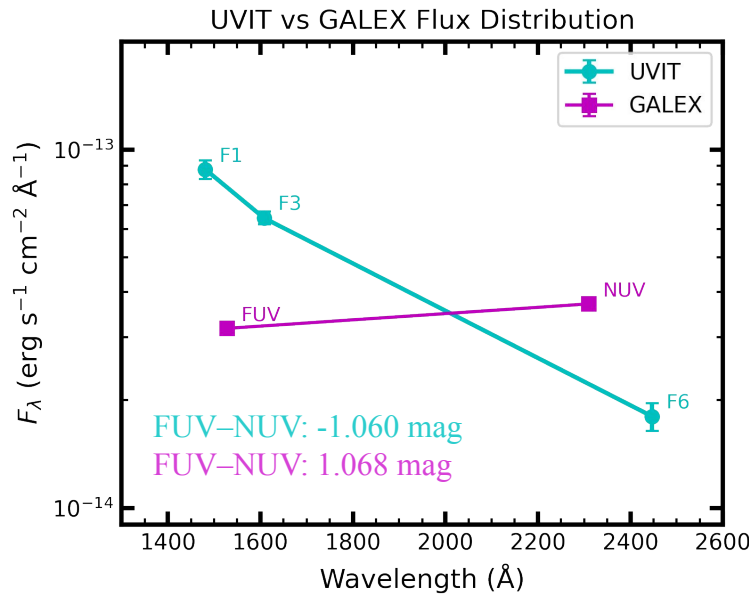
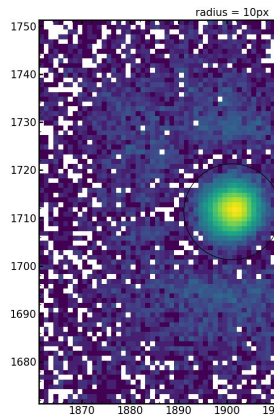
*JWST/MIRI-MRS Line Flux Analysis*



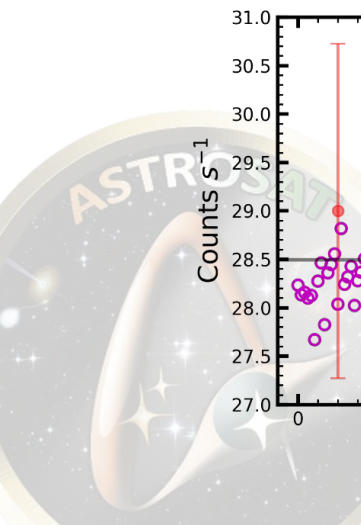
# AstroSat/UVIT Look At TW Hydrae



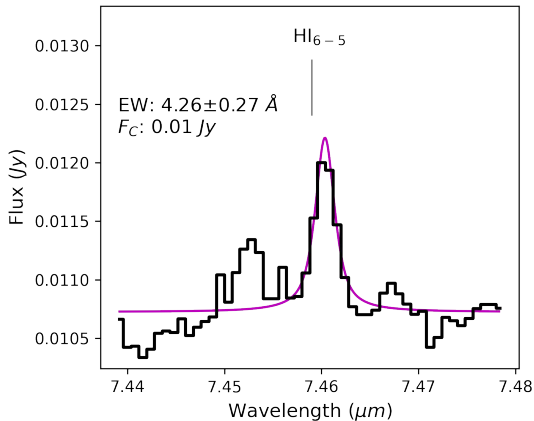
# AstroSat/UVIT Look At TW Hydrae



Filter	Central $\lambda$ ( $\text{\AA}$ )	Flux ( $\times 10^{-14} \text{erg cm}^{-2} \text{s}^{-1} \text{\AA}^{-1}$ )	m	M
F1	1481	8.805 +/- 0.53	14.460	10.564
F3	1608	6.440 +/- 0.26	14.297	10.402
F6	2447	1.801 +/- 0.16	15.520	11.624

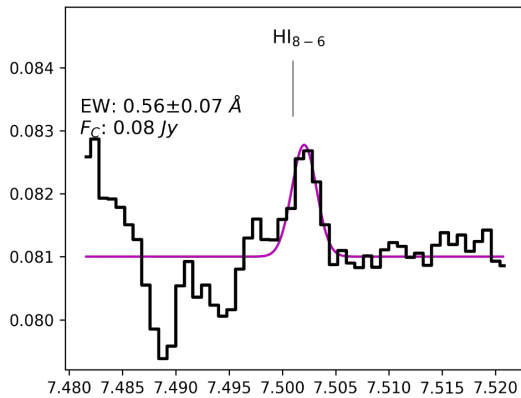
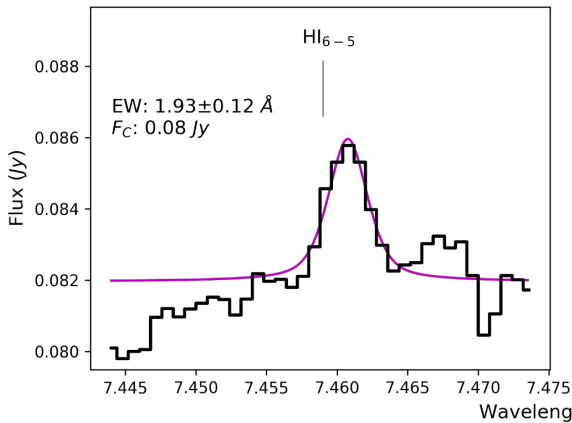
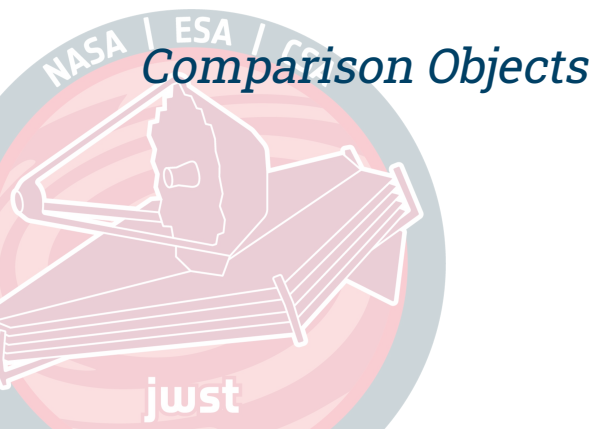


(Tandon et al. 2020)



Transition	Central $\lambda$ ( $\mu\text{m}$ )	$\log L_{\text{acc}}$	$\dot{M}_{\text{acc}}$ ( $\times 10^{-11} M_{\odot} \text{yr}^{-1}$ )
HI 6 - 5	7.459	-2.68 $\pm$ 0.27	8.133 $\pm$ 5.061

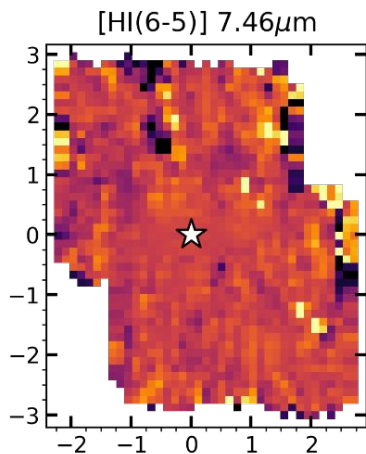
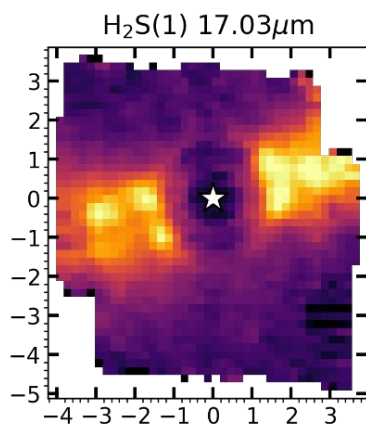
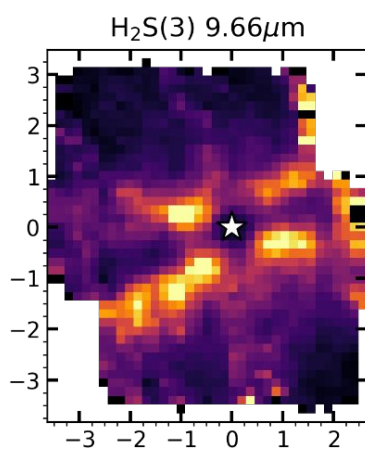
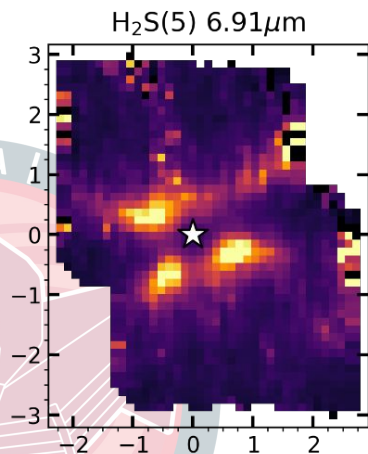
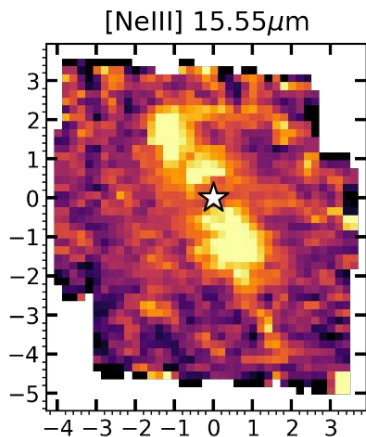
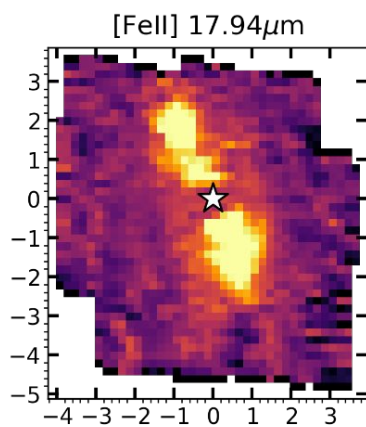
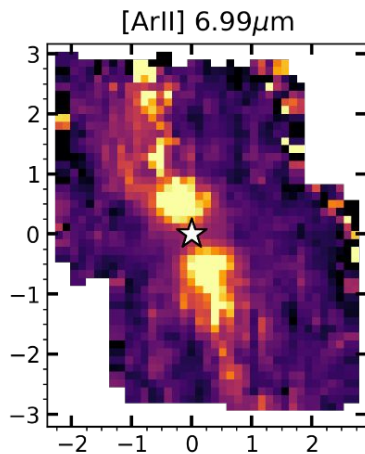
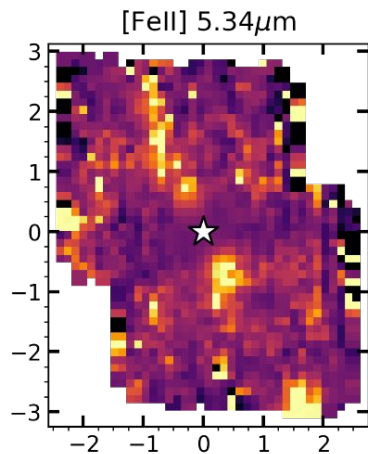
Transition	Central $\lambda$ ( $\mu\text{m}$ )	$\log L_{\text{acc}}$	$\dot{M}_{\text{acc}}$ ( $\times 10^{-10} M_{\odot} \text{yr}^{-1}$ )
HI 6 - 5	7.459	-1.93 $\pm$ 0.18	6.364 $\pm$ 2.689
HI 8 - 6	7.501	-2.44 $\pm$ 0.20	1.962 $\pm$ 0.917



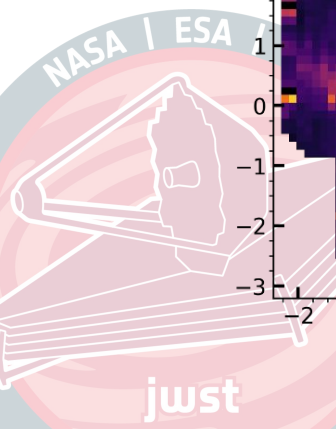


# V\* HV Tau C

$\Delta\text{Dec}$  (arcsec)



$\Delta\text{RA}$  (arcsec)





**Thank  
You**