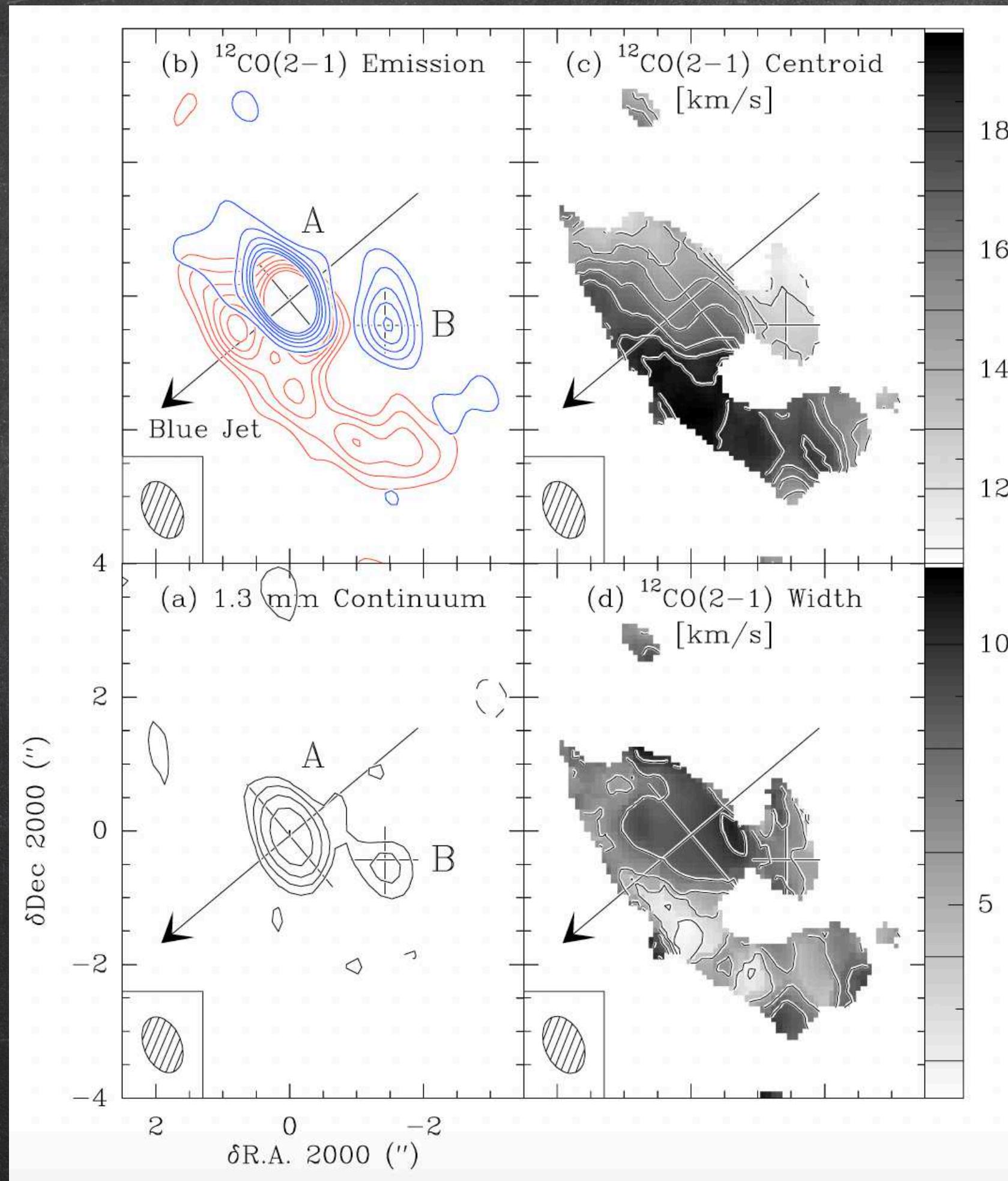


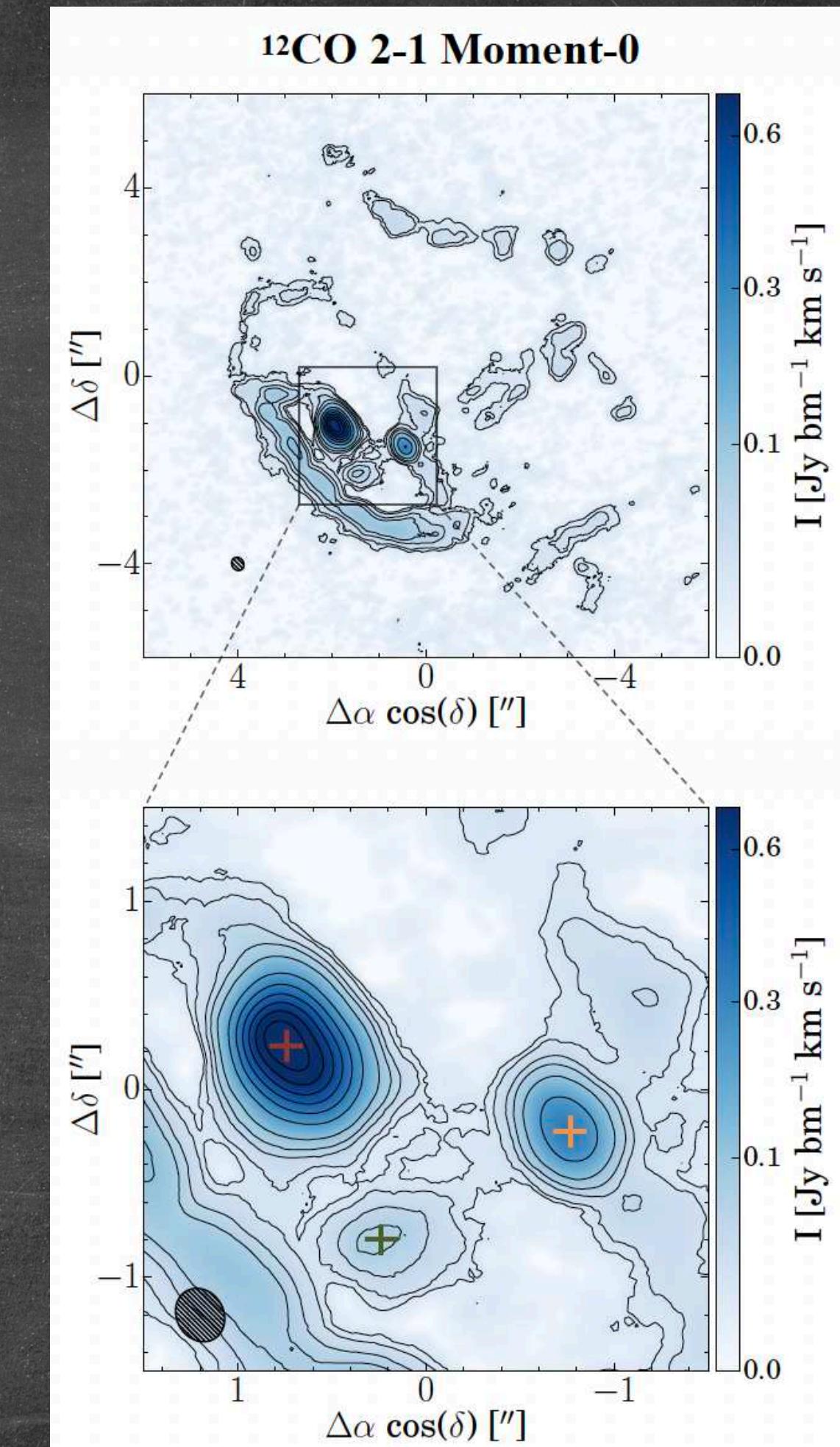
# When expectation meets reality: RW Aurigae simulation intrigues

Elisabeth Borchert  
<https://emborchert.github.io>

# RW Aurigae observations

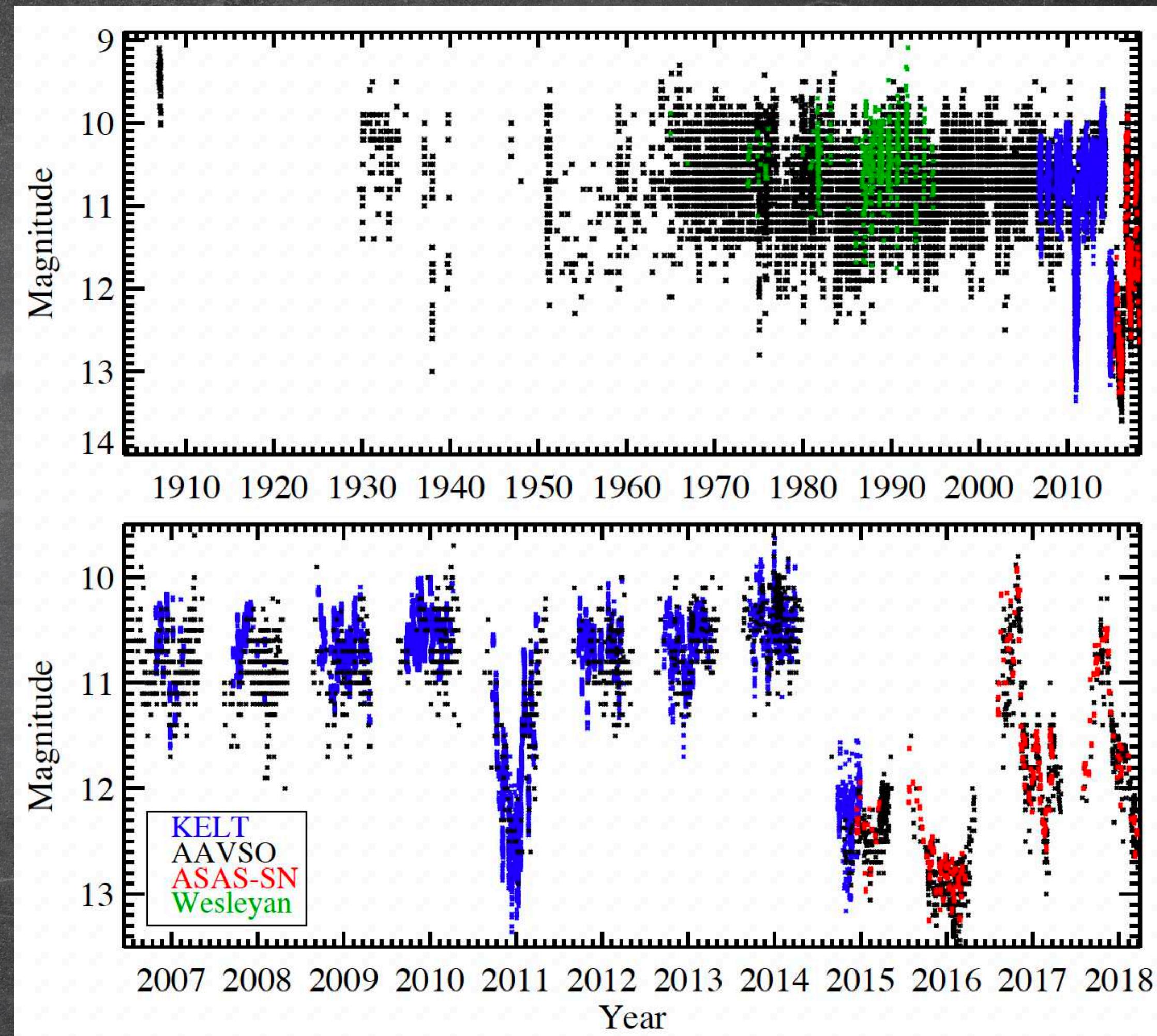


[Cabrit et al. 2006]



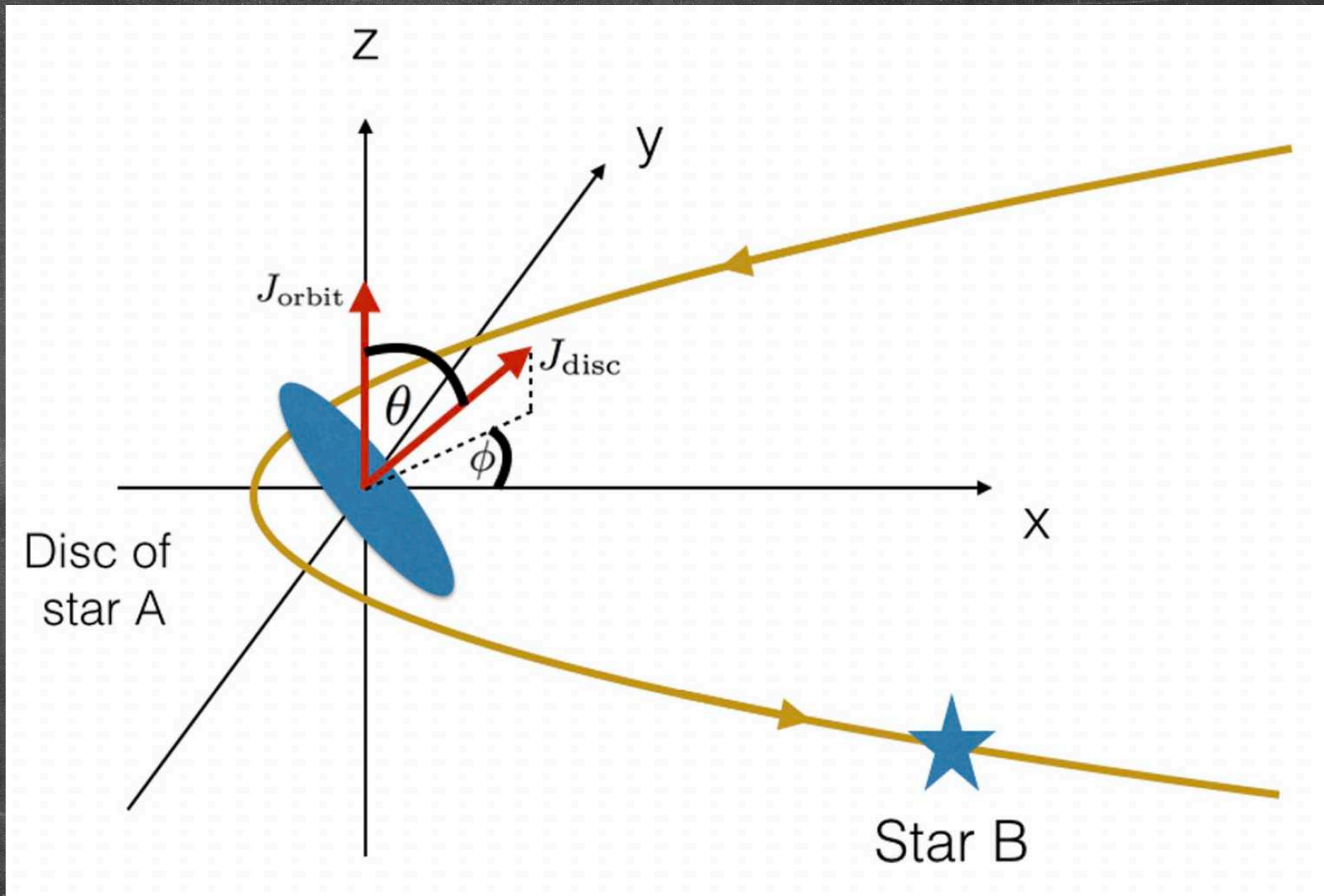
[Rodriguez et al. 2018]

# RW Aurigae dimming events



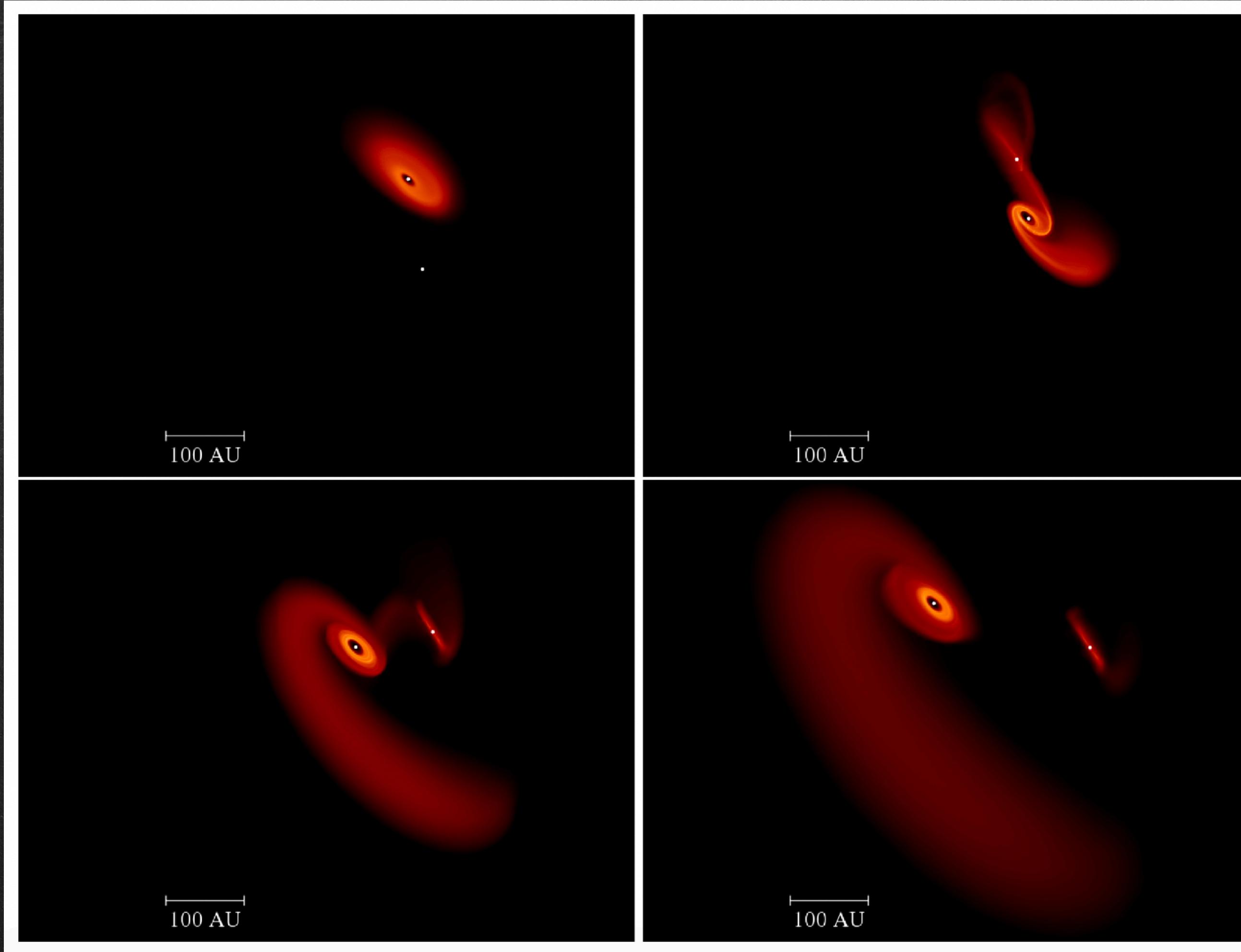
[Rodriguez et al. 2018]

# Past modelling results

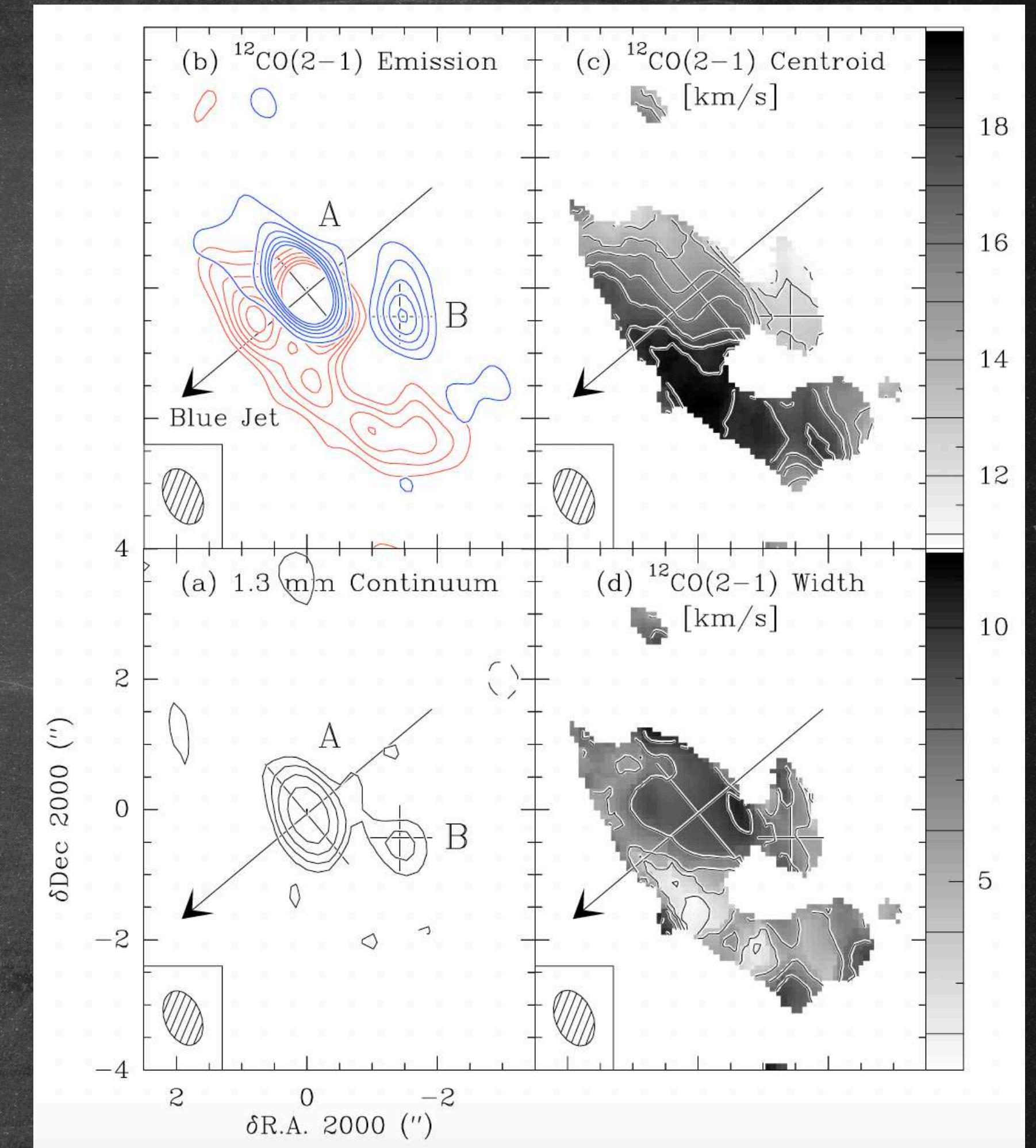


[Dai et al. 2015]

# Past modelling vs observations

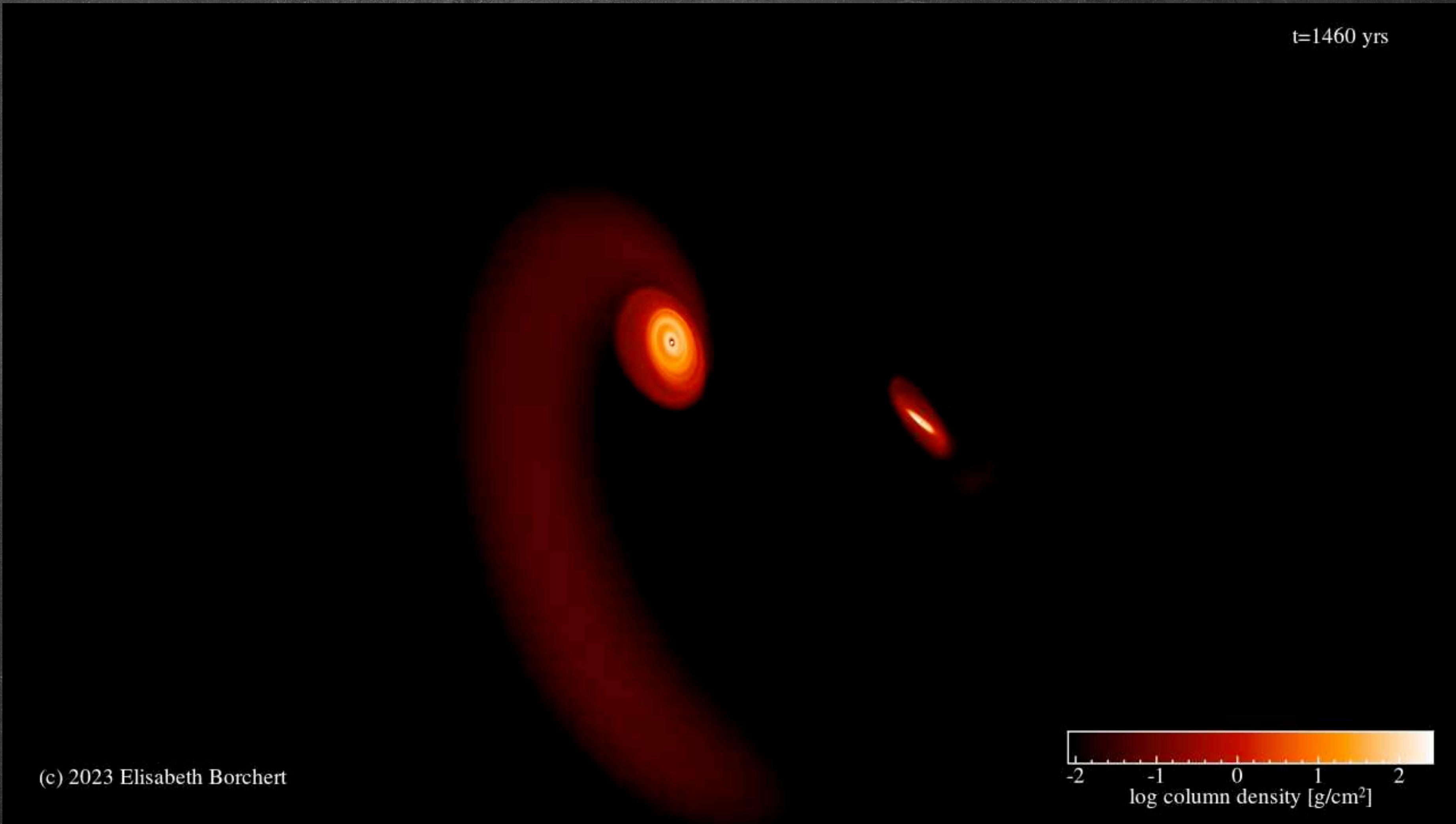


[Dai et al. 2015]

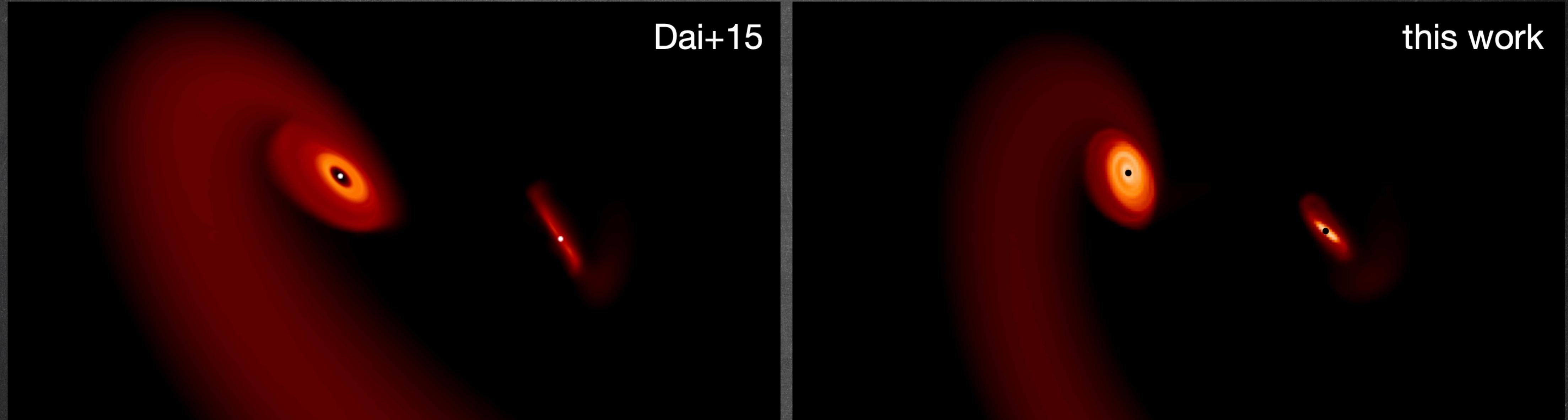


[Cabrit et al. 2006]

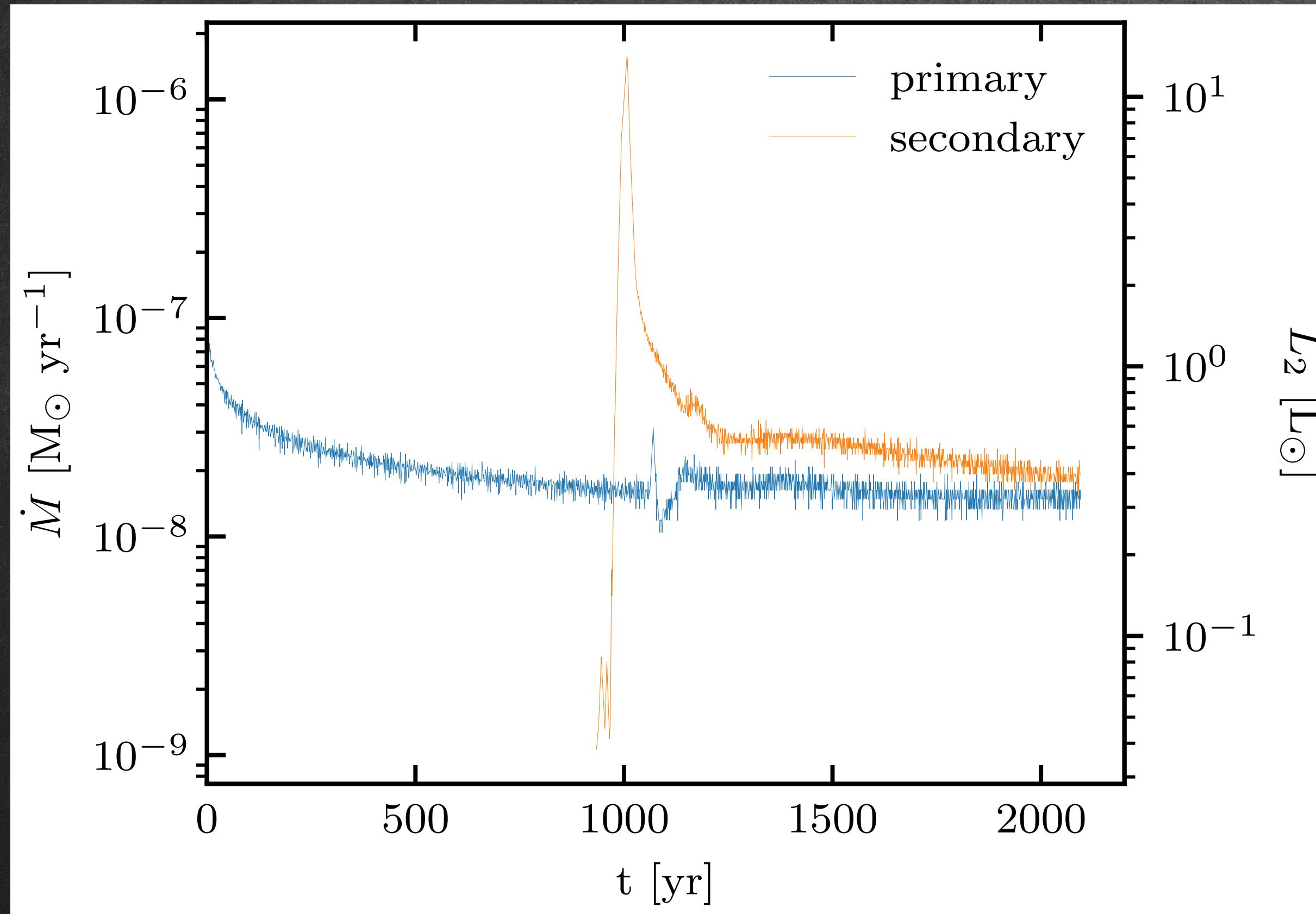
# My simulation



# Observation angle



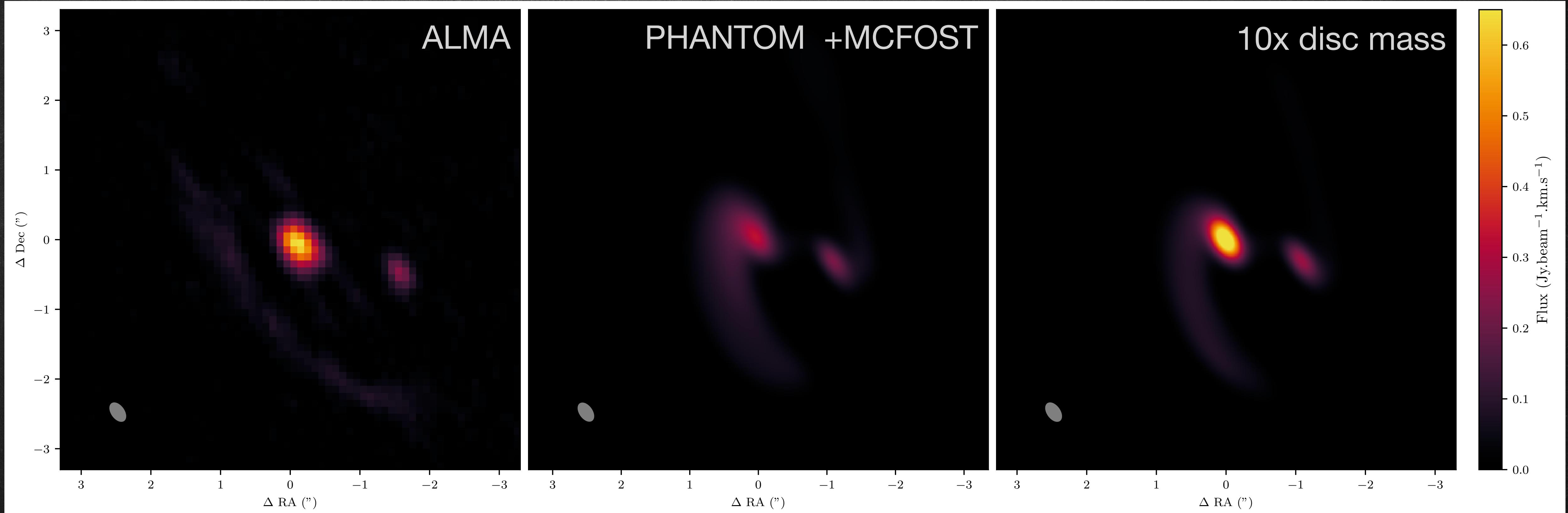
# Accretion rate



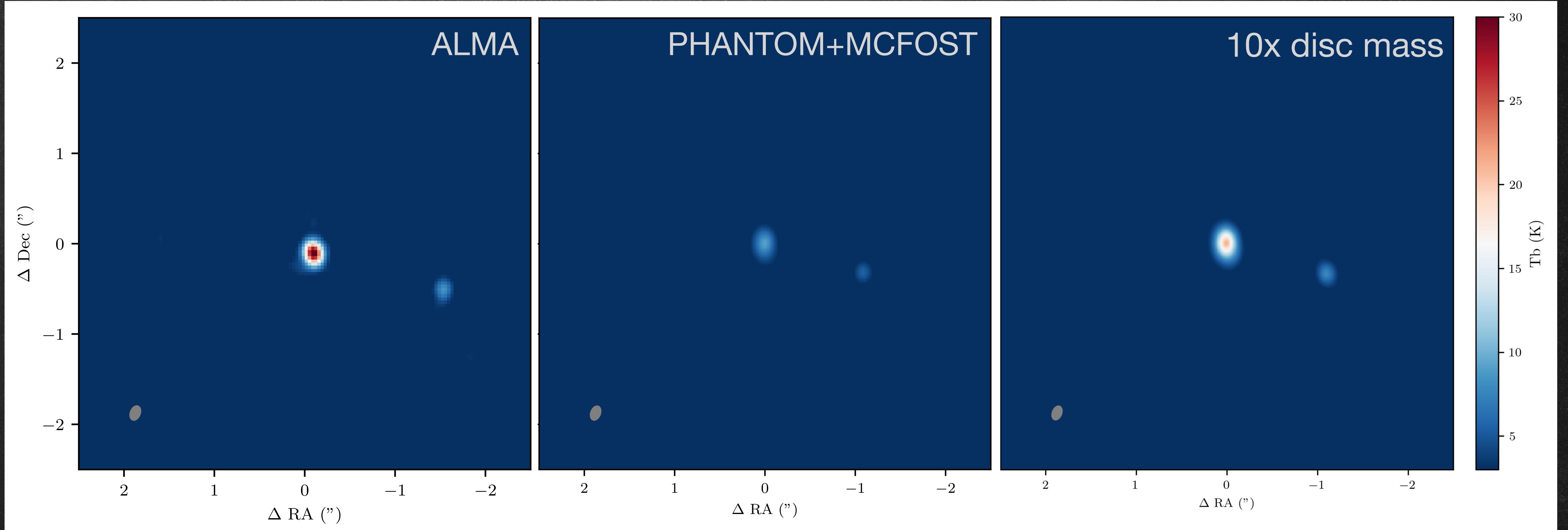
Obs. accretion rates:

- RW Aur A:  $\dot{M} = (2 - 10) \times 10^{-7} M_{\odot} \text{ yr}^{-1}$
- RW Aur B:  $\dot{M} = (1 - 50) \times 10^{-10} M_{\odot} \text{ yr}^{-1}$

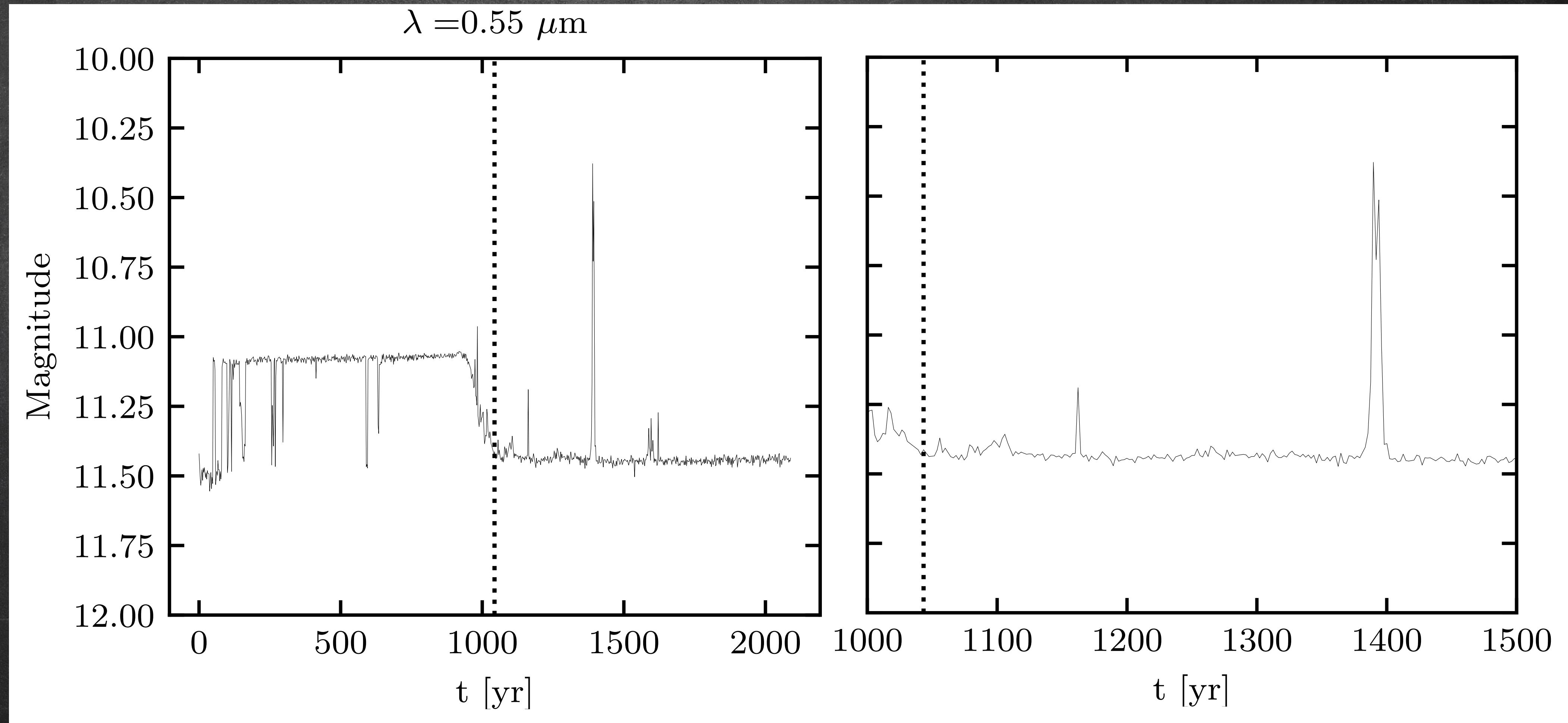
# CO(2-1) mom-0 maps



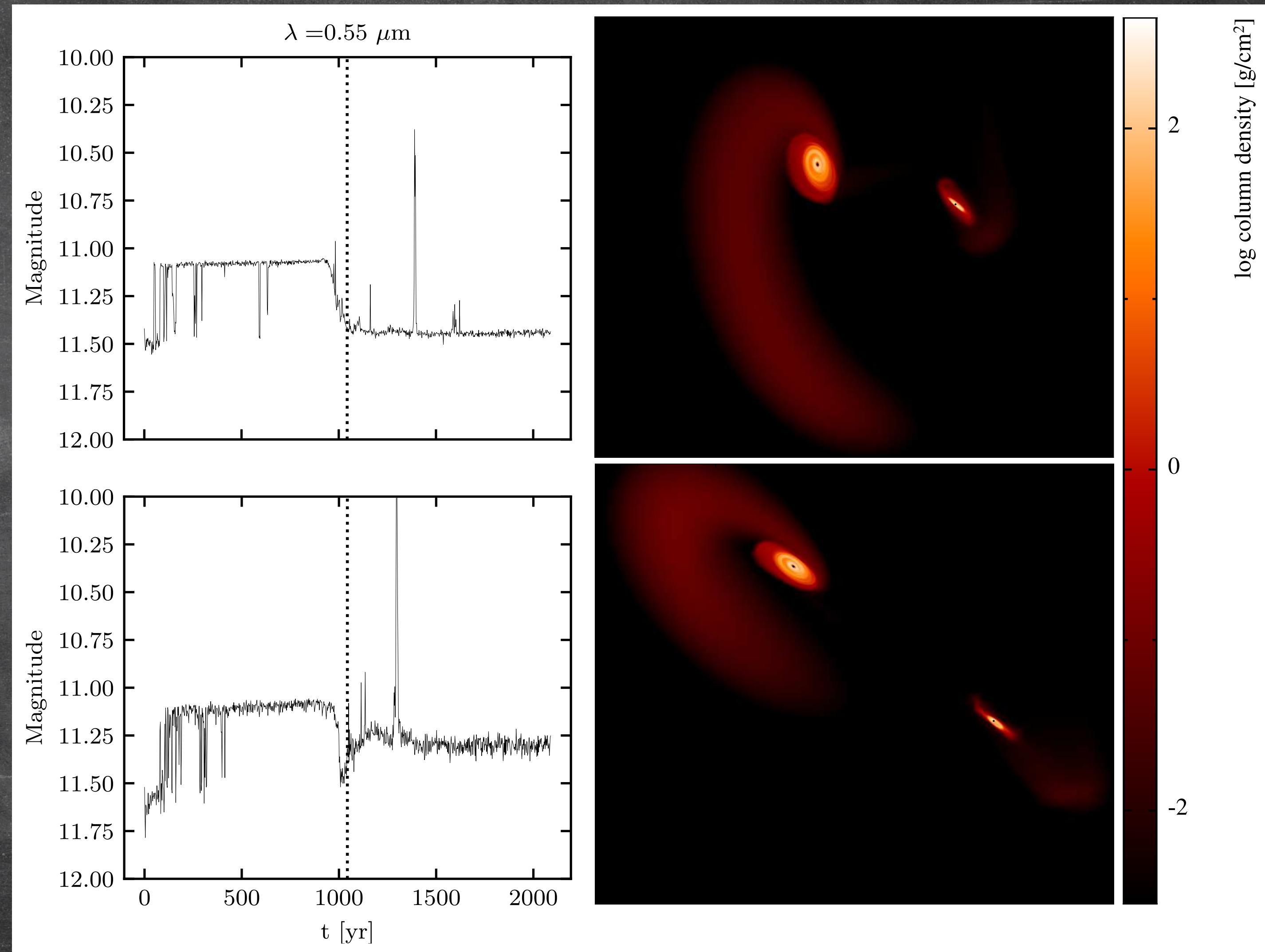
# Continuum maps



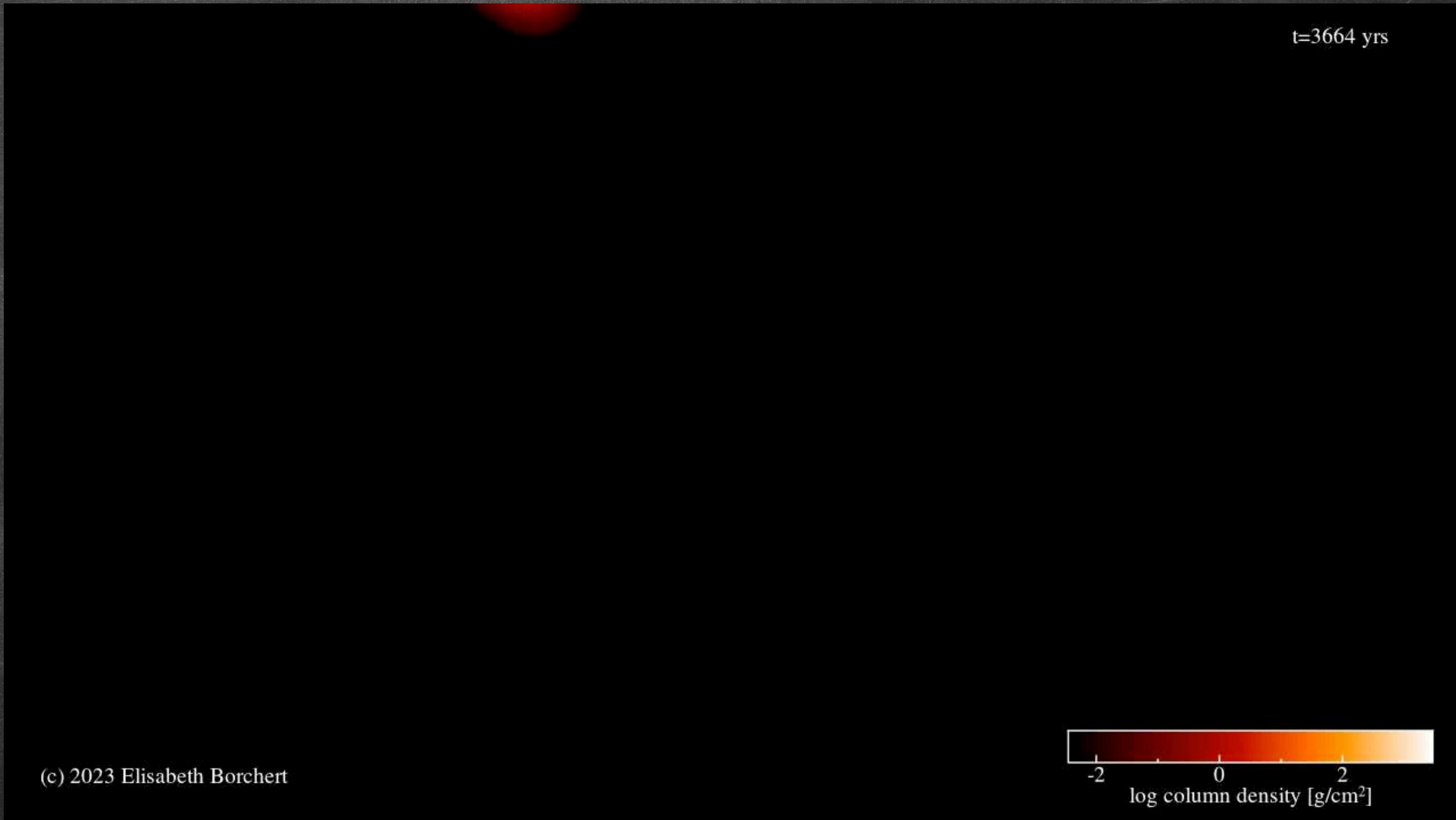
# V-band lightcurve



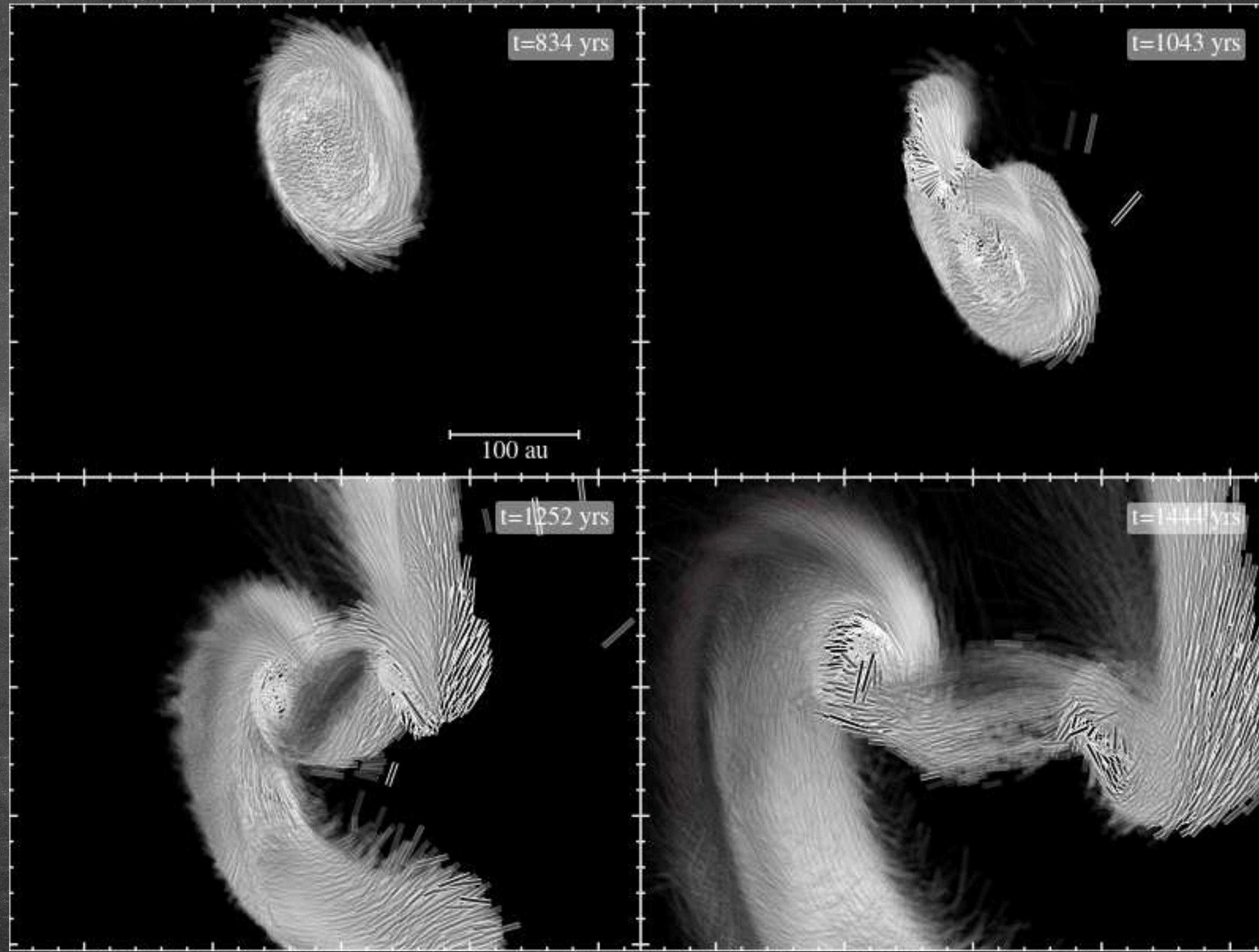
# V-band lightcurve



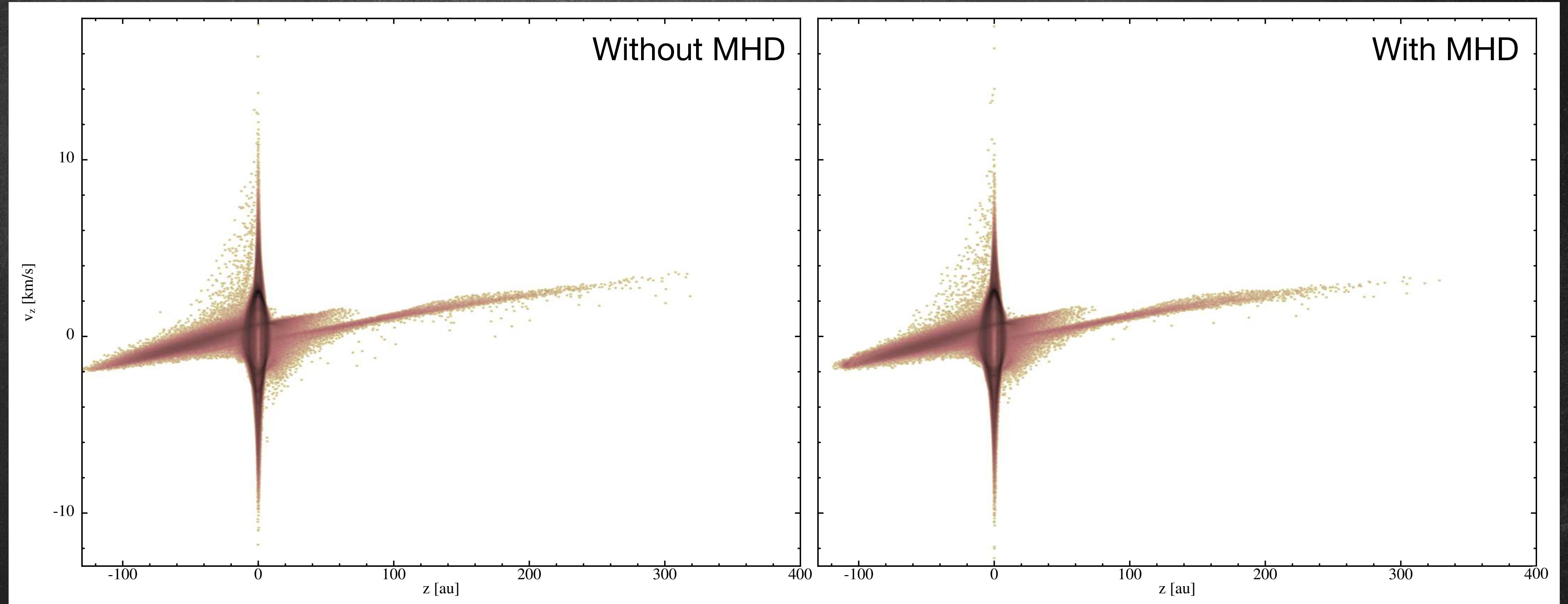
# Binary simulation



# MHD



MHD



## WIP - things to explore

- Work out best-fit observation angle
- Change disc mass to match RW Aur A accretion rate and CO observations
- Adapt dust-to-gas ratio to match continuum observations
- Explore high resolution magnetic field simulations

# Conclusions

- Underestimating gas mass
- Underestimating dust-to-gas ratio
- RW Aurigae did not experience high thermal processing
- Accretion burst similar to FU Ori, smaller scale
- Dimming events not observed. Wrong dust mass?
- No observed outflows yet

Thank you for your attention