

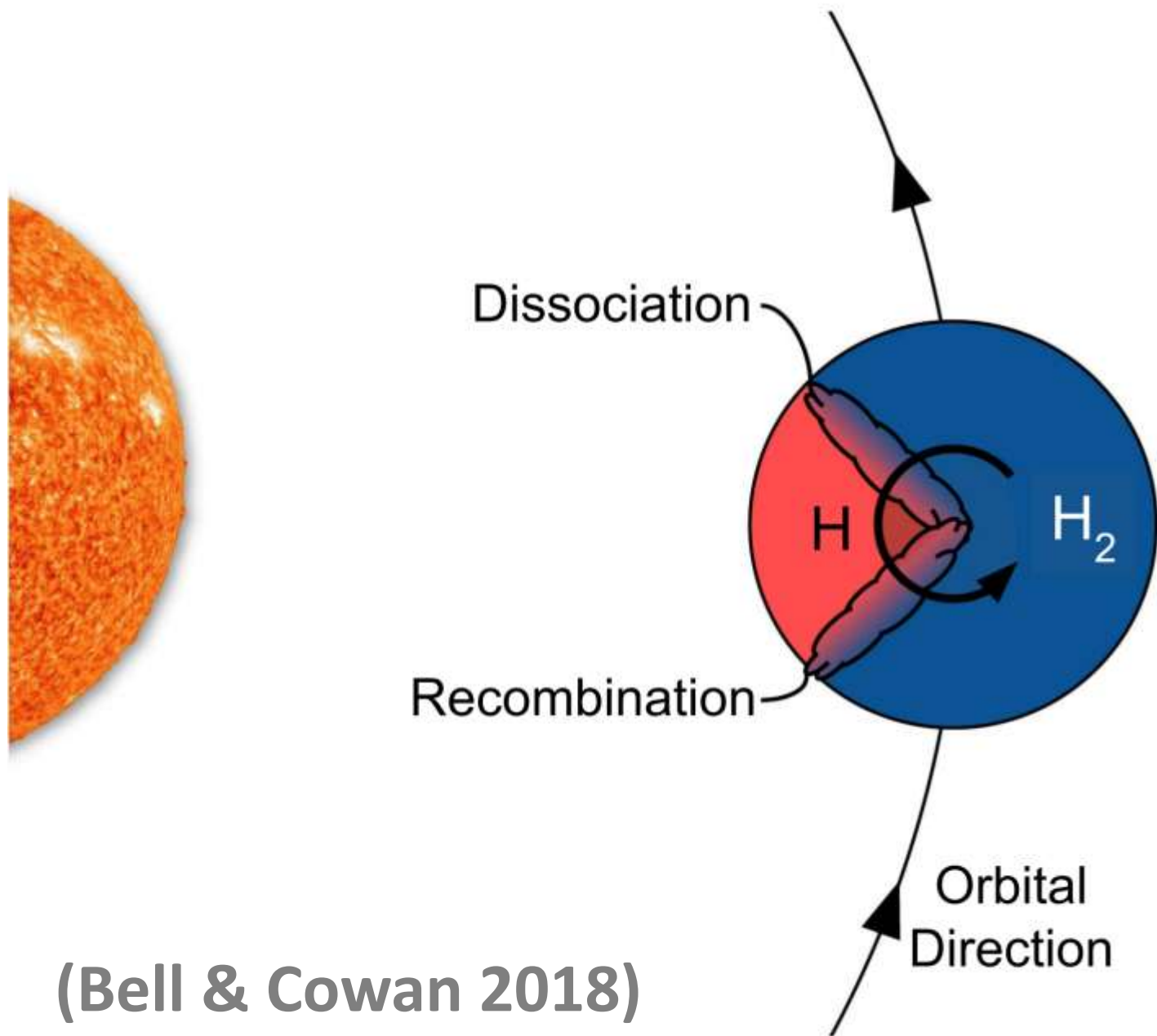
$$\frac{dT}{dt} = \frac{1}{c_h} \left(\underbrace{((1 - A)F(t) \sin \theta \max(\cos \Phi(t), 0))}_{\text{Absorbed Flux}} - \underbrace{\sigma T^4}_{\text{Emitted Flux}} \right)$$

Non-dimensionalize....

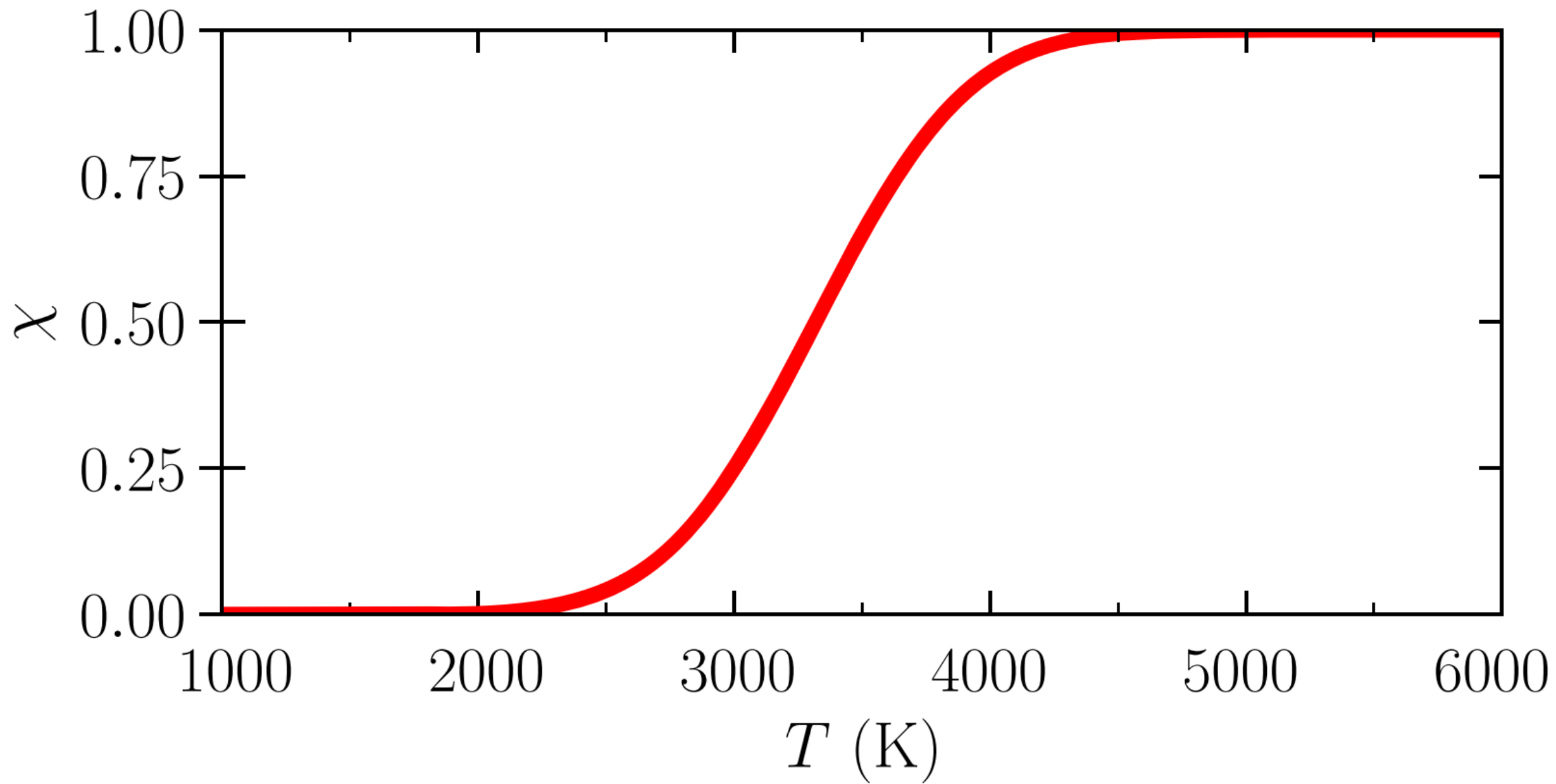
$$\frac{d\tilde{T}}{d\tilde{t}} = \tilde{I} - \tilde{T}^4$$

Solve analytically on nightside and numerically in general

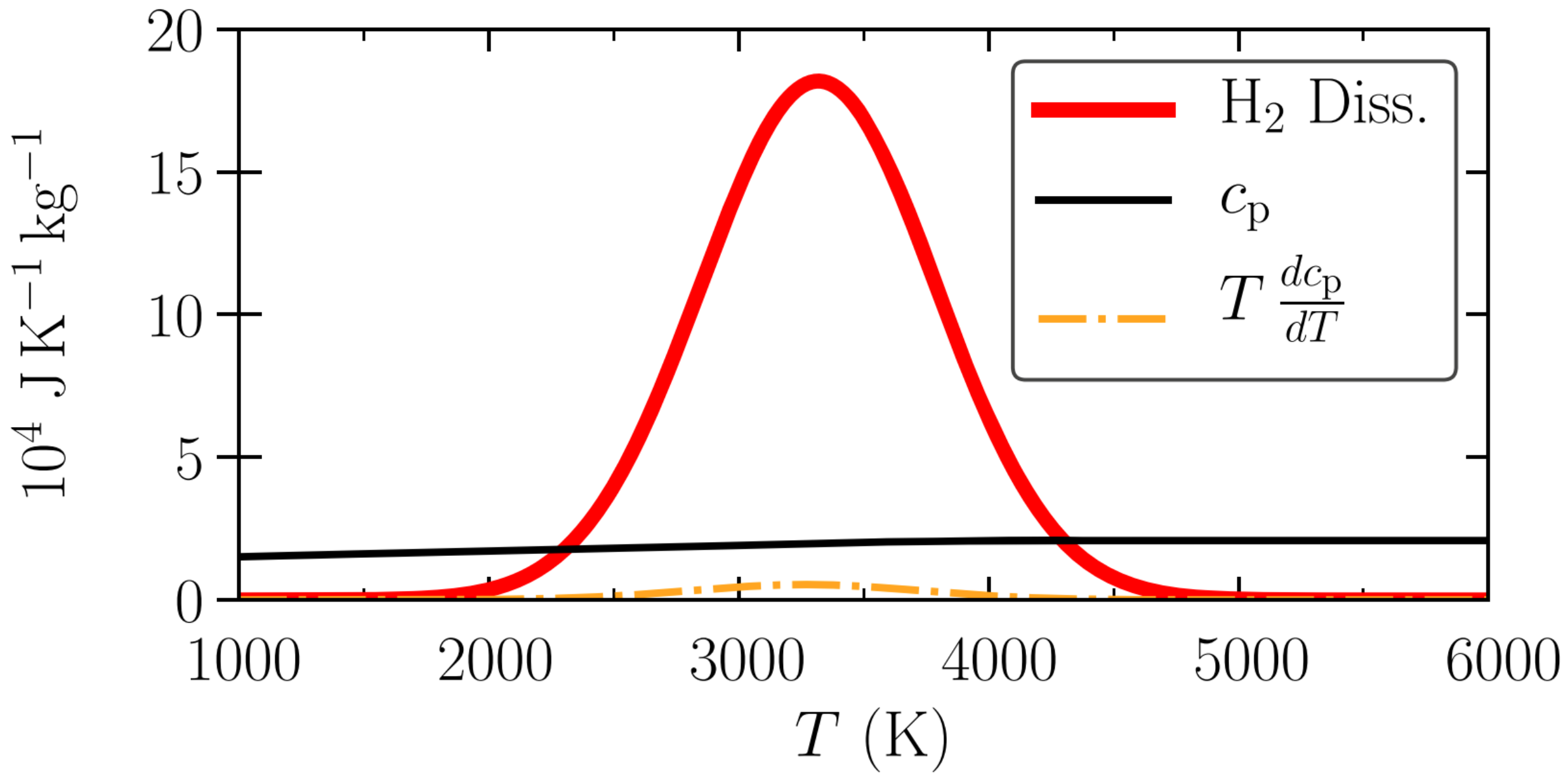
“Top-Down” View



(Bell & Cowan 2018)

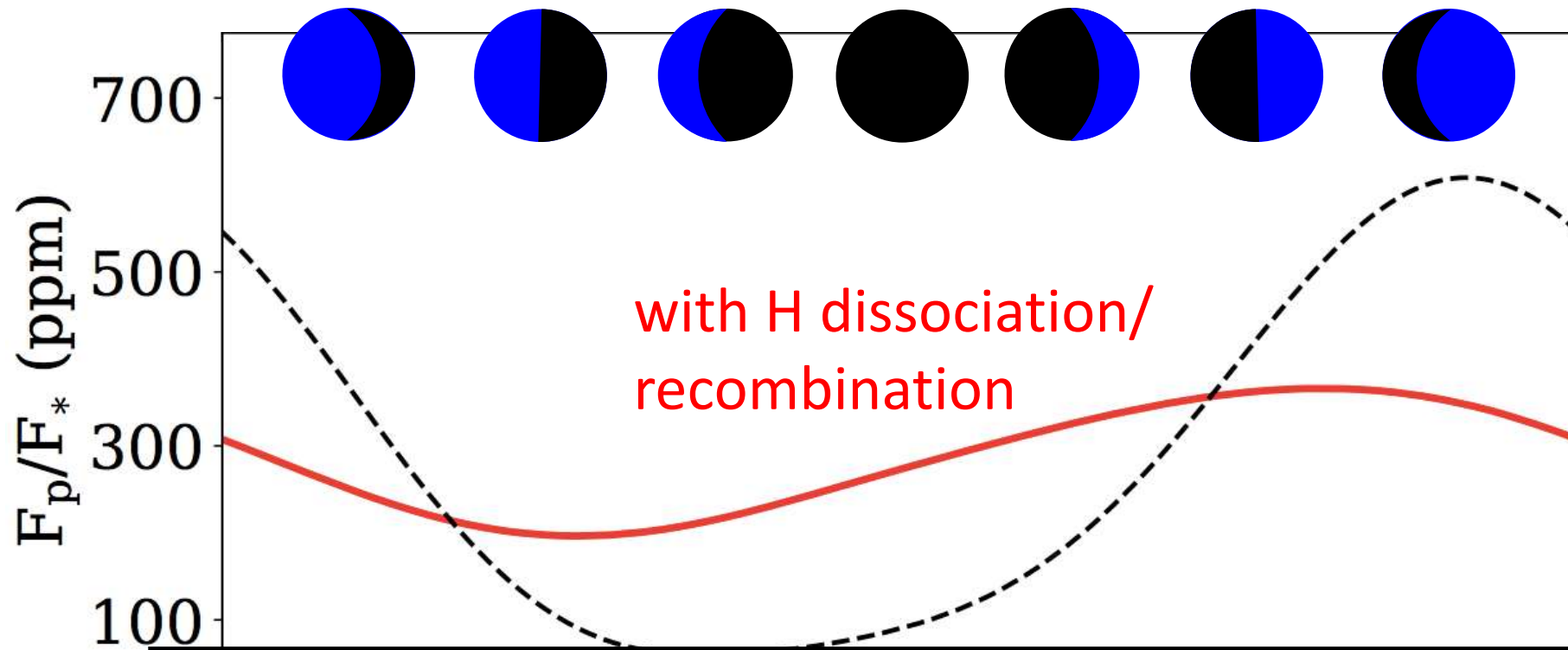


(Bell & Cowan 2018)



(Bell & Cowan 2018)

$\text{H}_2 \leftrightarrow 2\text{H}$ Enhances Heat Transport (like water vapor in Earth's atmosphere)



What other Physics might we be missing?
Clouds and Magnetic Fields!

(Bell & Cowan 2018;
Tan & Komacek 2019)

Eccentric Planets

Map changes is time

Not Synchronously Rotating

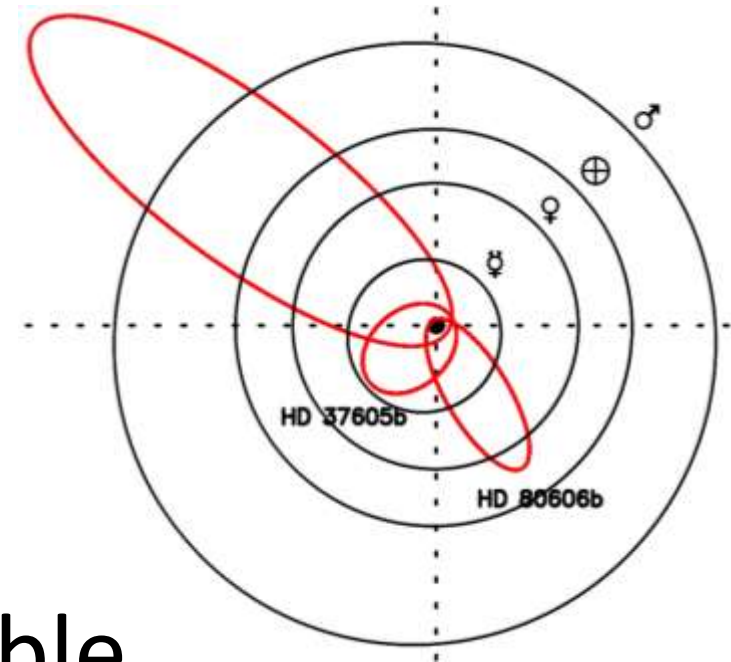
- Phase Mapping is Impossible

- Two-Slice Energy Budget is Impossible

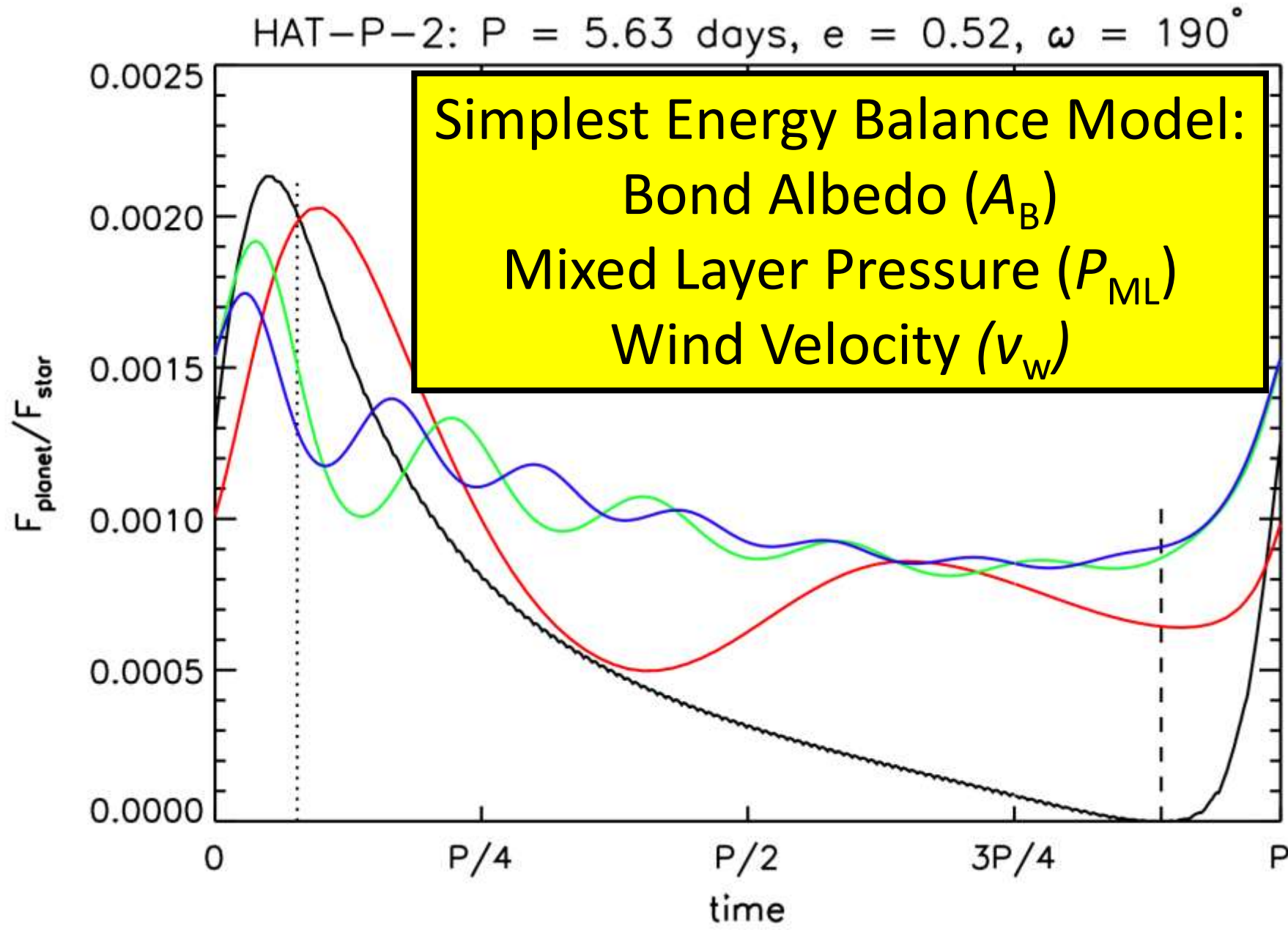
- 2D spectral retrieval *might* work?

- ✓ Energy Balance Models Work Great

- ✓ Break Advective/Radiative Degeneracy

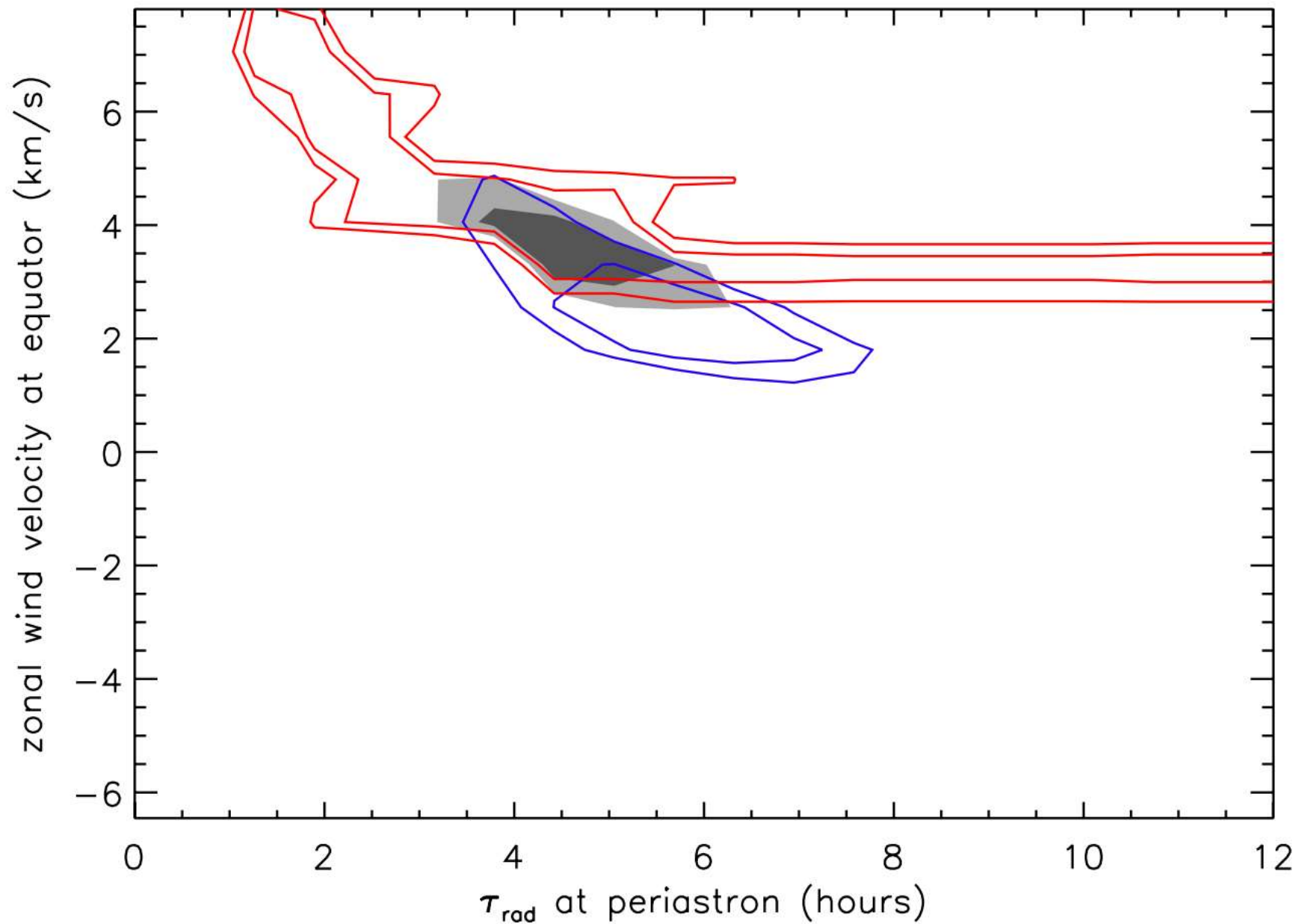


Eccentric Planets

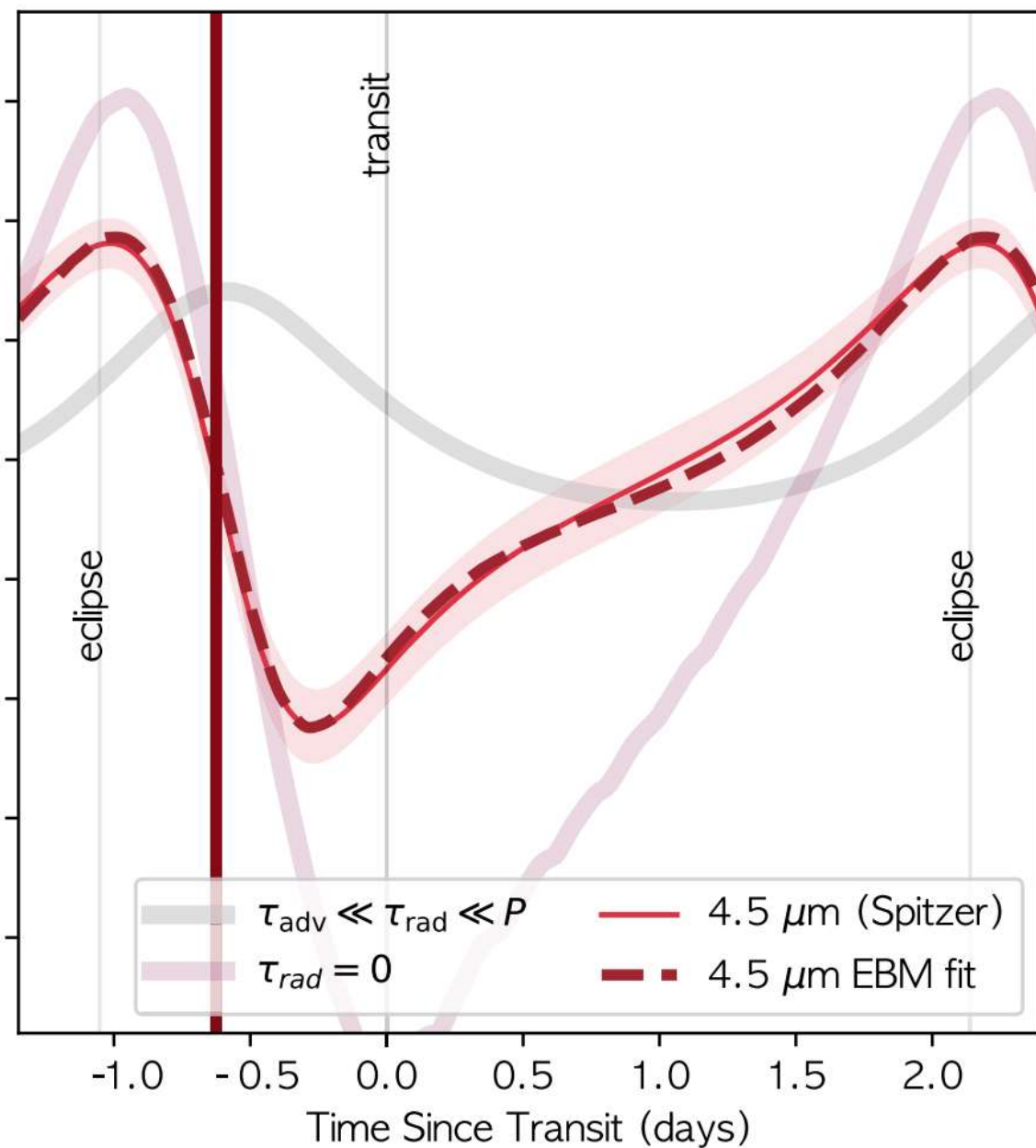
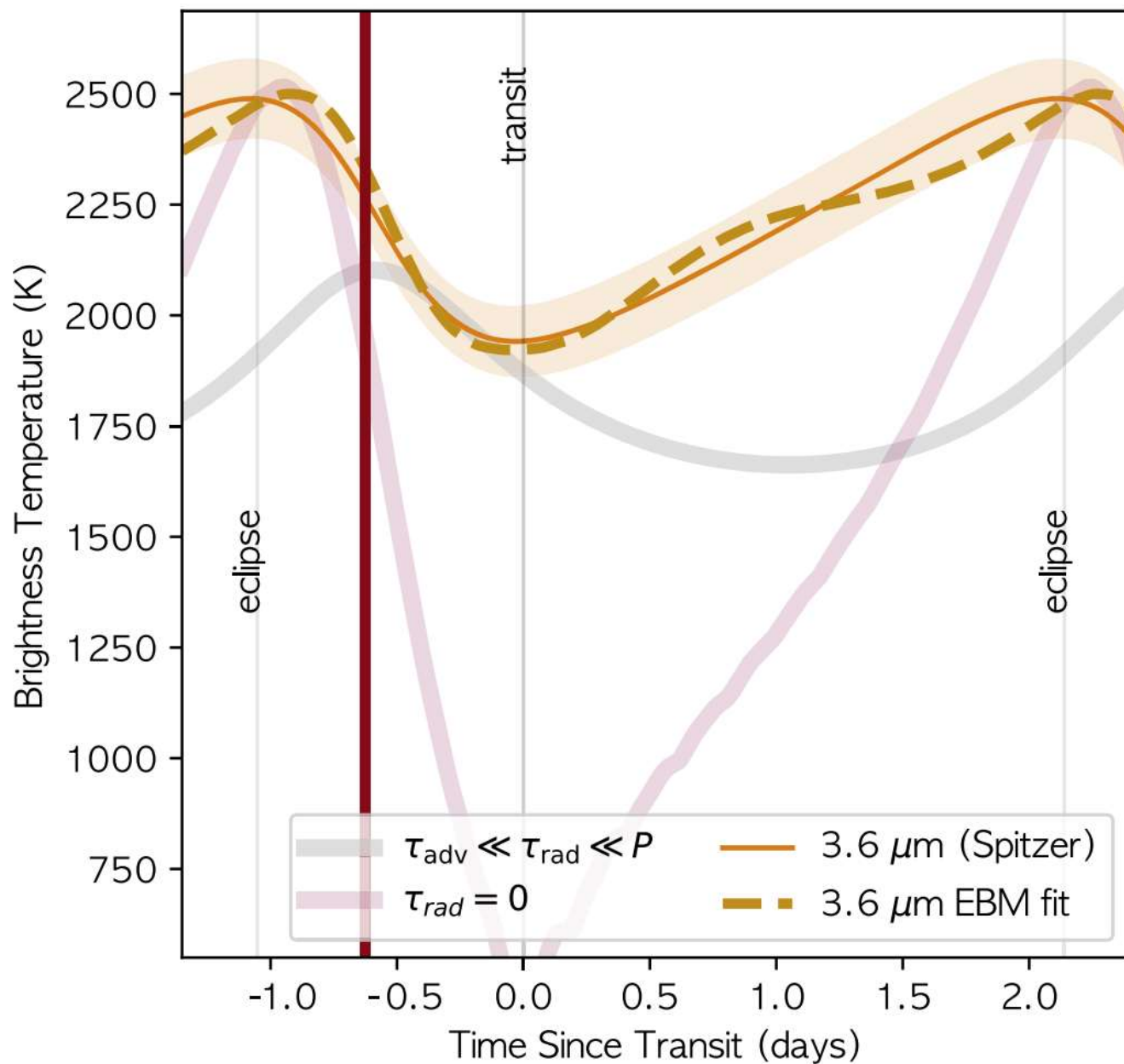


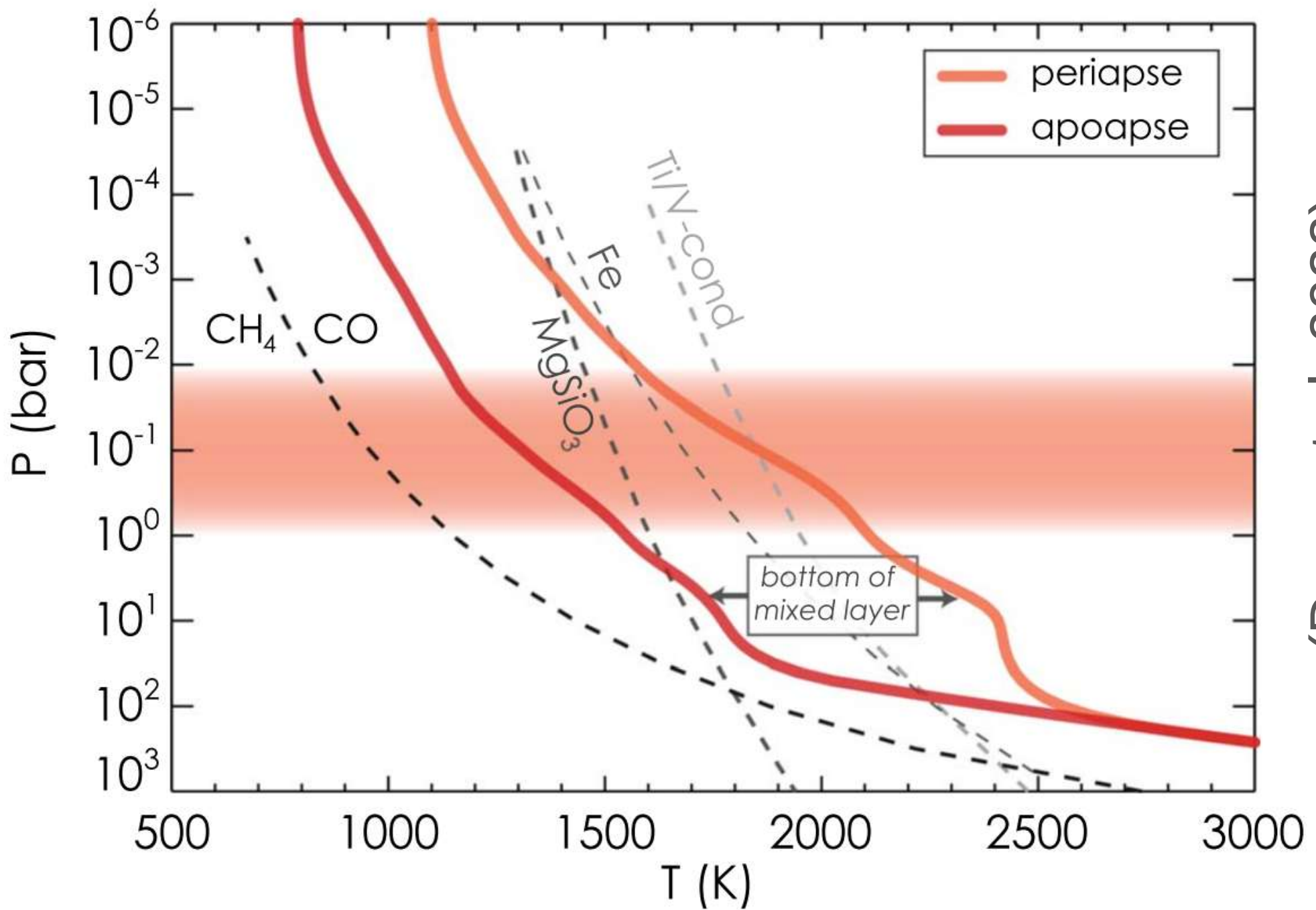
(Cowan & Agol 2011a)

Eccentric Planets



(Lewis et al. 2013)





(Dang et al. 2022)



Questions?
Comments?