Starspot modeling

with Dr. Wisniewski

Presentation by Simon Lowry

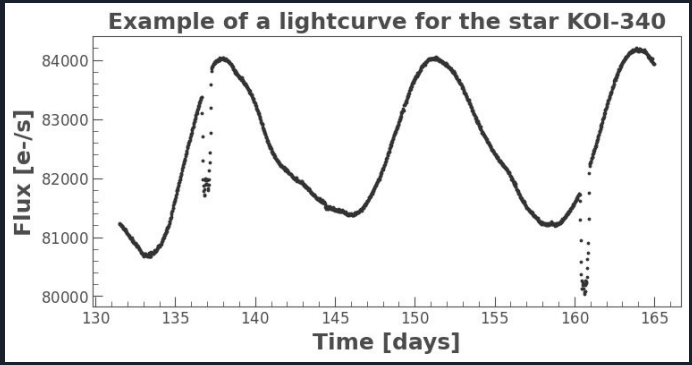
Who cares?

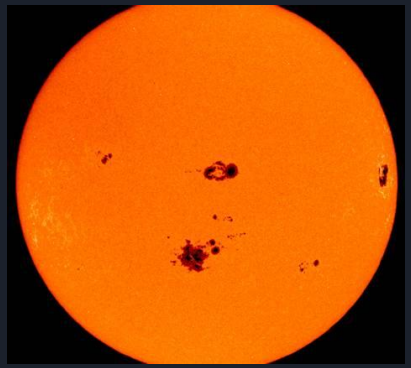
Why does it matter if we can model spots on other stars?

- Compare to Solar activity
- Stellar magnetic fields
- Exoplanet radii and atmosphere
    - Habitability

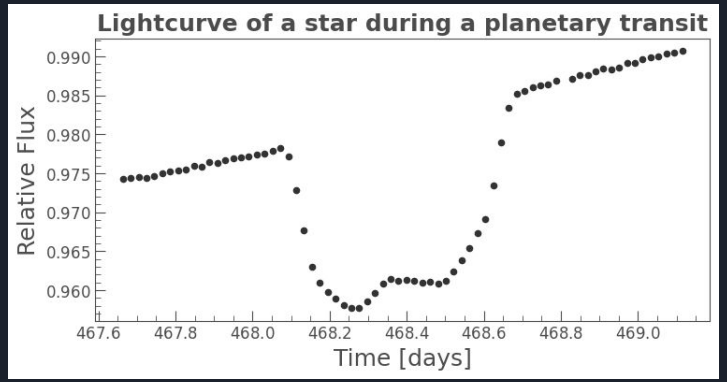
Can we look at a lightcurve of a star with a transiting planet to model the spots on the star's surface?

Key words: Lightcurve, Planetary Transit, Starspots





How do we detect starspots?

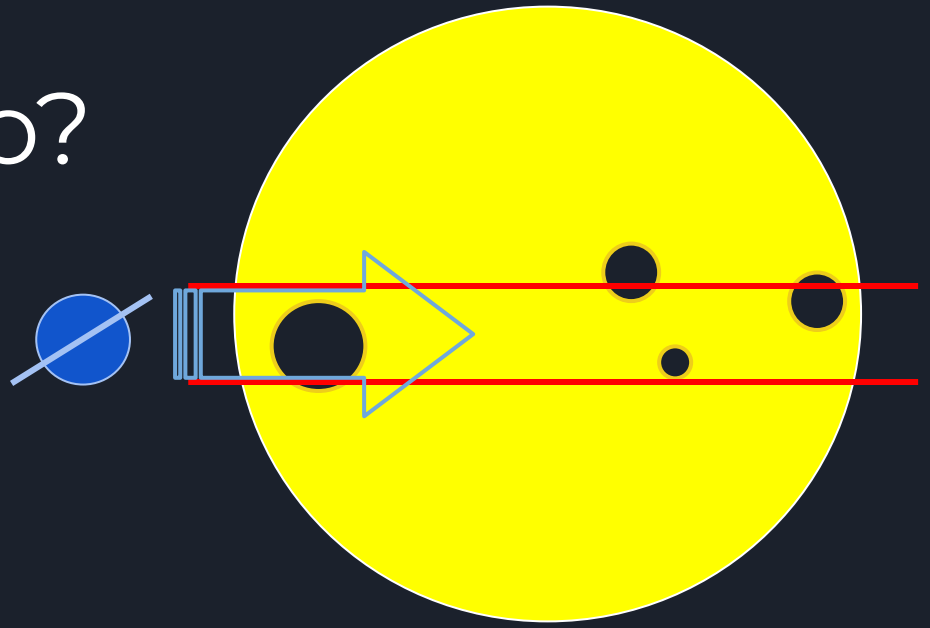


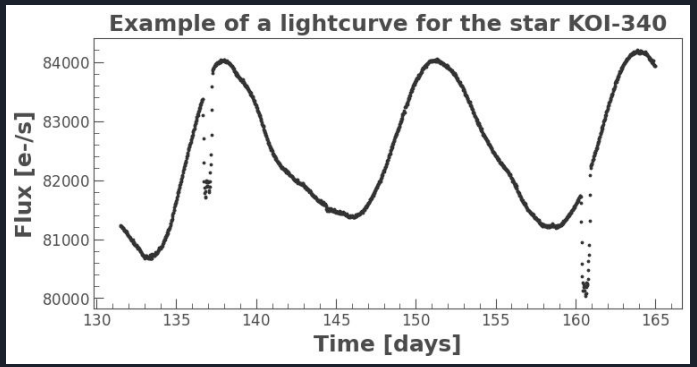
- Impossible to observe directly
- Several methods (spectroscopic)
- My research:
  - Analyse lightcurves
  - Something causes the in-transit ‘bump’
  - Use software to model starspots
  - Create lightcurves from modeled stars
  - **Model = Actual ⟶ spot confirmed**

What will I do?

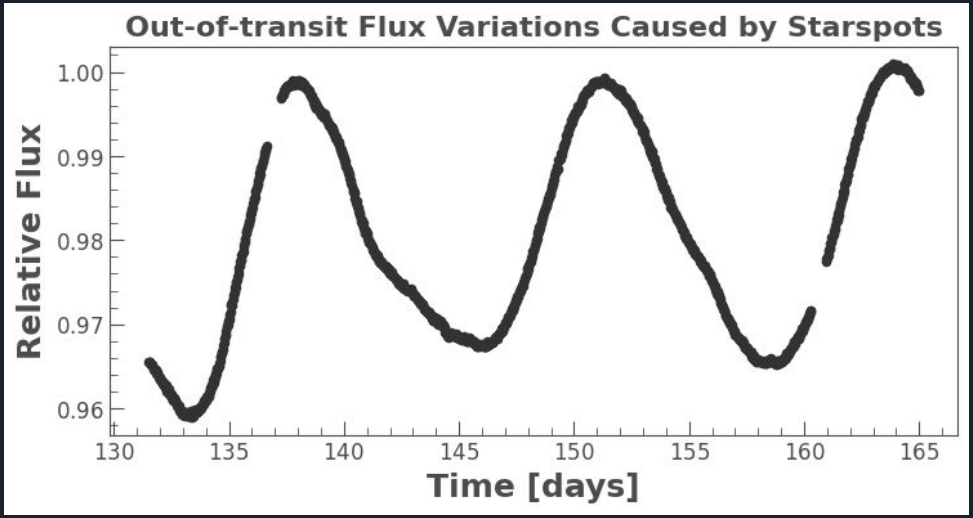
Use models of
in-transit spots...

... to model
out-of-transit spots

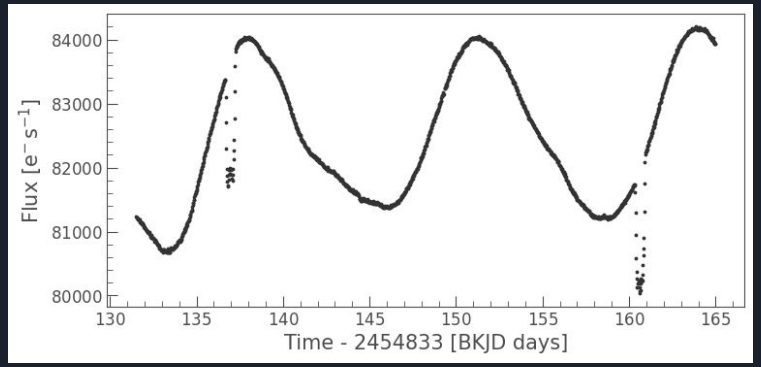




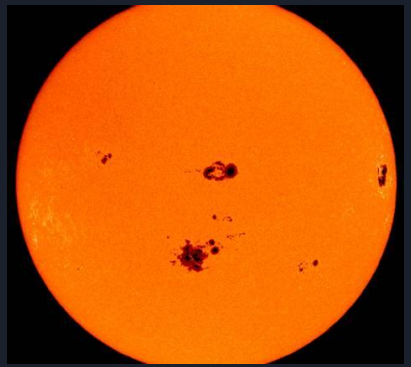
- Out-of-transit modulation caused by star’s rotation
- Model the starspots to mimic the actual lightcurve



So basically, I want to turn this:



into this:



to help increase our understanding of other stars and exoplanets