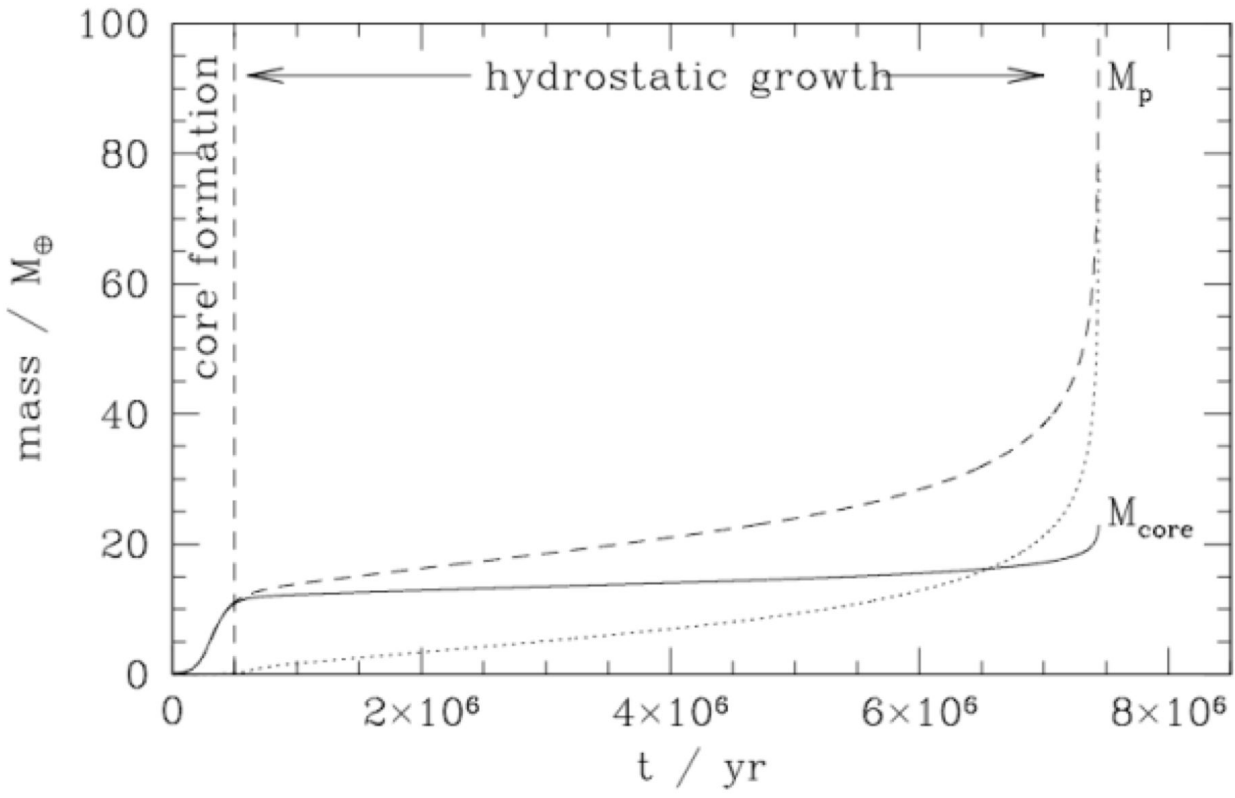
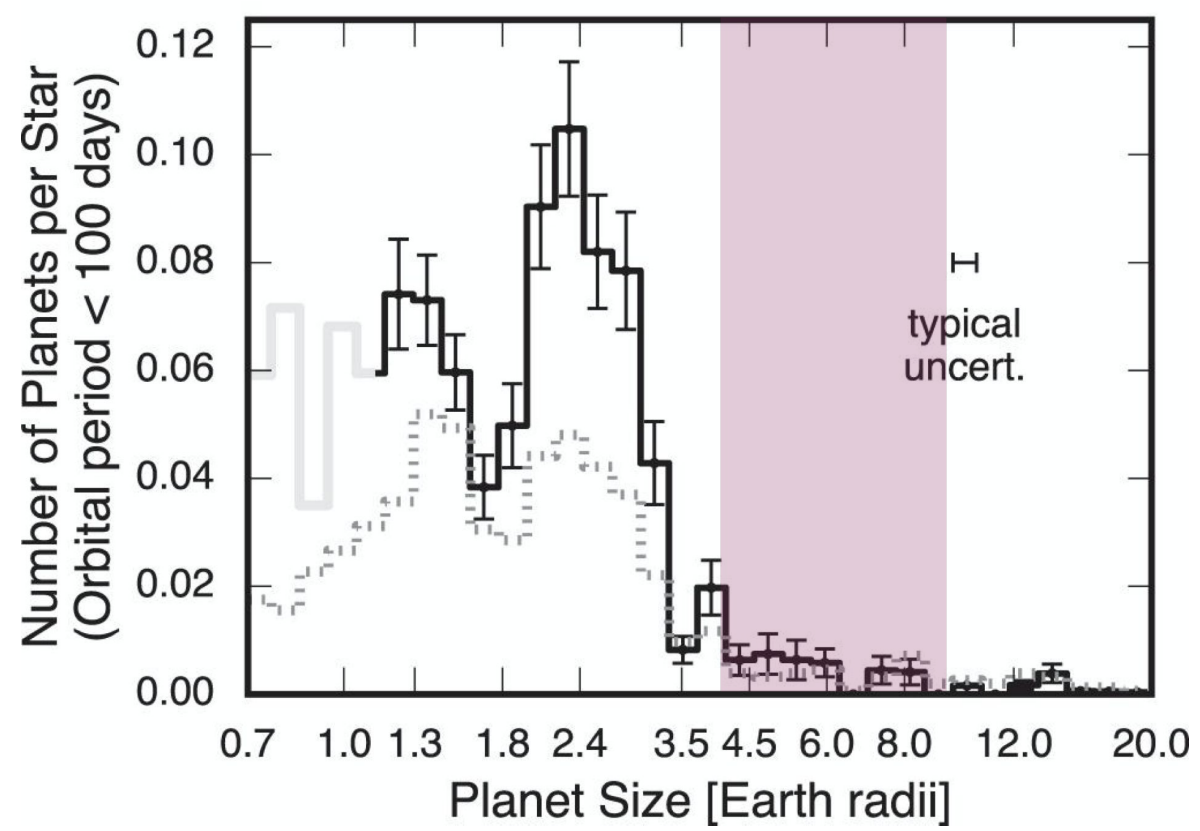


P. Armitage; after Pollack et al (1996)



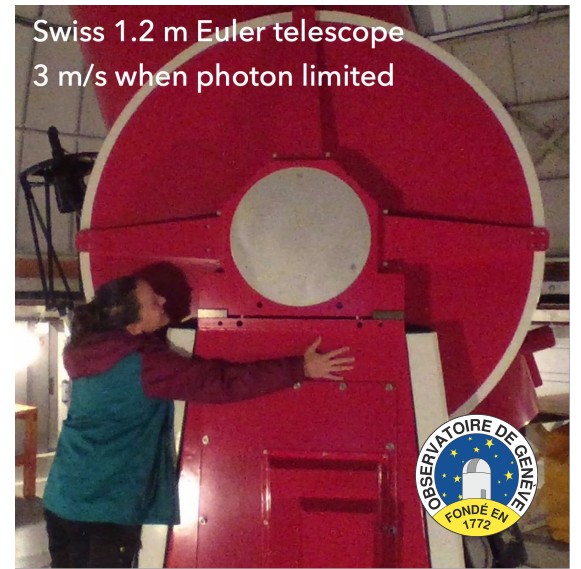
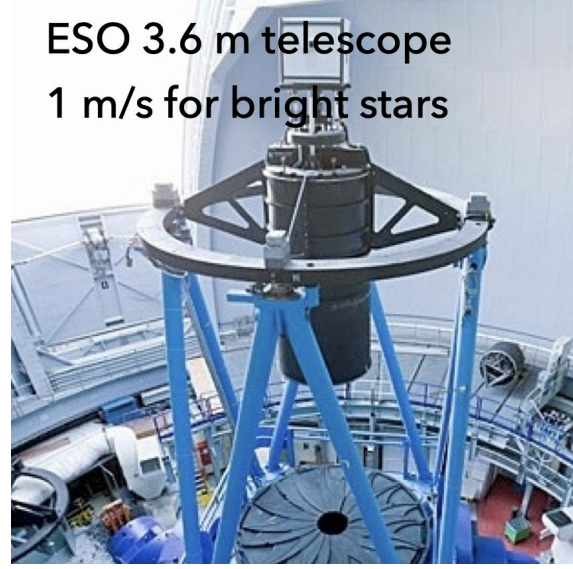
Occurrence  $\sim 7\%$  (Hsu et al. 2019)



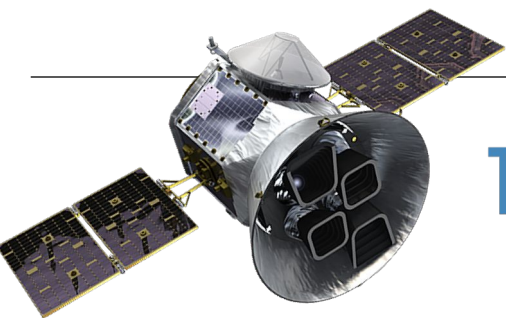
**RUN AWAY CORE ACCRETION MAKES THE DIFFERENCE BETWEEN SATURN AND NEPTUNE**

**OK - LET'S FIND SOME SATURN-TO-NEPTUNE SIZED EXOPLANETS THEN!**

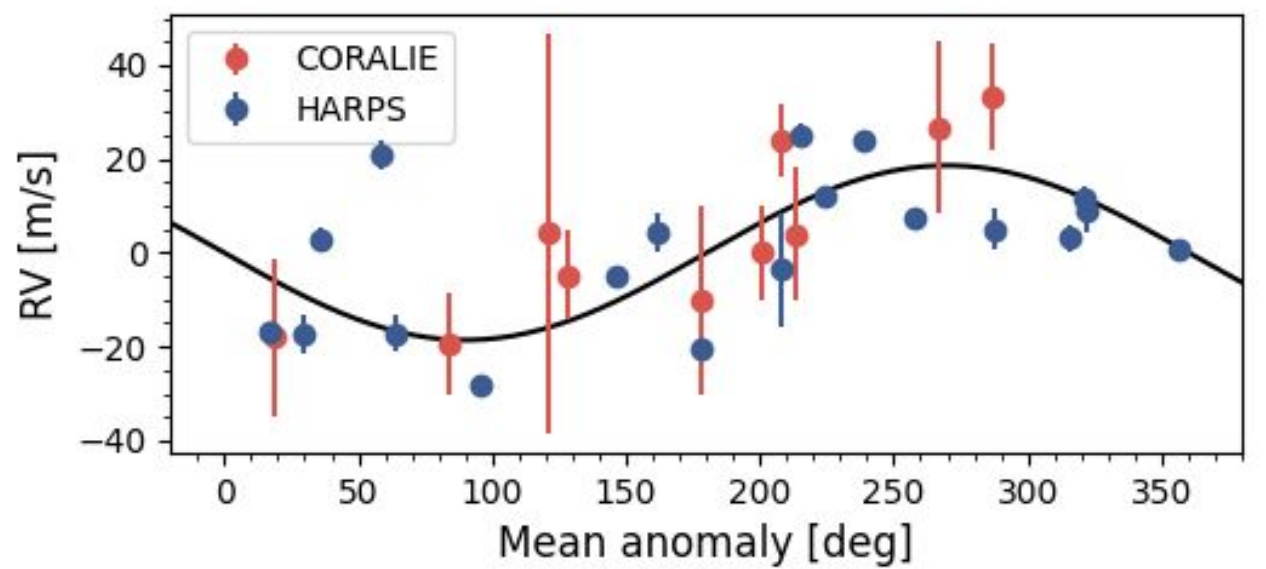
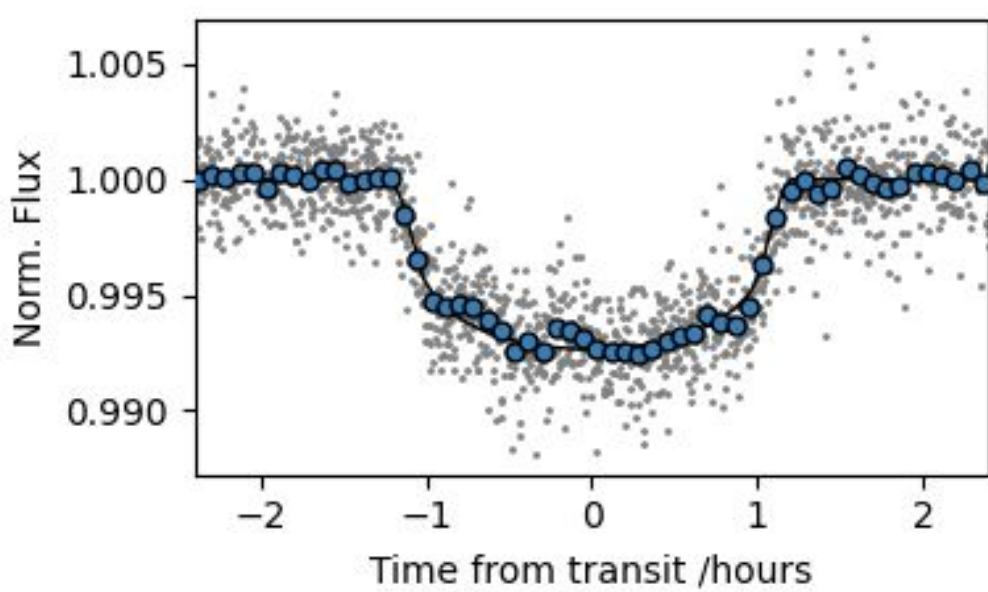
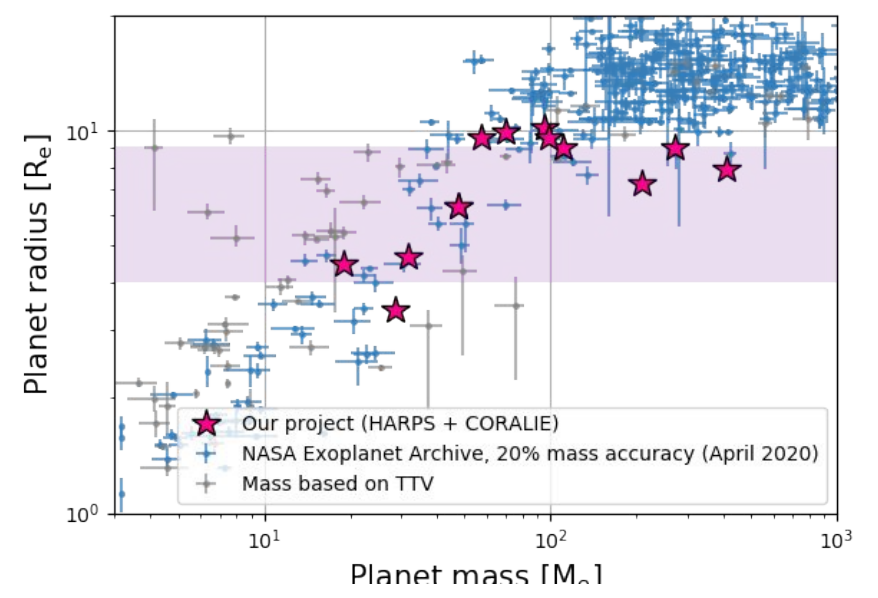
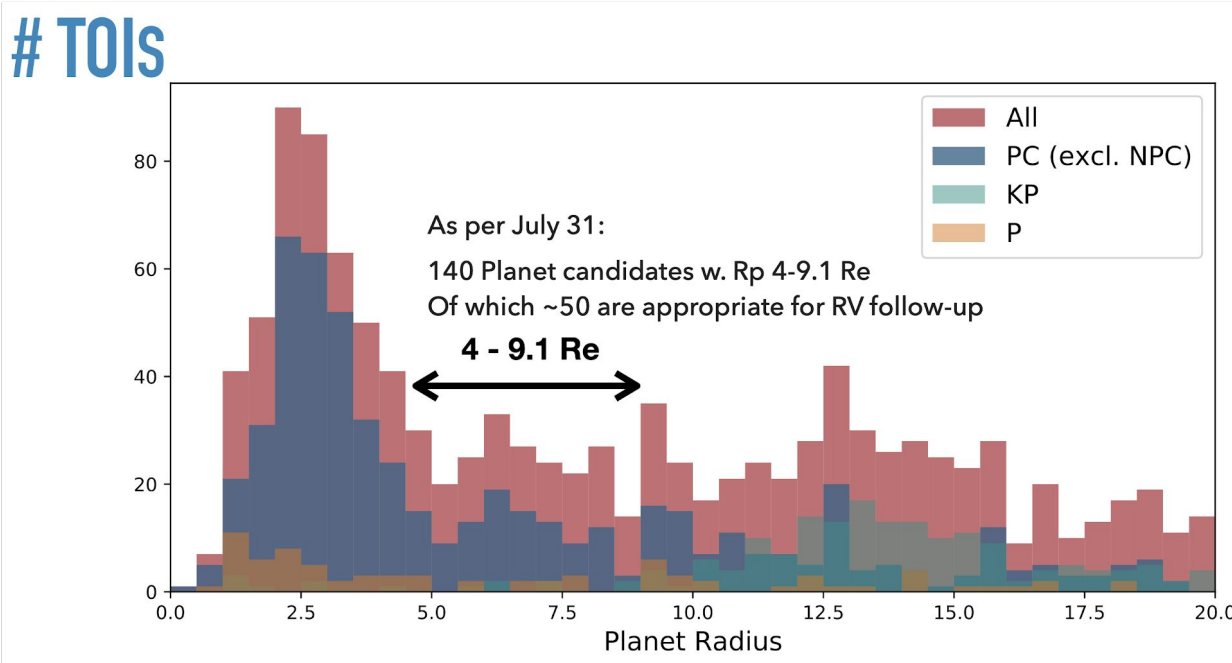
Petigura et al. 2016 + 2017, Bhattacharya 2018, + me  $\sim 2018$



**Combined CORALIE-HARPS survey:**  
 $R_p = 4-9 R_e$ ,  $V < 12$ ,  $\text{Dec} < 10^\circ$ ,  $T_{\text{eff}} < 6500$   
 15 night on HARPS (10 observed) & 10 nights on CORALIE  
 Vetting of all(-ish\*) TOIs in the parameter range (\*depending on period)



## TESS OBJECTS OF INTEREST, YEAR 1



**Stay tuned for**

- 9-ish planets to be published (Nielsen+in prep, in collaboration several teams within TESS exoFOP)
- Currently finishing a our follow-up 'survey' all sub-Saturns from TESS yr 1 (first observations in  $\sim 7$  months yesterday 🤖)
- Population study, investigating connections to stellar properties (metallicity, mass, etc) and environment (incident flux, multiplicity...)
- Comparison of updated internal structure models and comparison with Lopez & Fortney 2014