



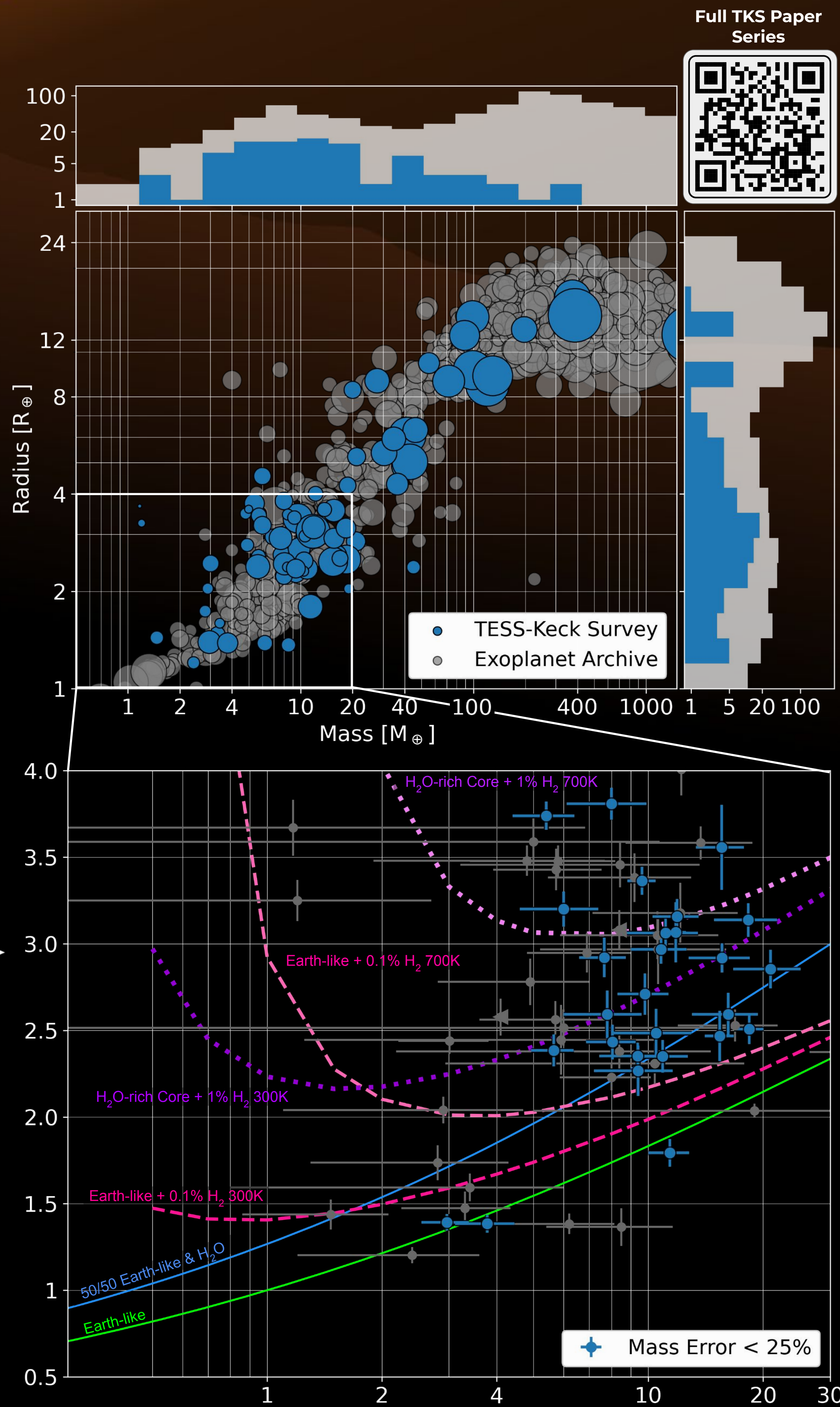
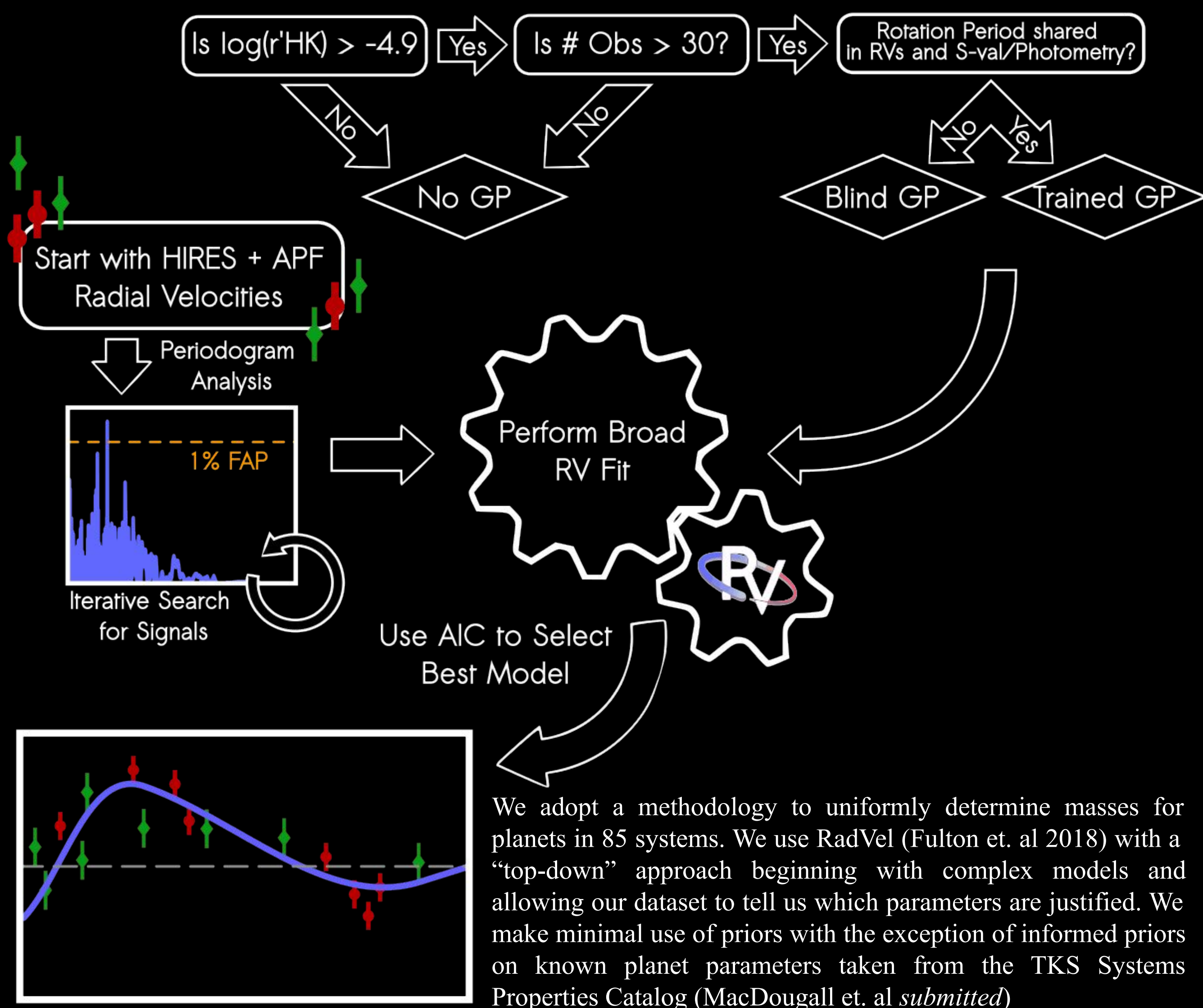
TESS-Keck Survey

Mass Catalog & Data Release

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with the TKS and CPS Team

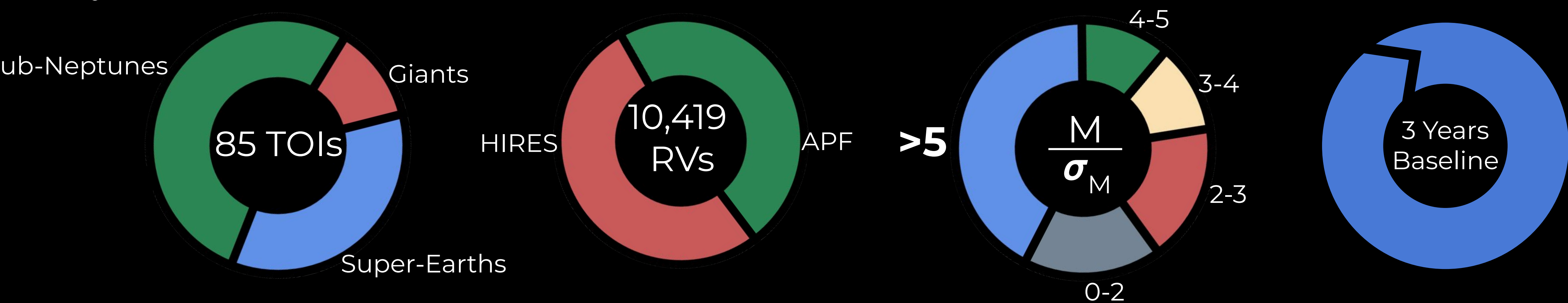
We present a preliminary look at the TESS-Keck Survey's (TKS) Mass Catalog and data release. TKS is a collaboration across multiple institutions that uses the High Resolution Echelle Spectrograph (Keck/HIRES) and the Automated Planet Finder (APF) with the goal of measuring precise masses of ~ 100 planets (Chontos et al. 2021). **Three years on, masses have been measured for over 100 planets and planet candidates.** Takeaways:

- The TKS Mass Catalog will be one of the largest single releases of planet masses to date.
- We will increase the number of $2-4 R_{\oplus}$ planets with measured masses by $\sim 50\%$.
- Nearly 20 small ($<4 R_{\oplus}$) planets with at least a 5σ mass measurement.



The “TKS view” of the mass-radius diagram. The target selection criteria set forth in Chontos et. al 2021 resulted in a planetary sample covering a broad range of this parameter space. **Top:** A complete MR diagram with TKS targets in blue and known planets in grey (as of March 2023). Sizes are scaled according to mean mass uncertainty. **Bottom:** Zoom-in of the small planet landscape with *only* TKS targets. Targets where we reached average mass precisions of less than 25% are in blue. The compositional tracks from Zeng & Sasselov 2014 are shown. While HIRES struggled to obtain precise masses of planets below $\sim 2 R_{\oplus}$ we still performed well in the “puffy” sub-Neptune regime.

TKS by the numbers:



TKS is a NASA-Keck strategic mission support program with contributions from multiple institutions. We are deeply grateful for the opportunity to conduct observations from lands held sacred by indigenous peoples.