

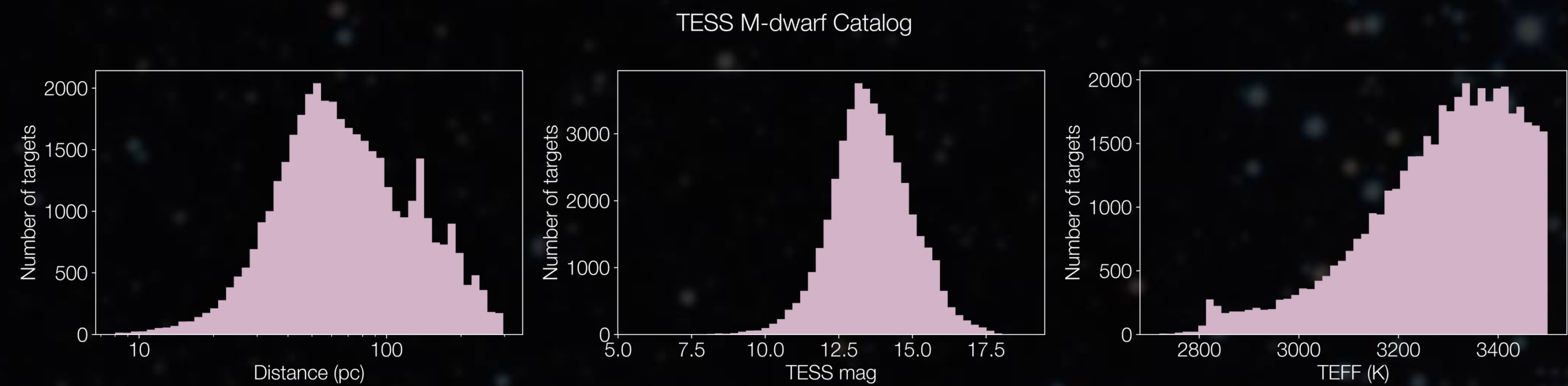
The occurrence of planets around M dwarfs with TESS



University of
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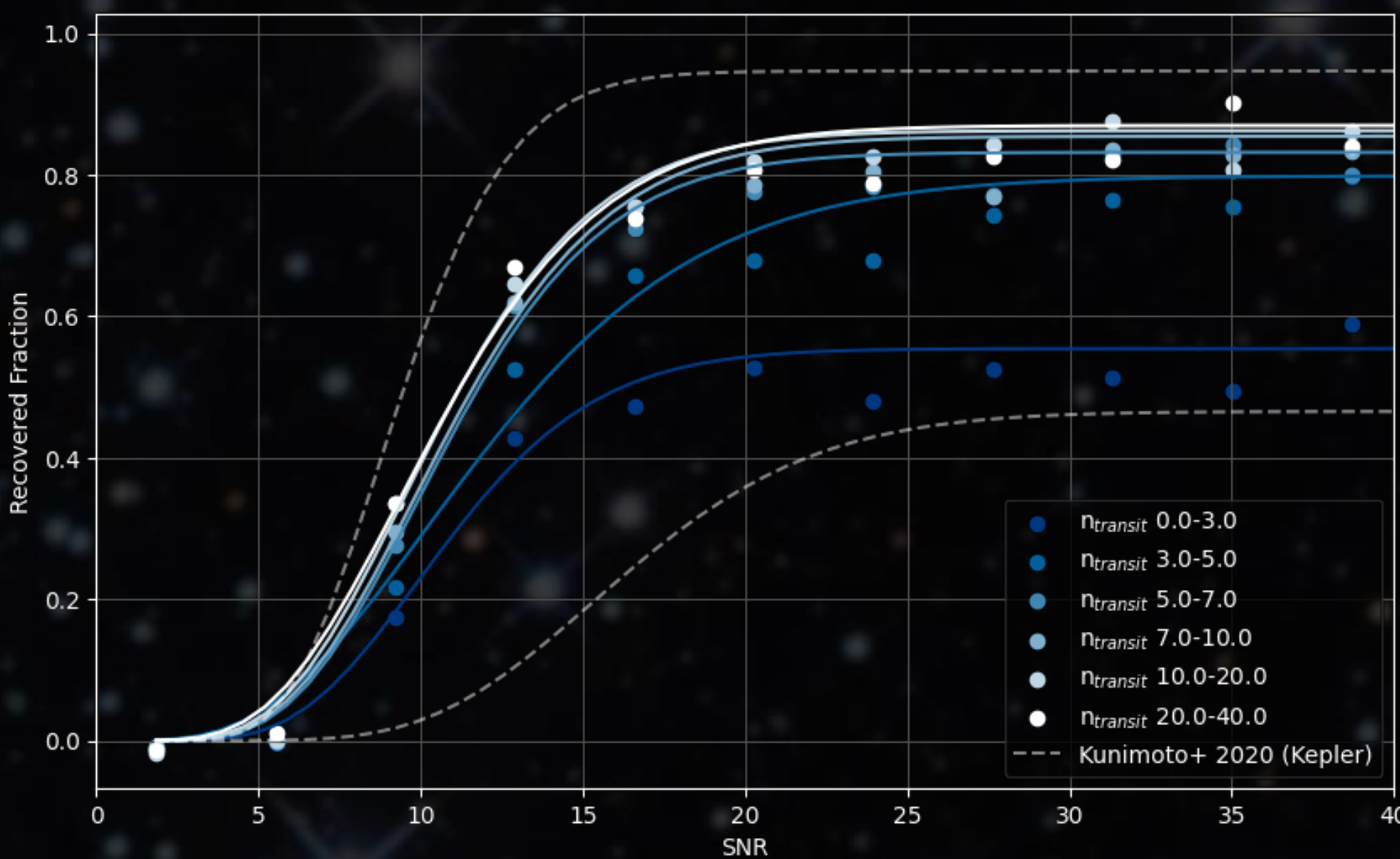
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The Sample & Search



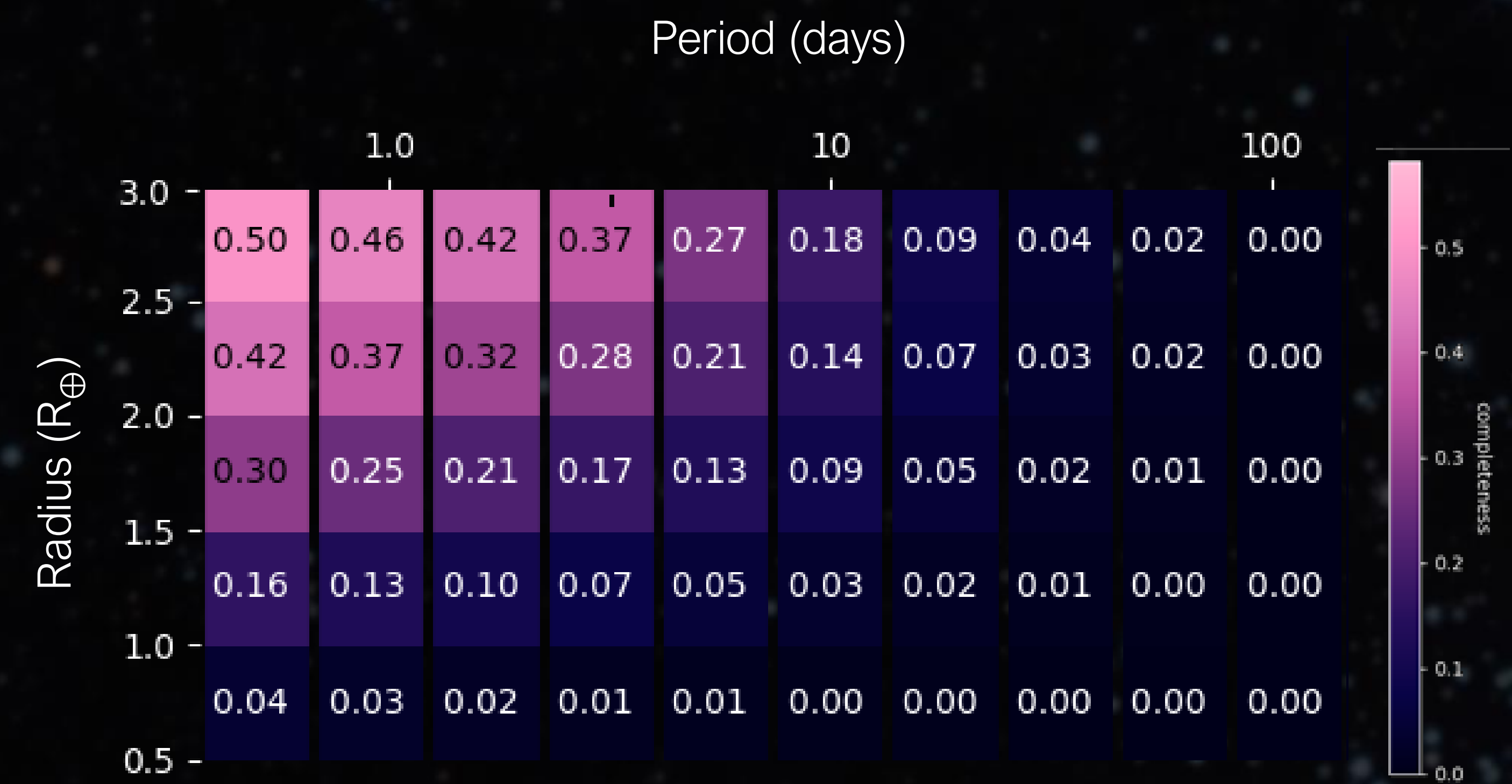
Our sample consists of 44309 M dwarfs <3500 K with TESS 2 minute cadence from the TESS Cool dwarf catalog (Muirhead et. al. 2018)

We search with two iterations of BLS, one at short periods and one at long periods. All candidates with SNR>9.0 are vetted with model shifts, difference image, archival photometry, and other available techniques.

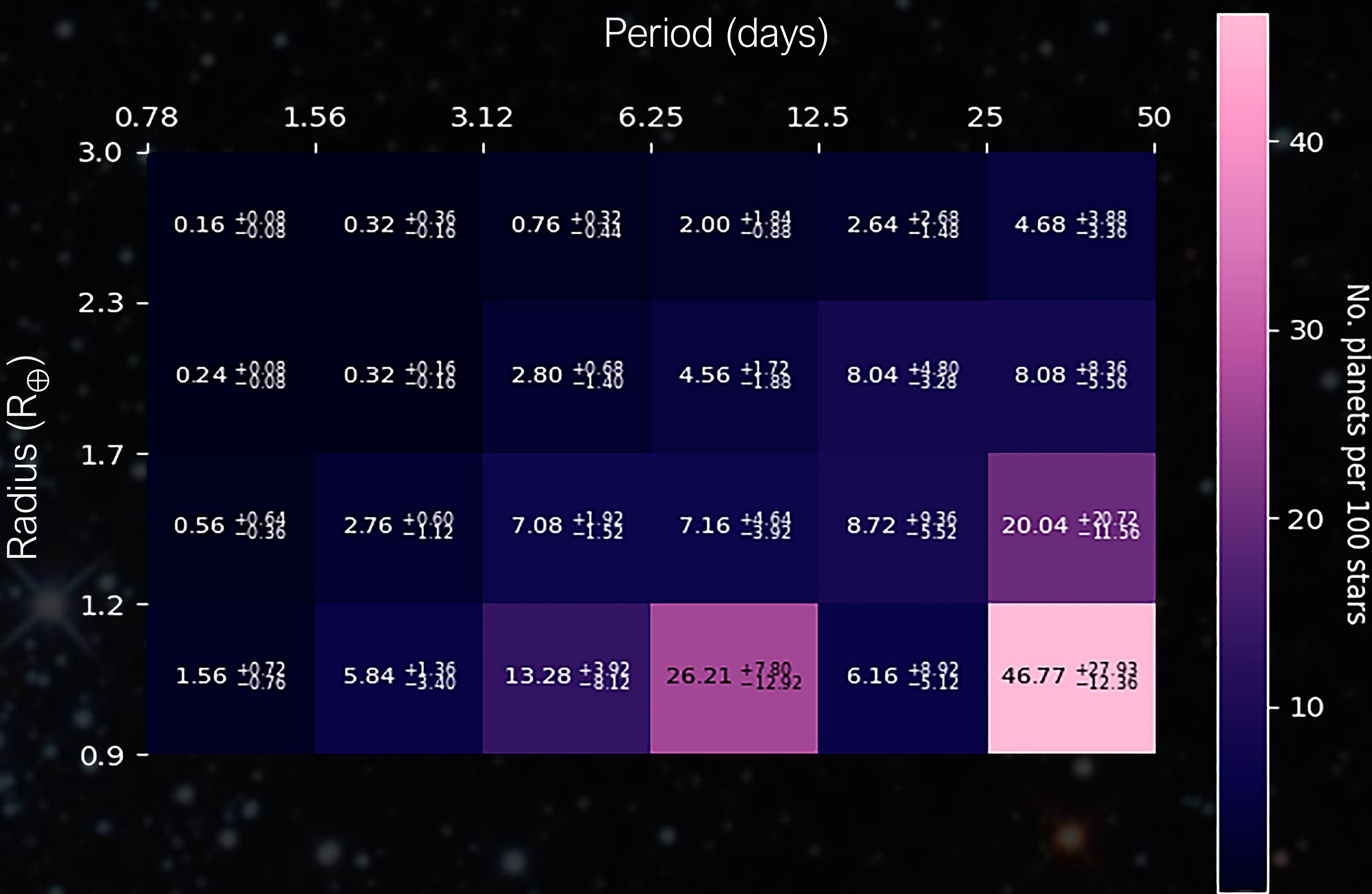


We conduct ~10000 injections and recoveries on a subsample of light curves in our sample to obtain the recovery fraction as a function of the number of transits injected and the SNR of the injected transit.

Completeness

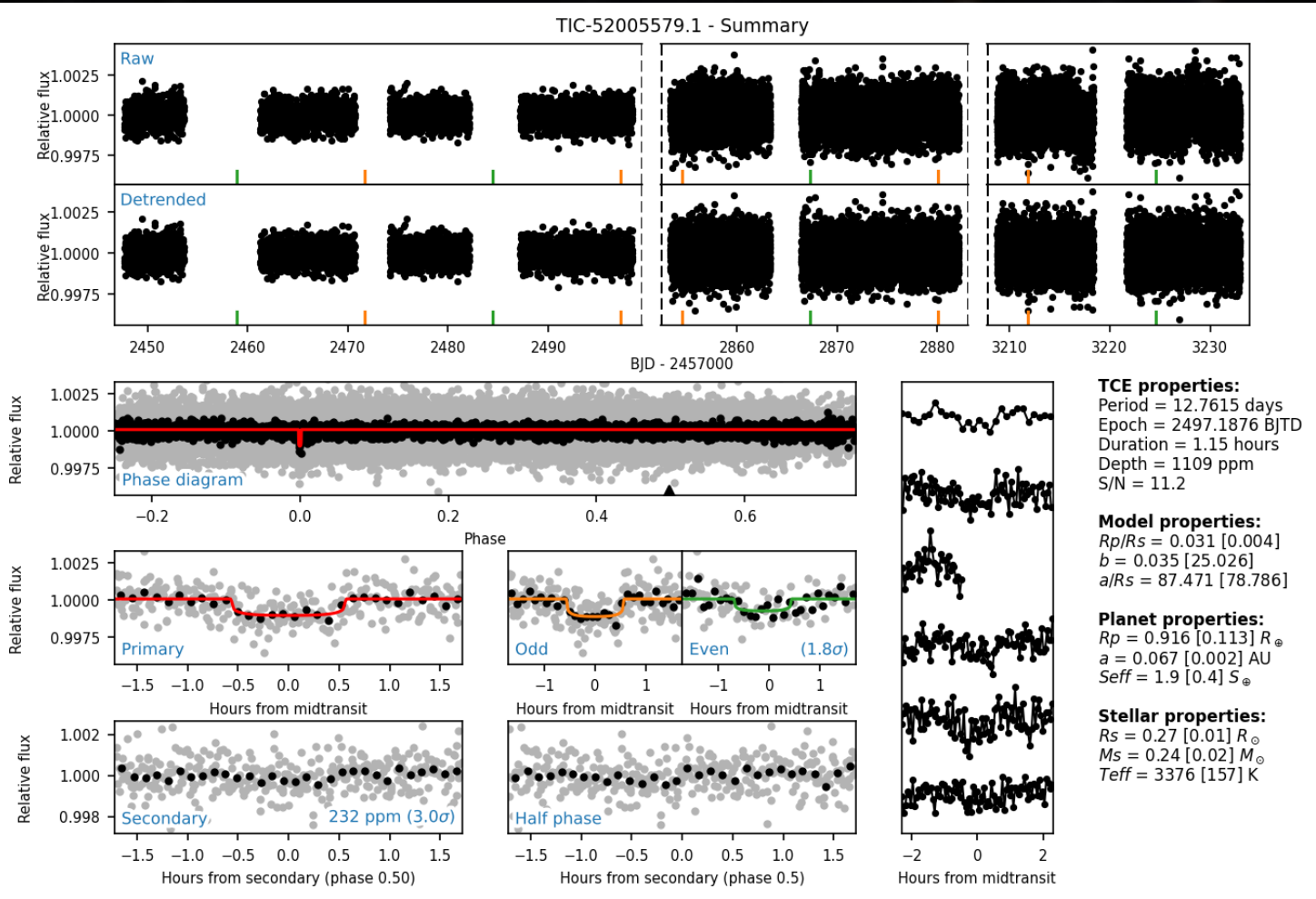


The (Preliminary) Occurrence:

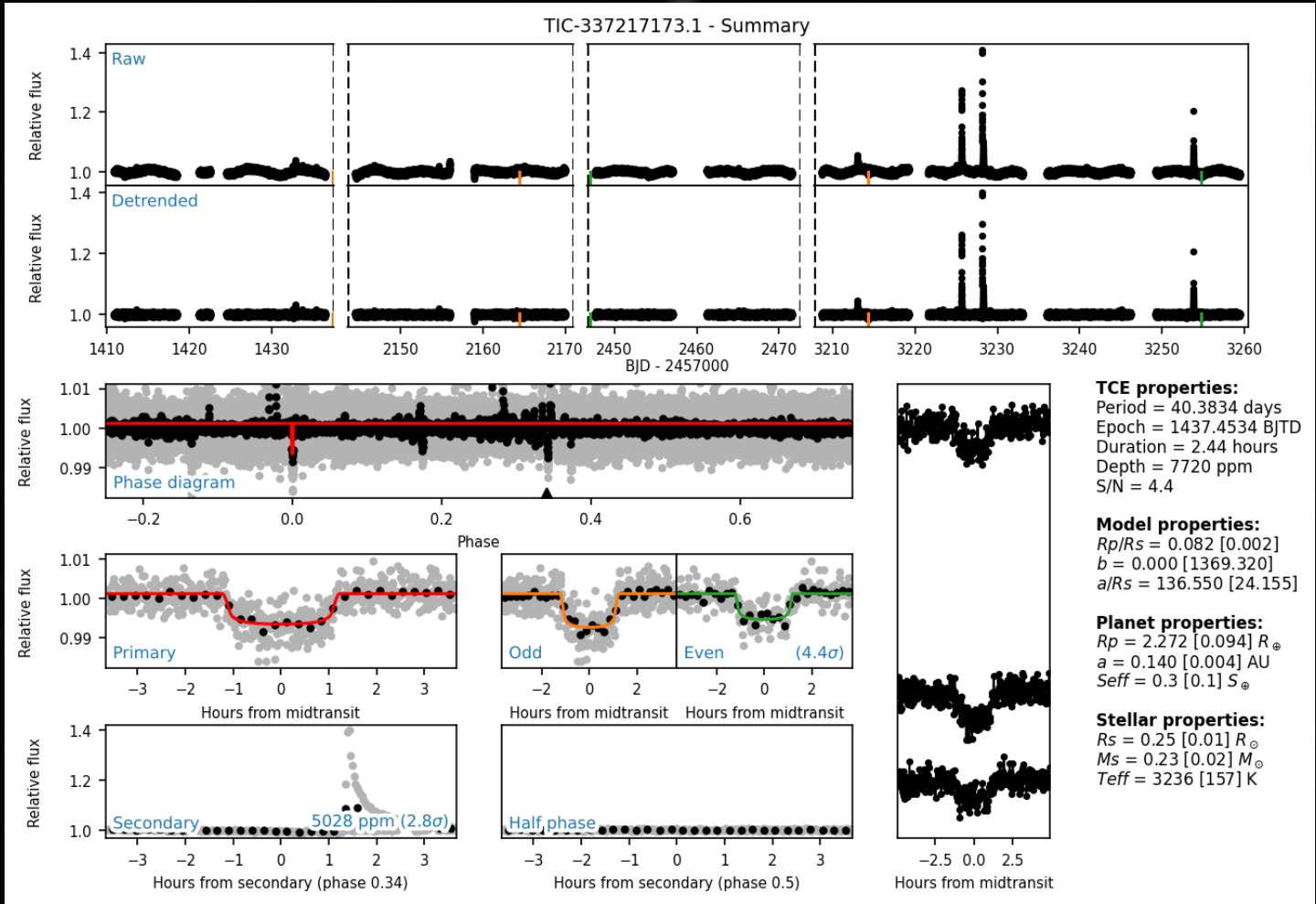


Noteworthy Recoveries:

Gliese 12 b



LHS 6050 b



Gliese 12 b is an Earth-sized planet with an orbital period of 12.7 days around a star only 12 pc away. It is a highly amenable temperate, terrestrial planet for atmospheric study with JWST

LHS 6050 b is a 2.0 R_{\oplus} super-Earth with an orbital period of 40 days. At an equilibrium temperature of 200K, it is one of the coolest planets accessible with transmission spectroscopy with JWST.



Stay tuned for the upcoming paper

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