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Title: Frequency of Neptune and Saturn-mass planets in the solar neighborhood  
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Abstract: We investigate the population of Neptune and Saturn-mass planets discovered by the Eta-Earth radial velocity (RV) survey to look for trends in planet occurrence rates around solar-type stars. We analyze ~10 years of Keck/HIRES RV data with a new automated multi-planet detection pipeline. We use the pipeline to detect all planets previously discovered in the HIRES data and several new previously-unpublished candidates. We determine our survey completeness and sensitivity using injection recovery tests fed into the same automated pipeline used for detection. We find that approximately one-quarter of G and K-type stars host a Neptune to Saturn-mass ( $10 M_{\oplus} \leq M_p \leq 100 M_{\oplus}$ , sub-Saturn) planet with an orbital period between 10 and 1000 days, and that these planets are nearly an order of magnitude more common than their more massive ( $M_p > 100 M_{\oplus}$ ) counterparts. The frequency of sub-Saturns is nearly constant as a function of orbital period and semi-major axis and shows no deficit of sub-Saturn-mass planets with periods between 10 and 300 days (a.k.a. the “period valley”) that has been previously observed for planets more massive than  $100 M_{\oplus}$ .