

## THE CANADA-FRENCH ECLIPIC PLAN SURVEY: L3 DATA RELEASE AND THE ORBITAL STRUCTURE OF THE KUIPER BELT.

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We report the orbital distribution of trans-neptunian comet discoveries from the first discovery year of the Canada-France Ecliptic Plane Survey (CFEPS): the L3 release. CFEPS is a Kuiper belt object survey based on observations acquired by the Very Wide component of the Canada-France-Hawaii Telescope Legacy Survey (CFHTLS-VW). The L3 release consist of 73 Kuiper belt objects, 55 of which have now been tracked for 3 years or more, providing precise orbits.

Our absolute calibrated and extremely well-characterized survey (with known pointing history) allows us to de-biased our observed population and make un-biased statements about the intrinsic orbital distribution of the Kuiper Belt. By applying the (publically-available) CFEPS Survey Simulator to models of the true orbital distribution and comparing the resulting simulated detections to the actual detections made by the survey, we are able to rule out several hypotheses. We find that:

- The main classical belt's so-called 'cold' component is confined in semimajor axis and eccentricity compared to the more extended 'hot' component;
- The cold component does not stretch all the way out to the 2:1 resonance but rather depletes quickly beyond  $a=45$  AU.
- The inner classical belt (sun-ward of the 3:2 mean-motion resonance) has a population of roughly 2000 TNOs with absolute magnitudes  $H_g < 10$ , and may not share the inclination distribution of the main classical belt.
- The plutino population lacks a cold low-inclination component, and so, the population is larger than recent estimates; our analysis shows a plutino population that is  $\sim 15\%$  the size of the classical belt population.