Realistic Simulations of the Planetary Yields of a Next-Generation Microlensing Survey

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We present predictions for the planetary detection yields from a next-generation microlensing survey. The Korean Microlensing Telescope Network (KMTNet) is a set of three telescopes to be located in Chile, South Africa, and Australia. Together these telescopes will provide complete longitudinal coverage and so nearly continuous observations of the southern sky after coming fully online in 2014. With 1.6m apertures and 4 square degrees fields of view, KMTNet will be the first survey network to detect and characterize planets without needing additional follow-up resources. Here we present a Monte Carlo simulation that predicts the ability of KMTNet to detect planets at a range of planet masses and planet-star separations, accounting for real-world effects such as weather, the atmosphere, the moon, and realistic observational uncertainties. We improve upon previous simulations by including high-magnification events and more realistic error estimates.