Six hundred 1-km retrograde jovian irregular moons

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We have searched a 2010 archival data set from the Canada-France-Hawaii Telescope for very small (km-scale) irregular moons of Jupiter in order to constrain the size distribution of these moons down to radii of ~400m, discovering 53 objects which are moving with Jupiter-like on-sky rates and are nearly certainly irregular moons. The four brightest detections, and seven in total, were all then linked to known jovian moons. Extrapolating our characterized detections (those down to magnitude $m_r = 25.7$) to the entire retrograde circum-jovian population, we estimate the population of radius $> 0.4$km moons to be 600 (within a factor of 2). At the faintest magnitudes we find a relatively shallow luminosity function of exponential index $\alpha = 0.29 \pm 0.15$, corresponding to a differential diameter power law of index $q \approx 2.5$. 