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ANCIENT BOMBARDMENT OF THE INNER SOLAR SYSTEM – REINVESTIGATION OF THE “FINGERPRINTS” OF DIFFERENT IMPACTOR POPULATIONS ON THE LUNAR SURFACE.

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The observations and findings on varying CSFDs on the lunar surface are inconsistent with one another and highly depend on the interpretation of asteroid belt evolution models and subsequent geological processes. Thus, to address the question of whether the PF has changed with time and when the potential transition occurred to produce differently shaped CSFDs, we re-investigated the crater frequencies of the key lunar basins as listed by [1] using their crater measurements, but applying a new crater counting technique, the buffered non-sparseness correction [2] which more rigorously accounts for crater obliteration on densely cratered surfaces. Then, we examined the basin stratigraphy based on both N(20) value, i.e. the crater frequencies ≥ 20 km and the derived absolute model ages. Finally, we studied the shape of the summed CSFDs of Pre-Nectarian, Nectarian and Imbrian aged basins and inferred potential projectile populations.

[1] Fassett et al. 2012. JGR 117: E00H06. [2] Kneissl et al. 2016. Icarus 277: 187 – 195.

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