Collisonal Terminology for Cold Classical KBOs

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Blorping (v.): A process wherein a sub-hypervelocity impact of two low density bodies results in deformation of one/both bodies and accretion of the two into one larger body. Blorps (n.) are the accretionary landform product of blorping, and may be the unveolved progenitors of Talps [5].

The New Horizons [1] flyby of Kuiper Belt object 2014 MU₆⁹ revealed a primitive body that may be a remnant of an early age of our solar system. Low-velocity, accretionary collisional evolution in the Kuiper Belt [2–4] may be evident in MU₆⁹ by its "lumpy snowball" appearance. Sub-hypervelocity impacts [averaging 0.38–0.46 km/s [3] at ~45 AU] of low-density icy bodies in the outer solar system may result in accretion rather than disruption. Each lobe of MU₆⁹ may show the morphological expression of multiple, deformational low velocity blorps [Blorp cartoon & Map], followed by a gentler non-deformational flomp to join the two lobes [Flomp cartoon]. Whereas the identification of some crater forms implies that MU₆⁹ experienced hypervelocity impacts, accretionary collisions of low-density materials are a meaningfully different processes and require definitional distinction.

Blorp Smoooshing: Flomp Sticking

The mechanisms of icy aggregate* sticking* can be explored using radius, mass, density, Young’s modulus, and surface energy [6]. We calculate sticking velocities for a set of collisional water-icy bodies at various solar distances (Plot 1). Mean density of MU₆⁹ having low surface energy and sticking velocity could apply to the flompping of the two lobes. Lower limit density of MU₆⁹ having a higher sticking velocity at low surface energy could imply the blorping process. This range of sticking velocities may give us insight to multiple collisional processes on a single icy body.

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Flomping (v.): A process involving an extremely low velocity "impact", possibly 1 km/hr or less (e.g., equivalent to walking – slowly – into a wall), of two bodies resulting in little/no deformation regardless of body strength, but creating a (permanent?) contact binary.

The cartoon process of blorping.

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References


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Science further, the excitement of new discoveries, general purchase, and team members with profound capability.