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A statistical dynamical study of meteorite impactors: case study from Bosumtwi.

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The study of meteorite impacts is very relevant for the Solar System and in particular for the Earth. Due to these “catastrophic” events, we can draw conclusions about the dynamic evolution of bodies within the Solar System. The Bosumtwi structure is a well-studied impact feature of Ghana. The impact occurred ca. 1.07 Mya [1] having made a 10.5 km diameter crater. Previous studies have shown the impactor had a vertical angle between 30° 45° from the horizontal [2]. The Impact generated the Ivory Coast tektites, demonstrating the direction of the impactor. The composition of the impactor is thought to be ordinary chondrite [3]. Our study concerns a statistical origin of the impactor’s most probable family/ies in the Main Belt region, through a statistical astrodynamical study taking into account the angle of the impact, the composition of the impactor, the location of the planets and continents on earth at the time of the impact, and using a range of possibilities for the probable velocity of the impact.

[1]Koeberl et al.(1997)GCA 61,1745-1772.[2]Artemieva et al.

+(2004) GGG 5, 11016.[3] Koeberl et al. (2007)EPSL256,534-546. +

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