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Evolution of possible meteorite stream of Příbram

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Introduction

The fall of Neuschwanstein meteorite in 2002 was an inspiration for this work. The meteorite orbit was practically identical to the orbit of Příbram meteorite. [1] suggested the existence of possible meteorite stream. As we have shown earlier [2], [3] the orbital evolution of both meteorites is similar for at least 5000 years into the past. This supports an idea of possible existence of meteorite stream in the orbit of Příbram. However, the origin of such a stream is still a question. Possible explanation could be the release of meteoroids from a rubble-pile break up due to the tidal interaction between the Earth and close approaching asteroid.

Method

The original position and velocity vectors of escaped particles are used for orbital evolution analysis. The resulted spread of particles along the orbit and the width of the stream after several hundred revolutions are analyzed. Revealed characteristics of possible meteor shower of asteroidal origin are presented.

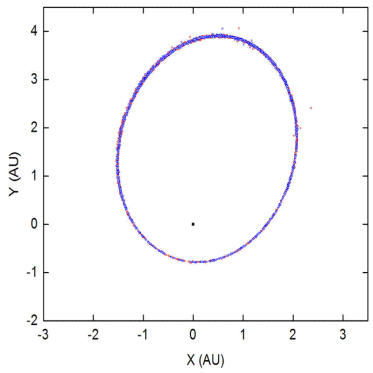

Figure 1: The spread of particles of the modelled stream projected to the orbit plane of Příbram.

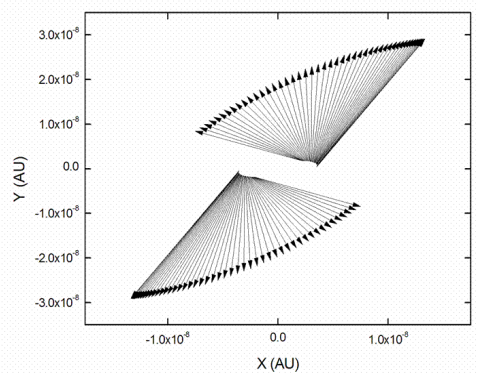

Figure 2: Positions and velocity vectors of released particles after the tidal disruption.

References

[1] Spurný P., Oberst, J. and Heinlein (2003) *Nature,* 423, 151–153.

[2] Kornoš, L, Tóth, J. and Vereš, P. (2008) *Earth, Moon & Planets.,* 102, 59-65.

[3] Kornoš, Tóth, J. and Vereš, P. (2009) *Contrib. Astron. Obs. Skalnaté Pleso.,* 39, 18-24.

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