

Dynamical evolution of V-type photometric candidates in the central and outer main belt asteroids in the central and outer main-belt

V. Carruba¹ and M. Huaman¹

¹UNESP, Univ. Estadual Paulista, Grupo de dinâmica a Orbital e Planetologia, Guaratinguetá a SP, 12516-410, Brazil

V-type asteroids are associated with basaltic composition, and are supposed to be fragments of crust of differentiated objects. Most V-type asteroids in the main belt are found in the inner main belt, and are either current members of the Vesta dynamical family (Vestoids), or past members that drifted away. However, several V-type photometric candidates have been recently identified in the central and outer main belt. The origin of this large population of V-type objects is not well understood, since it seems unlikely that Vestoids crossing the 3:1 and 5:2 mean-motion resonance with Jupiter could account for the whole observed population. In this work, we investigated a possible origin of the bodies from local sources, such as the parent bodies of the Eunomia, Merxia, and Agnia asteroid families in the central main belt, and Dembowska, Eos and Magnya asteroid families in the outer main belt. Our results show that dynamical evolution from the parent bodies of the Eunomia and Merxia/Agnia families on timescales of 2 Gyr or more could be responsible for the current orbital location of most of the V-type photometric candidates in the central main belt. Studies for the outer main belt are currently in progress.

Acknowledgements: This work was supported by the FAPESP (grant 2011/19863-3) and CAPES (grant 15029-12-3) funding agencies.

References: V. Carruba, M. E. Huaman, R. C. Domingos, C. R. Dos Santos, D. Souami 2014, Dynamical evolution of V-type photometric candidates in the central main belt, MNRAS, 439, 3168.