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NEO Characterization Results

DynAstVO: Near-Earth Asteroids orbits and close approaches databases

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ABSTRACT

DynAstVO is a Europlanet database related to Near Earth Asteroids orbits. It provides the orbital elements and their precision, observational information, Minimum Orbit Intersection Distance, and an ephemeris file through a SPICE kernel [1]. In this poster, we present the auxiliary database associated to the close approaches of NEOs with the planets Mercury, Venus, Earth, Mars and the Moon.

Close approaches are determined using the orbits provided in the DynAstVO main database, i.e. by using a dynamical model taking into account the gravitational perturbations of the Sun, the eight planets, the Moon and Pluto (positions are from INPOP13c [2] and the four main asteroids (Ceres, Pallas, Vesta and Hygiea, with preliminary computed positions), the corrections of relativistic effects of the Sun, the dynamical flatness of Sun and the Earth.

It is developed within the Europlanet 2020 RI and the Virtual European Solar and Planetary Access (VESPA) frameworks, and conforms to EPN-TAP environment [3] and is accessible as webservice through Virtual Observatory protocols or classical web access at the address <http://vespa.obspm.fr/>.

The database provides the date and time, the minimum distance of close approaches and their precision from 2000 to 2050. The database is daily updated as soon as new observations are available on the Minor Planet Center. The NEO close

approaches computed in the frame of DynAstVO are validated by comparison to other databases and the analysis is given in another communication (Ivantsov et al., this meeting).

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