The reconstruction of genetic relations between minor planets, based on their orbital characteristics

Rosaev A.E.

[1]*FGUP NPC NEDRA,*
Yaroslavl, Russia. E-mail: rosaev@nedra.yar.ru

The method of fast determination of minimal distances between orbits (d) is developed. It is proved, that value of d and coordinates of area, where it reached, are important criteria at search genetic related orbits. In results, the very anisotropy distribution of points of intersections of Near-Earth asteroids (NEA) orbits is obtained. The remarkable concentration of intersection points exist near heliocentric longitudes l=320-360 degrees. In according of cluster analysis by longitude and heliocentric variables, 3 independent compact groups of intersected orbits may be selected in this direction. Moreover, similar but not so large groups of orbit meet at another values of l. The complex of programs for study possible collision history of minor planets is developed. The electronic databank is created. Our bases may updated daily in agreement with following schema. It give us ability to fastly take into account all changes in near Earth space and in main belt. For more suitable using, calculation divided into few groups: Near Earth Asteroids (NEA), Trojan (trn), Marscrossers (mrc). For each groups every day may be calculated: - contents (include objects with poor determined orbits), - mutual minimal distance between orbits, - triplex (or multiple) intersections points position - this result followed by picture. User can change criteria of semicrossing, or agree with our. - rate of change minimal distance between orbits by perturbations of elements. Any theory of perturbation can be insert in this equations. - statistical marks - possibility, distribution and other. - for more complete description of possible catastrophic collisions places, calculation of minimal distances asteroid with fireballs is developed. The meteorites are considered particularly. - the determination of minimal distances orbit of each studied object with main belt (numbered) planets is make. It give us ability to classify minor planets by it’s most possible origin.