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Title: *"Kuiper Belt: its mass and influence on planetary motion"*

Abstract. The Kuiper belt consists of a large number of distant bodies beyond Neptune's orbit. The main part is located between the resonances of 3:2 and 2:1 of the mean motion with Neptune, inside a ring area with radial distance between 39.4 and 47.8 AU and inclinations $i < 5^\circ$. Perturbation from the Kuiper belt affects the orbits of planets and should be taken into account when high-accuracy planetary ephemerides are constructed. Also, a more reliable influence of this belt on the motion of the planets will permit to decide how to search a distant major planet and how to take into account its additional gravitational influence. For this purpose, high-precision Saturn data obtained by the Cassini spacecraft are used mainly. However, the total gravitational acceleration created by the Kuiper belt for Saturn is comparable to or even exceeds the perturbations of a hypothetical remote (about 300-400 au) planet with the mass of 10 Earth mass. One-dimensional ($R = 43$ AU) and two-dimensional models ($R_1 = 39.4$, $R_2 = 47.8$ AU) of the Kuiper belt have been considered, and the difference of gravitational effect it was analyzed from them simulating the effect of Kuiper belt on motion of Saturn, Uranus, Neptune. Estimations of masses of 30 large transneptunian bodies have been obtained from motion of their satellites or from their sizes and densities. These objects were included into the simultaneous numerical integration of planets and the Moon while constructing planetary ephemerides. Estimation of the mass of the other bodies belonging to the Kuiper belt was based on the new version of the ephemerides of planet and the Moon at IAA RAS - EPM2017, where more 800 thousand positional observations of planets and their satellites, mostly radar data from spacecraft were fitted. The comparison of estimations of the total mass of the Kuiper belt obtained for two dynamical models and statistical estimates of other authors are given.

Joint work with Pitjev Nikolay.