

Moon-Earth separation problem in the dynamics of Near Earth Asteroids

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The number of discovered Near Earth Asteroids has dramatically increased in the last years. New observational data provide more informations for the dynamical studies of these objects. Important problem in the numerical studies of NEA motion is the estimation of possible perturbing effects. It is difficult to decide which effect can be neglected in in the integration. Our results often depends on 'subtle' perturbations caused by small or distant objects. One of significant sources of perturbations on the motion of NEA is the Earth-Moon system. Some authors take into account barycenter of Earth-Moon system as the only perturbing body, but in specific cases the separation of these bodies is needed and taken into account (especially, in the event of close encounters).

The influence of Earth-Moon system on the evolution of NEA was investigated in the following poster. The latest observational results and various integration methods were applied. The nature of perturbations caused by this 'binary' system was described and compared with results obtained by using 'barycenter model'. Additionally, the efficiency of several numerical algorithms was compared.