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# Dynamical models and ephemerides of Near Earth Asteroids

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## Résumé

Near Earth Asteroids (NEA) are a population of asteroids with regular approaches to the Earth's orbit. Some of them may represent a risk of impact with Earth. In that context, the knowledge of their orbit and the estimation of their orbital uncertainty are key points for risk assessment and impact probability. The orbit determination consists in the determination of six orbital elements that fit to the observations. Due to errors on the observations, the orbital elements have an uncertainty leading to errors on their ephemeris, in particular in the future. For a full risk assessment, small perturbations such as Yarkovsky acceleration have also to be taken into account in the dynamical modelling. In this presentation, I will detail the dynamical model used for NEA, the orbit determination process and the methods to estimate the precision of their orbit. I will also present the current limitations in the estimation of uncertainty and the expected improvements brought by several scientific missions (eg. Gaia) in the NEA risk assessment.

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