



EPSC Abstracts

Vol. 14, EPSC2020-953, 2020

<https://doi.org/10.5194/epsc2020-953>

Europlanet Science Congress 2020

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Detecting the Yarkovsky effect using the GAIA DR2 catalogue

Karolina Dziadura, Dagmara Oszkiewicz, and Przemysław Bartczak

Adam Mickiewicz University in Poznań, Astronomical Observatory Institute, Faculty of Physics, Poland (karo.d@amu.edu.pl)

The orbital motion of small bodies is affected by the Yarkovsky effect. First-time the effect was proposed by Yarkovsky in 1901 and then popularized by Āpik in 1950s. However, the first direct detection was only made in 2003 using radar observations. Nowadays there are hundreds of detections for NEAs and only a few for Main-Belt objects. In this work, I attempt to detect the Yarkovsky effect among multiple Main-Belt objects and other asteroids. I will show preliminary results for five asteroids using the OrbFit software. OrbFit is a Fortran program for orbit propagation, ephemerides computation, orbit determination, close approach analysis, and impact monitoring. Orbits were calculated using FitObs with and without the Yarkovsky effect. Next, the ephemeris were computed for the times of GAIA observations and compared with the GAIA DR2 data.