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Astrometry of Small Solar System Objects with NOT

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Telescopes of the 2-4 meter class such as the NOT can be an extremely important observational asset for the field of small solar system objects, thanks to a combination of large aperture and typically easier access compared to 8-10 meter class instruments, especially on short notice.

At the same time, the field of small bodies is characterized by the more rapid timescales on which objects change their observability circumstances. The motion of the object, both in the plane of the sky and in topocentric distance, induces observational constraints that are different from most other fields of astronomy: observability windows may be very short, pointing and tracking can become more complex, and an increased importance must be placed on the temporal accuracy of observations.

In this contribution we will present a couple of interesting results that show how NOT can provide valuable astrometric observations with good angular and temporal precision.

We will show how the telescope can provide high-precision astrometry of a challenging moving object down to magnitude ~25, a faintness level that is often assumed to be the prerogative of 8-10 meter class instruments. We wil also briefly present how we took advantage of an international observing campaign to verify the timing accuracy of the system, another important parameter for the usability of the telescope on fast moving objects.

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