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**Near-Earth Object (NEO) Discovery**

**ESA'S FLYEYE TELESCOPE NETWORK**

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**ABSTRACT**

One of the major goals of ESA's Planetary Defence Office is to discover Near-Earth Objects (NEOs) before they impact the Earth. ESA is currently developing a new survey telescope, the "Flyeye", which will have a greatly expanded field of view (FoV) thanks to its unique design inspired by a fly's compound eye. It will be a 1-metre class telescope with 16 cameras, providing a 6.7 x 6.7 degree FoV and capable of performing a complete scan of the sky down to V=21.5 every 2-3 nights. The telescope is currently being developed in Turate in Italy and will be ready for on-sky testing in Matera shortly, before final installation in the Northern Hemisphere.

Additional studies are ongoing for subsequent deployments, which include plans for an upgraded Flyeye 2. To better understand the effect of observations from these telescopes on the discovery rate of imminent impactors, a series of simulations were carried out. Taking past pointings from the MPC for existing surveys, including ATLAS, Pan-STARRS and Catalina, and simulated strategies for the Vera Rubin Observatory, we assessed the capability of these current and future surveys to detect a set of imminent impactors. The results include the number of impactors each survey would

detect, and the number of days of warning. The simulations were also performed for hypothetical proposed locations for the Flyeye telescopes, and the outcome was used to give an indication for the ideal location of subsequent units, by finding the place where the detection rate is maximised.

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**Comments:**

*Since this contribution includes a general introduction to ESA's PDO observational activities, it might be more appropriate to present as an oral talk.*

*Regarding the most appropriate topic, the contribution would focus on both NEO discovery and astrometric/dynamical follow-up. If the latter is considered "characterization", then the "NEO Characterization" session may also be appropriate if needed.*