

## 2019 observing opportunity for Taurid Swarm NEOs

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The Taurid Resonant Swarm (TS) is a hypothesized collection of large (1m-1km) objects of the Taurid meteoroid stream complex in 7:2 mean-motion resonance with Jupiter (Asher, 1993). In the fall of 2015 the Earth encountered the inbound Taurid complex near the resonance centre of the swarm. Spurný et al. (2017) reported on a significant increase of fireball activity including a number of meter-sized objects, observed using high precision fireball cameras. The derived high quality orbits indicated that the majority of the fireballs were associated with a previously unrecognized radiant branch of the Taurid meteoroid stream, and that the majority of the pre-contact meteoroids were in the 7:2 resonance. In June-August 2019 the Earth again has a close encounter with the TS, this time with the swarm on the outbound leg of its orbit, passing below the Earth's orbit. This encounter provides a unique opportunity for large telescopes to observe 100 m diameter objects of the TS, and to access the proposal by Napier et al. (2015) that the swarm be particularly dense. In this work we simulate the TS by generating objects with orbital elements consistent with the Spurný et al. (2017) and integrate these objects forward 1000 years, selecting those objects which remain sufficiently close to the resonant centre. We then model the Earth-TS encounter, analyzing apparent magnitude, in-sky motion, solar elongation, lunations and apparent proximity to the galactic plane, arriving at proposed optimum date and sky location opportunities for TS object observations.

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