

## **Activity of the new branch of resonant Taurids unexpectedly observed by the European Fireball Network in 2018**

Pavel Spurný, Jiří Borovička

Taurid meteor shower produces prolonged but usually low activity every October and November. In some years, however, the activity is significantly enhanced. The last such enhancement was widely observed in 2015. Based on observations of fireballs recorded by the European Fireball Network Spurný et al. (2017) identified a well-defined orbital structure called the Taurid new branch and proved that it was responsible for this enhanced Taurid activity. This orbital structure is in 7:2 resonance with Jupiter, as proposed earlier by Asher & Clube (1993). Asher & Izumi (1998) showed that enhanced Taurid activity occurred in the years when the center of the swarm was less than  $40^\circ$  in mean anomaly from the Earth at the beginning of November (the date of Taurid maximum). Enhanced activity was therefore not expected in 2018 when the mean anomaly was  $-48^\circ$ . Here we present detailed data based on EN observation in November 2018 when we recorded significant number of Taurids, which evidently belonged to this new Taurid branch. Their orbits perfectly match the orbits of resonant Taurid meteors observed in 2015. Our observation shows that this Taurid branch is more extended than previously thought. On the other hand, we did not observe any these Taurids in 2017 and 2016 when the mean anomaly was  $+99^\circ$  and  $-155^\circ$ , respectively.