

VIDEO OBSERVATION OF DRACONIDS 2011 FROM ITALY. J. Tóth¹, R. Piff², J. Koukal², P. Zoladek³, M. Wisniewski³, Š. Gajdoš¹, F. Zanotti⁴, D. Valeri⁴, P. De Maria⁴, M. Popek², S. Gorková², J. Világi¹, L. Kornoš¹, D. Kalmančok¹ and P. Zigo¹, ¹Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava, Mlynská dolina, 842 48 Bratislava, Slovakia, toth@fmph.uniba.sk, ²CEMeNt - Central European Meteor Network, ³PFN - Polish Fireball Network, ⁴IMTN - Italian Meteor and TLE Network

Introduction: The joint observation of the Draconids 2011 by one all-sky video camera of the Slovak Video Meteor Network (SVMN), cameras of the Central European Meteor Network (CEMeNt), the Polish Fireball Network and local Italian Meteor and TLE Network in the night of October 8-9 brought hundreds of detected meteors over Italy. Due to problematic weather situation in the Central Europe, several groups had to move up and locate their video equipments in the Northern Italy to become a part of a ground-based observational Draconids 2011 campaign, which resulted in successful observations and results.

Observation: The double-station observations were performed by one all-sky video camera developed and constructed at the Astronomical and Geophysical Observatory in Modra (SVMN) and three video cameras of the CEMeNt network [1, 2]. The first station was located near the town of Bettola, the second one close to the village of Cavandola at a distance of 71 km east from the first station. Independently, double-station video observations were set up from PFN in location Nogara and the second station was close to the town of Bettolino di Novellara 39 km to the south-west from Nogara. Local Italian video stations of the IMTN, where we were able to find common meteors were located at Cuneo Ass. Astrofili Bisalta, Fanano (Modena), Contigliano (Rieti), Tortoreto (Teramo) and Ferrara. Visual observations were performed from the station of Cavandola. In total, there were 9 stations with 14 cameras participating on this joined campaign. The location of stations is shown in Figure 1.



Fig. 1. Location of ground-based video meteor stations of the SVMN, CEMeNt, PFN and IMTN in the Northern Italy during the Draconids 2011.

Results: All together there were identified 62 Draconids, simultaneously observed by video techniques in the time interval 17:56 - 23:22 UT, October 8. After the precise reduction and inspection, 43 Draconids with sufficient precision were selected. The heliocentric orbits projected into the ecliptic plane are shown in Figure 2.

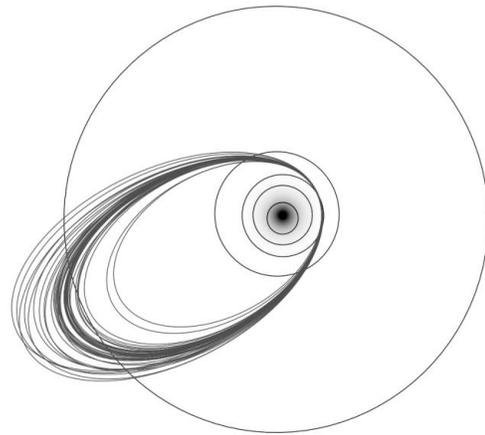


Fig. 2. Orbits of Draconids detected by video stations. The orbits of Jupiter and the inner planets are also plotted. The direction to the vernal equinox is from the center to the right.

Conclusion: We present geophysical data and heliocentric orbits of 43 Draconids obtained from multi-station video observations by the cameras employed in the Northern Italy during the enhanced display of the Draconids on Oct.8, 2011. The Draconid's orbits and their comparison with the proposed parent comet 21P/Giacobini-Zinner indicate a very close similarity. This observations are result of new video observations and successful cooperation of the networks in Poland, Czech Republic, Slovak Republic and Italy, which monitor regular and exceptional meteor activity.

References: [1] Tóth J. et al. (2011a) *Publ. Astron. Soc. Japan* 63, 331-334. [2] Tóth J. et al. (2011b) *WGN, Journal of the International Meteor Organization* 39:2, 34-38.

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