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Observations of the Perseids 2011 using SPOSH cameras

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Abstract

Every year from 10th to 14th of August Earth's orbital path intersects with a stream of dust particles, the Perseids, originating from comet 109P/Swift-Tuttle. Every year, the German Aerospace Center (DLR), Institute of Planetary Science and the Technical University of Berlin (TUB) organize meteor observing campaigns during the Perseids, involving master students and amateur astronomers [2], [3]. Similarly to previous years, we will carry out observations using the SPOSH (Smart Panoramic Optical Sensor Head) cameras (Fig. 1). The SPOSH camera has been developed by DLR and Jena- Optronik GmbH under an ESA/ESTEC contract [1]. The camera is designed to image faint transient phenomena on dark planetary hemispheres, and meteor observations of high radiometric and geometric quality have been demonstrated. The camera features a highly sensitive back-illuminated 1024 x 1024 CCD chip and a high dynamic range of 14 bits. A custom-made fish-eye lens offers a 120° x 120° field of view (~168° across the diagonal).

Figure 1: The Smart Panoramic Optical Sensor Head

A double station equipped with SPOSH cameras will be deployed at remote posts in Greece assuring a dark sky and favourable weather conditions, which prevail in southern Europe during the summer. We plan to observe the precursors, taking advantage of the sensitivity of the SPOSH and the wide field of view, which will give us a good meteor rate. Fortunately, the Moon conditions are favourable for this type of observation in this year.

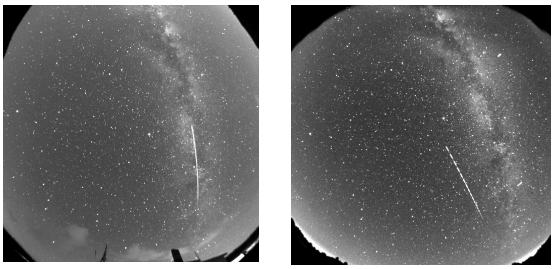

Figure 2: A Perseid meteor observed simultaneously from Mainalon (left) and Parnon (right) stations during the 2010 campaign. Such observations allow the reconstruction of the meteor trajectory and its heliocentric orbit.

The data reduction of double-station observations (Fig. 2) will yield the trajectories and orbits of the observed meteors. Their photometric properties will be also examined. Assuming a successful campaign, the observation results will be presented at the conference. Currently, a new analysis scheme is under development using data from the 2010 campaign. These results will be also presented, subject to progress by the time of the meeting.

References

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