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Review of amateur meteor research

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Abstract

Significant amounts of meteor astronomical data are provided by amateurs worldwide, using various methods. This review concentrates on optical data. Long-term meteor shower analyses based on consistent data are possible over decades (Orionids, Geminids, κ -Cygnids) and allow combination with modelling results. Small and weak structures related to individual stream filaments of cometary dust have been analysed in both major and minor showers (Quadrantids, September ε -Perseids), providing feedback to meteoroid ejection and stream evolution processes. Meteoroid orbit determination from video meteor networks contributes to the improvement of the IAU meteor data base. Professional-amateur cooperation also concerns observations and detailed analysis of fireball data, including meteorite ground searches.

Key words: meteors; meteor showers; meteoroid streams; observing methods; fireballs; meteorite falls

1. Introduction

We describe currently ongoing projects and selected results from the last 10–15 years obtained mainly by optical observing techniques. The paper refers to both amateur and professional meteor research which widely overlap. The transition between the two approaches has evolved a lot. About 20 years ago, the technical equipment as well as the computing power made a huge difference. Amateurs mainly dealt with visual and photographic observations, as well as forward scatter radio observations. Particularly, video observing techniques combined with elaborated analysing procedures became available widely. Hence there is no real division between amateur and professional meteor astronomers now. Partly this is also due to the fact that a number of (now) professional meteor astronomers once started as amateurs. A distinction criterion between amateur and professional astronomers is the approach and the way of funding the projects. This implies that an amateur can easily change the subject or

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