

Southern sky meteor showers – AMOS data

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Abstract

The ongoing video observations have caused a huge increase in the reporting of new meteor showers, the number of which in the IAU MDC list [1] has grown to more than 900. Since the southern sky observations are still significantly rarer than observations of the northern sky, only less than a quarter of the established showers have their radiants on the southern sky. In the working list, there are about 800 showers, the confirmation of which remains open, owing to the low number of southern sky data in the databases. We present our meteor data contribution from the new stations in the Atacama Desert in Chile, established as part of the AMOS project of the Comenius University in Bratislava, Slovakia, which have been in operation since March 2016.

1. System AMOS

The AMOS (All-sky Meteor Orbit System) cameras [2] were developed at Comenius University's Astronomical Observatory in Modra, Slovakia. Their astrometric precision was calibrated using several fireballs observed within the European Fireball Network [3]. The AMOS cameras installed in the Atacama Desert operate fully automatically; their field of view is $180^\circ \times 140^\circ$ and the output digital resolution 1600×1200 pixels, with a rate of 20 frames per second.

2. Search for meteor showers

For our analysis, we also use, except for the AMOS data from the Atacama Desert, AMOS data from the Canary Islands [2], which partly cover the southern sky. To separate the potential showers / meteor clusters, we use a method based on the mean orbital characteristics of meteors but also considering their geophysical parameters, suggested by Rudawska et al. [4]. Found showers are compared with the showers from the IAU MDC list. Furthermore, we investigate their possible identification with the theoretical modelled streams of several comets, associated meteor showers of which have predicted radiant areas on the southern sky [5, 6, 7].

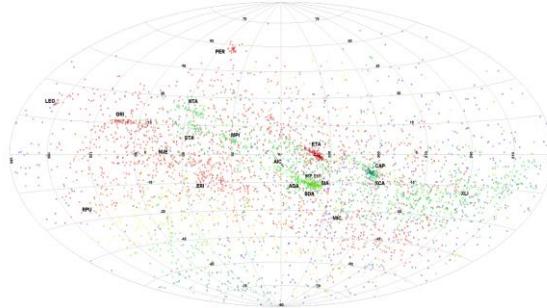


Figure 1: The radiant distribution of 4463 double-station meteors by AMOS cameras in Atacama, Chile.

Acknowledgements

This work was supported by the Slovak Grant Agency for Science VEGA, grants No. 1/0596/18 and by the Slovak Research and Development Agency, contract No. APVV-16-0148.

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