

Spectroscopic video-observations and meteoroid fragmentation

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Introduction

We will present results of our video spectroscopic observations and the application of these spectroscopic data on the meteoroid fragmentation.

Parallel double-station video observations paired with spectroscopic video observations can be good way to study meteoroids and their structure. We used the great source of video observation performed by the Ondřejov observatory staff and we tried to study meteor video spectra along with the deceleration and fragmentation of meteoroids.

The meteoroid fragmentation and the spectrum

We now have database of 124 video meteoroids with spectral data, atmospheric trajectories and orbital parameters. We chose 59 of these meteoroids, those with sufficient deceleration, to use the model of the meteoroid ablation and fragmentation. The monochromatic light curves (especially of Na and Mg) were studied. It seems that the smaller the grains in meteoroid are, the sooner the sodium vaporize (Figure 1).

The catalogue of meteor spectra

We also released the catalogue of meteor spectra. The catalogue contains the orbital and atmospheric trajectories of 84 meteoroids along with their spectral data (Figure 2). The catalogue is available online in the Vizier database at the CDS server.

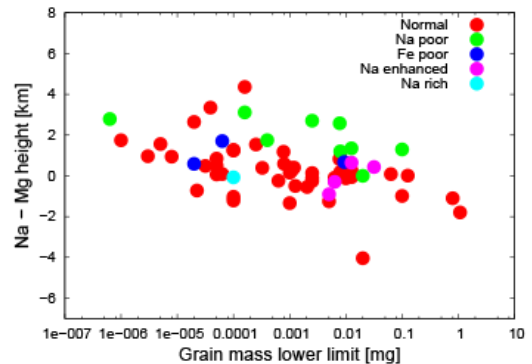


Figure 1: The x axis shows the smallest grain masses from the meteoroid model. The y axis shows the difference in heights, at which exactly half of the magnesium and sodium mass is ablated. Meteoroids have been divided by the spectral classification.

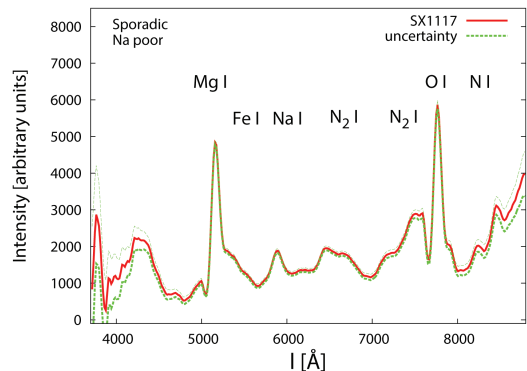


Figure 2: One spectrum from the Catalogue of meteor spectra.