The Cosmic Dust Experiment (CDE) Onboard the Aeronomy of Ice in the Mesosphere Mission

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The Cosmic Dust Experiment (CDE) onboard the Aeronomy of Ice in the Mesosphere (AIM) mission is a dust impact detector to monitor the variability of cosmic dust influx. It is based on permanently polarized thin plastic film sensors that generate an electrical signal when an impacting dust particle penetrates them. The total surface area is about 0.1 m^2, and the detection threshold is about 1 μm in particle radius. The variability of these small grains is assumed to follow the variability of 100 μm radius particles that deliver the most of the cosmic material entering our atmosphere. Hence, the measured flux of the small particles can be used in correlation studies between dust influx and various Noctilucent activity indexes, for example spatial coverage, or average brightness as seen from the AIM satellite.

In this talk we will discuss the preliminary results of the CDE experiment. We focus on the data analysis and noise reduction algorithms. In a coordinated presentation (D. James *et al*), we also discuss our ongoing laboratory efforts to emulate the temperature variability of our sensors along the AIM orbit in order to assess the frequency and the amplitude distribution of false signals, possibly generated by the repeated heating and cooling of our instrument. The measured fluxes and size distributions will be compared to earlier measurements and models.