

Meteor ablation experiments using arc-heated wind tunnel

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The meteoroid ablation process is a complex phenomenon depending on many variables such as entry velocity, entry angle, composition, shape, density and atmospheric conditions. Meteor ablation tests were carried out using JAXA's arc-heated wind tunnel with artificial samples. With changing distance from the nozzle, we demonstrated several heating rates between 10.8 and 14.1 MW/m². NUV-VIS video rate spectroscopy ranging 250 - 1000 nm and the ultra-high-speed imaging with 1μs exposure time. These experiments gave results on time series of atomic emissions, gray body temperatures and luminous efficiencies of samples. In this paper, we will discuss meteor ablation processes for low velocity meteors such as meteorite and ALE's artificial meteor ablations.