

Modeling of meteoroid ablation in dense layers of the Earth's atmosphere

Popov A.A.^{1,®}, Kokorin A.F.¹, Petrova E.V.¹,
Pastukhovich A.Yu.¹ and Grokhovsky V.I.¹

¹ Ural Federal University, Lenina Avenue 51, Ekaterinburg, 620000, None

® aa.popov@urfu.ru

The report discusses the features and results of the experimental modeling of meteoroid ablation. Experiments on modeling the ablation of meteoroid matter are produced using a generator of high-temperature high-velocity gas flows [1]. The conditions in the heated gas stream generated by the experimental setup are close to those corresponded to the low-velocity bolides fall in the lower atmosphere. In experiments, material of artificial fusion crust and optical ablation spectra were obtained for samples of Tsarev, Chelyabinsk, Calama009 ordinary chondrites and terrestrial basalt. The correspondence of the artificial fusion crust obtained in the experiment and the fusion crust formed during the flight of the bolide in the Earth's atmosphere is shown. The experimentally obtained emission spectra of the stony meteorites ablation within the optical range are compared with the spectra of stone meteorites observed during their passage through the Earth's atmosphere, as well as with the spectra obtained in other laboratories using experimental plasma installations [2, 3].

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[3] Wang L, Ning Dang L and Yang L 2024 *Astrophys. J.* **962**(1) 23–39