



Phenomena associated with dusty plasma formation in the ionosphere during meteor showers

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Formation of dusty plasmas in the Earth's ionosphere at 80-120 km altitudes during high-speed meteor showers and its detectable manifestations are discussed. Emphasis is given to ground-based observations such as detection of low-frequency (<50 Hz) ionospheric radio noise, infrasonic waves propagating in the atmosphere, and amplification of the intensity of green (557.7 nm) radiation from a layer at 110-120 km altitudes in the lower ionosphere by means of acoustic-gravitational vortices. The physical processes responsible for these manifestations are discussed. It is shown that the crucial role in these manifestations belongs to the dust acoustic perturbations excited in the ionospheric dusty plasmas. This study was supported by the Division of Earth Sciences, Russian Academy of Sciences (the basic research program "Nanoparticles in Natural and Technogenic Systems"), by the Russian Foundation for Basic Research (project no. 06-05-64826-à), by the Russian Science Support Foundation (the program "Doctors of Science of the Russian Academy of Sciences"), and by the Dynasty Foundation.