

High-resolution global Vlasov simulation of small body in the solar wind using K computer

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The interaction between a plasma flow and a small dielectric body with a weak intrinsic global magnetic field is studied by means of a five-dimensional full electromagnetic Vlasov simulation with two configuration and three velocity spaces. The interaction of a plasma flow with a dielectric object is quite different from that with a magnetized object such as the Earth. Due to the absence of the global magnetic field, the dielectric object absorbs plasma particles which reach the surface, generating a plasma cavity called a wake on the anti-solar side of the object. In the present study, entry processes of ions into the nightside wake tail are examined. A high-resolution simulation run is now performed by using the K computer. A preliminary result will be shown.

Keywords: computer simulation, Vlasov code, K computer, small body