Geophysical Research Abstracts
Vol. 14, EGU2012-449, 2012
EGU General Assembly 2012

Modeling the local size distribution of interstellar dust in the solar system

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The interstellar dust (ISD) flux is modulated in the inner solar system by solar gravity, solar radiation pressure force and Lorentz forces due to the interaction of the charged dust grains with the Interplanetary Magnetic Field (IMF). We simulated the trajectories of ISD grains passing through the solar system for various grain properties, and derive their local relative density and flux with respect to the undisturbed flow. We derive from this the local size distribution of the ISD grains and discuss how it depends on location in the solar system, time, and grain properties. Finally, we propose a method to derive the absolute flux of grains and size distribution and discuss the results in the frame of in-situ ISD observations with Ulysses.