

New Calculations of Neutral Atoms Release in the Mercury Exosphere Caused by Micrometeoroid Impacts

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Meteoroid impacts are an important source of neutral atoms in the exosphere of Mercury. Recent papers attribute to impacting particles smaller than 1 cm most of the contribution to exospheric gases.

In this presentation we are going to show the estimate of the contribution to the Mercury exosphere of neutral atoms due to micrometeoroid impacts. Our work is based on a new dynamical model of dust particles coming from the Main Belt Asteroid directly on Mercury (Borin *et al.*, 2009) in the size range of 5-100 microns.

The calculations have been performed taking into account two different calibration sources for the meteoroid flux provided by Love and Brownlee (1993) (as for Borin *et al.*, 2009) and by Grun *et al.* (1985). Moreover, we give different values of the vapour production rates assuming both asteroidal and cometary sources of the dust particles (Wiegert, 2009; Dermott *et al.*, 2002), and considering three different surface composition and mass fraction of atoms in the regolith of the planet (Cremonese *et al.*, 2005; Goettel, 1988; Smith and Marconi, 1995).

Finally we will show the preliminary results of the analysis of the flux asymmetries, in the same size range considered by our model, that could be interesting for the interpretation of the Calcium distribution.