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Interaction between the solar corona and the interplanetary dust grains

H. Lamy (1) and J. Lemaire (1)

(1) BIRA-IASB (herve.lamy@oma.be, FAX : 0032023748423)

When interplanetary grains approach the Sun, they undergo different processes like sublimation or vaporisation. The vaporized atoms constitute a source of heavy ions constantly modifying the composition of the solar wind and of the solar corona. We have adapted current models of heating and ablation of meteoroïds entering Earth's atmosphere to the case of the solar corona. In particular, it is well known that the abundances ratios of iron and silicium compared to oxygen are larger in the solar corona and solar wind than in the solar photosphere. We study the possibility that this enrichment in the corona may be due to a continuous deposition of refractory material coming from the ablation of these interplanetary grains from distances of a few solar radii to the basis of the corona. We also calculate the amount of kinetic energy converted into heat and locally deposited in the deepest layers of the solar corona following the braking of the grains by the solar corona plasma.