

Neutral Atom Imaging of Mercury Magnetosphere

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Neutral Atom emission from Mercury Magnetosphere is discussed in this study. In particular, we consider those neutrals whose emission is directly related to the circulation of energetic ion of solarwind origin, via both charge-exchange and ion-sputtering. The environment of Mercury, in fact, is characterized by a weak magnetic field; thus, cusp regions are extremely large if compared to the Earth's ones, and intense ion fluxes are expected there. Spatial and energy distributions of ions and neutrals, and energy-integrated simulated ENA images, are obtained by means of a single-particle 3D simulation. The feasibility of neutral atom detection and imaging in the Hermean environment is also discussed here: simulated neutral atom images are investigated in the frame of the Neutral Particle Analyser - Ion Spectrometer (SERENA NPA-IS) experiment, on board the ESA mission BepiColombo/MPO.