

## Local concentration of pickup ions in the outer heliosheath: Relevance to the IBEX observations

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Observations of energetic neutral atoms (ENAs) made by the IBEX spacecraft have been giving clues to the comprehension of the plasma environment around the heliospheric boundary region. The primary source of such ENAs is secondary pickup ions (PUIs) in the outer heliosheath, which originate from the neutral solar wind charge-exchanged inside the heliosphere. In this study, numerical simulations using a two-dimensional hybrid code are performed to investigate the PUI dynamics in the vicinity of the heliopause (HP). The presence of the sheared flows between the solar wind and interstellar plasmas allows the evolution of the Kelvin-Helmholtz (KH) instability along the HP. Plasma perturbations in the outer heliosheath induced by the KH waves bring about the local concentration of the energetic PUIs. The resultant profile of the PUI column density along the virtual line-of-sight direction implies the temporal and spatial variations in the ENA measurements associated with the IBEX observation. Thus, it will be diagnosed as the occurrence of the KH instability at the HP if similar features are confirmed in the observations.

Keywords: Heliosheath, Pickup ion, Kelvin-Helmholtz instability