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# Neutral Atom Imaging of Solar Wind Interaction With Venus

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Observations from the Low Energy Neutral Atom (LENA) imager on the Imager for Magnetopause-to-Aurora Global Exploration (IMAGE) mission have emerged as a promising new tool for studying the solar wind interaction with the terrestrial magnetosphere. Strong LENA emissions were seen during magnetic storms, especially during high solar wind dynamic pressure when the magnetopause was strongly compressed and the magnetosheath could interpenetrate the outer geocorona. Venus, unlike the Earth, has no intrinsic magnetic field so the solar wind penetrates deeply and interacts directly with its upper atmosphere. The processes of interaction enhances atomic escape and thus plays a potentially important role in the evolution of the atmosphere. We have performed LENA simulations of the solar wind interaction with Venus. LENA emissions from the planet are calculated based on a global MHD model of Tanaka. Preliminary analysis shows that the simulated ENA emissions are greater than for the Earth, and quite suitable to probe the Venus plasma environment and its interaction with the solar wind. This simulation work demonstrates the feasibility of remotely sensing the Venusian solar wind interaction and resultant atmospheric escape using fast neutral atom imaging.