

## The Response of the Ionospheric Cusp to the Solar Wind Through Two Perspectives: Low Energy Charged Particle In-Situ Measurements and Low-Energy Neutral Atom Imaging

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The IMAGE mission provides a new perspective on the study of the response of the magnetosphere/ionosphere system to changing solar wind conditions, particularly the variability of ion outflow. Learning to interpret this new type of data becomes an essential step in the process of melding these results with the wealth of in-situ charged particle observations obtained over the past 25 years. In order to understand how the in-situ data correspond to and contrast with IMAGE results we will perform a conjunctive study of event data from two instruments to shed light on the coupling of the solar wind and ionosphere from these different perspectives. We will use the Low Energy Neutral Atom instrument (LENA) which images energetic neutral atom emissions from upward flowing ionospheric ions and the Thermal Ion Dynamics Instrument (TIDE) on the Polar satellite which measures in-situ ion outflow from 0.3-300 eV. Our primary goal will be to understand how comparing the imaging and in-situ perspectives can aid in the analysis of both data sets.