

The ionosphere as a sensor

At high latitudes, Earth's convergent magnetic field acts as a lens, focusing complex interactions between the solar wind, magnetosphere, and ionosphere to a narrow latitudinal region. This topology has inspired many creative applications of ground-based remote sensing to deepen our understanding of the coupled magnetosphere-ionosphere system. This tutorial seminar develops a formalism for utilizing ground-based sensing and physics-based modeling to reconstruct the ionospheric response to magnetospheric drivers. Special attention is given to micro-scale processes that affect macro-scale behaviors of the geospace system. Selected examples focus on the collaborative use of Incoherent Scatter Radar (ISR), visible imagery, and Global Navigation Satellite Systems (GNSS). The talk will emphasize the importance of understanding biases, uncertainties, and artifacts that arise when a sensor is driven outside its intended range of operation. I will conclude with a brief discussion of my involvement with the NASA UAP (Unidentified Anomalous Phenomena) panel, where these sensor-related challenges take center stage.

**Thursday, September 19th****3:30-4:30 p.m.**

725 Commonwealth Ave | Room 502

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