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Vortical Structures in the Magnetosphere and Ionosphere, their Relationships and Effects

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Vortical structures in both the ionosphere and the magnetosphere are signatures of field-aligned currents. The ionosphere supports vortical structures in various forms such as horizontal currents, plasma flows, and optical displays. The magnetosphere is known for vortical plasma flows. In this talk I will present observations from the five THEMIS spacecraft as well as the THEMIS ground network of all-sky imagers and magnetometers to demonstrate relationships and effects of such structures.

Keywords: substorm, storm, vortex, currents, magnetosphere