

# Geospace Systems Science Focus Group

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## **Goals of the focus group:**

- (1) Look at system-level questions about the geospace system. Take a system-level attack on its problems.**
- (2) Introduce systems-science tools into magnetospheric research.**

**In a nonlinear system with feedback, latency, and multiple drivers, cause and effect are not easily separated.**

**Example: tail producing changes in ionospheric conductivity and ionospheric conductivity controlling tail structuring.**

# The Mid-Tail and Systems Science

## What affects the mid tail?

Magnetosheath, bow shock, Kelvin-Helmholtz, dayside reconnection rate, ionospheric outflow, ionospheric convection, IMF  $B_y$ , polar-cap transport, LLBL Poynting flux, the moon, ...

## What does the mid-tail affect?

Substorm-injected populations, ion plasma sheet/ring current, ionospheric conductivity, auroral processes, nightside dipole stretching, EMIC + chorus, ...

## Are there “complex-systems behaviors” in the tail?

Critical transitions, self organization, emergent phenomena, ...

A potential joint session would be to assess the connections of the mid-tail and to figure out timescales and time lags for those connections.