

Project Details

ROSES ID: NRA-01-OSS-01

Selection Year: 2002

Program Element: Independent Investigation: Geospace LWS

Project Title:

Large-scale consequences of small scale auroral structures (LWS)

PI Name: Dirk Lummerzheim

PI Email: atn@g.ucla.edu

Affiliation: University of Alaska, Fairbanks

Summary:

Small-scale processes in aurora have impact on the large-scale behavior of the ionosphere-thermosphere system, and the coupling of the magnetosphere-ionosphere system. Current large-scale and global models do not include sufficient resolution and detail to treat the small-scale physics of M-I coupling. The missing small-scale terms lead to inconsistencies between models and measurements. Using measurements of the ionospheric electric fields, currents, and conductivities with global data assimilation and modeling to derive thermospheric heating sources and temperatures does not agree with observations. The mismatch of the needed and calculated heating sources can be as large a factor of two. With this proposal, we will characterize and quantify the heating sources that result from small-scale auroral structure using observations and modeling. We will derive a parameterization of the effects of the small-scale structure to be included in global models.

Publication References:

Summary: "

Reference: Large-scale consequences of sm. scale auroral - Lummerzheim, Dirk U AK