



A Case Study of Energy Input from Exterior Cusp into the Ionosphere Using Correlated Ground-Based and Satellite Observations.

E. Yordanova (1, 2), D. Sundkvist (1), S. Buchert (1) and Mats André (1)

(1) Swedish Institute of Space Physics, Uppsala, Sweden

(2) Space Research Institute, BAS, Sofia, Bulgaria

(eya@irfu.se / +46 (0) 18 471 59 03)

The energy transport from the exterior cusp into the ionosphere and atmosphere was investigated using coordinated ground-based (EISCAT) and satellite observations (CLUSTER). The electromagnetic and particle energy fluxes measured on high altitudes were compared with the energy input into the F region of the ionospheric cusp. Correlated observations along cusp field lines gives information on the physical processes responsible for thermospheric heating, up-welling air, ion outflows, as well as the global magnetosphere-ionosphere coupling. Determining the amount of the energy input is also important for improved modeling of the thermosphere and neutral atmosphere.