

Thermospheric Wind near Aurora



The figure shows the thermospheric neutral wind (white arrows; from the Poker Flat SDI), the aurora from ground based all-sky cameras (grey scale images; Poker Flat and Kaktovik), the east- and westward electrojet (blue and pink filled curve; from the Alaska magnetometer chain), and the large scale auroral environment (green; from the POLAR VIS imager). The top panel (0804 UT) shows the evening sector where the westward neutral wind is strongly influenced by the westward electrojet. The lower panel was obtained near magnetic midnight. Analysis of the temporal evolution of the aurora and the wind shows that although the aurora was stationary over Poker Flat, it had been brightening. The eastward ion convection was advancing equatorward, but the neutral wind response was lagging behind. The east-west shear in the neutral wind became sharper as the auroral brightened, but the region of eastward wind did not advance as far equatorward as the ion convection. (Conde, M., et al., *Assimilated observations of thermospheric winds, the aurora, and ionospheric currents over Alaska*, *J. Geophys. Res.* Vol. 106 , No. A6 , p. 10,493, 2001).