TRISTATIC OBSERVATIONS OF THERMOSPHERIC WIND DIVERGENCE AND VORTICITY IN ALASKA

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Simultaneous tristatic measurements of thermospheric winds and temperatures were made with three imaging Fabry-Perot interferometers located in central Alaska at Poker Flat, Fort Yukon, and Eagle using the observed Doppler shifts and Doppler broadening of the 630-nm line shape emission profile observed in aurora and airglow. These results have been analyzed for 5 nights during the period of 2006 to 2008 to determine the thermospheric divergence and vorticity temporal variations throughout the night for the region defined by four common volume locations located between the three stations. In addition, zonal and meridional measurements of the background thermospheric wind field were also made. These results are examined relative to the time history of auroral activity to assess the importance of particle and Joule heating forcing functions in modifying the local time variations of these two parameters of the thermospheric neutral wind field.

thermospheric dynamics, polar region, optical Fabry-Perot

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