

Abstract Submitted
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Thermospheric winds around the cusp region CHENG SHENG, University of Texas at Arlington — Due to the change of advection, the horizontal winds can be strongly influenced by the large vertical wind in the cusp. Indeed, the sunward wind has been observed by the balloon-borne Fabry-Perot interferometer (FPI) at the equatorward of the cusp on the dayside [Wu et al., 2012], which is caused by the heating added in the cusp and the corresponding changes of the horizontal pressure gradient. However, this phenomenon has not been reproduced by the Thermosphere Ionosphere Electrodynamics General Circulation Model (TIEGCM) under low resolution (5x5 degrees). The Global Ionosphere Thermosphere Model (GITM) has been run in different cases and different resolutions. First, we compared the simulations with and without the cusp energy inputs to identify the influence on the horizontal dynamics. Both runs were done under high resolution in order to better resolve the cusp region. Then we also compared the simulations with the same cusp energy inputs but different horizontal resolutions to identify the influence of the simulation resolution on the results. This work will significantly advance our understanding of the neutral dynamics and the relationship between winds and upper atmosphere storm time response.

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