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GPS Occultation Density Observations Associated with the Midnight Temperature Maximum

Abstract:
The C/NOFS satellite, launched April 16, 2008, contains a GPS receiver that performs routine occultation measurements. The C/NOFS Occultation Receiver for Ionospheric Sensing and Specification, CORISS, measures total electron content (TEC) along the line-of-sight between C/NOFS and occulting GPS satellites. CORISS observes over 300 occultations per day in the low to mid latitude region. Within in the low latitude thermosphere region exists the Midnight Temperature Maximum (MTM) phenomenon that is characterized by a significant increase in temperature and pressure, as well as a decrease or reversal in the meridional neutral winds. This persistent feature has a latitude variation [Colerico and Mendillo, 2002]. In this paper we report on global TEC observations coincident with the MTM and discuss the coupling between the changing temperatures and wind to ionospheric dynamics.