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Climatology of thermospheric meridional winds derived from South African ionosonde network during extended solar minimum of 2007-2009.

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Thermospheric winds play an important role in the dynamics of the mean behaviour of the midlatitude ionosphere especially during quiet conditions, which are dominant during low solar activity. This study will present equivalent meridional winds derived from ionospheric F2 peak parameters using the servo and Liu et al. (2003) methods during the solar minimum period of 2007-2009. Midlatitude ionosonde data over Grahamstown (33.3°S, 26.5°E), Hermanus (34.4°S, 19.2°E), and Madimbo (22.9°S, 30.9°E) are used to derive the winds. For the first time, local time and seasonal dependency of the derived winds over this region are explored and compared to global trends. The equivalent winds are compared to the winds predicted from the horizontal wind model 2014 (HWM14) and the coupled middle atmosphere thermosphere model (CMAT2) to test the validity of these methods.

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