

Nighttime thermospheric meridional winds inferred from ionospheric h'F and hpF2 data

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Nighttime thermospheric meridional winds along the magnetic meridian have been inferred using ionospheric parameters h'F and hpF2 obtained at two equatorial stations Manaus (2.9°S, 60.0°W, dip latitude 6.4°N) and Palmas (10.2°S, 48°W, dip latitude 5.5°S) and one low latitude station São José dos Campos (23.2°S, 45.9°W, dip latitude 17.6°S), during geomagnetically quiet periods in the months of August and September 2002. The height variations of the parameters hF and hpF2 were obtained by three digital ionosondes, of the type known as the Canadian Advanced Digital Ionosonde (CADI), which are operated in time-synchronized mode and takes ionograms every 5 minutes. An extension of the servo model is applied in order to infer the magnetic meridional component of the thermospheric neutral winds over the low latitude region. The coefficients of diffusion, recombination and loss rate, required in the servo equations, were calculated using an appropriated atmospheric model (MSIS-90). In this work we show that the servo model gives similar results using either hF or hpF2. This result is interesting because it shows that during the months of August and September the wind systems are similar at both bottomside and peak of the F-layer.