

ATMOSPHERIC AND GEOMAGNETIC INFLUENCE ON THERMOSPHERIC ELECTRON DENSITIES INVESTIGATED BY OBLIQUE RADIO SOUNDING

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Mid-latitude HF sounder paths of ~2400km are operating between New Zealand and Australia. The maximum observed frequencies, and hence electron densities at thermospheric altitudes, are compared with statistical predictions from a climatological HF radio propagation model which uses a database of vertical soundings. Variations from predicted median lower and upper decile frequencies, may be interpreted in terms of ionospheric and geomagnetic activity. Initial results indicate the dependence, of ionisation variations from the model, is at least as strong for neutral thermospheric variations as for geomagnetic variations. Closely spaced multiple paths provide opportunities to investigate F2 layer ionisation variations, inside the traditional 300km correlation scale. Preliminary investigations have also been made for long paths into high-latitudes from Australia to Antarctica using a new highly sensitive receiver.

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