

Seasonal variation in equatorial plasma mass density in the New Zealand meridian

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We present a statistical analysis on the plasma mass density derived from the ULF wave observations by the CRUX magnetometer array. The array consists of magnetometer stations along the 170°E longitude, spanning L-values between 2.2 and 2.8. Using the cross-phase method and an automated procedure for FLR detection, we studied 13 months of observations between March 2013 and March 2014. We found a semi annual variation in plasma density with equinoctial maxima. Similar semi annual variation in electron density was reported by the previous studies. Bouriot et al., 1967 studied whistler data recorded at Poitier (0°E) and showed clear semi annual variation. On the other hand, Park et al., 1978 found unclear semi annual variation from the whistler data recorded at Stanford University (~110°W). The plasmaspheric density may require more specification of longitude. This is the first statistical study of plasma mass density in the New Zealand meridian.