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LF radio wave propagation at equatorial regions

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We analyse night-side electric field observations recorded by the ICE experiment onboard the DEMETER micro-satellite. We show the presence of multiple spaced frequency bands between 30 kHz and 500 kHz, and sometimes in the range 3 MHz - 3.5 MHz, the upper frequency of the instrument. The frequency bandwidth is found to be less than 5 kHz and the time duration about several minutes. The frequency bands are recorded close to the equatorial plane, when the satellite latitudes extend between -05° and +05°. Particular enhancements occur at two geographical longitudes: 130°E and 160°W. Those LF radio waves may be associated to density irregularities in the equatorial region. These irregularities are occurring along the ray path between the emission source region and the satellite. We discuss in this study the locations where such frequency bands are generated, and we show that the observed spectral features may be comparable to the kilometric continuum radiation which is considered as a non-thermal radio emission.