

Electromagnetic Waves Observed In The Equatorial Region By DEMETER During Magnetic Storms

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DEMETER is an ionospheric micro-satellite which is on a polar orbit at an altitude of 710 km. Its scientific payload allows to measure electromagnetic waves and plasma parameters all around the Earth except in the auroral zones. The launch was on June 29, 2004. During the strong magnetic storms which occurred on November 2004 (Dst = - 400 nT on November 8^{th}) and January 2005, intense emissions have been recorded. This paper presents the emissions which have been observed at midlatitudes and in the equatorial region in a frequency range between 500 and 2000 Hz. They are observed on consecutive orbits, either in one hemisphere or in both hemispheres. The time resolution of the onboard computed spectrograms is two seconds and the frequency resolution is 19.5 Hz. On these spectrograms these waves look like disseminated patches without structures. But when waveforms are available during a burst mode, it appears that these emissions are composed of a set of lines slowly drifting in frequency with the time. In some events, the emissions appear in several frequency bands which are equidistant. Quasi-periodic emissions are also observed close to the equator. The propagation characteristics of these emissions are studied.