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## Large scale survey of MLR events observed by DEMETER

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Magnetospheric Line Radiation (MLR) events are electromagnetic waves in the frequency range about 1 - 8 kHz that, when represented in the frequency-time spectrogram, have a form of nearly parallel intense lines which sometimes drift in frequency. They have been observed both by satellites and ground-based instruments, but their origin is still unclear. We present a survey of these MLR waves observed by the DEMETER spacecraft (altitude about 700 km). The main purpose of this paper is to analyze systematically the observations of MLR events in order to determine their possible origin and generation mechanism. Three years of VLF Survey mode data (frequency resolution 19.53 Hz) have been manually searched for the presence of MLR, obtaining a unique data set of about 600 events. We believe this is the largest satellite database of MLR events collected to date. We have thoroughly investigated their properties (frequency range, time duration, dimension in L shells, etc.). Moreover, the geographical occurrence of these events has been checked in order to investigate whether they are more likely to occur above some specific (e.g. industrialized) areas. Finally, the most favorable geomagnetic conditions (Kp and Dst indices) for the occurrence of MLR events have been found.