



Study of sub-auroral radio emissions observed by ICE experiment onboard DEMETER satellite

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We report on the terrestrial kilometric and hectometric radio emissions recorded by the DEMETER/ICE (Instrument Champ Electrique) experiment. This instrument measures the electric field components of electromagnetic and electrostatic waves in the frequency range from DC to 3.25 MHz. Despite the limited satellite invariant latitude (data acquisition below about 65°), specific events have been observed, close to the sub-auroral region, in the frequency range from 100 kHz to about 1 MHz. This range covers the well-known auroral kilometric radiation (AKR), the terrestrial kilometric continuum, and the sub-auroral terrestrial emission at higher frequency up to 3 MHz. The high spectral capability of the experiment leads us to distinguish between the bursty and the continuum emissions. Selected events have been found to principally occur in the late evening and early morning sectors of the magnetosphere (22 MLT – 02 MLT) but others have been observed on the dayside. Our first results are compared to previous radio observations performed on board INTERBALL-1 (Kuril'chik et al, Cosmic Research, 43, 2005) and GEOTAIL (Hashimoto et al., JGR, 104, 1999) satellites. We also discuss the common and different features of the Earth and Jovian radio emissions. We emphasize on the observational parameters: the occurrence probability, the emission beam and the spectral emission types. We show that the physical interpretation of the auroral phenomena needs a good knowledge of the geometric configuration of the source and observer and the reception system (antenna beam and receivers).