



Analysis of HF pulses using measurements of the DEMETER satellite in the topside ionosphere

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We present results of analysis of HF pulses selected from wave measurements obtained by the DEMETER spacecraft. These events typically occur in a wide frequency band extending up to the upper limit of the frequency range of the DEMETER HF instrument at 3.3 MHz. All these events have been visually selected from the onboard-analyzed time-frequency spectrograms. Our analysis includes all available measurements between January 2005 and December 2007. We choose data with a typical lower cutoff and we compare these experimental values with theoretical calculation of the local $L = 0$ cutoff frequency of the free space L-O mode. We use the IRI and IGRF models to obtain the plasma density and magnetic field strength as an input for the model calculations. We also investigate correlation of these events with ELF/VLF whistlers from same data set. Obtained results show that signatures are present during night-time because on the dayside the cutoff frequency is higher than the upper frequency limit of the HF instrument. We present examples of the signatures, local time variation and their global distribution.