

Geographic whistler distributions as a function of the dispersion parameter and the ionosphere configuration derived from the RNF experiment onboard DEMETER

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Whistlers are electromagnetic impulses generated during lightning and propagating across the ionospheric and magnetospheric plasmas in the ELF/VLF frequency range. Their typical signature in the frequency/time domain is characterized by the dispersion parameter which is related to the plasma parameters encountered during the propagation. The RNF experiment onboard DEMETER allows, for the first time, a continuous survey of these phenomena. It consists of a neural network system dedicated to automatic identification and classification of the whistlers encountered by the satellite. From ELF-VLF electric field measurements, each whistler is identified and characterized onboard DEMETER by the RNF experiment. Using the data provided by the neural network, it is then possible to obtain the geographic whistler distributions at the altitude of the satellite for different ranges of dispersion parameters and for both night time and day time conditions. The results are presented and discussed.