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Detection of whistlers by the Belgian VLF antenna : Statistical analysis and comparison with Cluster data

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Whistlers are VLF (3-30 kHz) emissions initiated by lightning, propagating along magnetic field lines, observed on ground and in space. Whistler wave analysis is an effective tool for studying the plasmasphere. Whistlers acquire particular frequency-time characteristics while they propagate through the magnetospheric plasma, and in particular through the plasmasphere. Their propagation time depends on the plasma density along their propagation paths. It is possible to derive the plasmaspheric electron density distribution from these propagation times. We therefore have started a project to detect whistlers with VLF measurements. A VLF antenna has been installed in early 2011 in Humain, Belgium (50.11°N, 5.15°E). The VLF antenna is made of two perpendicular magnetic loops, oriented North-South and East-West, and with an area of approximately 50 m^2 each. This antenna is part of AWDAnet, the Automatic Whistler Detector and Analyzer system's network. This network covers low, mid and high magnetic latitudes, including conjugate locations. We use the AWDA system to retrieve automatically electron density profiles from whistler measurements made in Belgium. In this poster, the first results of whistler occurrence are shown, as well as the first comparison with density measurements made with the WHISPER instrument onboard Cluster.