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Automatic retrieval of plasmaspheric electron density profiles from whistler data.

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The cold electron density distribution of plasmasphere is not easily measured routinely but is a key parameter for magnetosphere and radiation belts modeling. Whistlers have been regarded as cheap and effective tools for plasmasphere diagnostic since the early years of whistler research, but it never became a real operational tool due to the required tedious human work. Recently the Space Research Group of Eötvös University has developed a new, unique Automatic Whistler Detector and Analyzer (AWDA) system (Lichtenberger et al. 2004) that is capable to detect and process lightning whistlers with no human interaction. A network formed by AWDA systems (AWDANet) is evolving and now covers low, mid and high magnetic latitudes (Lichtenberger et al. 2007). Previously, the automatic analyzer worked only for low latitude whistler, recent developments extended the method for multiple-path whistler groups propagating on mid and high latitude. This allow us to retrieve electron density profiles automatically for wide range of L-values.

References:

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