



Real-time monitoring of plasmasphere electron density profiles and ionosphere-plasmasphere coupling fluxes by Automatic Whistler Detector and Analyzer systems' network (AWDANet)

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The cold electron density distribution of the plasmasphere is not easily measured routinely but is a key parameter for magnetosphere and radiation belts modeling as well as for monitoring the dynamics of plasmasphere and the ionosphere-plasmasphere coupling. 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 (Hungary) has developed a new, unique Automatic Whistler Detector and Analyzer (AWDA) system 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. 2008) and is capable to retrieve electron density profiles automatically and calculate ionosphere-plasmasphere coupling fluxes through the temporal density variations for wide range of L-values.

EURIPOS involves space missions data from the plasmasphere, but satellite missions are not able to monitor the whole plasmasphere due to their limited time and space coverage. AWDANet can be a candidate that fills the missing gap in data sources for EURIPOS.

References: Lichtenberger J., Cs. Ferencz, Bodnár L., Hamar D., Steinbach P.(2008): Automatic Whistler Detector and Analyzer system: Automatic Whistler Detector. *J. Geophys. Res.*, 113, A12201, doi:10.1029/2008JA013467