



On the global VLF wave data base unifying multi-satellite measurements using sensors with different characteristics onboard different spacecraft

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Modelling of wave-particle interactions in the inner magnetosphere and in the Van Allen Radiation Belts requires detailed information of wave amplitudes and wave-normal distribution over L-shells and over magnetic latitudes for different geomagnetic activity conditions. This cannot be achieved using the data of a single spacecraft mission. Utilization of the measurements from different spacecraft missions can sufficiently improve the statistical database of chorus wave's variability as a function of spatial location and geomagnetic activity [see Meredith et al., 2012]. However the differences of characteristics of spacecraft wave detectors impede direct implementation of data in the common data base. In order to create a common data base we perform a statistical cross-correlation study of VLF/ELF wave measurements aboard Cluster, THEMIS, Polar, DE1 and CRRES spacecraft aiming to obtain and compare the peak and averaged characteristics of wave amplitudes for similar geomagnetic conditions aboard different spacecraft. The dependence of measured wave power on the detector measurements cycle time is determined and compared for different instruments for similar conditions. The technique for utilization of the data of measurements by several detectors having different characteristics is proposed.