



Newly Constructed Empirical Models of Whistler Mode Waves in the Radiation Belts

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Whistler mode emissions of chorus and hiss interact with different magnetospheric particle populations in the inner magnetosphere and significantly influence particle fluxes in the Earth's radiation belts. Using recently acquired large databases of spacecraft measurements from the Van Allen Probes and Cluster missions we construct new empirical models of whistler mode waves in the inner magnetosphere. We pay special attention to the off-equatorial region, which is often undersampled in the currently existing models, and to the inter-calibration of data from different spacecraft missions.

We take into account the effects of instrumental noise and other artifacts which influence the quality of data at the input of the modeling procedure. Our results show that dawn chorus occurs most often around noon, while its peak average amplitudes are observed during the local night. We further confirm the influence of low plasma density regions on the intensity of chorus.