

Density Dependency in VERB Simulation: A Case Study in Radiation Belt Physics Using Statistical Sheeley Density and Variable Density from RBSP to Analyze Storm Events

This study examines how plasma density affects ultra-relativistic electrons (UREs) during geomagnetic storms, using Van Allen Probes observations. We analyze density conditions with both an empirical model and direct spacecraft measurements, and use VERB simulations at very high energies in the URE range to test prediction accuracy. The results show that density variations strongly influence electron responses during storm-time processes.

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