

Study of electron temperature distribution and thermal structure in the plasmasphere

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Akebono satellite has much data of electron temperature in the ionosphere and plasmasphere from 275km to 10400km.

These data were analyzed statistically to investigate electron temperature distribution and to consider thermal structure in the plasmasphere.

As a result of the analysis, electron temperature distribution depends significantly on magnetic local time (MLT) up to $L=2.0$, which is more extensive than considered before, and electron temperature suddenly increases during a recovery phase of the geomagnetic storm.

Then observed data were compared to numerical calculation results to discuss qualitatively thermal energy flow in the plasmasphere.