



Comparison of topside satellite electron temperatures with incoherent scatter radar measurements

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Electron temperature (T_e) in the topside ionosphere and plasmasphere is an important parameter because thermal electrons play key role in the energy balance of these regions. There are two principal sources of T_e measurements - in-situ satellite and ground based Incoherent Scatter Radar (ISR). From mid-sixties of the 20th century it has been collected a lot of T_e measurements by both these methods. Occasional comparisons of results of these two methods showed agreements but also disagreements. We have built a large database of electron temperature based on all available satellite measurements, the greatest volume of which is represented by DMSP data. Especially DMSP data statistically show surprisingly high values for low solar activity and daytime (Bilitza, 2006). Therefore we have extracted from Madrigal ISR database all available T_e values and we have compared them with corresponding measurements from satellite over-flights. Results of this study are shown, discussion is presented and possible implications on empirical T_e modeling are pointed out.

Bilitza D., Truhlik V., Richards P.G., Abe T., and Triskova L.: Solar Cycle Variations of Mid-Latitude Electron Density and Temperature: Satellite Measurements and Model Calculations, *Advances in Space Research*, in press, 2006.