



Contribution of energy input into the magnetosphere to storm-time TEC modelling in mid-latitudes

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Storm-time total electron content (TEC) modelling still remains a big challenge especially when both positive and negative ionospheric responses are observed during the same storm periods. Normally, the standard TEC modelling inputs which represent diurnal and seasonal variations, solar and geomagnetic activities, are used. Towards the improvement of TEC modelling during storm conditions, the role of energy input by the solar wind into the magnetosphere computed using the energy coupling function of Akasofu is considered as an additional input and its role to modelling is statistically evaluated. The model implementation was based on TEC derived from measurements over Hartebeesthoek (HRAO, (25.89° S, 27.68° E) geographic, (36.32° S, 94.69° E) geomagnetic), South Africa, and validated over selected storm periods belonging to different phases (high, moderate and low) of the solar activity cycle. Results about the contribution of the solar wind - magnetosphere energy to storm-time TEC modelling will be presented.