A "GRAY BOX" NEURAL NETWORK MODEL OF THE SOLAR WIND DRIVEN GEOSTATIONARY ENERGETIC ELECTRON FLUX

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The energetic (MeV) electron flux at geostationary orbit is highly variable. The flux cause internal charging on satellites and may result in electric discharges. In this paper we use a "gray box" neural network to model the hourly average GOES-8 >2 MeV electron flux. The input to the model are the solar wind plasma and magnetic field upstream of the Earth magnetopause. The forecasting capability range from a couple of hours up to 1-2 days depending on the solar wind structure. The model will also be implemented for real time operation using the ACE solar wind data.