ENERGETIC ELECTRON PRECIPITATION AND CONVECTION ELECTRIC FIELD DURING THE HIGH SPEED SOLAR WIND STREAMS

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High speed solar wind streams interacting with the Earth's magnetosphere generate the electric fields inside it, which form the energetic electron population. We present a correlation analysis of the precipitation frequency (F) of energetic electrons registered with the Tixie riometer with the convection electric field (Ec) calculated within the framework of the simplified model of viscous interaction of the solar wind with the magnetospheric field in the LLBL region, and also with solar wind electric field (Ey) and the electric field across the polar cap (Em - magnetosphere's electric field), during the passage of the Earth through high speed streams in 1994. A high correlation of energetic electron precipitation frequency with Ec, R(F, Ec) =0.74 and with Em, R(F, Em) = 0.79 is shown. Apparently a high correlation (F, Ec) can be explained by the increase of an arriving elecrtons from the plasma layer tail region into the acceleration regions located in the auroral and inner magnetosphere due to the convection and electron drift velocity enhancement. At the same time, the high correlation with the magnetospheric electric field points to the necessity to take into account the contribution of the electric field from other sources.