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Effects of energetic particles on the potential gradient measurements at different latitudes

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Energetic particles are potential candidates to affect the Global Electrical Circuit. This is supported by theoretical models that propose that these events can modify the conductivity profile above thunderstorms. If very strong, they can change the conductivity at low altitudes. We can study these effects through potential gradient measurements in fair weather regions. In this study, we investigate the potential gradient daily curve departures from the standard curve (mean curve in fair weather conditions) during very intense solar proton events and Forbush decrease. The superposed epoch analysis was utilized in order to enhance weak effects. Potential gradient data corresponds to the period between January 2008 and July 2019, and were recorded at two different stations located in different latitudes: CASLEO (Argentina, South Hemisphere) and Swider (Poland, North Hemisphere).