



## **Ground measurements in Israel of solar events and their effects on the electrical parameters**

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Solar events impact the Earth with fluxes of energetic particles or x-ray radiation and sometimes both together. The energetic particles induce pressure on the magnetosphere, generate enhanced and disruptive geomagnetic storms and deposit their energy to the Earth by altering the chemistry and changing the ionization in the upper atmosphere [Rycroft 2012]. Past measurements showed that in times of geomagnetic disturbances due to solar activity, an increase of the potential gradient (PG or  $E_z$ ) and the conduction current ( $J_z$ ) are observed on the day of the impact and on subsequent days [Cobb 1967, Reiter 1969, Nicoll and Harrison 2014, Elhalel et al., 2014, Mironova et al 2015].

We report on ground-based measurements of the  $E_z$  and  $J_z$  that were conducted continuously from two locations in Israel to measure the effect of solar events in low latitudes (30°35'N, 34°45'E 840m – Mitzpe Ramon and 33°18'N 35°47.2'E 2100m - Mt. Hermon) during days that were defined meteorologically as fair weather days. We present preliminary results of several case studies of solar events, that show a consistent increase of more than 50% in  $E_z$  during solar events compared to average fair weather values and to  $K_p$  and particles fluxes.