

The Relationship Between the Induction Electric Field and the Flare

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The induction electric field $E = V \times B$ probably relates to magnetic non-potentiality in the solar atmosphere, where V is the plasma velocity and B is the magnetic flux. However, only the vertical component of E , that is, $E_z = (V \times B)_z$, can be deduced observationally from the transverse magnetic fields derived from vector magnetograms and the horizontal velocities computed by LCT technique.

Here we study the relationship between the E_z parameter and the powerful flares of four ARs: NOAA 10720, 10486, 8100, 9077. We have found that the kernels of flares were always located in or near the neutral lines where have maxima of E_z . Such correlation implies that flares may be caused by the relative motions of large magnetic features.