



Occurrence and Characteristics of Intense Electric Fields Observed by Cluster

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The occurrence and characteristics of intense ($>150\text{mV/m}$, mapped to the ionosphere) electric fields at high altitudes ($4-7R_E$) are investigated in a statistical study using data from the Cluster satellites. The types of electric field structure (converging or diverging) are determined and the associated FACs are calculated for 45 events in the range 500-1000 mV/m (of a total of 1373 events). A good consistency is found between converging (diverging) electric field structures and (1) upward (downward) FACs and (2) with the Region 1/NBZ current system in general. Results are also presented of the distribution of the events in MLT, CGLat and altitude and of an investigation of the degree of correlation between high latitude electric field events and the “anti-epsilon parameter”, representative during northward IMF conditions.