

Is there a relation between lightning activity and earthquakes ?

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[1] none

DEMETER is an ionospheric micro-satellite launched on a polar orbit in June 2004. Its main scientific objectives are to study the ionospheric perturbations in relation with seismic and anthropogenic activities. Therefore, its scientific payload allows to measure electromagnetic waves and plasma parameters all around the Earth except in the auroral zones. In the past, it has been shown that seismic activity may influence the propagation of whistlers (Hayakawa et al., PEPI, 1993) or the intensity of Schuman resonances (Hayakawa et al., Ann. Geophys., 2005). This paper will first show various examples of lightning activity at the time of earthquakes. In a second part, the results of a statistical analysis will be discussed. Taking into account thousands of earthquakes it has been shown that the electric field decrease at the altitude of the satellite during the night a few hours before earthquakes. This decrease only occurs at a frequency close to 1.7 kHz which corresponds to a cutoff frequency of waves propagating in the Earth-ionosphere guide.