

**Ionospheric perturbations observed by the satellite DEMETER during seismic activity**

# Michel Parrot[1]

[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 a first part the paper will show various examples of ionospheric perturbations (electron and ion density and temperature) observed prior to earthquakes. In a second part a statistical study with many earthquakes will be presented concerning the electric field and the ion temperature. The statistic is done as functions of the geographic position, the local time, and the magnetic activity. Geographical maps with average data are obtained to be used as background levels, and a superposed epoch method is applied to merge the data recorded during seismic activity. It is shown that the electric field decreases during night time a few hours before the occurrence of earthquakes. The statistical analysis with the ion temperature shows an increase. This behaviour is also observed during night time and only for earthquakes occurring above land.