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Statistical analysis of plasma parameters recorded by DEMETER

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DEMETER is a low orbiting satellite (650 km) which is operating more than five years to study ionospheric perturbations in relation with the seismic activity. It records wave and plasma parameters all around the Earth (except in the auroral zones) at two different local times (10.30 and 22.30 LT). This paper will present a new statistical analysis performed on the plasma parameters during night time. An algorithm has been implemented to detect crests and troughs in the data before earthquakes. The earthquakes have been classified depending on their magnitude, depth, and location (land, below the sea, close to a coast). Due to the orbit, DEMETER returns above the same area every day (once during day time, once during night time) but never at the same distance of a given epicentre. Then, for each earthquake, data have been checked until 15 days before the shock when the distance between the trace of the orbit and the epicentre is less than 1500 km. The results of the statistical analysis are presented as function of various parameters.