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Seismo-electromagnetic effects observed by DEMETER in the ionosphere

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The micro-satellite DEMETER has been launched on June 29, 2004. The main objectives of this satellite are to study the ionospheric perturbations in relation with the seismic activity. The payload of the DEMETER microsatellite allow to measure waves and also some important plasma parameters (ion composition, electron density and temperature, energetic particles). The scientific payload is composed of several sensors: - Three electric and three magnetic sensors (6 components of the electromagnetic field to investigate from DC up to 3.5 MHz), - A Langmuir probe, - An ion spectrometer, and, - An energetic particle analyzer. There are two modes of operation: (i) a survey mode to record low bit rate data all around the Earth, and (ii) a burst mode to record high bit rate data above seismic regions. The data are stored in a large onboard memory which is downloaded when the satellite is above Toulouse (two times per day). Then, the data is sent to the DEMETER mission center in Orléans where various data treatments are done. Data and plots are available through a web server (http://demeter.cnrs-orleans.fr). Experimenters and guest investigators have access to the facilities of this server in order to download or to display online selected data. The aim of this paper is to present first results obtained with DEMETER. The main purpose of the project is to perform a statistical analysis with many events in order to determine the main characteristics of the seismo-electromagnetic effects. It is too early to do that but data recorded during selected events will be shown. It will allow to determine the sensitive parameters which must be particularly surveyed.