



Preliminary analysis of HEPD data looking for seismo-associated perturbation of the Van Allen belts

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We present the first analysis of HEPD data developed looking for the existence of a possible spatial and temporal correlation between the occurrence of earthquakes and the observation of anomalous bursts of particles precipitating from the inner Van Allen Belt detected by spaceborne experiments. The effects of seismo-associated electromagnetic emissions in the near-Earth electromagnetic environment is a highly debated issue. Even though many reports have pointed out perturbations for many single cases study, some results are contradicting and the statistical evidence is still low. Only few statistical analyses (of electromagnetic fields or plasma parameters or particle data, etc.) have been carried out on significant ensembles of data. Due to the large background of non-seismic disturbances (generated by solar effects, thunderstorms and artificial electromagnetic emitters) we strongly believe that statistical analyses including many earthquake events (of different magnitudes, hypocentral depths, geographical epicenters, etc.) carried out on a long time period with data gathered in different conditions (even though always in geomagnetic quiet days) are the more powerful tool in order to contribute to shed light on the phenomenon. In this framework, our study has been carried out in order to verify early results obtained by analyzing data of SAMPEX/PET and NOAA satellites as well as from previous Russian space missions. Our data analysis adopts the same methodology developed for these previous studies, updated to the different constraints (range of energy, energy resolution, pointing, pitch angle, temporal resolution, etc.) of HEPD experiment on board of CSES mission. Aim of the work is to adapt the procedure to the HEPD features verifying the possibility to test the above mentioned correlation. The work is in progress both due to the modification needed to extend the analysis procedure to the HEPD data and to the limited amount of data available of few months from the launch of the CSES mission. A significant time series is in fact needed in order to set up the procedure and to verify the results.