



## **Hazard natural events and consequent connections during three solar cycles**

M.Tavares, A .Azevedo

University Federal Fluminense , I. Fisica , Av. Litoranea, s n , CEP 24240310 , Niteroi , RJ  
Brasil(1), marilia@if.uff.br

We have analysed the occurrence of three different kind of events related to the Earth's surface ,earthquakes, tsunami and volcanos and compared their respective evolution occurrence rated during three nominal eleven years Solar Cycles.Global analyses of these phenomena were performed and we have examined the relationship between occurrence rates in the Northern and the Southern Hemispheres, as well as on the different tectonic plates. The statistics of natural hazards was considered independently for each type of event. Our conclusions based on the observations indicated a strong relationship between 11-year Solar Cycles and the mentioned terrestrial phenomena. Both intensity and time variation of the occurrence rate seems to depend on the Solar Cycle activity( number and intensity of solar flares ) in different ways, depending on the actual tectonic plate where the events occurred. An intriguing behavior regarding an increasing Volcano activity on Indo Australian plate simultaneously with a decreased activity on the Eurasian plate during the recent few years, corresponds to the reversal of magnetic field according with a theory developed for the 22 years of Solar cycles namely Hale Cycles. The preliminary results indicated that also other factors must be take into account in future studies. These comprise the Earth's orbit around the Sun ( eccentricity ) , the precession and the axial tilt or the inclination of the Earth's axis in relation to its plane of orbit with the Sun. The difference in tilt affects which areas of the Earth's surface receives the most and least solar radiation, respectively.These factors are related to the Milankovich cycles.