1110-60-293 **Kanadpriya Basu*** (kbasu@utep.edu), 500 West University Avenue, El Paso, TX 79968, and **Maria Christina Mariani** (mcmariani@utep.edu), 500 West University Avenue, El Paso, TX 79968. *Stochastic models applied to seismic data.* Preliminary report.

The classical Ising model was used to re-create the ferromagnetic phenomenon in statistical mechanics. The model describes the behavior of atoms in a lattice. Each atom may interact only with its neighbors, and has two states called spins. When the temperature in the system passes a critical value the system exhibits a polarization of spins (phase transition) and spontaneous magnetization. In this work we consider mayor earthquakes as phase transitions and apply an extension of the Ising type models and the Levy type models to investigate the statistical behavior of the temporal distribution of earthquakes. We show that a pattern arises from the scale invariance property and that Lévy flight models may be used to estimate parameters related to some major event - major earthquake. We finally investigates the underlying volatility processes in earthquake series: we study the applicability of a range of GARCH specifications for modeling volatility of these series in order to identify similarities and differences in the volatility structures. (Received February 23, 2015)