

Stochastic Models for Predicting the Time of the next Earthquake in the North Anatolian Fault Zone

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The estimation of the time of the next earthquake, in a given seismic region, is one of the most useful and difficult tasks for scientists who study and predict earthquakes. In this presentation, we examine the previous times between earthquakes in the North Anatolian seismic region near Izmit Turkey. The Kolmogorov-Smirnov test shows that the recurrence times follow the exponential distribution. Based on this finding the classical and Bayesian predictive probability distributions of the time for the upcoming earthquake are derived. The mean and median of the predictive distributions are used to estimate the time for the next earthquake; furthermore prediction intervals for the time of the upcoming earthquake are derived. It is found that the Bayesian approach gives better estimates than the classical approach.