

1067-60-339

Erik Lewis* (elewis@math.ucla.edu), **George Mohler**, **P. Jeffrey Brantingham** and
Andrea Bertozzi. *Self-Exciting Point Process Models of Civilian Deaths in Iraq*.

Our goal in this paper is to analyze temporal patterns of civilian death reports in Iraq. For this purpose we employ a branching point process model similar to those used in earthquake analysis. Here the rate of events is partitioned into the sum of a Poisson background rate and a self-exciting component in which events trigger an increase in the rate of the process. More specifically, each event generated by the process in turn generates a sequence of offspring events according to a Poisson distribution. Whereas the background rate is typically assumed to be stationary for seismic activity, such an assumption is not valid in the context of civilian deaths in Iraq. We propose three simple adjustments to account for background rate variation and compare the effectiveness of each model using Iraq Body Count data from 2003 to 2007. Our results indicate that branching point processes are well suited for modeling the temporal dynamics of violence in Iraq. (Received August 24, 2010)