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# A BAYESIAN ANALYSIS FOR THE SEISMIC DATA ON TAIWAN

TSAI-HUNG FAN AND ENG-NAN KUO

*Graduate Institute of Statistics, National Central University, Chungli, Taiwan 32054, R.O.C.*

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**Abstract.** A Bayesian approach is used to analyze the seismic events with magnitudes at least 4.7 on Taiwan. Following the idea proposed by Ogata (1988, *Journal of the American Statistical Association*, **83**, 9–27), an epidemic model for the process of occurrence times given the observed magnitude values is considered, incorporated with gamma prior distributions for the parameters in the model, while the hyperparameters of the prior are essentially determined by the seismic data in an earlier period. Bayesian inference is made on the conditional intensity function via Markov chain Monte Carlo method. The results yield acceptable accuracies in predicting large earthquake events within short time periods.

*Key words and phrases*: Epidemic model, prior distribution, hyperparameter, conditional intensity function, MCMC method.