1086-86-2488 **Kimberly D Leung*** (kimberly.leung@science.sdsu.edu), **Aneesh Subramanian** (acsubram@ucsd.edu), **Guang Zhang** (gzhang@ucsd.edu) and **Samuel Shen** (shen@math.sdsu.edu). *Stochastic Differential Equation Modeling of Precipitation in Convection.*

A simple stochastic model is used to model the transition to strong convection. Recent studies have used statistical measures inferred from observational data to characterize this transition at a critical value of column water vapor (CWV), around which there is a sharp transition in mean precipitation and a peak in precipitation variance. The probability density of precipitation events can be approximated by a power law, and those of CWV and precipitation autocorrelation functions by exponential and power-law decays, respectively. However, the parameters used in the variable functions are derived from a combination of empirical and theoretical estimates. In this study, the statistics of the transition as well as other variables in the model are analyzed with respect to satellite and field observations to estimate the parameters in the stochastic model. We present results from analysis comparing the statistical behavior of the variables in the model to those in observations. This parameterization includes three stochastic components: a stochastic trigger that turns the precipitation state on and off (a two-state Markov jump process), and stochastic closures representing variability in precipitation and other forcing (represented by Gaussian white noise). (Received September 25, 2012)