1077-60-2405 **Samuel N Stechmann***, University of Wisconsin-Madison, Department of Mathematics, 480 Lincoln Dr, Madison, WI 53706, and **J David Neelin**. *A stochastic model for tropical rainfall and extreme events.*

Recently it has been discovered that tropical rainfall patterns, on scales of 20-200 km or larger, have statistics that resemble critical phenomena from statistical physics. Through, for instance, the power-law distributions and long-range correlations in these statistics, the characteristics of extreme rainfall events can be quantified. To gain further insight into these statistics and extreme events, a stochastic model is designed and analyzed to reproduce the statistics that are local in space (and evolving in time). The model includes the interaction of a stochastic jump process and Gaussian processes to represent different aspects of tropical convection, a highly complex system that, if fully resolved, involves nonlinear turbulent interactions of fluid dynamics and moist thermodynamics. The stochastic model can be thought of as a simplified subgrid-scale parameterization of moist convection for atmospheric models with grid spacings of 20-200 km. (Received September 22, 2011)