

Title : An introduction to catastrophe Insurance : multivariate Erlang mixtures

Abstract : In the first part of the talk, an overview of the history and structure of catastrophe models are first given. We explain how catastrophe modeling for earthquake and hurricane hazards is used to manage natural hazard risk. To model highly correlated losses such as catastrophe losses, a class of multivariate mixed Erlang distributions with different scale parameters is considered. Some distributional properties involving higher-order equilibrium distributions and residual lifetime distributions are derived and in turn, we apply these results to study stop-loss moments, premium calculation, and the risk allocation problem in insurance risk theory. The second part of the talk is joint work with Gordon E. Willmot.