



The University of Chicago  
Department of Statistics

## BAHADUR MEMORIAL LECTURES

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**“I don’t know where I’m gonna go  
when the volcano blows”**

**THURSDAY, April 14, 2011, at 4:00PM**

133 Eckhart Hall, 5734 S. University Avenue

*Refreshments will be served BEFORE the seminar in Eckhart 110.*

### ABSTRACT

So wrote Jimmy Buffet. Great song line, but usually its too late to go when the volcano blows; one has to know when to go before it blows.

The problem of risk assessment for rare natural hazards—such as volcanic pyroclastic flows—is addressed, and illustrated with the Soufriere Hills Volcano on the island of Montserrat. Assessment is approached through a combination of mathematical computer modeling, statistical modeling of geophysical data, and extreme-event probability computation.

A mathematical computer model of the natural hazard is used to provide the needed extrapolation to unseen parts of the hazard space. Statistical modeling of the available geophysical data is needed to determine the initializing distribution for exercising the computer model. In dealing with rare events, direct simulations involving the computer model are prohibitively expensive, so computation of the risk probabilities requires a combination of adaptive design of computer model approximations (emulators) and rare event simulation.

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