

(51) 2006 Annual Meeting, Chicago, Illinois



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2006 Annual Meeting, Chicago, Illinois Online Program

Abstract Title:

Complexity Science in Support of Disaster Alleviation: Preferences, Places, and Promises

is part of the Paper Session:

[Perspectives on Geographic Complexity 4: Applications](#)

scheduled on Saturday, 3/11/06 at 14:00 PM.

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Abstract:

This research addresses critical theoretical and practical issues in complexity science with potential applications in land-use change analysis and disaster (e.g., hurricane Katrina) aversion and/or alleviation: what preferences of people affect which places they choose to live in, and how such choices lead to land-use trajectories that are more vulnerable to a certain type of disaster, and what promises can be obtained. A current agent-based model will be modified as a socioeconomic/environmental laboratory to accommodate individual people, the environment, and various relationships. At each time step a number of homebuyers enter a hypothetical landscape subject to hazards of a certain natural disaster (e.g., hurricane, infectious disease, or flooding). Then each homebuyer evaluates the utility of each available location based on its disaster hazards, soil quality, aesthetic quality, and distance to the nearest service center, and decide where to locate his/her residence. Analyzing the emergent land-use trajectories generated in this way with varying preferences and degree of uncertainties, this research aims to find the conditions and statistical methods that can best reveal such preferences. Aside from shedding light on the conditions under which the natural hazards can be minimized and the environmental amenities can be maximized, this research will develop an innovative methodology from the perspective of complex systems and land-use and land-cover changes.

Keywords:

[complexity science](#), [agent-based modeling](#), [statistical modeling](#), [land use](#), [disaster alleviation](#)