Multi-Hazard Consequence Mapping for the United States¹

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Abstract

As natural hazard losses in the United States continue to increase, more effective and efficient mitigation techniques need to be implemented to reverse this trend. Multi-hazard maps represent a tool that hazard mitigation planners can use for disaster preparation and communication. Although maps for single hazards are common, maps that simultaneously consider different hazards are not as accessible. This paper creates multi-hazard maps of the United States by mapping and coalescing multiple hazards based on similarities in origin process and community response. Using the SHELDUS database from the Hazard and Vulnerability Research Institute at the University of South Carolina, losses at the county level throughout the entire United States are gathered and analyzed. Adjustments are made for inflation, population and wealth changes. Maps are based on categories of natural hazards, and a map of regions based on similar natural hazards is created. By utilizing the multi-hazard mapping approach, mitigation planners will be able to implement more effective measures to confront natural hazards as well as better communicate hazard risk to the public. The regional map or the country is proposed as a replacement for the political boundary determination of bundled state regions by the Federal Emergency Management Agency (FEMA).

¹ This paper would fit under the sub-topics of Societal Risk Management or Societal-need-oriented Decision Making, for the general IFED theme of Decision-Making beyond the Engineering Community.

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