



Emmett J. Lodree Jr.

Auburn University

Inventory Logistics Planning for Hurricane Relief Operations

elodree@auburn.edu

Many government agencies, not-for-profit organizations, and private corporations assume leading roles in positioning supplies, equipment, and personnel to support initial response operations after a major hurricane. These organizations are faced with challenging supply chain and logistics decisions to ensure that supplies, equipment, and personnel are readily available at the right places, at the right times, and in the right quantities. In addition to the complexities associated with supply chain and logistics planning in general, hurricane relief planning decisions are complicated by the uncertainties associated with the number of storms that are expected to develop during the hurricane season, the projected path of each storm, the maximum intensity of each storm, and other storm characteristics that influence supply and demand patterns.

This presentation introduces stochastic models that will assist emergency-, logistics-, and production-managers; military leaders; and government officials in managing the uncertainties associated with developing quick response and cost effective disaster relief plans for responding to major hurricanes. A novel approach to hurricane relief planning that explicitly incorporates hurricane predictions into the modeling framework is discussed. The mathematical methods used in the proposed modeling and solution approaches include Bayesian decision theory, stochastic dynamic programming, and stochastic programming.