

# Multistage Stochastic Programming for Hurricane Relief Logistics Planning with Rolling Forecast Uncertainty

*lundi 28 juillet 2025 17:30 (30 minutes)*

In this talk, we will discuss multi-stage stochastic programming (MSP) models and solution approaches for humanitarian relief logistics planning in hurricane disasters. Specifically, we study how the rolling forecast information can be integrated in an MSP model via the Martingale Model of Forecast Evolution (MMFE) to provide optimal adaptive logistics decision policies. We investigate state-space modeling to address the high-dimensional state space as a result of the MMFE model. Our numerical results and sensitivity analyses demonstrate the value of MSP for hurricane relief logistics planning compared to approaches that utilize rolling forecast information in a rolling-horizon fashion. We also investigate various trade-offs between policy flexibility, solution quality, and computational effort, from which we gain valuable managerial insights for the practitioners.

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