Department of Mathematics and Statistics Colloquium

A Fair Mathematical Approach to Disaster Relief Planning

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Abstract: Following a major disaster, organization and efficiency of relief efforts are vital to guarantee that the affected population will have their basic needs met, such as food, water, and shelter. However, in the wake of a disaster there is much uncertainty about the area: the level of damage, the condition of the roads, and the number and locations of people affected by the disaster. Therefore, it is vital to place relief distributions in locations that will maximize the speed and efficiency of relief efforts.

Previous work in the field has largely been based on standard commercial logistics approaches and focuses on organizational costs for the relief agencies while ignoring the "costs" to the affected population. These costs, known as deprivation costs, take many forms including travel costs. This research incorporates these travel costs in two distinct methods to minimize the suffering of the population by choosing the locations of the relief distribution centers, the first method accounting for uncertainties about the condition of the roads and the second ensuring that aid efforts are fair to the affected population.

Monday, April 9 at 3:50 in Roop 103

Refreshments at 3:30