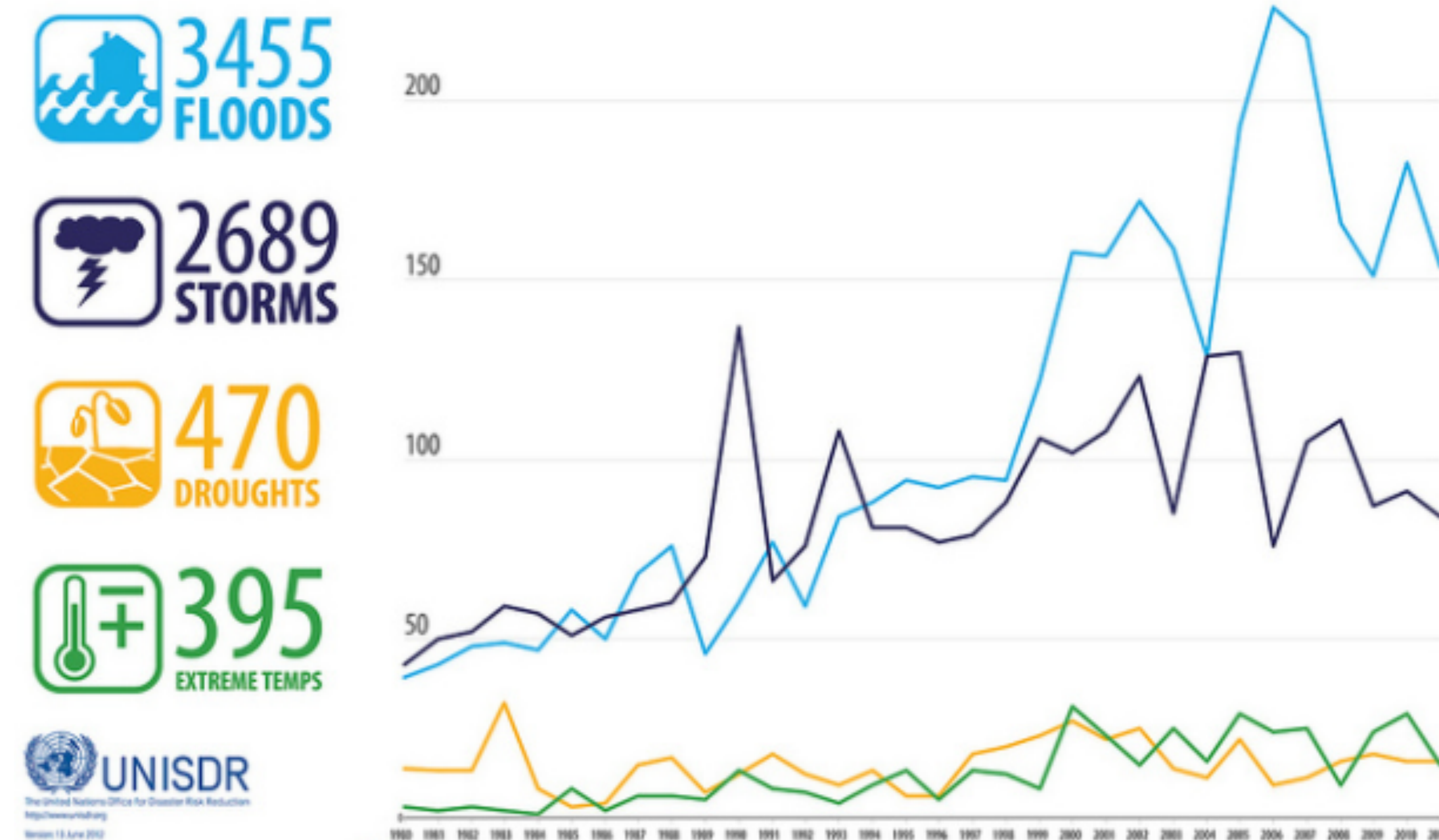


# Effects and Mitigation of Natural Hazards in Retail Networks

## Motivation / Background

### Number of Climate-related Disasters Around the World (1980-2011)



### How to invest in resilience against natural hazards?

## Key Question / Hypothesis

1. What are the consequences of natural hazards on sales and inventory in retail networks?
2. How should investments in resilience be made in order to be aligned with the risk profile of organizations?

## Relevant Literature

You, Wassing & Grossnabb (2008) "Risk Management for a Global Supply Chain under Uncertainty: Models and Algorithms"  
Snyder et al (2006), "Planning for Disruptions in Supply Chain Networks"  
Snoeck (2016), "A stochastic program to evaluate disruption mitigation investments in the supply chain"



## Methodology



## Expected Contribution

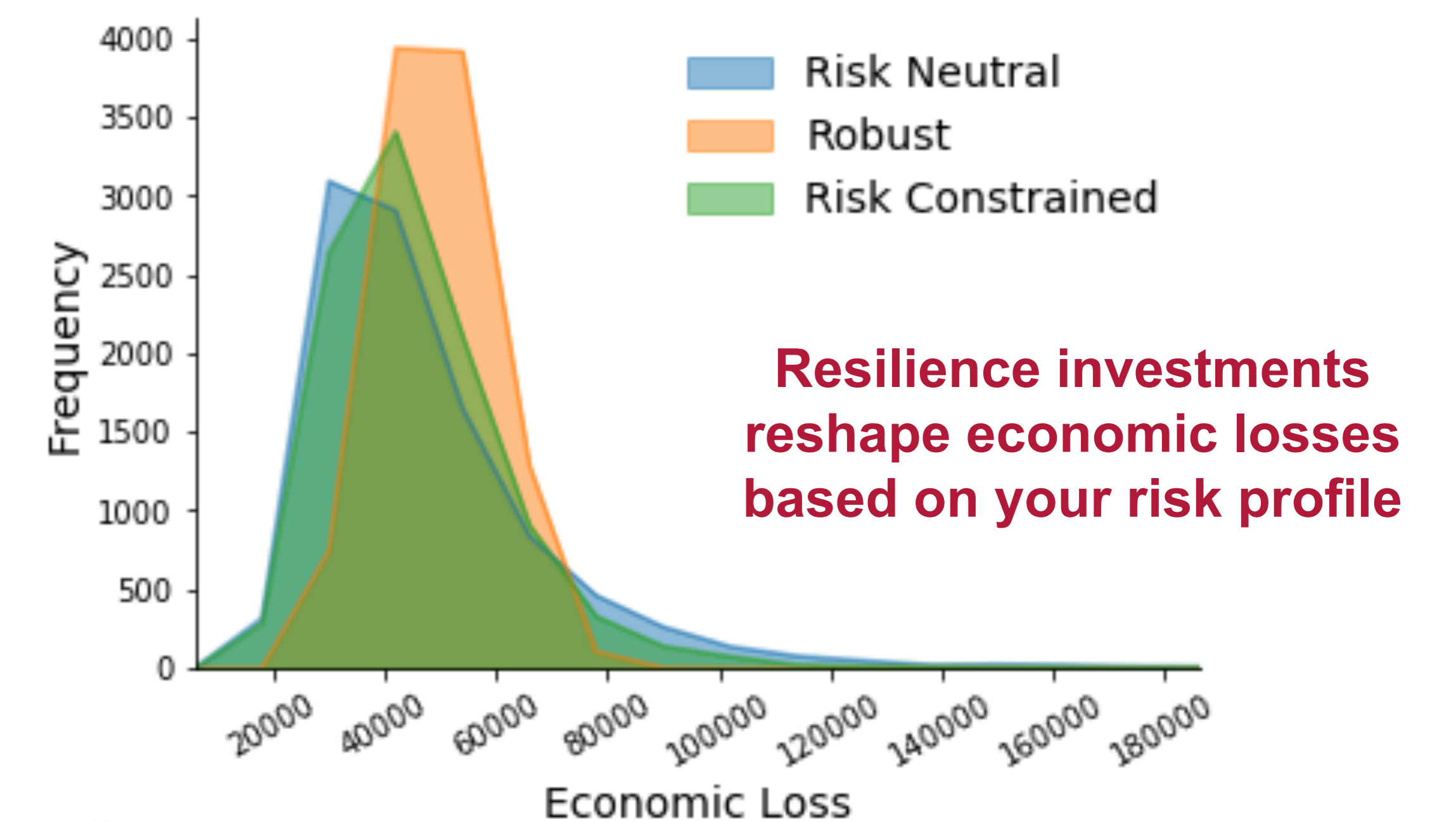
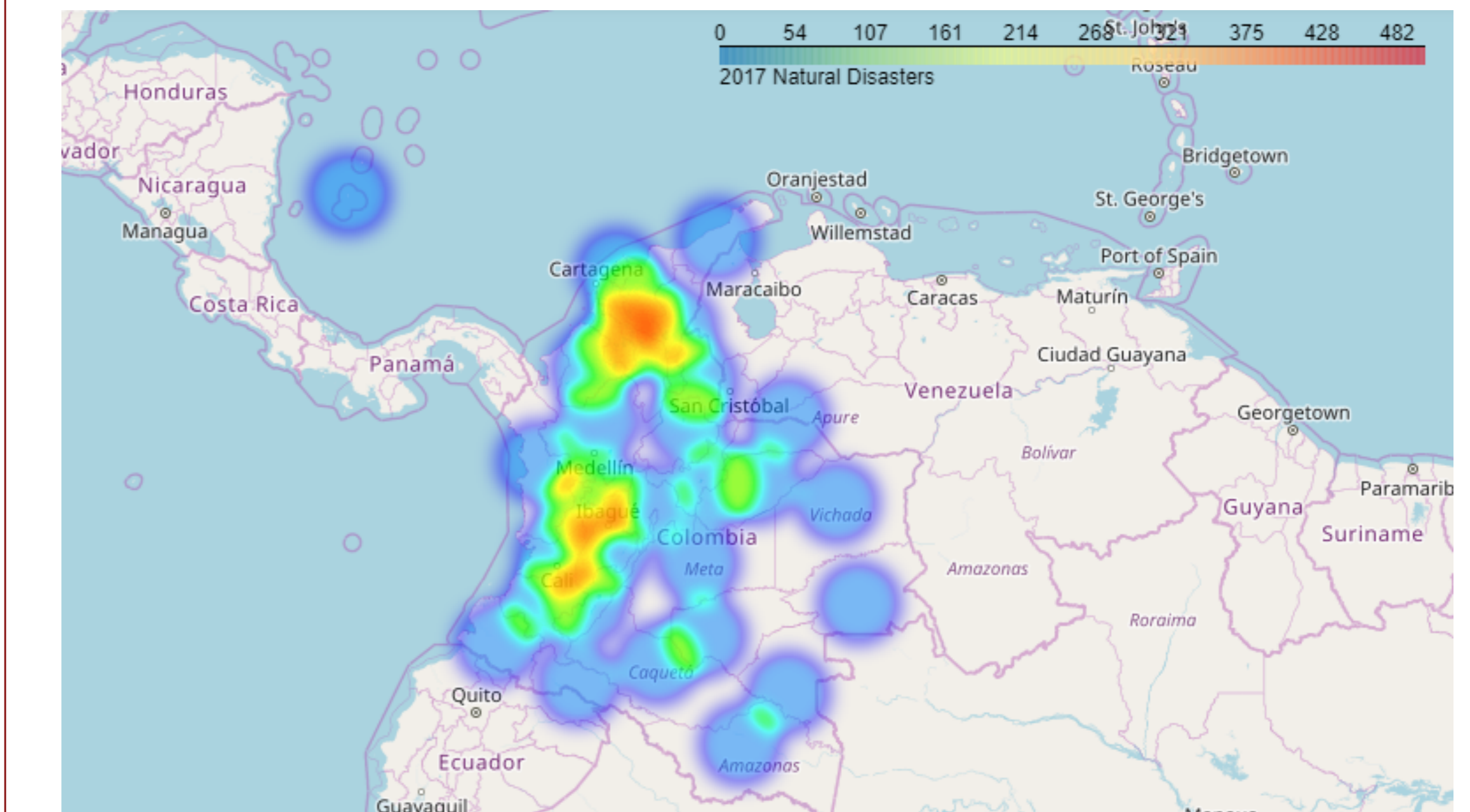
**Understanding** of the effects of natural hazards in inventory flows and sales over retail networks.

**Quantitative model** to make investment decisions in resilience based on physical flow of inventory and comprehensive scenarios obtained from POS and emergencies historical data.

**Insights** on the consequences of risk profiles in future losses based on initial resilience investments

## Initial Results

### Number of Natural Disasters in Colombia in 2017



### Data sources:

486 Stores  
10 DCs  
5 Categories

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