

# Understanding Mobility in Disaster Scenarios for Emergency Communications Design

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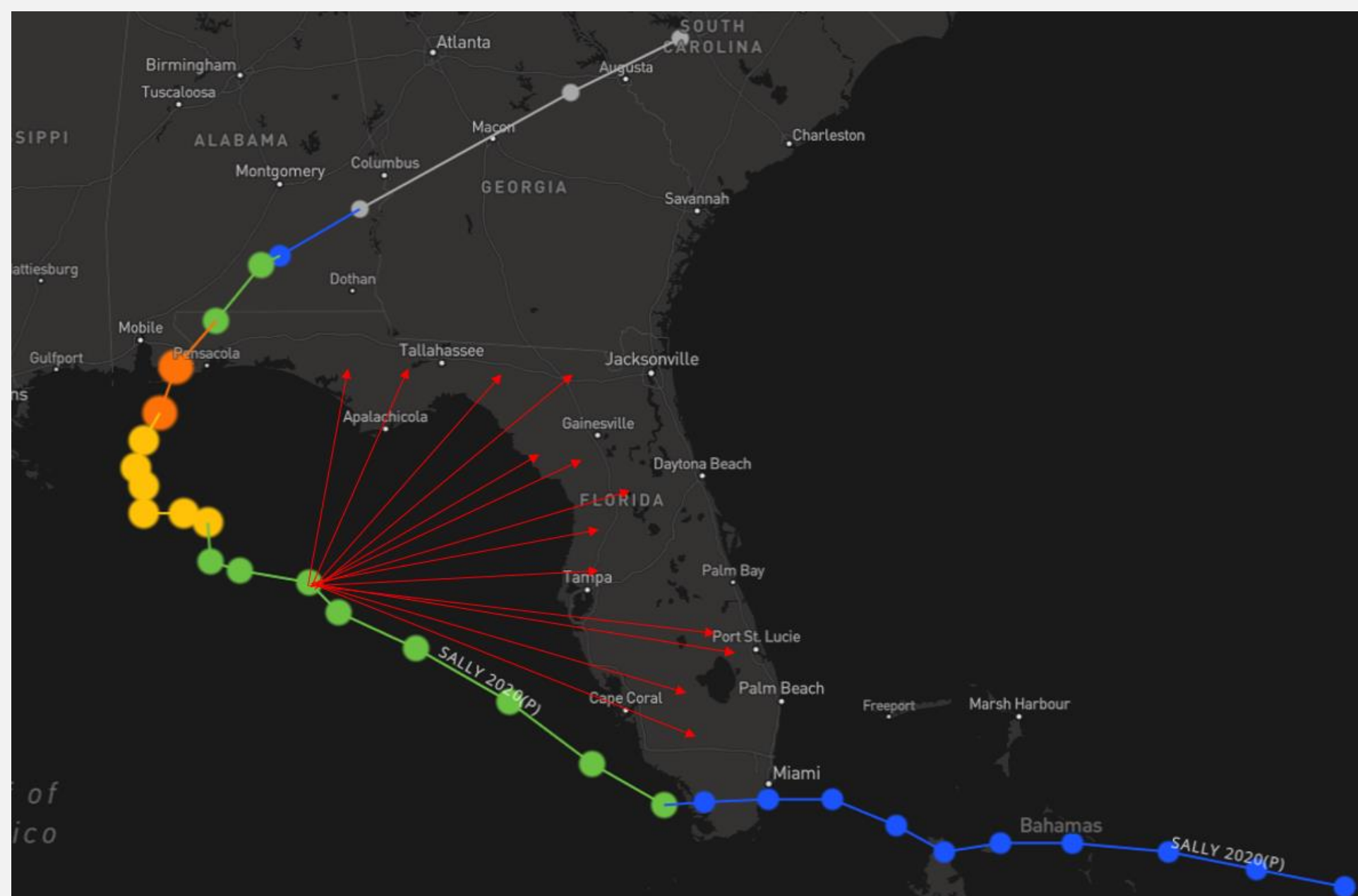
Professor : Yann Bocchi

## Summary

- Identify the demand for communication as well as key features of user distribution and movement in the event of a disaster using social media data
- Using modern data mining techniques to analyze and predict the impact on cellular activity relative to the distance and strength of a hurricane

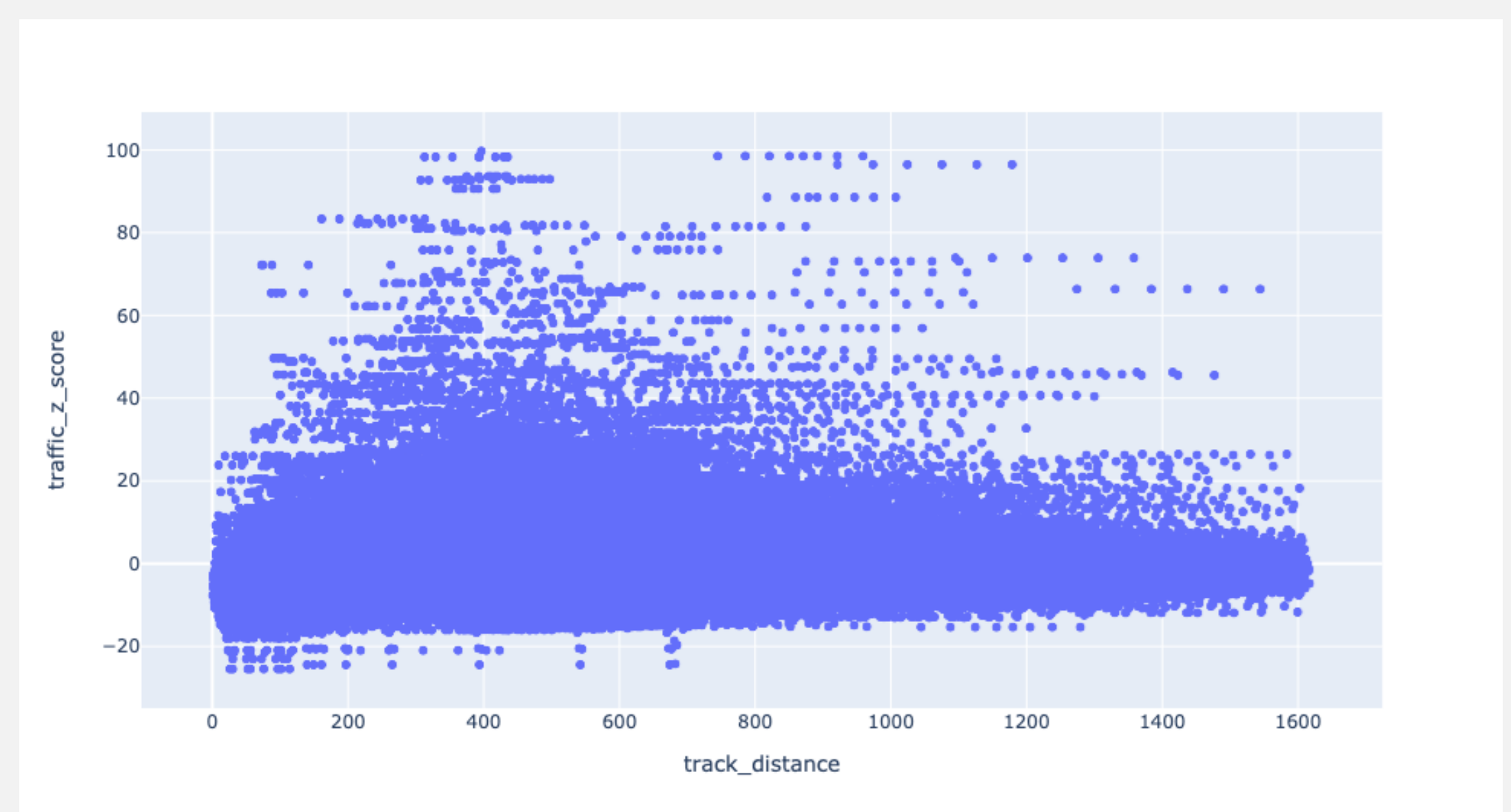
## Introduction

- Process and analyze social media data from Facebook and the National Oceanic and Atmospheric Administration (NOAA) with modern data mining techniques
- Implement a neural network to make predictions on the datasets
- Interpret the data and find patterns in cellular activity relative to a hurricane

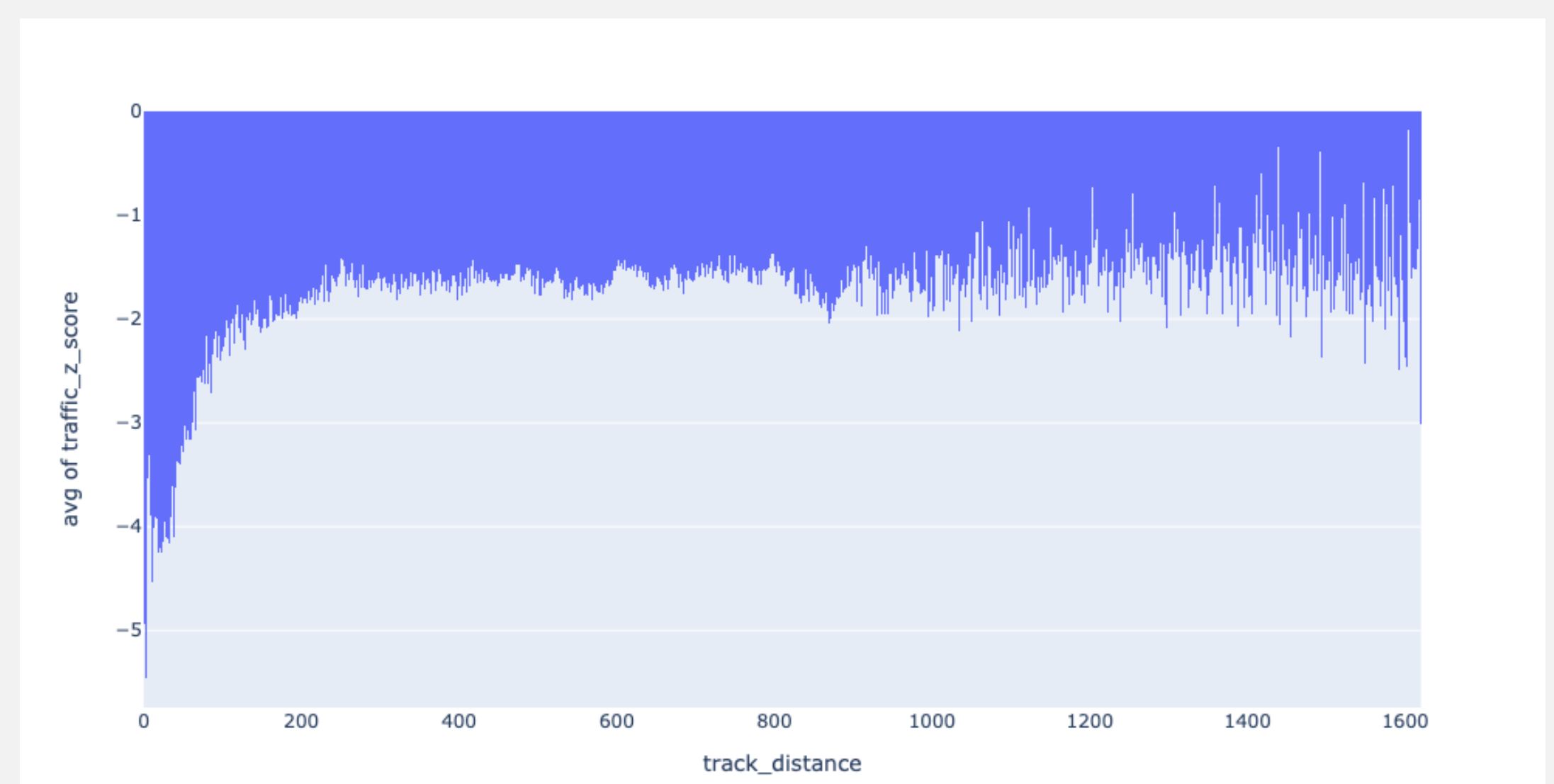


## Results

Representation of abnormal increase in cellular activity compared to the distance (300-600 km) of hurricane Sally (2020):



Representation of abnormal decrease in cellular activity compared to the distance (0-200 km) of hurricane Sally (2020):



## Steps

- Conduct a preliminary research phase during which aspects of disasters and data sources are analyzed
- Define a disaster scenario
- Conduct different experiments and data analysis operations with the aim of correlating meteorological measurements with cellular activity data
- Result interpretations and conclusions

## Tools



## Conclusions

- The usage of social media data plays an essential part in the design of emergency communication networks
- Usage of processes such as data mining and neural networks can be useful for disaster management