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Research Area

Flooding, one of the most dangerous weather events, causes an increased number of deaths per year. This research consists of collecting data from NOAA's National center for Environmental Information (NCEI) database from different states and transferring it to an Excel database. The only flood related events that are submitted in the database were coastal flood, flash flood, flood, heavy rain, hurricane, tropical storm.

Motivation or Background

Hydrometeorological disasters have tremendous consequences, for example, damage to infrastructure, loss in the economy, and very often loss of life. Natural disasters have caused the loss of 1.7 million people's lives between 1980 and 2016. Hydrological events are responsible for many fatalities in the United States. Every time heavy rain occurs, creeks swell, rivers swell and major flooding occurs to streets and bridge crossings, people unaware or make the wrong decision to get in the flood waters and are swept by the raging waters. Hydrological conditions like flooding need to be studied and researched as much as possible to control the fatality rate due to hydrological weather events in the United States. Moreover, flooding disturbs the way of living, whole cities and towns are affected, it paralyzes cities completely. Entire communities are affected, taking many people's lives and homes.

Objectives

1. Collecting data from NOAA's National center for Environmental Information database. In particular, flood related fatalities in the United States to document the fatalities that occur during coastal flood, flash flood, heavy rain, hurricane, tropical storm
2. Collect different factors of the flooding event, for example, the age, gender, vehicle involvement, time, place, and date. The data is collected and transferred into an Excel database to identify similarities or trends in the events

Methodology

- The source of this research was NOAA's National Center for Environmental Information (NCEI) that provides storm event database that contains data of January 1950. Using the yearly report of storm event data, each states fatalities starting from 1950 up to 2017. All the factors are collected and then transferred to graphs for a visual representation of the whole database for that state.

Results

The following graphs show that vehicle involvement, in flood related deaths, occurs very frequently. Figure 1 shows the number of deaths due to different hydrological events. Figure 2 is the age range and number of deaths in all the hydrological events.

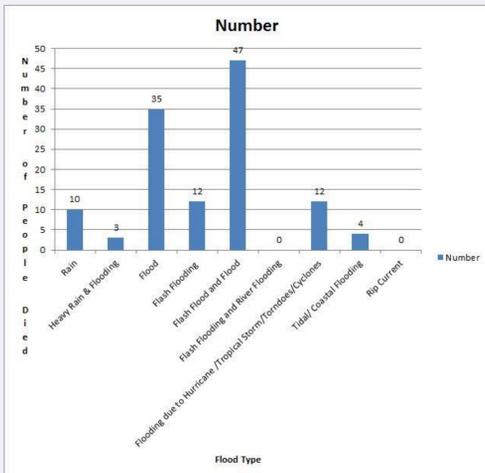


Fig. 1. State of New Jersey 1959-2017

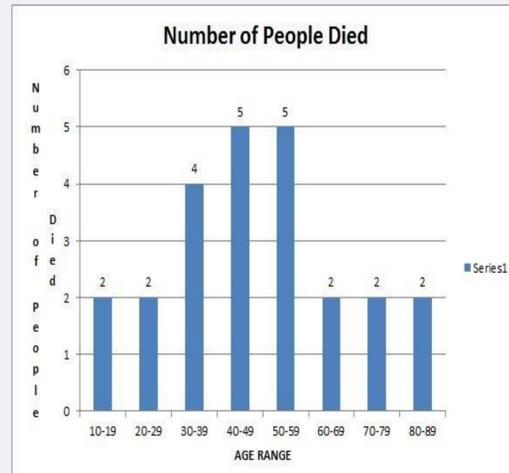


Fig. 2. State of New Jersey 1959-2017

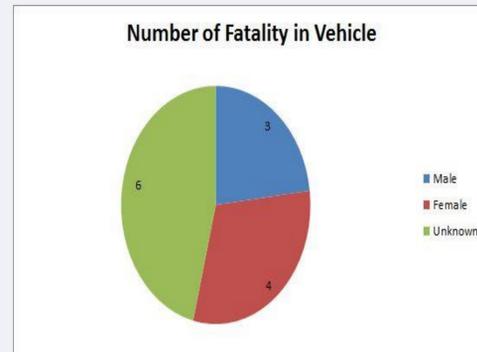


Fig. 3. State of New Jersey 1959-2017

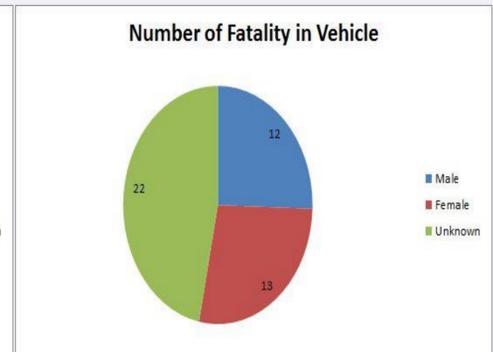


Fig. 4. State of New Mexico 1959-2017

Skills and Experience

- Data collecting
- Data analysis
- Organization skills
- Time Management

What I Learned

- I have learned to gather data and transfer to Excel.
- I have gotten more familiar with Excel.
- Collect data from a database and represent all that data in one big picture instead lines and numbers of information.
- I have improved my time management skills.
- Be able to collect big amounts of data and able to analyze it.

Future Plans

My future plans, as I continue to pursue my Civil Engineering Degree, are taken this information of hydrological events and incorporate it through my career. As I help to build cities, always pursuing the design that can prevent deaths due to the flood phenomenon. Building Infrastructure that can withstand severe weather events like flooding.

Acknowledgments

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References

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