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Research Area

Extreme weather conditions attribute to fatalities in The United States. Researching fatality rate can play a major role. This research assesses flood related mortality in the United States starting from 1959 up to 2016. The type of events that were taken in consideration for this research were coastal flood, flood, flash flood, hail, heavy rain and tropical storm.



Motivation or Background

In the United States there are many fatalities that are related to variation of hydrological conditions. Each year, people are killed because they drive during hazardous weather condition. Extreme hydrologic conditions such as flooding could be one of the major cause of fatalities throughout the states which needs to be taken under control as much as possible. Flooding also significantly impacts society by disturbing their way of living, safety and economy. In the history of flooding events in the United States, cities and towns affected by floods were devastated or entirely destroyed.

Objectives

1. The main objective of fatalities assessment throughout the states is to measure the number of fatalities that will occur due to common natural disaster such as flood and stop the damage that will probably occur in the future by creating effective strategies.
2. The research also identifies and investigates multiple factors that has direct contribution to flood fatalities, damage and injuries then help to develop alternative solutions by considering the contributing factors of fatalities.

Methodology /Results

The primary sources of this research was NOAA's National Center for Environmental Information (NCEI) that provide storm event database. Using the monthly report of storm event data, each state's fatalities starting from 1959 up to 2016 were collected and quantified.

Types of storm, location, date and time, gender and age were collected then based on the information table and graph of fatalities for each state and county.

Rank	State	Fatalities	Rank	State	Fatalities
1	Texas	945	26	Illinois	94
2	Louisiana	685	27	New Jersey	76
3	California	333	28	Oregon	67
4	Pennsylvania	271	29	Kansas	64
5	Virginia	269	30	Minnesota	57
6	Mississippi	266	31	Iowa	53
7	South Dakota	247	32	Utah	49
8	Missouri	217	33	Montana	48
9	New York	203	34	Washington	31
10	Colorado	198	35	Michigan	31
11	West Virginia	186	36	Nevada	31
12	Ohio	179	37	Wyoming	26
13	North Carolina	176	38	Wisconsin	22
14	Kentucky	169	39	Vermont	21
15	Arizona	162	40	Delaware	18
16	Tennessee	152	41	Connecticut	16
17	Oklahoma	147	42	Nebraska	16
18	Arkansas	133	43	North Dakota	13
19	Georgia	133	44	New Hampshire	13
20	Alabama	85	45	Maine	11
21	Indiana	82	46	Massachusetts	11
22	New Mexico	82	47	District of Columbia	3
23	Maryland	75	48	Idaho	2
24	South Carolina	75	49	Rhode Island	0
25	Florida	69			

Figure 1. General list of fatalities throughout the states ranking states based on the number of fatalities until 2016.

Results

The following graphs show the state of Texas as an example for measuring the results that have been done for each state. The graphs show that during the month of May there are a large number of fatalities. Unknown range of people, and male fatalities are shown in higher number. Similarly Texas Bexar County was the most affected county.

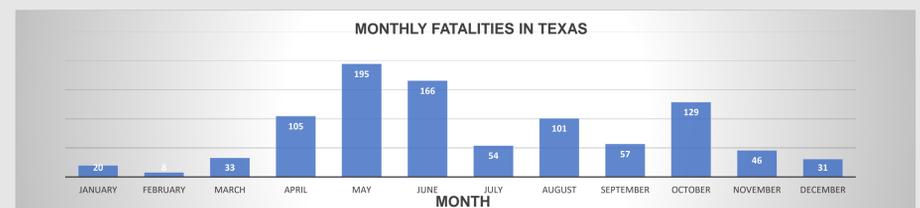


Figure 2. Fatalities by month

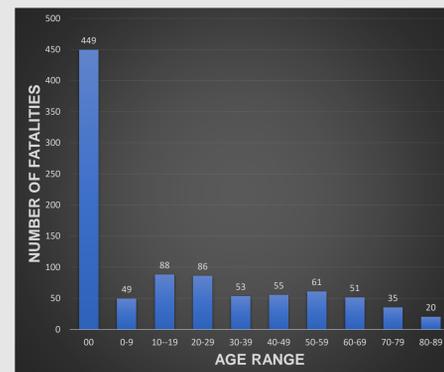


Figure 3. Fatalities by Age

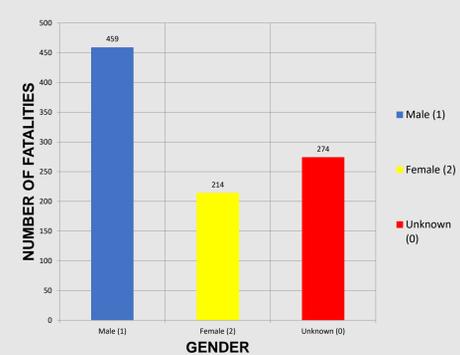


Figure 4. Fatalities by Gender

County/ Region	Number of people died
Bexar County	78
Dallas County	65
Harris County	60
Travis County	58
Tarrant County	44
Kerr County	27
Guadalupe County	25
Central Southeast Texas	25
Terrill County	23
Bandera County	20
Bell County	19
Val Verde County	16
Coryell County	15
Edwards County	13
Burnet County	12
Gregg County	11
Kendall County	11

Figure 5. Table of Fatalities by County

County that has similar	Number of fatalities	Number of Fatalities
5	10	
6	9	
4	8	
7	7	
6	5	
7	5	
8	4	
22	3	
23	2	
29	1	

Figure 6. Table of Similar Fatalities

Skills and Experience

The main skill and experience I have developed in this research is professional working relationships with my mentor for best outcome of the research. The research gives me experience on how to gather information and organize them and manage all tasks in a way to increase accuracy of information. The research challenges me to have strong work ethics; it needs to set time in order to meet the deadline. This helps to have effective planning and management skill of different work load. In general this research is an eye opener to expect some challenging possibilities so that it help to get ready to be more effective for future career and research work.

Future Plans

Based on my own profession the study encourages to have current information for any engineering work before any construction began for instance the location of existing and new infrastructures and residencies should be well studied in order to avoid fatalities which is caused by common natural disaster. Moreover working in the research helps to have bright career future and give an idea which direction to move in order to bring solution for specific problem. Research can be a way of replacing evil deed to good end. In general based on concrete information from many resources, it is possible to make decision to solve problem that will benefit the population which live now and in the future.

References

- <https://www.ncdc.noaa.gov/stormevents/>
- Dr. Hatim Sherif
- <https://www.ucar.edu/communications/factsheets/Flooding.html>

What I Learned

The most lesson I get is where research will start and what research means mainly to the population that will be affected by the problem. I also learn that research is not something that is done once and at a time, it is on going way of learning. For anyone like me who like learning and solving a problem; I learn that doing research is the best approach of learning in solving a problem.

Acknowledgments

This work is supported by the USDA National Institute of Food and Agriculture, Interdisciplinary Hands-on Research Traineeship and Extension Experiential Learning in Bioenergy/Natural Resources/Economics/Rural project, U-GREAT (Undergraduate Research, Education And Training) program (2016-67032-24984).