Hurricane Harvey

Table of Contents

How to use the template

Table of Contents

There are many organize and communicate your results. To help ensure your peer-reviewers can accurately grade your report, this report includes the titles for the 4 required sections in Heading 1 style. Each required element for a given section has a Heading 2 area for you to place the final result.

Make sure to place your required findings in the appropiate area for your peer-reviewer to easily find them.

Also, only the heading titles are present. *The script is not broken into sections*.

Background and Scope

Import the Data

You may use an import function. If not using an import function, include the code used to import the data (it may be generated from the Import Tool)

```
Data = importfile("StormEvents_2017_finalProject.csv");
% Data.Total_Cost = Data.Property_Cost + Data.Crop_Cost;
% Data.Total_Cost(ismissing(Data.Total_Cost),:) = 0;
% Data = movevars(Data, 'Total_Cost', 'Before', 'Begin_Lat');
 Data.Total_Cost(ismissing(Data.Property_Cost),:) = 0;
Data = Data(Data.Begin_Date_Time >= '2017-08-17 00:00:00' & Data.End_Date_Time < '2017-09-04 00
head(Data,10)
```

```
ans = 10×25 table
```

...

	EpisodeID	Event_ID	State	Year	Month	Event_Type	CZ_Name
1	119542	726661	IOWA	2017	August	Tornado	STORY

	EpisodeID	Event_ID	State	Year	Month	Event_Type	CZ_Name
2	119542	726659	IOWA	2017	August	Tornado	BOONE
3	119542	726660	IOWA	2017	August	Tornado	STORY
4	119542	717362	IOWA	2017	August	Heavy Rain	AUDUBON
5	119542	717363	IOWA	2017	August	Heavy Rain	POLK
6	119542	717364	IOWA	2017	August	Thunderstorm Wind	POWESHIEK
7	120232	720731	VIRGINIA	2017	August	Heavy Rain	NORFOLK (C)
8	120232	720732	VIRGINIA	2017	August	Heavy Rain	NORTHAMPTON
9	120232	720735	VIRGINIA	2017	August	Heavy Rain	NORTHAMPTON
10	120232	720737	VIRGINIA	2017	August	Heavy Rain	PORTSMOUT...

Two States Most Impacted by Harvey

Clearly state the two states in order

```
States_Impact = groupsummary(Data,"State","sum","Property_Cost");
States_Impact = sortrows(States_Impact,'sum_Property_Cost','descend');
head(States_Impact,5)
```

ans = 5×3 table

	State	GroupCount	sum_Property_Cost
1	TEXAS	272	7.7427e+10
2	LOUISIANA	85	75277000
3	NORTH CA...	59	12338500
4	WASHINGTON	2	4000000
5	FLORIDA	68	2237000

From the output table we can clearly see that the two states most impacted by Hurricane Harvey in terms of total Property Cost are:

1. Texas
2. Louisiana

Table of Events for Two Most Impacted States

Create and display a few rows of events that include only the two most affected states

```
States_Data = Data(ismember(Data.State,{'LOUISIANA','TEXAS'}),:);
States_Data = sortrows(States_Data,'Property_Cost','descend');
States_Data.Event_Type = removecats(States_Data.Event_Type,{'Astronomical Low Tide','Avalanche'
Louisiana = States_Data(States_Data.State =="LOUISIANA",:);
Texas = States_Data(States_Data.State =="TEXAS",:);
head(Texas,5)
```

ans = 5×25 table

...

	EpisodeID	Event_ID	State	Year	Month	Event_Type	CZ_Name
1	119826	718436	TEXAS	2017	August	Thunderstorm Wind	MIDLAND
2	119753	723652	TEXAS	2017	August	Tropical Storm	AUSTIN
3	119753	723449	TEXAS	2017	August	Tropical Storm	GALVESTON
4	119753	720871	TEXAS	2017	August	Flash Flood	GALVESTON
5	119753	720861	TEXAS	2017	August	Flash Flood	HARRIS

```
head(Louisiana,5)
```

```
ans = 5×25 table
```

...

	EpisodeID	Event_ID	State	Year	Month	Event_Type	CZ_Name
1	120120	719749	LOUISIANA	2017	August	Flash Flood	CALCASIEU
2	120120	719755	LOUISIANA	2017	August	Flash Flood	BEAUREGARD
3	120120	720006	LOUISIANA	2017	August	Tornado	ACADIA
4	120120	719742	LOUISIANA	2017	August	Flood	CAMERON
5	120120	720007	LOUISIANA	2017	August	Tornado	CAMERON

Visualizations

Figure of Event Types

Create a figure showing the type and number of occurances for events related to Harvey in the two states

```
histogram(States_Data.Event_Type)
title('Number of Occurences Vs Event Type in Texas and Louisiana')
xlim({'Flash Flood','Tropical Storm'})
ylim([0 200])
xlabel('State')
ylabel('No.Occurences')
```

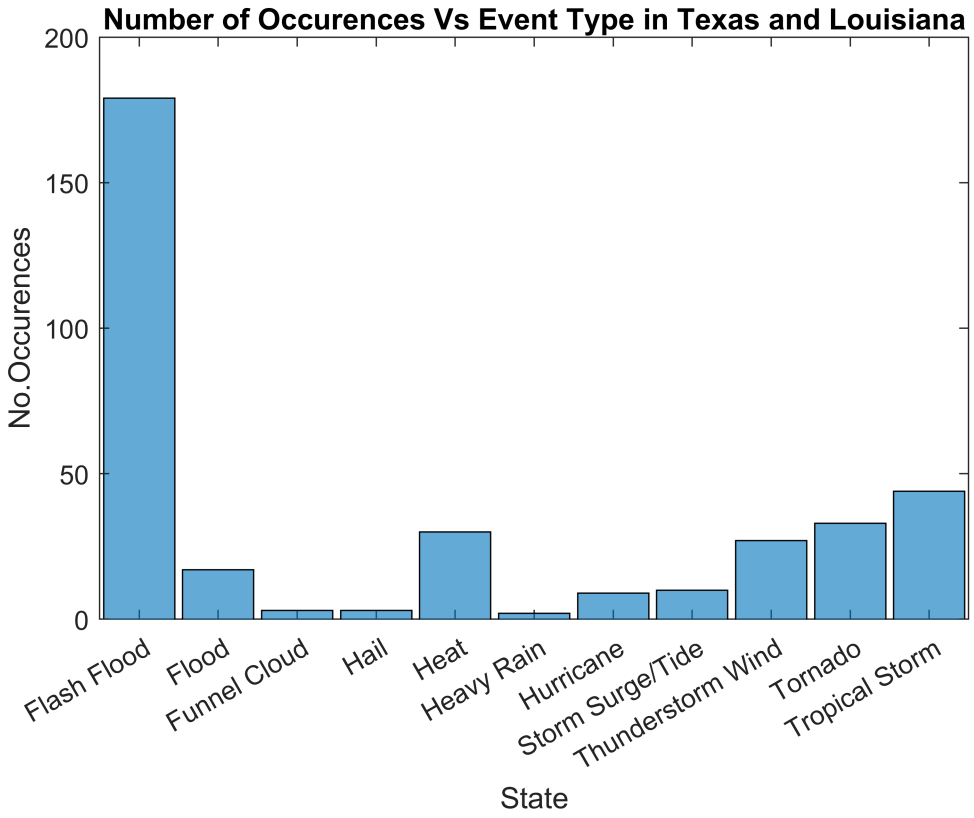
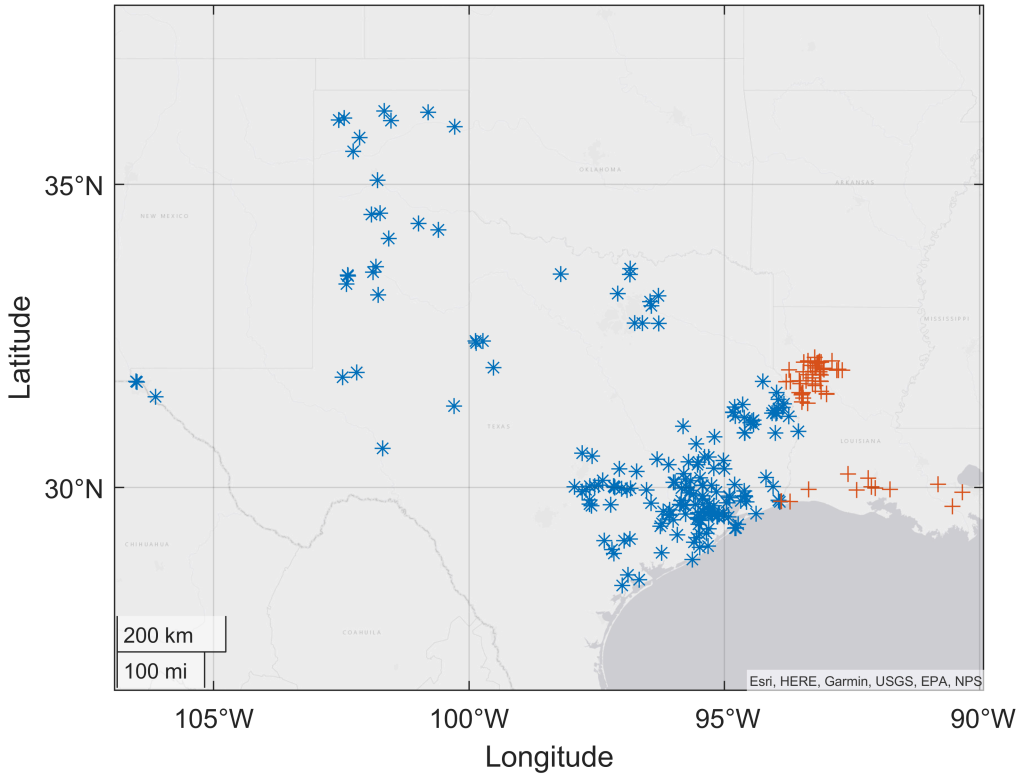


Figure of Event Locations

Show the location of events in the two states. Be sure to use different markers for the two states

```
geoplot(Texas.Begin_Lat,Texas.Begin_Lon,'*')
hold on
geoplot(Louisiana.Begin_Lat,Louisiana.Begin_Lon,'+')
hold off
```



Analysis

Three Counties with Most Events in State 1

Either type out, show in a table, or show in a clear visualization the three counties with the most events in state 1.

```
Texas_Counties = groupsummary(Texas,"CZ_Name");
Texas_Counties = sortrows(Texas_Counties,'GroupCount','descend');
head(Texas_Counties,5)
```

```
ans = 5×2 table
```

	CZ_Name	GroupCount
1	HARRIS	21
2	GALVESTON	17
3	FORT BEND	13
4	ANGELINA	12
5	BRAZORIA	12

from the table above we can clearly see that the three counties with the most events in Texas are:

1. Harris
2. Glaveston

3. Fort Bend

Three Counties with Most Events in State 2

Either type out, show in a table, or show in a clear visualization the three counties with the most events in state 2.

```
Louisiana_Counties = groupsummary(Louisiana,"CZ_Name");
Louisiana_Counties = sortrows(Louisiana_Counties,'GroupCount','descend');
head(Louisiana_Counties,5)
```

ans = 5×2 table

	CZ_Name	GroupCount
1	NATCHITOC...	21
2	SABINE	15
3	RED RIVER	9
4	WINN	6
5	VERMILION	4

from the table above we can clearly see that the three counties with the most events in Louisiana are:

1. Natchitoches
2. Sabine
3. Red River

Three Counties with Highest Property Cost in State 1

Either type out, show in a table, or show in a clear visualization the three counties with the highest reported property cost in state 1. *Be sure to include the dollar amount*.

```
Texas_Counties_Property_Cost = groupsummary(Texas,"CZ_Name","sum","Property_Cost");

Texas_Counties_Property_Cost = sortrows(Texas_Counties_Property_Cost,'sum_Property_Cost','desce

head(Texas_Counties_Property_Cost,5)
```

ans = 5×3 table

	CZ_Name	GroupCount	sum_Property_Cost
1	GALVESTON	17	2.0000e+10
2	FORT BEND	13	1.6004e+10
3	MONTGOMERY	6	1.4000e+10
4	HARRIS	21	1.0001e+10
5	JEFFERSON	4	3.0000e+09

We see from the table above that the three counties with the highest reported property cost in Texas are:

1. Glaveston
2. Fort Bend

3. Montgomery

Three Counties with Highest Property Cost in State 2

Either type out, show in a table, or show in a clear visualization the three counties with the highest reported property cost in state 2. *Be sure to include the dollar amount*.

```
Louisiana_Counties_Property_Cost = groupsummary(Louisiana,"CZ_Name","sum","Property_Cost");

Louisiana_Counties_Property_Cost = sortrows(Louisiana_Counties_Property_Cost,'sum_Property_Cost

head(Louisiana_Counties_Property_Cost,5)
```

ans = 5×3 table

	CZ_Name	GroupCount	sum_Property_Cost
1	CALCASIEU	1	60000000
2	BEAUREGARD	1	15000000
3	ACADIA	1	200000
4	CAMERON	3	72000
5	VERMILION	4	5000

We see from the table above that the three counties with the highest reported property cost in Louisiana are:

1. Calcasieu
2. Beauregard
3. Acadia

Conclusions and Recommendations

Summarize your analysis. Make a recommendation supported by the data.

We can see that the insurance company should prioritize and send people to Texas, especially to the following counties:

1. Glaveston
2. Fort Bend
3. Montgomery
4. Harris

We saw in The two most impacted states that Texas is "Leading" far more than any other state in Property Costs. Their top 5 counties leading far ahead than any other countie in any other state. Especially to counties listed in the Linked Section.