

# <Data Science - Project 01>

## Background and Scope

**Hurricane Harvey** was a devastating Category 4 hurricane that made landfall on Texas and Louisiana in August 2017, causing catastrophic flooding and many deaths. It is tied with 2005's Hurricane Katrina as the [costliest](#) tropical cyclone on record, inflicting \$125 billion (2017 USD) in damage, primarily from catastrophic rainfall-triggered flooding in the Houston metropolitan area and Southeast Texas. It was the first major hurricane to make landfall in the United States since Wilma in 2005, ending a record 12-year span in which no hurricanes made landfall at the intensity of a major hurricane throughout the country. In a four-day period, many areas received more than 40 inches (1,000 mm) of rain as the system slowly meandered over eastern Texas and adjacent waters, causing unprecedented flooding. With peak accumulations of 60.58 in (1,539 mm), in Nederland, Texas, Harvey was the wettest tropical cyclone on record in the United States. The resulting floods inundated hundreds of thousands of homes, which displaced more than 30,000 people and prompted more than 17,000 rescues.

## Import the Data

```
data=importfile1("StormEvents_2017_finalProject.csv")
```

```
data = 57005x24 table
```

...

	EpisodeID	Event_ID	State	Year	Month	Event_Type
1	113355	678791	NEW JERSEY	2017	April	Thunderstorm Wind
2	113459	679228	FLORIDA	2017	April	Tornado
3	113448	679268	OHIO	2017	April	Thunderstorm Wind
4	113697	682042	OHIO	2017	April	Flood
5	113683	682062	NEBRASKA	2017	April	Hail
6	114718	688082	INDIANA	2017	April	Flash Flood
7	114834	688895	VIRGINIA	2017	April	Thunderstorm Wind
8	121068	724772	GULF OF ME...	2017	October	Marine Thunderstorm Wind
9	114489	686560	OHIO	2017	April	Flash Flood
10	113683	682156	NEBRASKA	2017	April	Thunderstorm Wind
11	115066	690966	ARKANSAS	2017	April	Hail
12	121162	725317	OKLAHOMA	2017	October	Hail
13	120474	721817	ATLANTIC N...	2017	October	Marine Strong Wind
14	120474	721818	ATLANTIC N...	2017	October	Marine High Wind
15	112855	675876	PENNSYLVANIA	2017	March	Winter Weather
16	112855	675879	PENNSYLVANIA	2017	March	Winter Weather
17	112855	675877	PENNSYLVANIA	2017	March	Winter Weather
18	113797	681330	WISCONSIN	2017	February	Winter Weather

	EpisodeID	Event_ID	State	Year	Month	Event_Type
19	113797	681332	WISCONSIN	2017	February	Winter Weather
20	115634	694778	GULF OF ME...	2017	June	Marine Thunderstorm Wind
21	115688	695188	FLORIDA	2017	June	Thunderstorm Wind
22	115811	696020	GULF OF ME...	2017	June	Marine Thunderstorm Wind
23	115811	696023	GULF OF ME...	2017	June	Marine Thunderstorm Wind
24	115752	695727	MONTANA	2017	June	Hail
25	115752	695729	MONTANA	2017	June	Hail
26	115752	695740	MONTANA	2017	June	Thunderstorm Wind
27	113797	681331	WISCONSIN	2017	February	Winter Weather
28	113797	681333	WISCONSIN	2017	February	Winter Weather
29	113797	681334	WISCONSIN	2017	February	Winter Weather
30	113797	681336	WISCONSIN	2017	February	Winter Weather
31	115176	691471	GULF OF ME...	2017	June	Waterspout
32	115176	691472	GULF OF ME...	2017	June	Waterspout
33	115634	694777	GULF OF ME...	2017	June	Marine Thunderstorm Wind
34	112855	675883	PENNSYLVANIA	2017	March	Winter Weather
35	113797	681282	WISCONSIN	2017	February	Winter Weather
36	115811	696124	GULF OF ME...	2017	June	Marine Thunderstorm Wind
37	115811	696134	GULF OF ME...	2017	June	Marine Thunderstorm Wind
38	115811	696176	GULF OF ME...	2017	June	Marine Thunderstorm Wind
39	115811	696179	GULF OF ME...	2017	June	Marine Thunderstorm Wind
40	115902	696463	FLORIDA	2017	June	Thunderstorm Wind
41	115904	696474	GULF OF ME...	2017	June	Marine Thunderstorm Wind
42	115940	696653	GULF OF ME...	2017	June	Marine Thunderstorm Wind
43	116635	701349	FLORIDA	2017	June	Flash Flood
44	116635	701350	FLORIDA	2017	June	Flash Flood
45	116635	701351	FLORIDA	2017	June	Flash Flood
46	116636	701352	FLORIDA	2017	June	Flash Flood
47	116636	701353	FLORIDA	2017	June	Flash Flood
48	116636	701354	FLORIDA	2017	June	Flood
49	116636	701355	FLORIDA	2017	June	Flood
50	115691	698754	MISSOURI	2017	June	Thunderstorm Wind
51	115691	698756	MISSOURI	2017	June	Thunderstorm Wind

	EpisodeID	Event_ID	State	Year	Month	Event_Type
52	116224	698777	KANSAS	2017	June	Hail
53	116224	698778	KANSAS	2017	June	Hail
54	116224	698779	KANSAS	2017	June	Thunderstorm Wind
55	116224	698780	KANSAS	2017	June	Thunderstorm Wind
56	116224	698781	KANSAS	2017	June	Thunderstorm Wind
57	116224	698782	KANSAS	2017	June	Hail
58	115691	698760	MISSOURI	2017	June	Thunderstorm Wind
59	115691	698761	MISSOURI	2017	June	Thunderstorm Wind
60	115691	698762	MISSOURI	2017	June	Thunderstorm Wind
61	115691	698763	MISSOURI	2017	June	Thunderstorm Wind
62	115691	698764	MISSOURI	2017	June	Thunderstorm Wind
63	115691	698765	MISSOURI	2017	June	Heavy Rain
64	115691	698766	MISSOURI	2017	June	Heavy Rain
65	116222	698768	MISSOURI	2017	June	Flash Flood
66	116222	698769	MISSOURI	2017	June	Flash Flood
67	116222	698770	MISSOURI	2017	June	Hail
68	116636	701356	FLORIDA	2017	June	Flood
69	116636	701357	FLORIDA	2017	June	Flood
70	115330	692444	ATLANTIC S...	2017	June	Marine Thunderstorm Wind
71	115330	692448	ATLANTIC S...	2017	June	Marine Thunderstorm Wind
72	115330	692453	ATLANTIC S...	2017	June	Marine Thunderstorm Wind
73	115691	698751	MISSOURI	2017	June	Lightning
74	115691	698752	MISSOURI	2017	June	Thunderstorm Wind
75	115691	698753	MISSOURI	2017	June	Thunderstorm Wind
76	115691	698757	MISSOURI	2017	June	Thunderstorm Wind
77	115691	698758	MISSOURI	2017	June	Thunderstorm Wind
78	115691	698759	MISSOURI	2017	June	Thunderstorm Wind
79	116222	698771	MISSOURI	2017	June	Thunderstorm Wind
80	116222	698772	MISSOURI	2017	June	Thunderstorm Wind
81	116222	698773	MISSOURI	2017	June	Thunderstorm Wind
82	116222	698774	MISSOURI	2017	June	Thunderstorm Wind
83	116224	698775	KANSAS	2017	June	Hail
84	116224	698776	KANSAS	2017	June	Hail

	EpisodeID	Event_ID	State	Year	Month	Event_Type
85	116224	698783	KANSAS	2017	June	Thunderstorm Wind
86	116224	698784	KANSAS	2017	June	Thunderstorm Wind
87	116224	698785	KANSAS	2017	June	Thunderstorm Wind
88	115940	696657	GULF OF ME...	2017	June	Waterspout
89	115968	696991	FLORIDA	2017	June	Thunderstorm Wind
90	115966	697003	GULF OF ME...	2017	June	Marine Thunderstorm Wind
91	115966	697015	GULF OF ME...	2017	June	Marine Thunderstorm Wind
92	115992	697128	GULF OF ME...	2017	June	Waterspout
93	116634	701344	ALABAMA	2017	June	Thunderstorm Wind
94	116632	701345	ALABAMA	2017	June	Thunderstorm Wind
95	116224	698786	KANSAS	2017	June	Thunderstorm Wind
96	116224	698787	KANSAS	2017	June	Thunderstorm Wind
97	116224	698788	KANSAS	2017	June	Thunderstorm Wind
98	116224	698789	KANSAS	2017	June	Thunderstorm Wind
99	116224	698790	KANSAS	2017	June	Thunderstorm Wind
100	116225	698801	MISSOURI	2017	June	Thunderstorm Wind

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```
ismissing(data.Property_Cost)
```

```
ans = 57005×1 logical array
```

```
1
0
0
0
0
0
0
0
0
0
0
⋮
```

```
data.Property_Cost= fillmissing(data.Property_Cost, "constant", 0)
```

```
data = 57005×24 table
```

...

	EpisodeID	Event_ID	State	Year	Month	Event_Type
1	113355	678791	NEW JERSEY	2017	April	Thunderstorm Wind
2	113459	679228	FLORIDA	2017	April	Tornado

	EpisodeID	Event_ID	State	Year	Month	Event_Type
3	113448	679268	OHIO	2017	April	Thunderstorm Wind
4	113697	682042	OHIO	2017	April	Flood
5	113683	682062	NEBRASKA	2017	April	Hail
6	114718	688082	INDIANA	2017	April	Flash Flood
7	114834	688895	VIRGINIA	2017	April	Thunderstorm Wind
8	121068	724772	GULF OF ME...	2017	October	Marine Thunderstorm Wind
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12	121162	725317	OKLAHOMA	2017	October	Hail
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14	120474	721818	ATLANTIC N...	2017	October	Marine High Wind
15	112855	675876	PENNSYLVANIA	2017	March	Winter Weather
16	112855	675879	PENNSYLVANIA	2017	March	Winter Weather
17	112855	675877	PENNSYLVANIA	2017	March	Winter Weather
18	113797	681330	WISCONSIN	2017	February	Winter Weather
19	113797	681332	WISCONSIN	2017	February	Winter Weather
20	115634	694778	GULF OF ME...	2017	June	Marine Thunderstorm Wind
21	115688	695188	FLORIDA	2017	June	Thunderstorm Wind
22	115811	696020	GULF OF ME...	2017	June	Marine Thunderstorm Wind
23	115811	696023	GULF OF ME...	2017	June	Marine Thunderstorm Wind
24	115752	695727	MONTANA	2017	June	Hail
25	115752	695729	MONTANA	2017	June	Hail
26	115752	695740	MONTANA	2017	June	Thunderstorm Wind
27	113797	681331	WISCONSIN	2017	February	Winter Weather
28	113797	681333	WISCONSIN	2017	February	Winter Weather
29	113797	681334	WISCONSIN	2017	February	Winter Weather
30	113797	681336	WISCONSIN	2017	February	Winter Weather
31	115176	691471	GULF OF ME...	2017	June	Waterspout
32	115176	691472	GULF OF ME...	2017	June	Waterspout
33	115634	694777	GULF OF ME...	2017	June	Marine Thunderstorm Wind
34	112855	675883	PENNSYLVANIA	2017	March	Winter Weather
35	113797	681282	WISCONSIN	2017	February	Winter Weather

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36	115811	696124	GULF OF ME...	2017	June	Marine Thunderstorm Wind
37	115811	696134	GULF OF ME...	2017	June	Marine Thunderstorm Wind
38	115811	696176	GULF OF ME...	2017	June	Marine Thunderstorm Wind
39	115811	696179	GULF OF ME...	2017	June	Marine Thunderstorm Wind
40	115902	696463	FLORIDA	2017	June	Thunderstorm Wind
41	115904	696474	GULF OF ME...	2017	June	Marine Thunderstorm Wind
42	115940	696653	GULF OF ME...	2017	June	Marine Thunderstorm Wind
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47	116636	701353	FLORIDA	2017	June	Flash Flood
48	116636	701354	FLORIDA	2017	June	Flood
49	116636	701355	FLORIDA	2017	June	Flood
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53	116224	698778	KANSAS	2017	June	Hail
54	116224	698779	KANSAS	2017	June	Thunderstorm Wind
55	116224	698780	KANSAS	2017	June	Thunderstorm Wind
56	116224	698781	KANSAS	2017	June	Thunderstorm Wind
57	116224	698782	KANSAS	2017	June	Hail
58	115691	698760	MISSOURI	2017	June	Thunderstorm Wind
59	115691	698761	MISSOURI	2017	June	Thunderstorm Wind
60	115691	698762	MISSOURI	2017	June	Thunderstorm Wind
61	115691	698763	MISSOURI	2017	June	Thunderstorm Wind
62	115691	698764	MISSOURI	2017	June	Thunderstorm Wind
63	115691	698765	MISSOURI	2017	June	Heavy Rain
64	115691	698766	MISSOURI	2017	June	Heavy Rain
65	116222	698768	MISSOURI	2017	June	Flash Flood
66	116222	698769	MISSOURI	2017	June	Flash Flood
67	116222	698770	MISSOURI	2017	June	Hail
68	116636	701356	FLORIDA	2017	June	Flood

	EpisodeID	Event_ID	State	Year	Month	Event_Type
69	116636	701357	FLORIDA	2017	June	Flood
70	115330	692444	ATLANTIC S...	2017	June	Marine Thunderstorm Wind
71	115330	692448	ATLANTIC S...	2017	June	Marine Thunderstorm Wind
72	115330	692453	ATLANTIC S...	2017	June	Marine Thunderstorm Wind
73	115691	698751	MISSOURI	2017	June	Lightning
74	115691	698752	MISSOURI	2017	June	Thunderstorm Wind
75	115691	698753	MISSOURI	2017	June	Thunderstorm Wind
76	115691	698757	MISSOURI	2017	June	Thunderstorm Wind
77	115691	698758	MISSOURI	2017	June	Thunderstorm Wind
78	115691	698759	MISSOURI	2017	June	Thunderstorm Wind
79	116222	698771	MISSOURI	2017	June	Thunderstorm Wind
80	116222	698772	MISSOURI	2017	June	Thunderstorm Wind
81	116222	698773	MISSOURI	2017	June	Thunderstorm Wind
82	116222	698774	MISSOURI	2017	June	Thunderstorm Wind
83	116224	698775	KANSAS	2017	June	Hail
84	116224	698776	KANSAS	2017	June	Hail
85	116224	698783	KANSAS	2017	June	Thunderstorm Wind
86	116224	698784	KANSAS	2017	June	Thunderstorm Wind
87	116224	698785	KANSAS	2017	June	Thunderstorm Wind
88	115940	696657	GULF OF ME...	2017	June	Waterspout
89	115968	696991	FLORIDA	2017	June	Thunderstorm Wind
90	115966	697003	GULF OF ME...	2017	June	Marine Thunderstorm Wind
91	115966	697015	GULF OF ME...	2017	June	Marine Thunderstorm Wind
92	115992	697128	GULF OF ME...	2017	June	Waterspout
93	116634	701344	ALABAMA	2017	June	Thunderstorm Wind
94	116632	701345	ALABAMA	2017	June	Thunderstorm Wind
95	116224	698786	KANSAS	2017	June	Thunderstorm Wind
96	116224	698787	KANSAS	2017	June	Thunderstorm Wind
97	116224	698788	KANSAS	2017	June	Thunderstorm Wind
98	116224	698789	KANSAS	2017	June	Thunderstorm Wind
99	116224	698790	KANSAS	2017	June	Thunderstorm Wind
100	116225	698801	MISSOURI	2017	June	Thunderstorm Wind

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## Two States Most Impacted by Harvey

```
a=groupsummary(data, 'State', 'sum', 'Property_Cost');  
a = sortrows(a, 'sum_Property_Cost', 'descend');  
b=a.State
```

b = 65x1 categorical array

TEXAS  
PUERTO RICO  
FLORIDA  
COLORADO  
CALIFORNIA  
MICHIGAN  
GEORGIA  
IDAHO  
MISSOURI  
OKLAHOMA  
LOUISIANA  
OREGON  
WISCONSIN  
WASHINGTON  
OHIO  
ILLINOIS  
NORTH CAROLINA  
MISSISSIPPI  
NEW YORK  
PENNSYLVANIA  
ARKANSAS  
NEBRASKA  
ALABAMA  
KENTUCKY  
TENNESSEE  
UTAH  
NEVADA  
MINNESOTA  
NEW MEXICO  
NEW HAMPSHIRE  
INDIANA  
VERMONT  
IOWA  
VIRGINIA  
ARIZONA  
NORTH DAKOTA  
KANSAS  
WEST VIRGINIA  
ALASKA  
SOUTH CAROLINA  
MASSACHUSETTS  
WYOMING  
NEW JERSEY  
CONNECTICUT  
MONTANA  
MARYLAND  
VIRGIN ISLANDS  
AMERICAN SAMOA  
MAINE  
HAWAII  
SOUTH DAKOTA  
RHODE ISLAND  
GULF OF MEXICO



LAKE SUPERIOR  
 ATLANTIC NORTH  
 GUAM  
 ATLANTIC SOUTH  
 DELAWARE  
 E PACIFIC  
 DISTRICT OF COLUMBIA  
 HAWAII WATERS  
 LAKE ERIE  
 LAKE HURON  
 LAKE MICHIGAN  
 LAKE ST CLAIR

```
c=[b(1),b(2)]
```

```
c = 1x2 categorical array  

    TEXAS      PUERTO RICO
```

The two states mostly affected -

1. Texas
2. Puerto Rico

## Table of Events for Two Most Impacted States

```
data1 = data(ismember(data.State,{'PUERTO RICO','TEXAS'}),:)
```

```
data1 = 3850x24 table
```

	EpisodeID	Event_ID	State	Year	Month	Event_Type	CZ_Name	Begin_Date_Time
1	115737	695622	TEXAS	2017	May	Hail	HENDERSON	2017-05-03 14...
2	111748	666464	TEXAS	2017	January	Tornado	BOSQUE	2017-01-15 18...
3	112430	672657	TEXAS	2017	January	Thunderstorm ...	DALLAS	2017-01-02 05...
4	112430	672660	TEXAS	2017	January	Thunderstorm ...	LEON	2017-01-02 05...
5	112430	672661	TEXAS	2017	January	Thunderstorm ...	ELLIS	2017-01-02 05...
6	112430	672744	TEXAS	2017	January	Thunderstorm ...	LEON	2017-01-02 06...
7	112430	672745	TEXAS	2017	January	Thunderstorm ...	RAINS	2017-01-02 06...
8	111748	673560	TEXAS	2017	January	Hail	JOHNSON	2017-01-15 20...
9	111748	673561	TEXAS	2017	January	Hail	TARRANT	2017-01-15 20...
10	111748	673566	TEXAS	2017	January	Thunderstorm ...	TARRANT	2017-01-15 20...

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```
data1 = data1(data1.Event_Type == 'Hurricane',:)
```

```
data1 = 20x24 table
```

	EpisodeID	Event_ID	State	Year	Month	Event_Type	CZ_Name	Begin_Date_Time
1	120357	721909	PUERTO ...	2017	September	Hurricane	EASTERN ...	2017-09-20 11...
2	120357	721910	PUERTO ...	2017	September	Hurricane	EASTERN ...	2017-09-20 11...
3	120357	721916	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
4	120357	721917	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
5	120357	721918	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
6	120357	721919	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
7	120357	721920	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
8	120357	721921	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
9	120357	721922	PUERTO ...	2017	September	Hurricane	CENTRAL ...	2017-09-20 11...
10	120357	721907	PUERTO ...	2017	September	Hurricane	EASTERN ...	2017-09-20 11...

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The table above shows the data related to hurricane events in the most two affected states.

## Visualizations

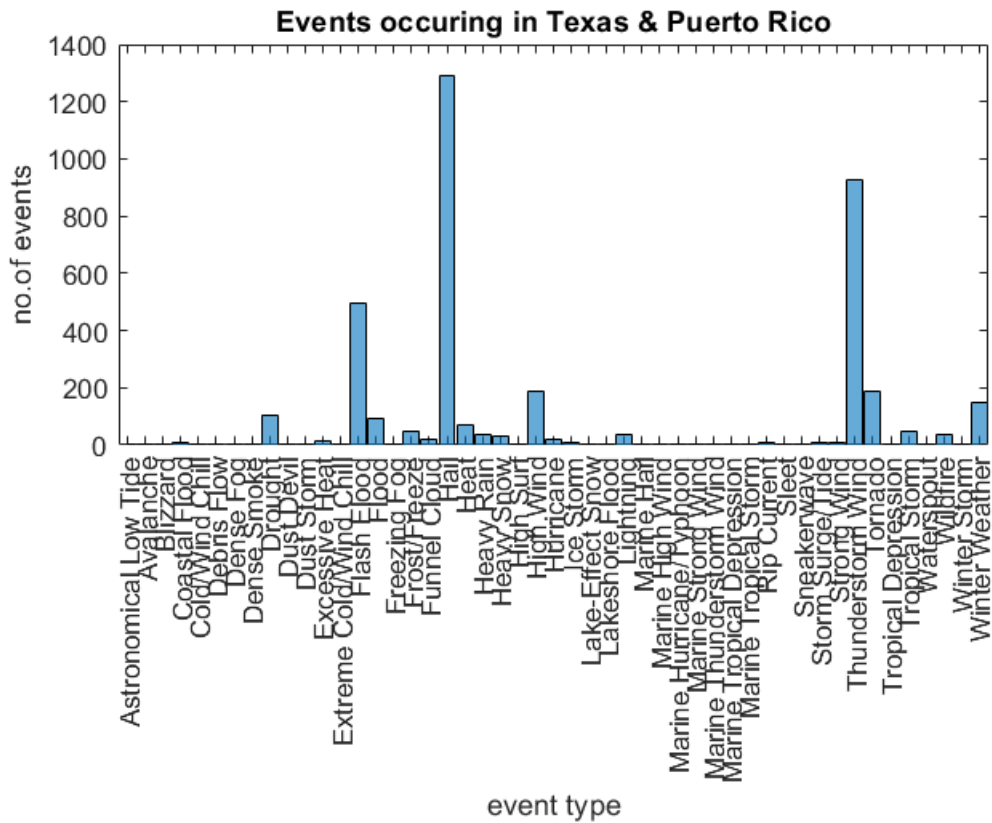
### Figure of Event Types

```
data2 = data(ismember(data.State,{'PUERTO RICO','TEXAS'}),:);
```

```

histogram(data2.Event_Type)

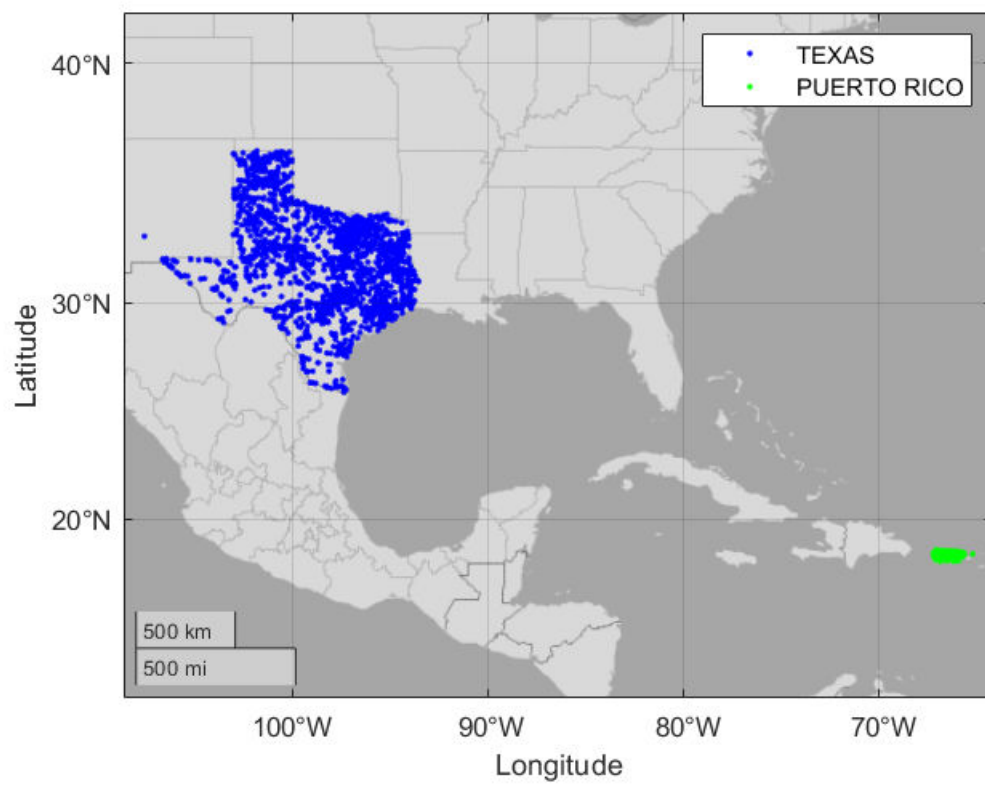
title('Events occuring in Texas & Puerto Rico')
xlabel('event type')
ylabel('no.of events')
```



**Figure of Event Locations**

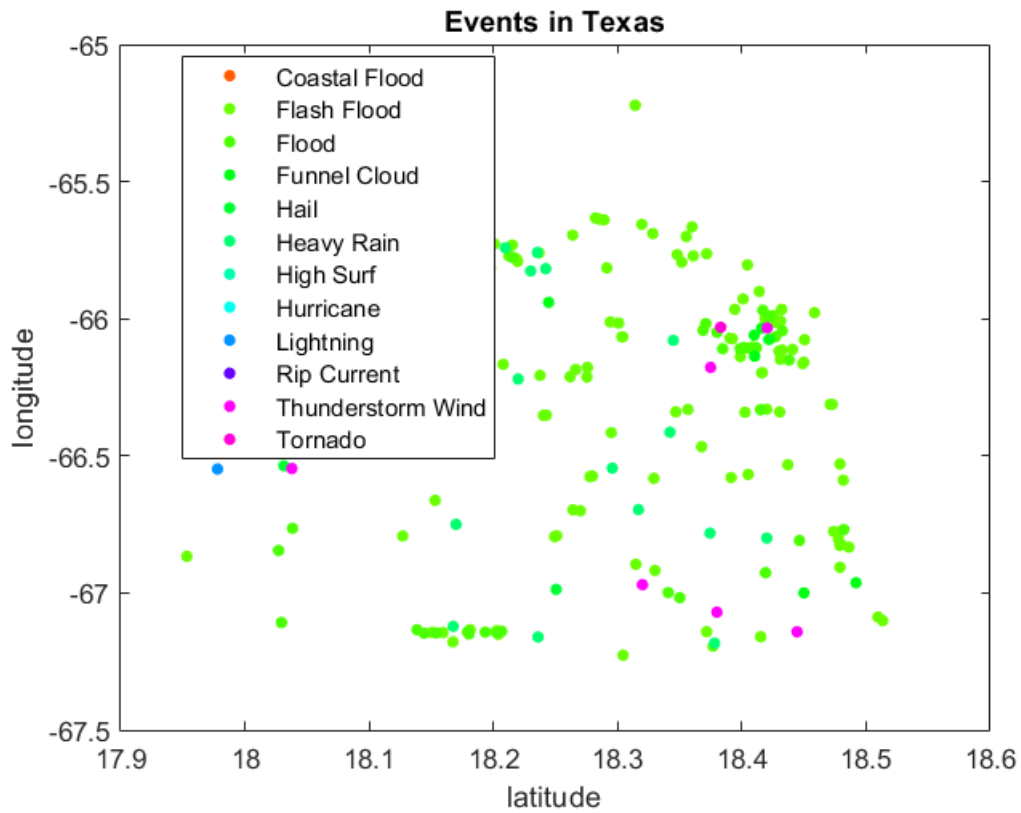
```
dp = data2(data2.State == 'PUERTO RICO',:);
dt = data2(data2.State == 'TEXAS',:);
```

```
geoplot(dt.Begin_Lat,dt.Begin_Lon,'b.',dp.Begin_Lat,dp.Begin_Lon,'g.')
legend('TEXAS','PUERTO RICO')
```

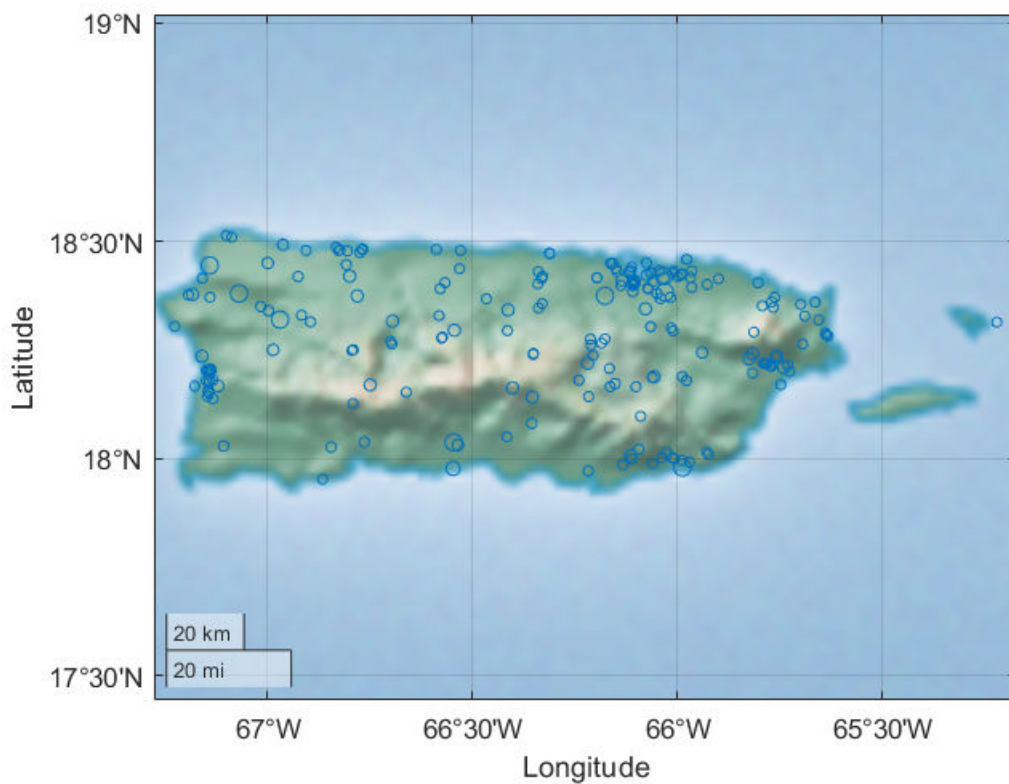


```
%dp
gscatter(dp.Begin_Lat,dp.Begin_Lon,dp.Event_Type)

title('Events in Texas')
xlabel('latitude')
ylabel('longitude')
```



```
geoscatter(dp.Begin_Lat,dp.Begin_Lon,dp.Event_Type)
geobasemap colorterrain
```



## Analysis

### Three Counties with Most Events in State 1

```
%puerto rico  
f1=groupsummary(dp, 'CZ_Name');  
[f3,idx]=maxk(f1.GroupCount,3);  
out1=f1(idx,:)
```

out1 = 3x2 table

	CZ_Name	GroupCount
1	MAYAGUEZ	14
2	SAN JUAN	13
3	GUAYNABO	12

### Three Counties with Most Events in State 2

```
%texas  
g1=groupsummary(dt, 'CZ_Name');  
[g3,idx]=maxk(g1.GroupCount,3);  
out2=g1(idx,:)
```

out2 = 3x2 table

	CZ_Name	GroupCount
1	COLLIN	64
2	HARRIS	64
3	TARRANT	63

### Three Counties with Highest Property Cost in State 2

```
%texas  
g11=groupsummary(dt, 'CZ_Name', 'sum', 'Property_Cost');  
[g33,idx]=maxk(g11.sum_Property_Cost,3);  
out3=g11(idx,[1,3])
```

out3 = 3x2 table

	CZ_Name	sum_Property_Cost
1	GALVESTON	2.0000e+10
2	FORT BEND	1.6006e+10
3	MONTGOMERY	1.4000e+10

## Three Counties with Highest Property Cost in State 1

```
%puerto rico
f11=groupsummary(dp, 'CZ_Name', 'sum', 'Property_Cost');
[f33,idx]=maxk(f11.sum_Property_Cost,3);
out4=f11(idx,[1,3])
```

out4 = 3x2 table

	CZ_Name	sum_Property_Cost
1	TOA BAJA	2.5000e+09
2	ADJUNTAS	750760000
3	CANOVANAS	750500000

## Conclusions and Recommendations

Summary :

- Property cost in counties that had max. no of events in PUERTO RICO -

```
out1.State=(repmat("PUERTO RICO",1,3))';
out1 = movevars(out1, 'State', 'Before', 'CZ_Name');
out1.State = categorical(out1.State);
pr1 = dp(ismember(dp.CZ_Name,{ 'MAYAGUEZ', 'SAN JUAN', 'GUAYNABO' }),:);
pr2 = groupsummary(pr1, 'CZ_Name', 'sum', 'Property_Cost');
pr2 = sortrows(pr2, 'sum_Property_Cost', 'descend')
```

pr2 = 3x3 table

	CZ_Name	GroupCount	sum_Property_Cost
1	GUAYNABO	12	1200000
2	SAN JUAN	13	1000
3	MAYAGUEZ	14	0

- Property cost in counties that had max. no of events in TEXAS -

```
out2.State=(repmat("TEXAS",1,3))';
out2 = movevars(out2, 'State', 'Before', 'CZ_Name');
out2.State = categorical(out2.State);
out5 = dt(ismember(dt.CZ_Name,{ 'COLLIN', 'HARRIS', 'TARRANT' }),:);
out6 = groupsummary(out5, 'CZ_Name', 'sum', 'Property_Cost');
out6 = sortrows(out6, 'sum_Property_Cost', 'descend')
```

out6 = 3x3 table

	CZ_Name	GroupCount	sum_Property_Cost
1	HARRIS	64	1.0002e+10
2	COLLIN	64	2702000
3	TARRANT	63	1348000

- If we look at the no. of events occurred in each county, we can see COLLIN,HARRIS and TARRANT had the most events occurred. But if we also look at the property cost occurred in each of them, we see HARRIS county had the highest property cost.

- List of max property cost in counties

out3

out3 = 3x2 table

	CZ_Name	sum_Property_Cost
1	GALVESTON	2.0000e+10
2	FORT BEND	1.6006e+10
3	MONTGOMERY	1.4000e+10

But as we look at county GALVESTON, TEXAS - it had double property cost than HARRIS.

Hence I'd suggest insurance company send people to GALVESTON.