Geo-distribution and Correlations in Seattle Fire Department 911 Calls

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Why is this Important?

Non-crime related emergency services save lives, so it's important to understand how demand works:

- Where are calls coming from?
- Is there a relationship between fire-related calls and ambient variables?
  - Air temperature
  - Rainfall

Seattle Fire Dept. 911 Calls 2011-2018
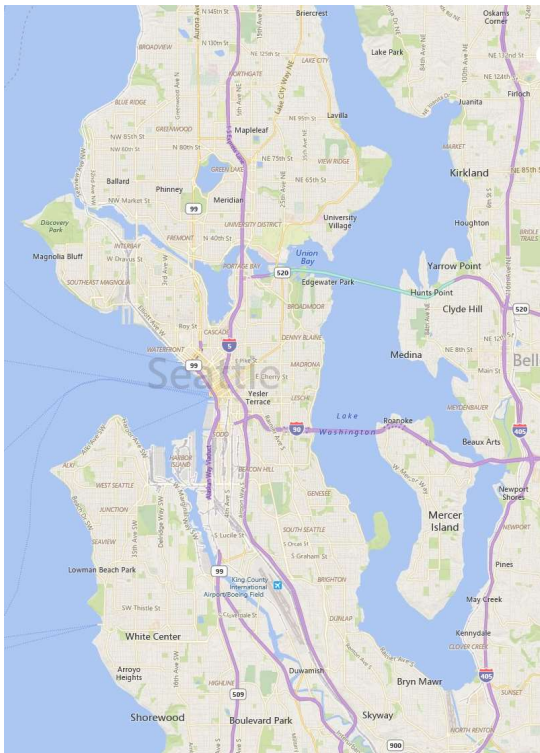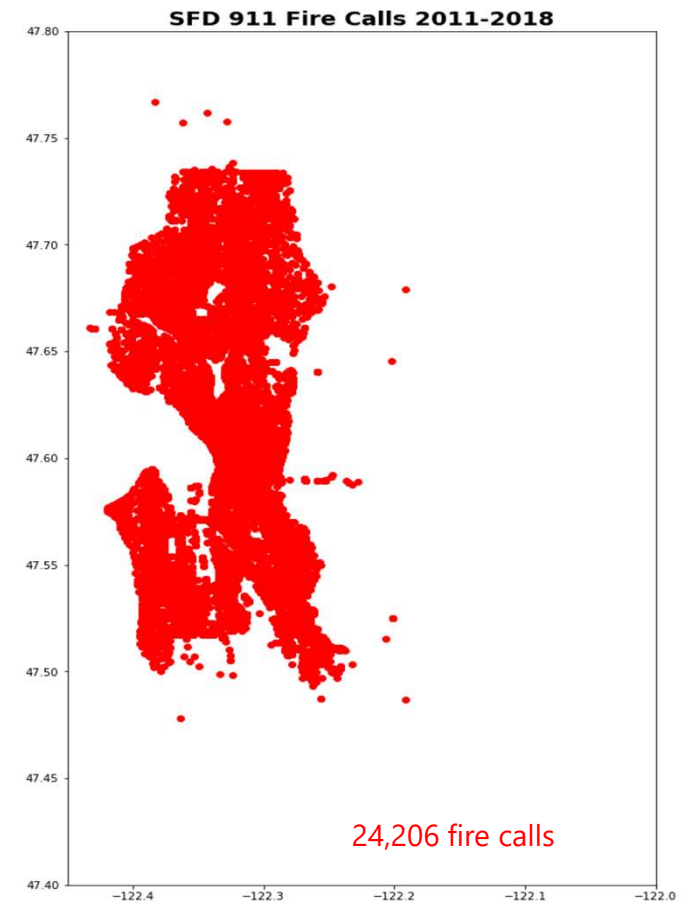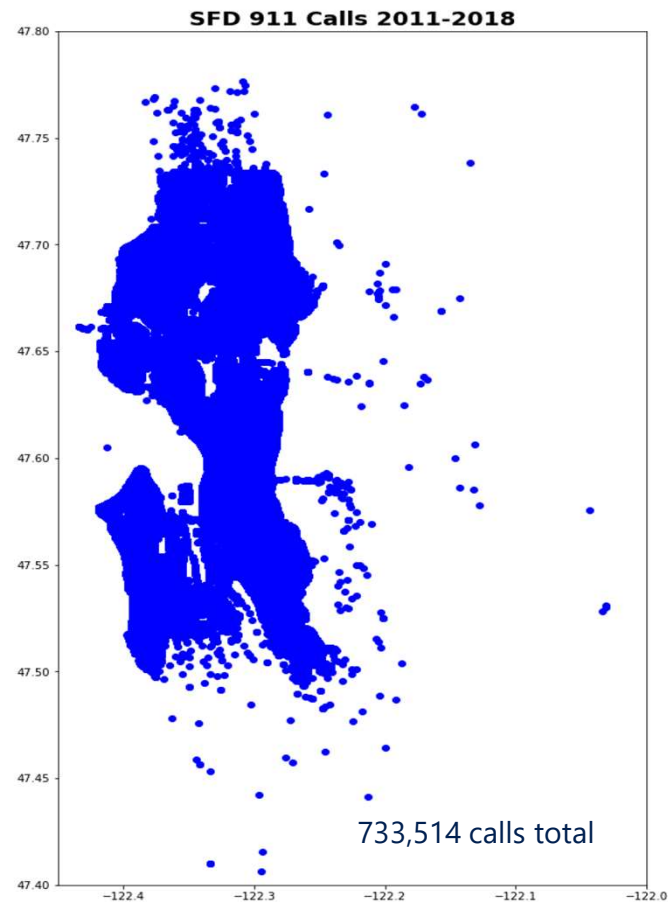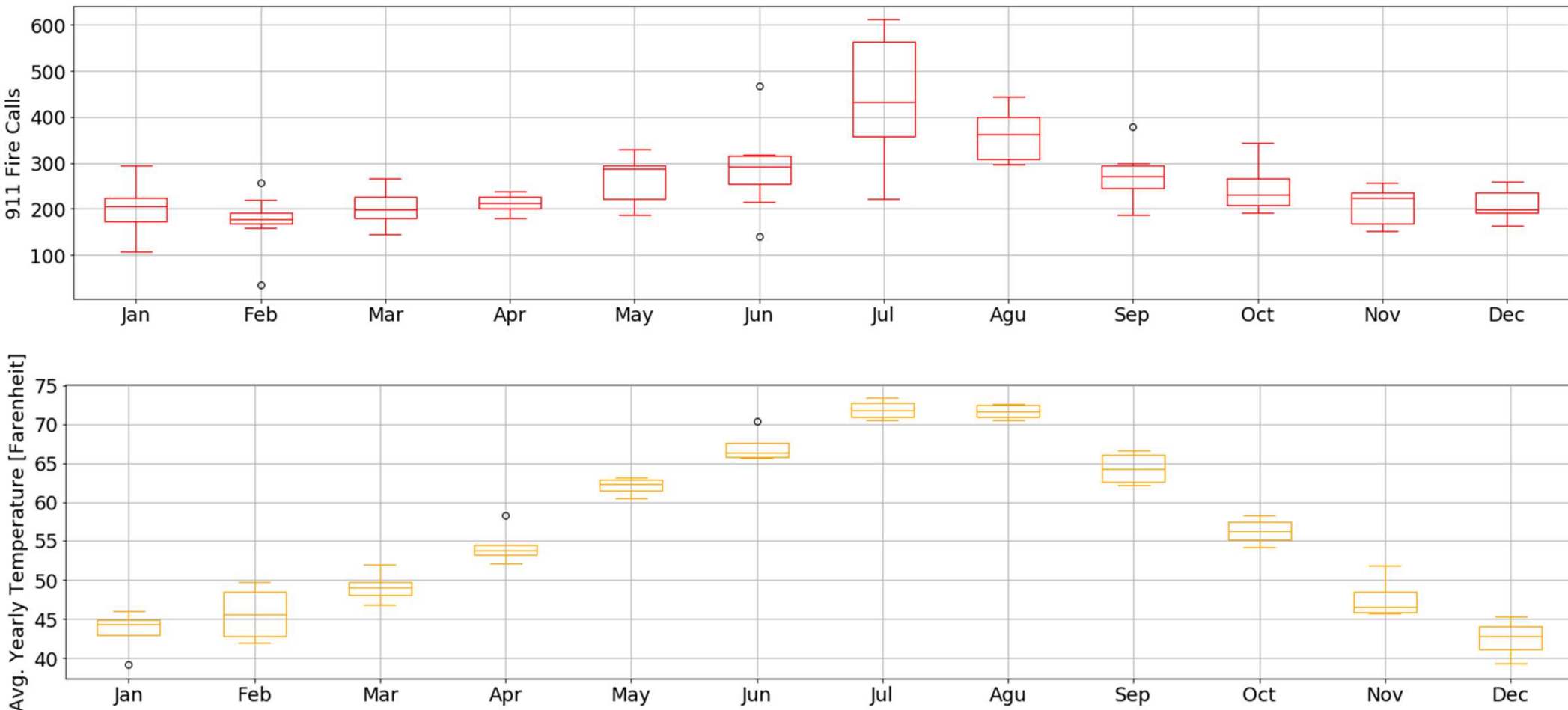
Calls come from wherever people are

Image Bing Maps
https://www.bing.com/maps?FORM=Z9LH2

SFD 911 Calls 2011-2018

733,514 calls total
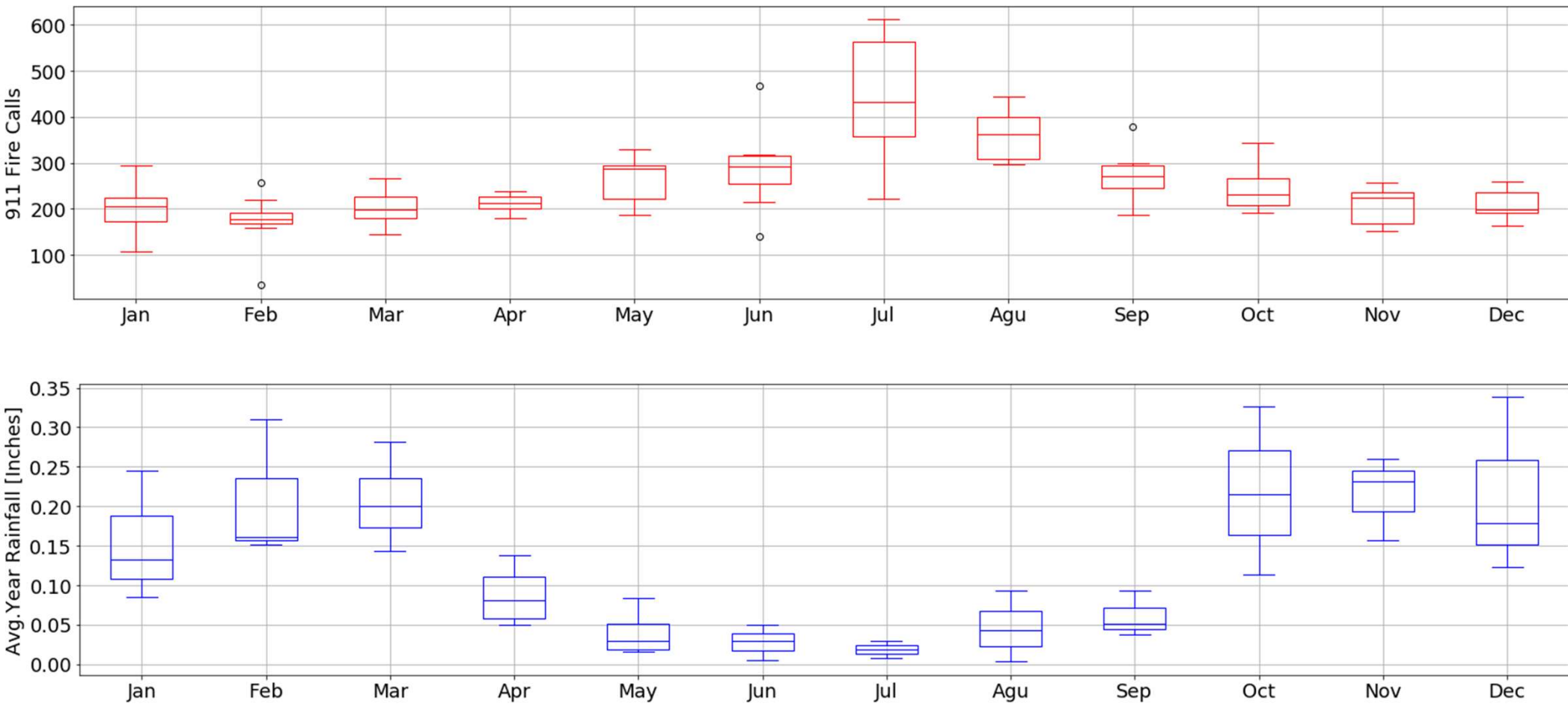
SFD 911 Fire Calls 2011-2018

24,206 fire calls

Are Fires Correlated to Air Temperature?

Are Fires Correlated to Rainfall?

Ordinary Least Squares Regression

$$Calls \sim AvgTemp + AvgRainfall$$

	Coefficient	Standard Error	*t*	P > |*t*|
Intercept	3.8674	0.052	74.114	0.0
AvgTemp	-3.7689	0.053	-71.126	0.0
AvgRainfall	-0.2305	0.194	-1.19	0.234

Dependent Variable	*Calls*
Model	OLS
Method	Least Squares
Num. observations	1,111
Df Model	2
R^2	0.821
F-statistic	2,550
p-value of F	0.0

Questions?

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