PUI2015 Extra Credit Project Proposal

Weather and Death

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Problem Description

Since New York City has mutable weather patterns, animals living in the city do not have place to curve that. They might die because of low temperature, high humidity or strong wind except nature death. If people can find the relation between weather changing and animals' death, it would help people to control the animals and saving them. In the meantime, that will prevent diseases infecting by dead animals.

Data

- 311 Service Requests from 2010 to Present (https://data.cityofnewyork.us/Social-Services/311-Service-Requests-from-2010-to-Present/erm2-nwe9)

The data includes 311 conflicts' calls from 2010 to now contains location, incidents and date. I will use the data contains animal death from August 2012 to November 2015 to analyze both the frequency of finding dead animal in each location and the reason killing animals.

- Historical Weather (http://www.wunderground.com/history/)

The data includes temperature, moisture, and wind speed in everyday. I will use the data from August 2012 to November 2015 to analyze to find with parameter of weather influence animal death.

Assumption

Every conflict reported one incident, I did not consider there were multiple calls for one incident.

Analysis

I will separate analysis into two parts. The first part is find the distribution of the places always find the dead animals. The most of dead animals were found in zip code 11234, 11230, 10314, 11223, 11219, 11229, 11210,11204, 11236, 11214, 11218, 10306, 10469, 10466, 10312, 11203, 11434, 11207, 11208, 11385. It shows in Map 1. To determine the reason of the death, I compared the industry zone and the place found dead animals shows in Map 2. It is
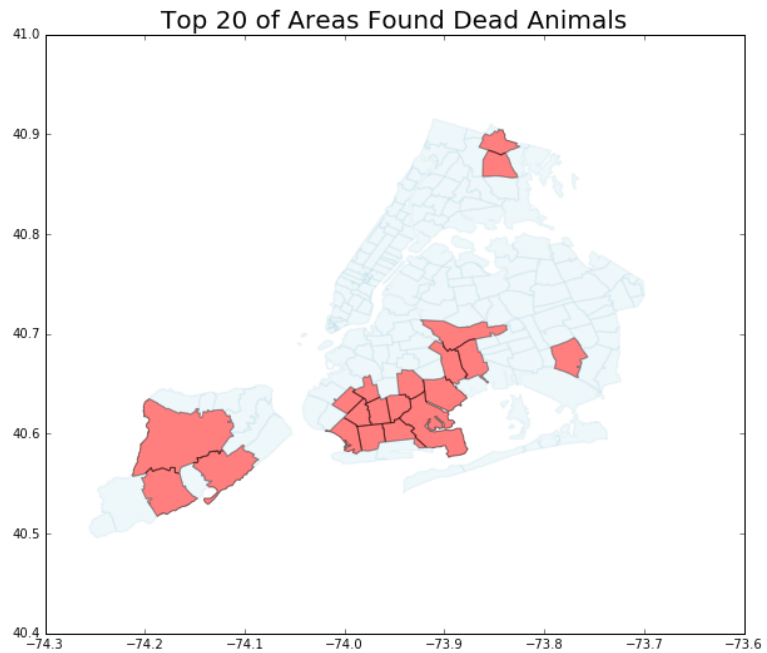

Map 1. Top 20 Place Found Dead Animals
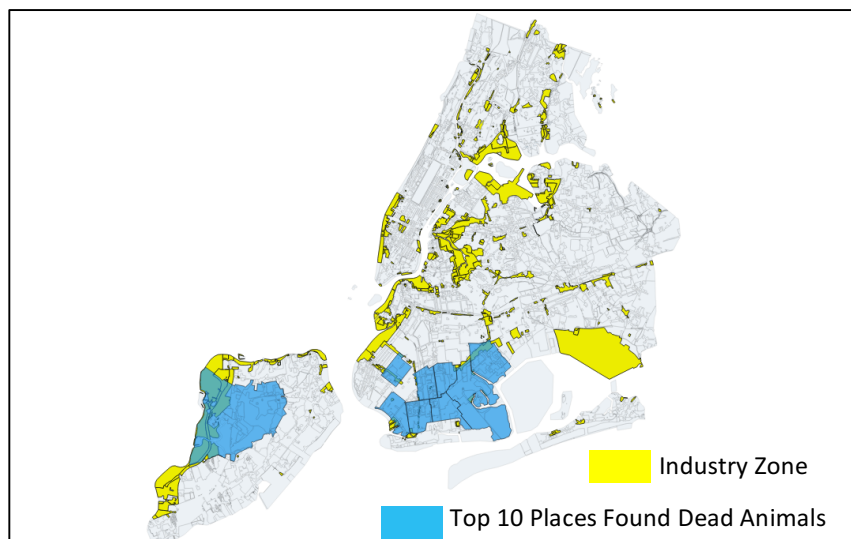
difficult to say there is relation between animal death and industry zoning.

The second part is find which parameter influence animal death. I made least squares regression of maximum temperature data and conflict data(R^2=0.399). The result shows in Graph 1. The death is strongly related to temperature.

Relationship of the Number of Animals' death and temperature
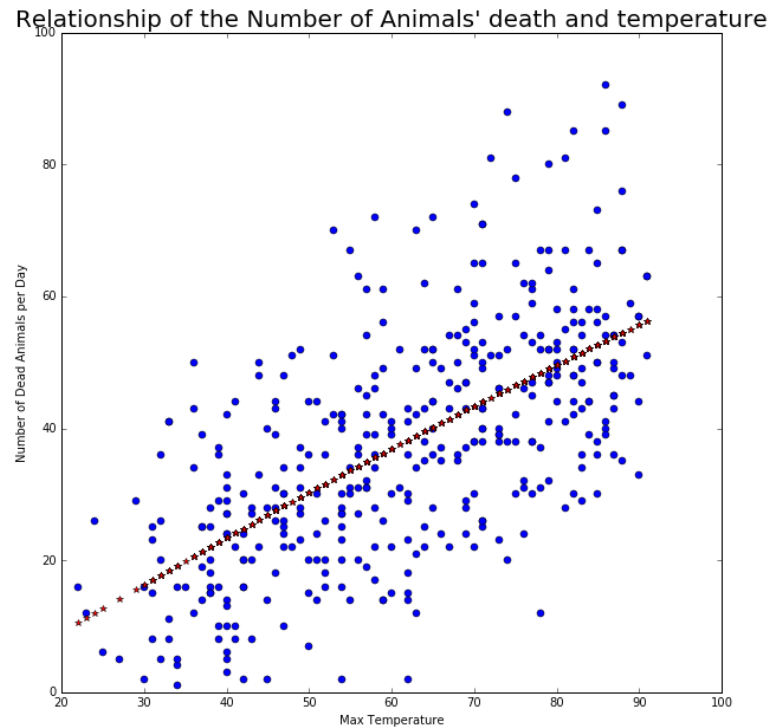
Graph 1. Relationship Of Number Of Dead Animal Found And Temperature

Conclusions

I found the animal death has no relation with factories, I thought that more dead animals would be found nearby factories. And I thought animals die when the temperature decrease to low temperature, therefore the result of regression shows more animals die when temperature increase. It is clear that low temperature is not the main reason for animal death, but I did not find out the main reason.

Future work

I analyzed by zip code, however, the area of each zip code still big. In future work, I will analyze by block. And find more information about which animals dead, to analyze by different type animals.

References

- Relation of Total and Cardiovascular Death Rates to Climate System, Temperature, Barometric Pressure, and Respiratory Infection.

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