Weather and Death <small>< Tengfei Zheng, github: Tengf, tz869></small>

Abstract: Since New York City has mutable weather patterns, animals living in the city do not have place to curve that. Through the analysis of location and temperature of dead animals to find out the relationship between them.

Introduction: If I can find the relation between weather changing and animals' death, it would help people to control the animals and saving them.

Data: The 311 data was too large to download and run in my computer, so I filtered that contains words "dead animal" online then download. Also there is no description about animal type. In the analysis I made an assumption that every conflict is independent and there were no any conflicts report same incident.
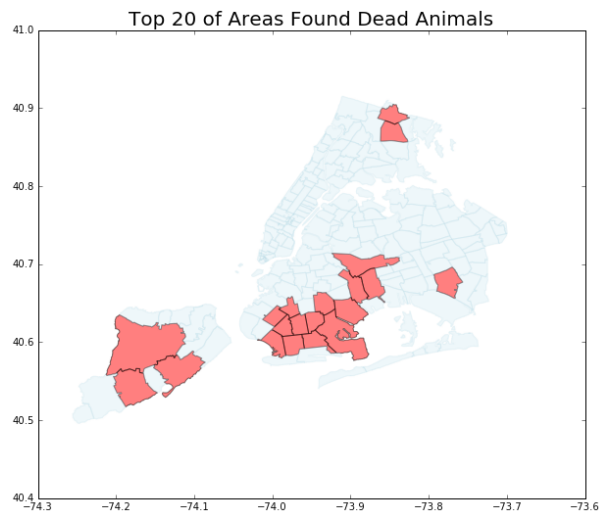
Methodology: I separated analysis into two parts. The first part is find the **distribution** of the places always find the dead animals. The most of dead animals were found in zip code 11234, 11230, 10314, 11223, 11219, 11229, 11210,11204, 11236, 11214, 11218, 10306, 10469, 10466, 10312, 11203, 11434, 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 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(R2=0.399). The result shows in Graph 1. The death is strongly related to temperature.

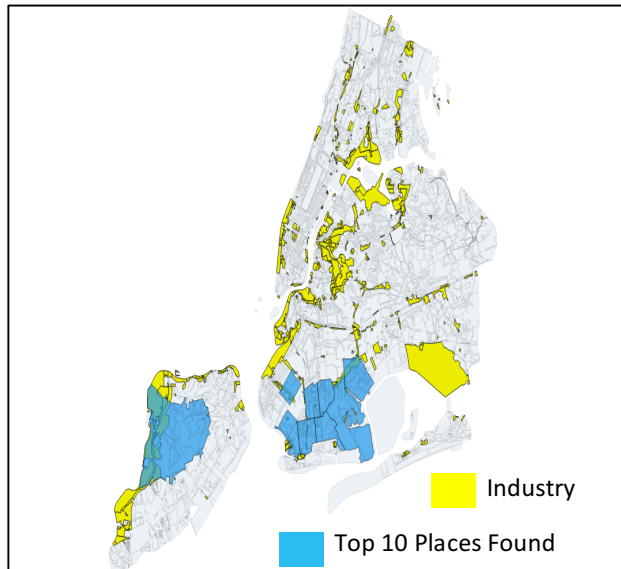**Conclusions:** I found the animal death has no relation with factories, I thought that more dead animals would be found nearby factories. And I thought animals die when the temperature decrease to low temperature, therefore the result of regression shows

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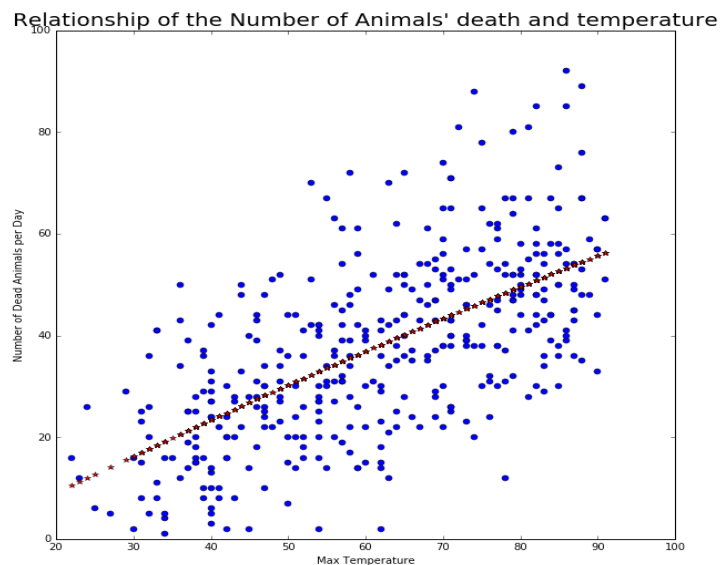
Future work: I analyzed by zip code, however, the area of each zip code still big. In future work, I will analyze by block. And find more information about which animals dead, to analyze by different type animals.

Map 1. Top 20 Place Found Dead Animals

Map 2. The Relationship Of Top 10 Place Found Dead Animals And Industry Zoning

Graph 1. Relationship Of Number Of Dead Animal Found And Temperature

Links:

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

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

Bibliography
•   Relation of Total and Cardiovascular Death Rates to Climate System, Temperature, Barometric Pressure, and Respiratory Infection.
http://www.ncbi.nlm.nih.gov/pubmed/26297511
•   Climate change effects on birds
http://www.eoearth.org/view/article/51cbed457896bb431f690fbd/
•   Causes of Bird Mortality
http://www.sibleyguides.com/conservation/causes-of-bird-mortality/
•   Why did my bird suddenly die?
https://avianandexoticvets.com/why-did-my-bird-suddenly-die/