Visualizations and Analysis of Fires in Paraguay

Luis Bobadilla
UCOM

Introduction

Given the increase of fires in the country, I set out to find any cohesive dataset in order to visualize and analyze the data. To my surprise the Ministry of the Environment and Sustainable Development (MADES) did not have a very useful data portal with the information I needed.

Due to this I had to search out varied sources such as YouTube videos and newspapers. References included below.

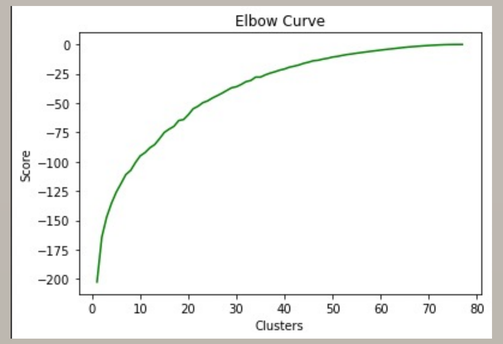
Objectives

Find any correlation between weather, location and magnitude of fires in Paraguay.

Methodology

We scoured the internet for data on fires for the past 3 years. We cross-referenced with existing worldwide fire datasets and weather data to create the dataset. We then ran different clustering, regression and visualization methods to get the results below.

Results



L-2	0.237805
L-1	0.225773
L+3	0.108634
H-5	-0.123393
H-3	0.182048
H-2	0.212654
H-1	0.191634
H+2	0.165037
Urban	-0.106083

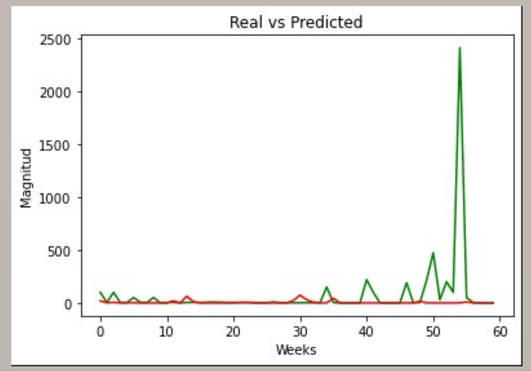
```
LR: -1.780123 (1.681655)
time:  0.0007700920104980469
r2: 0.8604270459294088

LassoLarsIC: -1.049768 (1.848426)
time:  0.0007338523864746094
r2: 0.7267509017593834

ElasticNetCV: -1.127760 (1.585888)
time:  0.009538888931274414
r2: 0.6203776197695565

Ridge: -1.682382 (1.643284)
time:  0.00023102760314941406
r2: 0.8310892931777705

CART: -0.711450 (1.505808)
time:  0.00027108192443847656
r2: -1.0
```



Conclusions

The results were inconclusive, low correlation between data found, initial regression model overfit, and ended up with too many clusters for data set size.

References

https://docs.google.com/document/d/1GY-Ijxx1AEtSxeErU52wjXHQA0MNgWCxTCSMjxJ061o/edit?usp=sharing