Middle English: from Latin *luna* - ‘moon’

From the belief that changes of the moon caused intermittent insanity.

LUNATIC

DOES THE DATA BACKUP THE OLD SAYINGS

CAN WE USE THE WEATHER FORECAST TO PREDICT UPCOMING CRIME LEVELS

CRIME AND WEATHER IN SAN FRANCISCO

HISTORICAL CRIME INFORMATION

Incident reports of the San Francisco Police Department from the SF OpenData website. From 2003 until early 2016. 1,866,570 incidents.

Created Daily Crime Level Statistic

HISTORICAL WEATHER INFORMATION

Historical data from Weather Underground from 2003 until 2015.

WEATHER FORECASTS

APIs from Weather Underground and OpenWeatherMap

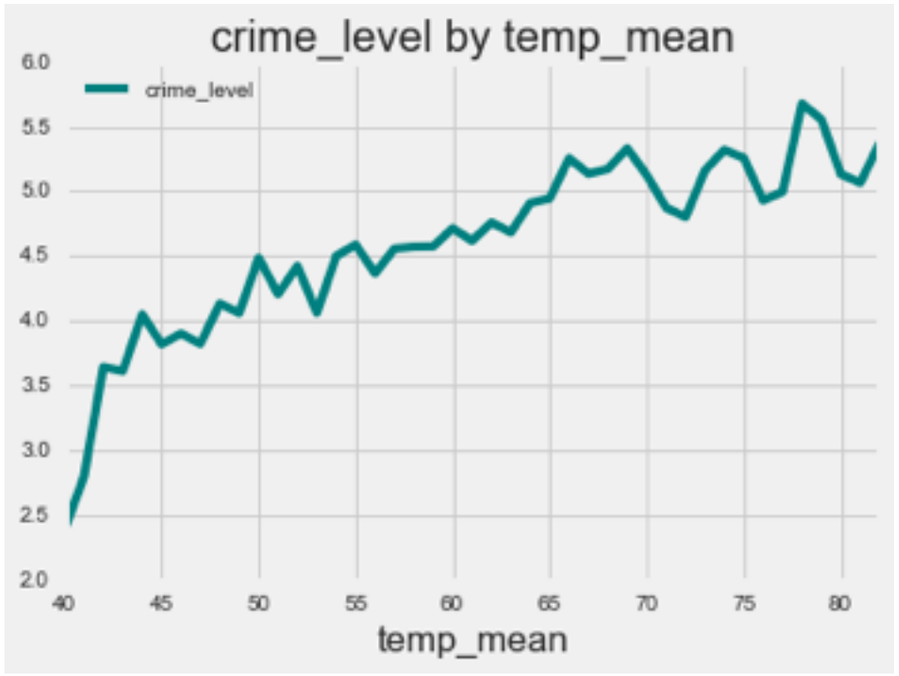
“THE COLDEST WINTER I EVER SPENT WAS A SUMMER IN SAN FRANCISCO.”

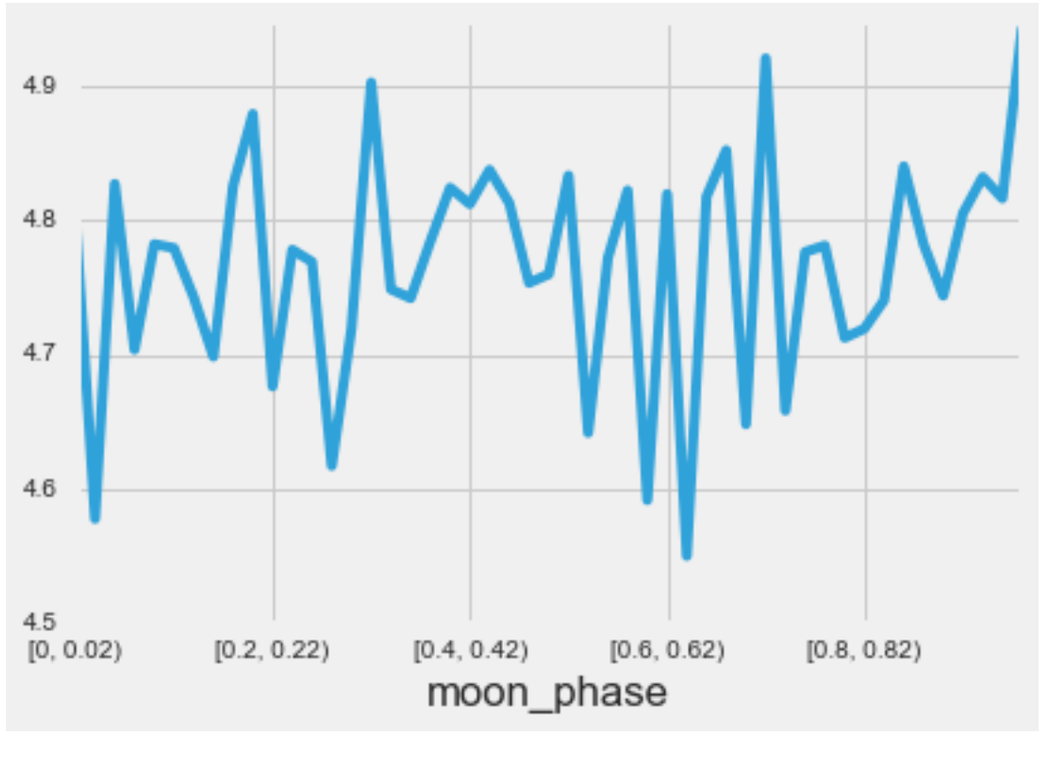
–Mark Twain ?

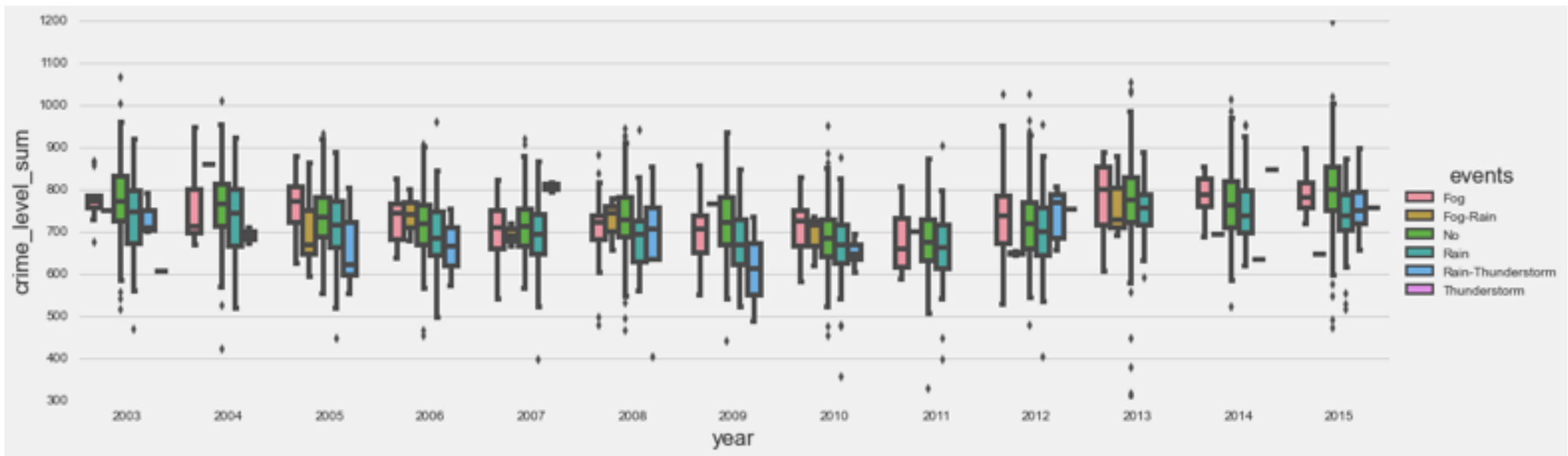
FEATURE ENGINEERING

- Wind Chill - Temperature and Wind
- Feels Like Temperature - Temperature and Humidity
- Sun Length - Daily Minutes the Sun is up
- Sun Level - Cloud Cover and Length of Sunshine
- Moon Phase

INITIAL OBSERVATIONS







MODELING RESULTS

	mean_abs_error	R2 score	time	lc_com
dummy	0.784282	-0.000157419	61.39	NaN
RF	0.774239	0.0257063	22676.5	.....
SVM	0.750965	0.0731648	66745.8	.....
LR	0.751183	0.0763004	52.1146	.....
knn	0.790226	-0.00414537	56354.1	.....

TO DO

- Manual Feature Selection
- PCA and Dimension Reduction
- More Engineered Features
- Segment the Raw data - Topic Modeling
- What to do if can not improve models???

FUTURE POSSIBILITIES

- Look at Different Crime Types - Assaults - Murders
- Analyze for Individual Police Districts in the City
- Analyze for Staff Types - Street Officer - Detective - Office
- Analyze for Time and Shift Requirements