

Estimating Excess Deaths

Forecasting Oregon Deaths During Record Heat

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LIFE-THREATENING HEAT WAVE



33 MILLION
UNDER EMERGENCY
HEAT ALERTS

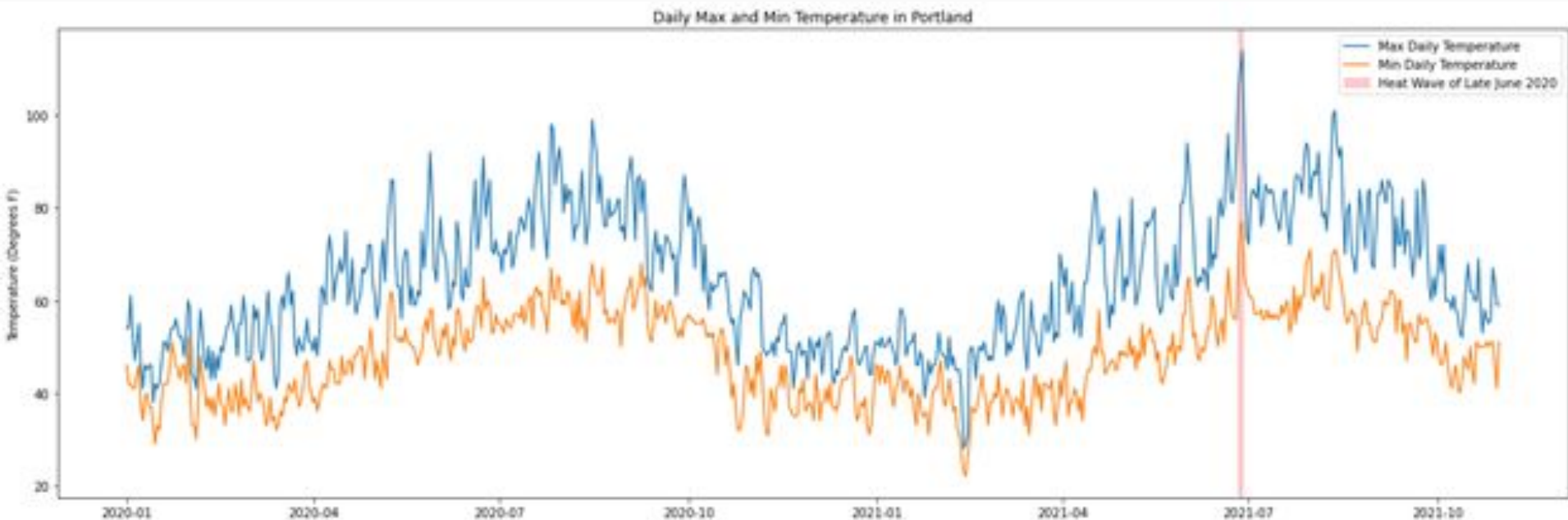
Agenda

- Background
- Temperature and Death
- Excessive Deaths Estimate
- Future Work

Background



Temperature

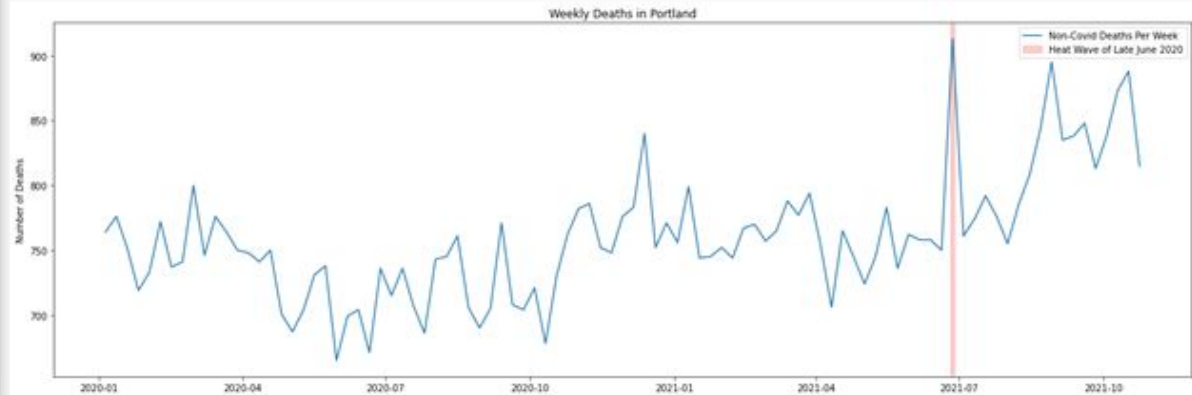
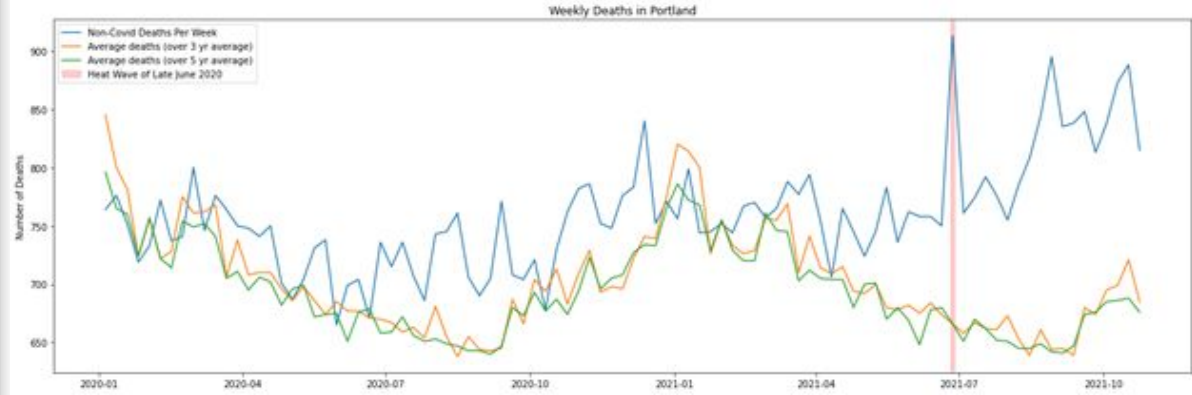


Excess Deaths

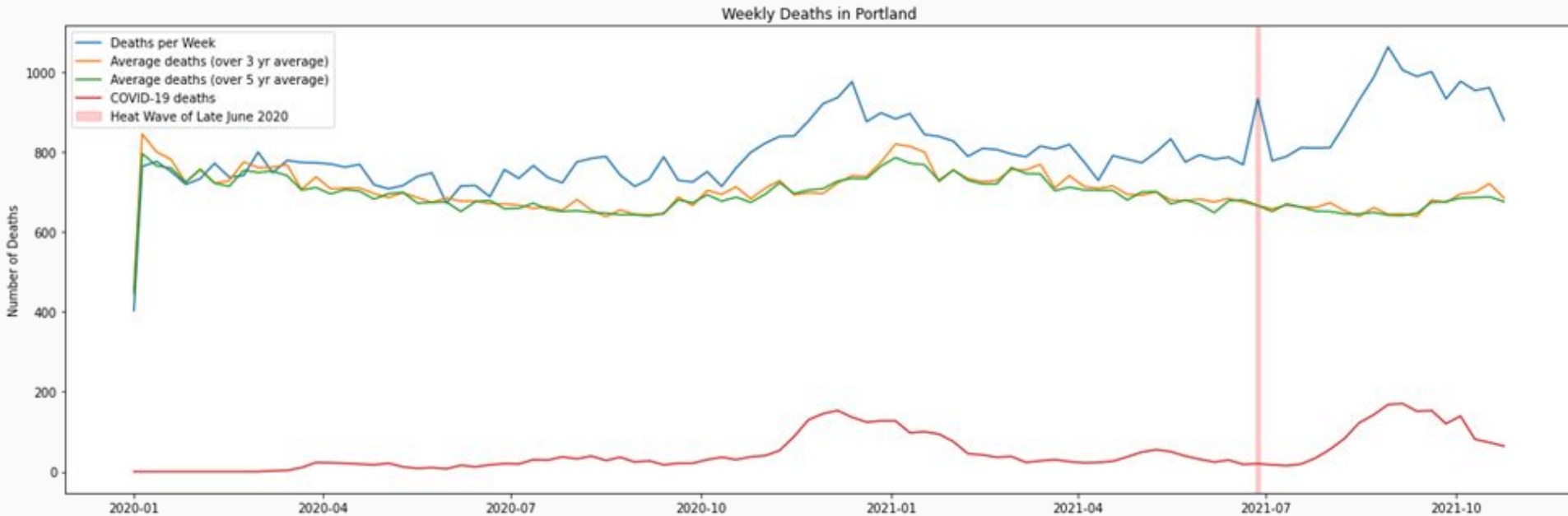
After removing COVID deaths, the non-COVID deaths (in blue) are still significantly greater than the 3 and 5-year averages

Looking strictly at non-COVID deaths, we see the spike in deaths at the time of unprecedented high temperatures

We also see large spikes in deaths after the heat wave, at a time when COVID related deaths were at an all-time high



COVID Deaths



Excessive Deaths Estimate

- ARIMA model forecast suggests a count of 161 excess deaths
 - Forecasted deaths value of 752
 - Actual deaths count of 913
- The AP News stated that Oregon blamed 116 deaths on the heat
 - Difference of 45 deaths compared to forecast
- Opportunity to investigate for additional excess deaths
- More people died from the heat in the greater Portland area this June than in the entire state over the past 20 years

“Death is not the worst
that can happen to men.”

- Plato

Future Work

- Estimate excess deaths beyond the heat wave
 - Identify secondary COVID related deaths
 - Search for other outlier events during excess death periods
- Consider multivariate time series model
 - Vector Autoregression (VAR)
- Explore likeness of cause for the unprecedented heat
 - '150 times more likely with climate change'
- Investigate assumptions and validity for modeling

Thanks!

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