

HW #4: Analyze real-world emissions data

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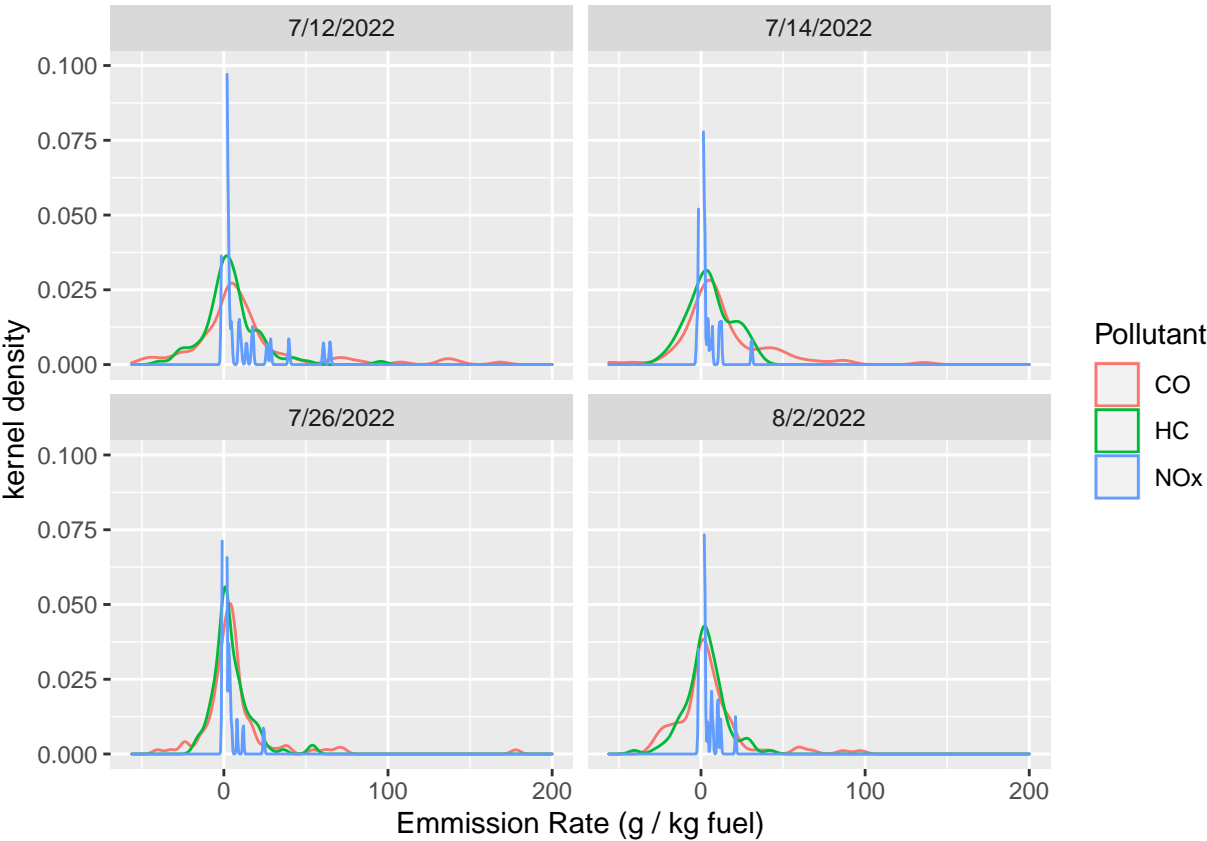


Figure 1: Emissions density by date.

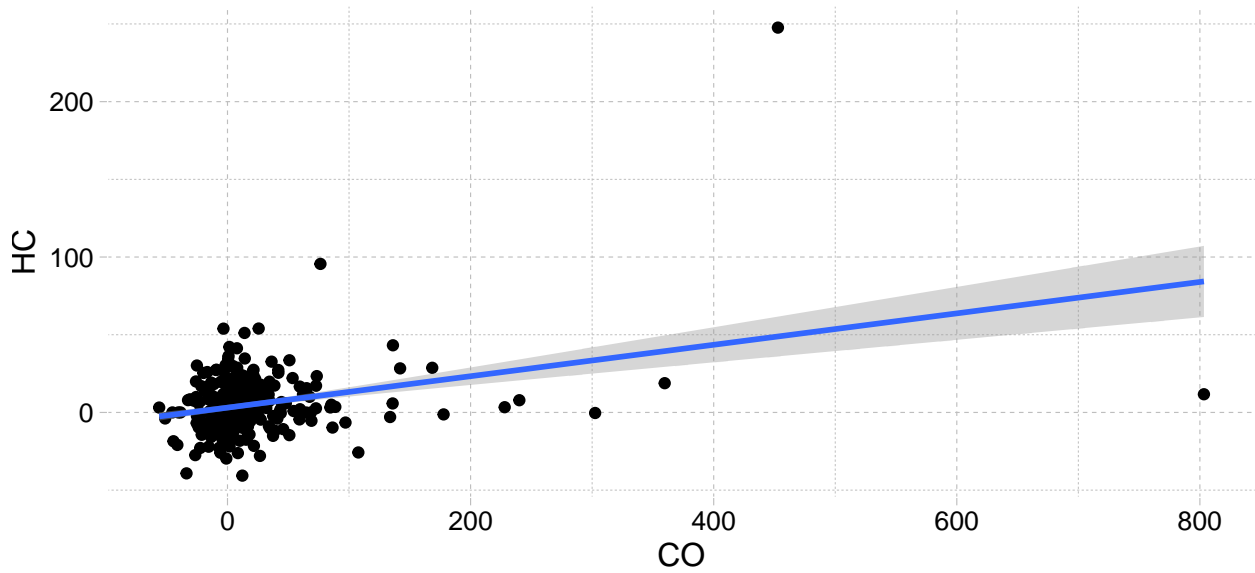
## 1.1

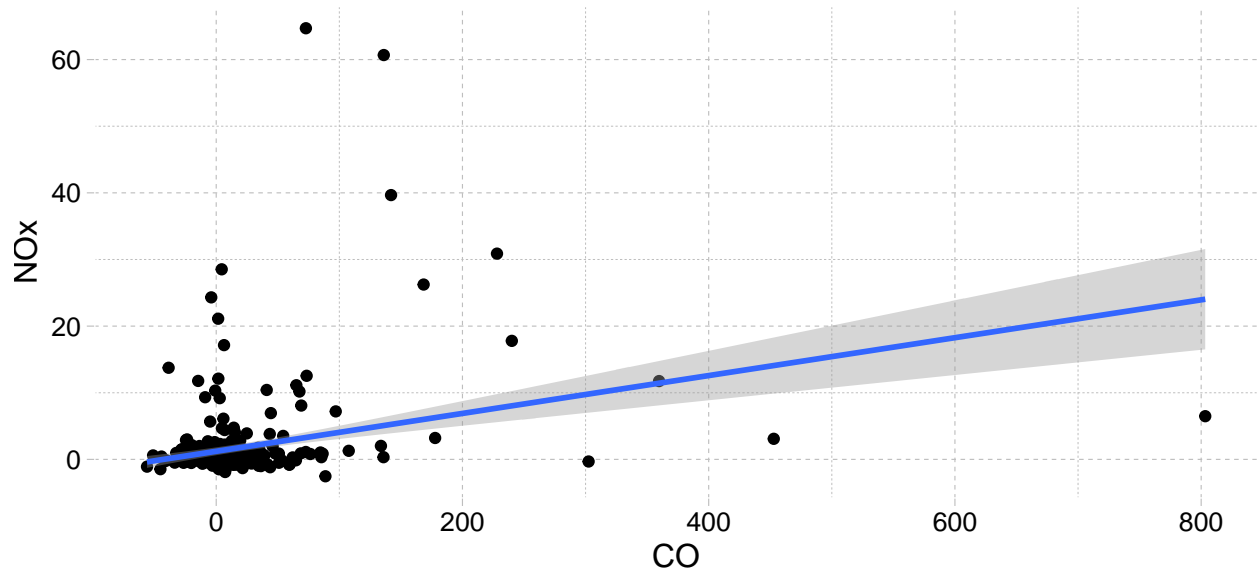
location	pollutant	max_emissions	median_emissions	max / median
Timp Hwy East	CO	177.80	3.36	52.90
Timp Hwy East	HC	53.99	1.62	33.31
Timp Hwy East	NOx	24.31	0.50	48.38
Timp Hwy West	CO	803.31	1.59	504.24
Timp Hwy West	HC	42.14	1.89	22.25
Timp Hwy West	NOx	21.11	0.42	49.83
Univ Ave	CO	452.85	7.19	63.00
Univ Ave	HC	247.66	3.18	77.96
Univ Ave	NOx	64.70	0.25	259.12

## 1.2

Looking at Figure 1, NOx appears to have quite a skewed distribution, though CO has a few extreme outliers.

## 2





term	estimate	std.error	statistic	p.value
(Intercept)	6.74	2.91	2.32	0.021
NOx	2.46	0.46	5.38	0.000
HC	0.96	0.15	6.44	0.000

$R^2 = 0.162$

While it appears that vehicles with more CO emissions also have more NOx and HC emissions (both of these slopes/coefficients are positive), the  $R^2$  value is quite low. There could be many other factors explaining the variance in emission rates.

### 3