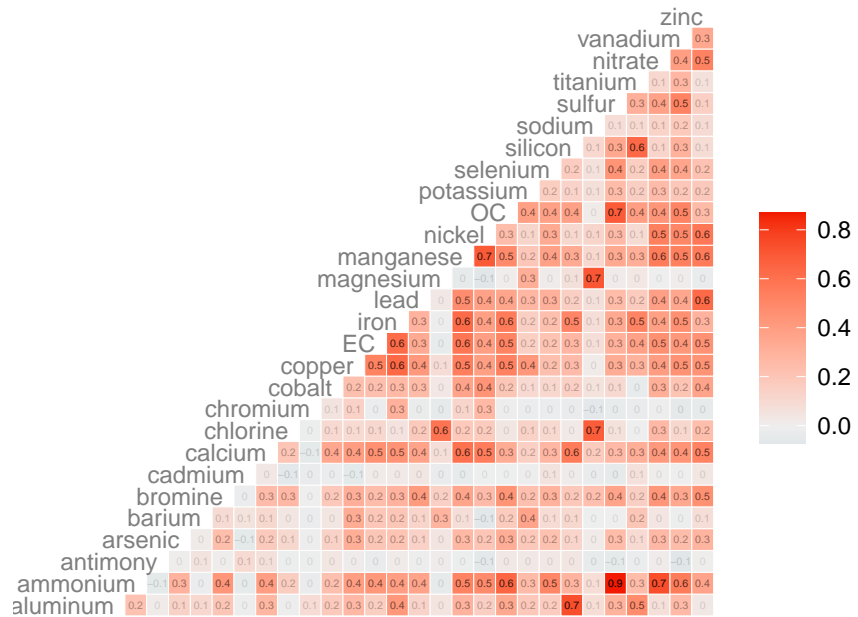


APCA 6, 7/2 - 7/6 removed

Rachel Tao

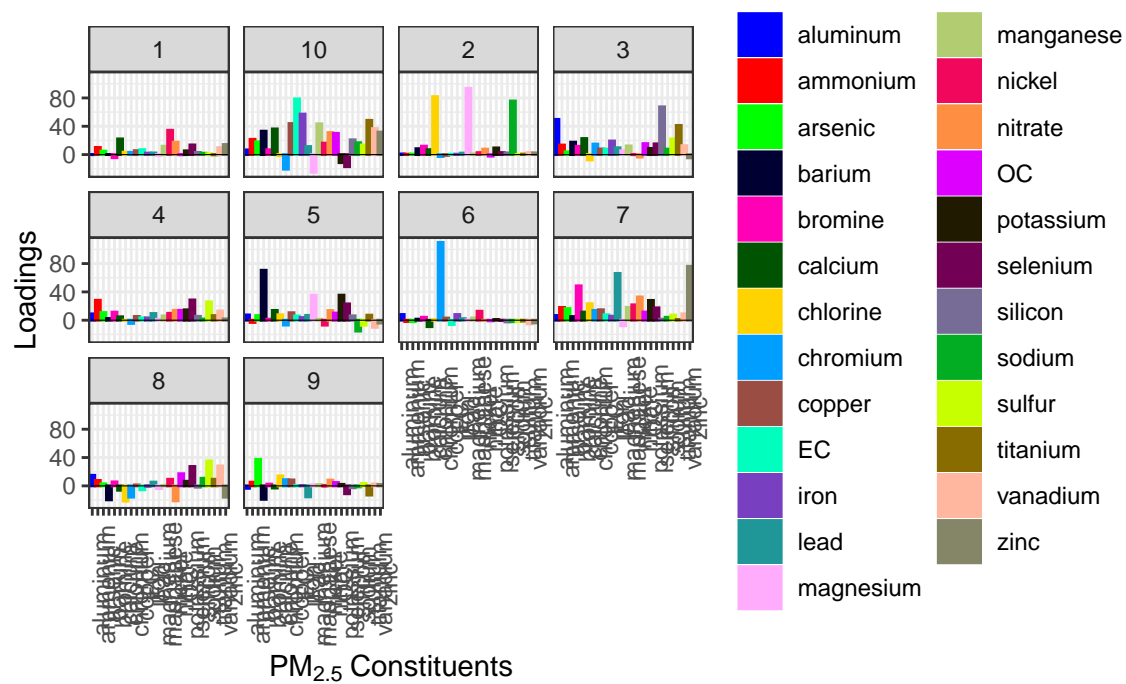
1/23/2021

### Correlation Matrix: NYC Air Pollution Dataset

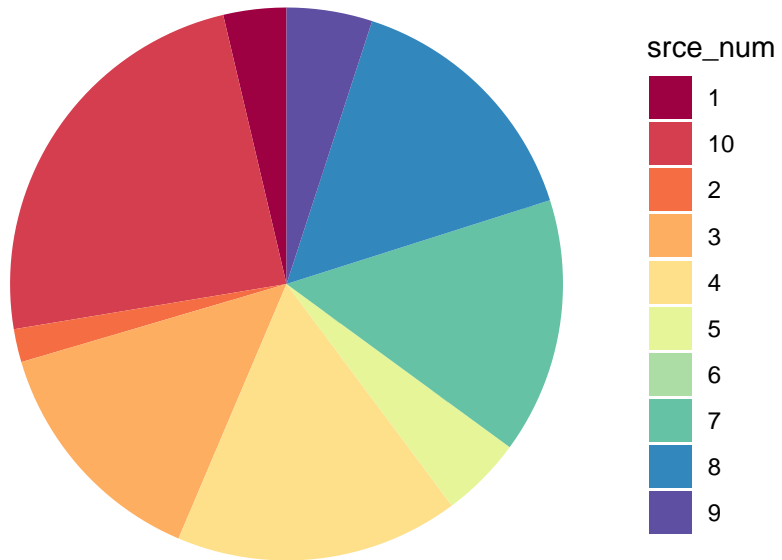


## Loadings

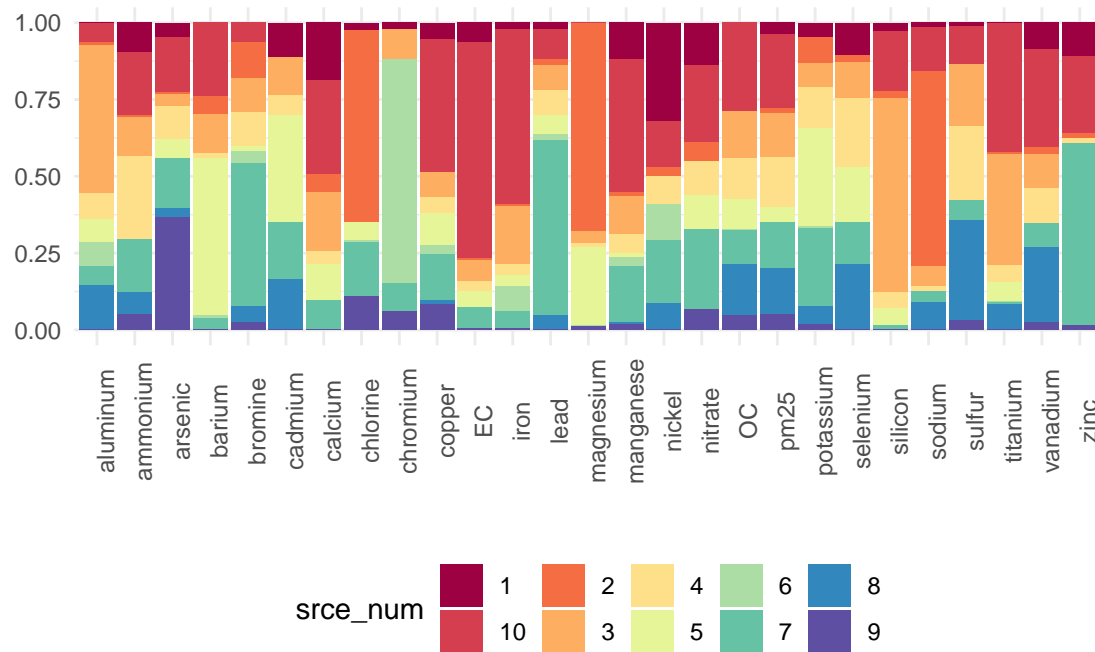
| element   | MeanConc | source_1 | source_10 | source_2 | source_3 | source_4 | source_5 | source_6 | source_7 | source_8 | source_9 | r_squared | PredConc | Pct_error |
|-----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|-----------|
| aluminum  | 22.18    | -0.01    | 1.83      | 0.27     | 13.74    | 2.48     | 2.07     | 2.23     | 1.85     | 4.13     | -0.96    | 0.51      | 27.62    | 24.53     |
| ammonium  | 120.78   | 102.78   | 219.13    | 6.17     | 137.38   | 286.63   | -32.03   | -19.27   | 183.18   | 78.56    | 53.11    | 0.86      | 1015.65  | -9.38     |
| arsenic   | 0.49     | 0.02     | 0.08      | 0.00     | 0.02     | 0.05     | 0.03     | -0.01    | 0.07     | 0.01     | 0.16     | 0.44      | 0.42     | -14.73    |
| barium    | 1.87     | 0.00     | 0.83      | 0.21     | 0.44     | 0.06     | 1.76     | 0.04     | 0.13     | -0.49    | -0.48    | 0.56      | 2.50     | 33.65     |
| bromine   | 3.06     | -0.13    | 0.19      | 0.34     | 0.33     | 0.32     | 0.04     | 0.12     | 1.37     | 0.16     | 0.07     | 0.52      | 2.82     | -7.76     |
| cadmium   | 1.68     | 0.10     | -0.18     | -0.06    | 0.11     | 0.06     | 0.33     | -0.03    | 0.17     | 0.15     | -0.62    | 0.17      | 0.03     | -98.06    |
| calcium   | 51.85    | 9.04     | 14.83     | 2.85     | 9.28     | 2.00     | 5.68     | -3.72    | 4.70     | -2.55    | -1.25    | 0.68      | 40.87    | -21.17    |
| chlorine  | 37.07    | 1.87     | -0.91     | 45.84    | -4.23    | -0.27    | 4.34     | 0.38     | 13.07    | -12.07   | 7.96     | 0.70      | 55.98    | 51.01     |
| chromium  | 2.13     | 0.09     | -0.56     | -0.07    | 0.41     | -0.12    | -0.19    | 3.00     | 0.38     | -0.43    | 0.24     | 0.76      | 2.73     | 27.73     |
| copper    | 4.55     | 0.31     | 2.47      | -0.06    | 0.45     | 0.30     | 0.60     | 0.17     | 0.84     | 0.08     | 0.48     | 0.73      | 5.64     | 23.84     |
| EC        | 707.73   | 49.67    | 553.16    | 3.15     | 54.88    | 24.43    | 42.40    | -42.97   | 54.78    | -39.01   | 2.84     | 0.80      | 703.33   | -0.62     |
| iron      | 105.50   | 2.16     | 59.25     | 0.62     | 19.87    | 3.44     | 3.96     | 8.35     | 5.91     | -0.40    | 0.42     | 0.97      | 103.58   | -1.82     |
| lead      | 2.02     | 0.06     | 0.28      | 0.05     | 0.24     | 0.24     | 0.17     | 0.06     | 1.64     | 0.13     | -0.39    | 0.74      | 2.48     | 23.05     |
| magnesium | 7.12     | -0.08    | -1.80     | 6.74     | 0.39     | 0.11     | 2.54     | 0.03     | -0.57    | -0.28    | 0.11     | 0.88      | 7.20     | 1.18      |
| manganese | 2.10     | 0.28     | 1.02      | 0.02     | 0.29     | 0.14     | 0.03     | 0.08     | 0.42     | 0.02     | 0.04     | 0.72      | 2.35     | 11.84     |
| nickel    | 4.94     | 1.44     | 0.68      | 0.12     | 0.00     | 0.41     | -0.29    | 0.53     | 0.91     | 0.39     | 0.00     | 0.98      | 4.19     | -15.24    |
| nitrate   | 1613.47  | 241.07   | 430.89    | 107.03   | -48.69   | 193.53   | 189.71   | -7.19    | 454.37   | -293.15  | 113.55   | 0.59      | 1381.11  | -14.40    |
| OC        | 2693.20  | -5.20    | 645.81    | -47.47   | 335.58   | 301.19   | 218.89   | -19.02   | 250.26   | 370.75   | 104.14   | 0.86      | 2154.92  | -19.99    |
| pm25      | 10322.11 | 342.56   | 2227.35   | 180.10   | 1306.83  | 1543.47  | 441.95   | -108.13  | 1391.01  | 1404.22  | 466.51   | 0.84      | 9195.88  | -10.91    |
| potassium | 36.15    | 2.26     | -4.81     | 3.98     | 3.69     | 6.22     | 14.95    | 0.42     | 11.82    | 2.74     | 0.92     | 0.46      | 42.19    | 16.71     |
| selenium  | 0.40     | 0.05     | -0.06     | 0.01     | 0.05     | 0.10     | 0.08     | 0.00     | 0.06     | 0.10     | -0.04    | 0.40      | 0.35     | -11.21    |
| silicon   | 61.01    | 1.88     | 12.77     | 1.48     | 41.24    | 3.40     | 3.82     | -1.47    | 0.89     | -1.17    | -1.70    | 0.94      | 61.14    | 0.20      |
| sodium    | 95.65    | 1.72     | 14.83     | 67.01    | 6.88     | 1.57     | -13.63   | -1.78    | 3.70     | 9.58     | -1.33    | 0.98      | 88.54    | -7.43     |
| sulfur    | 788.05   | 8.39     | 96.14     | 0.74     | 157.54   | 185.78   | -50.98   | -13.83   | 52.44    | 251.29   | 25.00    | 0.84      | 712.52   | -9.58     |
| titanium  | 2.37     | -0.01    | 1.28      | 0.02     | 1.09     | 0.17     | 0.19     | -0.03    | 0.03     | 0.25     | -0.35    | 0.59      | 2.65     | 11.55     |
| vanadium  | 2.86     | 0.45     | 1.65      | 0.13     | 0.57     | 0.59     | -0.45    | -0.23    | 0.41     | 1.27     | 0.12     | 0.68      | 4.50     | 57.72     |
| zinc      | 26.09    | 3.28     | 7.32      | 0.56     | -1.06    | 0.44     | -0.93    | -0.89    | 17.53    | -3.69    | 0.45     | 0.96      | 23.02    | -11.79    |



Source proportions



Bar graph of the above proportions



This dataset includes air pollution data from 3 monitors in NYC during the years 2007-2015, excluding the dates surrounding 4th of July (7/2-7/6) from each year.