**showing pollution levels at low wind speed and low temperature:**

select

pol.site\_id, pol.species\_id, pol.date, AVG(pol.value), w.temperature\_c, w.wind\_speed\_kmph

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c <= 10

and w.wind\_speed\_kmph <= 10

**to select average:**

select

AVG(pol.value)

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c <= 10

and w.wind\_speed\_kmph <= 10

**value: 56.5298850574713 (at ‘BL0’)**

**55.6239804066076 (all sites)**

**62.1332621084639 (day)**

**showing pollution levels at high wind speed and low temperature:**

select

pol.site\_id, pol.species\_id, pol.date, pol.value, w.temperature\_c, w.wind\_speed\_kmph

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c <= 10

and w.wind\_speed\_kmph >= 10

**to select average:**

select

AVG(pol.value)

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c <= 10

and w.wind\_speed\_kmph >= 10

**value: 51.5943925233645 (at ‘BL0)**

**45.7114424191733 (all sites)**

**52.4375685317939 (day)**

**showing pollution levels at low wind speed and high temperature:**

select

pol.site\_id, pol.species\_id, pol.date, pol.value, w.temperature\_c, w.wind\_speed\_kmph

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c >= 10

and w.wind\_speed\_kmph <= 10

**to select average:**

select

AVG(pol.value)

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c >= 10

and w.wind\_speed\_kmph <= 10

**Value: 63.2572519083969 (at ‘BL0)**

**63.4737091374722 (all sites)**

**66.6311150514073 (day)**

**showing pollution levels at high wind speed and high temperature:**

select

pol.site\_id, pol.species\_id, pol.date, pol.value, w.temperature\_c, w.wind\_speed\_kmph

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.site\_id = 'BL0'

and pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c >= 10

and w.wind\_speed\_kmph >= 10

**to select average:**

select

AVG(pol.value)

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.species\_id = 'NO2'

and pol.date >= '2014-04-03'

and pol.date < '2014-05-04'

and w.temperature\_c >= 10

and w.wind\_speed\_kmph >= 10

**Value: 49.6031791907514 (at BL0)**

**50.7411129802177 (all sites)**

**52.392350707091 (day)**

**comparison over the last month of data:** (BL0, all sites, day only)

low wind/low temp :56.5 55.6 62.1

low wind/high temp :63.3 63.4 66.6

high wind/low temp :51.6 45.7 52.1

high wind/high temp :49.6 50.7 52.4

as you can see low wind and high temp increases pollution so we can use this to prove that. im gonna have a look at time of day now to see if that matters. gonna look for ones with similar temp/wind so that doesn't affect it.

**night time query:**

select

pol.site\_id, pol.species\_id, pol.date, pol.value, w.temperature\_c, w.wind\_speed\_kmph

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.species\_id = 'NO2'

and pol.date >= '2014-02-03'

and pol.date < '2014-05-04'

and (date\_part('hour', pol.date) >20 or date\_part('hour', pol.date) <6)

and w.temperature\_c >= 10

and w.wind\_speed\_kmph >= 10

**average: 51.1854802772003**

|  |  |
| --- | --- |
| 32.9162882527147 | PM25 |
| 51.1854802772002 | NO2 |
| 40.0851182197497 | PM10 |

**day time query:**

select

pol.site\_id, pol.species\_id, pol.date, pol.value, w.temperature\_c, w.wind\_speed\_kmph

from

pollution pol

left join

weather w

on

pol.site\_id = w.site\_id

and pol.date = w.date

where

pol.date >= '2014-02-03'

and pol.date < '2014-05-04'

and (date\_part('hour', pol.date) <20 and date\_part('hour', pol.date) >6)

and w.temperature\_c >= 10

and w.wind\_speed\_kmph >= 10

**average: 56.2544513893999**

|  |  |
| --- | --- |
|  |  |
| 18.86003470214 | PM25 |
| 56.497067692322 | NO2 |
| 31.3093737384614 | PM10 |

**comparison:**

night :51.2

day :56.3

**Comparison of PM2.5 & PM10 with wind/temp**

**(Wind/Temp)**

Low/low: 15.870796460177 27.9480536912752

Low/high: 16.9676767676768 26.5105712409717

High/low: 14.5256936067551 25.8802617615847

High/high :16.0115264797507 27.4216858600199

**>15 <5**

**wind high low**

**pm25** 15.5 21.3

**no2** 48.0 72.3

**pm10** 26.1 31.1

**precipitation >2 <2**

**pm25** 13.6 17.4

**no2**  57.3 60.4

**pm10**  19.9 29.3

**sources:**

research paper on pm levels during nightime/daytime http://www.ge.infn.it/~prati/Fisica%20Nucleare%20Applicata/articoli/valli,%20vecchi.pdf