



Weather Conditions In Beijing

(2010 - 2014)

Wind Direction

All

Date

1/1/2010

12/31/2014



Average PM 2.5
(Ug/m3)

97.80



Average
Temperature (C)

12.45



Average Pressure
(atm)

1.00



Precipitation time
(Hours)

0.19

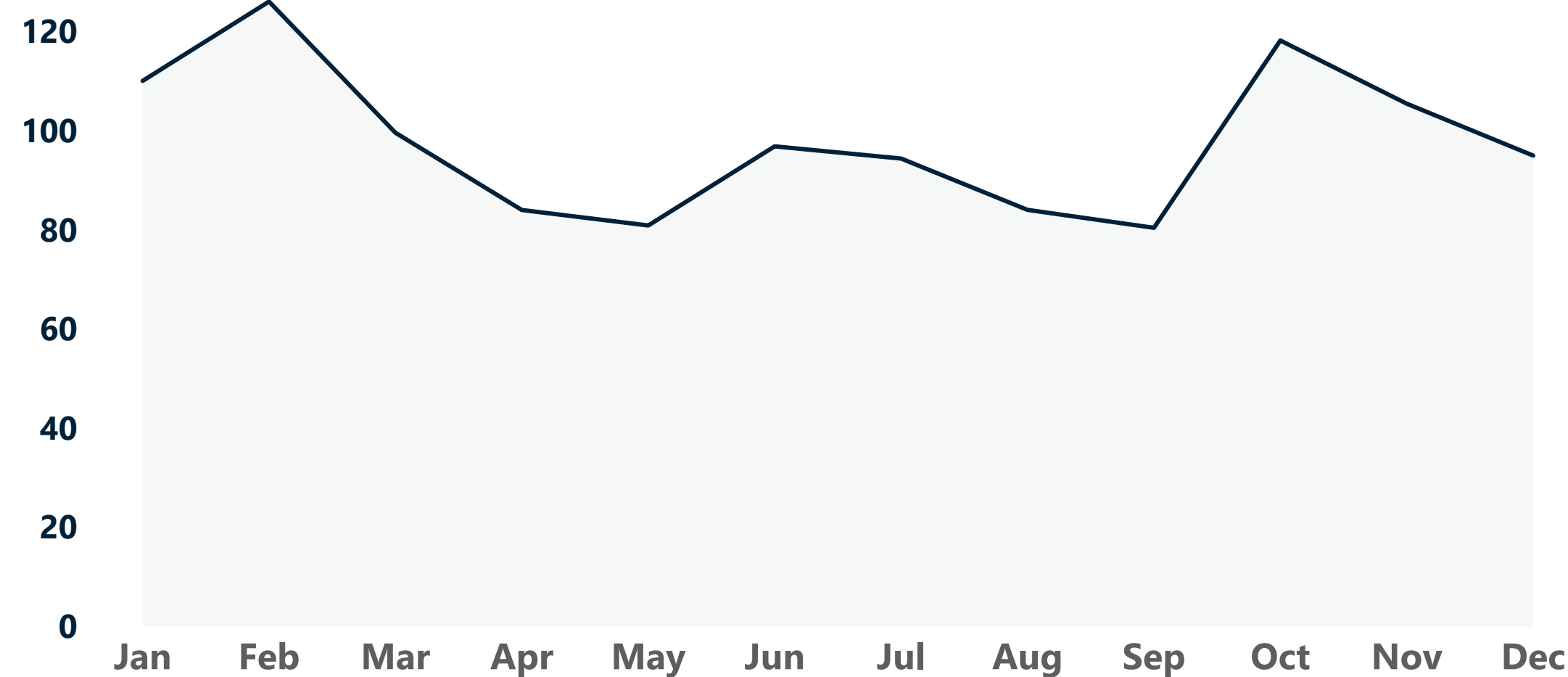


Snowing Time
(Hours)

0.05



Average PM2.5 Concentration (Ug/m3) per Month



Average PM2.5 Concentration (Ug/m3) per Season

Winter

109.91

Autumn

101.58

Summer

91.74

Spring

88.25

Weather Conditions for each Season

Season	Average Temperature (oC)	Average Pressure (atm)	Average Precipitation (Hours)	Average Snowing time (Hours)
Winter	-2.85	1.01	0.00	0.18
Spring	13.79	1.00	0.15	0.03
Autumn	12.67	1.01	0.29	0.00
Summer	25.88	0.99	0.33	0.00

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Season

All

Date

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Average PM 2.5 (Ug/m3)

97.80

Average Temperature (C)

12.45

Average Pressure (atm)

1.00

Precipitation time (Hours)

0.19

Snowing Time (Hours)

0.05

Which Direction Does the Wind Often travel?

Direction	Frequency
N	35.5
NE	28.4
E	21.3
SE	14.2
S	7.1
SW	14.2
W	21.3
NW	28.4

Average PM 2.5 Concentration (Ug/m3) per Wind Direction

Direction	Concentration (Ug/m3)
South West	124.49
South East	110.06
North East	89.40
North West	69.81

Average Precipitation (Hours) and Average Snowing time (Hours) by Month

Month	Average Precipitation time (Hours)	Average Snowing time (Hours)
Jan	0.0	0.2
Feb	0.0	0.25
Mar	0.08	0.1
Apr	0.15	0.0
May	0.23	0.0
Jun	0.23	0.0
Jul	0.51	0.0
Aug	0.26	0.0
Sep	0.52	0.0
Oct	0.15	0.0
Nov	0.2	0.0
Dec	0.0	0.1

Data Visualization by Okonkwo Chukwuebuka Malcom



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Insights & Recommendations

Insights

- . The main aim of this Analysis is to discover the impact of weather conditions on Air Quality. Air Quality in this dataset is determined by the level (Concentration in Ug/m³) of Particulate matter (PM_{2.5}) in the atmosphere. According to Breeze Technologies, PM_{2.5} levels over 55Ug/m³ shows a poor level of air quality and above 110Ug/m³ shows a severe level of air quality.
- . After checking the PM_{2.5} level for each Month and Season, It is observed that PM_{2.5} level is the highest during the Winter Season (December to February) having approximately 110Ug/m³ on average. The Average PM_{2.5} level during the Autumn season also surpassed the threshold having 101.58Ug/m³. The The average PM_{2.5} level during the spring season and summer season is 88.24Ug/m³ and 91.74Ug/m³. From this observation, it tells that the PM_{2.5} level is worse during the winter season then the autumn season.
- . After observing the relationship between the wind speed and the PM_{2.5} level. It is observed that the lower the wind speed the higher the PM_{2.5} level.
- . Higher levels of PM_{2.5} occurs more often when the wind direction is going towards the South West (SW) then the South East. It gets extremely high during the winter period when the wind direction is headed towards the South East and South West
- . On periods where there are a low hours of precipitation (rainfall), the PM_{2.5} levels are extremely high. When there are longer hours of rainfall, the PM_{2.5} levels are low in comparison to when there are longer amount of rainfall.

Recommendations

- . Since the city's average PM_{2.5} level is normally high, I strongly advise the government to check into United State's National Action Plan on Pollutant & Control, which intends to reduce PM 2.5 (respirable, pollution particles) concentrations by 20% to 30% above 2017 annual levels in more than 100 cities. By reducing reliance on coal, limiting car emissions, expanding the production of renewable energy sources, and strictly enforcing emissions regulations, the plan promised to achieve these objectives.
- . When the wind is blowing in the south-west and south-east directions, high levels of PM_{2.5} are seen. Tracking the sources of the pollutants and putting a stop to them will help lower the PM_{2.5} concentration.
- . From the Analysis, A High Amount of hours of rain and snow shows a low level of PM_{2.5} levels. According to [Davis Instrument](#), Rain and Snow can wash particulate matter out of the air and destroy dissolvable pollutants. While the pollutants are washed out or dispersed, they are not gone. They are just moved somewhere else. They end up in someone else's lungs, or dropped into bodies of water for aquatic plants and animals to deal with. It is advised that citizens who are very sensitive health-wise should refrain from excessive outdoors activities so that they would not get infected