



Government of Nepal
Ministry of Forest and Environment
Department of Environment
Babarmahal, Kathmandu

Air quality status of Nepal 2016-2020

Volume XI

Shankapark air quality monitoring station



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1 Dhulikhel Air Quality Monitoring Station

- Address : Kathmandu Municipality, Shankapark
- Location: 27.73457 latitude, 85.342576 longitude
- Surrounding of the station
 2. North: Shankapark Garden
 3. South: Pakistan Embassy grassland
 4. East: Urban Building
 5. West: Shankapark Inner Garden
- Establish year: 2017 (2074)
- Brief introduction of the instruments installed in the station (should include- brief specification; number of instrument)
 1. PM instrument- GRIMM EDM 180
 2. Met sensor luffth WS 700
 3. Data logging and data transmission and power backup system

2 Air Quality Status of Dhulikhel station (2017-2020)

2.1 Air Quality Status, 2017

2.1.1 Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP

The annual average of PM₁, PM_{2.5}, PM₁₀ and TSP of the Shankapark monitoring station was calculated as shown in figure below. As the data is only of August to December with few days, this may not be suitable to calculate the annual average.

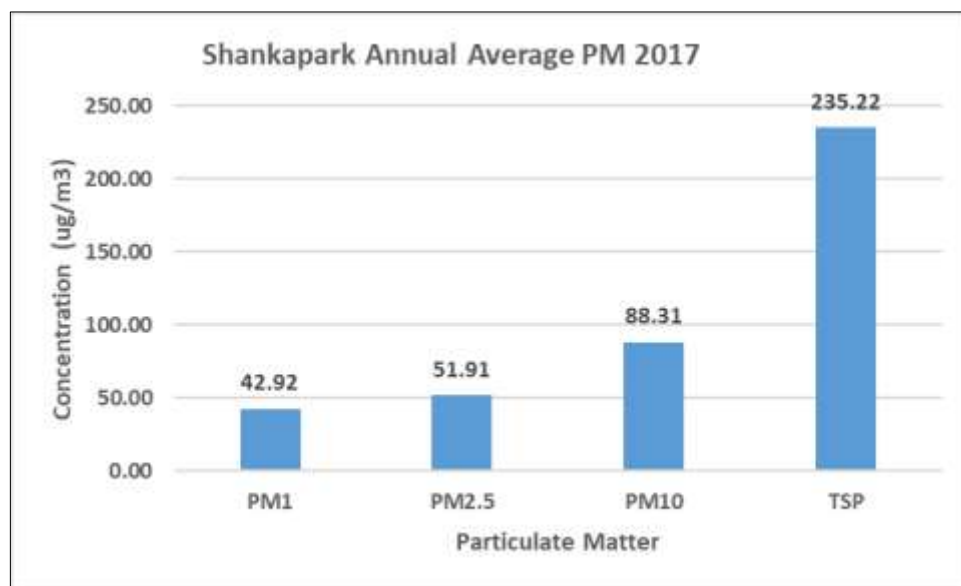


Figure 1 Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP in 2017

2.1.2 Temporal Variation of PM₁

Annual average PM₁

The annual average PM₁ at Shankapark station was found to be 42.92 µg/m³. Histogram of hourly average PM₁ is shown in the figure below.

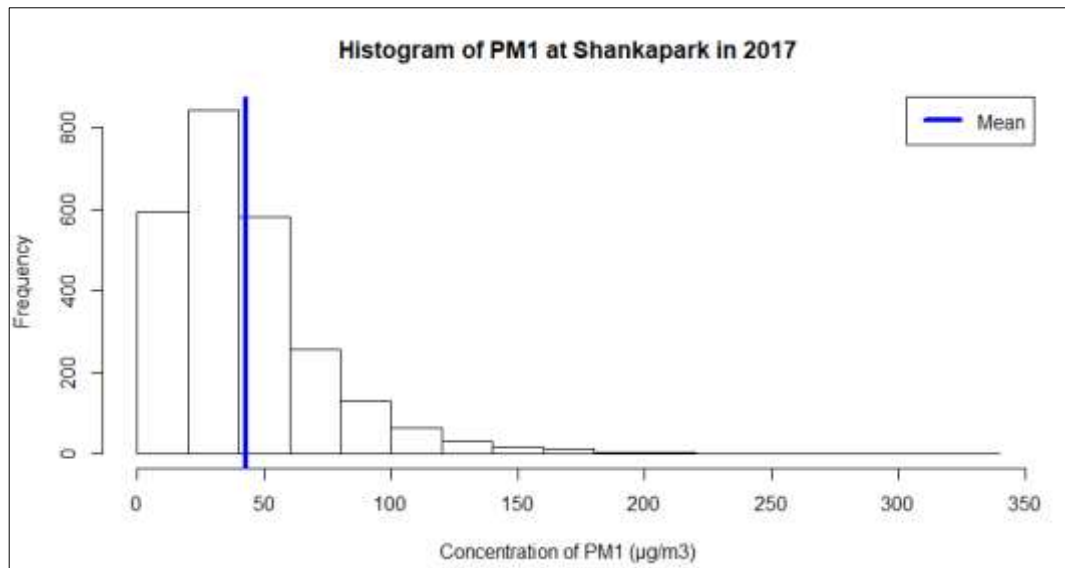


Figure 2 Histogram of PM₁

Daily average of PM₁

Daily average concentration of PM₁ was found to be high during November and low during August.

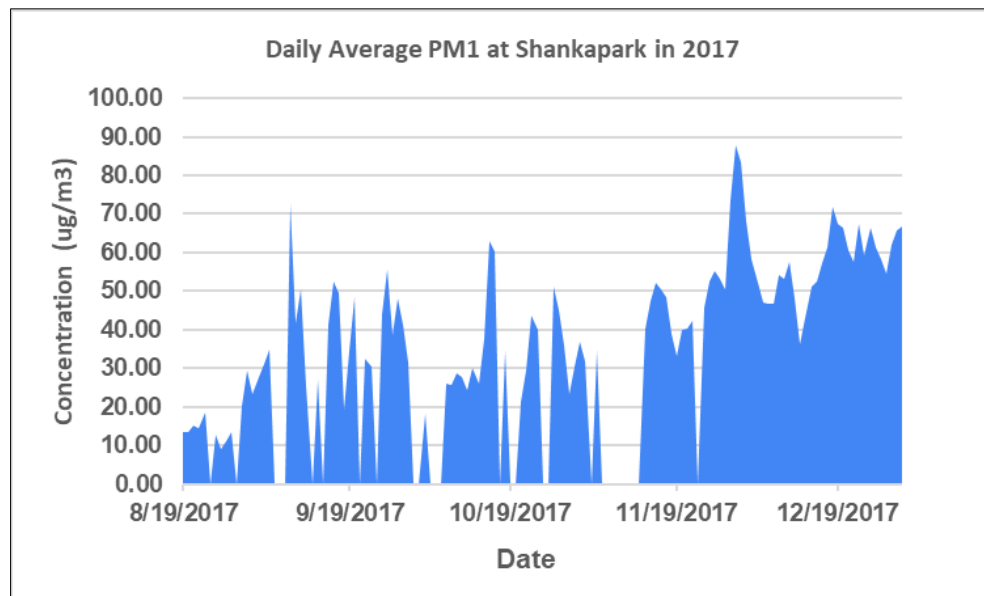


Figure 3: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest concentration of PM₁ was found during December and August respectively. The mean value for those months were found to be 58.14 and 15.52 $\mu\text{g}/\text{m}^3$ respectively.

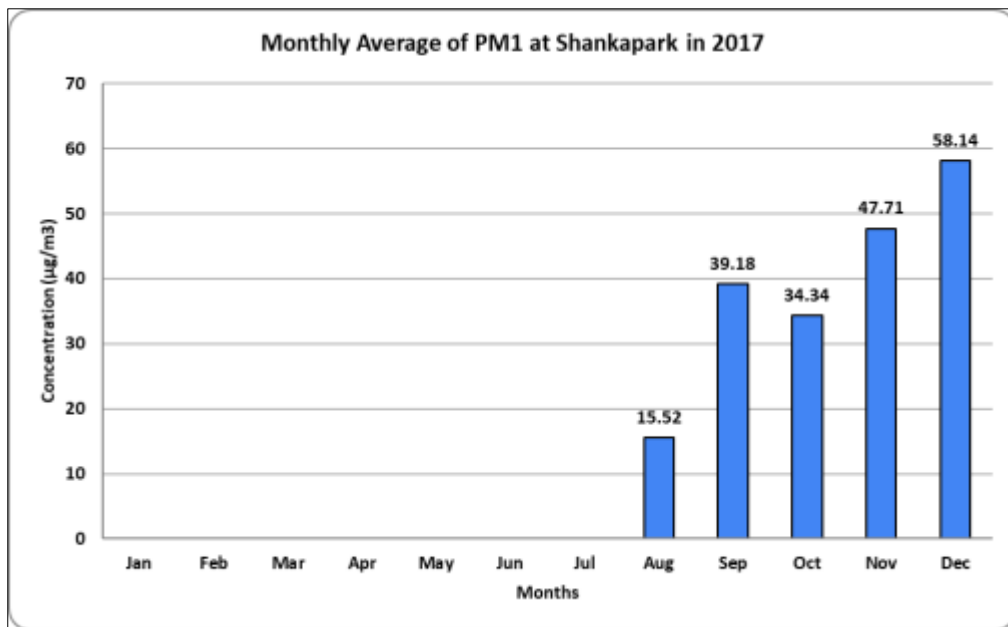


Figure 4: Monthly Average of PM₁

Monthly Variation of PM₁

Variation in concentration of PM₁ was found as shown in figure below.

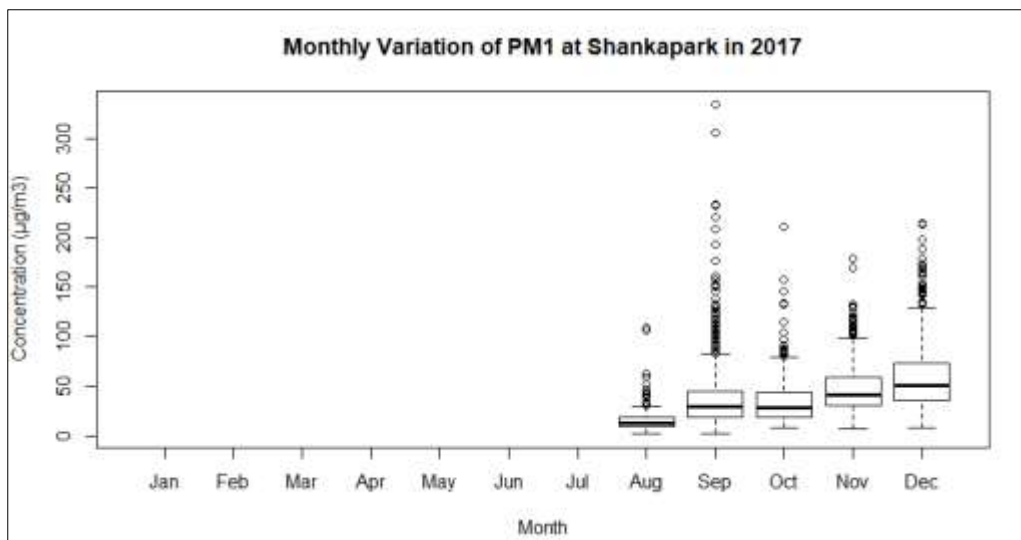


Figure 5: Monthly Variation of PM₁

Seasonal variation of PM₁

Ambient concentration of average PM₁ during monsoon and post-monsoon can be shown in the figure below. The concentration of PM₁ was found higher during post-monsoon (41.03 µg/m³) than monsoon season (27.35 µg/m³).

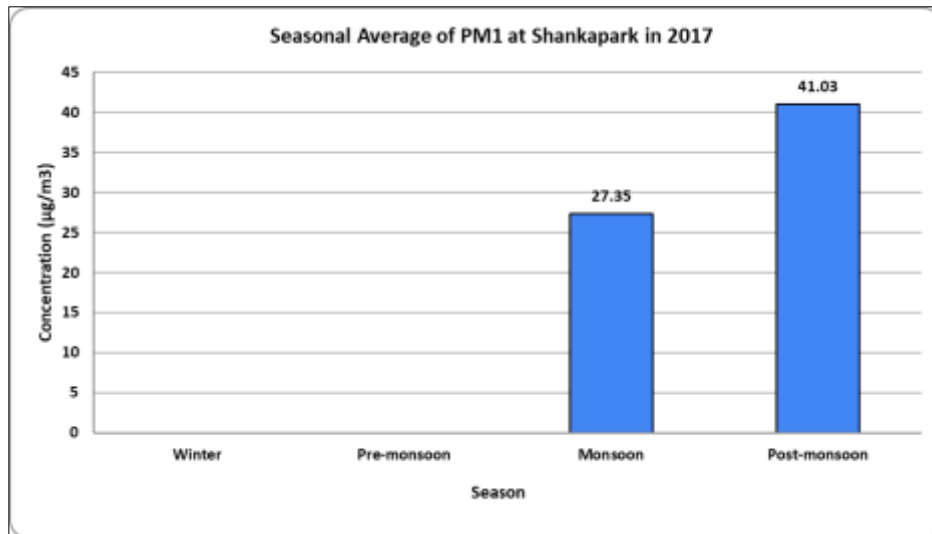


Figure 5: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the figure below. The variation in PM₁ concentration can be seen with two peaks and two troughs in a day.

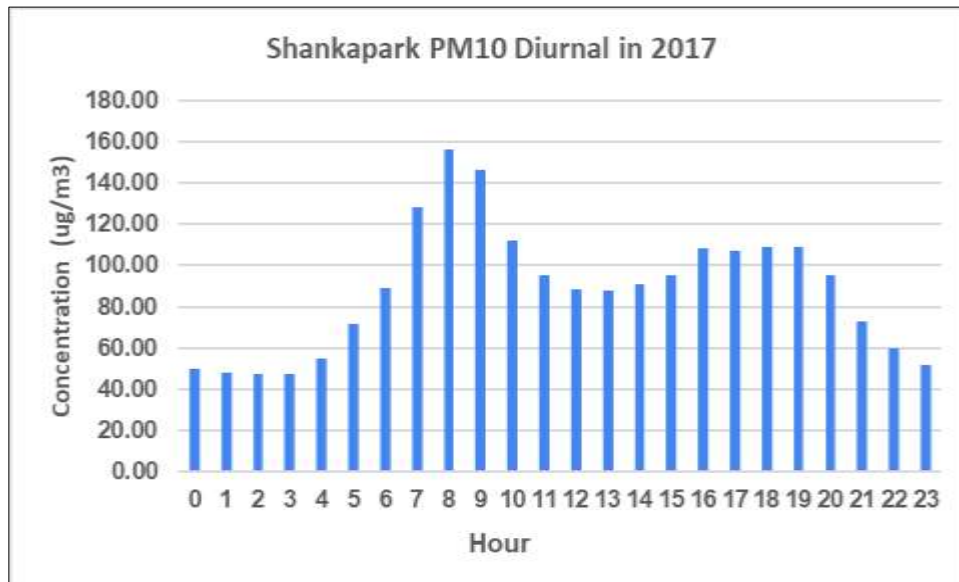


Figure 6: Diurnal variation of PM₁

2.1.3 Temporal Variation of PM_{2.5}

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Shankapark station was found to be 51.91 µg/m³. Histogram of hourly average PM_{2.5} is shown in the figure below.

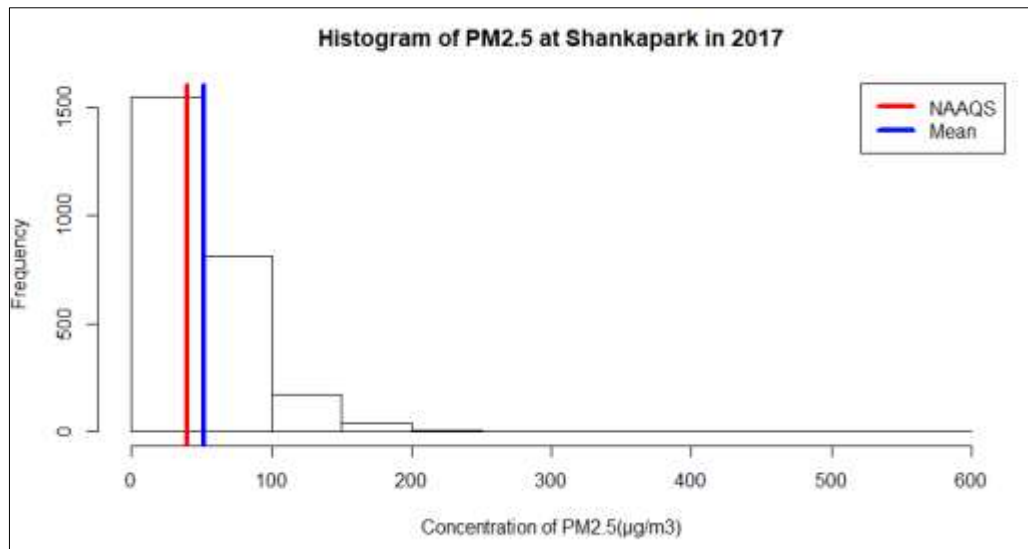


Figure 7: Histogram of PM_{2.5}

Daily average of PM_{2.5}:

Daily average concentration of PM_{2.5} was found to be high during September and was found low during August.

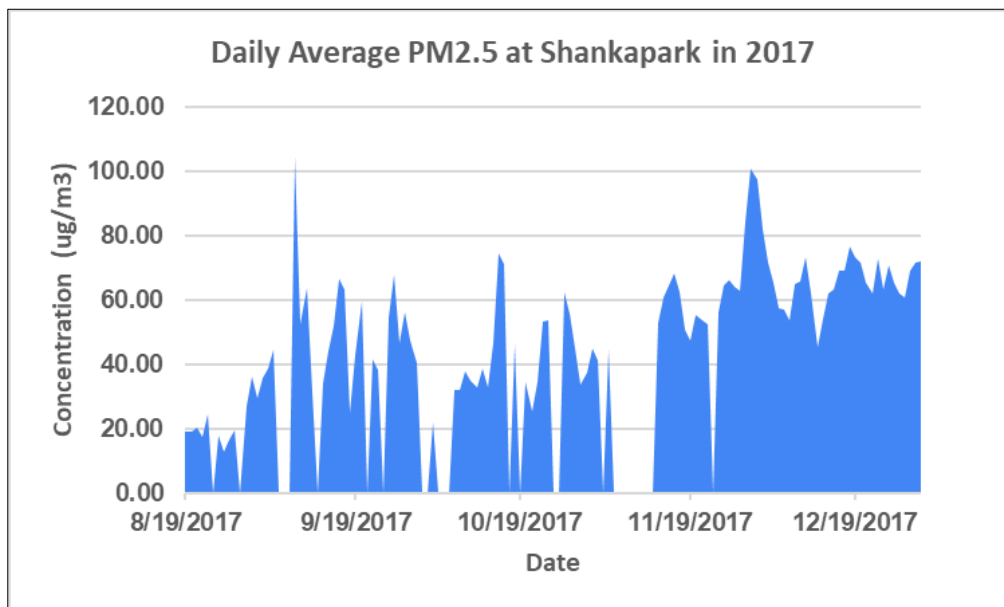


Figure 8: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest concentration of PM_{2.5} was found during December and August respectively. The mean value for those months were found to be 66.69 and 20.79 $\mu\text{g}/\text{m}^3$ respectively.

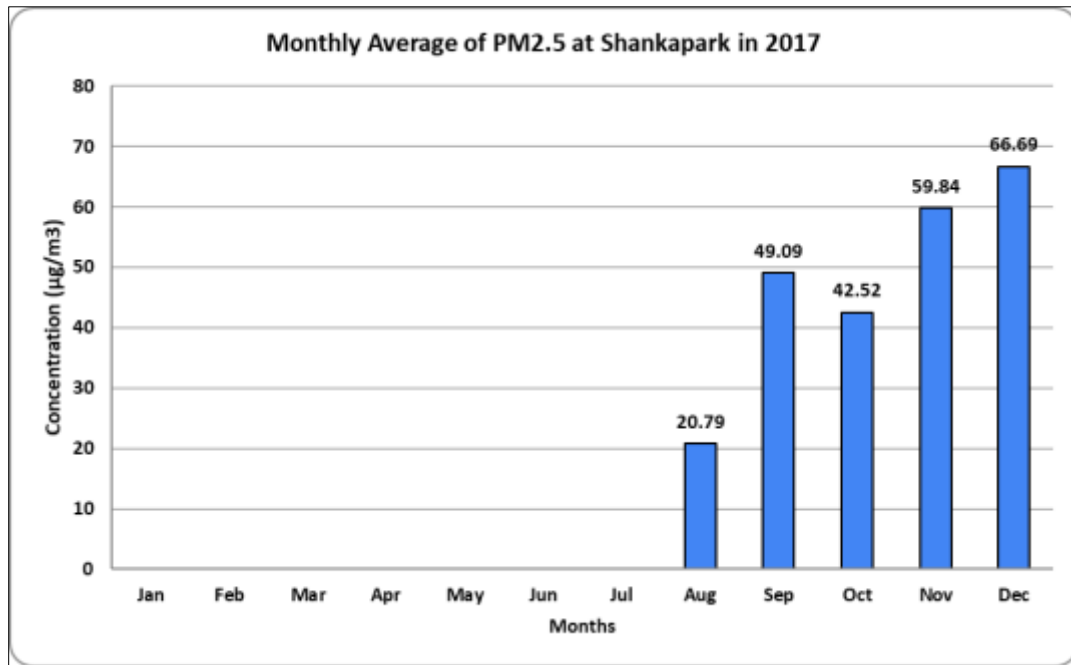


Figure 9: Monthly Average of PM_{2.5}

Monthly Variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found as shown in figure below.

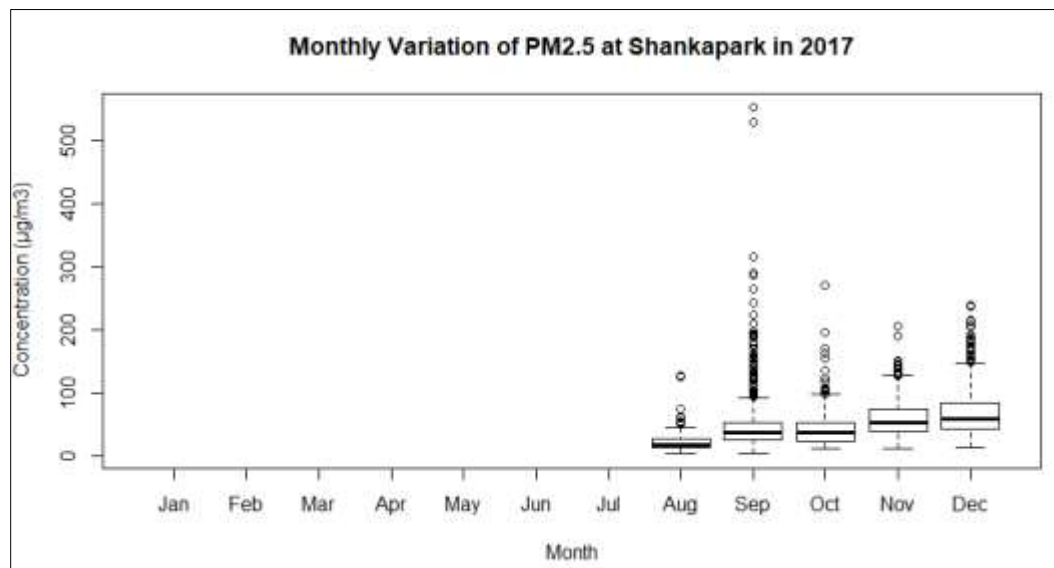


Figure 10: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Ambient concentration of average PM_{2.5} during monsoon and post-monsoon can be shown in the figure below. The concentration of PM_{2.5} was found higher during post-monsoon (51.18 µg/m³) than monsoon season (34.94µg/m³).

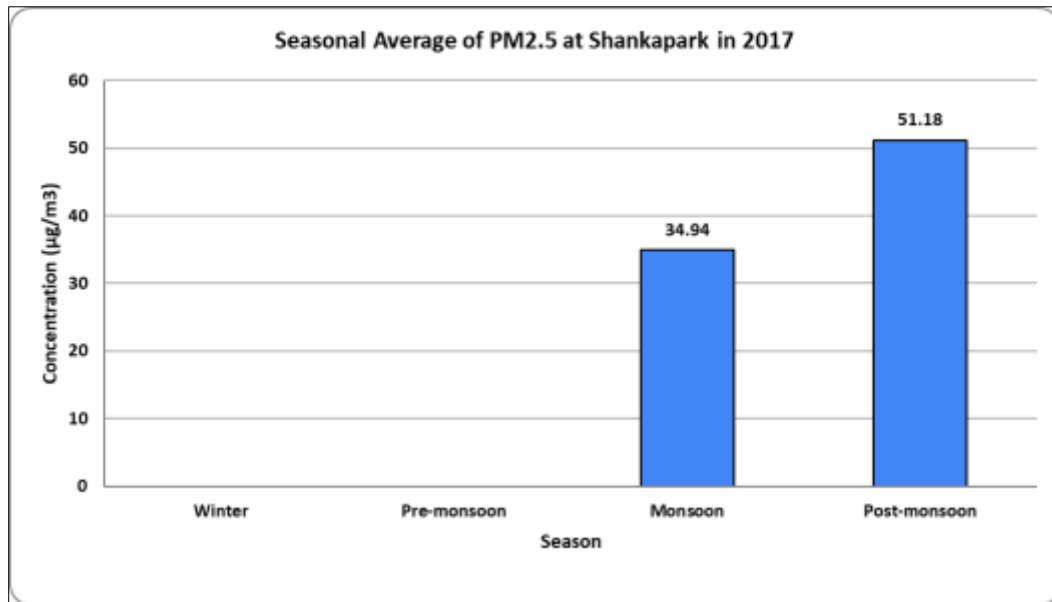


Figure 11: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations was found to be associated with two peaks and two troughs in a day as shown in the figure below.

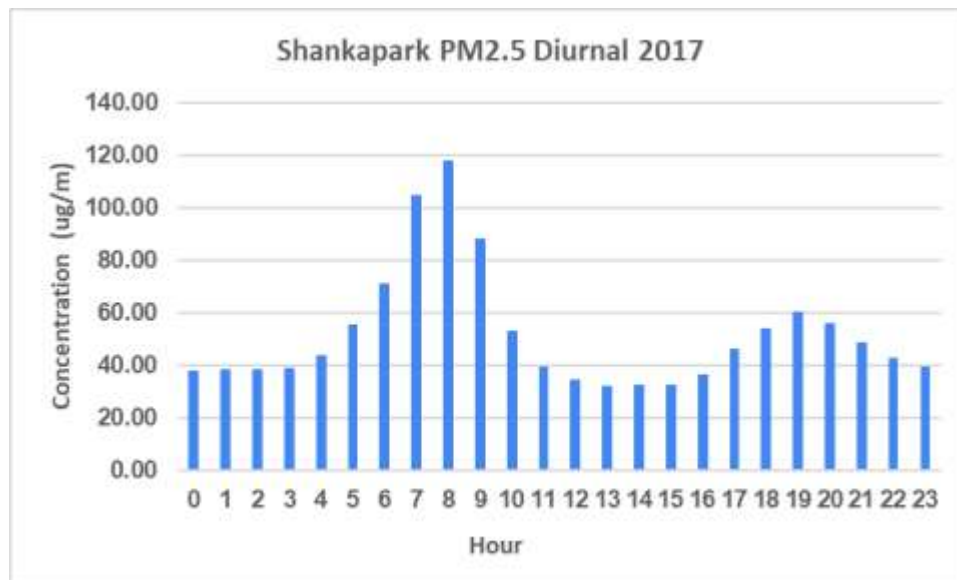


Figure 12: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2017 counts 108; of which 77 days exceed the NAAQS guideline as shown in figure below.

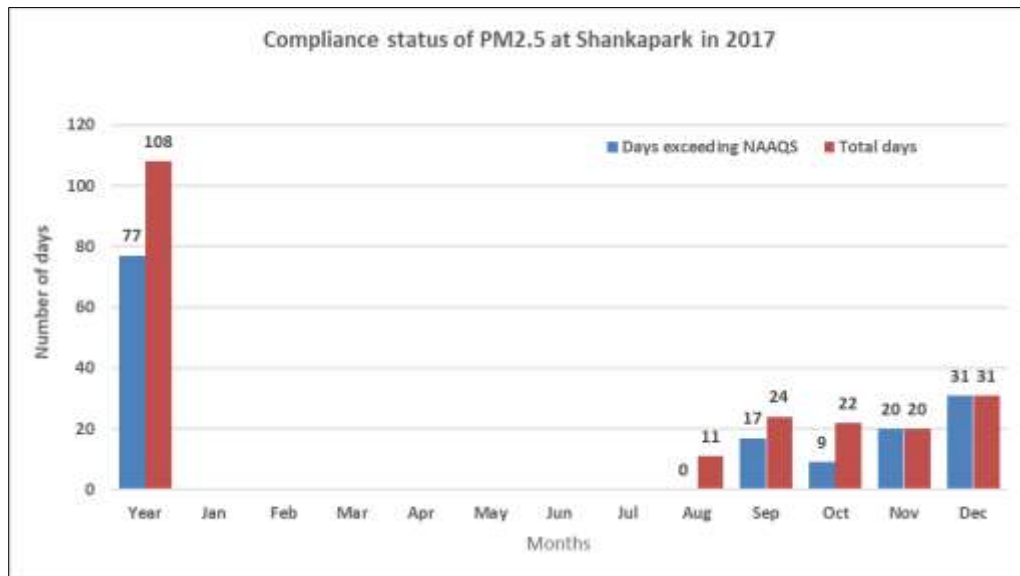


Figure 13: Compliance status of PM_{2.5}

2.1.4 Temporal variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Shankapark station was found to be 88.31 $\mu\text{g}/\text{m}^3$. Histogram of hourly average PM₁₀ is shown in the figure below.

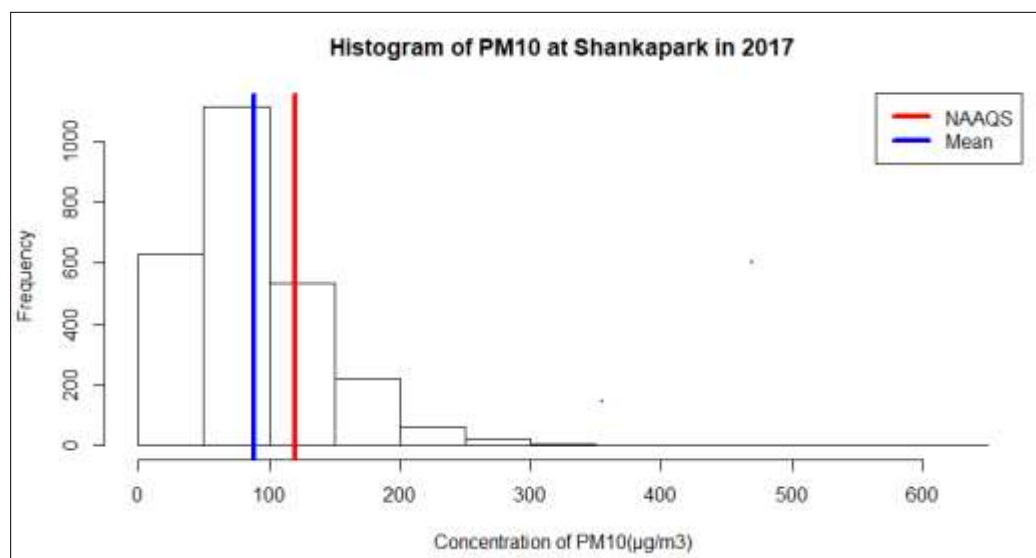


Figure 14 : Histogram for the ambient concentration of PM₁₀

Daily average of PM₁₀

Daily average concentration of PM₁₀ was found to be higher during November and low during August.

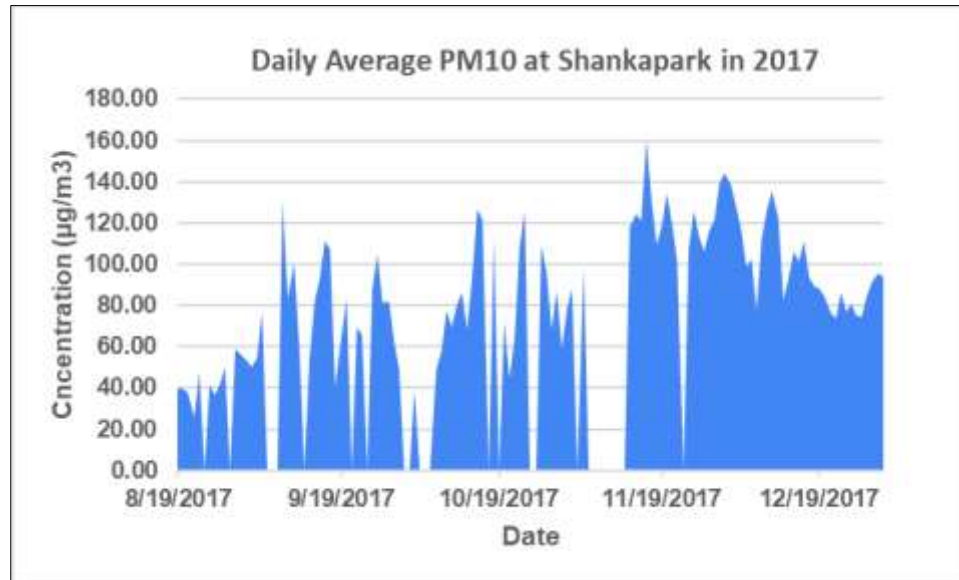


Figure 15: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest concentration of PM₁₀ was found during November and August respectively. The mean value for those months were found to be 116.7 and 43.29 µg/m³ respectively.

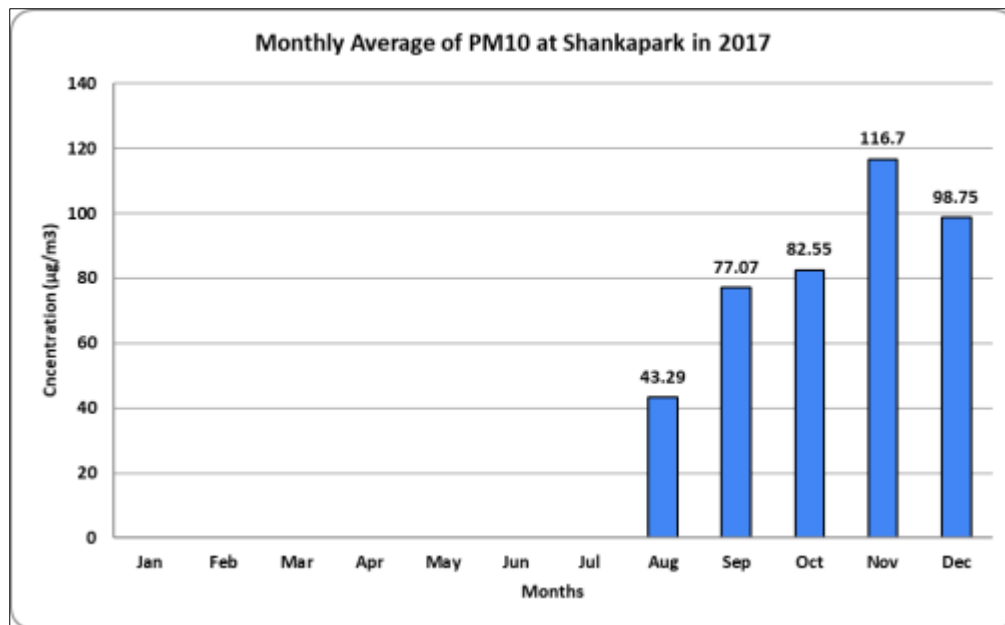


Figure 16: Monthly average of PM₁₀

Monthly Variation of PM₁₀

Variation in concentration of PM₁₀ was found as follows.

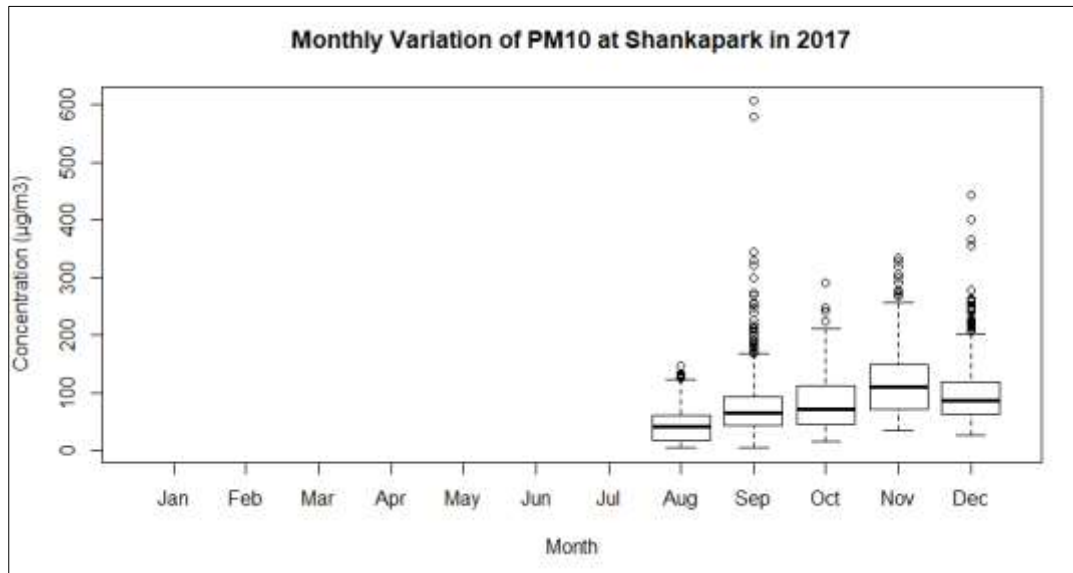


Figure 17: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration

Ambient concentration of average PM₁₀ during post-monsoon (99.63 µg/m³) was highest and that of monsoon was lowest (60.18 µg/m³) as shown in the figure below.

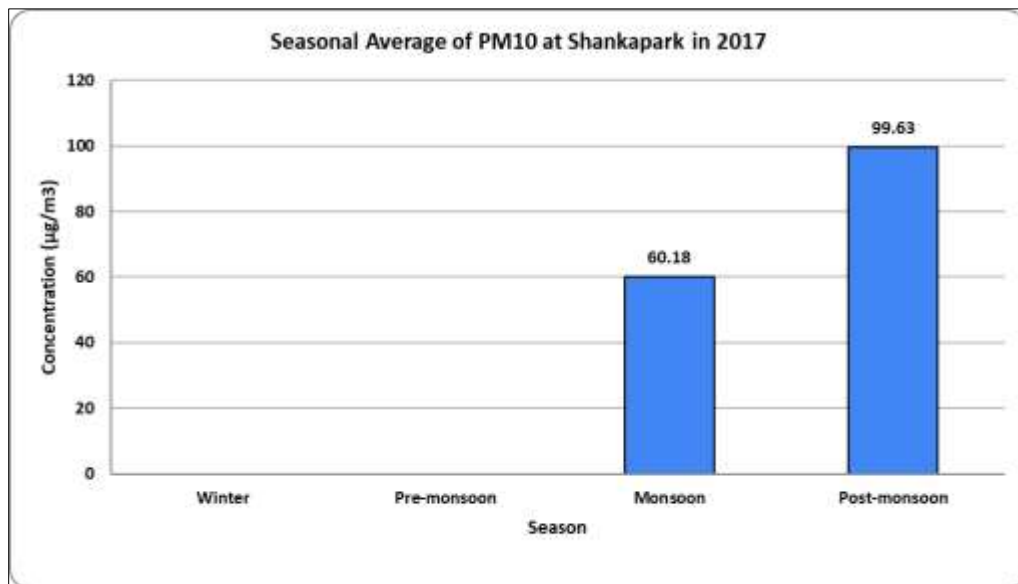


Figure 18: Seasonal variation of PM₁₀

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown in the figure below. There are two peaks and two troughs in a day with highest concentration in the morning.

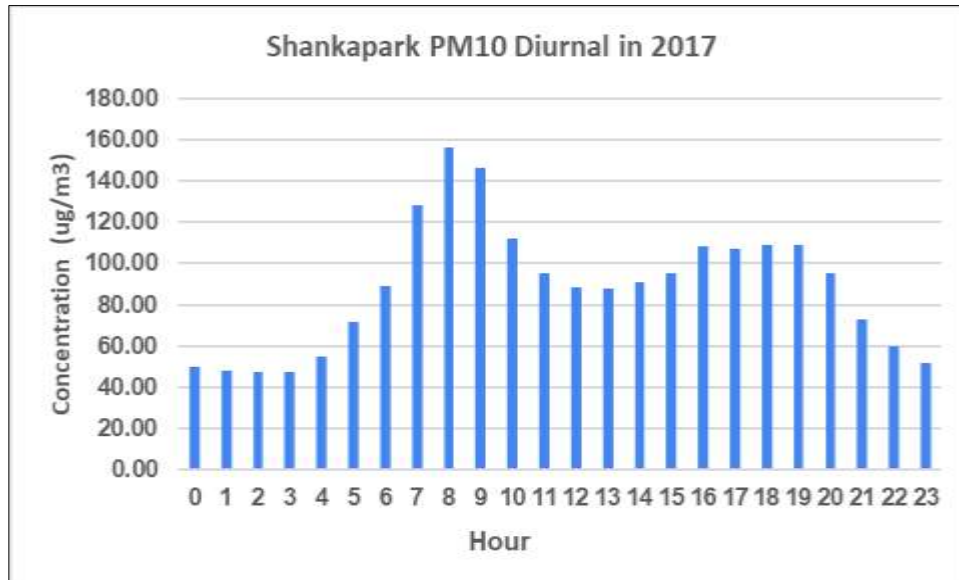


Figure 19: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2017 counts 108; of which 19 days exceed the NAAQS guideline as shown in figure below.

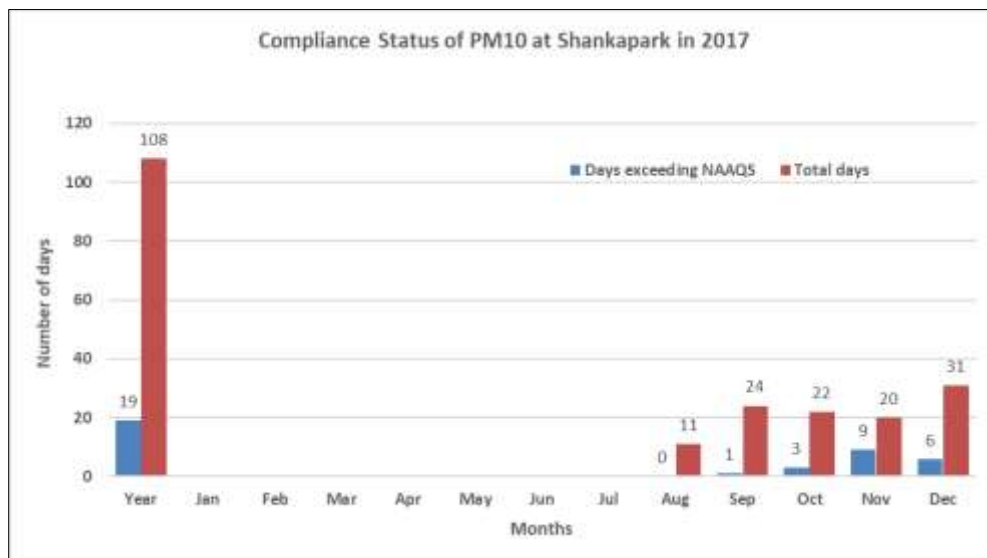


Figure 20: Compliance status of PM₁₀

2.1.5 Temporal Variation of TSP

Annual average of TSP

The annual average of TSP at Shankapark station was found to be 235.22 $\mu\text{g}/\text{m}^3$. Histogram of hourly average TSP is shown in the figure below.

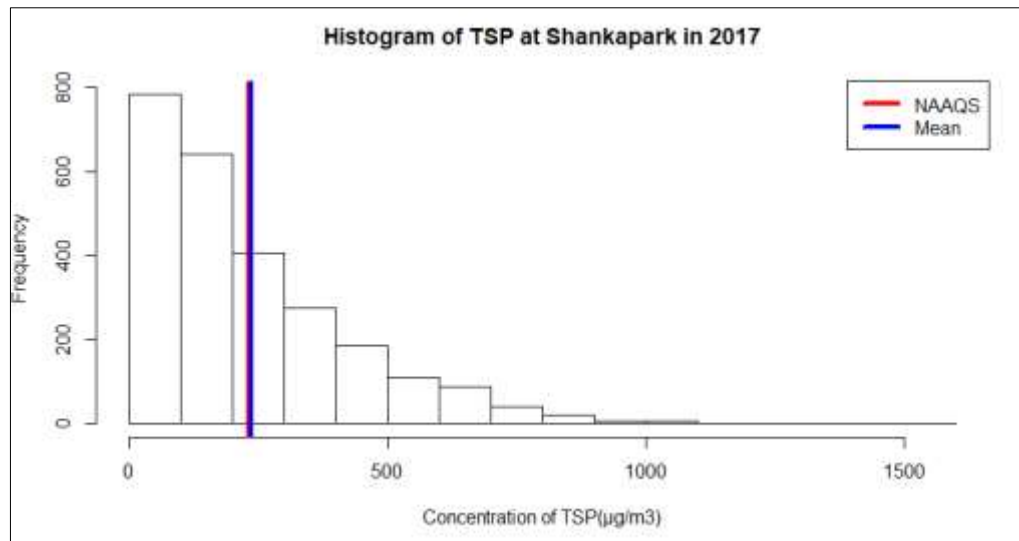


Figure 21 : Histogram for the ambient concentration of TSP

Daily average of TSP

Daily average concentration of TSP was found to be high during November and low during August.

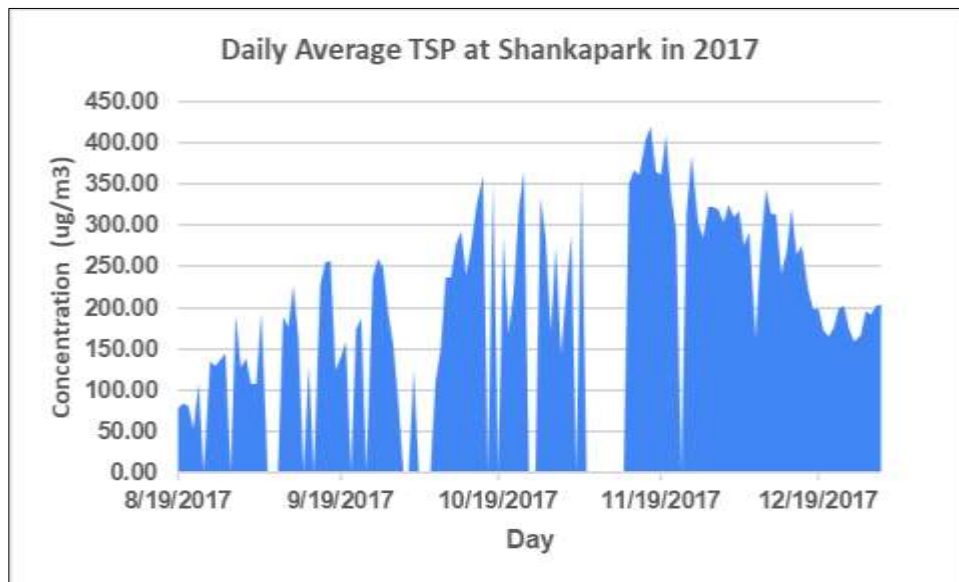


Figure 22: Daily average of TSP

Monthly average of TSP

The highest and the lowest concentration of TSP was found during February and July respectively. The mean value for those months were found to be 339.28 and 115.63 $\mu\text{g}/\text{m}^3$ respectively.

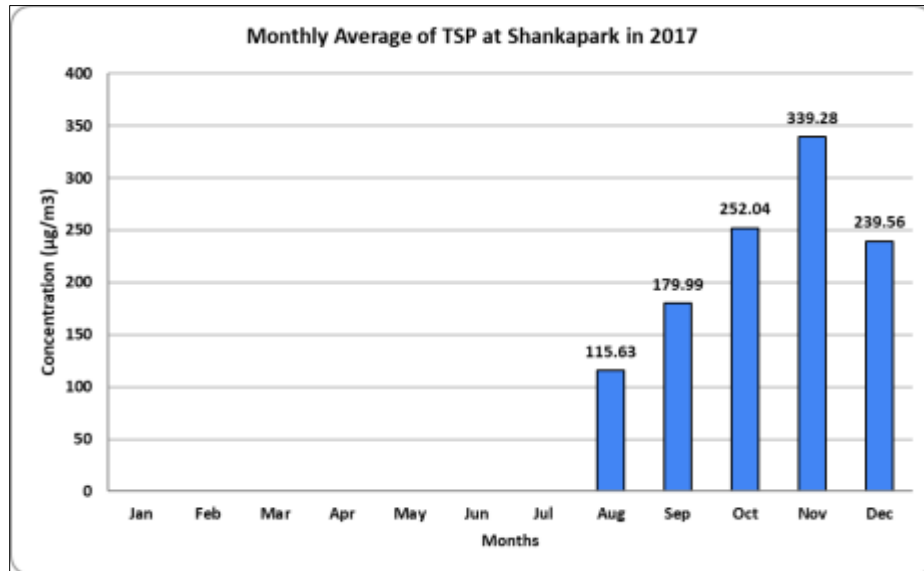


Figure 23: Monthly Average of TSP

Monthly Variation of TSP

Variation in concentration of TSP was found as shown in figure below.

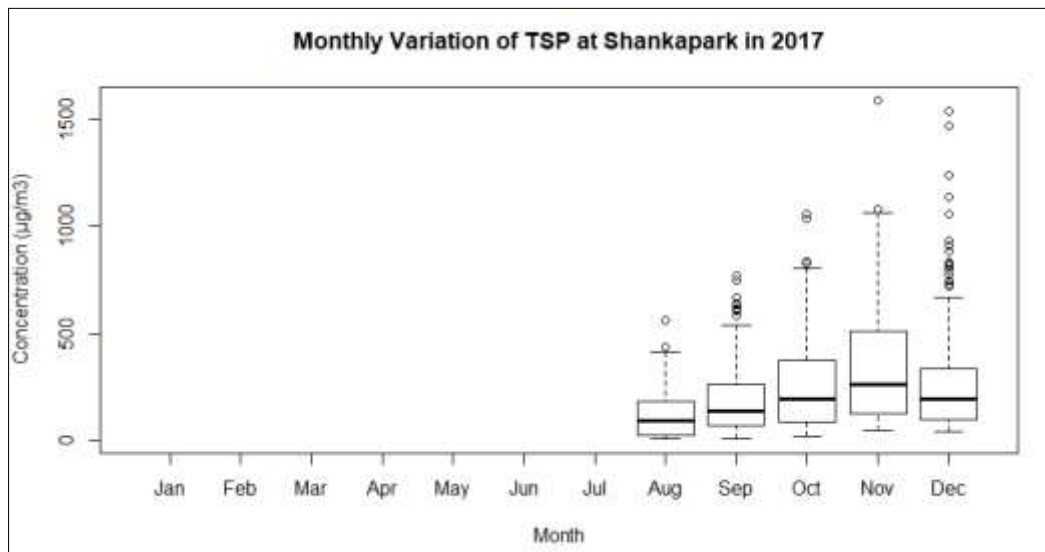


Figure 24: Monthly Variation of TSP.

Seasonal variation of average TSP concentration

Ambient concentration of average TSP was highest during post-monsoon and lowest during monsoon as shown in the figure below.

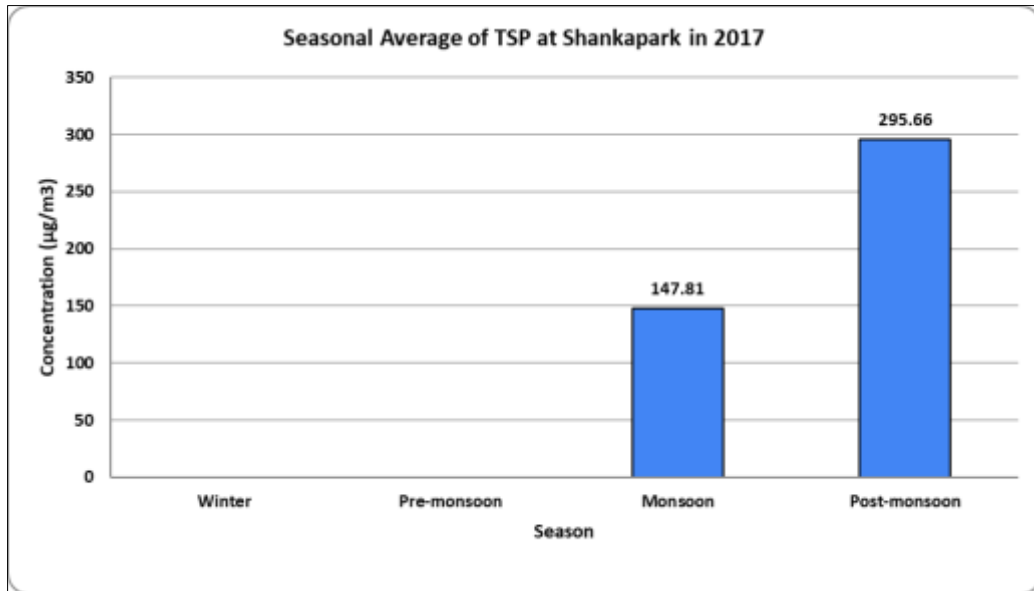


Figure 25: Seasonal variation of TSP

Diurnal variation of average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the figure below. The variation in TSP concentration was high at around 1 pm-4 pm and low during night time.

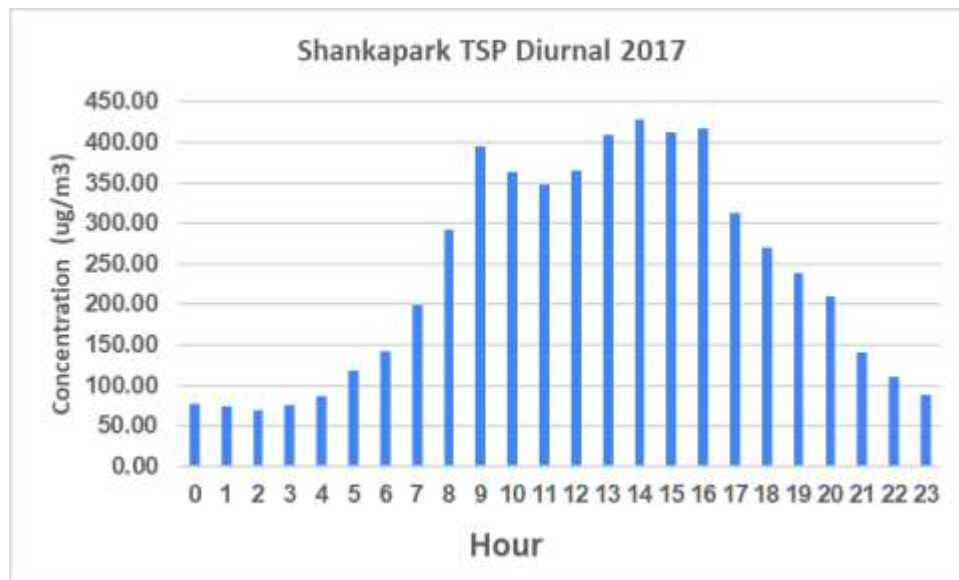


Figure 26: Diurnal Variation of TSP

Compliance status of TSP

The total days of TSP monitored in the year 2017 counts 107; of which 54 days exceed the NAAQS guideline as shown in figure below.

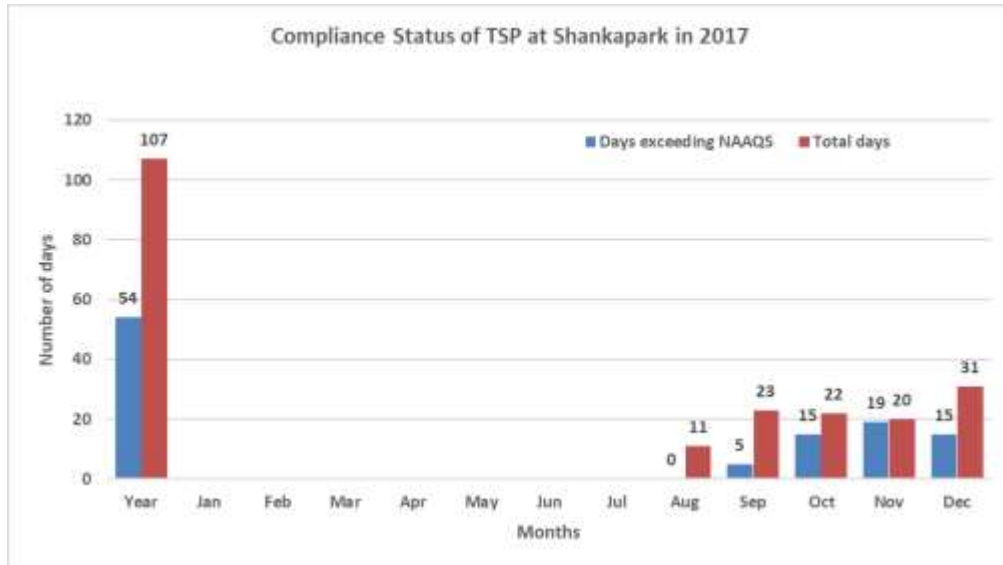


Figure 27: Compliance status of TSP

2.2 Air Quality Status, 2018

2.2.1 Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP

The annual average of PM₁, PM_{2.5}, PM₁₀ and TSP of the Shankapark monitoring station was calculated as shown in the figure below.

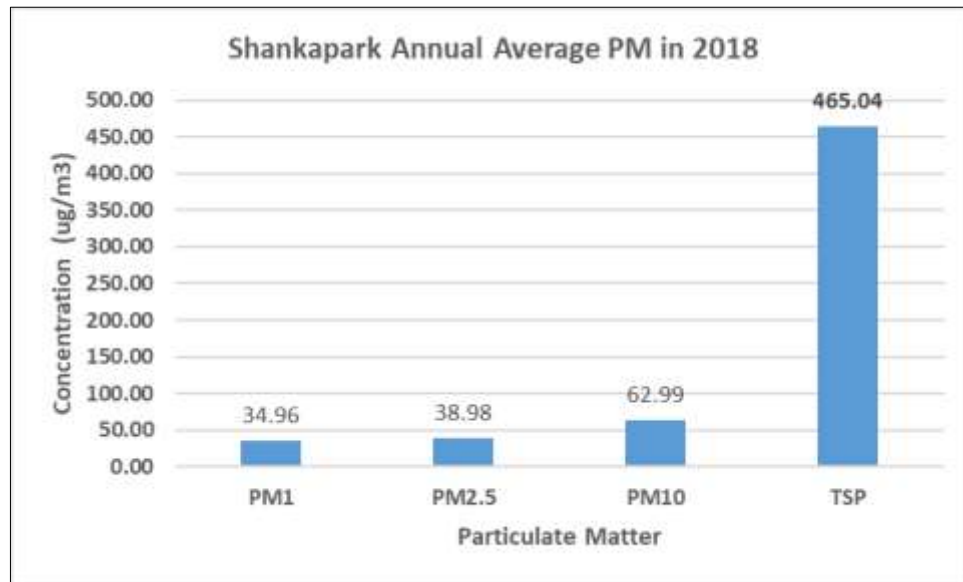


Figure 28: Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP in 2018

2.2.2 Temporal Variation of PM₁

Annual average of PM₁

The annual average of PM₁ at Shankapark station was found to be $34.96\mu\text{g}/\text{m}^3$. Histogram of hourly average PM₁ is shown in the figure below.

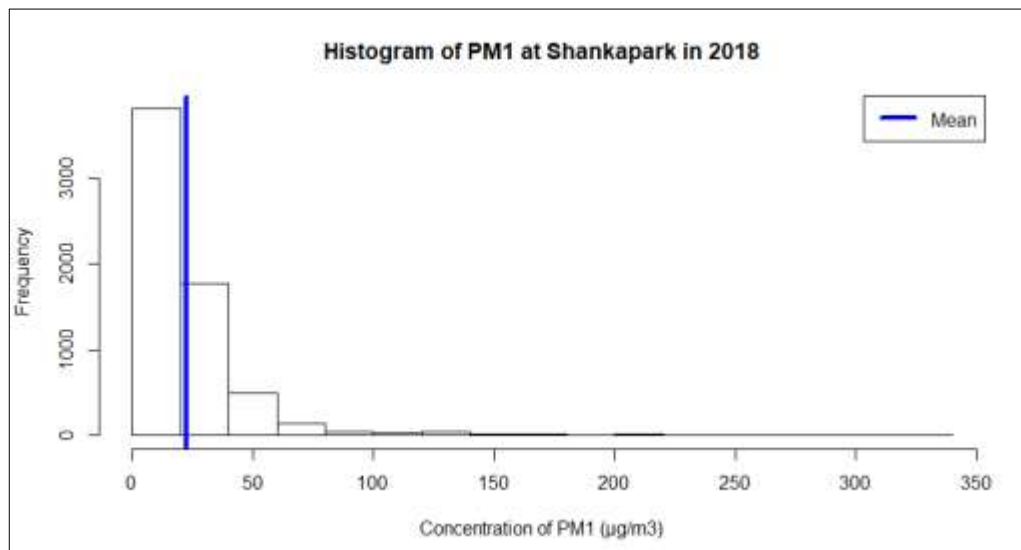


Figure 29 : Histogram of PM₁

Daily average of PM₁

Daily average concentration of PM₁ was found to be high during March and low during June.

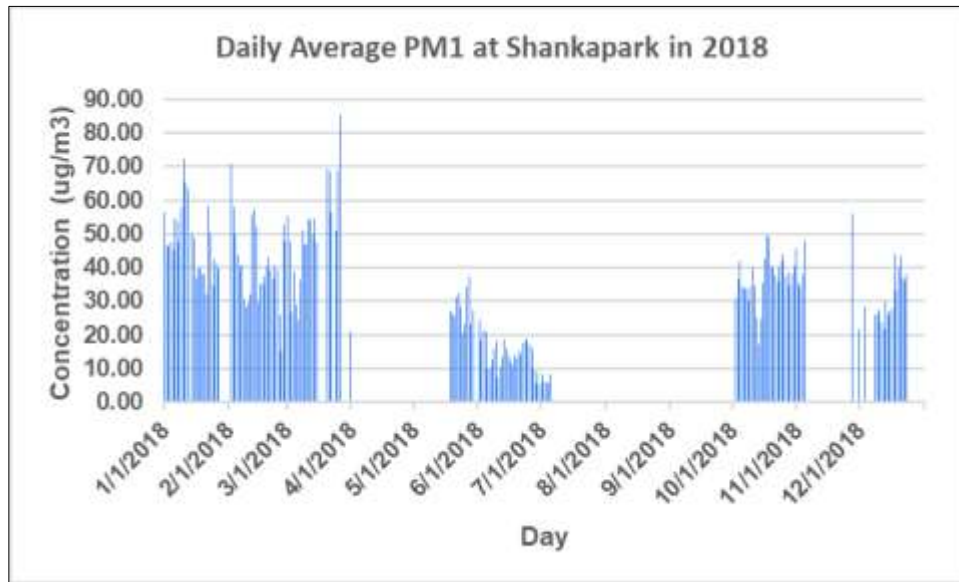


Figure 30: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest concentration of PM₁ was found during March and July respectively. The mean value for those months were found to be 49.2 and 6.83 $\mu\text{g}/\text{m}^3$ respectively.

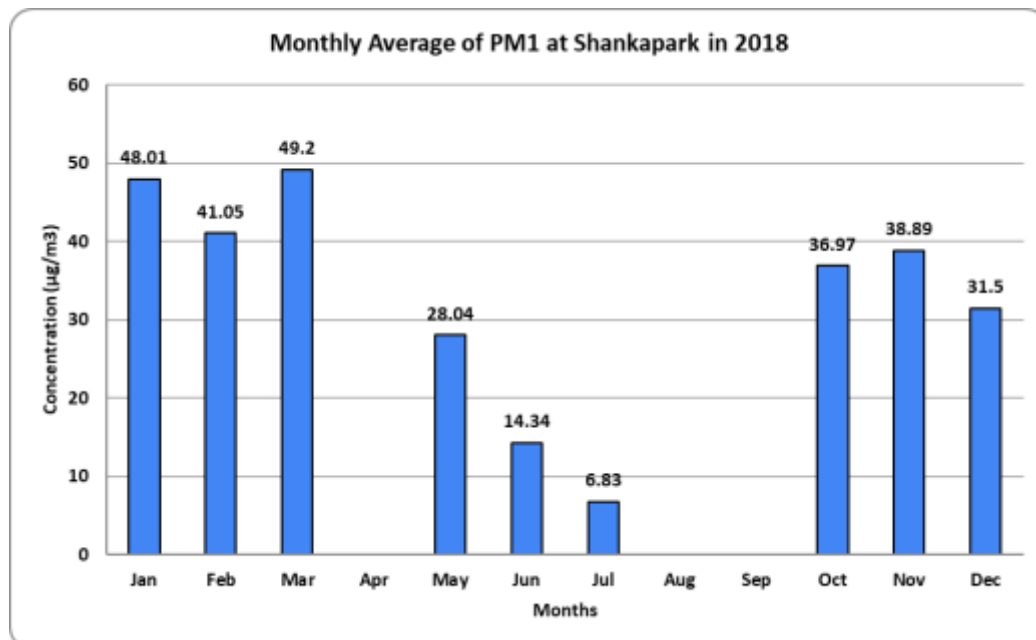


Figure 31: Monthly Average of PM₁

Monthly Variation of PM₁

Variation in concentration of PM₁ was found as shown in figure below.

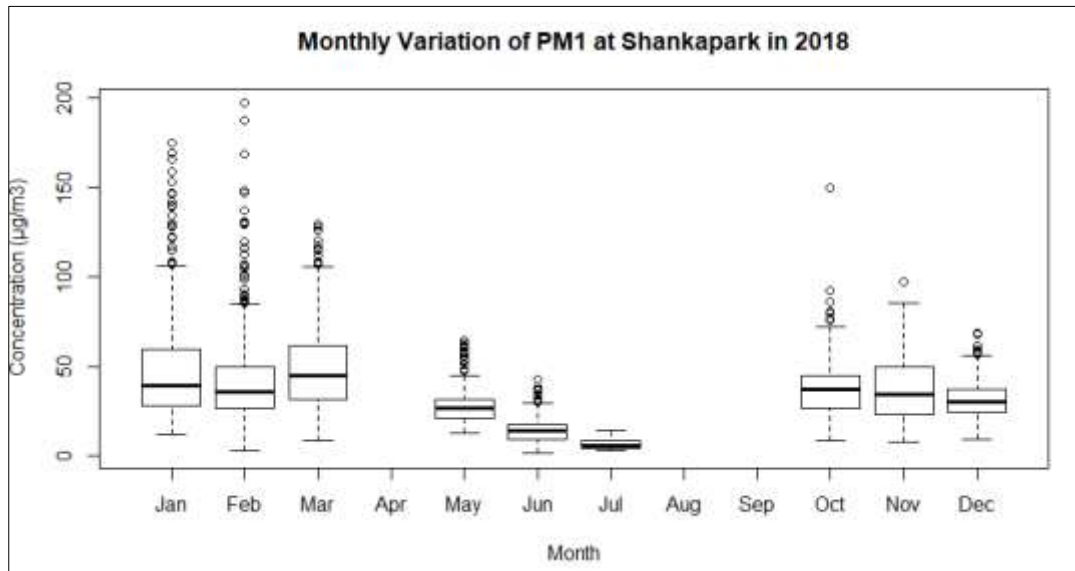


Figure 32: Monthly Variation of PM₁

Seasonal variation of PM₁ concentration

Ambient concentration of average PM₁ during winter, pre- monsoon, monsoon and post monsoon can be shown in the figure below. The concentration of PM₁ was found to be higher during winter (49.07 µg/m³) than monsoon season (10.59 µg/m³) as shown in the figure below.

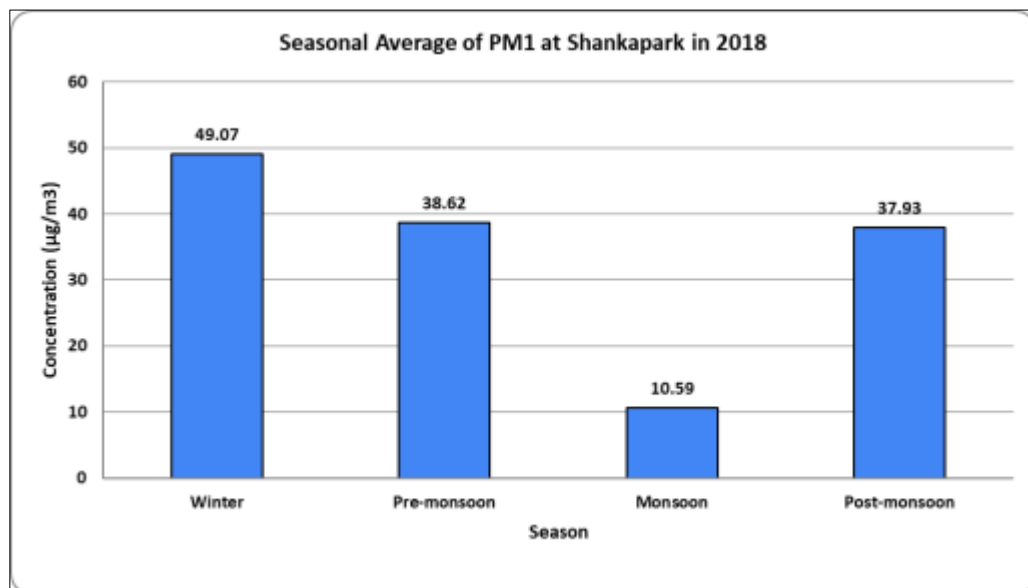


Figure 33: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the figure below with two peaks and two troughs in a day.

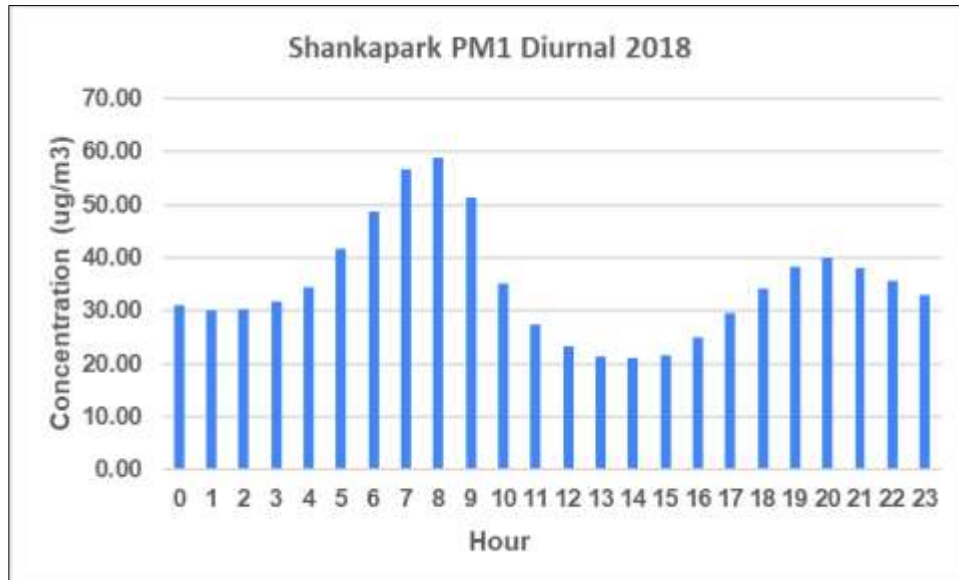


Figure 34: Diurnal variation of PM₁

2.2.3 Temporal Variation of PM_{2.5}

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Shankapark station was found to be $38.98 \mu\text{g}/\text{m}^3$. Histogram of hourly average PM_{2.5} is shown in the figure below.

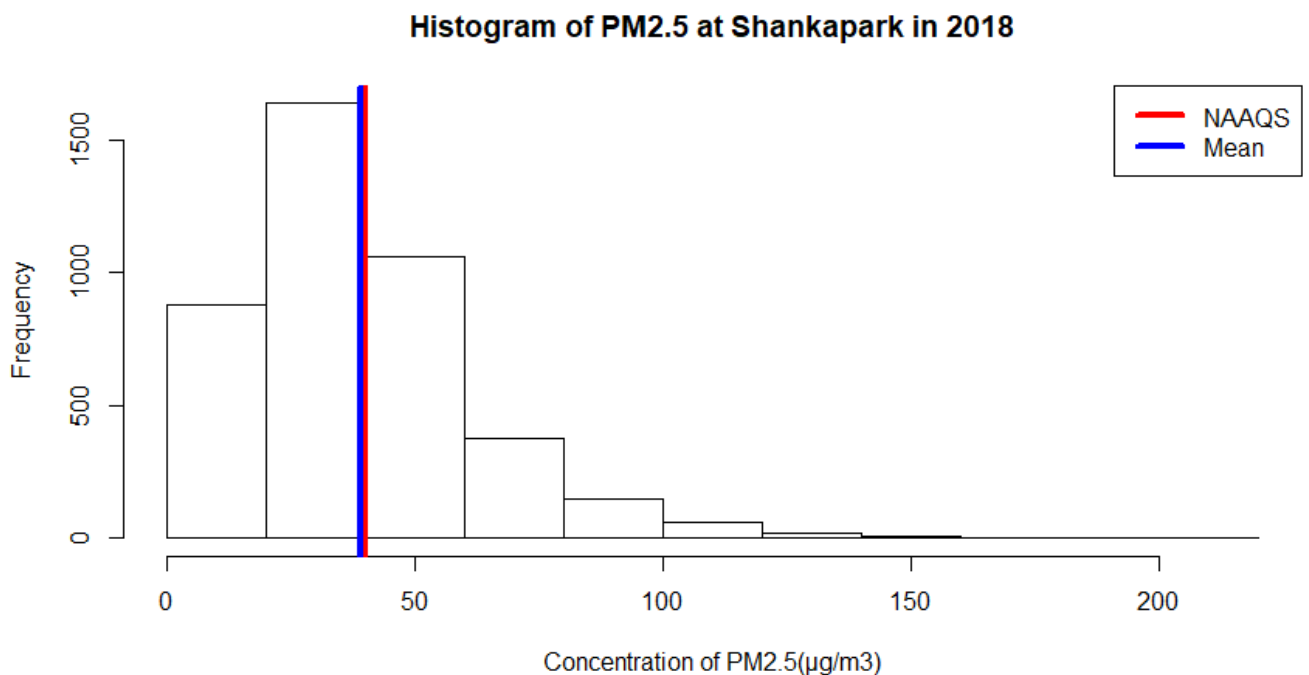


Figure 35 : Histogram of PM_{2.5}

Daily average of PM_{2.5}

Daily average concentration of PM_{2.5} was found to be high during March and low during June.

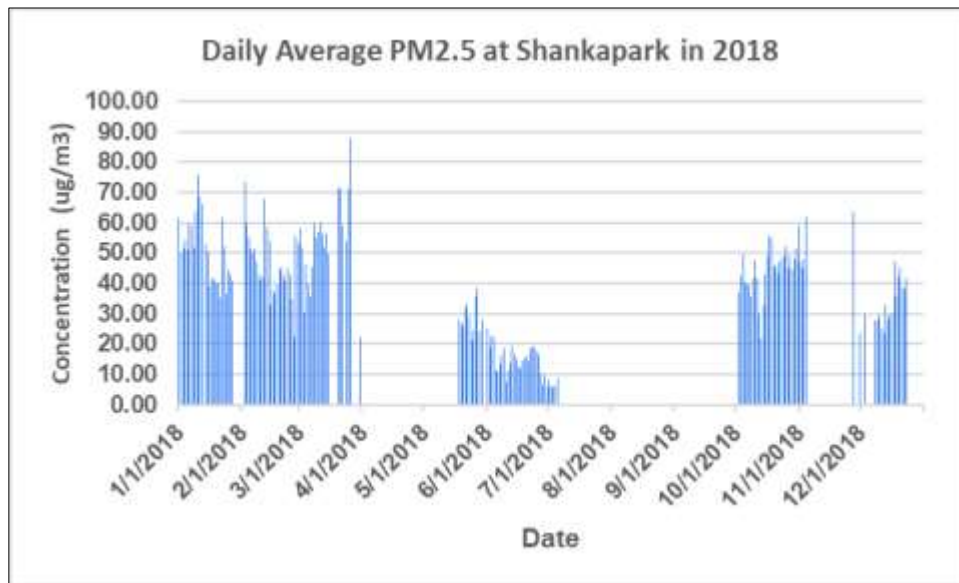


Figure 36: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest concentration of PM_{2.5} was found during March and July respectively. The mean value for those months were found to be 54.12 and 7.01 µg/m³ respectively.

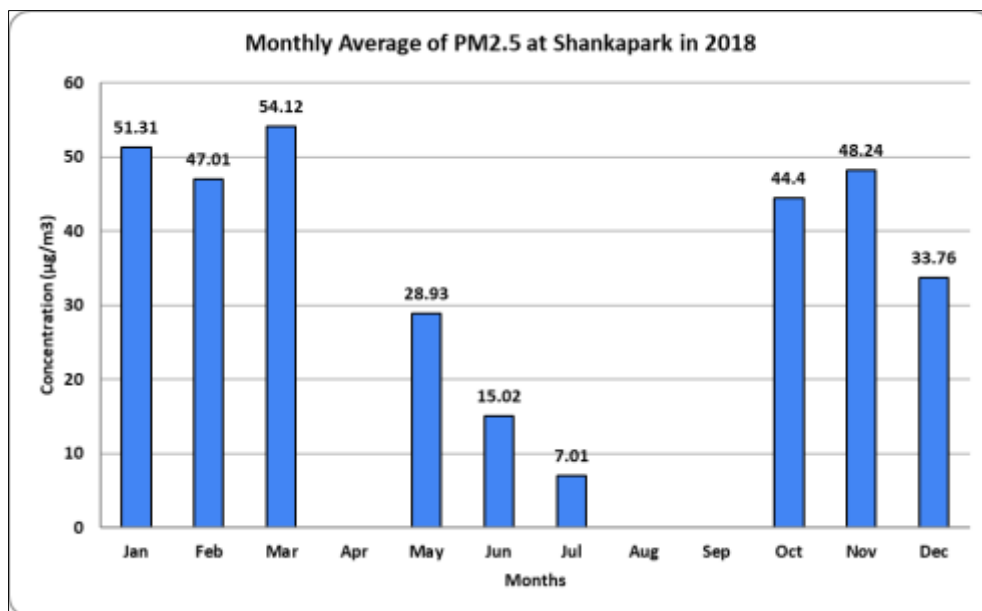


Figure 37: Monthly Average of PM_{2.5}

Monthly Variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found as shown in figure below.

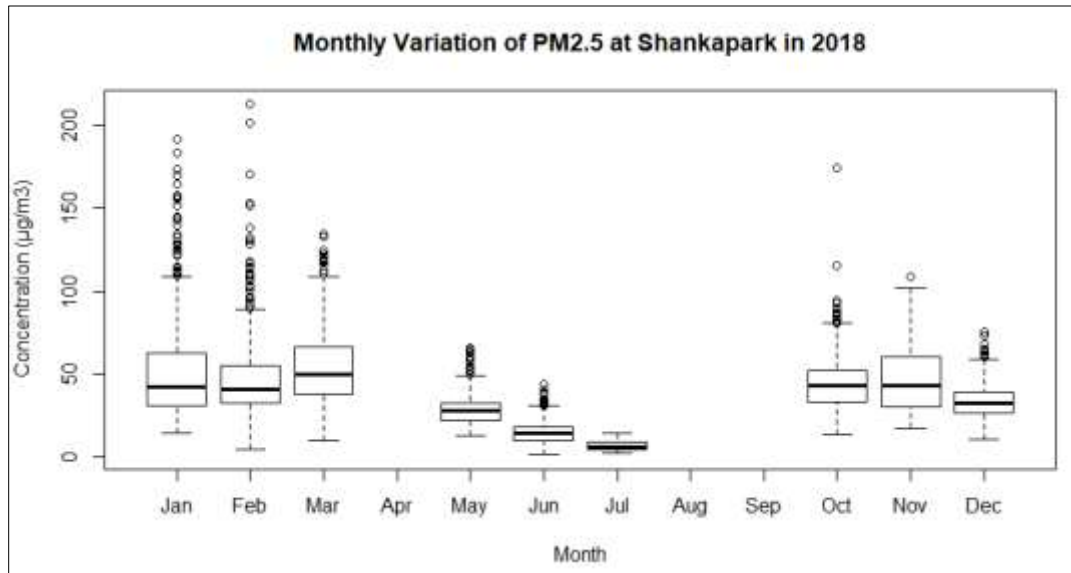


Figure 38: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Ambient concentration of average PM_{2.5} during winter, pre- monsoon, monsoon and post monsoon can be shown in the figure below. The concentration of PM_{2.5} was found higher during winter (55 µg/m³) and lower during monsoon season (11.01 µg/m³).

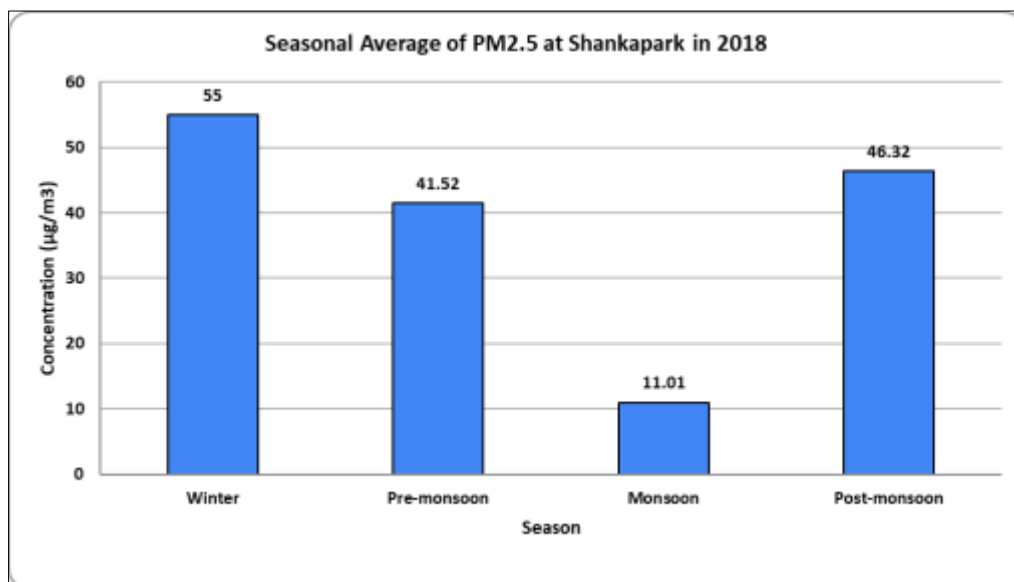


Figure 39: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations can be shown in the figure below which seems to have two peaks and two troughs in a day.

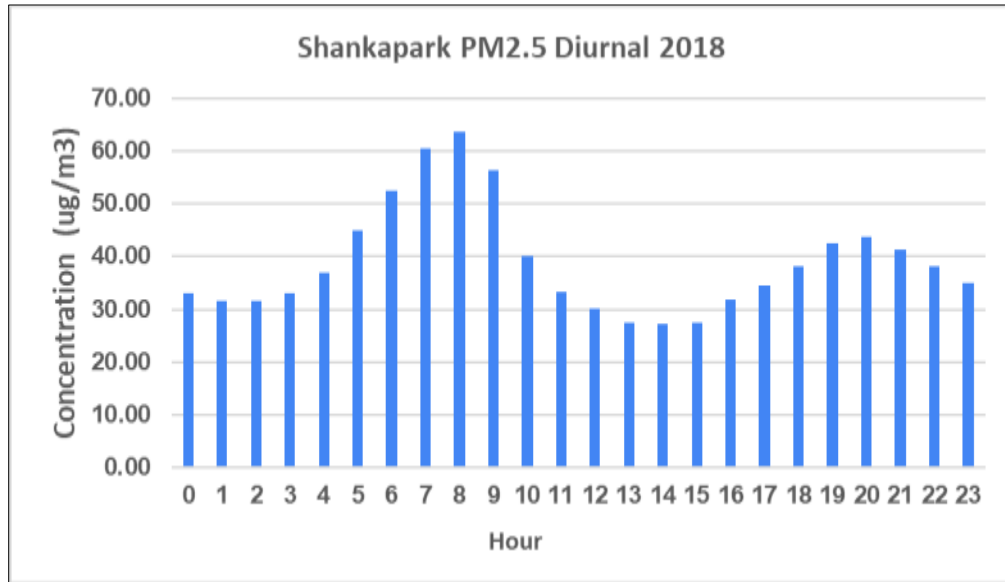


Figure 40: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2018 counts 175; of which 94 days exceed the NAAQS guideline as shown in figure below.

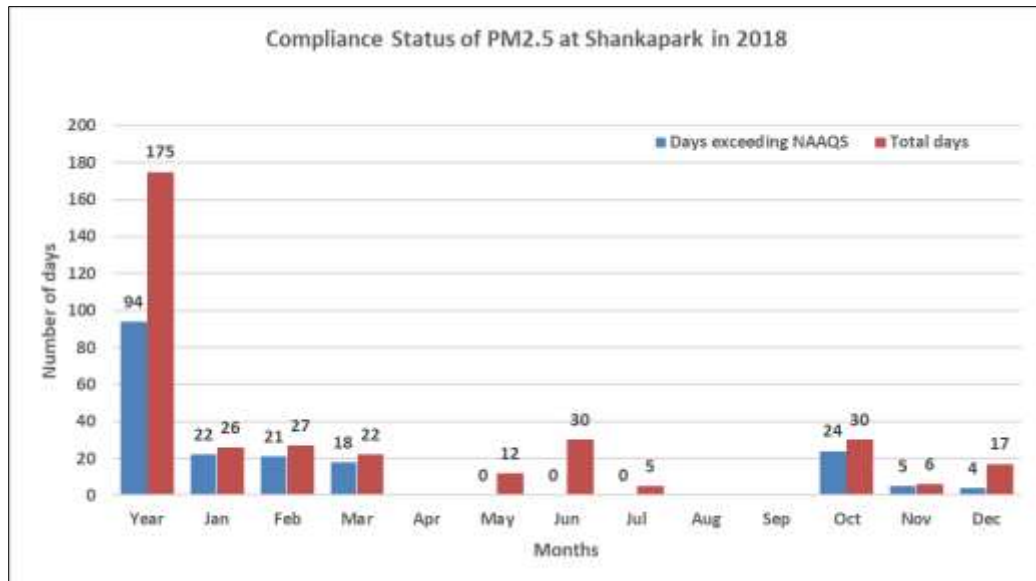


Figure 41: Compliance status of PM_{2.5}

2.2.4 Temporal Variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Shankapark station was found to be 62.99 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below.

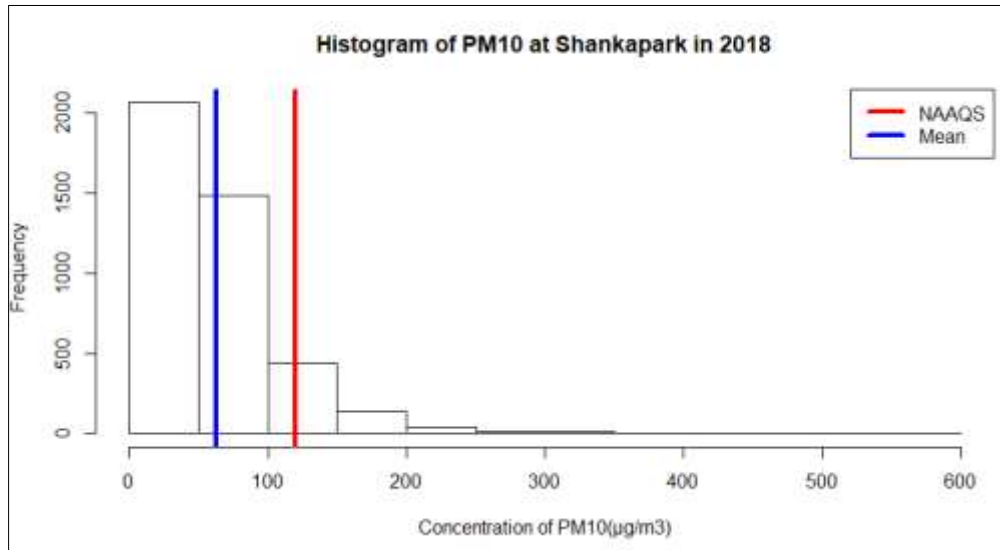


Figure 42 : Histogram for the ambient concentration of PM₁₀

Daily average of PM₁₀:

Daily average concentration of PM₁₀ was found to be high during November and low during July.

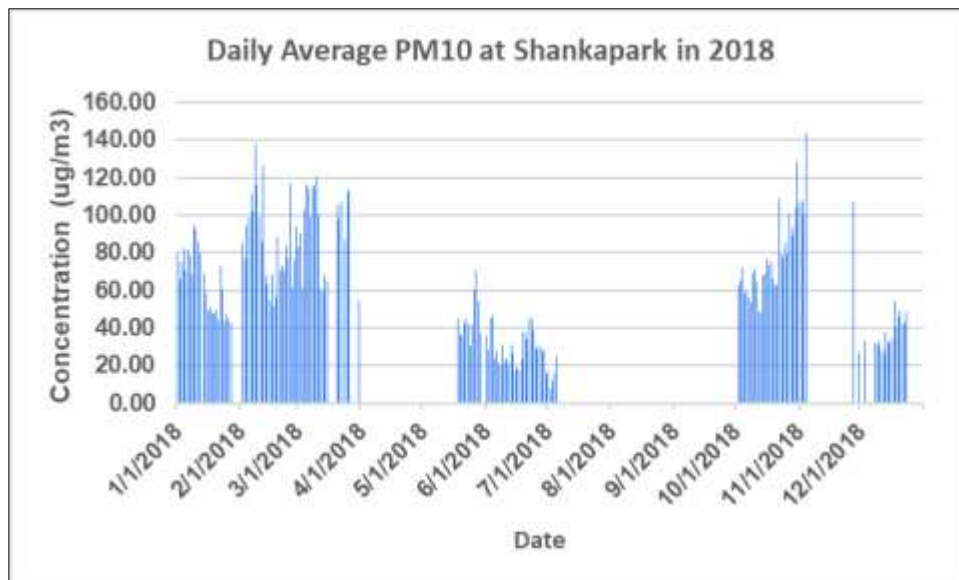


Figure 43: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest concentration of PM₁₀ was found during February and August respectively. The mean value for those months were found to be 98.24 and 10.07 $\mu\text{g}/\text{m}^3$ respectively.

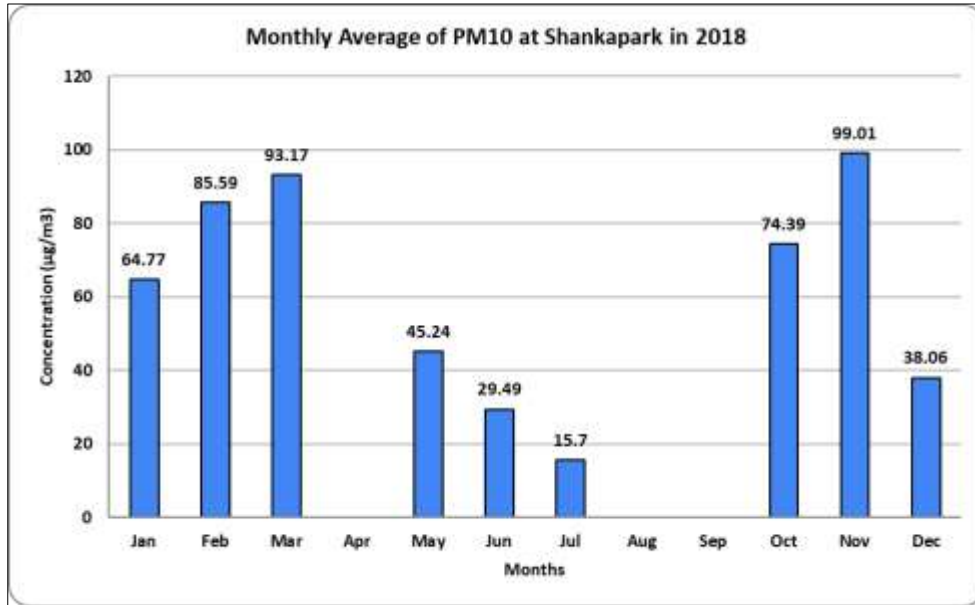


Figure 44: Monthly average of PM₁₀

Monthly Variation of PM₁₀

Variation in concentration of PM₁₀ was found as shown in figure below.

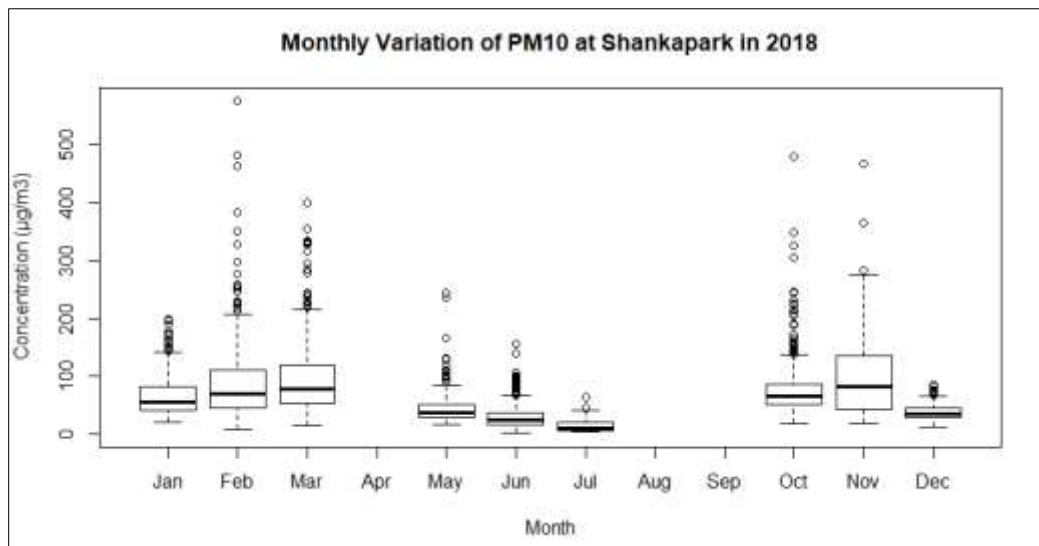


Figure 45: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

Ambient concentration of average PM₁₀ during winter, pre- monsoon, monsoon and post monsoon can be shown in the figure below. The concentration of PM₁₀ was found higher during post-monsoon (86.7 µg/m³) than monsoon season (22.59 µg/m³).

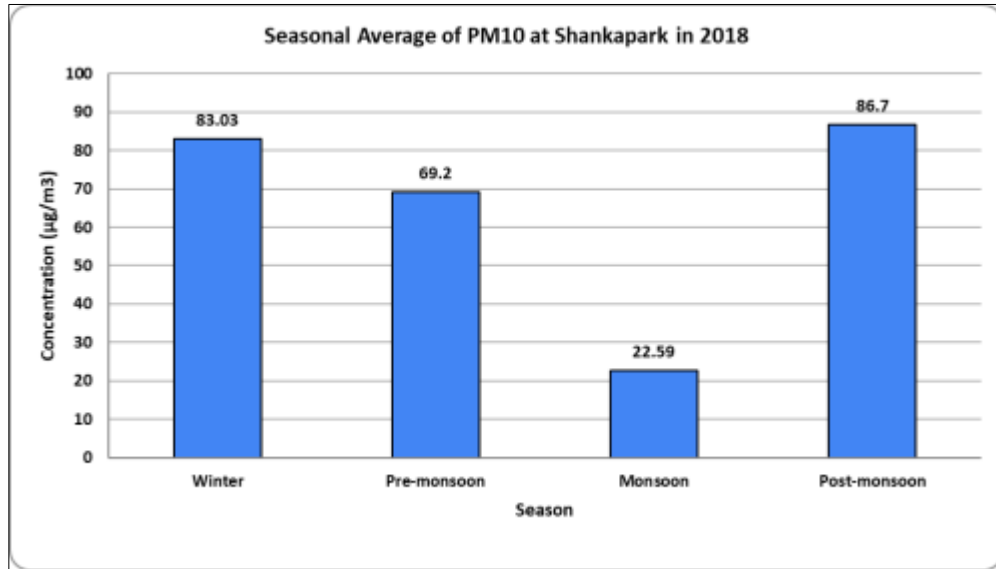


Figure 46: Seasonal variation of PM₁₀

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown in the figure below. The variation in PM₁₀ concentration was high at around 8am-4 pm.

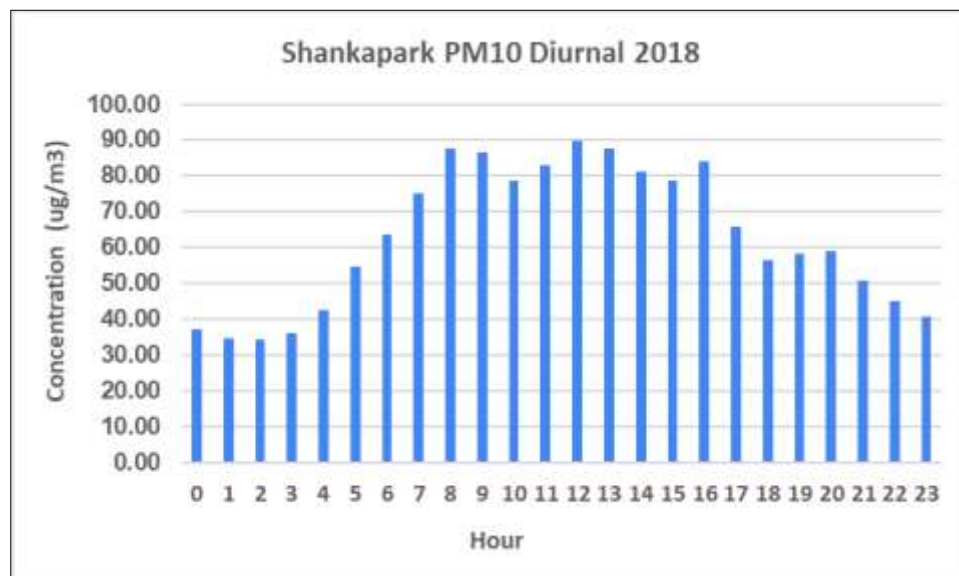


Figure 47: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2018 counts 175; of which 5 days exceed the NAAQS guideline as shown in figure below.

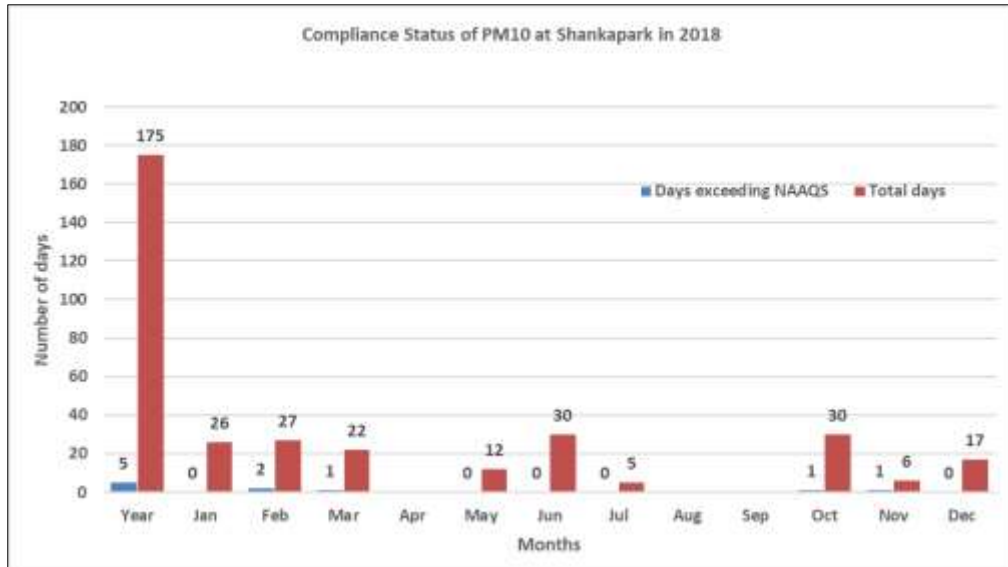


Figure 48: Compliance status of PM₁₀

2.2.5 Temporal Variation of TSP

Annual average of TSP

The annual average of TSP at Shankapark station was found to be 465.04 $\mu\text{g}/\text{m}^3$. Histogram of hourly average TSP is shown in the figure below.

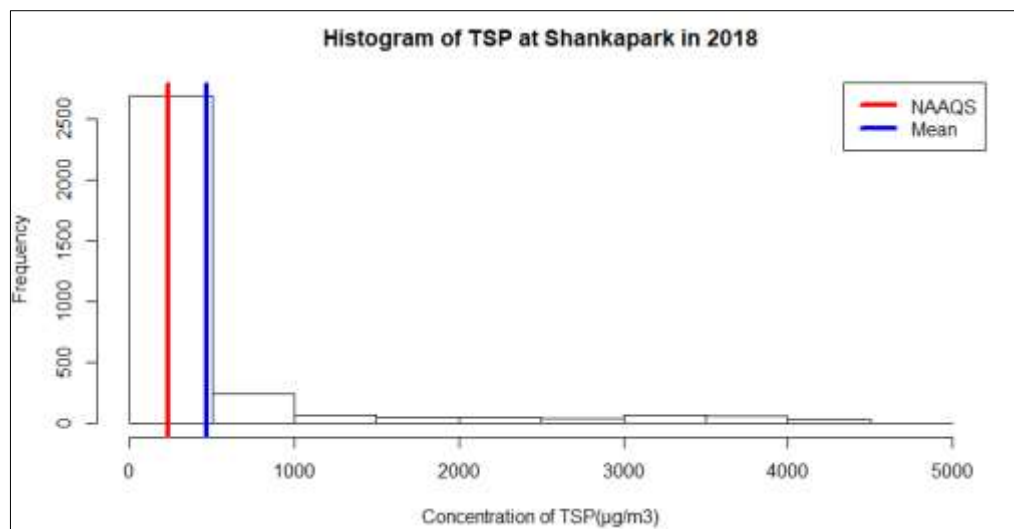


Figure 49 : Histogram for the ambient concentration of TSP

Daily average of TSP

Daily average concentration of TSP was found to be high during May and low during December.

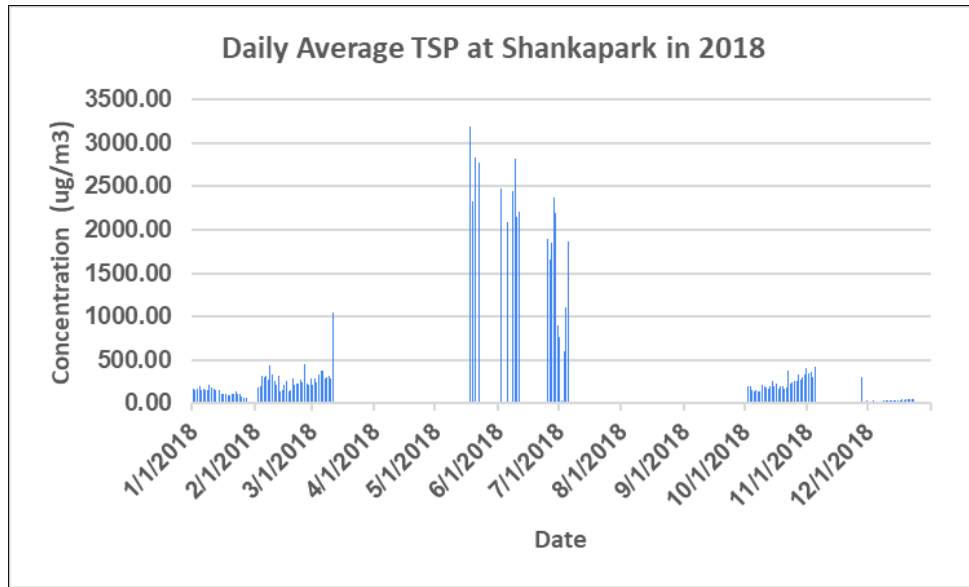


Figure 50: Daily average of TSP

Monthly average of TSP

The highest and the lowest concentration of TSP was found during May and December respectively. The mean value for those months were found to be 2783.61 and 39.13 $\mu\text{g}/\text{m}^3$ respectively.

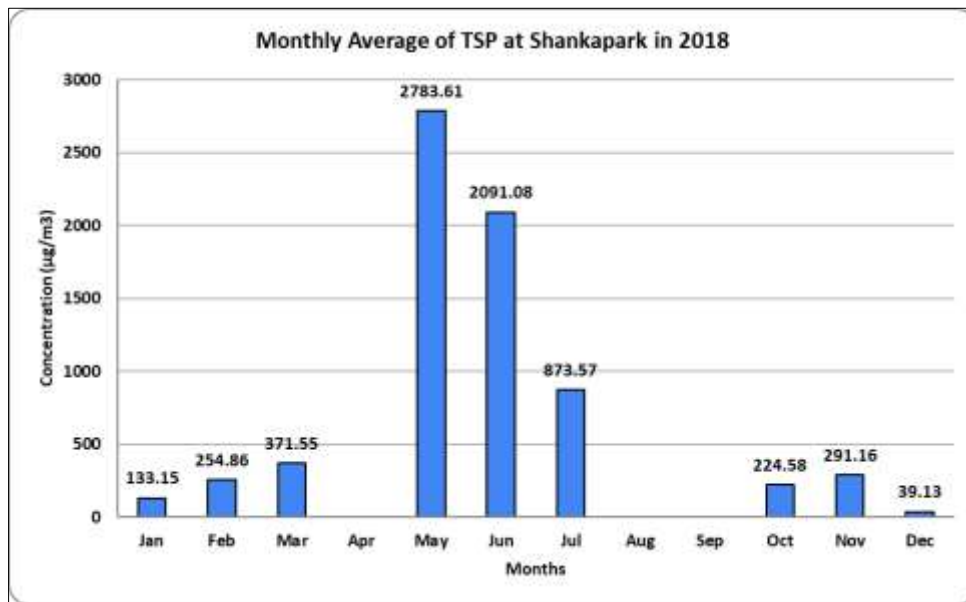


Figure 51: Monthly Average of TSP

Monthly Variation of TSP

Variation in concentration of TSP was found as shown in figure below.

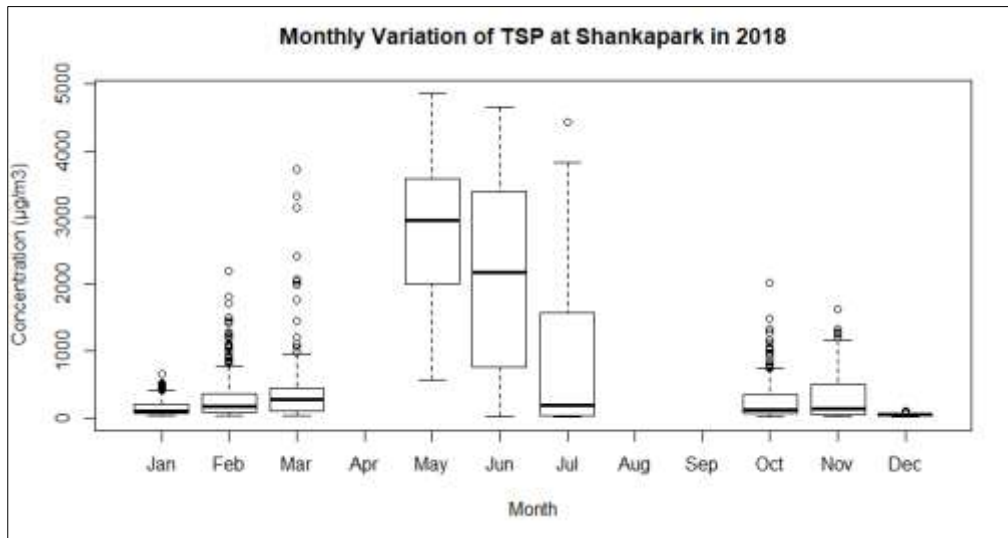


Figure 52: Monthly Variation of TSP

Seasonal variation of average TSP concentration

Ambient concentration of average TSP during winter, pre-monsoon, monsoon and post monsoon can be shown in the figure below. The concentration of TSP was found higher during pre-monsoon ($1577.58\mu\text{g}/\text{m}^3$) than winter season ($209.19\mu\text{g}/\text{m}^3$) figure below.

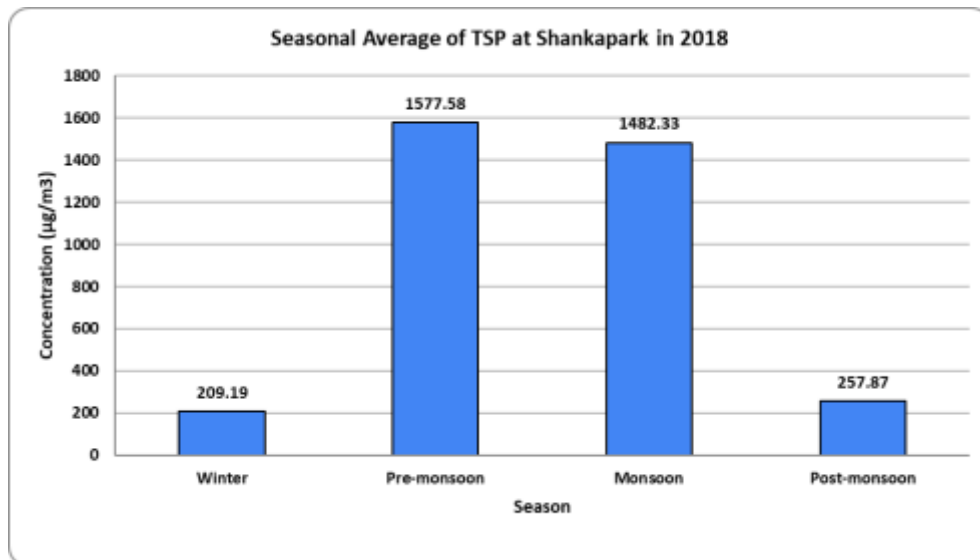


Figure 53: Seasonal variation of TSP

Diurnal variation of average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the figure below. The variation in TSP concentration was high at around 10 am-4 pm.

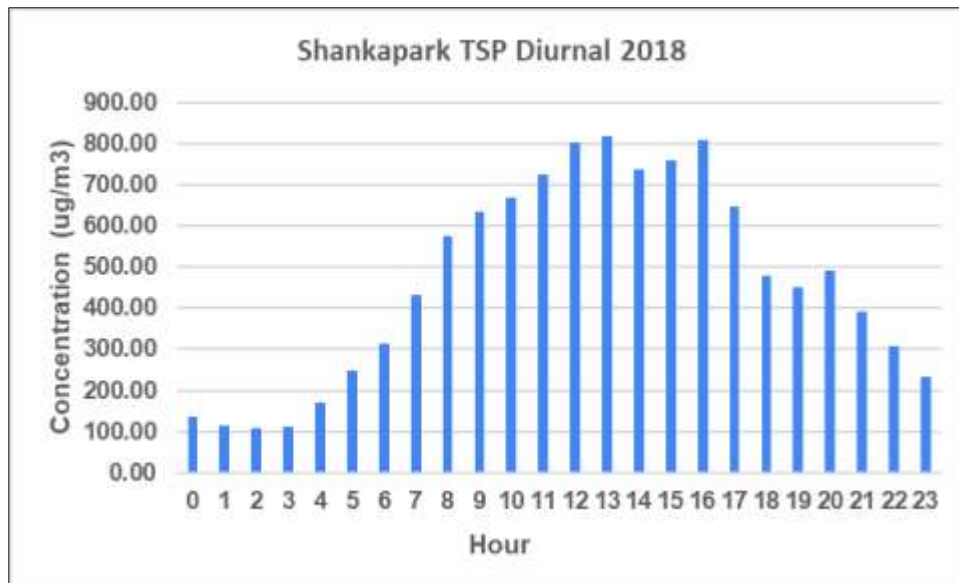


Figure 54: Diurnal Variation of TSP

Compliance status of TSP

The total days of TSP monitored in the year 2018 counts 138; of which 59 days exceed the NAAQS guideline as shown in figure below.

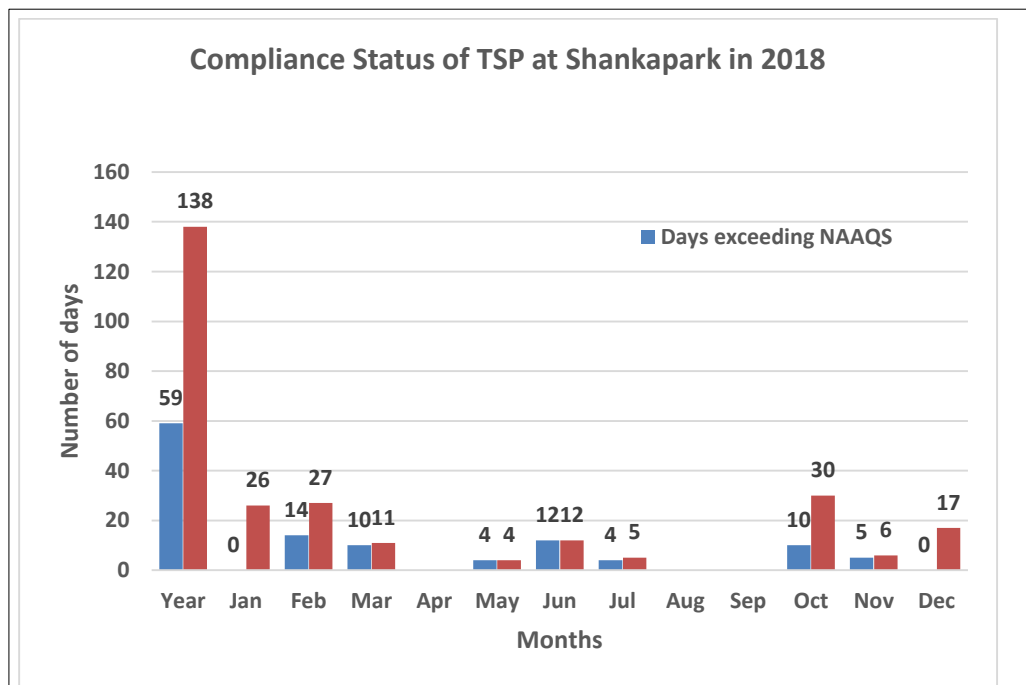


Figure 55: Compliance status of TSP

2.3 Air quality status, 2019

2.3.1 Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP

The annual average of PM₁, PM_{2.5}, PM₁₀ and TSP of the Shankapark monitoring station was calculated as shown in figure below.

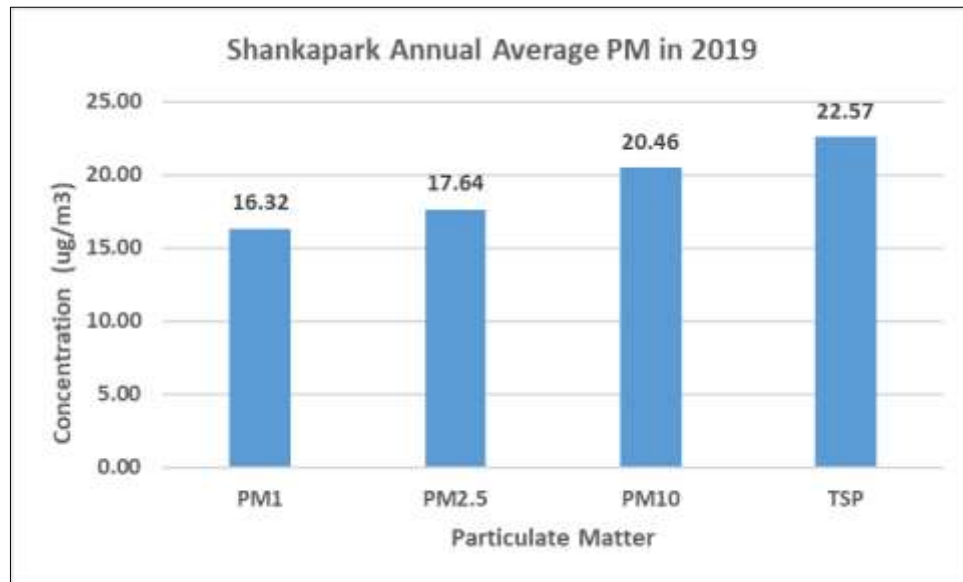


Figure 56: Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP in 2019

2.3.2 Temporal Variation of PM₁

Annual average of PM₁

The annual average of PM₁ at Shankapark station was found to be 16.32 µg/m³. Histogram of hourly average PM₁ is shown in the figure below.

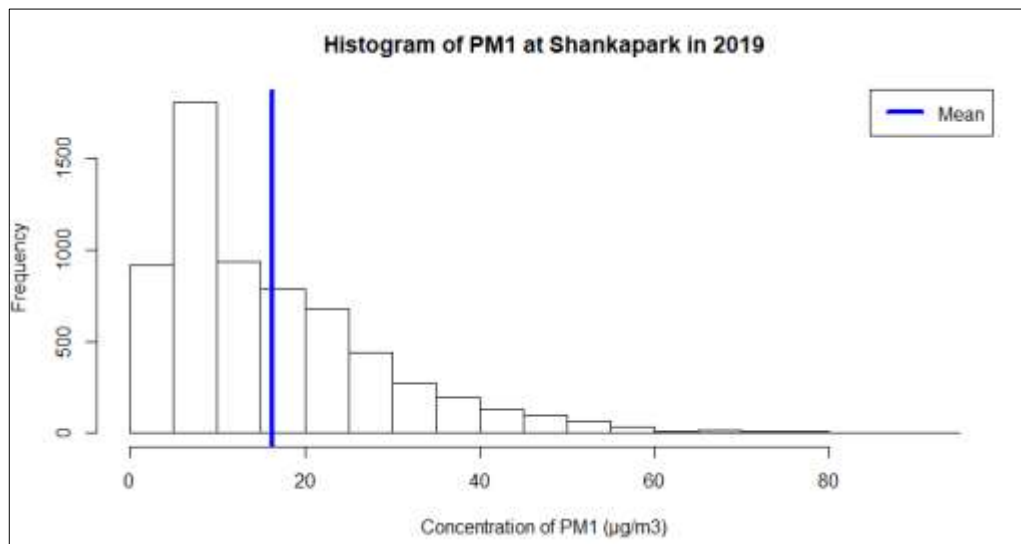


Figure 57 : Histogram of PM₁.

Daily average of PM₁

Daily average concentration of PM₁ was found to be high during December and low during October.

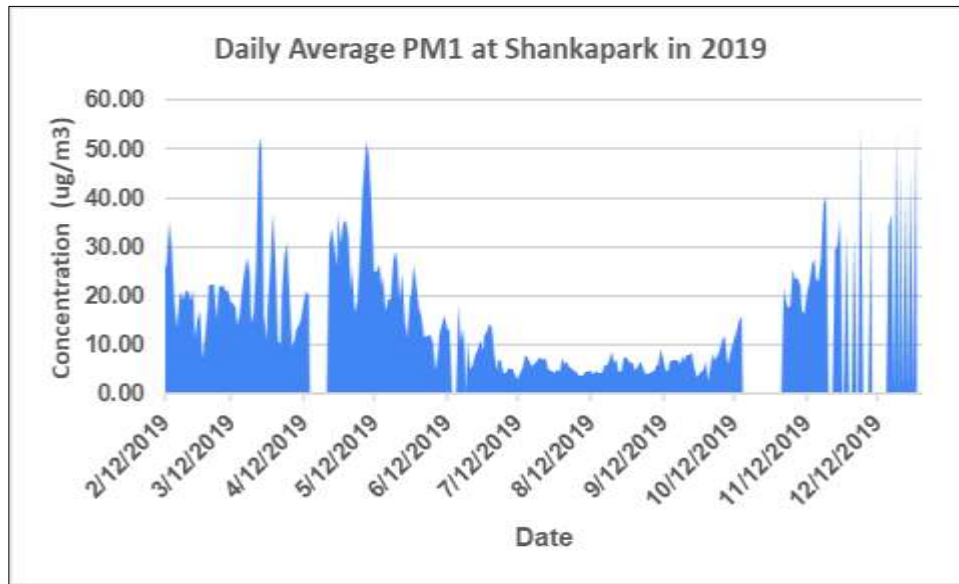


Figure 58: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest concentration of PM₁ was found during December and August respectively. The mean value for those months were found to be 44.03 and 5.5 $\mu\text{g}/\text{m}^3$ respectively.

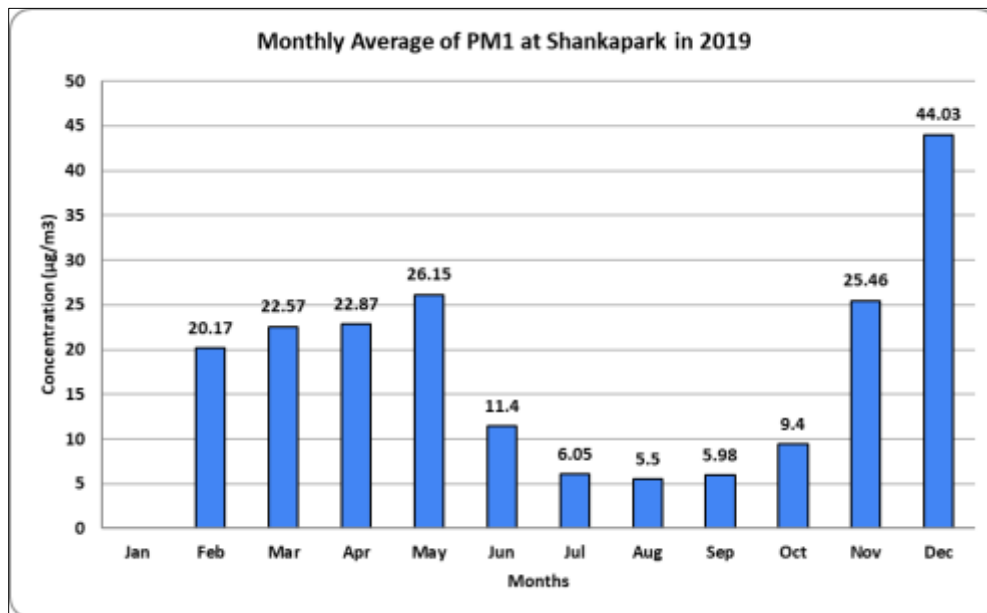


Figure 59: Monthly Average of PM₁

Monthly Variation of PM₁

Variation in concentration of PM₁ was found as shown in figure below.

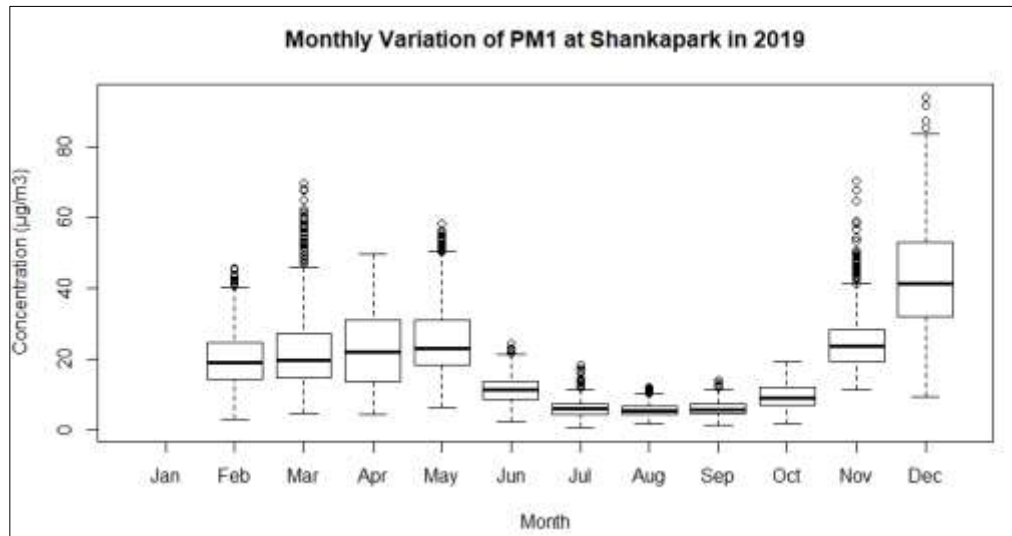


Figure 60: Monthly Variation of PM₁

Seasonal variation of PM₁ concentration

Ambient concentration of average PM₁ during winter and pre- monsoon can be shown in the **Error! Reference source not found.** below. The concentration of PM₁ was found higher during winter (25.84 µg/m³) than pre-monsoon season (7.23 µg/m³).

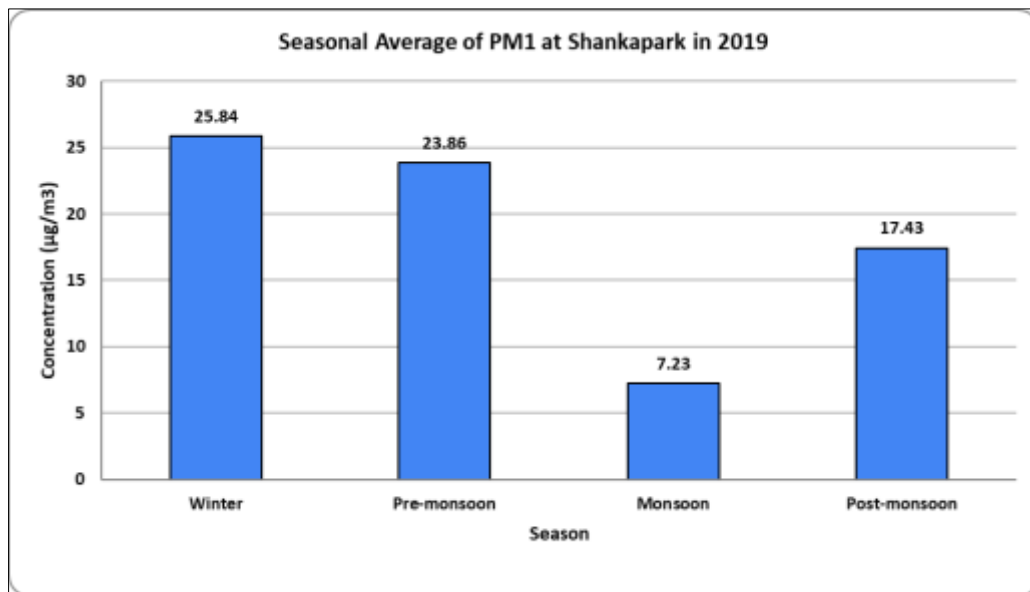


Figure 61: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the **Error! Reference source not found**.below. The variation in PM₁ concentration was high during morning and evening and low during afternoon and night with 2 peaks and 2 troughs in a day.

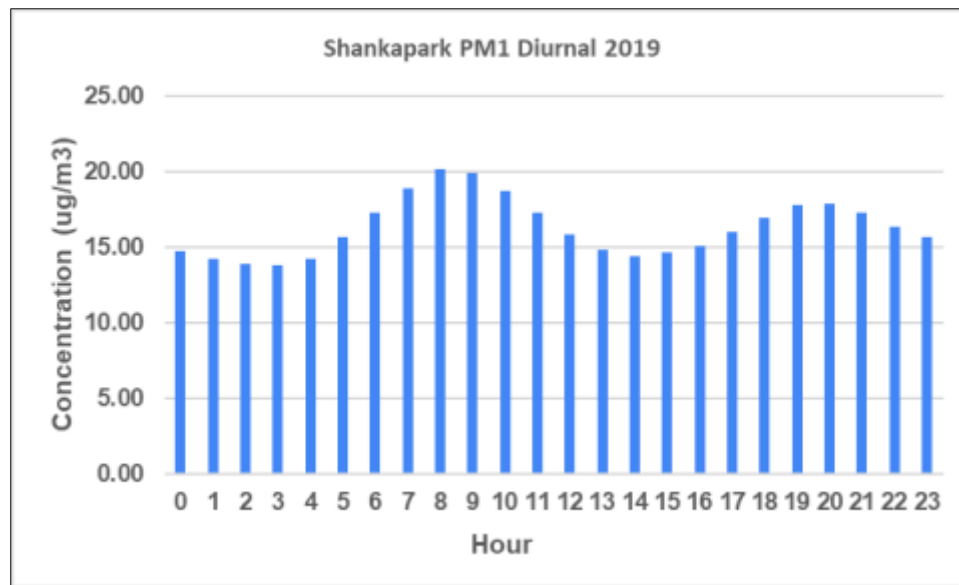


Figure 62: Diurnal variation of PM₁

2.3.3 Temporal variation of PM_{2.5}

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Shankapark station was found to be 17.64 µg/m³. Histogram of hourly average PM_{2.5} is shown in the figure below.

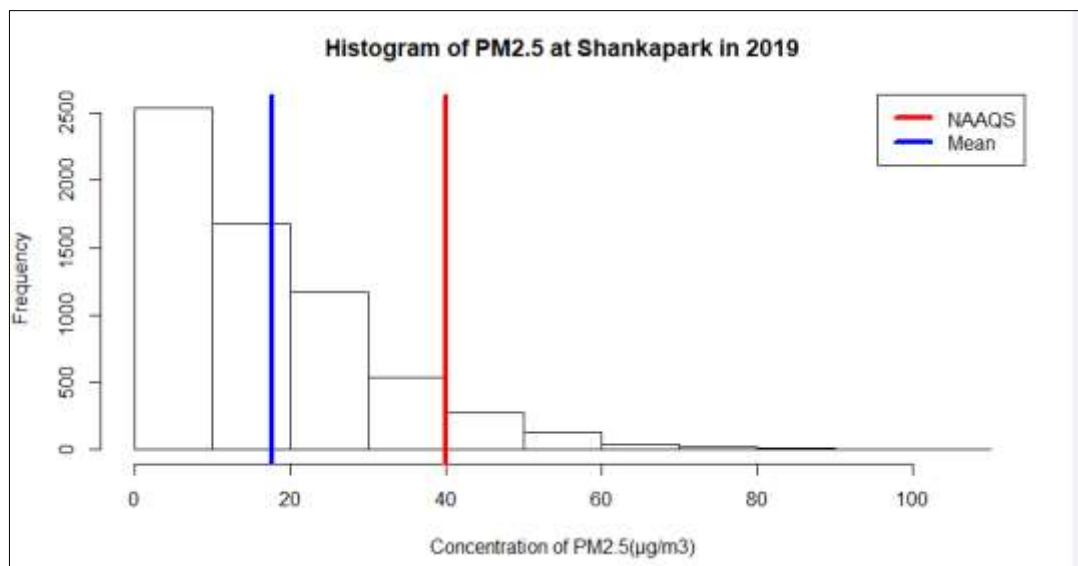


Figure 63 : Histogram of PM_{2.5}

Daily average of PM_{2.5}

Daily average concentration of PM_{2.5} was found to be high during December and low during October.

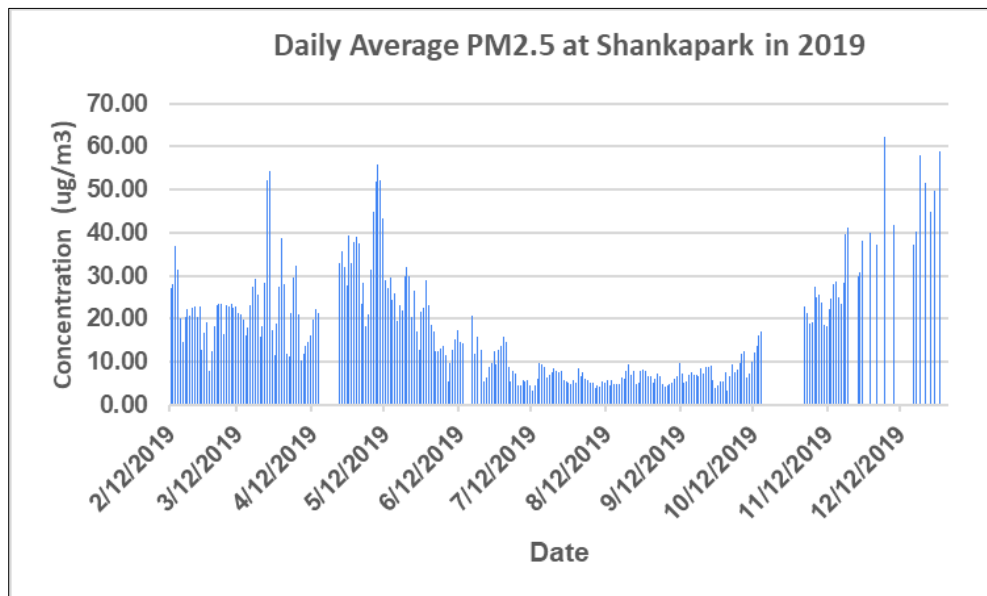


Figure 64: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest concentration of PM_{2.5} was found during December and August respectively. The mean value for those months were found to be 48.24 and 6.02 $\mu\text{g}/\text{m}^3$ respectively.

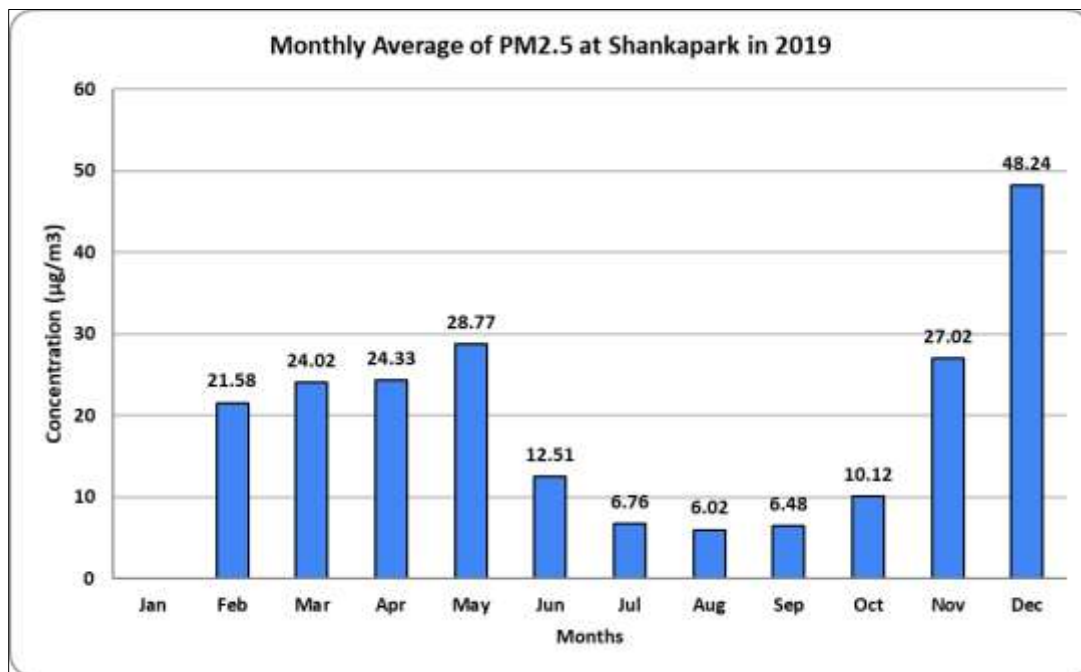


Figure 65: Monthly Average of PM_{2.5}

Monthly Variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found as shown in figure below.

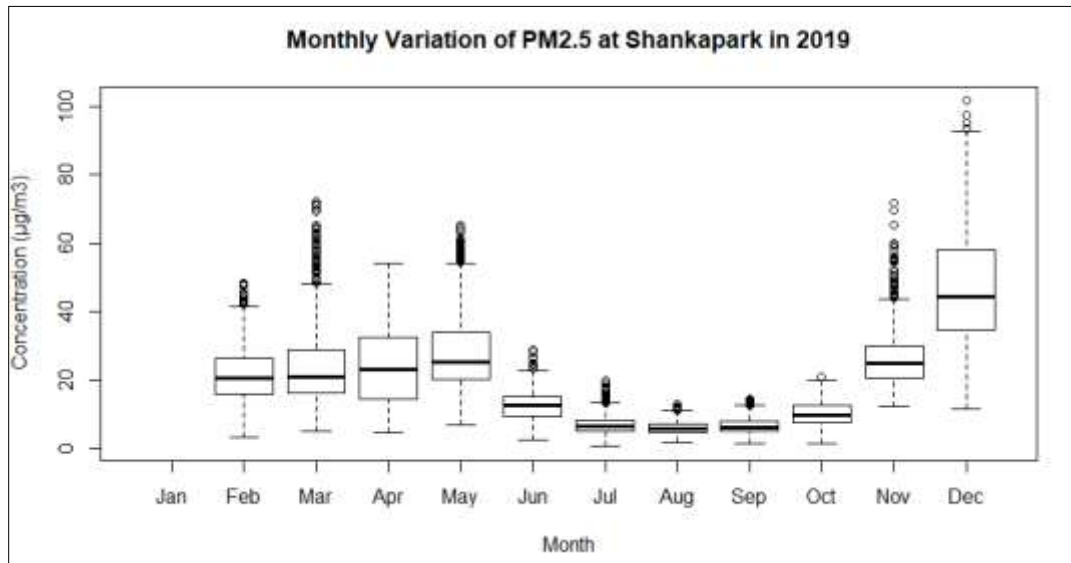


Figure 66: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Ambient concentration of average PM_{2.5} during winter and pre-monsoon can be shown in the figure below. The concentration of PM_{2.5} was found higher during winter (27.67 µg/m³) than monsoon season (7.94 µg/m³).

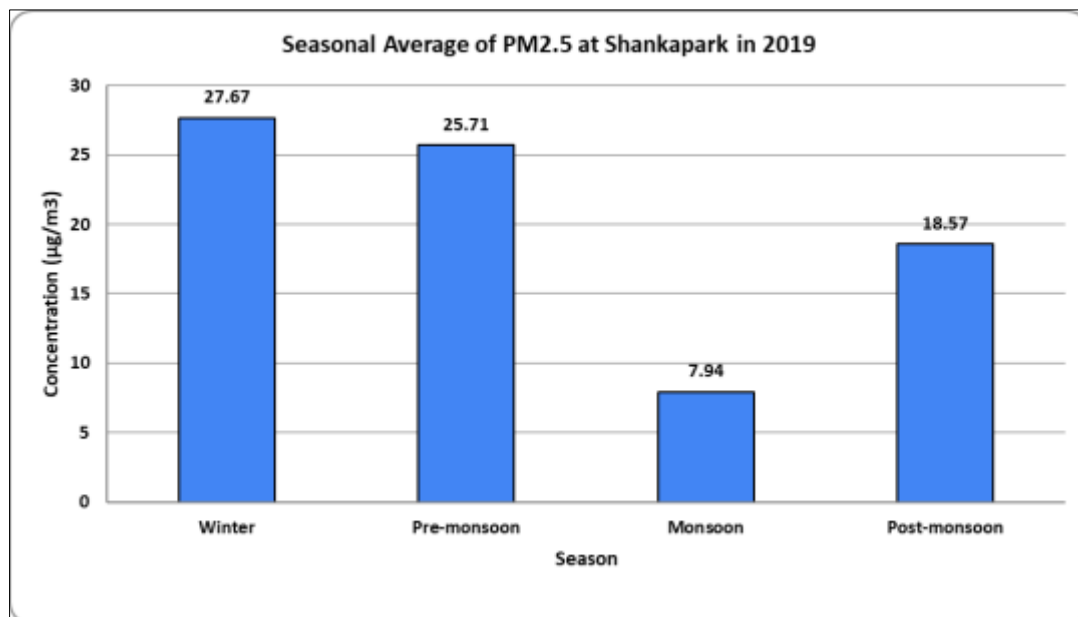


Figure 67: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations can be shown in the **Error! Reference source not found**.below. The variation in PM_{2.5} concentration was high during morning and evening with 2 peaks and low during afternoon and night with two troughs.

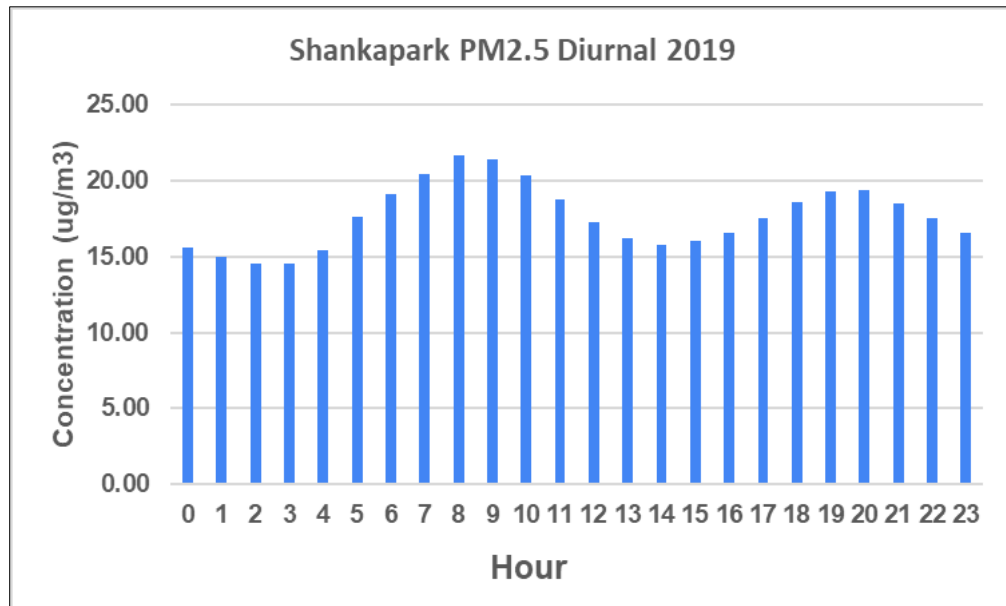


Figure 68: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2019 counts 267; of which 16 days exceed the NAAQS guideline as shown below.

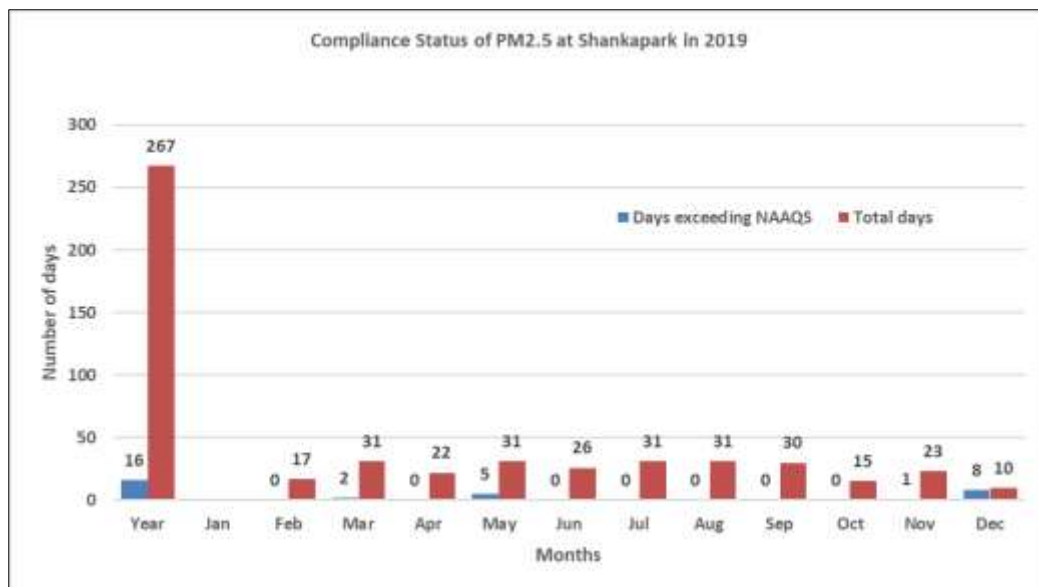


Figure 69: Compliance status of PM_{2.5}

2.3.4 Temporal variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Shankapark station was found to be 20.46 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below.

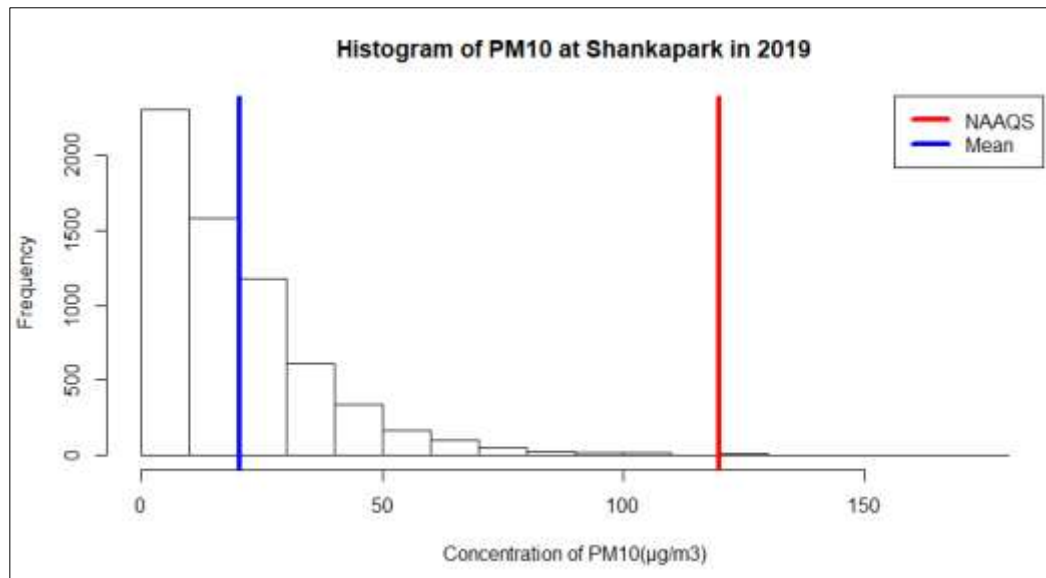


Figure 70 : Histogram for the ambient concentration of PM₁₀

Daily average of PM₁₀:

Daily average concentration of PM₁₀ was found to be high during December and low during July.

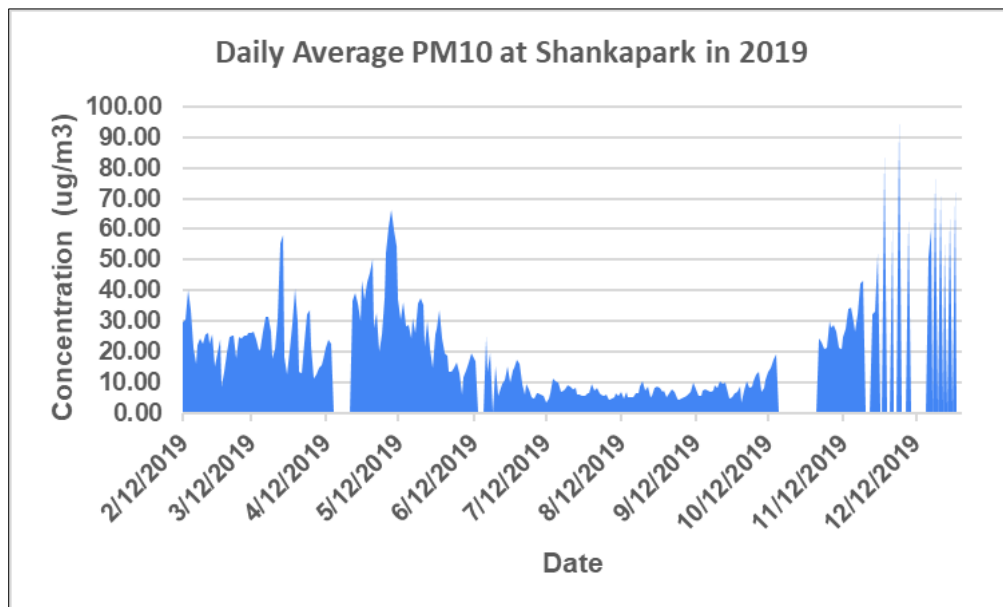


Figure 71: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest concentration of PM₁₀ was found during December and August respectively. The mean value for those months were found to be 66.51 and 6.63 $\mu\text{g}/\text{m}^3$ respectively.

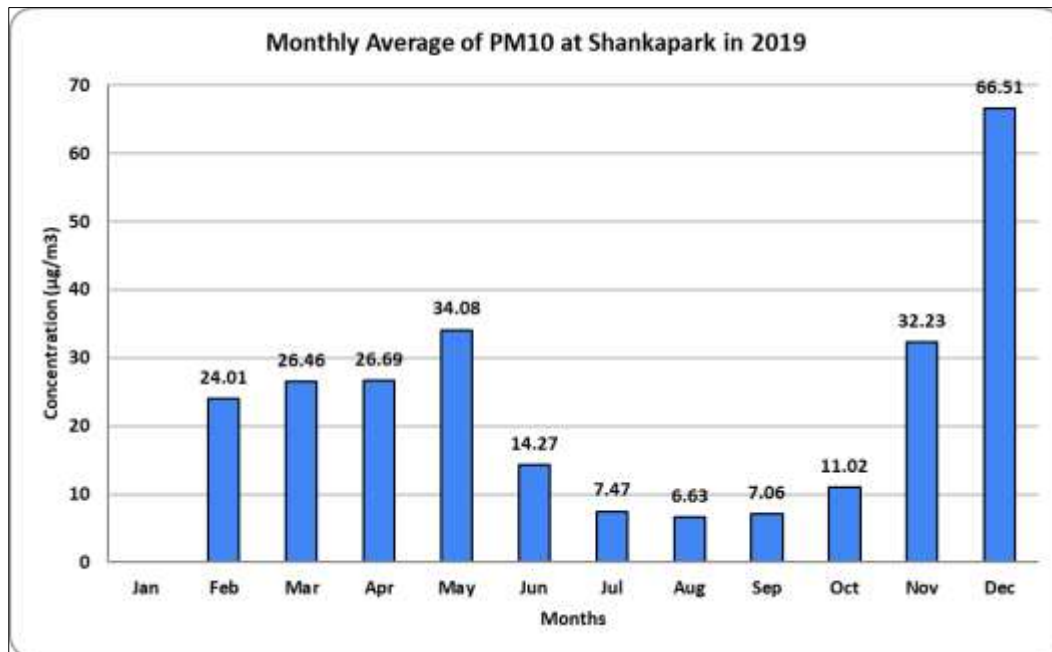


Figure 72: Monthly average of PM₁₀

Monthly Variation of PM₁₀

Variation in concentration of PM₁₀ was found as shown in figure below.

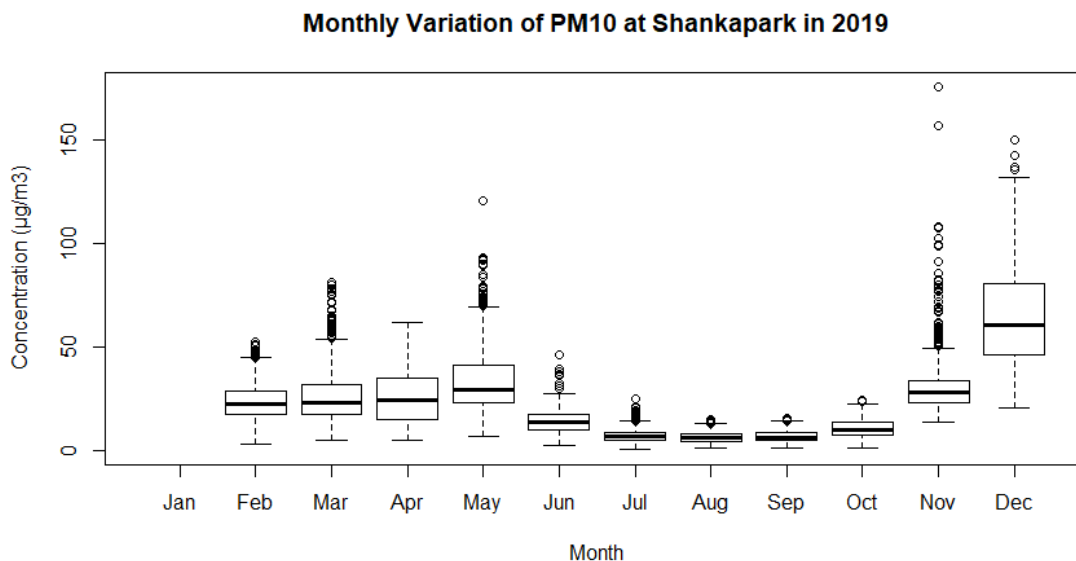


Figure 73: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

Ambient concentration of average PM₁₀ during winter and pre- monsoon can be shown in the figure below. The concentration of PM₁₀ was found higher during winter (31.04 µg/m³) than monsoon season (8.86 µg/m³).

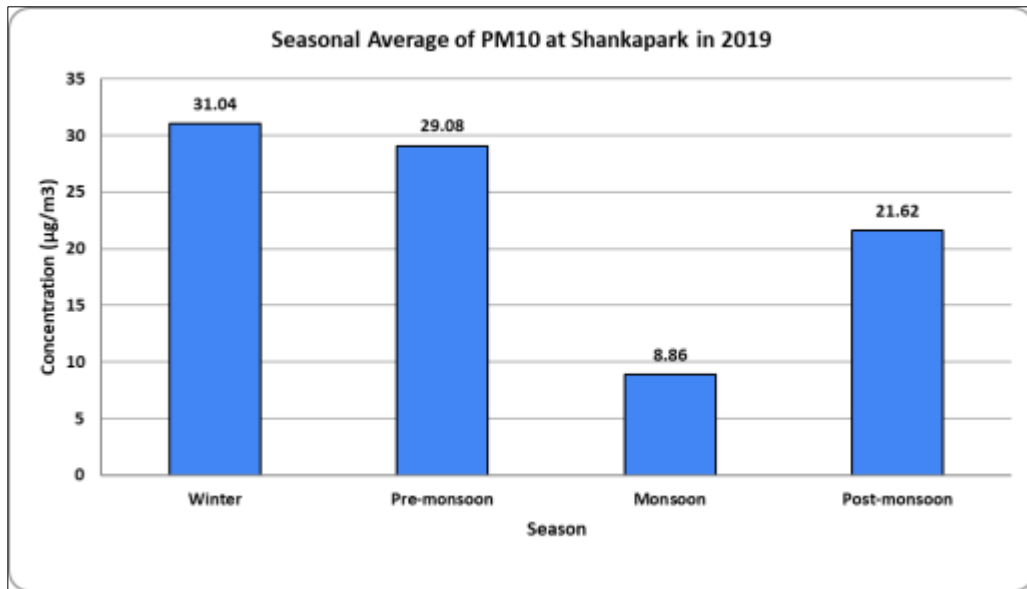


Figure 74: Seasonal variation of PM₁₀

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown in the figure below. The variation in PM₁₀ concentration was high at around 8-9 am and at 6 - 8 pm and low at 2 to 3 am.

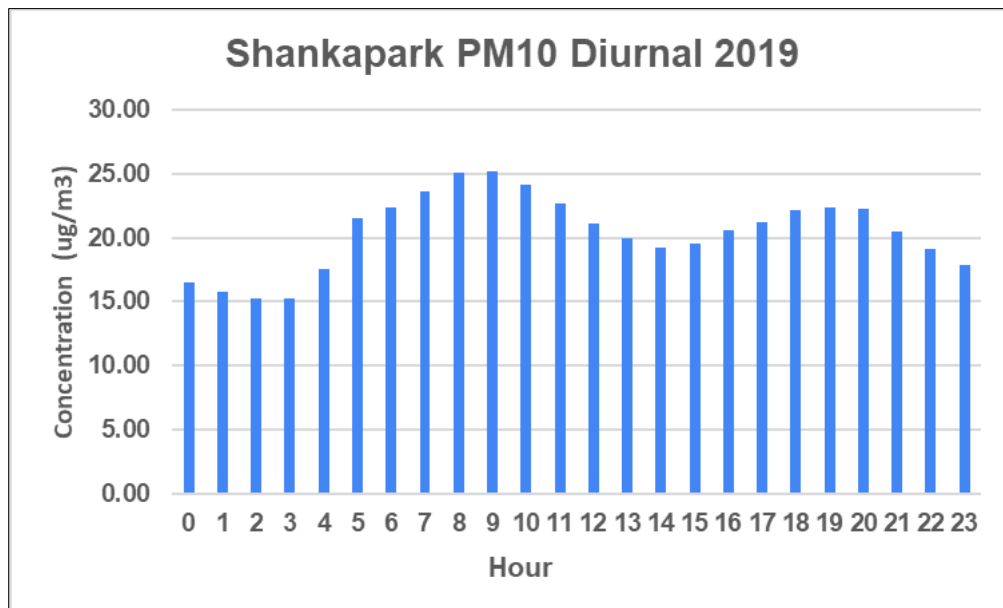


Figure 75: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2019 counts 267 of which no days exceed the NAAQS guideline as shown in figure below.

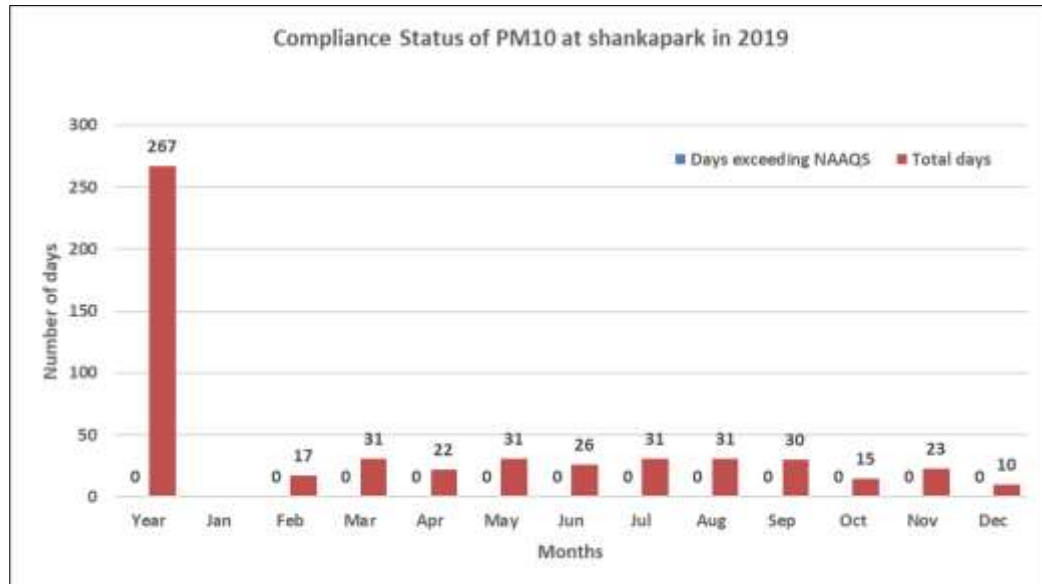


Figure 76: Compliance status of PM₁₀

2.3.5 Temporal variation of TSP

Annual average of TSP

The annual average of TSP at Shankapark station was found to be 22.57 $\mu\text{g}/\text{m}^3$. Histogram of hourly average TSP is shown in the figure below.

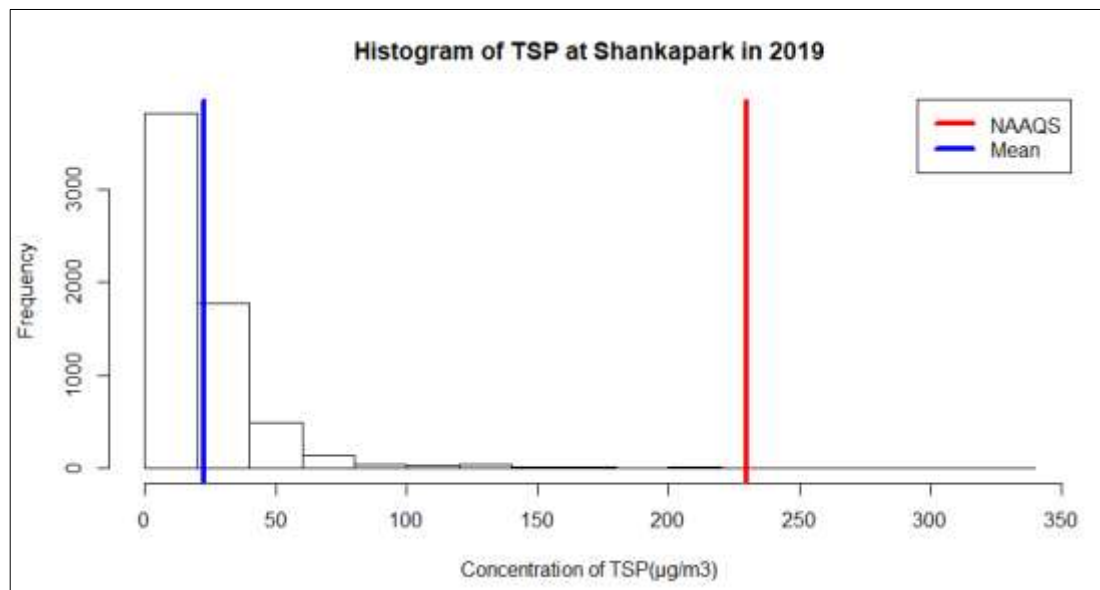


Figure 77 : Histogram for the ambient concentration of TSP

Daily average of TSP

Daily average concentration of TSP was high during December and was found low during July .

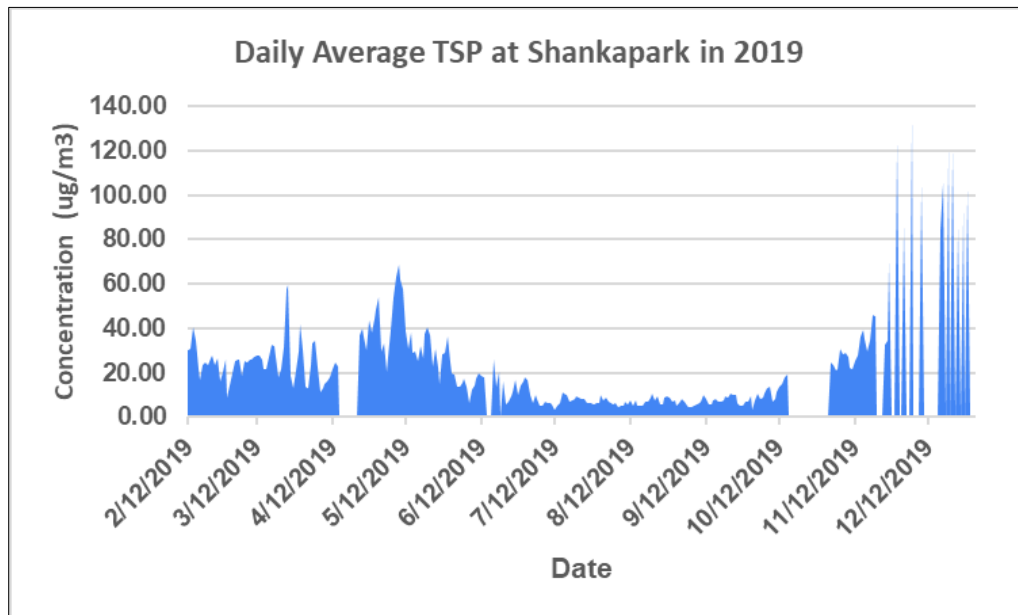


Figure 78: Daily average of TSP

Monthly average of TSP

The highest and the lowest concentration of TSP was found during December and August respectively. The mean value for those months were found to be 102.59 and 6.76 $\mu\text{g}/\text{m}^3$ respectively.

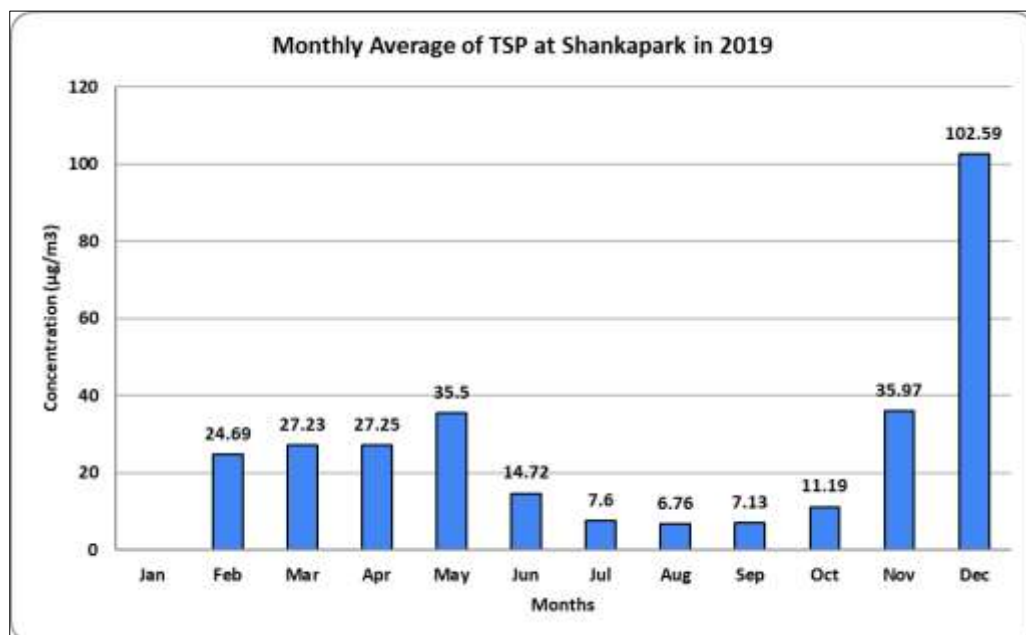


Figure 79: Monthly Average of TSP

Monthly Variation of TSP

Variation in concentration of TSP was found as shown in figure below.

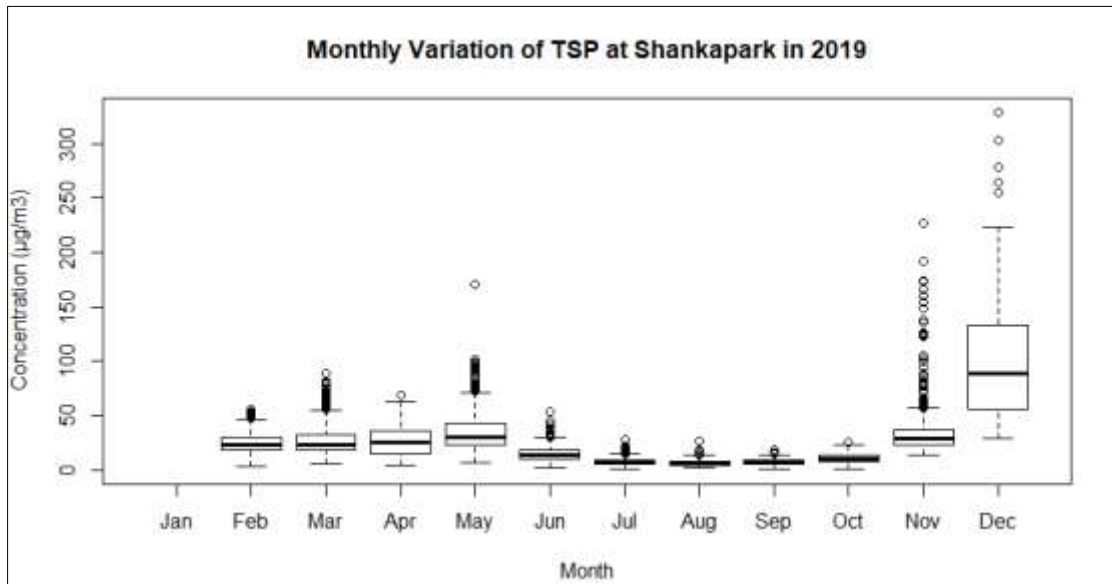


Figure 80: Monthly Variation of TSP

Seasonal variation of average TSP concentration

Ambient concentration of average TSP can be shown in the figure below. The concentration of TSP was found higher during winter ($31.91 \mu\text{g}/\text{m}^3$) than monsoon season ($9.05 \mu\text{g}/\text{m}^3$).

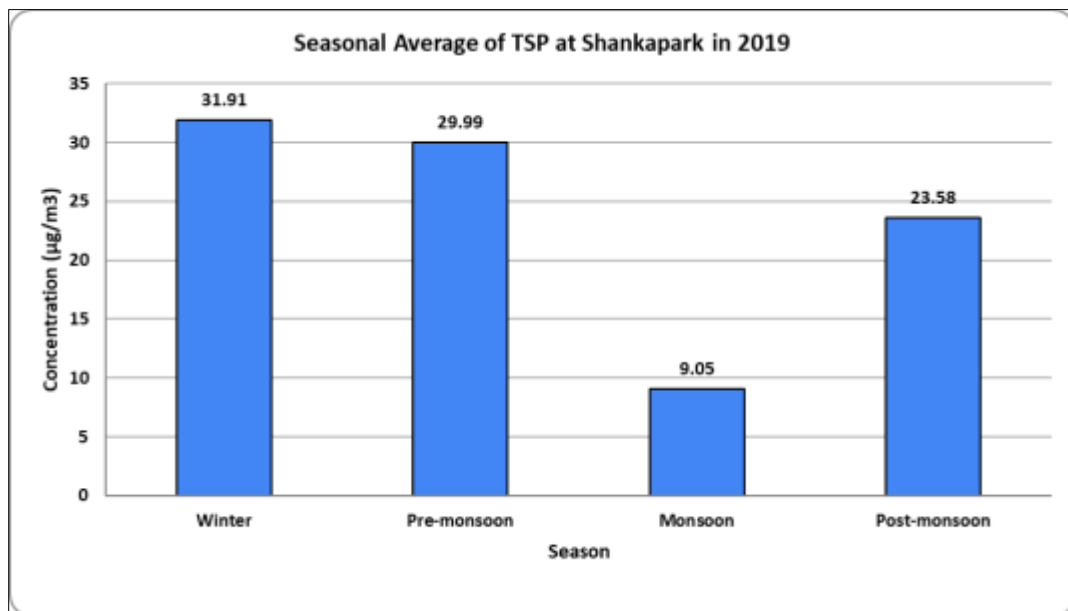


Figure 81: Seasonal variation of TSP

Diurnal variation of average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the figure below. The variation in TSP concentration was high during morning and lowest during night.

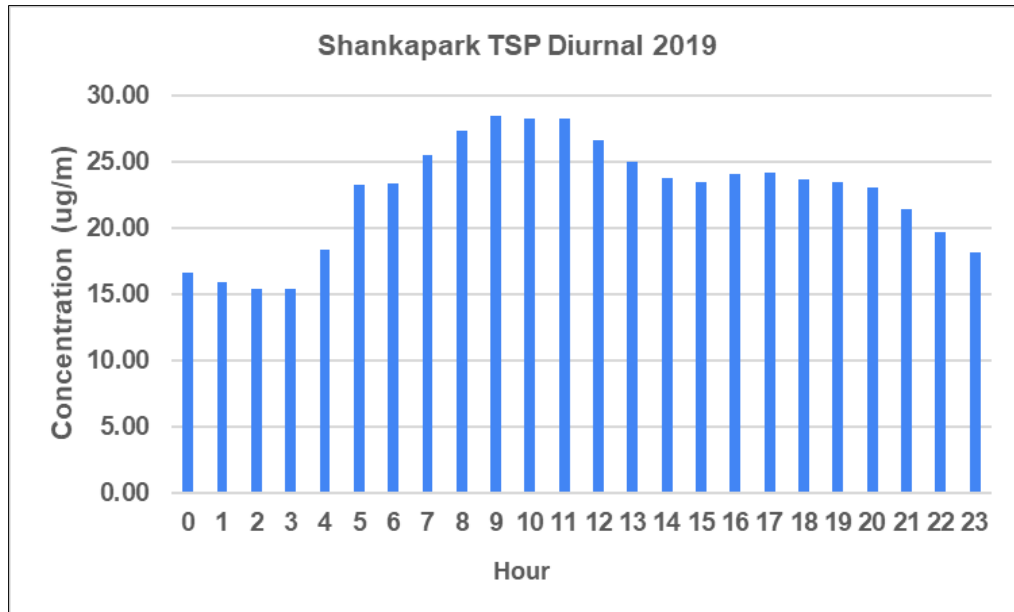


Figure 82: Diurnal Variation of TSP

Compliance status of TSP

The total days of TSP monitored in the year 2019 counts 267; of which no days exceed the NAAQS guideline as shown in figure below.

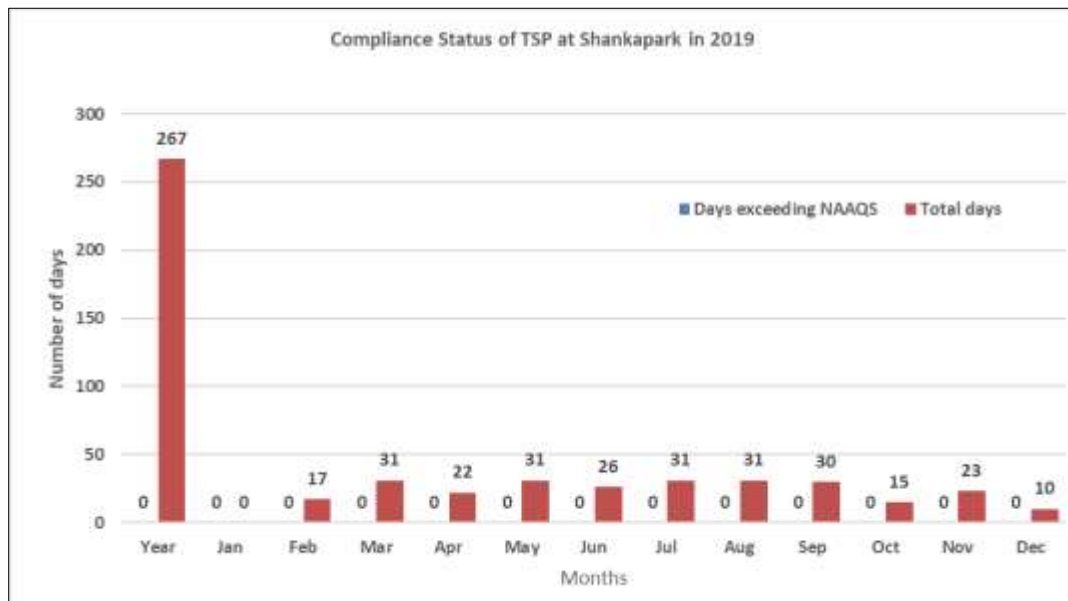


Figure 83: Compliance status of TSP

2.4 Air quality status, 2020

2.4.1 Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP

The annual average of PM₁, PM_{2.5}, PM₁₀ and TSP of the Shankapark monitoring station was calculated as shown in figure below.

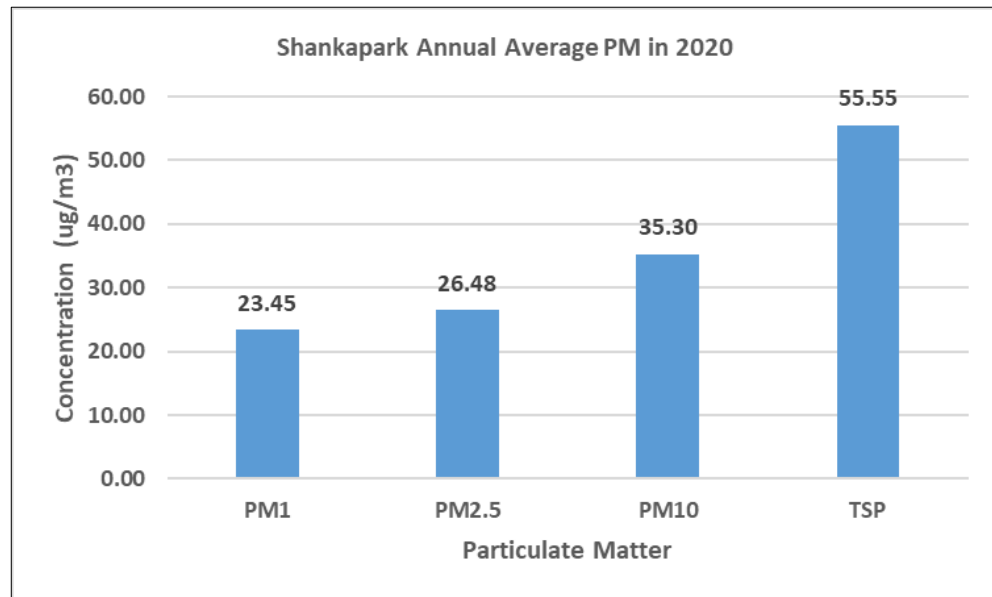


Figure 84: Annual average of PM₁, PM_{2.5}, PM₁₀ and TSP in 2020

2.4.2 Temporal variation of PM₁

Annual average of PM₁

The annual average of PM₁ at Shankapark station was found to be $23.45\mu\text{g}/\text{m}^3$. Histogram of hourly average PM₁ is shown in the figure below.

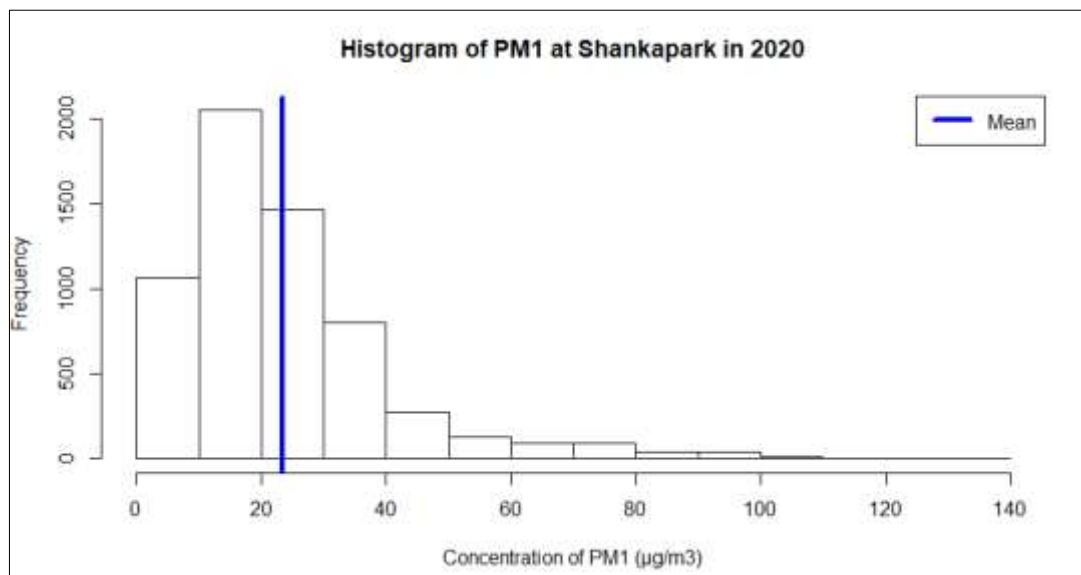


Figure 85 : Histogram of PM₁

Daily average of PM₁

Daily average concentration of PM₁ was found to be high during April and low during August.

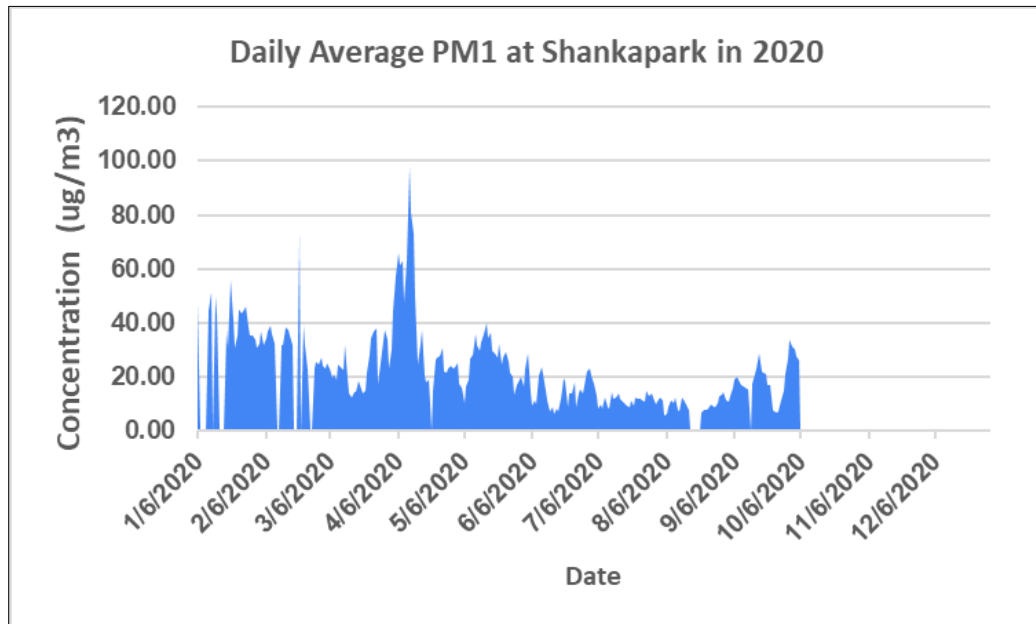


Figure 86: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest concentration of PM₁ was found during January and August respectively. The mean value for those months were found to be 41.93 and 9.65 $\mu\text{g}/\text{m}^3$ respectively.

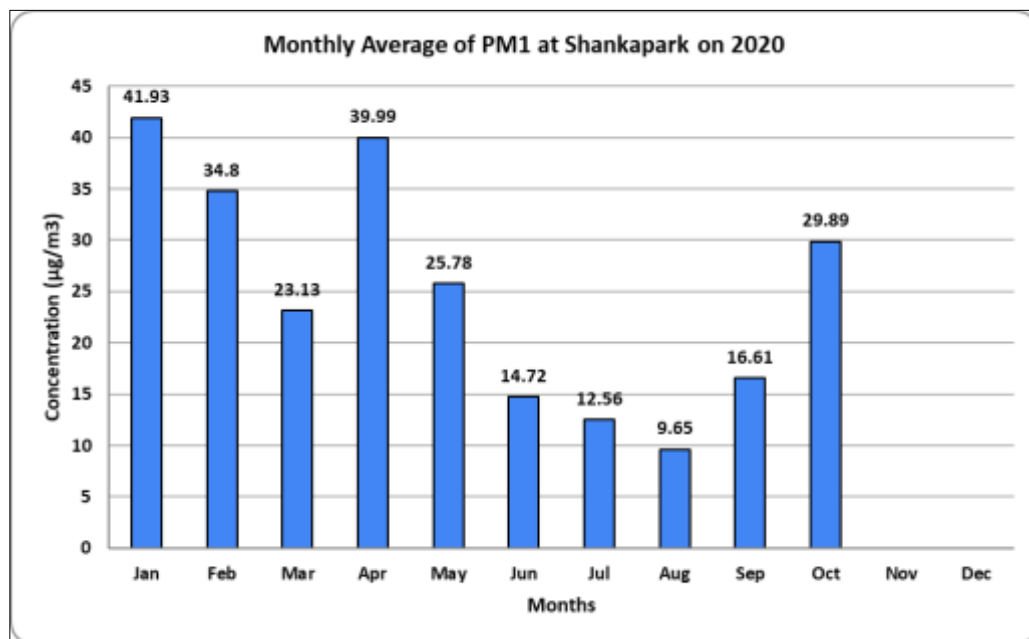


Figure 87: Monthly Average of PM₁

Monthly Variation of PM₁

Variation in concentration of PM₁ was found as follows.

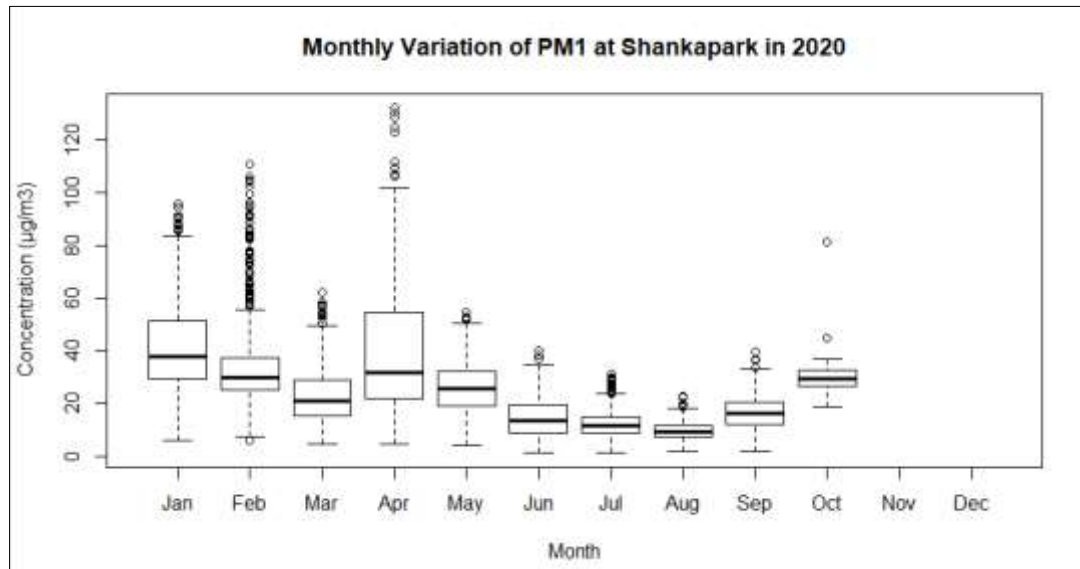


Figure 88: Monthly Variation of PM₁

Seasonal variation of average PM₁ concentration

Ambient concentration of average PM₁ can be shown in the figure below. The concentration of PM₁ was found higher during winter ($40.25\mu\text{g}/\text{m}^3$) than monsoon season ($13.38\mu\text{g}/\text{m}^3$).

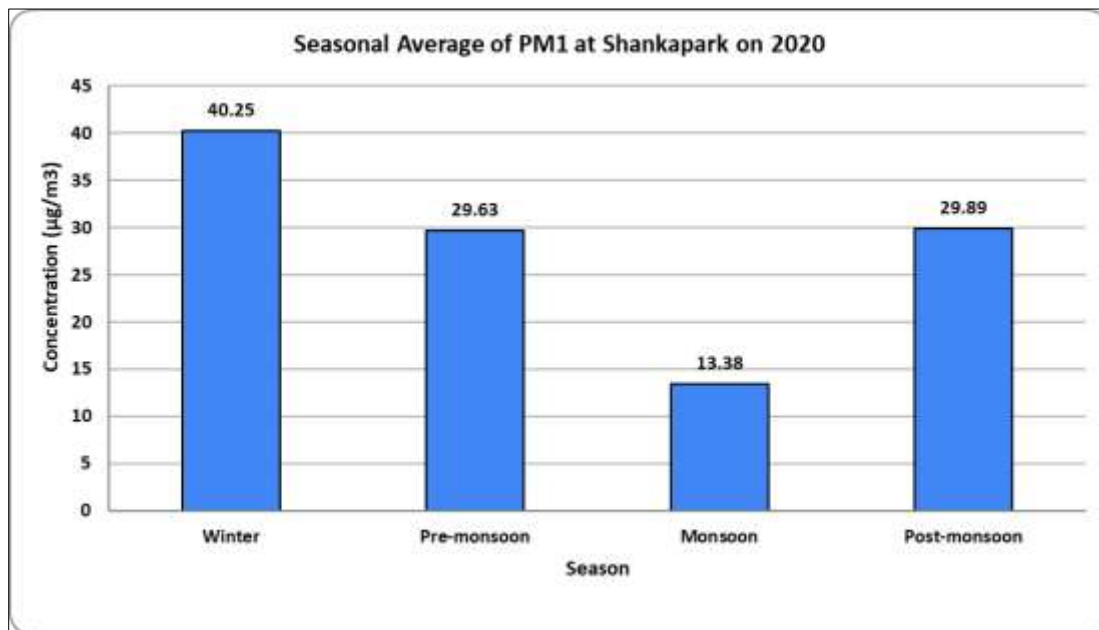


Figure 89: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the figure below. The variation in PM₁ concentration was with two peaks and two troughs in a day.

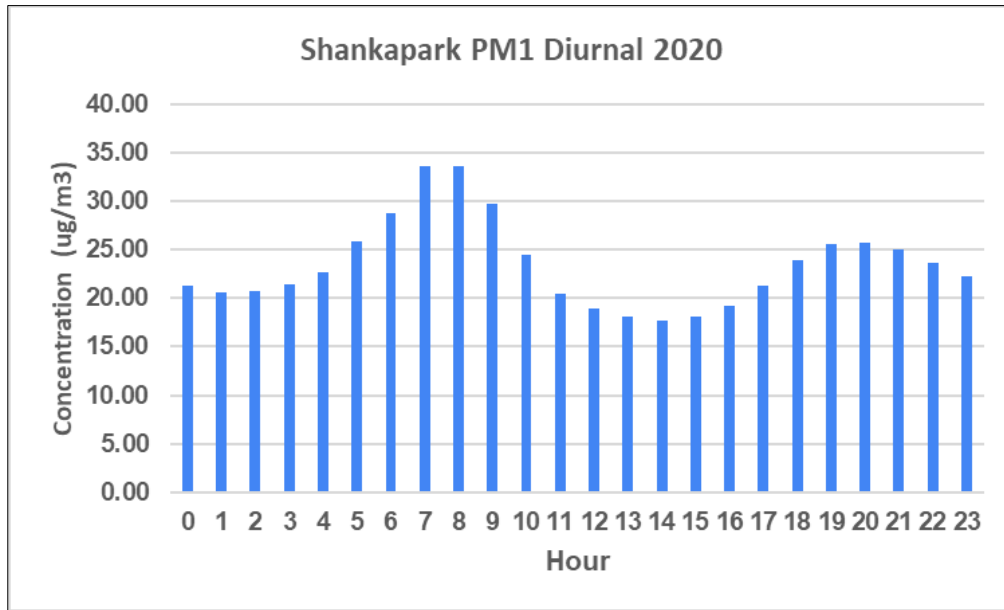


Figure 90: Diurnal variation of PM₁

2.4.3 Temporal Variation of PM_{2.5}

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Shankapark station was found to be 26.48 µg/m³. Histogram of hourly average PM_{2.5} is shown in the figure below.

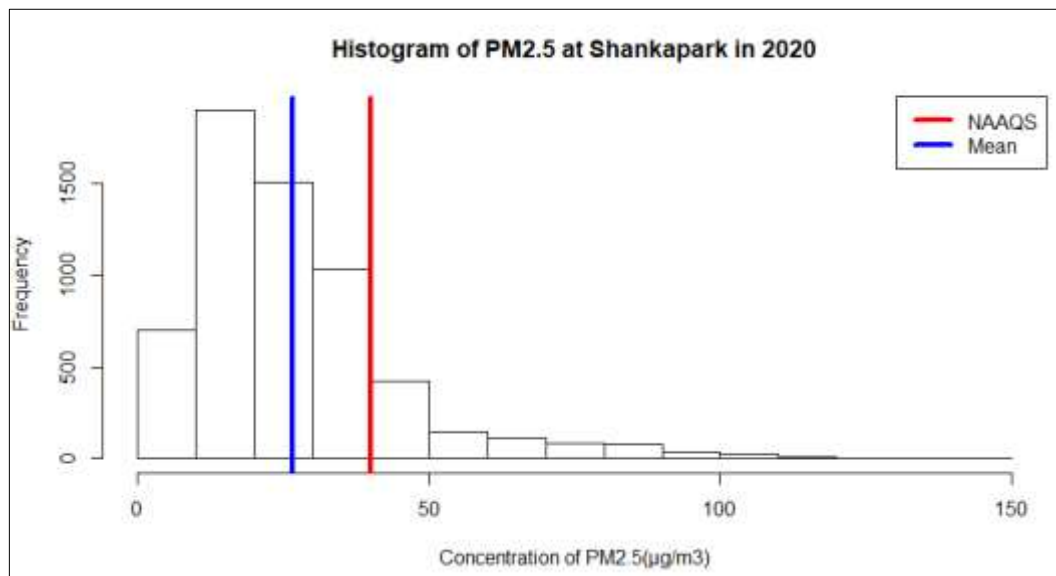


Figure 91 : Histogram of PM_{2.5}

Daily average of PM_{2.5}

Daily average concentration of PM_{2.5} was found to be high during April and low during August.

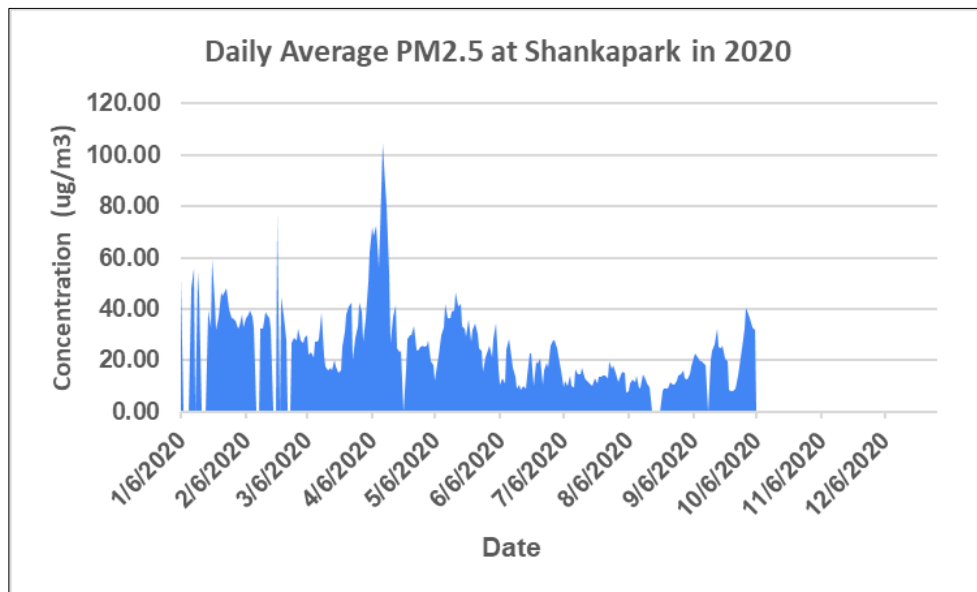


Figure 92: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest concentration of PM_{2.5} was found during April and August respectively. The mean value for those months were found to be 44.63 and 11.36 µg/m³ respectively.

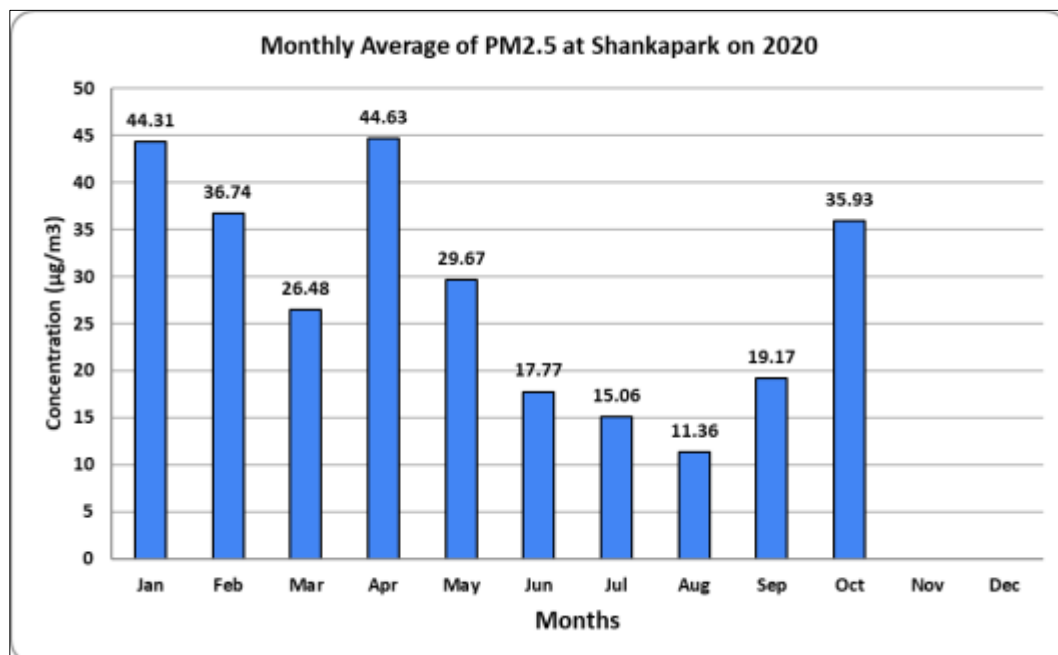


Figure 93: Monthly Average of PM_{2.5}

Monthly Variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found more during April and less during July.

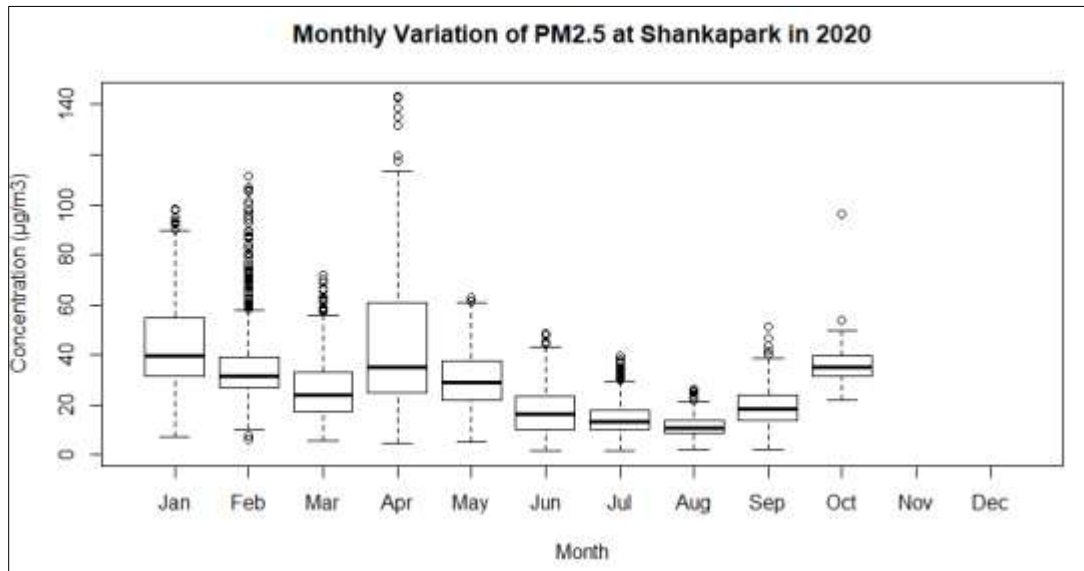


Figure 94: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Ambient concentration of average PM_{2.5} can be shown in the figure below. The concentration of PM_{2.5} was found higher during winter (43.1 µg/m³) and low during monsoon season (15.84 µg/m³) as shown in figure below.

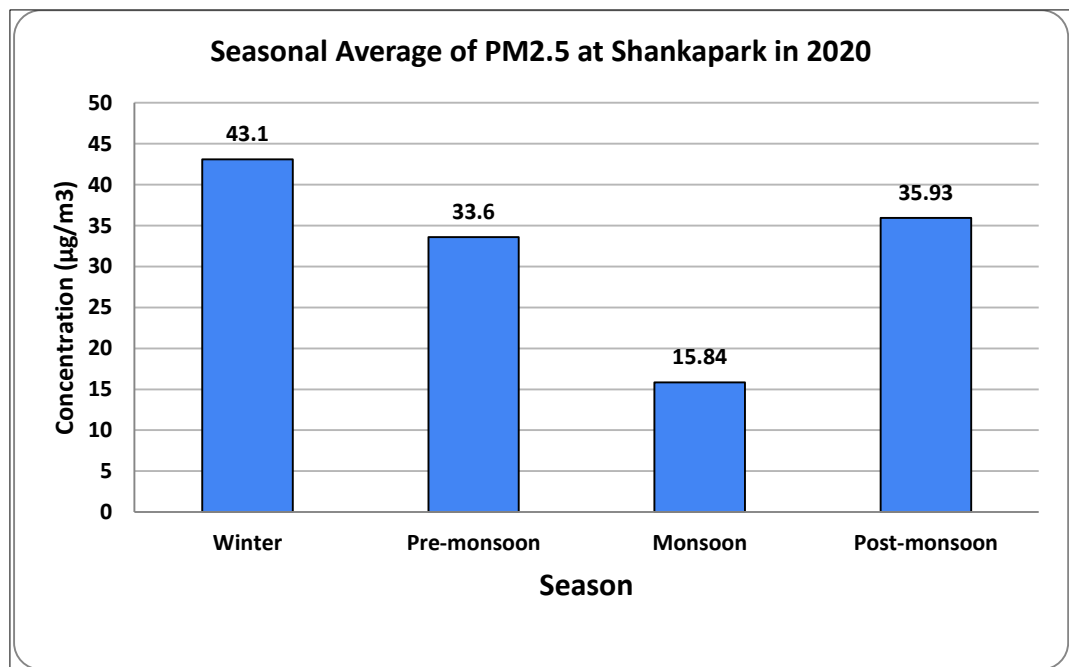


Figure 95: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations can be shown in the figure below. The variation in PM_{2.5} concentrations was with two maximum and 2 minimum concentration in a day.

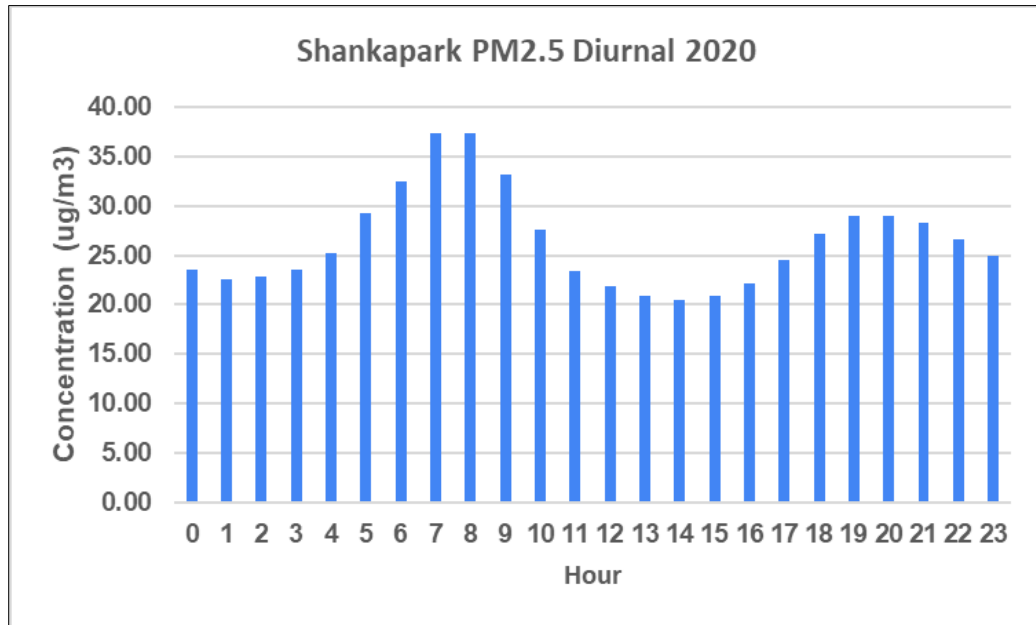


Figure 96: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2020 counts 252, of which 33 days exceed the NAAQS guideline as shown in figure below.

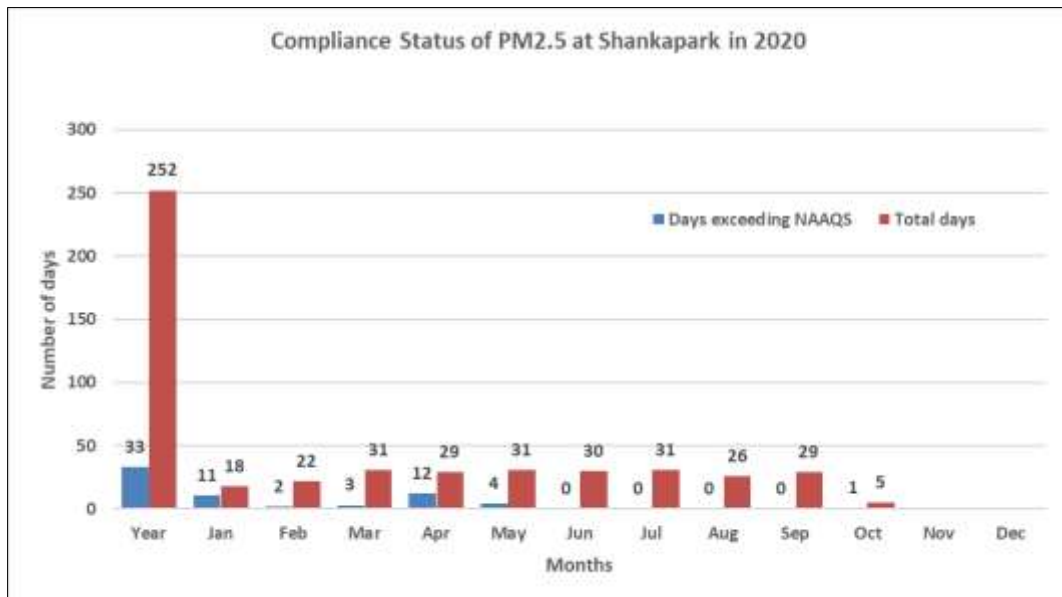


Figure 97: Compliance status of PM_{2.5}

2.4.4 Temporal variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Shankapark station was found to be 35.30 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below.

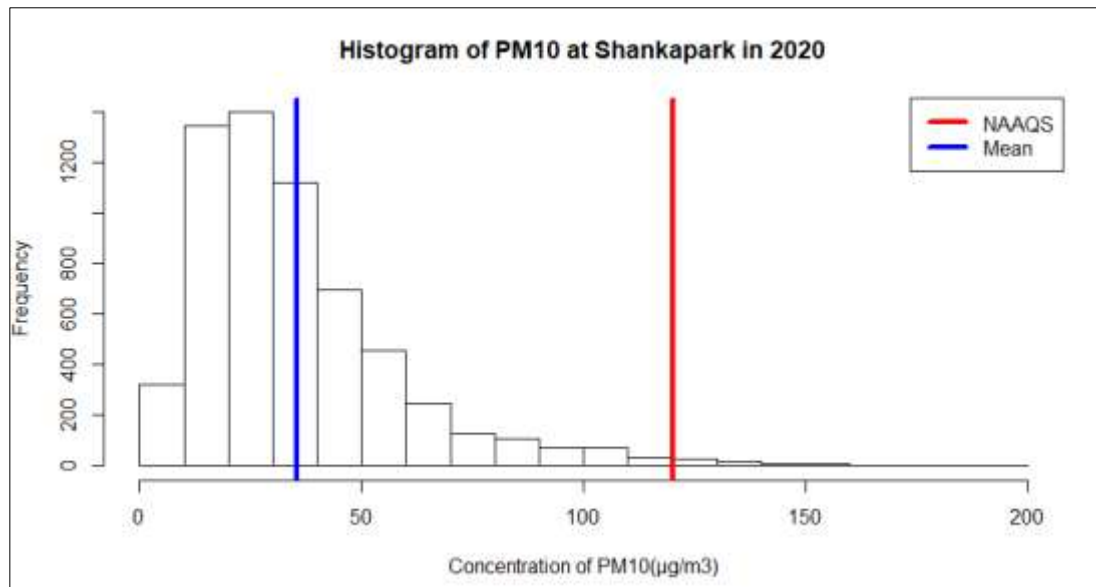


Figure 98 : Histogram for the ambient concentration of PM₁₀

Daily average of PM₁₀

Daily average concentration of PM₁₀ was high during April and was found low during September.

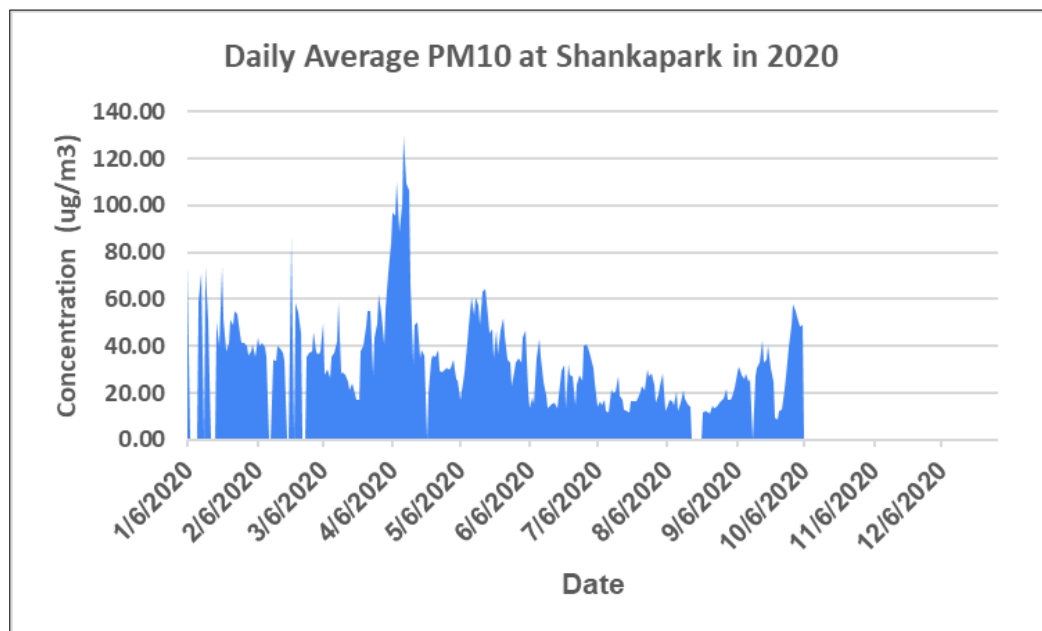


Figure 99: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest concentration of PM₁₀ was found during April and August respectively. The mean value for those months were found to be 59.8 and 16 $\mu\text{g}/\text{m}^3$ respectively.

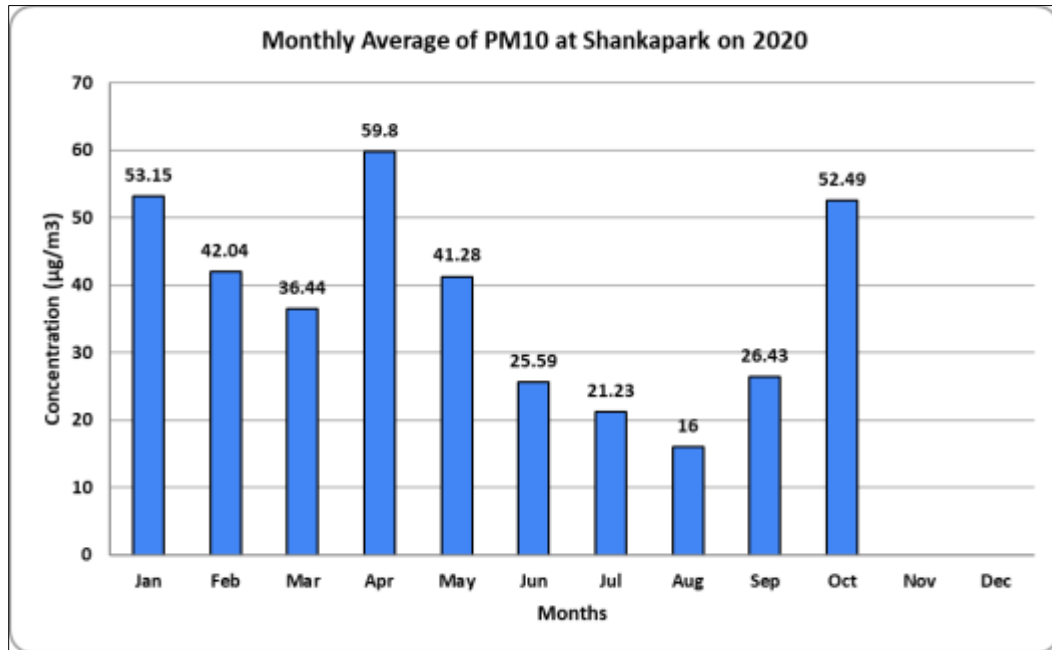


Figure 100: Monthly average of PM₁₀

Monthly Variation of PM₁₀

Variation in concentration of PM₁₀ was found as shown in figure below.

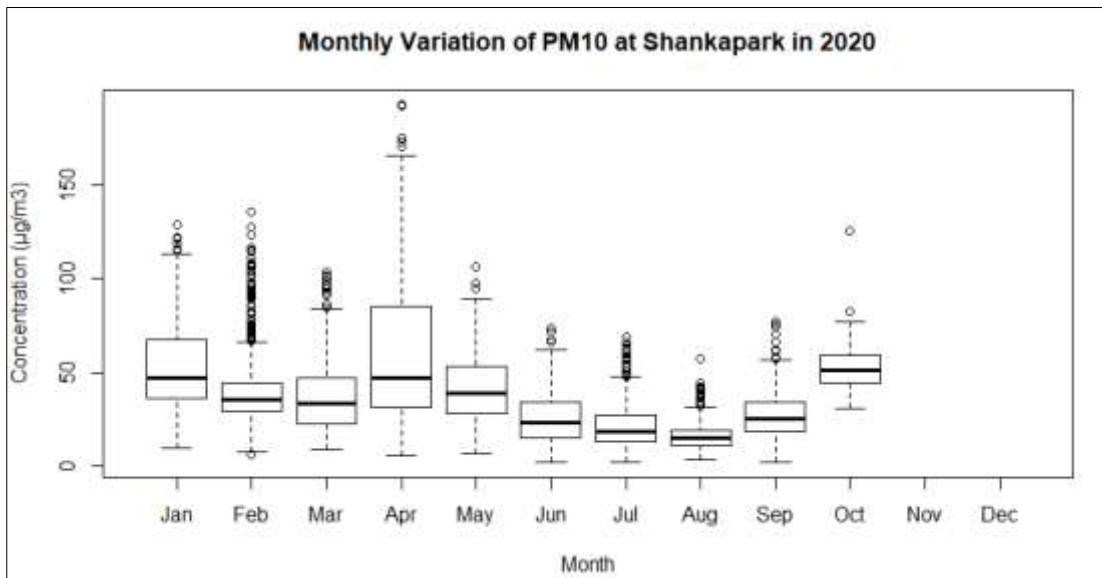


Figure 101: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

Ambient concentration of average PM₁₀ can be shown in the figure below. The concentration of PM₁₀ was found higher during winter (53.9 µg/m³) and low during monsoon season (22.31 µg/m³).

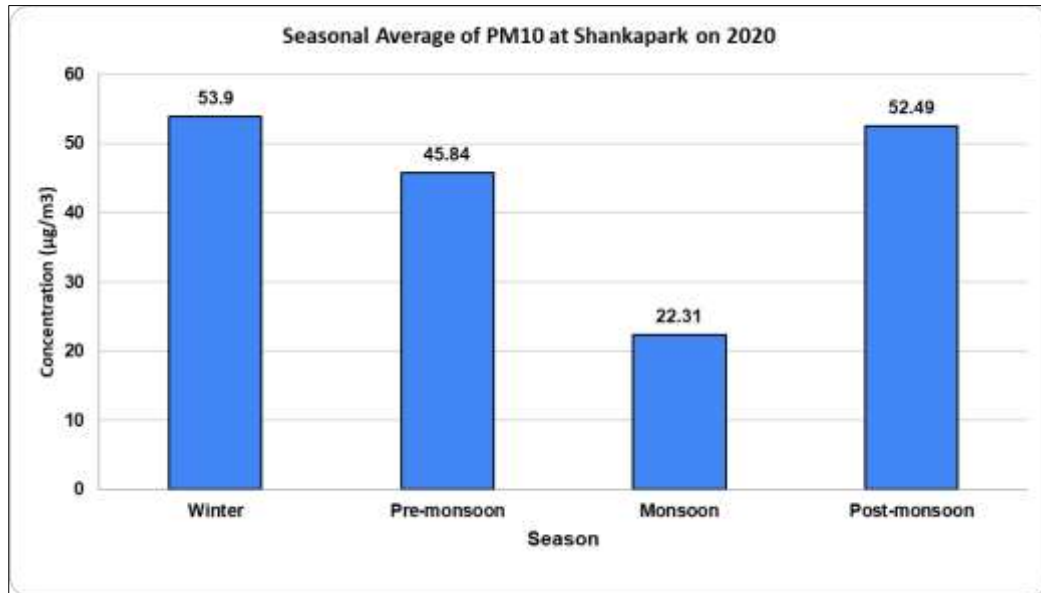


Figure 102: Seasonal variation of PM₁₀

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown in the figure below. The variation in PM_{2.5} concentrations was high during morning and evening and low during afternoon and night.

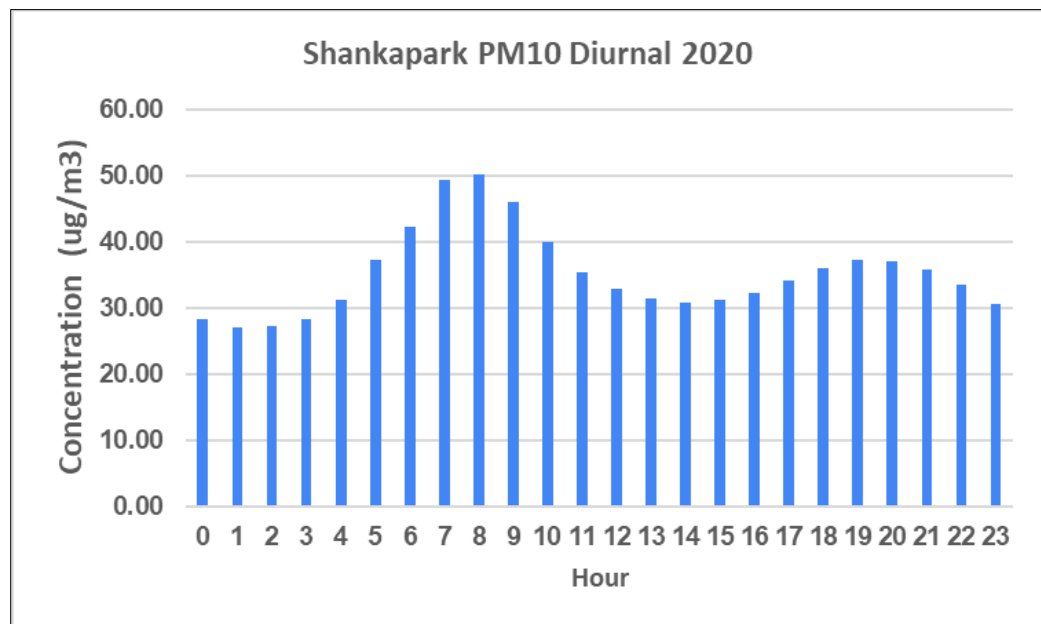


Figure 103: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2020 counts 252; of which 1 of the days exceed the NAAQS guideline as shown in figure below.

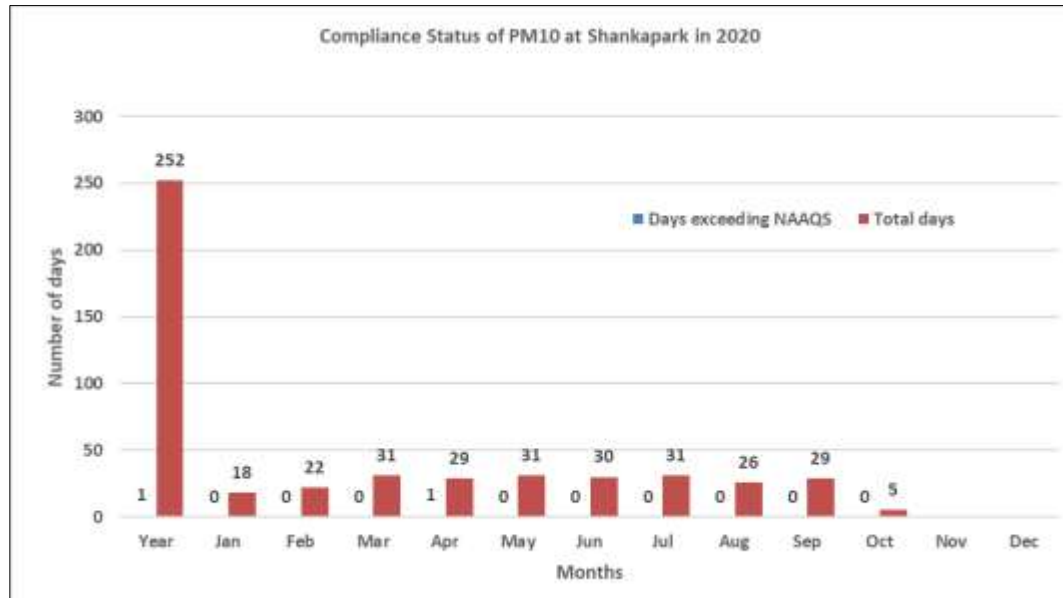


Figure 104: Compliance status of PM₁₀

2.4.5 Temporal variation of TSP

Annual average of TSP

The annual average of TSP at Shankapark station was found to be 55.55 $\mu\text{g}/\text{m}^3$. Histogram of hourly average TSP is shown in the figure below.

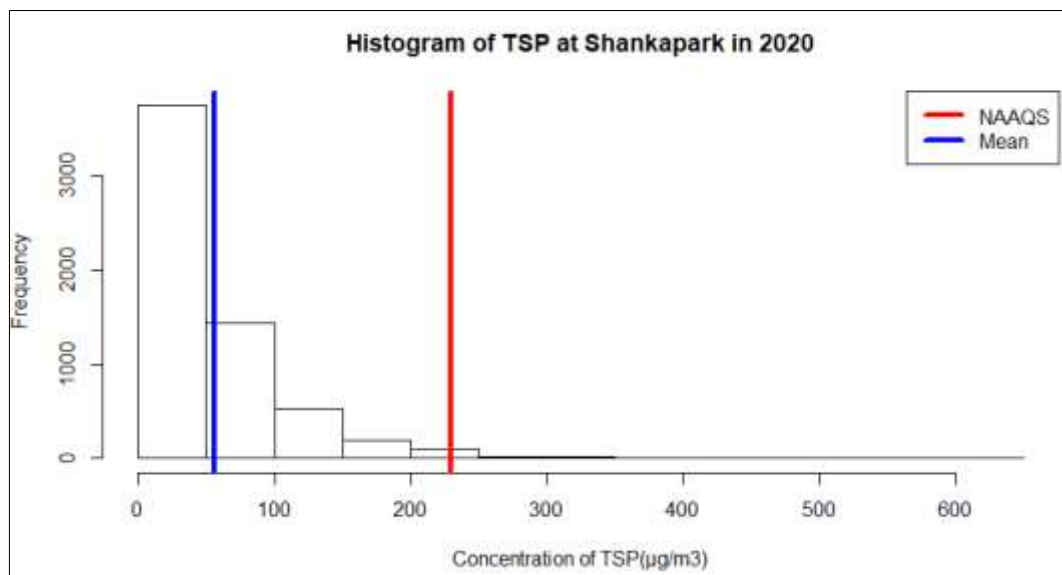


Figure 105 : Histogram for the ambient concentration of TSP

Daily average of TSP

Daily average concentration of TSP was found to be high during April and low during September.

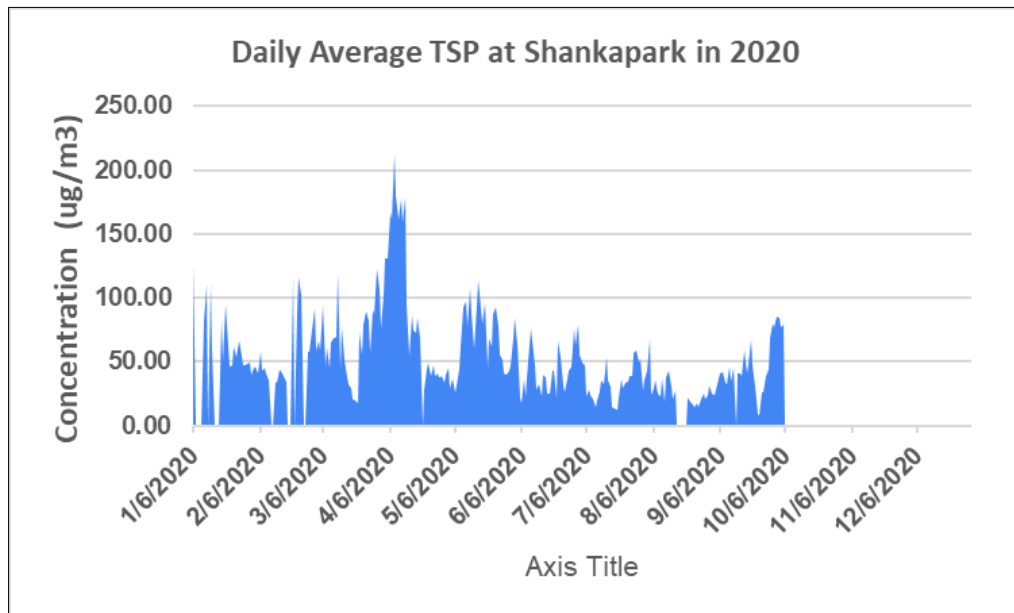


Figure 106: Daily average of TSP

Monthly average of TSP

The highest and the lowest concentration of TSP was found during April and August respectively. The mean value for those months were found to be 98.03 and 27.69 $\mu\text{g}/\text{m}^3$ respectively.

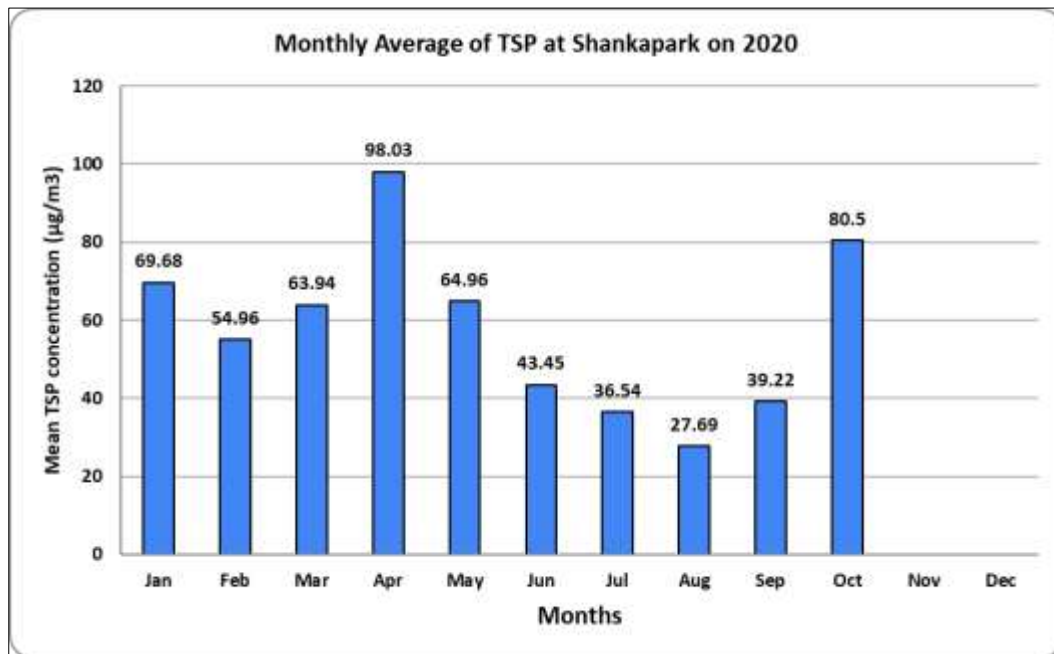


Figure 107: Monthly Average of TSP

Monthly Variation of TSP

Variation in concentration of TSP was found as shown in figure below.

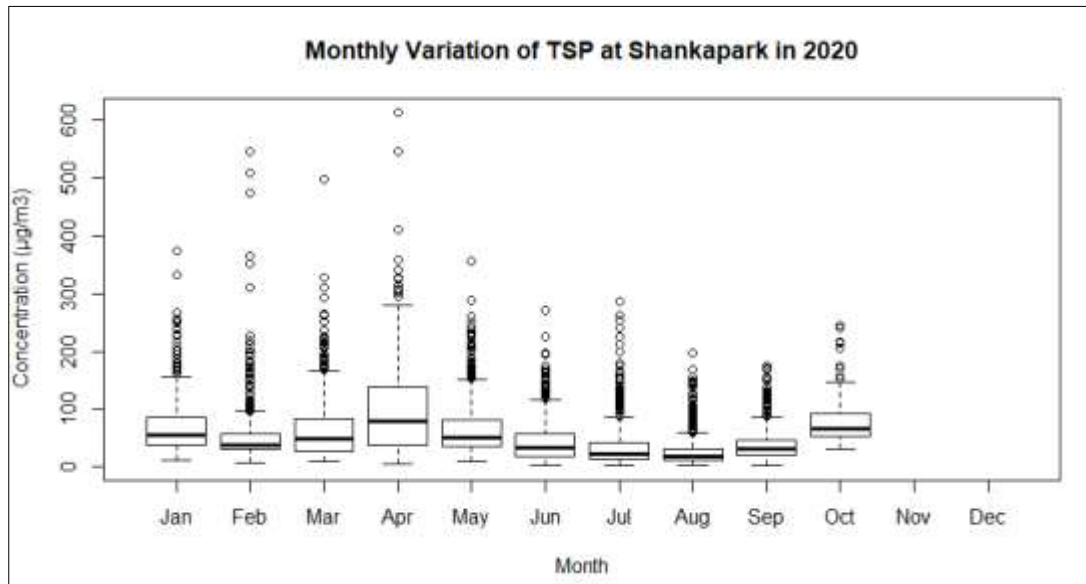


Figure 108: Monthly Variation of TSP

Seasonal variation of average TSP concentration

Ambient concentration of average TSP during can be shown in the figure below. The concentration of TSP was found higher during post-monsoon ($80.5 \mu\text{g}/\text{m}^3$) and low during monsoon season ($36.72 \mu\text{g}/\text{m}^3$).

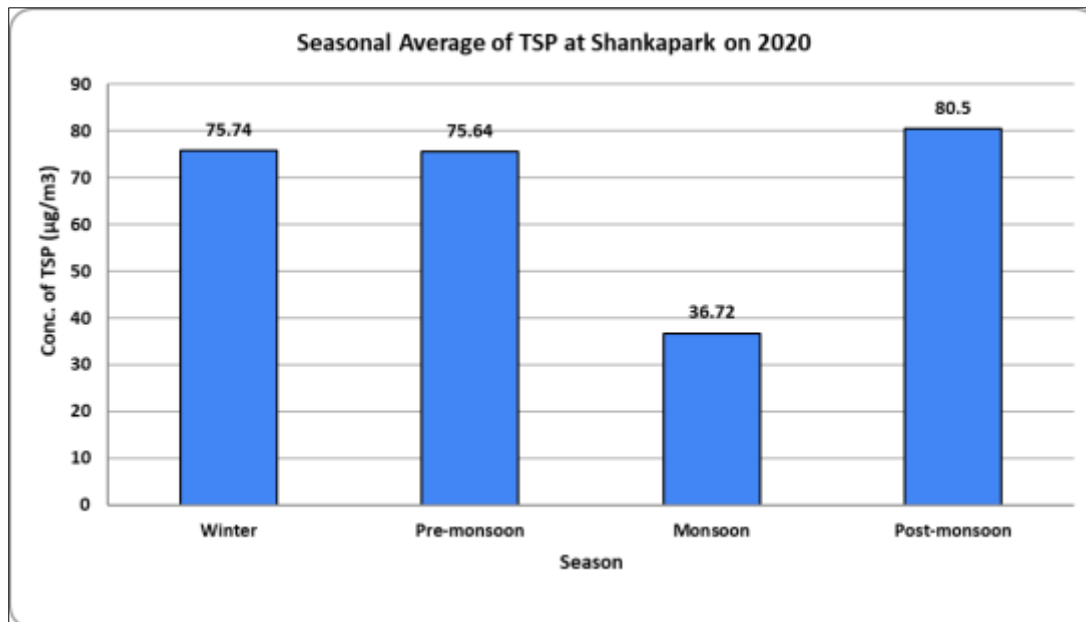


Figure 109: Seasonal variation of TSP

Diurnal variation of average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the figure below. The variation in TSP concentrations was high during 8-11 am with the least during 2 am.

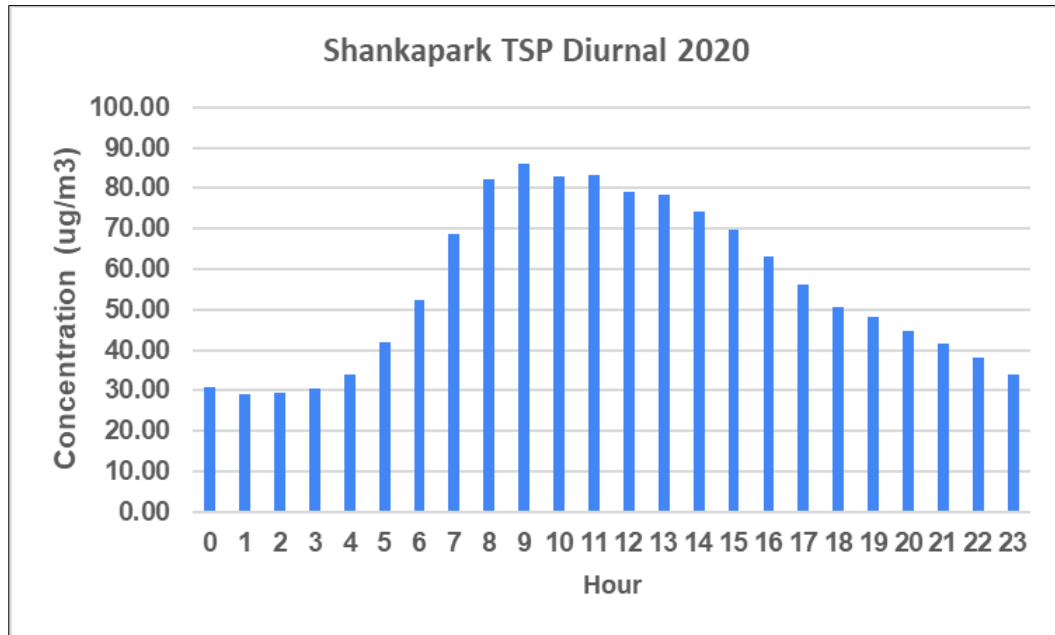


Figure 110: Diurnal Variation of TSP

Compliance status of TSP

The total days of TSP monitored in the year 2020 counts 241; of which none of the days exceed the NAAQS guideline as shown in figure below.

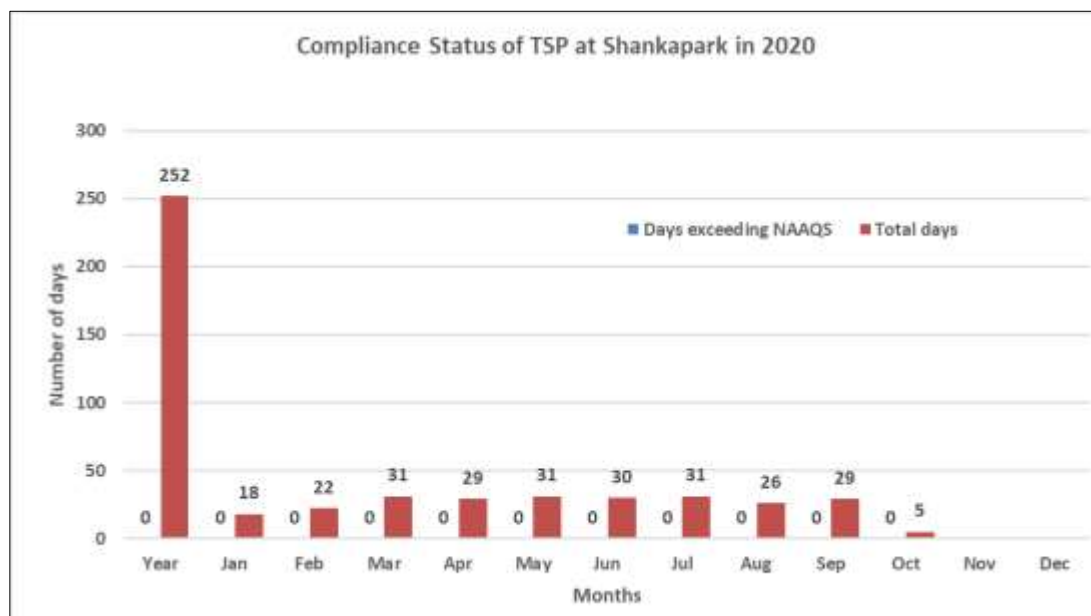


Figure 111: Compliance status of TSP

Annex

Daily PM₁, PM_{2.5}, PM₁₀ and TSP ($\mu\text{g}/\text{m}^3$)

Date	PM ₁	PM _{2.5}	PM ₁₀	TSP
1/1/2017				
1/2/2017				
1/3/2017				
1/4/2017				
1/5/2017				
1/6/2017				
1/7/2017				
1/8/2017				
1/9/2017				
1/10/2017				
1/11/2017				
1/12/2017				
1/13/2017				
1/14/2017				
1/15/2017				
1/16/2017				
1/17/2017				
1/18/2017				
1/19/2017				
1/20/2017				
1/21/2017				
1/22/2017				
1/23/2017				
1/24/2017				
1/25/2017				
1/26/2017				
1/27/2017				
1/28/2017				
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1/30/2017				
1/31/2017				
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2/16/2017				
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8/13/2017				
8/14/2017				
8/15/2017				
8/16/2017				
8/17/2017				
8/18/2017				
8/19/2017	13.37	18.91	39.87	77.97
8/20/2017	13.53	18.82	39.77	84.00
8/21/2017	15.20	20.08	37.67	80.82
8/22/2017	14.34	17.22	26.23	53.03
8/23/2017	18.38	24.24	47.96	108.51
8/24/2017				
8/25/2017	12.80	17.68	41.73	136.24
8/26/2017	8.95	12.84	36.36	129.67
8/27/2017	11.14	16.41	41.39	136.72
8/28/2017	13.37	19.56	50.48	144.97
8/29/2017				
8/30/2017	20.35	27.08	58.91	191.48
8/31/2017	29.27	35.87	55.81	128.50
9/1/2017	23.28	29.38	53.12	138.72
9/2/2017	27.73	35.53	50.08	107.77
9/3/2017	31.05	38.76	54.81	107.07
9/4/2017	34.83	44.30	76.98	194.31
9/5/2017				
9/6/2017				
9/7/2017				
9/8/2017	72.53	104.07	130.85	189.19
9/9/2017	41.63	52.37	82.94	176.73
9/10/2017	50.45	63.69	100.57	227.08
9/11/2017	25.23	31.26	59.72	162.54
9/12/2017				
9/13/2017	27.06	34.15	53.98	131.24
9/14/2017		43.97	82.06	
9/15/2017	41.41	52.00	93.35	228.04
9/16/2017	52.54	66.49	111.43	254.76
9/17/2017	49.52	63.17	107.38	256.37
9/18/2017	19.09	24.96	40.50	124.56
9/19/2017	34.58	42.64	65.27	140.84

9/20/2017	48.33	59.58	83.50	158.70
9/21/2017				
9/22/2017	32.48	41.68	69.52	173.80
9/23/2017	30.54	38.30	65.93	187.50
9/24/2017				
9/25/2017	43.92	54.23	87.88	236.52
9/26/2017	55.52	67.60	104.93	259.33
9/27/2017	38.43	46.47	81.08	249.55
9/28/2017	48.20	55.94	81.83	195.08
9/29/2017	41.25	47.53	62.98	155.00
9/30/2017	31.43	40.13	48.89	85.16
10/1/2017				
10/2/2017				
10/3/2017	18.06	21.82	38.97	124.78
10/4/2017				
10/5/2017				
10/6/2017				
10/7/2017	26.02	31.86	48.75	110.78
10/8/2017	25.50	31.99	57.85	150.18
10/9/2017	28.81	37.60	77.46	236.79
10/10/2017	27.58	34.97	69.30	236.21
10/11/2017	24.13	32.78	80.07	277.62
10/12/2017	29.98	38.71	86.50	292.97
10/13/2017	26.05	32.80	68.08	240.16
10/14/2017	37.58	46.35	93.71	277.80
10/15/2017	63.01	74.42	126.91	323.51
10/16/2017	60.29	71.16	121.94	358.87
10/17/2017				
10/18/2017	34.62	45.94	112.97	353.29
10/19/2017				
10/20/2017		34.55	72.11	286.31
10/21/2017	21.11	25.33	44.58	167.76
10/22/2017	29.53	34.47	63.21	219.64
10/23/2017	43.48	53.09	107.80	318.40
10/24/2017	39.76	53.78	125.91	365.03
10/25/2017				
10/26/2017				
10/27/2017	51.23	62.50	109.52	332.74

10/28/2017	45.09	55.86	96.42	284.25
10/29/2017	35.73	44.81	68.49	170.57
10/30/2017	23.12	33.51	87.02	274.14
10/31/2017	30.52	37.25	58.64	143.02
11/1/2017	36.89	45.01	78.36	219.50
11/2/2017	31.81	41.02	88.35	287.91
11/3/2017				
11/4/2017	34.52	44.52	98.42	363.34
11/5/2017				
11/6/2017				
11/7/2017				
11/8/2017				
11/9/2017				
11/10/2017				
11/11/2017				
11/12/2017				
11/13/2017	40.37	52.84	117.75	350.30
11/14/2017	47.31	60.72	123.98	366.58
11/15/2017	52.04	64.62	120.89	361.21
11/16/2017	50.48	68.25	160.51	402.30
11/17/2017	48.28	62.24	131.39	419.44
11/18/2017	38.90	50.87	109.10	365.11
11/19/2017	33.06	47.47	118.82	360.77
11/20/2017	39.94	55.10	134.00	409.36
11/21/2017	40.36	53.45	120.23	335.39
11/22/2017	42.18	52.44	101.53	293.26
11/23/2017				
11/24/2017	45.71	56.11	106.99	313.91
11/25/2017	52.46	64.53	126.43	384.39
11/26/2017	55.12	66.27	113.80	303.00
11/27/2017	53.04	63.87	106.43	285.54
11/28/2017	50.52	62.84	116.41	322.74
11/29/2017	73.56	83.98	121.41	322.58
11/30/2017	87.73	100.69	139.28	319.02
12/1/2017	83.46	97.45	143.98	303.71
12/2/2017	68.14	82.11	138.40	324.56
12/3/2017	58.13	71.45	127.88	309.00
12/4/2017	52.10	65.08	116.69	317.59

12/5/2017	47.14	57.21	98.52	275.52
12/6/2017	46.55	57.03	102.48	292.08
12/7/2017	46.86	53.48	77.50	164.24
12/8/2017	54.12	64.68	112.48	271.78
12/9/2017	53.25	65.72	126.33	344.08
12/10/2017	57.55	72.99	135.23	313.68
12/11/2017	48.23	62.11	122.11	312.83
12/12/2017	36.22	45.35	82.67	241.54
12/13/2017	43.03	53.87	93.04	265.72
12/14/2017	51.12	61.98	106.46	319.96
12/15/2017	52.64	63.35	101.25	264.35
12/16/2017	57.17	68.81	111.30	275.26
12/17/2017	61.33	68.93	93.51	223.30
12/18/2017	71.70	76.66	89.19	197.29
12/19/2017	67.48	73.25	87.98	199.95
12/20/2017	66.56	71.43	84.32	172.20
12/21/2017	60.77	65.11	76.55	165.01
12/22/2017	57.58	62.06	74.02	175.90
12/23/2017	67.41	72.97	86.31	199.78
12/24/2017	59.21	63.07	77.09	202.40
12/25/2017	66.42	70.68	80.56	174.59
12/26/2017	61.23	65.15	75.23	158.81
12/27/2017	58.13	61.91	74.65	166.73
12/28/2017	54.62	60.85	84.39	196.19
12/29/2017	61.87	69.09	91.30	192.14
12/30/2017	65.88	71.60	95.79	201.98
12/31/2017	66.58	71.94	93.93	204.20

Date	Daily PM ₁	PM _{2.5}	PM ₁₀	TSP
1/1/2018	56.44	61.36	79.33	164.30
1/2/2018	46.46	49.97	65.94	157.22
1/3/2018	46.61	51.64	75.47	168.47
1/4/2018	47.66	54.34	82.52	194.99
1/5/2018	45.50	50.85	70.67	149.19
1/6/2018	54.65	59.65	81.57	171.84
1/7/2018	53.56	58.90	78.57	158.26
1/8/2018	47.60	52.03	68.80	146.63
1/9/2018	58.06	63.61	94.22	216.40
1/10/2018	72.42	75.97	92.65	181.06
1/11/2018	65.59	68.94	85.68	167.15
1/12/2018	63.72	66.13	79.51	159.30
1/13/2018				
1/14/2018	50.48	53.24	68.54	146.68
1/15/2018	48.90	50.60	58.35	105.73
1/16/2018	36.94	39.21	49.26	109.30
1/17/2018	39.54	41.87	51.04	104.90
1/18/2018	39.91	41.41	48.07	93.50
1/19/2018	38.21	39.95	47.46	96.10
1/20/2018	38.09	40.55	49.75	109.07
1/21/2018	31.86	35.22	44.45	107.19
1/22/2018	58.13	61.43	72.98	139.56
1/23/2018	50.21	52.35	60.60	112.34
1/24/2018	34.57	36.44	43.49	107.47
1/25/2018	42.28	44.70	47.57	72.28
1/26/2018	41.15	42.81	44.54	60.05
1/27/2018	39.79	40.83	43.03	62.93
1/28/2018				
1/29/2018				
1/30/2018				
1/31/2018				
2/1/2018				
2/2/2018	70.93	73.21	85.07	187.81
2/3/2018	57.88	59.89	77.03	203.26
2/4/2018	50.08	55.16	94.52	324.00
2/5/2018	43.98	51.49	98.64	308.95
2/6/2018	40.27	49.60	111.65	321.35

2/7/2018	40.95	51.19	101.87	267.47
2/8/2018	30.53	47.11	138.41	439.21
2/9/2018	28.30	42.94	115.96	337.82
2/10/2018	29.55	41.07	98.48	256.53
2/11/2018	31.87	41.95	85.80	209.63
2/12/2018	55.90	67.95	126.76	319.80
2/13/2018	57.12	58.63	68.03	138.31
2/14/2018	52.33	53.78	63.43	151.34
2/15/2018	29.75	32.83	55.06	211.34
2/16/2018	35.02	37.98	68.88	265.28
2/17/2018	34.95	36.75	51.38	135.86
2/18/2018	37.32	39.58	57.00	150.25
2/19/2018	40.45	44.59	88.26	294.80
2/20/2018	43.20	45.68	70.34	209.80
2/21/2018	39.28	42.72	73.71	228.12
2/22/2018	36.49	40.85	70.70	228.17
2/23/2018	40.96	45.13	83.93	276.12
2/24/2018	39.29	42.87	77.41	241.24
2/25/2018	25.92	34.90	117.04	448.83
2/26/2018	15.29	22.04	61.41	225.18
2/27/2018	52.58	55.81	76.04	211.79
2/28/2018	48.13	53.63	94.01	288.90
3/1/2018	55.07	58.22	82.76	213.26
3/2/2018	47.55	51.88	90.50	286.77
3/3/2018	26.52	30.24	60.90	239.07
3/4/2018	38.89	46.11	103.70	337.38
3/5/2018	28.84	39.89	116.60	384.35
3/6/2018	24.27	35.67	114.45	375.35
3/7/2018	36.12	45.42	99.36	285.80
3/8/2018	50.89	59.81	115.09	305.26
3/9/2018	46.85	55.34	115.93	314.22
3/10/2018	46.85	57.01	120.60	294.78
3/11/2018	54.15	60.08	100.36	1050.84
3/12/2018	54.43	56.56	60.85	
3/13/2018	49.78	51.65	58.78	
3/14/2018	54.32	56.28	68.08	
3/15/2018	47.70	49.70	64.94	
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3/19/2018				
3/20/2018	69.28	71.74	105.12	
3/21/2018	68.60	71.12	97.91	
3/22/2018	56.48	58.89	107.02	
3/23/2018				
3/24/2018	50.89	53.73	87.05	
3/25/2018	68.96	71.44	113.36	
3/26/2018	85.20	87.70	112.25	
3/27/2018				
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3/31/2018	20.81	22.18	54.07	
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5/18/2018	27.19	28.09	45.19	3197.22
5/19/2018	26.14	26.84	36.64	2332.79
5/20/2018	25.44	26.06	35.75	2829.81
5/21/2018	31.21	31.99	42.47	
5/22/2018	32.38	33.04	44.94	2774.63
5/23/2018	28.18	28.91	42.34	
5/24/2018	20.60	21.32	30.30	
5/25/2018	23.30	24.14	42.27	
5/26/2018	34.21	35.61	60.29	
5/27/2018	37.48	38.55	70.86	
5/28/2018	23.10	24.38	54.25	
5/29/2018	27.29	28.20	37.62	
5/30/2018				
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6/1/2018	24.32	25.14	35.97	
6/2/2018	18.41	18.89	28.20	2476.43
6/3/2018	21.46	22.48	45.57	
6/4/2018	21.12	22.01	46.29	
6/5/2018	10.04	11.04	23.49	2093.88
6/6/2018	10.42	10.88	27.52	
6/7/2018	12.78	13.44	21.36	
6/8/2018	15.86	16.36	20.59	2453.09
6/9/2018	18.33	19.00	31.05	2815.72
6/10/2018	7.18	7.59	23.27	2155.49
6/11/2018	10.68	11.10	23.99	2213.16
6/12/2018	13.37	13.85	20.81	
6/13/2018	18.73	19.37	31.24	
6/14/2018	15.94	16.79	26.41	
6/15/2018	13.75	15.00	17.36	
6/16/2018	12.05	12.59	19.86	
6/17/2018	11.28	12.04	17.55	
6/18/2018	13.62	14.68	23.99	
6/19/2018	13.09	14.89	37.76	
6/20/2018	15.17	16.19	37.29	
6/21/2018	14.20	14.80	34.01	
6/22/2018	17.48	18.33	45.77	
6/23/2018	18.75	19.30	44.97	
6/24/2018	18.28	18.89	38.40	
6/25/2018	17.25	17.57	29.16	1902.69
6/26/2018	15.92	16.18	30.00	1655.61
6/27/2018	10.14	10.44	30.69	1851.96
6/28/2018	5.92	6.43	28.00	2374.66
6/29/2018	9.15	9.62	28.67	2201.29
6/30/2018	5.46	5.63	15.34	899.05
7/1/2018	8.33	8.46	17.90	758.53
7/2/2018	6.15	6.17	7.88	30.63
7/3/2018	5.65	5.75	11.87	607.22
7/4/2018	5.77	5.96	15.98	1099.96
7/5/2018	8.27	8.70	24.88	1871.48
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10/1/2018				
10/2/2018	30.91	36.91	62.89	199.70
10/3/2018	36.52	42.38	65.49	200.14
10/4/2018	41.78	49.77	71.74	158.44
10/5/2018	34.40	40.19	58.57	145.79
10/6/2018	34.03	40.15	59.92	160.36
10/7/2018	33.58	39.35	56.51	139.48
10/8/2018	29.98	35.67	53.56	145.91
10/9/2018	34.25	41.84	69.42	211.55
10/10/2018	40.03	47.76	71.62	196.78
10/11/2018	34.77	41.54	64.55	187.74
10/12/2018	25.19	30.01	48.85	171.02
10/13/2018	17.07	21.93	48.44	202.10
10/14/2018	24.78	32.78	67.66	253.33
10/15/2018	35.51	42.86	68.93	197.89
10/16/2018	42.52	49.39	76.56	229.51
10/17/2018	49.57	55.77	73.72	169.65
10/18/2018	49.04	55.14	75.15	201.73
10/19/2018	40.30	46.06	65.87	191.06
10/20/2018	39.99	45.62	62.32	163.65
10/21/2018	37.62	43.24	63.14	183.62
10/22/2018	35.95	47.14	108.53	376.25
10/23/2018	40.13	48.37	79.36	225.99
10/24/2018	42.06	49.29	77.79	244.75
10/25/2018	43.87	52.05	85.34	261.84
10/26/2018	37.41	44.85	79.58	262.27
10/27/2018	38.59	49.13	101.43	330.92
10/28/2018	34.70	44.54	88.88	277.50
10/29/2018	38.30	48.11	93.16	309.55
10/30/2018	40.57	51.33	104.00	327.41

10/31/2018	45.66	58.85	128.87	411.55
11/1/2018	35.39	47.11	106.76	341.05
11/2/2018	34.16	44.95	107.96	355.68
11/3/2018	38.13	48.10	100.80	304.97
11/4/2018	47.88	62.02	143.65	419.49
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11/26/2018				
11/27/2018	55.92	63.68	107.69	297.59
11/28/2018				
11/29/2018				
11/30/2018	21.87	23.59	27.18	28.18
12/1/2018				
12/2/2018				
12/3/2018	28.22	29.96	33.39	34.30
12/4/2018				
12/5/2018				
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12/8/2018	25.80	27.69	31.71	32.70
12/9/2018	26.15	27.98	31.37	32.26
12/10/2018	27.49	29.53	33.11	34.11
12/11/2018	23.49	25.16	28.18	28.72
12/12/2018	21.57	23.36	26.82	27.47
12/13/2018	30.29	33.00	38.31	38.96
12/14/2018	26.10	28.08	31.69	32.30
12/15/2018	27.21	29.35	33.41	34.37
12/16/2018	27.97	30.33	34.85	35.53
12/17/2018	43.69	47.21	54.21	55.71
12/18/2018	33.12	35.54	40.41	41.38
12/19/2018	39.90	42.18	46.15	47.24
12/20/2018	43.48	45.64	49.40	50.55
12/21/2018	37.06	38.89	42.18	43.00
12/22/2018	36.07	38.43	42.98	43.99
12/23/2018	37.93	41.66	48.78	52.56
12/24/2018				
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2/11/2019				
2/12/2019	25.66	27.17	29.57	29.92
2/13/2019	26.73	28.12	30.36	30.83
2/14/2019	35.09	36.86	39.93	40.57
2/15/2019	29.94	31.38	33.76	34.33
2/16/2019	19.32	20.15	21.15	21.43
2/17/2019	13.56	14.62	16.17	16.41
2/18/2019	19.27	20.40	22.35	23.10
2/19/2019	21.02	22.32	24.22	24.48
2/20/2019	19.28	20.62	22.74	23.23
2/21/2019	20.95	22.59	25.51	26.45
2/22/2019	21.02	22.85	26.06	27.50
2/23/2019	18.98	20.47	22.80	23.32
2/24/2019	21.43	22.91	25.85	26.60
2/25/2019	11.42	12.74	15.26	16.16
2/26/2019	14.97	16.65	19.69	20.48
2/27/2019	17.07	19.18	24.18	25.97
2/28/2019	7.26	7.86	8.65	8.91
3/1/2019	11.71	12.51	13.67	13.95
3/2/2019	17.16	18.21	19.52	19.85
3/3/2019	22.15	23.28	24.78	25.05
3/4/2019	22.38	23.61	25.42	26.08
3/5/2019	22.26	23.43	25.19	26.07
3/6/2019	15.30	16.35	17.98	18.80
3/7/2019	21.99	23.15	25.00	25.49
3/8/2019	21.86	22.84	24.35	24.91
3/9/2019	22.25	23.40	25.32	25.96
3/10/2019	20.96	22.52	25.06	25.74
3/11/2019	21.11	22.84	25.99	27.21
3/12/2019	18.95	21.46	26.29	27.49
3/13/2019	18.39	20.99	26.44	27.91
3/14/2019	17.55	19.76	24.11	25.76
3/15/2019	13.90	16.16	20.48	21.60
3/16/2019	16.17	17.83	20.75	21.67

3/17/2019	21.32	23.11	26.59	27.36
3/18/2019	25.37	27.37	31.30	32.71
3/19/2019	27.95	29.32	31.59	32.23
3/20/2019	24.68	25.59	26.67	26.88
3/21/2019	14.63	15.85	17.73	18.10
3/22/2019	16.65	18.22	20.83	21.43
3/23/2019	26.79	28.34	30.85	31.47
3/24/2019	50.24	52.11	55.60	57.56
3/25/2019	52.41	54.32	57.96	59.47
3/26/2019	16.44	17.41	18.49	18.64
3/27/2019	10.73	11.60	12.54	12.74
3/28/2019	17.93	19.01	20.43	20.74
3/29/2019	26.24	27.42	29.16	29.54
3/30/2019	37.05	38.59	40.69	41.51
3/31/2019	27.05	28.12	29.49	30.07
4/1/2019	10.93	11.92	13.45	13.79
4/2/2019	10.42	11.35	12.84	13.28
4/3/2019	20.34	21.36	23.00	23.46
4/4/2019	28.18	29.69	32.41	33.17
4/5/2019	31.03	32.17	33.73	34.15
4/6/2019	20.31	21.05	21.85	22.00
4/7/2019	9.51	10.20	11.16	11.35
4/8/2019	11.04	11.78	12.60	12.73
4/9/2019	13.03	13.81	14.76	14.91
4/10/2019	13.87	14.71	15.82	16.05
4/11/2019	15.31	16.15	17.40	17.66
4/12/2019	18.71	19.67	21.19	21.55
4/13/2019	21.07	22.25	23.86	24.79
4/14/2019	20.38	21.38	22.60	22.99
4/15/2019				
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4/20/2019				
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4/22/2019				
4/23/2019	30.80	32.92	36.59	36.91

4/24/2019	33.91	35.80	39.07	39.65
4/25/2019	30.09	32.14	35.94	36.35
4/26/2019	26.01	27.73	30.14	30.30
4/27/2019	36.88	39.34	43.07	43.67
4/28/2019	30.81	33.05	36.98	38.03
4/29/2019	34.99	37.84	42.89	43.95
4/30/2019	35.55	39.01	45.89	48.70
5/1/2019	32.09	37.40	50.12	54.16
5/2/2019	21.15	23.59	27.86	29.51
5/3/2019	25.89	28.34	32.59	33.27
5/4/2019	16.64	18.19	20.07	20.36
5/5/2019	18.88	20.97	25.51	26.76
5/6/2019	28.54	31.40	37.40	39.11
5/7/2019	41.36	44.72	52.35	53.99
5/8/2019	48.23	51.93	60.74	63.28
5/9/2019	51.82	55.83	66.11	68.63
5/10/2019	48.59	52.09	59.92	61.83
5/11/2019	38.77	43.26	54.73	57.48
5/12/2019	25.05	28.81	37.11	38.59
5/13/2019	24.88	27.02	30.30	30.78
5/14/2019	26.46	29.69	36.14	37.81
5/15/2019	22.08	24.27	28.17	28.80
5/16/2019	23.92	25.88	28.89	29.49
5/17/2019	16.76	19.39	24.25	25.09
5/18/2019	19.25	23.17	30.89	32.11
5/19/2019	19.53	22.02	26.13	26.75
5/20/2019	27.21	30.02	35.84	37.22
5/21/2019	29.18	31.96	37.62	40.58
5/22/2019	27.36	29.88	35.35	36.81
5/23/2019	19.11	20.26	21.96	22.90
5/24/2019	24.67	26.60	29.97	30.48
5/25/2019	15.25	17.12	20.98	22.03
5/26/2019	11.73	12.88	14.71	15.05
5/27/2019	19.76	21.65	25.62	28.38
5/28/2019	20.15	22.59	27.54	28.84
5/29/2019	26.40	28.95	33.50	36.07
5/30/2019	22.25	23.29	24.53	24.63
5/31/2019	17.74	18.64	19.73	19.84

6/1/2019	15.83	16.92	18.70	19.00
6/2/2019	11.79	12.50	13.33	13.42
6/3/2019	11.52	12.42	13.45	13.57
6/4/2019	11.89	13.05	14.92	15.20
6/5/2019	12.22	13.68	16.48	17.20
6/6/2019	10.57	11.55	12.97	13.71
6/7/2019	4.84	5.33	5.94	6.15
6/8/2019	8.49	9.65	11.75	12.13
6/9/2019	12.07	12.89	13.93	13.98
6/10/2019	14.24	15.21	16.58	17.44
6/11/2019	16.05	17.31	19.42	20.00
6/12/2019	13.41	14.74	17.65	18.74
6/13/2019	12.99	14.43	17.11	18.11
6/14/2019				
6/15/2019				
6/16/2019				
6/17/2019	18.21	20.68	24.97	25.82
6/18/2019	10.63	12.00	13.66	13.78
6/19/2019	13.41	15.89	19.62	20.16
6/20/2019				
6/21/2019	10.92	12.62	15.44	16.21
6/22/2019	5.10	5.51	5.83	5.93
6/23/2019	5.81	6.32	6.97	7.05
6/24/2019	8.08	8.66	9.40	9.50
6/25/2019	8.93	9.62	10.96	11.24
6/26/2019	11.22	12.55	15.45	16.45
6/27/2019	8.74	9.34	10.05	10.09
6/28/2019	12.02	12.90	14.09	14.28
6/29/2019	12.68	13.68	14.96	15.86
6/30/2019	14.63	15.80	17.45	17.73
7/1/2019	13.47	14.66	16.30	16.69
7/2/2019	7.97	8.68	9.58	9.77
7/3/2019	4.90	5.45	6.24	6.42
7/4/2019	7.04	8.01	9.51	9.95
7/5/2019	6.82	7.33	7.78	7.87
7/6/2019	4.30	4.65	5.00	5.13
7/7/2019	4.26	4.56	4.79	4.80
7/8/2019	5.26	5.80	6.60	6.73

7/9/2019	4.98	5.56	6.41	6.57
7/10/2019	5.43	5.79	6.14	6.20
7/11/2019	3.96	4.61	5.63	5.83
7/12/2019	3.08	3.28	3.35	3.37
7/13/2019	4.29	4.59	4.80	4.80
7/14/2019	5.42	6.04	6.42	6.44
7/15/2019	7.76	9.67	11.10	11.15
7/16/2019	7.93	9.51	10.52	10.59
7/17/2019	6.88	8.68	9.95	10.00
7/18/2019	5.54	6.32	6.79	6.81
7/19/2019	6.24	6.89	7.44	7.61
7/20/2019	6.77	7.43	7.88	7.91
7/21/2019	7.50	8.37	9.24	9.39
7/22/2019	7.37	8.00	8.48	8.54
7/23/2019	6.93	7.46	7.89	7.93
7/24/2019	7.41	7.81	8.12	8.15
7/25/2019	5.08	5.60	6.11	6.16
7/26/2019	4.90	5.41	6.04	6.16
7/27/2019	4.63	5.15	5.77	6.02
7/28/2019	4.43	4.94	5.55	5.62
7/29/2019	4.98	5.61	6.37	6.54
7/30/2019	4.47	5.18	6.33	6.53
7/31/2019	7.42	8.39	9.55	9.80
8/1/2019	6.17	6.80	7.54	7.63
8/2/2019	6.65	7.48	8.43	8.73
8/3/2019	5.51	6.02	6.56	6.64
8/4/2019	5.30	5.68	6.01	6.05
8/5/2019	4.88	5.25	5.66	5.72
8/6/2019	4.62	5.15	5.91	6.05
8/7/2019	3.66	4.00	4.30	4.35
8/8/2019	3.86	4.37	4.91	4.98
8/9/2019	3.71	4.28	5.06	5.19
8/10/2019	4.60	5.41	6.65	7.02
8/11/2019	4.65	5.09	5.51	5.56
8/12/2019	4.92	5.67	6.78	7.22
8/13/2019	4.12	4.46	4.79	4.84
8/14/2019	4.90	5.72	7.09	7.75
8/15/2019	4.25	4.77	5.25	5.32

8/16/2019	4.35	4.77	5.10	5.13
8/17/2019	4.36	4.76	5.09	5.16
8/18/2019	5.82	6.23	6.62	6.66
8/19/2019	5.74	6.17	6.55	6.59
8/20/2019	7.26	7.85	8.53	8.60
8/21/2019	8.82	9.54	10.57	10.67
8/22/2019	6.43	6.95	7.53	7.63
8/23/2019	7.27	7.95	8.85	9.09
8/24/2019	4.43	4.85	5.30	5.39
8/25/2019	4.59	5.07	5.52	5.55
8/26/2019	7.33	7.88	8.39	8.44
8/27/2019	7.52	8.14	8.86	9.20
8/28/2019	7.24	7.76	8.37	8.50
8/29/2019	6.29	6.69	7.01	7.03
8/30/2019	6.29	6.80	7.46	7.55
8/31/2019	4.88	5.12	5.27	5.30
9/1/2019	5.69	6.06	6.38	6.40
9/2/2019	6.67	7.19	7.75	7.87
9/3/2019	6.24	6.61	6.92	6.94
9/4/2019	4.47	4.76	4.96	4.99
9/5/2019	4.06	4.34	4.52	4.54
9/6/2019	4.22	4.49	4.69	4.71
9/7/2019	4.47	4.79	5.09	5.13
9/8/2019	4.83	5.21	5.58	5.63
9/9/2019	5.48	5.94	6.40	6.49
9/10/2019	6.20	6.60	6.92	6.93
9/11/2019	9.35	9.79	10.18	10.20
9/12/2019	6.85	7.30	7.77	7.84
9/13/2019	4.48	4.99	5.54	5.58
9/14/2019	5.08	5.45	5.75	5.78
9/15/2019	6.57	7.02	7.47	7.54
9/16/2019	6.97	7.42	7.86	7.90
9/17/2019	6.82	7.05	7.17	7.18
9/18/2019	6.79	6.96	7.02	7.02
9/19/2019	6.16	6.77	7.48	7.52
9/20/2019	7.90	8.60	9.34	9.42
9/21/2019	6.67	7.40	8.44	8.64
9/22/2019	7.88	8.82	10.25	10.47

9/23/2019	7.97	8.66	9.58	9.75
9/24/2019	8.52	9.16	10.07	10.16
9/25/2019	5.48	5.89	6.36	6.40
9/26/2019	3.53	4.00	4.59	4.83
9/27/2019	4.09	4.63	5.21	5.30
9/28/2019	4.64	5.44	6.65	6.81
9/29/2019	4.72	5.58	6.87	7.04
9/30/2019	6.70	7.62	8.82	9.05
10/1/2019	2.84	3.15	3.42	3.45
10/2/2019	6.08	6.76	7.57	7.68
10/3/2019	8.50	9.34	10.39	10.49
10/4/2019	7.03	7.58	8.10	8.15
10/5/2019	7.70	8.26	8.86	8.91
10/6/2019	9.02	9.66	10.42	10.60
10/7/2019	10.99	11.74	12.64	12.78
10/8/2019	11.81	12.53	13.42	13.53
10/9/2019	6.14	6.49	6.87	6.92
10/10/2019	6.86	7.41	8.05	8.14
10/11/2019	9.27	10.02	10.94	11.45
10/12/2019	11.20	12.06	13.31	13.77
10/13/2019	12.66	13.55	14.68	14.76
10/14/2019	15.01	16.11	17.63	17.92
10/15/2019	15.91	17.14	18.96	19.24
10/16/2019				
10/17/2019				
10/18/2019				
10/19/2019				
10/20/2019				
10/21/2019				
10/22/2019				
10/23/2019				
10/24/2019				
10/25/2019				
10/26/2019				
10/27/2019				
10/28/2019				
10/29/2019				
10/30/2019				

10/31/2019				
11/1/2019				
11/2/2019	21.48	22.79	24.47	24.77
11/3/2019	20.00	21.29	23.25	23.46
11/4/2019	17.67	18.99	20.79	20.98
11/5/2019	17.90	19.20	21.19	21.51
11/6/2019	25.42	27.30	30.21	30.68
11/7/2019	23.45	24.99	27.89	28.57
11/8/2019	23.76	25.56	28.77	29.09
11/9/2019	22.06	23.74	26.56	26.91
11/10/2019	17.13	18.71	21.44	22.18
11/11/2019	16.36	18.19	21.09	21.84
11/12/2019	20.61	22.16	24.72	25.00
11/13/2019	22.93	24.69	27.57	27.82
11/14/2019	26.29	28.18	34.08	36.04
11/15/2019	27.56	28.77	34.63	39.00
11/16/2019	23.60	24.88	29.79	34.94
11/17/2019	22.99	23.59	26.70	29.55
11/18/2019	27.70	28.44	32.24	34.35
11/19/2019	38.71	39.51	42.24	45.88
11/20/2019	40.40	41.30	43.21	45.64
11/21/2019				
11/22/2019				
11/23/2019				
11/24/2019	29.41	30.00	32.19	32.85
11/25/2019	30.41	30.93	33.19	34.49
11/26/2019	35.76	38.23	51.69	69.30
11/27/2019				
11/28/2019				
11/29/2019	33.91	39.92	83.30	122.53
11/30/2019				
12/1/2019				
12/2/2019	33.14	37.17	59.89	85.19
12/3/2019				
12/4/2019				
12/5/2019	54.56	62.42	94.12	131.38
12/6/2019				
12/7/2019				

12/8/2019				
12/9/2019	37.29	41.85	62.52	103.63
12/10/2019				
12/11/2019				
12/12/2019				
12/13/2019				
12/14/2019				
12/15/2019				
12/16/2019				
12/17/2019	34.28	37.27	51.18	84.43
12/18/2019	36.68	40.39	60.19	105.07
12/19/2019				
12/20/2019	53.31	58.10	76.44	119.55
12/21/2019				
12/22/2019	47.23	51.55	70.76	118.91
12/23/2019				
12/24/2019	42.57	44.96	54.84	84.35
12/25/2019				
12/26/2019	46.12	49.70	63.35	92.06
12/27/2019				
12/28/2019	55.14	58.95	71.86	101.35
12/29/2019				
12/30/2019				
12/31/2019				

Date	PM ₁	PM _{2.5}	PM ₁₀	TSP
1/1/2020				
1/2/2020				
1/3/2020				
1/4/2020				
1/5/2020				
1/6/2020	45.97	50.88	72.20	122.94
1/7/2020				
1/8/2020				
1/9/2020				
1/10/2020				
1/11/2020	44.71	47.89	59.24	81.80
1/12/2020	51.43	55.62	71.16	109.34
1/13/2020				
1/14/2020	49.90	54.35	73.27	110.01
1/15/2020	43.23	45.20	50.78	58.35
1/16/2020				
1/17/2020				
1/18/2020				
1/19/2020	37.07	39.44	50.01	82.79
1/20/2020	31.01	32.99	40.36	51.99
1/21/2020	56.05	59.31	73.11	94.43
1/22/2020	40.76	42.98	51.37	62.17
1/23/2020	30.63	32.10	37.50	46.63
1/24/2020	35.57	36.87	41.53	47.08
1/25/2020	45.15	46.54	51.12	62.51
1/26/2020	43.57	44.82	48.76	53.46
1/27/2020	45.07	47.32	55.00	66.23
1/28/2020	46.01	48.16	54.02	61.34
1/29/2020	38.24	39.92	44.68	47.40
1/30/2020	35.18	36.63	41.34	47.14
1/31/2020	35.16	36.55	41.16	48.61
2/1/2020	34.08	35.62	40.25	49.74
2/2/2020	31.00	32.19	35.99	39.77
2/3/2020	32.35	33.52	37.49	44.84
2/4/2020	36.87	38.05	41.00	45.95
2/5/2020	32.02	32.96	35.55	40.96
2/6/2020	34.28	36.28	43.41	57.68

2/7/2020	37.10	38.20	40.30	42.65
2/8/2020	38.92	39.72	41.49	45.16
2/9/2020	36.08	36.77	39.63	40.85
2/10/2020	32.16	32.77	35.17	36.23
2/11/2020				
2/12/2020				
2/13/2020	31.82	32.49	34.41	35.08
2/14/2020	31.66	32.29	33.33	33.84
2/15/2020	38.25	38.96	40.42	44.46
2/16/2020	37.29	38.17	39.10	41.18
2/17/2020	35.57	36.29	37.15	38.60
2/18/2020	31.70	32.51	33.64	34.54
2/19/2020				
2/20/2020				
2/21/2020	72.26	75.87	85.78	114.66
2/22/2020				
2/23/2020	39.06	44.64	58.58	89.00
2/24/2020	32.07	37.67	54.18	115.87
2/25/2020	22.52	27.74	45.50	102.16
2/26/2020				
2/27/2020				
2/28/2020	22.95	26.61	35.41	57.51
2/29/2020	25.62	29.04	37.20	58.32
3/1/2020	24.85	27.91	38.01	74.87
3/2/2020	27.26	32.13	45.95	91.23
3/3/2020	24.06	27.74	37.18	58.72
3/4/2020	23.06	26.81	36.56	66.05
3/5/2020	25.03	28.56	37.58	58.53
3/6/2020	23.28	29.64	49.31	93.85
3/7/2020	19.71	22.25	27.96	45.97
3/8/2020	21.07	23.46	30.28	60.58
3/9/2020	18.93	21.25	26.79	45.54
3/10/2020	24.46	27.37	35.31	65.59
3/11/2020	23.53	27.44	37.22	68.48
3/12/2020	22.71	28.29	41.84	69.90
3/13/2020	31.77	38.33	58.37	117.65
3/14/2020	19.42	21.89	28.55	43.87
3/15/2020	13.98	17.43	28.97	76.76

3/16/2020	12.39	16.03	27.48	51.05
3/17/2020	14.51	16.92	24.87	38.08
3/18/2020	14.24	16.01	21.25	32.32
3/19/2020	18.47	20.14	24.17	29.33
3/20/2020	16.87	17.71	19.53	21.16
3/21/2020	14.07	15.17	17.05	19.43
3/22/2020	14.91	15.93	16.96	17.85
3/23/2020	21.74	25.51	37.88	72.26
3/24/2020	28.29	31.30	40.27	55.92
3/25/2020	34.28	37.85	48.57	78.91
3/26/2020	36.86	40.93	54.82	89.99
3/27/2020	37.89	42.31	54.88	81.73
3/28/2020	17.76	20.17	27.43	56.47
3/29/2020	25.04	28.86	43.50	90.37
3/30/2020	29.27	33.34	49.32	87.70
3/31/2020	37.29	42.32	61.85	122.09
4/1/2020	33.75	38.91	53.89	106.56
4/2/2020	22.94	27.45	40.94	75.49
4/3/2020	30.11	36.48	55.90	102.06
4/4/2020	44.63	50.40	71.73	130.59
4/5/2020	57.15	62.45	84.19	130.66
4/6/2020	65.80	72.08	96.75	166.55
4/7/2020	61.41	68.34	95.90	161.54
4/8/2020	62.86	72.32	109.89	211.93
4/9/2020	47.54	56.11	88.76	179.82
4/10/2020	62.80	70.43	100.75	161.43
4/11/2020	97.44	104.44	129.69	177.76
4/12/2020	80.88	87.43	109.65	159.13
4/13/2020	72.97	80.19	106.64	178.19
4/14/2020	49.68	53.76	65.90	93.87
4/15/2020	24.55	26.68	32.17	54.92
4/16/2020	32.44	36.72	48.81	86.80
4/17/2020	37.51	41.47	50.25	74.56
4/18/2020	20.82	24.88	34.92	72.71
4/19/2020	18.26	23.46	38.47	84.49
4/20/2020	18.98	23.71	36.24	68.12
4/21/2020				
4/22/2020	14.97	16.57	20.25	27.81

4/23/2020	26.04	28.46	34.14	44.05
4/24/2020	27.09	29.65	35.93	49.68
4/25/2020	27.75	29.84	35.42	39.17
4/26/2020	30.79	33.18	38.18	47.79
4/27/2020	22.29	24.33	29.18	39.03
4/28/2020	21.40	23.62	29.08	40.53
4/29/2020	22.93	25.08	30.33	38.26
4/30/2020	23.91	25.90	30.37	39.26
5/1/2020	23.24	25.23	29.91	33.80
5/2/2020	23.44	25.58	30.78	40.07
5/3/2020	25.30	27.94	34.38	45.75
5/4/2020	17.70	19.91	25.84	29.47
5/5/2020	15.98	18.39	25.17	36.78
5/6/2020	10.45	12.32	17.17	25.72
5/7/2020	16.39	18.72	24.97	32.00
5/8/2020	19.04	21.58	28.67	44.53
5/9/2020	26.52	29.93	41.31	61.92
5/10/2020	28.14	32.88	48.30	92.39
5/11/2020	35.96	41.79	61.09	97.44
5/12/2020	31.66	36.65	53.10	78.16
5/13/2020	29.74	36.49	60.82	108.03
5/14/2020	32.94	38.78	57.15	87.03
5/15/2020	35.85	39.70	48.77	60.30
5/16/2020	40.20	46.40	62.97	94.14
5/17/2020	34.43	41.07	64.38	113.53
5/18/2020	36.55	41.84	58.24	91.48
5/19/2020	29.72	33.49	45.25	80.24
5/20/2020	28.52	32.33	47.27	95.79
5/21/2020	27.18	29.53	34.89	45.15
5/22/2020	32.35	35.96	46.41	68.23
5/23/2020	24.54	27.34	36.82	61.82
5/24/2020	27.32	31.88	46.93	87.77
5/25/2020	29.23	34.52	52.03	92.99
5/26/2020	25.89	30.15	44.02	77.35
5/27/2020	21.45	24.76	34.15	56.17
5/28/2020	20.02	23.75	33.25	51.36
5/29/2020	13.28	15.84	23.06	41.40
5/30/2020	17.14	21.02	29.25	40.46

5/31/2020	18.91	24.02	33.30	42.60
6/1/2020	20.17	25.73	34.92	47.68
6/2/2020	16.49	21.13	33.07	68.02
6/3/2020	23.00	28.17	43.89	84.68
6/4/2020	28.99	34.32	46.75	63.65
6/5/2020	14.51	16.42	20.10	21.85
6/6/2020	9.30	10.51	13.52	17.73
6/7/2020	11.28	13.07	18.43	36.54
6/8/2020	9.69	11.25	15.31	23.21
6/9/2020	20.83	24.40	34.56	50.97
6/10/2020	23.82	28.17	42.88	75.91
6/11/2020	21.31	24.51	35.63	66.17
6/12/2020	15.17	17.18	24.79	47.27
6/13/2020	11.57	13.48	19.09	28.54
6/14/2020	7.39	9.00	13.77	32.09
6/15/2020	8.72	10.41	14.45	22.78
6/16/2020	6.54	8.69	15.37	40.11
6/17/2020	8.56	10.26	15.79	38.02
6/18/2020	7.31	8.95	13.42	25.29
6/19/2020	11.97	13.87	18.86	25.40
6/20/2020	19.77	22.48	29.36	42.84
6/21/2020	18.78	22.68	32.00	43.41
6/22/2020	8.74	10.17	13.27	21.82
6/23/2020	14.10	19.82	32.33	66.61
6/24/2020	13.94	18.47	27.74	53.48
6/25/2020	18.11	20.84	26.83	31.40
6/26/2020	8.83	10.70	14.89	25.86
6/27/2020	13.82	16.38	23.27	36.93
6/28/2020	15.48	19.10	27.55	43.09
6/29/2020	13.72	17.07	25.49	46.28
6/30/2020	19.71	25.98	40.27	75.77
7/1/2020	22.15	27.84	40.53	62.96
7/2/2020	23.02	27.95	39.69	79.12
7/3/2020	20.36	24.77	35.47	55.34
7/4/2020	17.64	21.72	30.75	48.97
7/5/2020	13.12	15.87	23.86	47.58
7/6/2020	8.25	9.75	13.82	23.34
7/7/2020	9.73	11.90	16.64	28.20

7/8/2020	8.42	10.27	14.50	24.40
7/9/2020	12.47	13.97	16.83	21.22
7/10/2020	8.85	10.01	12.01	14.39
7/11/2020	8.08	9.35	11.82	19.92
7/12/2020	14.31	16.88	21.87	26.74
7/13/2020	12.13	14.36	19.71	35.44
7/14/2020	12.43	14.84	20.30	33.05
7/15/2020	13.73	17.26	26.91	53.88
7/16/2020	11.77	13.61	18.73	35.97
7/17/2020	10.78	12.51	17.01	30.27
7/18/2020	10.49	11.43	13.07	14.55
7/19/2020	9.21	10.45	12.24	13.83
7/20/2020	9.02	10.11	11.66	11.97
7/21/2020	11.41	13.03	16.27	22.17
7/22/2020	9.16	10.96	16.31	37.11
7/23/2020	12.50	13.78	16.47	29.01
7/24/2020	11.69	13.73	17.67	33.77
7/25/2020	11.86	14.15	20.58	34.27
7/26/2020	11.64	14.29	22.71	38.70
7/27/2020	10.75	13.07	21.40	39.03
7/28/2020	15.19	19.47	29.85	57.12
7/29/2020	13.16	16.52	27.12	58.56
7/30/2020	13.69	18.11	28.52	49.10
7/31/2020	12.23	14.94	23.65	52.82
8/1/2020	9.94	11.52	15.72	26.74
8/2/2020	10.70	13.14	19.61	36.24
8/3/2020	12.39	15.63	23.04	43.03
8/4/2020	11.24	14.93	28.43	66.99
8/5/2020	5.99	7.46	12.19	23.77
8/6/2020	6.37	8.23	13.28	29.00
8/7/2020	8.84	10.94	17.29	35.83
8/8/2020	11.27	12.74	16.66	25.38
8/9/2020	10.37	11.60	14.40	23.30
8/10/2020	12.28	14.26	20.48	36.25
8/11/2020	7.87	9.26	12.40	19.03
8/12/2020	7.28	9.31	15.85	37.55
8/13/2020	12.40	14.46	21.37	42.64
8/14/2020	10.92	12.63	17.53	30.49

8/15/2020	9.83	11.29	15.04	20.57
8/16/2020	7.60	9.48	14.13	27.00
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8/22/2020	6.70	8.00	11.53	22.28
8/23/2020	7.85	9.16	12.42	18.36
8/24/2020	7.97	9.07	11.61	16.72
8/25/2020	8.14	9.09	11.29	14.05
8/26/2020	10.01	11.45	14.71	18.06
8/27/2020	9.46	10.70	13.23	14.99
8/28/2020	8.89	10.40	13.96	21.40
8/29/2020	10.25	11.90	15.91	25.45
8/30/2020	12.82	13.93	16.33	21.14
8/31/2020	13.62	14.76	17.69	23.61
9/1/2020	14.49	16.32	21.50	31.84
9/2/2020	11.40	12.93	17.04	25.21
9/3/2020	11.13	12.80	16.97	23.76
9/4/2020	12.87	14.37	18.44	27.96
9/5/2020	15.94	17.55	22.47	36.91
9/6/2020	18.93	21.31	29.09	41.35
9/7/2020	20.20	22.80	31.06	41.73
9/8/2020	18.16	20.98	27.71	33.70
9/9/2020	17.22	19.87	25.78	32.15
9/10/2020	16.48	19.46	28.16	46.54
9/11/2020	16.23	18.65	24.89	34.69
9/12/2020	15.62	17.97	25.77	45.25
9/13/2020				
9/14/2020	17.70	20.14	27.28	40.88
9/15/2020	21.02	23.52	30.60	40.51
9/16/2020	23.30	26.06	33.15	38.47
9/17/2020	28.52	32.38	42.58	58.55
9/18/2020	21.90	25.40	33.25	41.31
9/19/2020	21.70	24.95	34.02	48.59
9/20/2020	21.31	25.97	40.34	67.19
9/21/2020	16.81	20.54	30.49	47.73

9/22/2020	17.26	19.51	25.01	30.58
9/23/2020	7.76	8.45	9.27	9.63
9/24/2020	7.41	7.98	8.52	8.61
9/25/2020	7.04	8.26	12.38	26.45
9/26/2020	7.25	8.78	13.13	26.56
9/27/2020	11.44	14.00	21.88	38.57
9/28/2020	14.73	17.67	27.05	44.21
9/29/2020	20.87	24.84	39.73	68.75
9/30/2020	26.94	32.57	49.00	79.65
10/1/2020	33.62	40.67	58.10	77.16
10/2/2020	31.22	37.93	54.83	85.19
10/3/2020	30.47	36.27	52.58	84.09
10/4/2020	27.84	33.00	48.14	77.02
10/5/2020	26.28	31.76	48.77	79.02
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