



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

Air quality status of Nepal 2016-2020

Volume VII
DHM Pokhara air quality monitoring station



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1.DHM Pokhara Air Quality Monitoring Station

About the Station

- Address : DHM office Pokhara
- Location: 83.97 longitude, 28.20 latitude
It is located within premises of DHM Office.
- Establish year: 2017 (2073)
- 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 DHM Pokhara station (2017-2020)

2.1 Air Quality status, 2017

2.1.1 Temporal variation of PM1

Annual Average of PM1

Histogram of hourly average PM1 at DHM Pokhara station in 2017 is shown in following figure

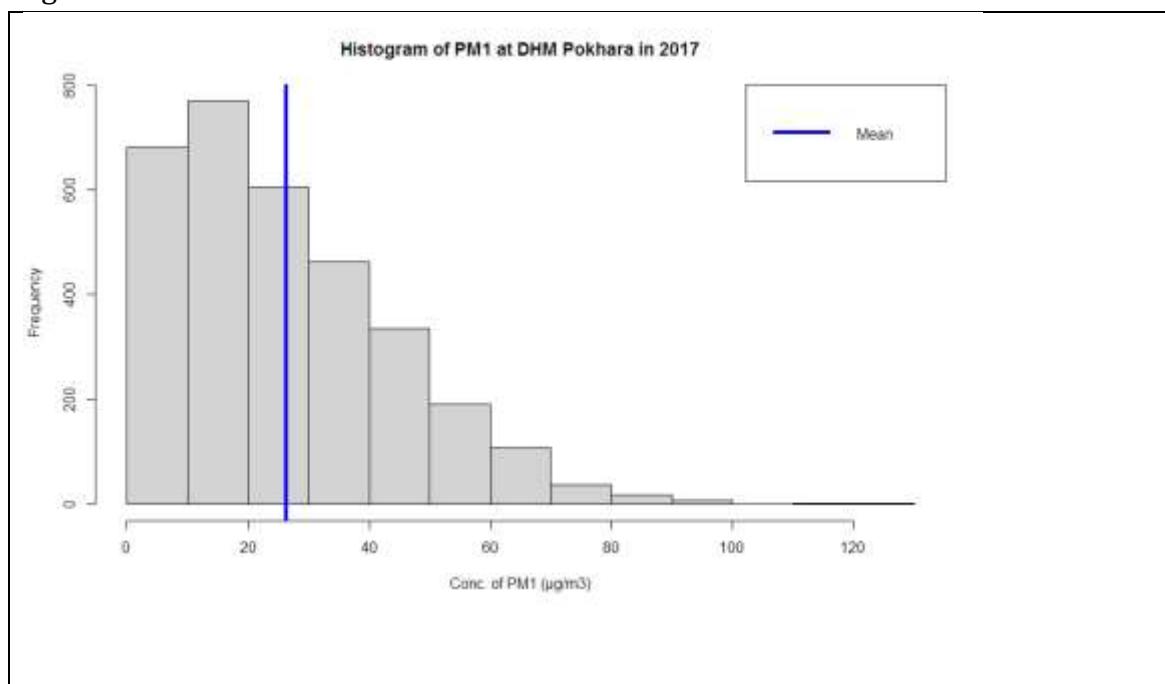


Figure 1. Histogram of PM1 at DHM Pokhara station in 2017

Daily average of PM1

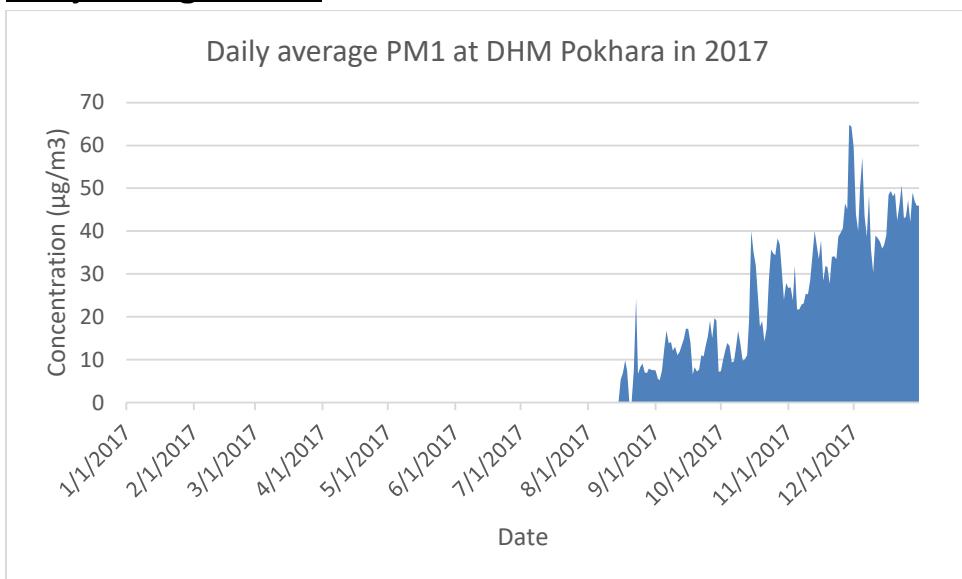


Figure 2. Daily average PM1 at DHM Pokhara station in 2017

Monthly Average of PM1

Following figure shows monthly average PM1 at DHM Pokhara station in 2017

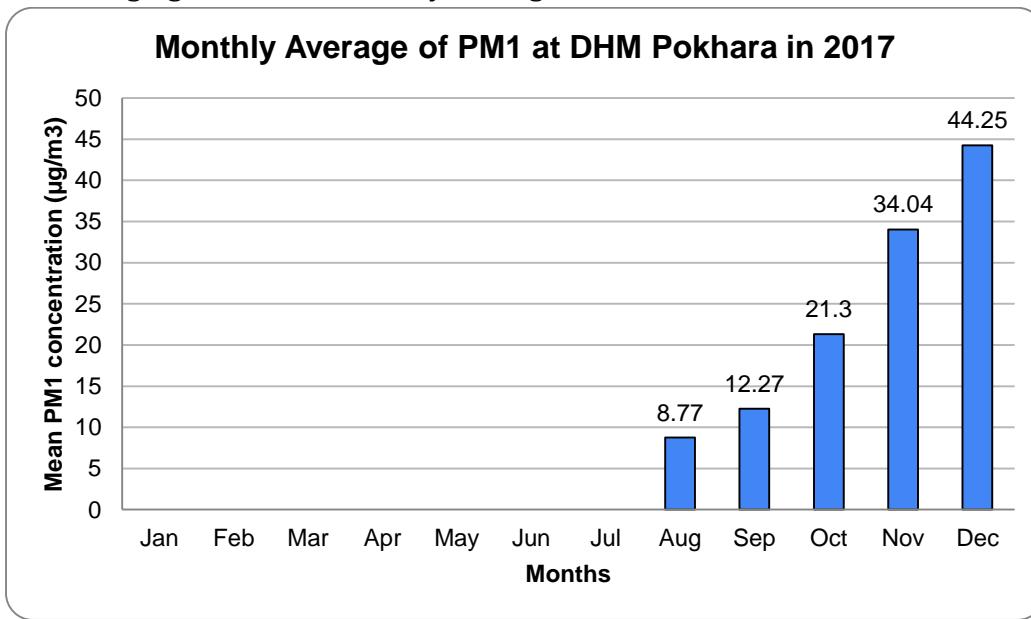


Figure 3. Monthly Average of PM1 at DHM Pokhara Station on 2017

Among 5 month with measurement December had the highest monthly average with monthly average value of $44.25 \mu\text{g}/\text{m}^3$ while August had the lowest value with monthly average value of $8.77 \mu\text{g}/\text{m}^3$.

Monthly variation of PM1

The following figure shows the monthly variation of PM1 at DHM Pokhara station in 2017.

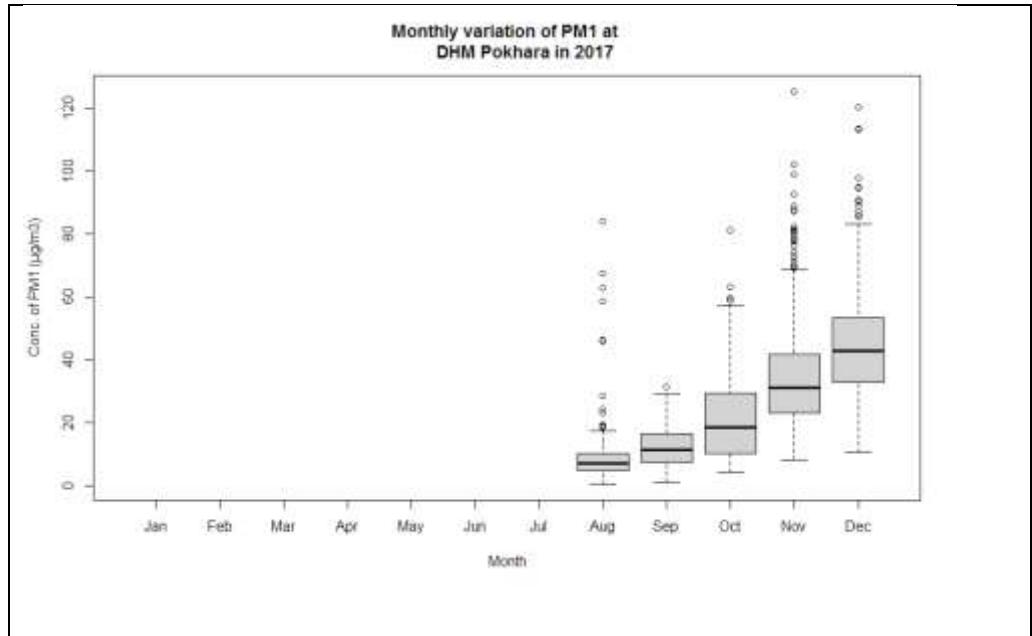


Figure 4. Boxplot of monthly variation of PM1 at DHM Pokhara station in 2017

Variation in concentration of PM1 was found more in November and December and low in August.

Diurnal Variation of PM1

The following figure shows the diurnal variation of PM1 at DHM Pokhara station in 2017.

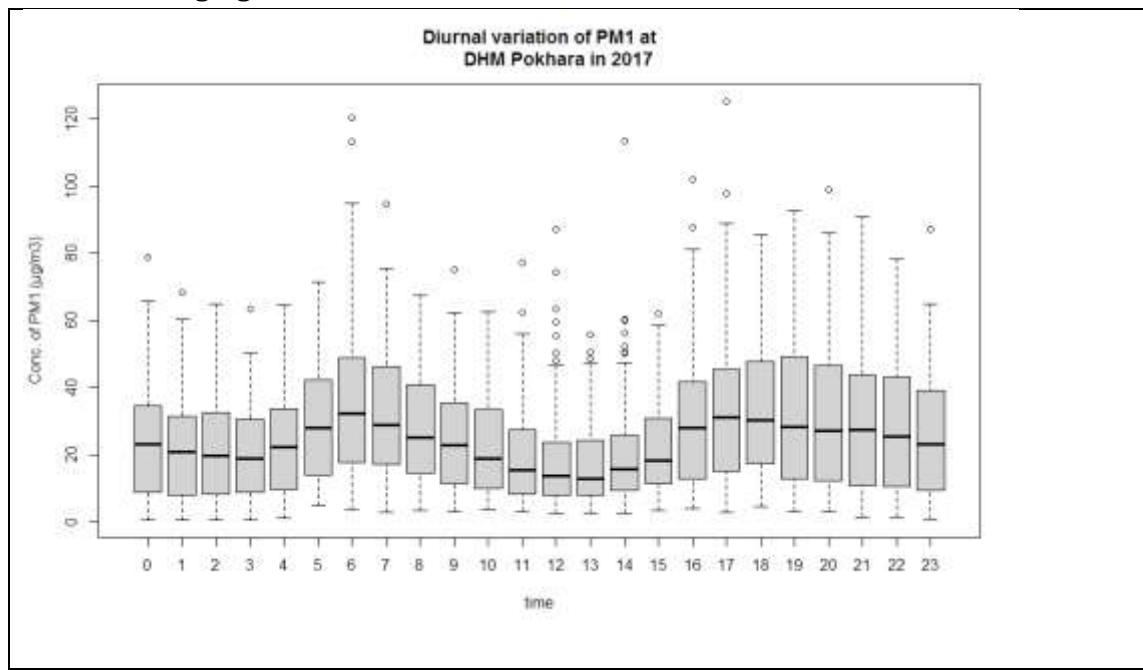


Figure 5. Boxplot of diurnal variation of PM1 at DHM Pokhara in 2017

The boxplot shows that PM1 concentration is more in 6 O clock in the morning and 17 and 18 clock in the evening similarly it is also more variable during those time.

2.1.2 Temporal variation of PM2.5

Annual Average of PM2.5

The following figure shows the histogram of PM2.5 at DHM Pokhara station in 2017.

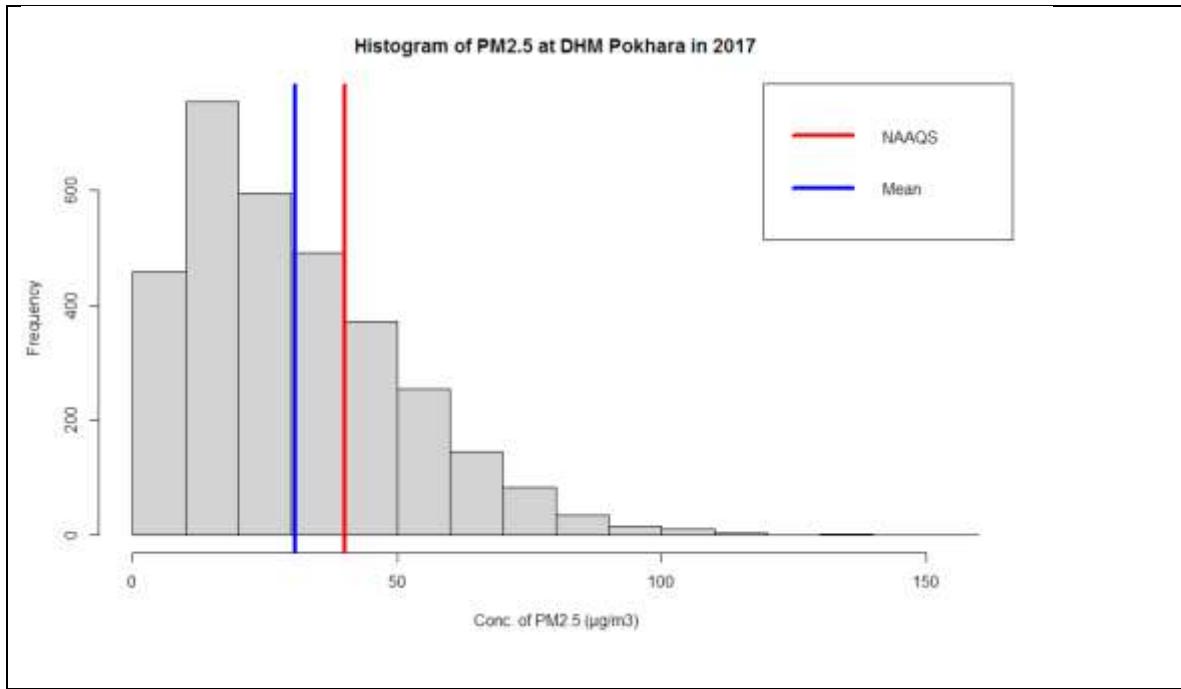


Figure 6. Histogram of PM2.5 at DHM Pokhara station in 2017

The Histogram of PM2.5 at DHM Pokhara station in 2017 shows that highest no of hourly data are between 10 - 20 $\mu\text{g}/\text{m}^3$ concentration followed by 10-20 $\mu\text{g}/\text{m}^3$ concentration.

Daily average PM 2.5

Following figure shows the daily average PM2.5 bar graph at DHM Pokhara station in 2017.

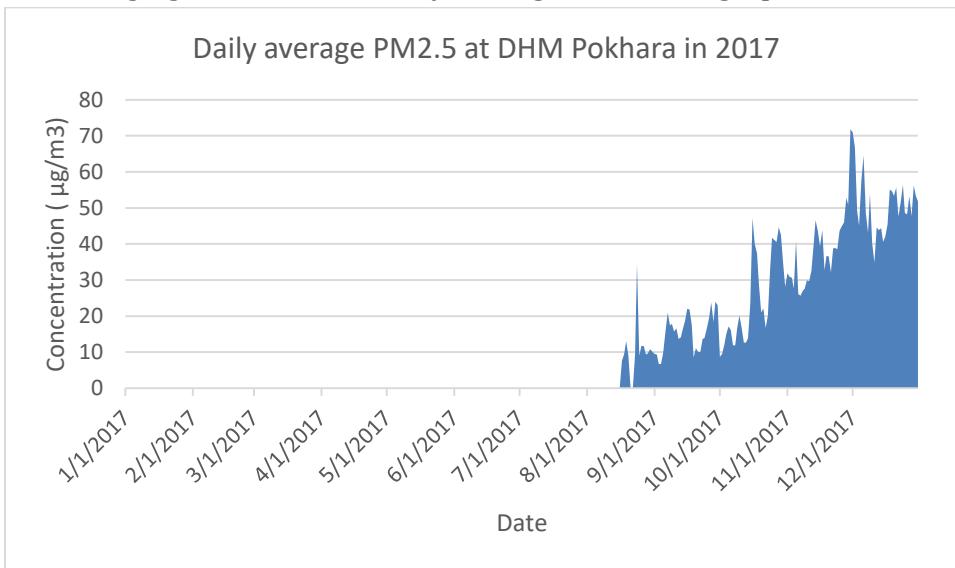


Figure 7. Daily average PM 2.5 at DHM Pokhara station in 2017

Monthly Average of PM2.5

Figure 2 shows the monthly average of PM_{2.5}.

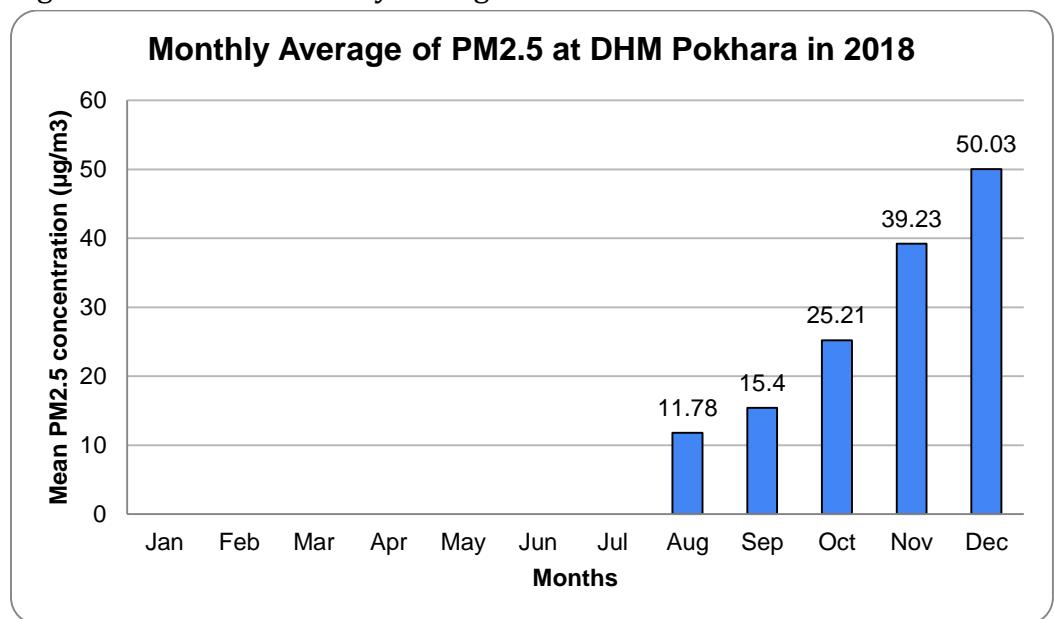


Figure 8. Monthly average PM_{2.5} at DHM Pokhara station in 2017

Out of 5 months with measurement, December has the highest monthly average of PM_{2.5} with monthly average of 50.03 $\mu\text{g}/\text{m}^3$.

Monthly variation of PM2.5

Following figure shows the monthly variation of PM_{2.5} at DHM Pokhara station in 2017.

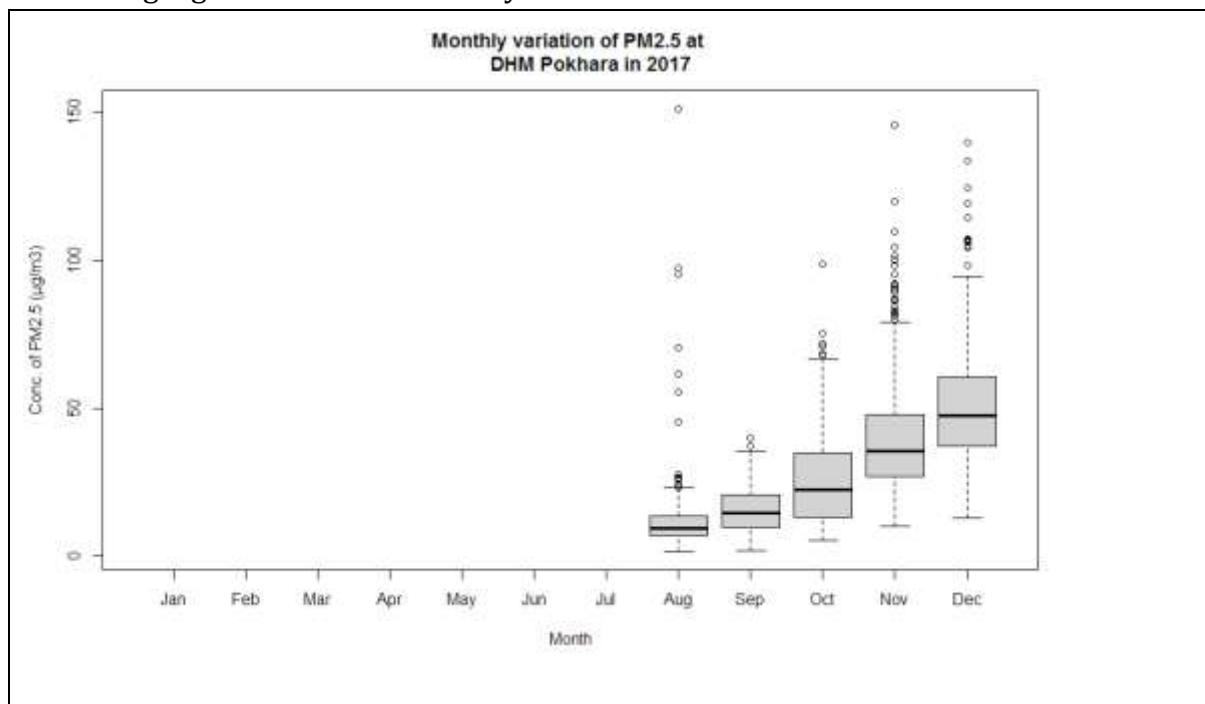


Figure 9. Boxplot of Monthly variation of PM_{2.5} at DHM Pokhara station in 2017

The Boxplot shows there was more variation of Hourly average PM_{2.5} data in the month of November and December.

Diurnal Variation of PM2.5

The following figure shows the diurnal variation of PM2.5 at DHM Pokhara station in 2017.

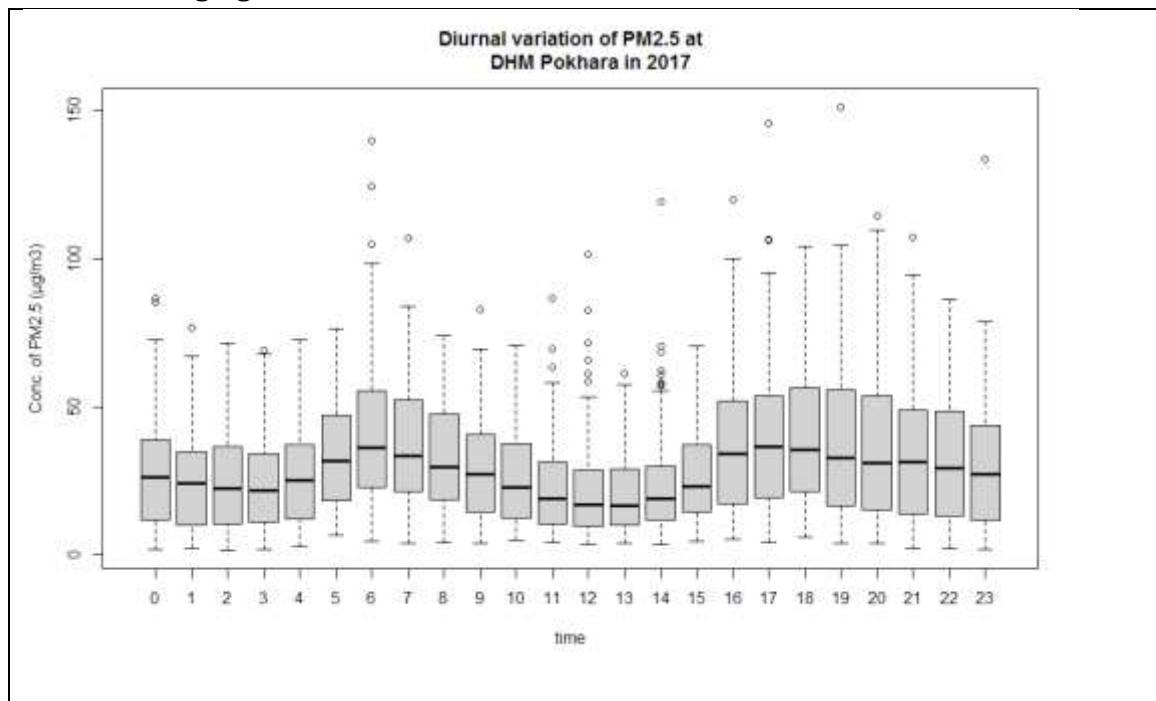


Figure 10. Boxplot of PM2.5 at DHM Pokhara station in 2017

The Boxplot of diurnal variation of PM 2.5 shows PM2.5 concentrations was highest at 6 o'clock in the morning and 17 and 18 o'clock in the evening similarly highest variation was also at those time.

Compliance with National Ambient Air Quality Standards(NAAQS)

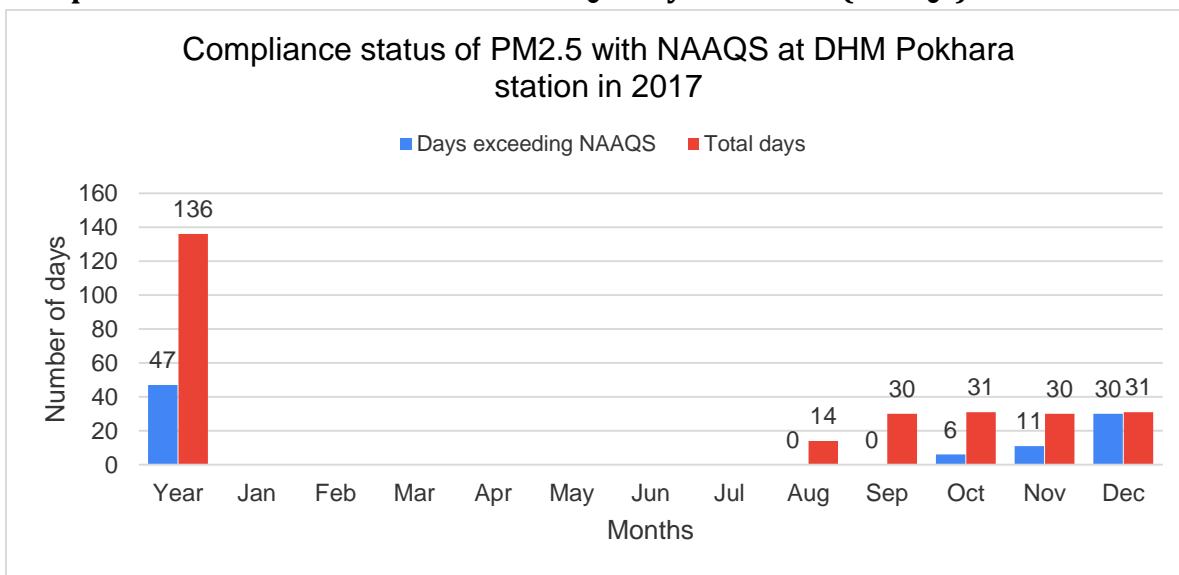


Figure 11. Compliance status of PM2.5 at DHM Pokhara with NAAQS

In 2017 out of 136 days of measurement 47 days exceeded the national ambient air quality standard for PM2.5.

2.1.3 Temporal variation of PM10

Annual average of PM10.

Following figure shows the Histogram of PM10 at DHM Pokhara station in 2017.

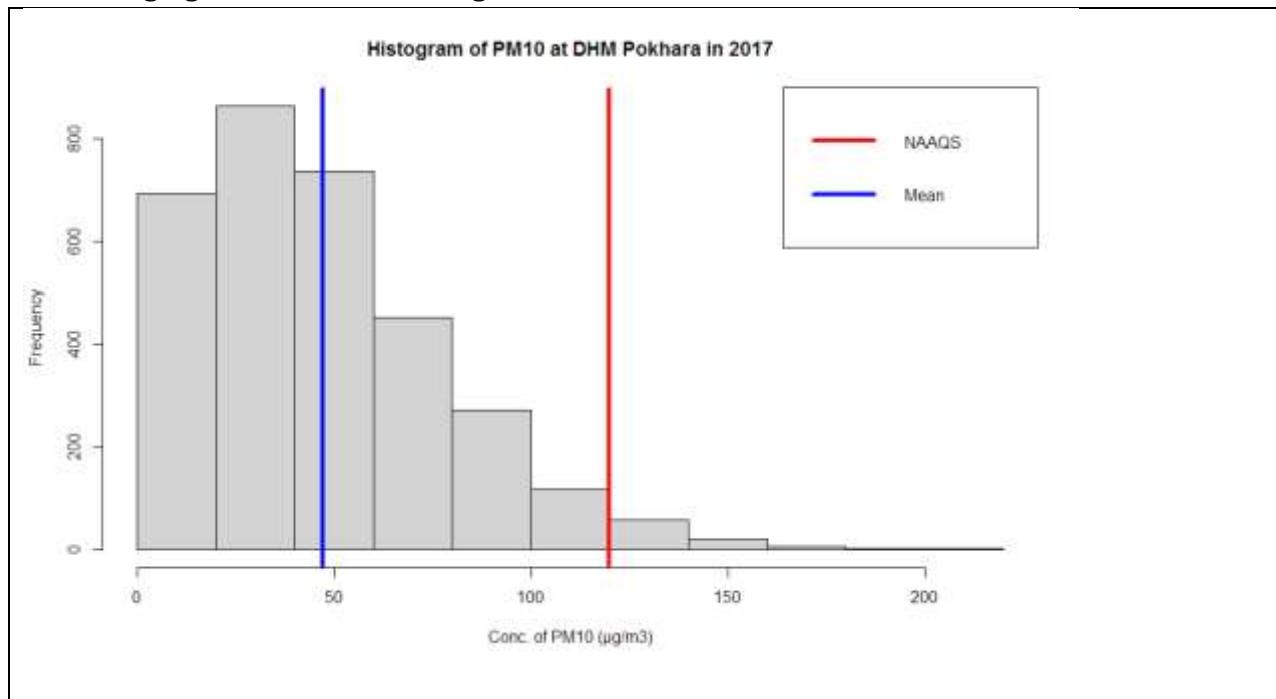


Figure 12. Histogram of PM10 at DHM Pokhara station in 2017

The Histogram of PM10 at DHM Pokhara station in 2017 shows that highest no of hourly data is between 20 - 40 $\mu\text{g}/\text{m}^3$ concentration followed by 50-100 $\mu\text{g}/\text{m}^3$ concentration.

Daily average of PM10

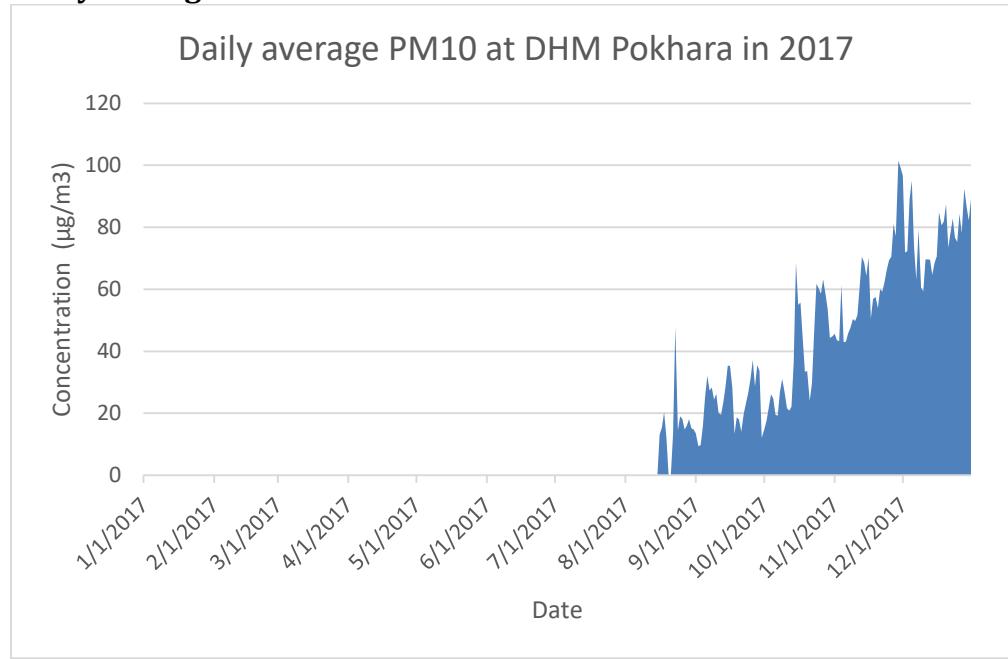


Figure 13. Daily average PM10 at DHM Pokhara station in 2017

Monthly Average of PM10

Figure 8 shows the monthly average of PM10 at DHM Pokhara in 2017.

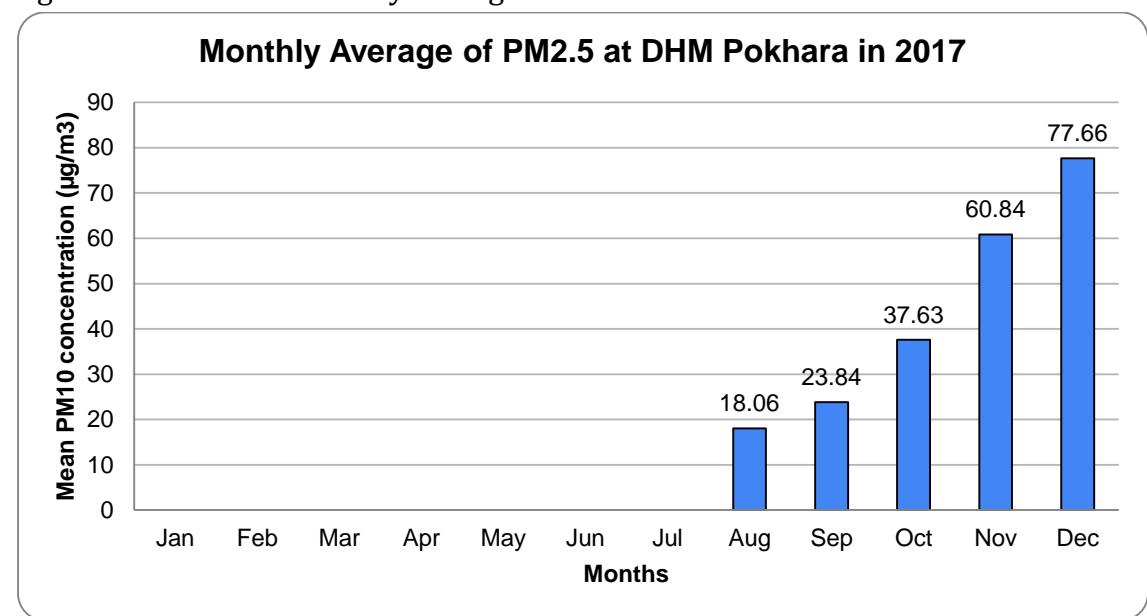


Figure 14. Monthly average PM10 at DHM Pokhara station in 2017

out of 5 month with measurement, December has the highest monthly average with monthly average value of $77.66 \mu\text{g}/\text{m}^3$ and August has the lowest monthly average with average value of $18.06 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM10

Following figure shows the monthly variation of PM10 at DHM Pokhara station in 2017.

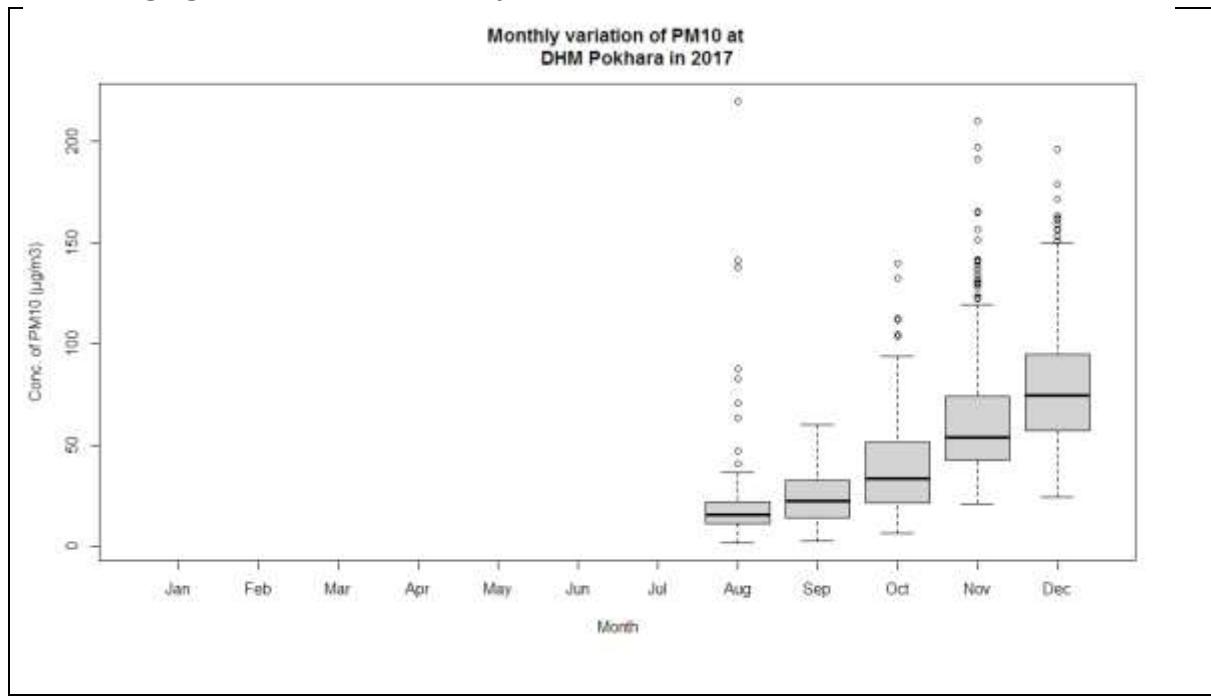


Figure 15. Boxplot of monthly variation of PM10 at DHM Pokhara in 2017

The Boxplot of monthly variation of PM10 at DHM Pokhara shows that hourly average of PM10 is more variable during November and December.

Diurnal Variation of PM10

Following figure shows the diurnal variation of PM10 at DHM Pokhara station in 2017.

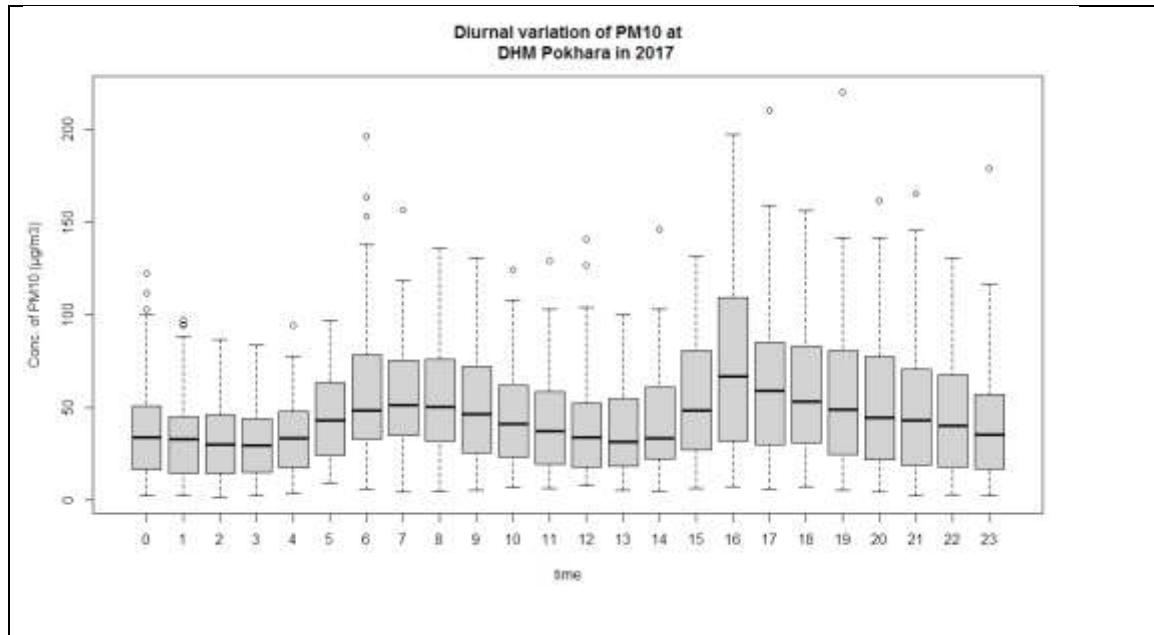


Figure 16.. Boxplot of diurnal variation of PM10at DHM Pokhara in 2017

The boxplot of diurnal variation of PM10 at DHM Pokhara station in 2017 shows that concentration of PM10 was highest during 6,7 and 8 O'clock in the morning 16 at the evening similarly variation was high during those periods.

Compliance with National ambient air quality standard

Out of total 136 days of Measurement all days meet the National ambient air quality standard for PM10.

2.1.4 Temporal variation of TSP

Annual Average of TSP

Following figure shows the Histogram of Total suspended Particulate(TSP) at DHM Pokhara station in 2017.

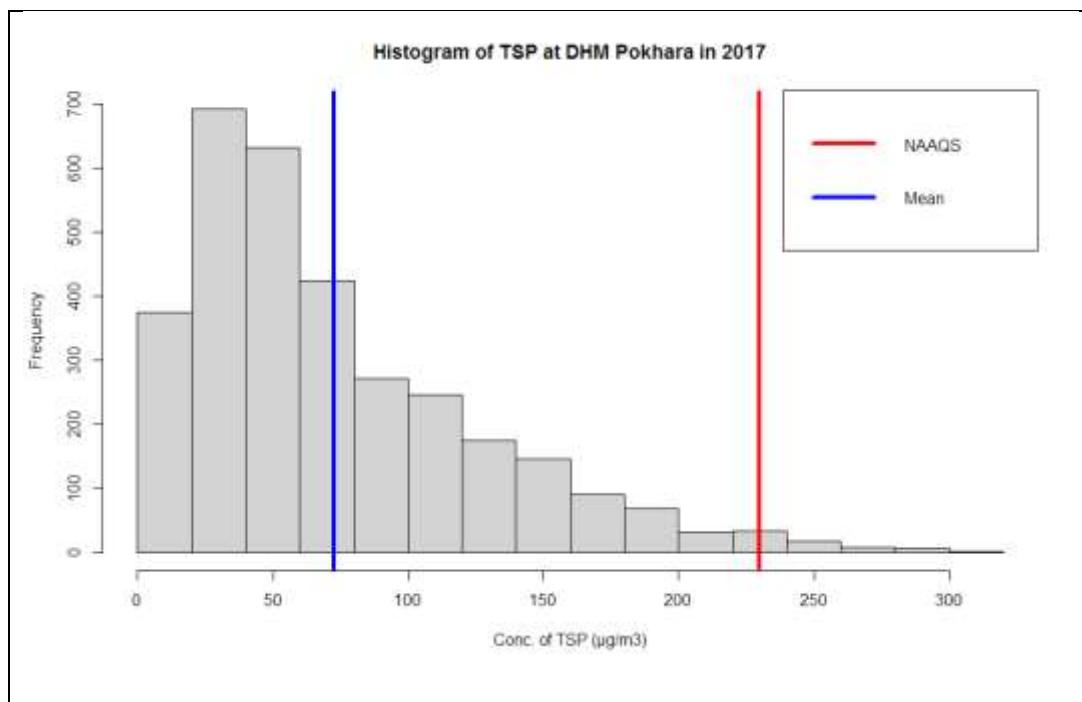


Figure 17. Histogram of TSP at DHM Pokhara station in 2017

The Histogram of PM10 at DHM Pokhara station in 2017 shows that highest no of hourly data is between 20 - 40 $\mu\text{g}/\text{m}^3$ concentration followed by 40-60 $\mu\text{g}/\text{m}^3$ concentration.

Daily average of TSP

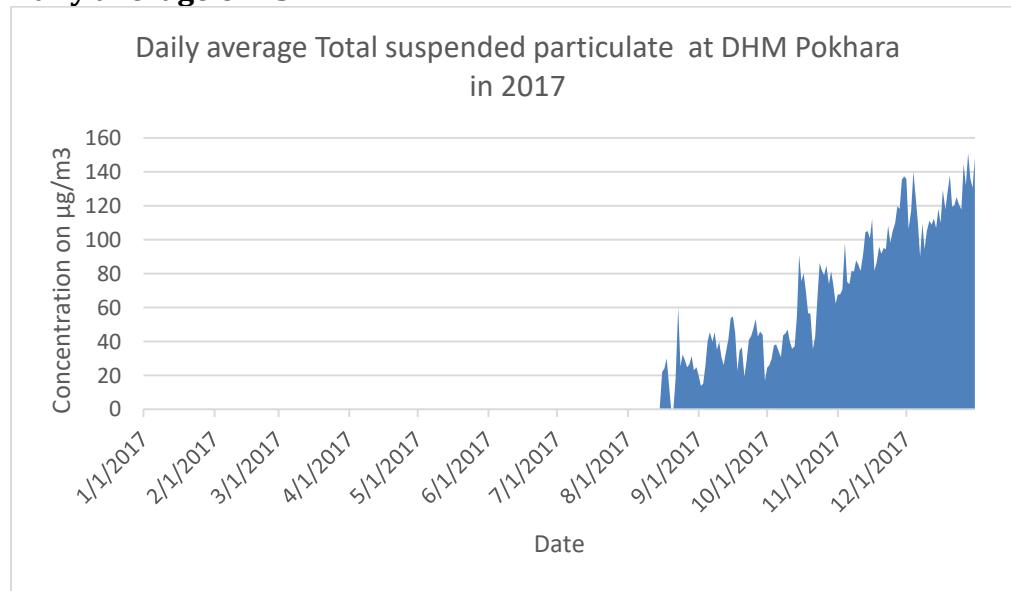


Figure 18. Daily average Total suspended Particulate at DHM Pokhara station in 2017

Monthly Average of TSP

Following figure shows the monthly average of Total suspended particulate at DHM Pokhara station in 2017.

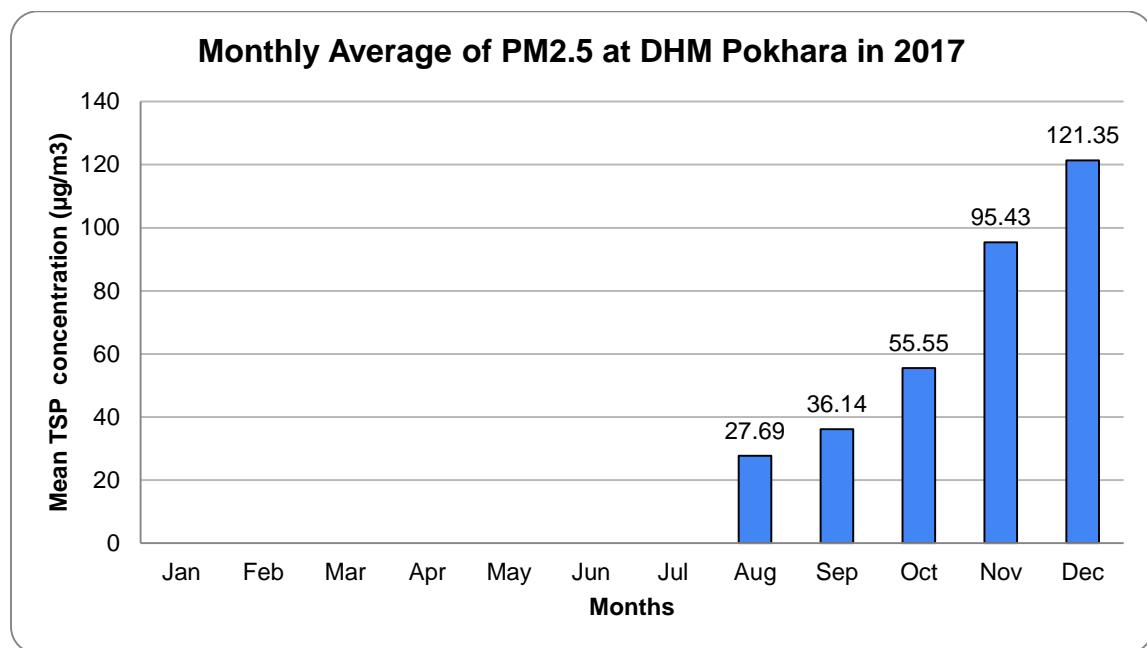


Figure 19. Monthly average total suspended particulate at DHM Pokhara station on 2017

Out of 5 month with measurement, December has the highest monthly average of 121.35 $\mu\text{g}/\text{m}^3$ and August has the lowest monthly average of 27.69 $\mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows the monthly variation of Total suspended particulate

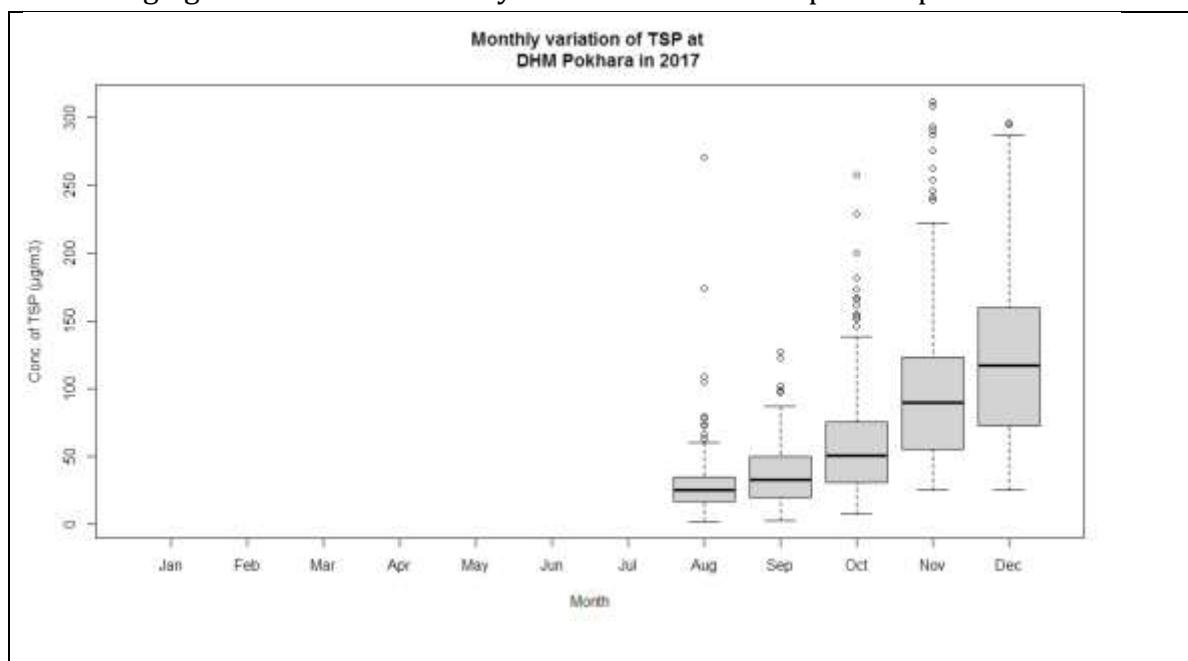


Figure 20. Boxplot of monthly variation of TSP at DHM Pokhara station in 2017

The Boxplot of Total suspended particulate at DHM Pokhara in 2017 shows more variation of TSP was observed in November and December.

Diurnal Variation

Following figure shows the diurnal variation of Total suspended particulate at DHM Pokhara station in 2017.

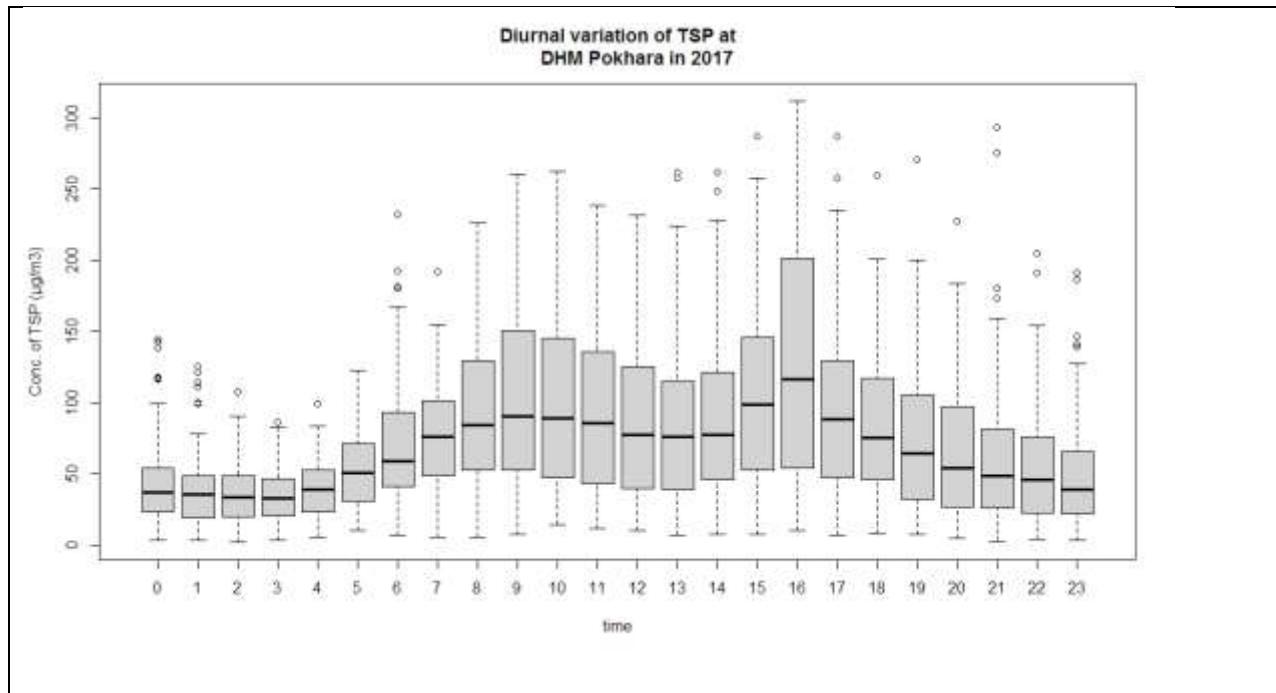


Figure 21. Boxplot of diurnal variation of TSP at DHM Pokhara in 2017

The Boxplot of TSP at DHM Pokhara in 2017 shows that the concentration of TSP was more during 16 O'clock and was more variable during that period.

Compliance with National ambient air quality standard.

Out of 136 days of measurement in 2017 all days meets the National Ambient air quality standard for TSP.

2.2 Air Quality Status, 2018

2.2.1 Annual average of PM1, PM2.5, PM10 and TSP

For all the parameters in the station

Annual average of all parameters (PM1, PM2.5, PM10 and TSP for this station)

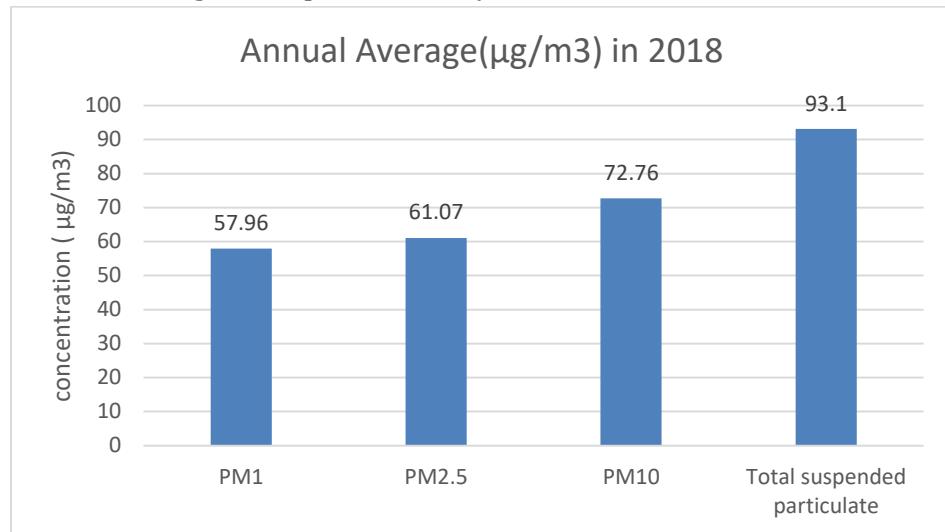


Figure 22. Annual average PM1, PM2.5, PM10 and TSp at DHM Pokhara station for 2018

2.2.2 Temporal Variation of PM1

Annual Average of PM1

Annual average PM1 at DHM Pokhara station at 2018 was 57.96 µg/m³. Following figure shows the Histogram of PM1 at DHM Pokhara in 2018.

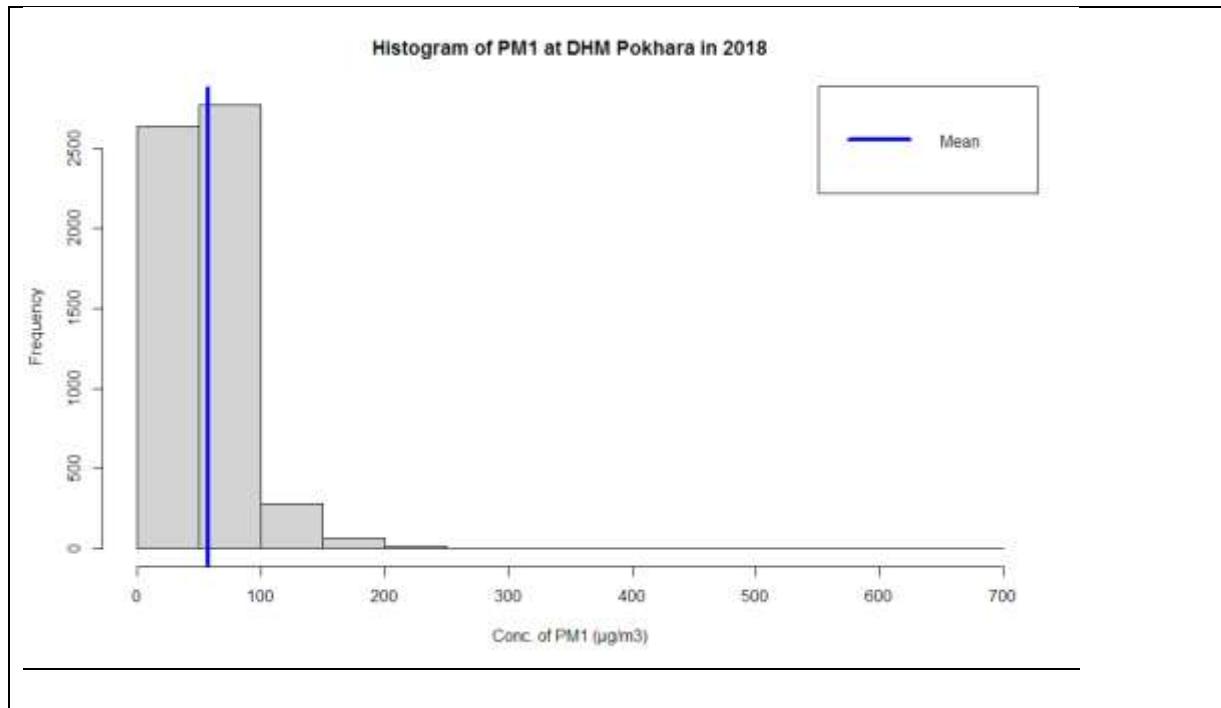


Figure 23. Histogram of PM1 at DHM Pokhara in 2018

The Histogram shows that highest no of hourly average data were between 50-100 $\mu\text{g}/\text{m}^3$ followed by 0-50 $\mu\text{g}/\text{m}^3$.

Daily average of PM1

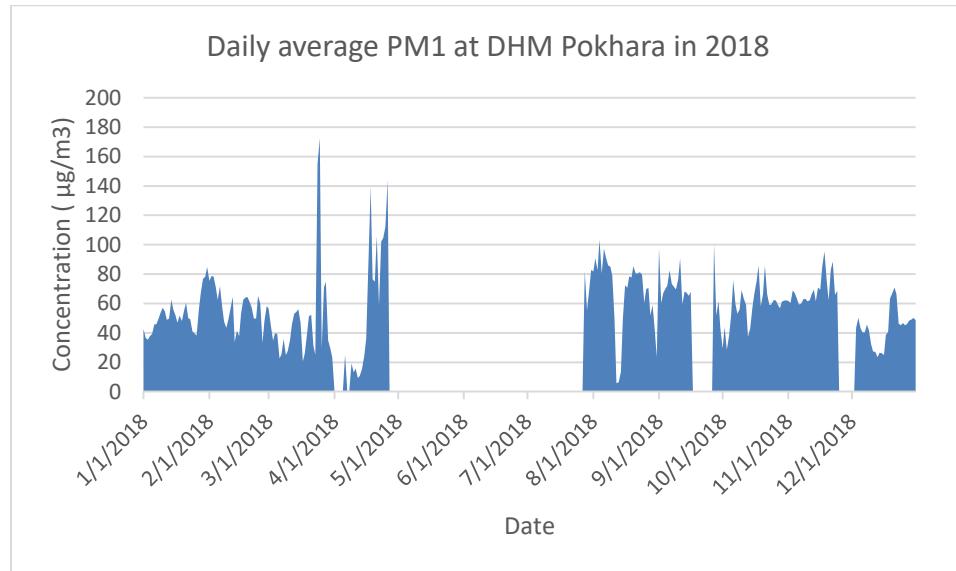


Figure 24.. Daily average PM1 at DHM Pokhara station in 2018

Monthly Average of PM1

Following Figure shows the monthly average of PM₁.

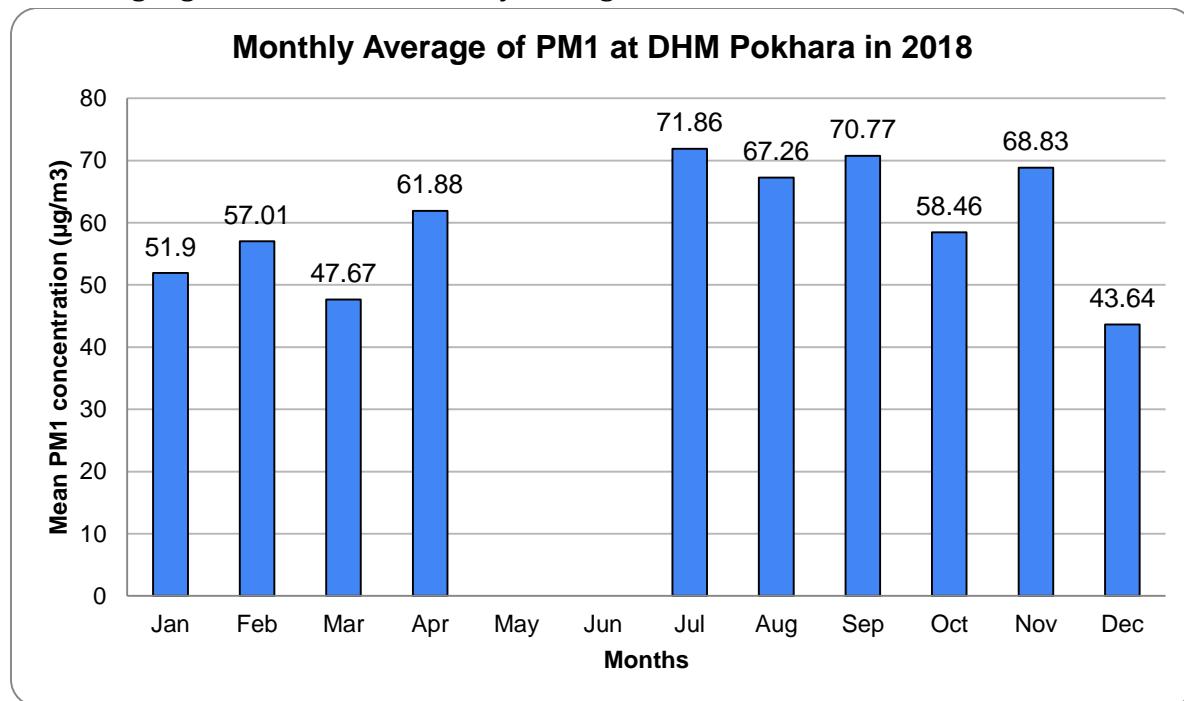


Figure 25. Monthly average PM1 at DHM Pokhara station in 2018

Above figure shows that the average value of PM₁ was highest in July with 62.71 $\mu\text{g}/\text{m}^3$ and while lowest value was observed in December with 43.64 $\mu\text{g}/\text{m}^3$.

3.2.5 Monthly Variation of PM1

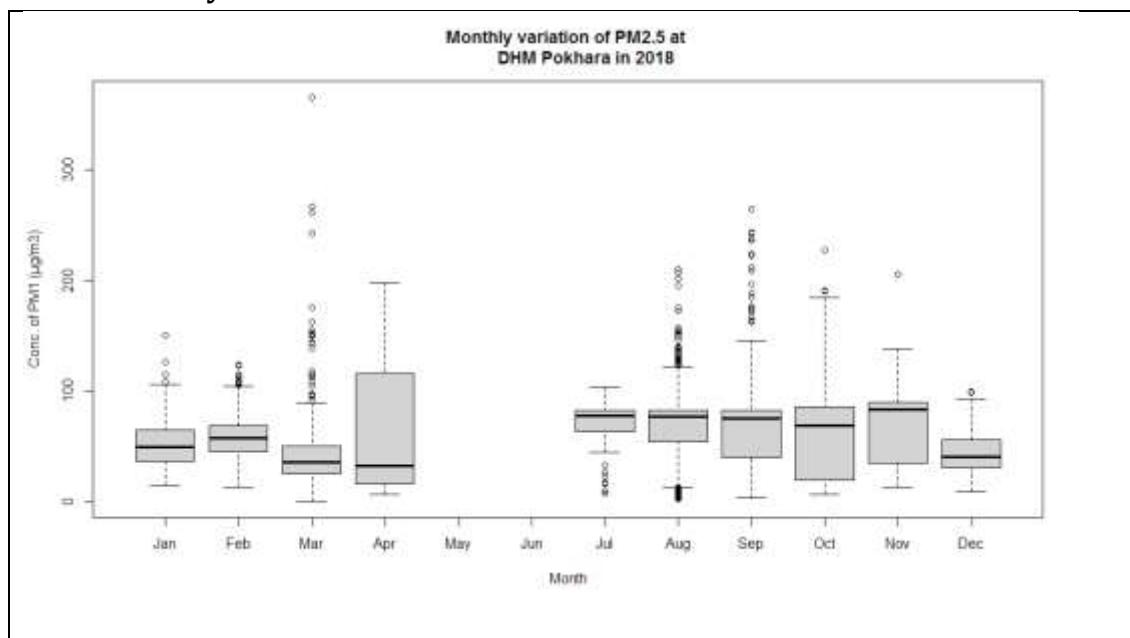


Figure 26. Monthly variation of daily average PM1 at DHM Pokhara station in 2018

Boxplot of monthly variation of PM1 shows that highest variation was seen on April.

Seasonal Average of PM1

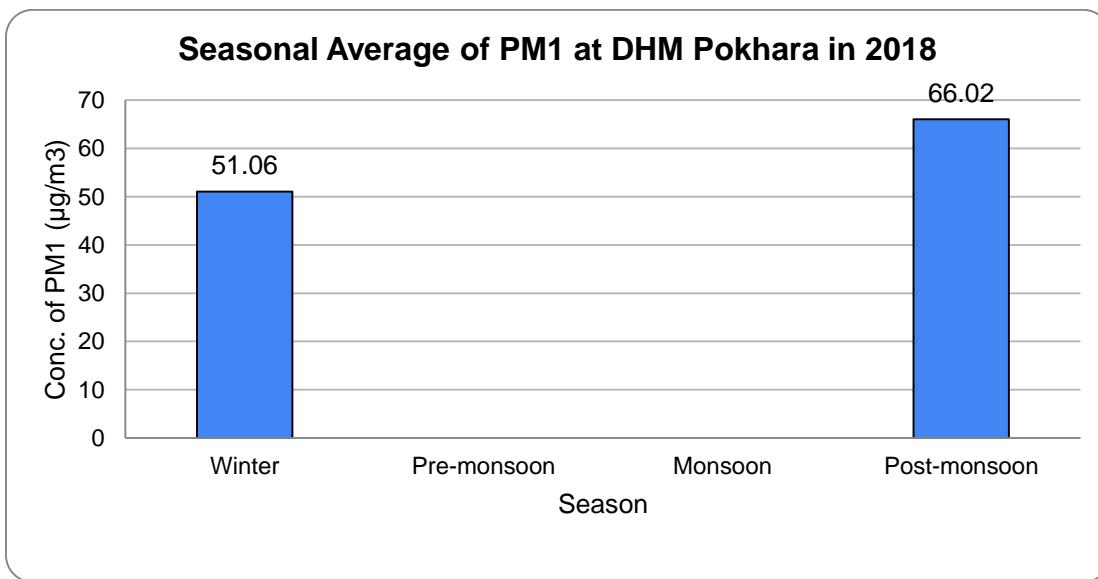


Figure 27. Ambient concentration of average PM1 with four seasons

Diurnal Variation of PM1

Following figure shows the boxplot of diurnal variation of PM1 at DHM Pokhara station in 2018.

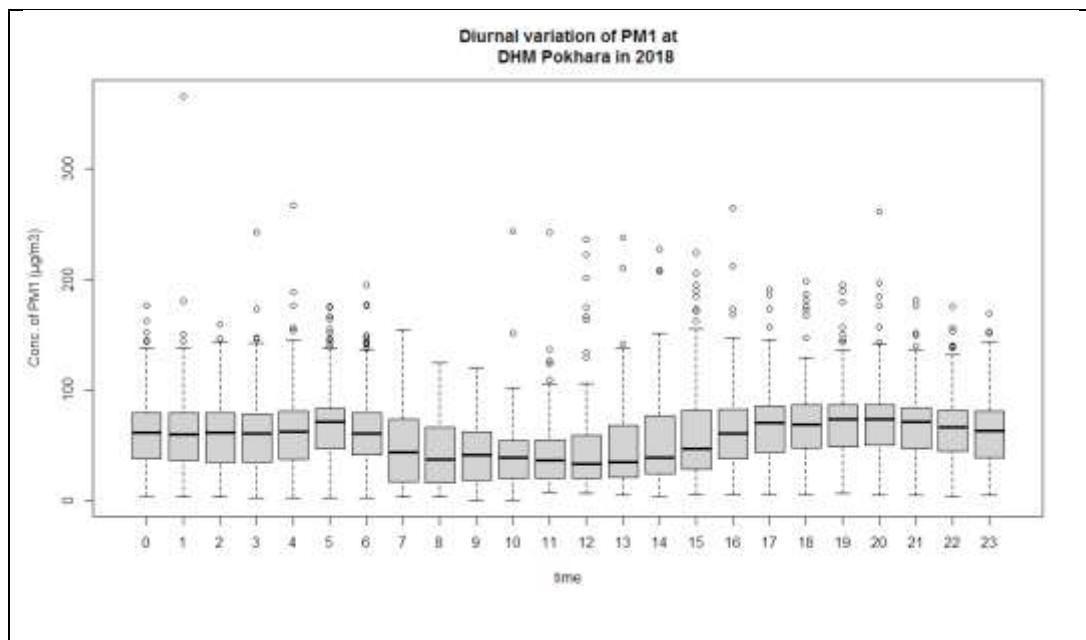


Figure 28.. Boxplot of diurnal variation of PM1 at DHM Pokhara station in 2018

Above figure shows that PM1 concentration was more at 5 o'clock in the morning and 17 - 23 o'clock in the evening and it was more variable at 7 and 15 o'clock.

2.2.3 Temporal Variation of PM2.5

Annual Average of PM2.5

The annual average of PM2.5 at DHM Pokhara station on 2018 was $61.07 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM2.5 at DHM Pokhara station in 2018.

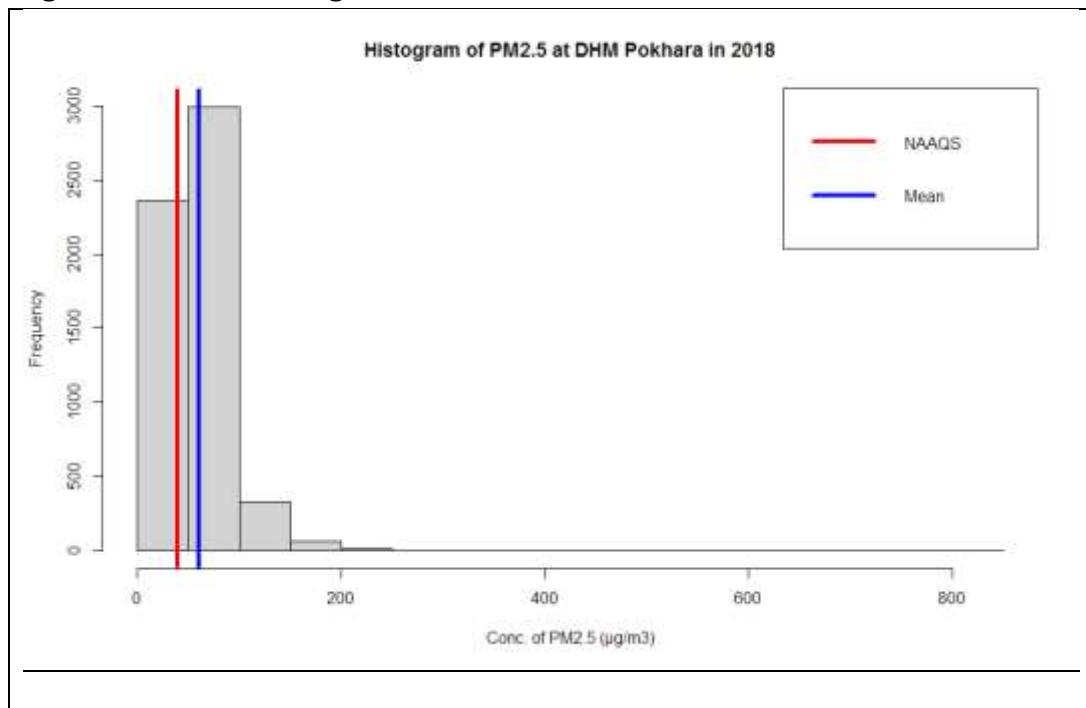


Figure 29. Histogram of PM2.5 at DHM Pokhara in 2018

The Histogram shows that highest no of hourly average data were between $50-100 \mu\text{g}/\text{m}^3$ followed by $0-50 \mu\text{g}/\text{m}^3$.

Daily Average of PM2.5

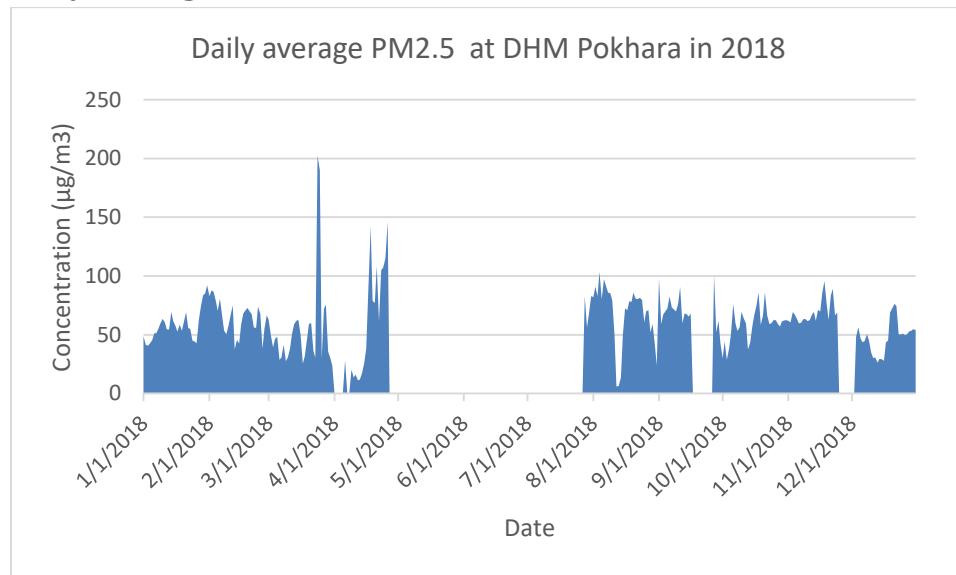


Figure 30. Daily average PM2.5 at DHM Pokhara station in 2018

Monthly Average of PM2.5

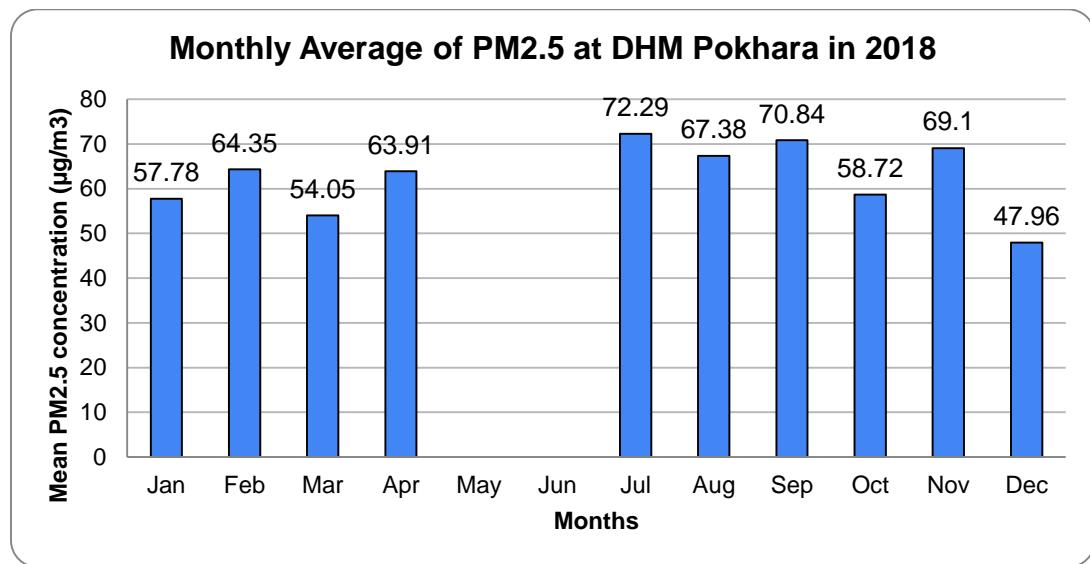


Figure 31. Shows the monthly average of PM2.5

Above figure shows that the monthly average value of PM_{2.5} was highest in July with 72.29 $\mu\text{g}/\text{m}^3$ while lowest value was observed in December with 47.96 $\mu\text{g}/\text{m}^3$

Monthly Variation of PM2.5

Following figure shows the boxplot of monthly variation of PM2.5 at DHM Pokhara in 2018.

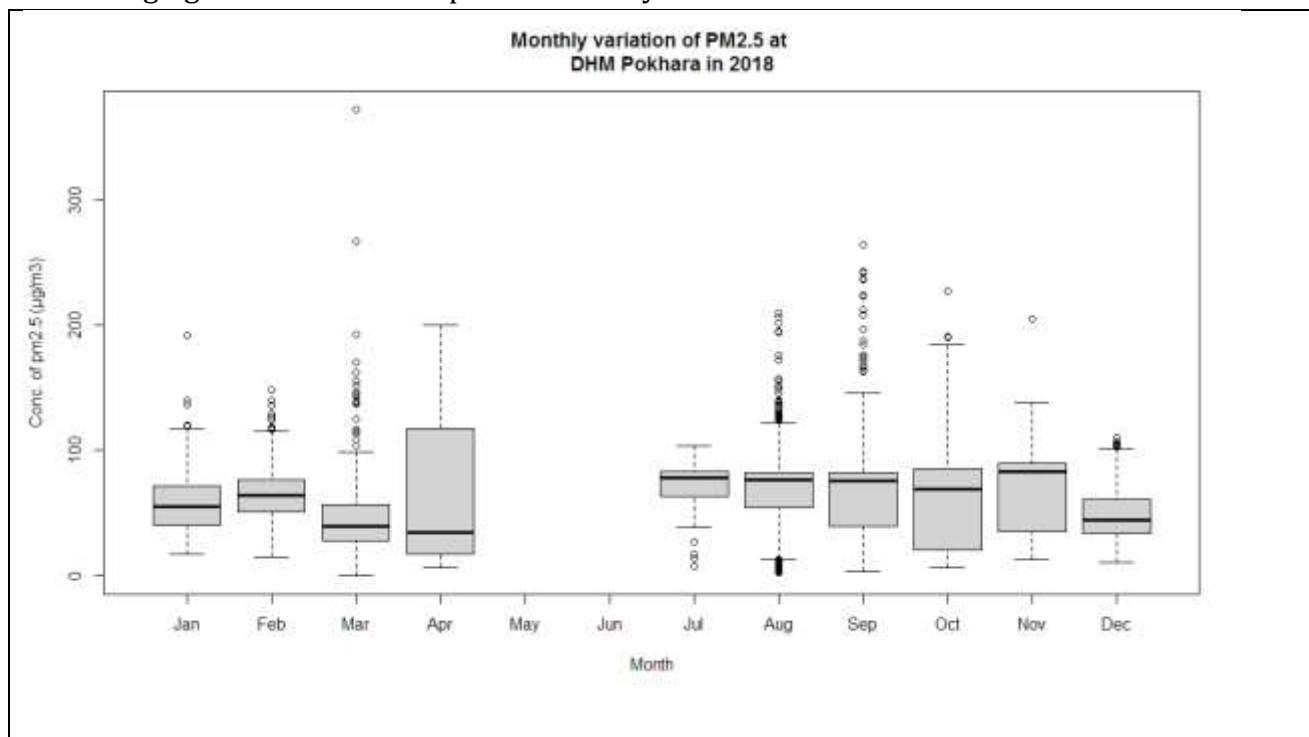


Figure 32. Monthly variation of daily average PM2.5 at DHM Pokhara in 2018

Above figure shows that hourly average data of PM2.5 was more variable in April.

Seasonal Average of PM2.5

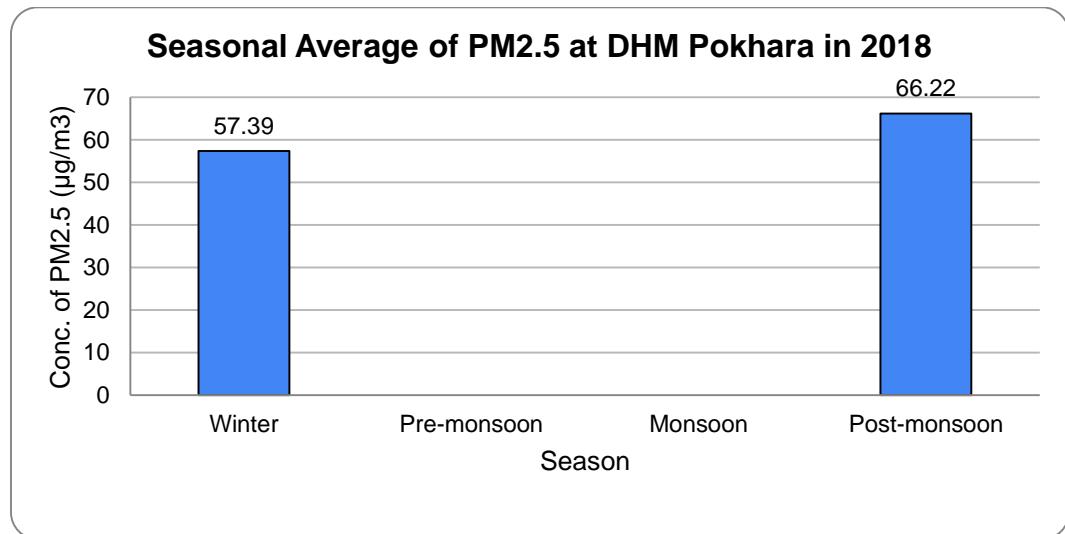


Figure 33. Seasonal variation of PM2.5 at DHM Pokhara station on 2018

Diurnal Variation of PM2.5

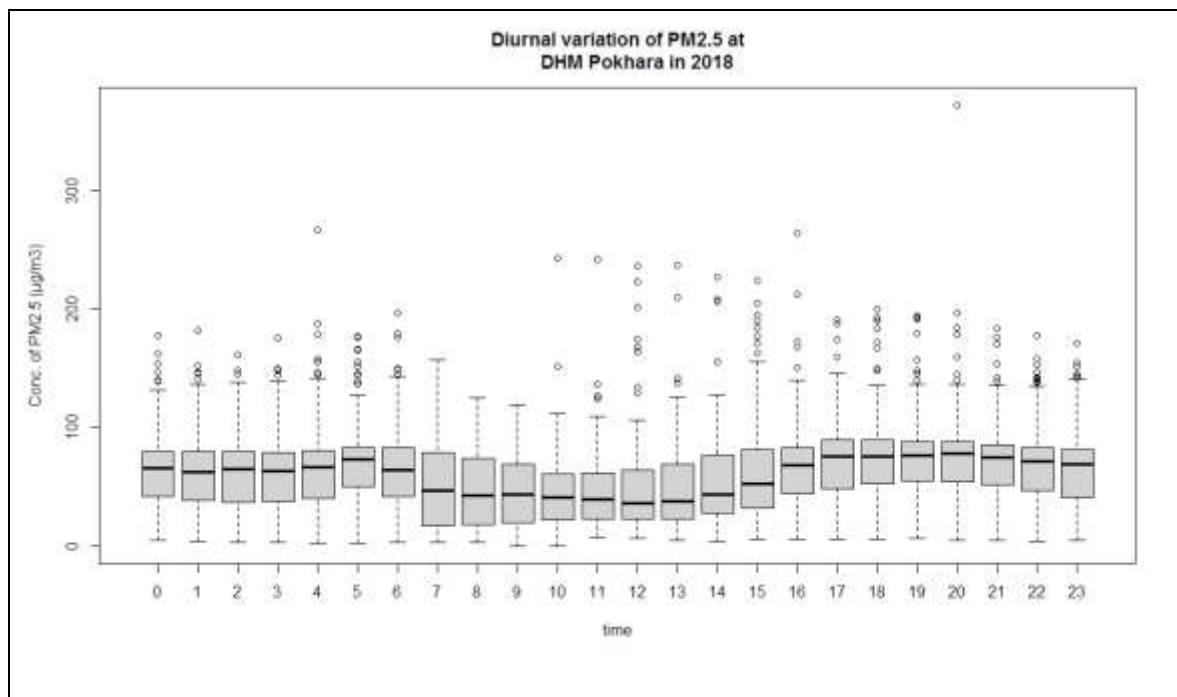


Figure 34. Boxplot of diurnal variation of PM2.5 at DHM Pokhara in 2018

Above figure shows PM2.5 concentrations was highest was at 5 o'clock in the morning and 17 to 20 in the evening .

Compliance with National Ambient air Quality standard

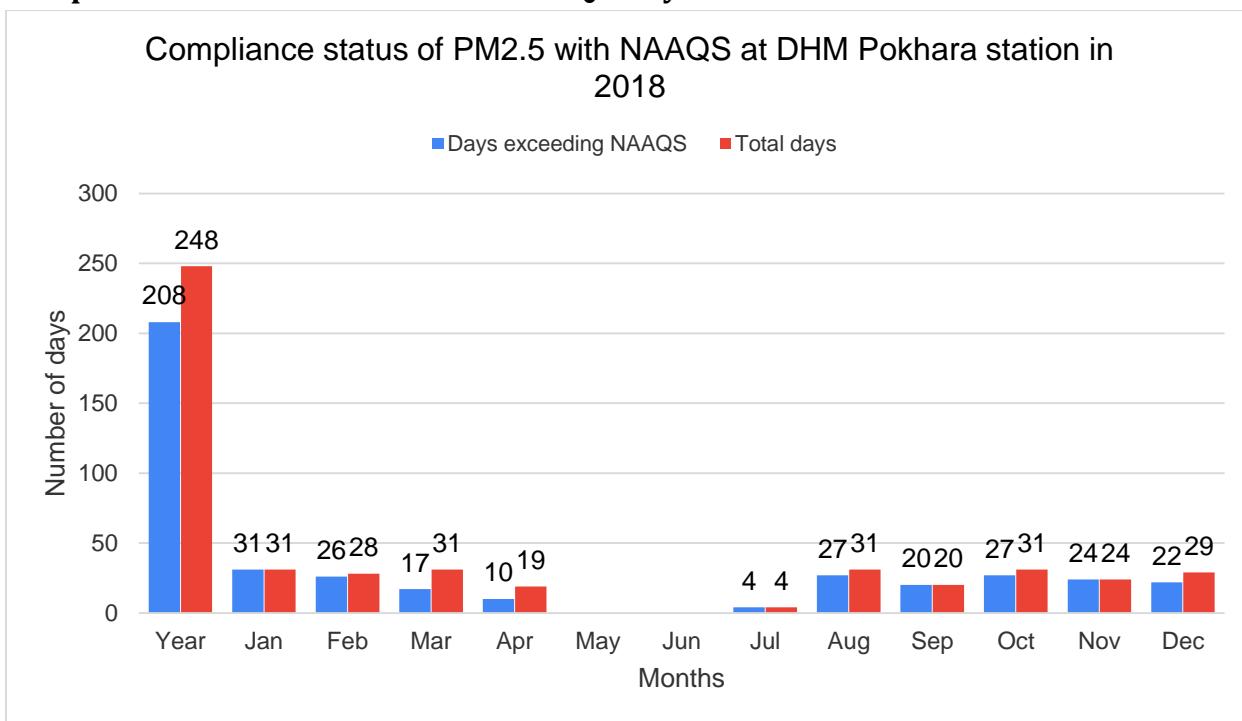


Figure 35. Compliance with National Ambient air quality standard for PM2.5 at DHM Pokhara station in 2018

Out of total 248 days of Measurement 208 days exceeded the National ambient air quality standard for PM2.5 at DHM Pokhara station in 2018.

2.2.4 Temporal Variation of PM10

Annual Average of PM10

The annual average PM10 at DHM Pokhara station on 2018 was $72.76 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM10 at DHM Pokhara station in 2018.

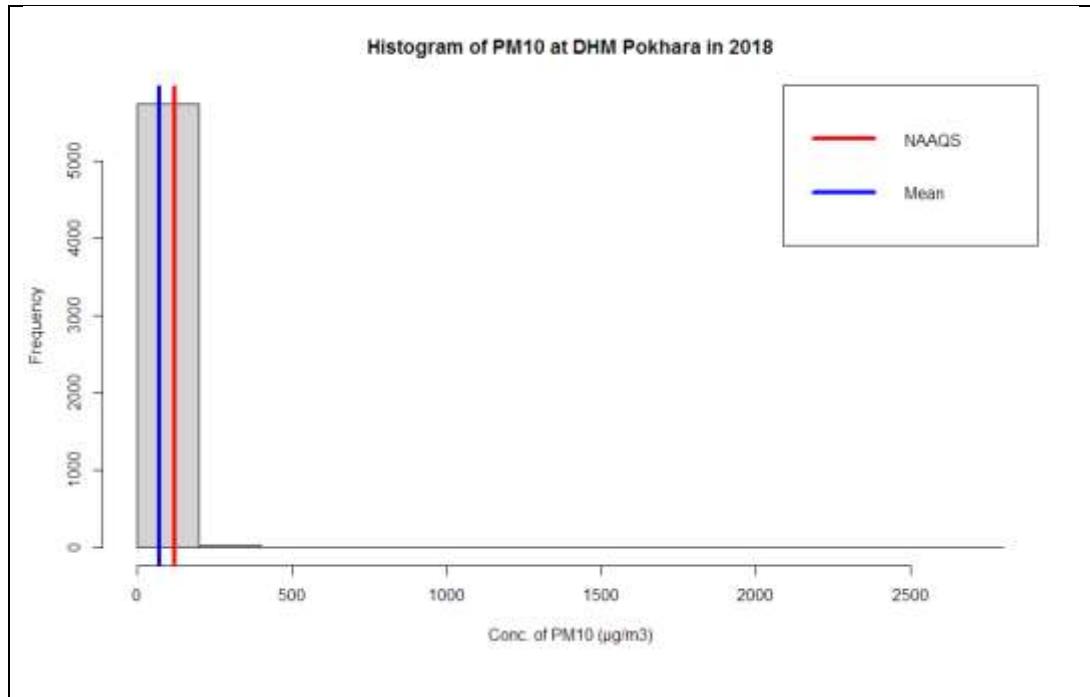


Figure 36. Histogram of PM10 at DHM Pokhara in 2018

Above figure shows that most of hourly average data were between $0\text{-}200 \mu\text{g}/\text{m}^3$.

Daily average of PM10

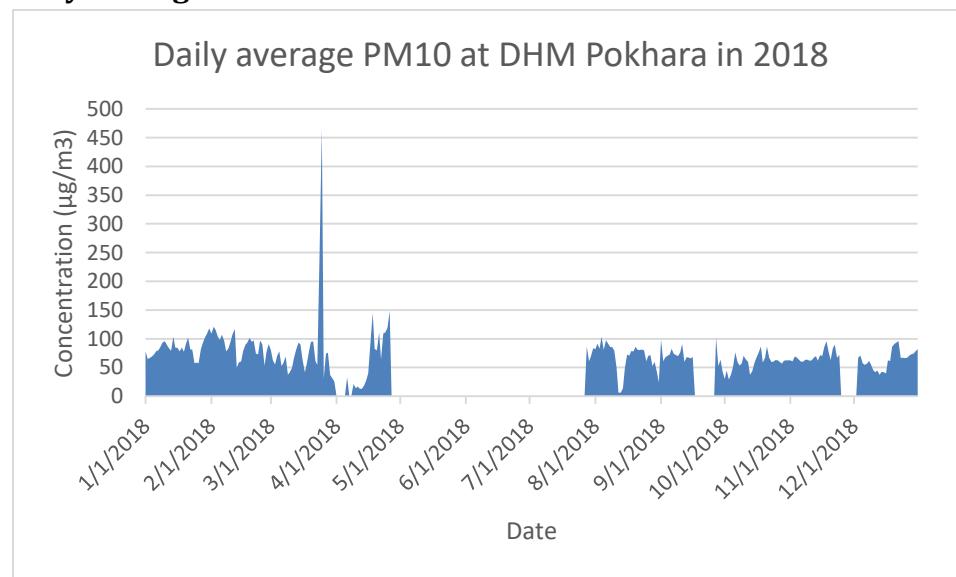


Figure 37. Daily average PM10 at DHM Pokhara station in 2018

Monthly Average of PM10

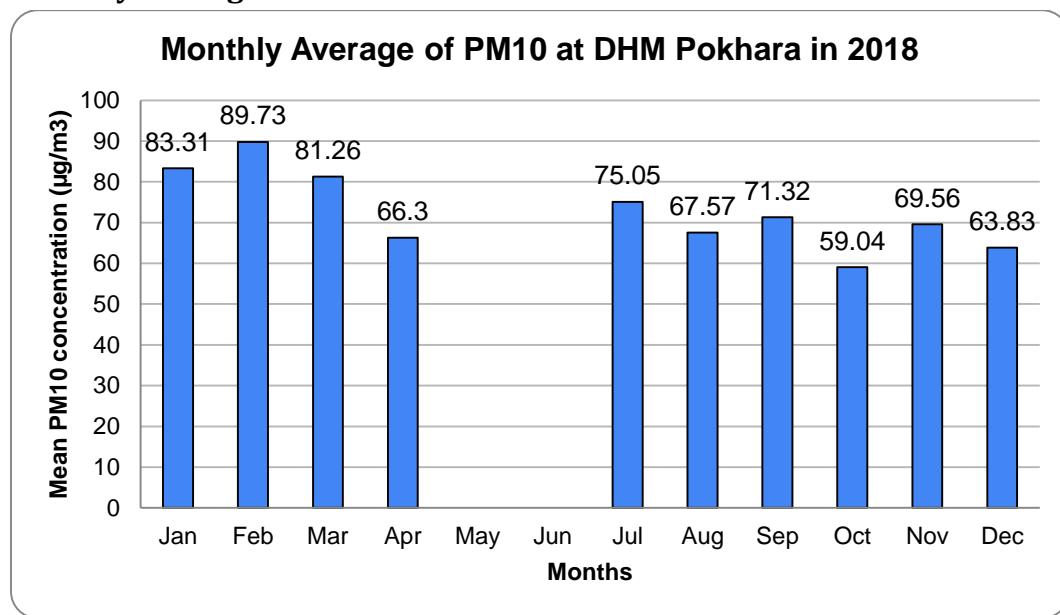


Figure 38. Monthly average PM10 at DHM Pokhara station in 2018

Above figure shows that the highest monthly average value of PM10 was found in February with average value of $83.52 \mu\text{g}/\text{m}^3$ and lowest average was found in July with average value of $6.86 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM10

Following figure shows the boxplot of monthly variation of PM10 at DHM Pokhara in 2018

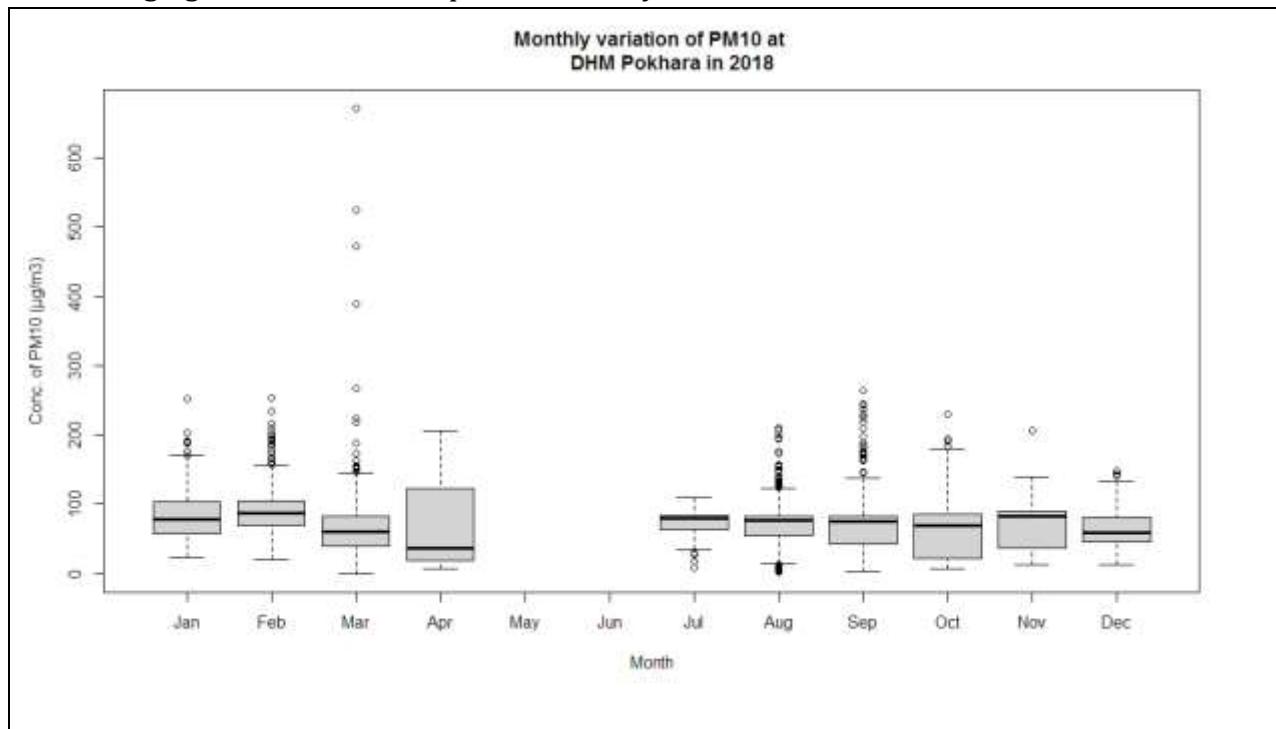


Figure 39. Boxplot of monthly variation of PM10 at DHM Pokhara in 2018

Above figure shows more variation of hourly average PM10 on April.

Seasonal Average of PM10

Following figure shows seasonal average of PM10 at DHM Pokhara in 2018.

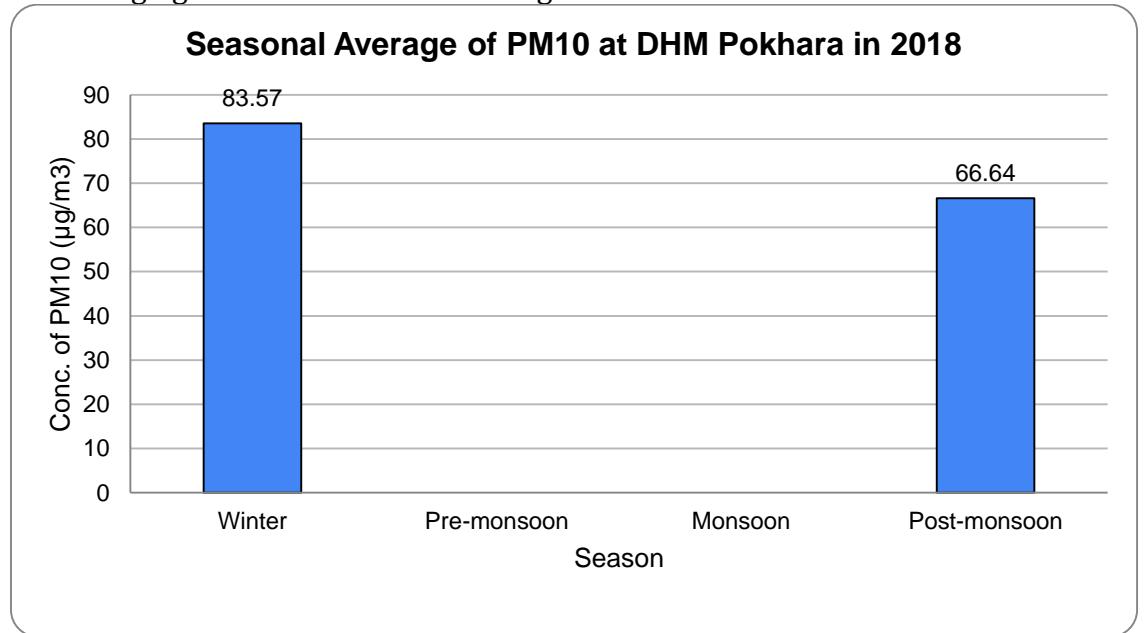


Figure 40. Seasonal average of PM10 at DHM Pokhara station on 2018

Diurnal Variation of PM10

Following figure shows the diurnal variation of PM10 at DHM Pokhara in 2018.

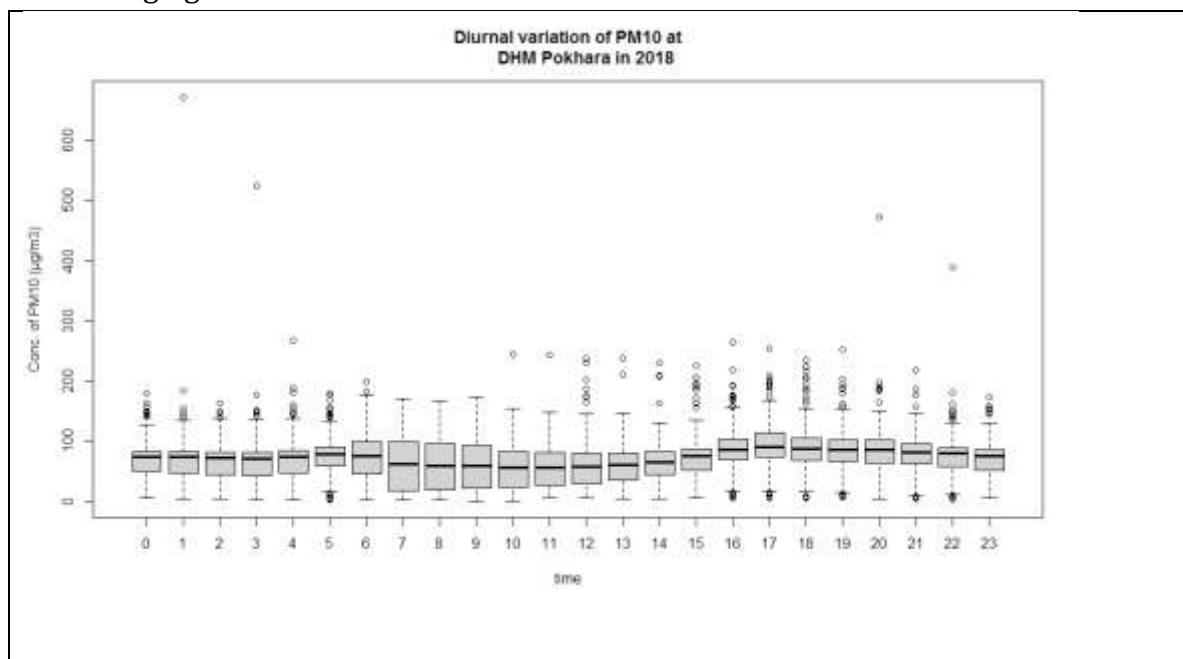


Figure 41. Diurnal variation of PM10 at DHM Pokhara in 2018

The boxplot of diurnal variation shows PM10 was more variable at 7,8 and 9 o'clock.

Compliance with National Ambient Air quality standard

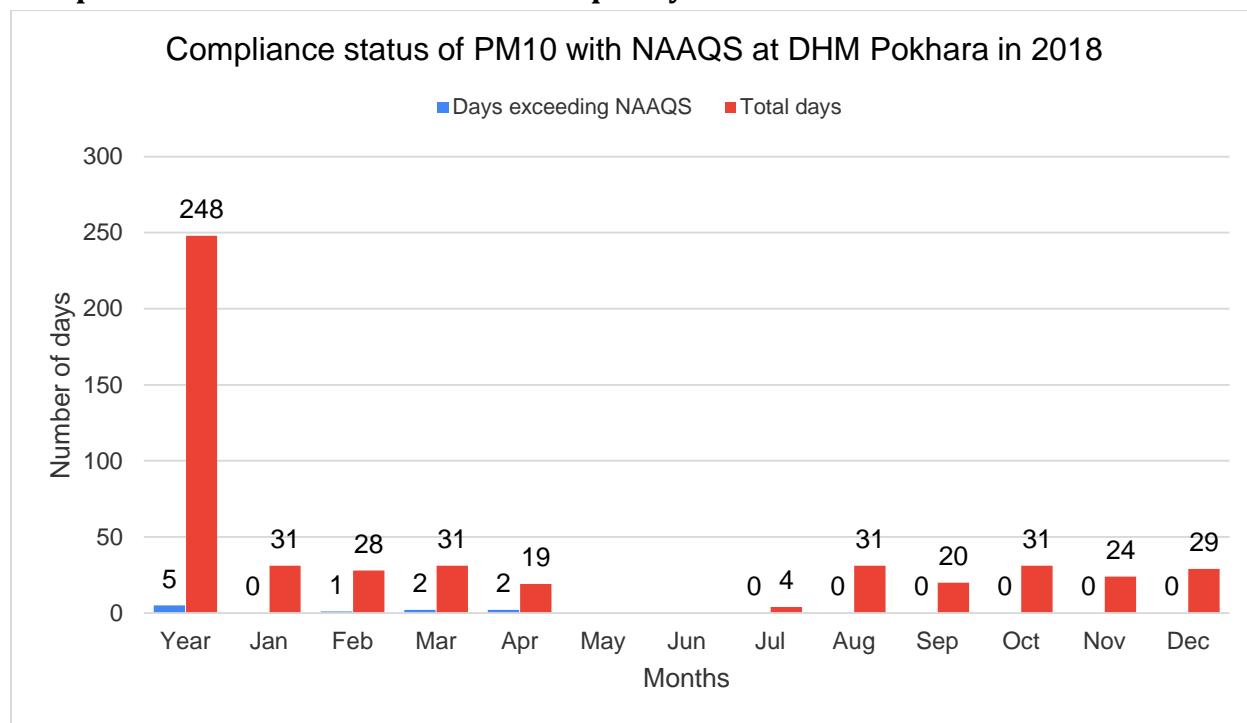


Figure 42. Compliance with National Ambient air quality standard for PM10 at DHM Pokhara station in 2018

Out of 248 days of measurement 5 days exceed the National Ambient air quality standard for PM10 at DHM Pokhara station on 2018.

2.2.5 Temporal Variation of TSP

Annual Average of TSP

Annual TSP average of DHM Pokhara Station for the year 2018 was observed to be $93.10 \mu\text{g}/\text{m}^3$. Following figure shows the histogram of TSP at DHM Pokhara in 2018.

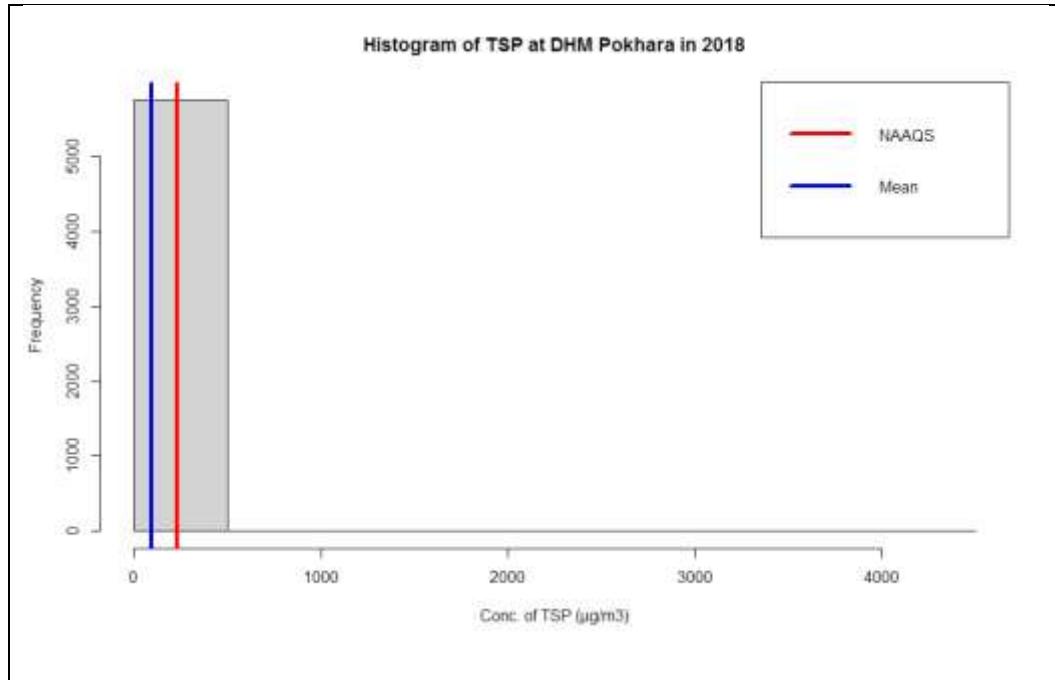


Figure 43. Histogram of TSP at DHM Pokhara station in 2018

Above figure shows most of hourly average data of Total suspended Particulate data were between $0-500 \mu\text{g}/\text{m}^3$.

Daily average of TSP

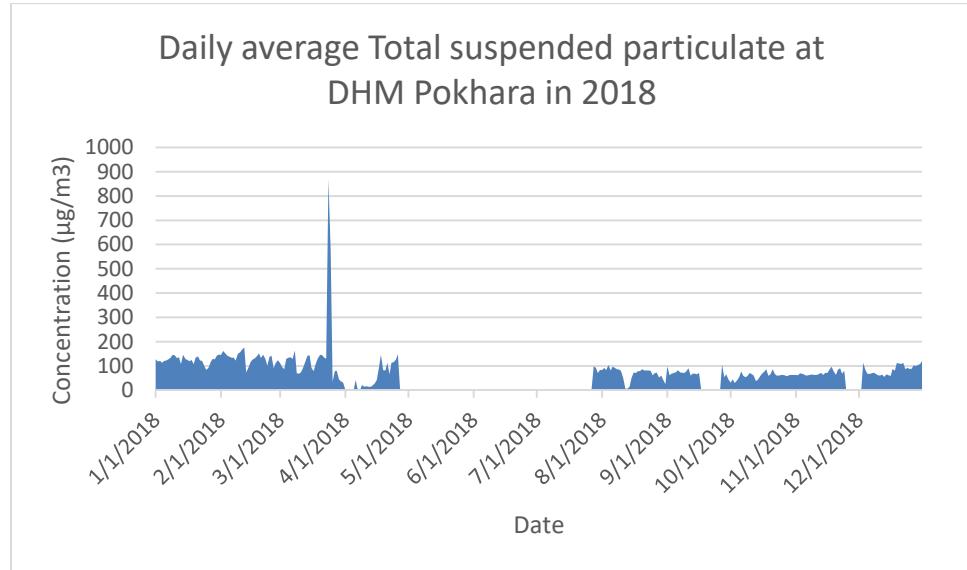


Figure 44. Daily average total suspended particulate at DHM Pokhara in 2018

Monthly Average of TSP

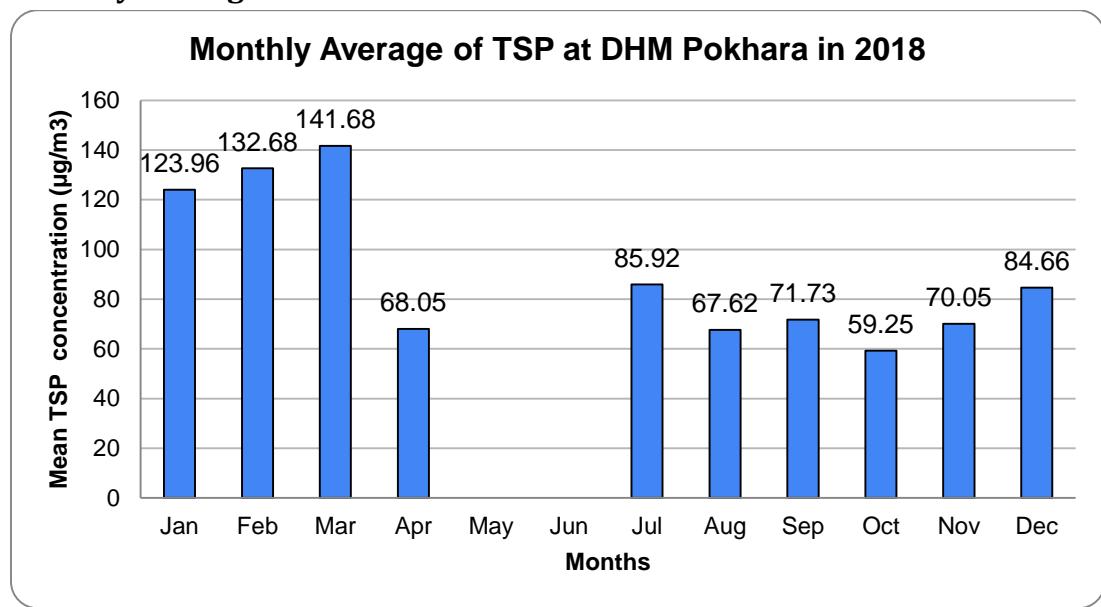


Figure 45. Monthly average of TSP at DHM Pokhara station in 2018

Above figure shows that the monthly average value of TSP was highest in March with monthly average value of $141.68 \mu\text{g}/\text{m}^3$ and lowest in October with monthly average value of $59.25 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at DHM Pokhara in 2018

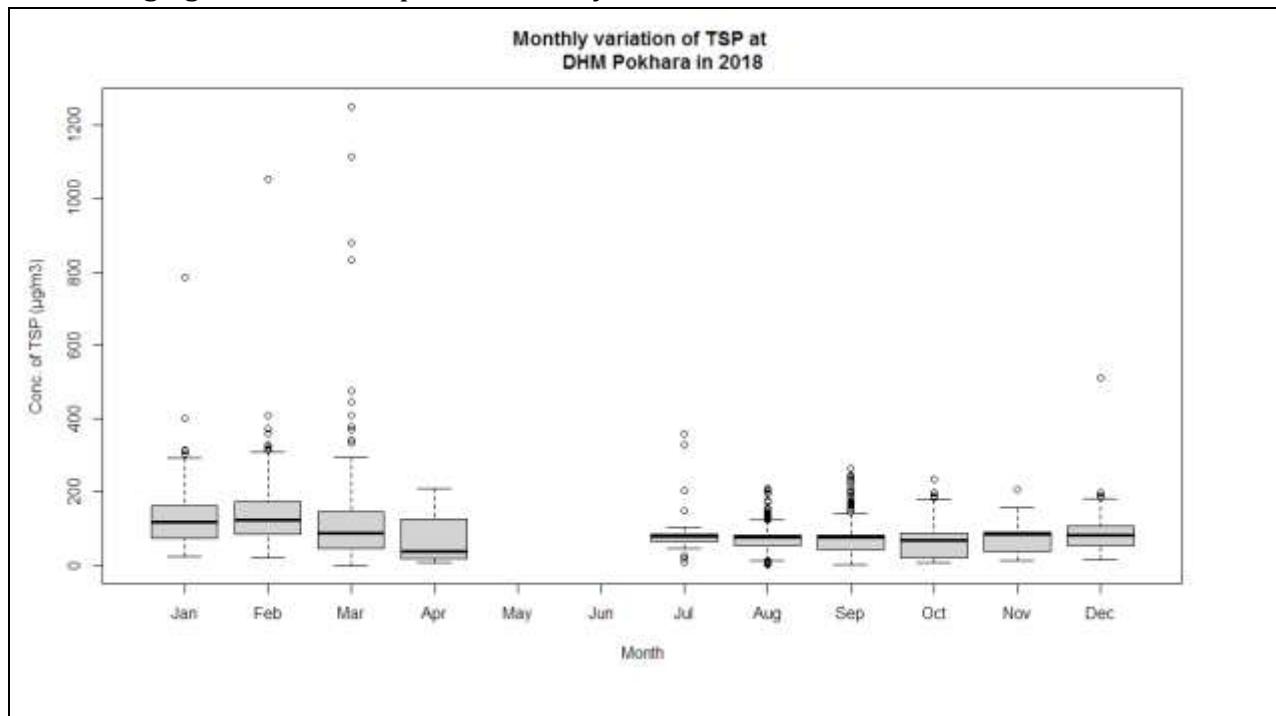


Figure 46. Monthly variation of daily average Total suspended particulate at DHM Pokhara in 2018

The above figure shows that highest level of variation was seen through January to April.

Seasonal Average of TSP

Following figure shows the seasonal average of TSP at DHM Pokhara station in 2018

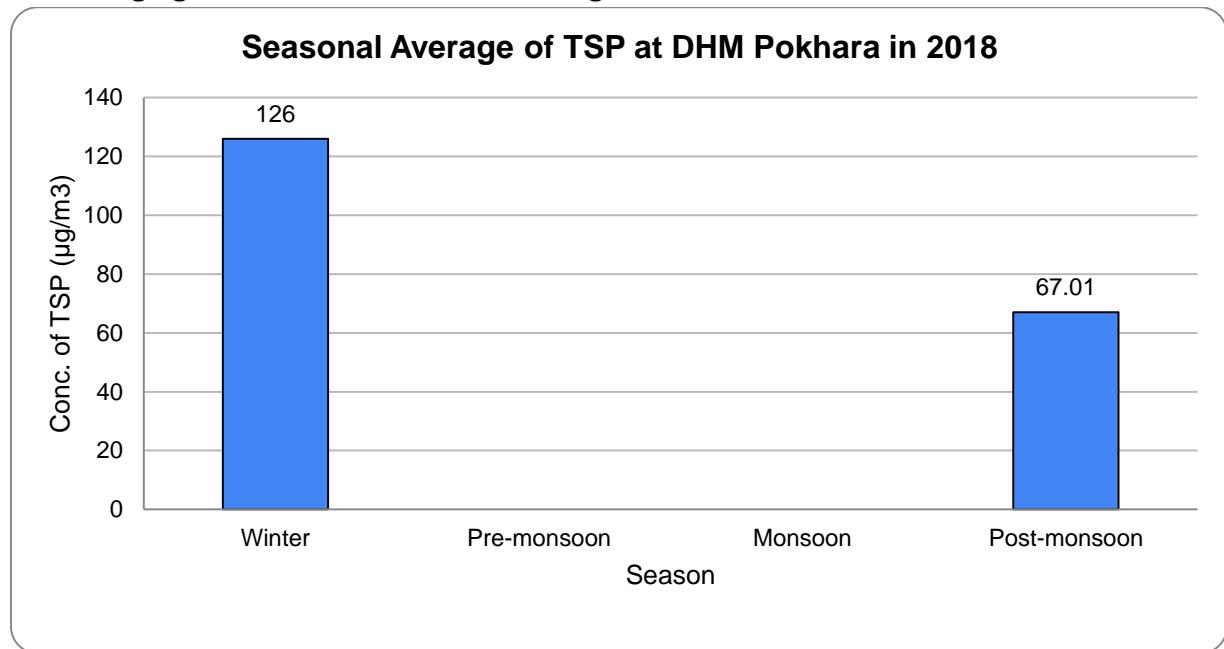


Figure 47. Seasonal average of TSP at DHM Pokhara station on 2018

Diurnal Variation of TSP

Following figure shows the boxplot of diurnal variation of TSP at DHM Pokhara in 2018.

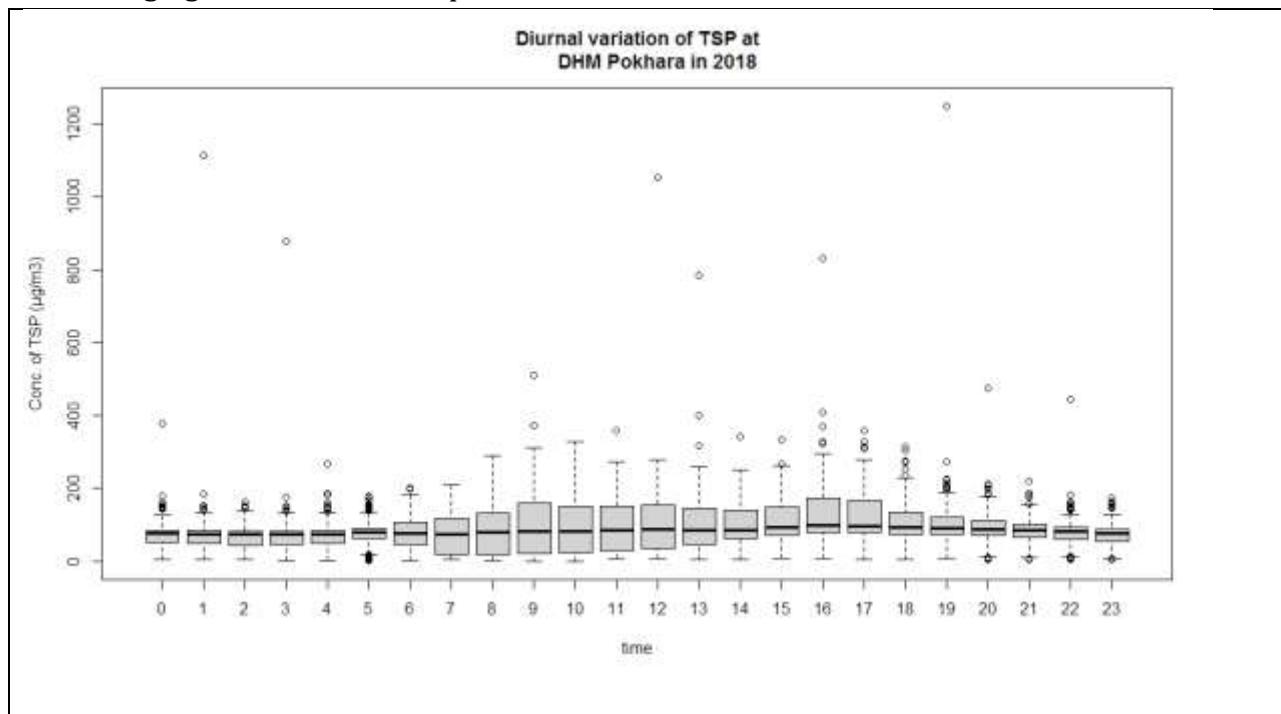


Figure 48. Diurnal variation of TSP at DHM Pokhara station on 2017

Above figure shows that Total suspend Particulate concentration was more variable during day time.

Compliance with National Ambient air quality Standard

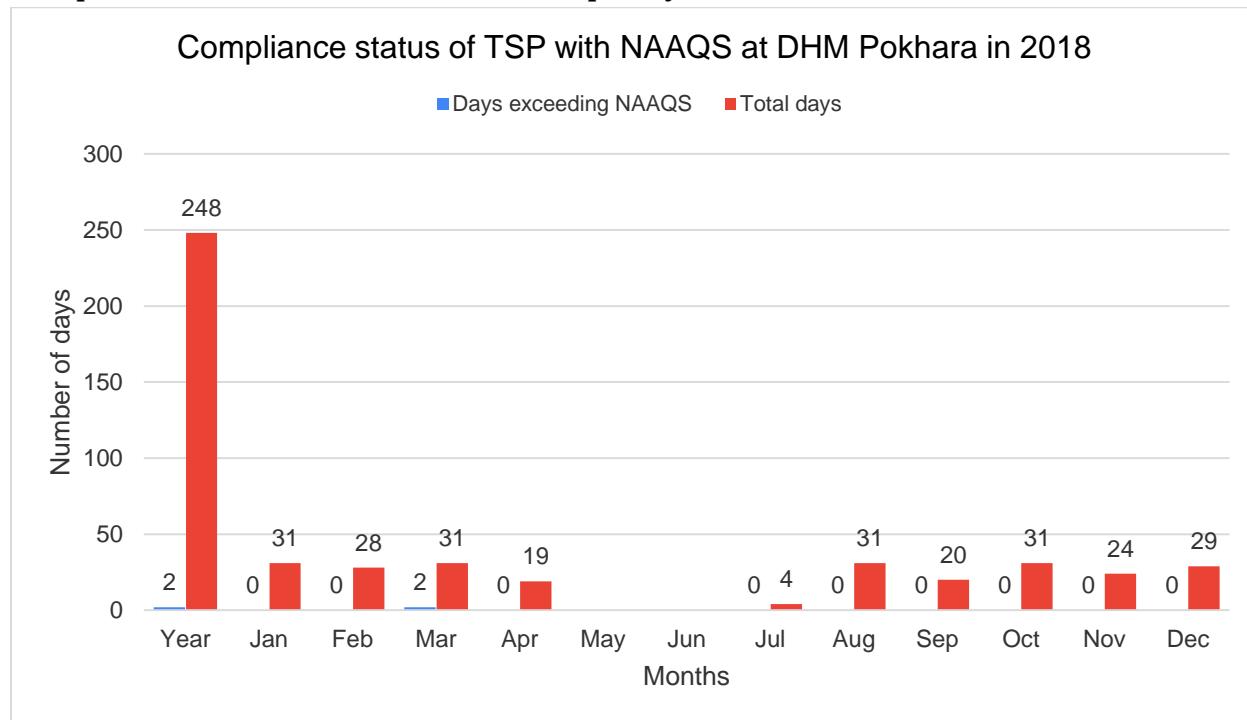


Figure 49. Compliance with National Ambient air quality standard for TSP at DHM Pokhara station in 2018

Out of 248 days of measurement only two days exceed the National ambient air quality standards for the Total suspended particulate.

2.3 Air Quality Status, 2019

2.3.1 Annual average of PM1, PM2.5, PM10 and TSP

Annual average of all parameters (PM1, PM2.5, PM10 and TSP for this station)

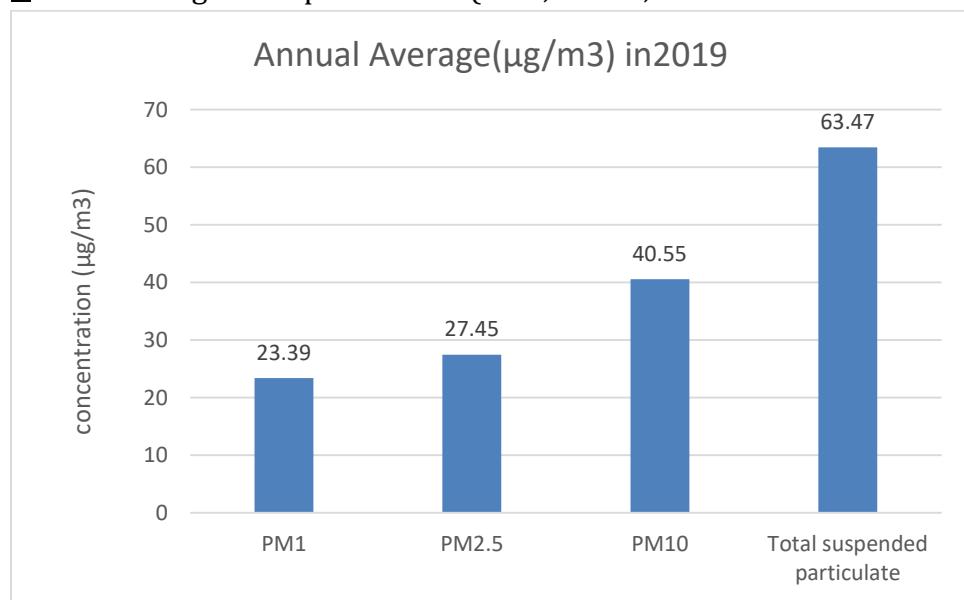


Figure 50. Annual average PM1, PM2.5, PM10 and TSP at DHM Pokhara station for 2019

2.3.2 Temporal Variation of PM1

Annual Average of PM1

Annual average PM1 at DHM Pokhara station at 2019 was $23.34 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM1 at DHM Pokhara in 2019.

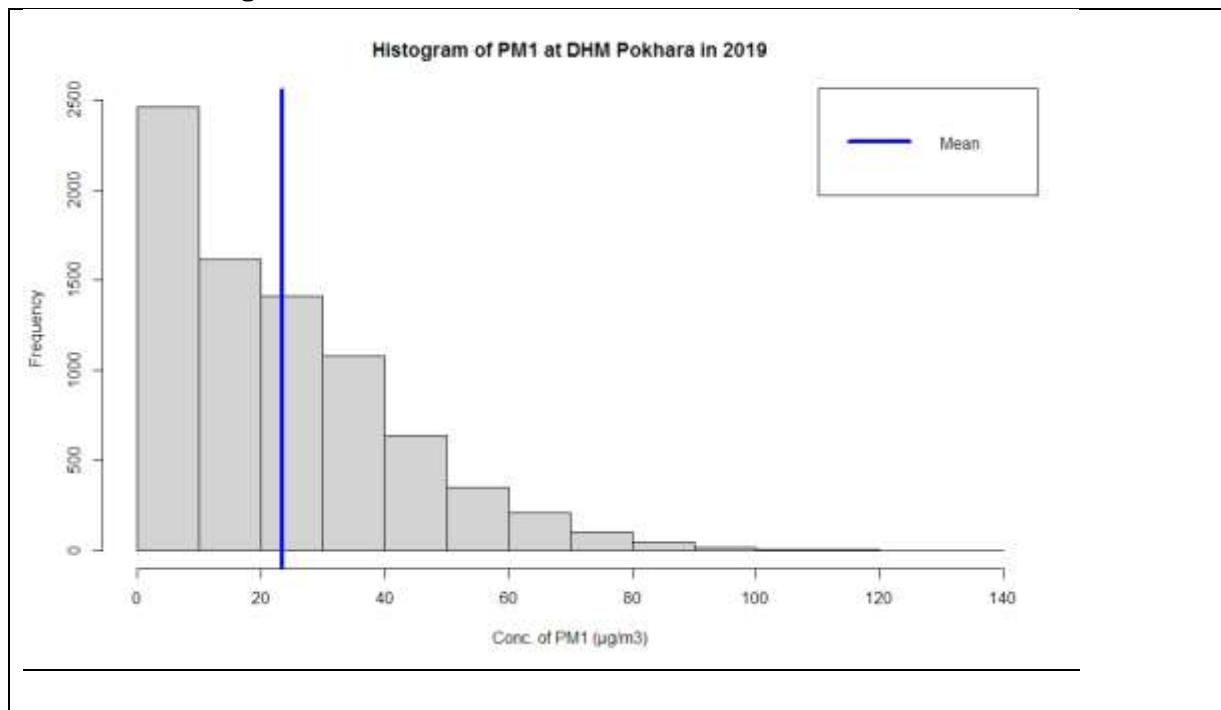


Figure 51. Histogram of PM1 at DHM Pokhara in 2019

The Histogram shows that highest no of hourly average data were between 0-10 $\mu\text{g}/\text{m}^3$ followed by 10-20 $\mu\text{g}/\text{m}^3$.

Daily average of PM1

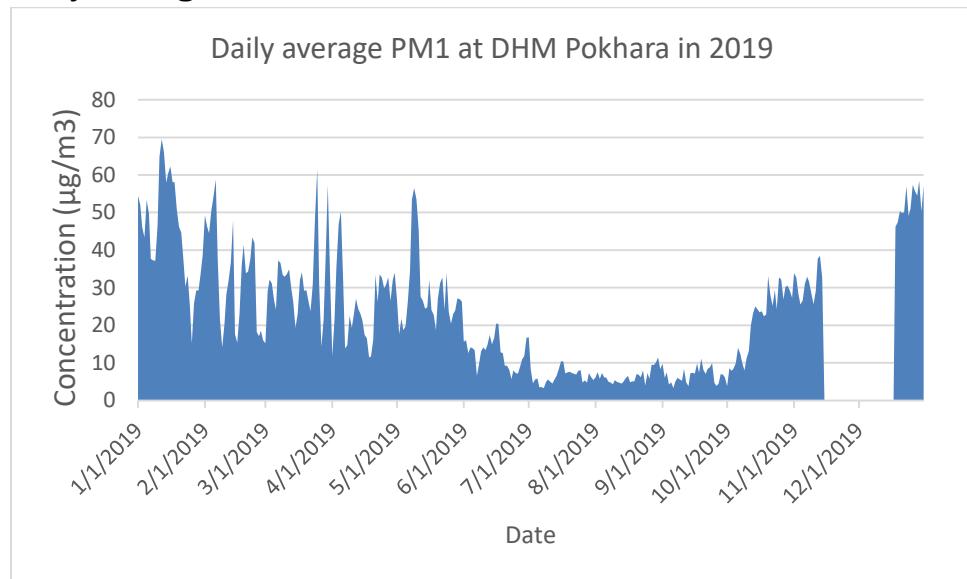


Figure 52. Daily average PM1 at DHM Pokhara station in 2019

Monthly Average of PM1

Following Figure shows the monthly average of PM1.

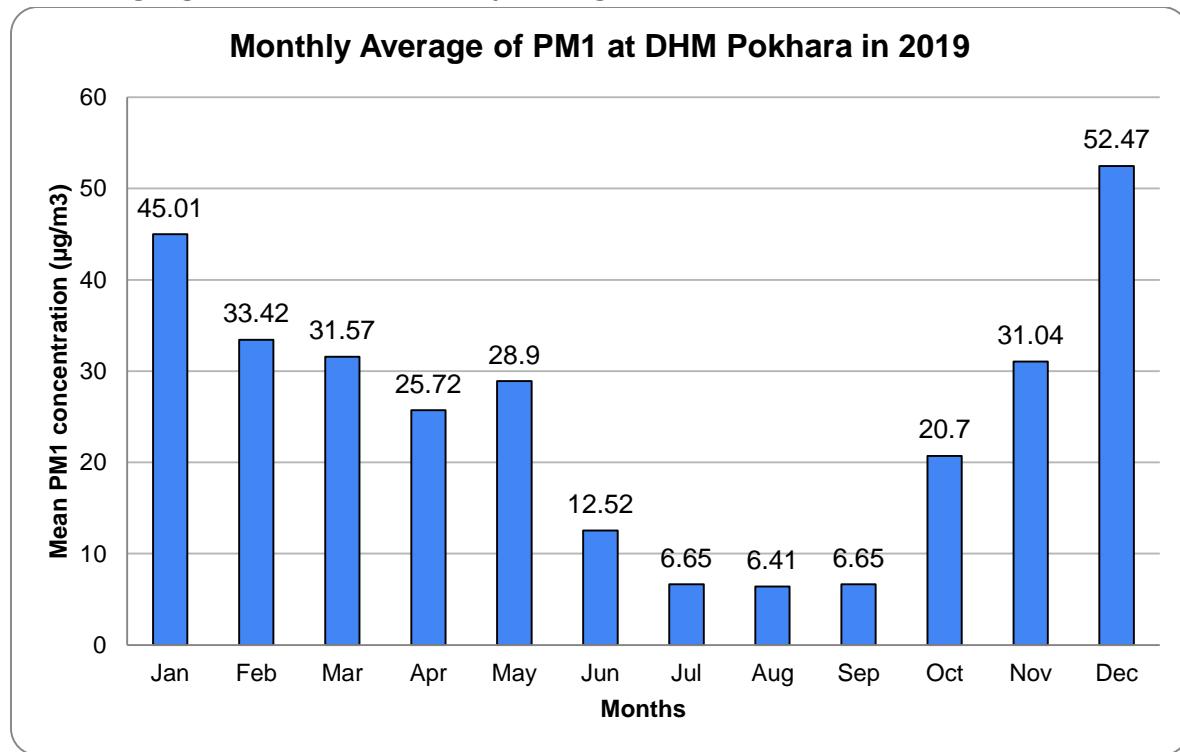


Figure 53. Monthly average PM1 at DHM Pokhara station in 2019

Above figure shows that the average value of PM₁ was highest in December with 52.47 $\mu\text{g}/\text{m}^3$ and lowest value were observed in August with 6.41 $\mu\text{g}/\text{m}^3$.

4.2.5 Monthly Variation of PM₁

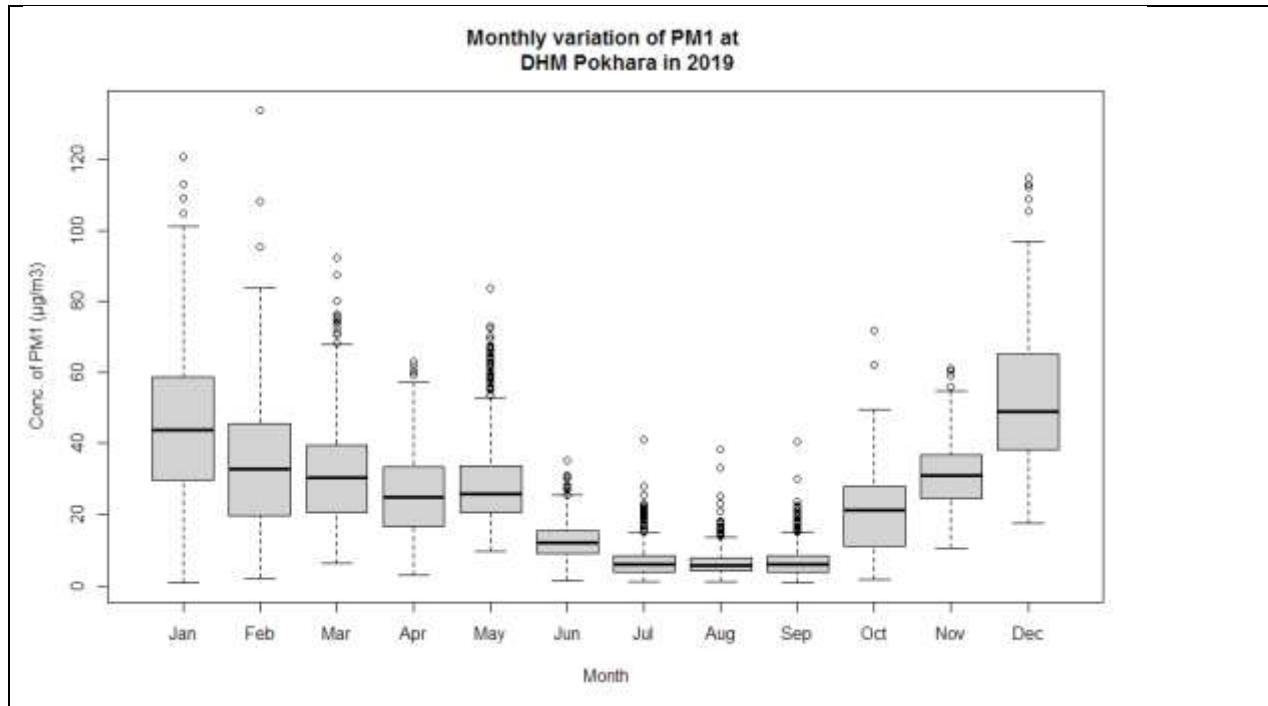


Figure 54. Monthly variation of daily average PM₁ at DHM Pokhara station in 2019

Boxplot of monthly variation of PM₁ shows that highest variation was seen on January.

Seasonal Average of PM₁

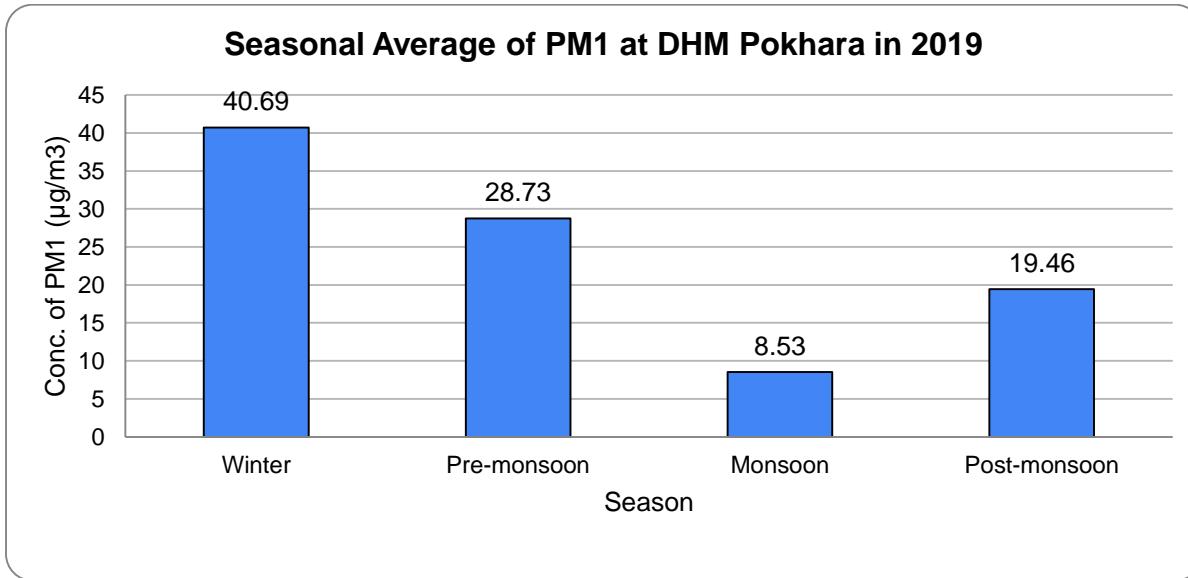


Figure 55. Ambient concentration of average PM₁ with four seasons

Diurnal Variation of PM1

Following figure shows the boxplot of diurnal variation of PM1 at DHM Pokhara station in 2019.

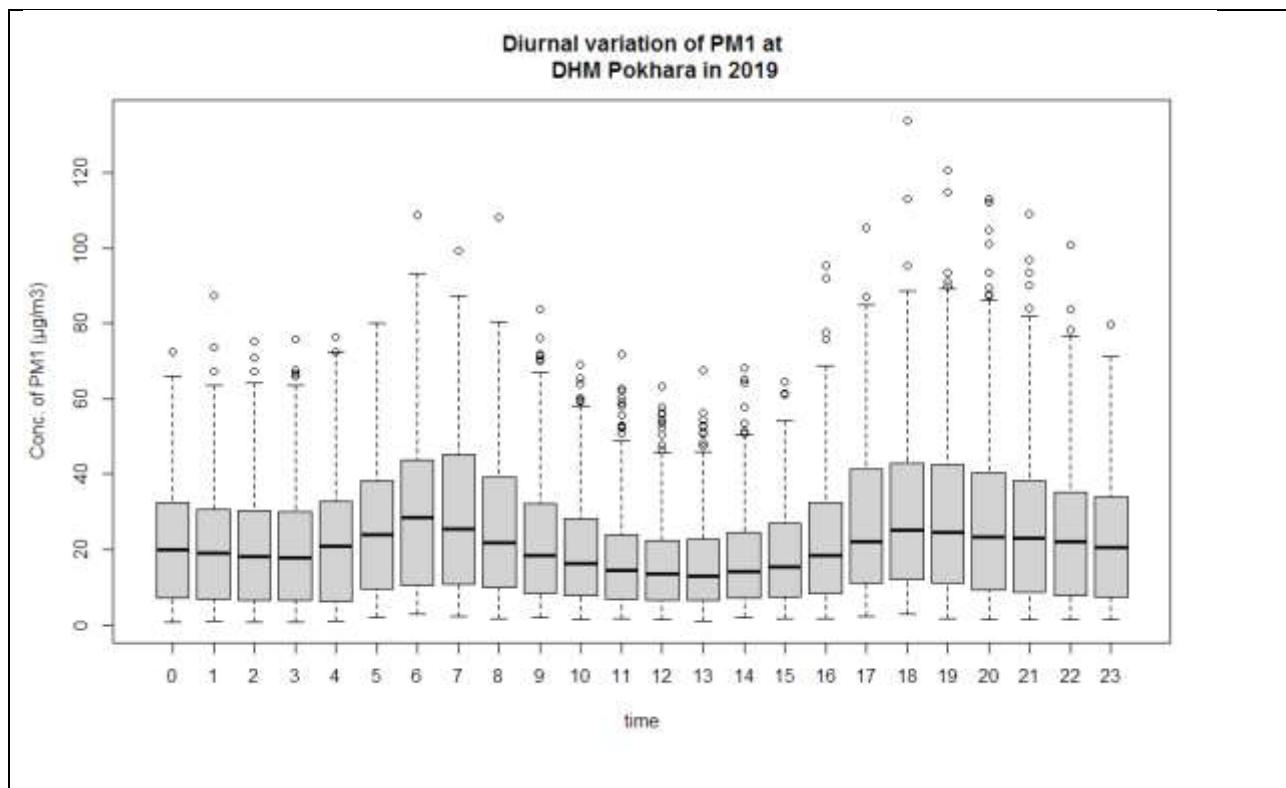


Figure 56. Boxplot of diurnal variation of PM1 at DHM Pokhara station in 2019

Above figure shows that PM1 concentration was more at 6 o'clock in the morning and 18 and 19 O'clock in the evening and it was more variable at those time.

2.3.3 Temporal Variation of PM2.5

Annual Average of PM2.5

The annual average of PM2.5 at DHM Pokhara station on 2019 was $27.45 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM2.5 at DHM Pokhara station in 2019.

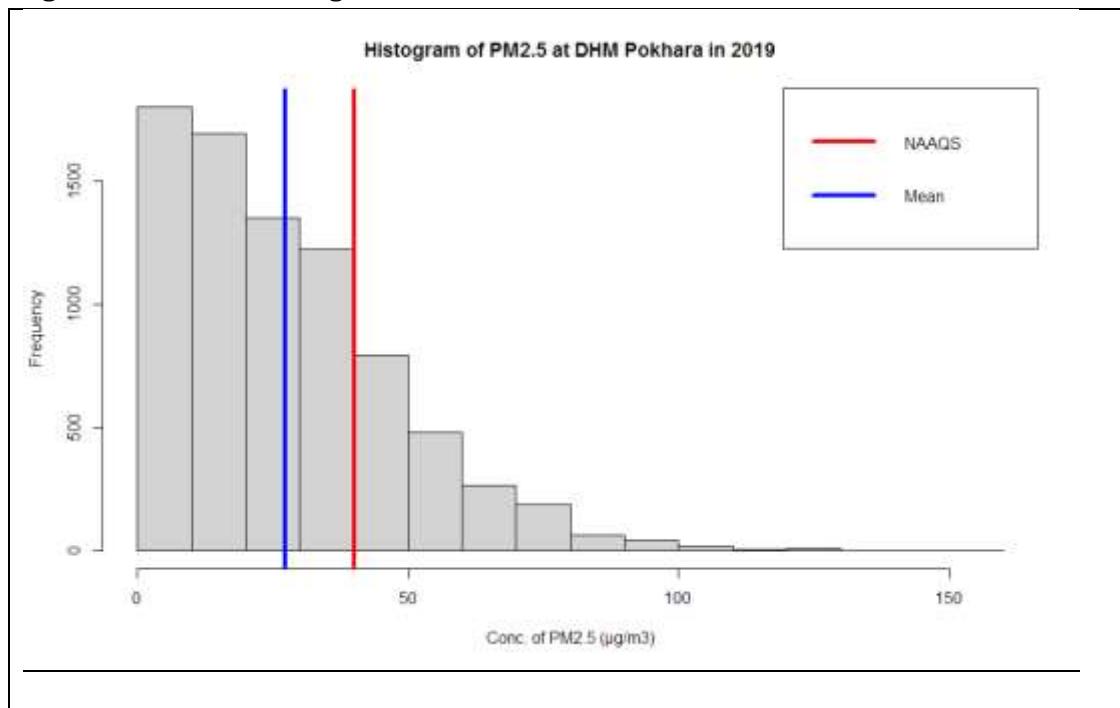


Figure 57. Histogram of PM2.5 at DHM Pokhara in 2019

The Histogram shows that highest no of hourly average data was between $0-10 \mu\text{g}/\text{m}^3$ followed by $10-20 \mu\text{g}/\text{m}^3$.

Daily Average of PM2.5

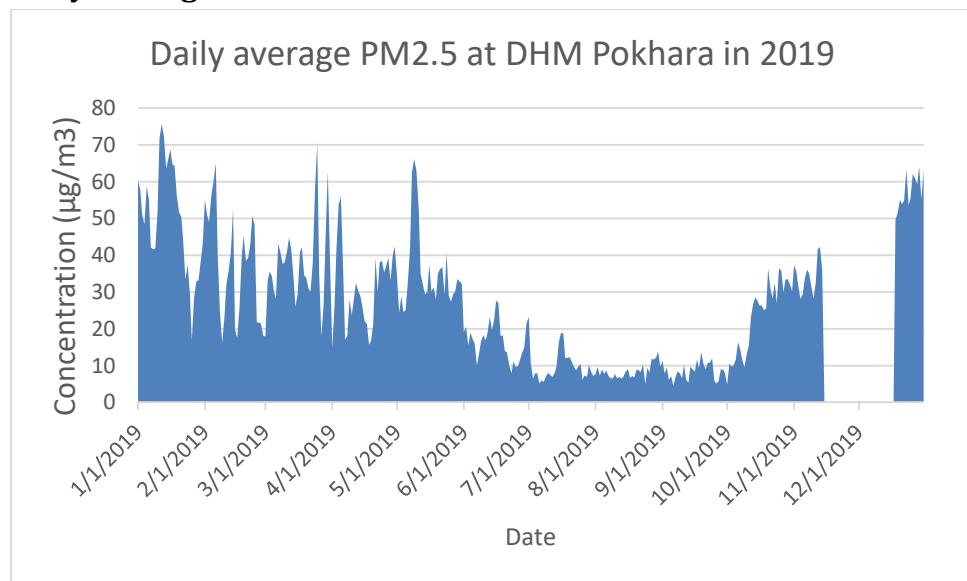


Figure 58. Daily average PM2.5 at DHM Pokhara station in 2019

Monthly Average of PM2.5

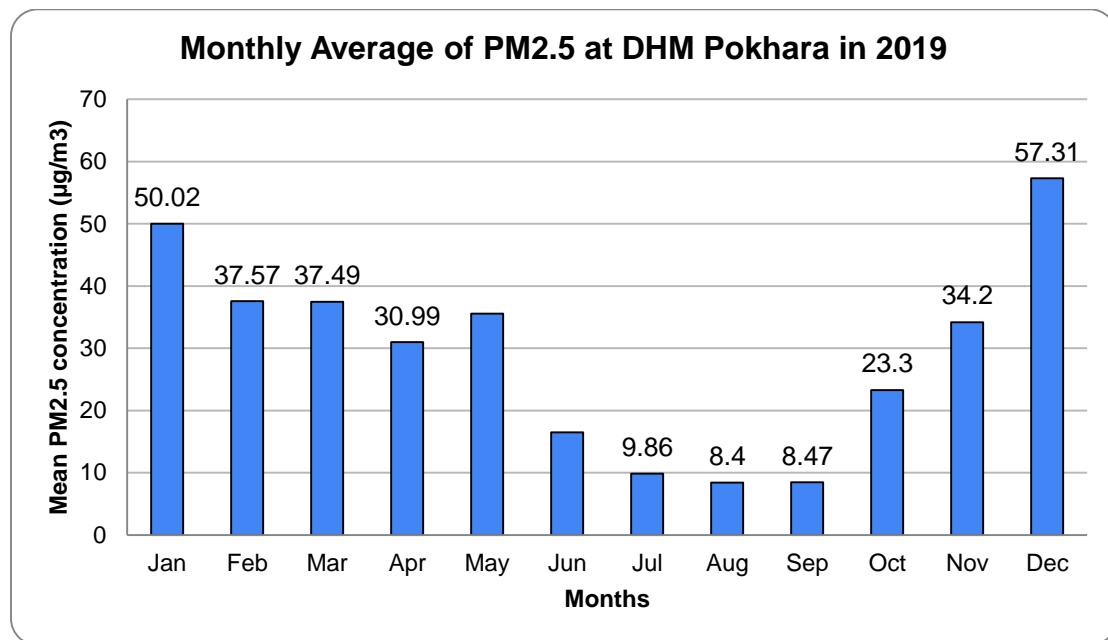


Figure 59. Monthly average of PM2.5 at DHM Pokhara station in 2019

Above figure shows that the monthly average value of PM_{2.5} was highest in December with $57.31 \mu\text{g}/\text{m}^3$ while lowest value were observed in August with $8.4 \mu\text{g}/\text{m}^3$

Monthly Variation of PM2.5

Following figure shows the boxplot of monthly variation of PM2.5 at DHM Pokhara in 2019.

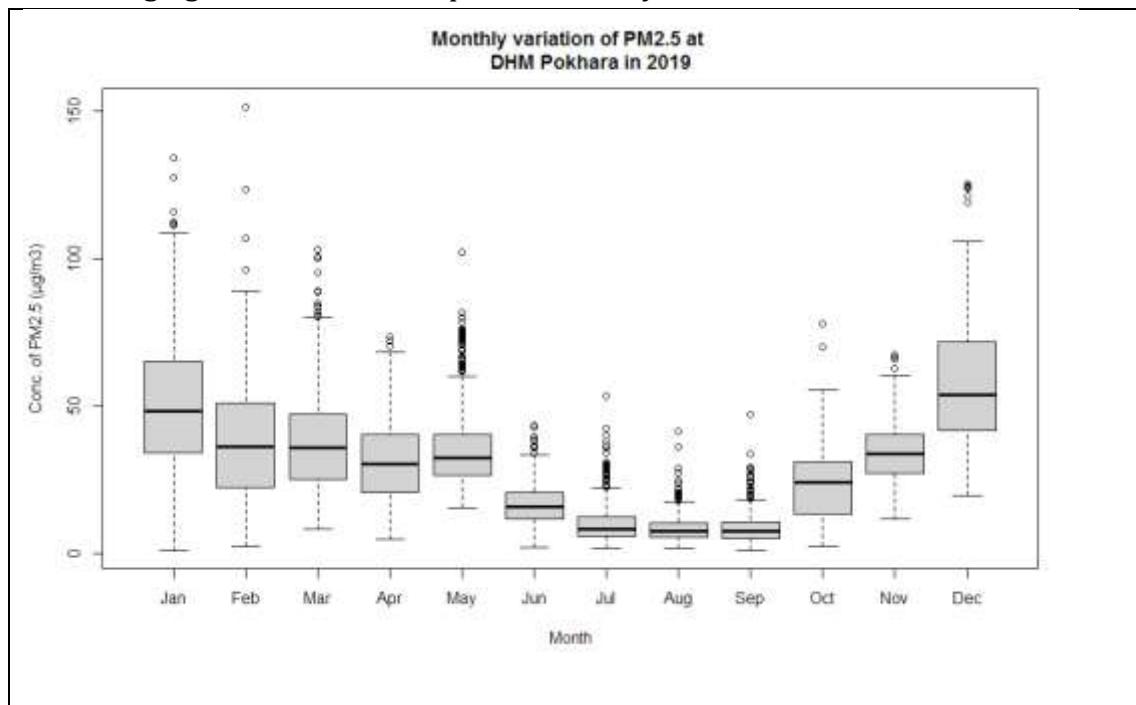


Figure 60. Monthly variation of daily average PM2.5 at DHM Pokhara in 2019

Above figure shows that hourly average data of PM2.5 was more variable in January.

Seasonal Average of PM2.5

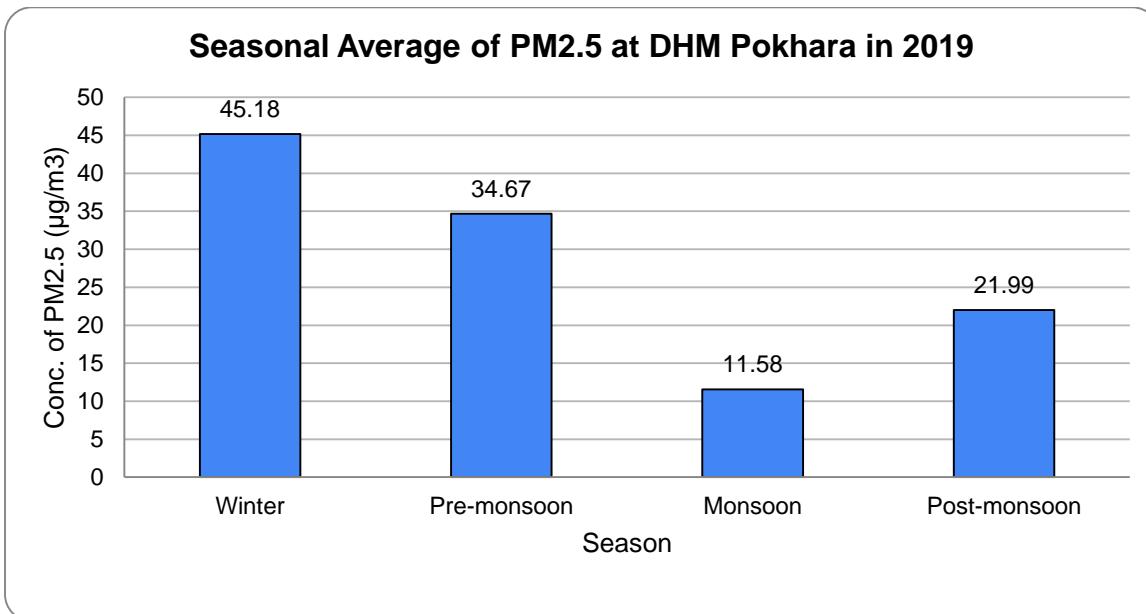


Figure 61. Seasonal variation of PM2.5 at DHM Pokhara station in 2019

The figure shows highest seasonal average in winter season while lowest seasonal average was observed in monsoon season.

Diurnal Variation of PM2.5

Following figure shows the boxplot of diurnal variation of PM2.5 at DHM Pokhara

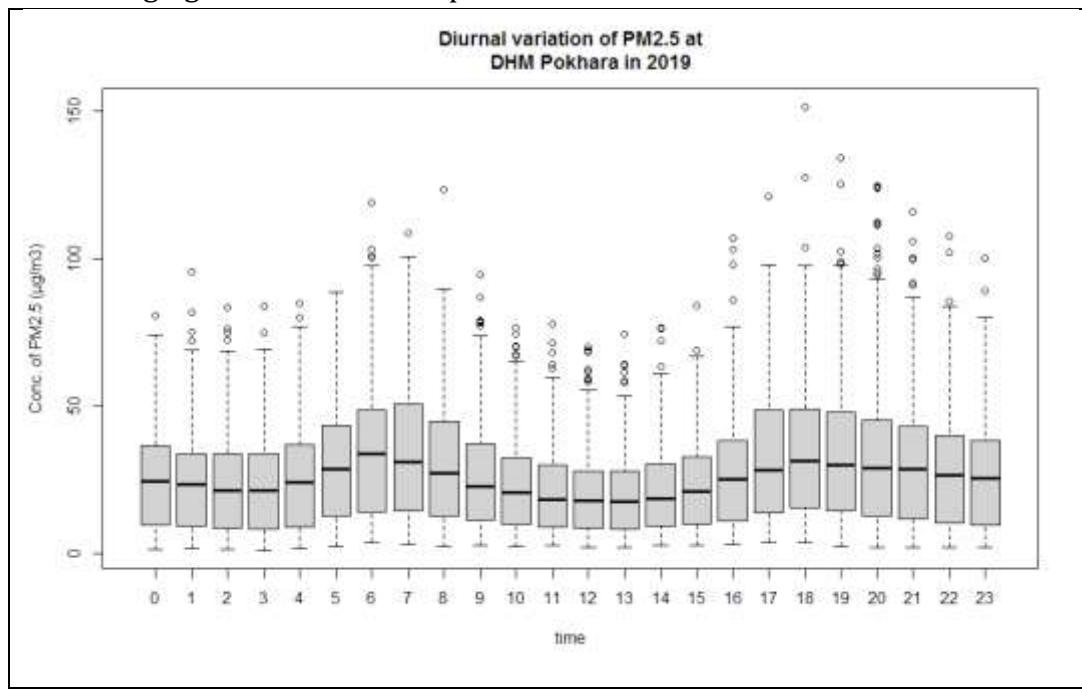


Figure 62. Boxplot of diurnal variation of PM2.5 at DHM Pokhara in 2019

Above figure shows PM2.5 concentrations was highest at 6 o'clock in the morning 18 o'clock in the evening and was also more variable at that time.

Compliance with National Ambient air Quality standard

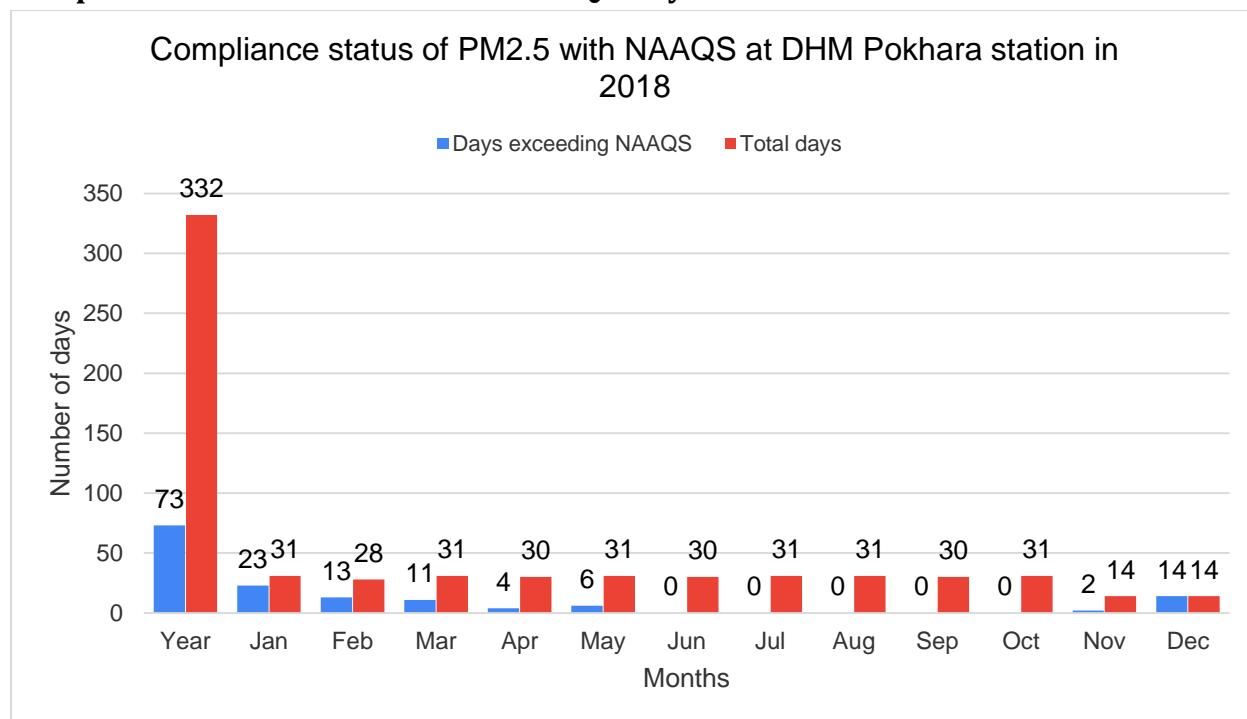


Figure 63. Compliance with National Ambient air quality standard for PM2.5 at DHM Pokhara station in 2019

Out of total 322 days of Measurement 73 days exceeded the National ambient air quality standard for PM2.5 at DHM Pokhara station in 2019.

2.3.4 Temporal Variation of PM10

Annual Average of PM10

The annual average PM10 at DHM Pokhara station on 2019 was $40.55 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM10 at DHM Pokhara station in 2019.

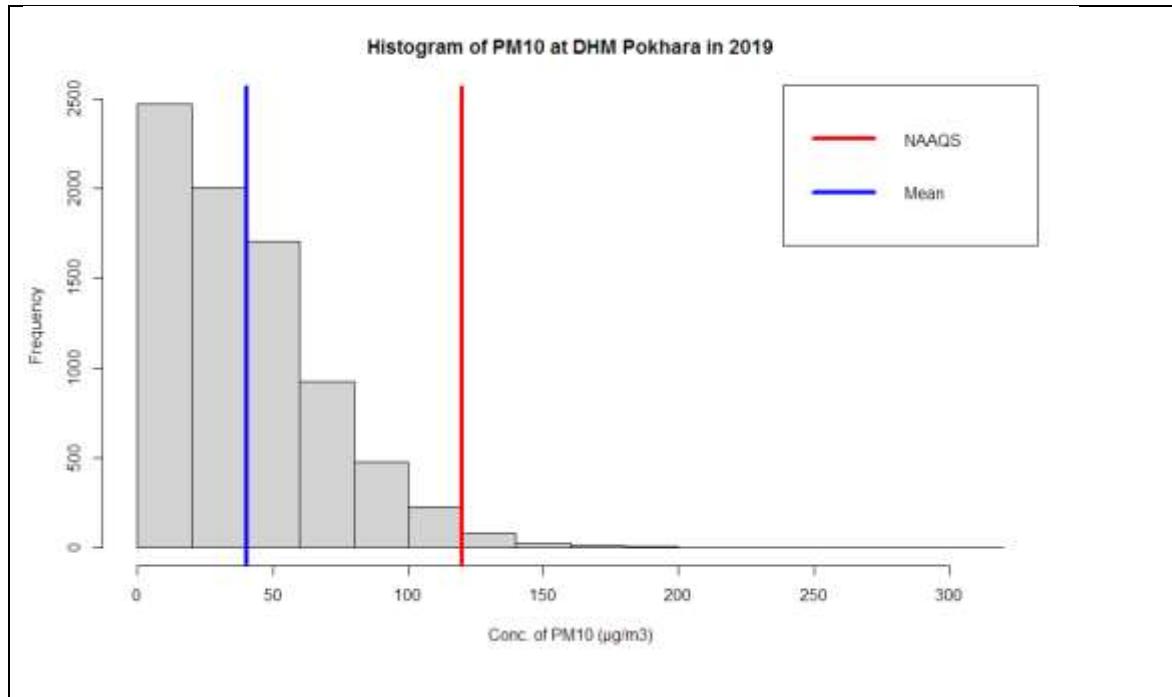


Figure 64. Histogram of PM10 at DHM Pokhara in 2019

Above figure shows that highest no of hourly average data was between $0-20 \mu\text{g}/\text{m}^3$ followed by $20-40 \mu\text{g}/\text{m}^3$.

Daily average of PM10

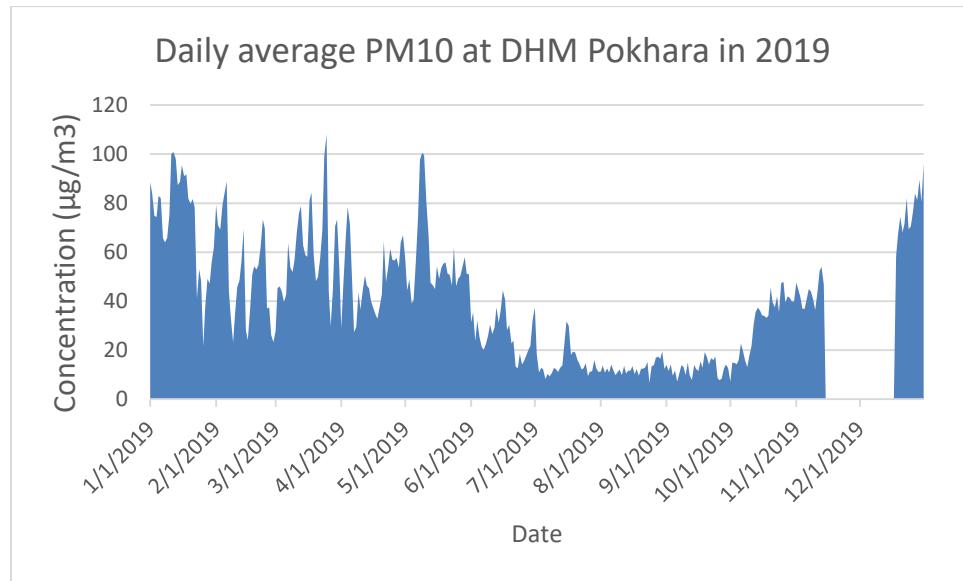


Figure 65. Daily average PM10 at DHM Pokhara station in 2019

Monthly Average of PM10

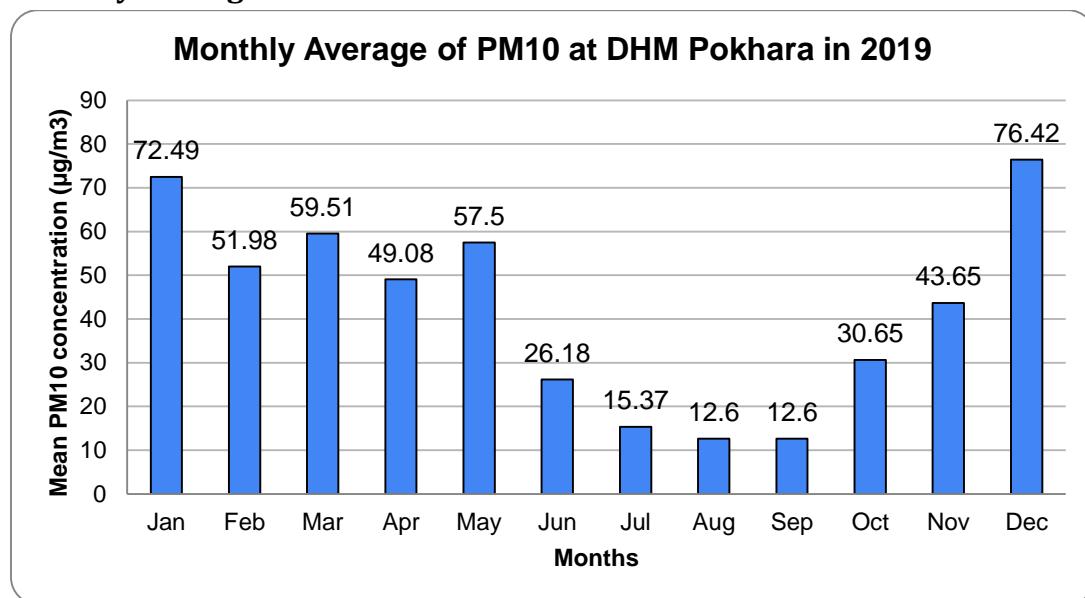


Figure 66. Monthly average PM10 at DHM Pokhara station in 2019

Above figure shows that the highest monthly average value of PM10 was found in December with average value of $76.42 \mu\text{g}/\text{m}^3$ and lowest average was found in August and September with average value of $12.6 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM10

Following figure shows the boxplot of monthly variation of PM10 at DHM Pokhara in 2019

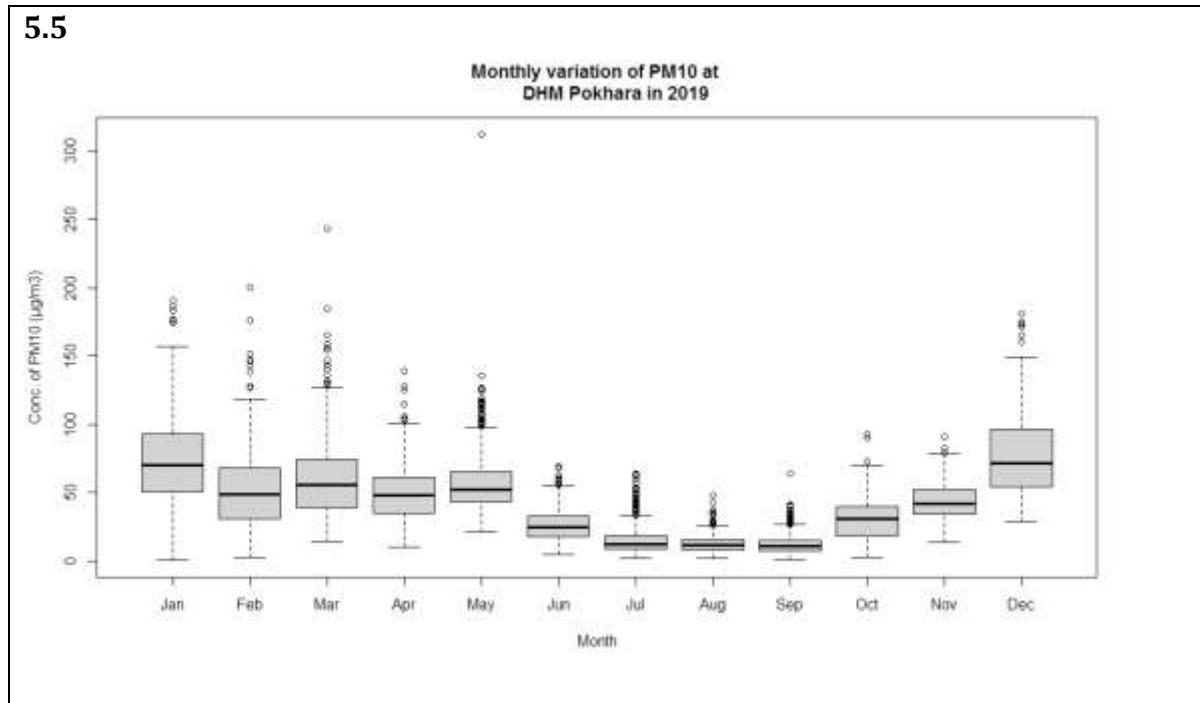


Figure 67. Boxplot of monthly variation of PM10 at DHM Pokhara in 2019

Above figure shows more variation of hourly average PM10 on January, December, February and March.

Seasonal Average of PM10

Following figure shows seasonal average of PM10 at DHM Pokhara in 2019.

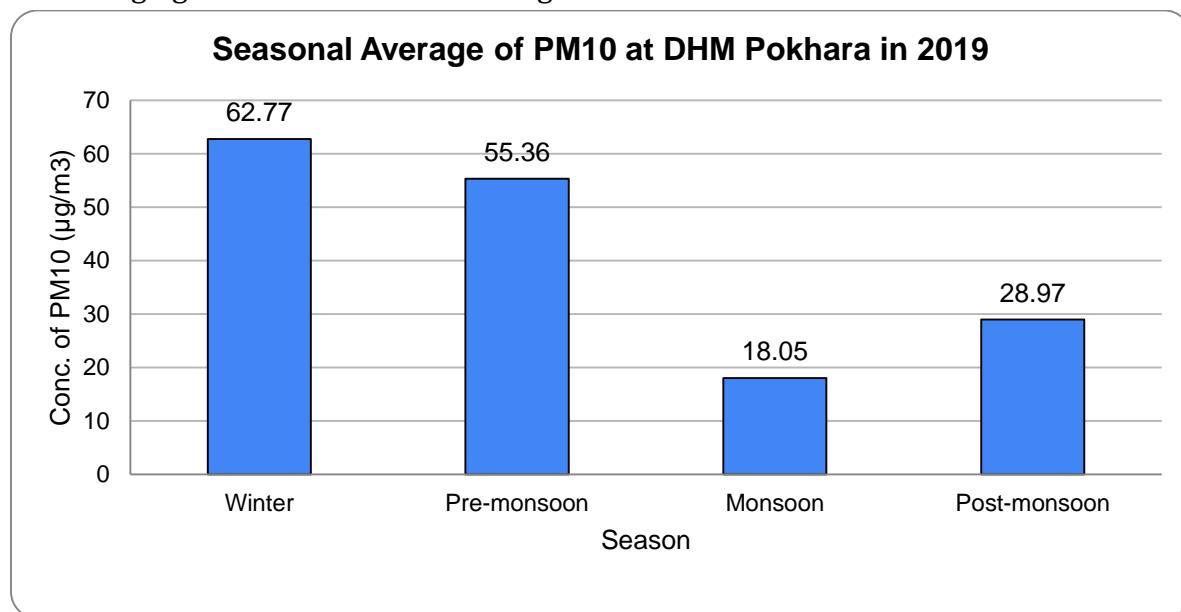


Figure 68. Seasonal average of PM10 at DHM Pokhara station in 2019

The figure shows highest seasonal average in winter season while lowest seasonal average was observed in monsoon season

Diurnal Variation of PM10

Following figure shows the diurnal variation of PM10 at DHM Pokhara in 2019.

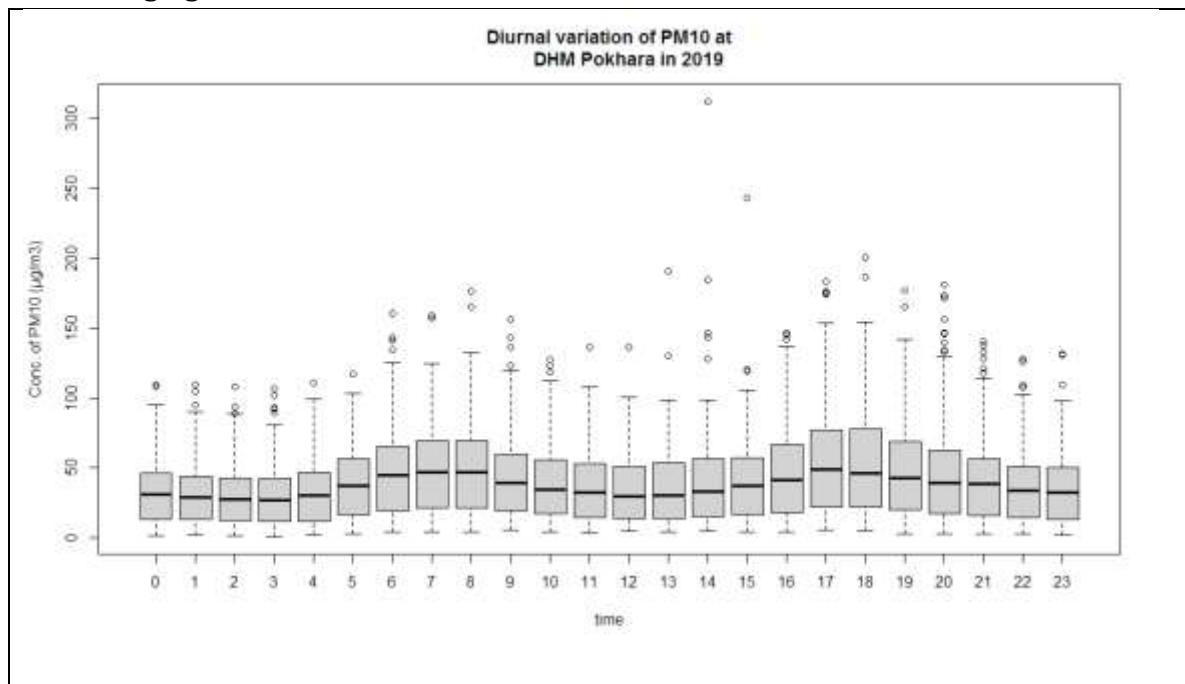


Figure 69. Diurnal variation of PM10 at DHM Pokhara in 2019

The boxplot of diurnal variation shows PM10 concentration was highest at 7 and 8 O'clock in the morning and 17 and 18 o'clock in the evening.

Compliance with National Ambient Air quality standard

Out of 322 days of measurement in 2019, all days meet the National Ambient air quality standard for PM10 at DHM Pokhara station in 2019.

2.3.5 Temporal Variation of TSP

Annual Average of TSP

Annual TSP average of DHM Pokhara Station for the year 2019 was observed to be 63.47 $\mu\text{g}/\text{m}^3$. Following figure shows the histogram of TSP at DHM Pokhara in 2019.

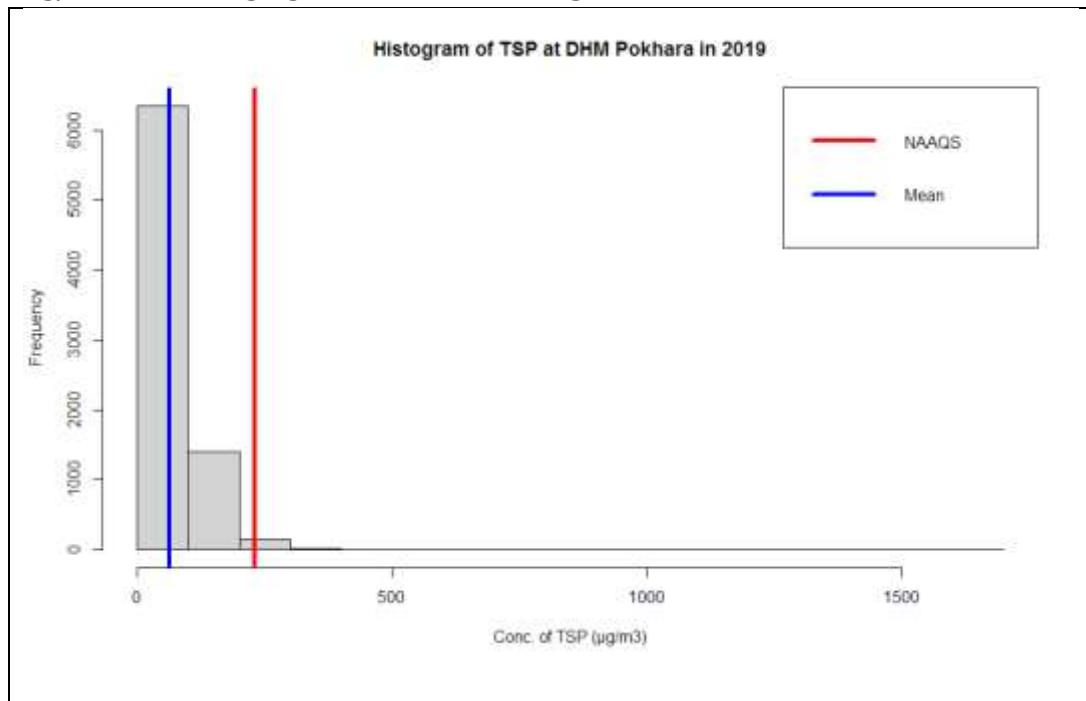


Figure 70. Histogram of TSP at DHM Pokhara station in 2019

Above figure shows highest no of hourly average of Total suspended Particulate data were between 0-100 $\mu\text{g}/\text{m}^3$.

Daily average of TSP

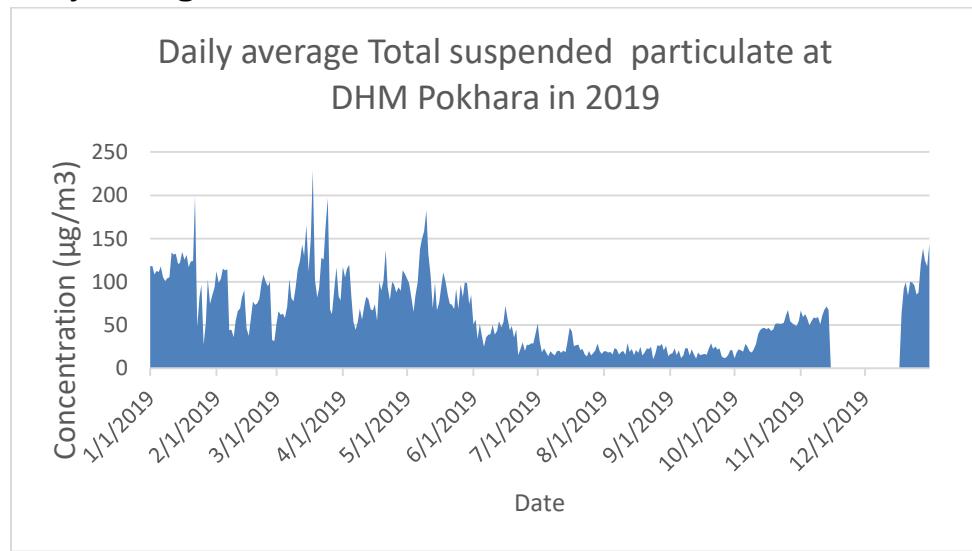


Figure 71. Daily average total suspended particulate at DHM Pokhara in 2019

Monthly Average of TSP

Following figure shows the monthly average of Total Suspended Particulate at DHM Pokhara in 2019.

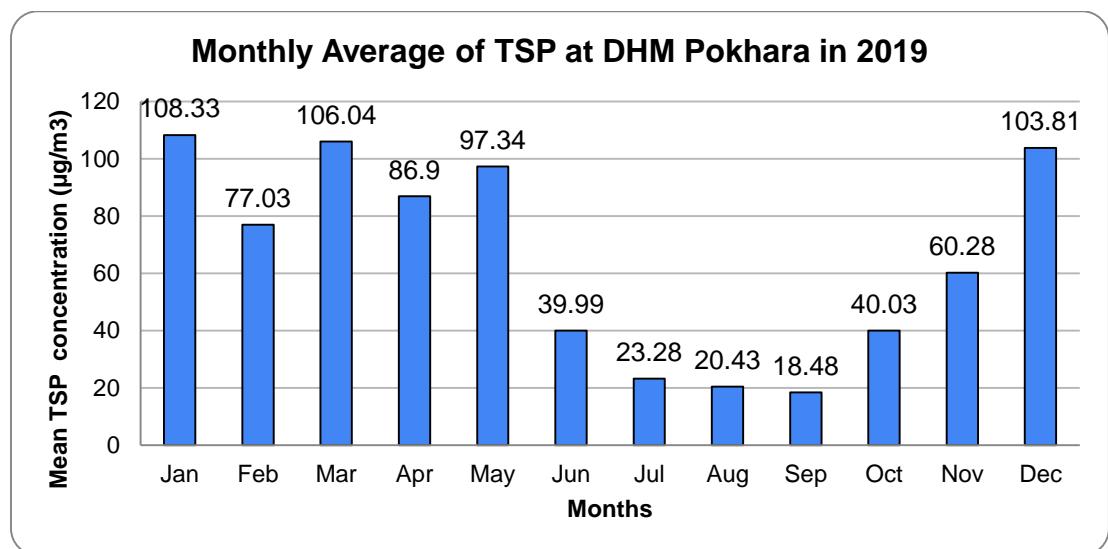


Figure 72. Monthly average of TSP at DHM Pokhara station in 2019

The monthly average value of TSP was highest in January with value of $108.33 \mu\text{g}/\text{m}^3$ and lowest in September with value of $18.48 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at DHM Pokhara in 2019

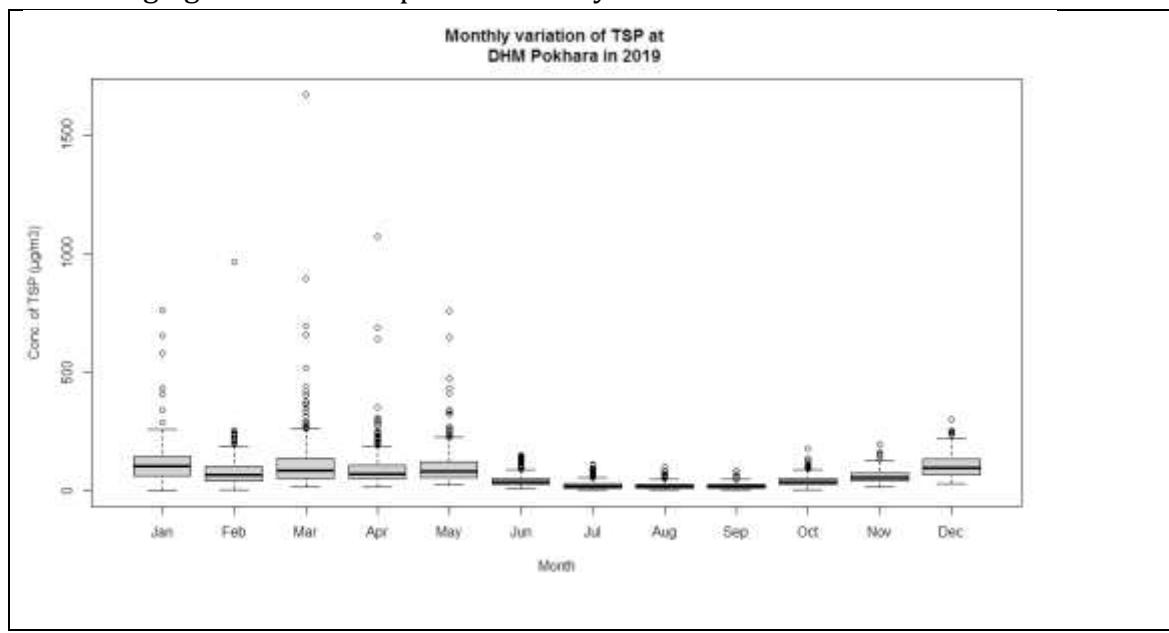


Figure 73. Monthly variation of daily average Total suspended particulate at DHM Pokhara in 2019

The above figure shows that highest level of variation was seen in January, March and December.

Seasonal Average of TSP

Following figure shows the seasonal variation of TSP at DHM Pokhara station in 2019

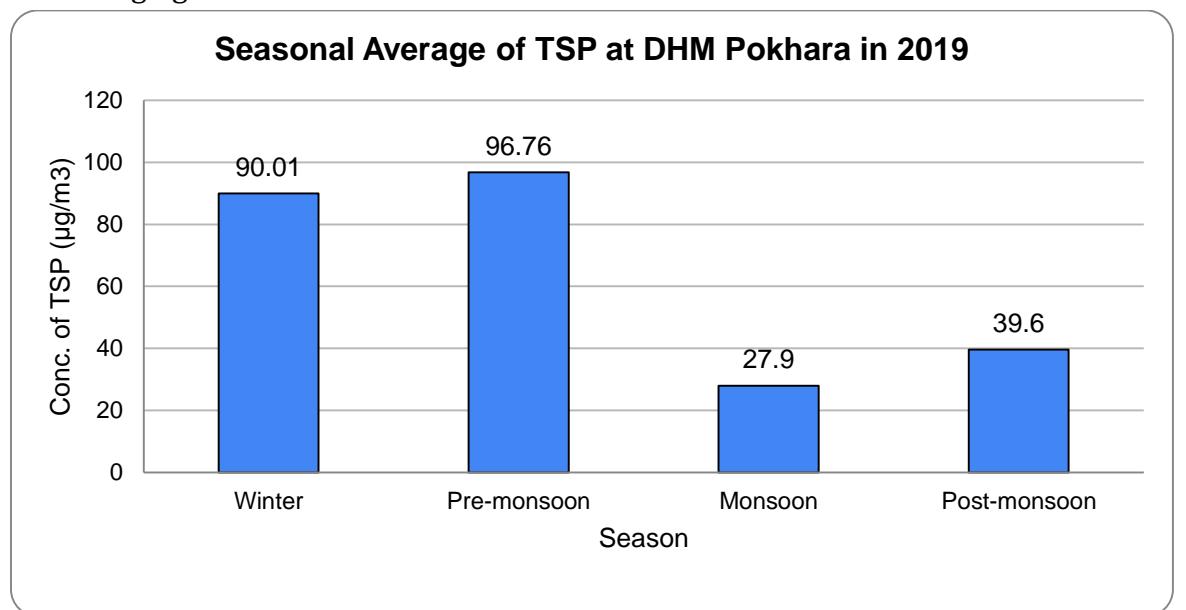


Figure 74. Seasonal average of TSP at DHM Pokhara station in 2019

Pre-monsoon had the highest seasonal average while Monsoon had the lowest seasonal average.

Diurnal Variation of TSP

Following figure shows the boxplot of diurnal variation of TSP at DHM Pokhara in 2019.

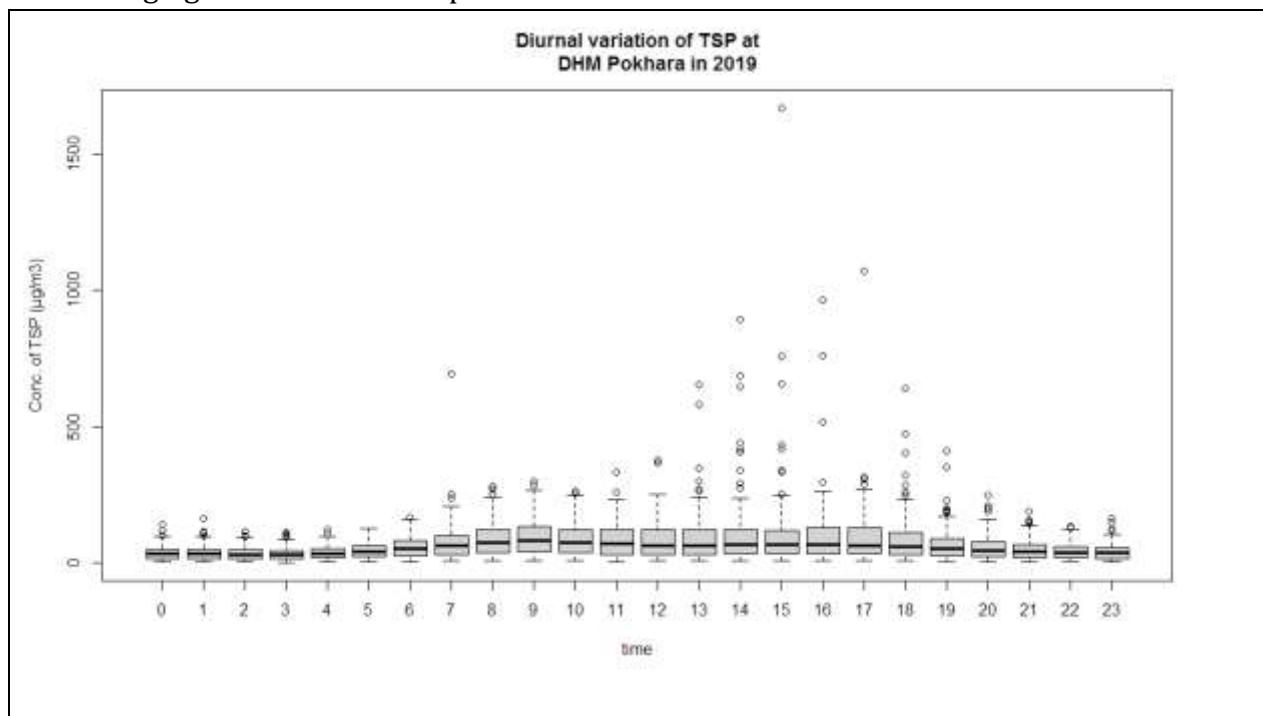


Figure 75. Diurnal variation of TSP at DHM Pokhara station in 2018

Above figure shows that Total suspend Particulate concentration was more variable during the day time.

Compliance with National Ambient air quality Standard

Out of 332 days of measurement all days meet the National ambient air quality standards for the Total suspended particulate.

2.4 Air quality status, 2020

2.4.1 Annual average of PM1, PM2.5, PM10 and TSP

Annual average of all parameters (PM1, PM2.5, PM10 and TSP for this station)

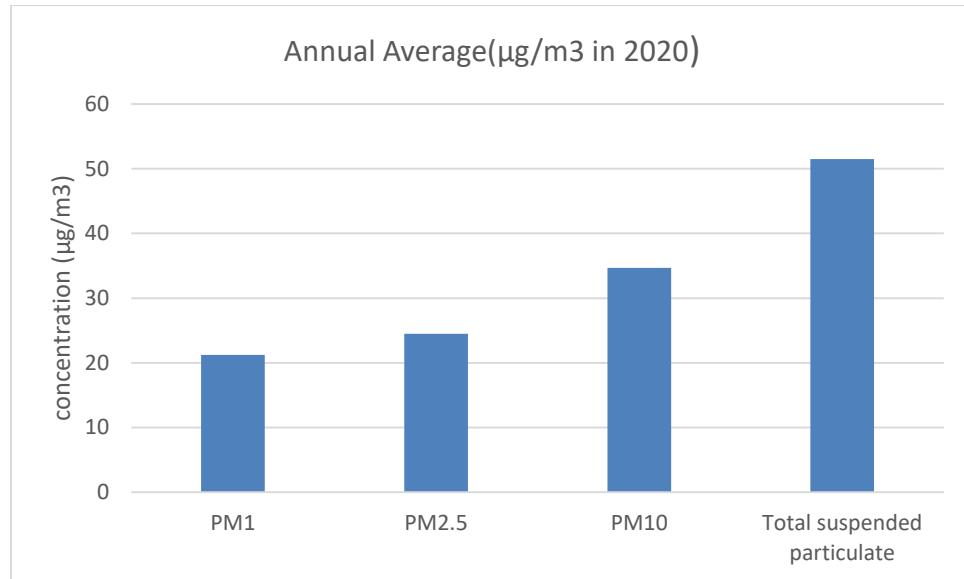


Figure 76. Annual average PM1,PM2.5, PM10 and TSP at DHM Pokhara station for 2020

2.4.2 Temporal Variation of PM1

Annual Average of PM1

Annual average PM1 at DHM Pokhara station at 2020 was $21.21 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM1 at DHM Pokhara in 2020.

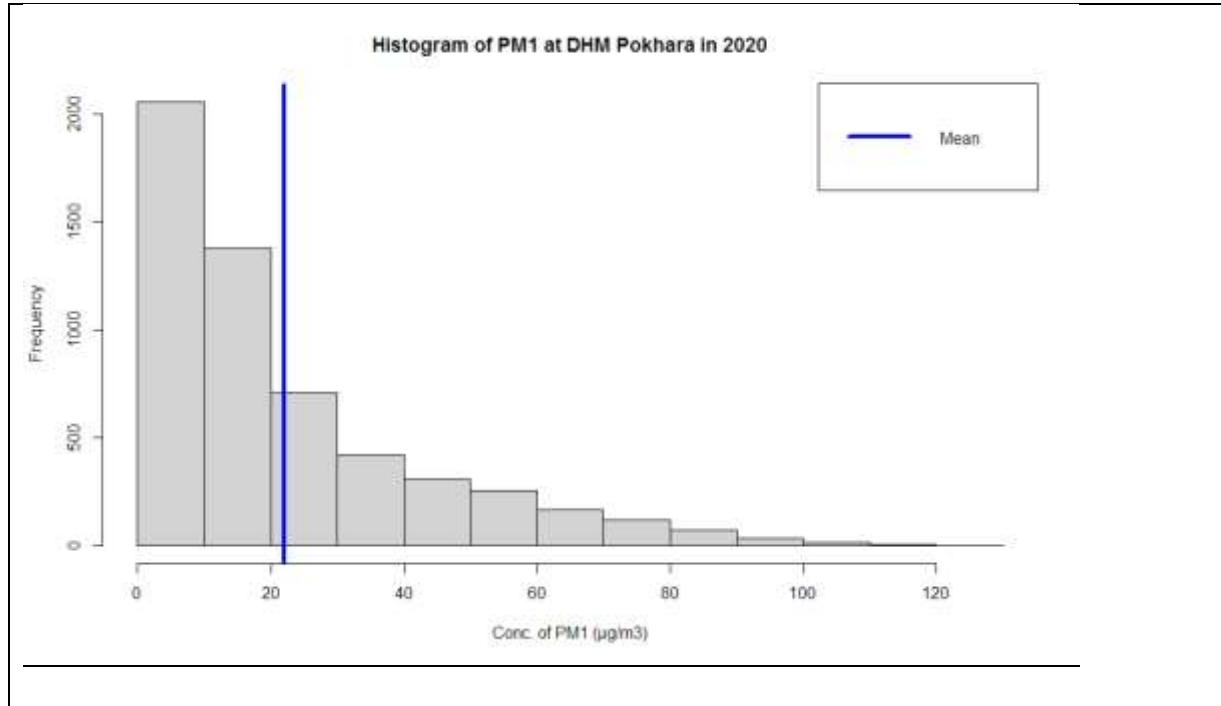


Figure 77. Histogram of PM1 at DHM Pokhara in 2020

The Histogram shows that highest no of hourly average data was between 0-10 $\mu\text{g}/\text{m}^3$ followed by 10-20 $\mu\text{g}/\text{m}^3$.

Daily average of PM1

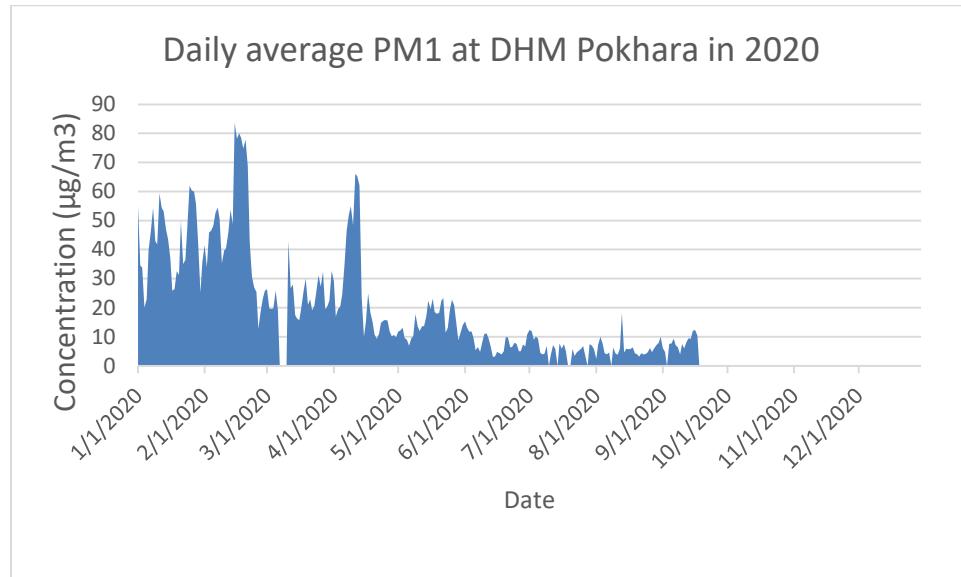


Figure 78. Daily average PM1 at DHM Pokhara station in 2020

Monthly Average of PM1

Following Figure shows the monthly average of PM1.

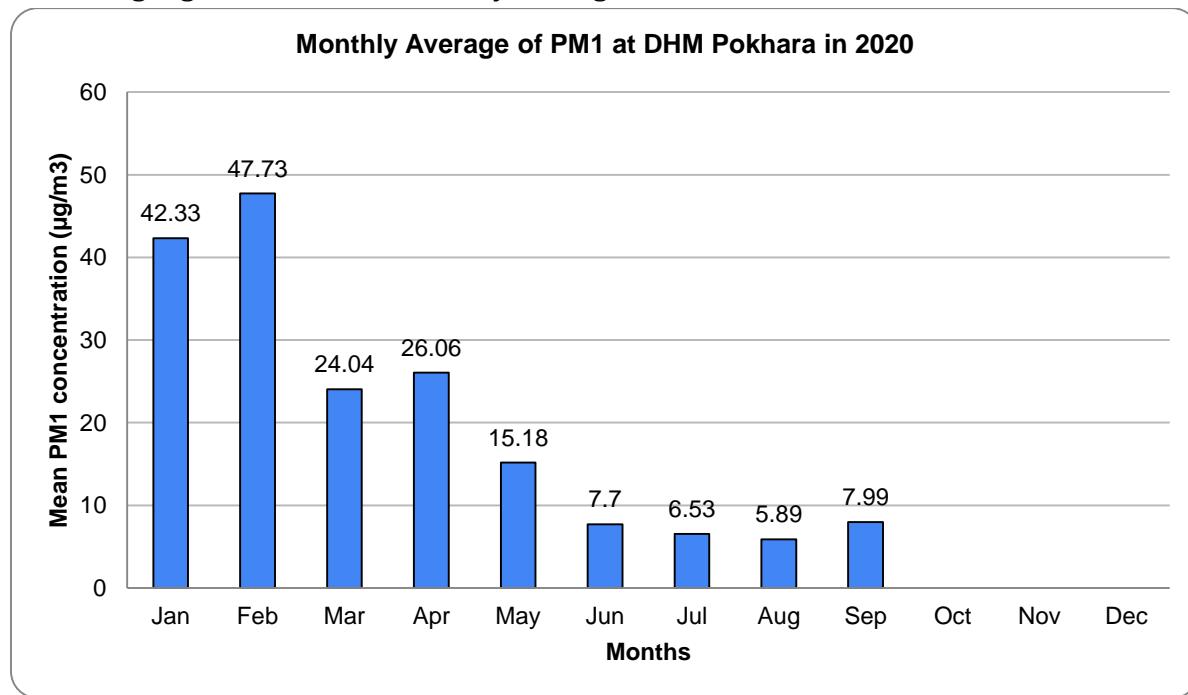


Figure 79. Monthly average PM1 at DHM Pokhara station in 2020

Above figure shows that the average value of PM1 was highest in February with 47.73 $\mu\text{g}/\text{m}^3$ and lowest value were observed in August with 5.89 $\mu\text{g}/\text{m}^3$.

Monthly Variation of PM1

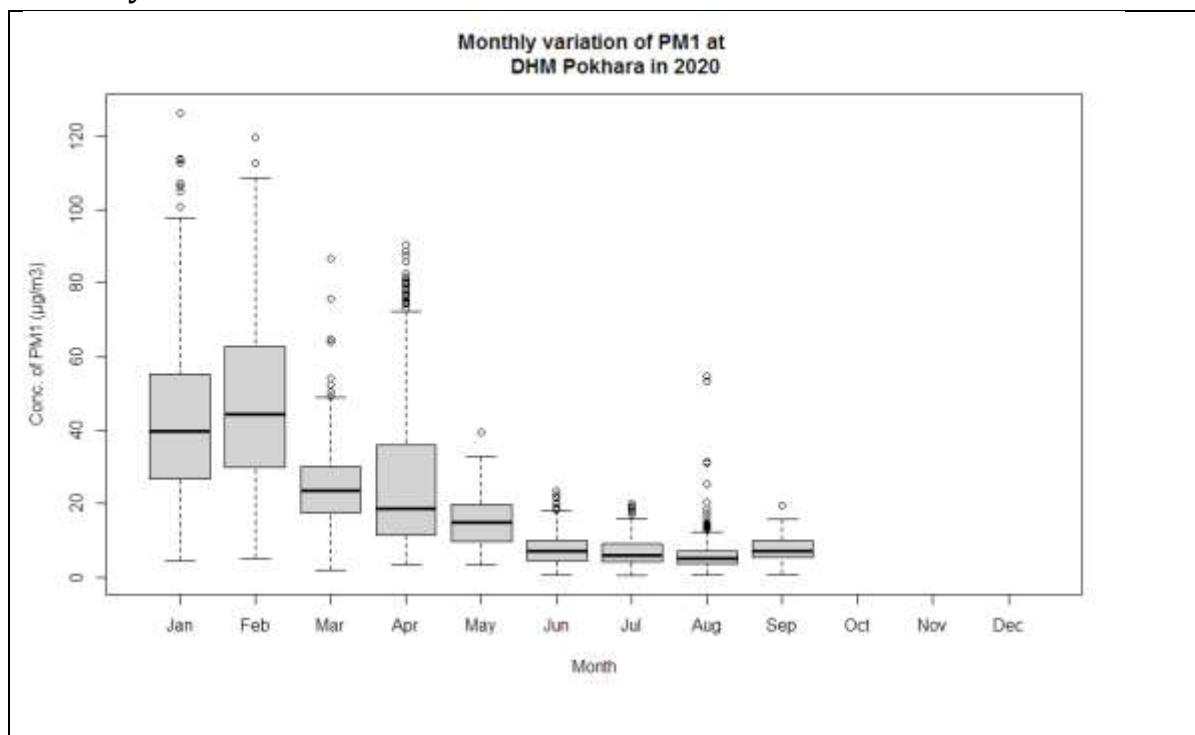


Figure 80. Monthly variation of daily average PM1 at DHM Pokhara station in 2020

Boxplot of monthly variation of PM1 shows that highest variation was seen on February, January and April.

Seasonal Average of PM1

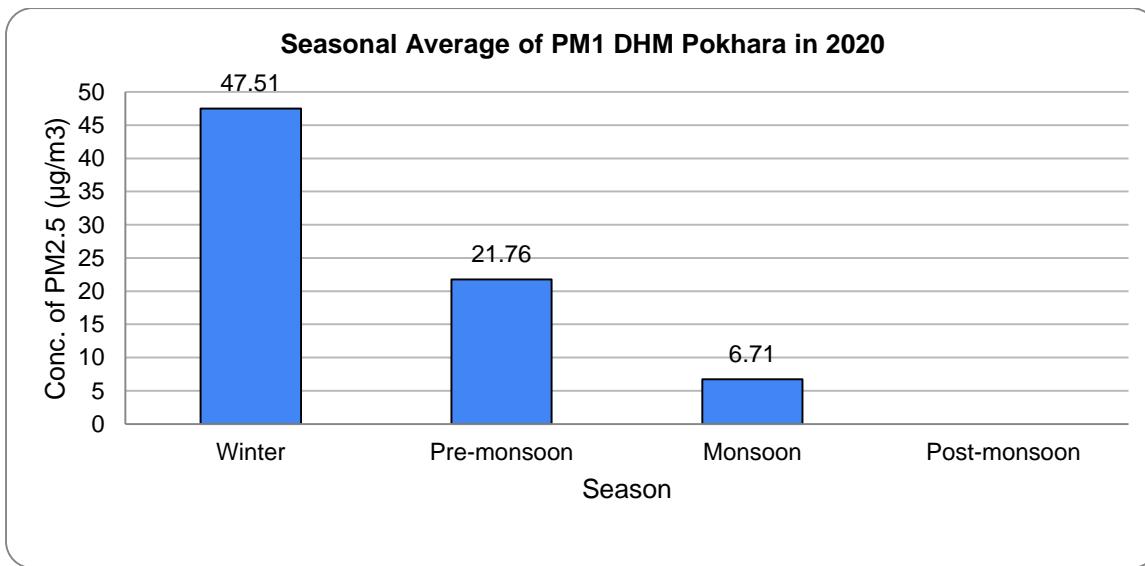


Figure 81. Ambient concentration of average PM1 with four seasons

Highest seasonal average was observed in winter with seasonal average of $47.51 \mu\text{g}/\text{m}^3$ while lowest seasonal average was observed in monsoon season with average value of $6.71 \mu\text{g}/\text{m}^3$.

Diurnal Variation of PM1

Following figure shows the boxplot of diurnal variation of PM1 at DHM Pokhara station in 2020.

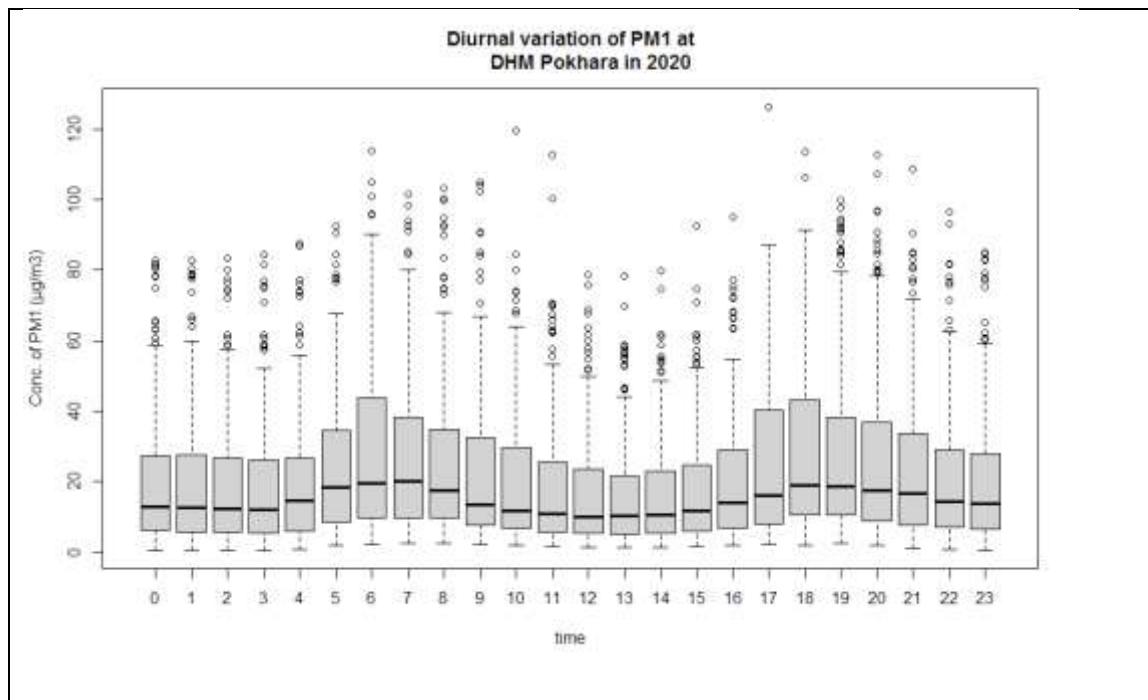


Figure 82. Boxplot of diurnal variation of PM1 at DHM Pokhara station in 2020

Above figure shows that PM1 concentration was more at 6 and 7 o'clock in the morning and 18 and 19 o'clock in the evening and it was more variable at those time.

2.4.3 Temporal Variation of PM2.5

Annual Average of PM2.5

The annual average of PM2.5 at DHM Pokhara station in 2020 was $24.50 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM2.5 at DHM Pokhara station in 2020.

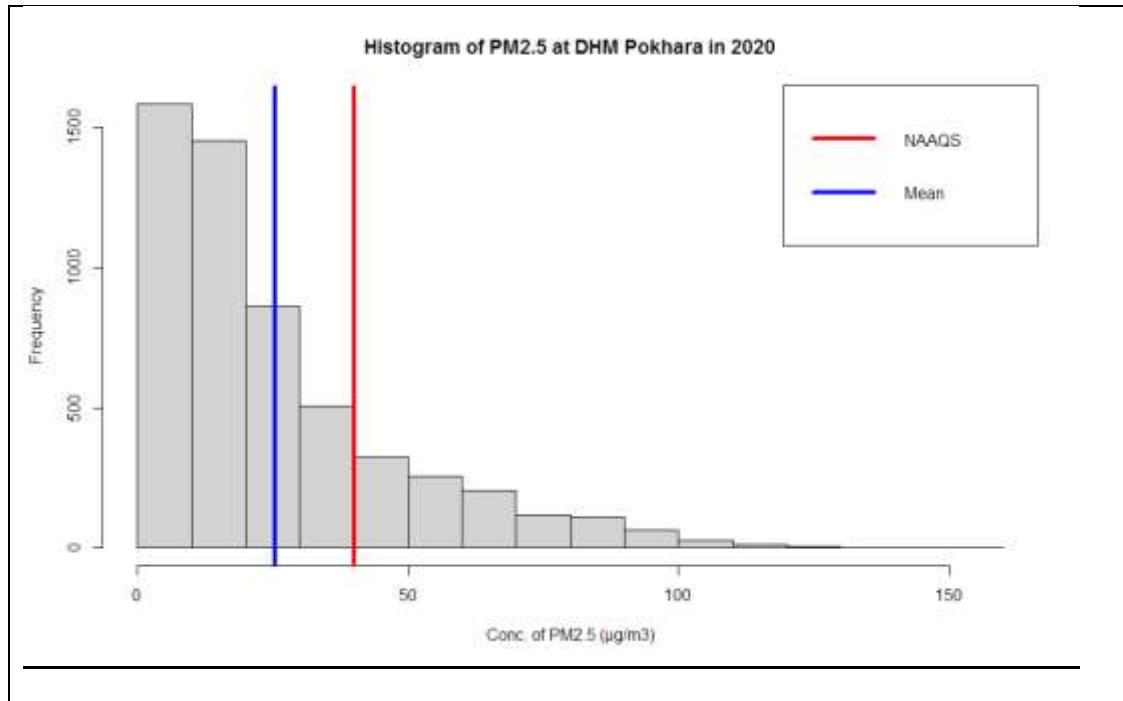


Figure 83. Histogram of PM2.5 at DHM Pokhara in 2020

The Histogram shows that highest no of hourly average data were between $0-10 \mu\text{g}/\text{m}^3$ followed by $10-20 \mu\text{g}/\text{m}^3$.

Daily Average of PM2.5

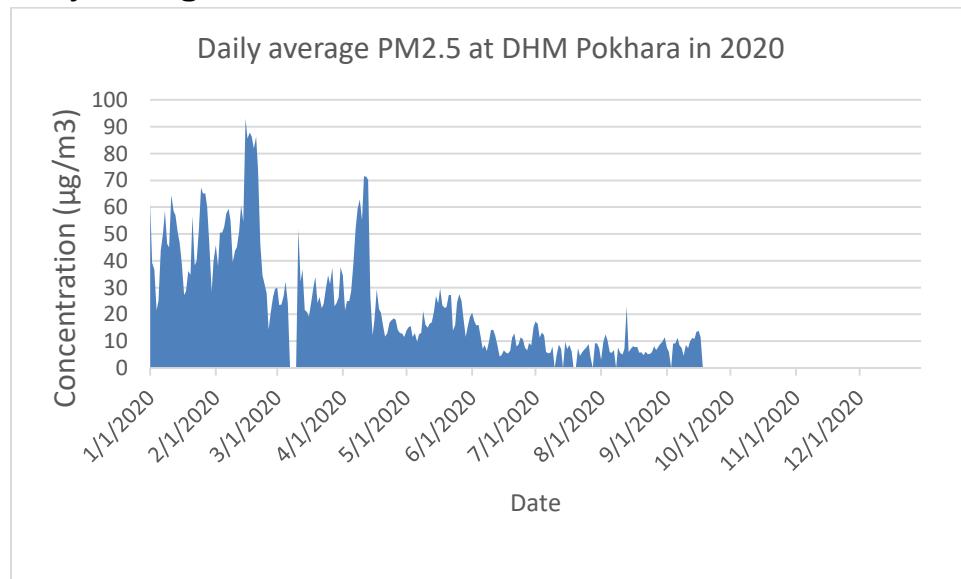


Figure 84. Daily average PM2.5 at DHM Pokhara station in 2020

Monthly Average of PM2.5

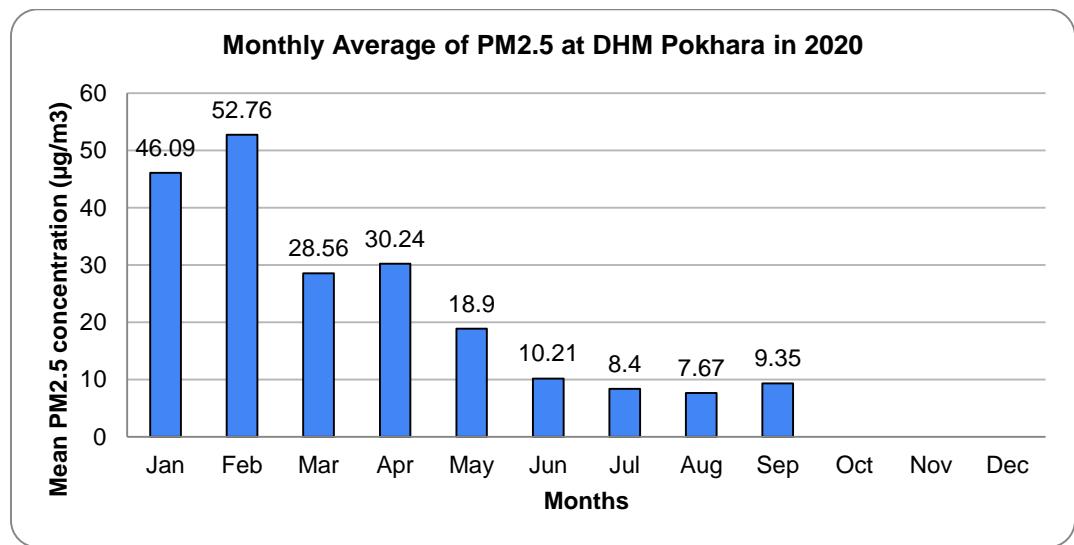


Figure 85. Monthly average of PM2.5 at DHM Pokhara station in 2020

Monthly average value of PM_{2.5} was highest in February with monthly average of 52.76 $\mu\text{g}/\text{m}^3$ while lowest value were observed in August with monthly average of 7.67 $\mu\text{g}/\text{m}^3$

Monthly Variation of PM2.5

Following figure shows the boxplot of monthly variation of PM2.5 at DHM Pokhara in 2020.

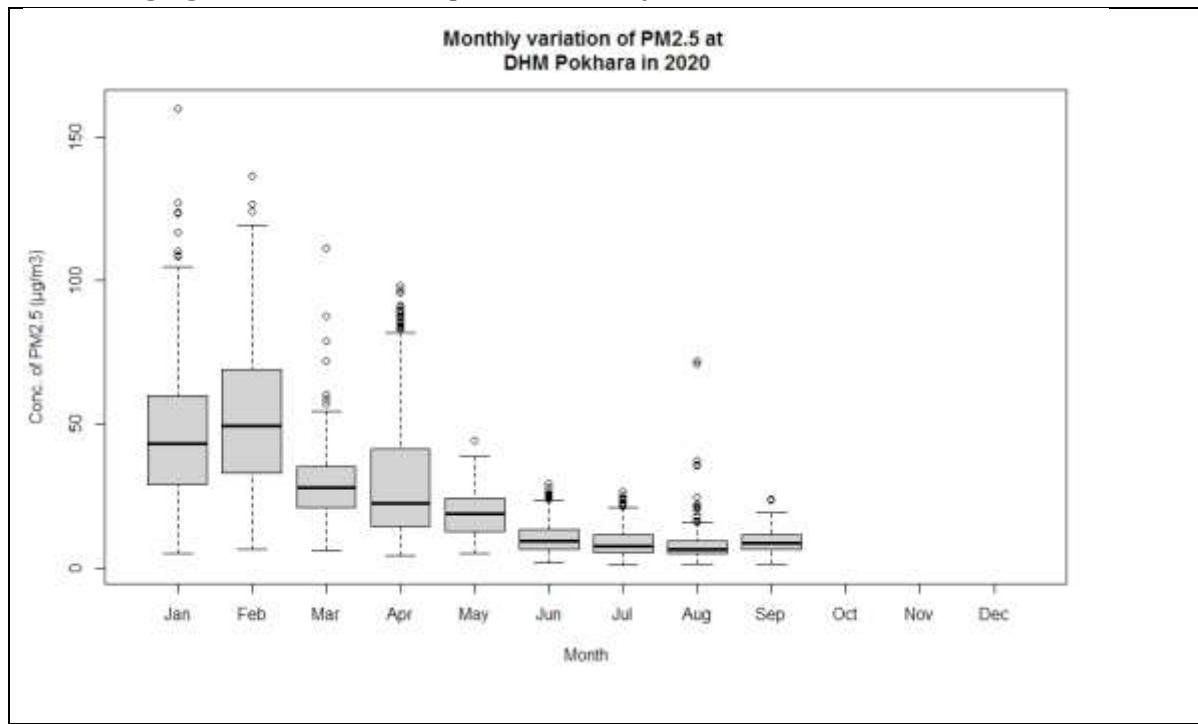


Figure 86. Monthly variation of daily average PM2.5 at DHM Pokhara in 2020

Above figure shows that hourly average data of PM2.5 was more variable in February, January and April.

Seasonal Average of PM2.5

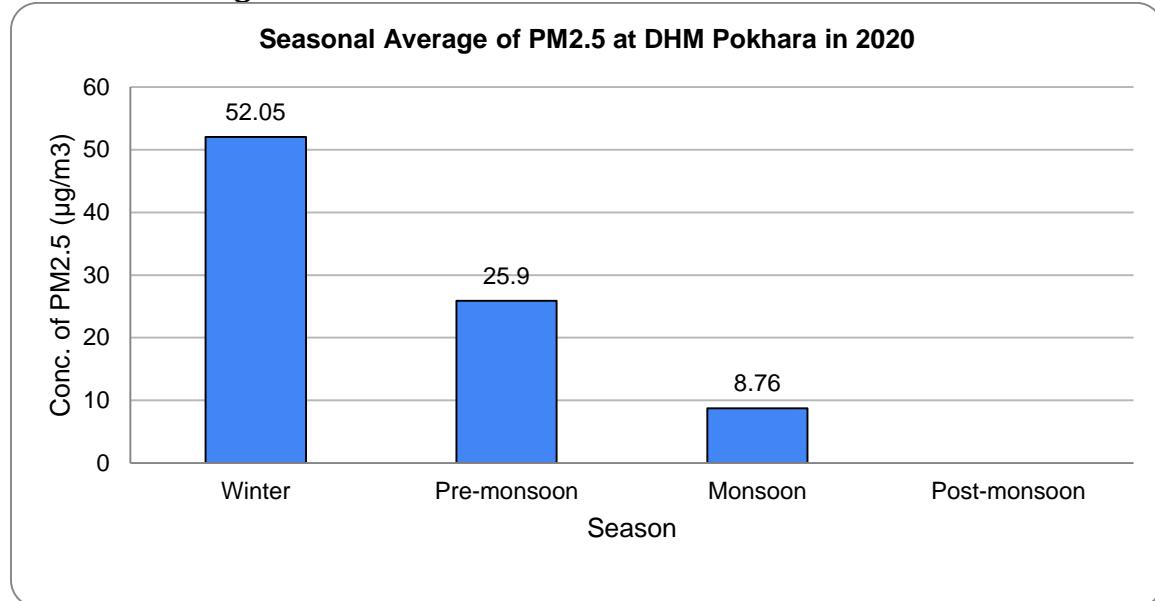


Figure 87. Seasonal variation of PM2.5 at DHM Pokhara station in 2020

Highest seasonal average was observed in winter season and lowest seasonal average was observed in monsoon season.

Diurnal Variation of PM2.5

Following figure shows the boxplot of diurnal variation of PM2.5 at DHM Pokhara

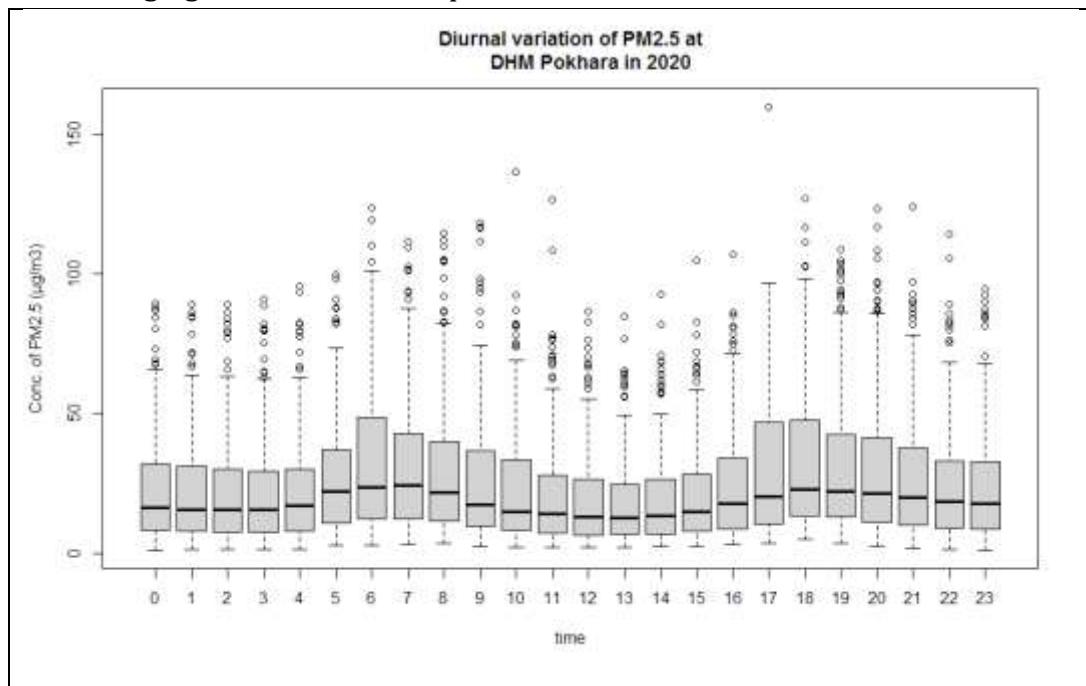


Figure 88. Boxplot of diurnal variation of PM2.5 at DHM Pokhara in 2020

PM2.5 concentrations was highest at 6 and 7 o'clock in the morning 18 o'clock in the evening and also more variable at those time.

Compliance with National Ambient air Quality standard

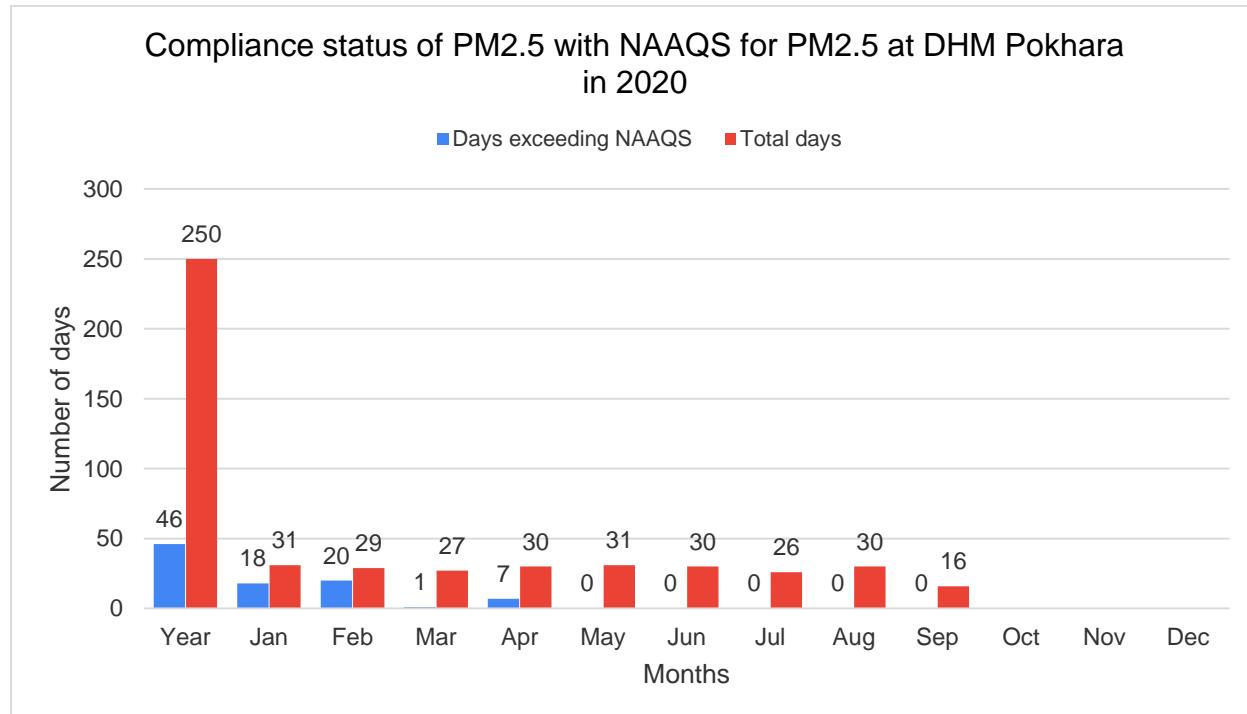


Figure 89. Compliance with National Ambient air quality standard for PM2.5 at DHM Pokhara station in 2020

Out of total 250 days of Measurement 46 days exceeded the National ambient air quality standard for PM2.5 at DHM Pokhara station in 2020.

2.4.4 Temporal Variation of PM10

Annual Average of PM10

The annual average PM10 at DHM Pokhara station on 2020 was $34.69 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM10 at DHM Pokhara station in 2020.

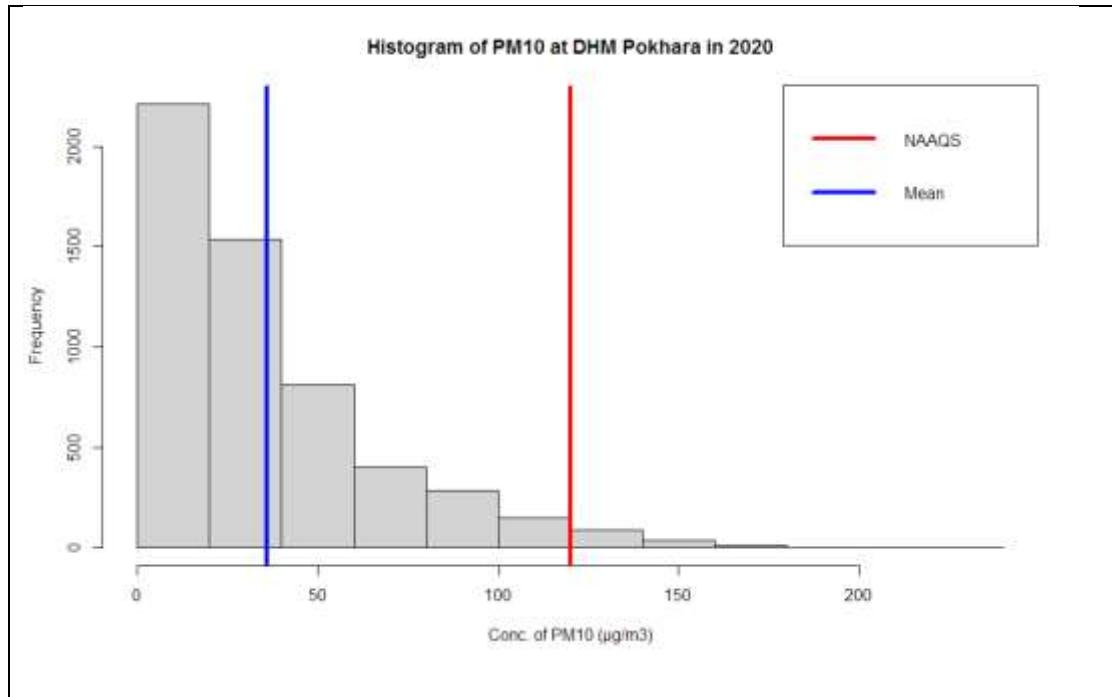


Figure 90. Histogram of PM10 at DHM Pokhara in 2020

Above figure shows that highest no of hourly average data were between $0-20 \mu\text{g}/\text{m}^3$ followed by $20-40 \mu\text{g}/\text{m}^3$.

Daily average PM10

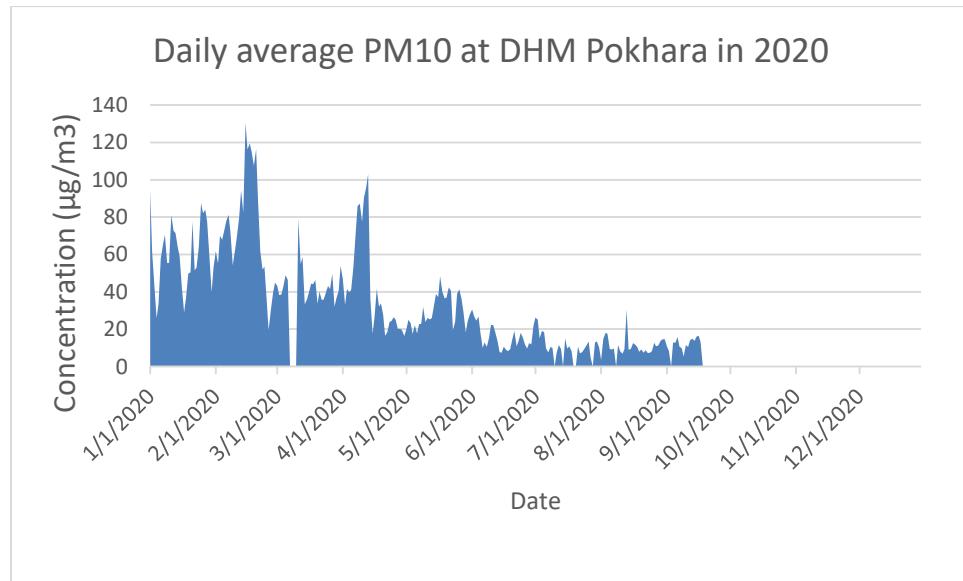


Figure 91. Daily average PM10 at DHM Pokhara station in 2020

Monthly Average of PM10

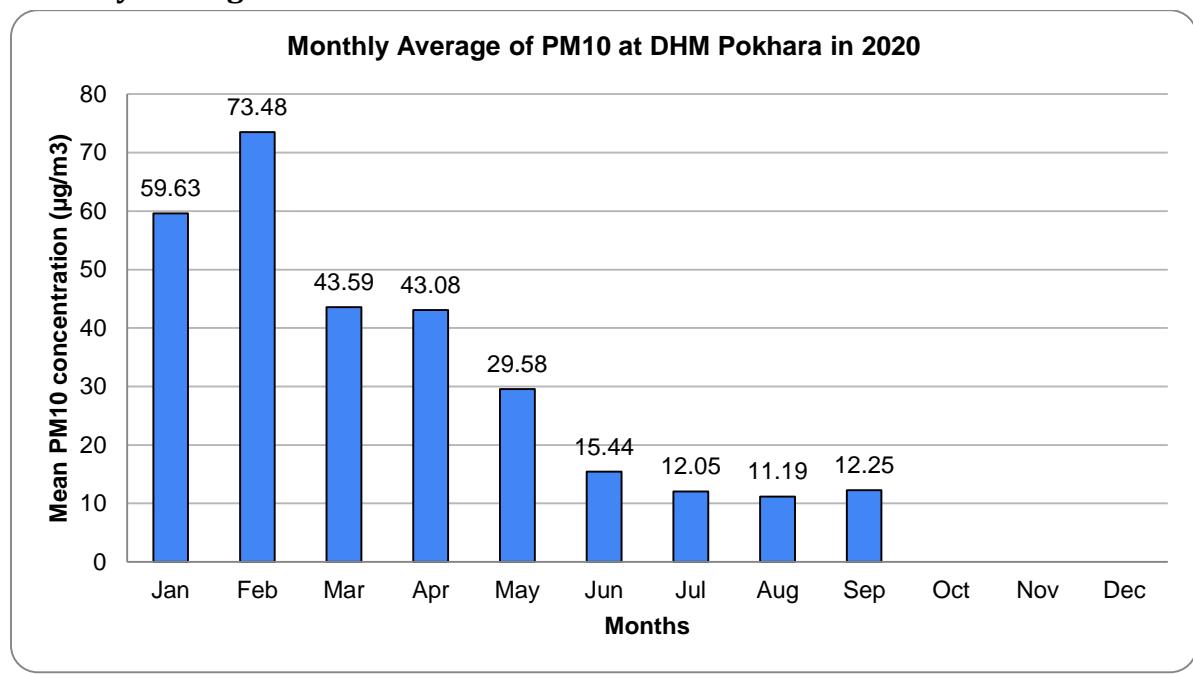


Figure 92. Monthly average PM10 at DHM Pokhara station in 2020

The highest monthly average value of PM10 was found in February with average value of $73.48 \mu\text{g}/\text{m}^3$ and lowest average was found in August with average value of $11.19 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM10

Following figure shows the boxplot of monthly variation of PM10 at DHM Pokhara in 2020

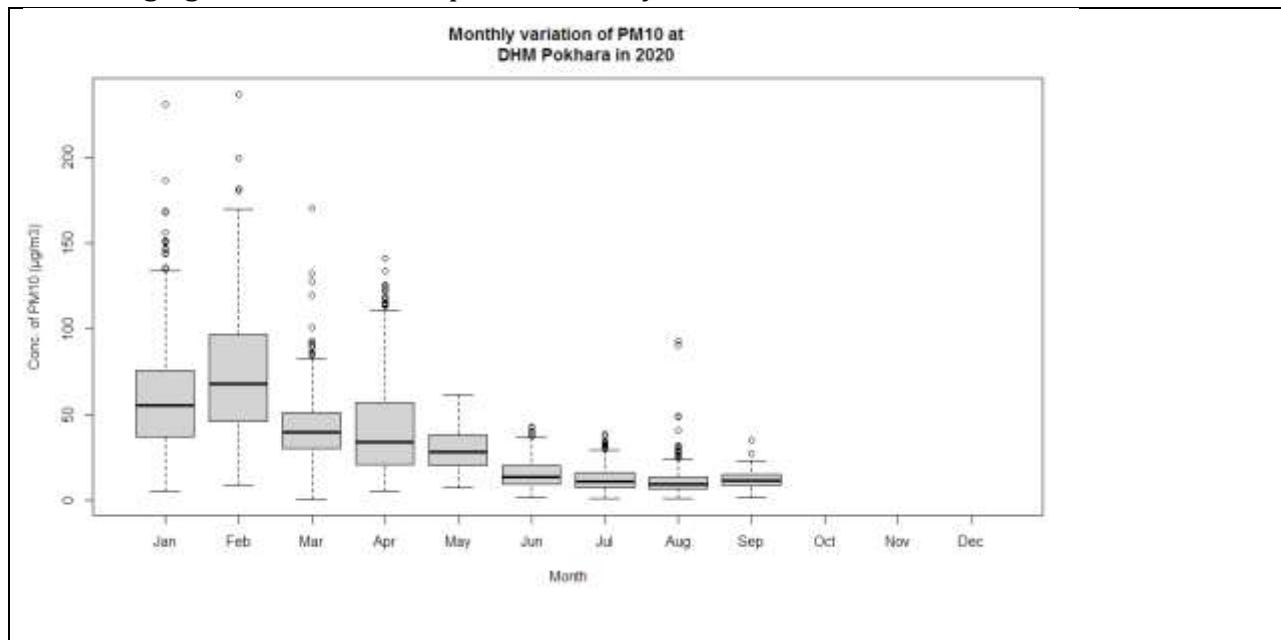


Figure 93.Boxplot of monthly variation of PM10 at DHM Pokhara in 2020

Above figure shows more variation of hourly average PM10 on February, January and April.

Seasonal Average of PM10

Following figure shows seasonal average of PM10 at DHM Pokhara in 2020.

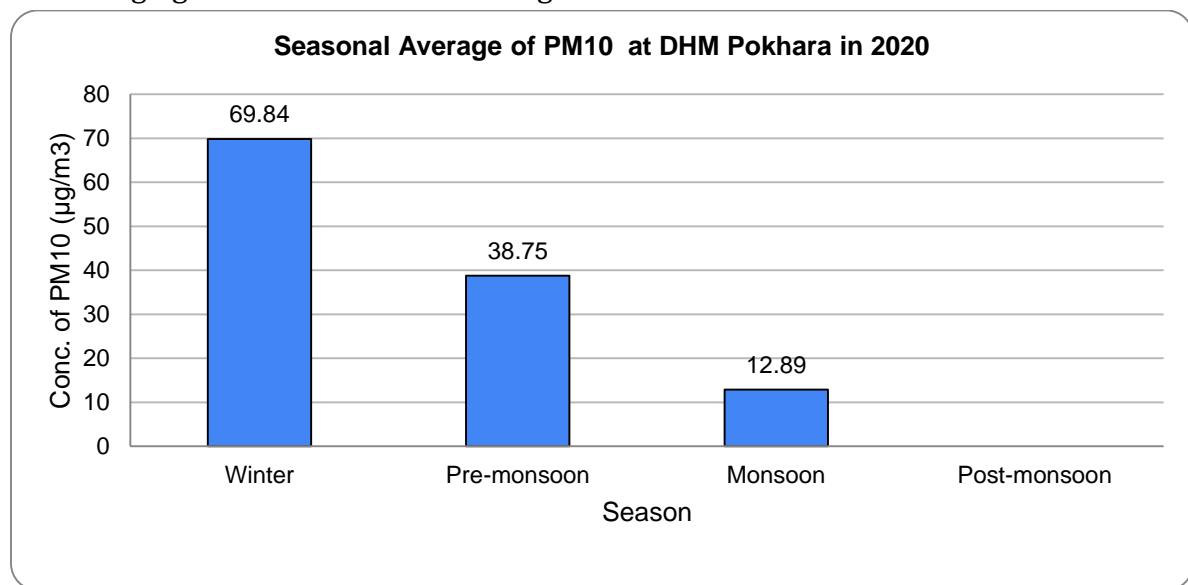


Figure 94. Seasonal average of PM10 at DHM Pokhara station in 2020

The figure shows highest seasonal average in Winter season while lowest seasonal average was observed in monsoon season

Diurnal Variation of PM10

Following figure shows the diurnal variation of PM10 at DHM Pokhara in 2020.

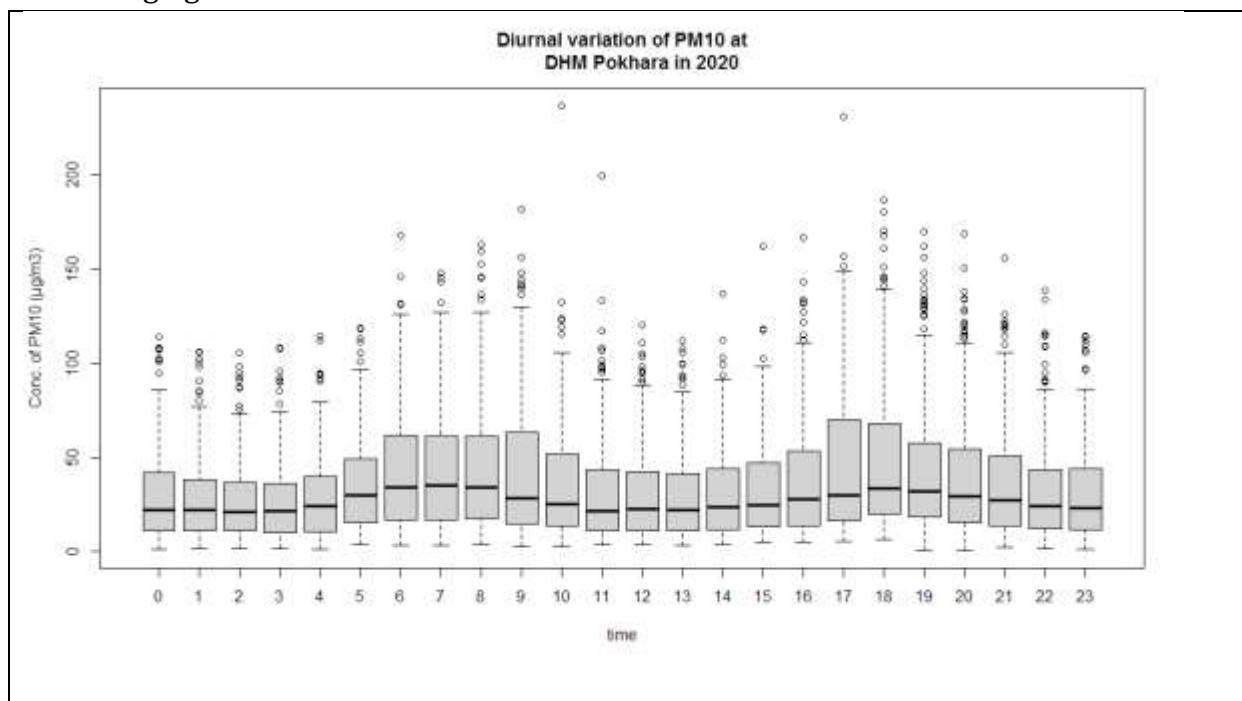


Figure 95. Diurnal variation of PM10 at DHM Pokhara in 2020

The boxplot of diurnal variation shows PM10 concentration was highest at 6, 7 and 8 O'clock in the morning and 18 o'clock in the evening similarly variation was also high at that time.

Compliance with National Ambient Air quality standard

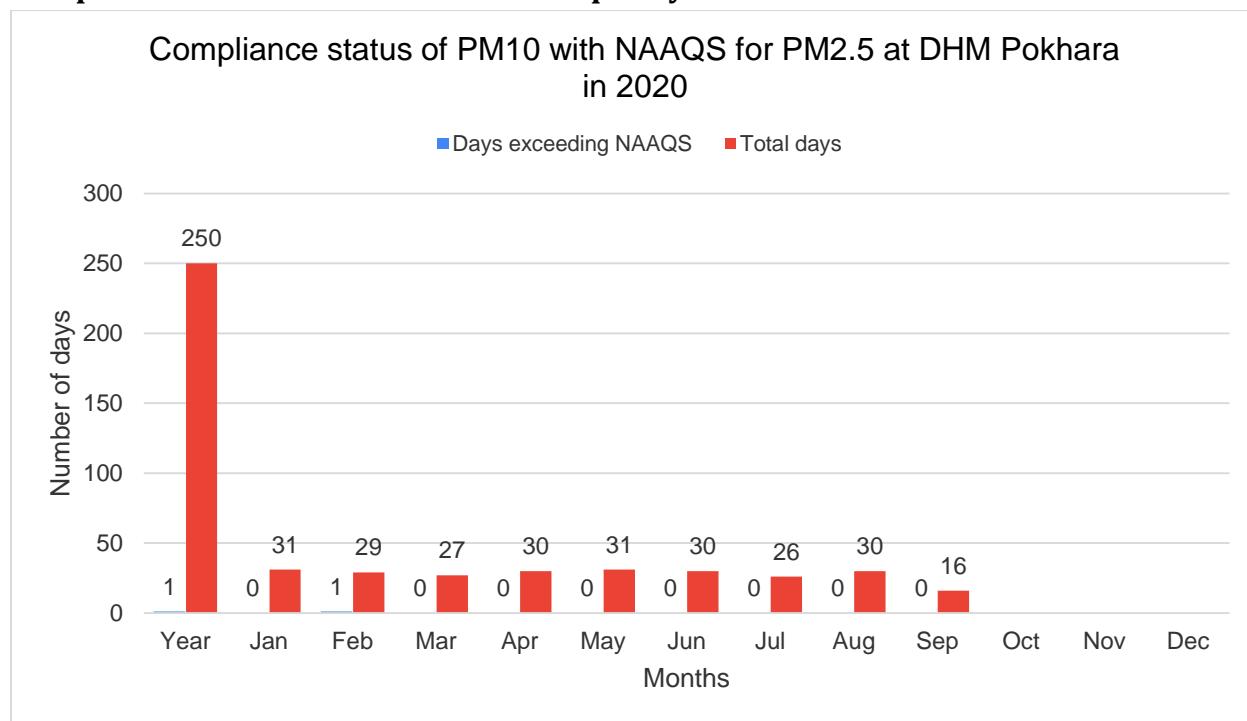


Figure 96. Compliance with National Ambient air quality standard for PM10 at DHM Pokhara station in 2020

Out of 250 days of measurement in 2020 only one day exceeded the National ambient air quality standard for PM10.

2.4.5 Temporal Variation of TSP

Annual Average of TSP

Annual TSP average of DHM Pokhara Station for the year 2020 was observed to be 51.48 $\mu\text{g}/\text{m}^3$. Following figure shows the histogram of TSP at DHM Pokhara in 2020.

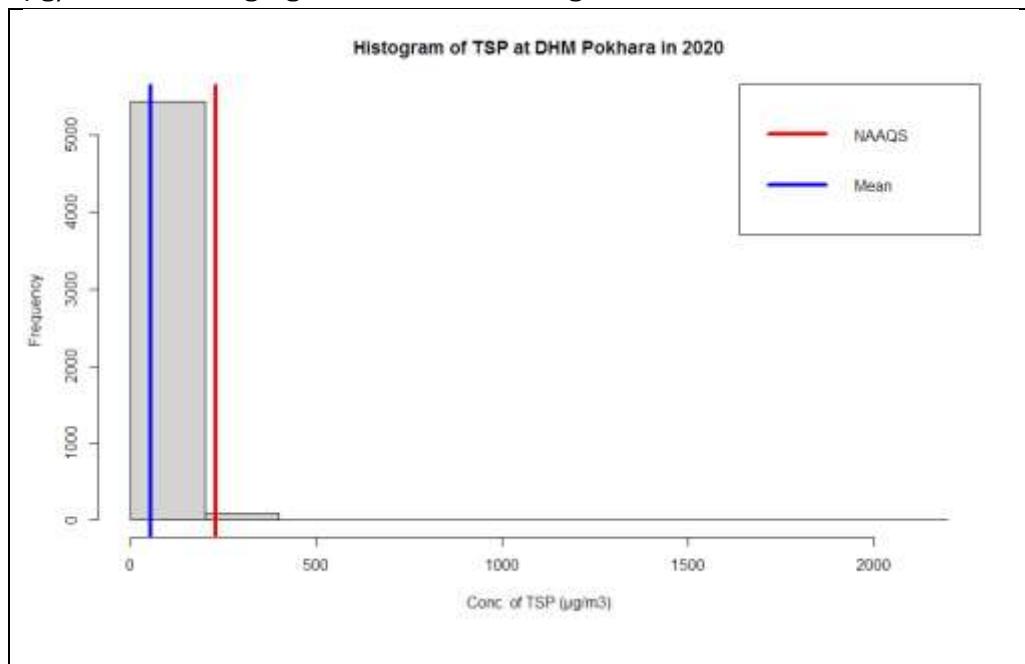


Figure 97. Histogram of TSP at DHM Pokhara station in 2020

Above figure shows most of hourly average of Total suspended Particulate data were between 0-200 $\mu\text{g}/\text{m}^3$.

Daily average of TSP

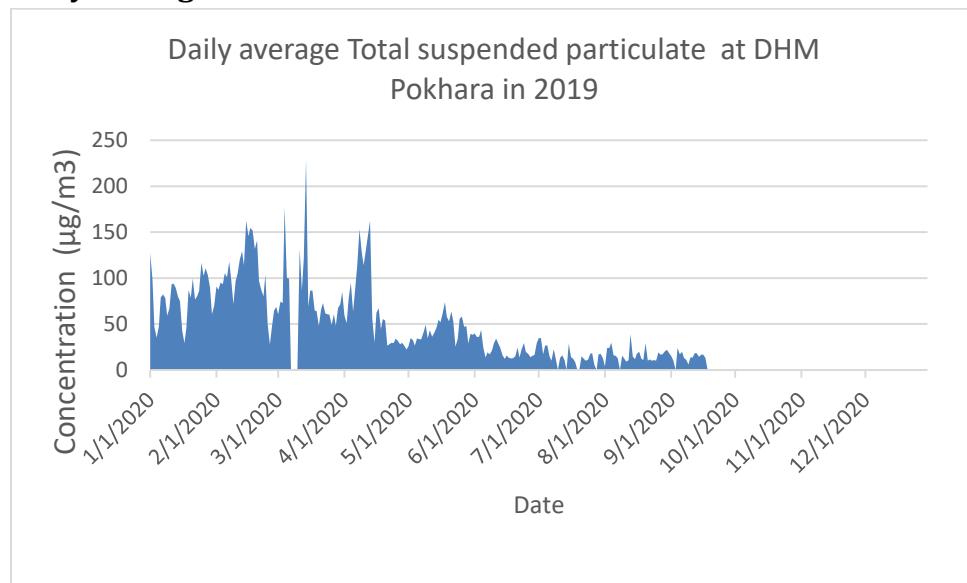


Figure 98. Daily average total suspended particulate at DHM Pokhara in 2020

Monthly Average of TSP

Following figure shows the monthly average of Total Suspended Particulate at DHM Pokhara in 2020.

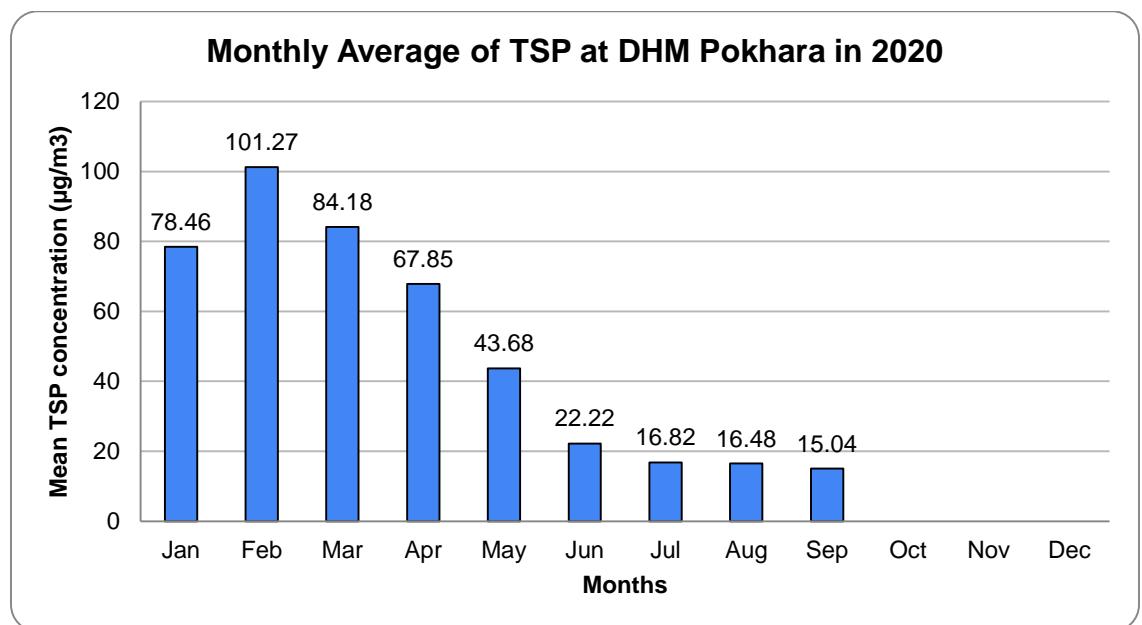


Figure 99. Monthly average of TSP at DHM Pokhara station in 2020

The monthly average value of TSP was highest in February with monthly average value of $101.27 \mu\text{g}/\text{m}^3$ and lowest in September with monthly average value of $15.04 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at DHM Pokhara in 2020

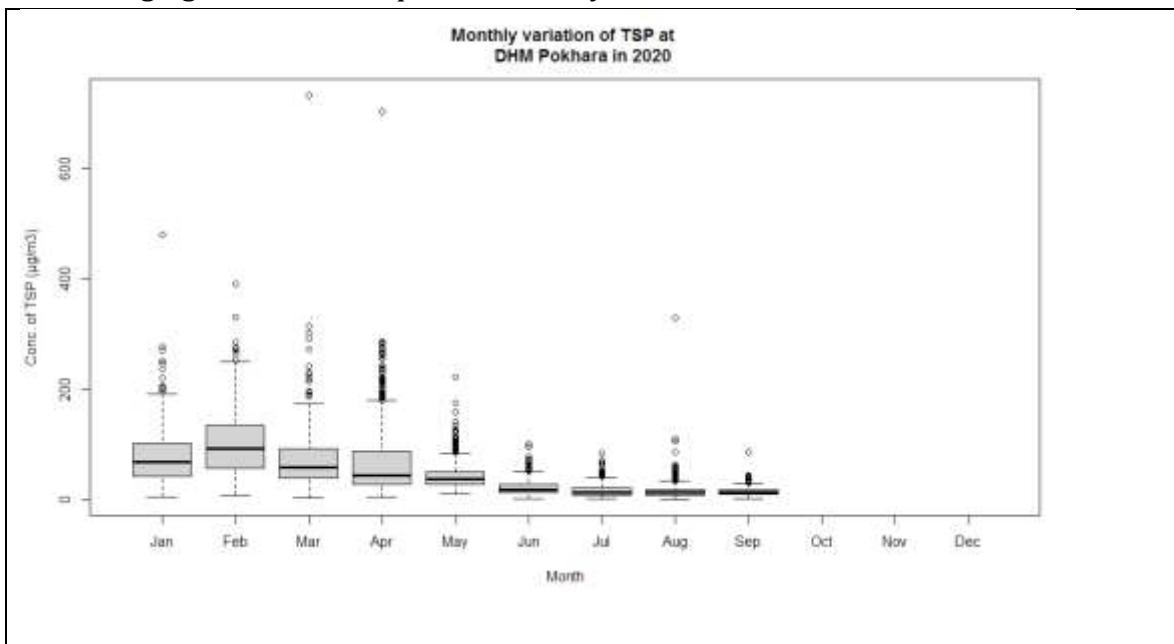


Figure 100. Monthly variation of daily average Total suspended particulate at DHM Pokhara in 2020

The above figure shows that highest level of variation was seen in February.

Seasonal Average of TSP

Following figure shows the seasonal variation of TSP at DHM Pokhara station in 2020

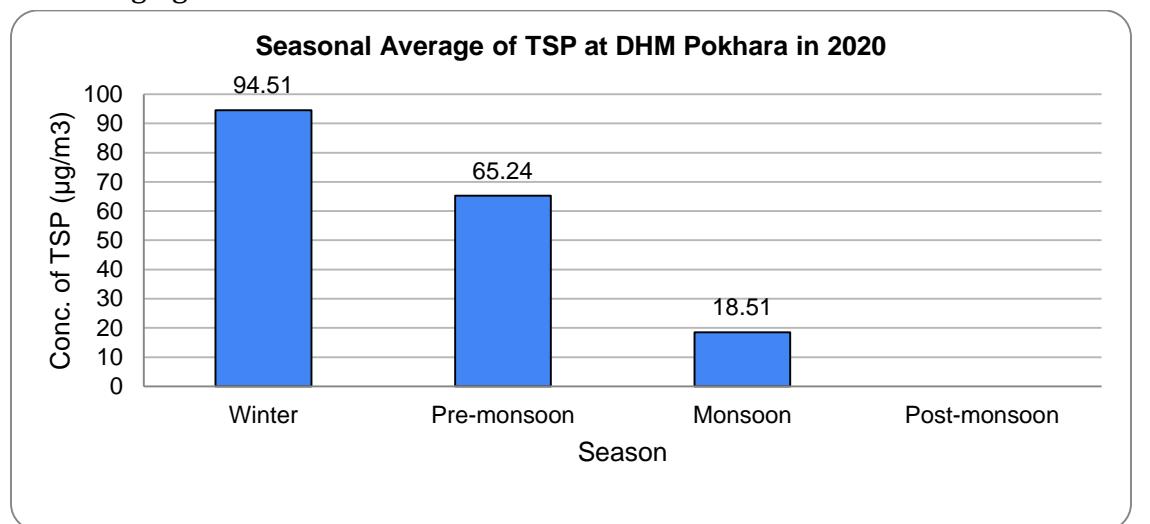


Figure 101. Seasonal average of TSP at DHM Pokhara station in 2020

Highest seasonal average was observed in Winter season with seasonal average of $94.51 \mu\text{g}/\text{m}^3$ and lowest seasonal average was observed in Monsoon season with seasonal average of $18.51 \mu\text{g}/\text{m}^3$.

Diurnal Variation of TSP

Following figure shows the boxplot of diurnal variation of TSP at DHM Pokhara in 2020.

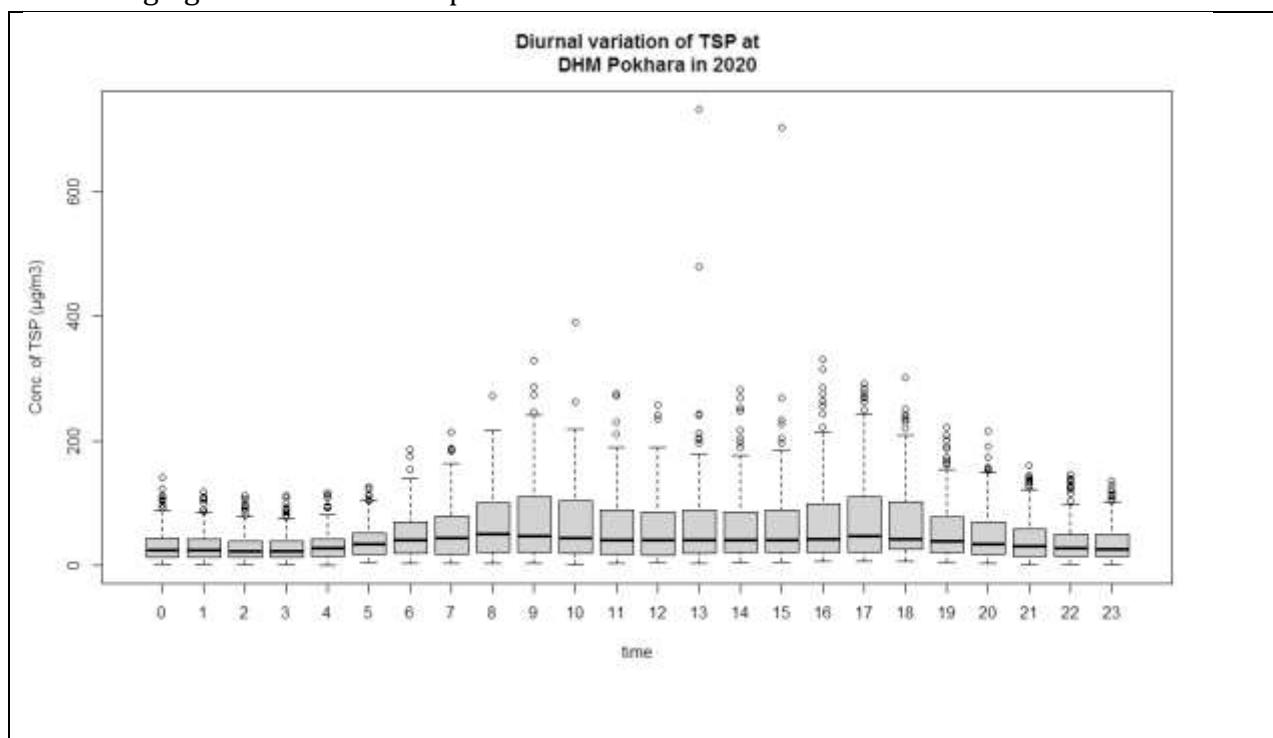


Figure 102. Diurnal variation of TSP at DHM Pokhara station in 2020

Above figure shows that Total suspend was variable during day time.

Compliance with National Ambient air quality Standard

Out of 250 days of measurement all days meet the National ambient air quality standards for the Total suspended particulate.

Annex

PM1

Date	Value ($\mu\text{g}/\text{m}^3$)						
1/1/2017		1/1/2018	42.73993	1/1/2019	54.43243	1/1/2020	55.2541
1/2/2017		1/2/2018	36.48864	1/2/2019	51.99882	1/2/2020	34.5541
1/3/2017		1/3/2018	35.38465	1/3/2019	46.08417	1/3/2020	33.81368
1/4/2017		1/4/2018	37.85903	1/4/2019	43.40292	1/4/2020	20.00484
1/5/2017		1/5/2018	39.37194	1/5/2019	53.33104	1/5/2020	23.01129
1/6/2017		1/6/2018	45.81977	1/6/2019	49.72694	1/6/2020	39.96993
1/7/2017		1/7/2018	45.9304	1/7/2019	37.73614	1/7/2020	46.17556
1/8/2017		1/8/2018	49.43368	1/8/2019	37.23542	1/8/2020	54.33799
1/9/2017		1/9/2018	53.35379	1/9/2019	37.19451	1/9/2020	42.95146
1/10/2017		1/10/2018	57.06711	1/10/2019	46.50243	1/10/2020	41.7966
1/11/2017		1/11/2018	54.54961	1/11/2019	64.86826	1/11/2020	59.27431
1/12/2017		1/12/2018	48.86006	1/12/2019	69.55201	1/12/2020	54.34042
1/13/2017		1/13/2018	49.64142	1/13/2019	66.05979	1/13/2020	53.145
1/14/2017		1/14/2018	62.69391	1/14/2019	57.97576	1/14/2020	47.18618
1/15/2017		1/15/2018	56.03798	1/15/2019	60.355	1/15/2020	43.50222
1/16/2017		1/16/2018	51.96351	1/16/2019	62.28375	1/16/2020	36.81424
1/17/2017		1/17/2018	46.99864	1/17/2019	58.08243	1/17/2020	25.87236
1/18/2017		1/18/2018	51.64224	1/18/2019	58.13448	1/18/2020	26.3741
1/19/2017		1/19/2018	48.09382	1/19/2019	50.8534	1/19/2020	32.54292
1/20/2017		1/20/2018	54.22535	1/20/2019	46.24389	1/20/2020	31.26063
1/21/2017		1/21/2018	60.39928	1/21/2019	44.6441	1/21/2020	49.89583
1/22/2017		1/22/2018	50.02138	1/22/2019	38.30187	1/22/2020	34.97799

1/23/2017		1/23/2018	49.3586	1/23/2019	30.3259	1/23/2020	36.5503
1/24/2017		1/24/2018	41.1266	1/24/2019	33.2920	1/24/2020	47.5965
1/25/2017		1/25/2018	39.4451	1/25/2019	25.1884	1/25/2020	61.9690
1/26/2017		1/26/2018	38.3061	1/26/2019	15.1580	1/26/2020	60.3389
1/27/2017		1/27/2018	55.5304	1/27/2019	25.8679	1/27/2020	59.9368
1/28/2017		1/28/2018	66.8585	1/28/2019	29.2393	1/28/2020	55.8046
1/29/2017		1/29/2018	76.8079	1/29/2019	29.2738	1/29/2020	41.8913
1/30/2017		1/30/2018	78.3069	1/30/2019	33.3051	1/30/2020	25.1909
1/31/2017		1/31/2018	84.7228	1/31/2019	38.6634	1/31/2020	35.7966
2/1/2017		2/1/2018	75.4287	2/1/2019	49.2496	2/1/2020	41.4883
2/2/2017		2/2/2018	78.6411	2/2/2019	46.2427	2/2/2020	34.0207
2/3/2017		2/3/2018	78.2596	2/3/2019	44.5438	2/3/2020	45.8469
2/4/2017		2/4/2018	71.1741	2/4/2019	50.4849	2/4/2020	46.4822
2/5/2017		2/5/2018	62.4175	2/5/2019	54.2589	2/5/2020	48.085
2/6/2017		2/6/2018	71.7800	2/6/2019	58.8032	2/6/2020	52.5800
2/7/2017		2/7/2018	57.6557	2/7/2019	37.6497	2/7/2020	54.4691
2/8/2017		2/8/2018	47.4811	2/8/2019	21.4461	2/8/2020	50.4147
2/9/2017		2/9/2018	43.4256	2/9/2019	14.1118	2/9/2020	35.2863
2/10/2017		2/10/2018	49.7080	2/10/2019	20.1719	2/10/2020	39.6153
2/11/2017		2/11/2018	56.4969	2/11/2019	28.2782	2/11/2020	40.4344
2/12/2017		2/12/2018	64.5341	2/12/2019	31.9087	2/12/2020	45.6820
2/13/2017		2/13/2018	33.9529	2/13/2019	36.6804	2/13/2020	53.7385
2/14/2017		2/14/2018	41.4738	2/14/2019	47.9491	2/14/2020	48.7570
2/15/2017		2/15/2018	37.6760	2/15/2019	17.6078	2/15/2020	83.6552
2/16/2017		2/16/2018	53.2804	2/16/2019	15.3943	2/16/2020	78.1897

			1		8		2
2/17/2017		2/17/2018	62.4945 1	2/17/2019 5	22.8171 5	2/17/2020	80.0464 6
2/18/2017		2/18/2018	64.0537 2	2/18/2019 1	35.8877 1	2/18/2020	78.5059
2/19/2017		2/19/2018	64.2792 8	2/19/2019 8	41.4077 8	2/19/2020	74.7756 9
2/20/2017		2/20/2018	60.8223 6	2/20/2019 8	33.8511 8	2/20/2020	77.8175 7
2/21/2017		2/21/2018	57.3749 6	2/21/2019 8	34.2786 8	2/21/2020	68.6463 9
2/22/2017		2/22/2018	49.7224 1	2/22/2019 8	37.6443 8	2/22/2020	42.5371 5
2/23/2017		2/23/2018	49.7565 3	2/23/2019 8	43.3936 8	2/23/2020	30.6934
2/24/2017		2/24/2018	65.1382 5	2/24/2019 2	41.8622 2	2/24/2020	26.9373 6
2/25/2017		2/25/2018	59.8398 4	2/25/2019 7	18.1593 7	2/25/2020	25.4324 3
2/26/2017		2/26/2018	33.2119 5	2/26/2019 5	17.0553 5	2/26/2020	12.6975
2/27/2017		2/27/2018	48.0346 6	2/27/2019 9	18.5622 9	2/27/2020	18.5214 6
2/28/2017		2/28/2018	58.2141	2/28/2019	15.9636 8	2/28/2020	23.0436 8
3/1/2017		3/1/2018	56.4322 2	3/1/2019 9	15.1997 9	2/29/2020	25.7348 6
3/2/2017		3/2/2018	44.9512 5	3/2/2019 4	29.0169 4	3/1/2020	26.3568 1
3/3/2017		3/3/2018	34.7502 8	3/3/2019 1	32.1227 1	3/2/2020	19.8277 8
3/4/2017		3/4/2018	39.8093 8	3/4/2019 6	31.1780 6	3/3/2020	19.5763 7
3/5/2017		3/5/2018	39.3563 2	3/5/2019 5	26.7246 5	3/4/2020	19.8221 8
3/6/2017		3/6/2018	22.7472 9	3/6/2019 1	24.1777 1	3/5/2020	25.7927 8
3/7/2017		3/7/2018	25.0513 2	3/7/2019	37.275	3/6/2020	19.3028 2
3/8/2017		3/8/2018	35.7591 7	3/8/2019 8	36.5818 8	3/7/2020	
3/9/2017		3/9/2018	24.9871	3/9/2019	33.4725	3/8/2020	
3/10/2017		3/10/2018	27.8354 3	3/10/2019 2	32.9188 2	3/9/2020	
3/11/2017		3/11/2018	35.1180 2	3/11/2019 2	33.6347 2	3/10/2020	
3/12/2017		3/12/2018	45.7507 9	3/12/2019 2	34.9247 2	3/11/2020	42.9960 1

3/13/2017		3/13/2018	52.9996 9	3/13/2019	29.6772 9	3/12/2020	26.6705 1
3/14/2017		3/14/2018	54.3127 1	3/14/2019	26.2686 8	3/13/2020	27.8836 6
3/15/2017		3/15/2018	56.0077 7	3/15/2019	19.3147 2	3/14/2020	17.4477 2
3/16/2017		3/16/2018	46.6031 8	3/16/2019	23.1327 8	3/15/2020	16.1991 5
3/17/2017		3/17/2018	20.5679 9	3/17/2019	32.0568 8	3/16/2020	15.6939 3
3/18/2017		3/18/2018	25.6849 2	3/18/2019	34.1212 5	3/17/2020	20.5548 7
3/19/2017		3/19/2018	39.0620 5	3/19/2019	29.1764 6	3/18/2020	25.3433 3
3/20/2017		3/20/2018	51.2028 4	3/20/2019	29.3529 9	3/19/2020	30.0389 6
3/21/2017		3/21/2018	52.4490 9	3/21/2019	26.2191	3/20/2020	21.0327 8
3/22/2017		3/22/2018	31.2878 6	3/22/2019	23.6853 5	3/21/2020	22.8238 2
3/23/2017		3/23/2018	25.2164 6	3/23/2019	30.8031 2	3/22/2020	19.1032 6
3/24/2017		3/24/2018	155.097	3/24/2019	48.5412 5	3/23/2020	20.6548 6
3/25/2017		3/25/2018	172.606 7	3/25/2019	61.6422 9	3/24/2020	26.1819 4
3/26/2017		3/26/2018	29.2793 3	3/26/2019	30.8609	3/25/2020	31.0685 4
3/27/2017		3/27/2018	70.9096 4	3/27/2019	14.3046 5	3/26/2020	27.2427 8
3/28/2017		3/28/2018	74.7399 3	3/28/2019	21.5098 6	3/27/2020	32.385
3/29/2017		3/29/2018	34.8520 8	3/29/2019	40.0094 4	3/28/2020	19.4994 4
3/30/2017		3/30/2018	29.2542 4	3/30/2019	57.3490 6	3/29/2020	20.3416
3/31/2017		3/31/2018	23.2342 1	3/31/2019	33.3859	3/30/2020	22.4591 7
4/1/2017		4/1/2018		4/1/2019	11.8103 5	3/31/2020	32.6904 2
4/2/2017		4/2/2018		4/2/2019	21.4856 9	4/1/2020	29.1202 2
4/3/2017		4/3/2018		4/3/2019	35.5445 1	4/2/2020	16.9027 1
4/4/2017		4/4/2018		4/4/2019	46.9693 1	4/3/2020	19.4193 7
4/5/2017		4/5/2018		4/5/2019	50.1783 3	4/4/2020	20.4193 1
4/6/2017		4/6/2018	25.1535	4/6/2019	31.8568	4/5/2020	24.5620

			7		1		8
4/7/2017		4/7/2018		4/7/2019 6	13.8705 6	4/6/2020	34.4517 4
4/8/2017		4/8/2018		4/8/2019 1	14.7186 1	4/7/2020	46.5210 4
4/9/2017		4/9/2018	19.2735 7	4/9/2019 6	22.5239 6	4/8/2020	52.1873 6
4/10/2017		4/10/2018	13.1306	4/10/2019 2	19.3231 2	4/9/2020	54.9449 3
4/11/2017		4/11/2018	15.6595 7	4/11/2019 2	22.5863 2	4/10/2020	48.2780 6
4/12/2017		4/12/2018	9.14962 8	4/12/2019 9	27.0706 9	4/11/2020	66.0686 1
4/13/2017		4/13/2018	10.6581 2	4/13/2019 2	24.4404 2	4/12/2020	65.2927 8
4/14/2017		4/14/2018	15.5286 5	4/14/2019 1	23.0668 1	4/13/2020	62.0924 8
4/15/2017		4/15/2018	24.3256 4	4/15/2019 9	21.3079 9	4/14/2020	23.1983 3
4/16/2017		4/16/2018	35.9294 5	4/16/2019 8	17.3927 8	4/15/2020	10.0067 4
4/17/2017		4/17/2018	87.9442	4/17/2019 3	16.5699 3	4/16/2020	15.0535 4
4/18/2017		4/18/2018	139.804 7	4/18/2019 3	11.4599 3	4/17/2020	24.9908 3
4/19/2017		4/19/2018	76.6287 1	4/19/2019 1	11.6793 1	4/18/2020	18.3002 8
4/20/2017		4/20/2018	74.8767 4	4/20/2019 6	16.1723 6	4/19/2020	15.0768 7
4/21/2017		4/21/2018	105.915 9	4/21/2019 8	33.4345 8	4/20/2020	10.6922 5
4/22/2017		4/22/2018	58.7371	4/22/2019 3	26.1415 3	4/21/2020	9.30020 4
4/23/2017		4/23/2018	102.199 2	4/23/2019 4	33.5251 4	4/22/2020	10.9512 5
4/24/2017		4/24/2018	104.520 6	4/24/2019 4	32.6742 4	4/23/2020	14.6657 6
4/25/2017		4/25/2018	112.285 4	4/25/2019 2	29.8422 2	4/24/2020	15.4854 9
4/26/2017		4/26/2018	143.990 2	4/26/2019 5	30.8137 5	4/25/2020	15.8445 5
4/27/2017		4/27/2018		4/27/2019 1	32.7220 1	4/26/2020	15.5238 2
4/28/2017		4/28/2018		4/28/2019 9	26.4247 9	4/27/2020	11.9725 7
4/29/2017		4/29/2018		4/29/2019 7	32.0166 7	4/28/2020	10.1217 4
4/30/2017		4/30/2018		4/30/2019 3	34.0540 3	4/29/2020	10.6589 6

5/1/2017		5/1/2018		5/1/2019	27.0221 5	4/30/2020	9.71812 5
5/2/2017		5/2/2018		5/2/2019	17.6256 9	5/1/2020	11.7743 1
5/3/2017		5/3/2018		5/3/2019	21.7485 4	5/2/2020	12.1307 6
5/4/2017		5/4/2018		5/4/2019	18.7305 6	5/3/2020	13.0178 5
5/5/2017		5/5/2018		5/5/2019	19.7516	5/4/2020	9.48548 6
5/6/2017		5/6/2018		5/6/2019	26.1648 6	5/5/2020	8.94027 8
5/7/2017		5/7/2018		5/7/2019	34.5277 8	5/6/2020	6.86333 3
5/8/2017		5/8/2018		5/8/2019	53.4936 8	5/7/2020	9.44699 1
5/9/2017		5/9/2018		5/9/2019	56.5472 2	5/8/2020	10.2197 9
5/10/2017		5/10/2018		5/10/2019	53.5029 2	5/9/2020	17.7520 1
5/11/2017		5/11/2018		5/11/2019	45.3675 4	5/10/2020	13.5279 2
5/12/2017		5/12/2018		5/12/2019	27.5666 7	5/11/2020	11.9618 1
5/13/2017		5/13/2018		5/13/2019	26.5461 1	5/12/2020	13.5122 2
5/14/2017		5/14/2018		5/14/2019	24.3793 1	5/13/2020	13.7024 3
5/15/2017		5/15/2018		5/15/2019	24.8077 1	5/14/2020	17.1241
5/16/2017		5/16/2018		5/16/2019	32.0853 5	5/15/2020	22.4274 3
5/17/2017		5/17/2018		5/17/2019	24.0605 6	5/16/2020	19.5827 8
5/18/2017		5/18/2018		5/18/2019	22.8261 1	5/17/2020	23.1113 9
5/19/2017		5/19/2018		5/19/2019	18.6762 5	5/18/2020	18.4484 7
5/20/2017		5/20/2018		5/20/2019	27.1425 7	5/19/2020	17.9431 3
5/21/2017		5/21/2018		5/21/2019	31.2139	5/20/2020	18.2197 9
5/22/2017		5/22/2018		5/22/2019	32.7669 4	5/21/2020	22.3884
5/23/2017		5/23/2018		5/23/2019	24.0750 7	5/22/2020	23.3316
5/24/2017		5/24/2018		5/24/2019	33.9297 9	5/23/2020	11.3881 9
5/25/2017		5/25/2018		5/25/2019	23.55	5/24/2020	13.0125

							7
5/26/2017		5/26/2018		5/26/2019 7	20.4150	5/25/2020	19.5139 6
5/27/2017		5/27/2018		5/27/2019 5	23.0846	5/26/2020	22.7352 8
5/28/2017		5/28/2018		5/28/2019 1	23.8870	5/27/2020	20.8191
5/29/2017		5/29/2018		5/29/2019 4	27.1551	5/28/2020	14.2154 9
5/30/2017		5/30/2018		5/30/2019	26.9359	5/29/2020	8.70805 6
5/31/2017		5/31/2018		5/31/2019 4	26.2717	5/30/2020	11.3704 2
6/1/2017		6/1/2018		6/1/2019 6	15.6573	5/31/2020	14.0572 9
6/2/2017		6/2/2018		6/2/2019 6	16.0755	6/1/2020	15.2708 3
6/3/2017		6/3/2018		6/3/2019 8	12.6120	6/2/2020	13.1108 3
6/4/2017		6/4/2018		6/4/2019 9	14.0688	6/3/2020	11.7012 5
6/5/2017		6/5/2018		6/5/2019 1	13.9227	6/4/2020	11.8309 7
6/6/2017		6/6/2018		6/6/2019 6	13.3539	6/5/2020	9.74868
6/7/2017		6/7/2018		6/7/2019 2	6.51479	6/6/2020	5.33805 6
6/8/2017		6/8/2018		6/8/2019 8	9.82402	6/7/2020	6.41180 6
6/9/2017		6/9/2018		6/9/2019 6	13.0773	6/8/2020	4.84069 4
6/10/2017		6/10/2018		6/10/2019 8	14.0817	6/9/2020	7.72006 9
6/11/2017		6/11/2018		6/11/2019 4	13.3992	6/10/2020	10.8082 6
6/12/2017		6/12/2018		6/12/2019 1	14.7818	6/11/2020	11.1975 7
6/13/2017		6/13/2018		6/13/2019 1	17.3877	6/12/2020	9.57847 2
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12/27/2017	42.1447 2	12/27/2018	45.9984 7	12/27/2019	55.6863 2	12/26/2020	
12/28/2017	49.0182 6	12/28/2018	48.4383 7	12/28/2019	54.4904 3	12/27/2020	
12/29/2017	46.8710 4	12/29/2018	49.1062 5	12/29/2019	58.4399 3	12/28/2020	
12/30/2017	45.9278 8	12/30/2018	50.1492 4	12/30/2019	50.2925 9	12/29/2020	
12/31/2017	45.9505 6	12/31/2018	48.7120 8	12/31/2019	57.0708 2	12/30/2020	

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PM2.5

Date	Value ($\mu\text{g}/\text{m}^3$)						
1/1/2017		1/1/2018	48.69063	1/1/2019	60.25743	1/1/2020	61.5375
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1/3/2017		1/3/2018	40.57917	1/3/2019	51.03632	1/3/2020	36.63333
1/4/2017		1/4/2018	42.60771	1/4/2019	48.3766	1/4/2020	21.46812
1/5/2017		1/5/2018	45.1309	1/5/2019	58.62271	1/5/2020	25.10781
1/6/2017		1/6/2018	51.26482	1/6/2019	55.19021	1/6/2020	43.88549
1/7/2017		1/7/2018	51.36993	1/7/2019	42.13013	1/7/2020	50.12785
1/8/2017		1/8/2018	55.36257	1/8/2019	41.55674	1/8/2020	58.66646
1/9/2017		1/9/2018	59.68738	1/9/2019	41.92458	1/9/2020	46.34139
1/10/2017		1/10/2018	63.59934	1/10/2019	51.85562	1/10/2020	44.98139
1/11/2017		1/11/2018	60.3597	1/11/2019	71.64743	1/11/2020	64.58535
1/12/2017		1/12/2018	54.54684	1/12/2019	75.76222	1/12/2020	58.60576
1/13/2017		1/13/2018	54.56894	1/13/2019	72.19146	1/13/2020	56.98472
1/14/2017		1/14/2018	69.62	1/14/2019	63.53111	1/14/2020	50.66306
1/15/2017		1/15/2018	61.56071	1/15/2019	66.01486	1/15/2020	46.80174
1/16/2017		1/16/2018	57.38982	1/16/2019	68.78535	1/16/2020	38.66118
1/17/2017		1/17/2018	52.70946	1/17/2019	64.55715	1/17/2020	27.14222
1/18/2017		1/18/2018	58.46457	1/18/2019	64.43066	1/18/2020	28.61375
1/19/2017		1/19/2018	53.39813	1/19/2019	56.34903	1/19/2020	36.19382
1/20/2017		1/20/2018	60.49028	1/20/2019	51.73319	1/20/2020	34.73187
1/21/2017		1/21/2018	69.34216	1/21/2019	50.49757	1/21/2020	56.68639

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1/23/2017		1/23/2018	55.0507 9	1/23/2019	33.4964 6	1/23/2020	39.8895 1
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1/25/2017		1/25/2018	44.2449	1/25/2019	29.6437 5	1/25/2020	67.3411 8
1/26/2017		1/26/2018	42.6781 3	1/26/2019	16.7235 1	1/26/2020	65.0241 7
1/27/2017		1/27/2018	62.4164 1	1/27/2019	28.3543 1	1/27/2020	65.1834 7
1/28/2017		1/28/2018	73.2206 1	1/28/2019	32.8783 3	1/28/2020	60.1479 2
1/29/2017		1/29/2018	83.3161 9	1/29/2019	33.2294 3	1/29/2020	45.6068 7
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2/3/2017		2/3/2018	86.7585 1	2/3/2019	49.0566	2/3/2020	50.4586 8
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2/5/2017		2/5/2018	70.2362 1	2/5/2019	60.1991	2/5/2020	52.4925 7
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2/9/2017		2/9/2018	50.4401 5	2/9/2019	16.1150 7	2/9/2020	39.3600 7
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2/15/2017		2/15/2018	42.4154	2/15/2019	19.8958	2/15/2020	93.1813

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3/4/2017		3/4/2018	46.2532 6	3/4/2019	34.3776 4	3/3/2020	23.6269
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3/7/2017		3/7/2018	30.6415 3	3/7/2019	43.1766 7	3/6/2020	24.3333
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5/27/2017		5/27/2018		5/27/2019 6	29.4851	5/26/2020	27.6077 8
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6/14/2017		6/14/2018		6/14/2019 6	19.7155	6/13/2020	8.43909 7
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7/9/2017		7/9/2018		7/9/2019	6.98604 2	7/8/2020	5.64597 2
7/10/2017		7/10/2018		7/10/2019	7.95888 9	7/9/2020	7.96641 3
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7/28/2017		7/28/2018	82.5397 8	7/28/2019	6.93583 3	7/27/2020	4.06655 6
7/29/2017		7/29/2018	56.2348 2	7/29/2019	10.1888 2	7/28/2020	
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8/1/2017		8/1/2018	81.8984 2	8/1/2019	7.73347 2	7/31/2020	7.3375
8/2/2017		8/2/2018	90.9834 8	8/2/2019	9.58333 3	8/1/2020	2.894
8/3/2017		8/3/2018	82.7622	8/3/2019	7.27902 8	8/2/2020	9.58447 9
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8/8/2017		8/8/2018	85.8785 4	8/8/2019	6.56802 8	8/7/2020	6.69555 5
8/9/2017		8/9/2018	85.1864 2	8/9/2019	6.45784 7	8/8/2020	
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8/11/2017		8/11/2018	49.5118 7	8/11/2019	6.5241	8/10/2020	5.53944 4
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8/14/2017		8/14/2018	13.7758	8/14/2019	7.01451 4	8/13/2020	23.0719 1
8/15/2017		8/15/2018	49.2446 4	8/15/2019	8.36673 6	8/14/2020	5.97083 3
8/16/2017	7.60104	8/16/2018	72.4136 1	8/16/2019	9.03944 4	8/15/2020	7.11709
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8/18/2017	13.0384 5	8/18/2018	78.5276	8/18/2019	7.19802 7	8/17/2020	7.76909 7
8/19/2017	9.01606 9	8/19/2018	77.7972	8/19/2019	6.72784 7	8/18/2020	7.89744 7
8/20/2017		8/20/2018	85.6943 4	8/20/2019	8.93243 1	8/19/2020	5.71063
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8/22/2017	9.40816 4	8/22/2018	80.4302 1	8/22/2019	8.22340 3	8/21/2020	4.76229 3
8/23/2017	34.5117 4	8/23/2018	81.4009 7	8/23/2019	10.3244 4	8/22/2020	6.05160 3
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8/30/2017	10.0937	8/30/2018	41.6733	8/30/2019	13.9098	8/29/2020	9.04240

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9/2/2017	6.74906 4	9/2/2018	58.8785	9/2/2019	7.80092 4	9/1/2020	7.52687 5
9/3/2017	6.66673 8	9/3/2018	67.1696 2	9/3/2019	9.52979 2	9/2/2020	5.95908
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9/5/2017	15.7191 3	9/5/2018	72.2821 7	9/5/2019	7.09722 2	9/4/2020	9.00354 2
9/6/2017	20.9374 9	9/6/2018	82.6320 8	9/6/2019	4.43631 9	9/5/2020	9.20334 7
9/7/2017	17.3824 9	9/7/2018	73.3228 1	9/7/2019	6.62215 3	9/6/2020	11.1656 9
9/8/2017	17.8803	9/8/2018	71.6869 8	9/8/2019	8.37222 2	9/7/2020	8.39449 7
9/9/2017	15.7019 2	9/9/2018	69.6811 8	9/9/2019	7.88604 2	9/8/2020	7.33356 4
9/10/2017	16.5570 2	9/10/2018	76.5086	9/10/2019	6.60402 8	9/9/2020	4.515
9/11/2017	13.6472 4	9/11/2018	90.6381 5	9/11/2019	10.2104 2	9/10/2020	8.56562 5
9/12/2017	14.0901 1	9/12/2018	59.6341	9/12/2019	6.16347 2	9/11/2020	7.33805 6
9/13/2017	16.3506 9	9/13/2018	68.0788 8	9/13/2019	5.36736 1	9/12/2020	9.92039 5
9/14/2017	18.6559 1	9/14/2018	67.5020 8	9/14/2019	9.67882	9/13/2020	11.1868 8
9/15/2017	22.0109 2	9/15/2018	65.3958 4	9/15/2019	8.93583 3	9/14/2020	10.8304 2
9/16/2017	21.7933 2	9/16/2018	68.1852 8	9/16/2019	8.36949 1	9/15/2020	13.4100 1
9/17/2017	17.6922 1	9/17/2018		9/17/2019	11.5961 1	9/16/2020	13.7712 8
9/18/2017	8.51440 8	9/18/2018		9/18/2019	9.25666 7	9/17/2020	11.4609 6
9/19/2017	11.0672	9/19/2018		9/19/2019	13.6513 9	9/18/2020	
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9/22/2017	13.6965 9	9/22/2018		9/22/2019	10.6735 4	9/21/2020	
9/23/2017	13.9551 5	9/23/2018		9/23/2019	10.8244 4	9/22/2020	

9/24/2017	16.5496 1	9/24/2018		9/24/2019	11.9904 2	9/23/2020	
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9/26/2017	23.7459 6	9/26/2018		9/26/2019	5.11562 5	9/25/2020	
9/27/2017	18.3879 2	9/27/2018	100.613 1	9/27/2019	5.73117	9/26/2020	
9/28/2017	23.9544	9/28/2018	52.1988 5	9/28/2019	8.92722 2	9/27/2020	
9/29/2017	22.9605 3	9/29/2018	61.9751 2	9/29/2019	8.88427	9/28/2020	
9/30/2017	8.68798 3	9/30/2018	42.5704 3	9/30/2019	7.94815 9	9/29/2020	
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10/2/2017	12.0406	10/2/2018	44.0857 2	10/2/2019	10.5010 4	10/1/2020	
10/3/2017	14.9621 4	10/3/2018	28.7247 2	10/3/2019	9.73673 6	10/2/2020	
10/4/2017	17.1158 8	10/4/2018	38.1582 6	10/4/2019	10.0352 8	10/3/2020	
10/5/2017	16.1498 1	10/5/2018	51.0526 1	10/5/2019	11.5970 1	10/4/2020	
10/6/2017	11.9030 6	10/6/2018	76.0908 8	10/6/2019	16.4128 5	10/5/2020	
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10/8/2017	16.6286 9	10/8/2018	53.1219 1	10/8/2019	11.7116 7	10/7/2020	
10/9/2017	20.1589 7	10/9/2018	56.4920 6	10/9/2019	9.47944 4	10/8/2020	
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10/11/201 7	12.5949 8	10/11/201 6	63.6823 9	10/11/201 9	15.5295 8	10/10/202 0	
10/12/201 7	12.6908 2	10/12/201 8	59.3898 8	10/12/201 9	22.9306 9	10/11/202 0	
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10/22/2017	20.1718	10/22/2018	66.5486	10/22/2019	28.2658	10/21/2020	
10/23/2017	32.9011	10/23/2018	59.2479	10/23/2019	32.4869	10/22/2020	
10/24/2017	41.6866	10/24/2018	59.7468	10/24/2019	26.8263	10/23/2020	
10/25/2017	41.0942	10/25/2018	62.4598	10/25/2019	36.4670	10/24/2020	
10/26/2017	40.4500	10/26/2018	62.3571	10/26/2019	35.8325	10/25/2020	
10/27/2017	44.6329	10/27/2018	59.4797	10/27/2019	29.9250	10/26/2020	
10/28/2017	42.4444	10/28/2018	56.8573	10/28/2019	33.2694	10/27/2020	
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10/30/2017	28.1292	10/30/2018	62.1359	10/30/2019	32.0368	10/29/2020	
10/31/2017	31.8462	10/31/2018	62.4089	10/31/2019	30.2093	10/30/2020	
11/1/2017	30.8838	11/1/2018	61.9388	11/1/2019	37.2554	10/31/2020	
11/2/2017	30.6513	11/2/2018	60.6132	11/2/2019	35.6839	11/1/2020	
11/3/2017	27.6031	11/3/2018	69.0975	11/3/2019	31.2242	11/2/2020	
11/4/2017	40.8507	11/4/2018	67.2878	11/4/2019	28.1402	11/3/2020	
11/5/2017	26.0578	11/5/2018	63.4880	11/5/2019	29.3295	11/4/2020	
11/6/2017	25.6274	11/6/2018	59.6343	11/6/2019	33.8254	11/5/2020	
11/7/2017	27.0062	11/7/2018	60.1252	11/7/2019	36.0588	11/6/2020	
11/8/2017	27.6252	11/8/2018	63.1766	11/8/2019	35.0645	11/7/2020	
11/9/2017	29.8852	11/9/2018	63.3668	11/9/2019	31.4815	11/8/2020	
11/10/2017	29.6766	11/10/2018	61.6427	11/10/2019	28.2596	11/9/2020	
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11/16/2017	43.835	11/16/2018	69.65756	11/16/2019		11/15/2020	
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11/18/2017	36.69076	11/18/2018	95.66654	11/18/2019		11/17/2020	
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11/20/2017	32.14543	11/20/2018	62.57345	11/20/2019		11/19/2020	
11/21/2017	38.81632	11/21/2018	83.45763	11/21/2019		11/20/2020	
11/22/2017	38.83087	11/22/2018	88.98033	11/22/2019		11/21/2020	
11/23/2017	38.54487	11/23/2018	66.39804	11/23/2019		11/22/2020	
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11/25/2017	44.88097	11/25/2018		11/25/2019		11/24/2020	
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11/27/2017	52.77644	11/27/2018		11/27/2019		11/26/2020	
11/28/2017	50.84549	11/28/2018		11/28/2019		11/27/2020	
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12/2/2017	49.05264	12/2/2018		12/2/2019		12/1/2020	
12/3/2017	45.08306	12/3/2018	48.13927	12/3/2019		12/2/2020	
12/4/2017	57.33424	12/4/2018	56.47434	12/4/2019		12/3/2020	
12/5/2017	64.54354	12/5/2018	46.69925	12/5/2019		12/4/2020	
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12/7/2017	43.12382	12/7/2018	44.73352	12/7/2019		12/6/2020	
12/8/2017	53.87972	12/8/2018	50.39742	12/8/2019		12/7/2020	
12/9/2017	40.07201	12/9/2018	45.16082	12/9/2019		12/8/2020	
12/10/2017	34.85556	12/10/2018	34.95503	12/10/2019		12/9/2020	
12/11/2017	44.53681	12/11/2018	30.23297	12/11/2019		12/10/2020	
12/12/2017	43.85465	12/12/2018	30.46989	12/12/2019		12/11/2020	
12/13/2017	44.37243	12/13/2018	26.08701	12/13/2019		12/12/2020	
12/14/2017	40.52771	12/14/2018	29.42389	12/14/2019		12/13/2020	
12/15/2017	42.03007	12/15/2018	29.18954	12/15/2019		12/14/2020	
12/16/2017	45.41447	12/16/2018	27.88238	12/16/2019		12/15/2020	
12/17/2017	55.07167	12/17/2018	43.39201	12/17/2019		12/16/2020	
12/18/2017	54.59597	12/18/2018	45.21367	12/18/2019	49.59898	12/17/2020	
12/19/2017	53.3057	12/19/2018	69.02025	12/19/2019	51.5666	12/18/2020	
12/20/2017	55.63754	12/20/2018	72.44099	12/20/2019	55.07458	12/19/2020	
12/21/2017	47.56917	12/21/2018	76.22962	12/21/2019	53.93195	12/20/2020	
12/22/2017	51.58653	12/22/2018	74.34378	12/22/2019	54.86396	12/21/2020	
12/23/2017	56.34583	12/23/2018	50.37523	12/23/2019	63.39306	12/22/2020	
12/24/2017	48.63117	12/24/2018	50.22231	12/24/2019	53.6116	12/23/2020	
12/25/2017	48.22382	12/25/2018	50.95056	12/25/2019	55.60438	12/24/2020	
12/26/2017	53.22167	12/26/2018	49.64688	12/26/2019	62.13854	12/25/2020	
12/27/2017	47.72124	12/27/2018	50.36759	12/27/2019	60.94812	12/26/2020	
12/28/2017	56.22079	12/28/2018	52.89221	12/28/2019	59.2892	12/27/2020	
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12/30/2017	51.79827	12/30/2018	54.76842	12/30/2019	55.23771	12/29/2020	

12/31/2017	53.48833	12/31/2018	54.01521	12/31/2019	63.00572	12/30/2020	

PM10

Date	Value ($\mu\text{g}/\text{m}^3$)						
1/1/2017		1/1/2018	77.83569	1/1/2019	88.51208	1/1/2020	94.43236
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1/3/2017		1/3/2018	66.90708	1/3/2019	74.83701	1/3/2020	43.40833
1/4/2017		1/4/2018	68.96701	1/4/2019	74.29444	1/4/2020	25.93475
1/5/2017		1/5/2018	73.32042	1/5/2019	82.93445	1/5/2020	33.37229
1/6/2017		1/6/2018	78.3904	1/6/2019	82.01063	1/6/2020	57.84236
1/7/2017		1/7/2018	79.52482	1/7/2019	65.65887	1/7/2020	65.36826
1/8/2017		1/8/2018	86.31743	1/8/2019	63.99681	1/8/2020	70.40125
1/9/2017		1/9/2018	92.89788	1/9/2019	65.75	1/9/2020	55.42993
1/10/2017		1/10/2018	95.74698	1/10/2019	75.05042	1/10/2020	55.57299
1/11/2017		1/11/2018	89.28774	1/11/2019	99.99771	1/11/2020	81.03535
1/12/2017		1/12/2018	83.4339	1/12/2019	100.7942	1/12/2020	72.76438
1/13/2017		1/13/2018	79.38688	1/13/2019	97.97424	1/13/2020	71.40833
1/14/2017		1/14/2018	103.4993	1/14/2019	87.33056	1/14/2020	63.95674
1/15/2017		1/15/2018	84.58084	1/15/2019	88.74854	1/15/2020	59.00632
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9/8/2017	28.3125 8	9/8/2018	71.8732	9/8/2019	13.8955 6	9/7/2020	10.6994 3
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11/3/2017	43.26644	11/3/2018	69.28267	11/3/2019	41.55174	11/2/2020	
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11/5/2017	43.00029	11/5/2018	63.79104	11/5/2019	36.89111	11/4/2020	
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11/7/2017	45.78967	11/7/2018	60.49491	11/7/2019	44.90903	11/6/2020	
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11/9/2017	50.43278	11/9/2018	63.62689	11/9/2019	40.48194	11/8/2020	
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12/31/201 7	88.9592 4	12/31/201 8	82.1631 9	12/31/201 9	96.1113 9	12/30/202 0	

TSP

Date	value ($\mu\text{g}/\text{m}^3$)						
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1/17/2017		1/17/2018	118.6143	1/17/2019	125.4551	1/17/2020	29.08549
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1/23/2017		1/23/2018	120.517	1/23/2019	47.7791	1/23/2020	80.4757

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