



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

Air Quality Status Of Nepal 2016-2020

Volume III

Pulchowk Air Quality Monitoring Station



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1.Pulchowk Air Quality Monitoring Station

About the Station

- Address : Pulchowk Engineering college, Lalitpur
- Location: 85.32 longitude, 27.68 latitude
It is located on the top of ICT building of Pulchowk engineering college.
- Establish year: 2016 (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 Pulchowk station (2016-2020)

2.1 Air Quality status, 2016

2.1.1 Temporal variation of PM1

Annual Average of PM1

Histogram of hourly average PM1 at Pulchowk station in 2016 is shown in following figure

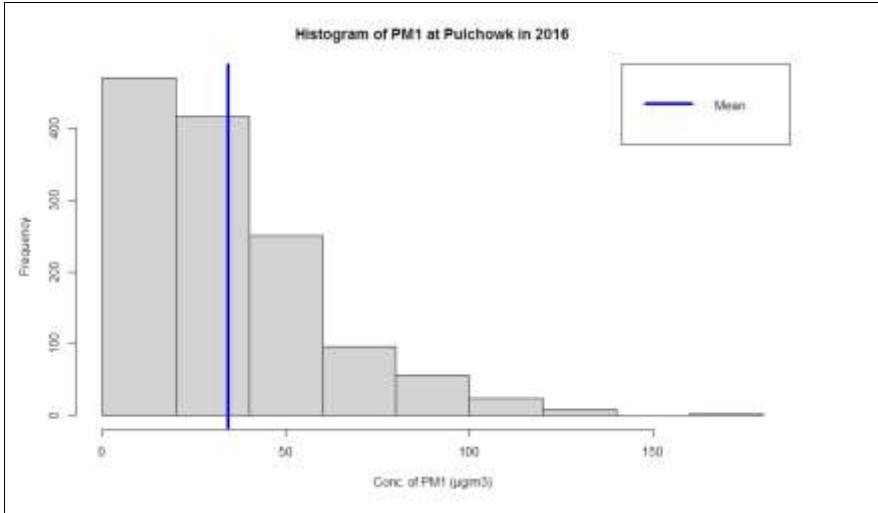


Figure 1. Histogram of PM1 at Pulchowk station in 2016

Daily average of PM1

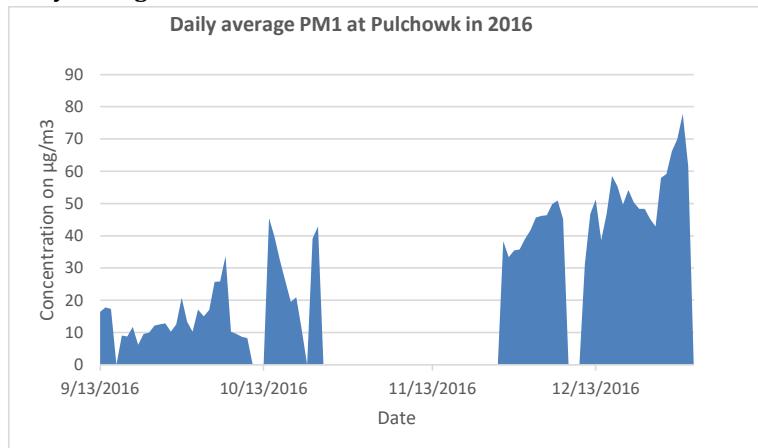


Figure 2. Daily average PM1 at Pulchowk station in 2016

Monthly Average of PM1

Following figure shows monthly average PM1 at Pulchowk station in 2016

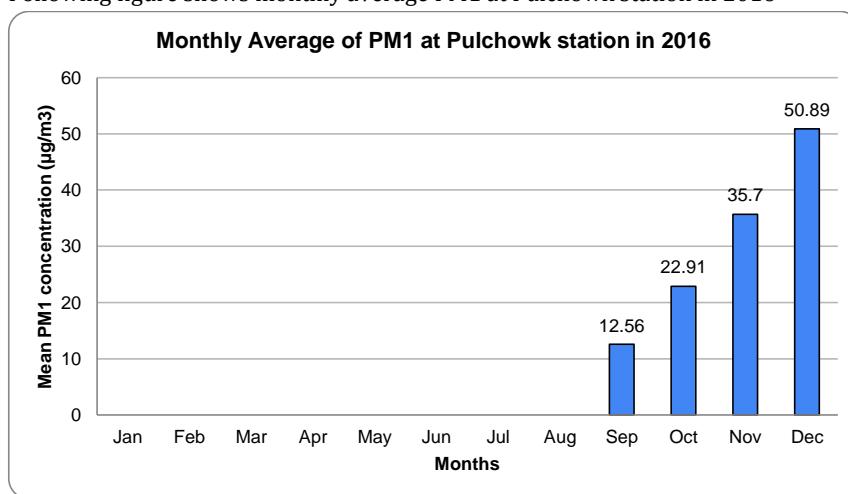


Figure 3. Monthly Average of PM1 at Pulchowk Station on 2016

December had the highest monthly average with monthly average value of $50.89 \mu\text{g}/\text{m}^3$ while September had the lowest value with monthly average value of $12.56 \mu\text{g}/\text{m}^3$.

Monthly variation of PM1

The following figure shows the monthly variation of PM1 at Pulchowk station in 2016.

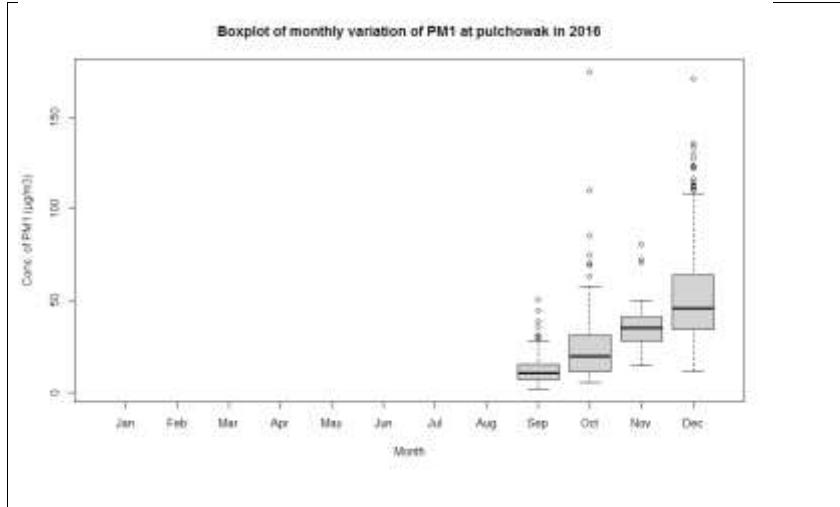


Figure 4. Boxplot of monthly variation of PM1 at Pulchowk station in 2016

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

Diurnal Variation of PM1

The following figure shows the diurnal variation of PM1 at Pulchowk station in 2016.

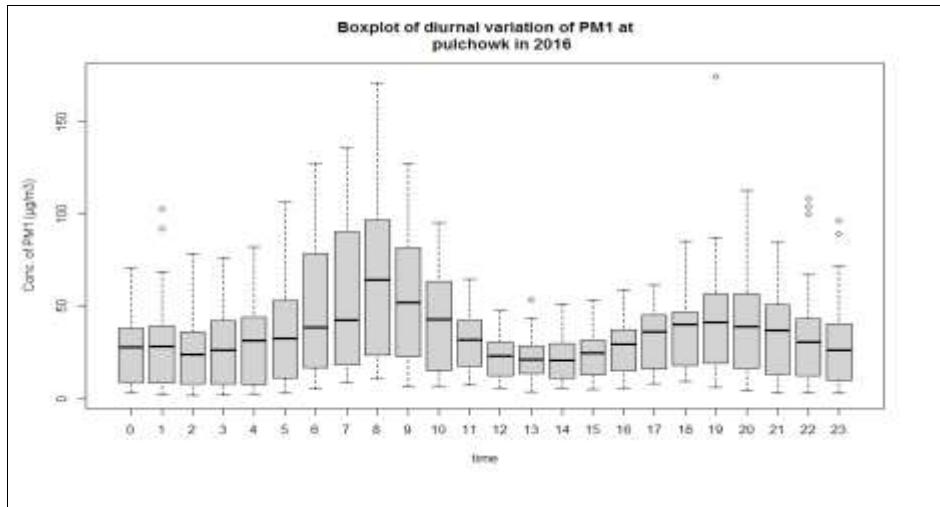


Figure 5. Boxplot of diurnal variation of PM1 at Pulchowk in 2016

The boxplot shows that PM1 concentration is more in 8 O clock and it is also more variable during this time.

2.1.2 Temporal variation of PM2.5

Annual Average of PM2.5

The following figure shows the histogram of PM2.5 at Pulchowk station in 2016.

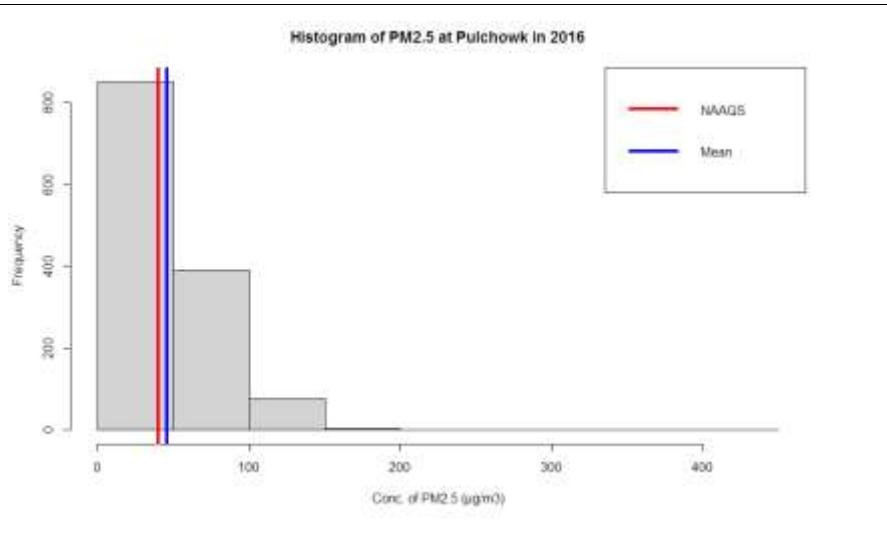


Figure 6. Histogram of PM2.5 at Pulchowk station in 2016

The Histogram of PM2.5 at Pulchowk station in 2016 shows that highest no of hourly data are between 0 - 50 $\mu\text{g}/\text{m}^3$ concentration followed by 50-100 $\mu\text{g}/\text{m}^3$ concentration.

Daily average of PM 2.5

Following figure shows the daily average PM2.5 bar graph at Pulchowk station in 2016.

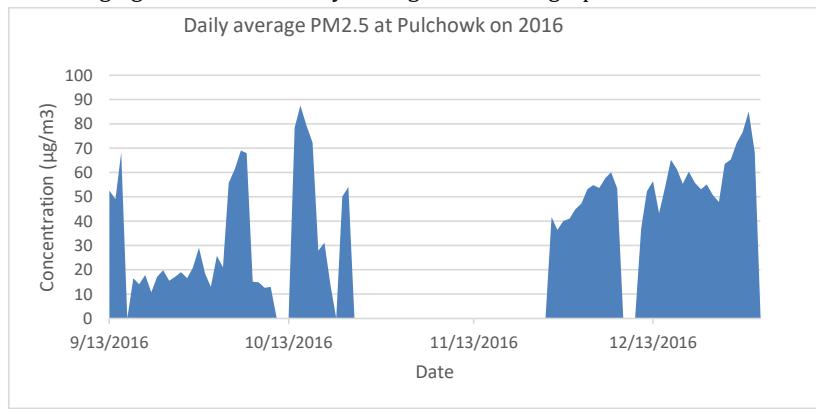


Figure 7. Daily average PM 2.5 at Pulchowk station on 2016

Monthly Average of PM2.5

Figure 2 shows the monthly average PM_{2.5}.

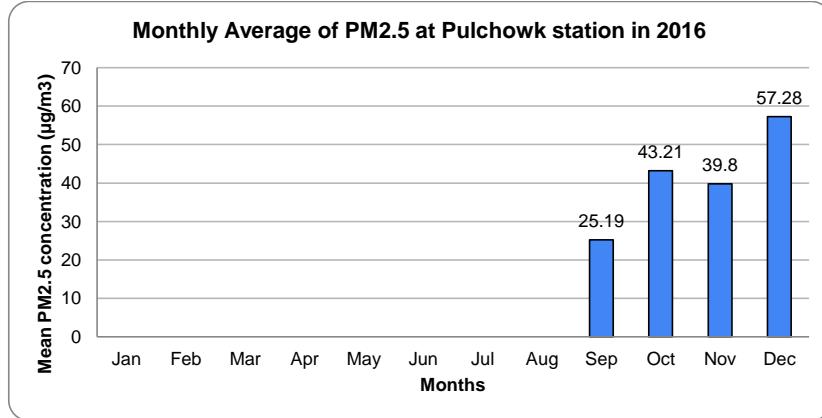


Figure 8. Monthly average PM_{2.5} at Pulchowk station in 2016

Out of 4 months September, October, November and December has the highest monthly average of PM_{2.5}.

Monthly variation of PM2.5

Following figure shows the monthly variation of PM_{2.5} at Pulchowk station in 2016.

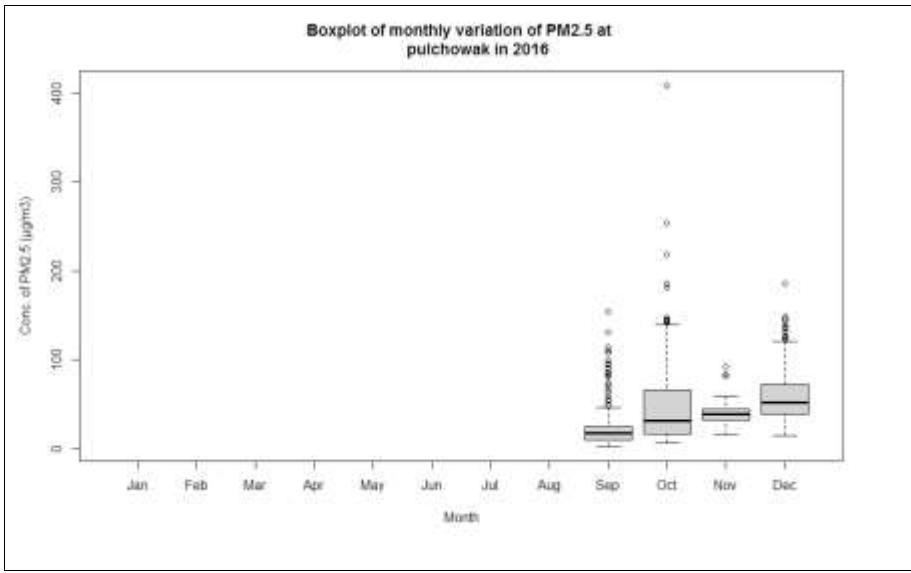


Figure 9. Boxplot of Monthly variation of PM_{2.5} at Pulchowk station in 2016

The Boxplot shows there was more variation of Hourly average PM1 data in the month of October.

Diurnal Variation of PM2.5

The following figure shows the diurnal variation of PM2.5 at Pulchowk station in 2016.

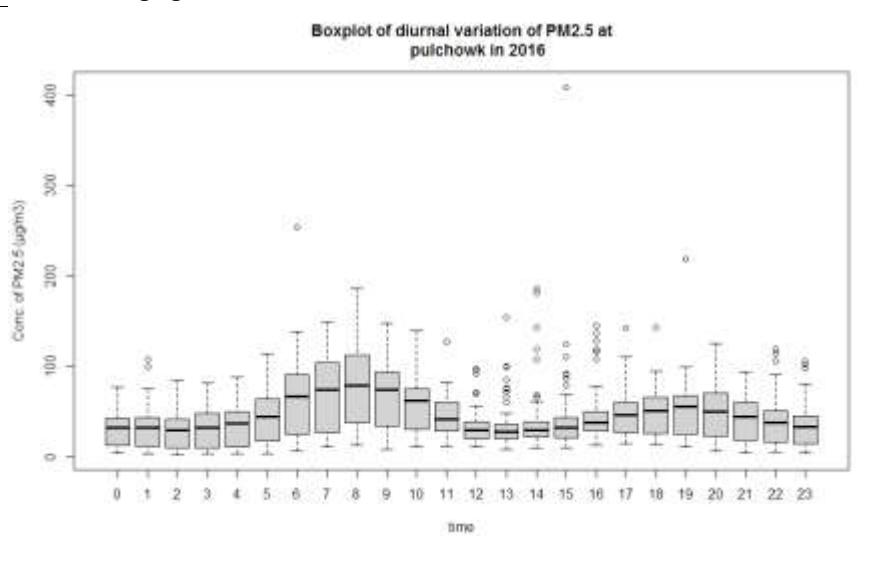


Figure 10. Boxplot of PM2.5 at Pulchowk station in 2016

The Boxplot of diurnal variation of PM 2.5 shows PM2.5 concentrations was highest at 8 o'clock and highest variation was also at that time.

Compliance with National Ambient Air Quality Standards(NAAQS)

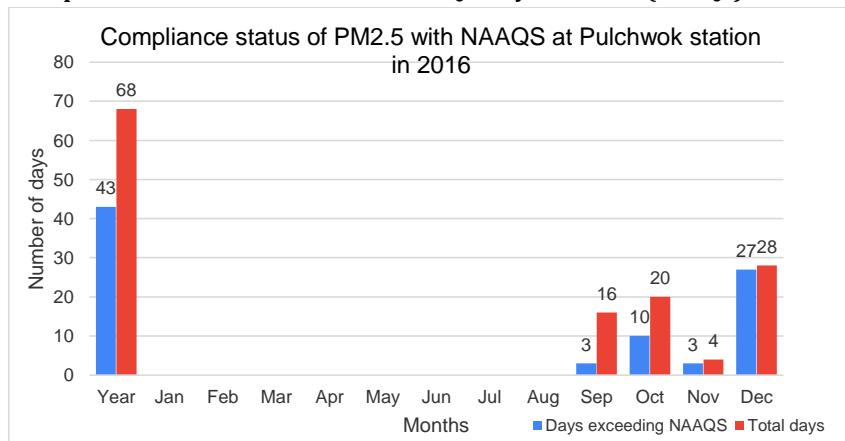


Figure 14. Compliance status of PM2.5 at Pulchowk with NAAQS

In 2016 out of 68 days of measurement 43 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 Pulchowk station in 2016.

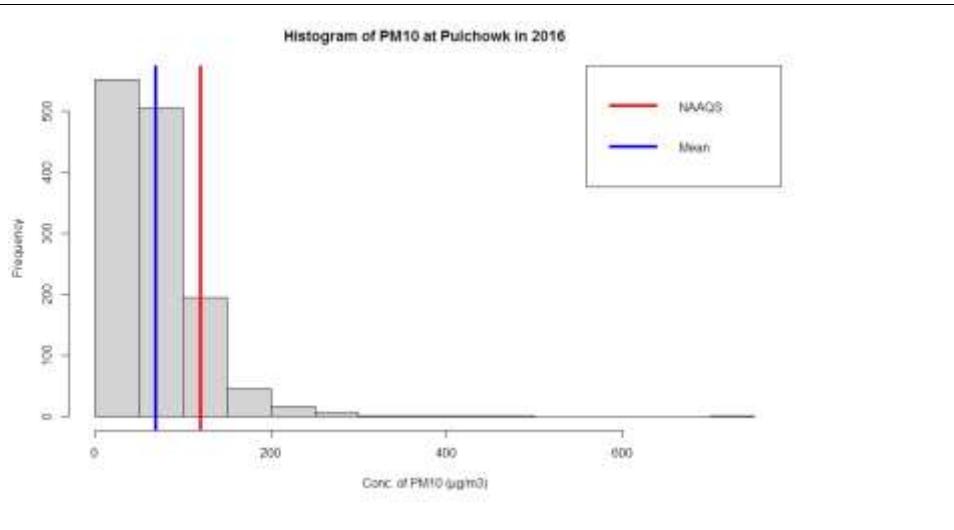


Figure 11. Histogram of PM10 at Pulchowk station in 2016

The Histogram of PM10 at Pulchowk station in 2016 shows that highest no of hourly data is between 0 - 50 $\mu\text{g}/\text{m}^3$ concentration followed by 50-100 $\mu\text{g}/\text{m}^3$ concentration.

Daily average of PM10 at Pulchowk station in 2016.

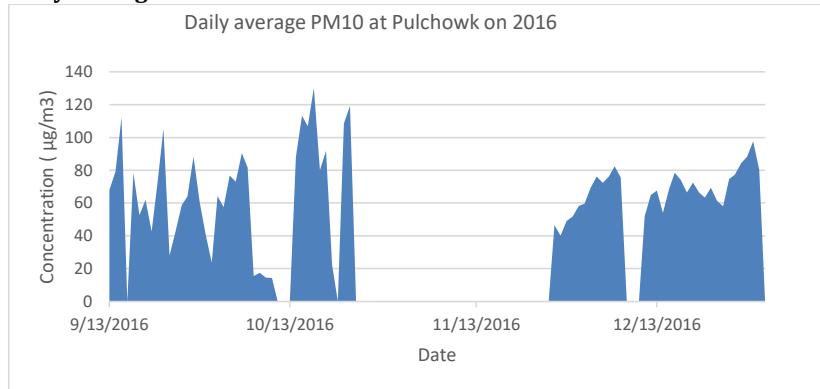


Figure 12. Daily average PM10 at Pulchowk station on 2016

Monthly Average of PM10

Figure 8 shows the monthly average of PM10 at Pulchowok on 2016.

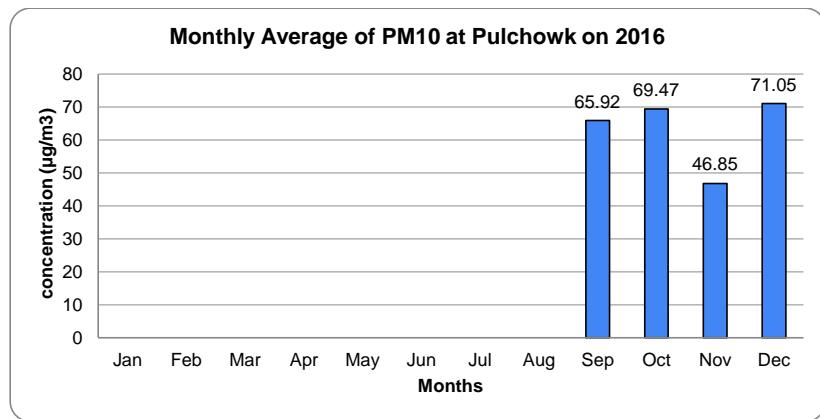


Figure 13. Monthly average PM10 at Pulchowk station in 2016

out of 4 month September, October, November and December, December has the highest monthly average.

Monthly Variation of PM10

Following figure shows the monthly variation of PM10 at Pulchowk station in 2016.

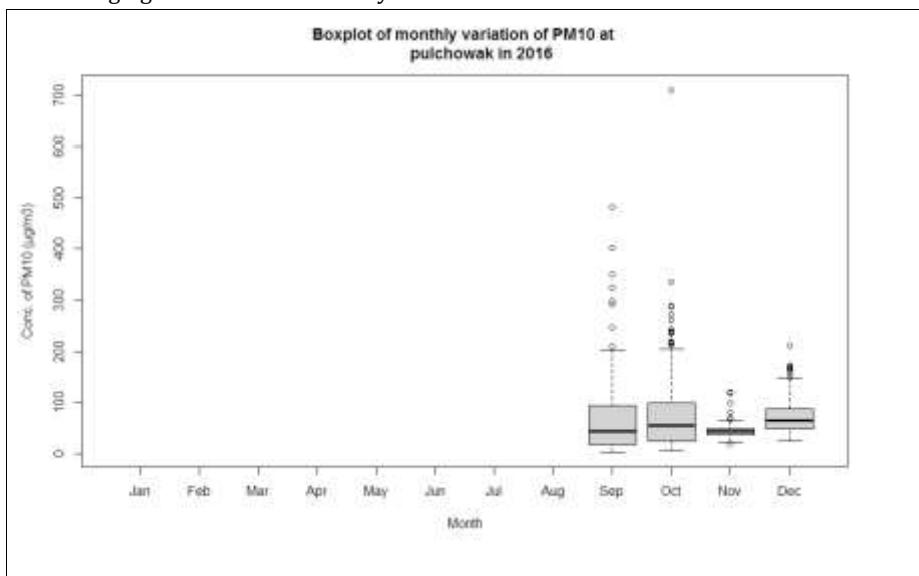


Figure 14. Boxplot of monthly variation of PM10 at Pulchowk in 2016

The Boxplot of monthly variation of PM10 at Pulchowk shows that hourly average of PM10 is more variable during October and September.

Diurnal Variation of PM10

Following figure shows the diurnal variation of PM10 at Pulchowk station in 2016.

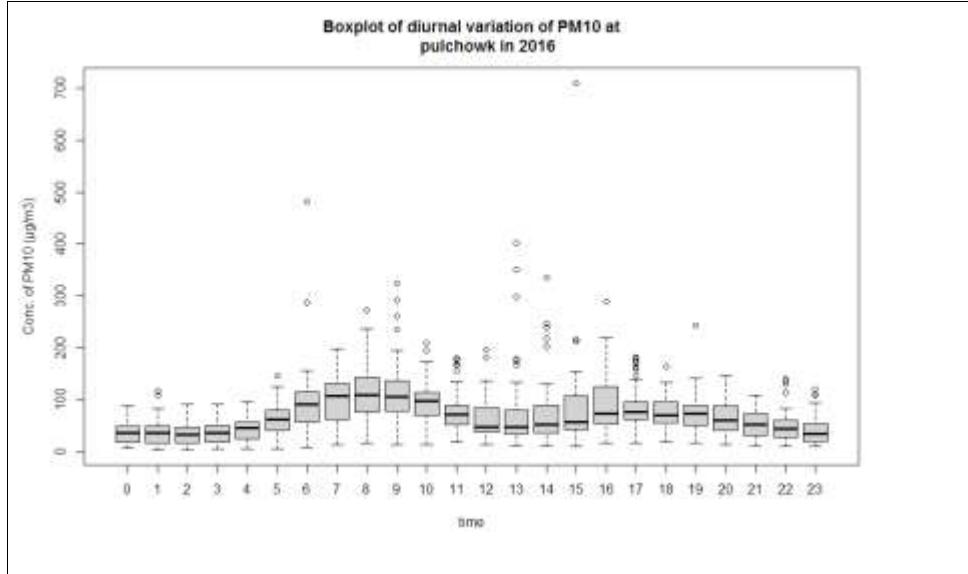


Figure 15. Boxplot of diurnal variation of Pm10at Pulchowk in 2016

The boxplot of diurnal variation of PM10 at Pulchowk station in 2016 shows that concentration of PM10 was highest during 7,8 and 9 O'clock and variation was highest during those periods and also at 16 O'clock.

Compliance with National ambient air quality standard

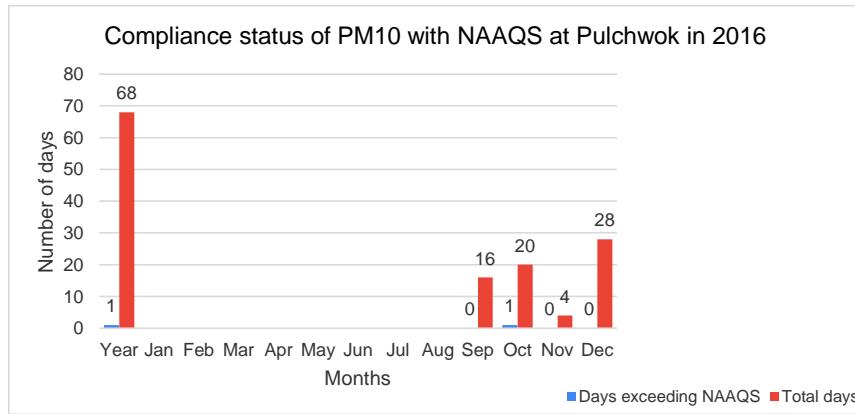


Figure 16. Compliance status of PM10 with NAAQS at Pulchowk in 2016

Out of total 68 days of Measurement only one day exceeded 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 Pulchowk station in 2016.

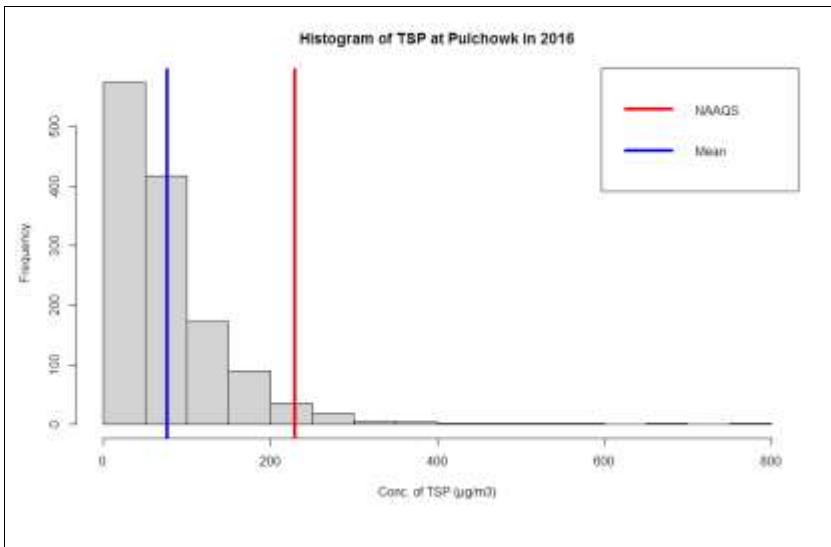


Figure 17. Histogram of TSP at Pulchowk station in 2016

The Histogram of PM10 at Pulchowk station in 2016 shows that highest no of hourly data is between 0 - 50 $\mu\text{g}/\text{m}^3$ concentration followed by 50-100 $\mu\text{g}/\text{m}^3$ concentration.

Daily average of TSP

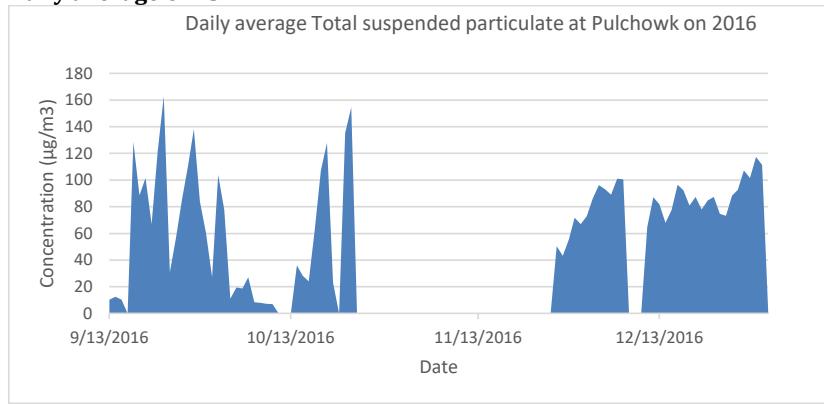


Figure 18. Daily average Total suspended Particulate at Pulchowk station in 2016

Monthly Average of TSP

Following figure shows the monthly average of Total suspended particulate at Pulchowk station in 2016.

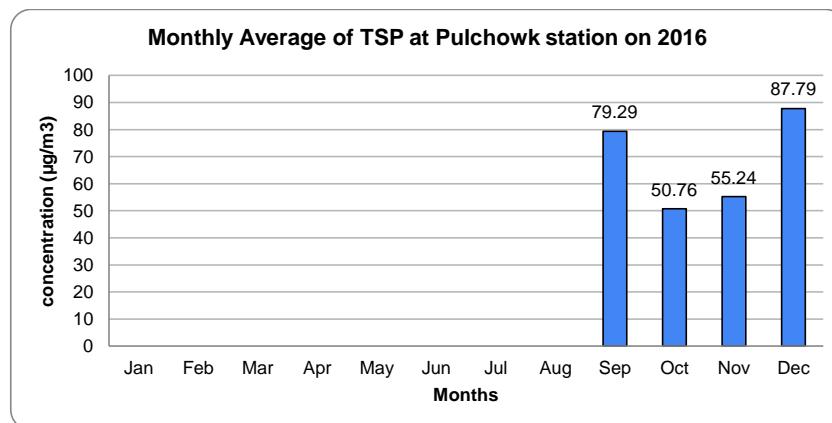


Figure 19. Monthly average total suspended particulate at Pulchowk station on 2016

Out of 4 month September, October, November and December, December has the highest monthly average of $87.79 \mu\text{g}/\text{m}^3$ and October has the lowest monthly average of $50.76 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows the monthly variation of Total suspended particulate

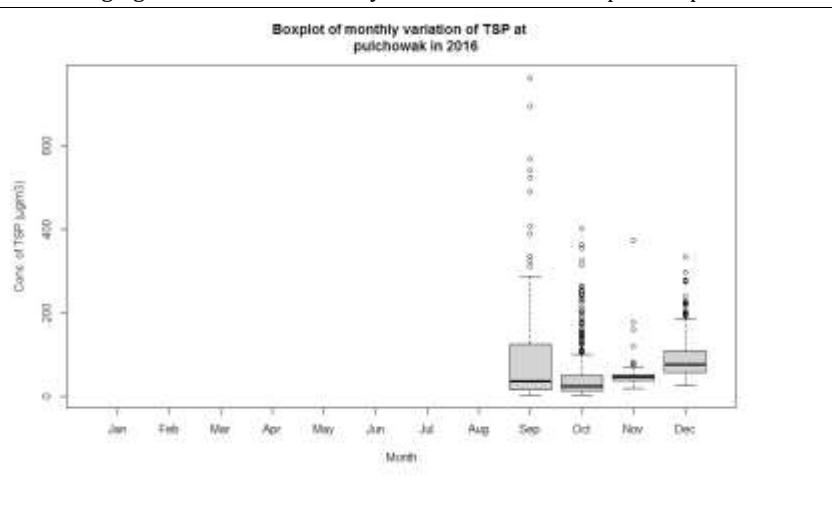


Figure 20. Boxplot of monthly variation of TSP at Pulchowk station in 2016

The Boxplot of Total suspended particulate at Pulchowk in 2016 shows more variation of TSP was observed in September.

Diurnal Variation of TSP

Following figure shows the diurnal variation of Total suspended particulate at Pulchowk station in 2016.

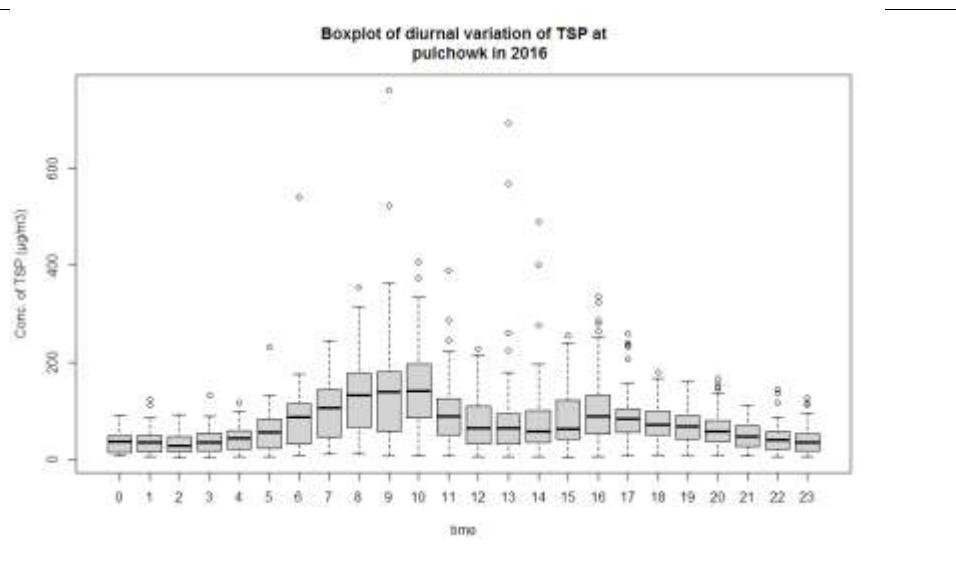


Figure 21. Boxplot of diurnal variation of TSP at Pulchowk in 2016

The Boxplot of TSP at Pulchok in 2016 shows that the concentration of TSP was more during 8, 9 and 10 O'clock and was more variable during that period.

Compliance with National ambient air quality standard

Out of 68 days of measurement in 2016 all days meets the National Ambient air quality standard for TSP.

Commented [D1]: Graph dai

2.2 Air Quality Status, 2017

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

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

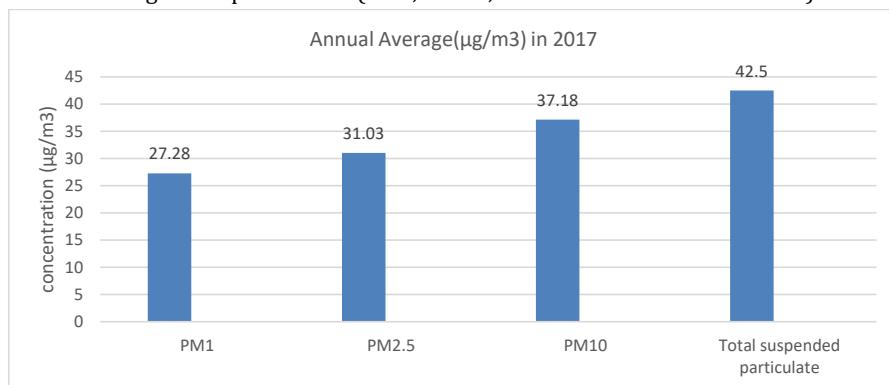


Figure 22. Annual average PM1, PM2.5, PM10 and TSP at Pulchowk station for 2017

2.2.2 Temporal Variation of PM1

Annual Average of PM1

Annual average PM1 at Pulchowk station at 2017 was $27.28 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM1 at Pulchowk in 2017.

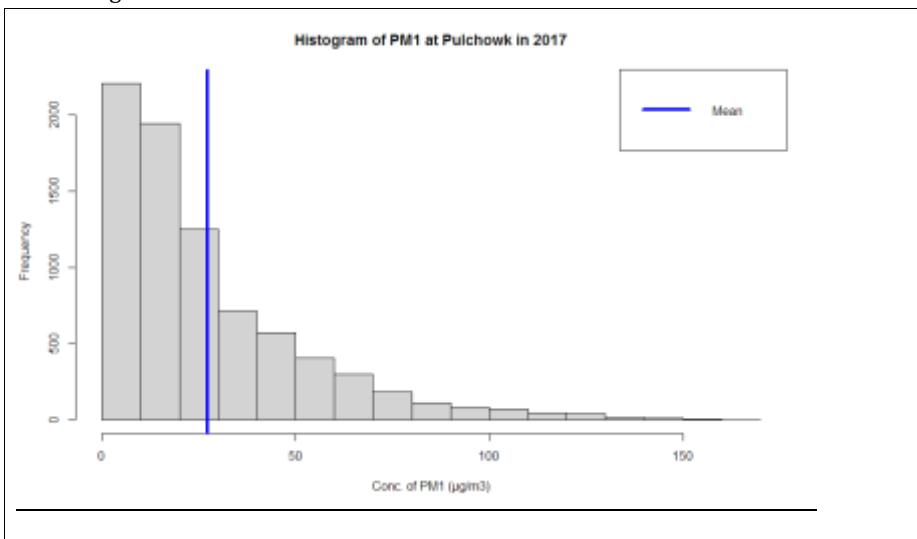


Figure 23. Histogram of PM1 at Pulchowk in 2017

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

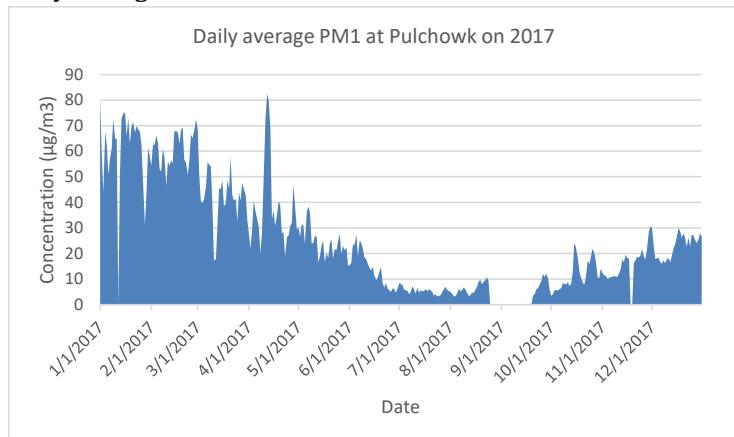


Figure 24. Daily average PM1 at Pulchowk station in 2017

Monthly Average of PM1

Following Figure shows the monthly average of PM₁.

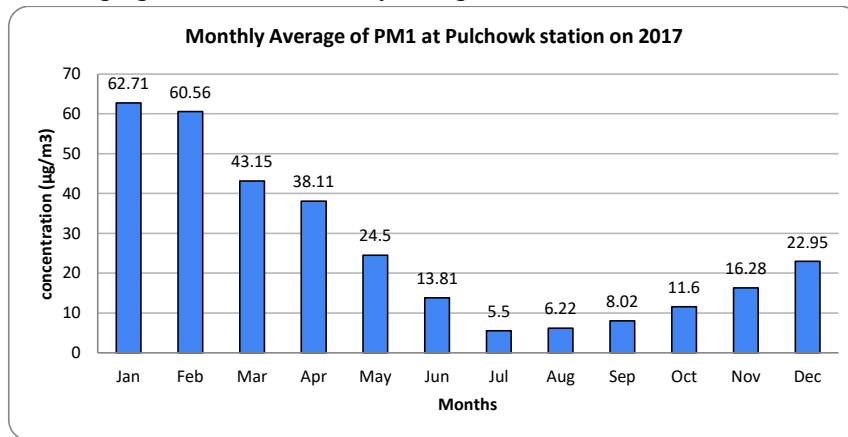


Figure 25. Monthly average PM1 at Pulchowk station in 2017

Above figure shows that the average value of PM₁ was highest in January with $62.71 \mu\text{g}/\text{m}^3$ and while lowest value were observed in July with $5.5 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM1

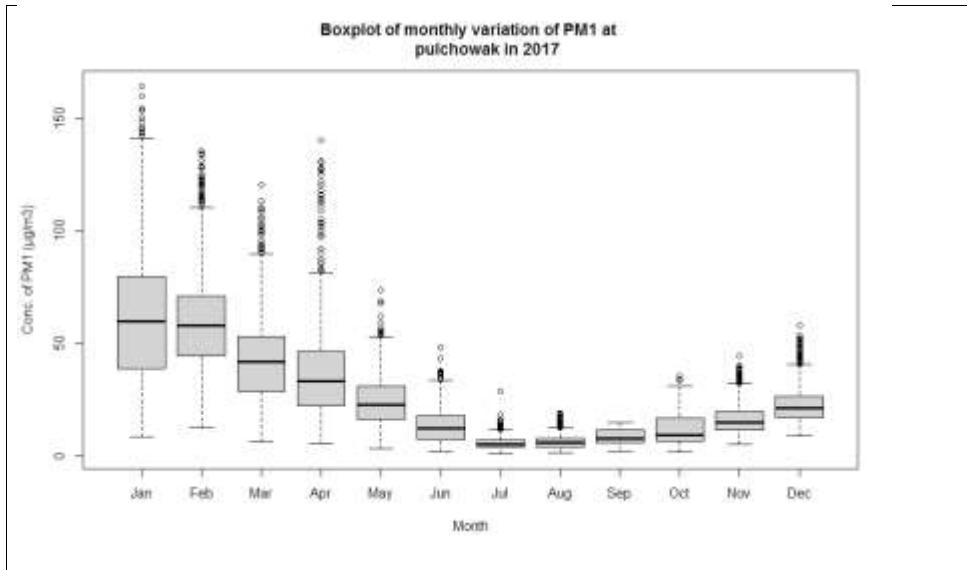


Figure 26. Monthly variation of daily average PM1 at Pulchowk station in 2017

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

Seasonal Average of PM1

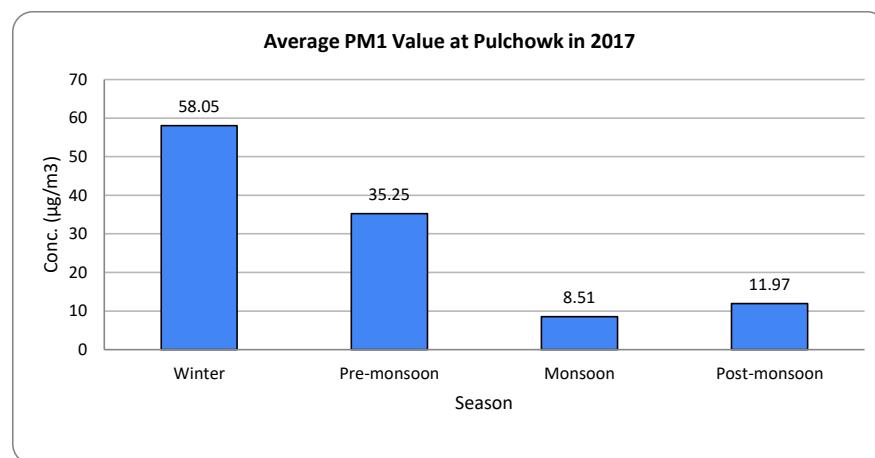


Figure 27. Ambient concentration of average PM1 with four seasons

Diurnal Variation of PM1

Following figure shows the boxplot of diurnal variation of PM1 at Pulchowk station in 2017.

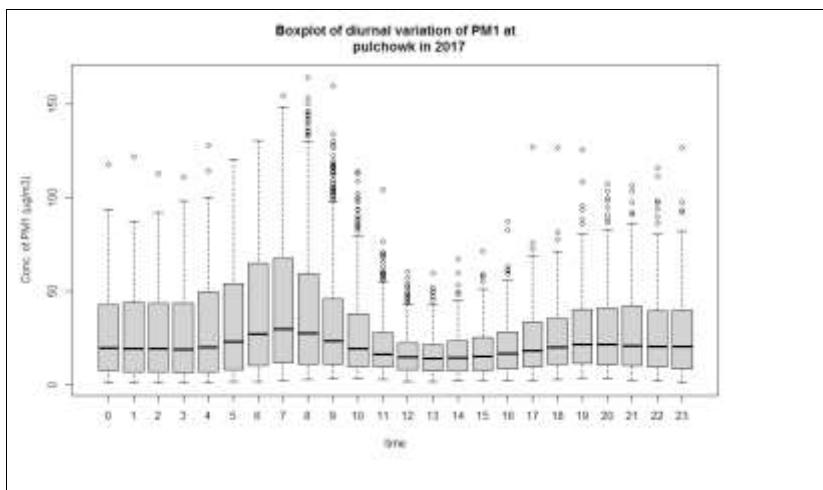


Figure 28. Boxplot of diurnal variation of PM1 at Pulchowk station in 2017

Above figure shows that Pm1 concentration was more at 7 oclock and it was more variable at that time.

2.2.3 Temporal Variation of PM2.5

Annual Average of PM2.5

The annual average of PM2.5 at Pulchowk station on 2017 was $31.038 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM2.5 at Pulchowk station in 2017.

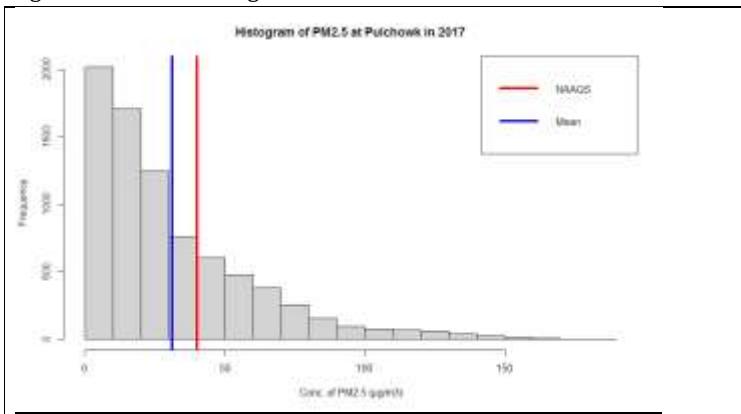


Figure 29. Histogram of PM2.5 at Pulchowk in 2017

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

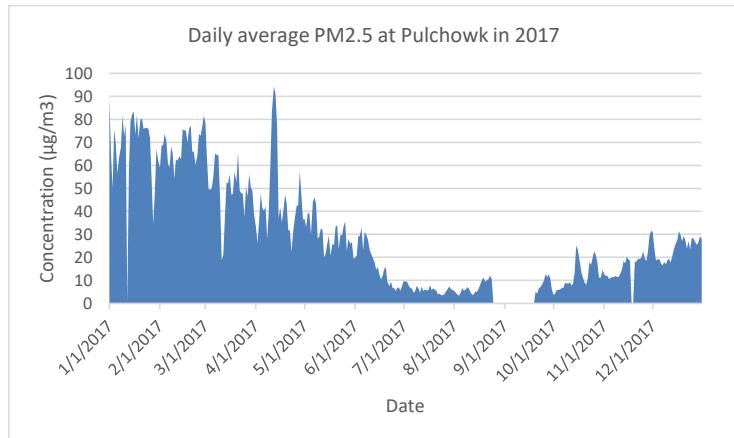


Figure 30. Daily average PM2.5 at Pulchowk station in 2017

Monthly Average of PM_{2.5}

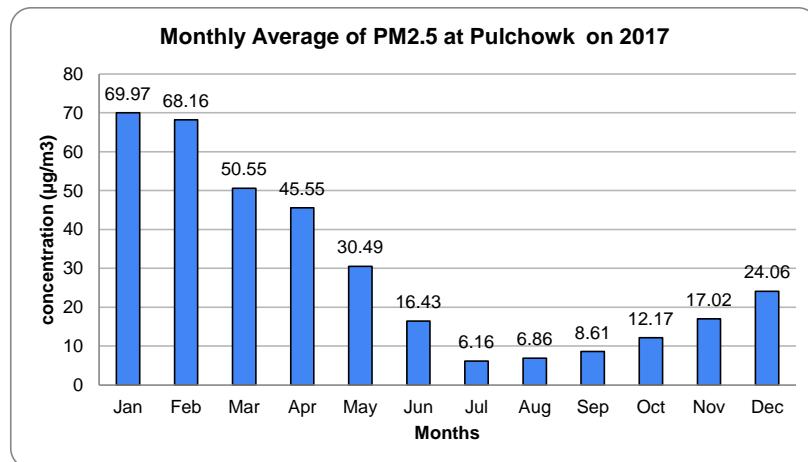


Figure 31. Monthly average of PM_{2.5} at Pulchowk on 2017

Above figure shows that the monthly average value of PM_{2.5} was highest in January with 69.97 $\mu\text{g}/\text{m}^3$ while lowest value were observed in July with 6.16 $\mu\text{g}/\text{m}^3$.

Monthly Variation of PM_{2.5}

Following figure shows the boxplot of monthly variation of PM_{2.5} at Pulchowk in 2017.

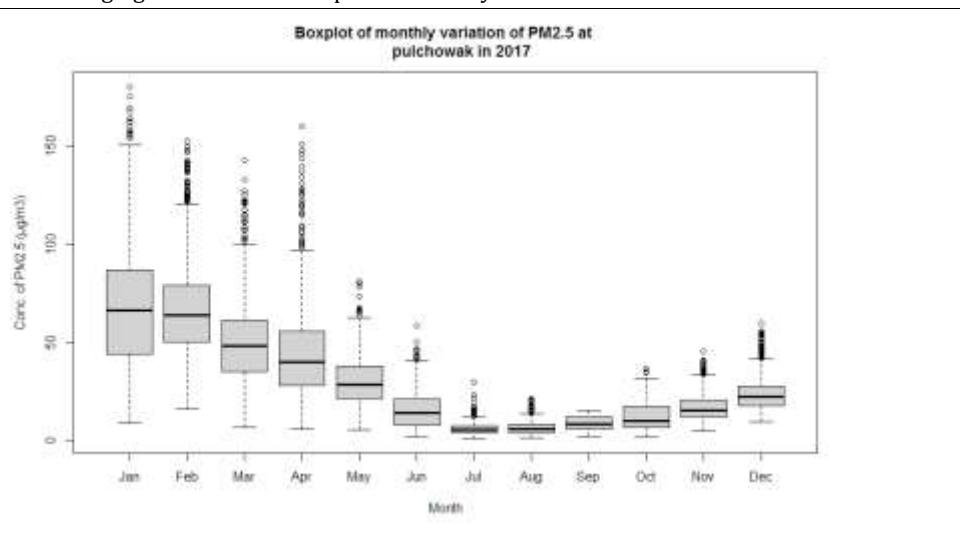


Figure 32. Monthly variation of daily average PM_{2.5} at Pulchowk in 2017

Above figure shows that hourly average data of PM_{2.5} was more variable in January.

Seasonal Average of PM2.5

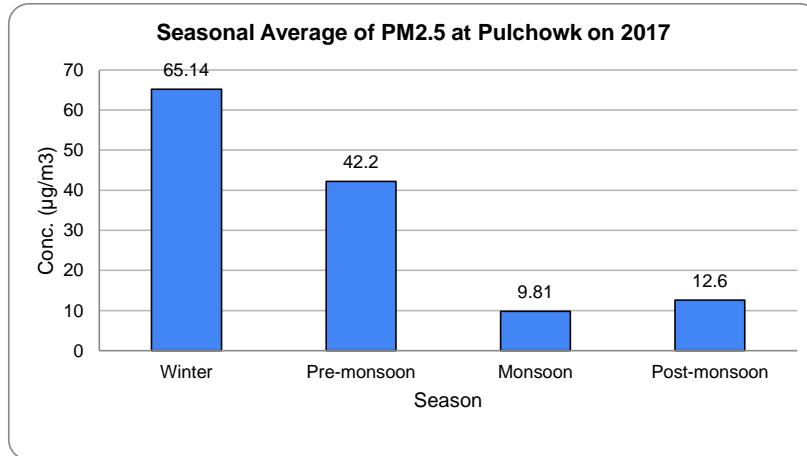


Figure 33. Seasonal variation of PM2.5 at Pulchowk station on 2017

The figure shows highest seasonal average in winter season followed by pre-monsoon while lowest seasonal average was observed in monsoon season.

Diurnal Variation of PM2.5

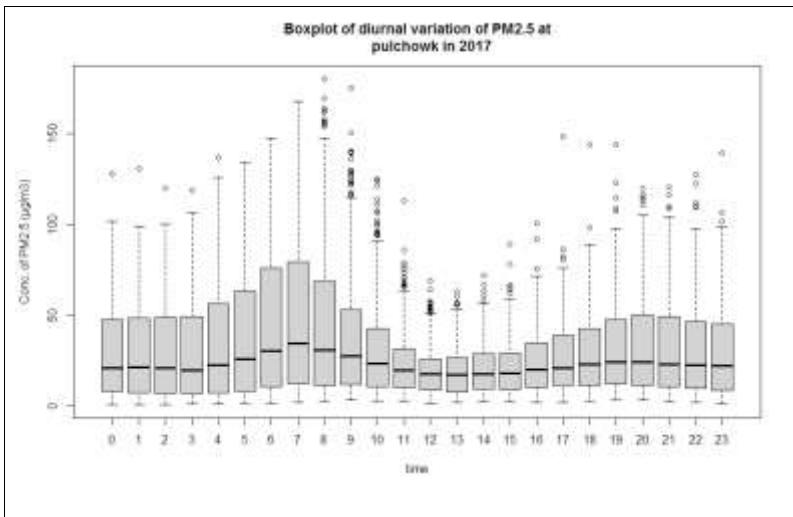


Figure 34. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2017

Above figure shows PM2.5 concentrations was highest was at 7 o'clock and also more variable at that time.

Compliance with National Ambient air Quality standard

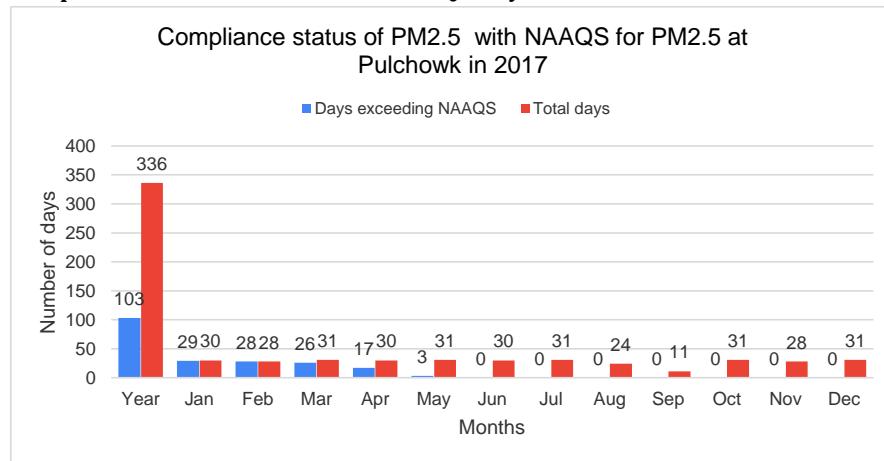


Figure 35. Compliance with National Ambient air quality standard for PM_{2.5} at Pulchowk station in 2017

Out of total 336 days of Measurement 103 day exceeded the National ambient air quality standard for PM_{2.5} at Pulchowk station in 2017.

2.2.4 Temporal Variation of PM10

Annual Average

The annual average PM10 at Pulchowk station on 2017 was $37.18\mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM10 at Pulchowk station in 2017.

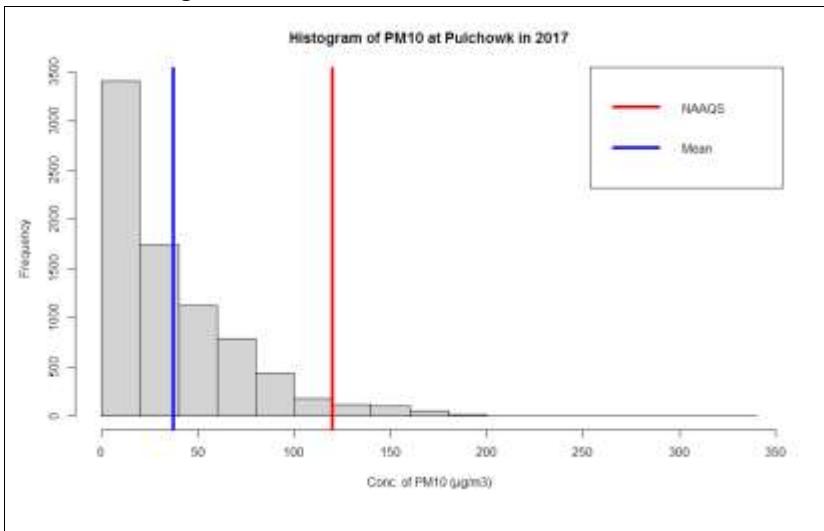


Figure 36. Histogram of PM10 at Pulchowk in 2017

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

Daily average of PM10

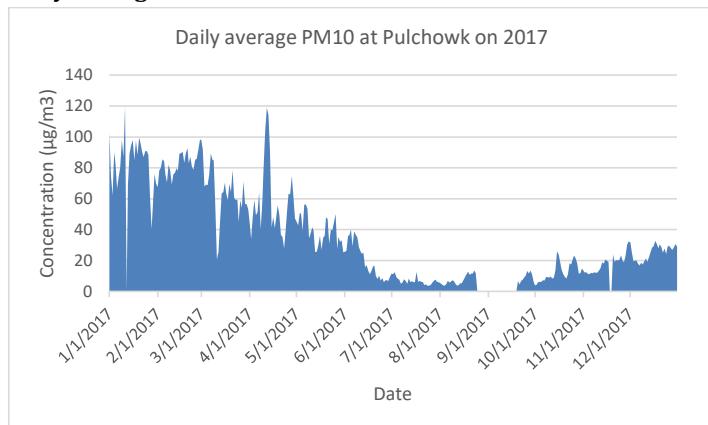


Figure 37. Daily average PM10 at Pulchowk station in 2017

Monthly Average of PM10

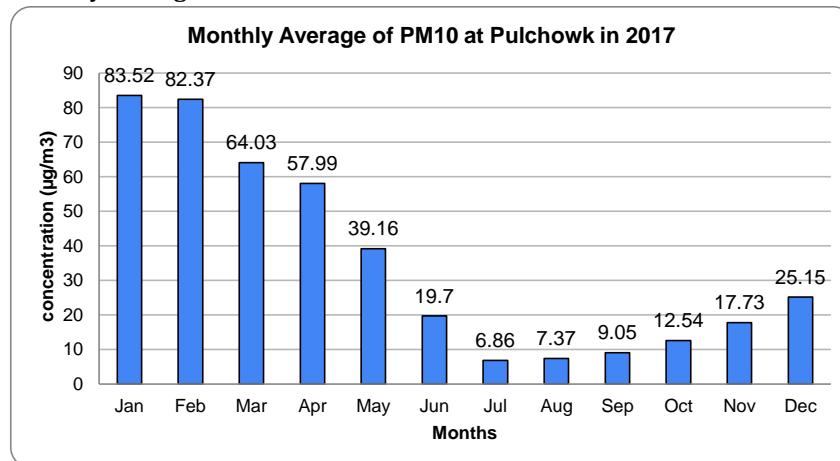


Figure 38. Monthly average PM10 at Pulchowk station in 2017

Above figure shows that the highest monthly average value of PM10 was found in January 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 Pulchowk in 2017

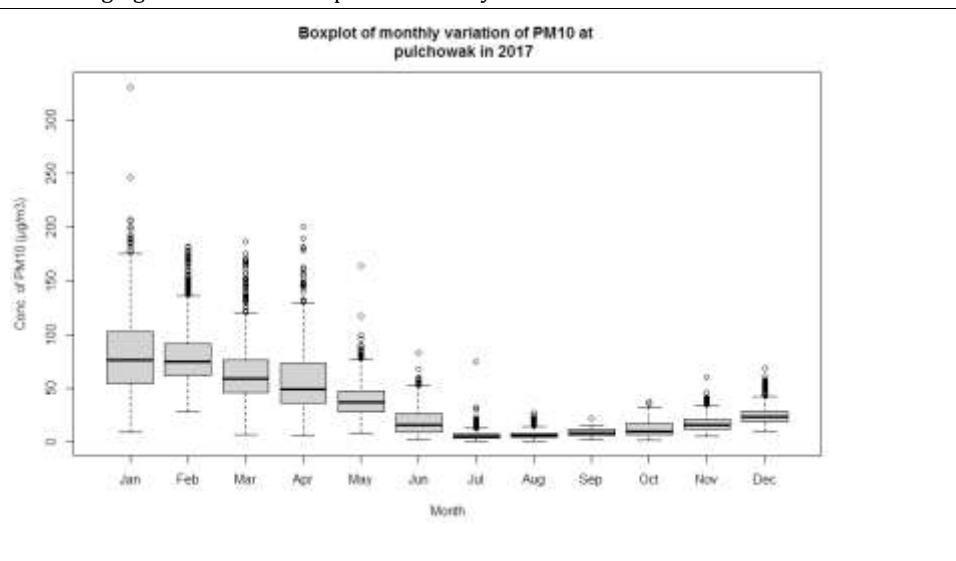


Figure 39. Boxplot of monthly variation of PM10 at Pulchowk in 2017

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

Seasonal Average of PM10

Following figure shows seasonal average of PM10 at Pulchowk in 2017.

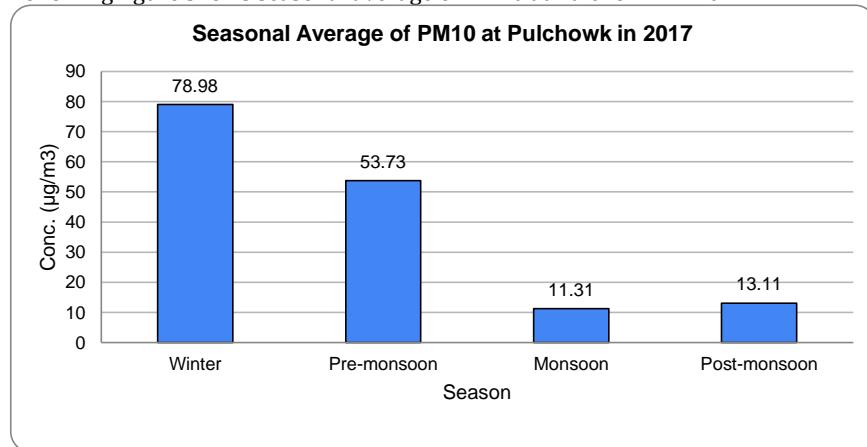


Figure 40. Seasonal average of PM10 at Pulchowk station on 2017

The figure shows highest seasonal average in winter season followed by pre-monsoon while lowest seasonal average was observed in monsoon season

Diurnal Variation of PM10

Following figure shows the diurnal variation of PM10 at Pulchowk in 2017.

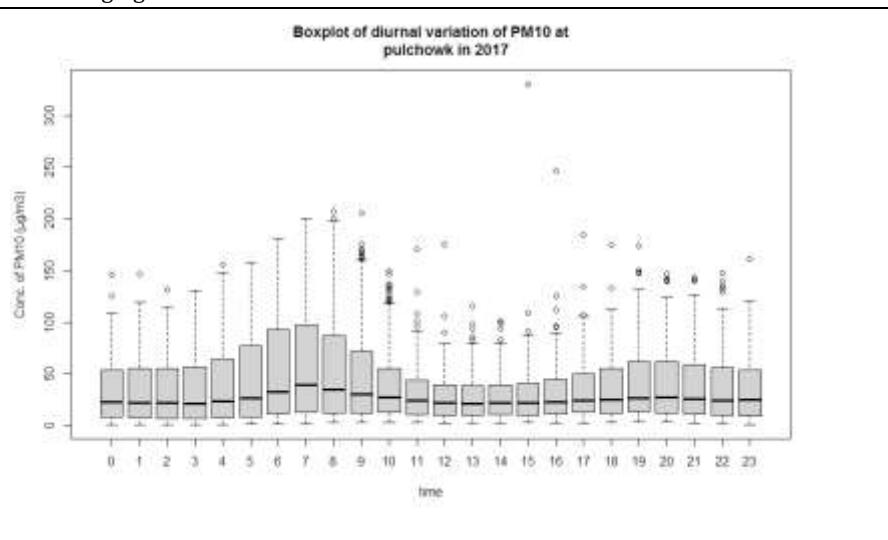


Figure 41. Diurnal variation of Pm10 at Pulchowk in 2017

The boxplot of diurnal variation shows PM10 concentration was highest at 7 O'clock and variation of PM10 was also high at that time.

Compliance with National Ambient Air quality standard

Out of 336 days of measurement all days meet the National Ambient air quality standard for PM10 at Pulchowk station on 2017.

Commented [D2]: graph

2.2.5 Temporal Variation of TSP

Annual Average

Annual TSP average of Pulchowk Station for the year 2017 was observed to be $42.50\mu\text{g}/\text{m}^3$. Following figure shows the histogram of TSP at Pulchowk in 2017.

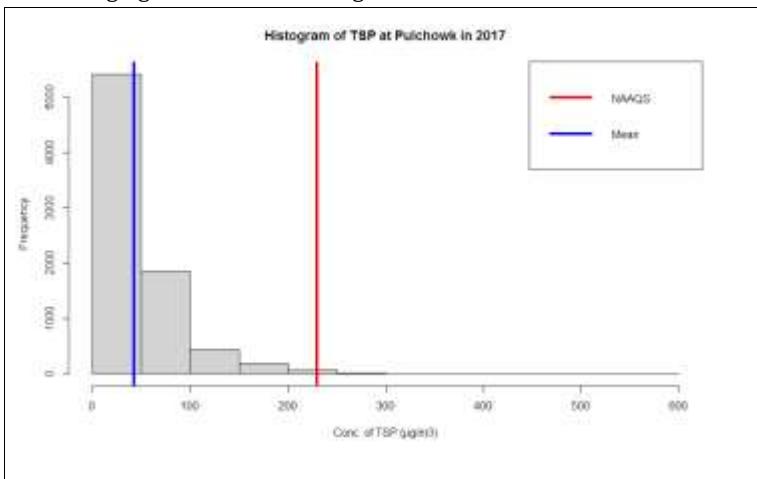


Figure 42. Histogram of TSP at Pulchowk station in 2017

Above figure shows highest no of hourly average of Total suspended Particulate data were between $0-50\mu\text{g}/\text{m}^3$.

Daily average of TSP

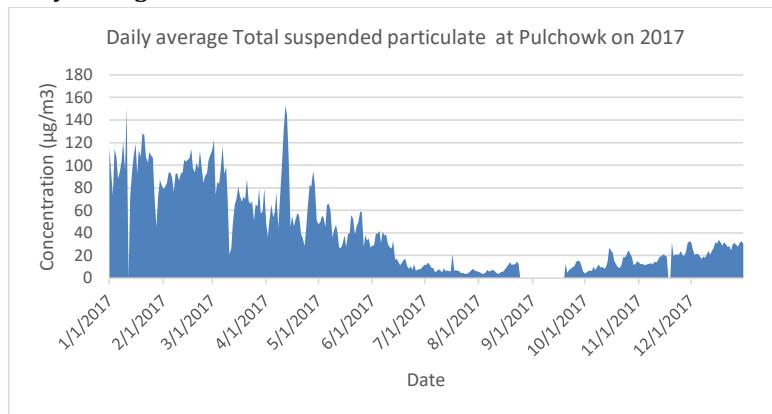


Figure 43. Daily average total suspended particulate at Pulchowk in 2017

Monthly Average of TSP

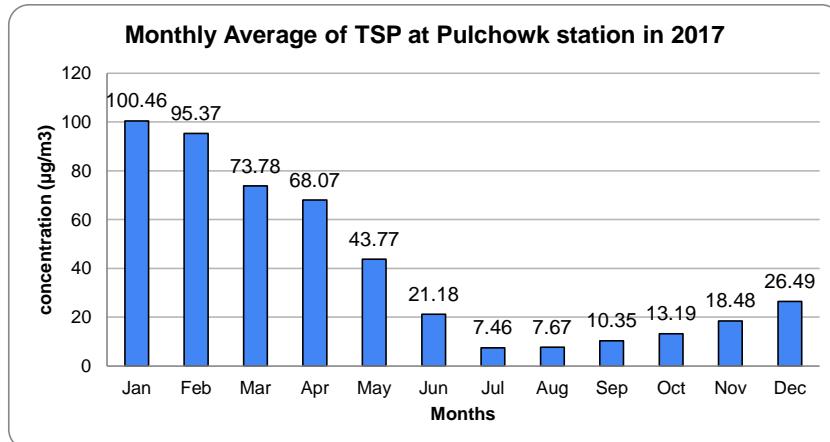


Figure 44. Monthly average of TSP at Pulchowk station in 2017

Above figure shows that the monthly average value of TSP was highest in January with value of $100.46 \mu\text{g}/\text{m}^3$ and lowest in July with value of $7.46 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at Pulchowk in 2017

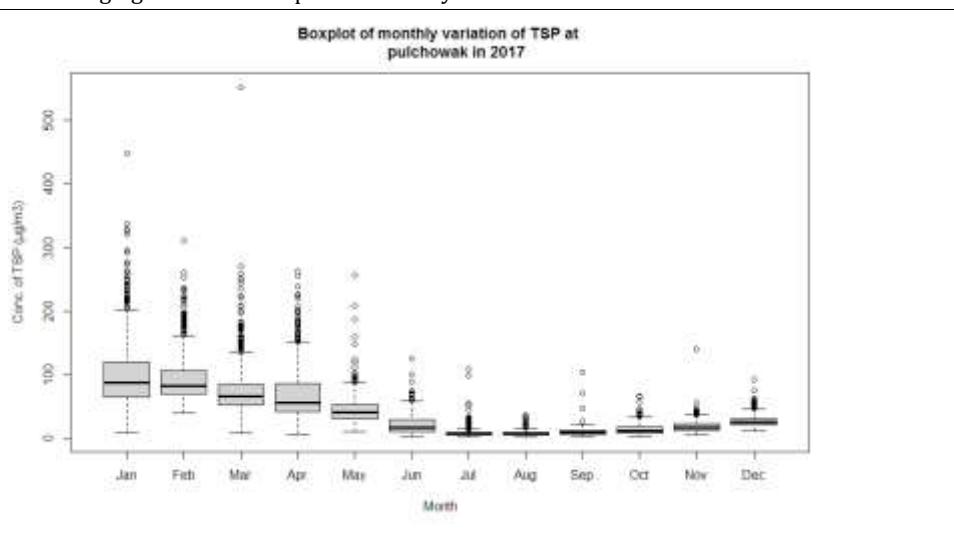


Figure 45. Monthly variation of daily average Total suspended particulate at Pulchowk in 2017

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

Seasonal Average of TSP

Following figure shows the seasonal average of TSP at Pulchowk station in 2017

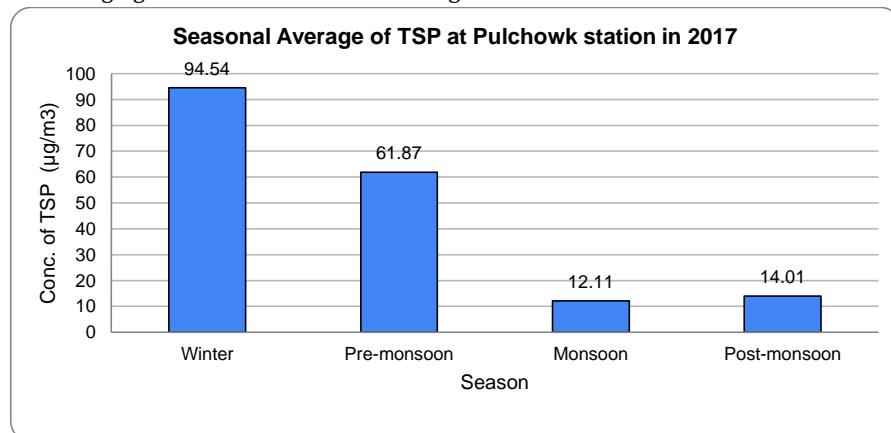


Figure 46. Seasonal average of TSP at Pulchowk station on 2017

Diurnal Variation of TSP

Following figure shows the boxplot of diurnal variation of TSP at Pulchowk in 2017.

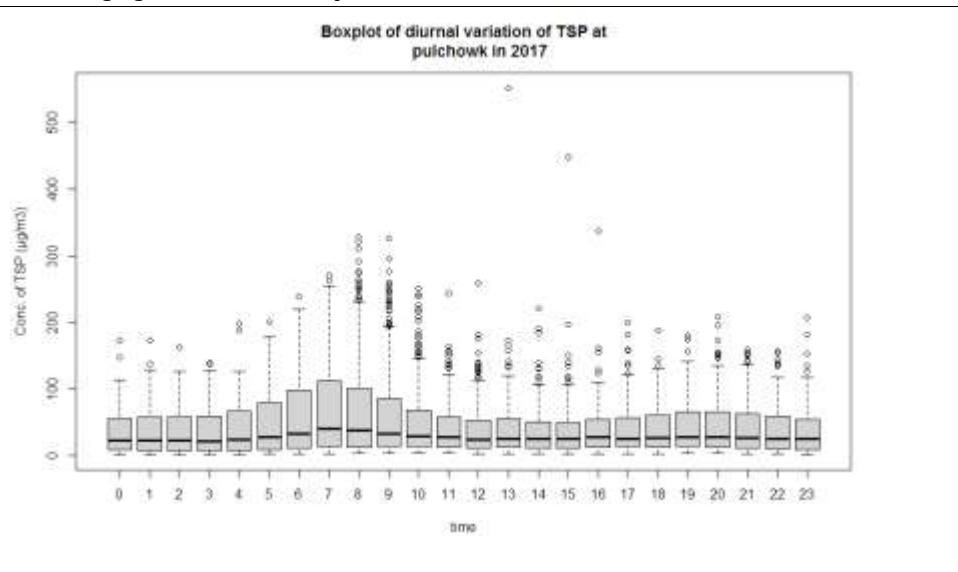


Figure 47. Diurnal variation of TSP at Pulchowk station on 2017

Above figure shows that Total suspend Particulate concentration was highest at 7 and 8 O'clock and variation was also high at that time.

3.5.8 Compliance with National Ambient air quality StandardOut of 336 days of measurement all days meets the National ambient air quality standards for the Total suspended particulate..

2.3 Air Quality Status, 2018

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)

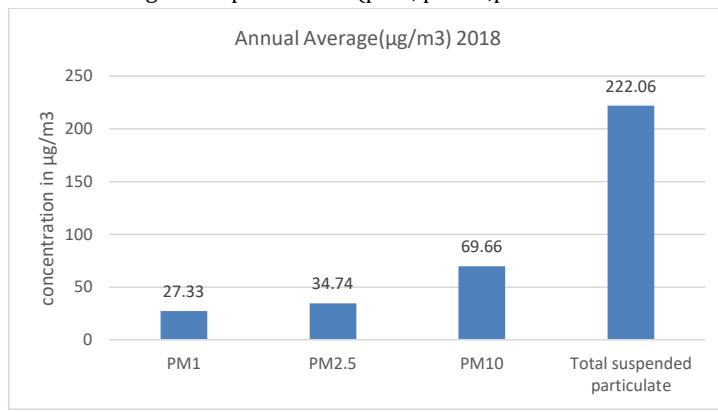


Figure 48. Annual average PM1, PM2.5, PM10 and TSP at Pulchowk station for 2018

2.3.3 Temporal Variation of PM1

Annual Average of PM1

Annual average PM1 at Pulchowk station at 2018 was $27.33 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM1 at Pulchowk in 2018.

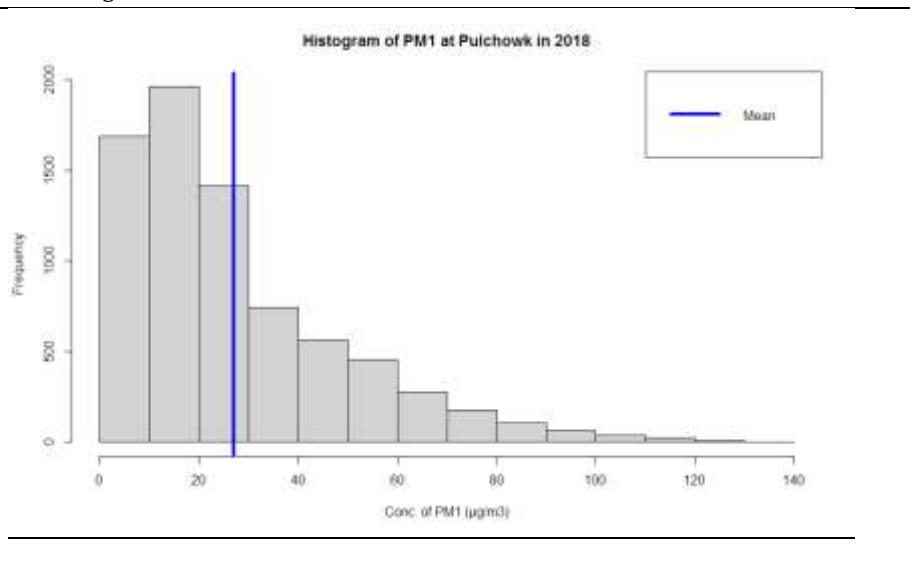


Figure 49.. Histogram of PM1 at Pulchowk in 2018

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

Daily average of PM1

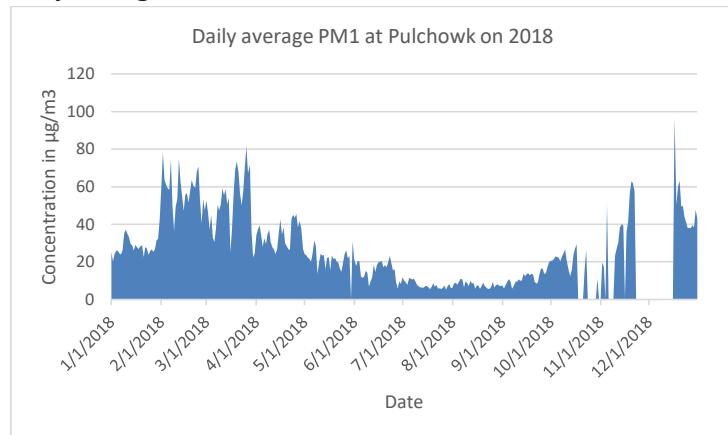


Figure 50. Daily average PM1 at Pulchowk station in 2018

Monthly Average of PM1

Following Figure shows the monthly average of PM1.

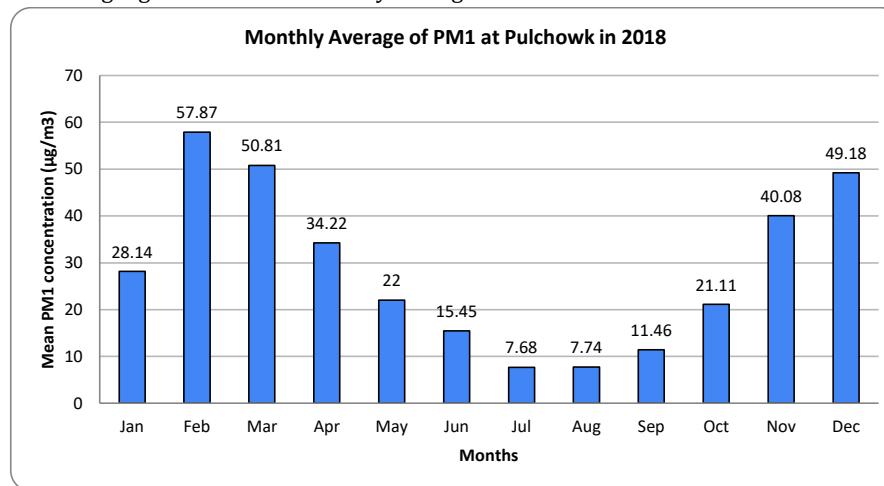


Figure 51. Monthly average PM1 at Pulchowk station in 2018

Above figure shows that the average value of PM1 was highest in February with 62.71 $\mu\text{g}/\text{m}^3$ and lowest value were observed in July with 7.68 $\mu\text{g}/\text{m}^3$.

Monthly Variation of PM1

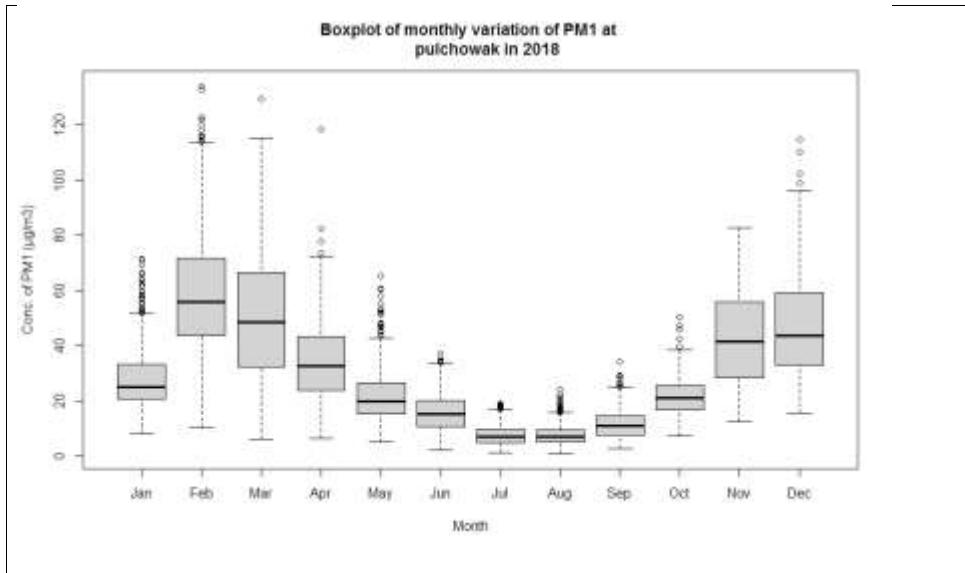


Figure 52. Monthly variation of daily average PM1 at Pulchowk station in 2018

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

Seasonal Average of PM1

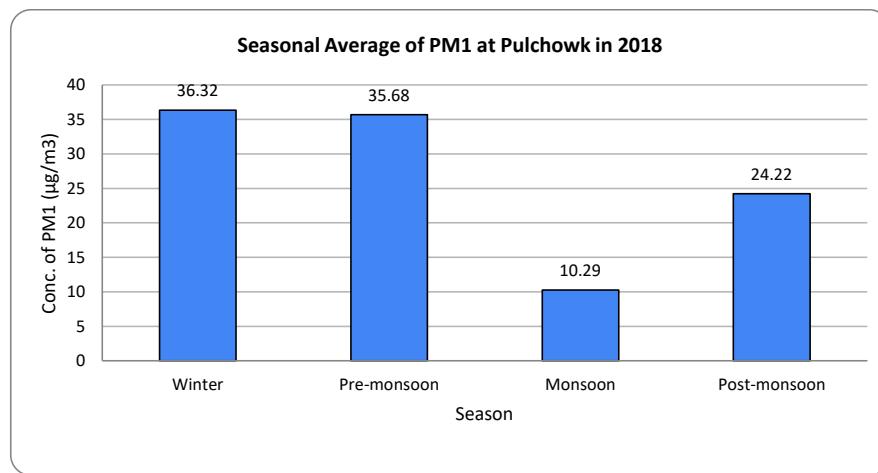


Figure 53. Ambient concentration of average PM1 with four seasons

Diurnal Variation of PM1

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

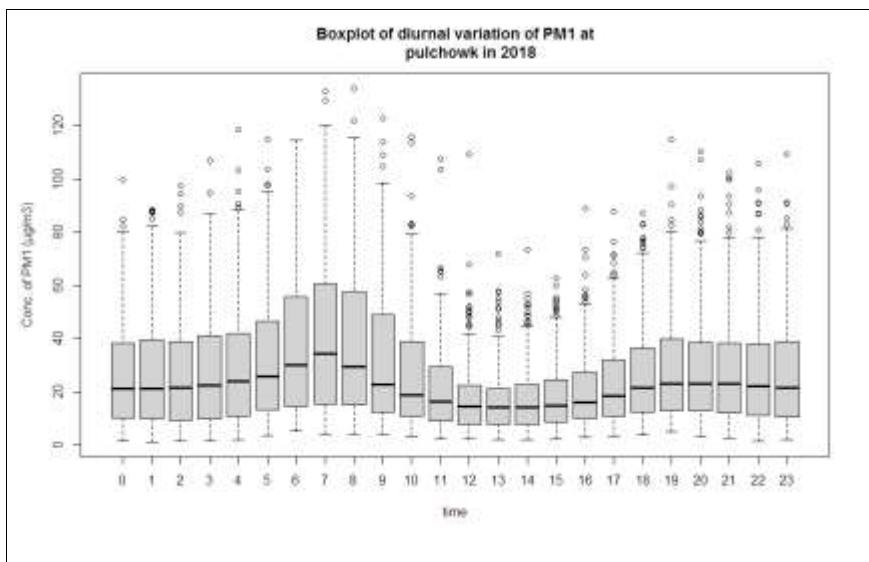


Figure 54. Boxplot of diurnal variation of PM1 at Pulchowk station in 2018

Above figure shows that Pm1 concentration was more at 7 o'clock and it was more variable at that time.

2.3.3 Temporal Variation of PM2.5

Annual Average

The annual average of PM2.5 at Pulchowk station on 2017 was $34.74 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM2.5 at Pulchowk station in 2018.

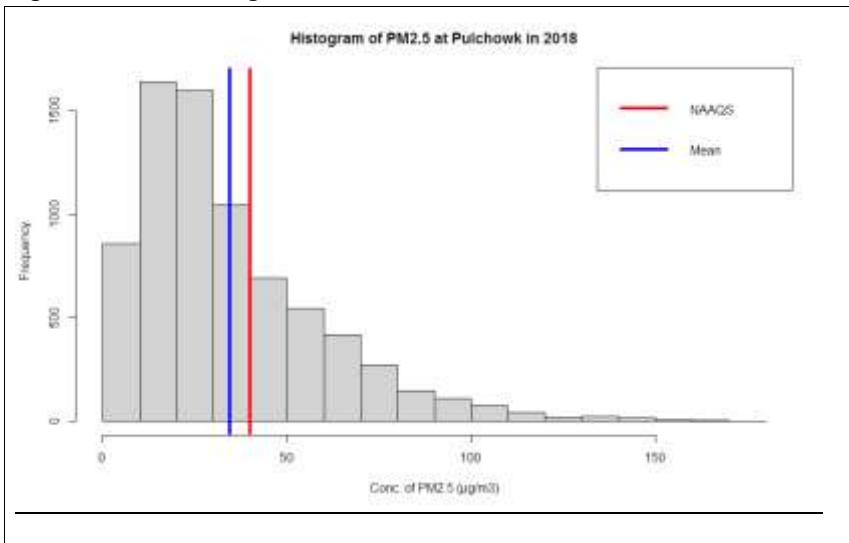


Figure 55. Histogram of PM2.5 at Pulchowk in 2018

The Histogram shows that highest no of hourly average data were between $10-20 \mu\text{g}/\text{m}^3$ followed by $20-30 \mu\text{g}/\text{m}^3$.

Daily Average of PM2.5

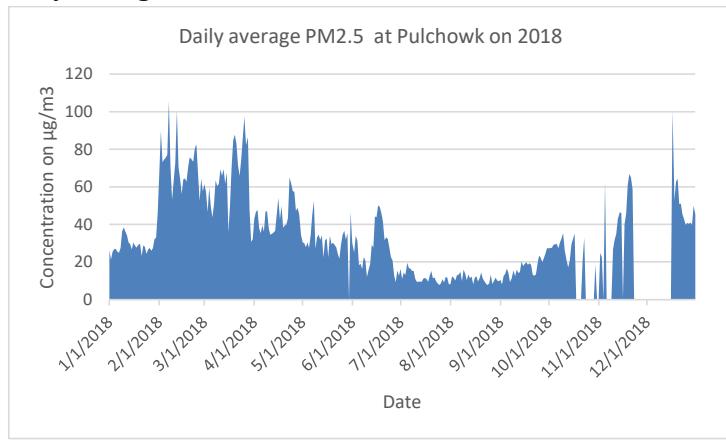


Figure 56. Daily average PM2.5 at Pulchowk station in 2018

Monthly Average of PM2.5

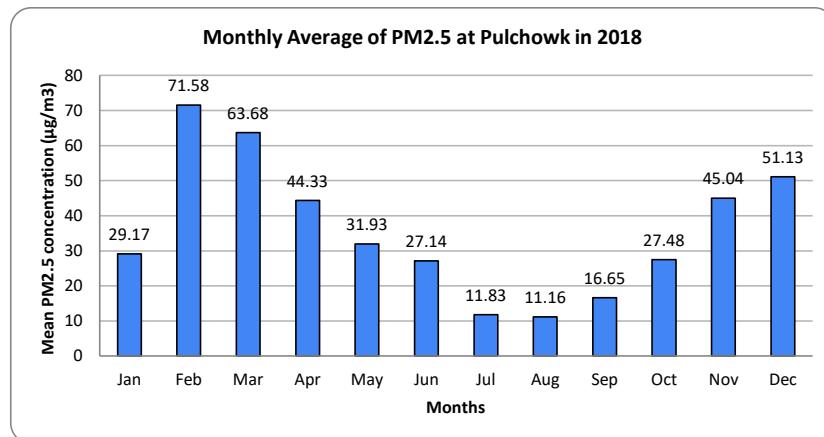


Figure 57. Monthly average of PM2.5 at Pulchowk station in 2018

Above figure shows that the monthly average value of PM_{2.5} was highest in February with 71.58 $\mu\text{g}/\text{m}^3$ while lowest value were observed in August with 11.16 $\mu\text{g}/\text{m}^3$

Monthly Variation of PM2.5

Following figure shows the boxplot of monthly variation of PM_{2.5} at Pulchowk in 2018.

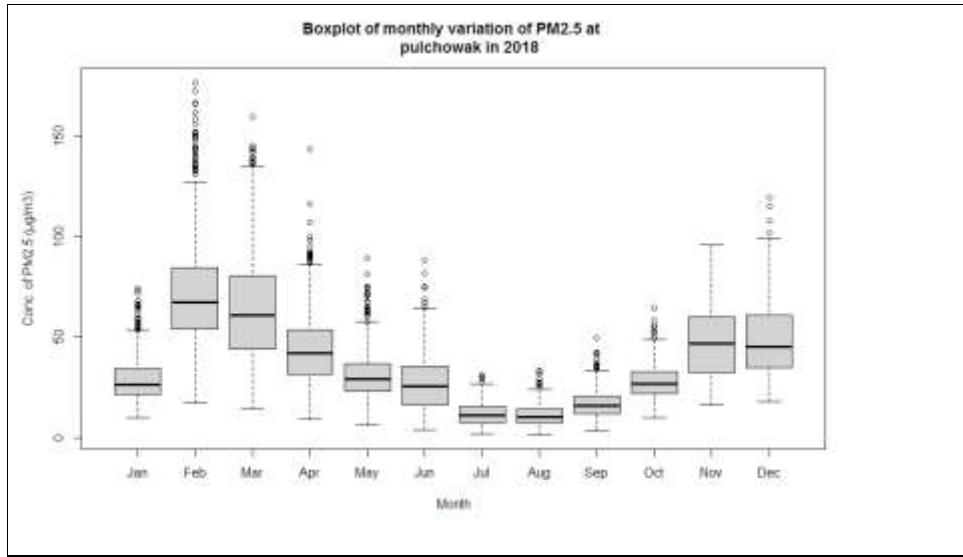


Figure 58. Monthly variation of daily average PM2.5 at Pulchowk in 2018

Above figure shows that hourly average data of PM_{2.5} was more variable in March.

Seasonal Average of PM2.5

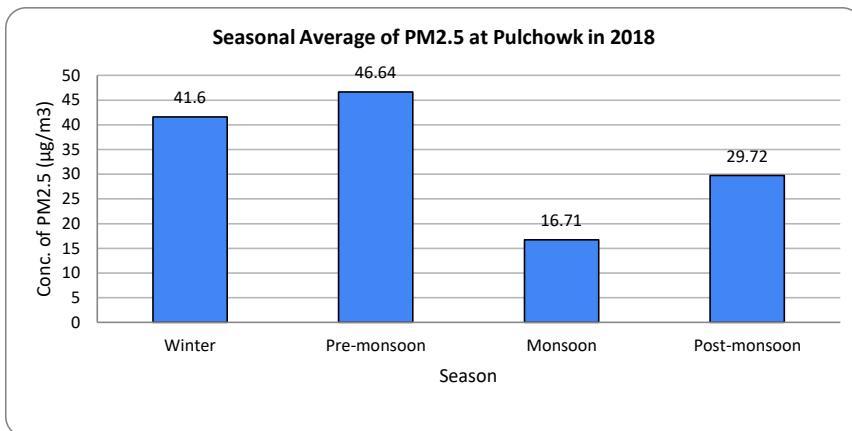


Figure 59.. Seasonal variation of PM2.5 at Pulchowk station in 2018

The figure shows highest seasonal average pre-monsoon season followed by 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 Pulchowk

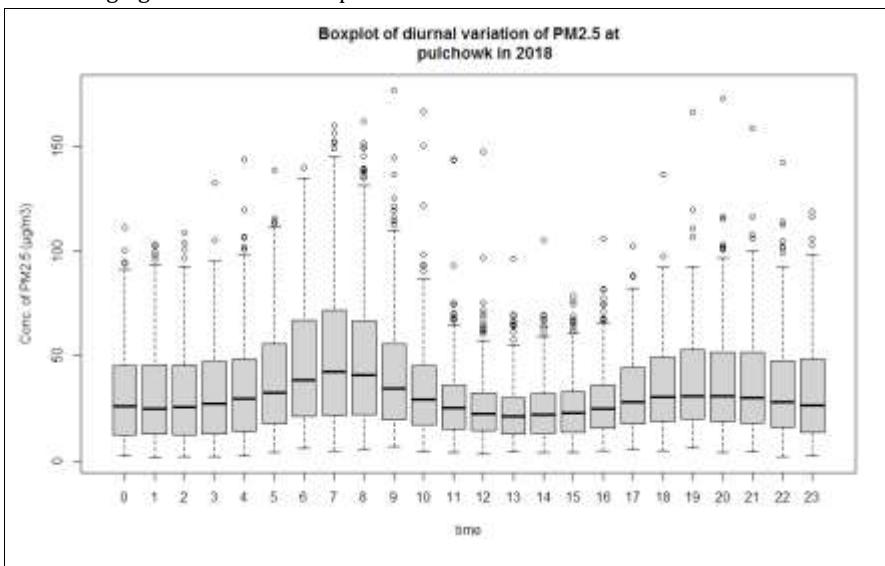


Figure 60. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2018

Above figure shows PM2.5 concentrations was highest was at 7 o'clock and also more variable at that time.

Compliance with National Ambient air Quality standard

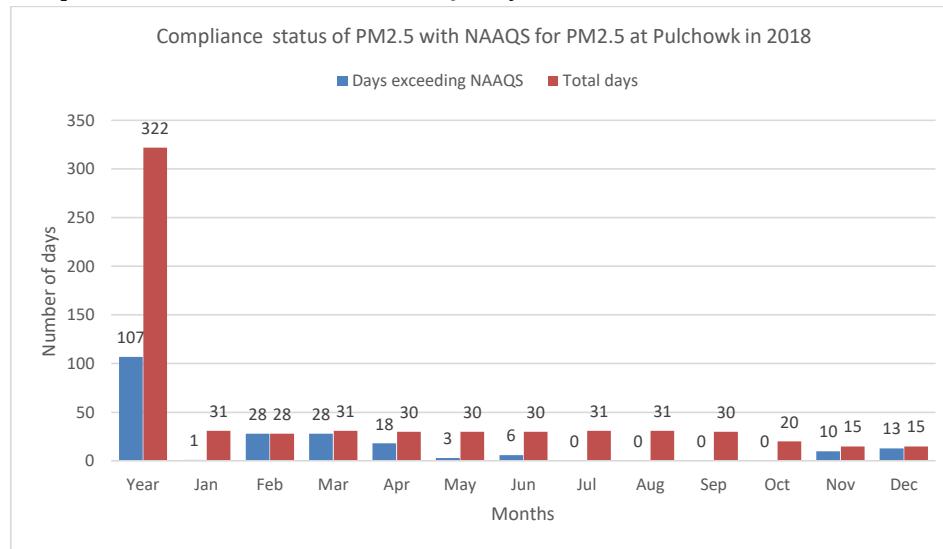


Figure 61. Compliance with National Ambient air quality standard for PM2.5 at Pulchowk station in 2018

Out of total 322 days of Measurement 107 days exceeded the National ambient air quality standard for PM2.5 at Pulchowk station in 2018.

2.3.4 Temporal Variation of PM10

Annual Average

The annual average PM10 at Pulchowk station on 2018 was $69.66 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM10 at Pulchowk station in 2018.

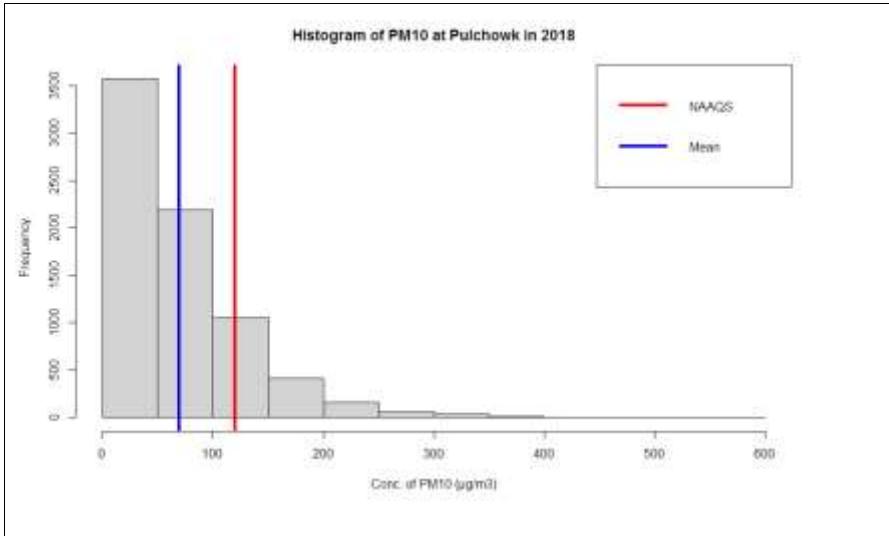


Figure 62. Histogram of PM10 at Pulchowk in 2018

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

Daily average of PM10

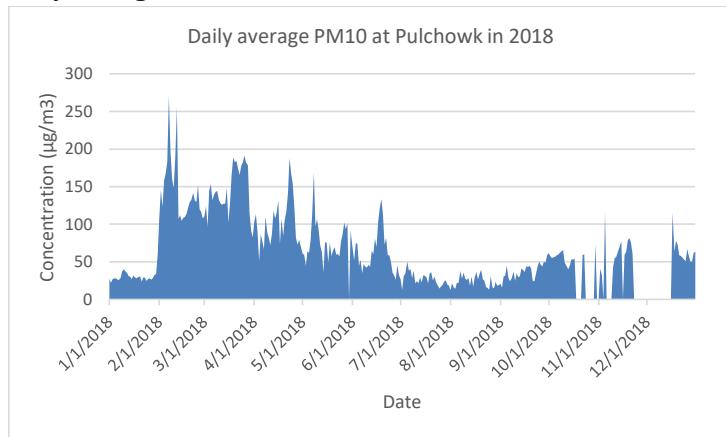


Figure 63. Daily average PM10 at Pulchowk station in 2018

Monthly Average of PM10

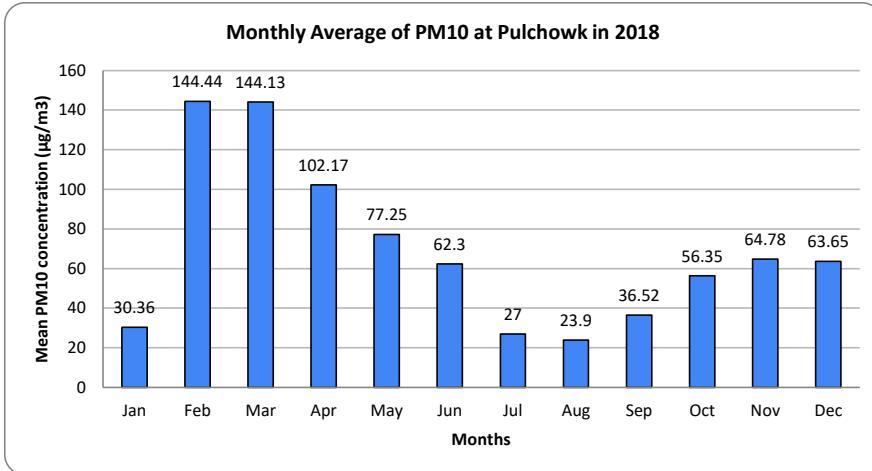


Figure 64 . Monthly average PM10 at Pulchowk station in 2018

Above figure shows that the highest monthly average value of PM10 was found in February with average value of $144.44 \mu\text{g}/\text{m}^3$ and lowest average was found in August with average value of $23.9 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM10

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

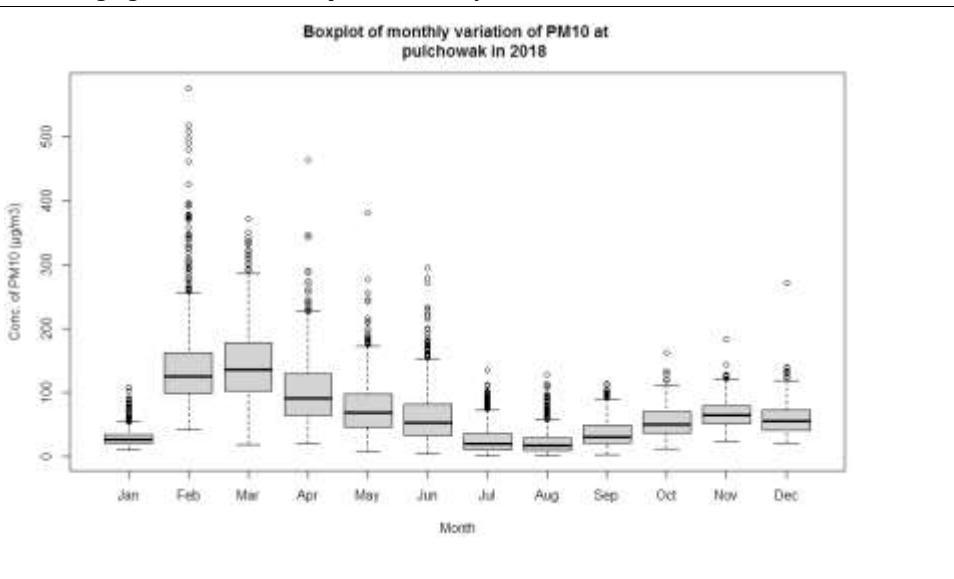


Figure 65.Boxplot of monthly variation of PM10 at Pulchowk in 2018

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

Seasonal Average of PM10

Following figure shows seasonal average of PM10 at Pulchowk in 2018.

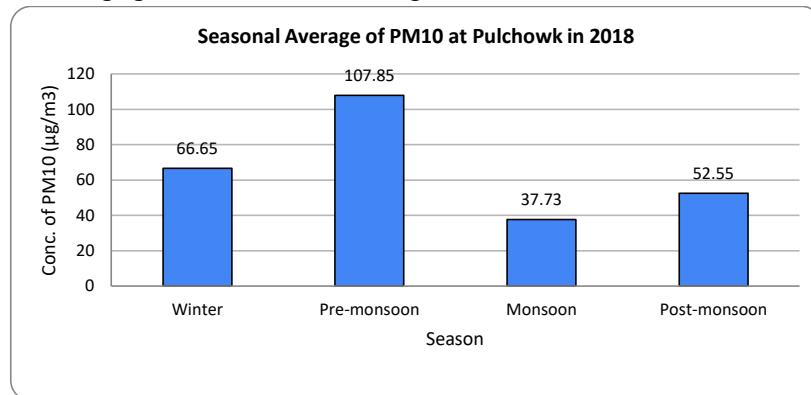


Figure 66. Seasonal average of PM10 at Pulchowk station in 2018

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

Diurnal Variation of PM10

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

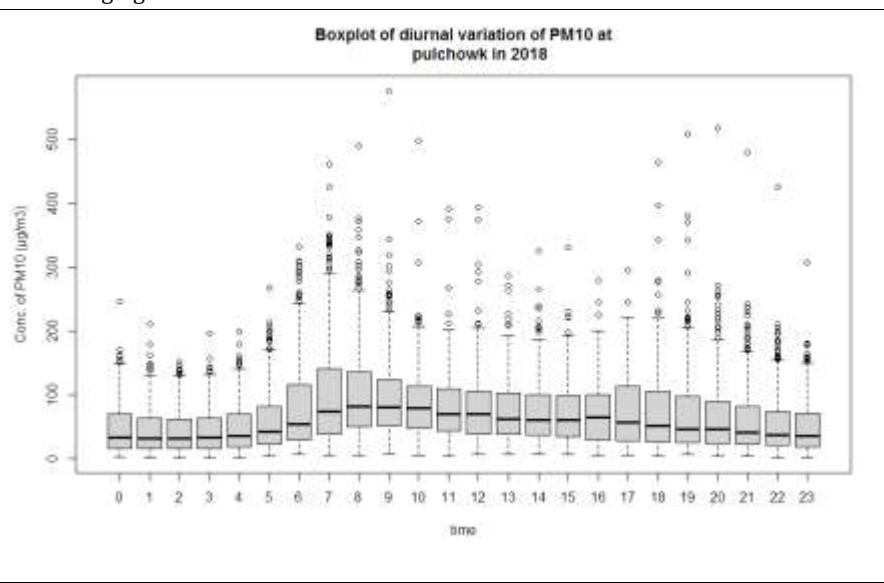


Figure 67. Diurnal variation of Pm10 at Pulchowk in 2018

The boxplot of diurnal variation shows PM10 concentration was highest at 8 and 9 O'clock and variation of PM10 was high at 7 o'clock.

Compliance with National Ambient Air quality standard

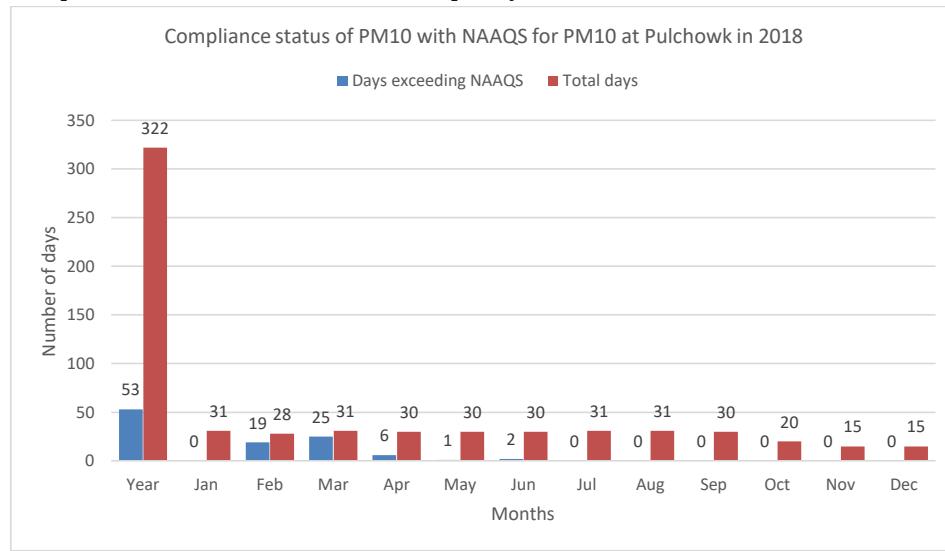


Figure 68. Compliance with NAAQS for PM10 at Pulchowk in 2018

Out of 322 days of measurement in 2018, 53 days exceeded the National Ambient air quality standard for PM10 at Pulchowk station in 2018.

2.3.5 Temporal Variation of TSP

Annual Average of TSP

Annual TSP average of Pulchowk Station for the year 2018 was observed to be $222.06\mu\text{g}/\text{m}^3$. Following figure shows the histogram of TSP at Pulchowk in 2018.

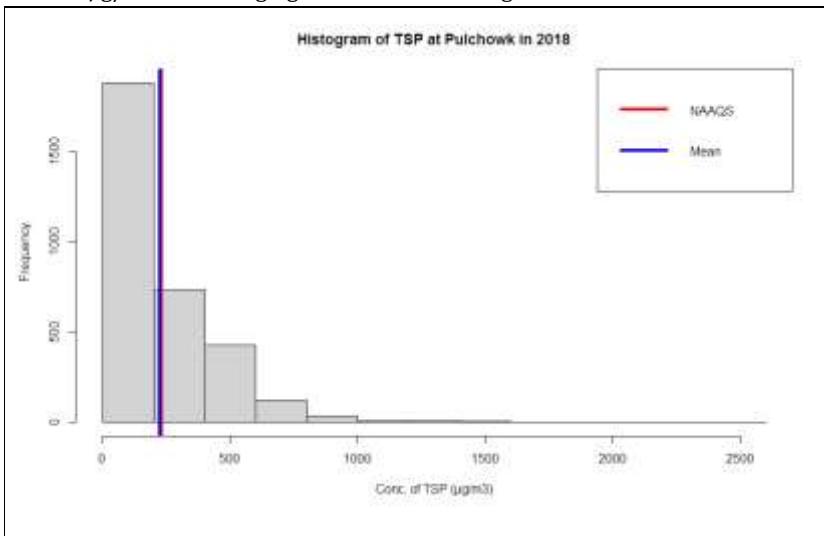


Figure 69. Histogram of TSP at Pulchowk station in 2018

Above figure shows highest no of hourly average of Total suspended Particulate data were between $0\text{-}200\mu\text{g}/\text{m}^3$.

Daily average of TSP

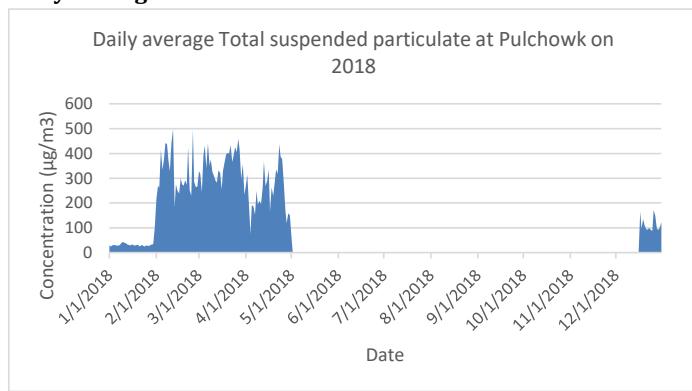


Figure 70. Daily average total suspended particulate at Pulchowk in 2018

Monthly Average of TSP

Following figure shows the monthly average of Total Suspended Particulate at Pulchowk in 2018.

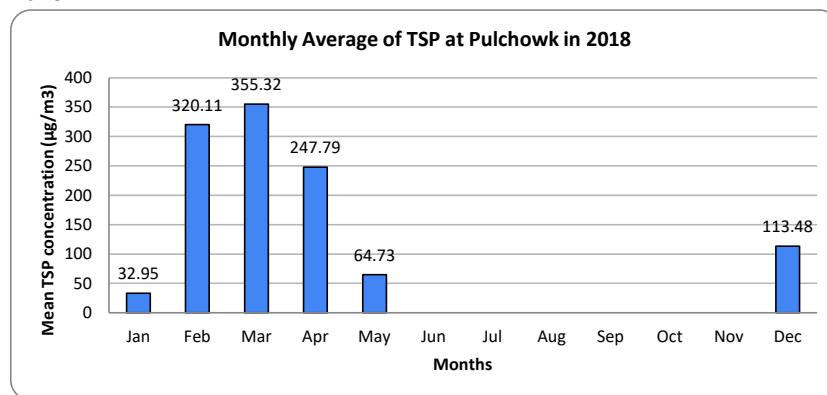


Figure 71. Monthly average of TSP at Pulchowk station in 2018

In 2018 only six month have TSP Measurement. Out of those six month with TSP Measurement the monthly average value of TSP was highest in March with value of $355.32 \mu\text{g}/\text{m}^3$ and lowest in May with value of $64.73 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at Pulchowk in 2018

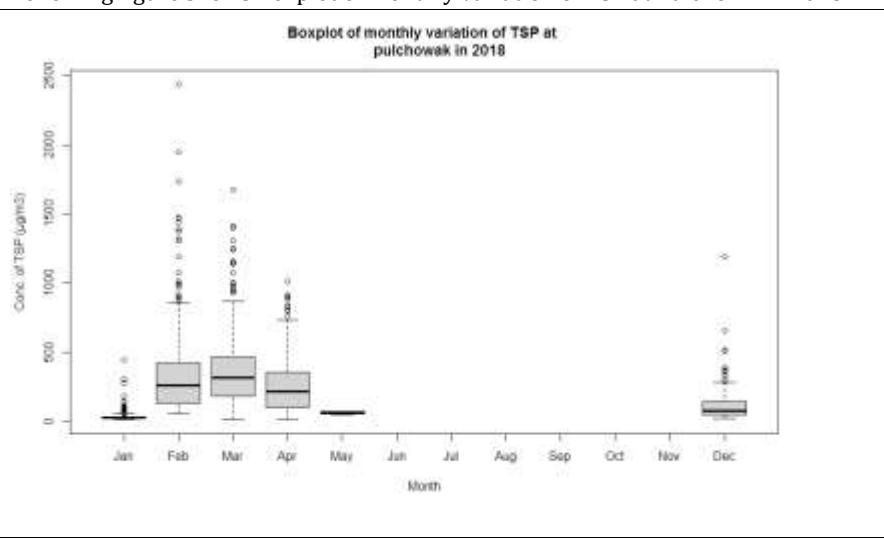


Figure 72. Monthly variation of daily average Total suspended particulate at Pulchowk in 2018

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

Seasonal Average of TSP

Following figure shows the seasonal variation of TSP at Pulchowk station in 2018

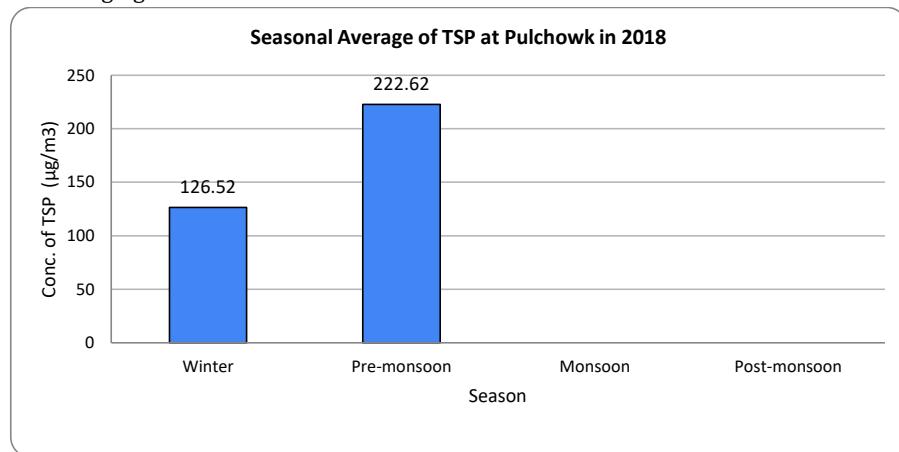


Figure 73. Seasonal average of TSP at Pulchowk station in 2018

Only winter season and Premonsoon season have measurement in 2018. In those two months Premonsoon has higher average value than Winter season.

Diurnal Variation of TSP

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

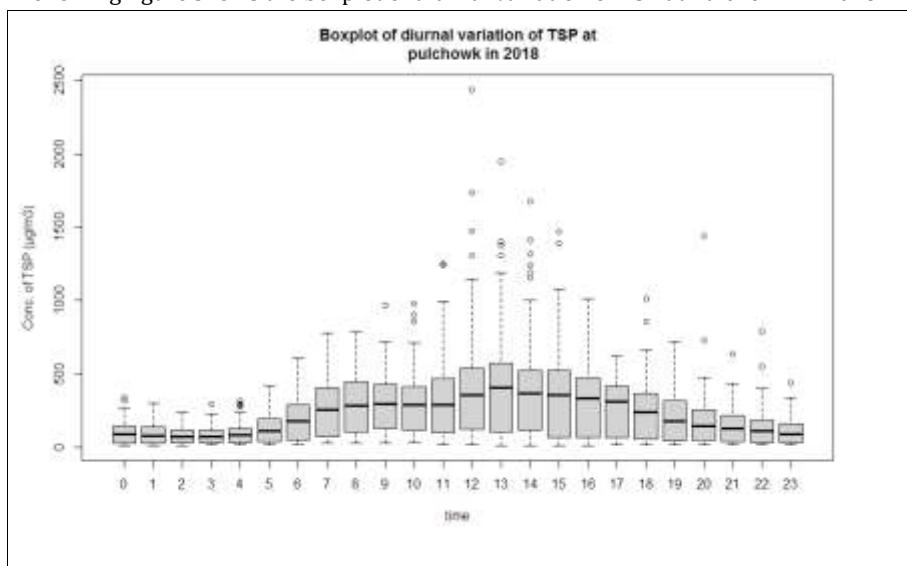


Figure 74. Diurnal variation of TSP at Pulchowk station in 2018

Above figure shows that Total suspend Particulate concentration was highest at 13 O'clock and variation was also high at that time.

Compliance with National Ambient air quality Standard

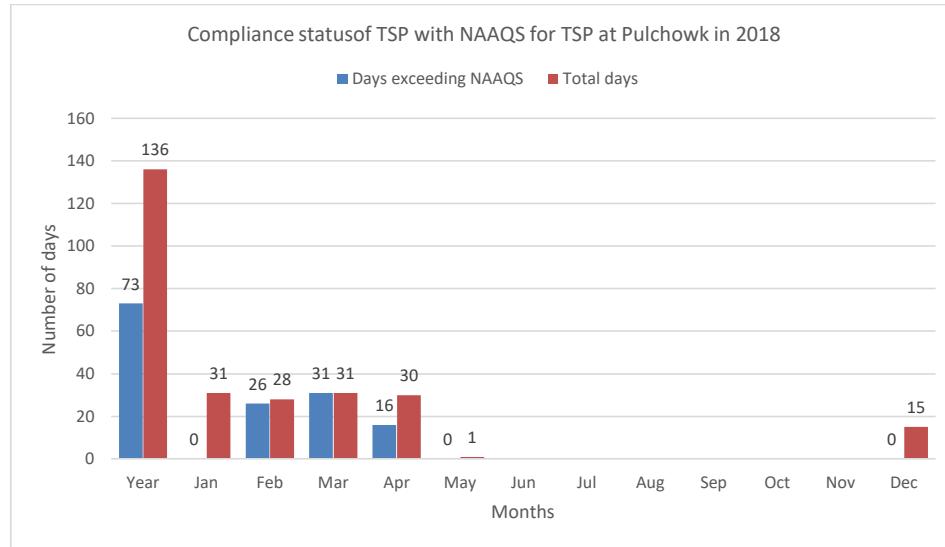


Figure 75. Compliance with NAAQS for TSP at Pulchowk in 2018

Out of 136 days of measurement 73 days exceed the National ambient air quality standards for the Total suspended particulate.

2.4 Air quality status, 2019

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

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

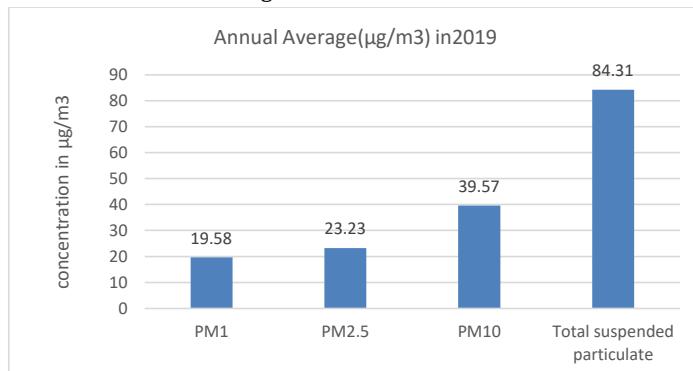


Figure 76. Annual average PM₁, PM_{2.5}, PM₁₀ and TSP at Pulchowk station for 2019

2.4.2 Temporal Variation of PM1

Annual Average of PM1

Annual average PM1 at Pulchowk station at 2019 was $19.58 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM1 at Pulchowk in 2019.

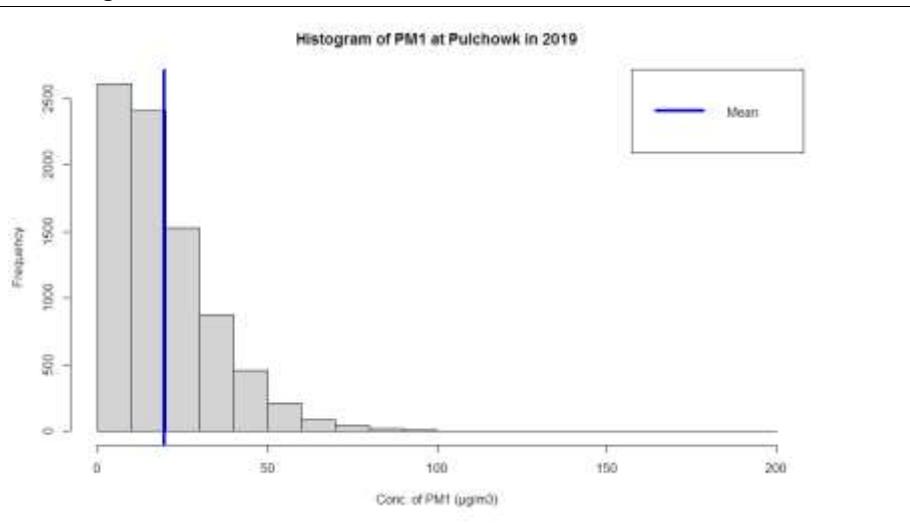


Figure 77. Histogram of PM1 at Pulchowk in 2019

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

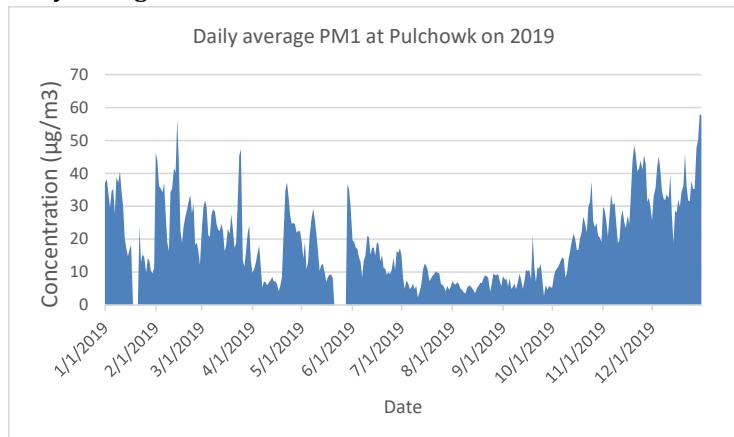


Figure 78. Daily average PM1 at Pulchowk station in 2019

Monthly Average of PM1

Following Figure shows the monthly average of PM₁.

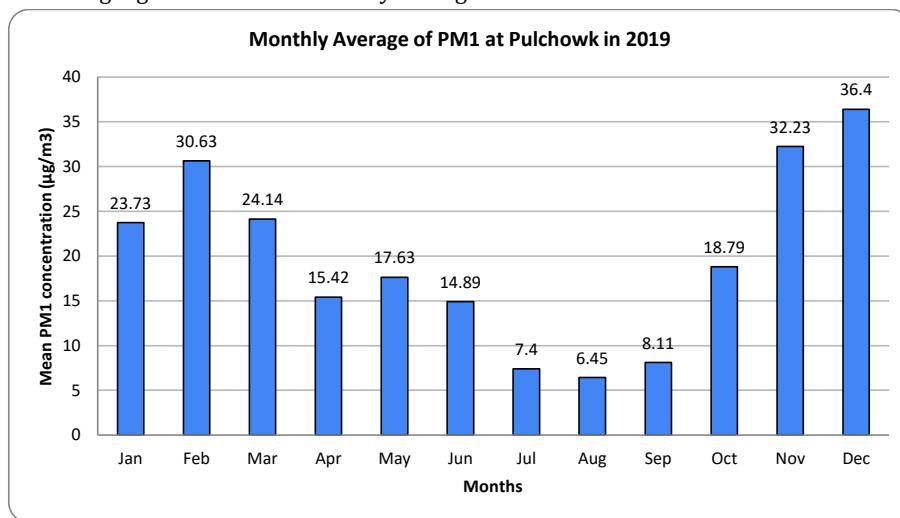


Figure 79.. Monthly average PM1 at Pulchowk station in 2019

Above figure shows that the average value of PM₁ was highest in December with 36.4 $\mu\text{g}/\text{m}^3$ and lowest value were observed in August with 6.45 $\mu\text{g}/\text{m}^3$.

Monthly Variation of PM1

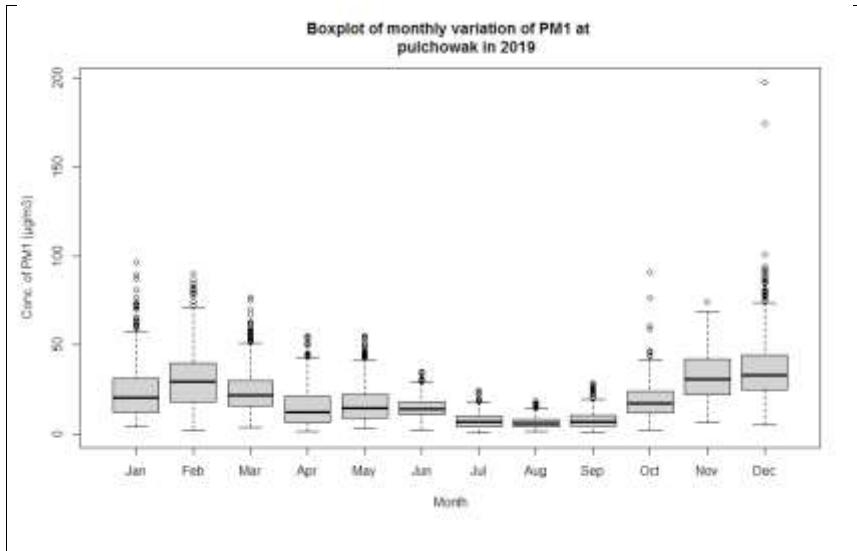


Figure 80. Monthly variation of daily average PM1 at Pulchowk station in 2019

Boxplot of monthly variation of PM1 shows that highest variation was seen on February, November and December.

Seasonal Average of PM1

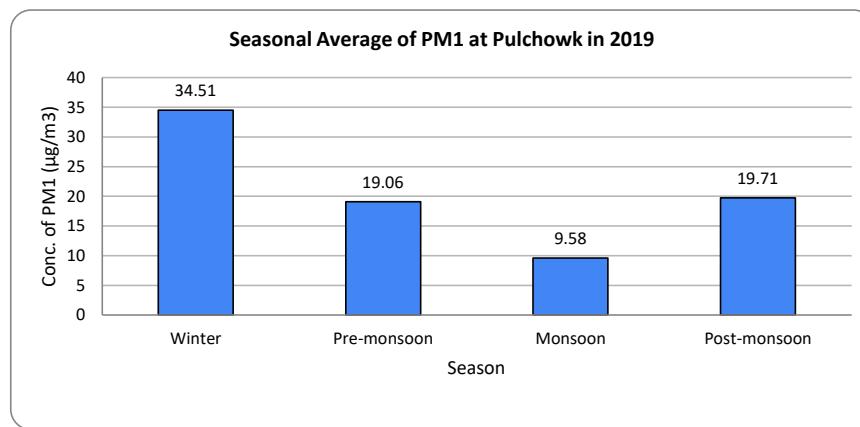


Figure 81. Ambient concentration of average PM1 with four seasons

Highest seasonal average was observed in winter with seasonal average of $34.51 \mu\text{g}/\text{m}^3$.

Diurnal Variation of PM1

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

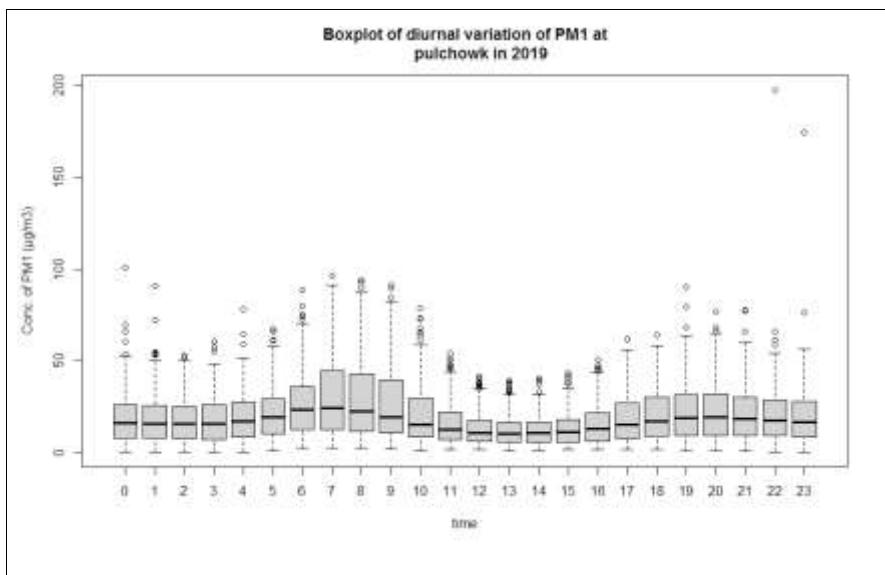


Figure 82. Boxplot of diurnal variation of PM1 at Pulchowk station in 2019

Above figure shows that Pm1 concentration was more at 7 and 8 o'clock and it was more variable at that time.

2.4.3 Temporal Variation of PM2.5

Annual Average of PM2.5

The annual average of PM2.5 at Pulchowk station in 2019 was $23.23 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM2.5 at Pulchowk station in 2019.

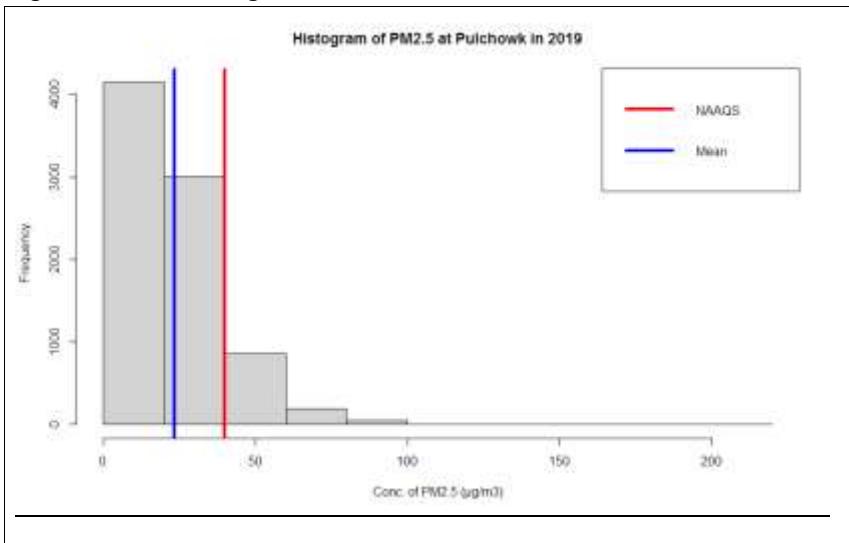


Figure 83. Histogram of PM2.5 at Pulchowk in 2019

The Histogram 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 of PM2.5

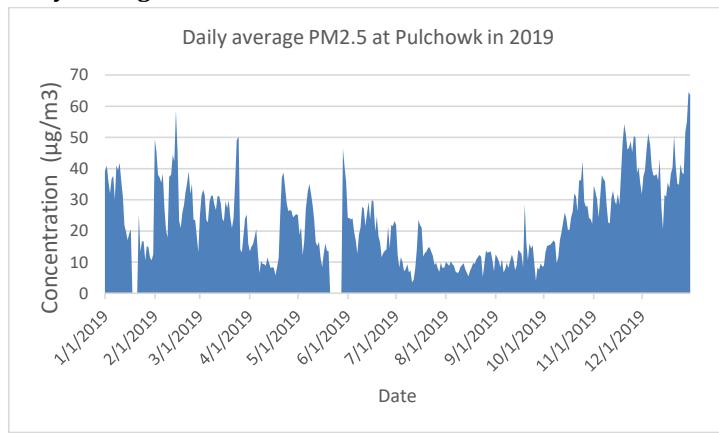


Figure 84. Daily average PM2.5 at Pulchowk station in 2019

Monthly Average of PM2.5

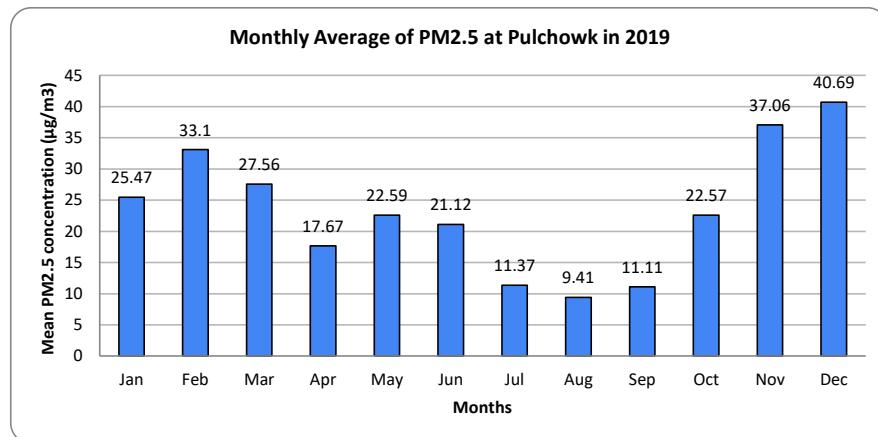


Figure 85. Monthly average of PM2.5 at Pulchowk station in 2019

Monthly average value of PM_{2.5} was highest in December with monthly average of 40.69 $\mu\text{g}/\text{m}^3$ while lowest value were observed in August with monthly average of 9.41 $\mu\text{g}/\text{m}^3$

Monthly Variation of PM2.5

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

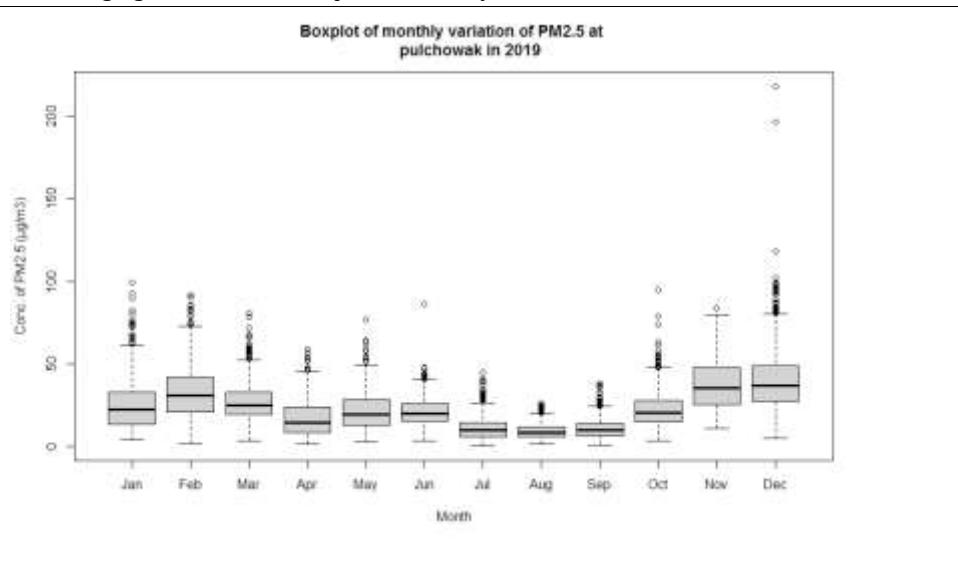


Figure 86. Monthly variation of daily average PM2.5 at Pulchowk in 2019

Above figure shows that hourly average data of PM2.5 was more variable in November and December.

Seasonal Average of PM2.5

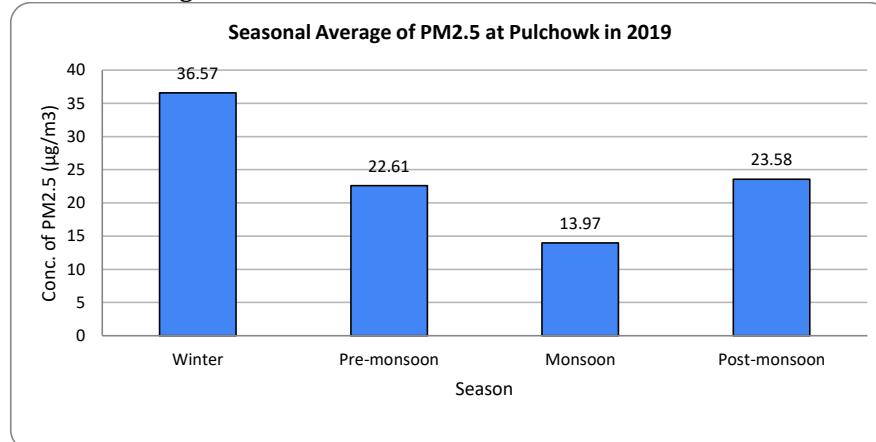


Figure 87. Seasonal variation of PM2.5 at Pulchowk station in 2019

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 Pulchowk

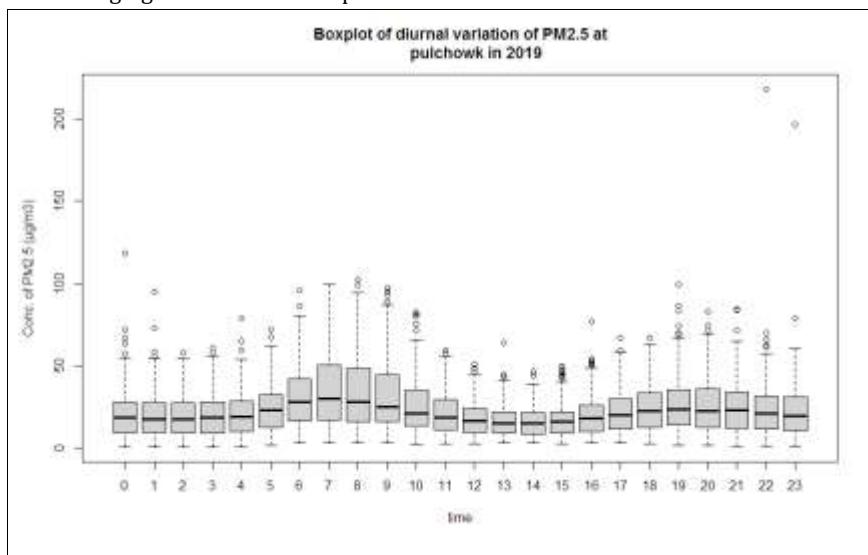


Figure 88. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2019

PM2.5 concentrations was highest was at 7 and 8 o'clock and also more variable at that time.

Compliance with National Ambient air Quality standard

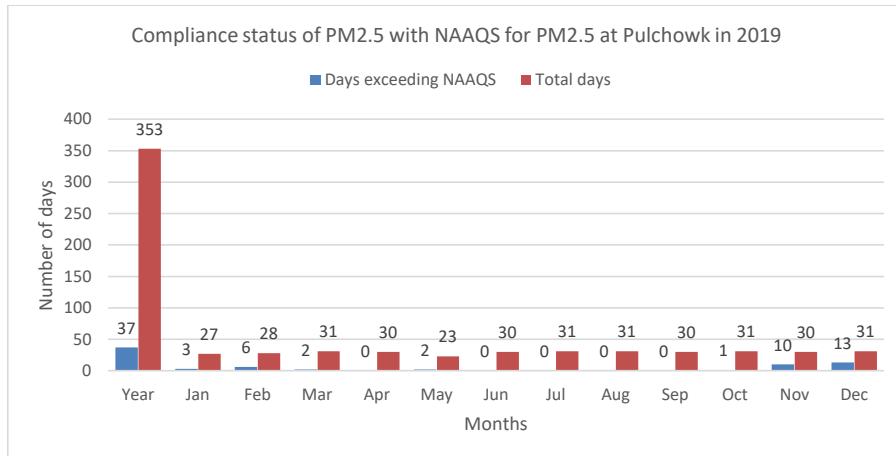


Figure 89. Compliance with National Ambient air quality standard for PM2.5 at Pulchowk station in 2019

Out of total 353 days of Measurement 37 days exceeded the National ambient air quality standard for PM2.5 at Pulchowk station in 2019.

2.4.4 Temporal Variation of PM10

Annual Average of PM10

The annual average PM10 at Pulchowk station on 2019 was $39.57 \mu\text{g}/\text{m}^3$. Following figure shows the Histogram of PM10 at Pulchowk station in 2019.

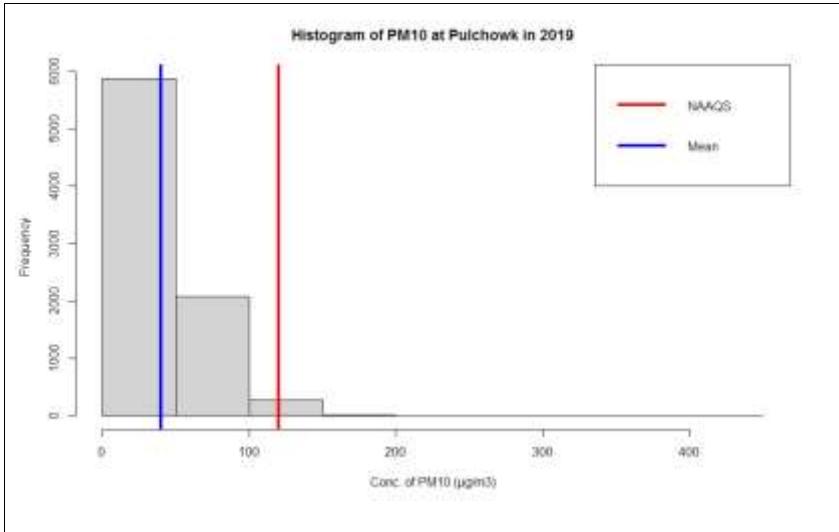


Figure 90.. Histogram of PM10 at Pulchowk in 2019

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

Daily average of PM10

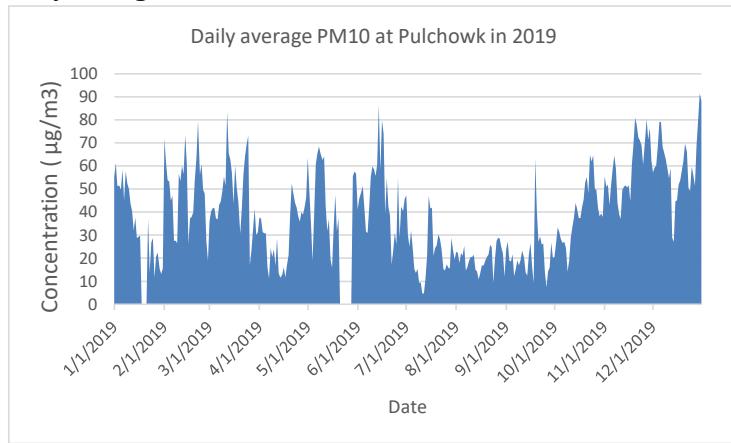


Figure 91. Daily average PM10 at Pulchowk station in 2019

Monthly Average of PM10

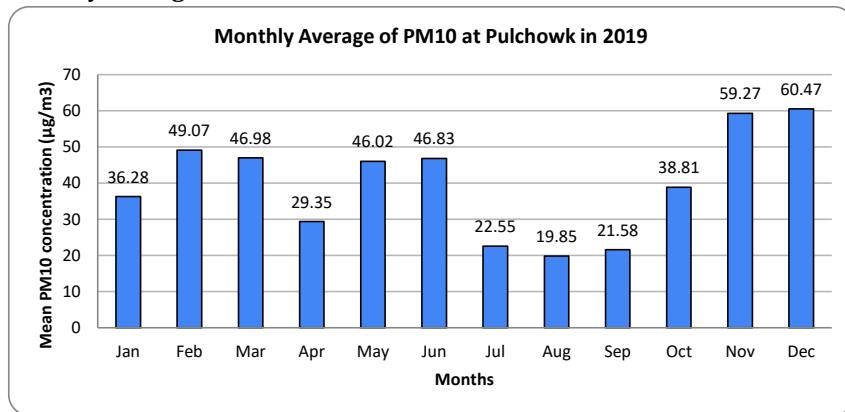


Figure 92. Monthly average PM10 at Pulchowk station in 2019

The highest monthly average value of PM10 was found in December with average value of $60.47 \mu\text{g}/\text{m}^3$ and lowest average was found in August with average value of $19.85 \mu\text{g}/\text{m}^3$.

Monthly Variation of PM10

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

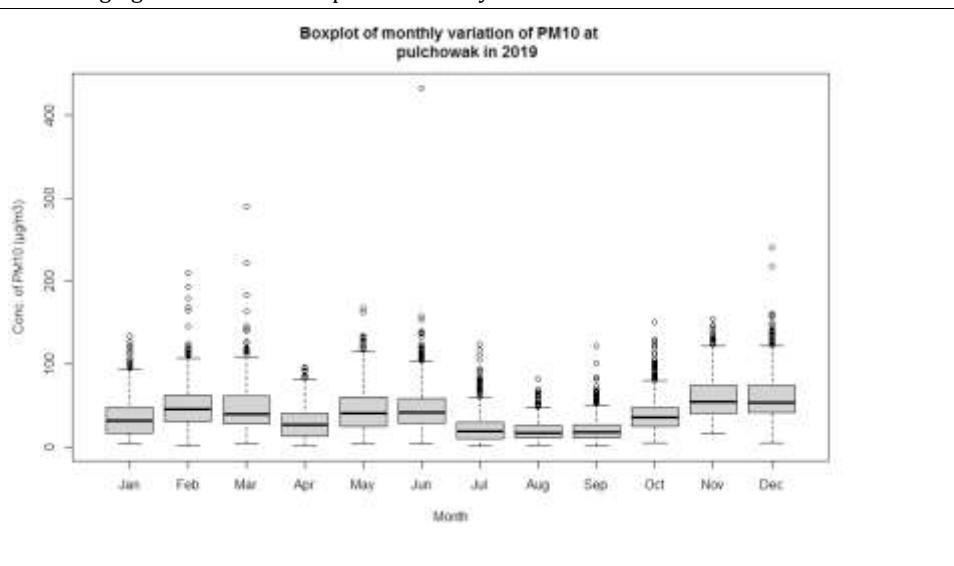


Figure 93. Boxplot of monthly variation of PM10 at Pulchowk in 2019

Above figure shows more variation of hourly average PM10 on May, November and December.

Seasonal Average of PM10

Following figure shows seasonal average of PM10 at Pulchowk in 2019.

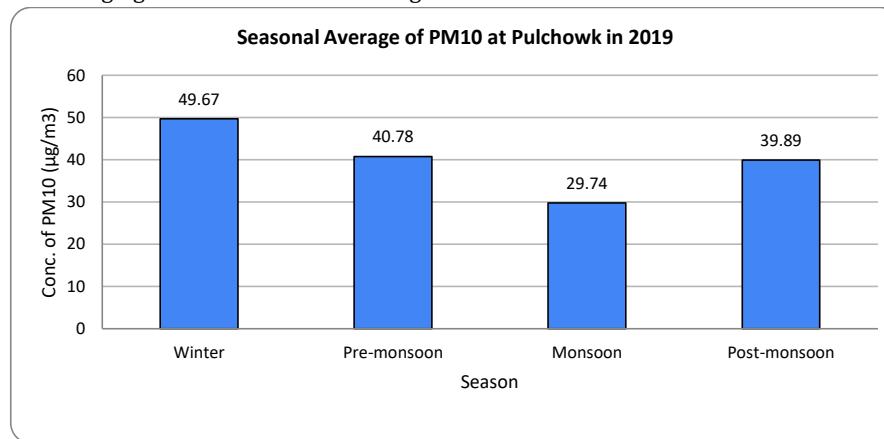


Figure 94. Seasonal average of PM10 at Pulchowk station in 2019

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 Pulchowk in 2019.

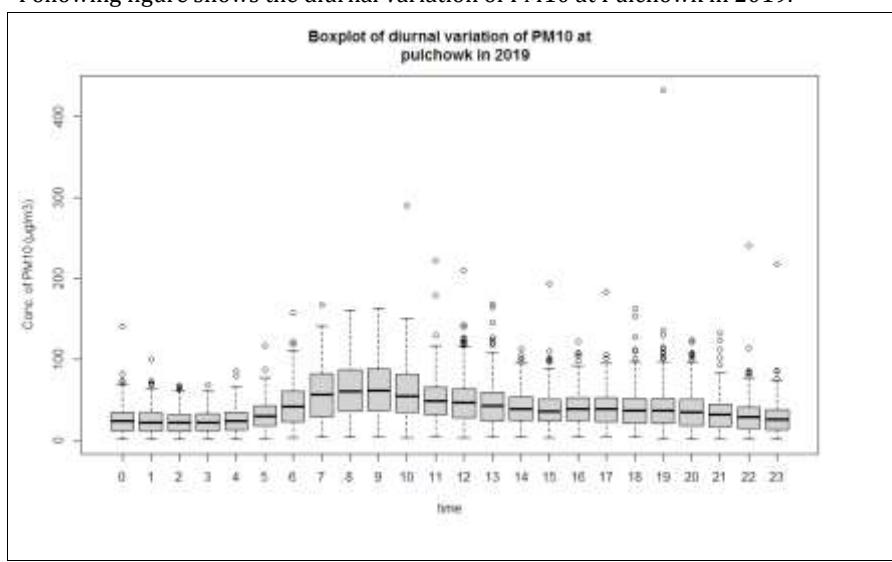


Figure 95. Diurnal variation of Pm10 at Pulchowk in 2019

The boxplot of diurnal variation shows PM10 concentration was highest at 8 and 9 O'clock and variation was also high at that time.

Compliance with National Ambient Air quality standard

Out of 353 days of measurement in 2019 all days were within the National ambient air quality standard for PM10.

Commented [D3]: Graph missing dai

2.4.5 Temporal Variation of TSP

Annual Average of TSP

Annual TSP average of Pulchowk Station for the year 2019 was observed to be $84.31\mu\text{g}/\text{m}^3$.

Following figure shows the histogram of TSP at Pulchowk in 2019.

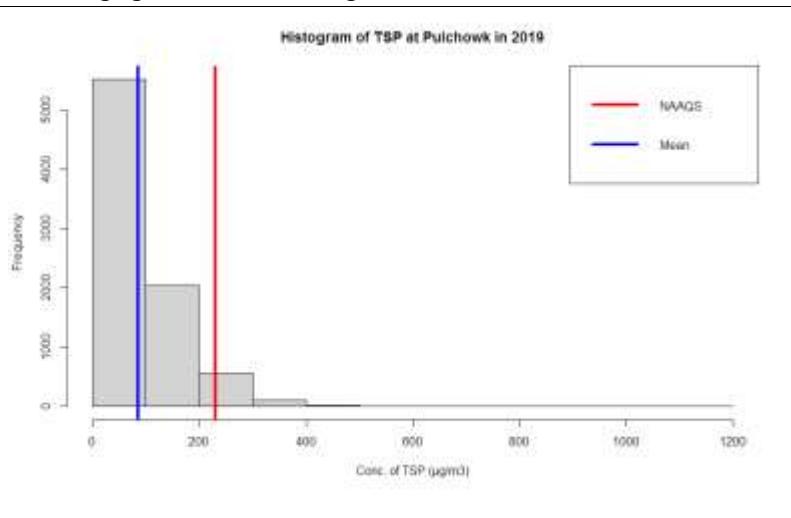


Figure 96. Histogram of TSP at Pulchowk station in 2019

Above figure shows highest no of hourly average of Total Suspended Particulate data were between $0-100\mu\text{g}/\text{m}^3$ followed by $100-200\mu\text{g}/\text{m}^3$.

Daily average Total suspended Particulate

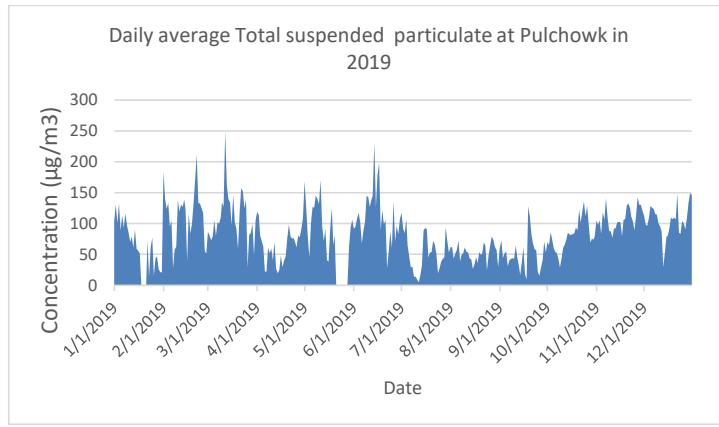


Figure 97. Daily average total suspended particulate at Pulchowk in 2019

Monthly Average of TSP

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

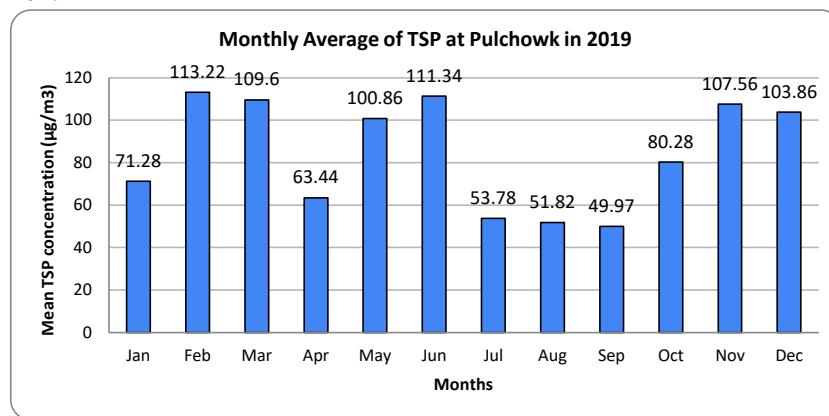


Figure 98. Monthly average of TSP at Pulchowk station in 2019

The monthly average value of TSP was highest in March with monthly average value of $113.22 \mu\text{g}/\text{m}^3$ and lowest in September with monthly average value of $49.97 \mu\text{g}/\text{m}^3$.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at Pulchowk in 2019

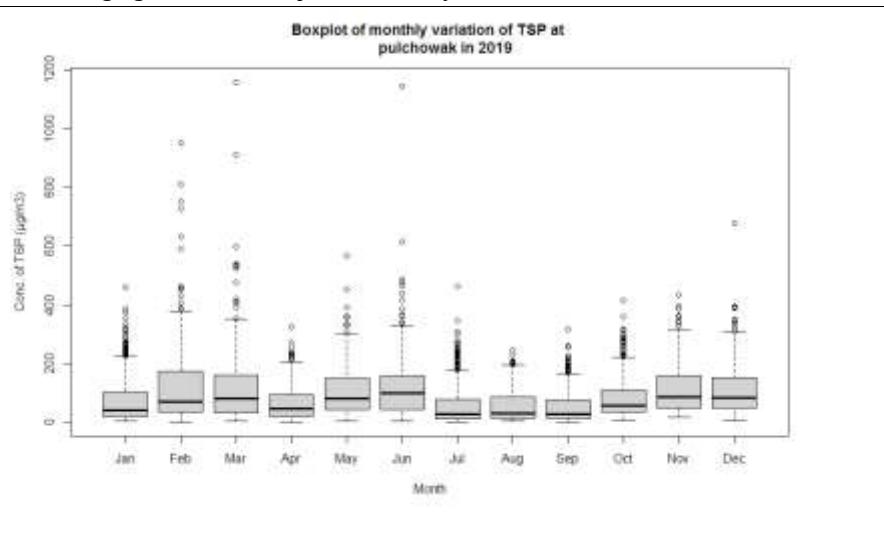


Figure 99. Monthly variation of daily average Total suspended particulate at Pulchowk in 2019

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

Seasonal Average of TSP

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

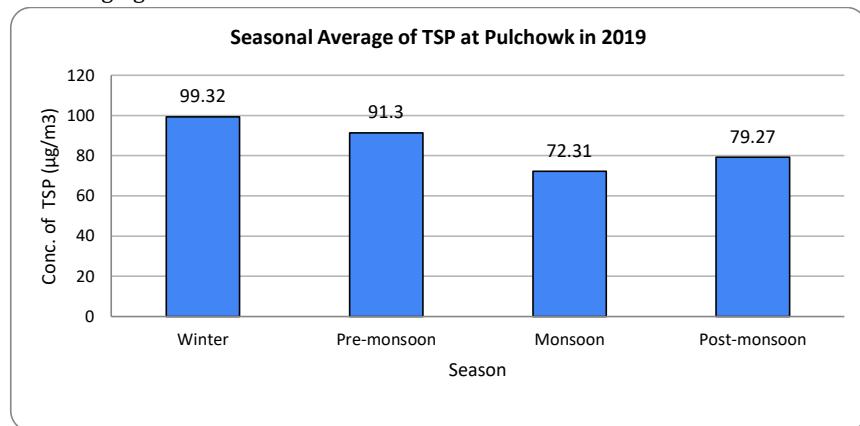


Figure 100. Seasonal average of TSP at Pulchowk station in 2019

Highest seasonal average was observed in Winter season with seasonal average of $99.32 \mu\text{g}/\text{m}^3$ and lowest seasonal average was observed in Monsoon season with seasonal average of $72.1 \mu\text{g}/\text{m}^3$.

Diurnal Variation of TSP

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

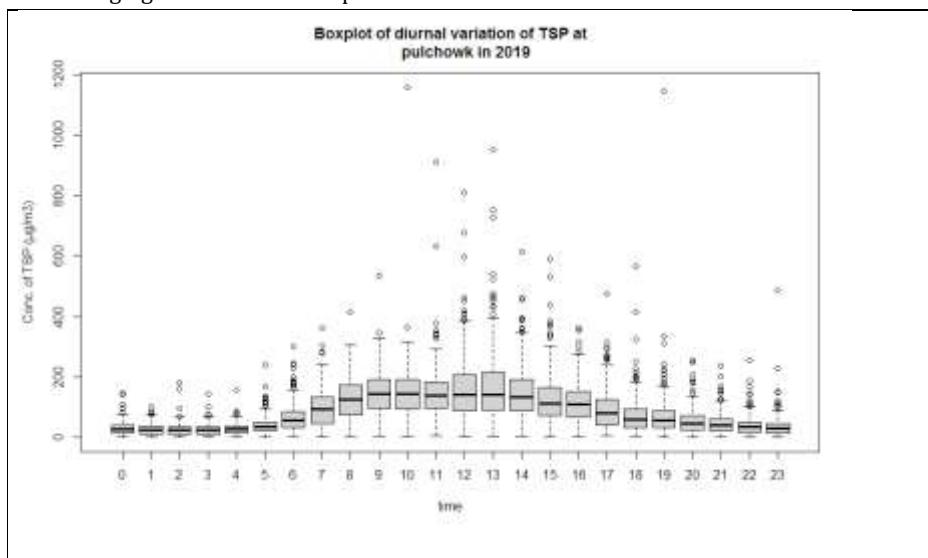


Figure 101. Diurnal variation of TSP at Pulchowk station in 2019

Above figure shows that Total suspend Particulate concentration was highest at 12 and 13 O'clock and variation was also high at that time.

Compliance with National Ambient air quality Standard

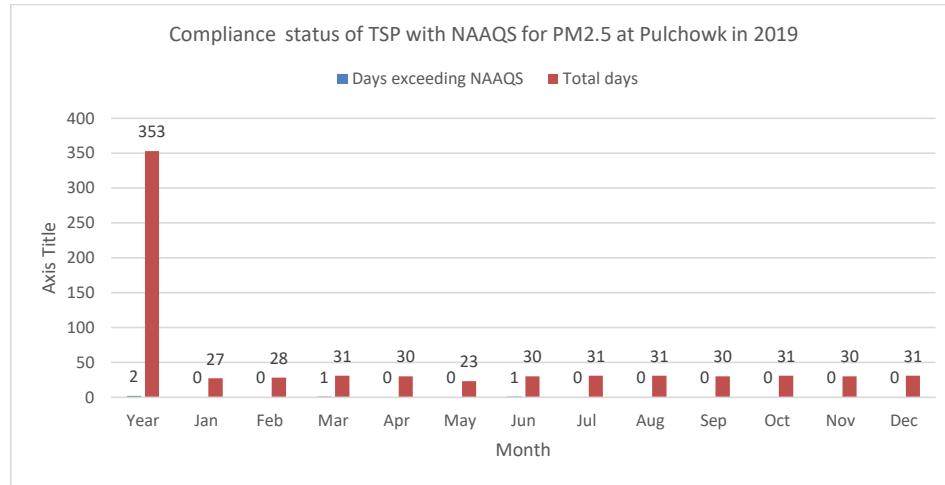


Figure 102. Compliance with NAAQS for TSP at Pulchowk in 2019

Out of 353 days of measurement only 2days exceed the National ambient air quality standards for the Total suspended particulate.

2.5 Air quality status, 2020

2.5.1 Temporal variation of PM1

Annual Average of PM1

Following figure shows the Histogram of PM1 at Pulchowk in 2020.

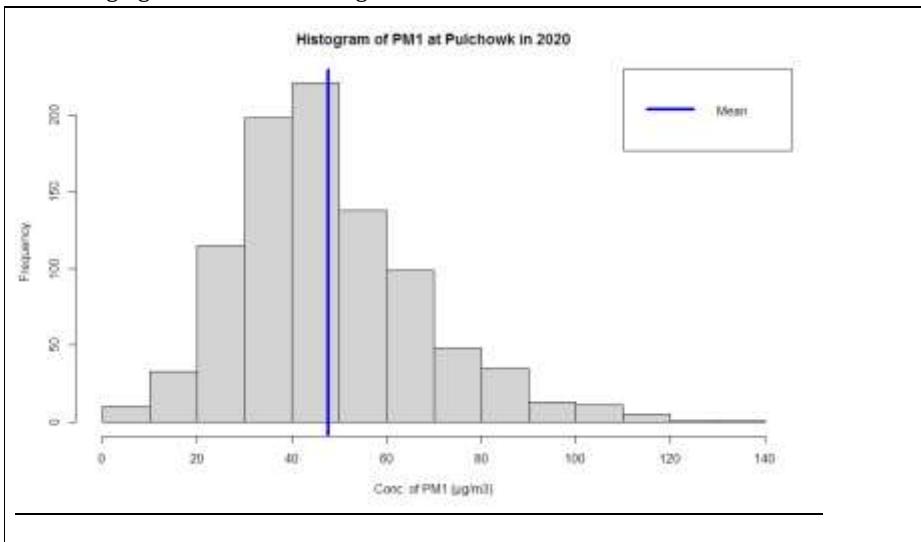


Figure 103. Histogram of PM1 at Pulchowk in 2020

The Histogram shows that highest no of hourly average data were between $50\text{-}10 \mu\text{g}/\text{m}^3$ followed by $10\text{-}20 \mu\text{g}/\text{m}^3$.

Daily average of PM1

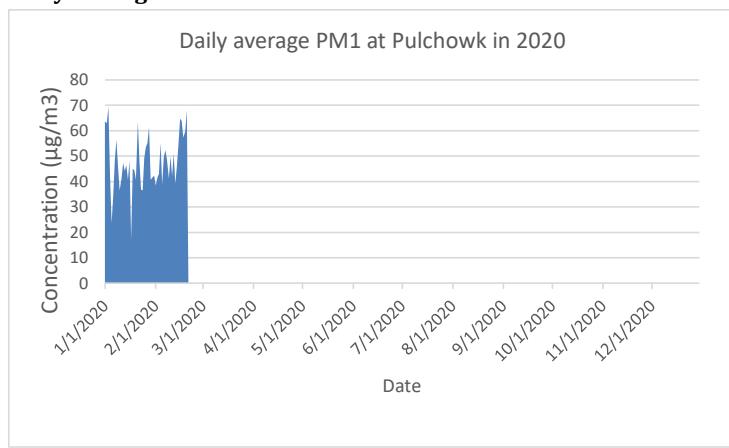


Figure 104. Daily average PM1 at Pulchowk station in 2020

Monthly Average of PM1

Following Figure shows the monthly average of PM₁.

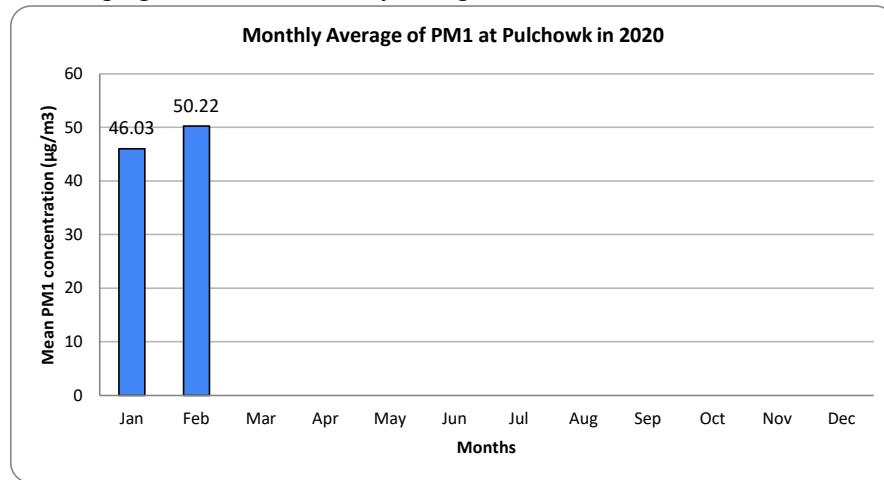


Figure 105. Monthly average PM1 at Pulchowk station in 2020

In 2020 only January and February have measurements.

Monthly Variation of PM1

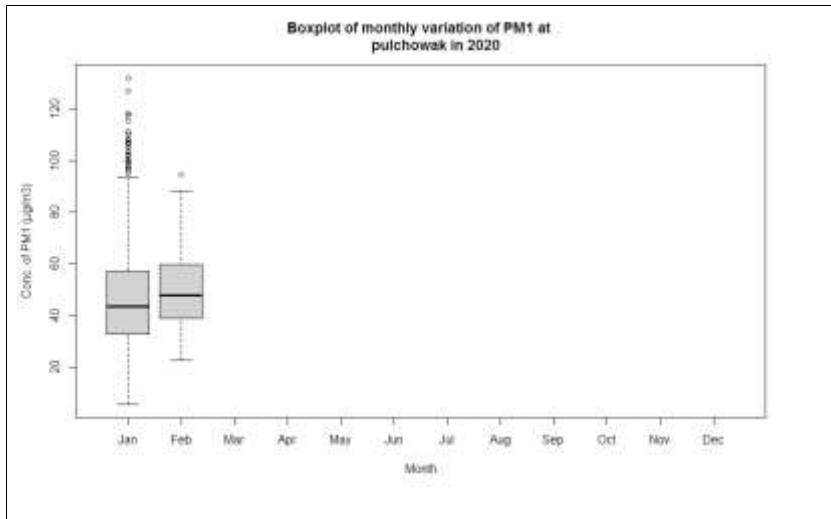


Figure 106. Monthly variation of daily average PM1 at Pulchowk station in 2020

Out of two months January and February with measurements January has more variations of hourly average of PM1.

Diurnal Variation of PM1

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

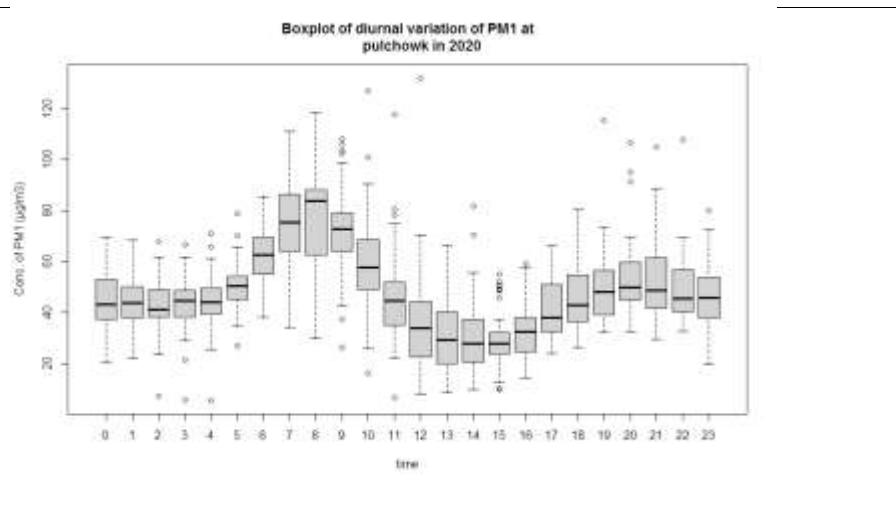


Figure 107. Boxplot of diurnal variation of PM1 at Pulchowk station in 2020

Pm1 concentration was more at 8 o'clock and it was more variable at that time.

2.5.2 Temporal variation of PM2.5

Annual Average of PM2.5

Following figure shows the Histogram of PM2.5 at Pulchowk station in 2020.

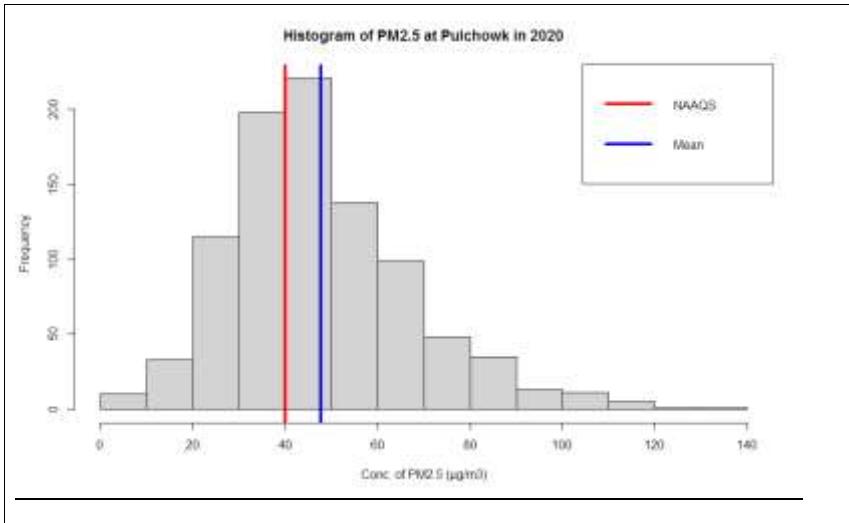


Figure 108. Histogram of PM2.5 at Pulchowk in 2020

The Histogram shows that highest no of hourly average data were between 40-50 $\mu\text{g}/\text{m}^3$ followed by 30-40 $\mu\text{g}/\text{m}^3$.

Daily Average of PM2.5

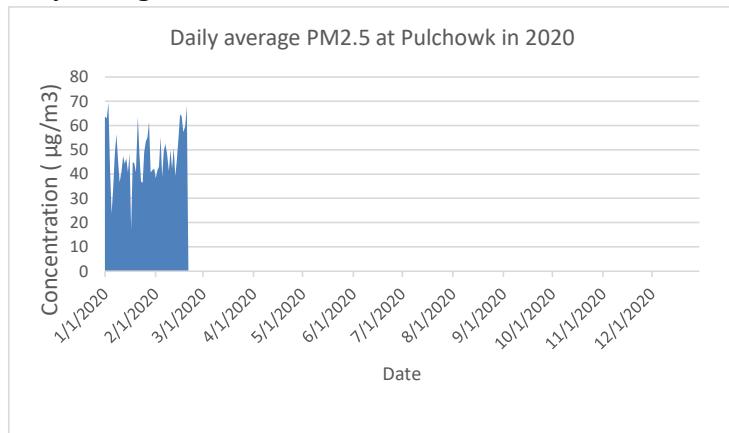


Figure 109. Daily average PM2.5 at Pulchowk station in 2020

Monthly Average of PM2.5

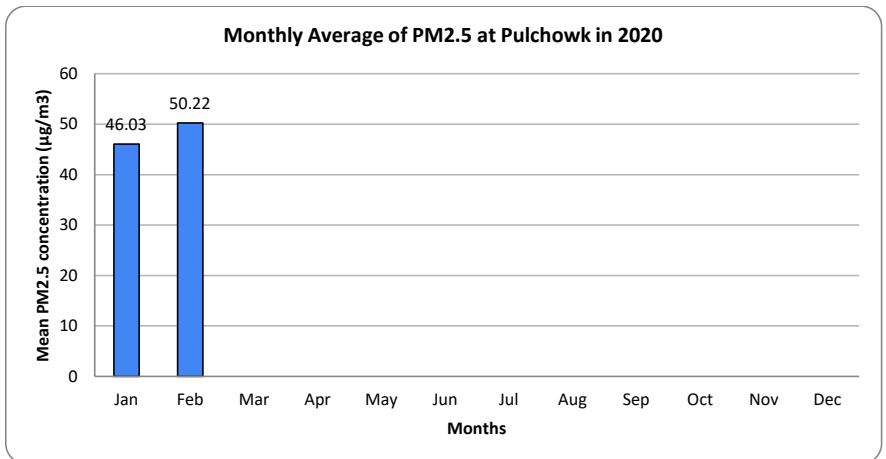


Figure 110. Monthly average of PM2.5 at Pulchowk station in 2020

In 2020 only January and February have measurements.

Monthly Variation of PM2.5

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

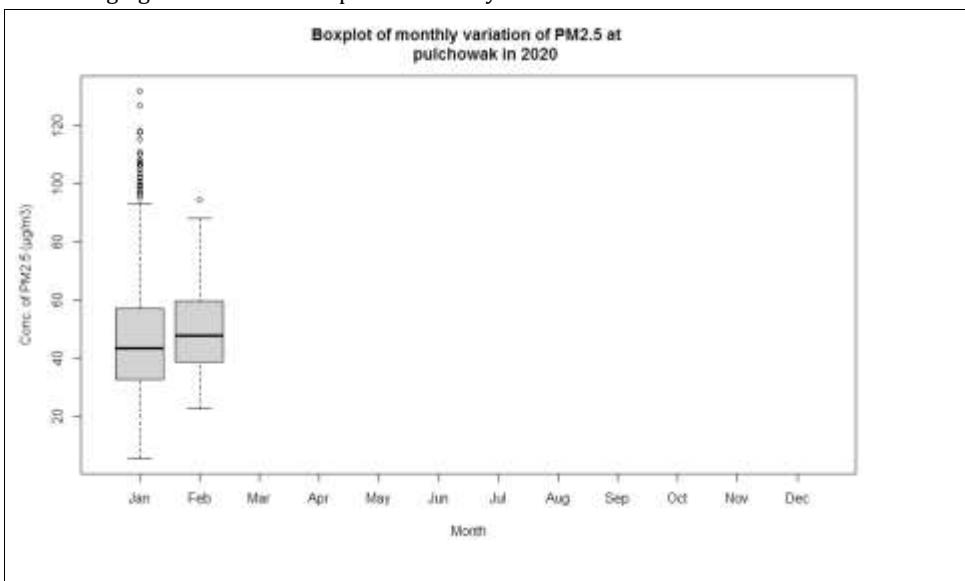


Figure 111. Monthly variation of daily average PM2.5 at Pulchowk in 2020

Out of two months January and February January has more variation on hourly average of PM2.5.

Diurnal Variation of PM2.5

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

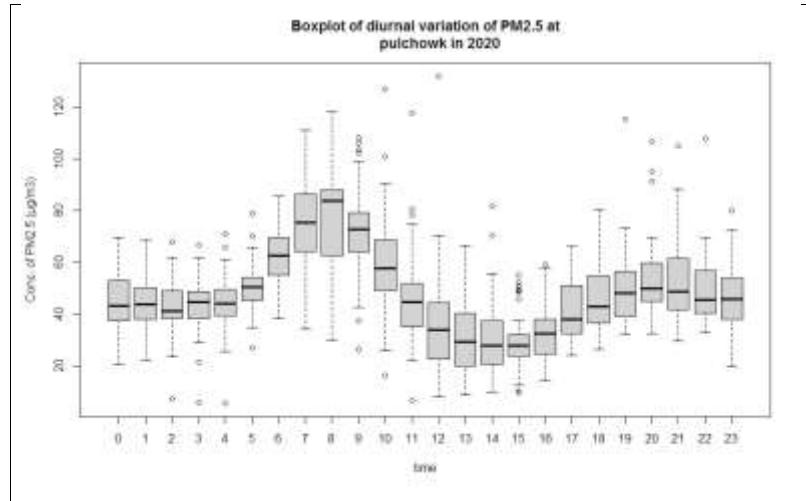


Figure 112. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2020

PM2.5 concentrations was highest was at 8 o'clock and also more variable at that time.

Compliance with National Ambient air Quality standard

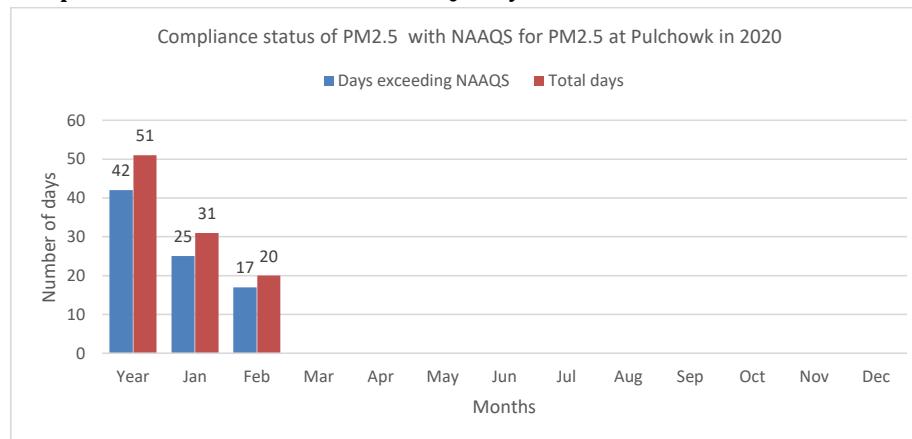


Figure 113. Compliance with National Ambient air quality standard for PM2.5 at Pulchowk station in 2020

Out of total 51 days of Measurement 42 days exceeded the National ambient air quality standard for PM2.5 at Pulchowk station in 2020.

2.5.3 Temporal variation of PM10

Annual Average of PM10

Following figure shows the Histogram of PM10 at Pulchowk station in 2020.

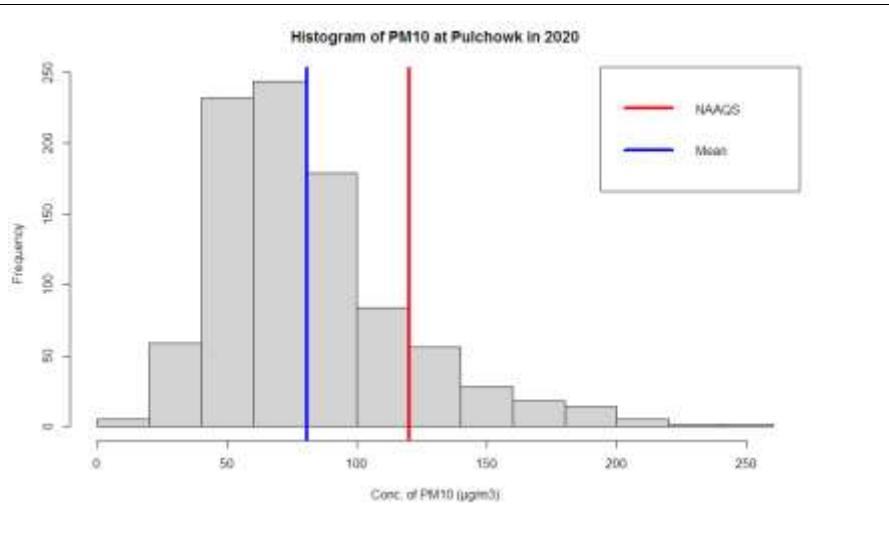


Figure 114. Histogram of PM10 at Pulchowk in 2020

Above figure shows that highest no of hourly average data were between 60-80 $\mu\text{g}/\text{m}^3$ followed by 40-60 $\mu\text{g}/\text{m}^3$.

Daily average of PM10

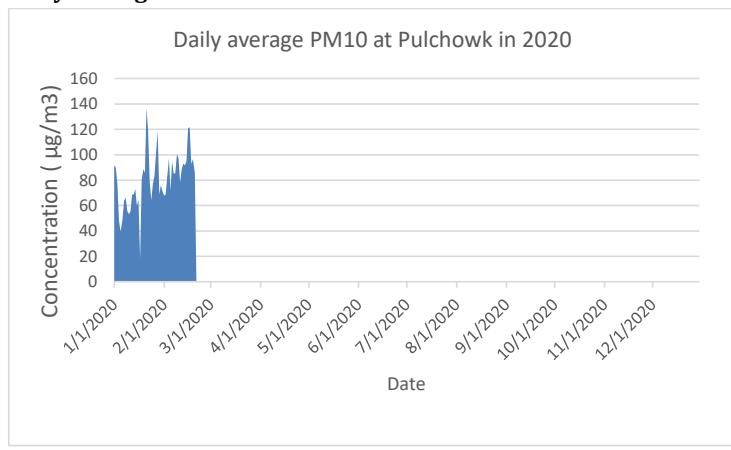


Figure 115. Daily average PM10 at Pulchowk station in 2020

Monthly Average of PM10

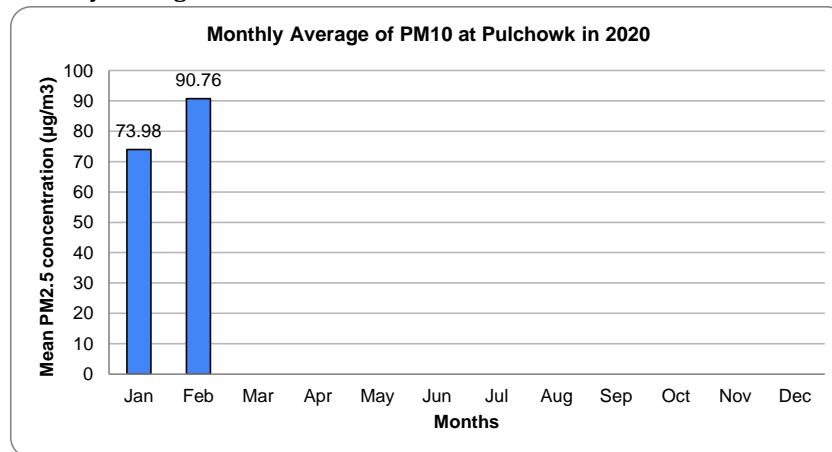


Figure 116. Monthly average PM10 at Pulchowk station in 2020

In 2020 only January and February has measurement.

Monthly Variation of PM10

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

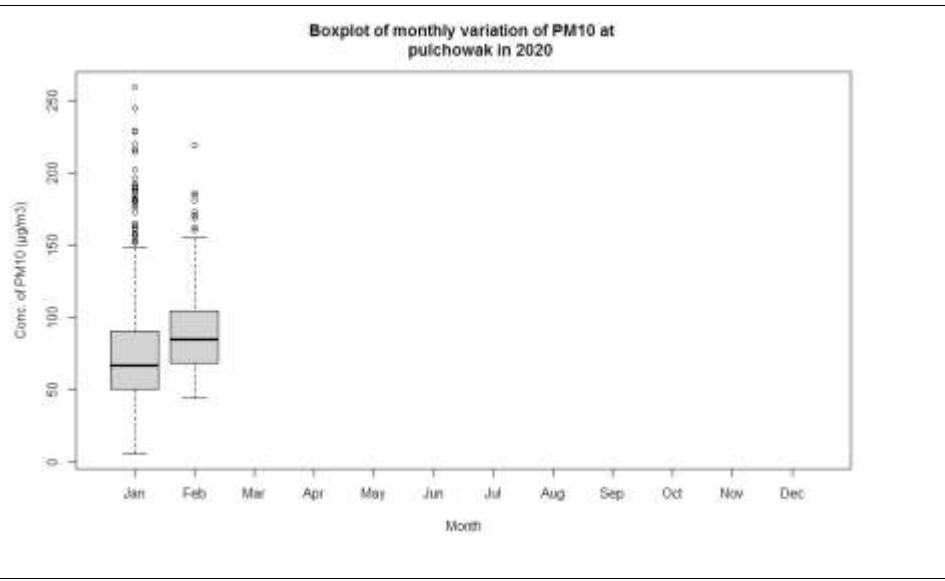


Figure 117. Boxplot of monthly variation of PM10 at Pulchowk in 2020

Out of two months of measurement January has higher variation of hourly average of PM10.

Diurnal Variation of PM10

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

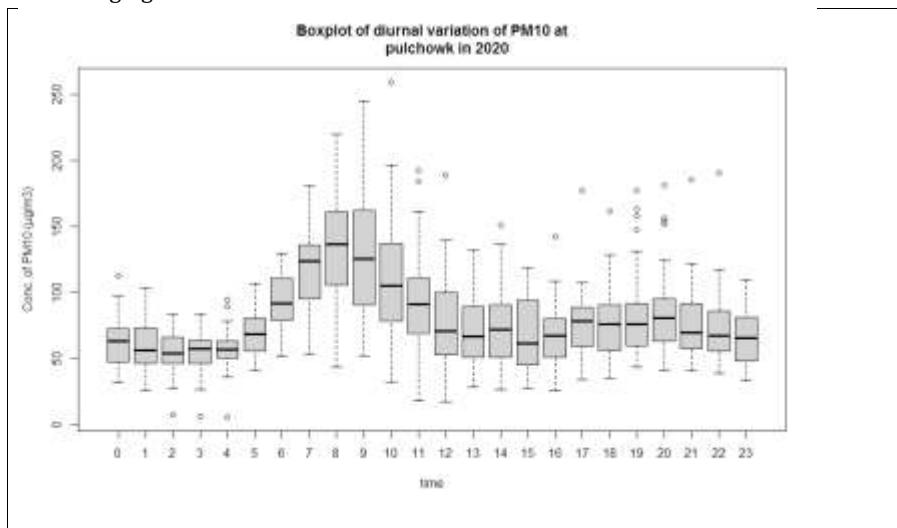


Figure 118. Diurnal variation of Pm10 at Pulchowk in 2020

The boxplot of diurnal variation shows PM10 concentration was highest at 8 and 9 O'clock and variation was high at 9 O'clock.

Compliance with National Ambient Air quality standard

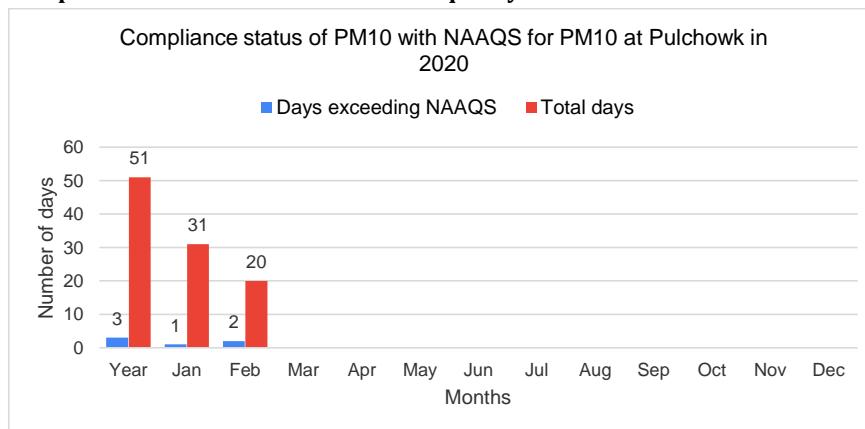


Figure 119. Compliance with NAAQS for PM10 at Pulchowk in 2020

Out of Total 51 days of measurement 3 days exceeded the national ambient air quality standard for PM10.

2.5.4 Temporal variation of TSP

Annual Average

Following figure shows the histogram of TSP at Pulchowk in 2020.

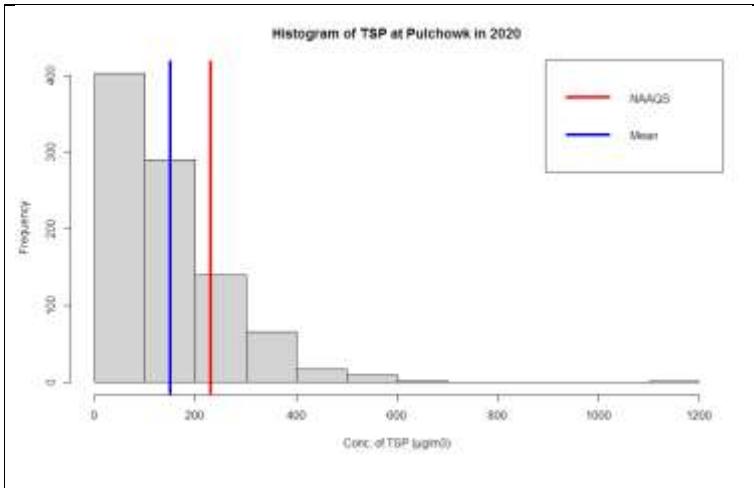


Figure 120. Histogram of TSP at Pulchowk station in 2020

Above figure shows highest no of hourly average of Total suspended Particulate data were between 0-100 $\mu\text{g}/\text{m}^3$ followed by 100-200 $\mu\text{g}/\text{m}^3$.

Daily average of TSP

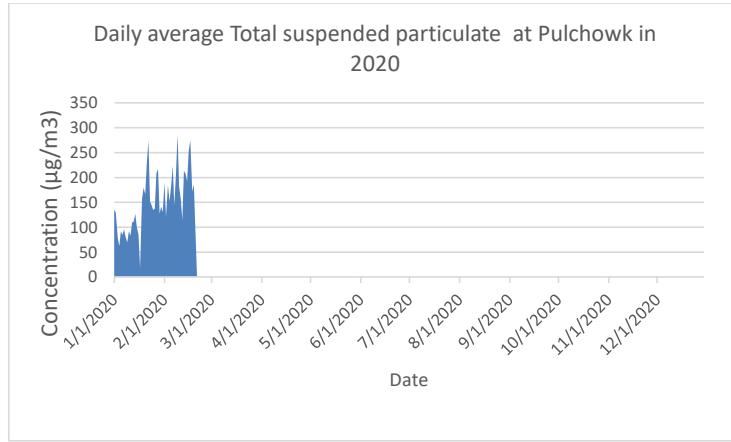


Figure 121. Daily average total suspended particulate at Pulchowk in 2020

Monthly Average of TSP

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

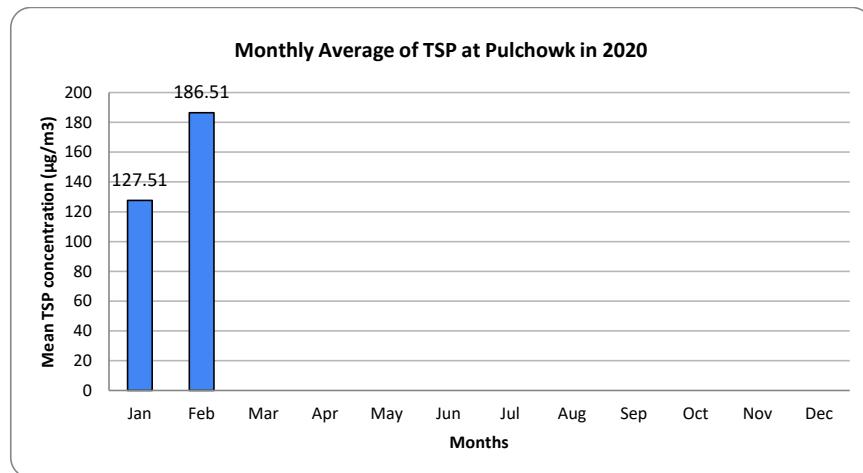


Figure 122. Monthly average of TSP at Pulchowk station in 2020

In 2020 only January and February have data.

Monthly variation of TSP

Following figure shows Boxplot of monthly variation of TSP at Pulchowk in 2020

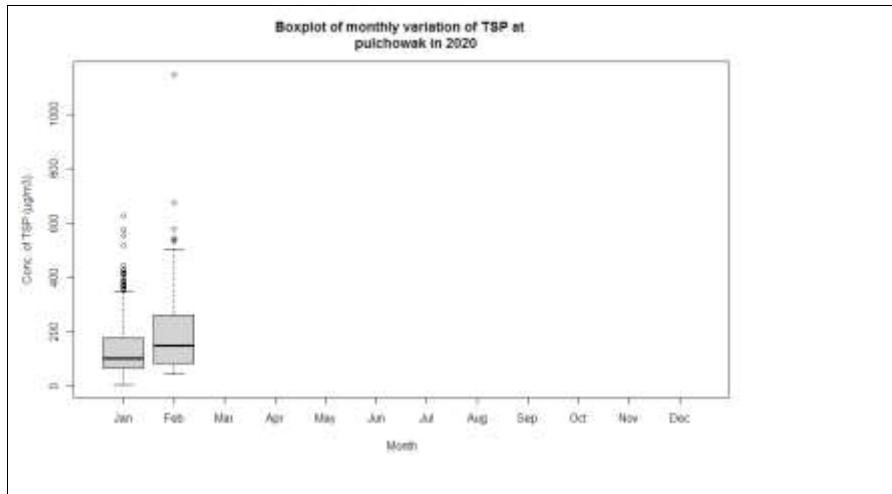


Figure 123. Monthly variation of daily average Total suspended particulate at Pulchowk in 2020

Out of two months of measurements in 2020 January and February, February was more variable in TSP in 2020.

Diurnal Variation of TSP

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

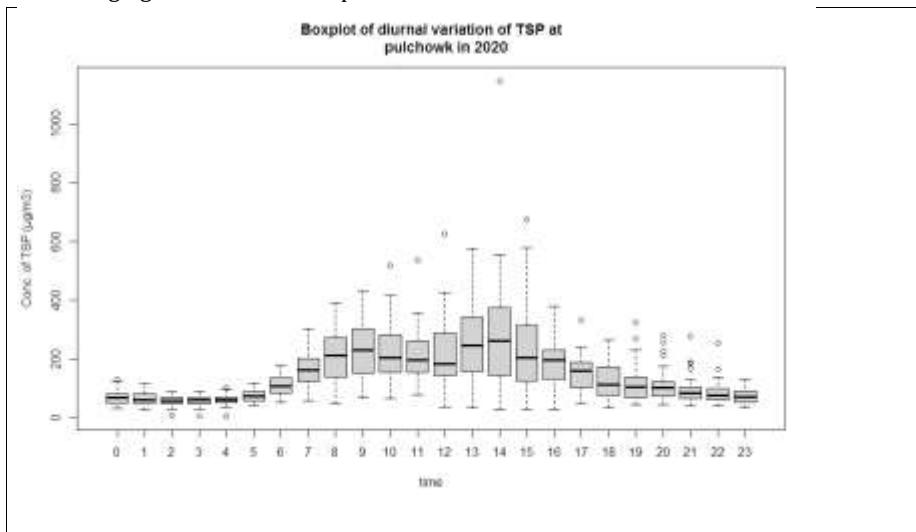


Figure 124. Diurnal variation of TSP at Pulchowk station in 2020

Above figure shows that Total suspend Particulate concentration was highest at 14 O'clock and variation was also high at that time.

Compliance with National Ambient air quality Standard

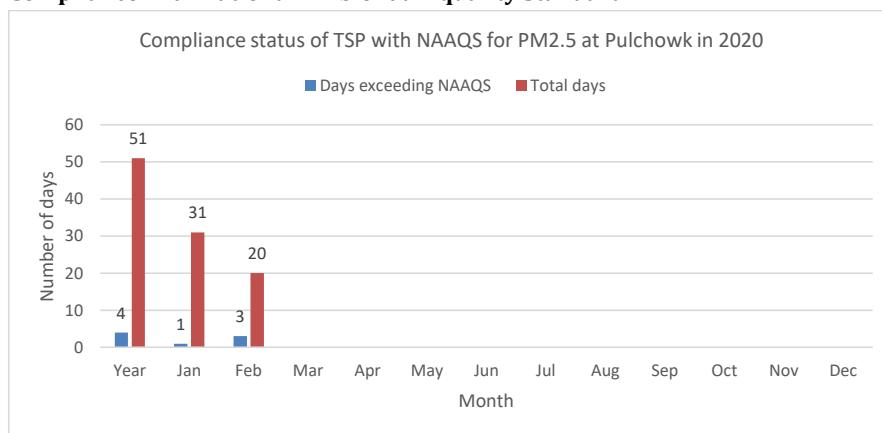


Figure 125. Compliance with NAAQS for TSP at Pulchowk in 2020

Out of 51 days of measurement only 4 days exceed the National ambient air quality standards for the Total suspended particulate.

**Annex
PM1**

Date	Value ($\mu\text{g}/\text{m}^3$)								
1/1/2016		1/1/2017	81.3729 9	1/1/2018	25.2448 6	1/1/2019	37.0795 8	1/1/2020	63.7025 5
1/2/2016		1/2/2017	59.4085 4	1/2/2018	20.1934	1/2/2019	38.1483 3	1/2/2020	62.9042 2
1/3/2016		1/3/2017	43.8129 7	1/3/2018	24.1659 7	1/3/2019	33.8832 2	1/3/2020	69.4959 4
1/4/2016		1/4/2017	67.6039 4	1/4/2018	25.7027 1	1/4/2019	29.5687 5	1/4/2020	42.1208 4
1/5/2016		1/5/2017	62.1797 9	1/5/2018	25.8786 1	1/5/2019	34.6624 3	1/5/2020	23.6472 9
1/6/2016		1/6/2017	50.7914 7	1/6/2018	24.4654 2	1/6/2019	35.2714 6	1/6/2020	34.2747 9
1/7/2016		1/7/2017	57.2065	1/7/2018	23.8516	1/7/2019	27.6690 3	1/7/2020	48.1628 5
1/8/2016		1/8/2017	60.5743 2	1/8/2018	26.3455 6	1/8/2019	38.7779 2	1/8/2020	56.4708 6
1/9/2016		1/9/2017	72.6076 8	1/9/2018	35.0226 1	1/9/2019	37.2275 7	1/9/2020	45.8232 8
1/10/2016		1/10/2017	64.8478 8	1/10/2018	37.1277 4	1/10/2019	40.6028 5	1/10/2020	36.5571 2
1/11/2016		1/11/2017	64.8241 4	1/11/2018	35.0302	1/11/2019	34.6434 7	1/11/2020	41.1379 2
1/12/2016		1/12/2017		1/12/2018	33.0431	1/12/2019	29.8884 7	1/12/2020	47.3468 8
1/13/2016		1/13/2017	50.9927 3	1/13/2018	29.4919 7	1/13/2019	20.2986 8	1/13/2020	44.2275
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11/26/201 6	38.28	11/27/2017	17.5437 2	11/27/201 8		11/27/201 9	42.9634 7	11/26/2020	
11/27/201 6	33.3710 6	11/28/2017	21.5448 7	11/28/201 8		11/28/201 9	31.2407 6	11/27/2020	
11/28/201 6	35.4318 8	11/29/2017	28.6137 6	11/29/201 8		11/29/201 9	32.6232 6	11/28/2020	
11/29/201 6	35.7114 5	11/30/2017	30.5578 11/30/201 8	11/30/201 8		11/30/201 9	29.5645 8	11/29/2020	
11/30/201 6	39.0016 4	12/1/2017	29.9211 1	12/1/2018		12/1/2019	25.7669 4	11/30/2020	
12/1/2016	41.7358 3	12/2/2017	23.3981 9	12/2/2018		12/2/2019	32.8877 8	12/1/2020	
12/2/2016	45.7083 3	12/3/2017	17.8160 5	12/3/2018		12/3/2019	35.5884 7	12/2/2020	
12/3/2016	46.1647 8	12/4/2017	18.2405 6	12/4/2018		12/4/2019	41.7361 1	12/3/2020	
12/4/2016	46.3401 3	12/5/2017	18.1484	12/5/2018		12/5/2019	45.1588 9	12/4/2020	
12/5/2016	49.7940 6	12/6/2017	16.5048 6	12/6/2018		12/6/2019	40.9588 9	12/5/2020	
12/6/2016	50.95	12/7/2017	16.1138 2	12/7/2018		12/7/2019	34.6325 7	12/6/2020	
12/7/2016	45.1267 1	12/8/2017	17.3204 2	12/8/2018		12/8/2019	32.3380 9	12/7/2020	
12/8/2016		12/9/2017	16.2138 2	12/9/2018		12/9/2019	31.8879 2	12/8/2020	
12/9/2016		12/10/2017	17.7396 5	12/10/201 8		12/10/201 9	33.6563 2	12/9/2020	
12/10/201 6		12/11/2017	18.1879 2	12/11/201 8		12/11/201 9	32.2893 1	12/10/2020	
12/11/201 6	31.1847 1	12/12/2017	16.5613 9	12/12/201 8		12/12/201 9	39.5902 5	12/11/2020	
12/12/201 6	46.7379 2	12/13/2017	19.1906 1	12/13/201 8		12/13/201 9	27.0429	12/12/2020	
12/13/201 6	51.1963 6	12/14/2017	21.8103	12/14/201 8		12/14/201 9	18.8022 5	12/13/2020	
12/14/201 6	38.5905 6	12/15/2017	23.5407 2	12/15/201 8		12/15/201 9	28.7563 2	12/14/2020	
12/15/201 6	46.7176 1	12/16/2017	26.1709	12/16/201 8		12/16/201 9	28.0992 5	12/15/2020	
12/16/201 6	58.5925 7	12/17/2017	30.1217	12/17/201 8	96.7386 7	12/17/201 9	32.0031 1	12/16/2020	
12/17/201 6	55.2969 8	12/18/2017	28.6481 3	12/18/201 8	50.4903 3	12/18/201 9	29.7538 2	12/17/2020	
12/18/201 6	49.6191 7	12/19/2017	26.0636 8	12/19/201 8	60.2659 8	12/19/201 9	34.2238 2	12/18/2020	
12/19/201 6	54.1594 6	12/20/2017	27.97	12/20/201 8	63.0028 8	12/20/201 9	36.1804	12/19/2020	
12/20/201 6	50.3600 8	12/21/2017	26.3468 7	12/21/201 8	49.3918 1	12/21/201 9	46.0561 1	12/20/2020	
12/21/201 6	48.3451 4	12/22/2017	22.5698 6	12/22/201 8	49.7157 6	12/22/201 9	35.9767 4	12/21/2020	
12/22/201 6	48.3728 4	12/23/2017	26.2618 1	12/23/201 8	43.9412 5	12/23/201 9	31.7228 5	12/22/2020	
12/23/201 6	45.1962 7	12/24/2017	22.6806 9	12/24/201 8	41.3286 8	12/24/201 9	31.5295 8	12/23/2020	
12/24/201 6	42.8721 9	12/25/2017	27.4509 7	12/25/201 8	37.9920 8	12/25/201 9	37.7672 9	12/24/2020	
12/25/201	58.0114	12/26/2017	27.0592	12/26/201	38.1200	12/26/201	35.1994	12/25/2020	

6	6		4	8	1	9	5		
12/26/2016	59.1854	12/27/2017	25.4632	12/27/2016	38.1224	12/27/2016	35.255	12/26/2020	
12/27/2016	66.2130	12/28/2017	24.0753	12/28/2016	39.4978	12/28/2016	47.8022	12/27/2020	
12/28/2016	69.9684	12/29/2017	25.3066	12/29/2016	38.2108	12/29/2016	50.21	12/28/2020	
12/29/2016	77.8514	12/30/2017	27.9800	12/30/2016	47.8306	12/30/2016	57.9897	12/29/2020	
12/30/2016	61.6784	12/31/2017	26.6152	12/31/2016	42.9870	12/31/2016	57.6001	12/30/2020	
12/31/2016								12/31/2016	

PM2.5

Date	Value ($\mu\text{g}/\text{m}^3$)								
1/1/2016		1/1/2017	89.7905	1/1/2018	26.3225	1/1/2019	39.2502	1/1/2020	63.7025
1/2/2016		1/2/2017	64.8196	1/2/2018	21.1818	1/2/2019	40.9318	1/2/2020	62.9042
1/3/2016		1/3/2017	50.0150	1/3/2018	25.4215	1/3/2019	35.9521	1/3/2020	69.4959
1/4/2016		1/4/2017	75.5994	1/4/2018	26.7489	1/4/2019	32.0281	1/4/2020	42.1208
1/5/2016		1/5/2017	69.4261	1/5/2018	26.9301	1/5/2019	36.6974	1/5/2020	23.6472
1/6/2016		1/6/2017	56.4345	1/6/2018	25.4154	1/6/2019	37.6311	1/6/2020	34.2747
1/7/2016		1/7/2017	63.1173	1/7/2018	24.9597	1/7/2019	29.9372	1/7/2020	48.1628
1/8/2016		1/8/2017	67.7384	1/8/2018	27.4276	1/8/2019	41.0784	1/8/2020	56.4708
1/9/2016		1/9/2017	81.5531	1/9/2018	36.2900	1/9/2019	39.4586	1/9/2020	45.8232
1/10/2016		1/10/2017	72.7672	1/10/2018	38.4096	1/10/2019	41.9115	1/10/2020	36.5571
1/11/2016		1/11/2017	77.5323	1/11/2018	36.2123	1/11/2019	36.1243	1/11/2020	41.1379
1/12/2016		1/12/2017		1/12/2018	34.1494	1/12/2019	31.3348	1/12/2020	47.3468
1/13/2016		1/13/2017	57.1561	1/13/2018	30.4055	1/13/2019	21.8222	1/13/2020	44.2275
1/14/2016		1/14/2017	78.9436	1/14/2018	29.5856	1/14/2019	19.6740	1/14/2020	46.4788
1/15/2016		1/15/2017	81.9285	1/15/2018	26.6467	1/15/2019	16.9981	1/15/2020	40.6870
1/16/2016		1/16/2017	83.3735	1/16/2018	30.3325	1/16/2019	19.1638	1/16/2020	48.385
1/17/2016		1/17/2017	73.1968	1/17/2018	28.7673	1/17/2019	20.4718	1/17/2020	17.0546
1/18/2016		1/18/2017	82.0149	1/18/2018	27.6072	1/18/2019		1/18/2020	45.0284
1/19/2016		1/19/2017	71.8849	1/19/2018	29.0937	1/19/2019		1/19/2020	44.3689
1/20/2016		1/20/2017	79.9504	1/20/2018	29.7027	1/20/2019		1/20/2020	40.6703
1/21/2016		1/21/2017	80.2555	1/21/2018	23.1278	1/21/2019		1/21/2020	63.5761
1/22/2016		1/22/2017	75.7520	1/22/2018	28.8068	1/22/2019	25.3704	1/22/2020	47.8487

1/23/2016		1/23/2017	76.3196	1/23/2018	28.0712	1/23/2019	13.3736	1/23/2020	36.8048
1/24/2016		1/24/2017	76.2103	1/24/2018	24.2897	1/24/2019	16.7696	1/24/2020	36.4612
1/25/2016		1/25/2017	75.8753	1/25/2018	26.6184	1/25/2019	16.6496	1/25/2020	49.2327
1/26/2016		1/26/2017	71.7437	1/26/2018	27.4412	1/26/2019	10.4879	1/26/2020	53.4331
1/27/2016		1/27/2017	53.6267	1/27/2018	25.9809	1/27/2019	15.2031	1/27/2020	55.1494
1/28/2016		1/28/2017	34.4927	1/28/2018	27.3985	1/28/2019	14.8127	1/28/2020	61.4135
1/29/2016		1/29/2017	48.0242	1/29/2018	32.0666	1/29/2019	11.5057	1/29/2020	40.6957
1/30/2016		1/30/2017	66.9770	1/30/2018	32.8969	1/30/2019	10.5304	1/30/2020	41.6882
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2/1/2016		2/1/2017	58.8400	2/1/2018	67.2239	2/1/2019	49.4475	2/1/2020	38.3337
2/2/2016		2/2/2017	68.3326	2/2/2018	89.8074	2/2/2019	45.4708	2/2/2020	41.4889
2/3/2016		2/3/2017	68.9757	2/3/2018	73.0587	2/3/2019	38.0504	2/3/2020	43.0600
2/4/2016		2/4/2017	73.6710	2/4/2018	74.5177	2/4/2019	37.1283	2/4/2020	55.2590
2/5/2016		2/5/2017	70.8554	2/5/2018	75.5107	2/5/2019	35.5426	2/5/2020	38.7022
2/6/2016		2/6/2017	60.9326	2/6/2018	77.0105	2/6/2019	38.3575	2/6/2020	49.4758
2/7/2016		2/7/2017	58.8966	2/7/2018	105.578	2/7/2019	27.3661	2/7/2020	52.3958
2/8/2016		2/8/2017	68.2830	2/8/2018	70.8211	2/8/2019	20.3020	2/8/2020	48.5516
2/9/2016		2/9/2017	64.9563	2/9/2018	52.9891	2/9/2019	17.9036	2/9/2020	41.2119
2/10/2016		2/10/2017	54.0758	2/10/2018	63.2631	2/10/2019	37.3270	2/10/2020	49.8996
2/11/2016		2/11/2017	62.7023	2/11/2018	72.7906	2/11/2019	38.0595	2/11/2020	42.1166
2/12/2016		2/12/2017	61.9248	2/12/2018	100.741	2/12/2019	44.3019	2/12/2020	50.8449
2/13/2016		2/13/2017	64.0995	2/13/2018	70.7812	2/13/2019	42.3743	2/13/2020	39.1197
2/14/2016		2/14/2017	62.5795	2/14/2018	64.3158	2/14/2019	58.5758	2/14/2020	45.9694
2/15/2016		2/15/2017	75.3878	2/15/2018	56.0511	2/15/2019	45.6863	2/15/2020	54.7185
2/16/2016		2/16/2017	75.2475	2/16/2018	63.9191	2/16/2019	23.2124	2/16/2020	64.6743
2/17/2016		2/17/2017	74.9714	2/17/2018	64.503	2/17/2019	20.9263	2/17/2020	63.7861
2/18/2016		2/18/2017	69.9397	2/18/2018	62.689	2/18/2019	25.755	2/18/2020	57.2125
2/19/2016		2/19/2017	75.7950	2/19/2018	70.1580	2/19/2019	28.1938	2/19/2020	59.6005
2/20/2016		2/20/2017	77.3482	2/20/2018	75.6079	2/20/2019	32.3213	2/20/2020	68.0680
2/21/2016		2/21/2017	65.9366	2/21/2018	74.8406	2/21/2019	35.4504	2/21/2020	
2/22/2016		2/22/2017	65.8451	2/22/2018	73.3791	2/22/2019	39.1627	2/22/2020	
2/23/2016		2/23/2017	60.1007	2/23/2018	80.5251	2/23/2019	31.9288	2/23/2020	
2/24/2016		2/24/2017	64.3452	2/24/2018	82.5636	2/24/2019	35.0645	2/24/2020	

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2/29/2016		3/1/2017	78.7217 9	3/1/2018	61.4006 9	3/1/2019	24.9966 7	2/29/2020	
3/1/2016		3/2/2017	62.7391	3/2/2018	57.3110 1	3/2/2019	31.3327 1	3/1/2020	
3/2/2016		3/3/2017	49.7238 2	3/3/2018	46.5329 3	3/3/2019	33.2306 2	3/2/2020	
3/3/2016		3/4/2017	49.3421	3/4/2018	59.3586	3/4/2019	31.4920 8	3/3/2020	
3/4/2016		3/5/2017	50.1997 9	3/5/2018	49.5582 7	3/5/2019	23.48	3/4/2020	
3/5/2016		3/6/2017	55.1019 4	3/6/2018	43.6798	3/6/2019	22.7731 9	3/5/2020	
3/6/2016		3/7/2017	65.0817 4	3/7/2018	50.6315 3	3/7/2019	29.3303 5	3/6/2020	
3/7/2016		3/8/2017	64.5992 4	3/8/2018	63.4245	3/8/2019	31.3220 8	3/7/2020	
3/8/2016		3/9/2017	64.1771 5	3/9/2018	60.3297 9	3/9/2019	31.2976 4	3/8/2020	
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3/24/2016		3/25/2017	37.5766 9	3/25/2018	86.1888 4	3/25/2019	50.1856 2	3/24/2020	
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3/30/2016		3/31/2017	38.8447 4	3/31/2018	32.1354 9	3/31/2019	15.8827 8	3/30/2020	
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4/2/2016		4/3/2017	35.8294 4	4/3/2018	47.5635	4/3/2019	15.7807 6	4/2/2020	
4/3/2016		4/4/2017	47.7058 3	4/4/2018	37.9050 3	4/4/2019	18.0431 2	4/3/2020	
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4/6/2016		4/7/2017	42.2094 4	4/7/2018	36.2496 8	4/7/2019	6.43701 4	4/6/2020	
4/7/2016		4/8/2017	27.9164 6	4/8/2018	47.0293 1	4/8/2019	10.2573 6	4/7/2020	
4/8/2016		4/9/2017	39.1745 9	4/9/2018	46.8089	4/9/2019	9.44543 9	4/8/2020	
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4/12/2016		4/13/2017	91.1956 9	4/13/2018	35.6904 9	4/13/2019	9.78757	4/12/2020	
4/13/2016		4/14/2017	77.4532 4	4/14/2018	36.6018 5	4/14/2019	8.14951 4	4/13/2020	
4/14/2016		4/15/2017	36.8541	4/15/2018	45.0562 2	4/15/2019	8.45263 9	4/14/2020	
4/15/2016		4/16/2017	41.6966 1	4/16/2018	54.0329 3	4/16/2019	8.13611 1	4/15/2020	
4/16/2016		4/17/2017	35.1074	4/17/2018	42.512	4/17/2019	5.72250 1	4/16/2020	
4/17/2016		4/18/2017	40.5831 9	4/18/2018	49.8756	4/18/2019	8.31520 8	4/17/2020	
4/18/2016		4/19/2017	47.1609 5	4/19/2018	38.1747 6	4/19/2019	11.2906 2	4/18/2020	
4/19/2016		4/20/2017	43.5984	4/20/2018	39.4715 8	4/20/2019	25.2220 1	4/19/2020	
4/20/2016		4/21/2017	31.6837 4	4/21/2018	40.0049 1	4/21/2019	37.1907 6	4/20/2020	
4/21/2016		4/22/2017	31.9266 3	4/22/2018	43.1943 6	4/22/2019	38.7456 9	4/21/2020	
4/22/2016		4/23/2017	22.4627 8	4/23/2018	64.9566 6	4/23/2019	34.1747 2	4/22/2020	
4/23/2016		4/24/2017	31.9615 7	4/24/2018	61.8631 4	4/24/2019	29.0492 4	4/23/2020	
4/24/2016		4/25/2017	37.3238 9	4/25/2018	57.8463 8	4/25/2019	26.3595 1	4/24/2020	
4/25/2016		4/26/2017	42.2586 8	4/26/2018	57.3698 6	4/26/2019	26.6554 9	4/25/2020	
4/26/2016		4/27/2017	42.8131 6	4/27/2018	47.1800 7	4/27/2019	26.5181 2	4/26/2020	
4/27/2016		4/28/2017	57.5051 2	4/28/2018	48.8487	4/28/2019	24.3325	4/27/2020	
4/28/2016		4/29/2017	47.0623 9	4/29/2018	45.5508 3	4/29/2019	24.9754 9	4/28/2020	
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10/8/2016	14.8703 7	10/9/2017	8.79023 8	10/9/2018	32.4029 9	10/9/2019	9.68958 3	10/8/2020	
10/9/2016	12.5725	10/10/2017	8.42060 4	10/10/201	35.3138 9	10/10/201	11.7143 7	10/9/2020	
10/10/2016	13.0011 8	10/11/2017	9.27169	10/11/201	26.2489 8	10/11/201	16.9944 4	10/10/202	0
10/11/2016	11.6	10/12/2017	7.81272 1	10/12/201	20.6028 9	10/12/201	19.5720 2	10/11/202	0
10/12/2016	10.201	10/13/2017	8.59514 9	10/13/201	17.0872 1	10/13/201	22.7969	10/12/202	0
10/13/2016	10.001	10/14/2017	13.3463 2	10/14/201	21.0689 8	10/14/201	25.8652 8	10/13/202	0

10/14/2016	78.46231	10/15/2017	25.19531	10/15/2018	29.35604	10/15/2019	23.99903	10/14/2020	
10/15/2016	87.53778	10/16/2017	23.25607	10/16/2018	32.33042	10/16/2019	20.31438	10/15/2020	
10/16/2016	79.32083	10/17/2017	19.05983	10/17/2018	34.95967	10/17/2019	20.41903	10/16/2020	
10/17/2016	72.30868	10/18/2017	13.62478	10/18/2018		10/18/2019	24.34986	10/17/2020	
10/18/2016	27.86265	10/19/2017	11.04646	10/19/2018		10/19/2019	26.28042	10/18/2020	
10/19/2016	31.12156	10/20/2017	9.181944	10/20/2018		10/20/2019	32.06271	10/19/2020	
10/20/2016	13.68077	10/21/2017	7.972337	10/21/2018		10/21/2019	31.10757	10/20/2020	
10/21/2016		10/22/2017	10.74711	10/22/2018	20.91407	10/22/2019	26.30403	10/21/2020	
10/22/2016	50.12553	10/23/2017	17.91625	10/23/2018	33.00209	10/23/2019	36.12625	10/22/2020	
10/23/2016	54.08611	10/24/2017	16.78259	10/24/2018		10/24/2019	36.33609	10/23/2020	
10/24/2016		10/25/2017	19.61196	10/25/2018		10/25/2019	42.42916	10/24/2020	
10/25/2016		10/26/2017	22.59058	10/26/2018		10/26/2019	29.45371	10/25/2020	
10/26/2016		10/27/2017	21.16009	10/27/2018		10/27/2019	27.76576	10/26/2020	
10/27/2016		10/28/2017	17.92428	10/28/2018		10/28/2019	28.03125	10/27/2020	
10/28/2016		10/29/2017	11.21338	10/29/2018		10/29/2019	24.07561	10/28/2020	
10/29/2016		10/30/2017	11.17399	10/30/2018	18.55927	10/30/2019	23.85919	10/29/2020	
10/30/2016		10/31/2017	14.57533	10/31/2018		10/31/2019	22.26146	10/30/2020	
10/31/2016		11/1/2017	12.96241	11/1/2018		11/1/2019	34.46257	10/31/2020	
11/1/2016		11/2/2017	11.91147	11/2/2018	24.8459	11/2/2019	32.60285	11/1/2020	
11/2/2016		11/3/2017	12.02316	11/3/2018	22.63333	11/3/2019	30.1475	11/2/2020	
11/3/2016		11/4/2017	10.65752	11/4/2018		11/4/2019	24.36523	11/3/2020	
11/4/2016		11/5/2017	10.93585	11/5/2018	62.54846	11/5/2019	30.99787	11/4/2020	
11/5/2016		11/6/2017	11.52519	11/6/2018		11/6/2019	37.82376	11/5/2020	
11/6/2016		11/7/2017	11.34865	11/7/2018		11/7/2019	36.75094	11/6/2020	
11/7/2016		11/8/2017	11.94975	11/8/2018		11/8/2019	35.9559	11/7/2020	
11/8/2016		11/9/2017	11.5142	11/9/2018		11/9/2019	28.20499	11/8/2020	
11/9/2016		11/10/2017	11.47936	11/10/2018	26.60297	11/10/2019	22.63535	11/9/2020	
11/10/2016		11/11/2017	13.00334	11/11/2018	31.69268	11/11/2019	22.52727	11/10/2020	
11/11/2016		11/12/2017	14.64045	11/12/2018	34.79137	11/12/2019	30.55986	11/11/2020	
11/12/2016		11/13/2017	18.38602	11/13/2018	42.76118	11/13/2019	32.79576	11/12/2020	
11/13/2016		11/14/2017	17.29353	11/14/2018	46.42719	11/14/2019	29.71736	11/13/2020	
11/14/2016		11/15/2017	20.20056	11/15/2018	46.07468	11/15/2019	28.39373	11/14/2020	
11/15/2016		11/16/2017	19.20687	11/16/2018		11/16/2019	31.96129	11/15/2020	

11/16/201 6		11/17/2017	18.6261 1	11/17/201 8	40.1160 7	11/17/201 9	28.4332 6	11/16/202 0	
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11/18/201 6		11/19/2017		11/19/201 8	60.9916 2	11/19/201 9	48.2799 3	11/18/202 0	
11/19/201 6		11/20/2017	18.0227 8	11/20/201 8	66.8123 2	11/20/201 9	54.2629 9	11/19/202 0	
11/20/201 6		11/21/2017	18.2349 1	11/21/201 8	64.8838 2	11/21/201 9	51.1302 1	11/20/202 0	
11/21/201 6		11/22/2017	19.4583 4	11/22/201 8	58.7648 1	11/22/201 9	46.0347 9	11/21/202 0	
11/22/201 6		11/23/2017	19.2951 3	11/23/201 8		11/23/201 9	46.7463 9	11/22/202 0	
11/23/201 6		11/24/2017	19.9531 3	11/24/201 8		11/24/201 9	48.7052 1	11/23/202 0	
11/24/201 6		11/25/2017	22.6403 5	11/25/201 8		11/25/201 9	45.2127 8	11/24/202 0	
11/25/201 6		11/26/2017	19.76	11/26/201 8		11/26/201 9	50.4267 4	11/25/202 0	
11/26/201 6	41.6649 4	11/27/2017	18.2462 6	11/27/201 8		11/27/201 9	50.1077 3	11/26/202 0	
11/27/201 6	36.3615 6	11/28/2017	22.2428 7	11/28/201 8		11/28/201 9	38.6249 3	11/27/202 0	
11/28/201 6	40.0952 6	11/29/2017	29.4985 3	11/29/201 8		11/29/201 9	40.3819 4	11/28/202 0	
11/29/201 6	41.0611 2	11/30/2017	31.4790 4	11/30/201 8		11/30/201 9	35.2857 6	11/29/202 0	
11/30/201 6	44.8401 9	12/1/2017	30.9888 2	12/1/2018		12/1/2019	31.8240 3	11/30/202 0	
12/1/2016	47.2247 1	12/2/2017	24.3229 9	12/2/2018		12/2/2019	37.5334	12/1/2020	
12/2/2016	53.1754 2	12/3/2017	18.7476 2	12/3/2018		12/3/2019	39.6512 5	12/2/2020	
12/3/2016	54.8346 8	12/4/2017	19.1467 4	12/4/2018		12/4/2019	46.3143 7	12/3/2020	
12/4/2016	53.7195 3	12/5/2017	19.1809	12/5/2018		12/5/2019	51.2605 6	12/4/2020	
12/5/2016	57.7769 2	12/6/2017	17.2934	12/6/2018		12/6/2019	47.6025	12/5/2020	
12/6/2016	60.0509	12/7/2017	16.5492 4	12/7/2018		12/7/2019	40.4193 8	12/6/2020	
12/7/2016	53.5524 6	12/8/2017	17.9948 6	12/8/2018		12/8/2019	37.8551 3	12/7/2020	
12/8/2016		12/9/2017	16.8773 6	12/9/2018		12/9/2019	37.7295 8	12/8/2020	
12/9/2016		12/10/2017	18.7086 8	12/10/201 8		12/10/201 9	38.2732 6	12/9/2020	
12/10/201 6		12/11/2017	19.4258 3	12/11/201 8		12/11/201 9	36.1879 9	12/10/202 0	
12/11/201 6	37.0313	12/12/2017	17.6928 3	12/12/201 8		12/12/201 9	43.1603 3	12/11/202 0	
12/12/201 6	52.345	12/13/2017	20.4664 6	12/13/201 8		12/13/201 9	27.9953 4	12/12/202 0	
12/13/201 6	56.4099 7	12/14/2017	23.3511 8	12/14/201 8		12/14/201 9	20.5580 6	12/13/202 0	
12/14/201 6	43.2400 9	12/15/2017	25.6114 5	12/15/201 8		12/15/201 9	31.5872 0	12/14/202 0	
12/15/201 6	53.5905 9	12/16/2017	27.6154 2	12/16/201 8		12/16/201 9	31.0387 7	12/15/202 0	
12/16/201 6	65.1842 4	12/17/2017	31.4489 7	12/17/201 8	100.584 1	12/17/201 9	35.4580 1	12/16/202 0	
12/17/201 6	61.2821 6	12/18/2017	29.7299 3	12/18/201 8	52.6993	12/18/201 9	33.8124 3	12/17/202 0	
12/18/201 6	55.3404 2	12/19/2017	27.1134 8	12/19/201 8	62.7752 8	12/19/201 9	38.3418 1	12/18/202 0	

12/19/2016	60.33003	12/20/2017	29.25104	12/20/2018	64.35149	12/20/2019	40.35510	12/19/2020	
12/20/2016	55.80272	12/21/2017	27.52743	12/21/2018	50.75076	12/21/2019	50.54646	12/20/2020	
12/21/2016	53.08417	12/22/2017	23.69764	12/22/2018	50.96318	12/22/2019	40.85701	12/21/2020	
12/22/2016	55.12119	12/23/2017	27.14069	12/23/2018	45.41638	12/23/2019	35.21083	12/22/2020	
12/23/2016	50.74042	12/24/2017	23.51842	12/24/2018	42.78924	12/24/2019	34.78306	12/23/2020	
12/24/2016	47.92252	12/25/2017	28.37813	12/25/2018	39.73425	12/25/2019	41.44799	12/24/2020	
12/25/2016	63.57396	12/26/2017	28.28598	12/26/2018	40.80313	12/26/2019	38.54285	12/25/2020	
12/26/2016	65.36121	12/27/2017	26.70979	12/27/2018	40.21965	12/27/2019	38.28563	12/26/2020	
12/27/2016	72.31517	12/28/2017	25.40465	12/28/2018	40.92478	12/28/2019	51.66682	12/27/2020	
12/28/2016	76.61121	12/29/2017	26.71323	12/29/2018	39.75052	12/29/2019	55.11611	12/28/2020	
12/29/2016	85.12694	12/30/2017	29.31896	12/30/2018	49.90712	12/30/2019	64.51958	12/29/2020	
12/30/2016	68.31883	12/31/2017	27.79604	12/31/2018	45.30648	12/31/2019	63.59701	12/30/2020	
12/31/2016									

PM10

Date	Value ($\mu\text{g}/\text{m}^3$)								
1/1/2016		1/1/2017	102.7809	1/1/2018	27.41701	1/1/2019	55.285	1/1/2020	91.83359
1/2/2016		1/2/2017	74.80792	1/2/2018	22.12708	1/2/2019	61.2534	1/2/2020	89.9468
1/3/2016		1/3/2017	62.166	1/3/2018	26.71846	1/3/2019	51.38591	1/3/2020	77.13098
1/4/2016		1/4/2017	89.99385	1/4/2018	27.81764	1/4/2019	51.44159	1/4/2020	48.19934
1/5/2016		1/5/2017	83.08582	1/5/2018	27.87194	1/5/2019	49.65354	1/5/2020	39.47169
1/6/2016		1/6/2017	66.42824	1/6/2018	26.24944	1/6/2019	58.48875	1/6/2020	49.10319
1/7/2016		1/7/2017	73.81354	1/7/2018	26.01208	1/7/2019	45.13718	1/7/2020	63.88097
1/8/2016		1/8/2017	80.5263	1/8/2018	28.45426	1/8/2019	57.76785	1/8/2020	66.38732
1/9/2016		1/9/2017	97.97934	1/9/2018	37.48894	1/9/2019	52.43063	1/9/2020	55.71253
1/10/2016		1/10/2017	86.89602	1/10/2018	39.72382	1/10/2019	50.11549	1/10/2020	53.29796
1/11/2016		1/11/2017	119.5763	1/11/2018	37.25134	1/11/2019	43.69285	1/11/2020	55.45736
1/12/2016		1/12/2017		1/12/2018	35.24134	1/12/2019	40.41194	1/12/2020	68.4475
1/13/2016		1/13/2017	68.97244	1/13/2018	31.04508	1/13/2019	32.11951	1/13/2020	68.76972
1/14/2016		1/14/2017	89.25076	1/14/2018	30.15168	1/14/2019	37.67423	1/14/2020	73.00523
1/15/2016		1/15/2017	94.59378	1/15/2018	27.12246	1/15/2019	28.72354	1/15/2020	59.62952
1/16/2016		1/16/2017	97.83076	1/16/2018	31.68202	1/16/2019	29.25647	1/16/2020	64.40882

1/17/2016		1/17/2017	84.8205 6	1/17/2018	29.3678 8	1/17/2019	29.6431 4	1/17/2020	17.374
1/18/2016		1/18/2017	97.5935 8	1/18/2018	28.165	1/18/2019		1/18/2020	80.3772 1
1/19/2016		1/19/2017	88.3280 5	1/19/2018	29.7627 1	1/19/2019		1/19/2020	88.6432 6
1/20/2016		1/20/2017	99.6865 3	1/20/2018	30.3555 6	1/20/2019		1/20/2020	85.61
1/21/2016		1/21/2017	96.3087 4	1/21/2018	23.5563 5	1/21/2019		1/21/2020	136.422 1
1/22/2016		1/22/2017	90.5914	1/22/2018	29.4467	1/22/2019	37.0810 4	1/22/2020	119.521 3
1/23/2016		1/23/2017	86.9800 8	1/23/2018	28.7316 4	1/23/2019	13.6862 5	1/23/2020	78.7478 2
1/24/2016		1/24/2017	90.7800 1	1/24/2018	24.6161	1/24/2019	26.8088 2	1/24/2020	64.2348 6
1/25/2016		1/25/2017	90.8257 6	1/25/2018	27.2211 1	1/25/2019	28.6922 2	1/25/2020	77.0465 3
1/26/2016		1/26/2017	88.2778	1/26/2018	27.8975 4	1/26/2019	11.5830 6	1/26/2020	83.4626
1/27/2016		1/27/2017	61.0321 5	1/27/2018	26.4863 5	1/27/2019	20.6522 9	1/27/2020	102.155
1/28/2016		1/28/2017	40.2842 4	1/28/2018	28.2316	1/28/2019	22.4569 4	1/28/2020	118.768 5
1/29/2016		1/29/2017	55.6798 9	1/29/2018	32.6312 4	1/29/2019	15.4349 8	1/29/2020	68.9272
1/30/2016		1/30/2017	75.9495 8	1/30/2018	33.3411 9	1/30/2019	13.1983 7	1/30/2020	76.2118 7
1/31/2016		1/31/2017	69.7971 2	1/31/2018	59.1103 6	1/31/2019	15.5122 8	1/31/2020	71.1630 6
2/1/2016		2/1/2017	67.3992 7	2/1/2018	109.105 7	2/1/2019	71.9158 4	2/1/2020	67.7966 9
2/2/2016		2/2/2017	78.2422 4	2/2/2018	145.603 2	2/2/2019	61.4473 8	2/2/2020	68.8277 1
2/3/2016		2/3/2017	80.0789 6	2/3/2018	123.604 1	2/3/2019	53.7860 9	2/3/2020	83.2009
2/4/2016		2/4/2017	85.4387 1	2/4/2018	157.864 2	2/4/2019	53.2270 5	2/4/2020	97.0109 3
2/5/2016		2/5/2017	84.1870 8	2/5/2018	167.586 9	2/5/2019	44.9063 9	2/5/2020	71.5998 6
2/6/2016		2/6/2017	75.8596	2/6/2018	183.169 7	2/6/2019	47.0970 1	2/6/2020	94.5042 3
2/7/2016		2/7/2017	70.5464 7	2/7/2018	270.550 4	2/7/2019	27.4806 2	2/7/2020	85.1600 8
2/8/2016		2/8/2017	81.9700 5	2/8/2018	196.307 6	2/8/2019	27.5736 1	2/8/2020	85.4522 8
2/9/2016		2/9/2017	78.2607 3	2/9/2018	160.427 1	2/9/2019	26.4654 2	2/9/2020	100.165
2/10/2016		2/10/2017	69.3917 3	2/10/2018	148.287 3	2/10/2019	56.6752 8	2/10/2020	97.4611 6
2/11/2016		2/11/2017	75.722	2/11/2018	189.033 8	2/11/2019	53.4695 1	2/11/2020	78.1207 1
2/12/2016		2/12/2017	76.7049 3	2/12/2018	255.528 5	2/12/2019	60.1346 5	2/12/2020	88.4142 8
2/13/2016		2/13/2017	79.7940 3	2/13/2018	107.053 1	2/13/2019	56.4808 7	2/13/2020	93.0676 3
2/14/2016		2/14/2017	78.1273 1	2/14/2018	111.870 1	2/14/2019	73.4184 1	2/14/2020	91.6017 9
2/15/2016		2/15/2017	89.3105 9	2/15/2018	104.472 3	2/15/2019	60.9259	2/15/2020	94.7488 5
2/16/2016		2/16/2017	89.3494 4	2/16/2018	108.518	2/16/2019	26.0691	2/16/2020	120.921 1
2/17/2016		2/17/2017	90.4586 8	2/17/2018	109.910 7	2/17/2019	37.3384 7	2/17/2020	121.766 8
2/18/2016		2/18/2017	83.3236 8	2/18/2018	113.400 7	2/18/2019	37.9481 9	2/18/2020	92.7881 2

2/19/2016		2/19/2017	89.4137 2	2/19/2018	121.503 9	2/19/2019	39.8171 5	2/19/2020	96.5080 6
2/20/2016		2/20/2017	92.6773 4	2/20/2018	129.373 9	2/20/2019	54.1553 5	2/20/2020	86.0353 1
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2/24/2016		2/24/2017	78.9633 3	2/24/2018	129.661 8	2/24/2019	60.9287 2	2/24/2020	
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2/26/2016		2/26/2017	85.9436 1	2/26/2018	120.106 1	2/26/2019	48.0834 7	2/26/2020	
2/27/2016		2/27/2017	91.5323 6	2/27/2018	116.262	2/27/2019	27.6212 5	2/27/2020	
2/28/2016		2/28/2017	98.0058 3	2/28/2018	107.768 1	2/28/2019	18.7534	2/28/2020	
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3/3/2016		3/4/2017	69.1024 3	3/4/2018	144.524 7	3/4/2019	41.9822 2	3/3/2020	
3/4/2016		3/5/2017	68.7957 6	3/5/2018	153.370 9	3/5/2019	37.2727 1	3/4/2020	
3/5/2016		3/6/2017	75.5211 8	3/6/2018	132.105 8	3/6/2019	36.7488 2	3/5/2020	
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3/7/2016		3/8/2017	85.2851 4	3/8/2018	143.110 9	3/8/2019	44.5366 7	3/7/2020	
3/8/2016		3/9/2017	84.8906 2	3/9/2018	144.157 7	3/9/2019	48.9481 9	3/8/2020	
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10/13/201 6		10/14/2017	13.7165 4	10/14/201	45.1615	10/14/201 9	43.9543 1	10/13/2020	
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12/29/2016	97.6733	12/30/2017	30.6341	12/30/2018	61.5601	12/30/2019	91.3519	12/29/2020	
12/30/2016	80.2023	12/31/2017	28.8672	12/31/2018	63.9796	12/31/2019	88.2794	12/30/2020	
12/31/2016									

TSP

Date	Value ($\mu\text{g}/\text{m}^3$)	Date						
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1/3/2016		1/3/2017	73.29837	1/3/2018	29.03618	1/3/2019	100.5269	1/3/2020
1/4/2016		1/4/2017	114.1203	1/4/2018	30.22049	1/4/2019	132.2017	1/4/2020
1/5/2016		1/5/2017	107.1926	1/5/2018	30.09083	1/5/2019	89.08254	1/5/2020
1/6/2016		1/6/2017	87.86438	1/6/2018	27.58444	1/6/2019	112.8153	1/6/2020
1/7/2016		1/7/2017	94.47202	1/7/2018	27.535	1/7/2019	93.13624	1/7/2020
1/8/2016		1/8/2017	103.6941	1/8/2018	30.26722	1/8/2019	116.3304	1/8/2020
1/9/2016		1/9/2017	120.4923	1/9/2018	39.57212	1/9/2019	96.92924	1/9/2020
1/10/2016		1/10/2017	95.90947	1/10/2018	42.31192	1/10/2019	85.11806	1/10/2020
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1/15/2016		1/15/2017	108.0821	1/15/2018	27.96428	1/15/2019	58.79035	1/15/2020
1/16/2016		1/16/2017	118.9096	1/16/2018	33.76587	1/16/2019	55.64245	1/16/2020
1/17/2016		1/17/2017	92.57367	1/17/2018	29.45297	1/17/2019	52.21779	1/17/2020
1/18/2016		1/18/2017	113.7819	1/18/2018	28.46031	1/18/2019		1/18/2020
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1/21/2016		1/21/2017	127.1119	1/21/2018	24.15229	1/21/2019		1/21/2020
1/22/2016		1/22/2017	107.7529	1/22/2018	29.86046	1/22/2019	72.78863	1/22/2020
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1/26/2016		1/26/2017	106.5206	1/26/2018	28.47431	1/26/2019	15.03201	1/26/2020
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