



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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First online edition

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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

#### 2.1.1Temporal variation of PM1

#### Annual Average of PM1

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

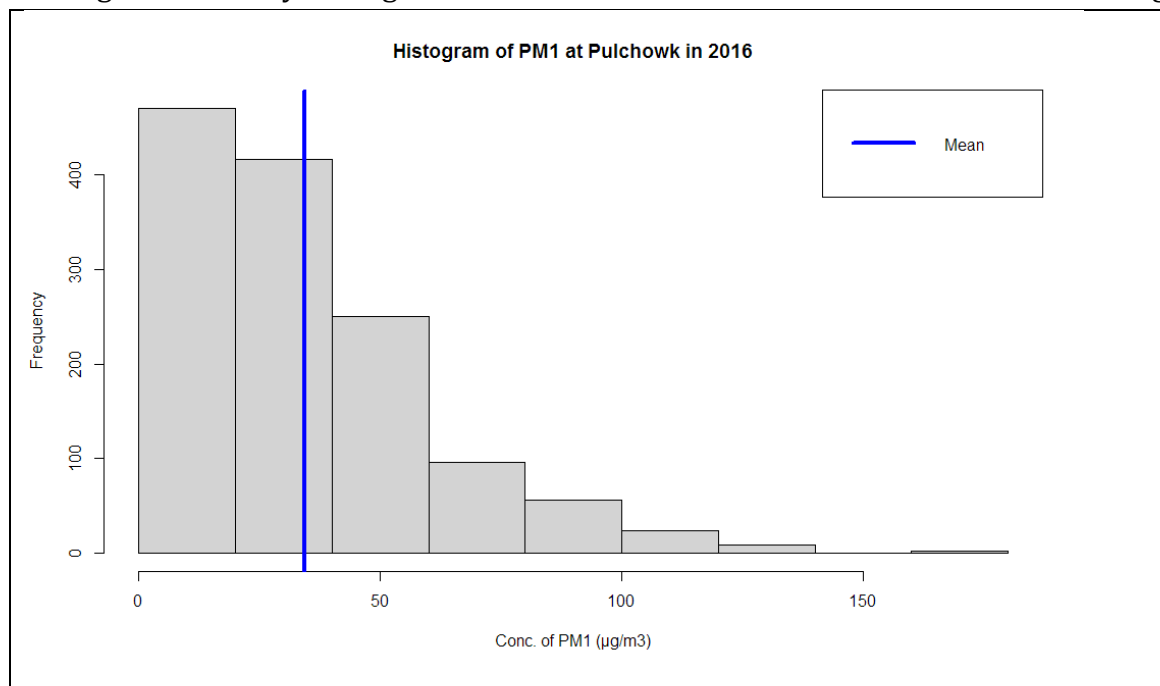


Figure 1. Histogram of PM1 at Pulchowk station in 2016

### Daily average of PM1

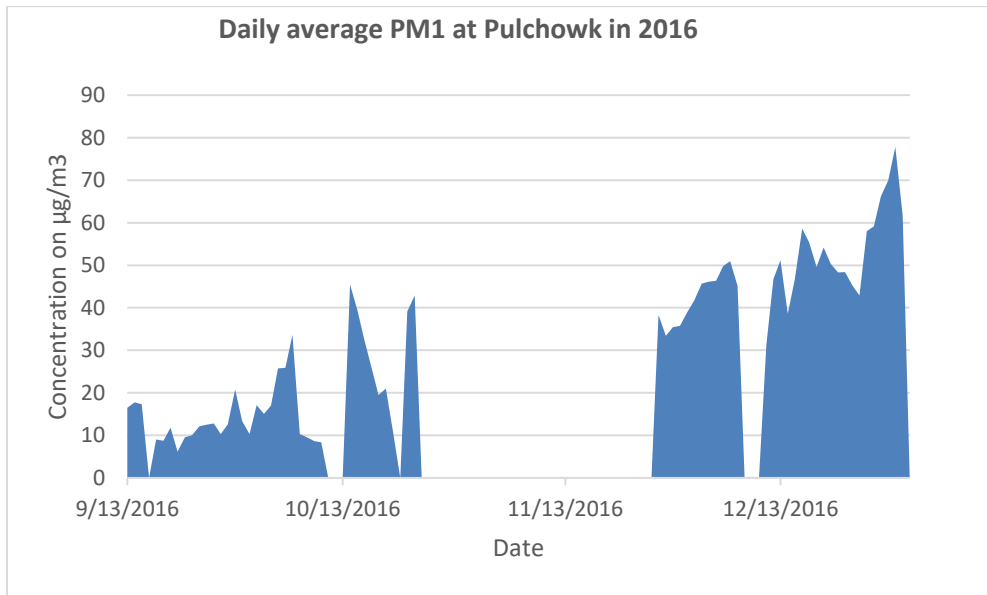


Figure 2. Daily average PM1 at Pulchowk station in 2016

### Monthly Average of PM1

Following figure shows monthly average PM1 at Pulchowk station in 2016

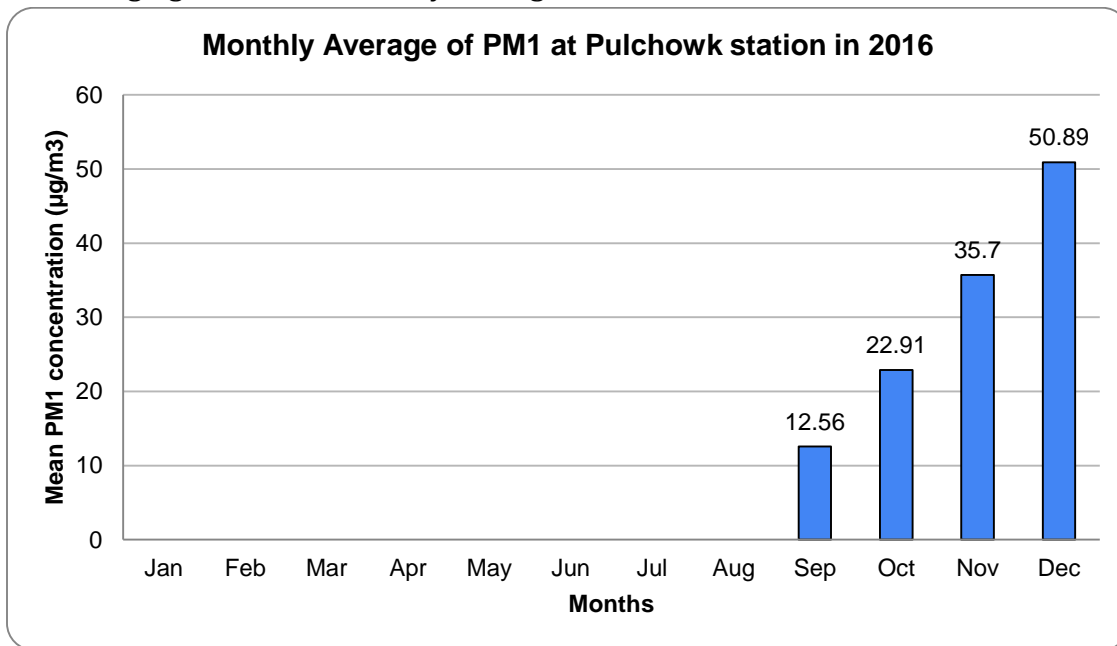


Figure 3. Monthly Average of PM1 at Pulchowk Station on 2016

December had the highest monthly average with monthly average value of 50.89 µg/m<sup>3</sup> while September had the lowest value with monthly average value of 12.56 µg/m<sup>3</sup>.

### Monthly variation of PM1

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

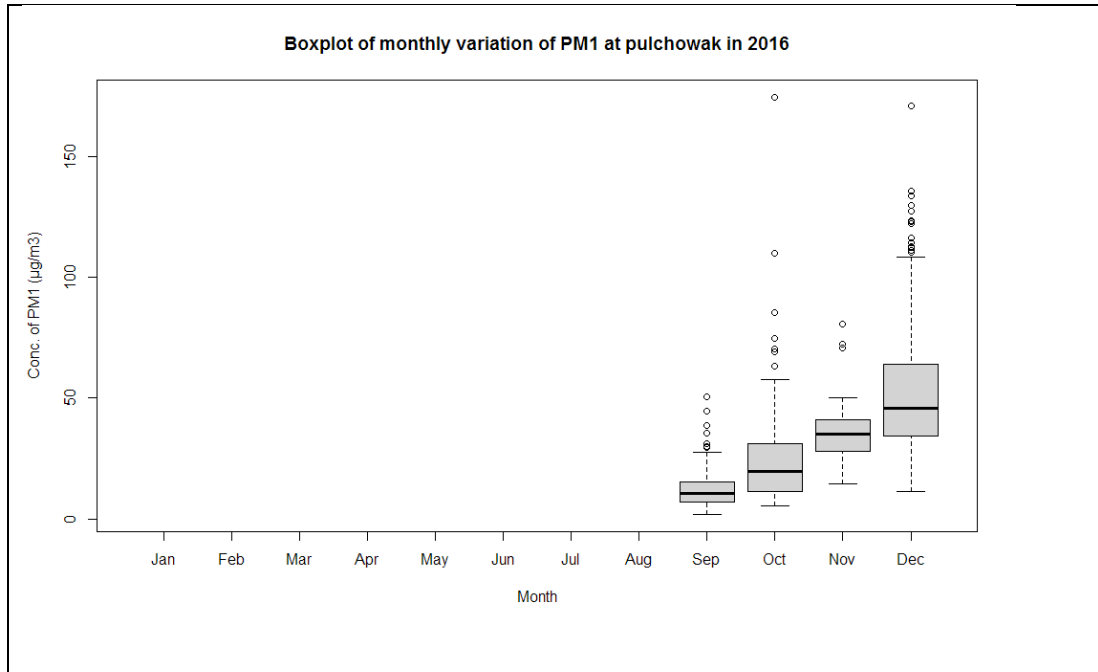


Figure 4. Boxplot of monthly variation of PM1 at Pulchowk station in 2016

Variation in concentration of PM<sub>1</sub> 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.

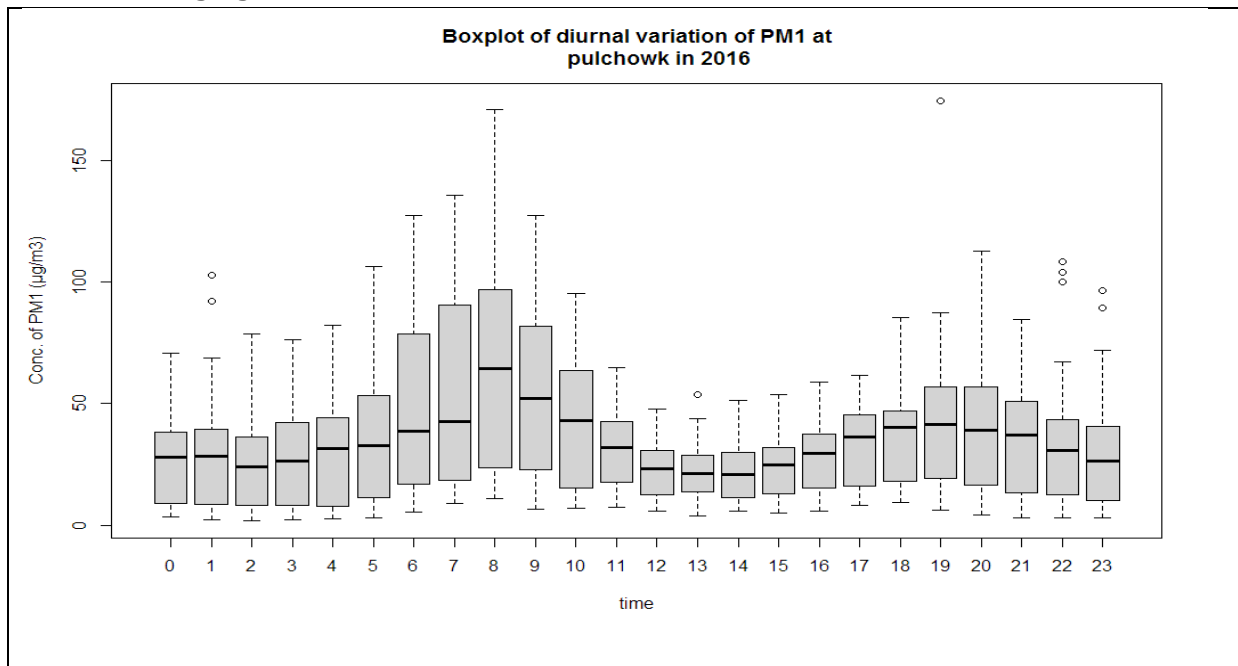


Figure 5. Boxplot of diurnal variation of PM1 at Pulchowk in 2016

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.

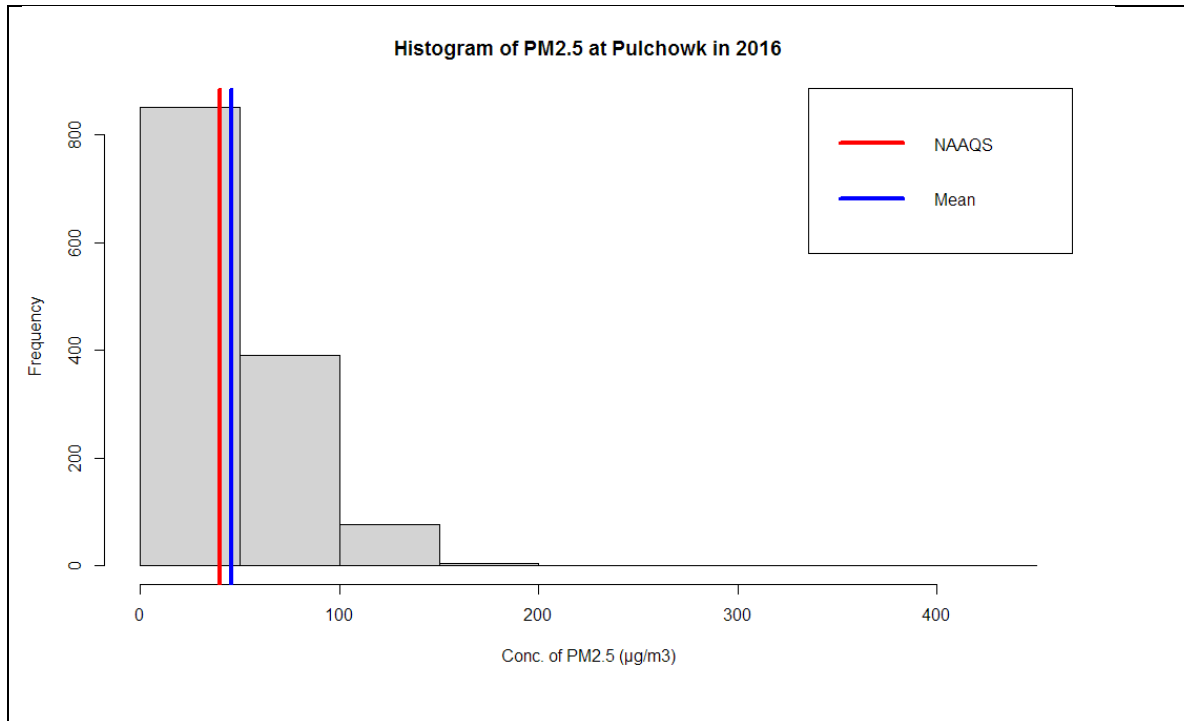


Figure 6. Histogram of PM2.5 at Pulchowk station in 2016

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.

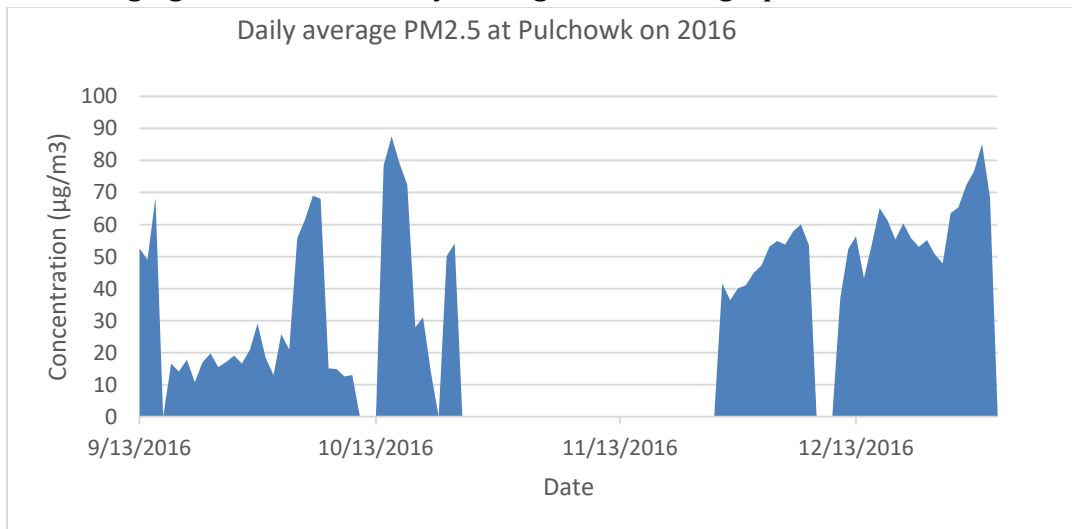


Figure 7. Daily average PM 2.5 at Pulchowk station on 2016

### Monthly Average of PM2.5

Figure 2 shows the monthly average PM<sub>2.5</sub>.

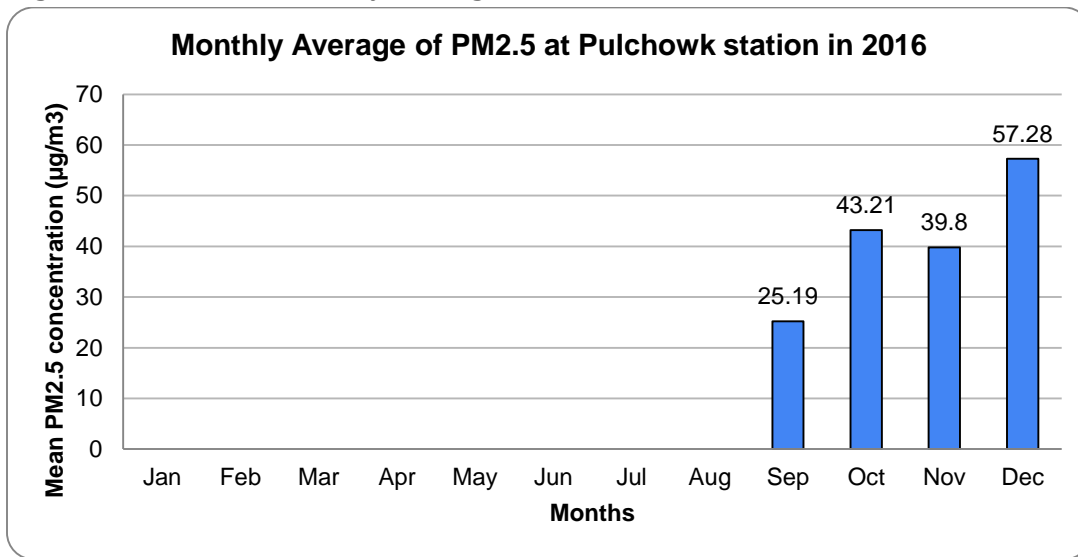


Figure 8. Monthly average PM<sub>2.5</sub> at Pulchowk station in 2016

Out of 4 months September, October, November and December, December has the highest monthly average of PM<sub>2.5</sub>.

### Monthly variation of PM2.5

Following figure shows the monthly variation of PM<sub>2.5</sub> at Pulchowk station in 2016.

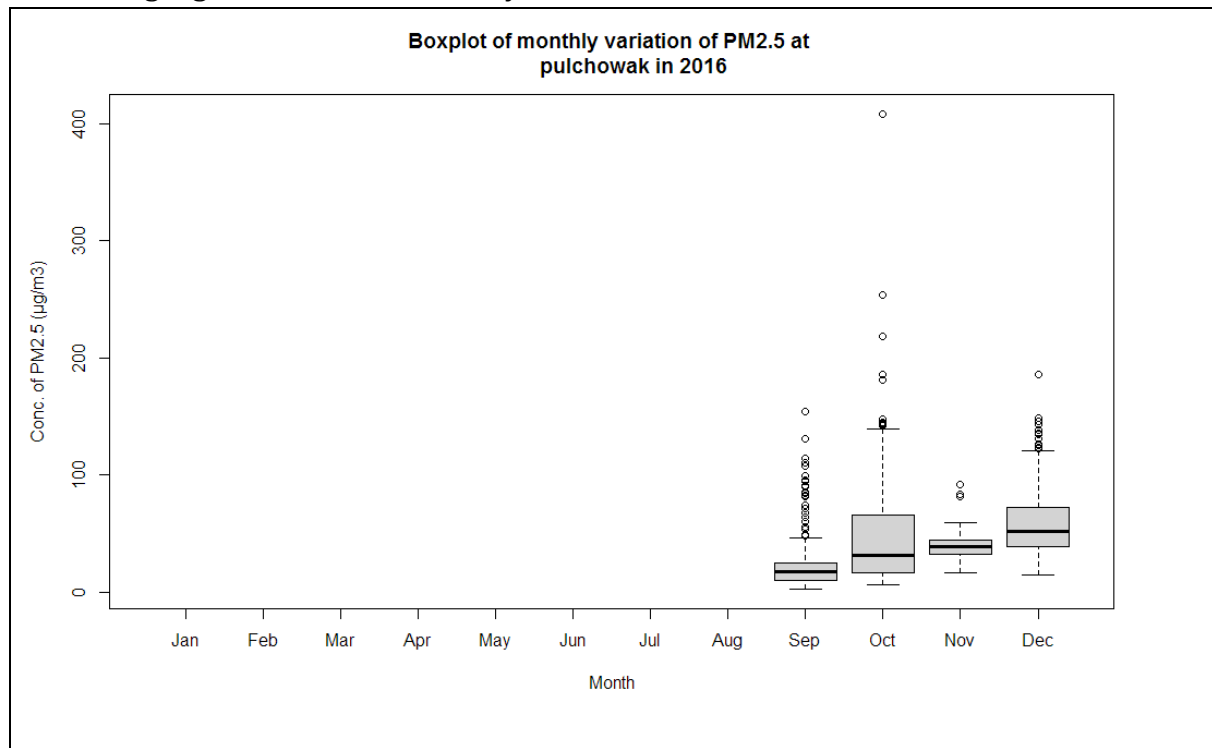


Figure 9. Boxplot of Monthly variation of PM<sub>2.5</sub> at Pulchowk station in 2016

The Boxplot shows there was more variation of Hourly average PM<sub>1</sub> 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.

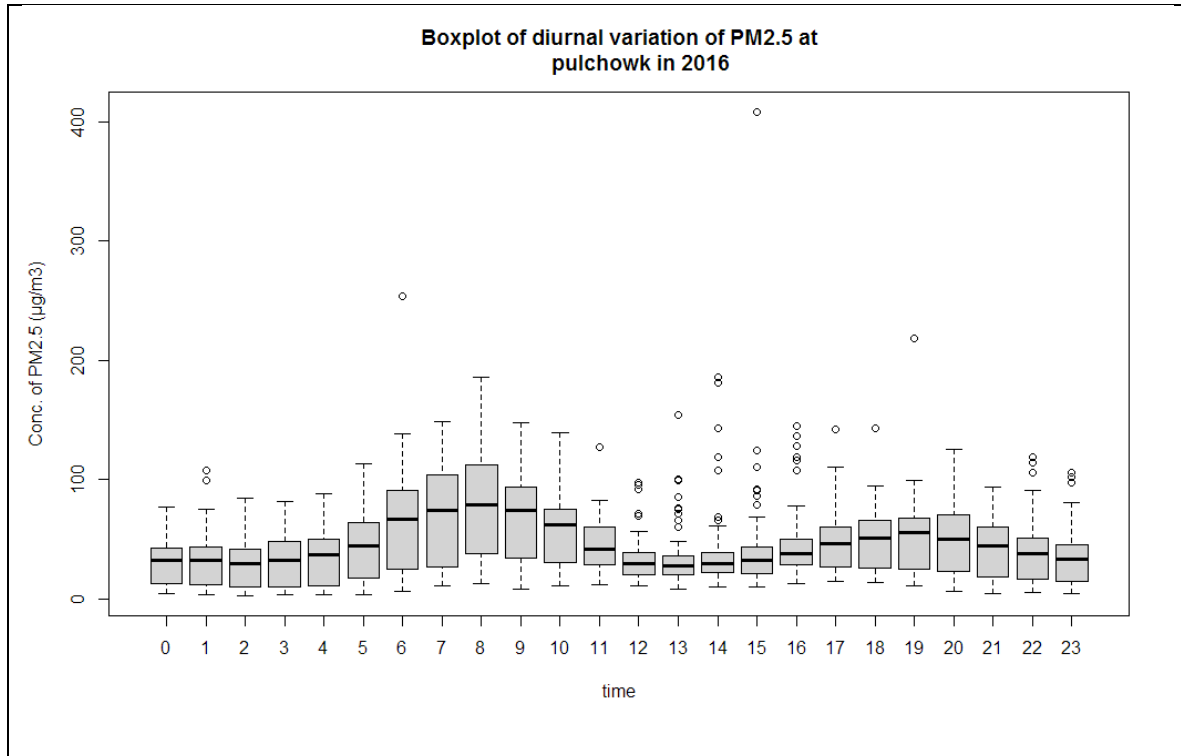


Figure 10. Boxplot of PM2.5 at Pulchowk station in 2016

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)

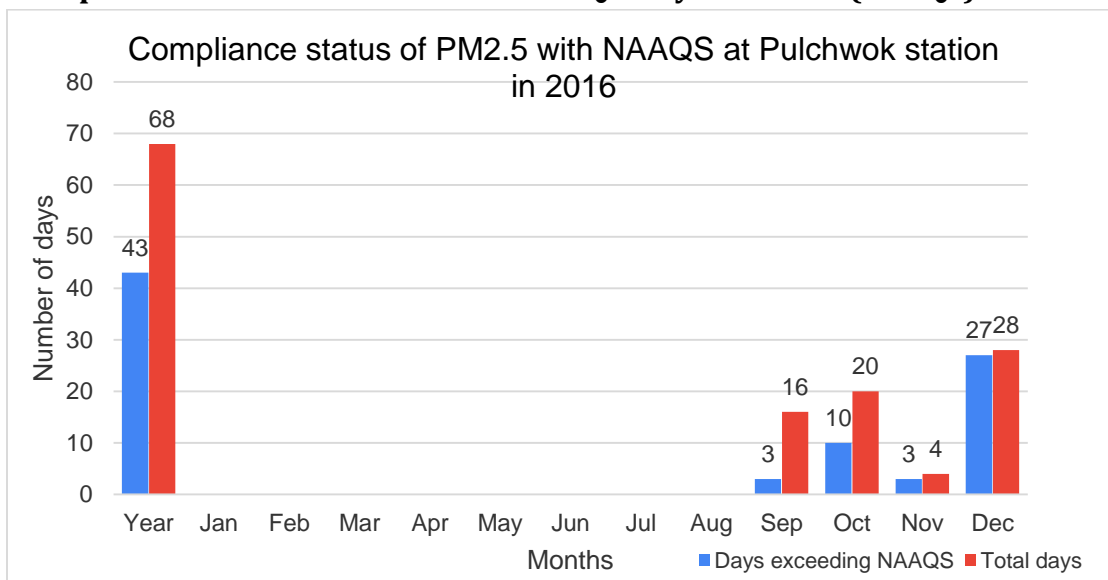


Figure 14. Compliance status of PM2.5 at Pulchowk with NAAQS

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.

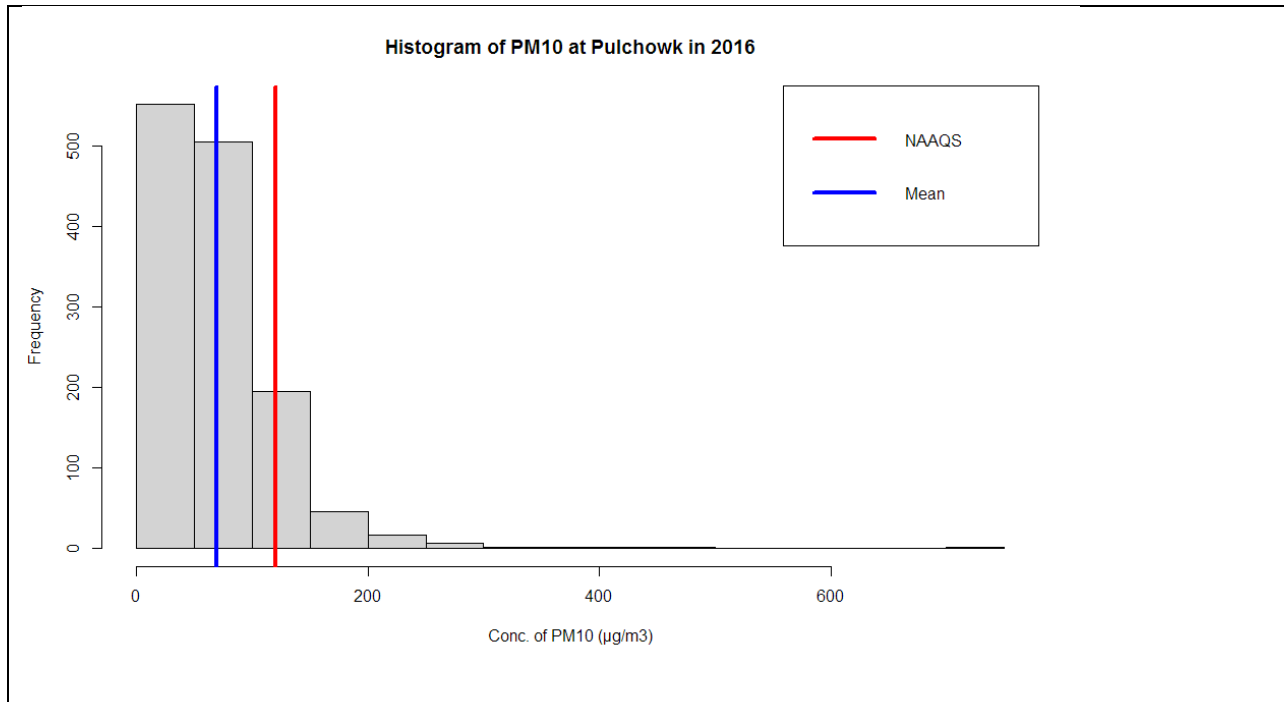


Figure 11. Histogram of PM10 at Pulchowk station in 2016

The Histogram of PM10 at Pulchowk station in 2016 shows that highest no of hourly data is between 0 - 50 µg/m³ concentration followed by 50-100 µg/m³ concentration.

#### Daily average of PM10 at Pulchowk station in 2016.

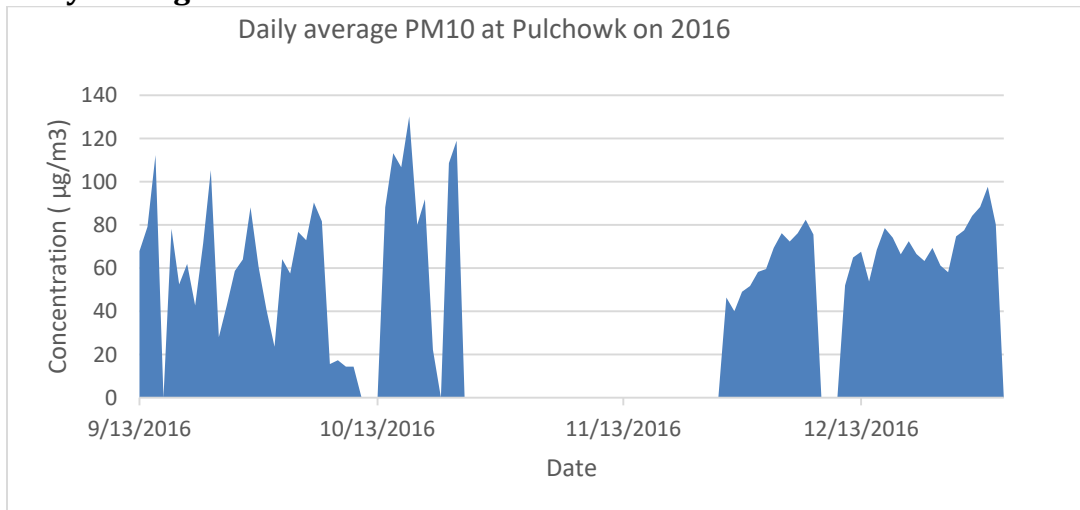


Figure 12. Daily average PM10 at Pulchowk station on 2016

#### Monthly Average of PM10

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

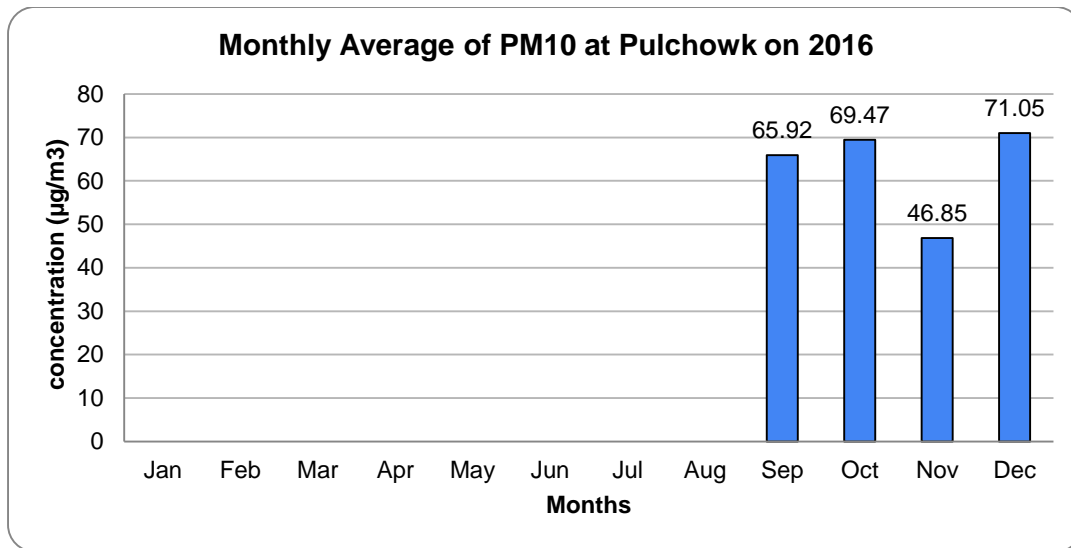


Figure 13. Monthly average PM10 at Pulchowk station in 2016

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.

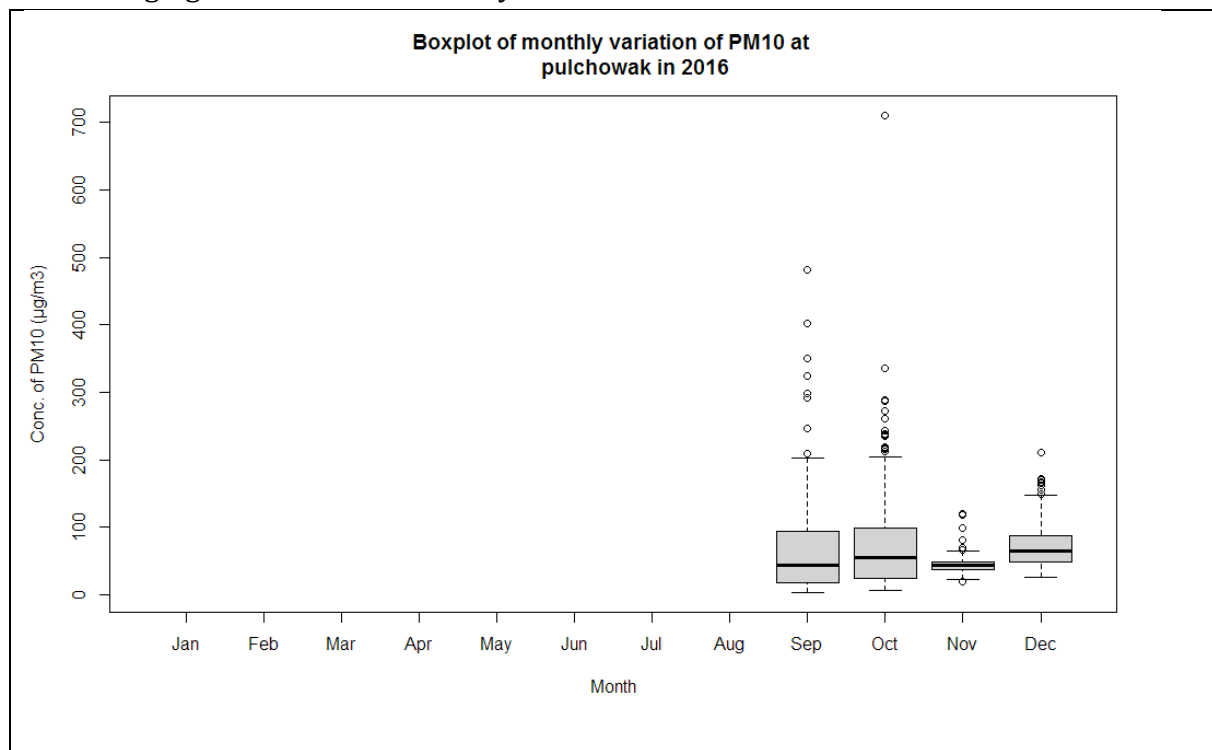


Figure 14. Boxplot of monthly variation of PM10 at Pulchowk in 2016

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.

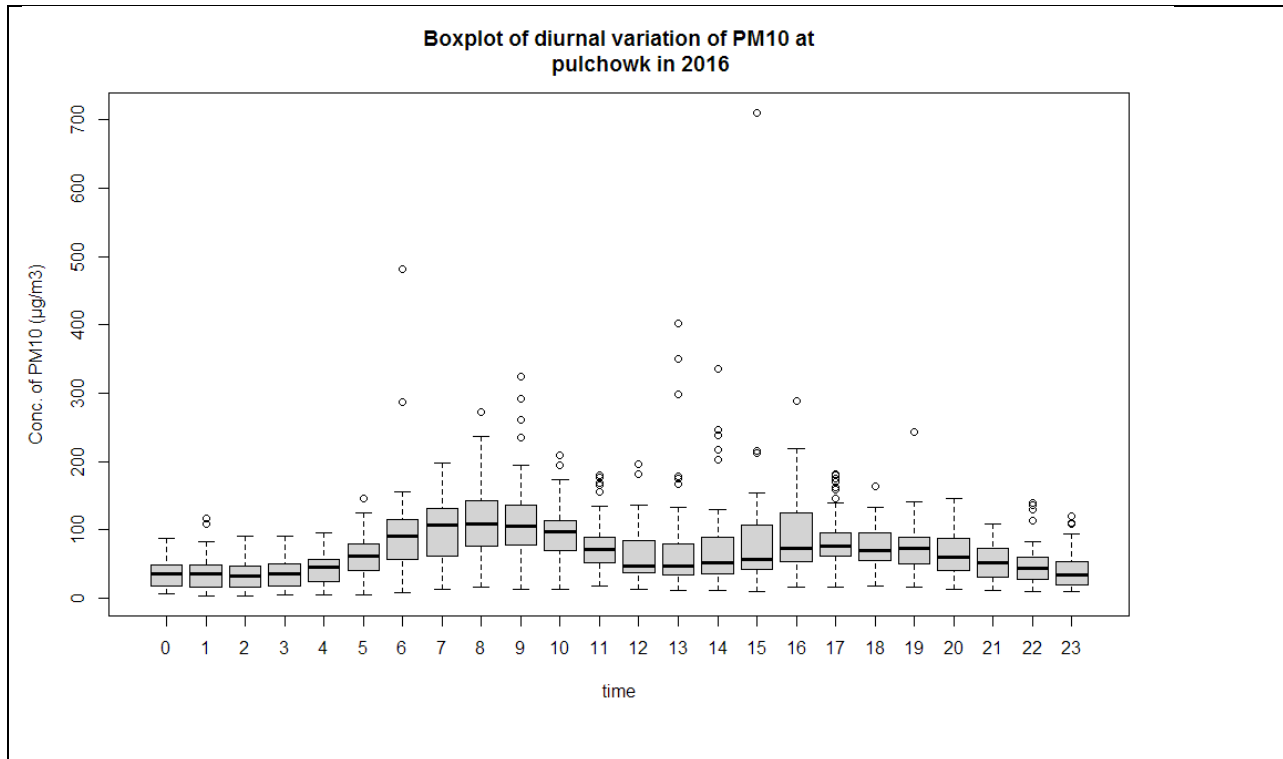


Figure 15. Boxplot of diurnal variation of Pm10at Pulchowk in 2016

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**

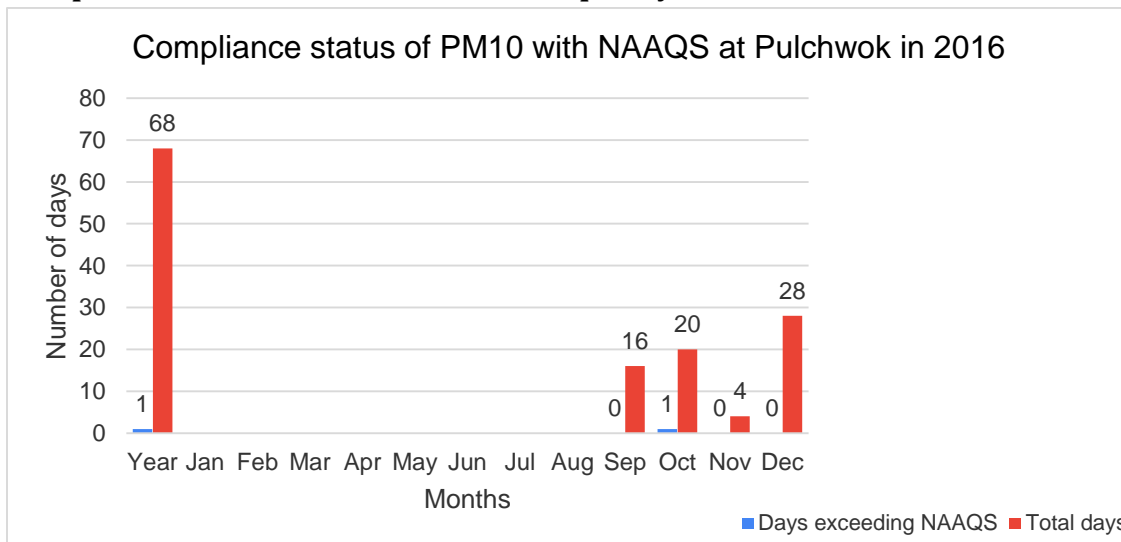


Figure 16. Compliance status of PM10 with NAAQS at Pulchowk in 2016

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.

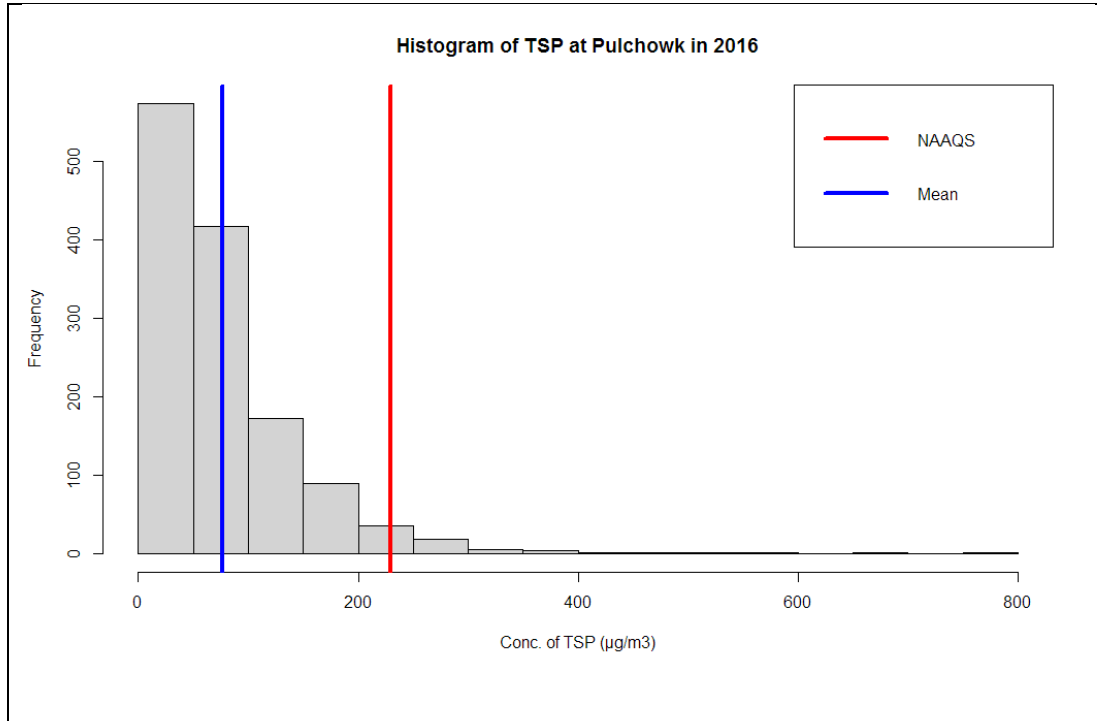


Figure 17. Histogram of TSP at Pulchowk station in 2016

The Histogram of PM<sub>10</sub> at Pulchowk station in 2016 shows that highest no of hourly data is between 0 - 50 µg/m<sup>3</sup> concentration followed by 50-100 µg/m<sup>3</sup> concentration.

#### Daily average of TSP

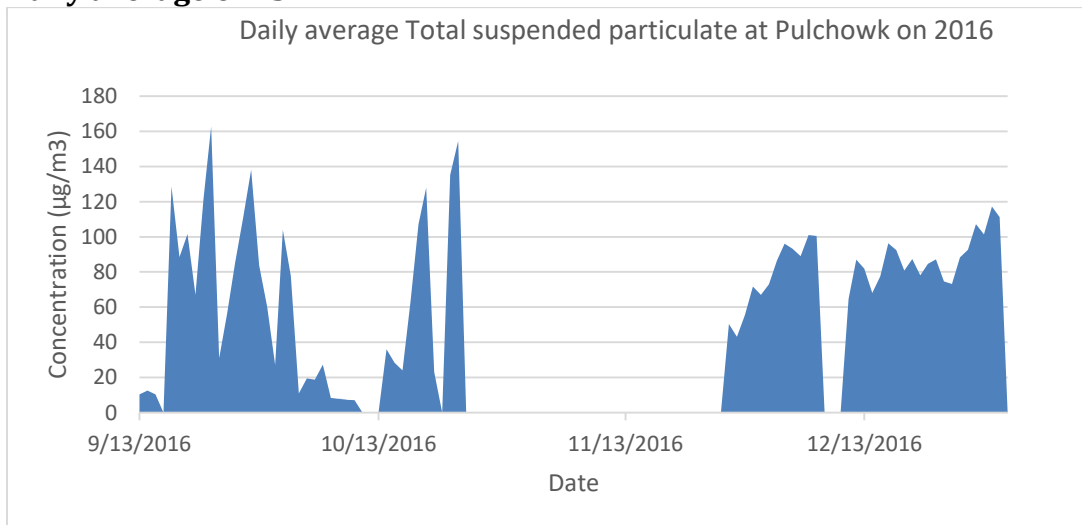


Figure 18. Daily average Total suspended Particulate at Pulchowk station in 2016

### Monthly Average of TSP

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

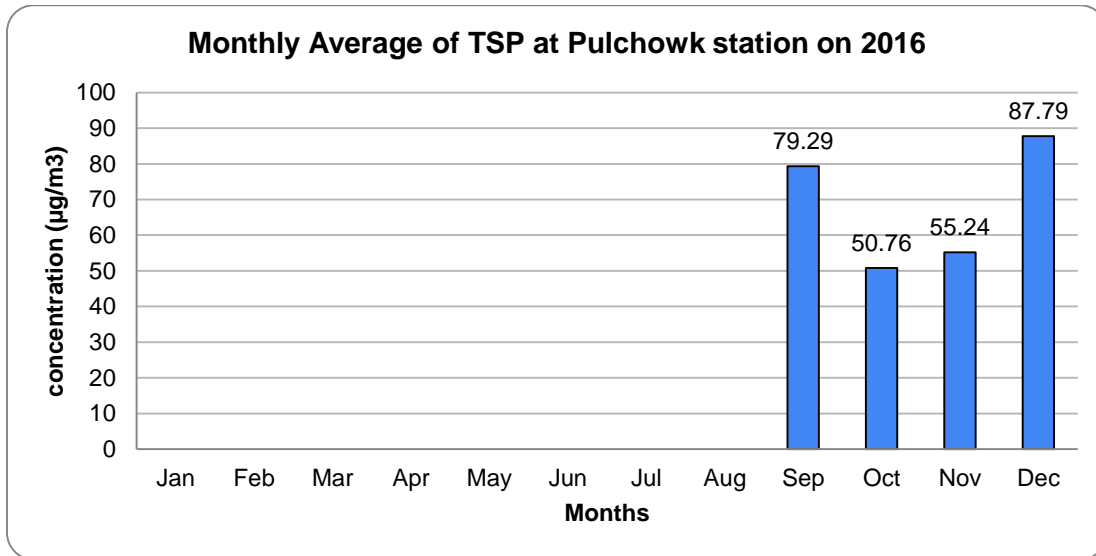


Figure 19. Monthly average total suspended particulate at Pulchowk station on 2016

Out of 4 month September, October, November and December, December has the highest monthly average of 87.79 µg/m<sup>3</sup> and October has the lowest monthly average of 50.76 µg/m<sup>3</sup>.

### Monthly variation of TSP

Following figure shows the monthly variation of Total suspended particulate

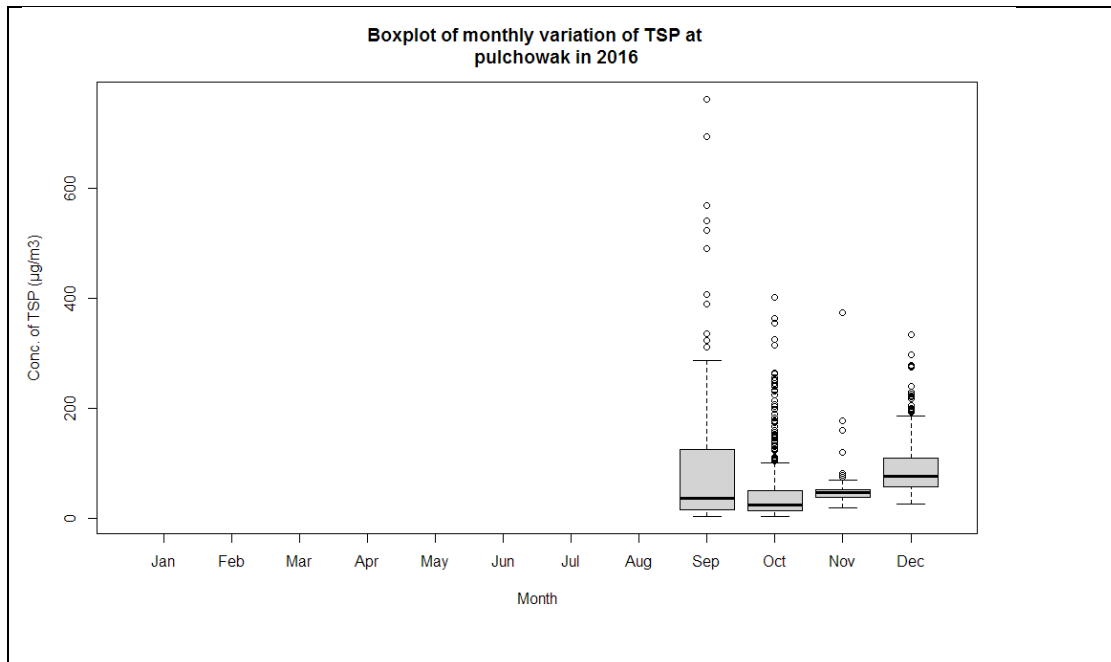


Figure 20. Boxplot of monthly variation of TSP at Pulchowk station in 2016

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.

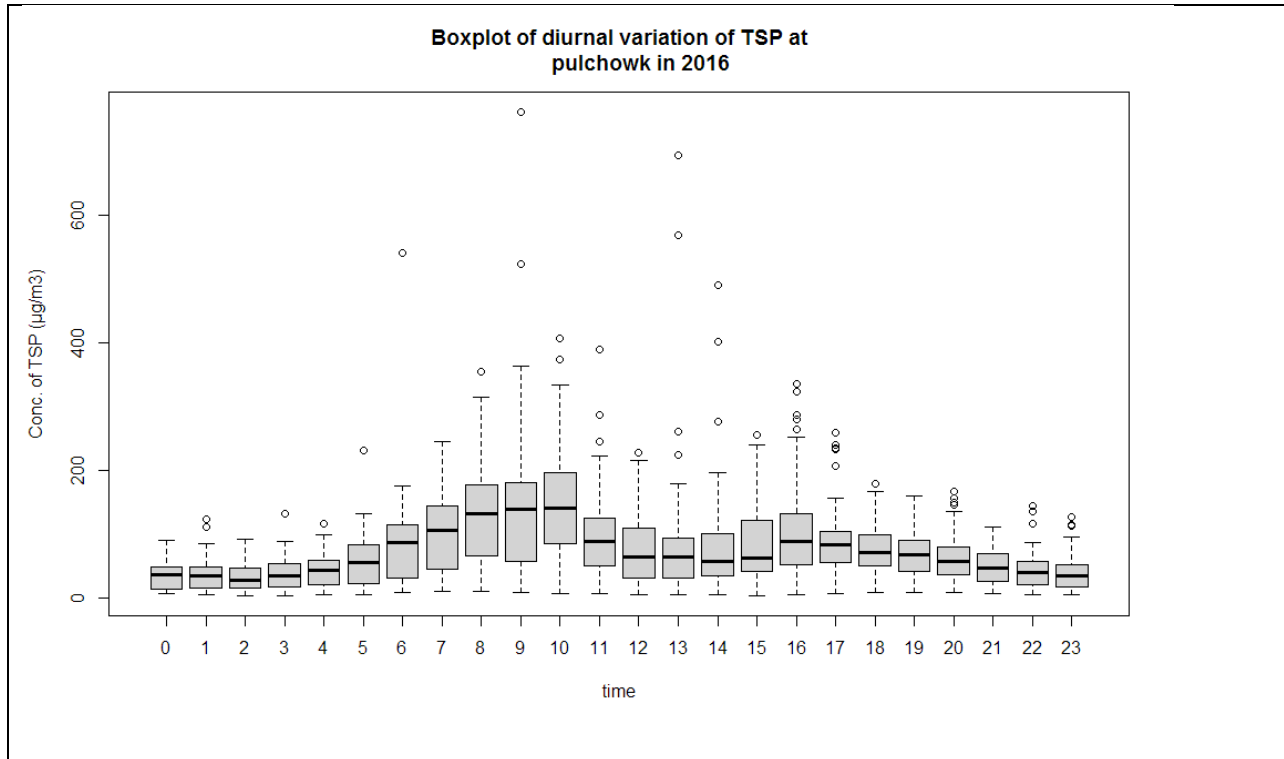


Figure 21. Boxplot of diurnal variation of TSP at Pulchowk in 2016

The Boxplot of TSP at Pulchowk 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.

## 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)

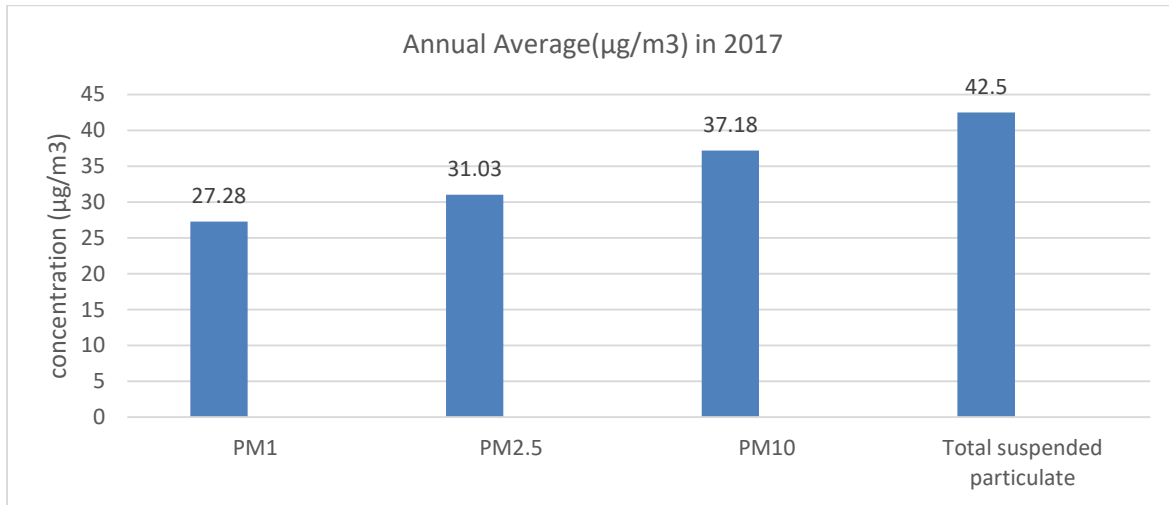


Figure 22. Annual average PM1, PM2.5, PM10 and TSp at Pulchowk station for 2017

### 2.2.2 Temporal Variation of PM1

#### Annual Average of PM1

Annual average PM1 at Pulchowk station at 2017 was 27.28 µg/m<sup>3</sup>. Following figure shows the Histogram of PM1 at Pulchowk in 2017.

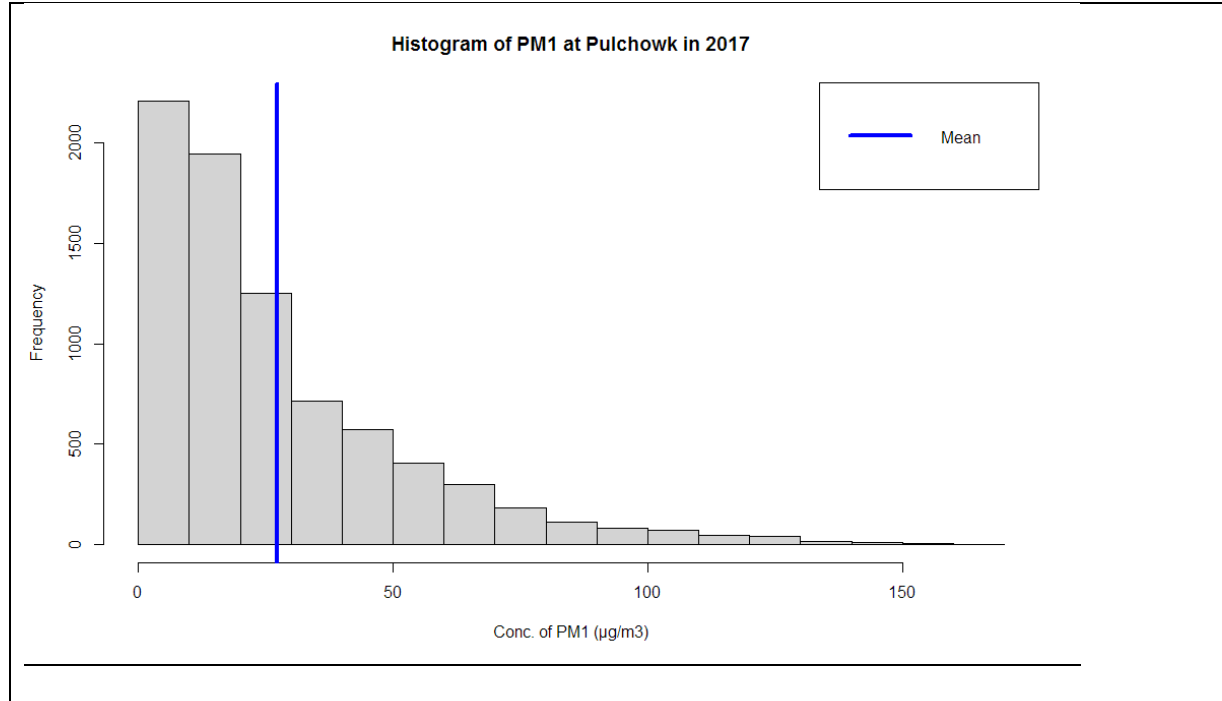


Figure 23. Histogram of PM1 at Pulchowk in 2017

The Histogram shows that highest no of hourly average data were between 0-10µg/m<sup>3</sup> followed by 10-20 µg/m<sup>3</sup>.

### Daily average of PM1

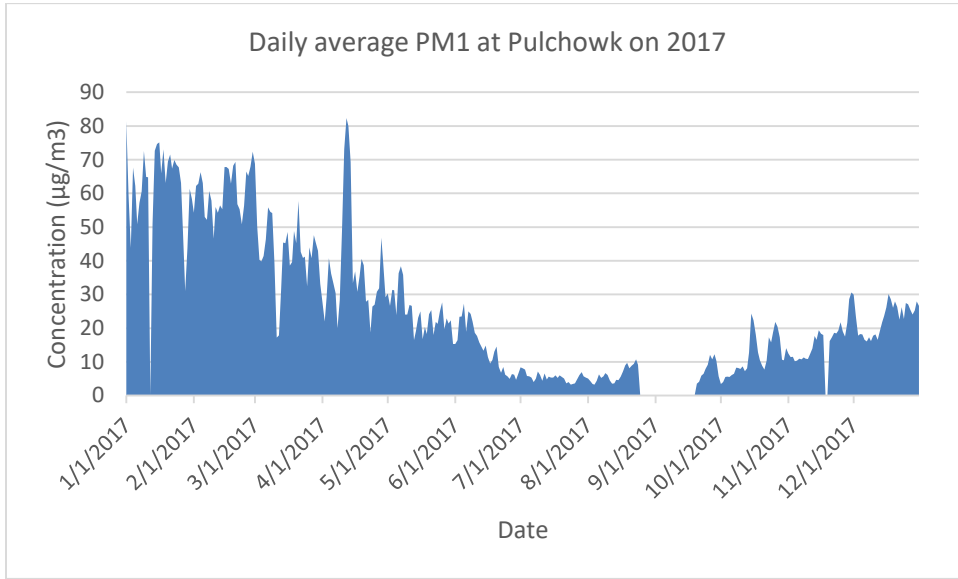


Figure 24. Daily average PM1 at Pulchowk station in 2017

### Monthly Average of PM1

Following Figure shows the monthly average of PM1.

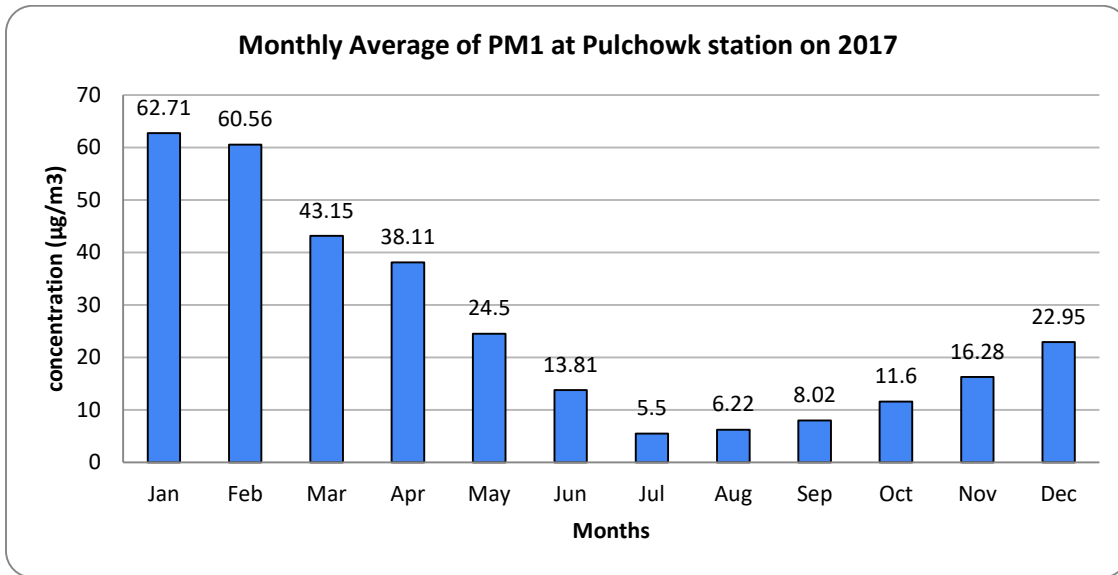


Figure 25. Monthly average PM1 at Pulchowk station in 2017

Above figure shows that the average value of PM<sub>1</sub> was highest in January with 62.71µg/m<sup>3</sup> and while lowest value were observed in July with 5.5 µg/m<sup>3</sup>.

## Monthly Variation of PM1

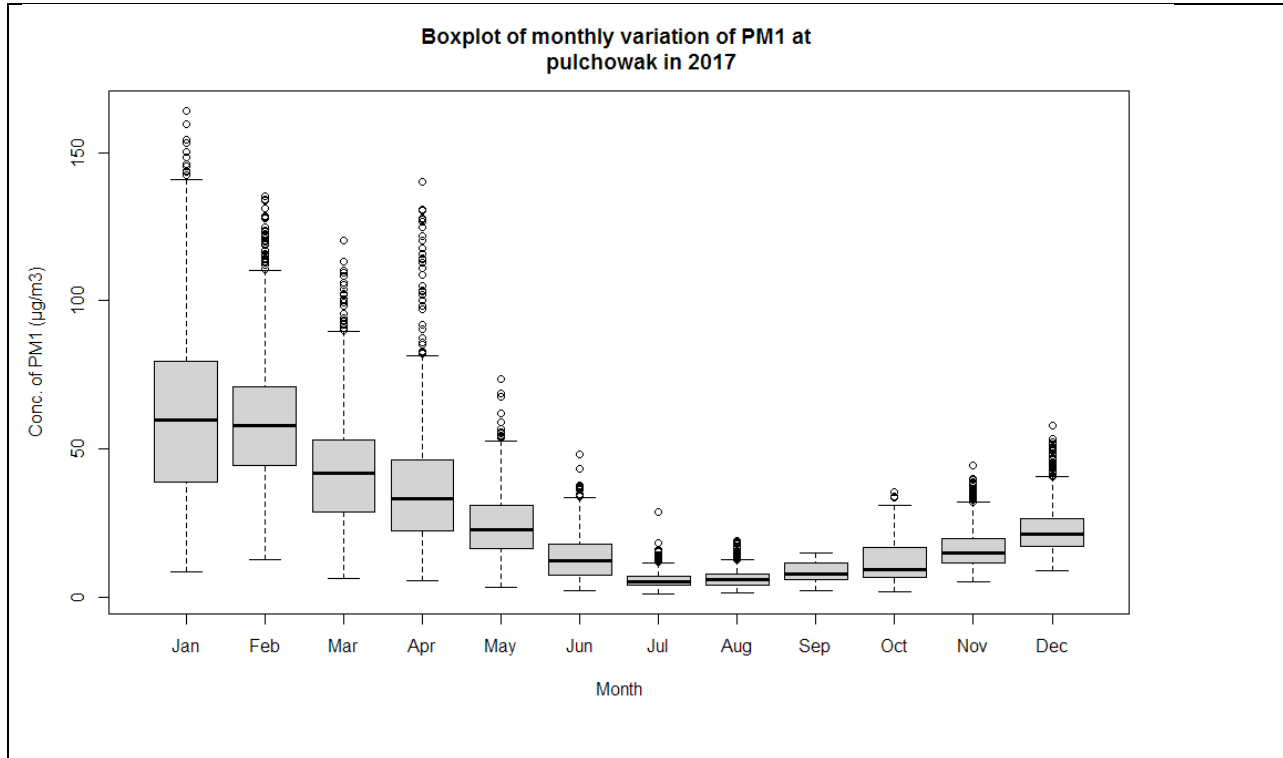


Figure 26. Monthly variation of daily average PM1 at Pulchowak station in 2017

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

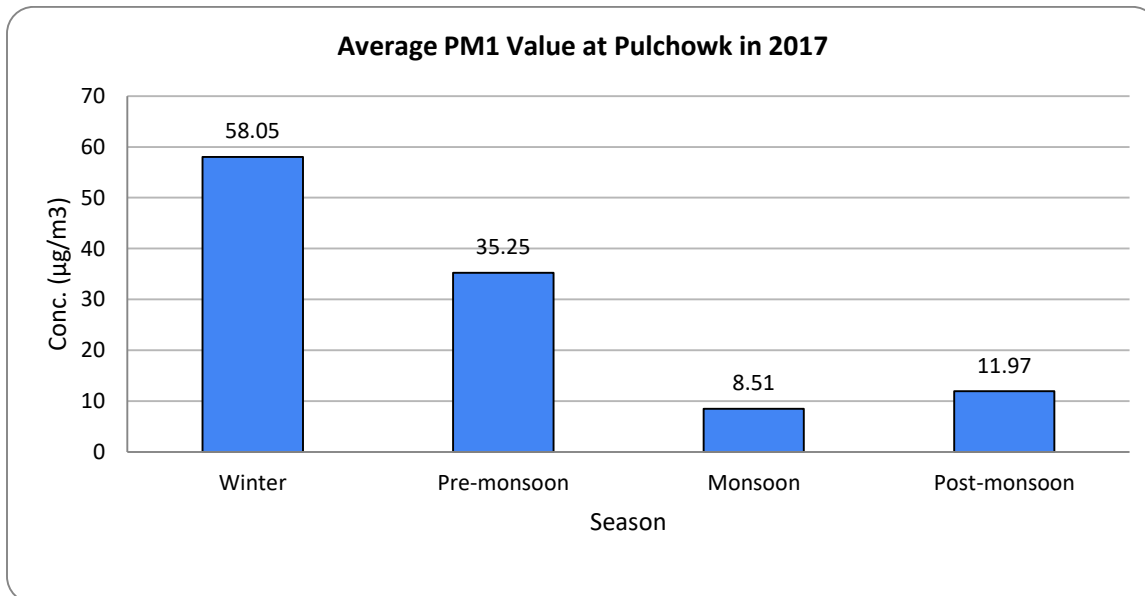


Figure 27. Ambient concentration of average PM1 with four seasons

## Diurnal Variation of PM1

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

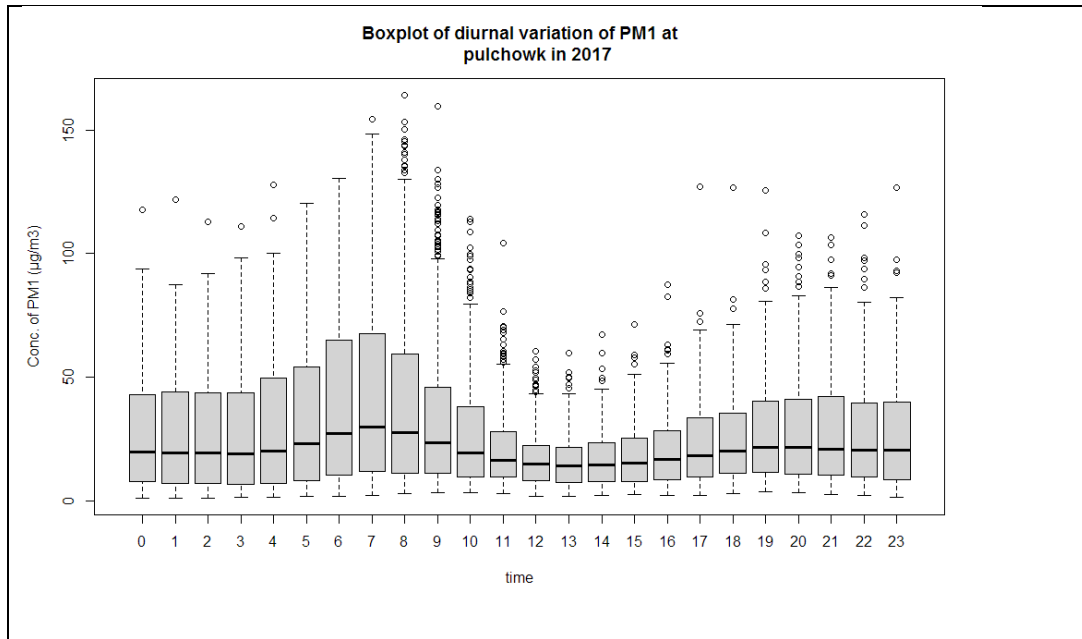


Figure 28. Boxplot of diurnal variation of PM1 at Pulchowk station in 2017

Above figure shows that Pm1 concentration was more at 7 o'clock 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.

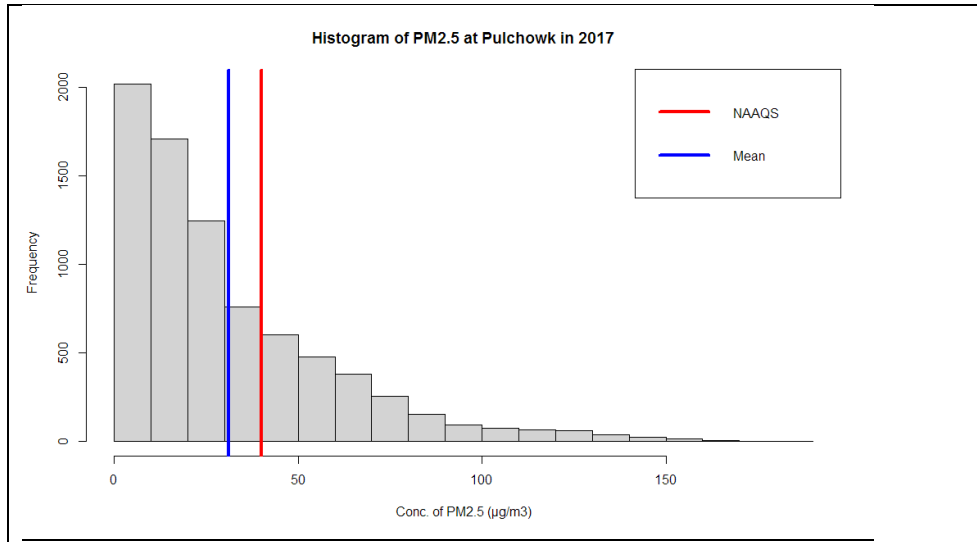


Figure 29. Histogram of PM2.5 at Pulchowk in 2017

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

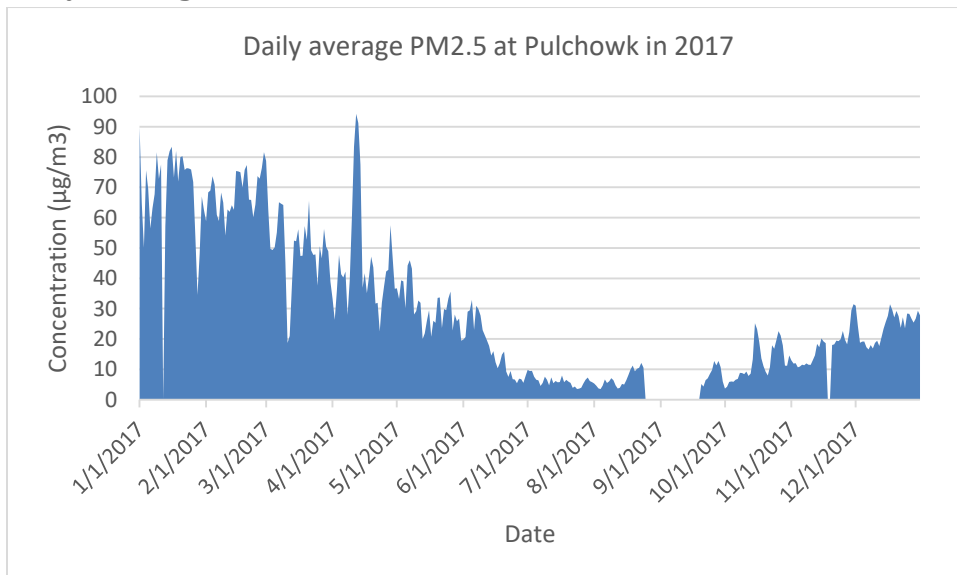


Figure 30. Daily average PM2.5 at Pulchowk station in 2017

## Monthly Average of PM2.5

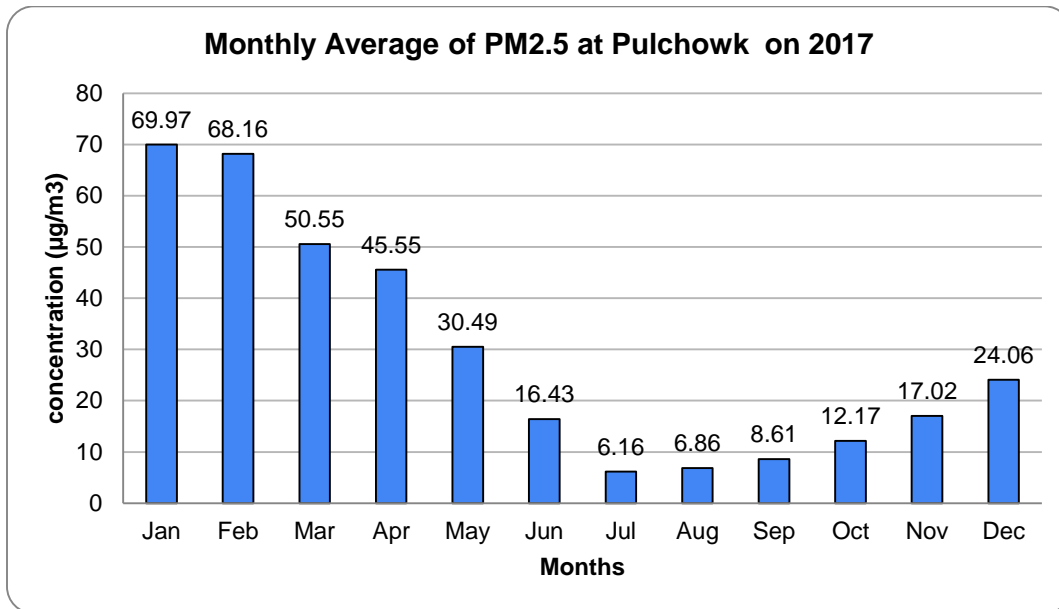


Figure 31. Monthly average of PM2.5 at Pulchowk on 2017

Above figure shows that the monthly average value of PM<sub>2.5</sub> was highest in January with 69.97 µg/m<sup>3</sup> while lowest value were observed in July with 6.16 µg/m<sup>3</sup>.

## Monthly Variation of PM2.5

Following figure shows the boxplot of monthly variation of PM<sub>2.5</sub> at Pulchowk in 2017.

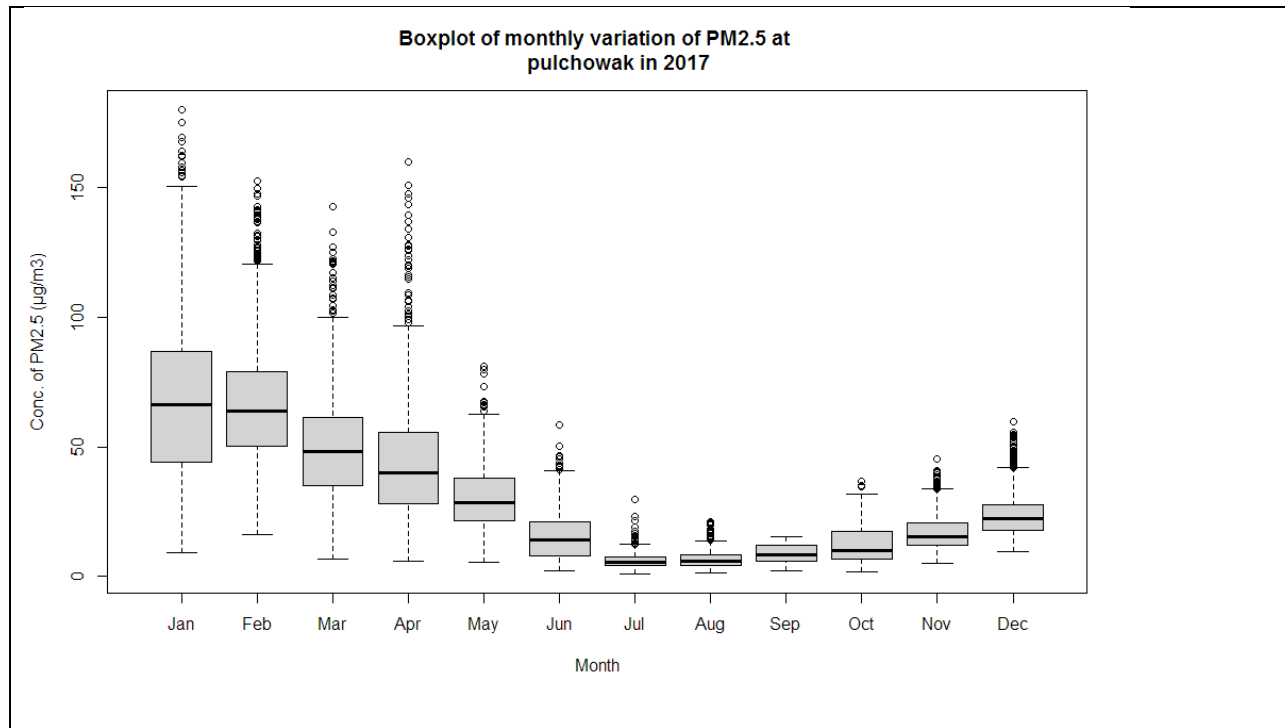


Figure 32. Monthly variation of daily average PM2.5 at Pulchowk in 2017

Above figure shows that hourly average data of PM<sub>2.5</sub> was more variable in January.

### Seasonal Average of PM2.5

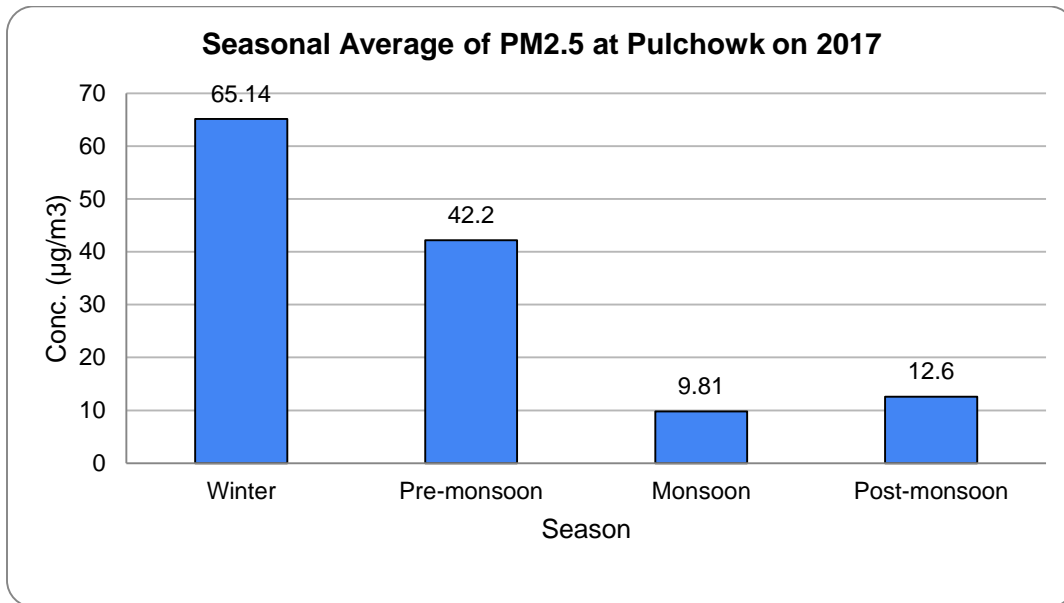


Figure 33. Seasonal variation of PM2.5 at Pulchowk station on 2017

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

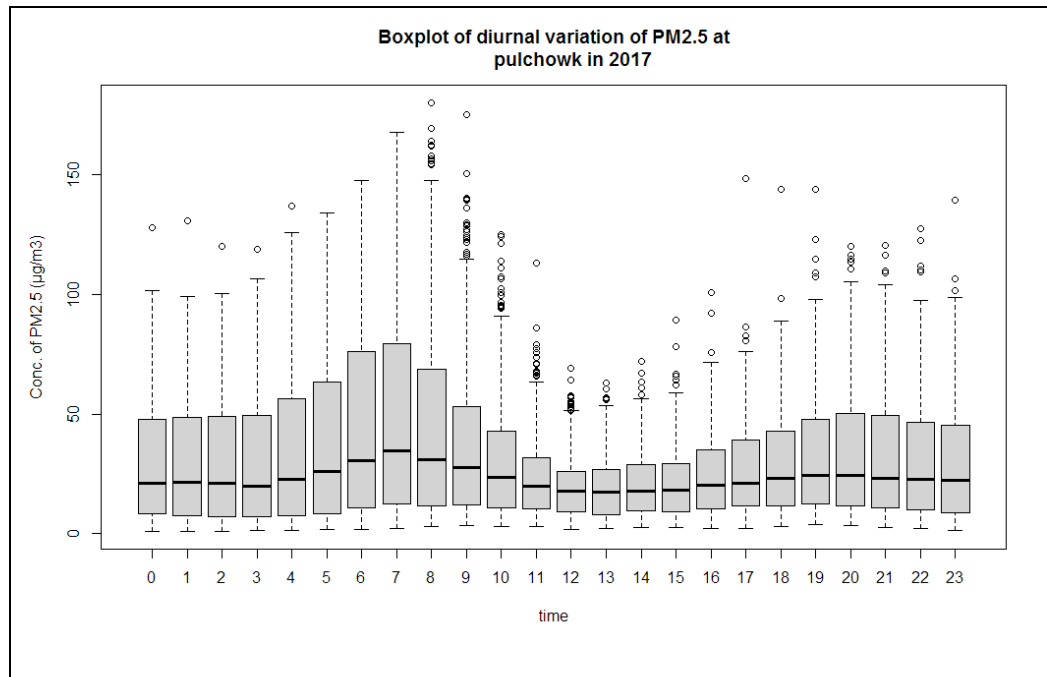


Figure 34. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2017

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

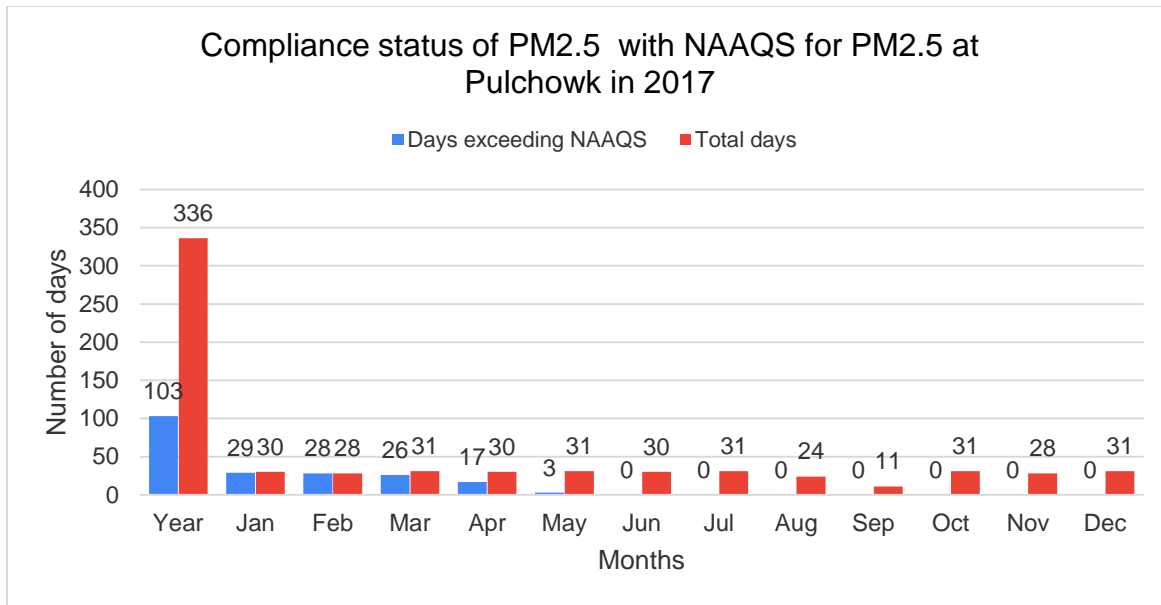


Figure 35. Compliance with National Ambient air quality standard for PM2.5 at Pulchowk station in 2017

Out of total 336 days of Measurement 103 day exceeded the National ambient air quality standard for PM2.5 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.

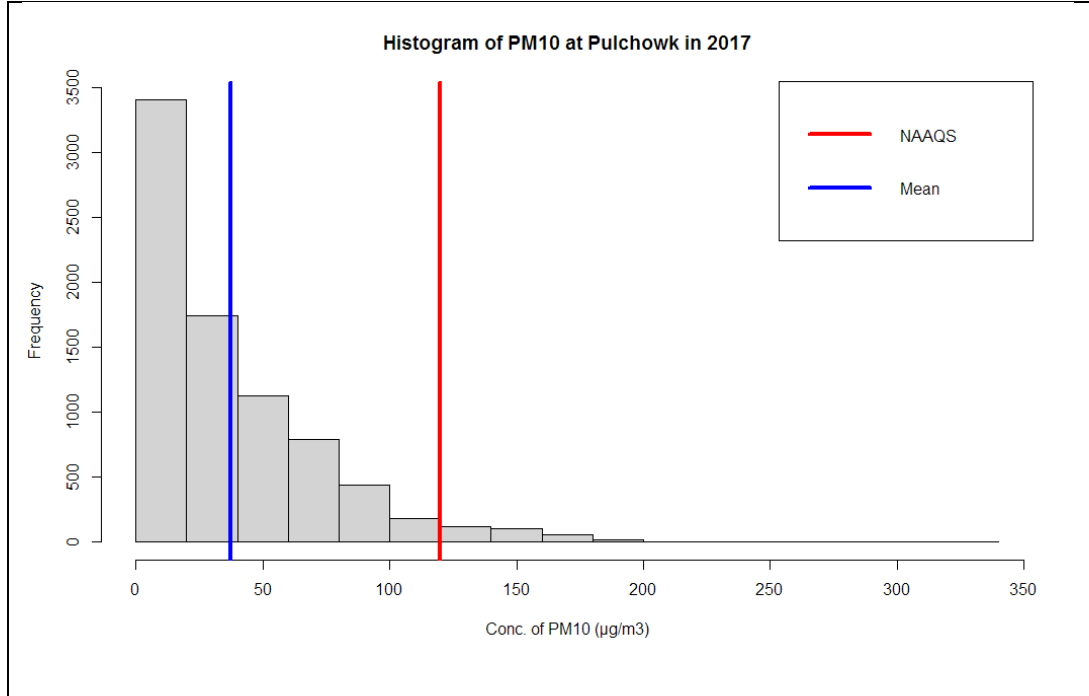


Figure 36. Histogram of PM10 at Pulchowk in 2017

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

### Daily average of PM10

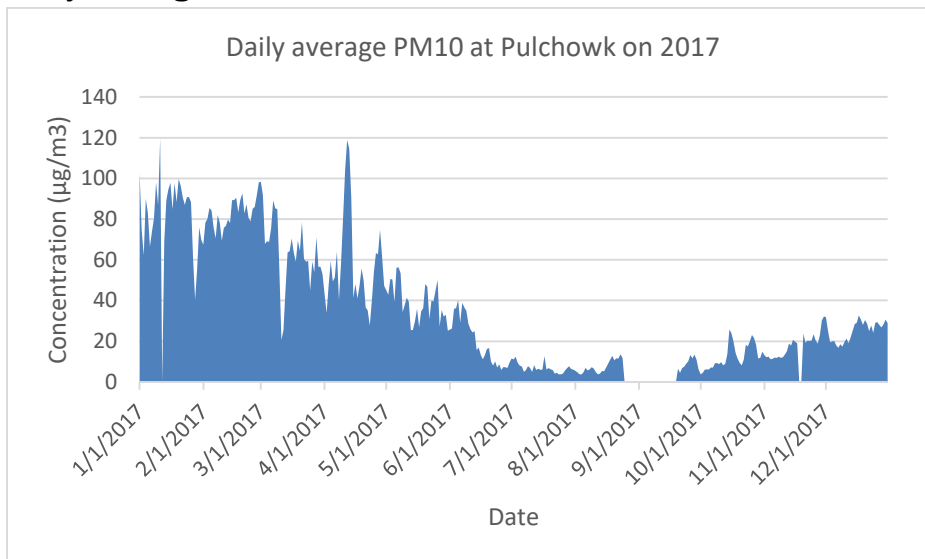


Figure 37. Daily average PM10 at Pulchowk station in 2017

## Monthly Average of PM10

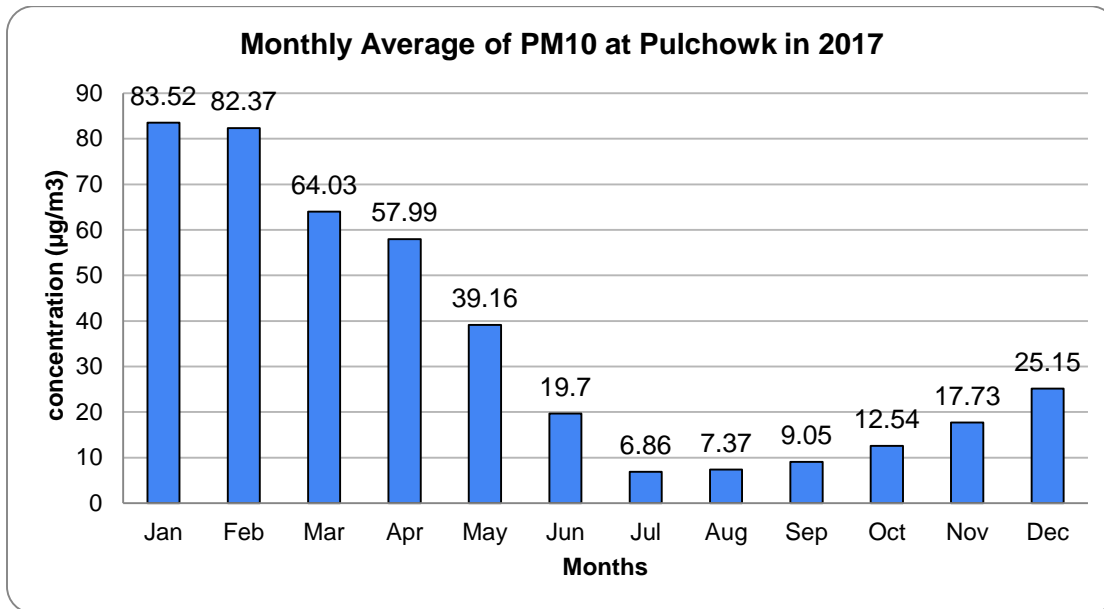


Figure 38. . Monthly average PM10 at Pulchowk station in 2017

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

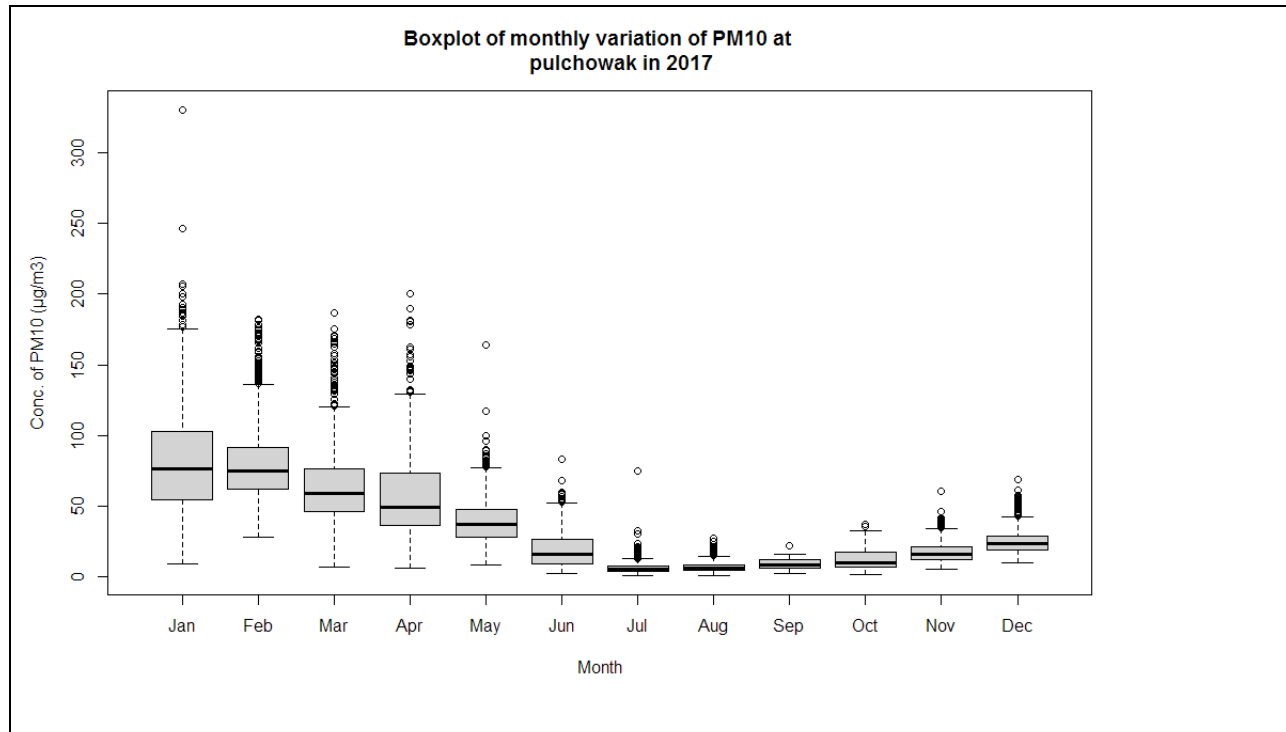


Figure 39. Boxplot of monthly variation of PM10 at Pulchowk in 2017

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.

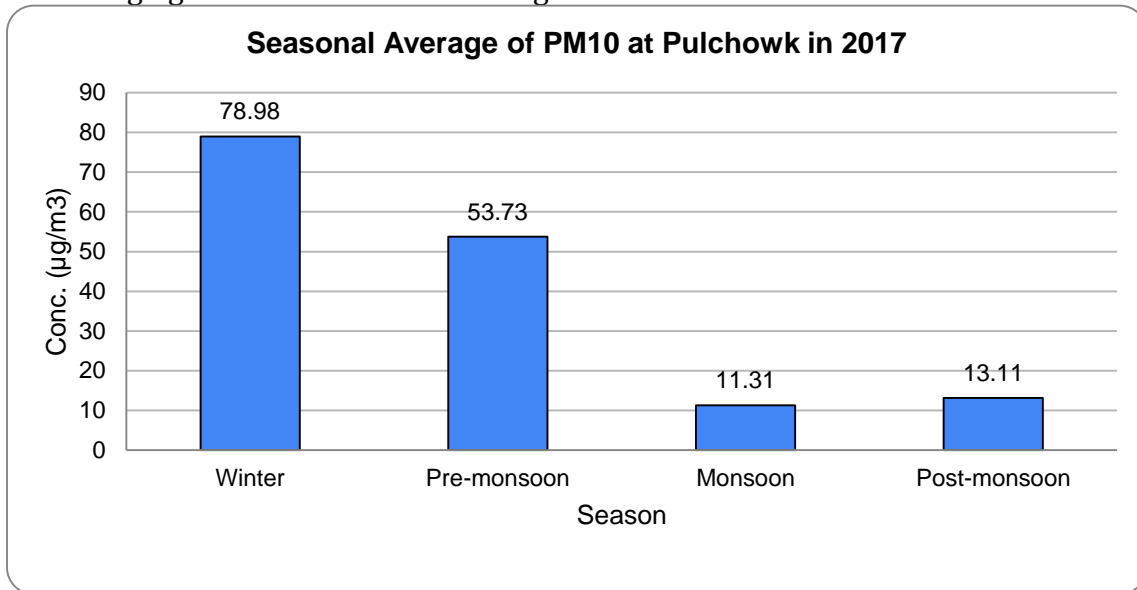


Figure 40. Seasonal average of PM10 at Pulchowk station on 2017

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.

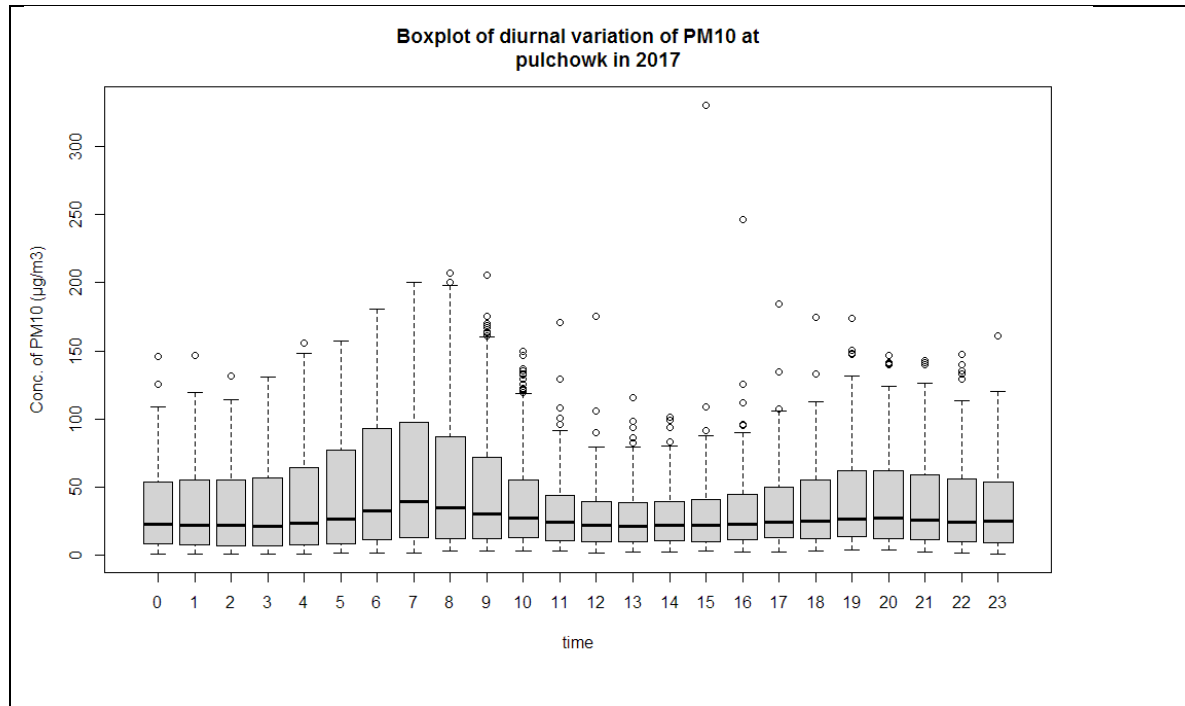


Figure 41. Diurnal variation of Pm10 at Pulchowk in 2017

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.

## 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.

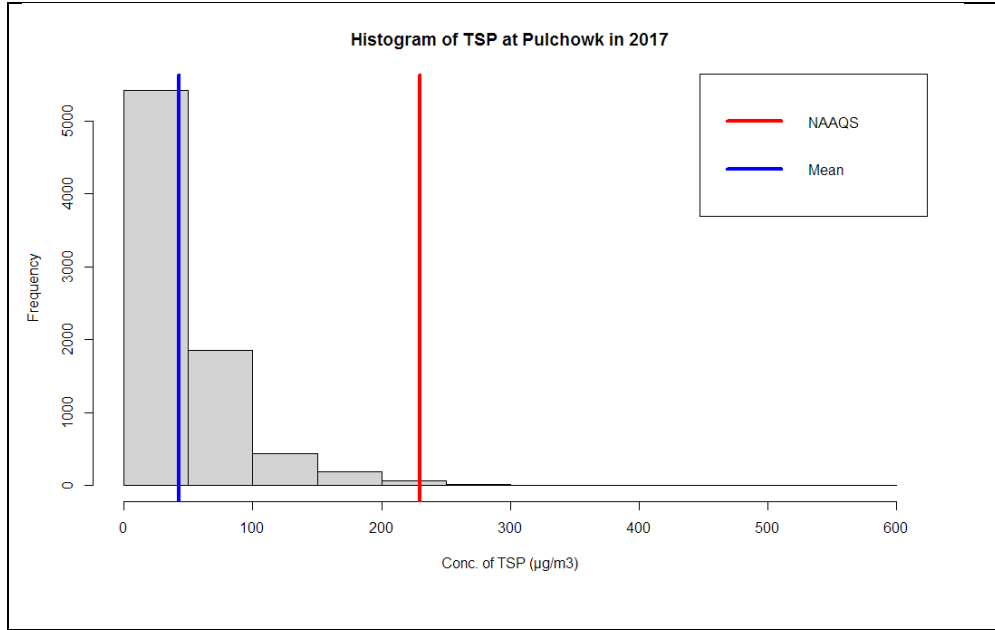


Figure 42. Histogram of TSP at Pulchowk station in 2017

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

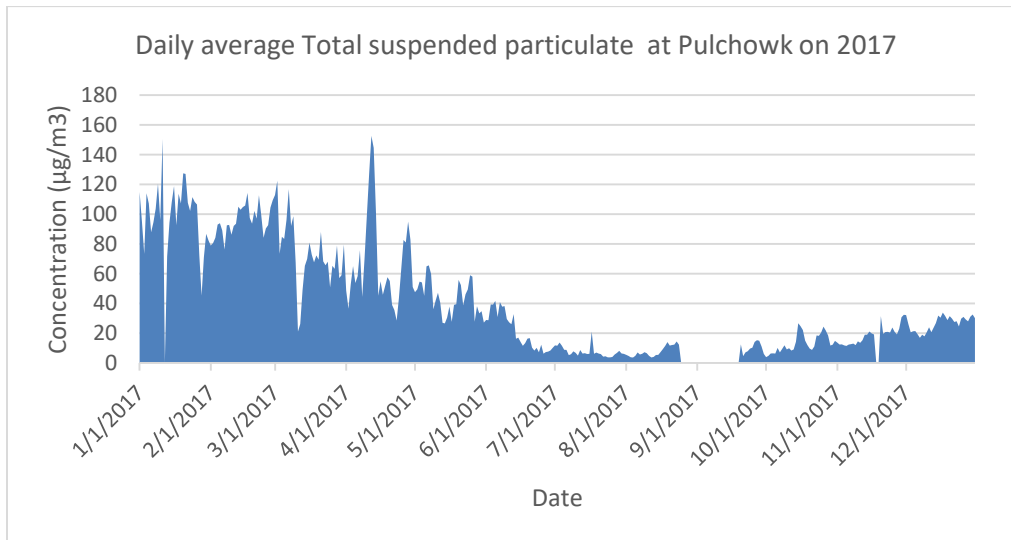


Figure 43. Daily average total suspended particulate at Pulchowk in 2017

## Monthly Average of TSP

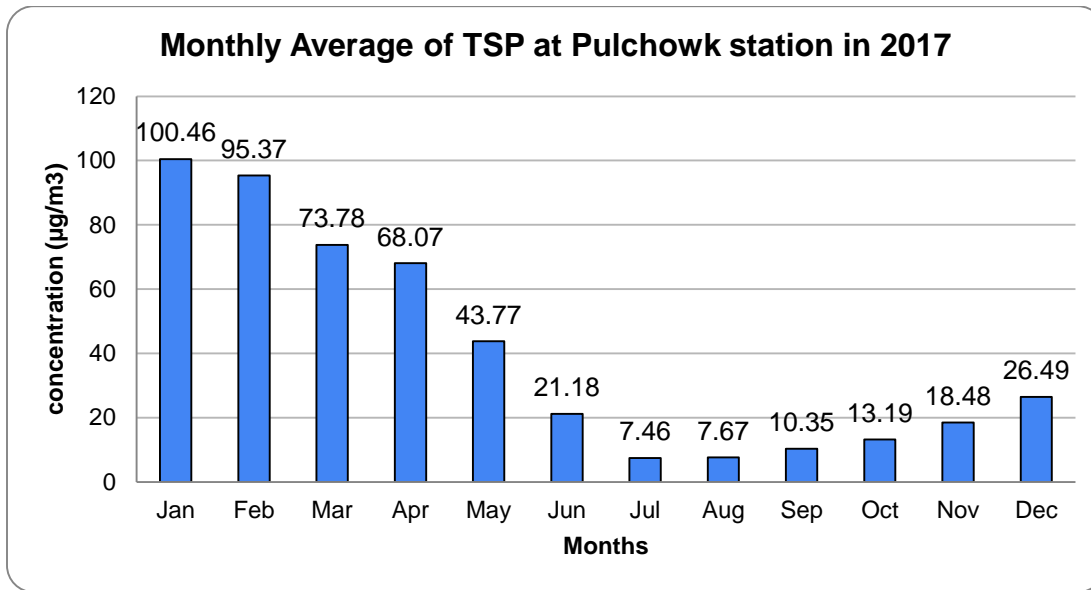


Figure 44. Monthly average of TSP at Pulchowk station in 2017

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

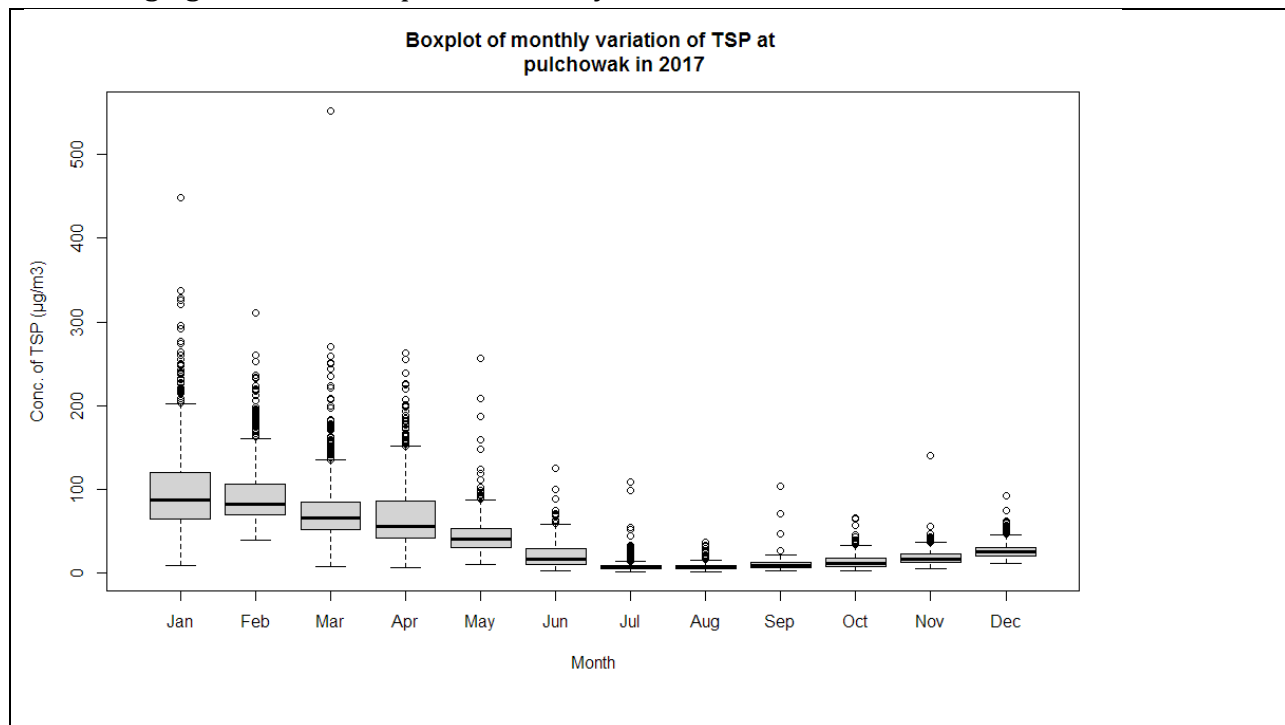


Figure 45. Monthly variation of daily average Total suspended particulate at Pulchowk in 2017

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

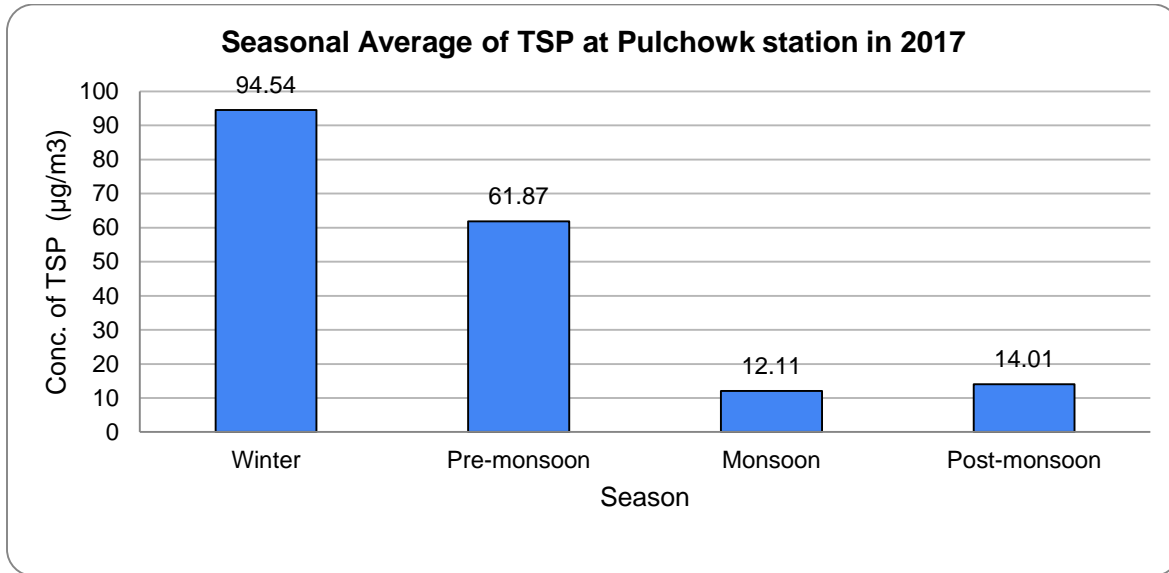


Figure 46. Seasonal average of TSP at Pulchowk station on 2017

### Diurnal Variation of TSP

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

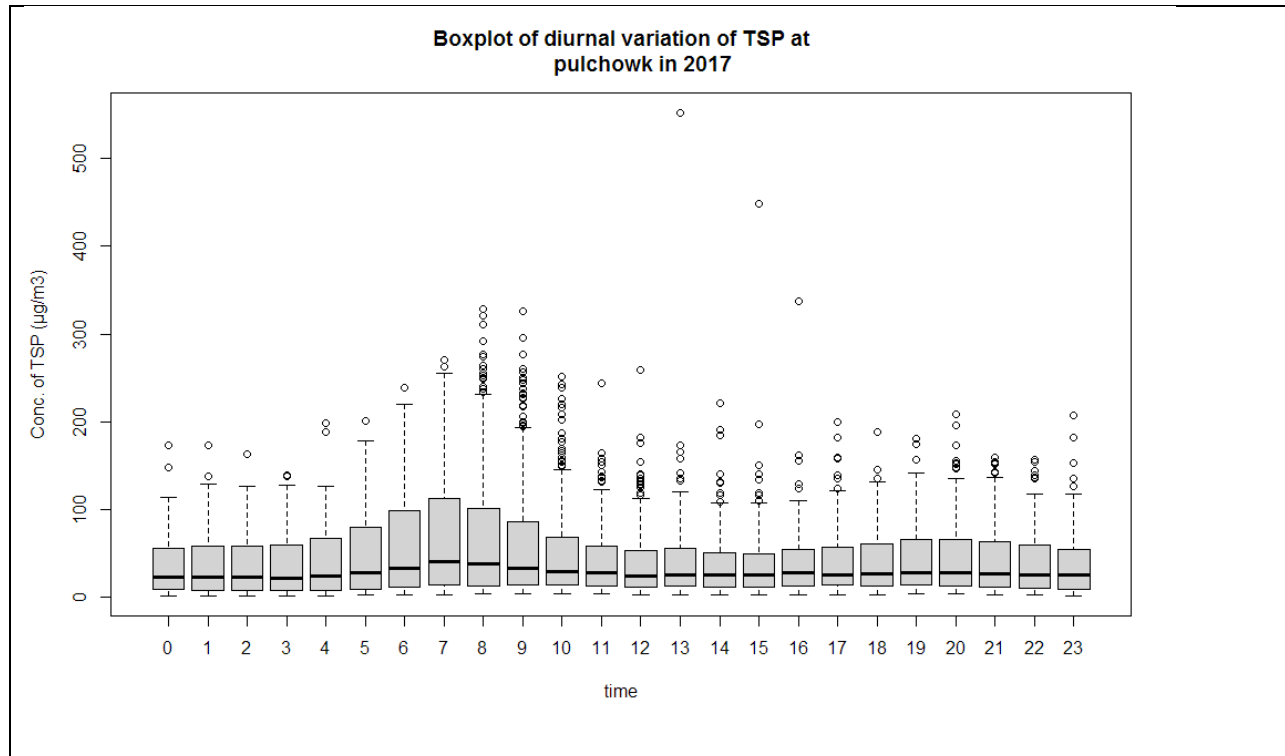


Figure 47. Diurnal variation of TSP at Pulchowk station on 2017

Above figure shows that Total suspended 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 Standard**Out 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)

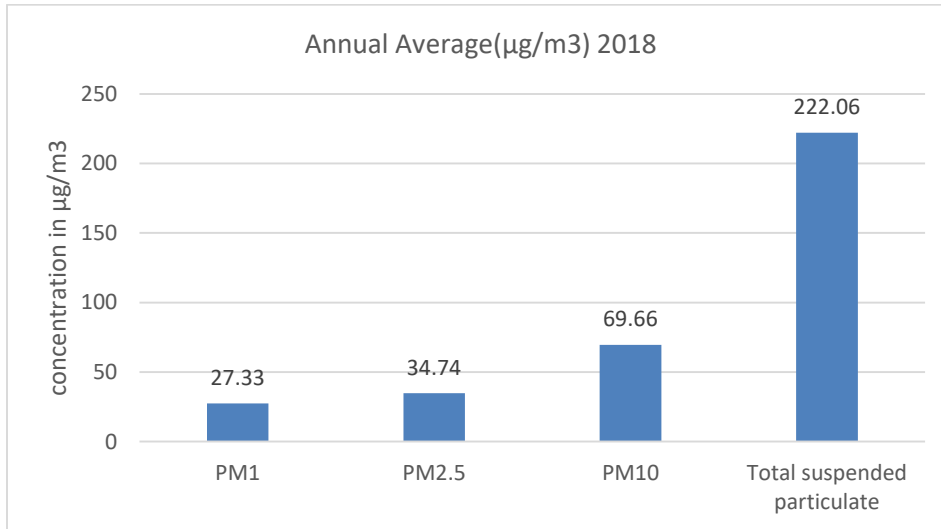


Figure 48. Annual average PM1,PM2.5, PM10 and TSp at Pulchowk station for 2018

### 2.3.3 Temporal Variation of PM1

#### Annual Average of PM1

Annual average PM1 at Pulchowk station at 2018 was 27.33 µg/m³. Following figure shows the Histogram of PM1 at Pulchowk in 2018.

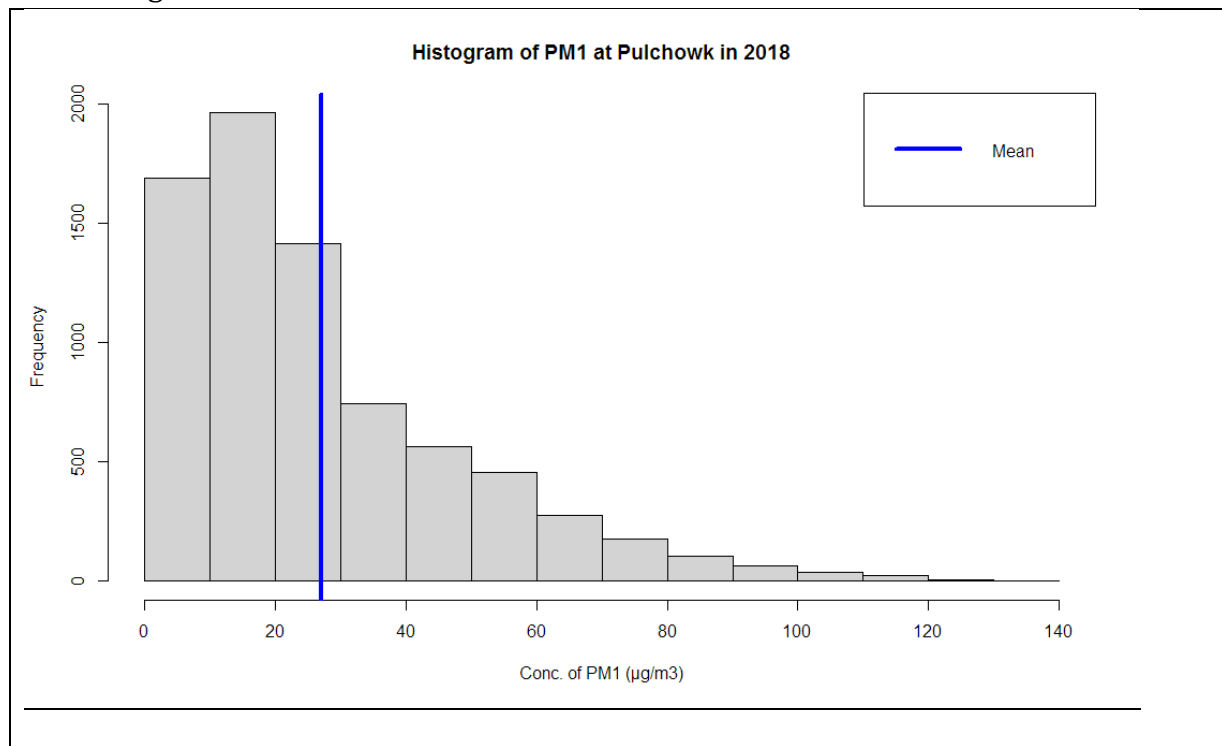


Figure 49. . Histogram of PM1 at Pulchowk in 2018

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

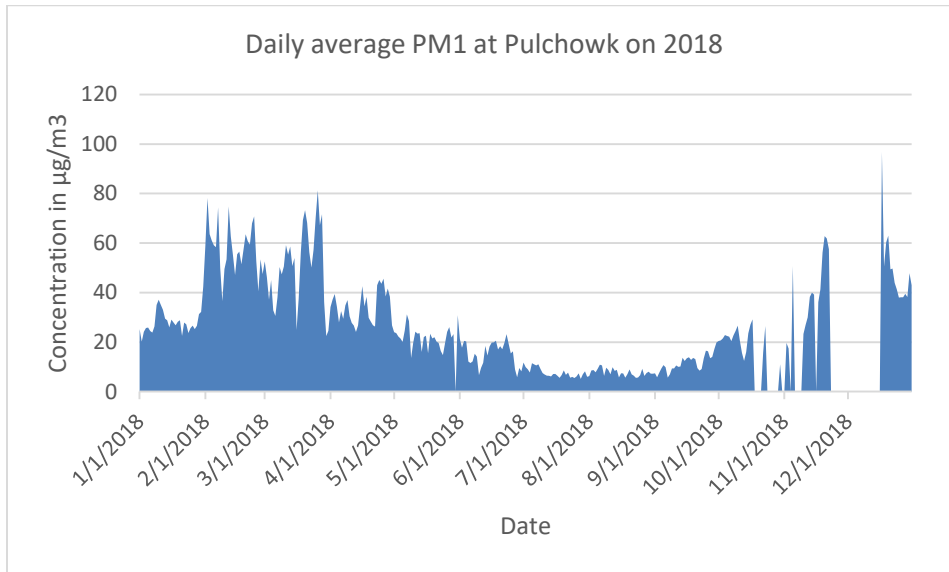


Figure 50. Daily average PM1 at Pulchowk station in 2018

### Monthly Average of PM1

Following Figure shows the monthly average of PM<sub>1</sub>.

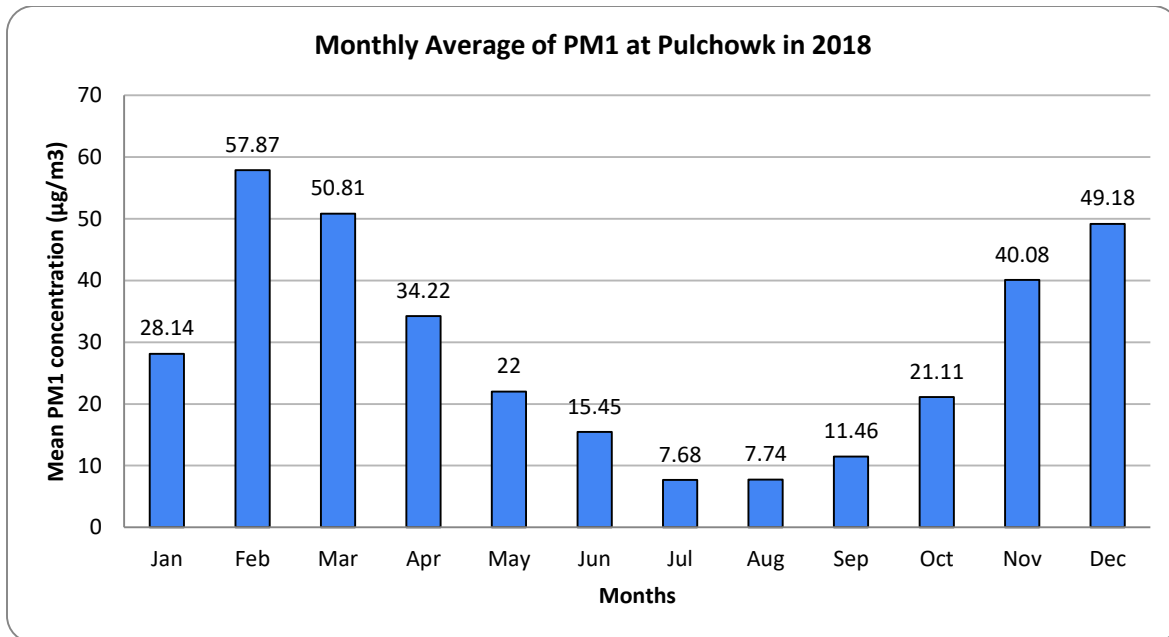


Figure 51. Monthly average PM1 at Pulchowk station in 2018

Above figure shows that the average value of PM<sub>1</sub> 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

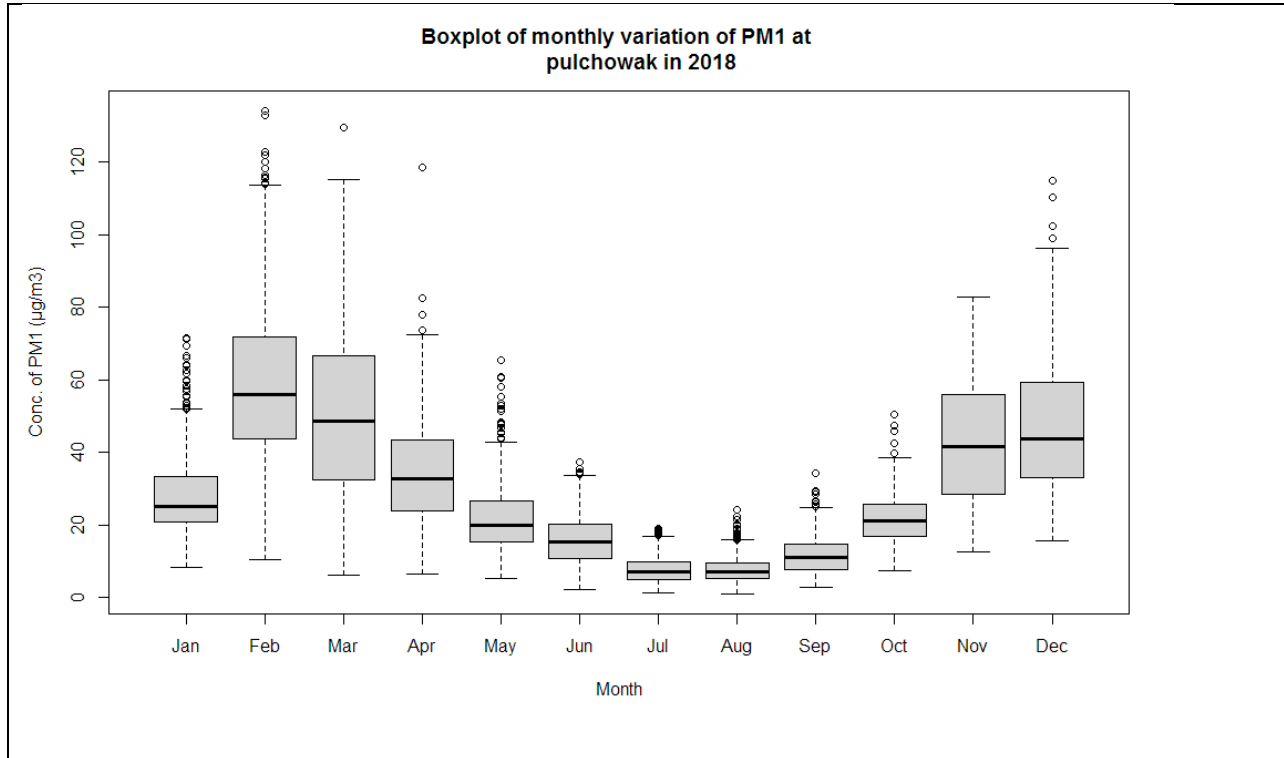


Figure 52. Monthly variation of daily average PM1 at Pulchowk station in 2018

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

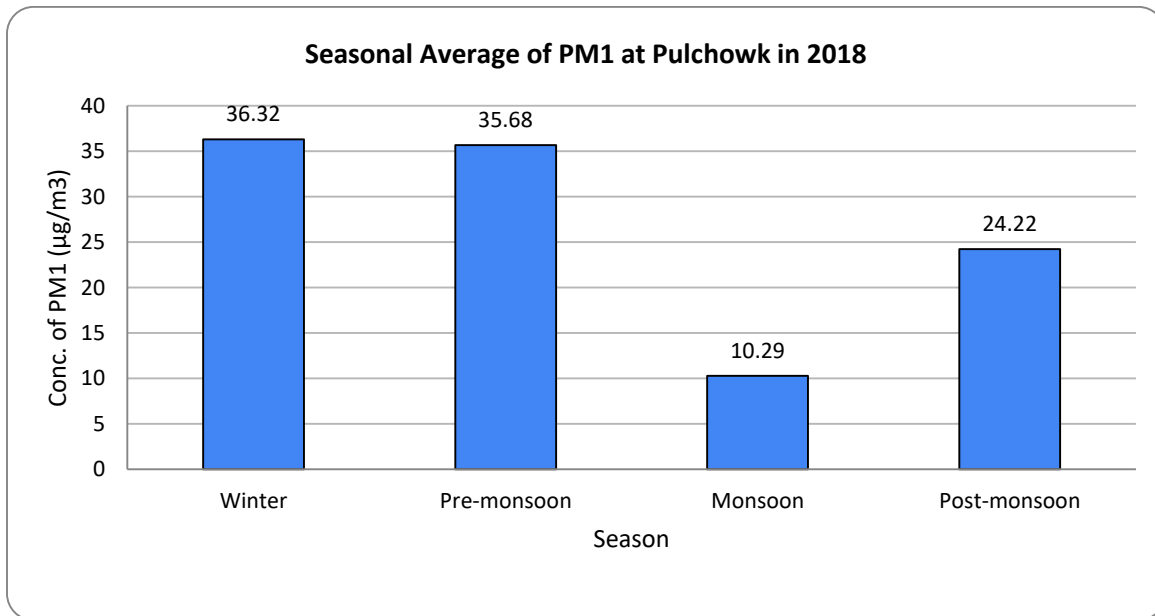


Figure 53. Ambient concentration of average PM1 with four seasons

## Diurnal Variation of PM1

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

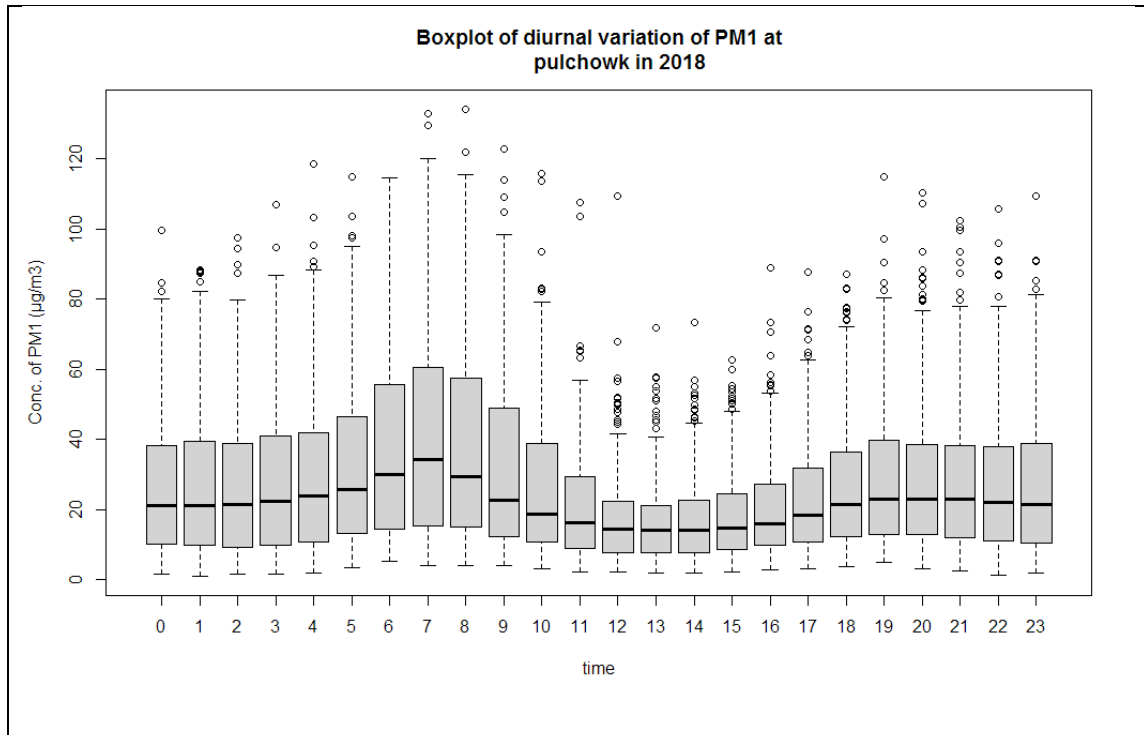


Figure 54. Boxplot of diurnal variation of PM1 at Pulchowk station in 2018

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.

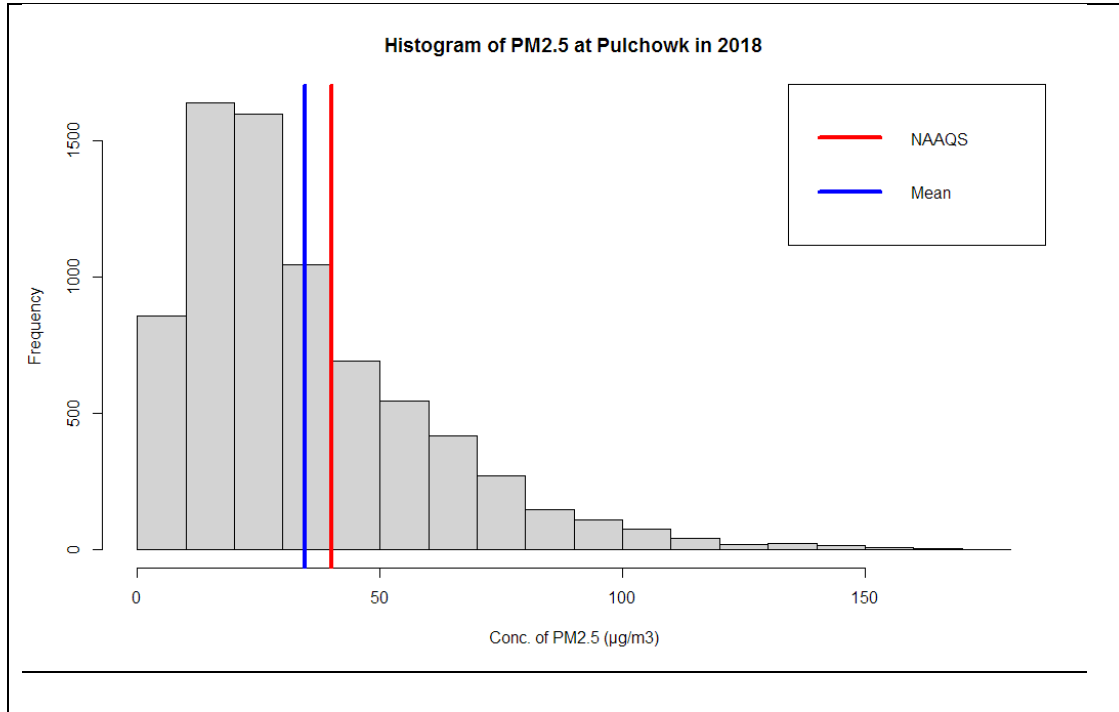


Figure 55. Histogram of PM2.5 at Pulchowk in 2018

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

#### Daily Average of PM2.5

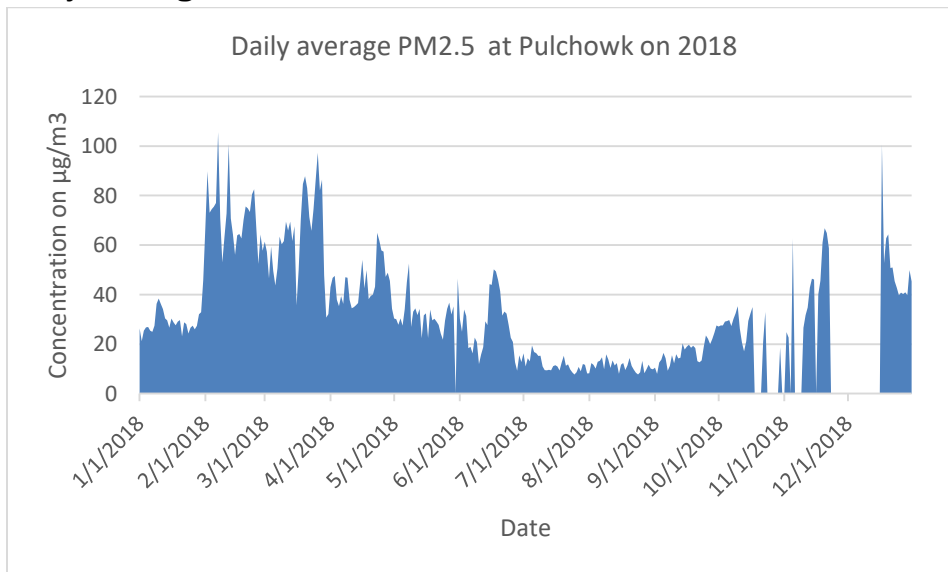


Figure 56. Daily average PM2.5 at Pulchowk station in 2018

## Monthly Average of PM2.5

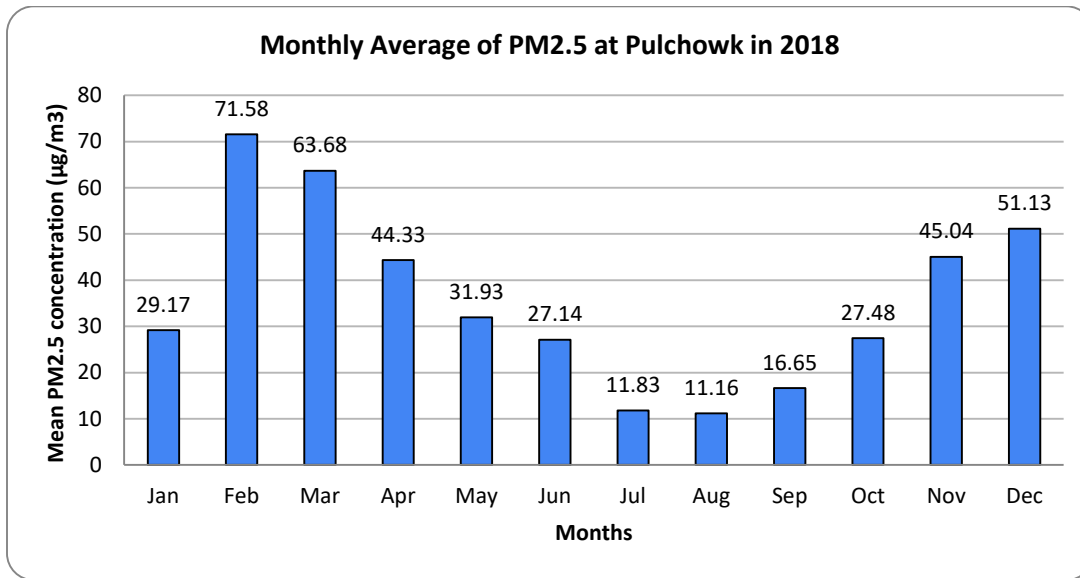


Figure 57. Monthly average of PM2.5 at Pulchowk station in 2018

Above figure shows that the monthly average value of PM<sub>2.5</sub> was highest in February with 71.58 µg/m<sup>3</sup> while lowest value were observed in August with 11.16 µg/m<sup>3</sup>

## Monthly Variation of PM2.5

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

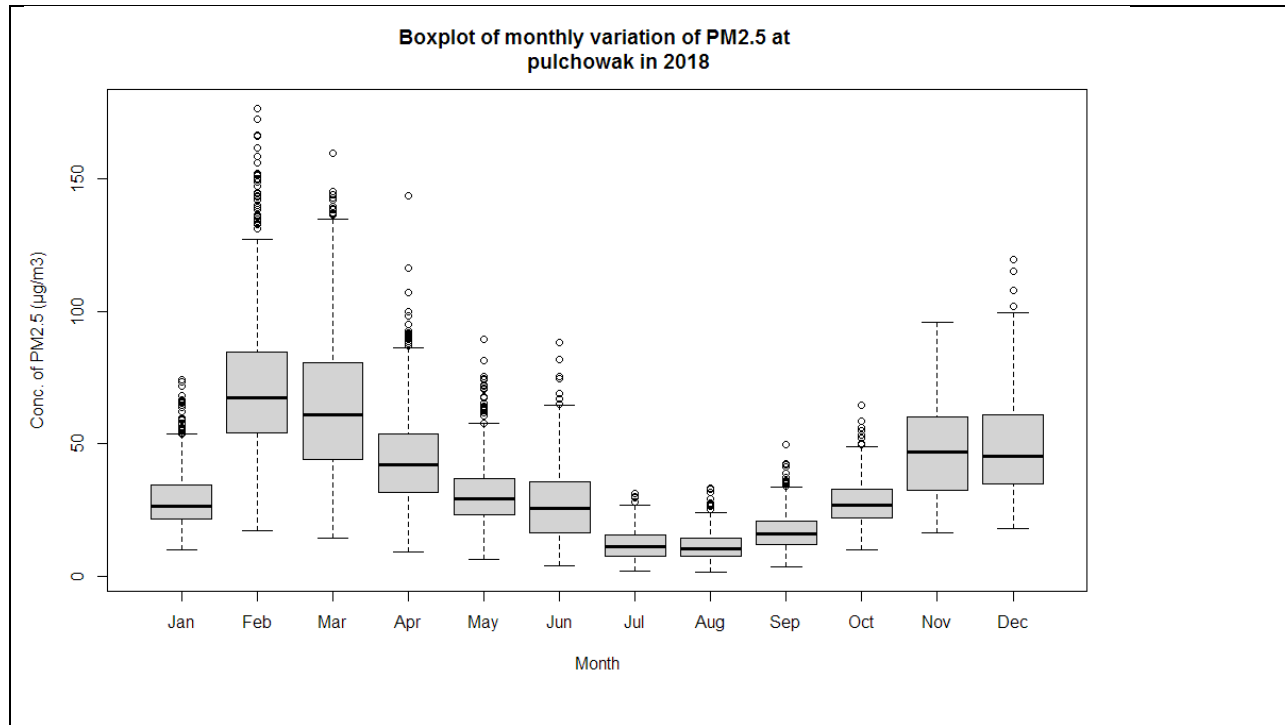


Figure 58. Monthly variation of daily average PM2.5 at Pulchowk in 2018

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

## Seasonal Average of PM2.5

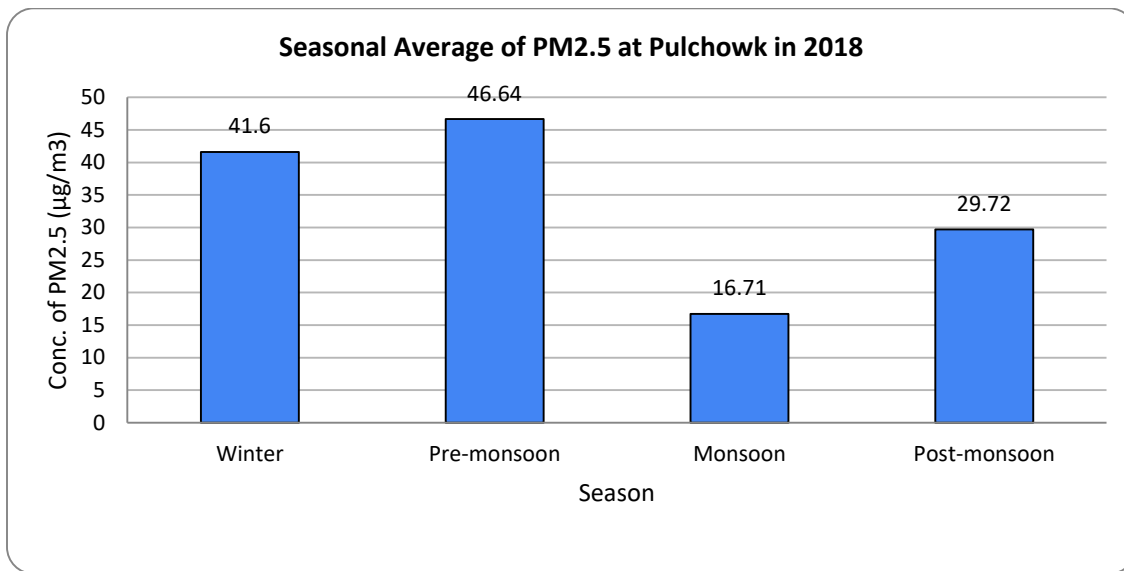


Figure 59. Seasonal variation of PM2.5 at Pulchowk station in 2018

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

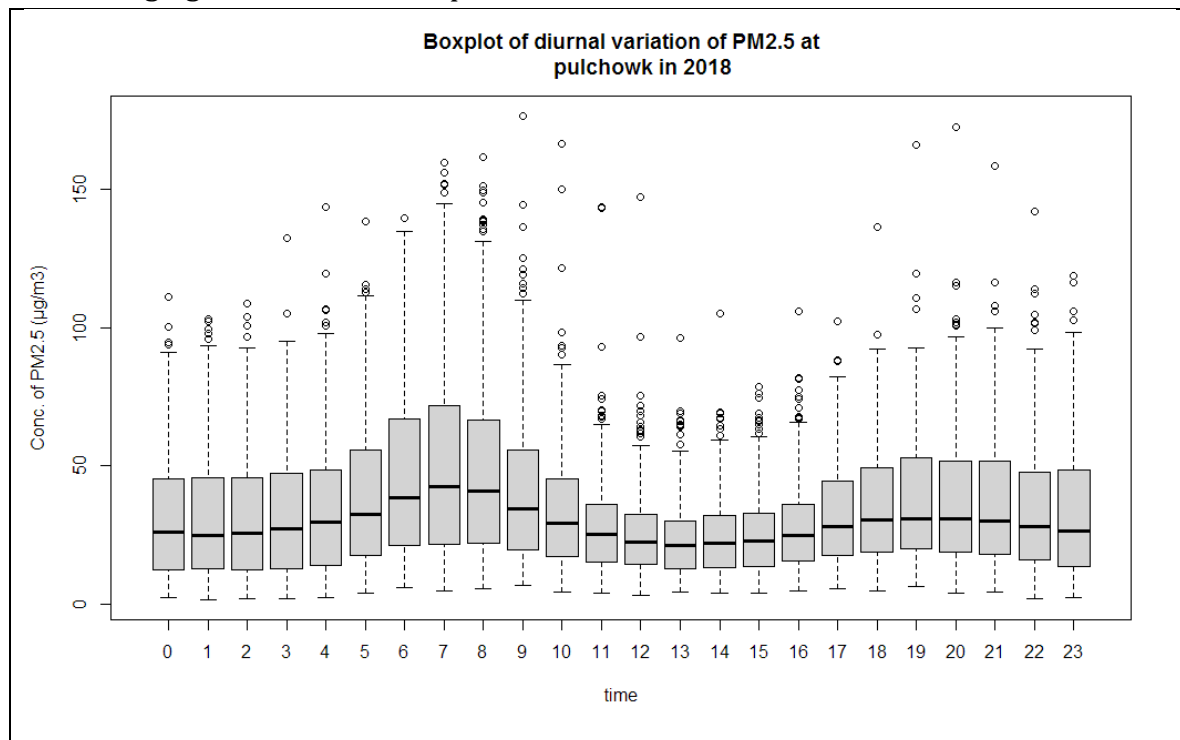
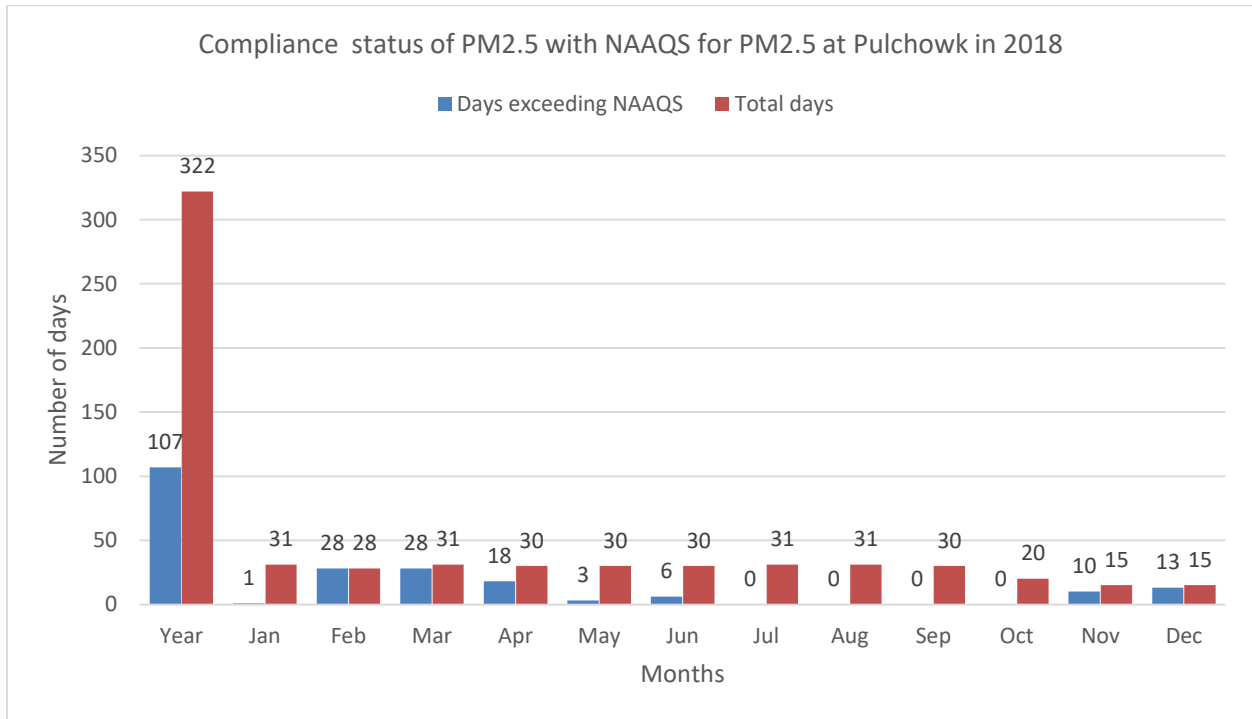


Figure 60. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2018

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.

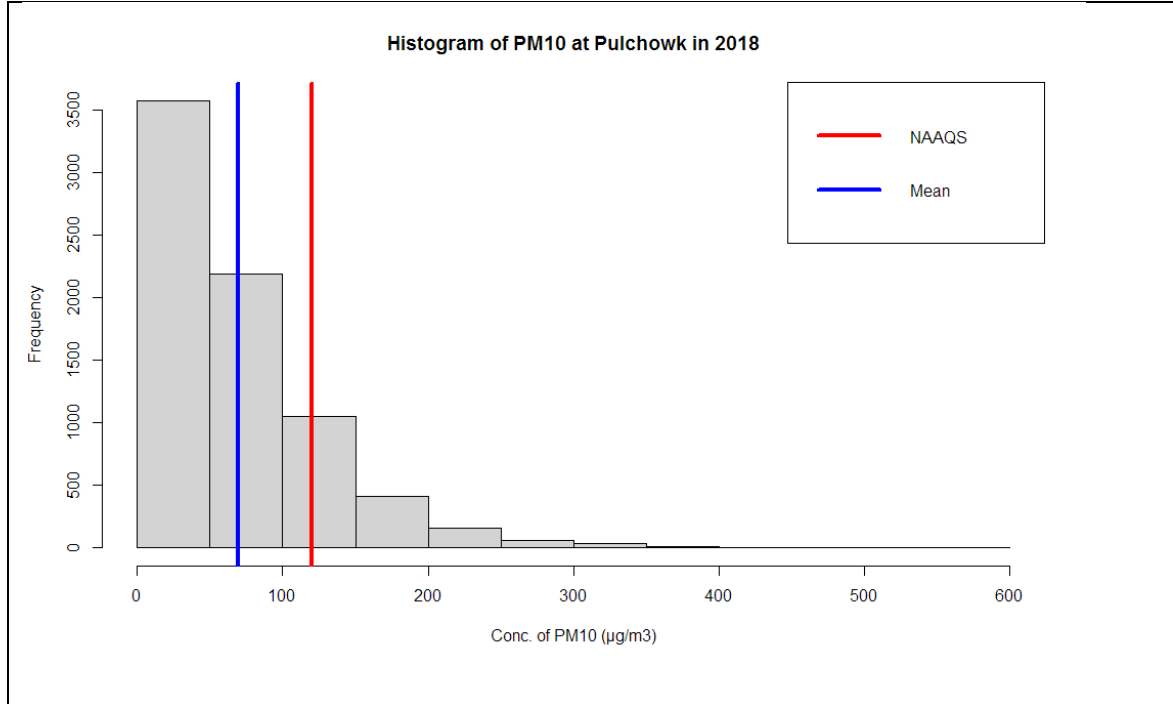


Figure 62. Histogram of PM10 at Pulchowk in 2018

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

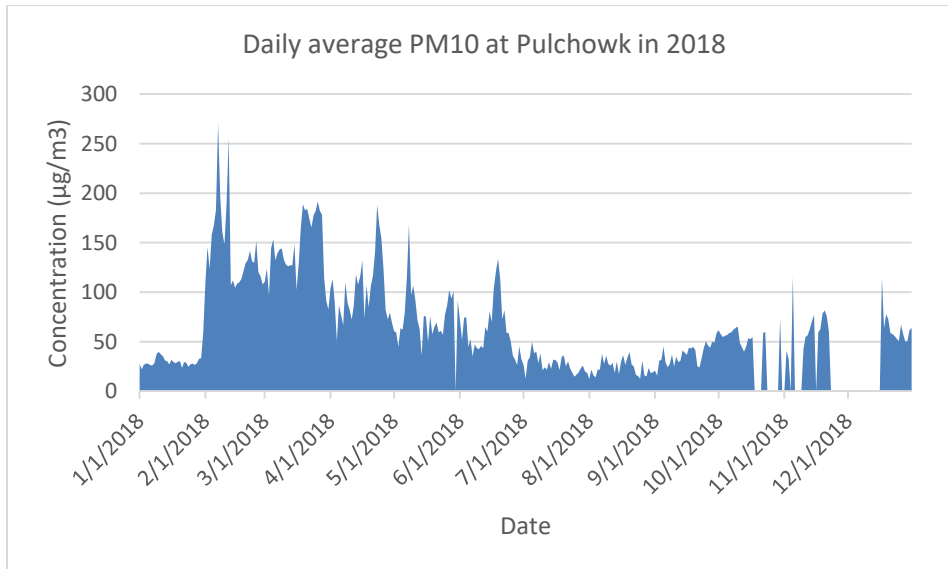


Figure 63. Daily average PM10 at Pulchowk station in 2018

## Monthly Average of PM10

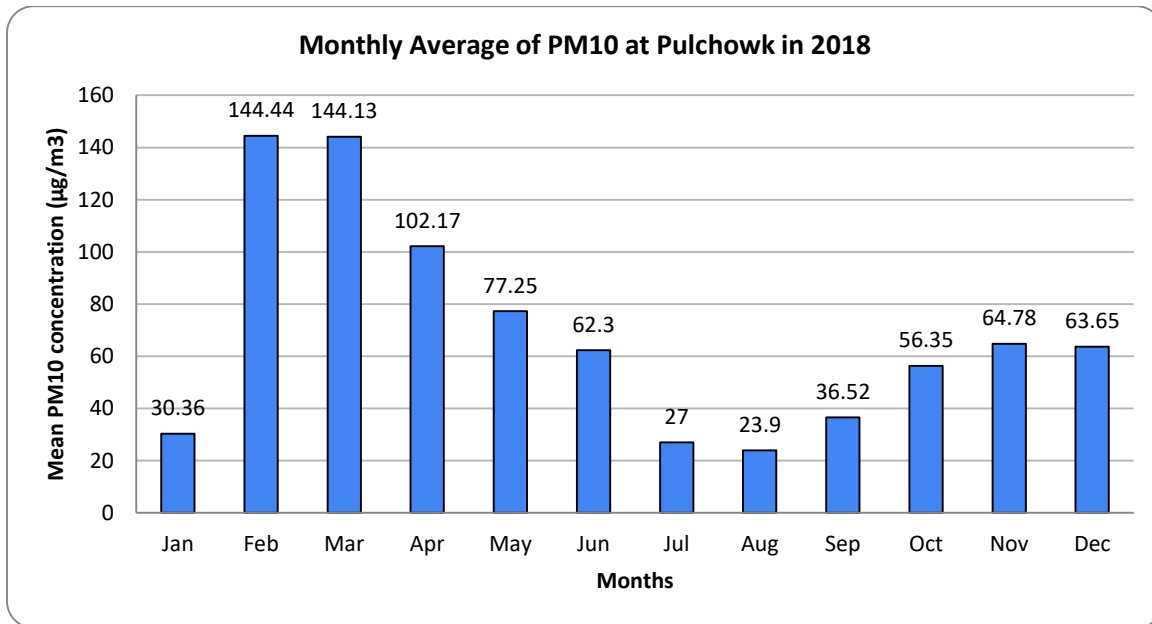


Figure 64. Monthly average PM10 at Pulchowk station in 2018

Above figure shows that the highest monthly average value of PM10 was found in February with average value of 144.44 µg/m³ and lowest average was found in August with average value of 23.9 µg/m³.

## Monthly Variation of PM10

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

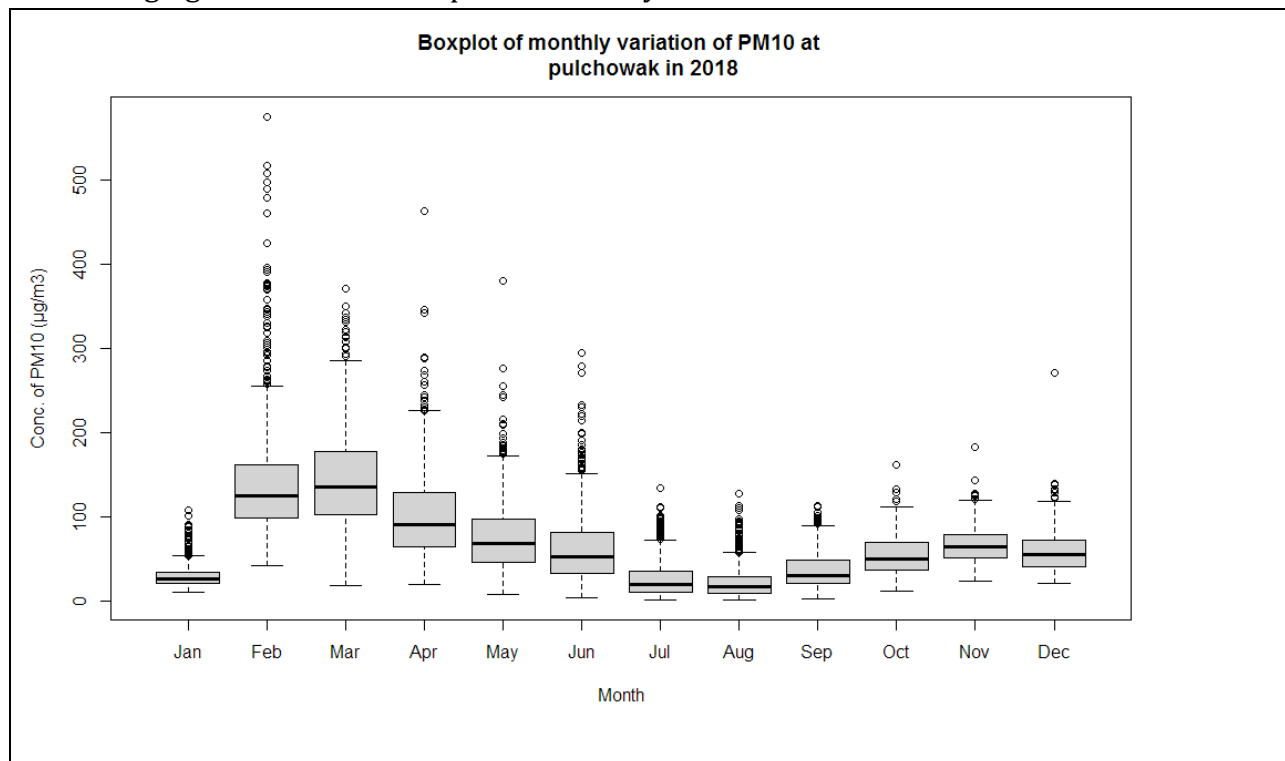


Figure 65.Boxplot of monthly variation of PM10 at Pulchowk in 2018

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.

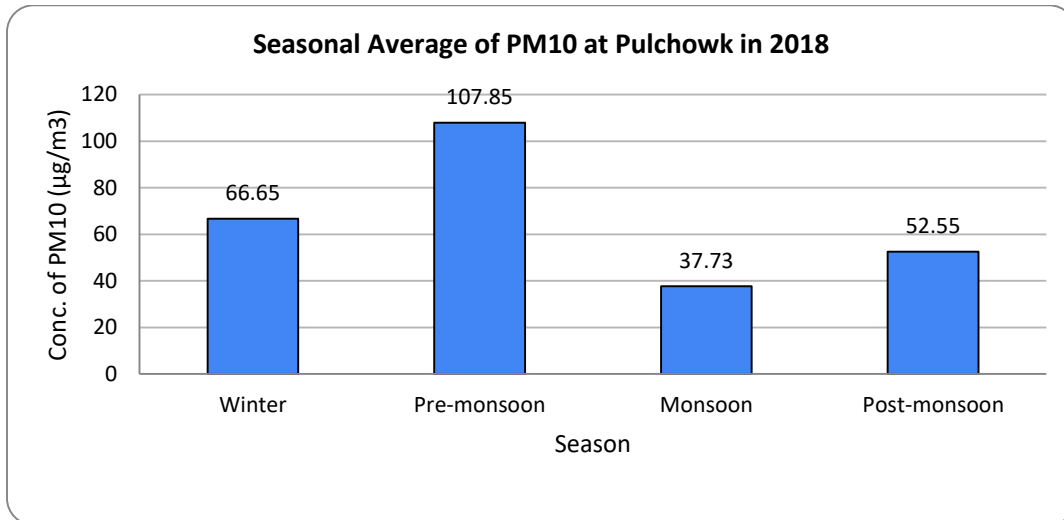


Figure 66. Seasonal average of PM10 at Pulchowk station in 2018

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.

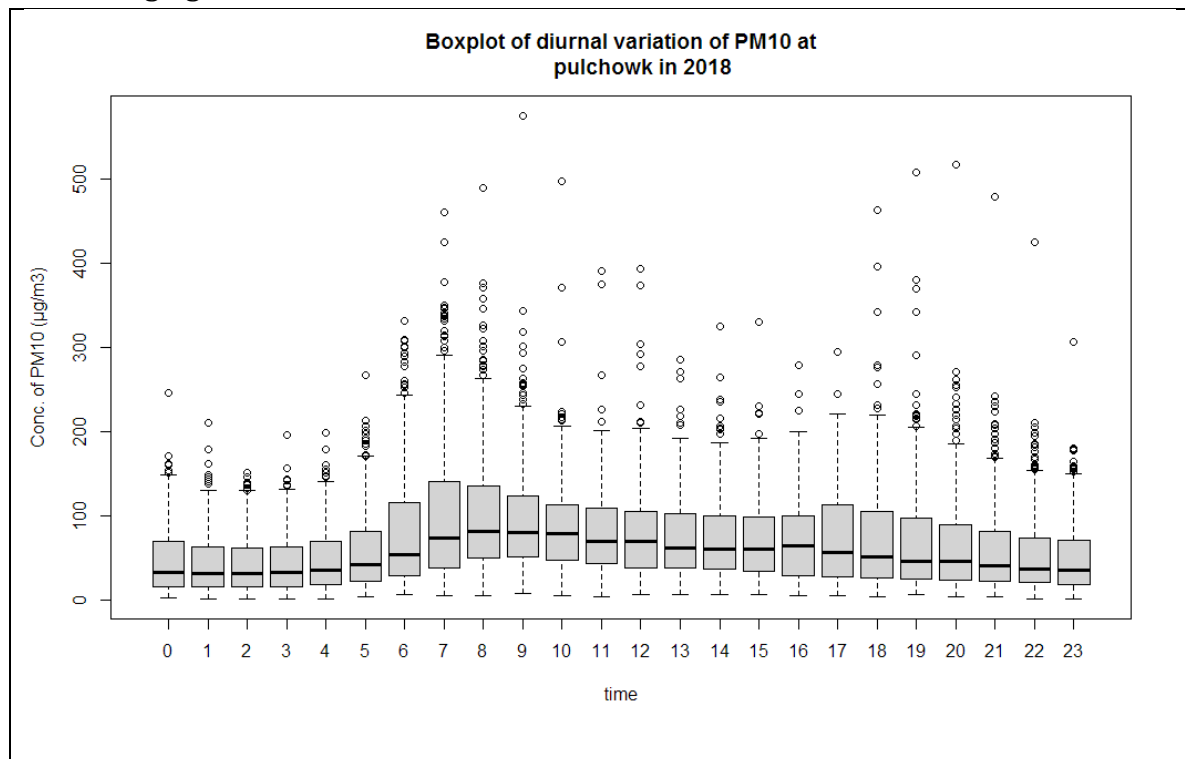
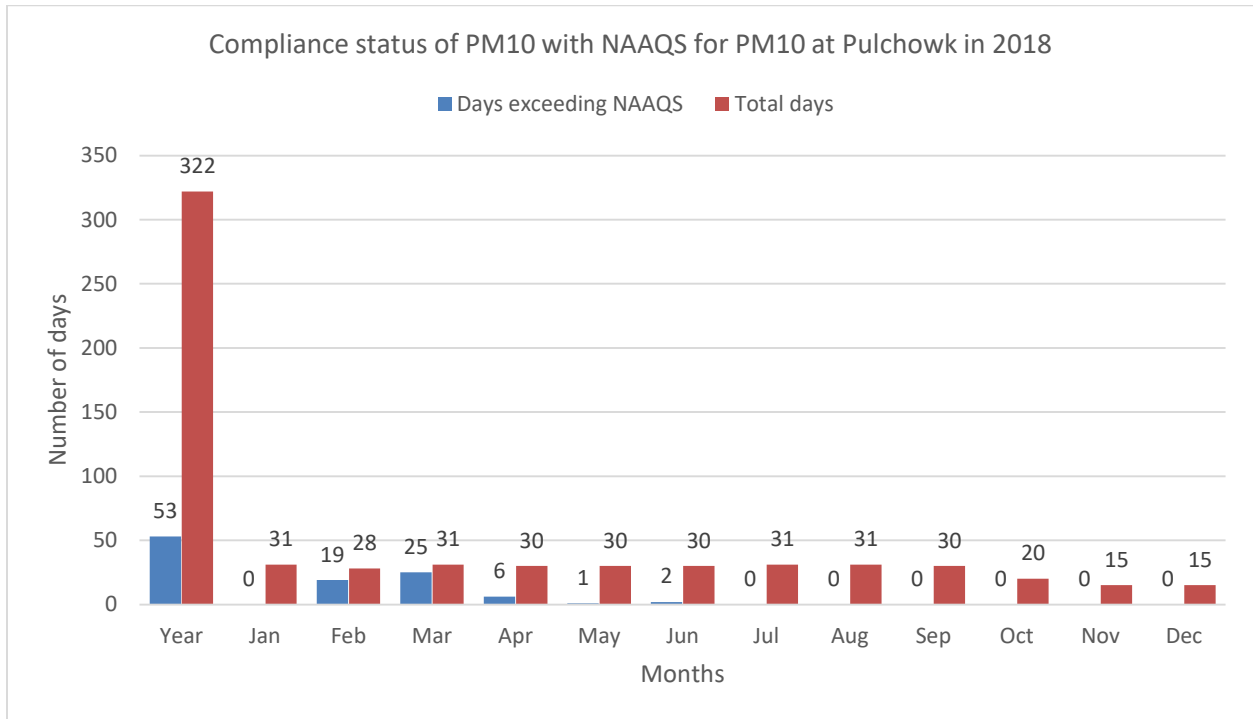


Figure 67. Diurnal variation of Pm10 at Pulchowk in 2018

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.

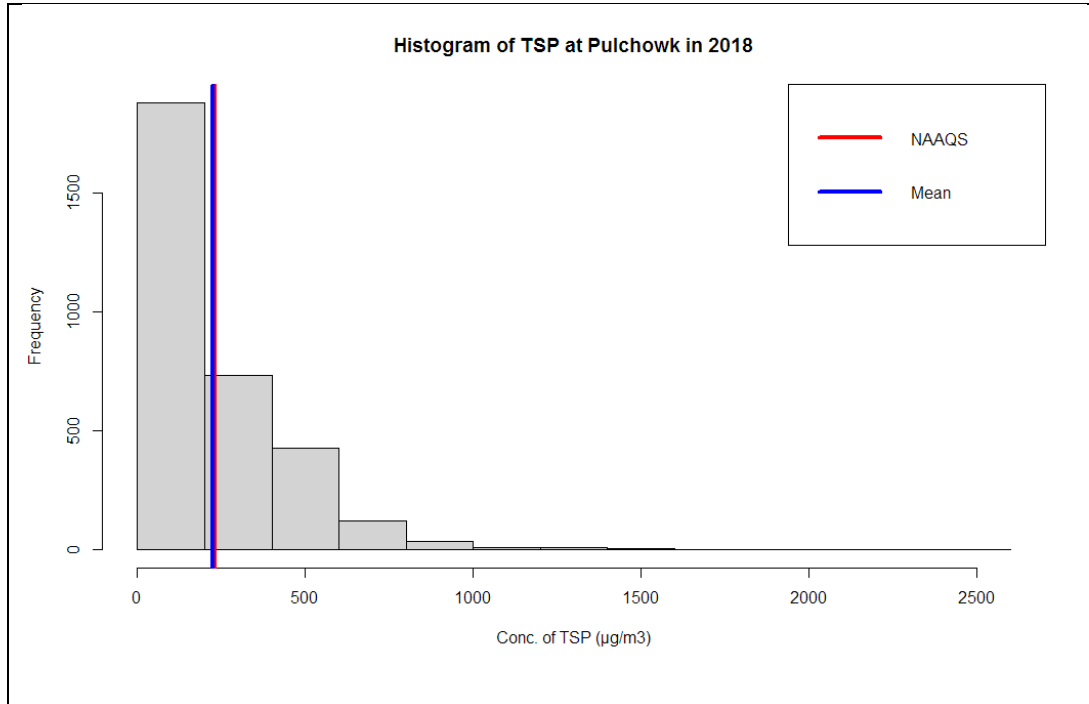


Figure 69. Histogram of TSP at Pulchowk station in 2018

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

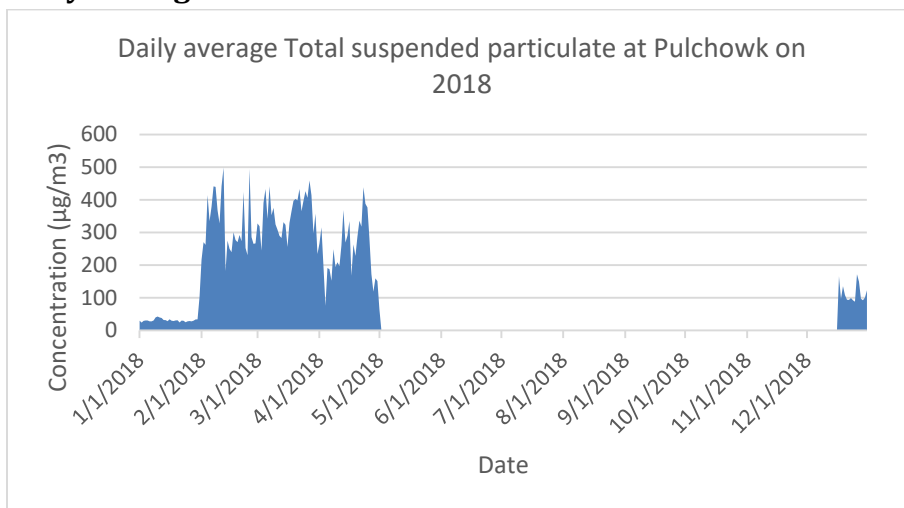


Figure 70. Daily average total suspended particulate at Pulchowk in 2018

### Monthly Average of TSP

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

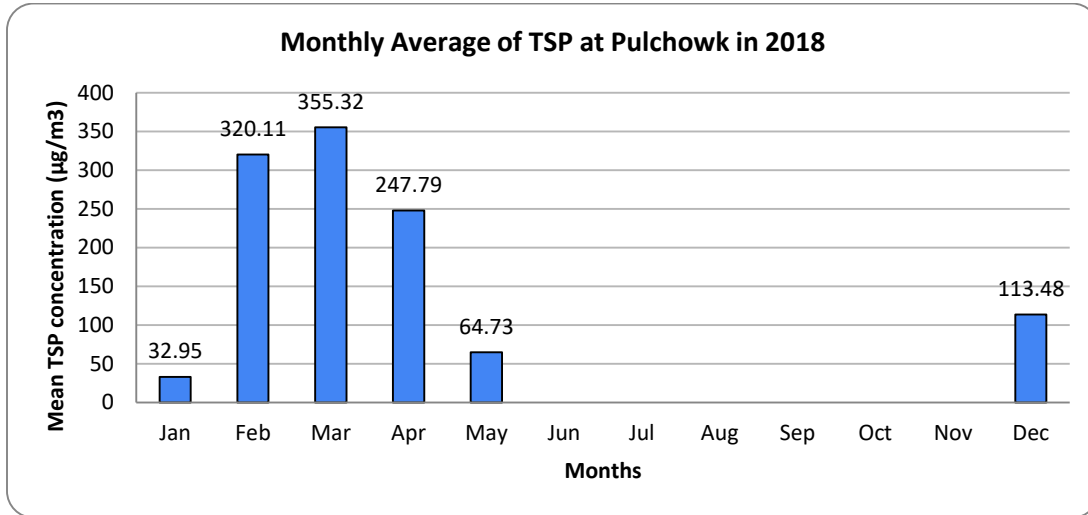


Figure 71. Monthly average of TSP at Pulchowk station in 2018

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 µg/m<sup>3</sup> and lowest in May with value of 64.73 µg/m<sup>3</sup>.

### Monthly variation of TSP

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

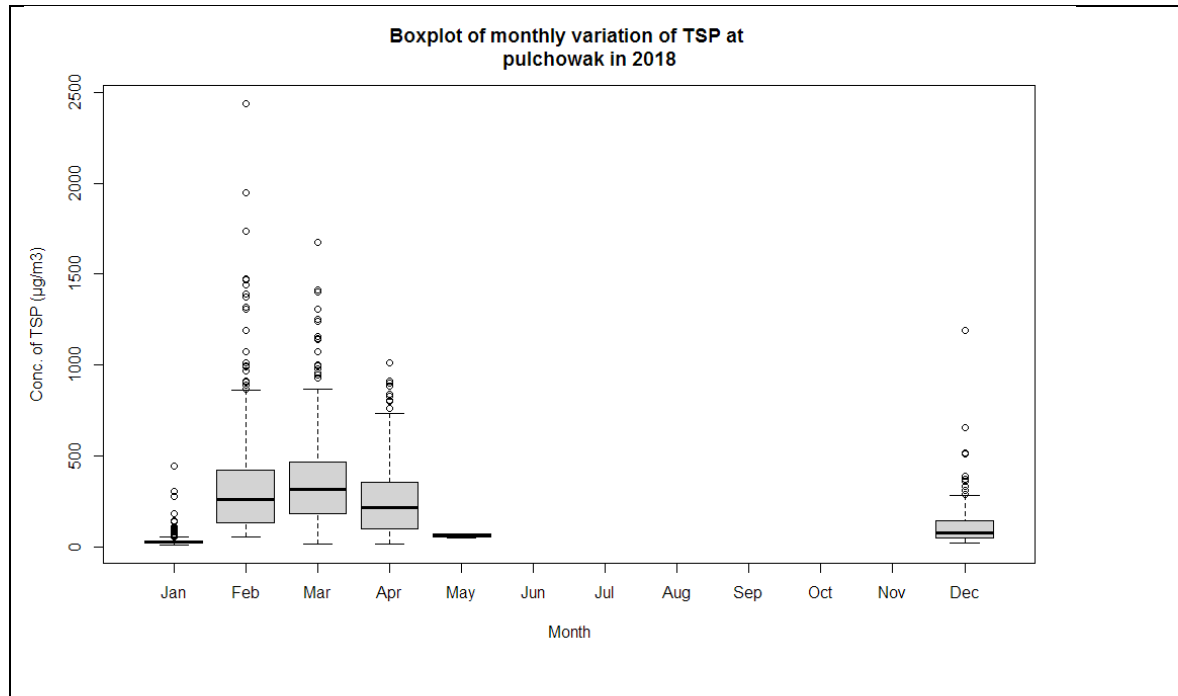


Figure 72. Monthly variation of daily average Total suspended particulate at Pulchowk in 2018

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

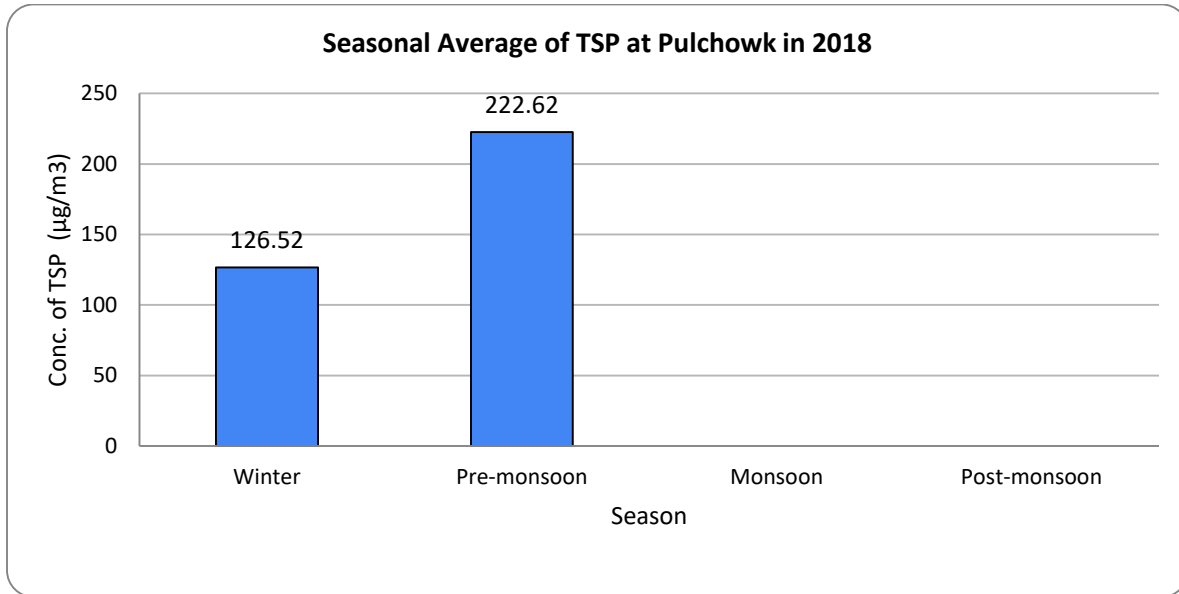


Figure 73. Seasonal average of TSP at Pulchowk station in 2018

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.

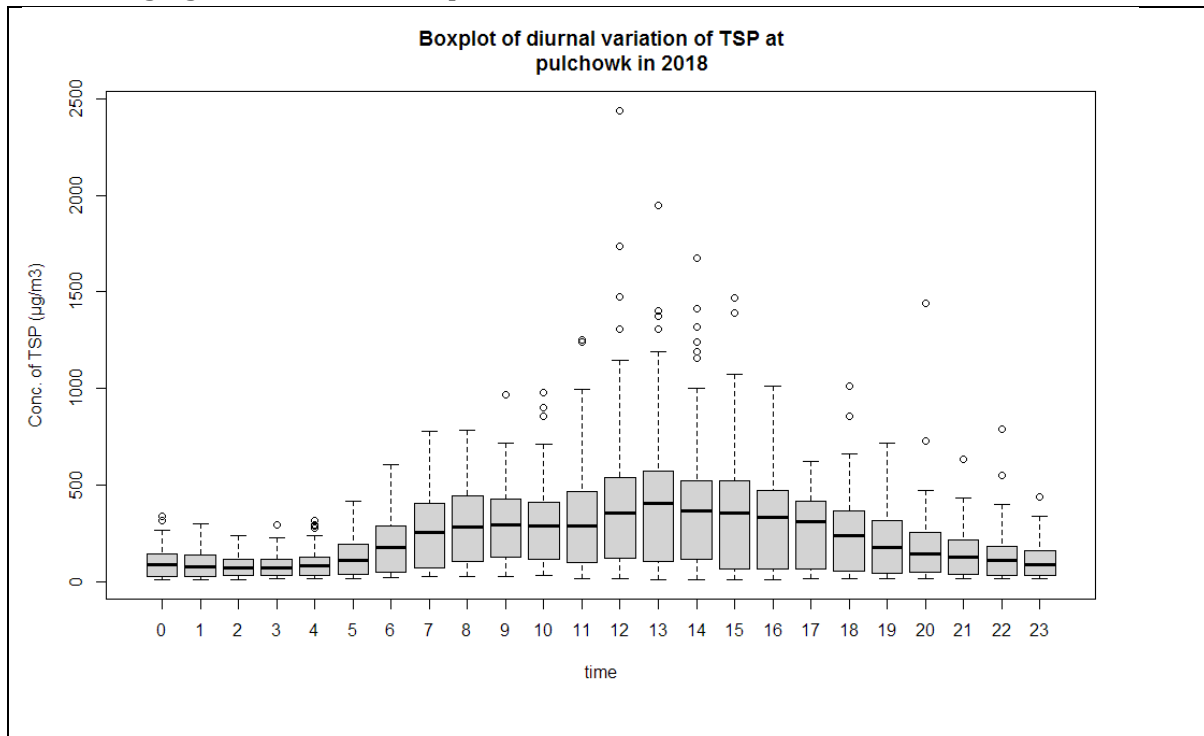
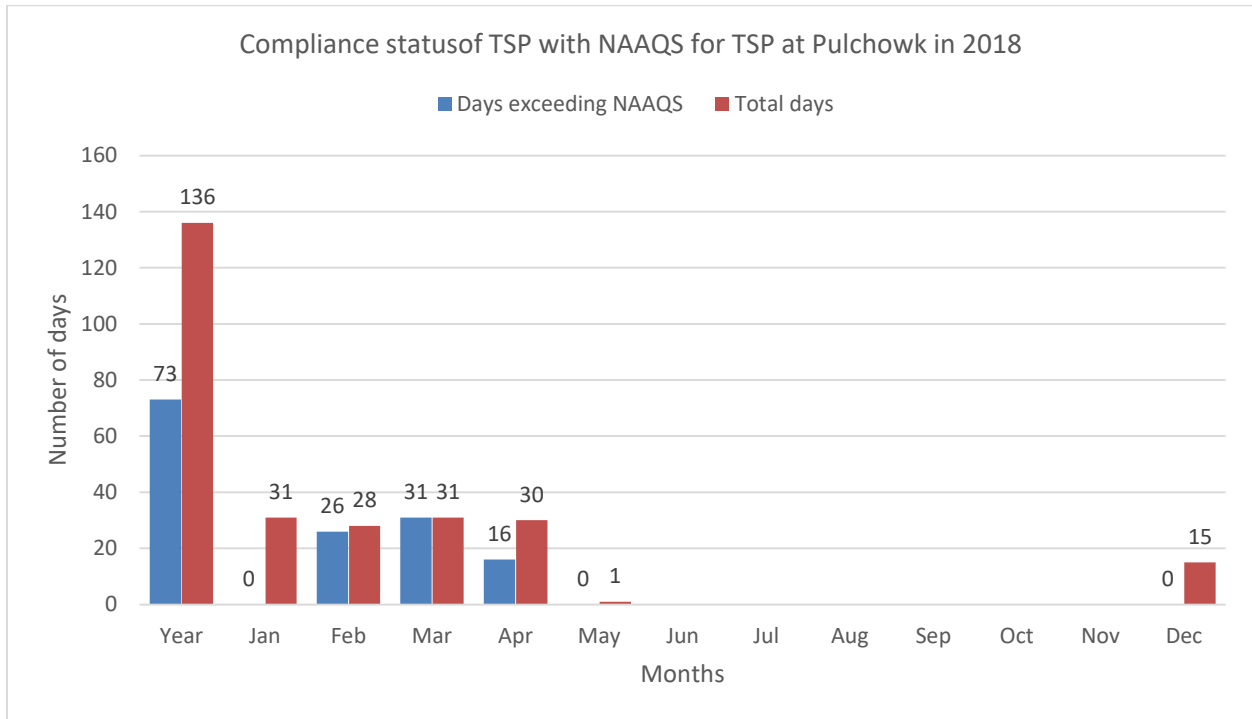


Figure 74. Diurnal variation of TSP at Pulchowk station in 2018

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 PM<sub>1</sub>, PM<sub>2.5</sub>, PM<sub>10</sub> and TSP of the Pulchowk monitoring station was calculated as shown in figure below.

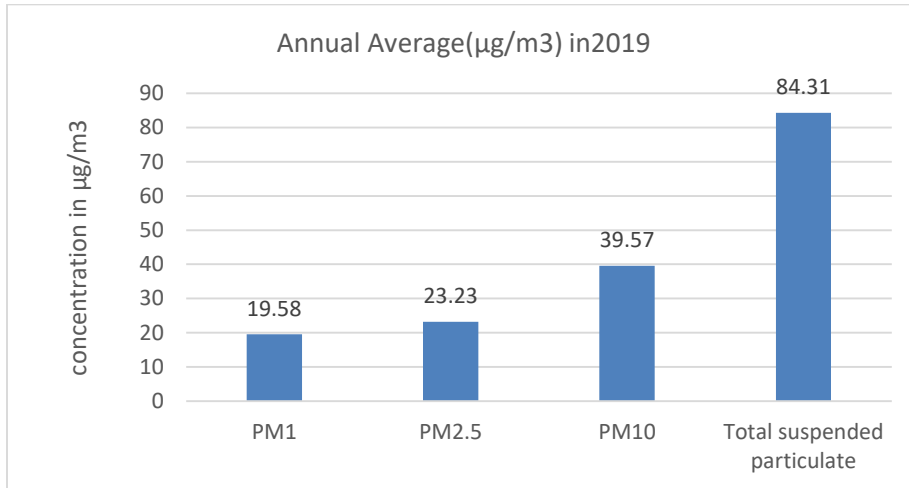


Figure 76. Annual average PM<sub>1</sub>, PM<sub>2.5</sub>, PM<sub>10</sub> and TSp at Pulchowk station for 2019

### 2.4.2 Temporal Variation of PM1

#### Annual Average of PM1

Annual average PM<sub>1</sub> at Pulchowk station at 2019 was 19.58 µg/m<sup>3</sup>. Following figure shows the Histogram of PM<sub>1</sub> at Pulchowk in 2019.

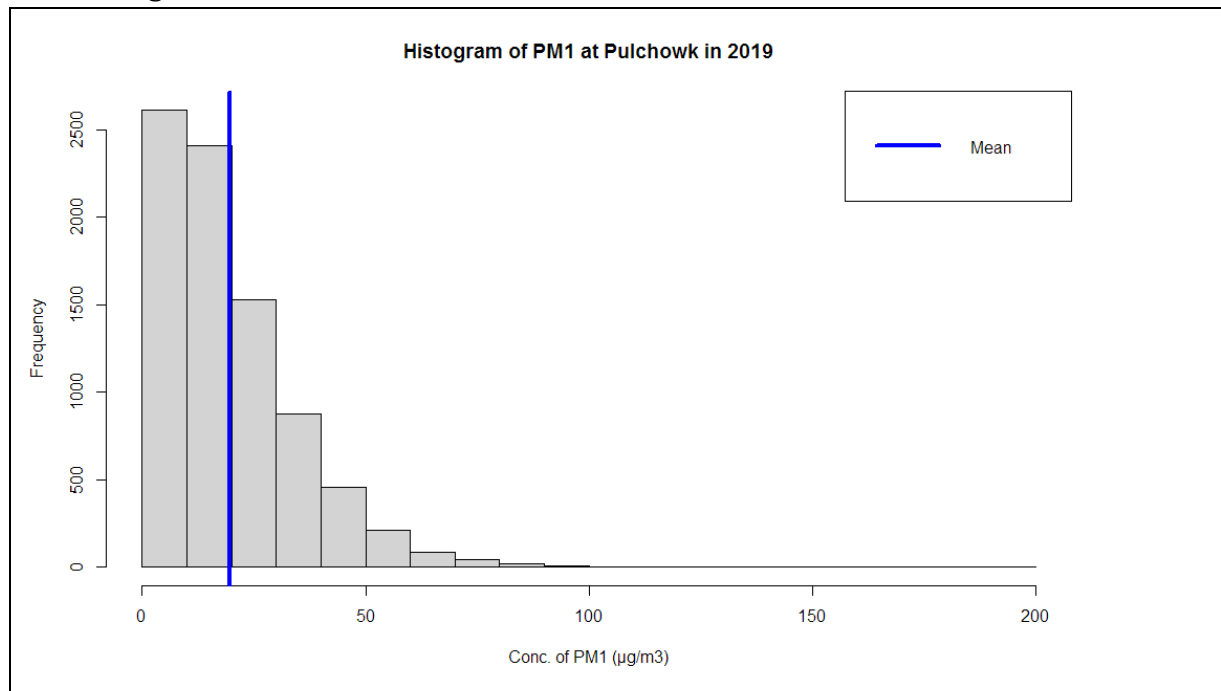


Figure 77. Histogram of PM<sub>1</sub> at Pulchowk in 2019

The Histogram shows that highest no of hourly average data were between 0-10µg/m<sup>3</sup> followed by 10-20µg/m<sup>3</sup>.

### Daily average of PM1

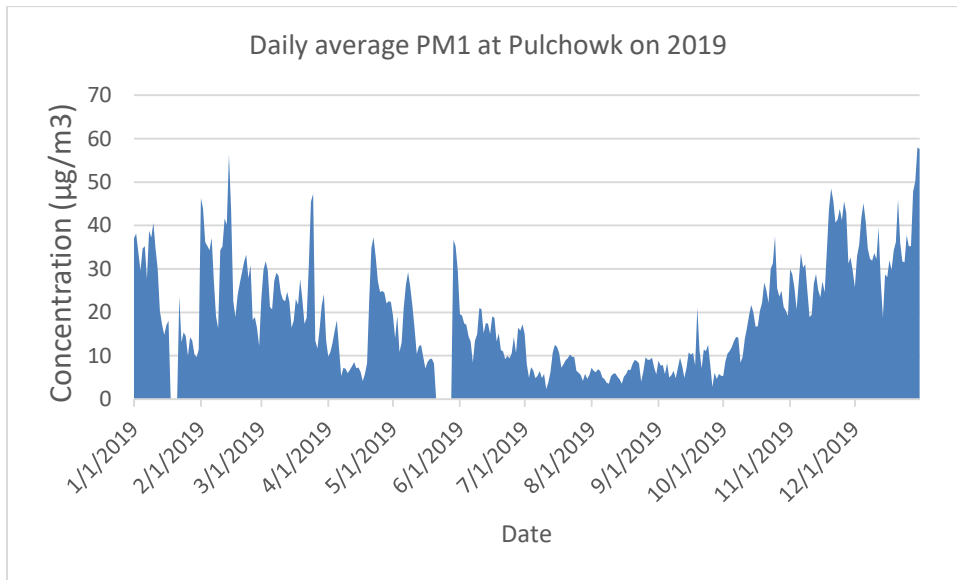


Figure 78. Daily average PM1 at Pulchowk station in 2019

### Monthly Average of PM1

Following Figure shows the monthly average of PM1.

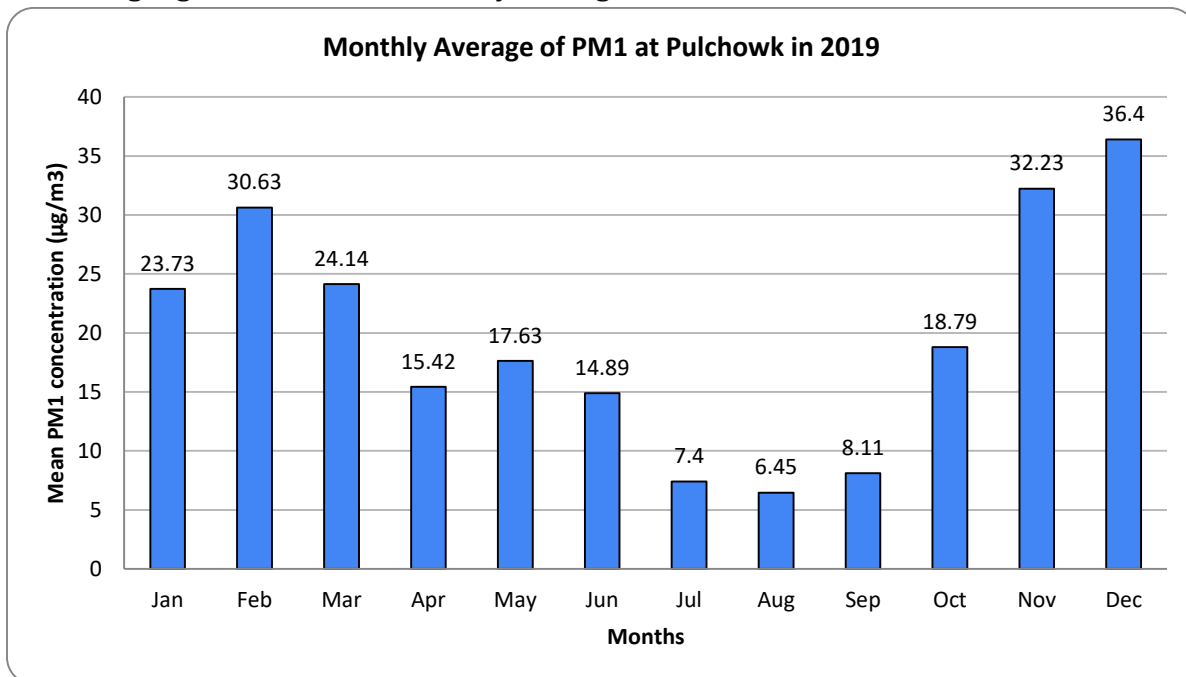


Figure 79. . Monthly average PM1 at Pulchowk station in 2019

Above figure shows that the average value of PM<sub>1</sub> was highest in December with 36.4µg/m<sup>3</sup> and lowest value were observed in August with 6.45µg/m<sup>3</sup>.

### Monthly Variation of PM1

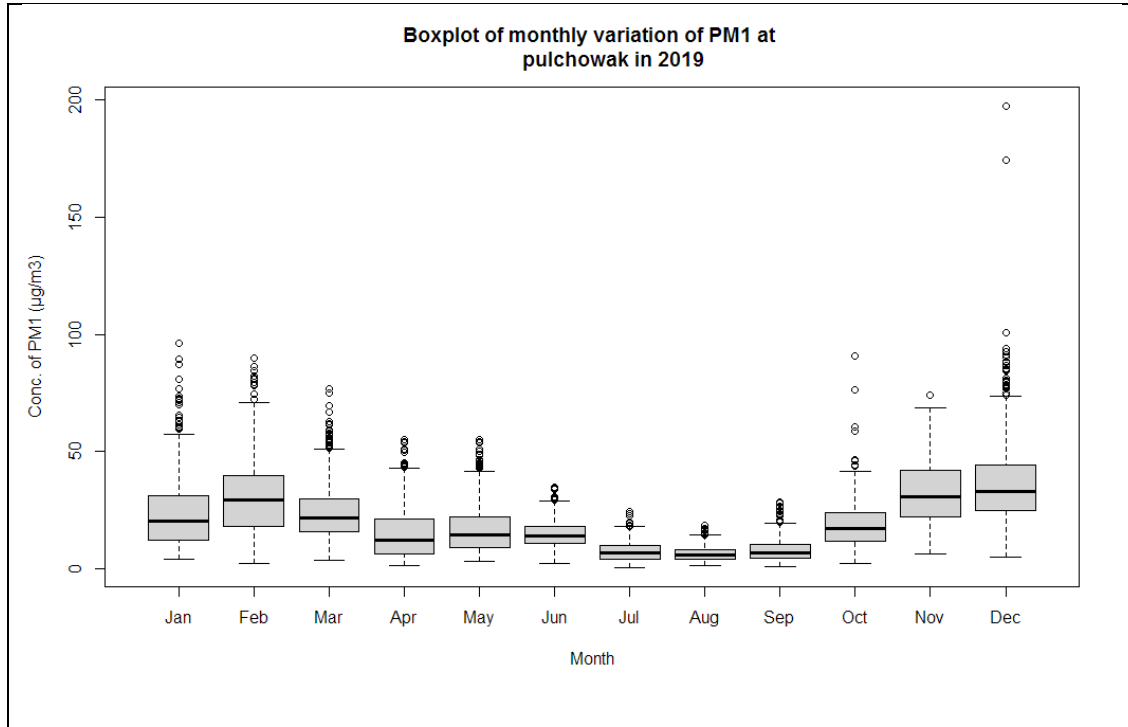


Figure 80. Monthly variation of daily average PM1 at Pulchowak station in 2019

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

### Seasonal Average of PM1

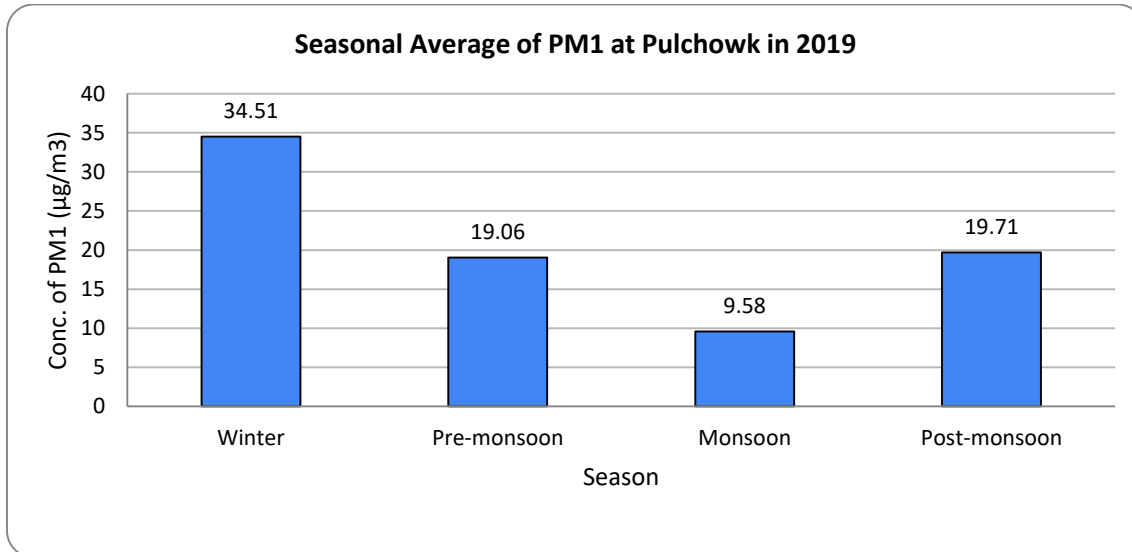


Figure 81. Ambient concentration of average PM1 with four seasons

Highest seasonal average was observed in winter with seasonal average of 34.51µg/m³.

### Diurnal Variation of PM1

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

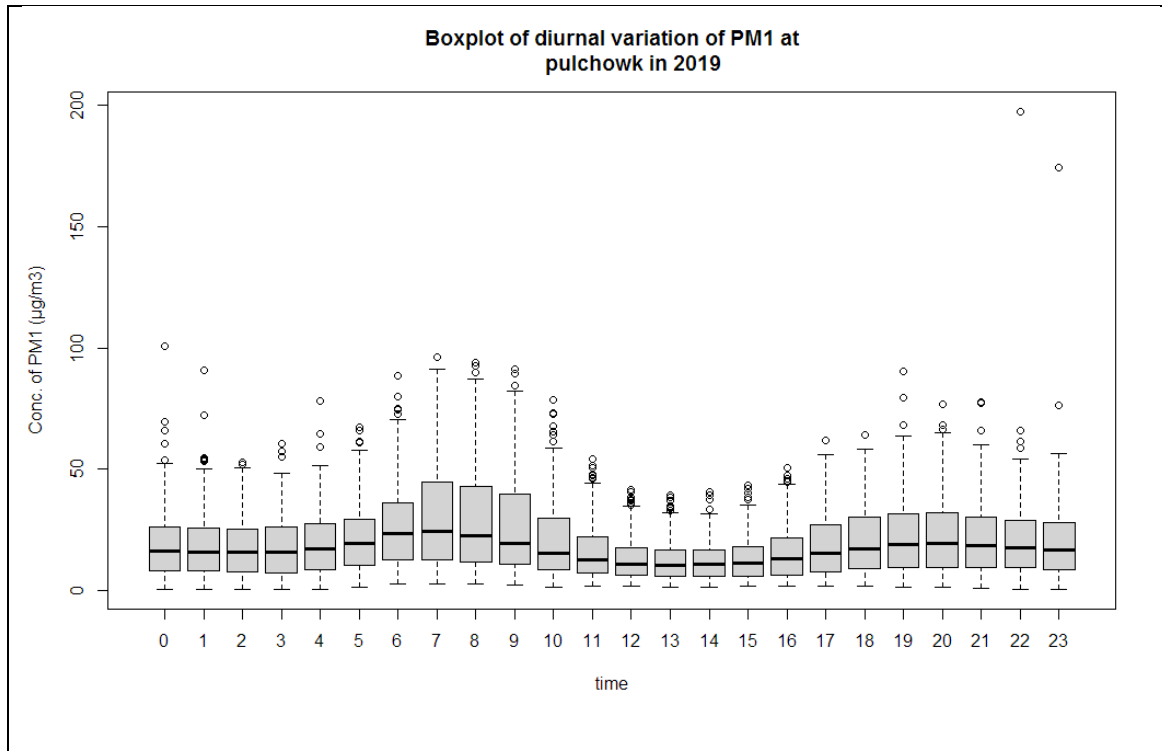


Figure 82. Boxplot of diurnal variation of PM1 at Pulchowk station in 2019

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.

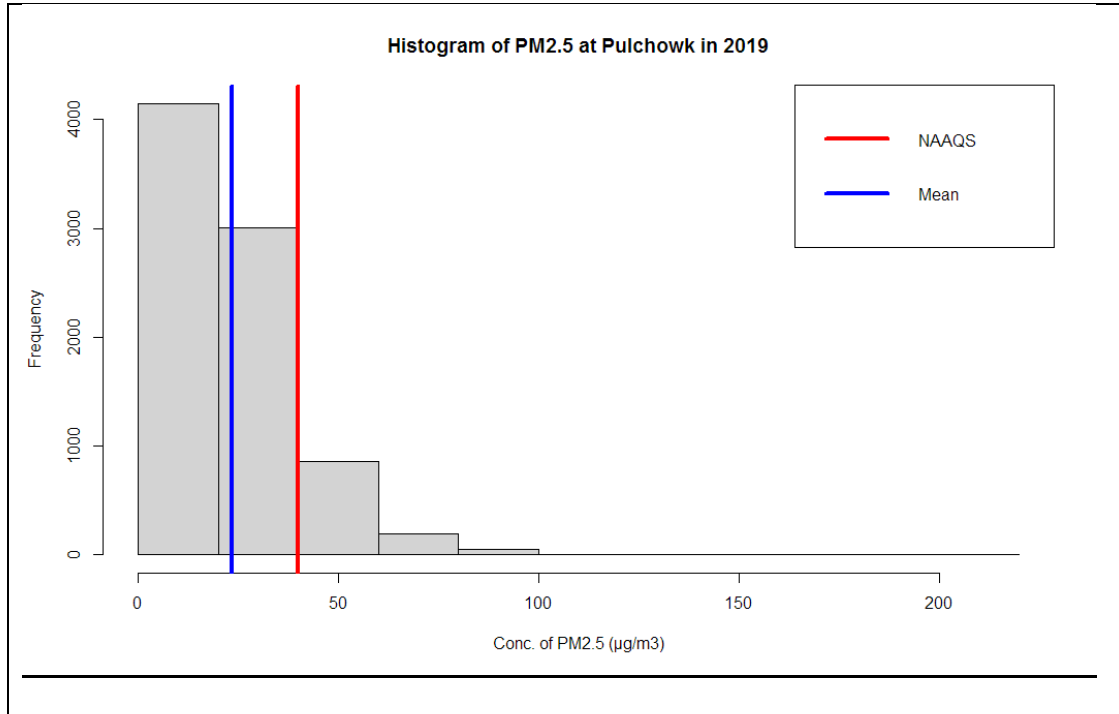


Figure 83. Histogram of PM2.5 at Pulchowk in 2019

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

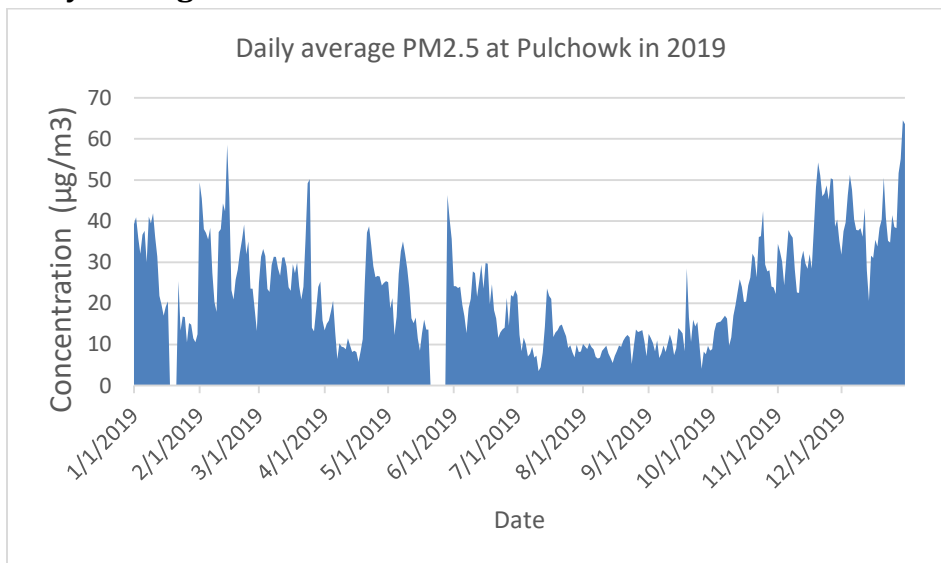
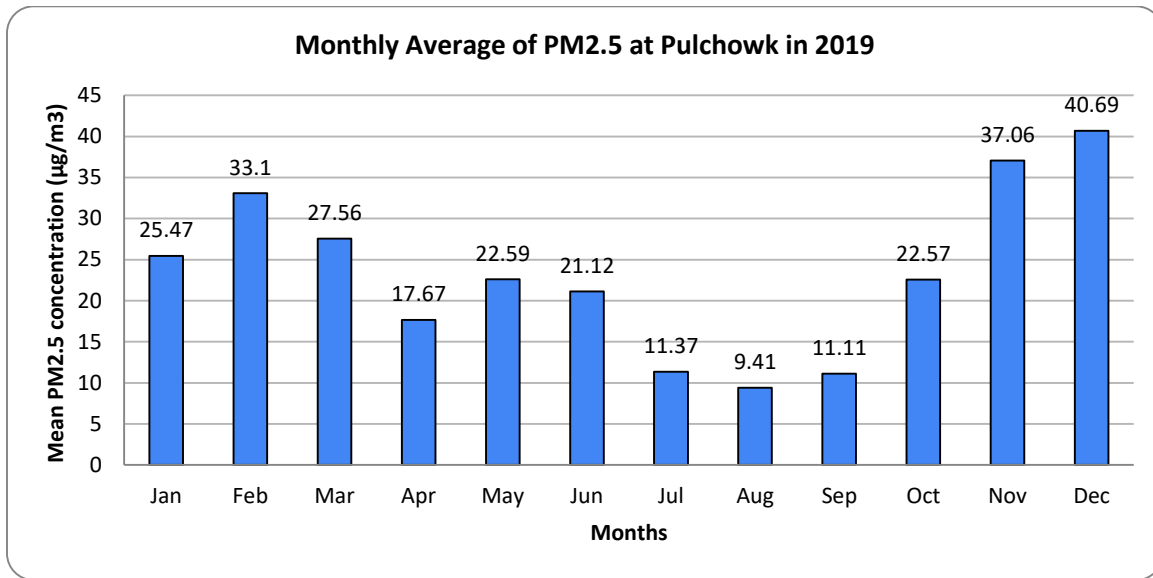


Figure 84. Daily average PM2.5 at Pulchowk station in 2019

## Monthly Average of PM2.5

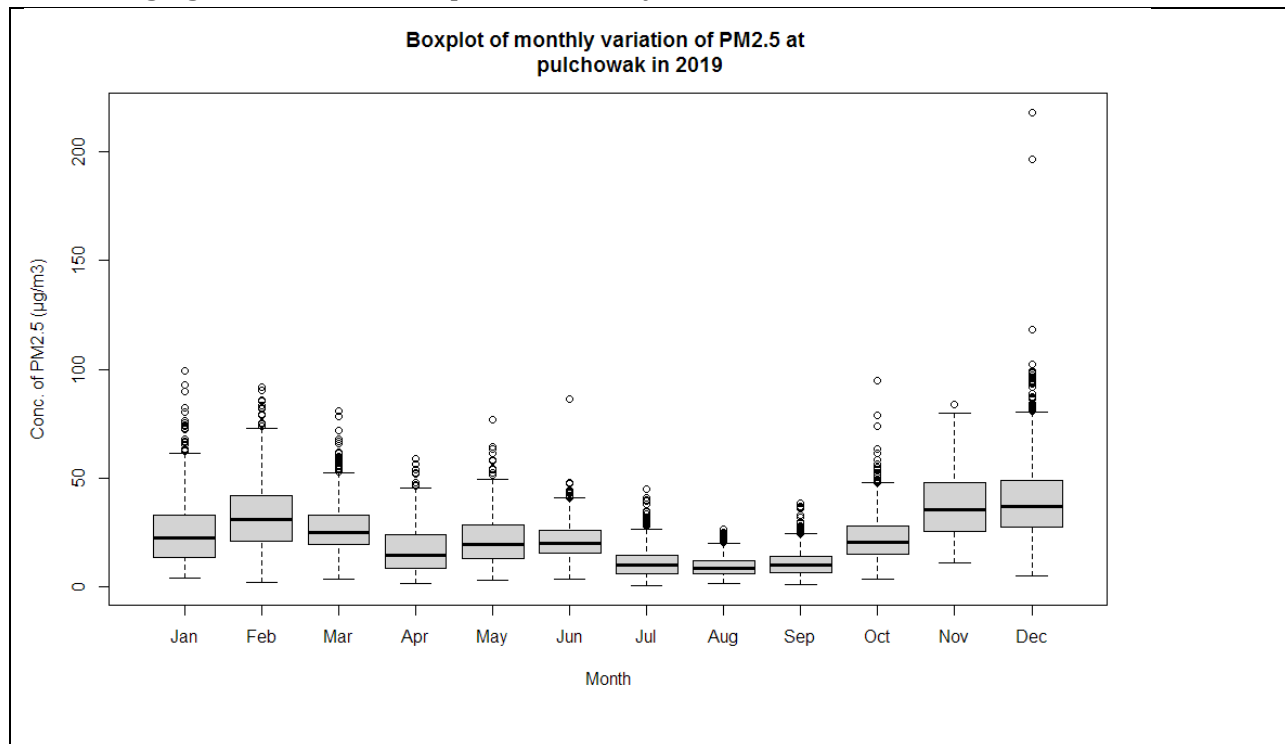


**Figure 85. Monthly average of PM2.5 at Pulchowk station in 2019**

Monthly average value of PM<sub>2.5</sub> was highest in December with monthly average of 40.69 µg/m<sup>3</sup> while lowest value were observed in August with monthly average of 9.41 µg/m<sup>3</sup>

## Monthly Variation of PM2.5

Following figure shows the boxplot of monthly variation of PM<sub>2.5</sub> 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

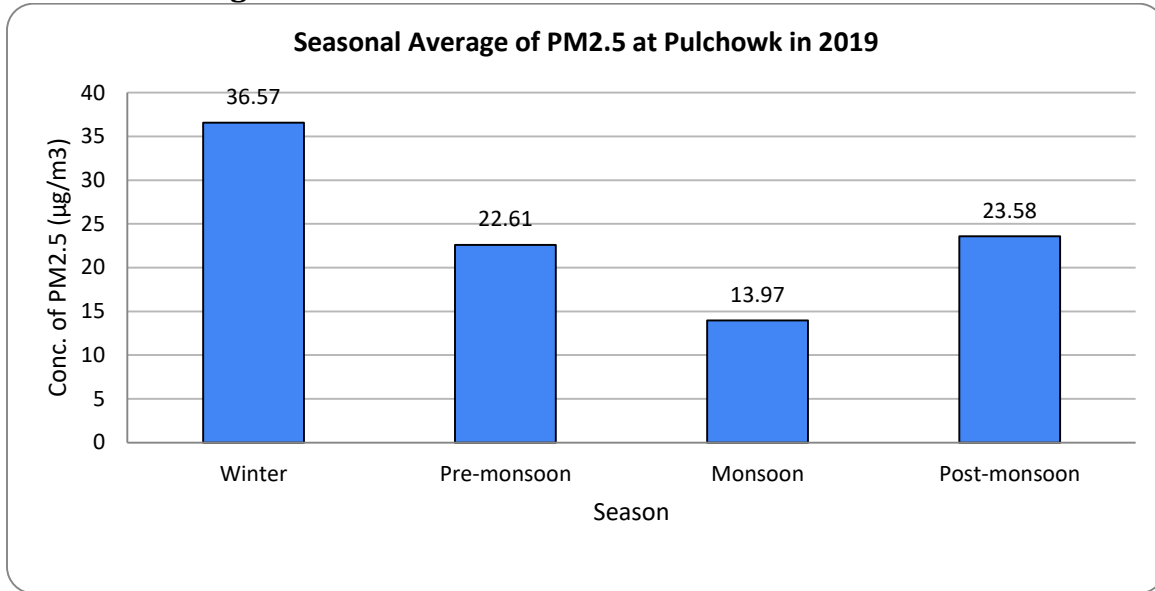


Figure 87. Seasonal variation of PM2.5 at Pulchowk station in 2019

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

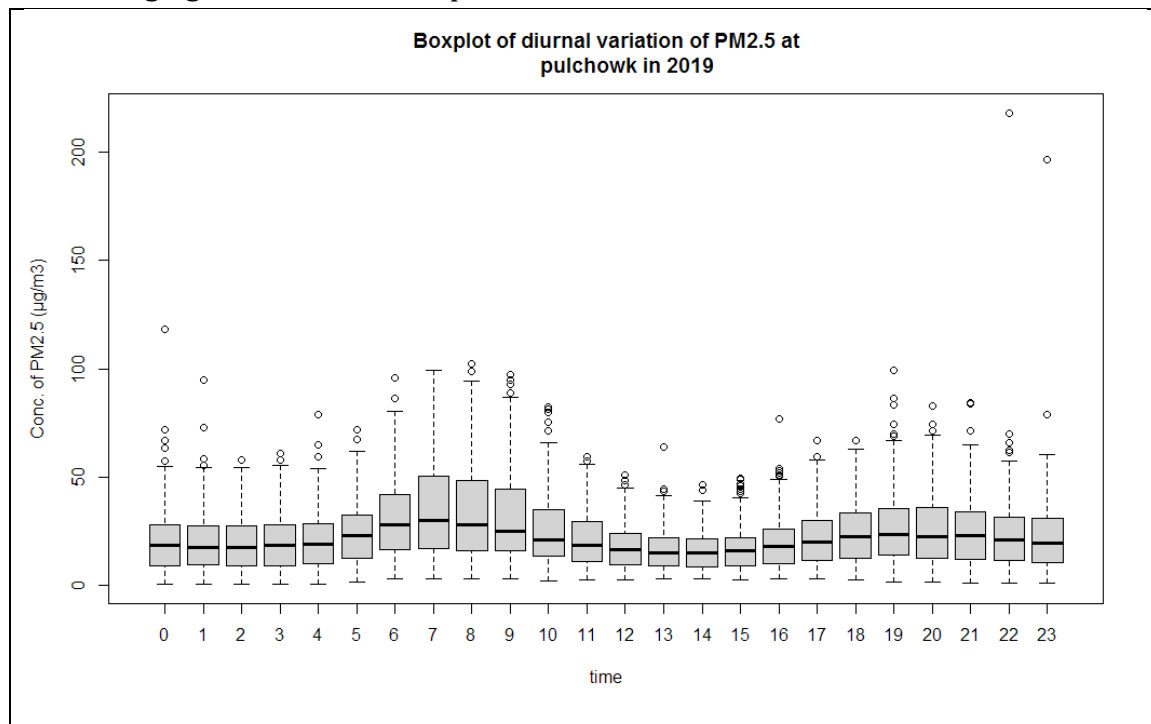
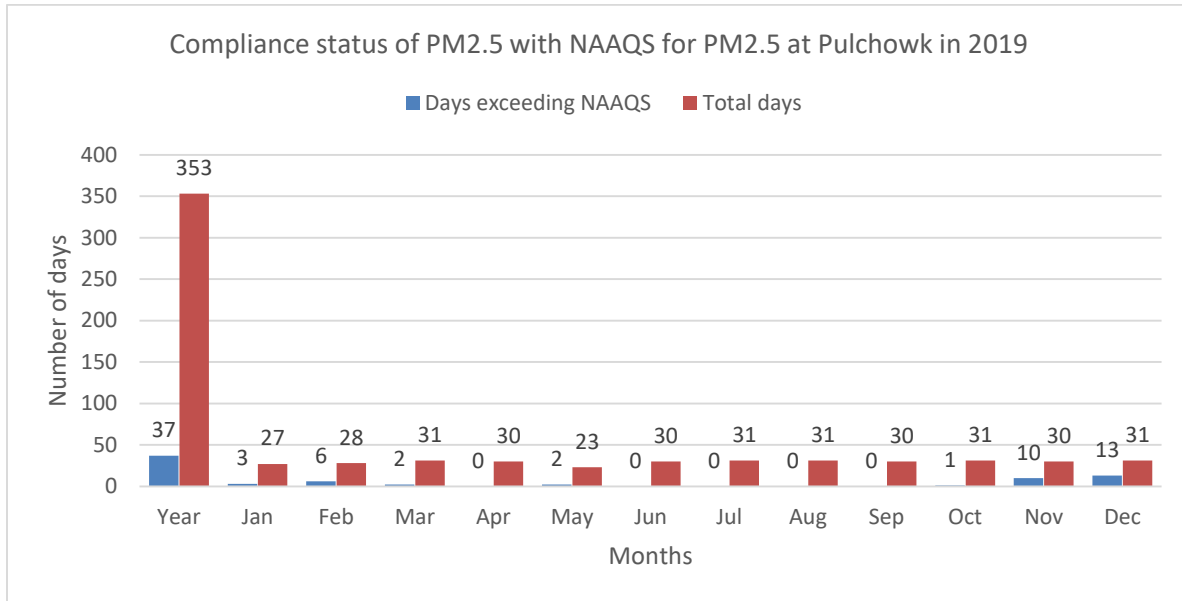


Figure 88. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2019

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.

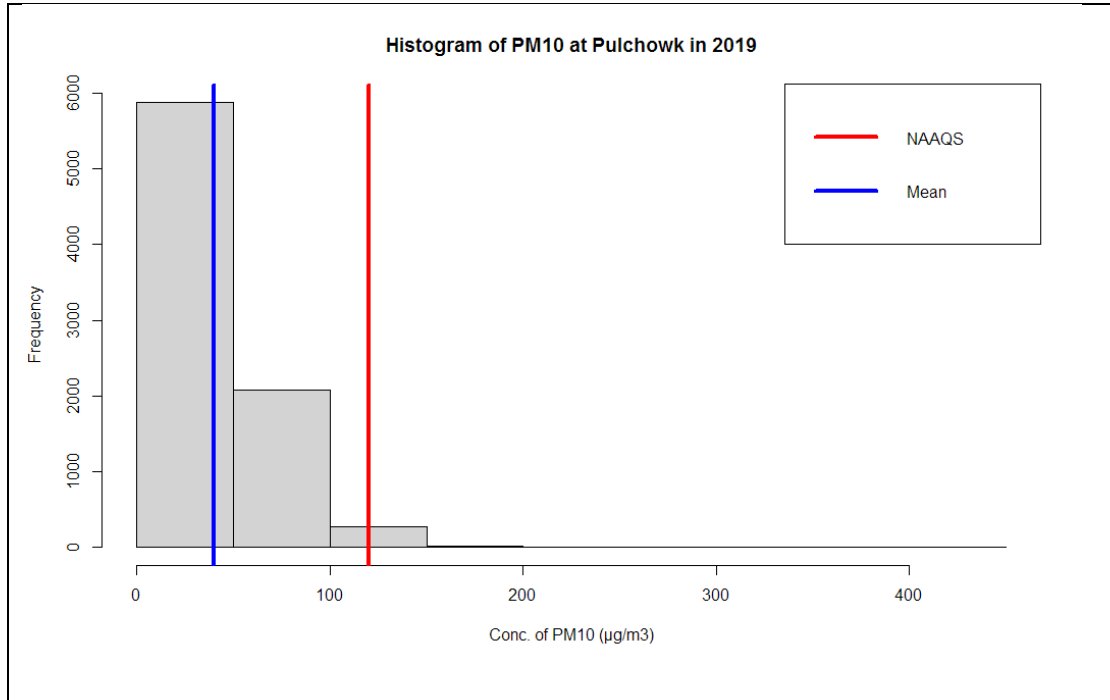


Figure 90. . Histogram of PM10 at Pulchowk in 2019

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

### Daily average of PM10

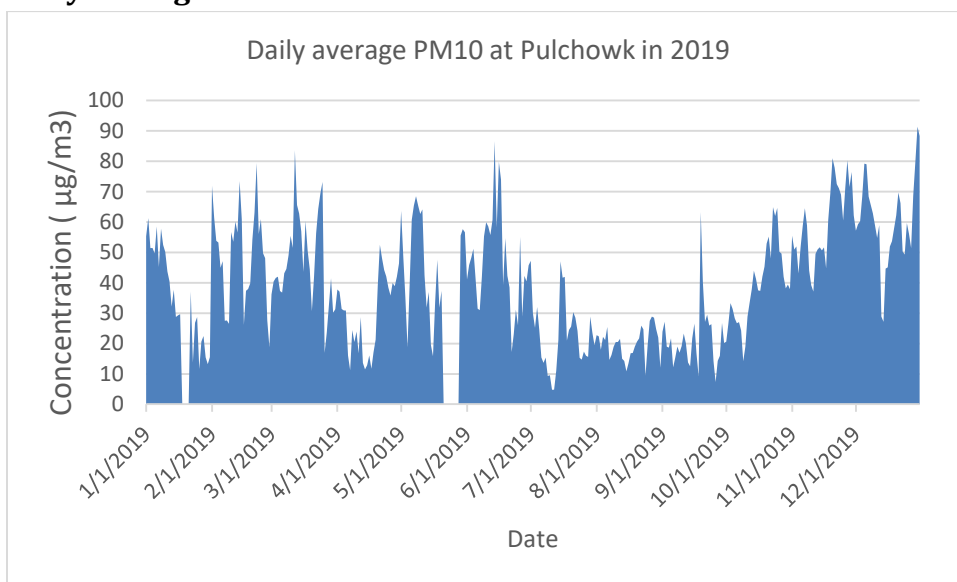


Figure 91. Daily average PM10 at Pulchowk station in 2019

## Monthly Average of PM10

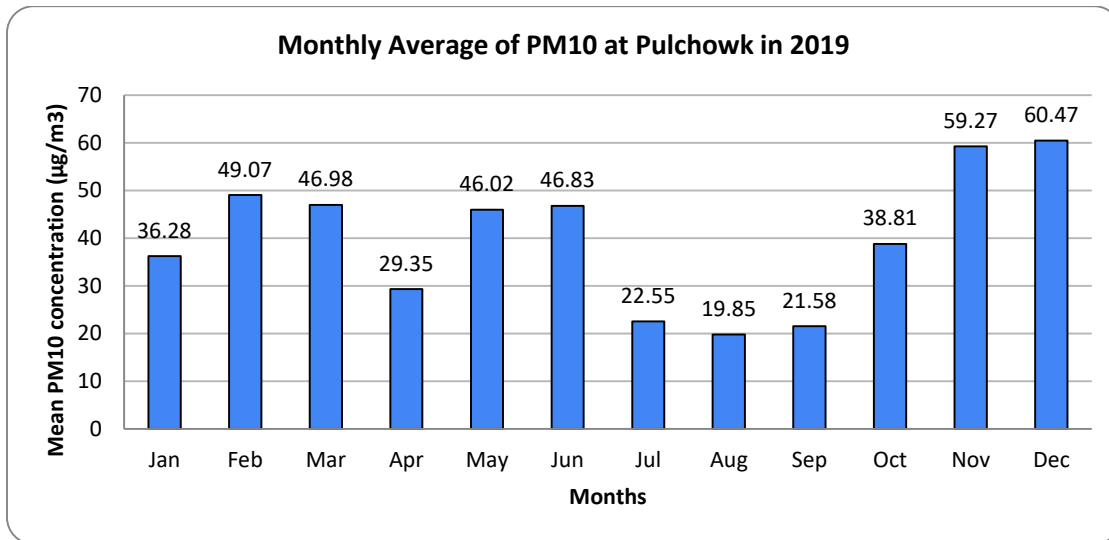


Figure 92. Monthly average PM10 at Pulchowk station in 2019

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

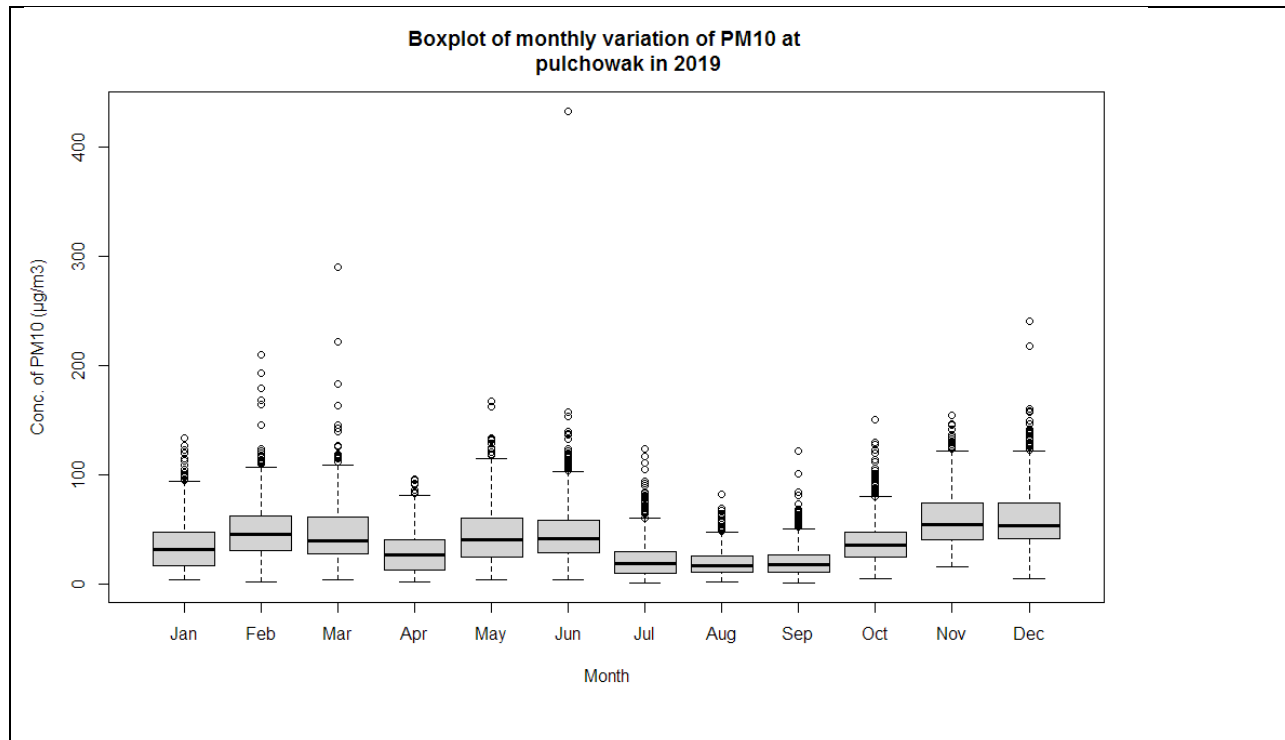


Figure 93. Boxplot of monthly variation of PM10 at Pulchowk in 2019

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.

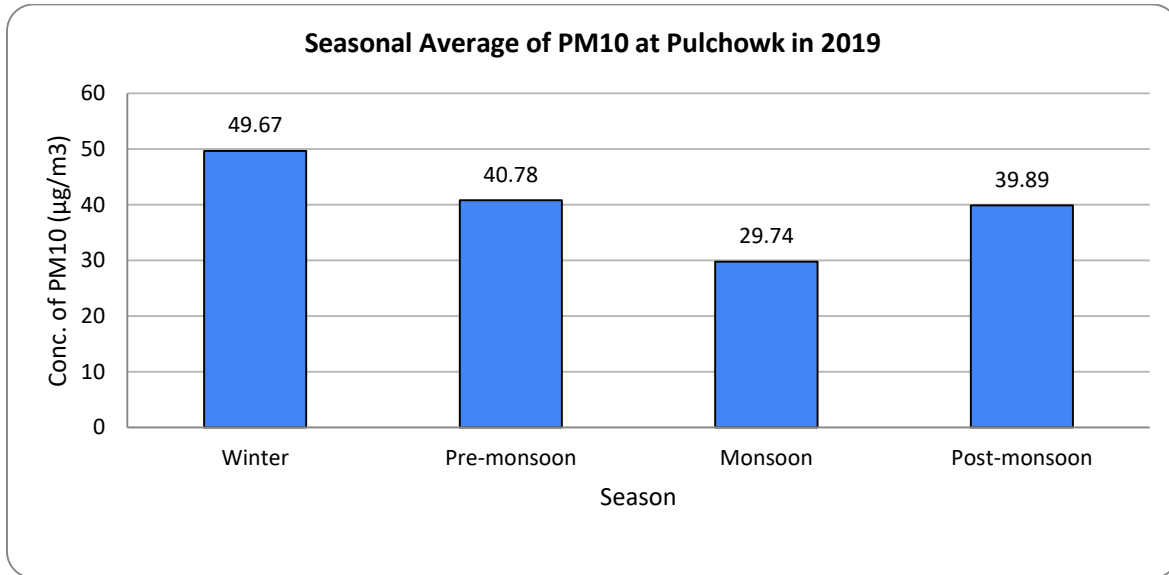


Figure 94. Seasonal average of PM10 at Pulchowk station in 2019

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.

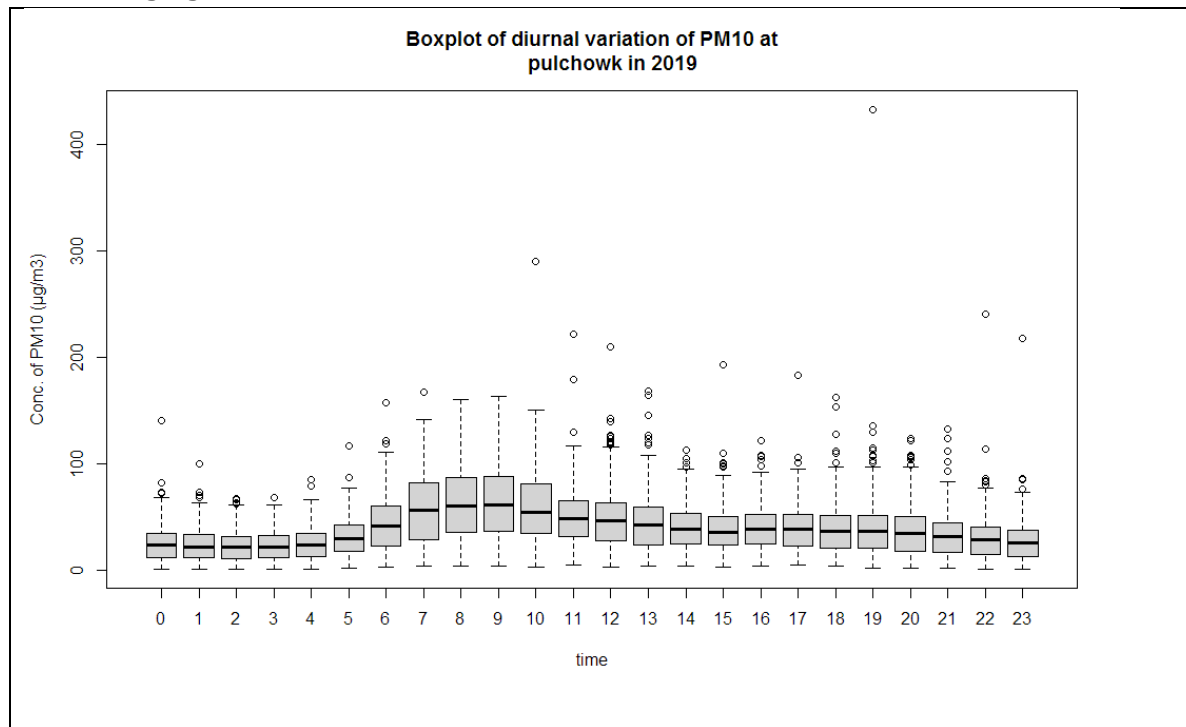


Figure 95. Diurnal variation of Pm10 at Pulchowk in 2019

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.

## 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.

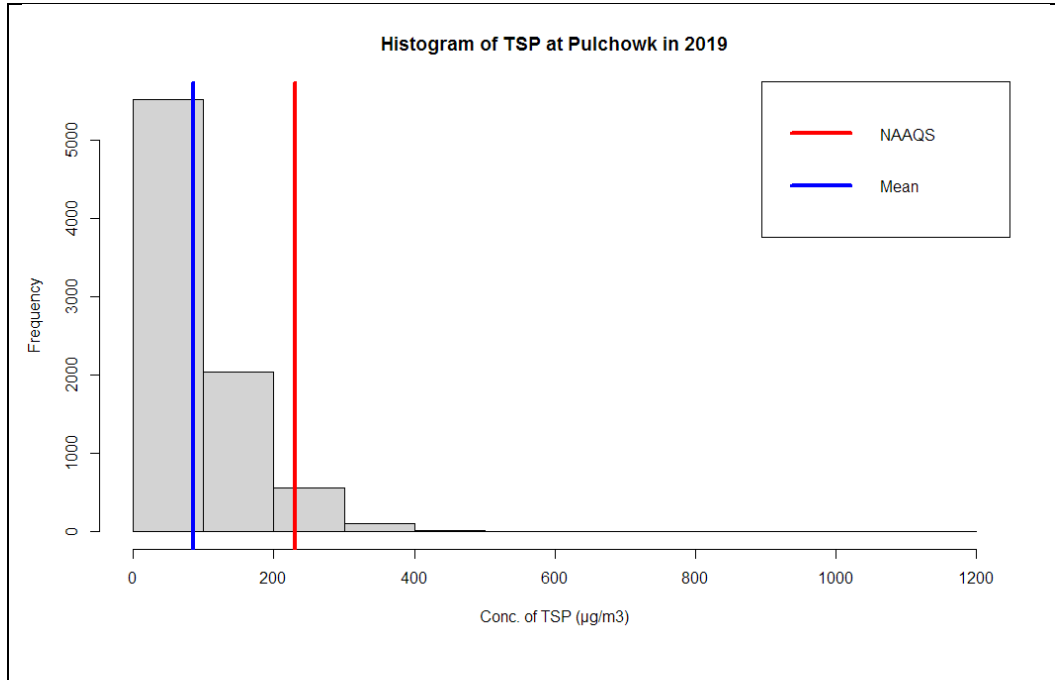


Figure 96. Histogram of TSP at Pulchowk station in 2019

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

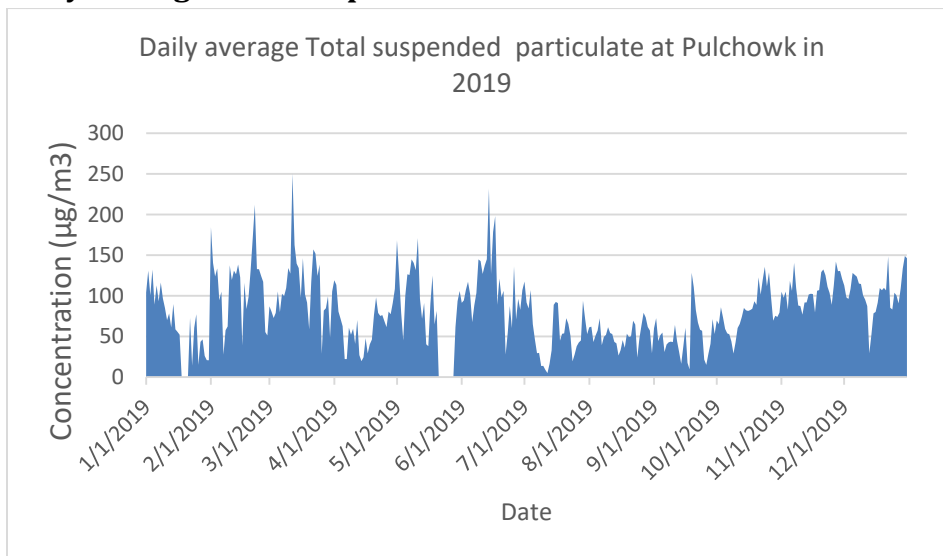


Figure 97. Daily average total suspended particulate at Pulchowk in 2019

### Monthly Average of TSP

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

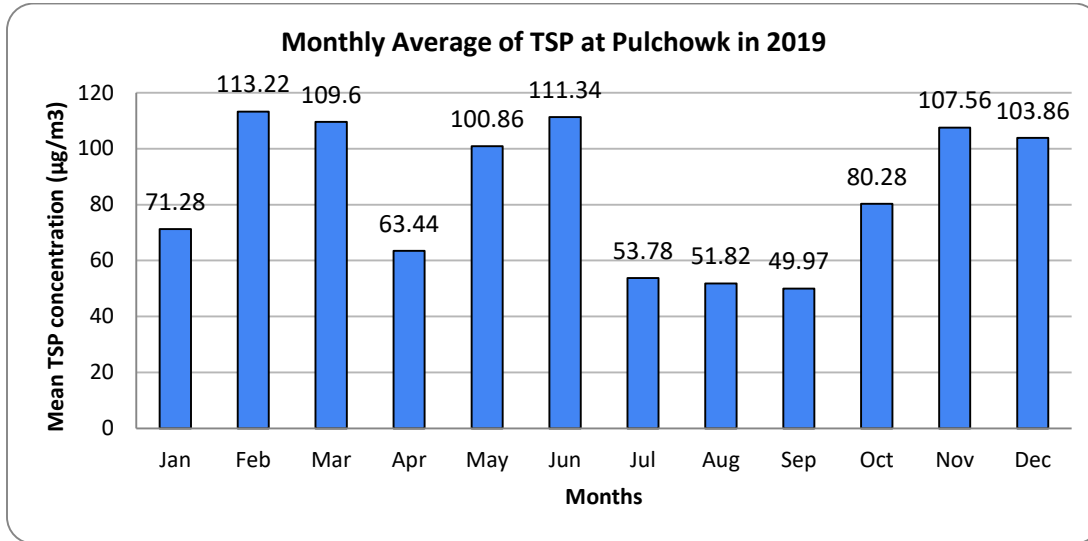


Figure 98. Monthly average of TSP at Pulchowk station in 2019

The monthly average value of TSP was highest in March with monthly average value of 113.22 µg/m³ and lowest in September with monthly average value of 49.97 µg/m³.

### Monthly variation of TSP

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

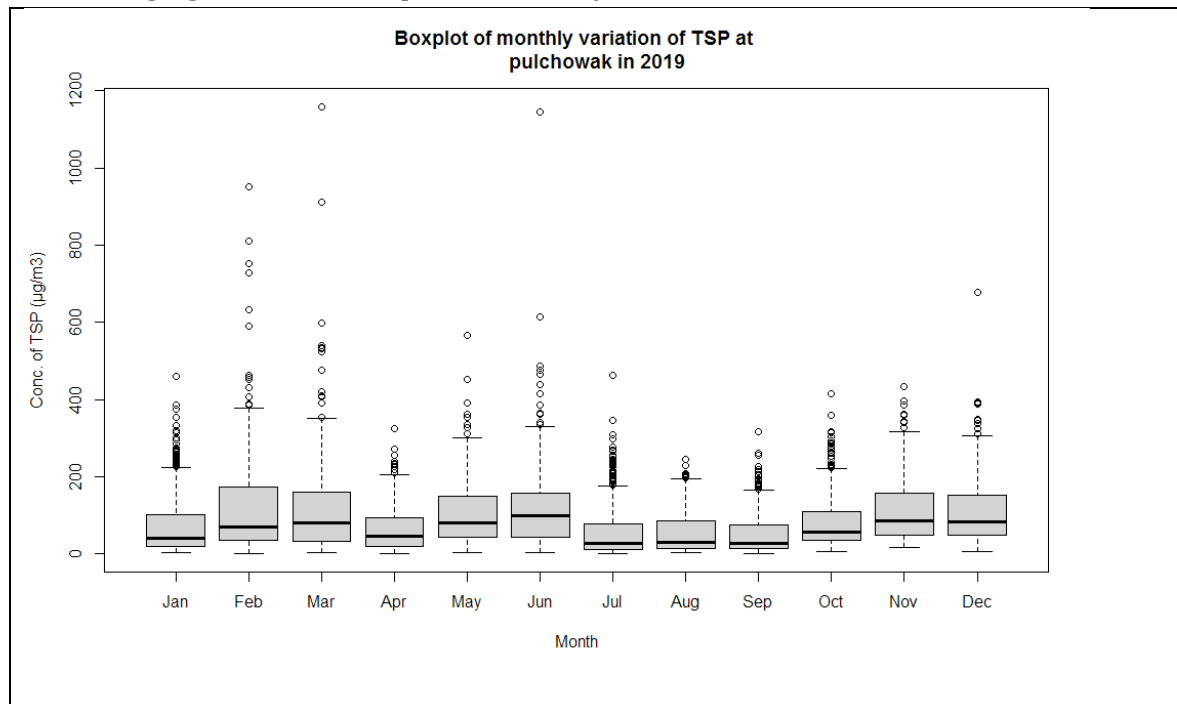


Figure 99. Monthly variation of daily average Total suspended particulate at Pulchowk in 2019

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

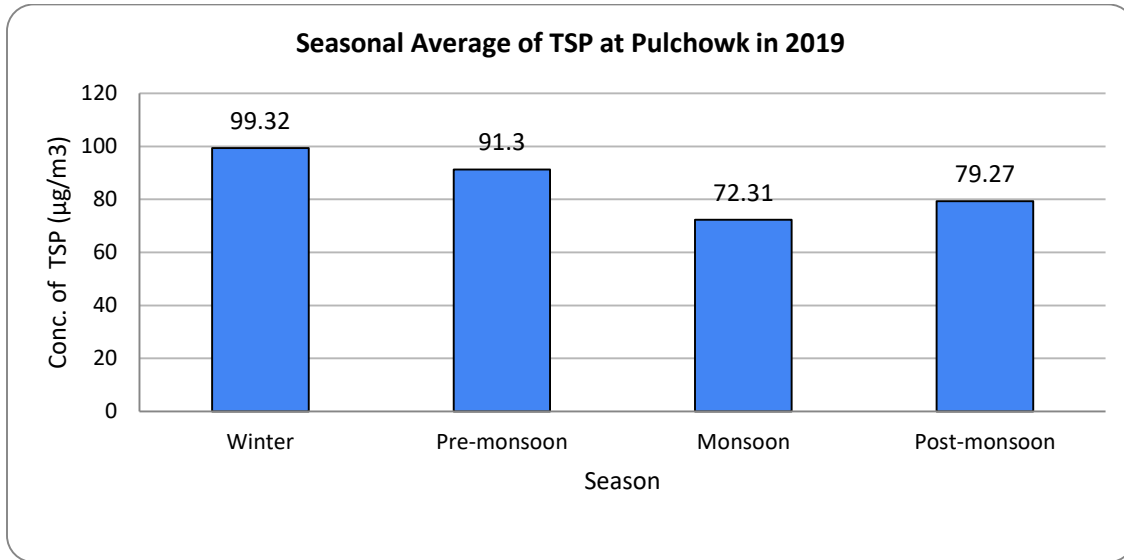


Figure 100. Seasonal average of TSP at Pulchowk station in 2019

Highest seasonal average was observed in Winter season with seasonal average of 99.32 µg/m<sup>3</sup> and lowest seasonal average was observed in Monsoon season with seasonal average of 72.1 µg/m<sup>3</sup>.

### Diurnal Variation of TSP

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

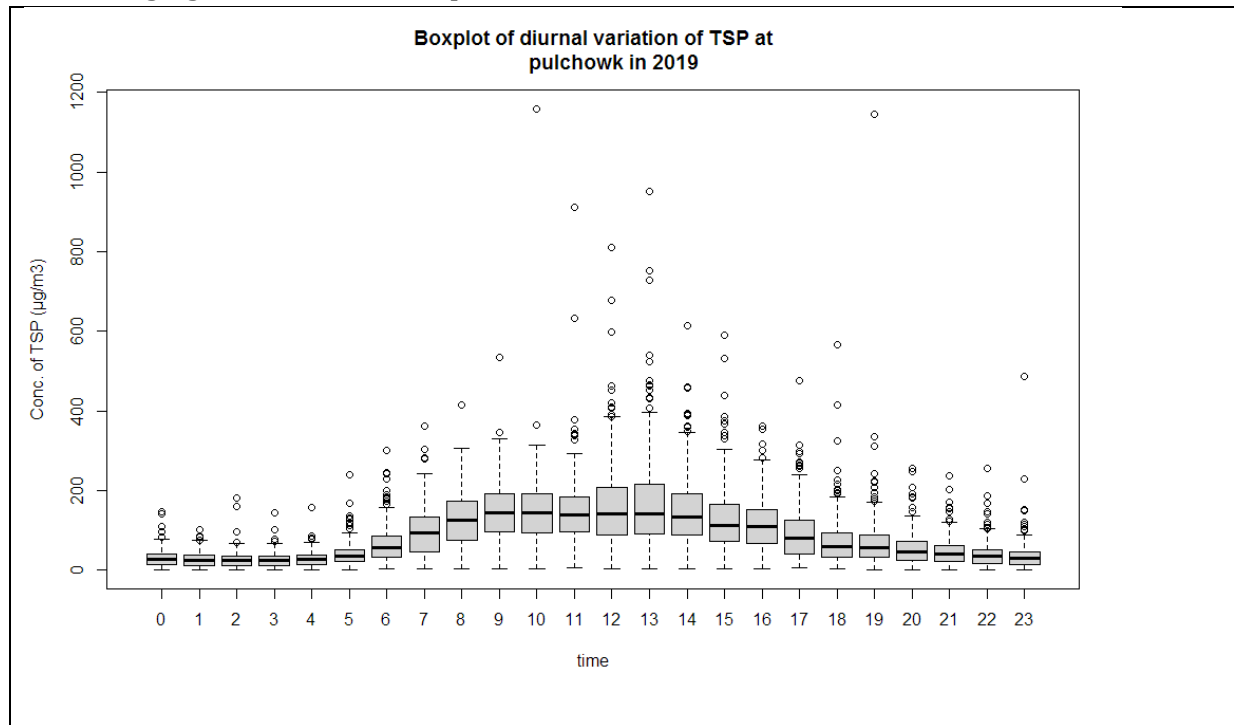


Figure 101. Diurnal variation of TSP at Pulchowk station in 2019

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**

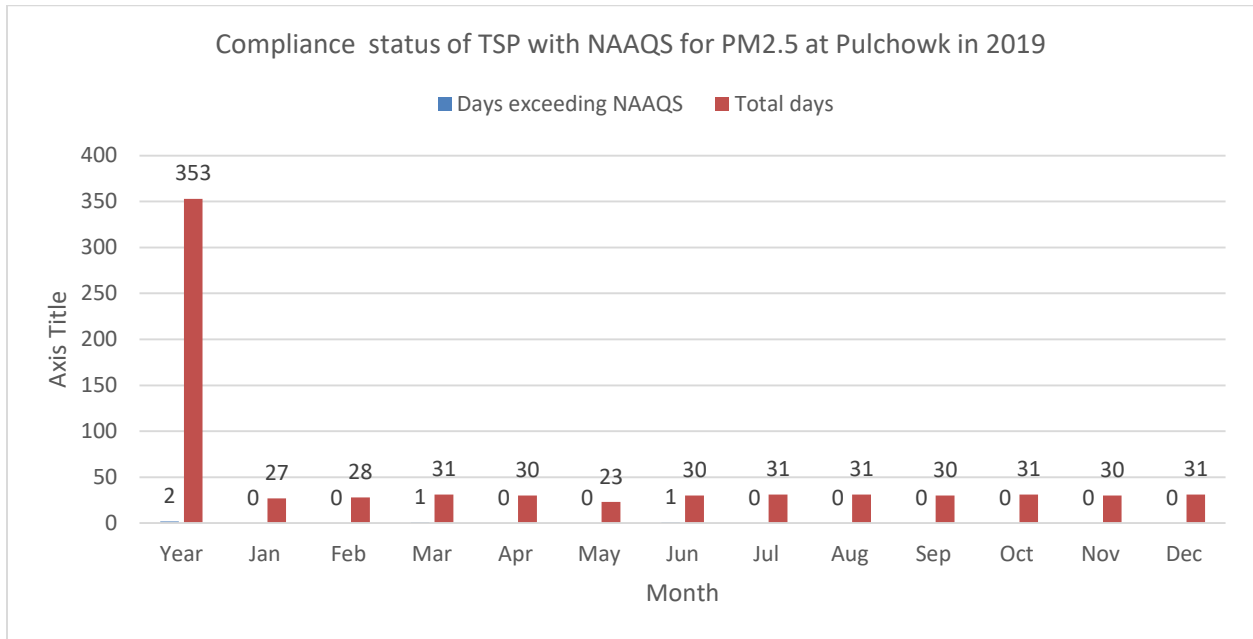


Figure 102. Compliance with NAAQS for TSP at Pulchowk in 2019

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.

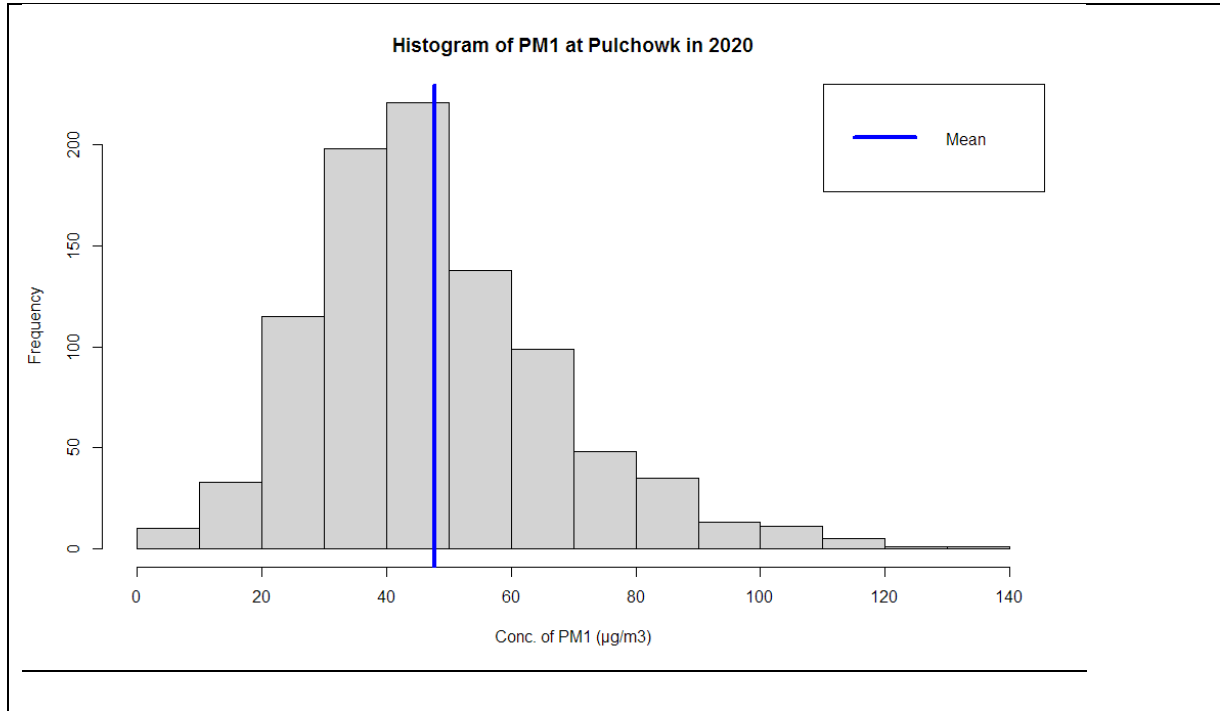


Figure 103. Histogram of PM1 at Pulchowk in 2020

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

#### Daily average of PM1

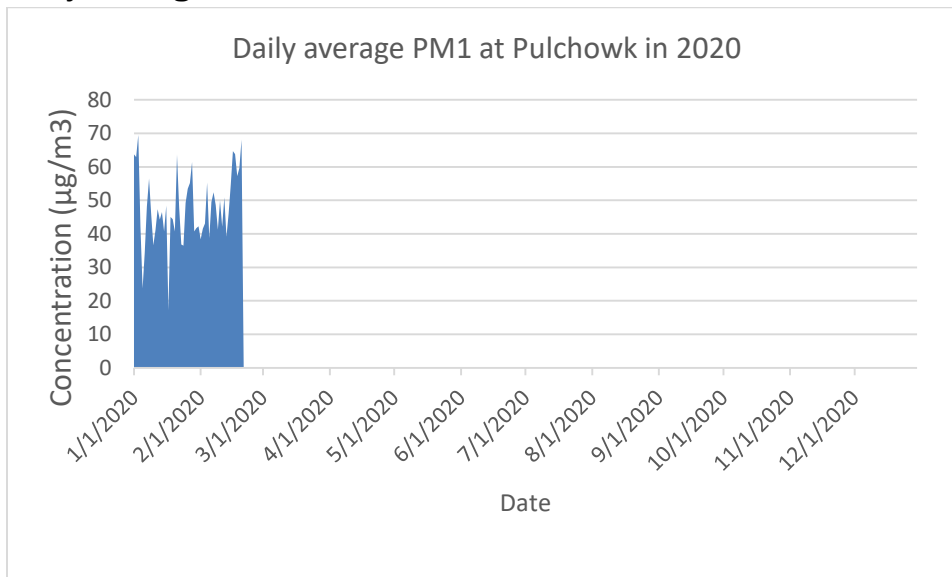


Figure 104. Daily average PM1 at Pulchowk station in 2020

### Monthly Average of PM1

Following Figure shows the monthly average of PM1.

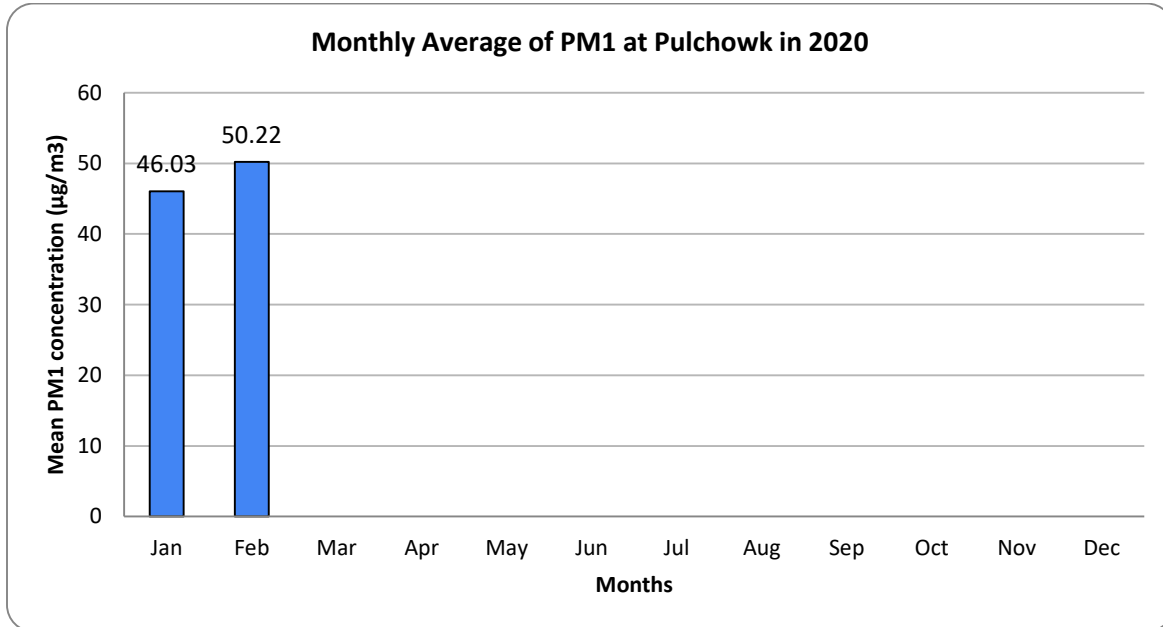


Figure 105. Monthly average PM1 at Pulchowk station in 2020

In 2020 only January and February have measurements.

### Monthly Variation of PM1

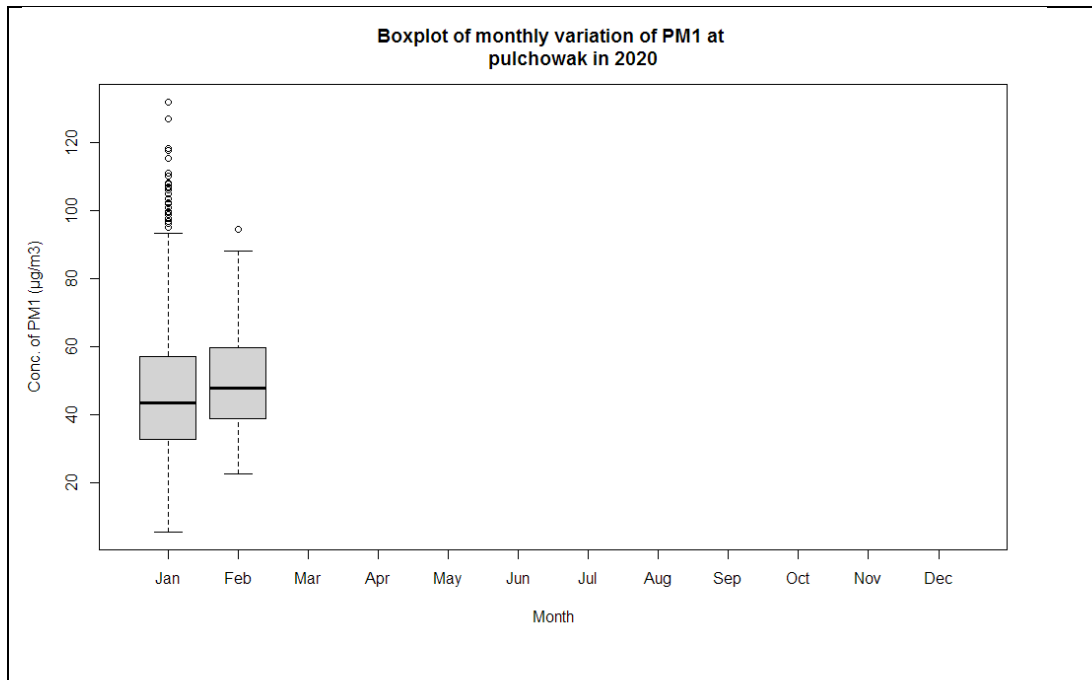


Figure 106. Monthly variation of daily average PM1 at Pulchowk station in 2020

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.

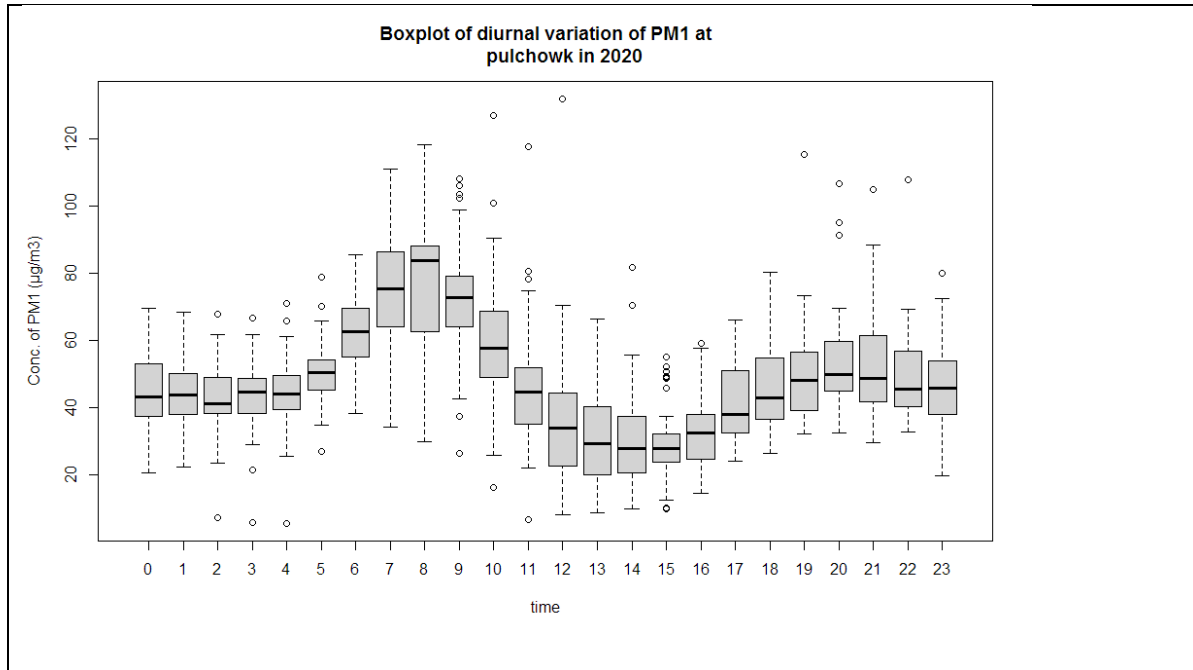


Figure 107. Boxplot of diurnal variation of PM1 at Pulchowk station in 2020

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.

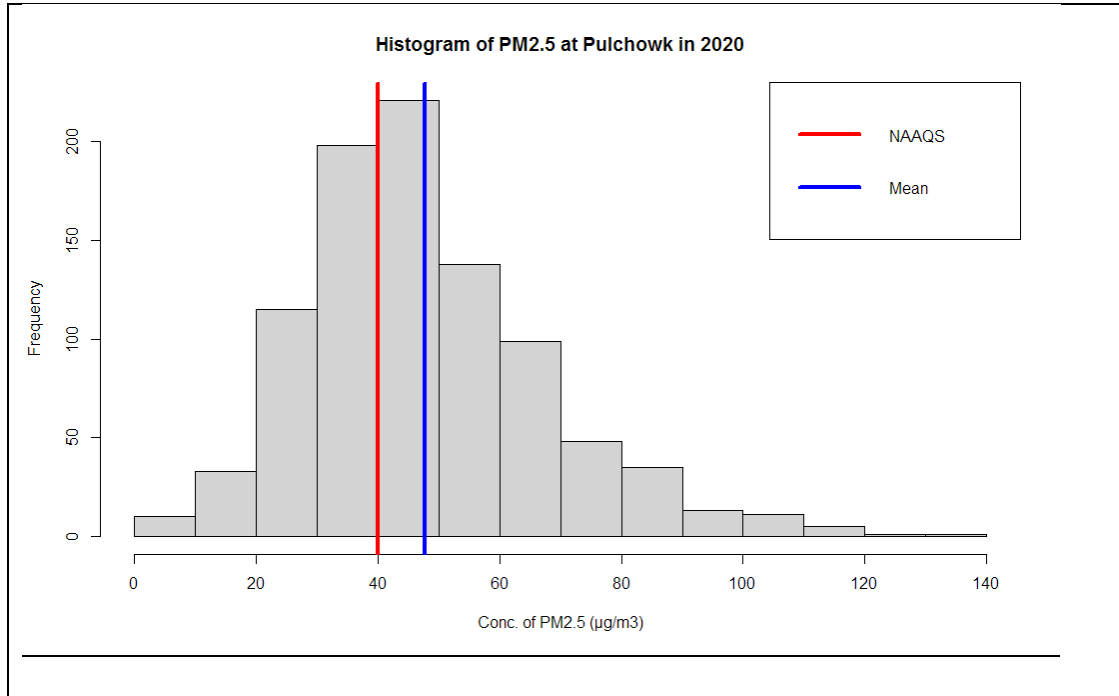


Figure 108. Histogram of PM2.5 at Pulchowk in 2020

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

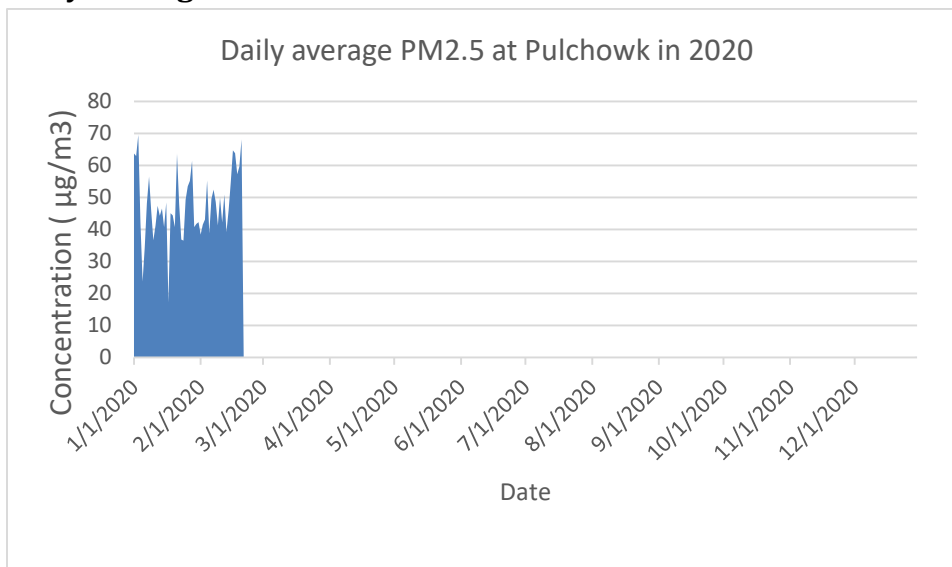


Figure 109. Daily average PM2.5 at Pulchowk station in 2020

### Monthly Average of PM2.5

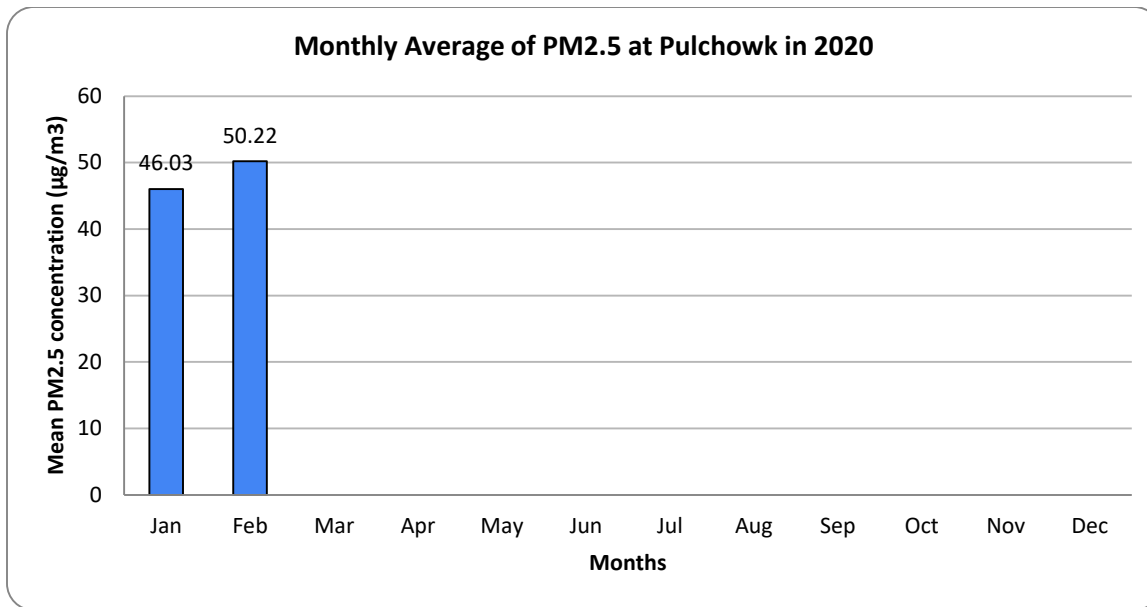


Figure 110. Monthly average of PM2.5 at Pulchowk station in 2020

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.

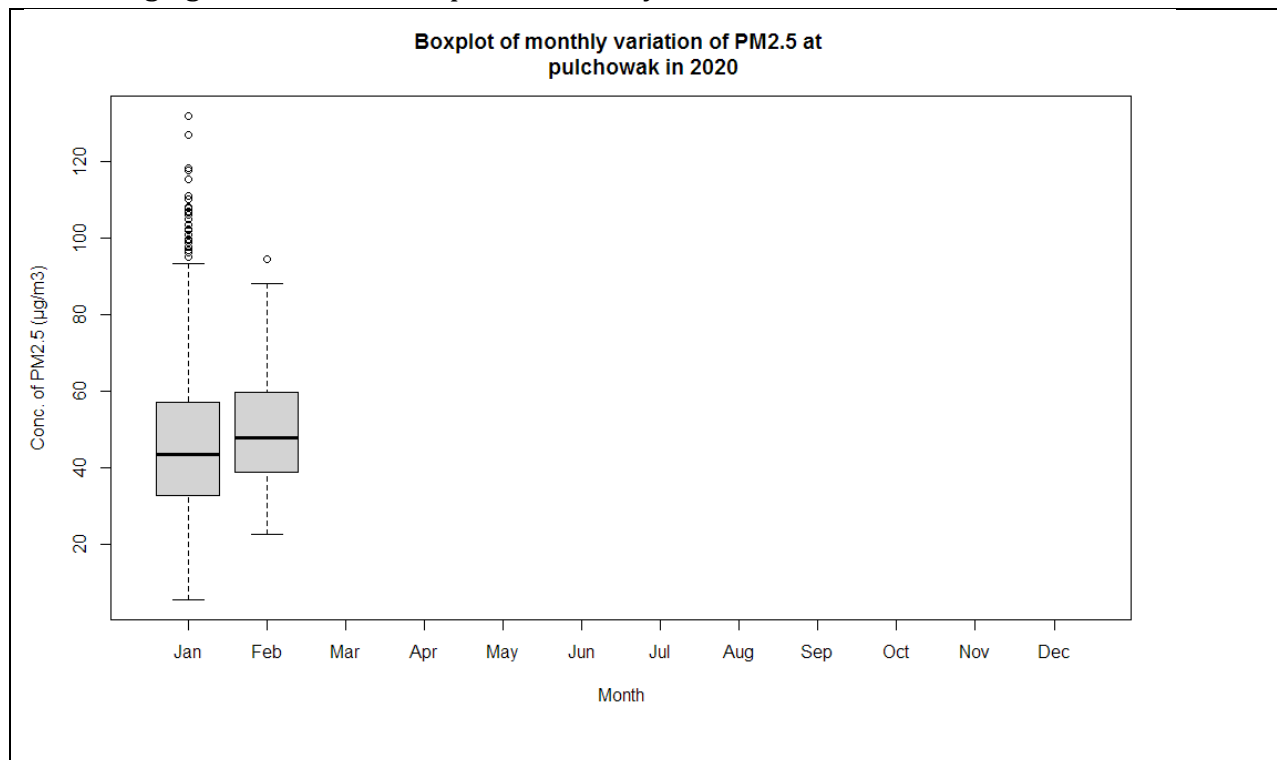


Figure 111. Monthly variation of daily average PM2.5 at Pulchowk in 2020

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

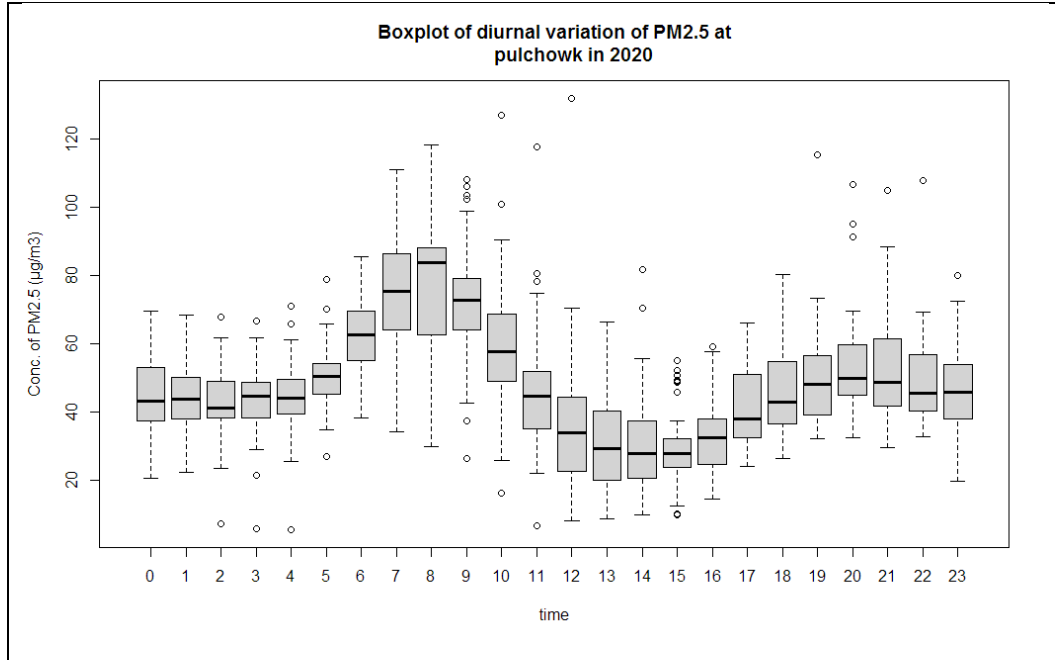


Figure 112. Boxplot of diurnal variation of PM2.5 at Pulchowk in 2020

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

## Compliance with National Ambient air Quality standard

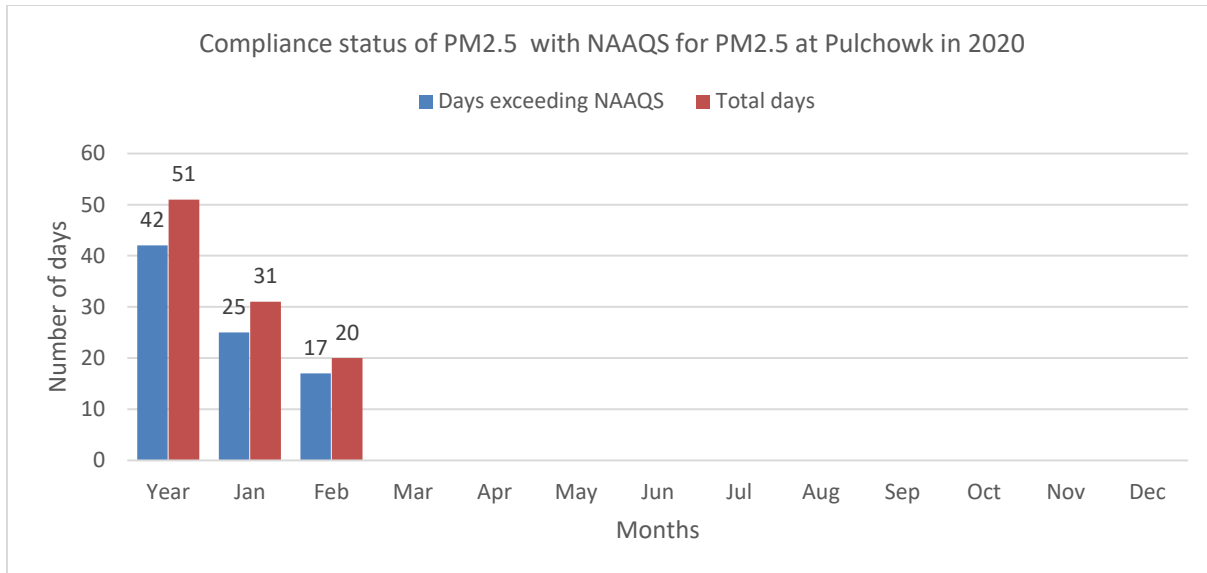


Figure 113. Compliance with National Ambient air quality standard for PM2.5 at Pulchowk station in 2020

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.

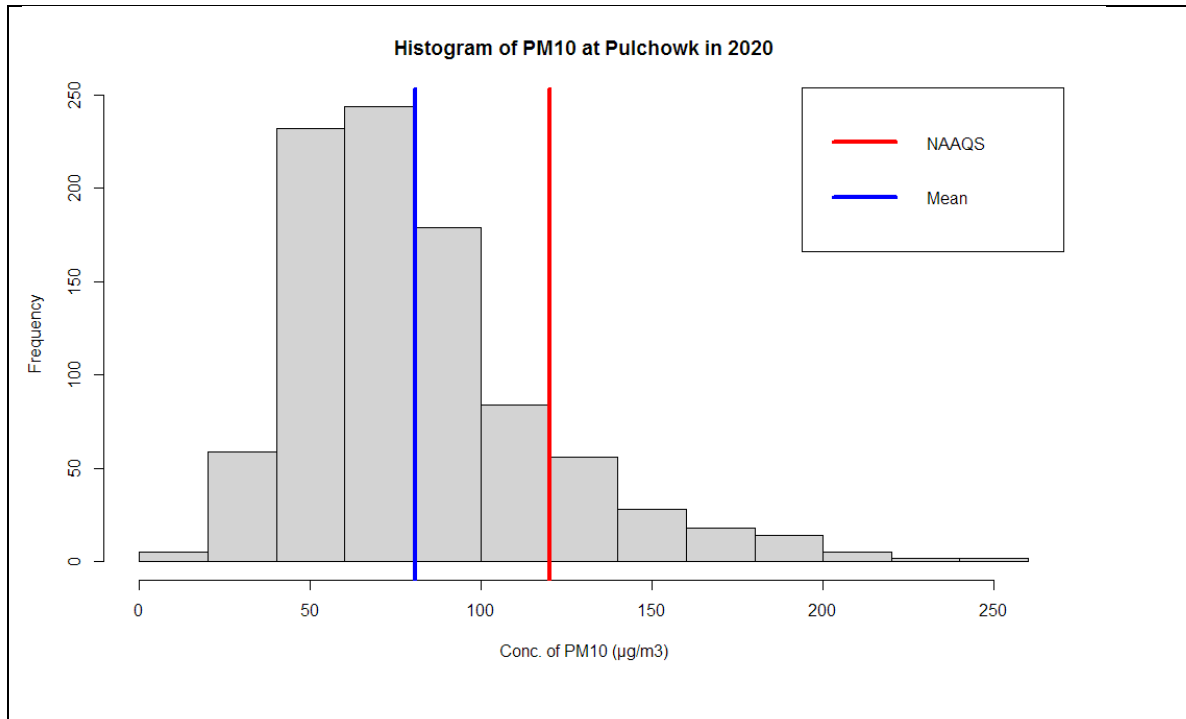


Figure 114. Histogram of PM10 at Pulchowk in 2020

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

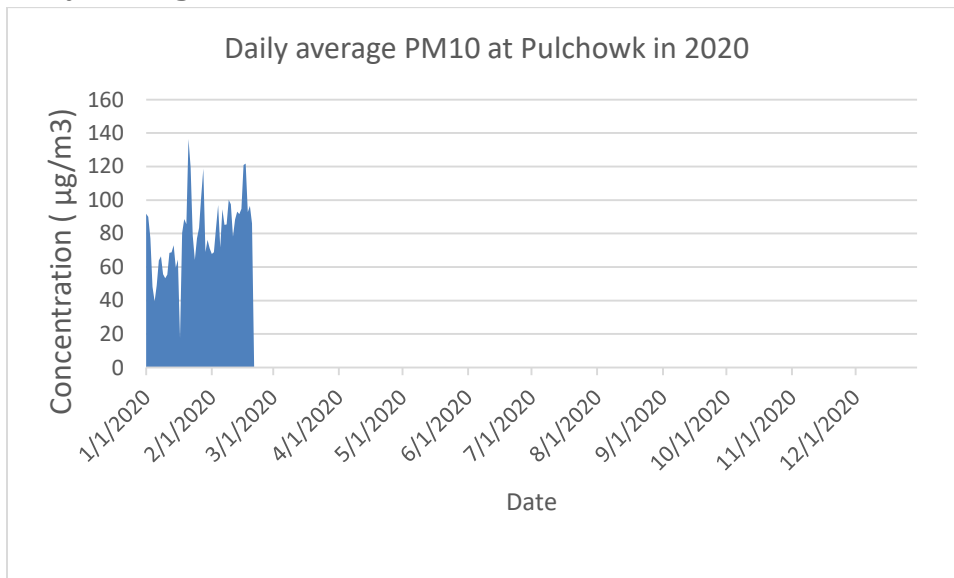


Figure 115. Daily average PM10 at Pulchowk station in 2020

## Monthly Average of PM10

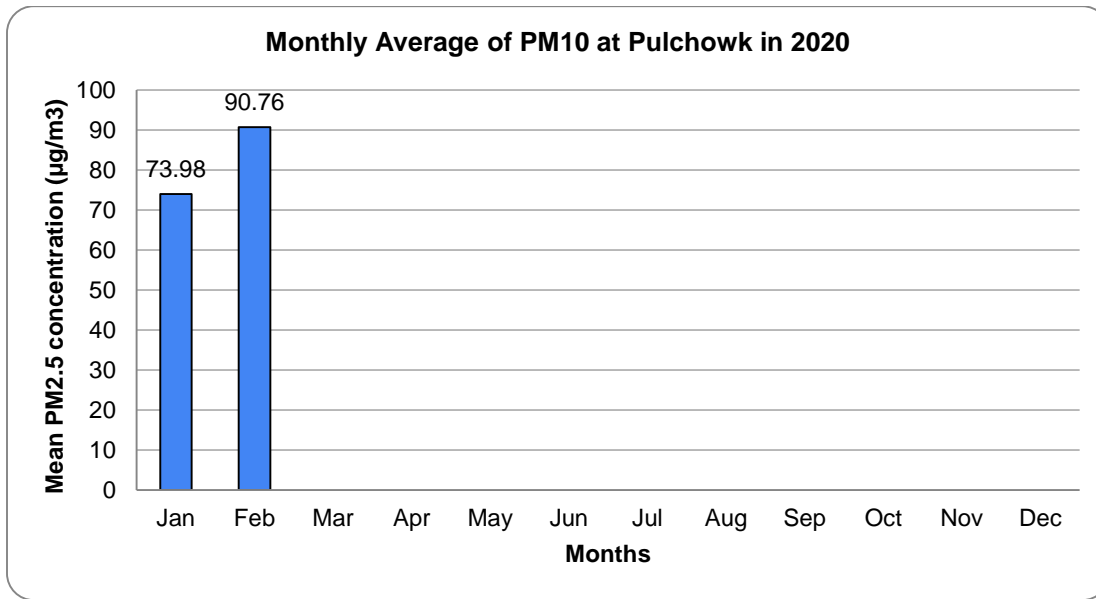


Figure 116. Monthly average PM10 at Pulchowk station in 2020

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

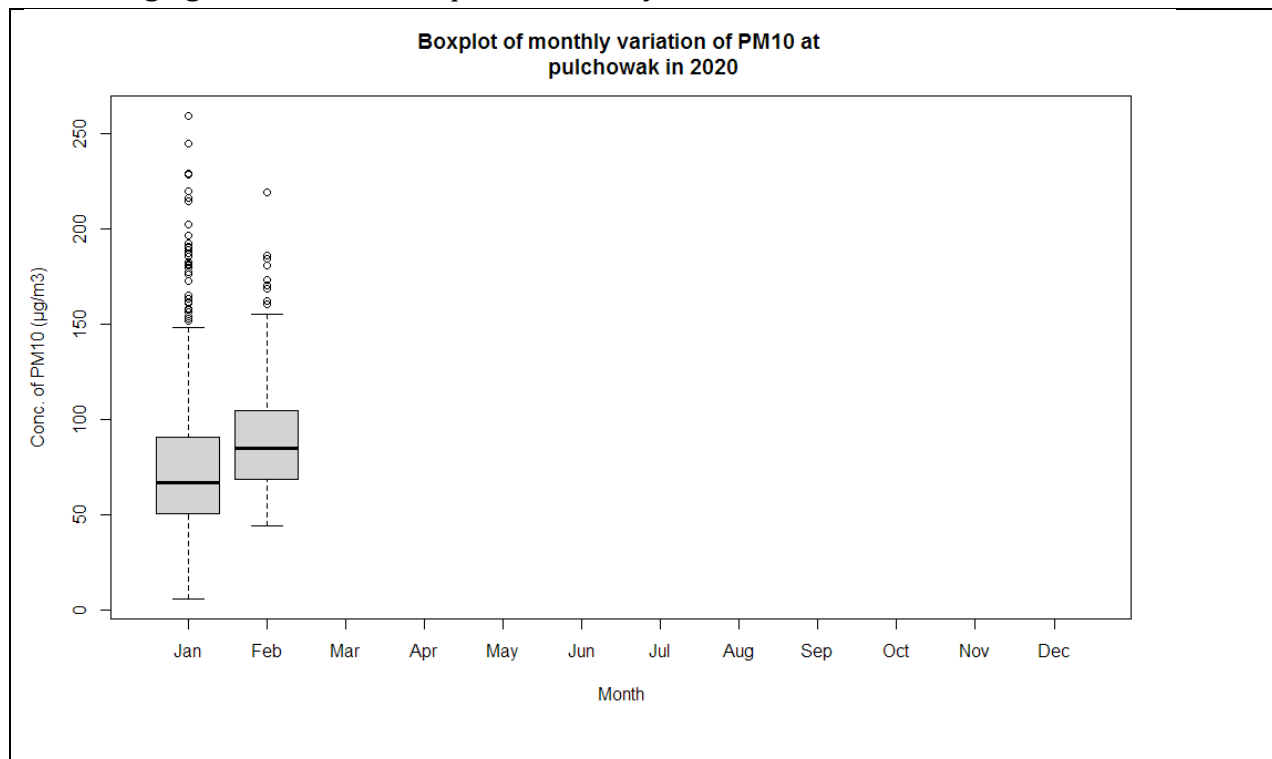


Figure 117. Boxplot of monthly variation of PM10 at Pulchowk in 2020

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.

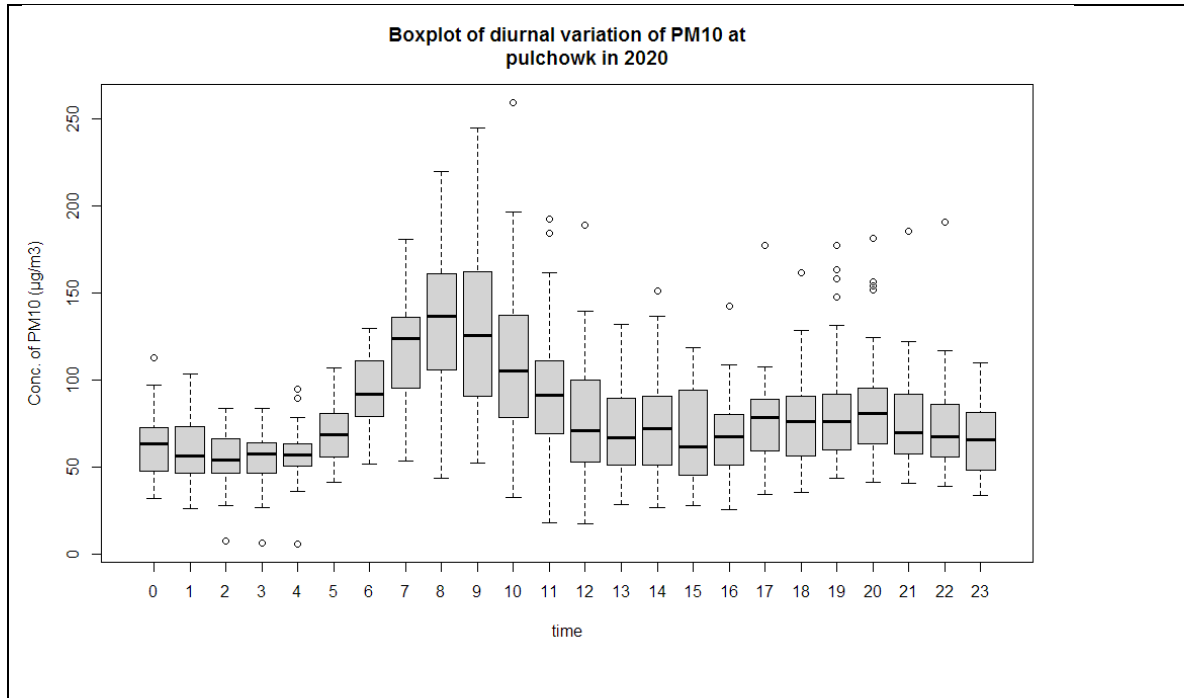


Figure 118. Diurnal variation of Pm10 at Pulchowk in 2020

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

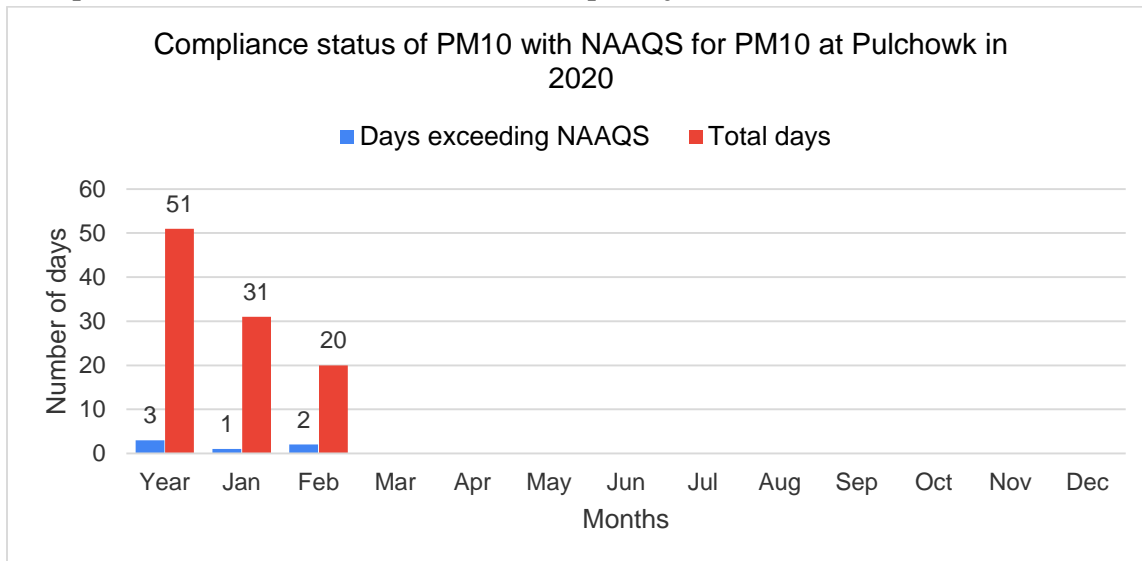


Figure 119. Compliance with NAAQS for PM10 at Pulchowk in 2020

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.

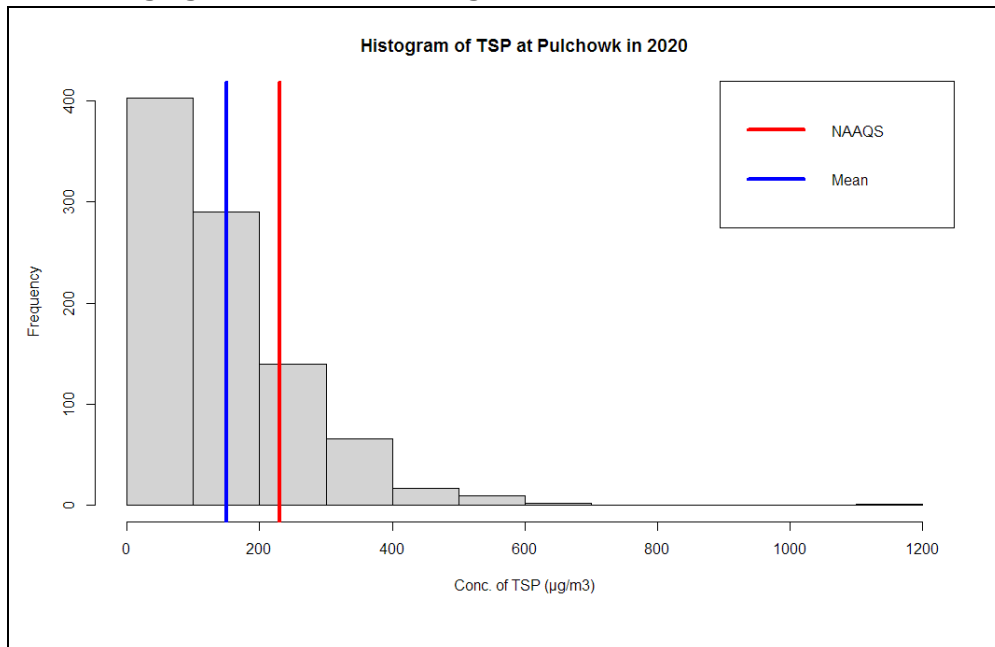


Figure 120. Histogram of TSP at Pulchowk station in 2020

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

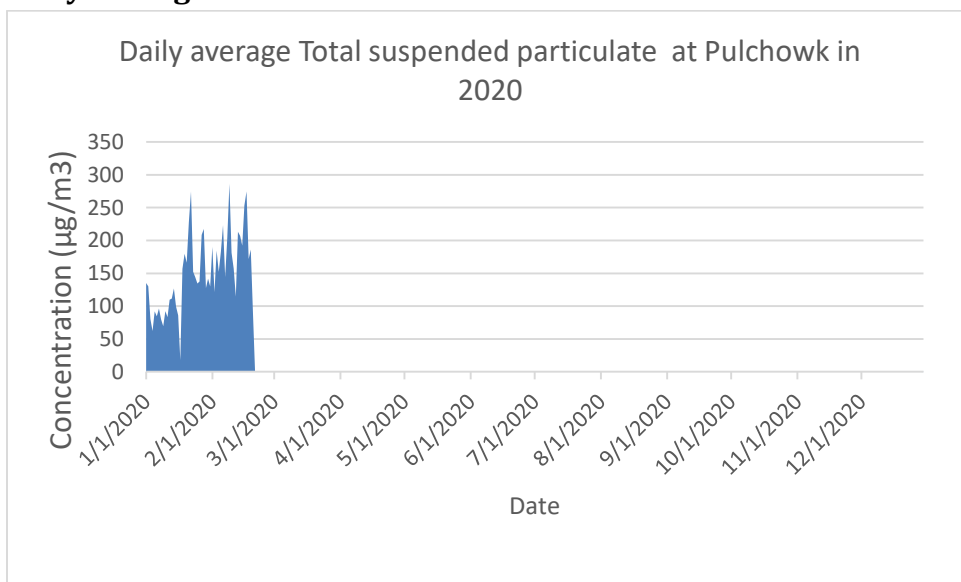


Figure 121. Daily average total suspended particulate at Pulchowk in 2020

### Monthly Average of TSP

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

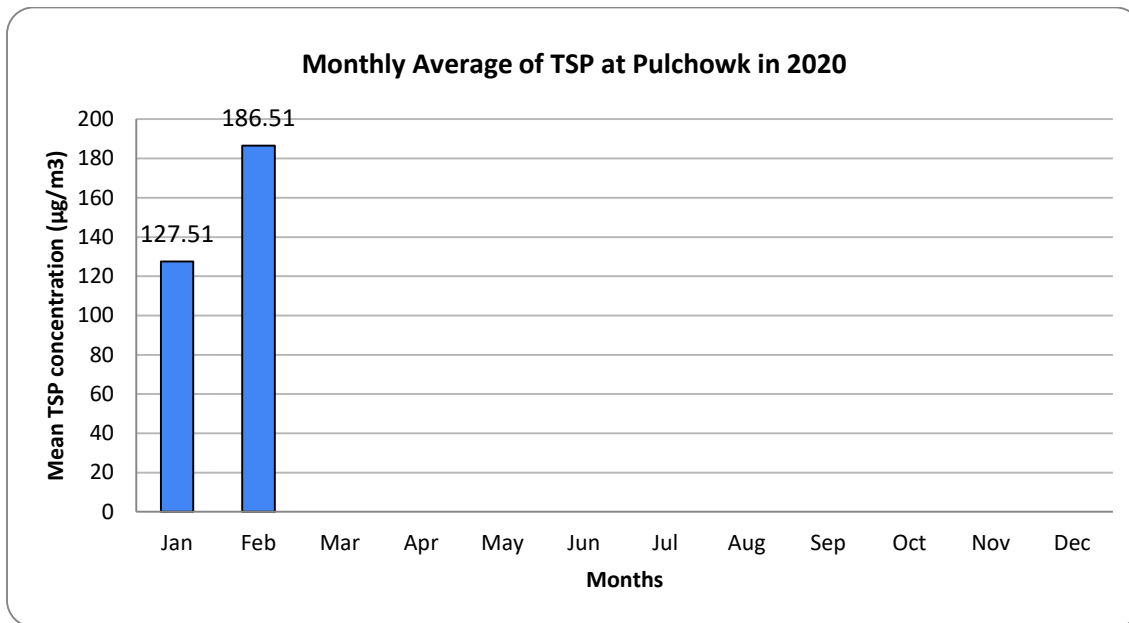


Figure 122. Monthly average of TSP at Pulchowk station in 2020

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

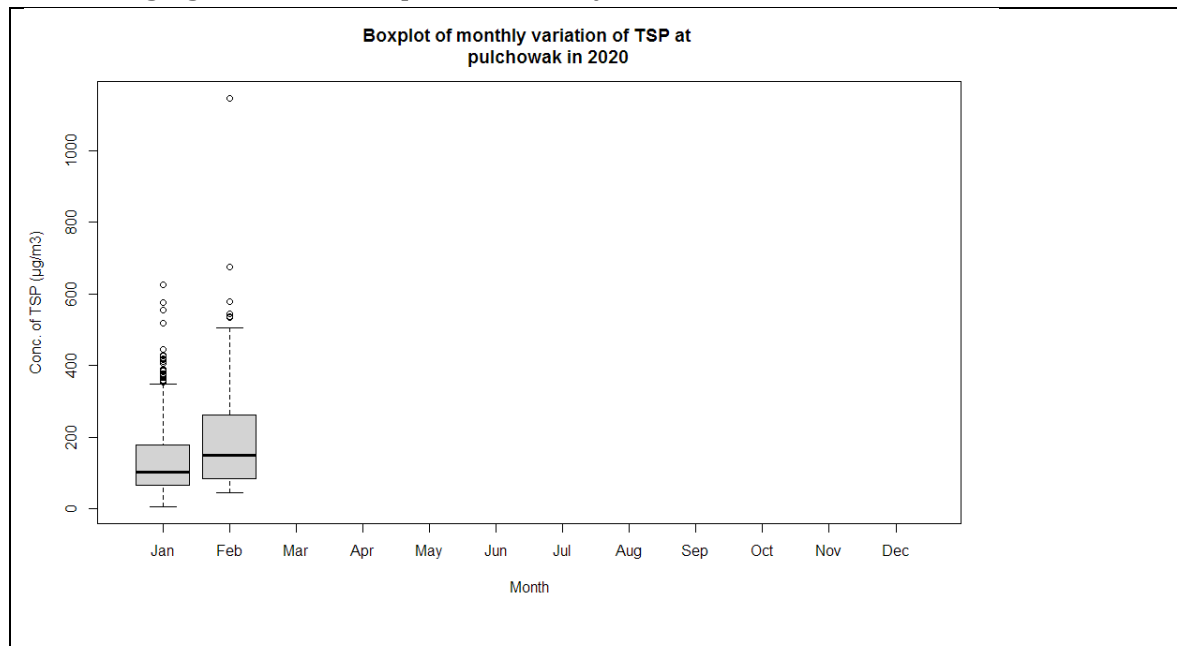


Figure 123. Monthly variation of daily average Total suspended particulate at Pulchowk in 2020

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.

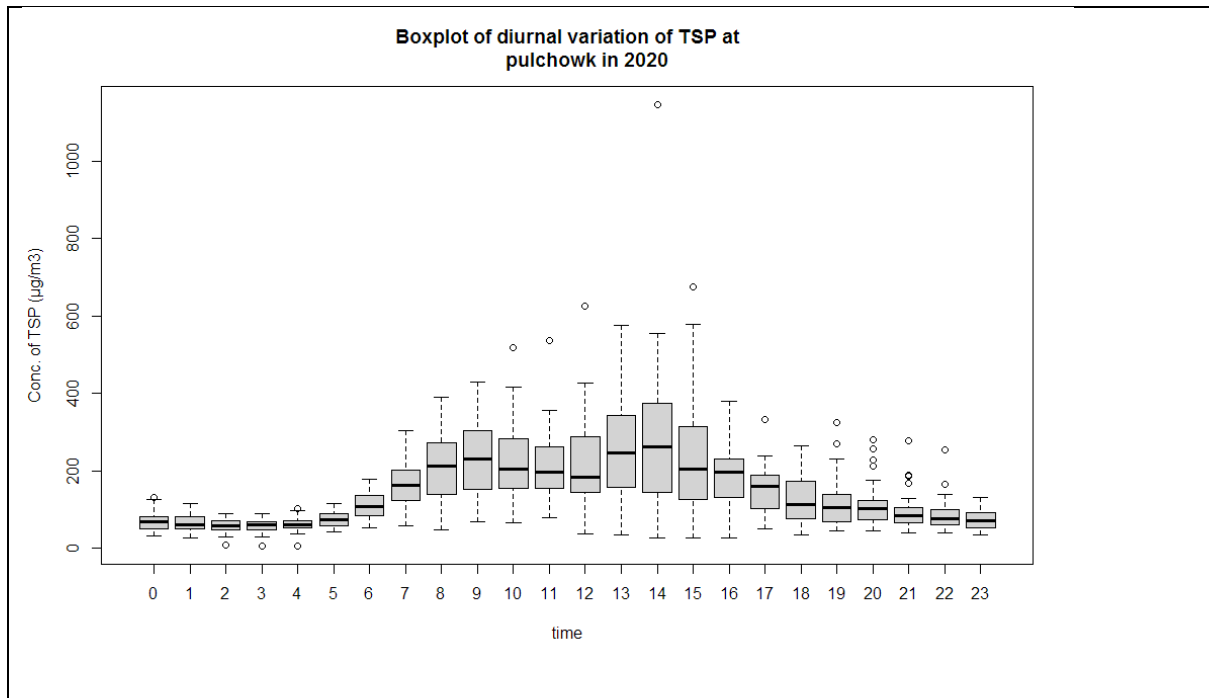


Figure 124. Diurnal variation of TSP at Pulchowk station in 2020

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

### Compliance with National Ambient air quality Standard

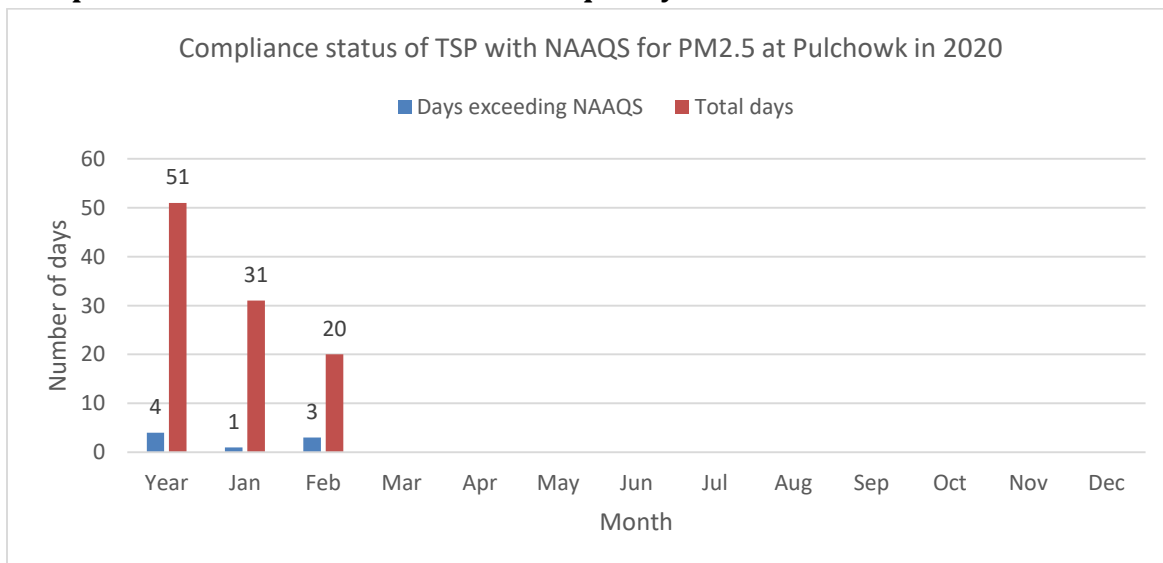


Figure 125. Compliance with NAAQS for TSP at Pulchowk in 2020

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 ( $\mu\text{g}/\text{m}^3$ )	Date	Value ( $\mu\text{g}/\text{m}^3$ )	Date	Value ( $\mu\text{g}/\text{m}^3$ )	Date	Value ( $\mu\text{g}/\text{m}^3$ )	Date	Value ( $\mu\text{g}/\text{m}^3$ )
1/1/2016		1/1/2017	81.37299	1/1/2018	25.24486	1/1/2019	37.07958	1/1/2020	63.70255
1/2/2016		1/2/2017	59.40854	1/2/2018	20.1934	1/2/2019	38.14833	1/2/2020	62.90422
1/3/2016		1/3/2017	43.81297	1/3/2018	24.16597	1/3/2019	33.88322	1/3/2020	69.49594
1/4/2016		1/4/2017	67.60394	1/4/2018	25.70271	1/4/2019	29.56875	1/4/2020	42.12084
1/5/2016		1/5/2017	62.17979	1/5/2018	25.87861	1/5/2019	34.66243	1/5/2020	23.64729
1/6/2016		1/6/2017	50.79147	1/6/2018	24.46542	1/6/2019	35.27146	1/6/2020	34.27479
1/7/2016		1/7/2017	57.2065	1/7/2018	23.8516	1/7/2019	27.66903	1/7/2020	48.16285
1/8/2016		1/8/2017	60.57432	1/8/2018	26.34556	1/8/2019	38.77792	1/8/2020	56.47086
1/9/2016		1/9/2017	72.60768	1/9/2018	35.02261	1/9/2019	37.22757	1/9/2020	45.82328
1/10/2016		1/10/2017	64.84788	1/10/2018	37.12774	1/10/2019	40.60285	1/10/2020	36.55712
1/11/2016		1/11/2017	64.82414	1/11/2018	35.03029	1/11/2019	34.64347	1/11/2020	41.13792
1/12/2016		1/12/2017		1/12/2018	33.0431	1/12/2019	29.88847	1/12/2020	47.34688
1/13/2016		1/13/2017	50.99273	1/13/2018	29.49197	1/13/2019	20.29868	1/13/2020	44.2275
1/14/2016		1/14/2017	72.7065	1/14/2018	28.80851	1/14/2019	17.25942	1/14/2020	46.47888
1/15/2016		1/15/2017	74.62801	1/15/2018	25.9578	1/15/2019	14.78799	1/15/2020	40.68702
1/16/2016		1/16/2017	75.14789	1/16/2018	29.09041	1/16/2019	17.00215	1/16/2020	48.385
1/17/2016		1/17/2017	65.92754	1/17/2018	27.88696	1/17/2019	18.0754	1/17/2020	17.05467
1/18/2016		1/18/2017	73.0038	1/18/2018	26.79231	1/18/2019		1/18/2020	45.02846
1/19/2016		1/19/2017	63.02737	1/19/2018	28.21403	1/19/2019		1/19/2020	44.36896
1/20/2016		1/20/2017	69.40792	1/20/2018	28.83542	1/20/2019		1/20/2020	40.67035
1/21/2016		1/21/2017	71.48945	1/21/2018	22.48618	1/21/2019		1/21/2020	63.57618
1/22/2016		1/22/2017	67.3584	1/22/2018	27.90581	1/22/2019	23.68256	1/22/2020	47.84879
1/23/2016		1/23/2017	69.90109	1/23/2018	27.16159	1/23/2019	13.11417	1/23/2020	36.80488
1/24/2016		1/24/2017	68.52003	1/24/2018	23.67137	1/24/2019	15.39625	1/24/2020	36.46125
1/25/2016		1/25/2017	67.72812	1/25/2018	25.66117	1/25/2019	14.51646	1/25/2020	49.23271
1/26/2016		1/26/2017	63.05136	1/26/2018	26.65571	1/26/2019	9.916875	1/26/2020	53.4331
1/27/2016		1/27/2017	48.68165	1/27/2018	25.24992	1/27/2019	14.30549	1/27/2020	55.1494
1/28/2016		1/28/2017	31.00778	1/28/2018	26.60525	1/28/2019	13.4634	1/28/2020	61.41353
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2/9/2016		2/9/2017	57.8917 1	2/9/2018	36.5289 1	2/9/2019	16.3031 9	2/9/2020	41.2119 4
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2/11/2016		2/11/2017	55.9532 6	2/11/2018	53.4475 1	2/11/2019	35.1952 1	2/11/2020	42.1166 2
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11/13/2016		11/14/2017	16.56427	11/14/2018	40.00307	11/14/2019	25.18431	11/13/2020	
11/14/2016		11/15/2017	19.4426	11/15/2018	39.17644	11/15/2019	23.4331	11/14/2020	
11/15/2016		11/16/2017	18.37072	11/16/2018		11/16/2019	27.13157	11/15/2020	
11/16/2016		11/17/2017	17.95313	11/17/2018	36.14179	11/17/2019	24.58646	11/16/2020	
11/17/2016		11/18/2017		11/18/2018	41.35943	11/18/2019	33.96515	11/17/2020	
11/18/2016		11/19/2017		11/19/2018	56.1433	11/19/2019	43.76813	11/18/2020	
11/19/2016		11/20/2017	16.16611	11/20/2018	62.82011	11/20/2019	48.54313	11/19/2020	
11/20/2016		11/21/2017	17.30489	11/21/2018	61.86351	11/21/2019	45.70868	11/20/2020	
11/21/2016		11/22/2017	18.64913	11/22/2018	57.5235	11/22/2019	40.64813	11/21/2020	
11/22/2016		11/23/2017	18.4184	11/23/2018		11/23/2019	41.3968	11/22/2020	

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11/23/2016		11/24/2017	19.31187	11/24/2018		11/24/2019	43.84667	11/23/2020	
11/24/2016		11/25/2017	21.73535	11/25/2018		11/25/2019	41.16382	11/24/2020	
11/25/2016		11/26/2017	19.02507	11/26/2018		11/26/2019	45.55243	11/25/2020	
11/26/2016	38.28	11/27/2017	17.54372	11/27/2018		11/27/2019	42.96347	11/26/2020	
11/27/2016	33.37106	11/28/2017	21.54487	11/28/2018		11/28/2019	31.24076	11/27/2020	
11/28/2016	35.43188	11/29/2017	28.61376	11/29/2018		11/29/2019	32.62326	11/28/2020	
11/29/2016	35.71145	11/30/2017	30.5578	11/30/2018		11/30/2019	29.56458	11/29/2020	
11/30/2016	39.00164	12/1/2017	29.92111	12/1/2018		12/1/2019	25.76694	11/30/2020	
12/1/2016	41.73583	12/2/2017	23.39819	12/2/2018		12/2/2019	32.88778	12/1/2020	
12/2/2016	45.70833	12/3/2017	17.81605	12/3/2018		12/3/2019	35.58847	12/2/2020	
12/3/2016	46.16478	12/4/2017	18.24056	12/4/2018		12/4/2019	41.73611	12/3/2020	
12/4/2016	46.34013	12/5/2017	18.1484	12/5/2018		12/5/2019	45.15889	12/4/2020	
12/5/2016	49.79406	12/6/2017	16.50486	12/6/2018		12/6/2019	40.95889	12/5/2020	
12/6/2016	50.95	12/7/2017	16.11382	12/7/2018		12/7/2019	34.63257	12/6/2020	
12/7/2016	45.12671	12/8/2017	17.32042	12/8/2018		12/8/2019	32.33809	12/7/2020	
12/8/2016		12/9/2017	16.21382	12/9/2018		12/9/2019	31.88792	12/8/2020	
12/9/2016		12/10/2017	17.73965	12/10/2018		12/10/2019	33.65632	12/9/2020	
12/10/2016		12/11/2017	18.18792	12/11/2018		12/11/2019	32.28931	12/10/2020	
12/11/2016	31.18471	12/12/2017	16.56139	12/12/2018		12/12/2019	39.59025	12/11/2020	
12/12/2016	46.73792	12/13/2017	19.19061	12/13/2018		12/13/2019	27.0429	12/12/2020	
12/13/2016	51.19636	12/14/2017	21.8103	12/14/2018		12/14/2019	18.80225	12/13/2020	
12/14/2016	38.59056	12/15/2017	23.54072	12/15/2018		12/15/2019	28.75632	12/14/2020	
12/15/2016	46.71761	12/16/2017	26.1709	12/16/2018		12/16/2019	28.09925	12/15/2020	
12/16/2016	58.59257	12/17/2017	30.12173	12/17/2018	96.73867	12/17/2019	32.00311	12/16/2020	
12/17/2016	55.29698	12/18/2017	28.64813	12/18/2018	50.49033	12/18/2019	29.75382	12/17/2020	
12/18/2016	49.61917	12/19/2017	26.06368	12/19/2018	60.2659	12/19/2019	34.22382	12/18/2020	
12/19/2016	54.15946	12/20/2017	27.97	12/20/2018	63.0028	12/20/2019	36.1804	12/19/2020	
12/20/2016	50.36008	12/21/2017	26.34687	12/21/2018	49.39181	12/21/2019	46.05611	12/20/2020	
12/21/2016	48.34514	12/22/2017	22.56986	12/22/2018	49.71576	12/22/2019	35.97674	12/21/2020	
12/22/2016	48.37284	12/23/2017	26.26181	12/23/2018	43.94125	12/23/2019	31.72285	12/22/2020	
12/23/2016	45.19627	12/24/2017	22.68069	12/24/2018	41.32868	12/24/2019	31.52958	12/23/2020	
12/24/2016	42.87219	12/25/2017	27.45097	12/25/2018	37.99208	12/25/2019	37.76729	12/24/2020	
12/25/2016	58.0114	12/26/2017	27.0592	12/26/2018	38.1200	12/26/2019	35.1994	12/25/2020	

6	6		4	8	1	9	5		
12/26/2016	59.1854	12/27/2017	25.46326	12/27/2018	38.12246	12/27/2019	35.2559	12/26/2020	
12/27/2016	66.21303	12/28/2017	24.07535	12/28/2018	39.49785	12/28/2019	47.80227	12/27/2020	
12/28/2016	69.96849	12/29/2017	25.30661	12/29/2018	38.21088	12/29/2019	50.219	12/28/2020	
12/29/2016	77.85145	12/30/2017	27.98007	12/30/2018	47.83065	12/30/2019	57.98972	12/29/2020	
12/30/2016	61.67841	12/31/2017	26.61521	12/31/2018	42.98706	12/31/2019	57.60014	12/30/2020	
12/31/2016								12/31/2016	

PM2.5

Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )
1/1/2016		1/1/2017	89.7905	1/1/2018	26.3225	1/1/2019	39.25021	1/1/2020	63.70255
1/2/2016		1/2/2017	64.81965	1/2/2018	21.18181	1/2/2019	40.93181	1/2/2020	62.90422
1/3/2016		1/3/2017	50.01502	1/3/2018	25.42157	1/3/2019	35.95216	1/3/2020	69.49594
1/4/2016		1/4/2017	75.59941	1/4/2018	26.74896	1/4/2019	32.02818	1/4/2020	42.12084
1/5/2016		1/5/2017	69.42614	1/5/2018	26.93014	1/5/2019	36.69743	1/5/2020	23.64729
1/6/2016		1/6/2017	56.43457	1/6/2018	25.41549	1/6/2019	37.63111	1/6/2020	34.27479
1/7/2016		1/7/2017	63.11735	1/7/2018	24.95972	1/7/2019	29.93729	1/7/2020	48.16285
1/8/2016		1/8/2017	67.73842	1/8/2018	27.4276	1/8/2019	41.0784	1/8/2020	56.47086
1/9/2016		1/9/2017	81.55311	1/9/2018	36.29008	1/9/2019	39.45861	1/9/2020	45.82328
1/10/2016		1/10/2017	72.76721	1/10/2018	38.40964	1/10/2019	41.91153	1/10/2020	36.55712
1/11/2016		1/11/2017	77.53236	1/11/2018	36.21239	1/11/2019	36.12431	1/11/2020	41.13792
1/12/2016		1/12/2017		1/12/2018	34.1494	1/12/2019	31.33486	1/12/2020	47.34688
1/13/2016		1/13/2017	57.15613	1/13/2018	30.40554	1/13/2019	21.82229	1/13/2020	44.2275
1/14/2016		1/14/2017	78.9436	1/14/2018	29.58563	1/14/2019	19.67407	1/14/2020	46.47888
1/15/2016		1/15/2017	81.9285	1/15/2018	26.64673	1/15/2019	16.99819	1/15/2020	40.68702
1/16/2016		1/16/2017	83.37355	1/16/2018	30.33256	1/16/2019	19.16382	1/16/2020	48.385
1/17/2016		1/17/2017	73.19688	1/17/2018	28.7673	1/17/2019	20.47181	1/17/2020	17.05467
1/18/2016		1/18/2017	82.01491	1/18/2018	27.60725	1/18/2019		1/18/2020	45.02846
1/19/2016		1/19/2017	71.88492	1/19/2018	29.09375	1/19/2019		1/19/2020	44.36896
1/20/2016		1/20/2017	79.95049	1/20/2018	29.70271	1/20/2019		1/20/2020	40.67035
1/21/2016		1/21/2017	80.25559	1/21/2018	23.12787	1/21/2019		1/21/2020	63.57618
1/22/2016		1/22/2017	75.75203	1/22/2018	28.80687	1/22/2019	25.37041	1/22/2020	47.84879

1/23/2016		1/23/2017	76.3196	1/23/2018	28.07123	1/23/2019	13.37368	1/23/2020	36.80488
1/24/2016		1/24/2017	76.21034	1/24/2018	24.28972	1/24/2019	16.76965	1/24/2020	36.46125
1/25/2016		1/25/2017	75.87532	1/25/2018	26.61843	1/25/2019	16.64965	1/25/2020	49.23271
1/26/2016		1/26/2017	71.7437	1/26/2018	27.44128	1/26/2019	10.48799	1/26/2020	53.4331
1/27/2016		1/27/2017	53.6267	1/27/2018	25.98096	1/27/2019	15.20319	1/27/2020	55.1494
1/28/2016		1/28/2017	34.49271	1/28/2018	27.39859	1/28/2019	14.81271	1/28/2020	61.41353
1/29/2016		1/29/2017	48.02426	1/29/2018	32.06664	1/29/2019	11.5057	1/29/2020	40.69573
1/30/2016		1/30/2017	66.97706	1/30/2018	32.8969	1/30/2019	10.53042	1/30/2020	41.68826
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2/1/2016		2/1/2017	58.84007	2/1/2018	67.22393	2/1/2019	49.44752	2/1/2020	38.33377
2/2/2016		2/2/2017	68.33261	2/2/2018	89.80741	2/2/2019	45.4708	2/2/2020	41.48896
2/3/2016		2/3/2017	68.97576	2/3/2018	73.05874	2/3/2019	38.05048	2/3/2020	43.06009
2/4/2016		2/4/2017	73.67105	2/4/2018	74.51779	2/4/2019	37.12839	2/4/2020	55.25906
2/5/2016		2/5/2017	70.85542	2/5/2018	75.51071	2/5/2019	35.54264	2/5/2020	38.70229
2/6/2016		2/6/2017	60.93267	2/6/2018	77.01059	2/6/2019	38.3575	2/6/2020	49.4758
2/7/2016		2/7/2017	58.89662	2/7/2018	105.5787	2/7/2019	27.36611	2/7/2020	52.39582
2/8/2016		2/8/2017	68.28301	2/8/2018	70.82111	2/8/2019	20.30201	2/8/2020	48.55161
2/9/2016		2/9/2017	64.95637	2/9/2018	52.9891	2/9/2019	17.90368	2/9/2020	41.21194
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2/11/2016		2/11/2017	62.70237	2/11/2018	72.79069	2/11/2019	38.05951	2/11/2020	42.11662
2/12/2016		2/12/2017	61.92486	2/12/2018	100.741	2/12/2019	44.30194	2/12/2020	50.8449
2/13/2016		2/13/2017	64.09958	2/13/2018	70.78122	2/13/2019	42.37438	2/13/2020	39.11979
2/14/2016		2/14/2017	62.57957	2/14/2018	64.31588	2/14/2019	58.57587	2/14/2020	45.96942
2/15/2016		2/15/2017	75.38788	2/15/2018	56.05115	2/15/2019	45.68632	2/15/2020	54.71855
2/16/2016		2/16/2017	75.24757	2/16/2018	63.91914	2/16/2019	23.21243	2/16/2020	64.67434
2/17/2016		2/17/2017	74.97146	2/17/2018	64.503	2/17/2019	20.92632	2/17/2020	63.78615
2/18/2016		2/18/2017	69.93972	2/18/2018	62.689	2/18/2019	25.755	2/18/2020	57.21258
2/19/2016		2/19/2017	75.79505	2/19/2018	70.15806	2/19/2019	28.19382	2/19/2020	59.60056
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2/21/2016		2/21/2017	65.93667	2/21/2018	74.84063	2/21/2019	35.45049	2/21/2020	
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2/23/2016		2/23/2017	60.10076	2/23/2018	80.52511	2/23/2019	31.92889	2/23/2020	
2/24/2016		2/24/2017	64.34528	2/24/2018	82.56368	2/24/2019	35.06459	2/24/2020	

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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	
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4/15/2016		4/16/2017	41.6966 1	4/16/2018	54.0329 3	4/16/2019	8.13611 1	4/15/2020	
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9/30/2016	13.02466	10/1/2017	3.659337	10/1/2018	27.09431	10/1/2019	8.852778	9/30/2020	
10/1/2016	25.7657	10/2/2017	4.251773	10/2/2018	27.55493	10/2/2019	13.20688	10/1/2020	
10/2/2016	21.02238	10/3/2017	5.850646	10/3/2018	27.54701	10/3/2019	15.19479	10/2/2020	
10/3/2016	55.78	10/4/2017	6.001673	10/4/2018	29.11122	10/4/2019	15.41126	10/3/2020	
10/4/2016	61.4225	10/5/2017	5.905121	10/5/2018	29.31674	10/5/2019	15.56444	10/4/2020	
10/5/2016	69.01528	10/6/2017	6.570031	10/6/2018	29.71514	10/6/2019	16.26785	10/5/2020	
10/6/2016	68.02917	10/7/2017	6.846679	10/7/2018	27.29208	10/7/2019	16.97648	10/6/2020	
10/7/2016	15.14583	10/8/2017	8.838109	10/8/2018	30.19313	10/8/2019	16.27778	10/7/2020	
10/8/2016	14.87037	10/9/2017	8.780238	10/9/2018	32.40299	10/9/2019	9.689583	10/8/2020	
10/9/2016	12.5725	10/10/2017	8.420604	10/10/2018	35.31389	10/10/2019	11.71437	10/9/2020	
10/10/2016	13.00118	10/11/2017	9.27169	10/11/2018	26.24898	10/11/2019	16.99444	10/10/2020	
10/11/2016		10/12/2017	7.812721	10/12/2018	20.60289	10/12/2019	19.57202	10/11/2020	
10/12/2016		10/13/2017	8.595149	10/13/2018	17.08721	10/13/2019	22.79699	10/12/2020	
10/13/2016		10/14/2017	13.34632	10/14/2018	21.06897	10/14/2019	25.86528	10/13/2020	

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	22.26149	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	11.51428	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	

11/16/2016		11/17/2017	18.62611	11/17/2018	40.11607	11/17/2019	28.43326	11/16/2020	
11/17/2016		11/18/2017		11/18/2018	45.61965	11/18/2019	38.30389	11/17/2020	
11/18/2016		11/19/2017		11/19/2018	60.99162	11/19/2019	48.27993	11/18/2020	
11/19/2016		11/20/2017	18.02278	11/20/2018	66.81232	11/20/2019	54.26299	11/19/2020	
11/20/2016		11/21/2017	18.23491	11/21/2018	64.88382	11/21/2019	51.13021	11/20/2020	
11/21/2016		11/22/2017	19.45834	11/22/2018	58.76481	11/22/2019	46.03479	11/21/2020	
11/22/2016		11/23/2017	19.29513	11/23/2018		11/23/2019	46.74639	11/22/2020	
11/23/2016		11/24/2017	19.95313	11/24/2018		11/24/2019	48.70521	11/23/2020	
11/24/2016		11/25/2017	22.64035	11/25/2018		11/25/2019	45.21278	11/24/2020	
11/25/2016		11/26/2017	19.76	11/26/2018		11/26/2019	50.42674	11/25/2020	
11/26/2016	41.66494	11/27/2017	18.24626	11/27/2018		11/27/2019	50.10773	11/26/2020	
11/27/2016	36.36156	11/28/2017	22.24287	11/28/2018		11/28/2019	38.62493	11/27/2020	
11/28/2016	40.09526	11/29/2017	29.49853	11/29/2018		11/29/2019	40.38194	11/28/2020	
11/29/2016	41.06112	11/30/2017	31.47904	11/30/2018		11/30/2019	35.28576	11/29/2020	
11/30/2016	44.84019	12/1/2017	30.98882	12/1/2018		12/1/2019	31.82403	11/30/2020	
12/1/2016	47.22471	12/2/2017	24.32299	12/2/2018		12/2/2019	37.5334	12/1/2020	
12/2/2016	53.17542	12/3/2017	18.74762	12/3/2018		12/3/2019	39.65125	12/2/2020	
12/3/2016	54.83468	12/4/2017	19.14674	12/4/2018		12/4/2019	46.31437	12/3/2020	
12/4/2016	53.71953	12/5/2017	19.1809	12/5/2018		12/5/2019	51.26056	12/4/2020	
12/5/2016	57.77692	12/6/2017	17.2934	12/6/2018		12/6/2019	47.6025	12/5/2020	
12/6/2016	60.0509	12/7/2017	16.54924	12/7/2018		12/7/2019	40.41938	12/6/2020	
12/7/2016	53.55246	12/8/2017	17.99486	12/8/2018		12/8/2019	37.85513	12/7/2020	
12/8/2016		12/9/2017	16.87736	12/9/2018		12/9/2019	37.72958	12/8/2020	
12/9/2016		12/10/2017	18.70868	12/10/2018		12/10/2019	38.27326	12/9/2020	
12/10/2016		12/11/2017	19.42583	12/11/2018		12/11/2019	36.18799	12/10/2020	
12/11/2016	37.0313	12/12/2017	17.69283	12/12/2018		12/12/2019	43.16033	12/11/2020	
12/12/2016	52.345	12/13/2017	20.46646	12/13/2018		12/13/2019	27.99534	12/12/2020	
12/13/2016	56.40997	12/14/2017	23.3511	12/14/2018		12/14/2019	20.55806	12/13/2020	
12/14/2016	43.24009	12/15/2017	25.61145	12/15/2018		12/15/2019	31.58729	12/14/2020	
12/15/2016	53.59059	12/16/2017	27.61542	12/16/2018		12/16/2019	31.03877	12/15/2020	
12/16/2016	65.18424	12/17/2017	31.44897	12/17/2018	100.5841	12/17/2019	35.45801	12/16/2020	
12/17/2016	61.28216	12/18/2017	29.72993	12/18/2018	52.69938	12/18/2019	33.81243	12/17/2020	
12/18/2016	55.34042	12/19/2017	27.1134	12/19/2018	62.77528	12/19/2019	38.34181	12/18/2020	

12/19/2016	60.33003	12/20/2017	29.25104	12/20/2018	64.3514	12/20/2019	40.3551	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	50.96312	12/22/2019	40.85701	12/21/2020	
12/22/2016	55.12119	12/23/2017	27.14069	12/23/2018	45.41632	12/23/2019	35.21083	12/22/2020	
12/23/2016	50.74042	12/24/2017	23.5184	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	63.5739	12/26/2017	28.2859	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	40.9247	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	45.30643	12/31/2019	63.59701	12/30/2020	
12/31/2016									

PM10

Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )
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	84.82056	1/17/2018	29.36788	1/17/2019	29.64314	1/17/2020	17.374
1/18/2016		1/18/2017	97.59358	1/18/2018	28.165	1/18/2019		1/18/2020	80.37721
1/19/2016		1/19/2017	88.32805	1/19/2018	29.76271	1/19/2019		1/19/2020	88.64326
1/20/2016		1/20/2017	99.68653	1/20/2018	30.35556	1/20/2019		1/20/2020	85.61
1/21/2016		1/21/2017	96.30874	1/21/2018	23.55635	1/21/2019		1/21/2020	136.4221
1/22/2016		1/22/2017	90.5914	1/22/2018	29.4467	1/22/2019	37.08104	1/22/2020	119.5213
1/23/2016		1/23/2017	86.98008	1/23/2018	28.73164	1/23/2019	13.68625	1/23/2020	78.74782
1/24/2016		1/24/2017	90.78001	1/24/2018	24.6161	1/24/2019	26.80882	1/24/2020	64.23486
1/25/2016		1/25/2017	90.82576	1/25/2018	27.22111	1/25/2019	28.69222	1/25/2020	77.04653
1/26/2016		1/26/2017	88.2778	1/26/2018	27.89754	1/26/2019	11.58306	1/26/2020	83.4626
1/27/2016		1/27/2017	61.03215	1/27/2018	26.48635	1/27/2019	20.65229	1/27/2020	102.155
1/28/2016		1/28/2017	40.28424	1/28/2018	28.2316	1/28/2019	22.45694	1/28/2020	118.7685
1/29/2016		1/29/2017	55.67989	1/29/2018	32.63124	1/29/2019	15.43498	1/29/2020	68.9272
1/30/2016		1/30/2017	75.94958	1/30/2018	33.34119	1/30/2019	13.19837	1/30/2020	76.21187
1/31/2016		1/31/2017	69.79712	1/31/2018	59.11036	1/31/2019	15.51228	1/31/2020	71.16306
2/1/2016		2/1/2017	67.39927	2/1/2018	109.1057	2/1/2019	71.91584	2/1/2020	67.79669
2/2/2016		2/2/2017	78.24224	2/2/2018	145.6032	2/2/2019	61.44738	2/2/2020	68.82771
2/3/2016		2/3/2017	80.07896	2/3/2018	123.6041	2/3/2019	53.78609	2/3/2020	83.2009
2/4/2016		2/4/2017	85.43871	2/4/2018	157.8642	2/4/2019	53.22705	2/4/2020	97.01093
2/5/2016		2/5/2017	84.18708	2/5/2018	167.5869	2/5/2019	44.90639	2/5/2020	71.59986
2/6/2016		2/6/2017	75.8596	2/6/2018	183.1697	2/6/2019	47.09701	2/6/2020	94.50423
2/7/2016		2/7/2017	70.54647	2/7/2018	270.5504	2/7/2019	27.48062	2/7/2020	85.16008
2/8/2016		2/8/2017	81.97005	2/8/2018	196.3076	2/8/2019	27.57361	2/8/2020	85.45228
2/9/2016		2/9/2017	78.26073	2/9/2018	160.4271	2/9/2019	26.46542	2/9/2020	100.165
2/10/2016		2/10/2017	69.39173	2/10/2018	148.2873	2/10/2019	56.67528	2/10/2020	97.46116
2/11/2016		2/11/2017	75.722	2/11/2018	189.0338	2/11/2019	53.46951	2/11/2020	78.12071
2/12/2016		2/12/2017	76.70493	2/12/2018	255.5285	2/12/2019	60.13465	2/12/2020	88.41428
2/13/2016		2/13/2017	79.79403	2/13/2018	107.0531	2/13/2019	56.48087	2/13/2020	93.06763
2/14/2016		2/14/2017	78.12731	2/14/2018	111.8701	2/14/2019	73.41841	2/14/2020	91.60179
2/15/2016		2/15/2017	89.31059	2/15/2018	104.4723	2/15/2019	60.9259	2/15/2020	94.74885
2/16/2016		2/16/2017	89.34944	2/16/2018	108.518	2/16/2019	26.0691	2/16/2020	120.9211
2/17/2016		2/17/2017	90.45868	2/17/2018	109.9107	2/17/2019	37.33847	2/17/2020	121.7668
2/18/2016		2/18/2017	83.32368	2/18/2018	113.4007	2/18/2019	37.94819	2/18/2020	92.78812

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
2/21/2016		2/21/2017	82.8124 3	2/21/2018	132.528	2/21/2019	63.0906 2	2/21/2020	
2/22/2016		2/22/2017	87.2472 2	2/22/2018	141.756 5	2/22/2019	79.3535 4	2/22/2020	
2/23/2016		2/23/2017	80.5574 3	2/23/2018	131.342	2/23/2019	56.0152 1	2/23/2020	
2/24/2016		2/24/2017	78.9633 3	2/24/2018	129.661 8	2/24/2019	60.9287 2	2/24/2020	
2/25/2016		2/25/2017	85.1061 8	2/25/2018	151.843 3	2/25/2019	49.7198 7	2/25/2020	
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	
2/29/2016		3/1/2017	98.3470 4	3/1/2018	110.582 5	3/1/2019	36.155	2/29/2020	
3/1/2016		3/2/2017	91.6336 1	3/2/2018	123.731	3/2/2019	40.4012 5	3/1/2020	
3/2/2016		3/3/2017	67.7934	3/3/2018	96.7476 9	3/3/2019	41.5789 6	3/2/2020	
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	
3/6/2016		3/7/2017	89.1486 9	3/7/2018	139.354 6	3/7/2019	43.1130 6	3/6/2020	
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8/18/2016		8/19/2017	12.82025	8/19/2018	33.87681	8/19/2019	18.99722	8/18/2020	
8/19/2016		8/20/2017	10.63072	8/20/2018	39.5791	8/20/2019	20.60611	8/19/2020	
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8/21/2016		8/22/2017	11.50768	8/22/2018	25.02132	8/22/2019	25.88271	8/21/2020	
8/22/2016		8/23/2017	13.58065	8/23/2018	16.49278	8/23/2019	24.65944	8/22/2020	
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8/24/2016		8/25/2017		8/25/2018	12.69257	8/25/2019	19.39604	8/24/2020	
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8/26/2016		8/27/2017		8/27/2018	15.9659	8/27/2019	28.85708	8/26/2020	
8/27/2016		8/28/2017		8/28/2018	15.02569	8/28/2019	28.49368	8/27/2020	
8/28/2016		8/29/2017		8/29/2018	23.44174	8/29/2019	24.76741	8/28/2020	
8/29/2016		8/30/2017		8/30/2018	18.26708	8/30/2019	21.93742	8/29/2020	
8/30/2016		8/31/2017		8/31/2018	19.09229	8/31/2019	12.01084	8/30/2020	
8/31/2016		9/1/2017		9/1/2018	20.63361	9/1/2019	23.86507	8/31/2020	
9/1/2016		9/2/2017		9/2/2018	15.75533	9/2/2019	27.16243	9/1/2020	
9/2/2016		9/3/2017		9/3/2018	30.71118	9/3/2019	18.95307	9/2/2020	
9/3/2016		9/4/2017		9/4/2018	31.54535	9/4/2019	18.645	9/3/2020	

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9/6/2016		9/7/2017		9/7/2018	24.2339 1	9/7/2019	15.3069 1	9/6/2020	
9/7/2016		9/8/2017		9/8/2018	27.5729 8	9/8/2019	18.9996 4	9/7/2020	
9/8/2016		9/9/2017		9/9/2018	37.0434 7	9/9/2019	16.9595 1	9/8/2020	
9/9/2016		9/10/2017		9/10/2018	24.7894 4	9/10/2019	19.1270 1	9/9/2020	
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9/13/2016	67.9119 1	9/14/2017		9/14/2018	41.0164 7	9/14/2019	12.4973 4	9/13/2020	
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9/29/2016	40.6703 2	9/30/2017	6.07431	9/30/2018	58.4954 9	9/30/2019	20.1370 3	9/29/2020	
9/30/2016	23.6327 6	10/1/2017	3.78034	10/1/2018	61.5096 2	10/1/2019	20.5988 9	9/30/2020	
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10/13/2016		10/14/2017	13.7165 4	10/14/2018	45.1615 8	10/14/2019	43.9543 1	10/13/2020	
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11/3/2016		11/4/2017	11.1587 1	11/4/2018		11/4/2019	43.0256 1	11/3/2020	
11/4/2016		11/5/2017	11.2948 9	11/5/2018	115.652 5	11/5/2019	51.7763	11/4/2020	
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11/6/2016		11/7/2017	11.7778	11/7/2018		11/7/2019	64.5145 6	11/6/2020	
11/7/2016		11/8/2017	12.3870 4	11/8/2018		11/8/2019	58.8407 6	11/7/2020	
11/8/2016		11/9/2017	11.8712 9	11/9/2018		11/9/2019	44.0352 7	11/8/2020	

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11/10/2016		11/11/2017	13.41615	11/11/2018	54.8829	11/11/2019	37.07918	11/10/2020	
11/11/2016		11/12/2017	15.06371	11/12/2018	56.48663	11/12/2019	49.47736	11/11/2020	
11/12/2016		11/13/2017	18.82994	11/13/2018	62.78588	11/13/2019	50.93431	11/12/2020	
11/13/2016		11/14/2017	17.89094	11/14/2018	70.54568	11/14/2019	51.66729	11/13/2020	
11/14/2016		11/15/2017	20.68246	11/15/2018	77.31883	11/15/2019	50.63258	11/14/2020	
11/15/2016		11/16/2017	19.74266	11/16/2018		11/16/2019	51.61981	11/15/2020	
11/16/2016		11/17/2017	19.00077	11/17/2018	59.49113	11/17/2019	44.71958	11/16/2020	
11/17/2016		11/18/2017		11/18/2018	62.82456	11/18/2019	60.72788	11/17/2020	
11/18/2016		11/19/2017		11/19/2018	78.42792	11/19/2019	69.52382	11/18/2020	
11/19/2016		11/20/2017	23.74514	11/20/2018	81.54423	11/20/2019	80.97153	11/19/2020	
11/20/2016		11/21/2017	19.29278	11/21/2018	75.70667	11/21/2019	77.85938	11/20/2020	
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11/23/2016		11/24/2017	20.3816	11/24/2018		11/24/2019	68.98715	11/23/2020	
11/24/2016		11/25/2017	23.41653	11/25/2018		11/25/2019	60.45819	11/24/2020	
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11/26/2016	46.48256	11/27/2017	18.81508	11/27/2018		11/27/2019	80.28139	11/26/2020	
11/27/2016	40.01922	11/28/2017	22.74122	11/28/2018		11/28/2019	71.49958	11/27/2020	
11/28/2016	49.13869	11/29/2017	30.19975	11/29/2018		11/29/2019	76.44722	11/28/2020	
11/29/2016	51.77175	11/30/2017	32.15989	11/30/2018		11/30/2019	62.1591	11/29/2020	
11/30/2016	58.2247	12/1/2017	31.79542	12/1/2018		12/1/2019	57.12972	11/30/2020	
12/1/2016	59.65004	12/2/2017	25.05361	12/2/2018		12/2/2019	59.21389	12/1/2020	
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12/3/2016	76.23039	12/4/2017	19.90743	12/4/2018		12/4/2019	68.41958	12/3/2020	
12/4/2016	72.29088	12/5/2017	20.11382	12/5/2018		12/5/2019	79.18639	12/4/2020	
12/5/2016	76.1282	12/6/2017	17.98944	12/6/2018		12/6/2019	78.98799	12/5/2020	
12/6/2016	82.36083	12/7/2017	16.76924	12/7/2018		12/7/2019	68.35931	12/6/2020	
12/7/2016	75.66862	12/8/2017	18.51313	12/8/2018		12/8/2019	65.63002	12/7/2020	
12/8/2016		12/9/2017	17.35444	12/9/2018		12/9/2019	62.84619	12/8/2020	
12/9/2016		12/10/2017	19.58049	12/10/2018		12/10/2019	58.88604	12/9/2020	
12/10/2016		12/11/2017	21.28396	12/11/2018		12/11/2019	54.74139	12/10/2020	
12/11/2016	52.06573	12/12/2017	19.06563	12/12/2018		12/12/2019	58.9305	12/11/2020	

12/12/2016	64.92486	12/13/2017	21.87236	12/13/2018		12/13/2019	28.85221	12/12/2020	
12/13/2016	67.57076	12/14/2017	25.16867	12/14/2018		12/14/2019	27.12719	12/13/2020	
12/14/2016	53.86144	12/15/2017	28.40947	12/15/2018		12/15/2019	44.64007	12/14/2020	
12/15/2016	68.43416	12/16/2017	29.07958	12/16/2018		12/16/2019	45.06529	12/15/2020	
12/16/2016	78.58979	12/17/2017	32.69528	12/17/2018	114.6916	12/17/2019	51.90796	12/16/2020	
12/17/2016	74.08527	12/18/2017	30.62889	12/18/2018	63.65917	12/18/2019	53.66764	12/17/2020	
12/18/2016	66.47125	12/19/2017	27.99168	12/19/2018	77.63213	12/19/2019	57.93792	12/18/2020	
12/19/2016	72.45549	12/20/2017	30.39361	12/20/2018	72.59851	12/20/2019	62.18354	12/19/2020	
12/20/2016	66.51975	12/21/2017	28.66278	12/21/2018	58.65375	12/21/2019	69.69757	12/20/2020	
12/21/2016	63.25417	12/22/2017	24.91736	12/22/2018	57.67076	12/22/2019	66.16785	12/21/2020	
12/22/2016	69.34669	12/23/2017	27.76479	12/23/2018	55.54201	12/23/2019	50.28118	12/22/2020	
12/23/2016	61.28609	12/24/2017	24.15292	12/24/2018	52.98257	12/24/2019	49.26419	12/23/2020	
12/24/2016	58.12095	12/25/2017	29.08549	12/25/2018	50.48492	12/25/2019	59.62493	12/24/2020	
12/25/2016	74.66866	12/26/2017	29.34375	12/26/2018	67.11607	12/26/2019	56.05847	12/25/2020	
12/26/2016	77.45786	12/27/2017	27.93229	12/27/2018	57.69781	12/27/2019	51.37569	12/26/2020	
12/27/2016	84.12644	12/28/2017	26.80083	12/28/2018	50.19612	12/28/2019	68.66679	12/27/2020	
12/28/2016	88.37555	12/29/2017	28.24438	12/29/2018	50.27918	12/29/2019	79.79917	12/28/2020	
12/29/2016	97.67335	12/30/2017	30.63417	12/30/2018	61.56012	12/30/2019	91.35194	12/29/2020	
12/30/2016	80.20234	12/31/2017	28.86729	12/31/2018	63.97961	12/31/2019	88.27944	12/30/2020	
12/31/2016									

### TSP

Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date	Value (µg/m <sup>3</sup> )	Date
1/1/2016		1/1/2017	114.9446	1/1/2018	29.52704	1/1/2019	104.0982	1/1/2020
1/2/2016		1/2/2017	95.28472	1/2/2018	23.74326	1/2/2019	130.8952	1/2/2020
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
1/11/2016		1/11/2017	150.5835	1/11/2018	39.43775	1/11/2019	70.10285	1/11/2020
1/12/2016		1/12/2017		1/12/2018	37.77956	1/12/2019	78.30397	1/12/2020

1/13/2016		1/13/2017	71.64729	1/13/2018	31.60739	1/13/2019	61.08368	1/13/2020
1/14/2016		1/14/2017	94.33756	1/14/2018	31.23986	1/14/2019	89.8722	1/14/2020
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
1/19/2016		1/19/2017	107.217	1/19/2018	30.26208	1/19/2019		1/19/2020
1/20/2016		1/20/2017	127.5225	1/20/2018	30.75833	1/20/2019		1/20/2020
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
1/23/2016		1/23/2017	102.2065	1/23/2018	29.22524	1/23/2019	13.98493	1/23/2020
1/24/2016		1/24/2017	111.5255	1/24/2018	24.75648	1/24/2019	60.71396	1/24/2020
1/25/2016		1/25/2017	108.2987	1/25/2018	27.54833	1/25/2019	77.27931	1/25/2020
1/26/2016		1/26/2017	106.5206	1/26/2018	28.47431	1/26/2019	15.03201	1/26/2020
1/27/2016		1/27/2017	72.70819	1/27/2018	27.47095	1/27/2019	43.4134	1/27/2020
1/28/2016		1/28/2017	45.27208	1/28/2018	29.56541	1/28/2019	46.4019	1/28/2020
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