



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

Air Quality Status Of Nepal 2016-2020

Volume V
Sauraha Air Quality Monitoring Station



All rights reserved. DoEnv encourages the reproduction and dissemination of material in this information products.

First online edition

© DoEnv 2021

Contents

1	Sauraha Air Quality Monitoring Station	1
2	Air Quality Status of Sauraha station (2017-2020).....	1
2.1	Air quality status, 2017.....	1
2.1.1	Temporal variation of PM1.....	1
2.1.2	Temporal Variation of PM2.5	5
2.1.3	Temporal variation of PM10.....	8
2.1.4	Temporal Variation of TSP	12
2.2	Air Quality Status, 2018.....	16
2.2.1	Annual average of PM1, PM2.5, PM10 and TSP.....	16
2.2.2	Temporal Variation of PM1	16
2.2.3	Temporal Variation of PM2.5	19
2.2.4	Temporal variation of PM10.....	23
2.2.5	Temporal Variation of TSP	26
2.3	Air Quality Status, 2018.....	30
2.3.1	Annual average of PM1, PM2.5, PM10 and TSP.....	30
2.3.2	Temporal Variation of PM2.5	34
2.3.3	Temporal Variation of PM10	37
2.3.4	Temporal Variation of TSP	41
2.4	Air quality status, 2020.....	44
2.4.1	Annual average of PM1, PM2.5, PM10 and TSP.....	44
2.4.2	Temporal Variation of PM1	45
2.4.3	Temporal variation of PM2.5.....	48
2.4.4	Temporal variation of PM10.....	51

Lists of Figures

Figure 1: Annual average of Pm1, PM _{2.5} , PM ₁₀ and TSP in 2020	1
Figure 2 : Histogram of PM ₁	2
Figure 3: Daily average of PM ₁	2
Figure 4: Monthly Average of PM ₁	3
Figure 5: Monthly Variation of PM ₁	3
Figure 6: Seasonal variation of PM ₁	4
Figure 7: Diurnal variation of PM ₁	4
Figure 8 : Histogram of PM _{2.5}	5
Figure 9: Daily average of PM _{2.5}	5
Figure 10: Monthly Average of PM _{2.5}	6
Figure 11: Monthly Variation of PM _{2.5}	6
Figure 12: Seasonal variation of PM _{2.5}	7
Figure 13: Diurnal variation of PM _{2.5}	8
Figure 14: Compliance status of PM _{2.5}	8
Figure 15 : Histogram for the ambient concentration of PM ₁₀	9
Figure 16: Daily average of PM ₁₀	9
Figure 17: Monthly average of Pm ₁₀	9
Figure 18: Monthly Variation of PM ₁₀	10
Figure 19: Seasonal variation of PM ₁₀	11
Figure 20: Diurnal variation of PM ₁₀ concentration	11
Figure 21: Compliance status of PM ₁₀	11
Figure 22 : Histogram for the ambient concentration of TSP	12
Figure 23: Daily average of TSP	12
Figure 24: Monthly Average of TSP	13
Figure 25: Monthly Variation of TSP	14
Figure 26: Seasonal variation of TSP	14
Figure 27: Diurnal Variation of TSP	15

Figure 28: Compliance status of TSP	15
Figure 29: Annual average of Pm1, PM _{2.5} , PM ₁₀ and TSP in 2018.....	16
Figure 30: Histogram of PM ₁	16
Figure 31: Daily average of PM ₁	17
Figure 32: Monthly Average of PM ₁	17
Figure 33: Monthly Variation of PM ₁	18
Figure 34: Seasonal variation of PM ₁	19
Figure 35: Diurnal variation of PM ₁	19
Figure 36: Histogram of PM _{2.5}	20
Figure 37: Daily average of PM _{2.5}	20
Figure 38: Monthly Average of PM _{2.5}	21
Figure 39: Monthly Variation of PM _{2.5}	21
Figure 40: Seasonal variation of PM _{2.5}	22
Figure 41: Diurnal variation of PM _{2.5}	22
Figure 42: Compliance status of PM _{2.5}	23
Figure 43: Histogram for the ambient concentration of PM ₁₀	23
Figure 44: Daily average of PM ₁₀	24
Figure 45: Monthly average of Pm ₁₀	24
Figure 46: Monthly Variation of PM ₁₀	25
Figure 47: Seasonal variation of PM ₁₀	25
Figure 48: Diurnal variation of PM ₁₀ concentration	26
Figure 49: Compliance status of PM ₁₀	26
Figure 50: Histogram for the ambient concentration of TSP	27
Figure 51: Daily average of TSP.....	27
Figure 52: Monthly Average of TSP.....	28
Figure 53: Monthly Variation of TSP.....	28
Figure 54: Seasonal variation of TSP.....	29
Figure 55: Diurnal Variation of TSP.....	29

Figure 56: Compliance status of TSP	30
Figure 57: Annual average of Pm1, PM _{2.5} , PM ₁₀ and TSP in 2020.....	30
Figure 58: Histogram of PM ₁	31
Figure 59: Daily average of PM ₁	31
Figure 60: Monthly Average of PM ₁	32
Figure 61: Monthly Variation of PM ₁	32
Figure 62: Seasonal variation of PM ₁	33
Figure 63: Diurnal variation of PM ₁	33
Figure 64: Histogram of PM _{2.5}	34
Figure 65: Daily average of PM _{2.5}	34
Figure 66: Monthly Average of PM _{2.5}	35
Figure 67: Monthly Variation of PM _{2.5}	35
Figure 68: Seasonal variation of PM _{2.5}	36
Figure 69: Diurnal variation of PM _{2.5}	36
Figure 70: Compliance status of PM _{2.5}	37
Figure 71: Histogram for the ambient concentration of PM ₁₀	37
Figure 72: Daily average of PM ₁₀	38
Figure 73: Monthly average of Pm ₁₀	38
Figure 74: Monthly Variation of PM ₁₀	39
Figure 75: Seasonal variation of PM ₁₀	39
Figure 76: Diurnal variation of PM ₁₀ concentration	40
Figure 77: Compliance status of PM ₁₀	40
Figure 78: Histogram for the ambient concentration of TSP	41
Figure 79: Daily average of TSP.....	41
Figure 80: Monthly Average of TSP.....	42
Figure 81: Monthly Variation of TSP.....	42
Figure 82: Seasonal variation of TSP.....	43
Figure 83: Diurnal Variation of TSP.....	43

Figure 84: Compliance status of TSP	44
Figure 85: Annual average of Pm1, PM _{2.5} , PM ₁₀ and TSP in 2020.....	44
Figure 86: Histogram of PM ₁	45
Figure 87: Daily average of PM ₁	45
Figure 88: Monthly Average of PM ₁	46
Figure 89: Monthly Variation of PM ₁	46
Figure 90: Seasonal variation of PM ₁	47
Figure 91: Diurnal variation of PM ₁	47
Figure 92: Histogram of PM _{2.5}	48
Figure 93: Daily average of PM _{2.5}	48
Figure 94: Monthly Average of PM _{2.5}	49
Figure 95: Monthly Variation of PM _{2.5}	49
Figure 96: Seasonal variation of PM _{2.5}	50
Figure 97: Diurnal variation of PM _{2.5}	50
Figure 98: Compliance status of PM _{2.5}	51
Figure 99: Histogram for the ambient concentration of PM ₁₀	51
Figure 100: Daily average of PM ₁₀	52
Figure 101: Monthly average of Pm ₁₀	52
Figure 102: Monthly Variation of PM ₁₀	53
Figure 103: Seasonal variation of PM ₁₀	53
Figure 104: Diurnal variation of PM ₁₀ concentration.....	54
Figure 105: Compliance status of PM ₁₀	54

ANNEX

1 Sauraha Air Quality Monitoring Station

- Address : Sauraha Municipality Office
- Location: 27.573483 latitude, 84.498578 longitude
- Surrounding of the station
 2. East: NTNC Biodiversity Conservation Centre
 3. West: Wildlife Display and Information Centre
 4. North: Wildlife Display and Information Centre
 5. South: Dhungra Khola/jungle
- 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 lufft WS 700
 3. Data logging and data transmission and power backup system

NOTE 1: For the year 2016 only data of December is available from which monthly average has been found to be PM1-57($\mu\text{g}/\text{m}^3$), PM2.5-65($\mu\text{g}/\text{m}^3$), PM10-78($\mu\text{g}/\text{m}^3$)

NOTE 2: For the year 2016, and 2020 TSP data are missing

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

2.1 Air quality status, 2017

2.1.1 Temporal variation of PM1

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

The annual average of PM1, PM_{2.5}, PM₁₀ and TSP of the Sauraha monitoring station was calculated as shown in Figure 1.

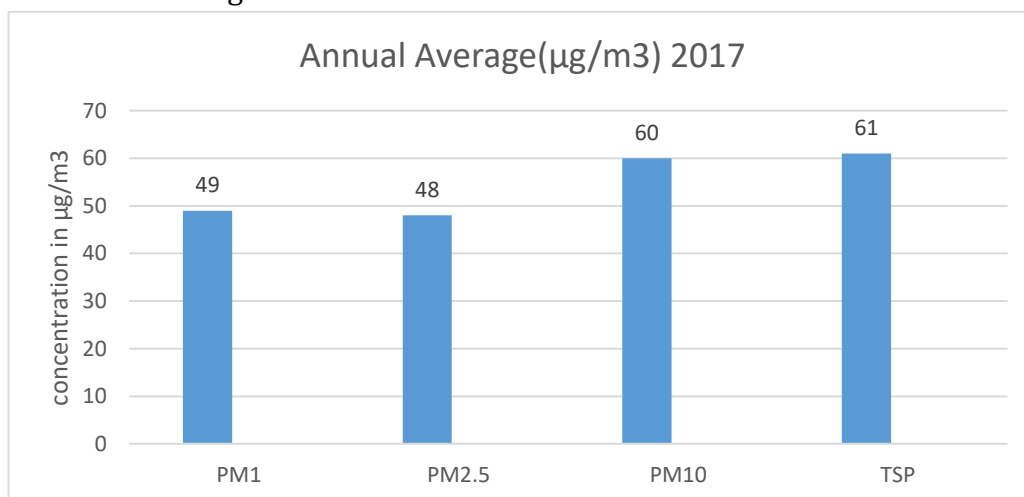


Figure 1: Annual average of Pm1, PM_{2.5}, PM₁₀ and TSP in 2020

Annual average of PM₁

The annual average of PM₁ at Sauraha station was found to be 49 ($\mu\text{g}/\text{m}^3$). Histogram of hourly average PM₁ is shown in the figure below (Figure 8).

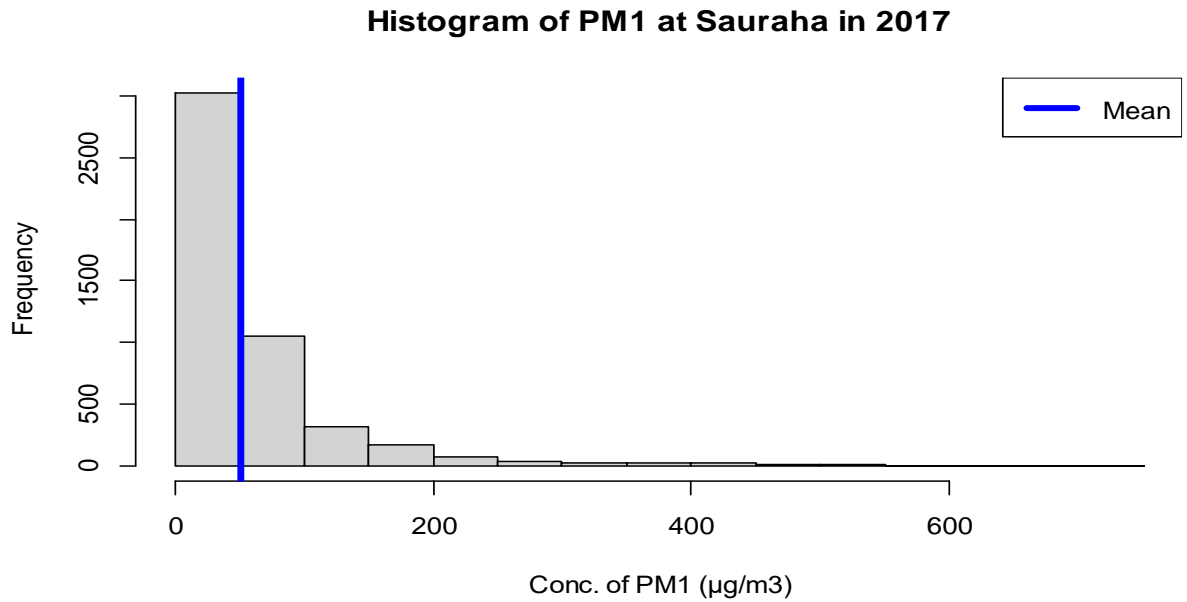


Figure 2 : Histogram of PM₁

Daily average of PM₁:

Daily average concentration of PM₁ was high during December and was found low during August (Figure 9).

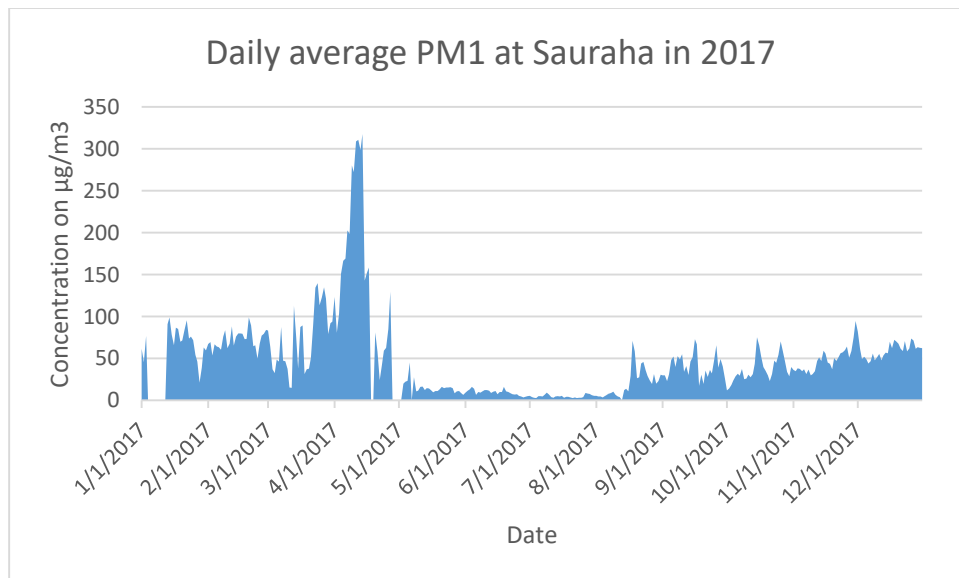


Figure 3: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest monthly average of PM₁ was found during April (159 µg/m³) and July (4.92 µg/m³) respectively (Figure 10).

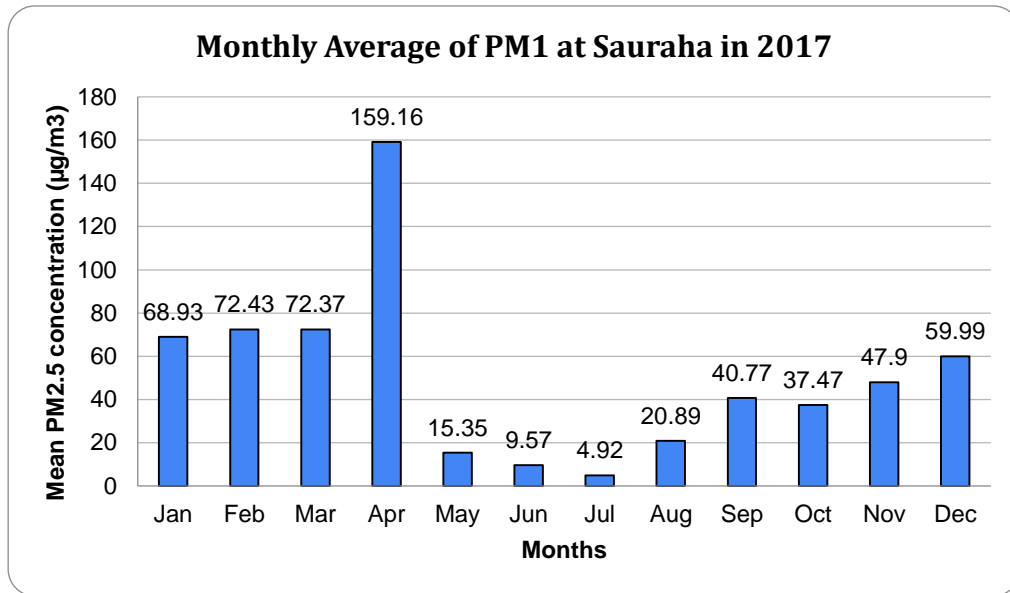


Figure 4: Monthly Average of PM₁

Monthly variation of PM₁

Variation in concentration of PM₁ was found more during April. (Figure 11).

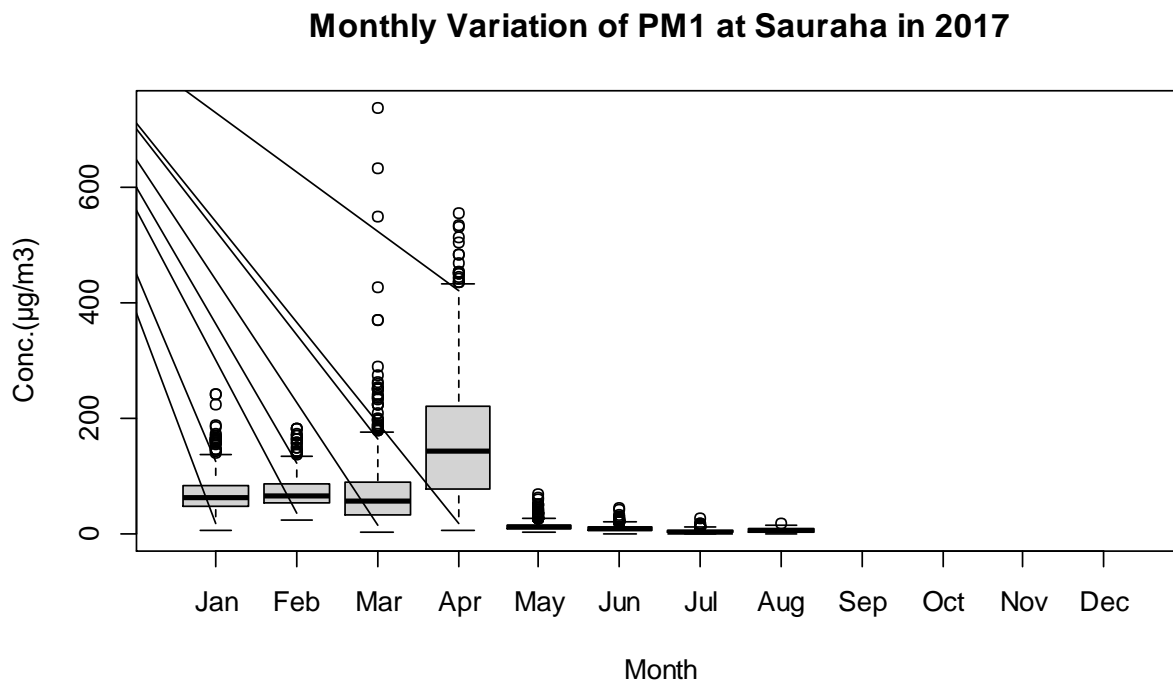


Figure 5: Monthly Variation of PM₁

Seasonal variation of average PM₁ concentration

Ambient concentration of average PM₁ during monsoon (June-September), and post-monsoon (October-November) can be shown in the Figure 12 below. The concentration of PM₁ was found higher during premonsoon (82.29 $\mu\text{g}/\text{m}^3$) than winter(66.12) , postmonsoon season(42.04) and monsoon(11.79). Figure 12: Seasonal variation of PM_{2.5}Figure 12.

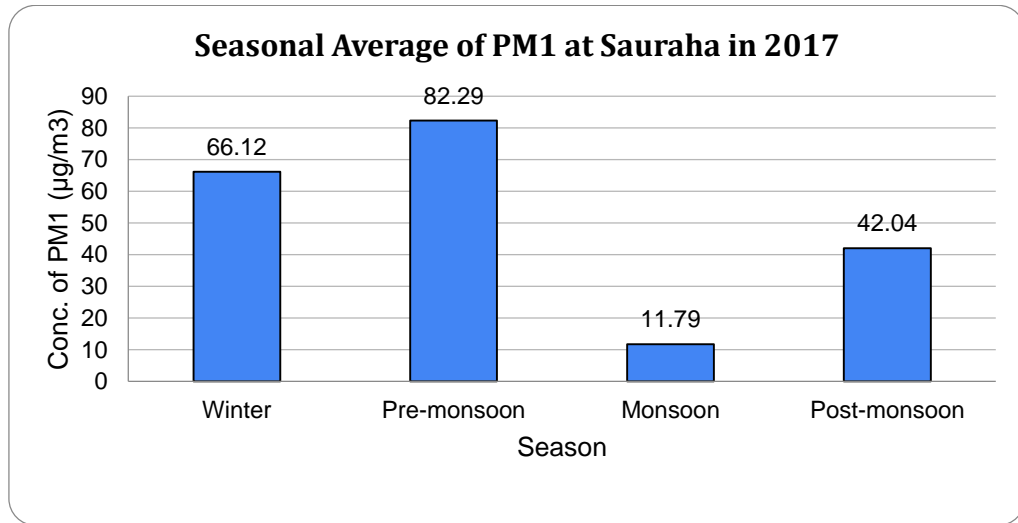


Figure 6: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the Figure 13 below.

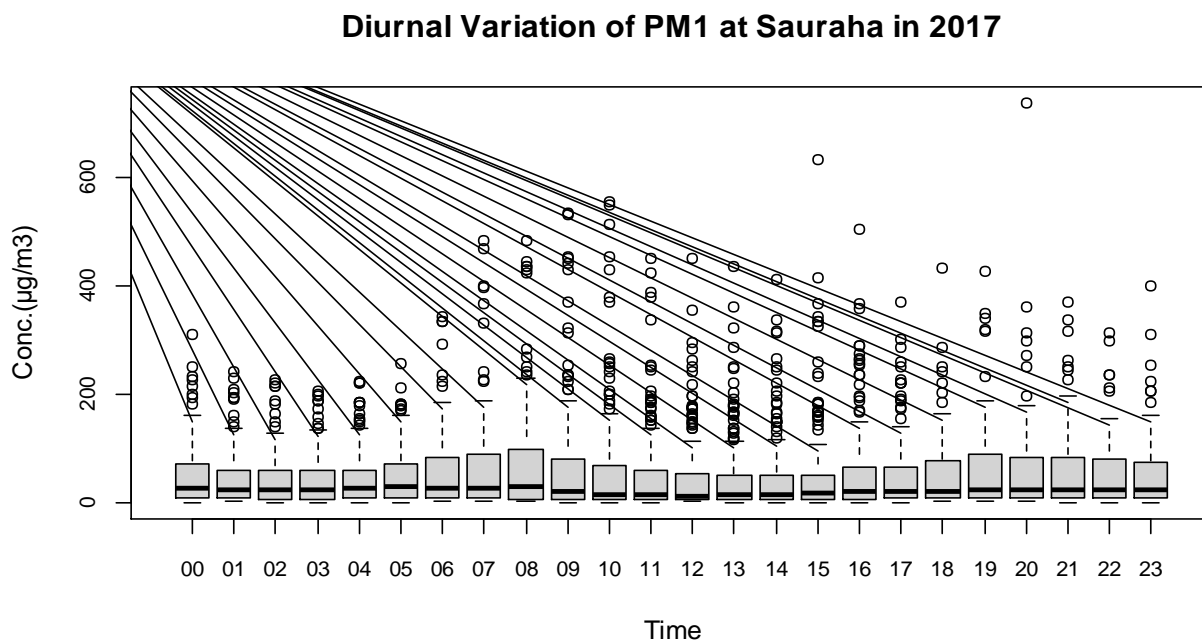


Figure 7: Diurnal variation of PM₁

2.1.2 Temporal Variation of PM_{2.5}

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Sauraha station was found to be 48 µg/m³. Histogram of hourly average PM_{2.5} is shown in the figure below (Figure 8).

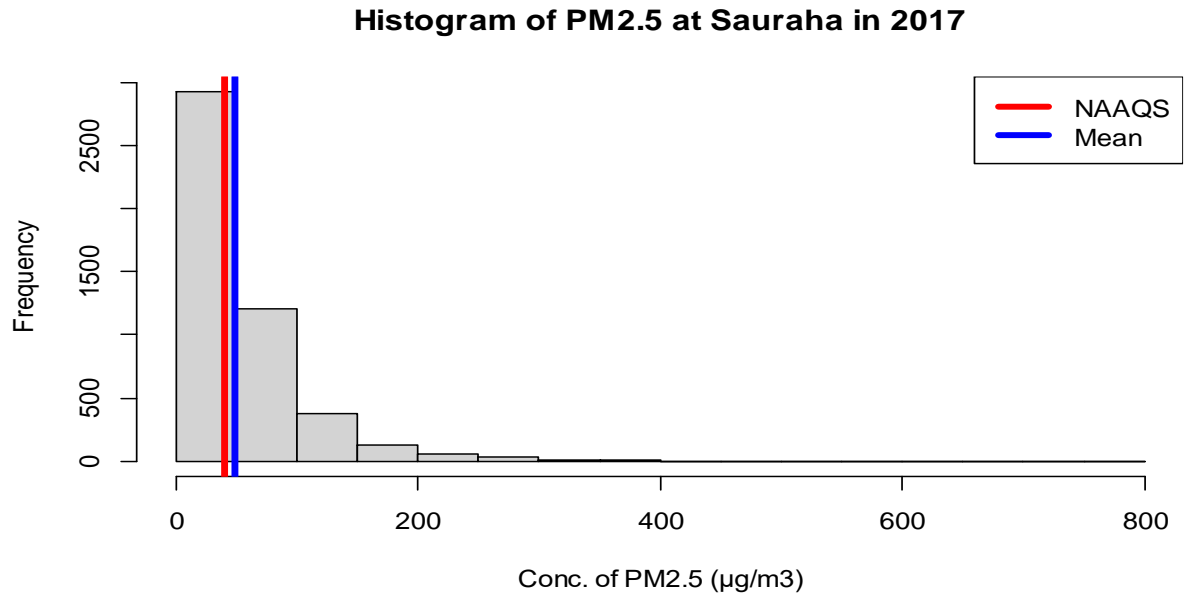


Figure 8 : Histogram of PM_{2.5}.

Daily average of PM_{2.5}:

Daily average concentration of PM_{2.5} was high during April and was found low during August (Figure 9).

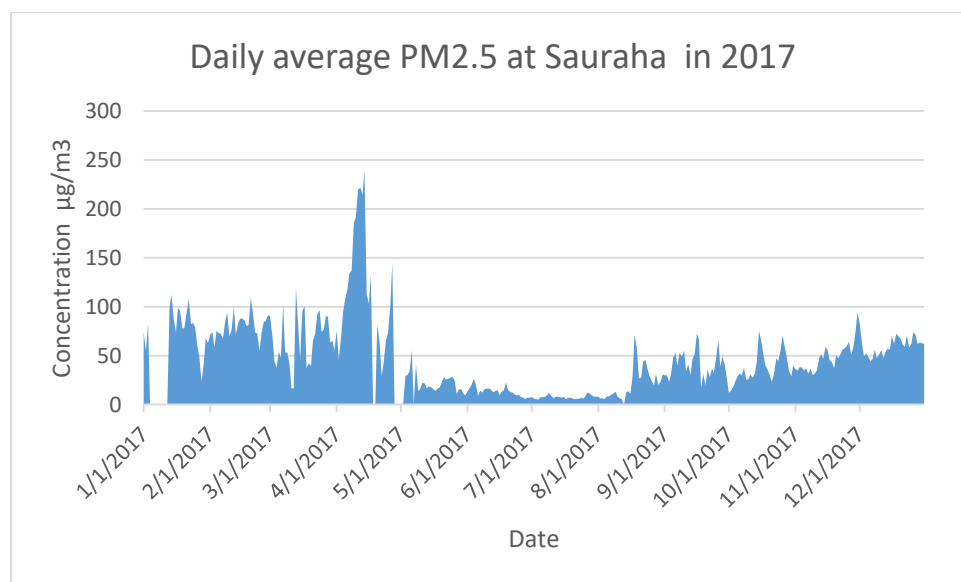


Figure 9: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest monthly average of PM_{2.5} was found during April (120.36 µg/m³) and July (7.61 µg/m³) respectively (Figure 10).

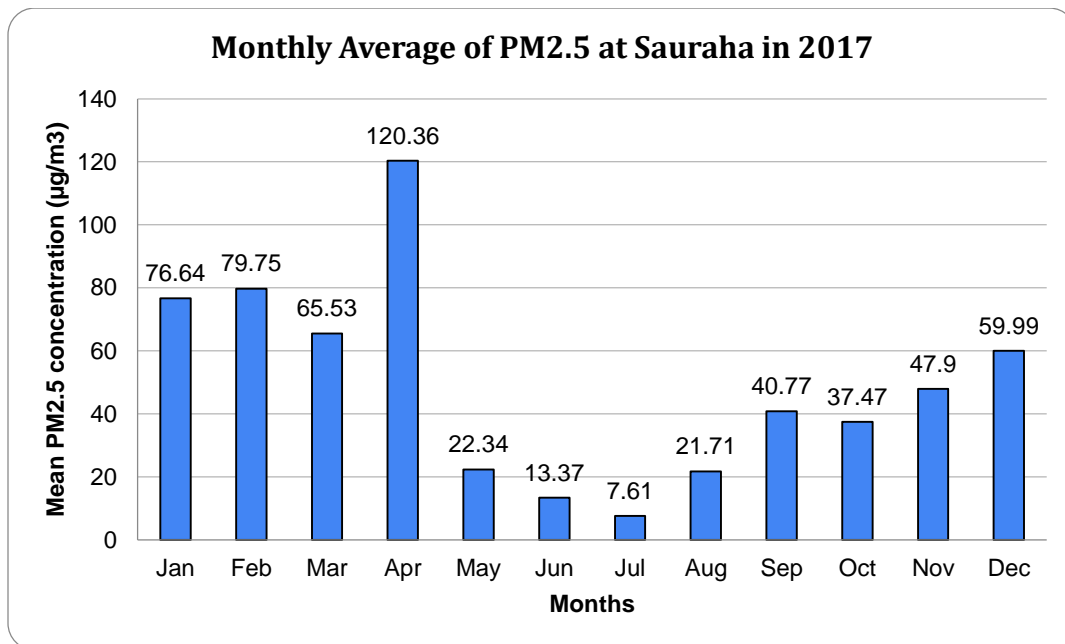


Figure 10: Monthly Average of PM_{2.5}

Monthly variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found more during April. (Figure 11).

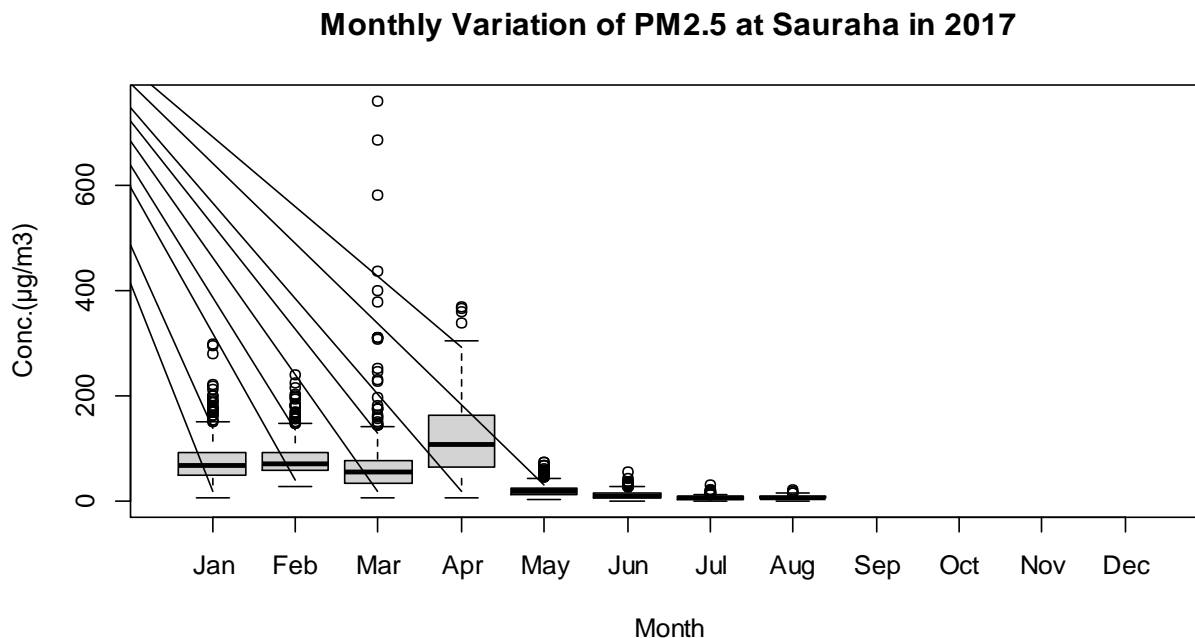


Figure 11: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Seasonal ambient concentration of average PM_{2.5} are shown in the Figure 12 below. The concentration of PM_{2.5} was found higher during winter season followed by pre monsoon, (69.41), post monsoon (42.04 $\mu\text{g}/\text{m}^3$) and monsoon (14.23 $\mu\text{g}/\text{m}^3$) Figure 12: Seasonal variation of PM_{2.5} Figure 12.

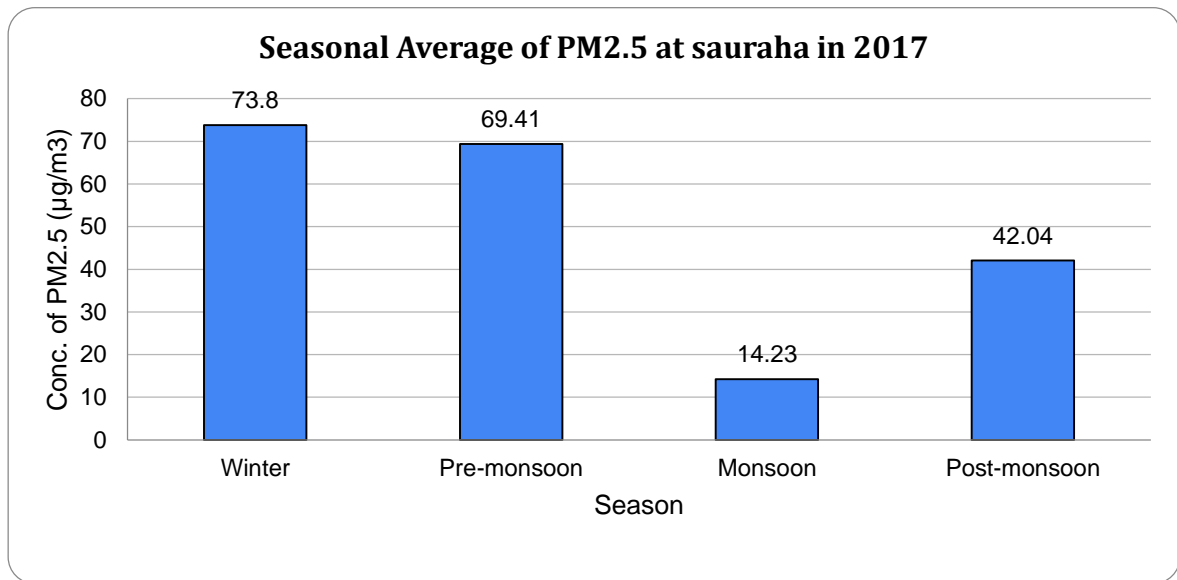


Figure 12: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations can be shown in the Figure 13 below.

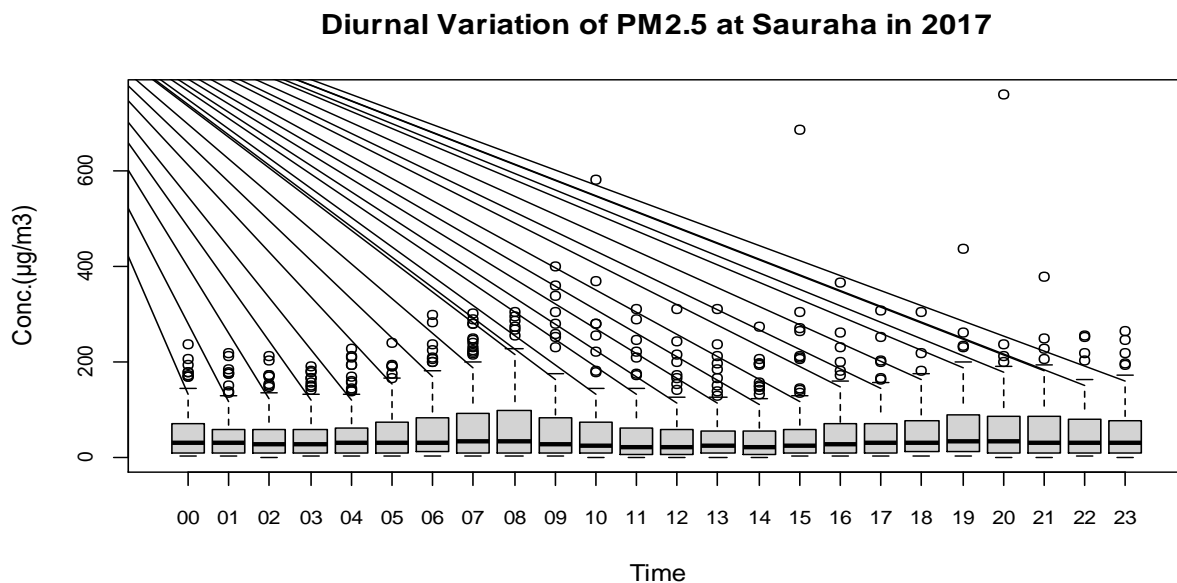


Figure 13: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2017 counts 347, of which 178 days exceed the NAAQS guideline Figure 14.

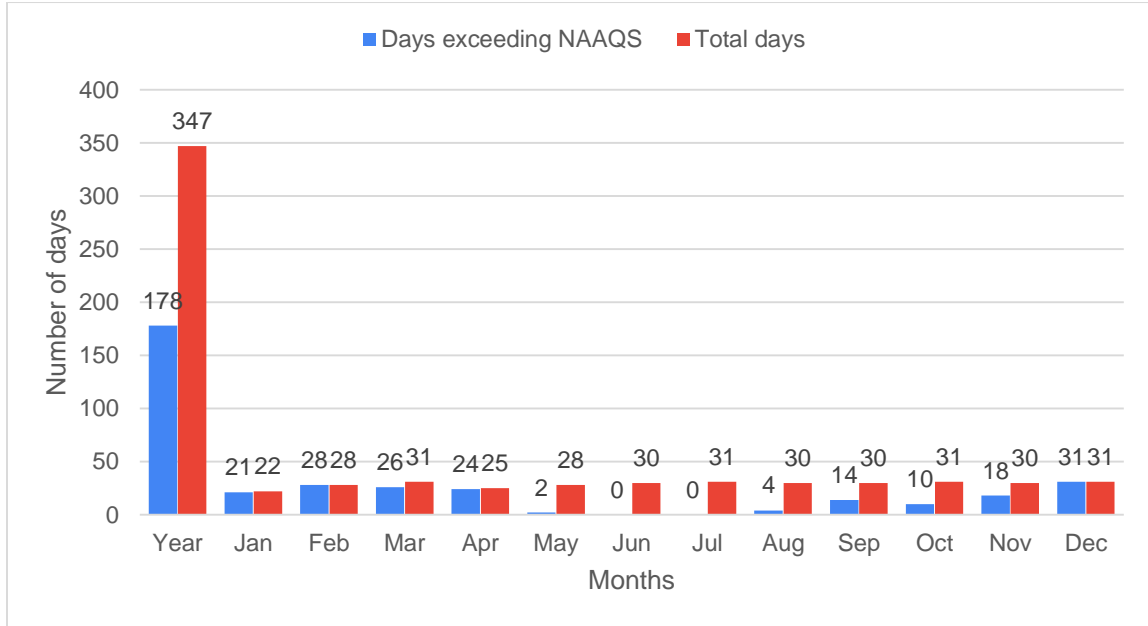


Figure 14: Compliance status of PM_{2.5}

2.1.3 Temporal variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Sauraha station was found to be 60 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below (Figure 15).

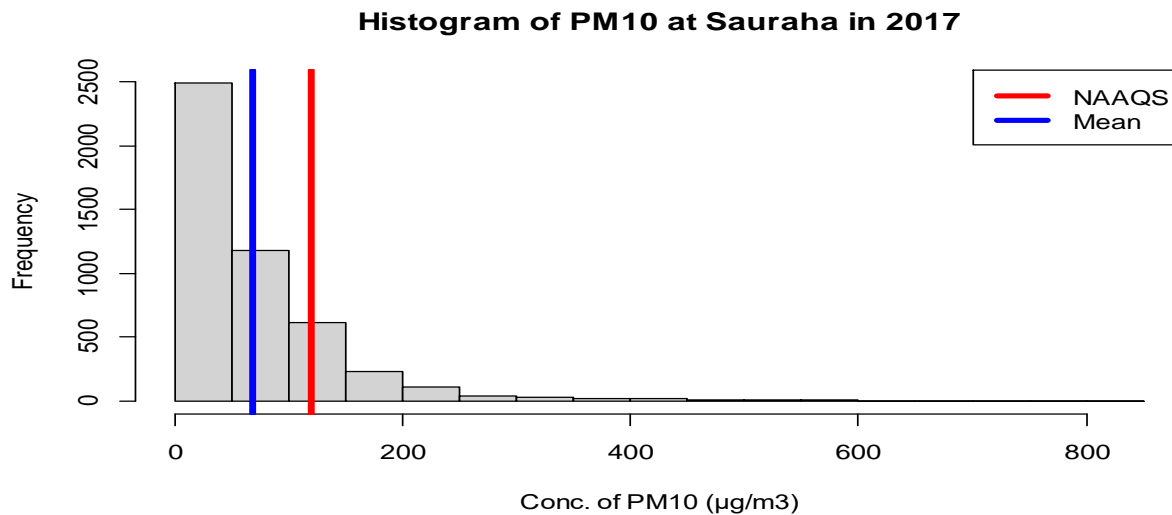


Figure 15 : Histogram for the ambient concentration of PM₁₀.

Daily average of PM₁₀:

Daily average concentration of PM₁₀ was high during April and was found low during July and August (Figure 16).

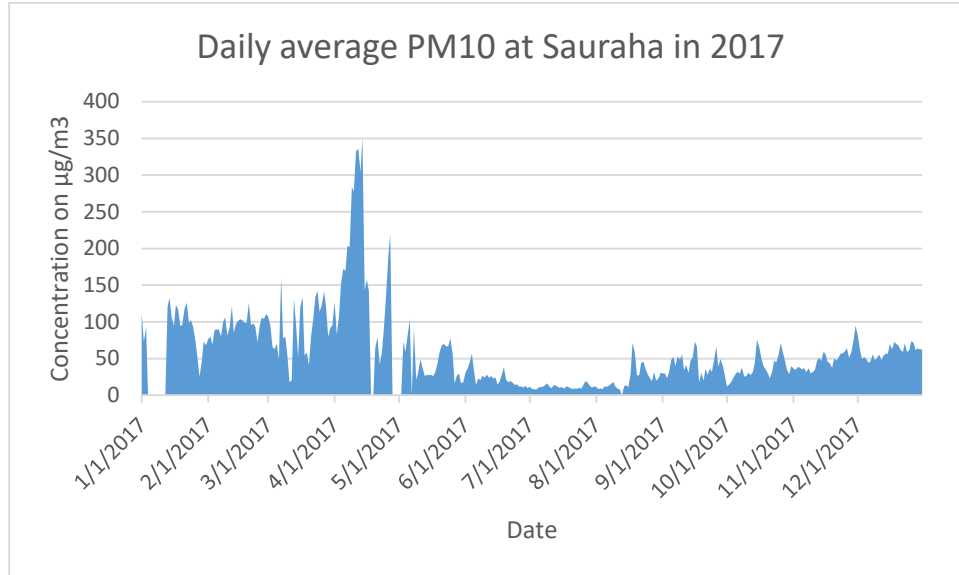


Figure 16: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest monthly average of PM_{2.5} was found during April (176.97 µg/m³) and July (11.4 µg/m³) respectively (Figure 17).

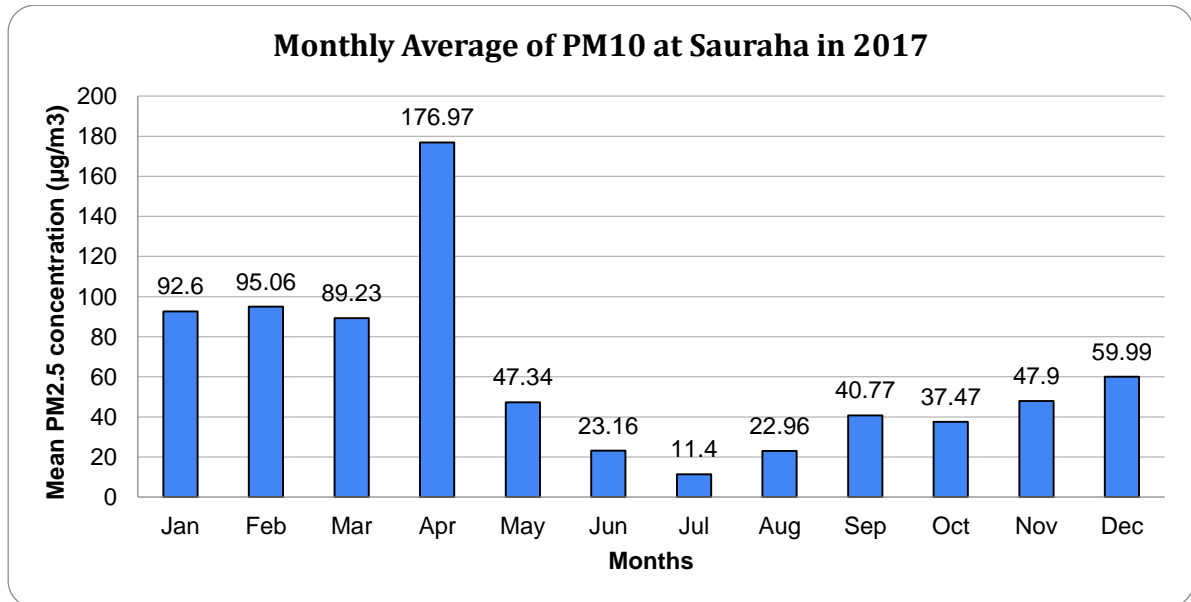


Figure 17: Monthly average of Pm₁₀

Monthly variation of PM10

Variation in concentration of PM₁₀ was found more during April. (Figure 18).

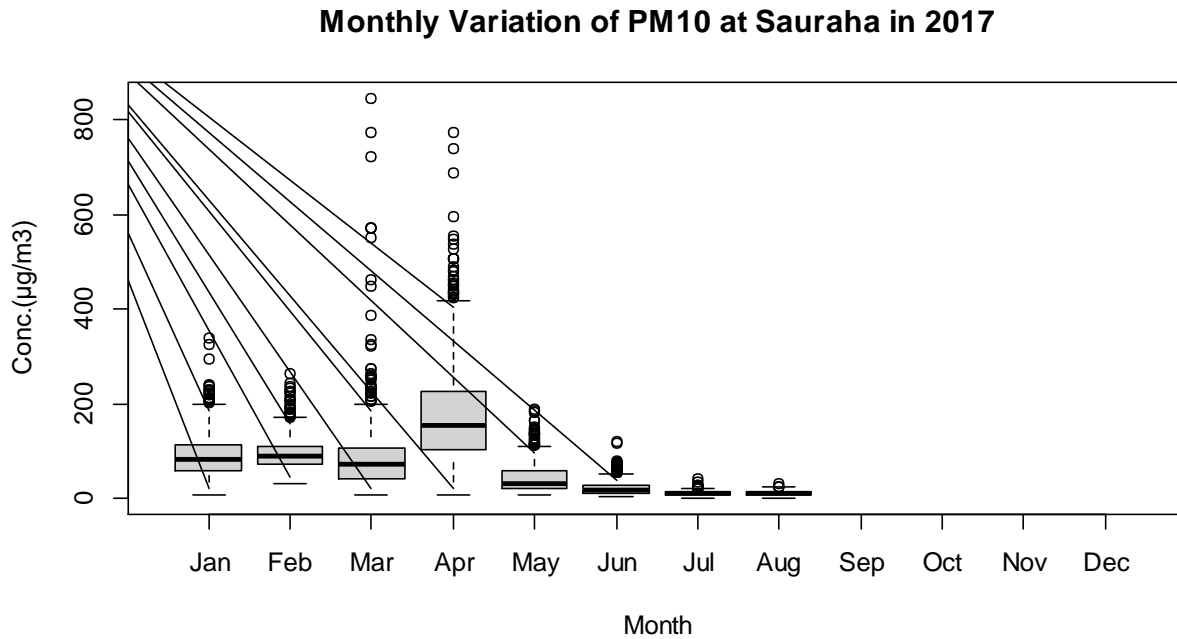


Figure 18: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

Ambient concentration of average PM₁₀ during monsoon (June-September), and post-monsoon (October-November) can be shown in the figure below. The concentration of PM₁₀ was found higher during pre monsoon (100.42 µg/m³) followed by winter, post monsoon and monsoon. (19.17 µg/m³) (Figure 19).

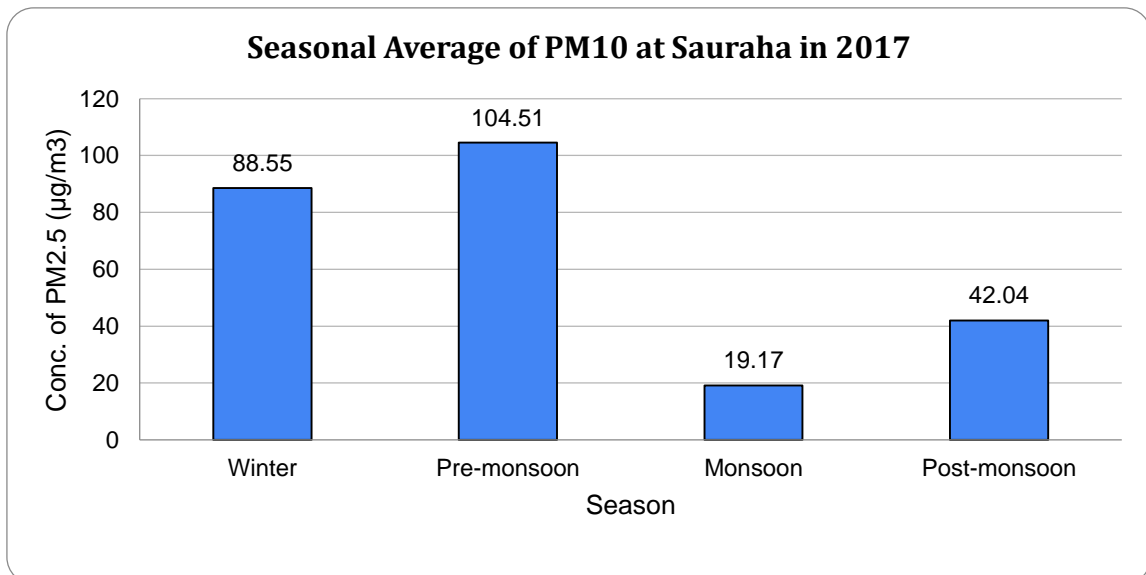


Figure 19: Seasonal variation of PM₁₀.

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown in the Figure 20 below.

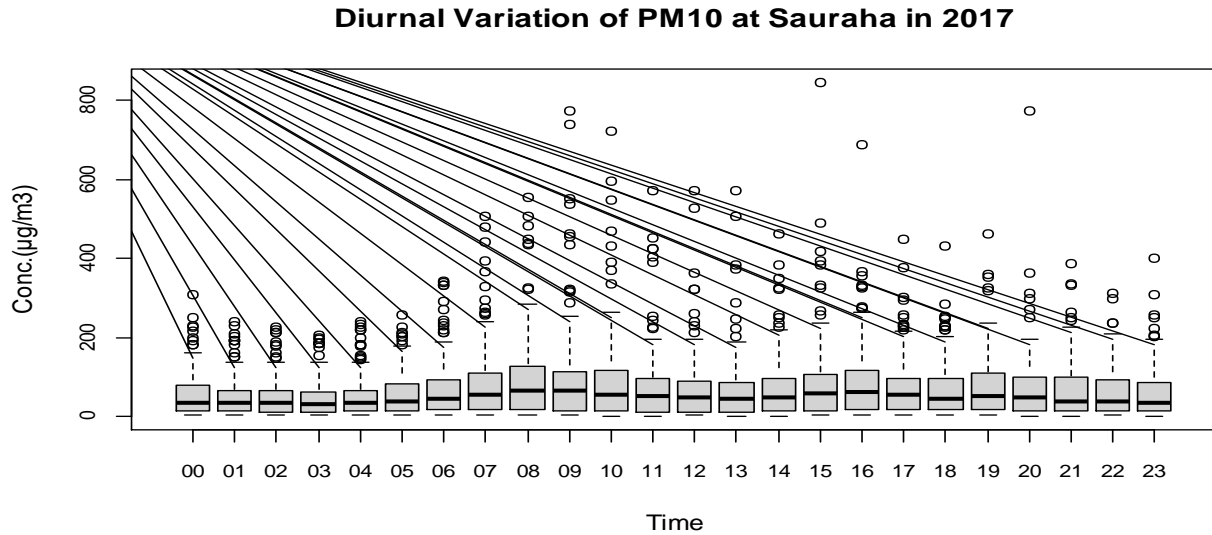


Figure 20: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2017 counts 347, of which 33 days exceed the NAAQS guideline *Figure 21*.

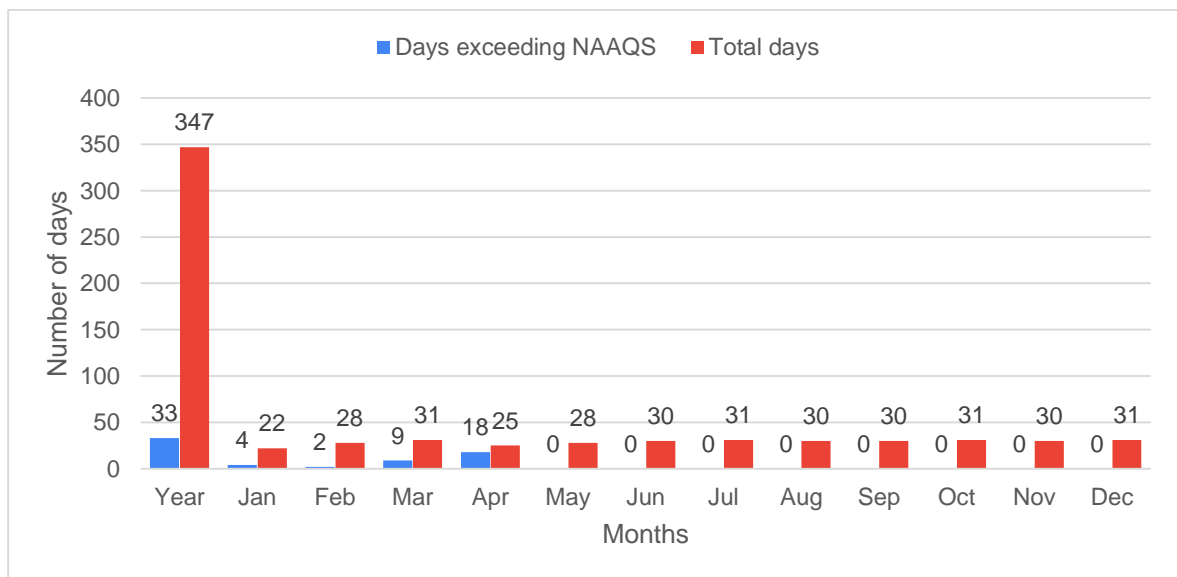


Figure 21: Compliance status of PM₁₀

2.1.4 Temporal Variation of TSP

Annual average of TSP

The annual average of TSP at Sauraha station was found to be $61 \mu\text{g}/\text{m}^3$. Histogram of hourly average TSP is shown in the figure below (Figure 22).

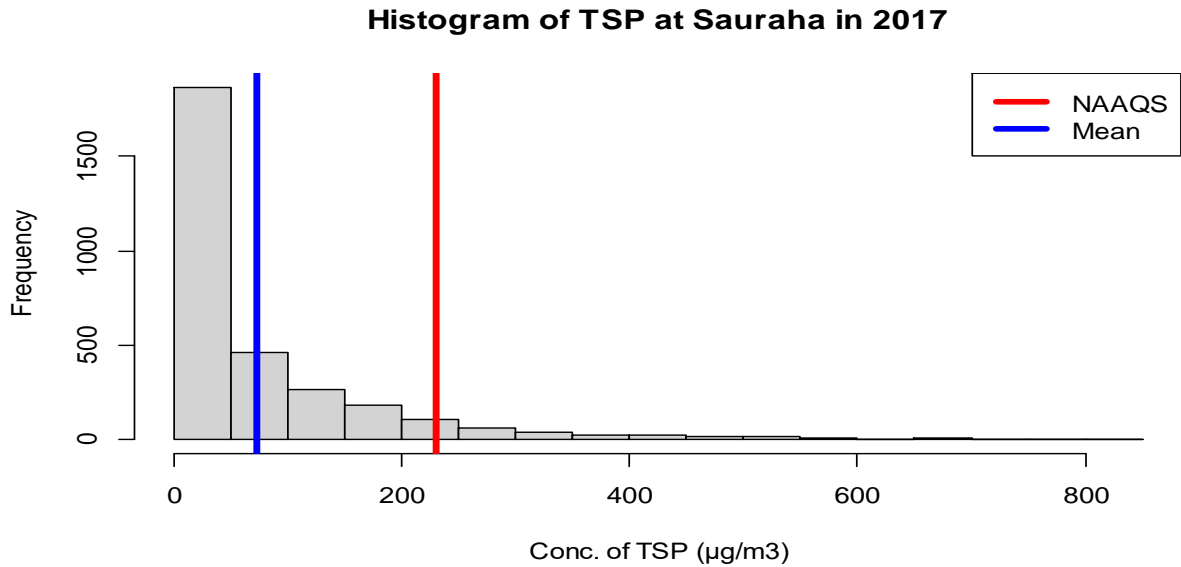


Figure 22 : Histogram for the ambient concentration of TSP

Daily average of TSP:

Daily average concentration of TSP was high during April and May and was found low during July and August (Figure 23).

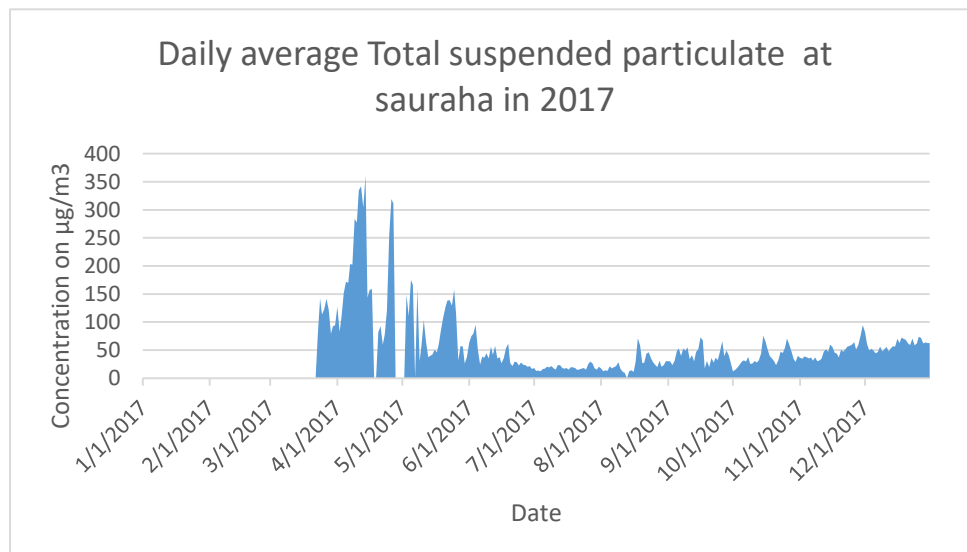


Figure 23: Daily average of TSP

Monthly average of TSP

The highest and the lowest monthly average of TSP was found during April ($195.87 \mu\text{g}/\text{m}^3$) and July ($18.36 \mu\text{g}/\text{m}^3$) respectively (

Figure 24).

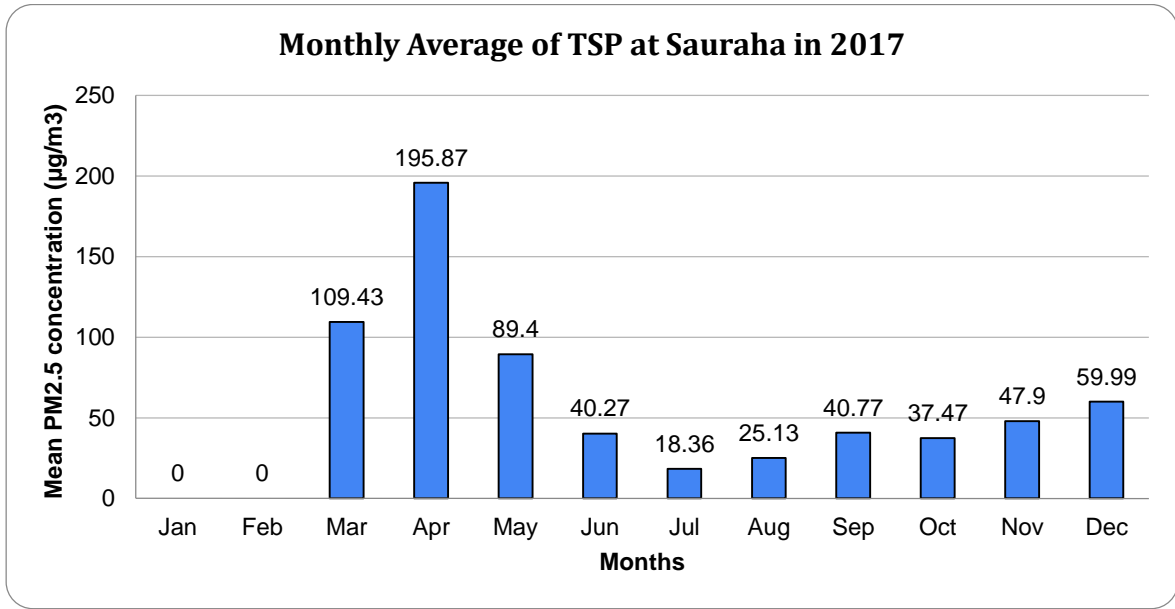


Figure 24: Monthly Average of TSP

Monthly variation of TSP

Variation in concentration of TSP was found more during April.

Monthly Variation of TSP at Sauraha in 2017

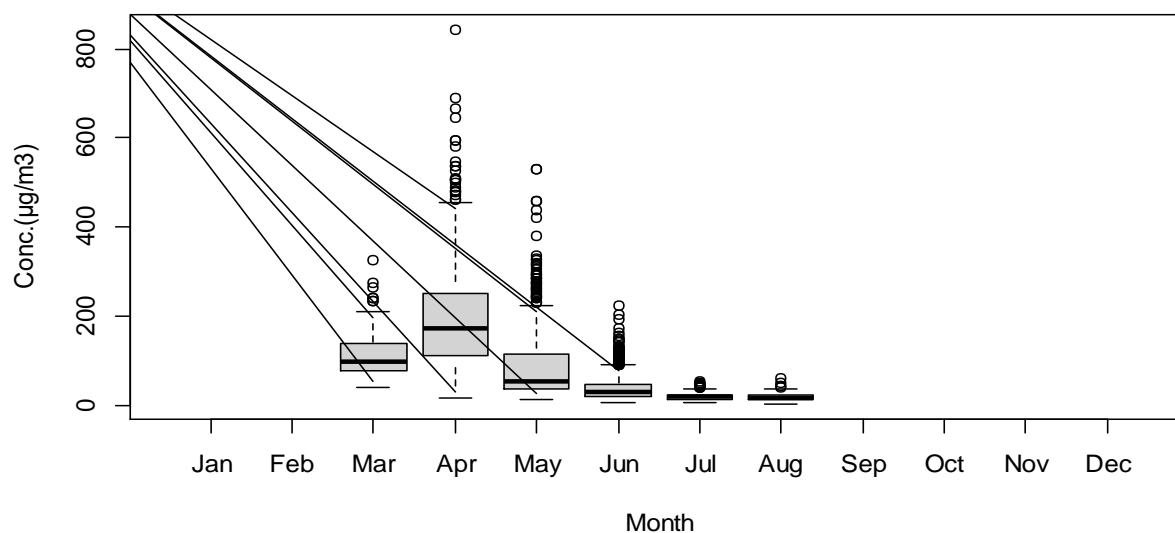


Figure 25: Monthly Variation of TSP.

Seasonal variation of average TSP concentration

Seasonal Ambient concentration of average TSP are shown in the Figure 26 below. The concentration of TSP was found higher during Pre monsoon (131.57 µg/m³) than monsoon season (27.92 µg/m³) (Figure 26).

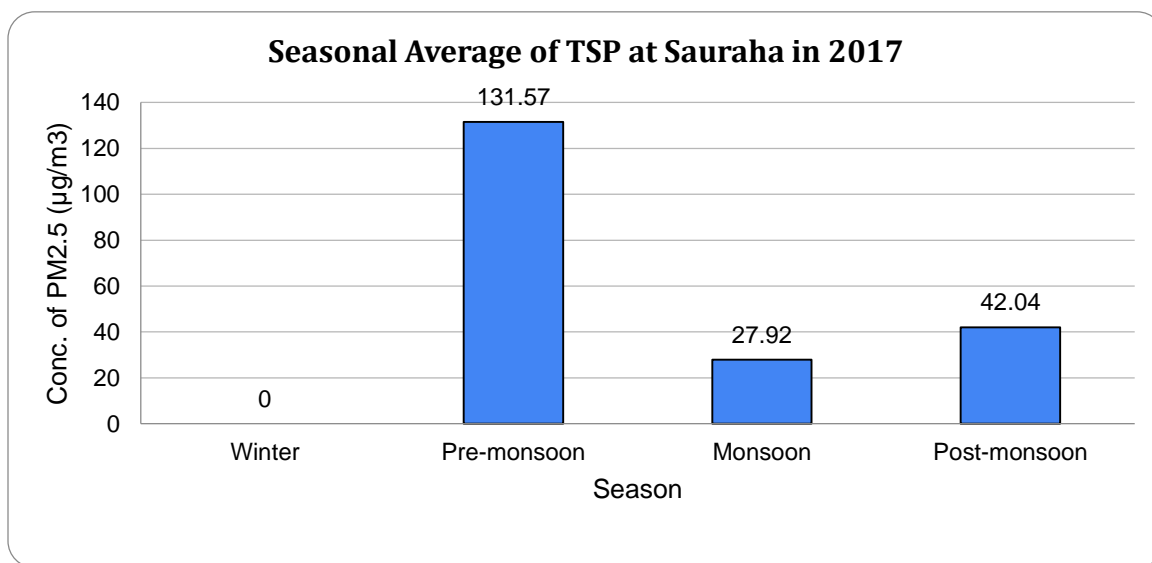


Figure 26: Seasonal variation of TSP

Diurnal variation pf average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the Figure 27 below. The variation in TSP concentration was high at around 101m -5 pm and low at 1 to 3 am.

Diurnal Variation of TSP at Sauraha in 2017

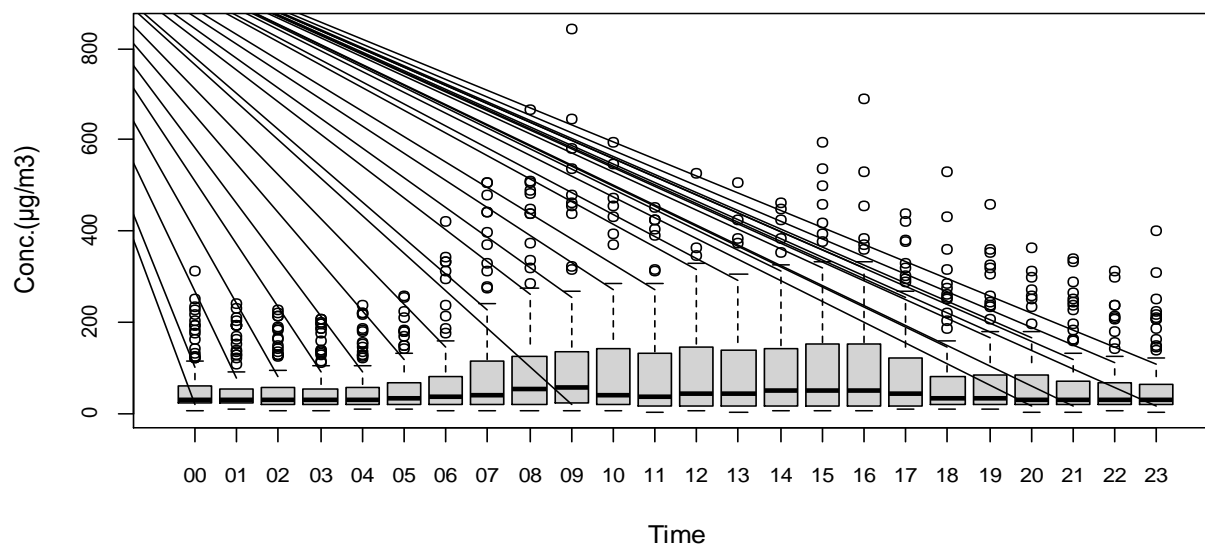


Figure 27: Diurnal Variation of TSP

Compliance status of TSP

The total days of TSP monitored in the year 2017 counts 275, of which 9 days exceed the NAAQS guideline (Figure 28).

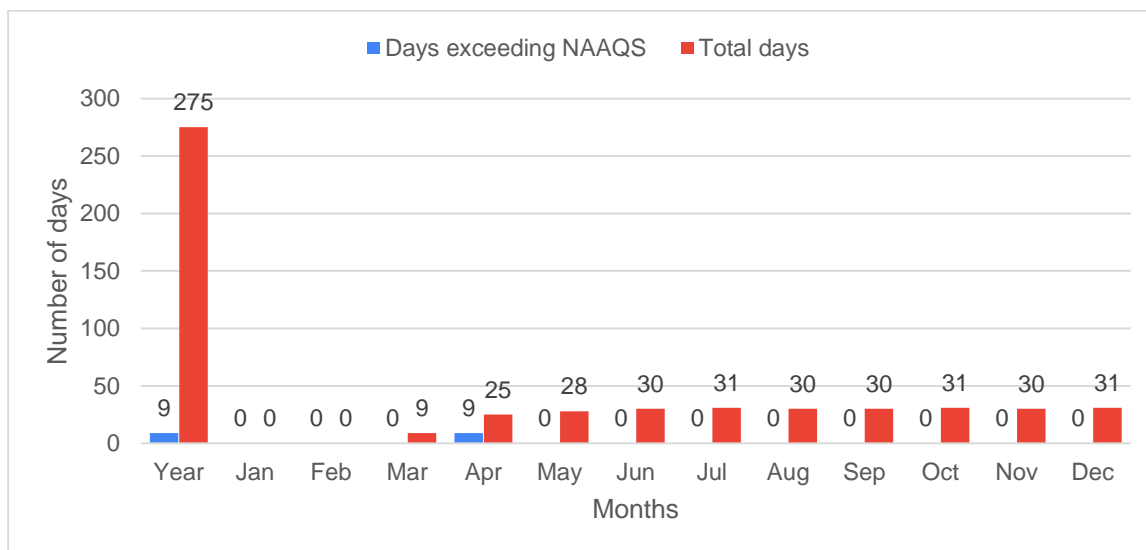


Figure 28: Compliance status of TSP

2.2 Air Quality Status, 2018

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

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

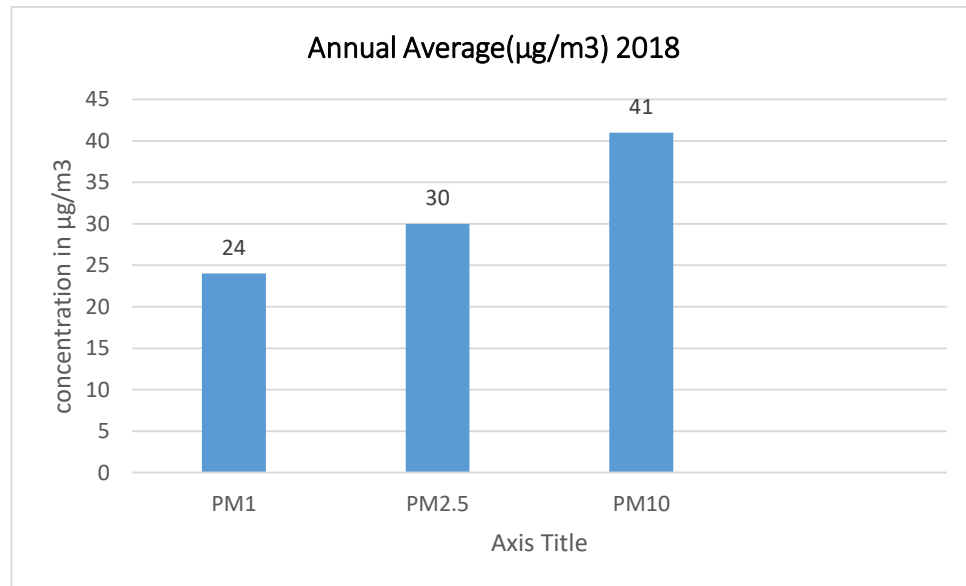


Figure 29: Annual average of Pm₁, PM_{2.5}, PM₁₀ and TSP in 2018

2.2.2 Temporal Variation of PM₁

Annual average of PM₁

The annual average of PM₁ at Sauraha station was found to be 24 µg/m³. Histogram of hourly average PM₁ is as shown in figure below.

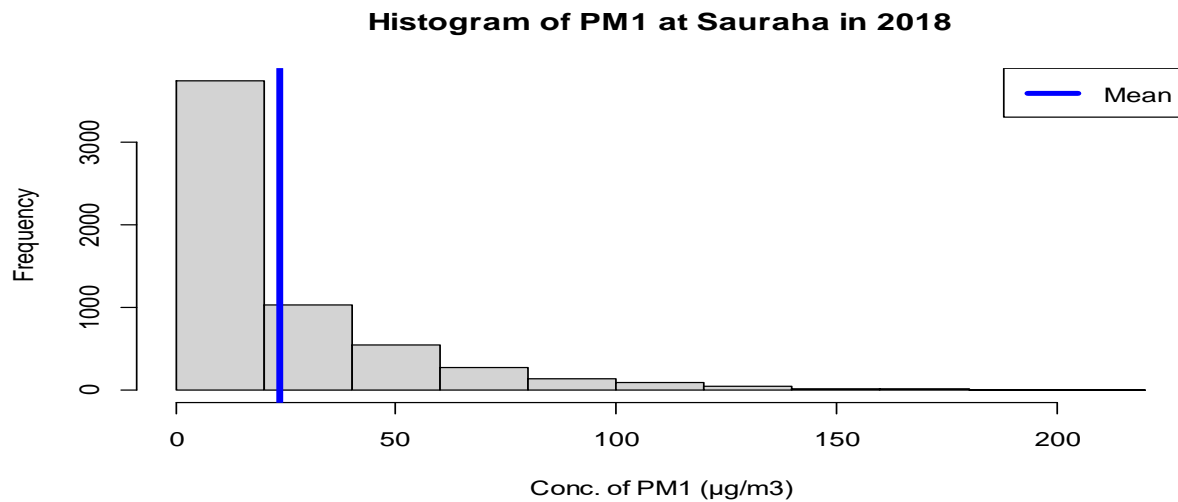


Figure 30: Histogram of PM₁

Daily average of PM₁:

Daily average concentration of PM₁ was high during December and was found low during August as shown in figure below. .

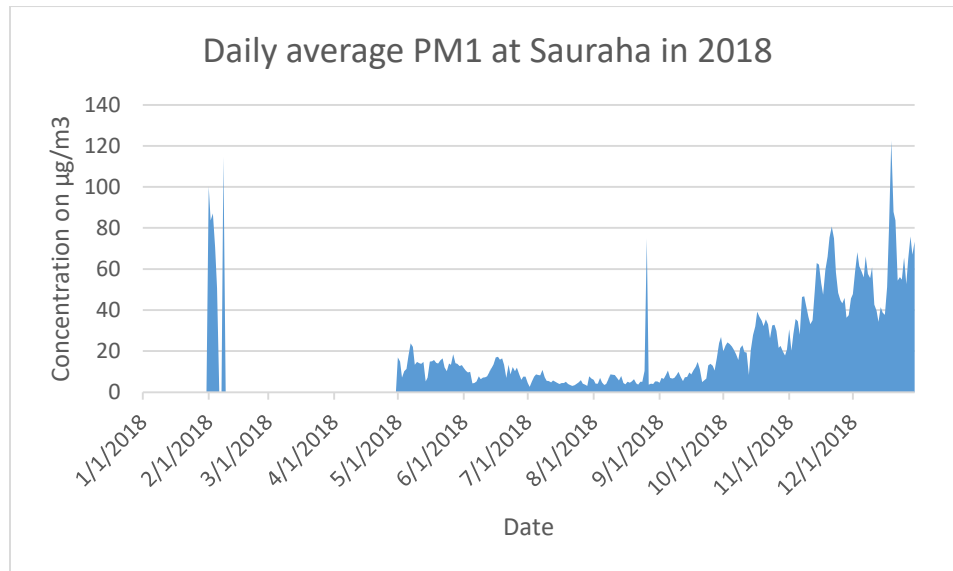


Figure 31: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest monthly average of PM₁ was found during February (84.47 µg/m³) and July (5.36 µg/m³) respectively as shown in figure below. .

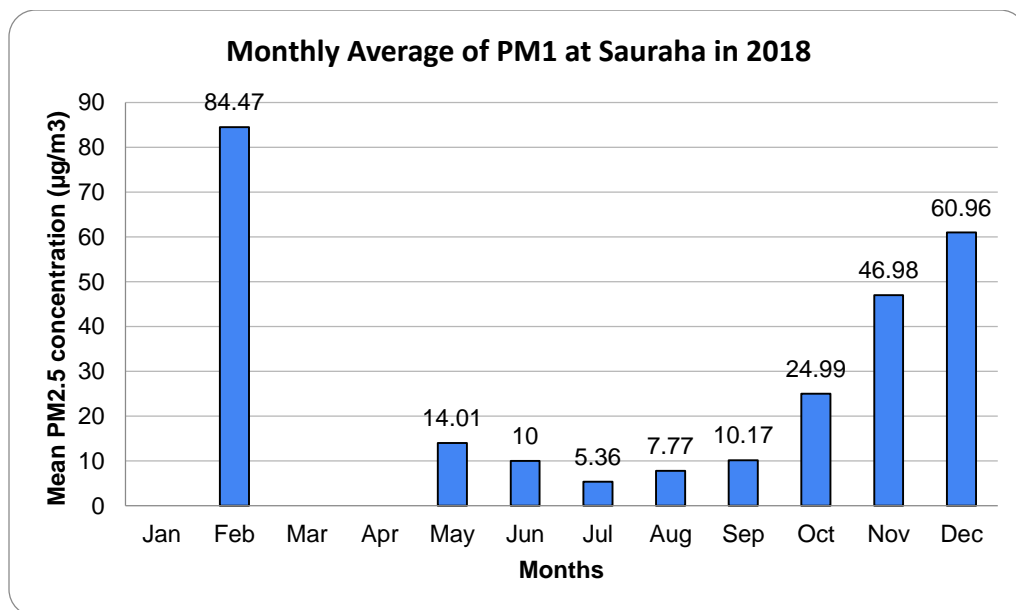


Figure 32: Monthly Average of PM₁

Monthly variation of PM₁

Variation in concentration of PM₁ was found more during December whereas low during July, August as shown in figure below. .

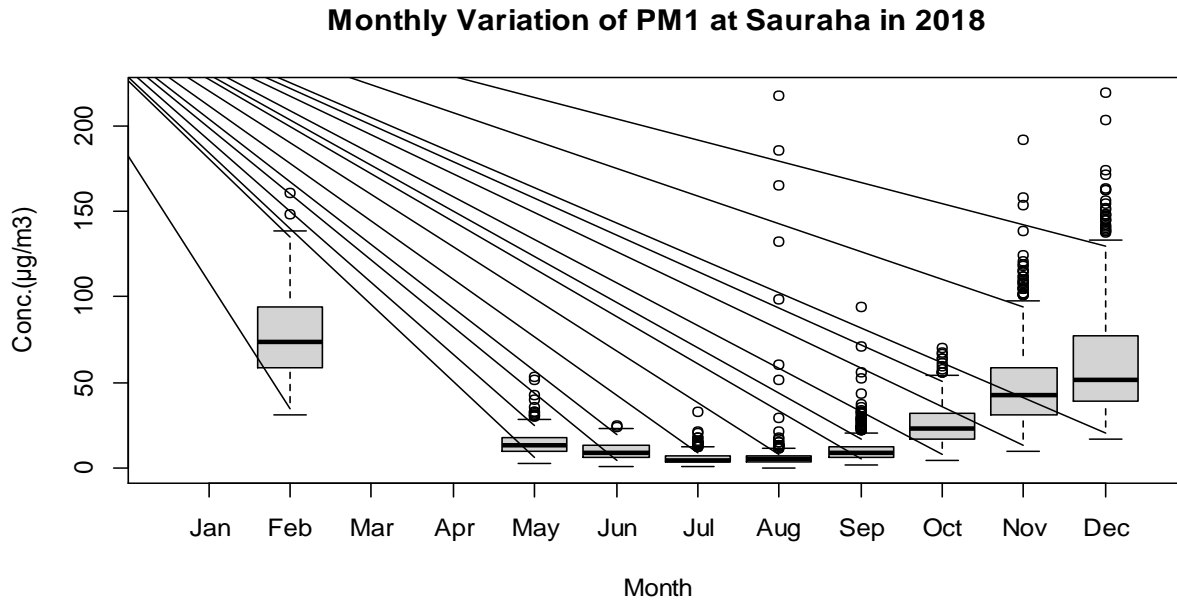


Figure 33: Monthly Variation of PM₁

Seasonal variation of average PM₁ concentration

Ambient concentration of average PM₁ during monsoon (June-September), and post-monsoon (October-November) can be shown in the Figure 12 below. The concentration of PM₁ was found higher during post monsoon (27.38 µg/m³) than monsoon season (7.71 µg/m³) Figure 12: Seasonal variation of PM_{2.5} as shown in figure below.

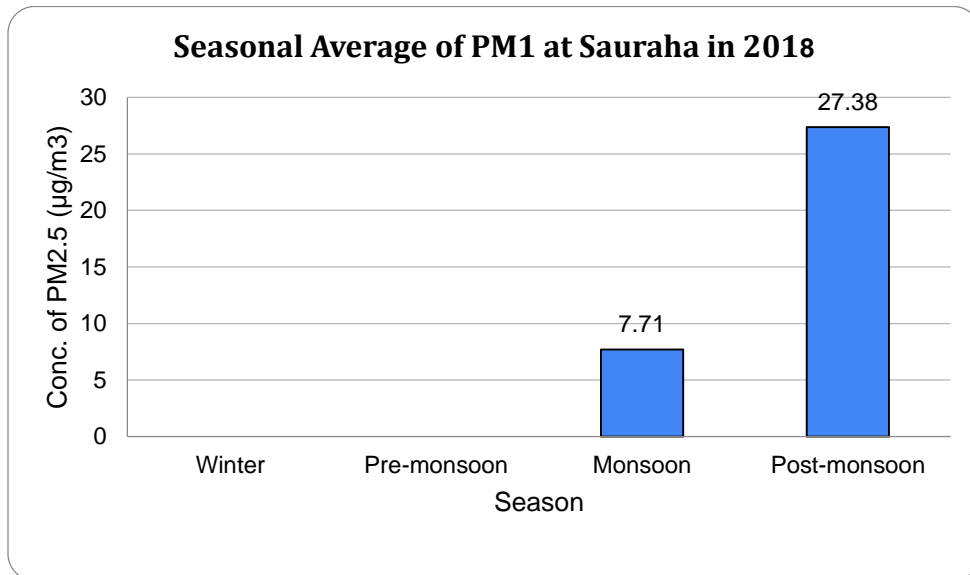


Figure 34: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the Figure 13 below. The variation in PM₁ concentration was high at around 6 pm and low at 12 to 1 pm.

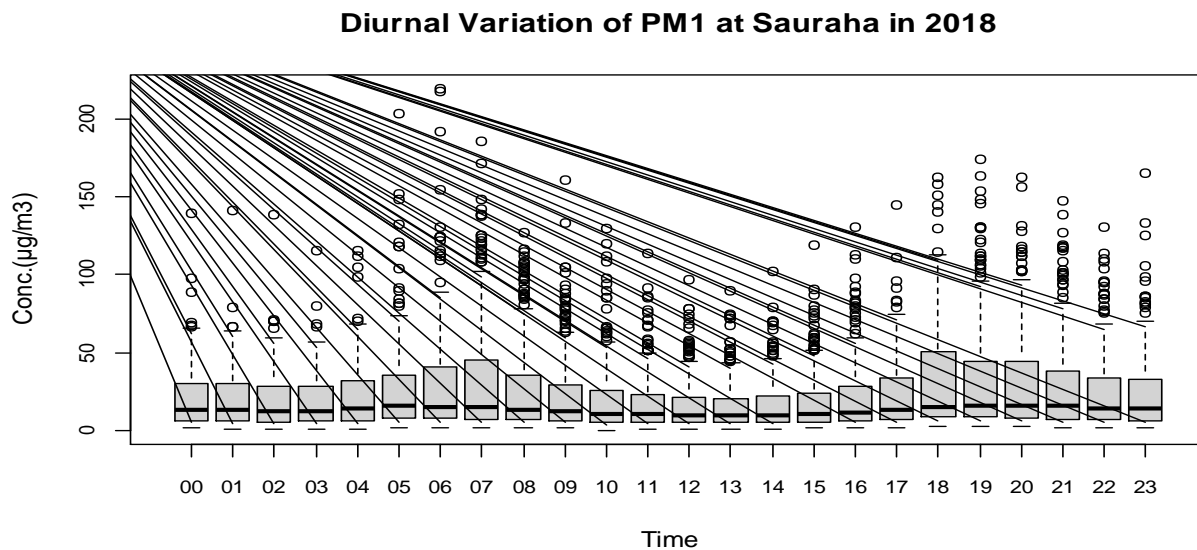


Figure 35: Diurnal variation of PM₁

2.2.3 Temporal Variation of PM_{2.5}

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Sauraha station was found to be $30 \mu\text{g}/\text{m}^3$. Histogram of hourly average PM_{2.5} is shown in the figure below.

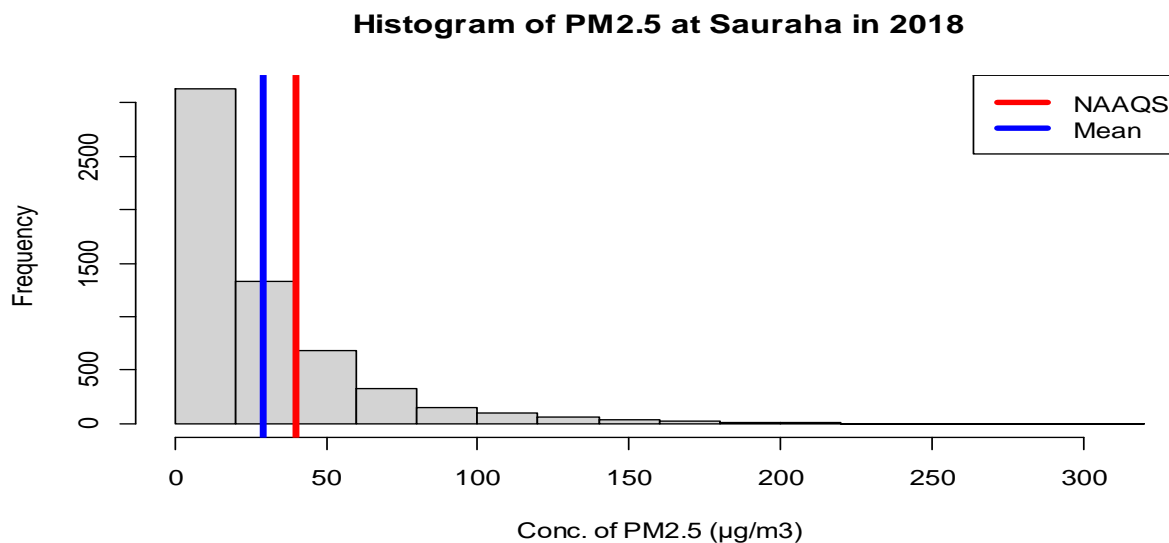


Figure 36: Histogram of PM_{2.5}

Daily average of PM_{2.5}:

Daily average concentration of PM_{2.5} was high during December and was found low during July, August as shown in figure below.

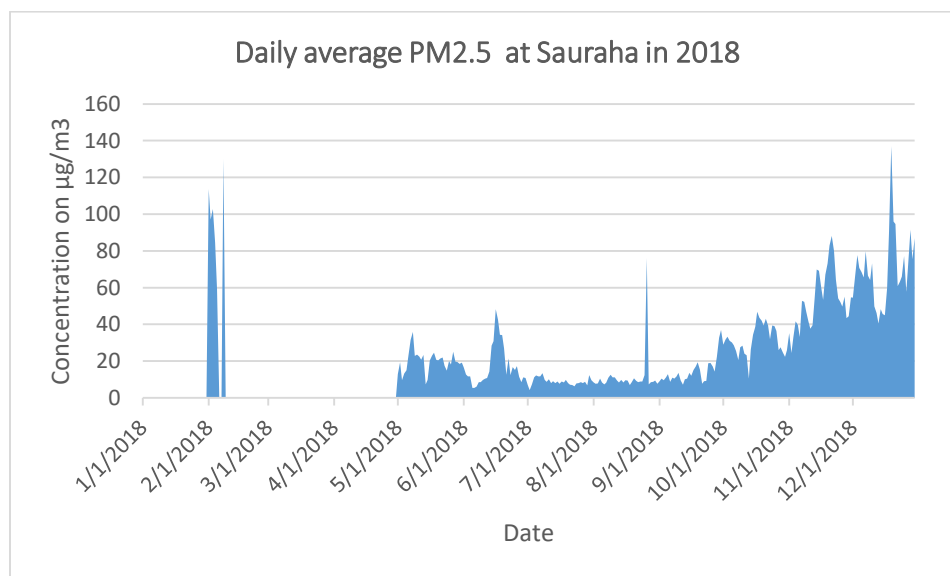


Figure 37: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest monthly average of PM_{2.5} was found during February (97.84 µg/m³) and July (8.83 µg/m³) respectively as shown in figure below.

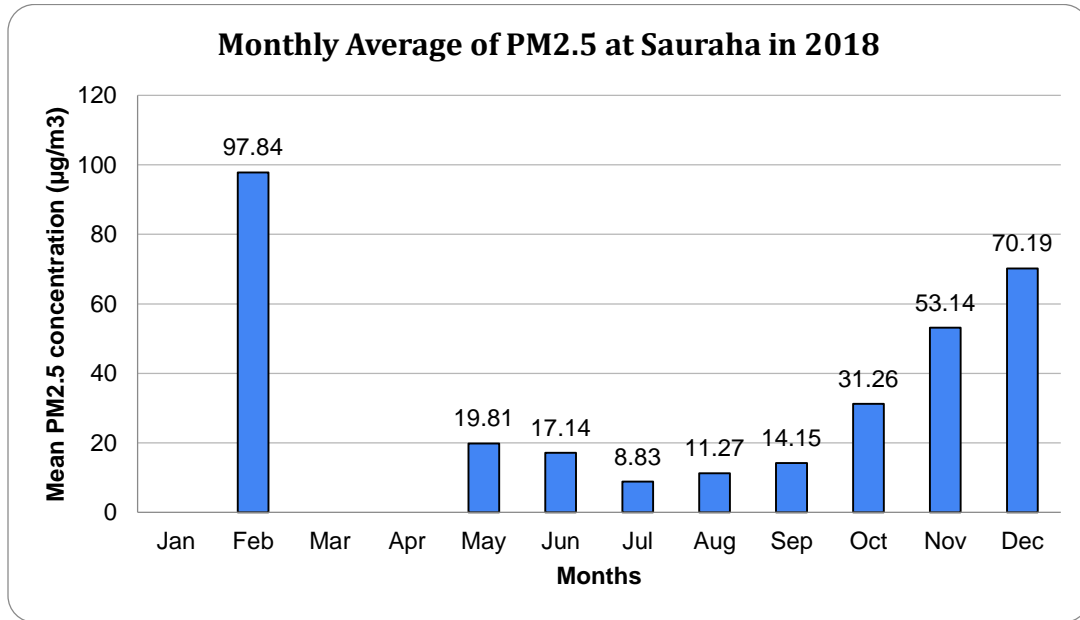


Figure 38: Monthly Average of PM_{2.5}

Monthly variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found more during November and December February whereas low during April as shown in figure below.

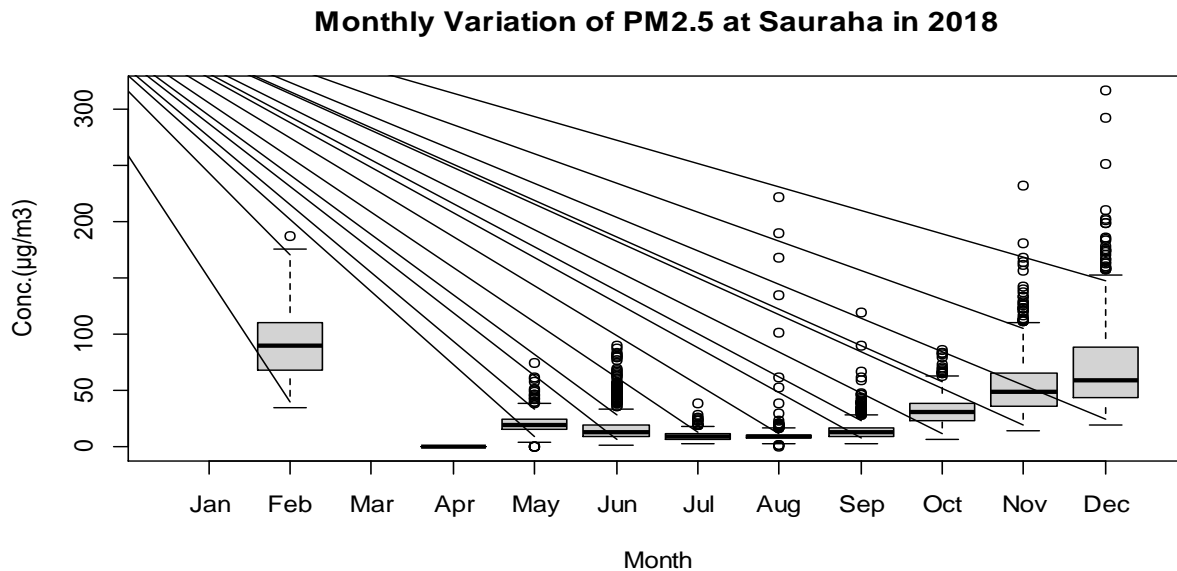


Figure 39: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Ambient concentration of average PM_{2.5} during monsoon (June-September), and post-monsoon (October-November) can be shown in the Figure 12 below. The concentration of PM_{2.5} was found

higher during post monsoon ($32.85 \mu\text{g}/\text{m}^3$) than monsoon season ($12.41 \mu\text{g}/\text{m}^3$) as shown in figure below. Figure 12: Seasonal variation of PM_{2.5}

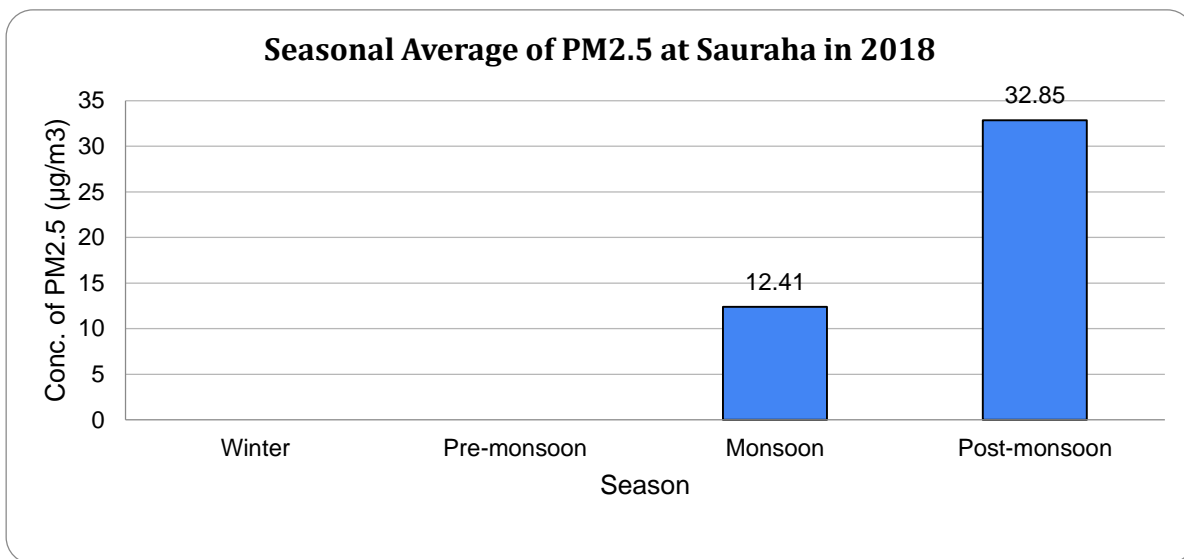


Figure 40: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations is shown below.

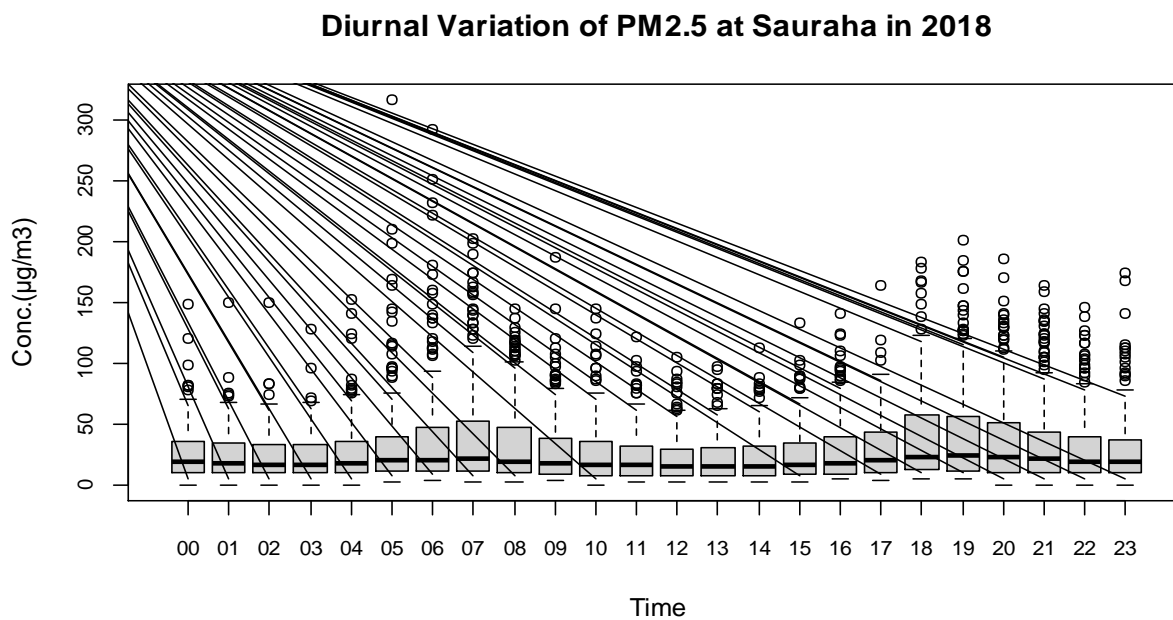


Figure 41: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2018 counts 252, of which 67 days exceed the NAAQS guideline as shown in figure below.

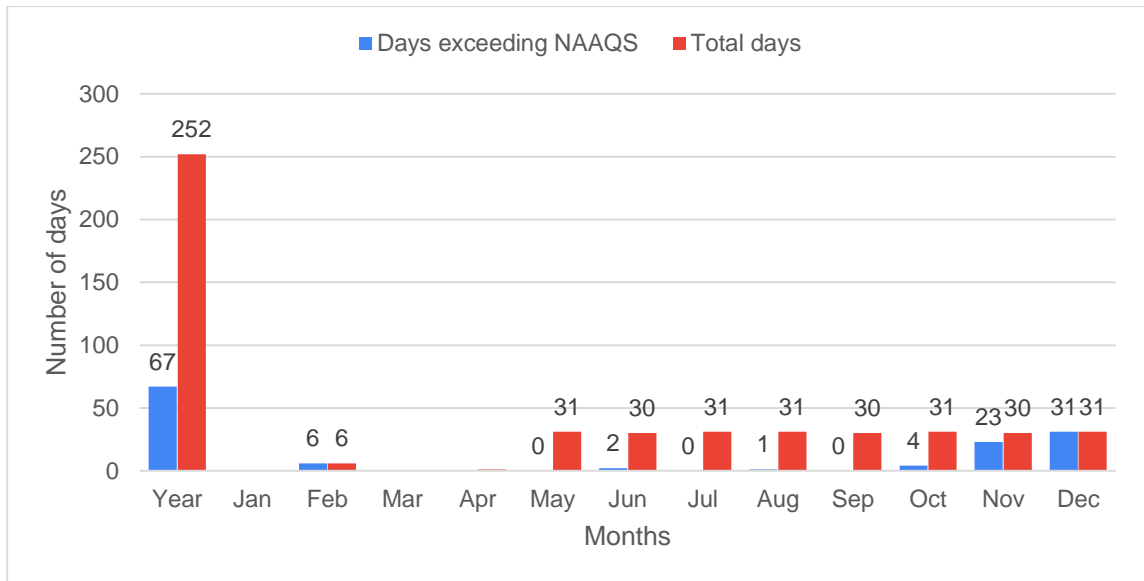


Figure 42: Compliance status of PM_{2.5}

2.2.4 Temporal variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Sauraha station was found to be 41 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below.

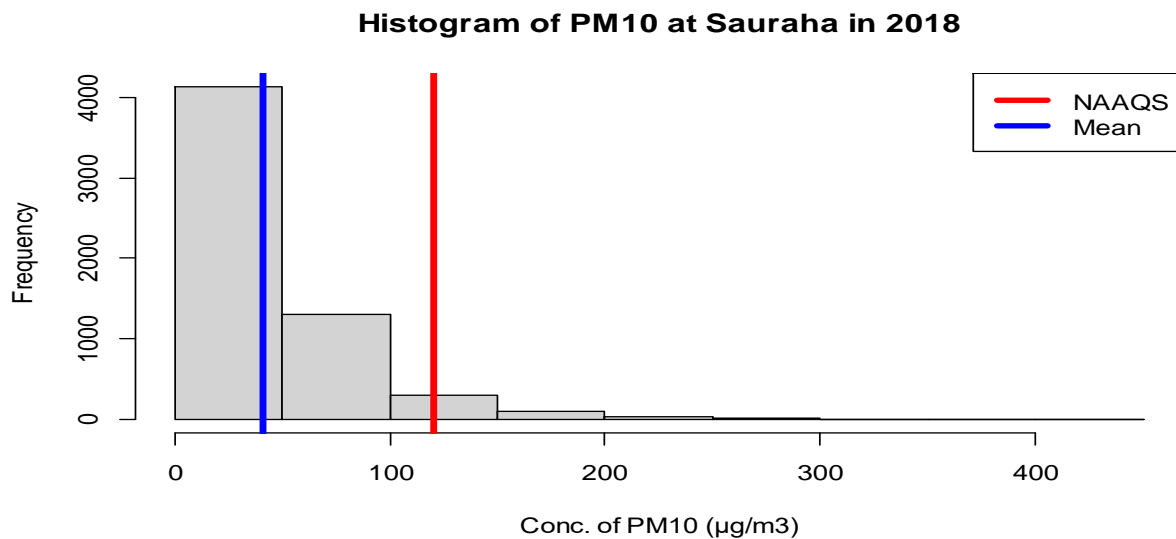


Figure 43: Histogram for the ambient concentration of PM₁₀.

Daily average of PM₁₀:

Daily average concentration of PM₁₀ was high during November and December and February and was found low during July and August as shown in figure below.

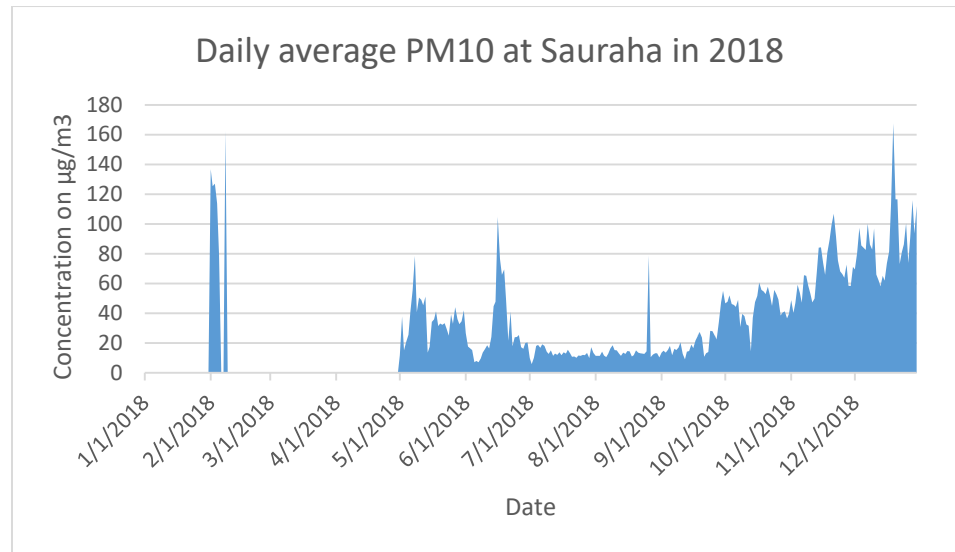


Figure 44: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest monthly average of PM_{2.5} was found during February (124.1 µg/m³) and July (13.19 µg/m³) respectively as shown in figure below.

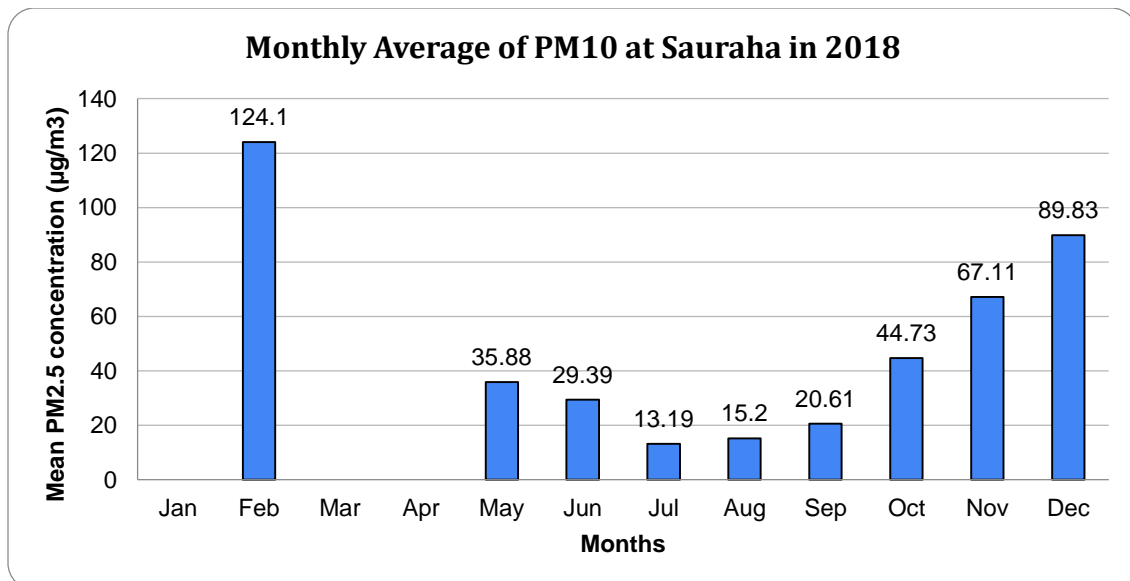


Figure 45: Monthly average of Pm₁₀

Monthly variation of PM₁₀

Variation in concentration of PM₁₀ was found more during February and low during April as shown in figure below.

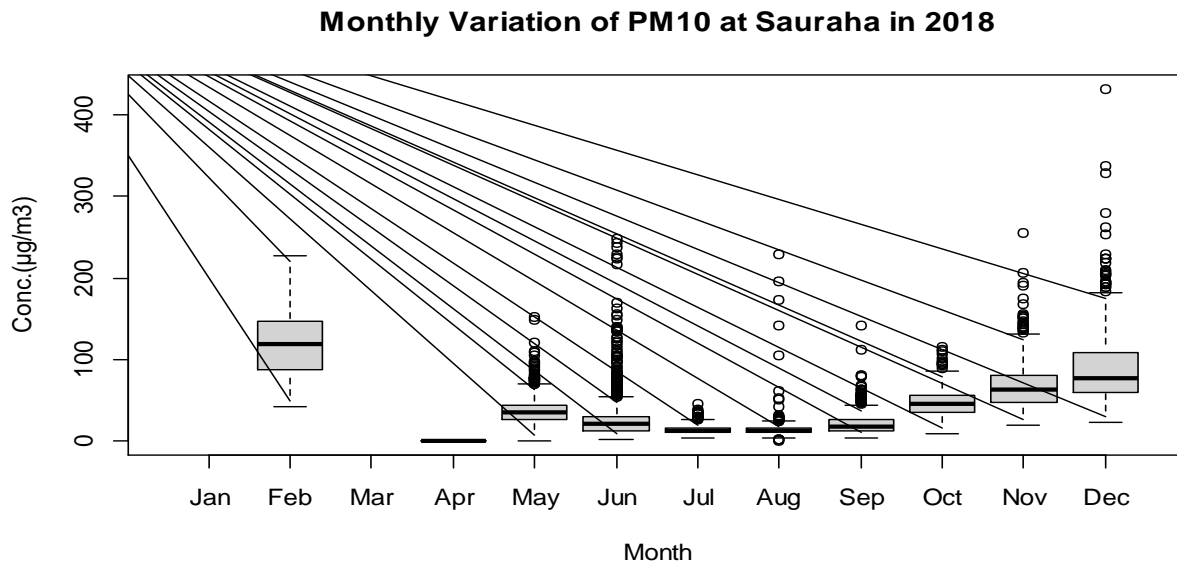


Figure 46: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

Ambient concentration of average PM₁₀ during monsoon (June-September), and post-monsoon (October-November) can be shown in the figure below. The concentration of PM₁₀ was found higher during post monsoon (44.15 µg/m³) than monsoon season (19.26 µg/m³) as shown in figure below.

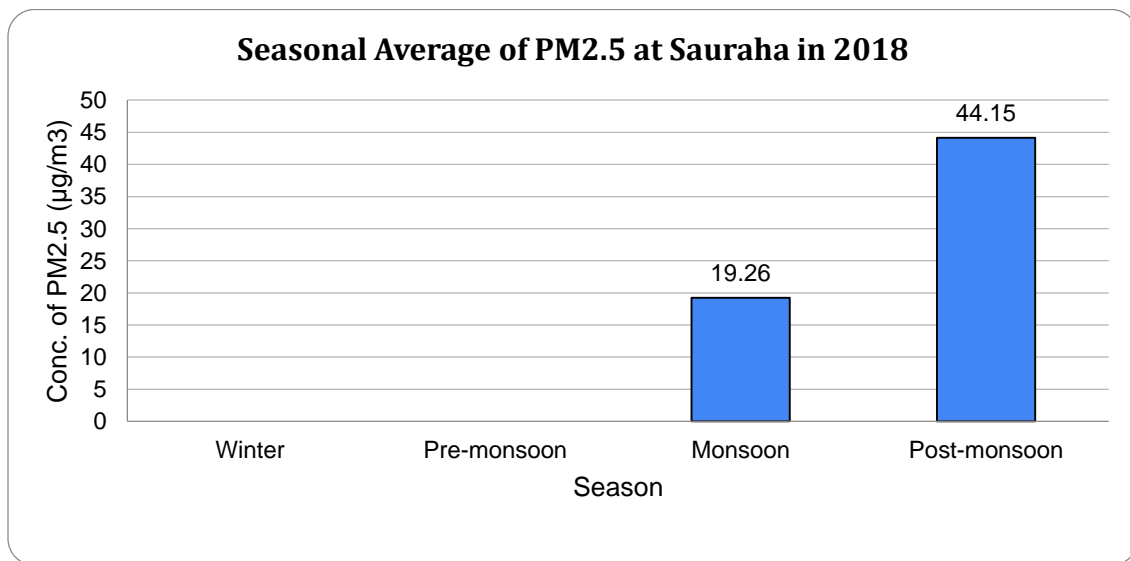


Figure 47: Seasonal variation of PM₁₀.

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown below.

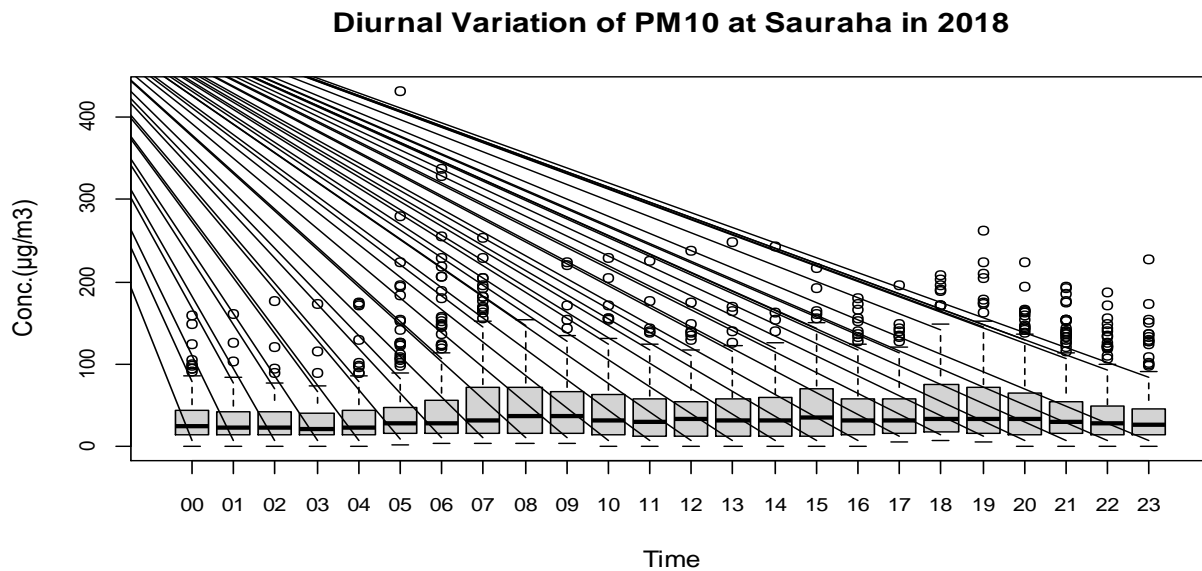


Figure 48: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2018 counts 252, of which 5 days exceed the NAAQS guideline as shown in figure below.

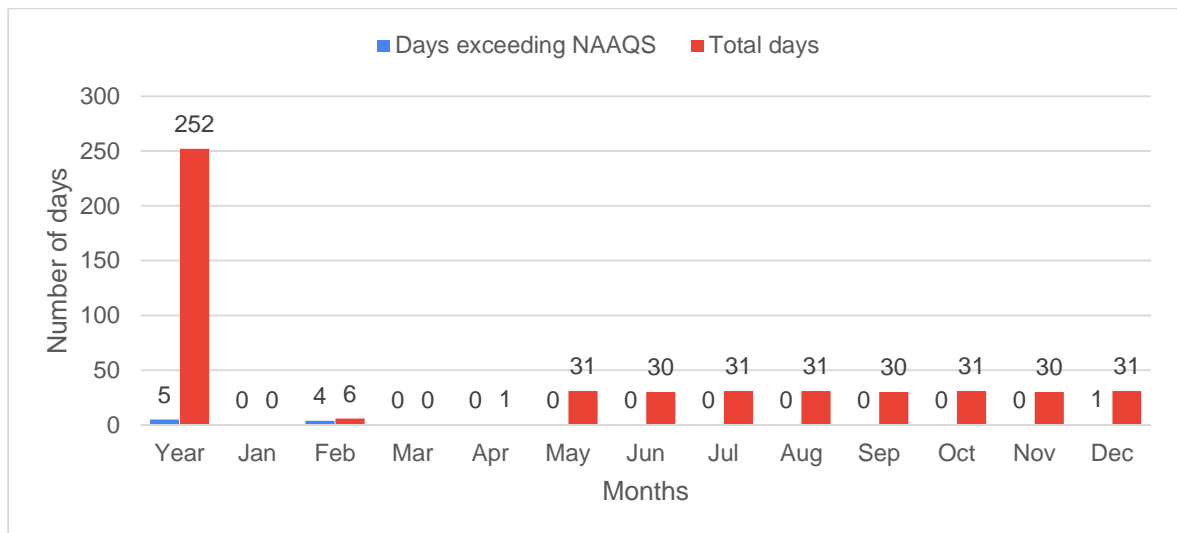


Figure 49: Compliance status of PM₁₀

2.2.5 Temporal Variation of TSP

Annual average of TSP

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

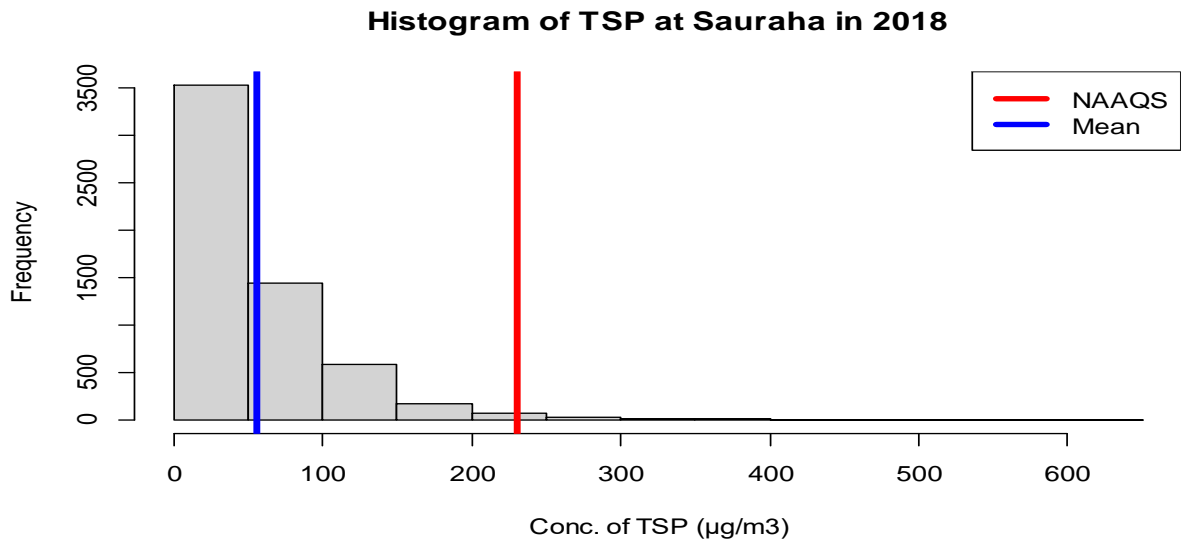


Figure 50: Histogram for the ambient concentration of TSP

Daily average of TSP:

Daily average concentration of TSP was high during February and December and was found low during July and August as shown in figure below.

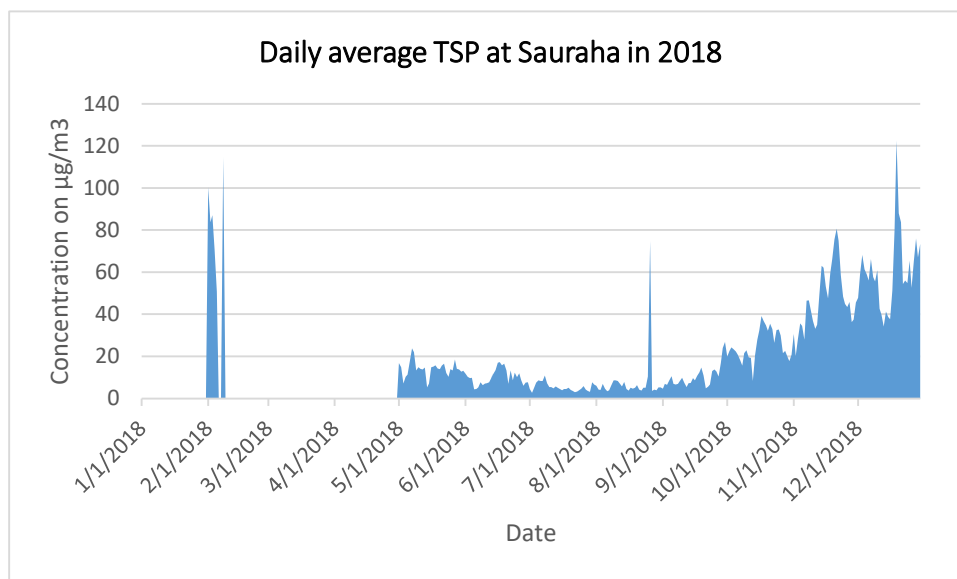


Figure 51: Daily average of TSP

Monthly average of TSP

The highest and the lowest monthly average of PM_{2.5} was found during February (84.47 µg/m³) and July (5.36 µg/m³) respectively as shown in figure below.

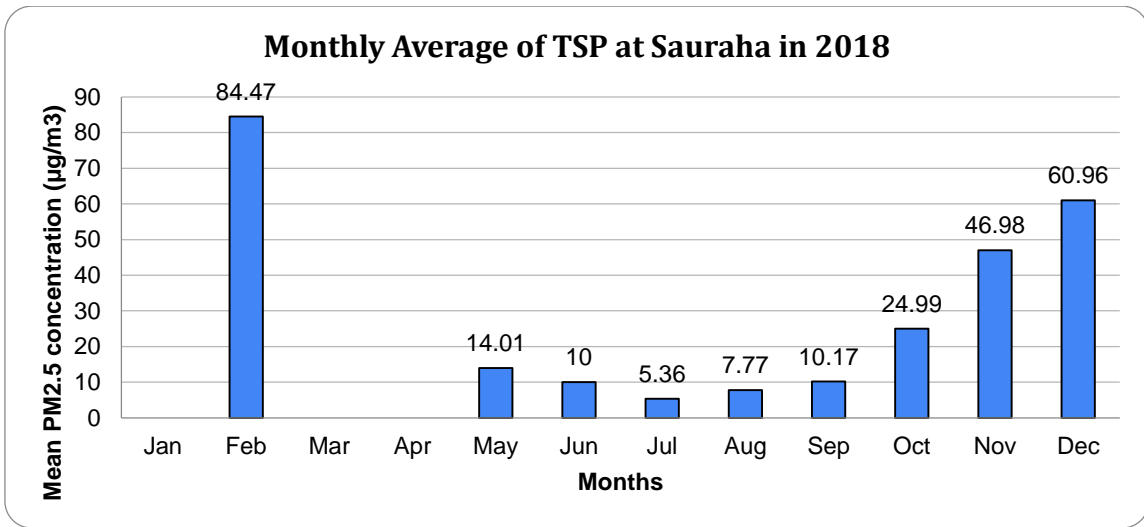


Figure 52: Monthly Average of TSP

Monthly variation of TSP

Variation in concentration of TSP was found more during February and December and low during July, August as shown in figure below.

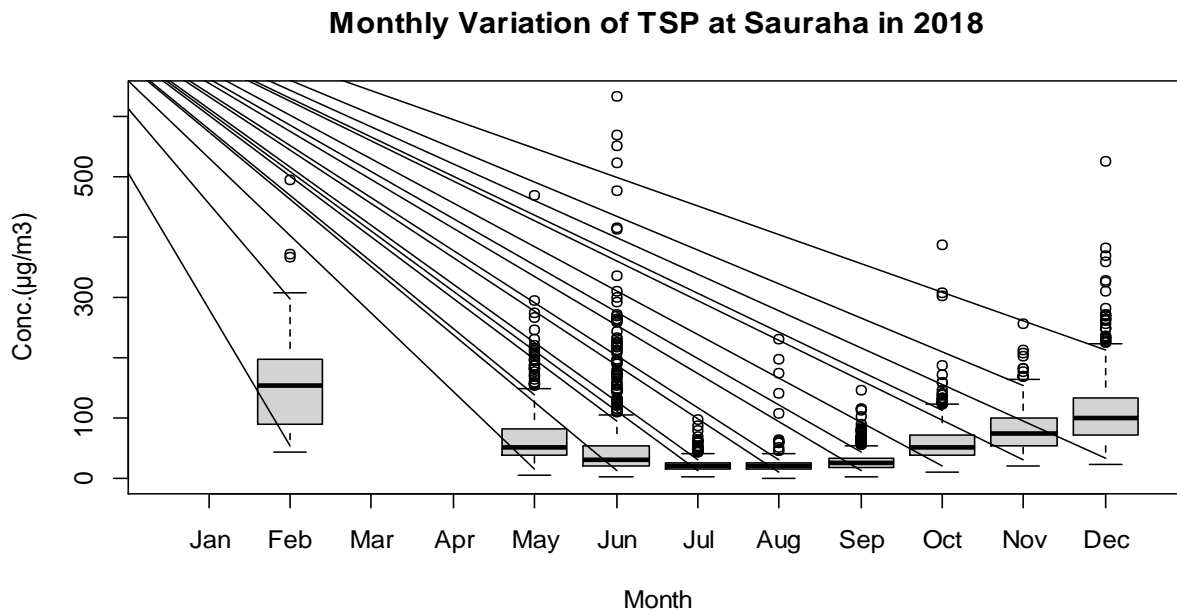


Figure 53: Monthly Variation of TSP.

Seasonal variation of average TSP concentration

Ambient concentration of average TSP during monsoon (June-September), and post-monsoon (October-November) can be shown in the Figure 26 below. The concentration of TSP was found higher during post monsoon ($171.2 \mu\text{g}/\text{m}^3$) than monsoon season ($32.56 \mu\text{g}/\text{m}^3$) as shown in figure below.

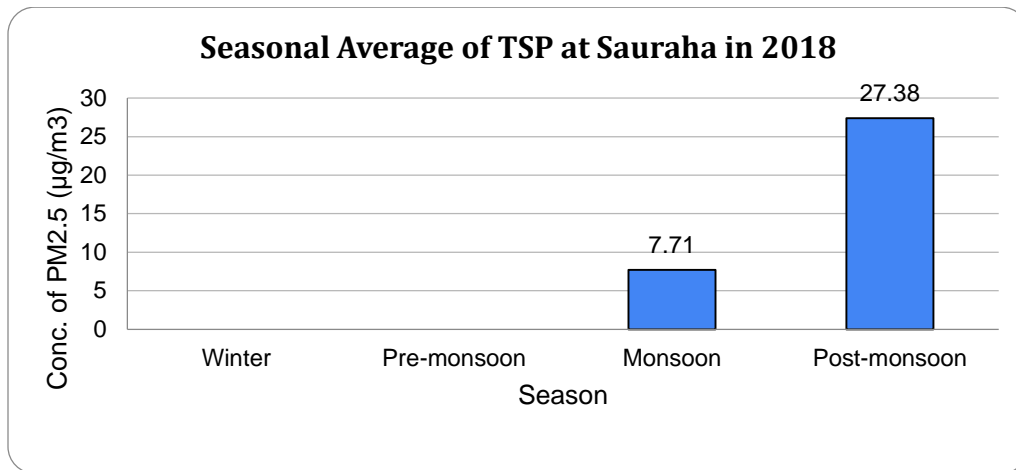


Figure 54: Seasonal variation of TSP

Diurnal variation of average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the Figure 27 below.

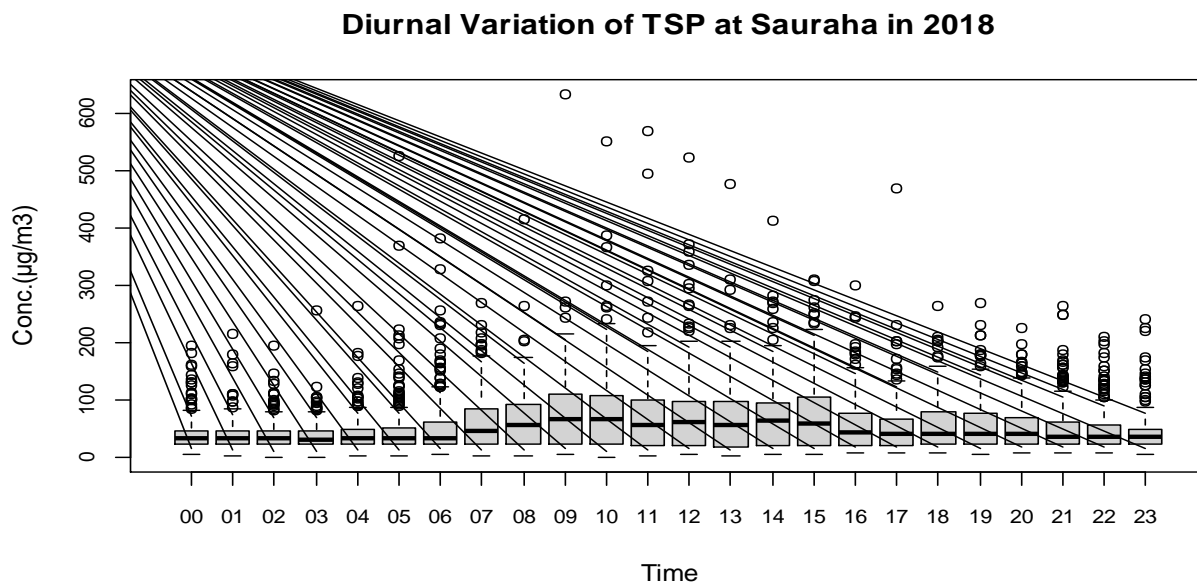


Figure 55: Diurnal Variation of TSP

Compliance status of TSP

The total days of PM_{2.5} monitored in the year 2018 counts 251, of which 24 days exceed the NAAQS guideline as shown in figure below.

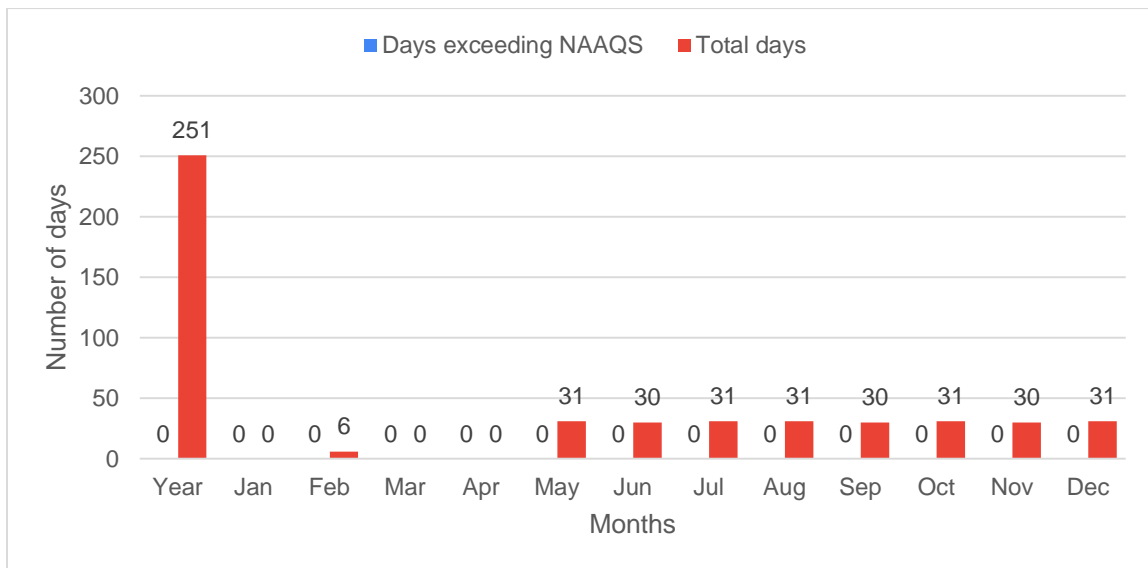


Figure 56: Compliance status of TSP

2.3 Air Quality Status, 2018

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

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

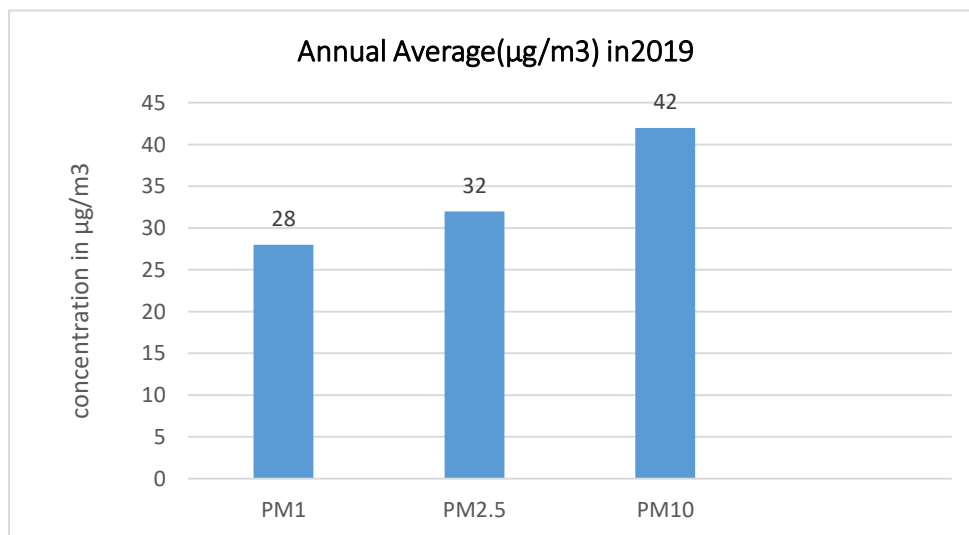


Figure 57: Annual average of Pm₁, PM_{2.5}, PM₁₀ and TSP in 2020

Annual average of PM₁

The annual average of PM₁ at Bhimdatta station was found to be 45.16 µg/m³. Histogram of hourly average PM₁ is shown in the figure below.

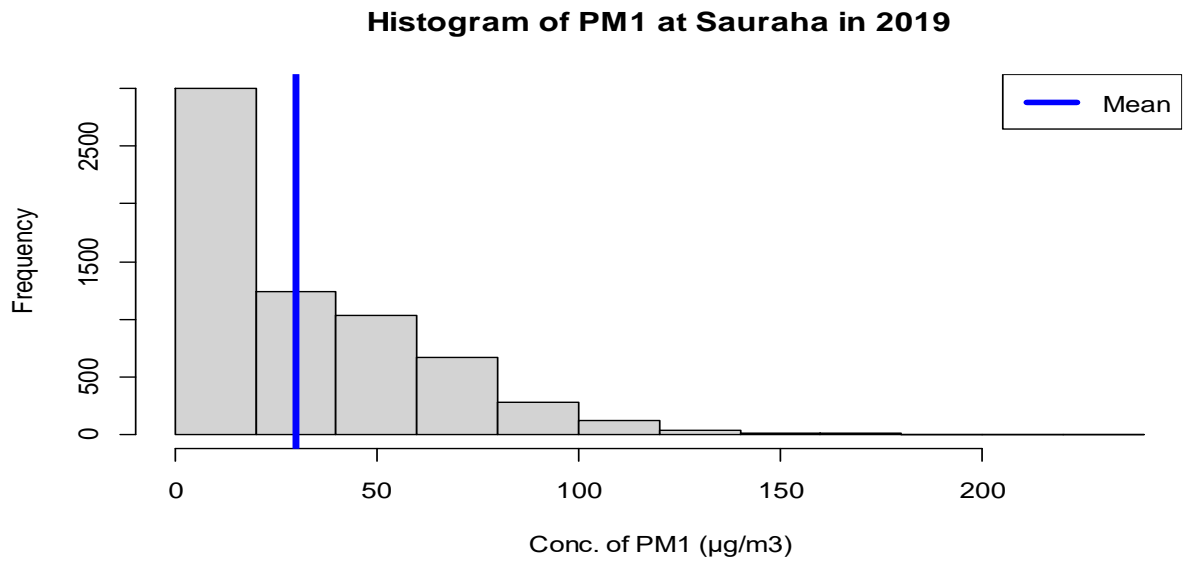


Figure 58: Histogram of PM₁

Daily average of PM₁:

Daily average concentration of PM₁ was high during November and was found low during August (Figure 9).

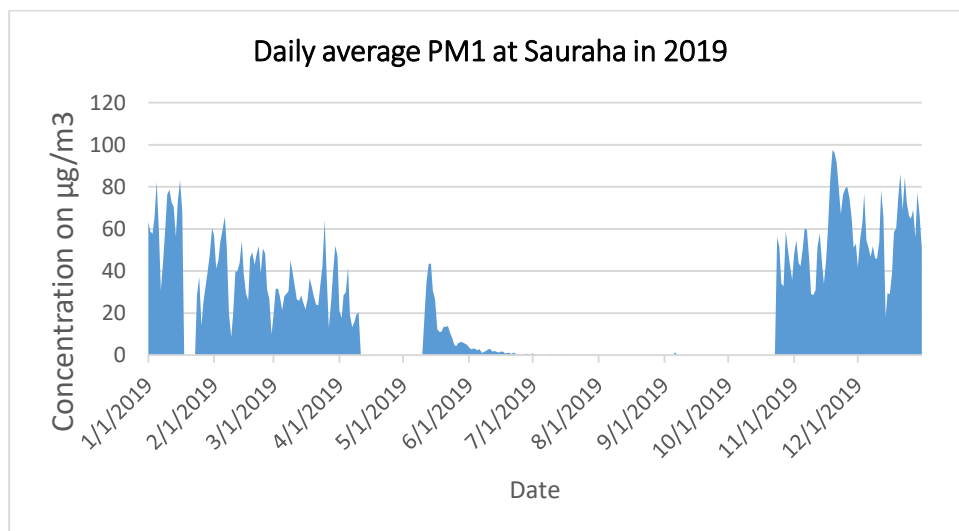


Figure 59: Daily average of PM₁

Monthly average of PM₁

The highest and the lowest monthly average of PM₁ was found during November (59.36 µg/m³) and July (0.24 µg/m³) respectively as shown in figure below.

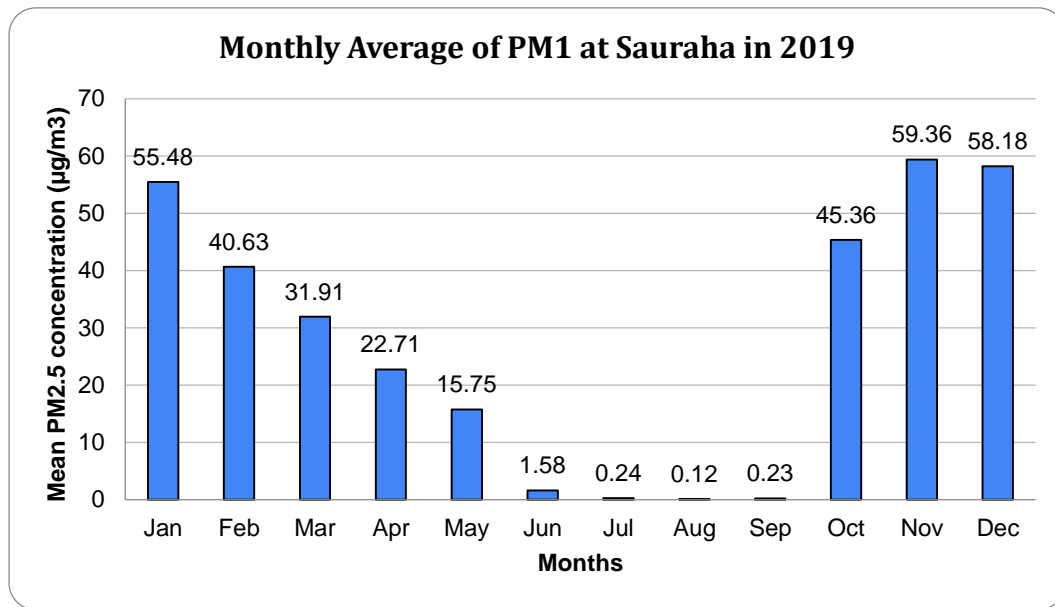


Figure 60: Monthly Average of PM₁

Monthly variation of PM₁

Variation in concentration of PM₁ was found more during December whereas low during June as shown in figure below.

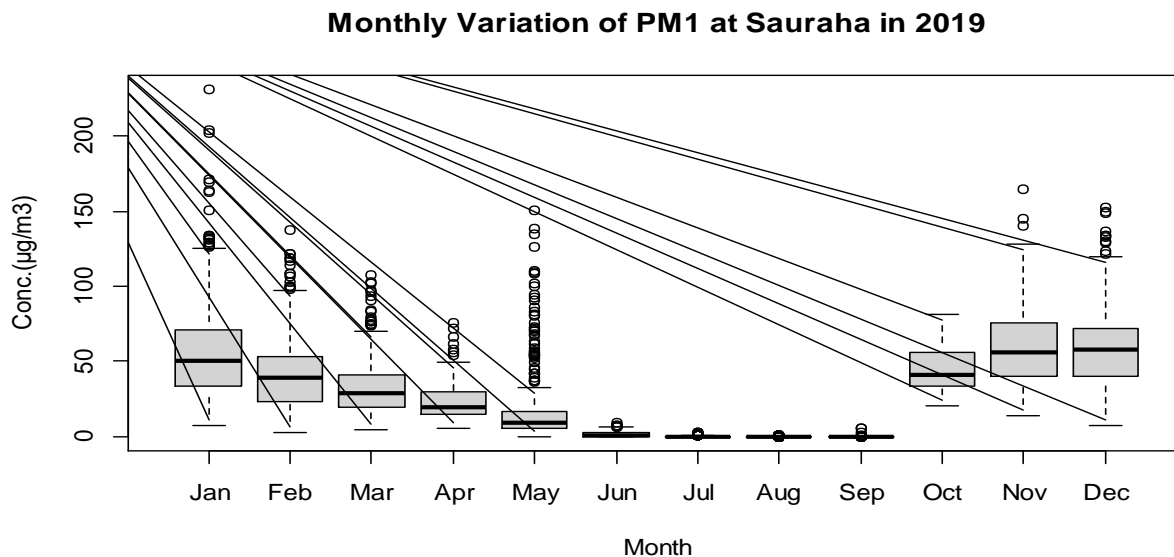


Figure 61: Monthly Variation of PM₁

Seasonal variation of average PM₁ concentration

Ambient concentration of average PM₁ during monsoon (June-September), and post-monsoon (October-November) can be shown in the Figure 12 below. The concentration of PM₁ was found higher during Winter (46.97 $\mu\text{g}/\text{m}^3$) followed by post monsoon, premonsoon and Monsoon (10.8 $\mu\text{g}/\text{m}^3$) as shown in figure below.

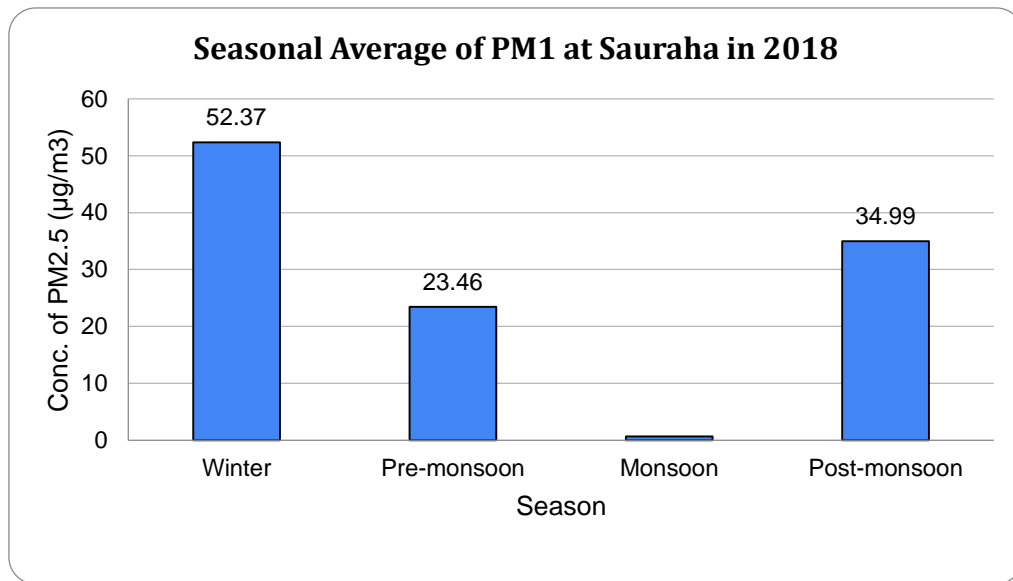


Figure 62: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown below.

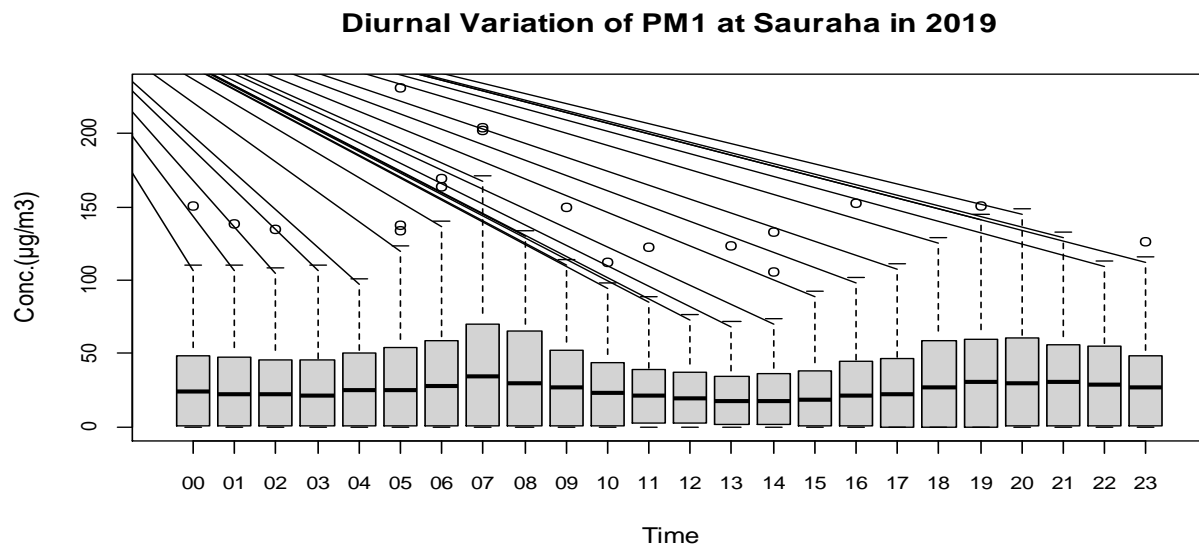


Figure 63: Diurnal variation of PM₁

2.3.2 Temporal Variation of PM2.5

Annual average of PM_{2.5}

The annual average of PM_{2.5} at Bhimdatta station was found to be 41 µg/m³. Histogram of hourly average PM_{2.5} is shown in the figure below.

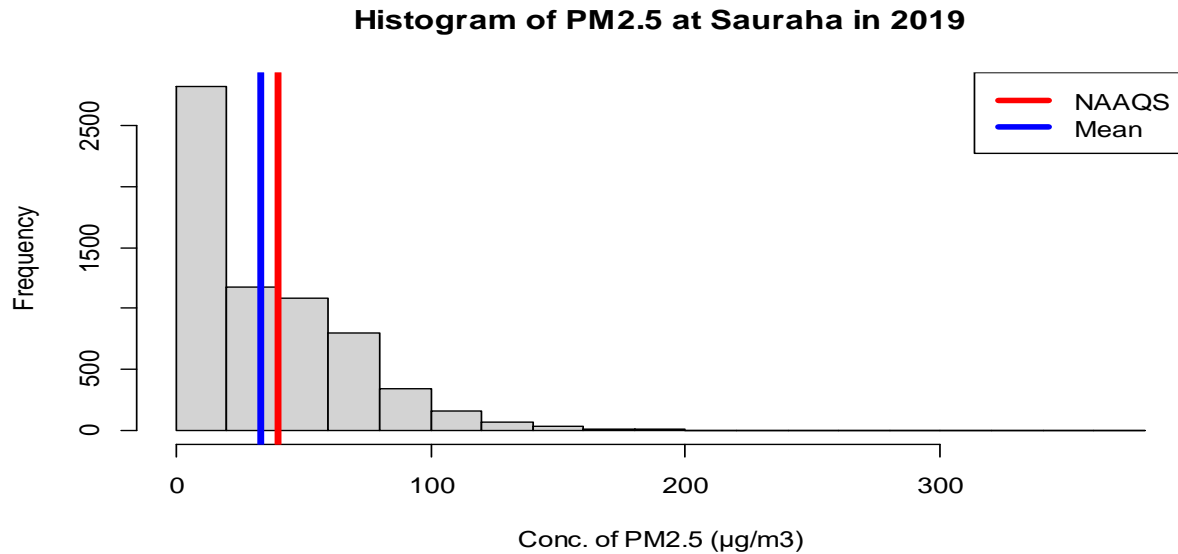


Figure 64: Histogram of PM_{2.5}.

Daily average of PM_{2.5}:

Daily average concentration of PM_{2.5} was high during November and was found low during August as shown in figure below.

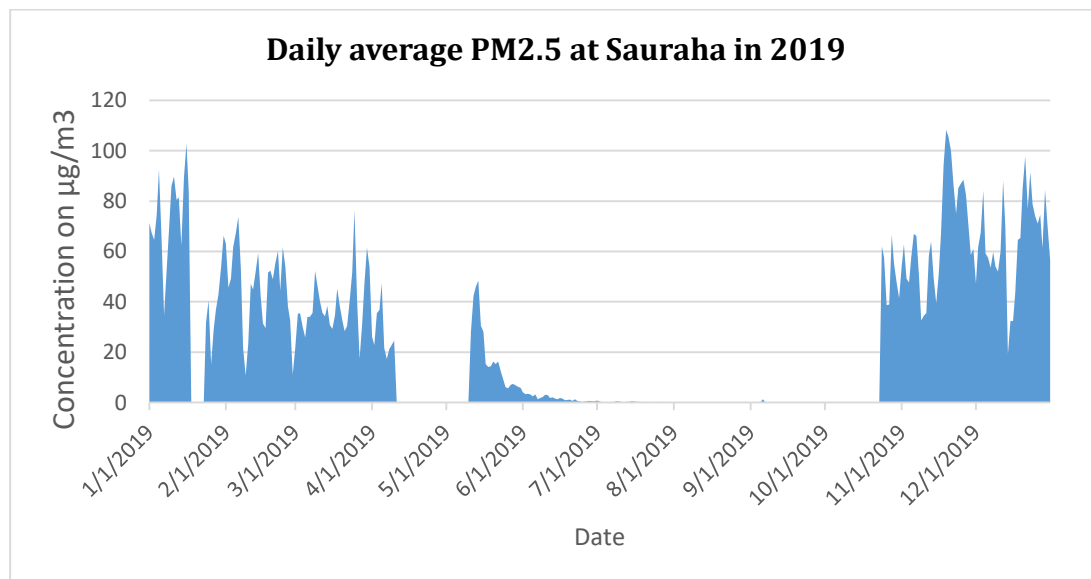


Figure 65: Daily average of PM_{2.5}

Monthly average of PM_{2.5}

The highest and the lowest monthly average of PM_{2.5} was found during December (90.53 $\mu\text{g}/\text{m}^3$) and July, August respectively as shown in figure below.

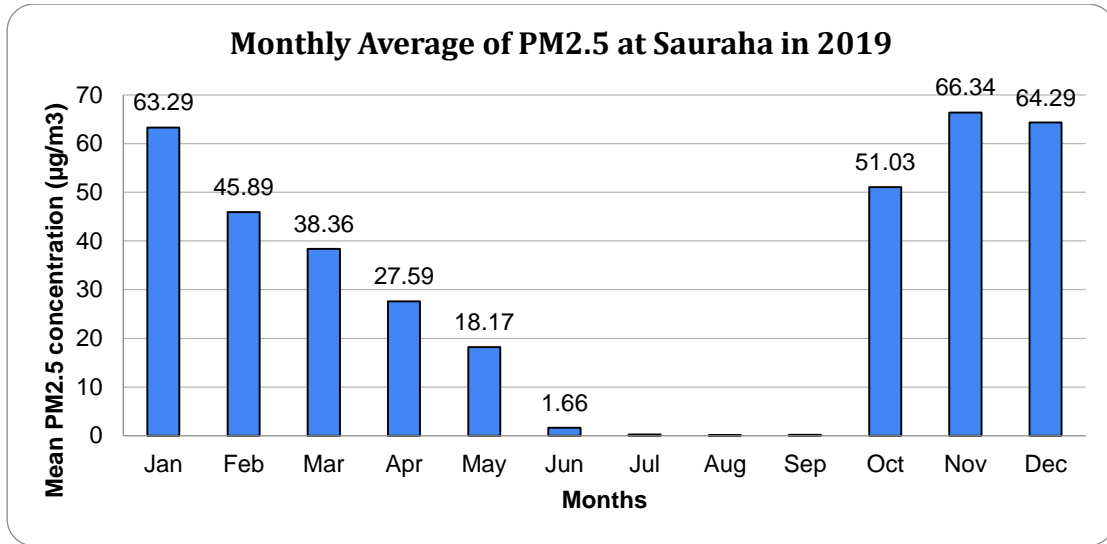


Figure 66: Monthly Average of PM_{2.5}

Monthly variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found more during January, November and December whereas low during July, August. As shown in figure below.

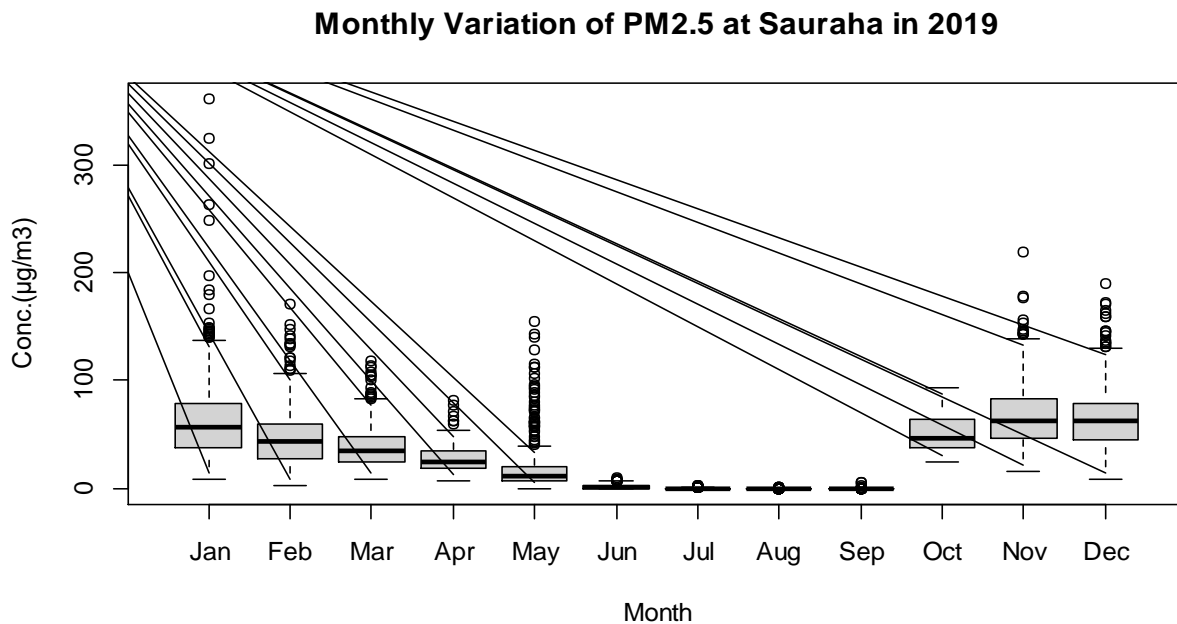


Figure 67: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

The concentration of PM_{2.5} was found higher during Winter(59.73) ,followed by post monsoon (39.2 $\mu\text{g}/\text{m}^3$), ,premonsoon(28.04)and monsoon season as shown in figure below.

Figure 12: Seasonal variation of PM_{2.5}

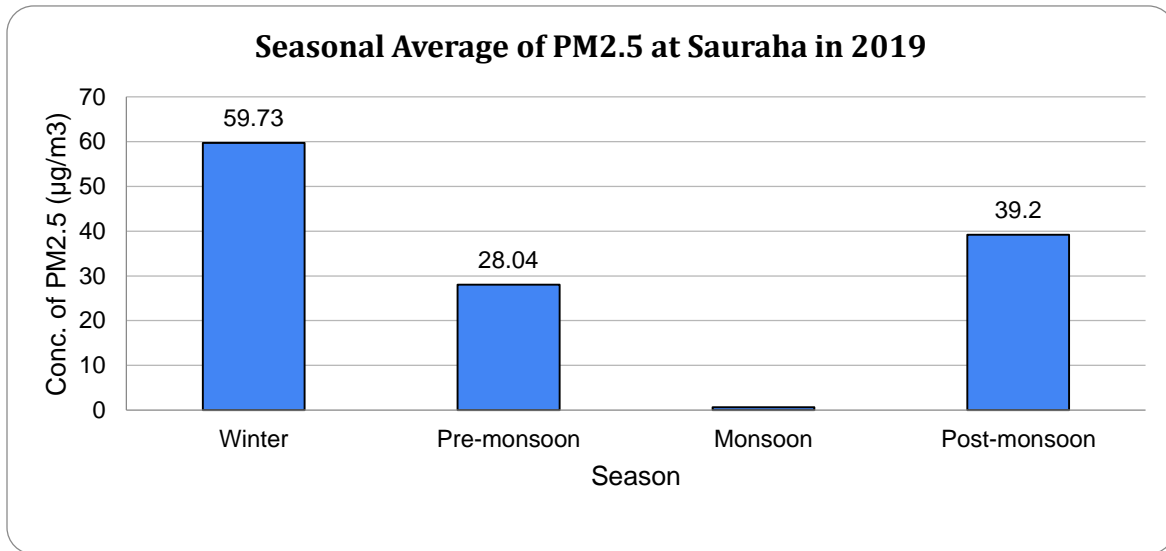


Figure 68: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations can be shown in the Figure 13 below.

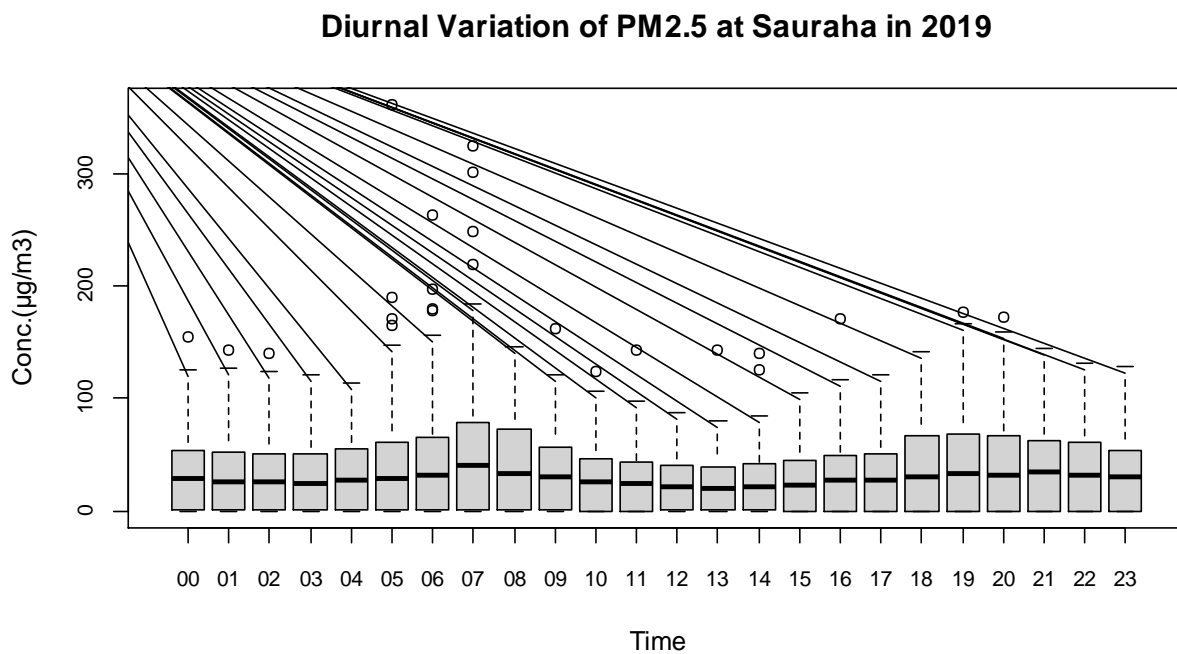


Figure 69: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2019 counts 287, of which 115 days exceeded the NAAQS guideline as shown in figure below.

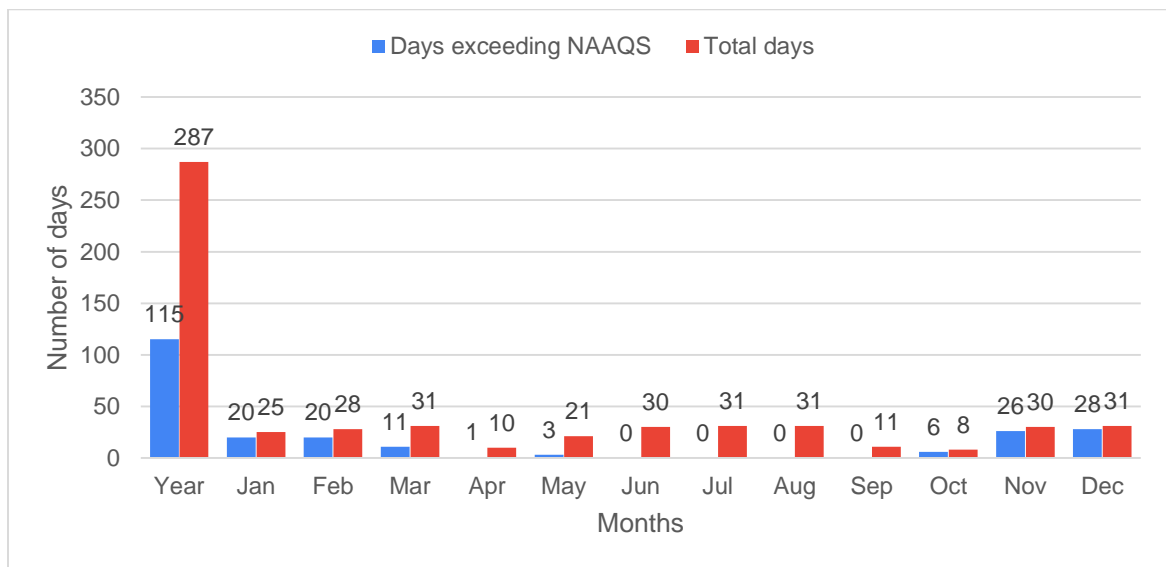


Figure 70: Compliance status of PM_{2.5}

2.3.3 Temporal Variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Bhimdatta station was found to be 42 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below as shown in figure below.

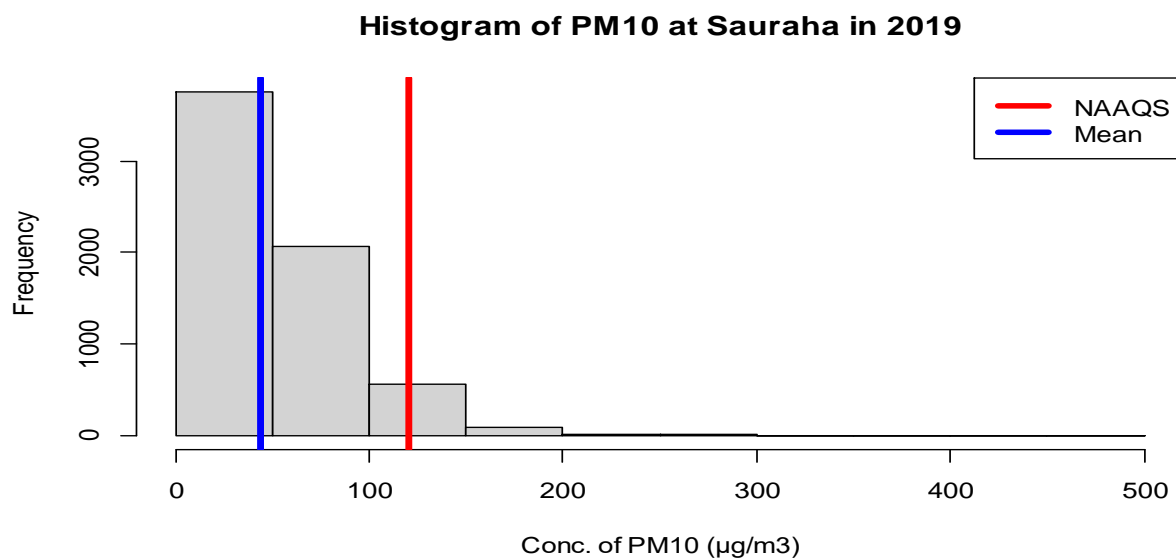


Figure 71: Histogram for the ambient concentration of PM₁₀.

Daily average of PM₁₀:

Daily average concentration of PM₁₀ was high during January, November and December and was found low during July and August as shown in figure below.

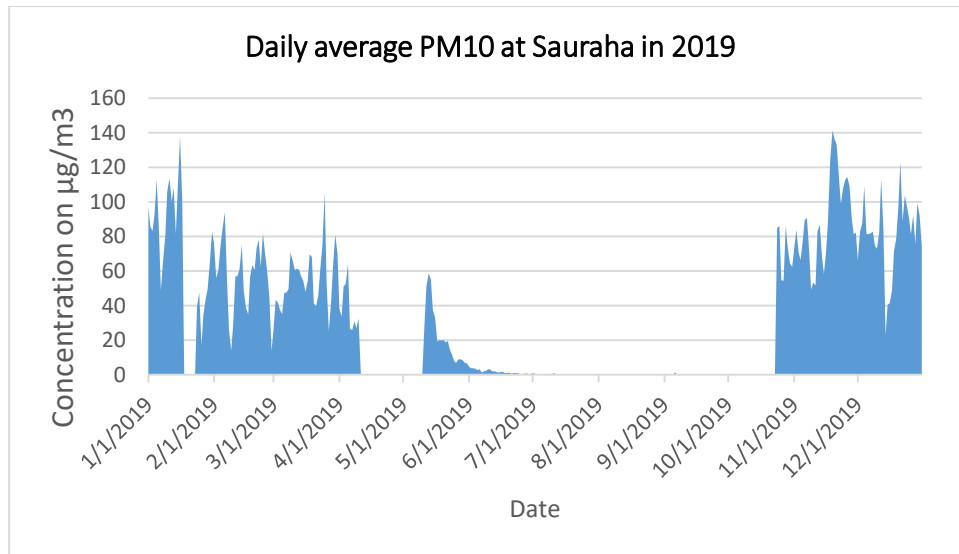


Figure 72: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest monthly average of PM_{2.5} was found during November (89.53 µg/m³) and monsoon . respectively as shown in figure below.

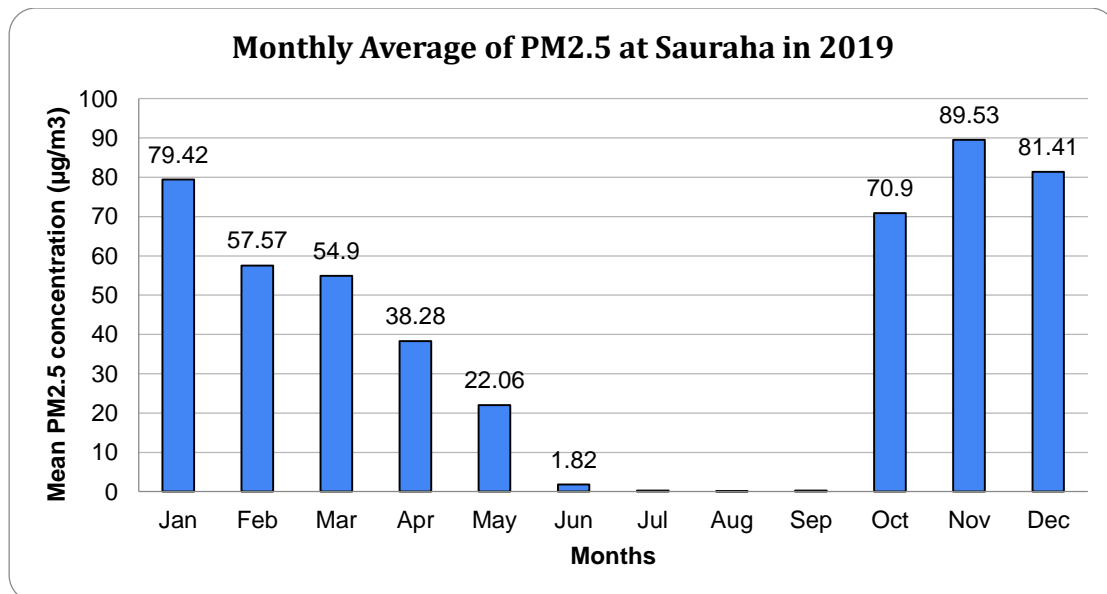


Figure 73: Monthly average of Pm₁₀

Monthly variation of PM₁₀

Variation in concentration of PM₁₀ is shown below.

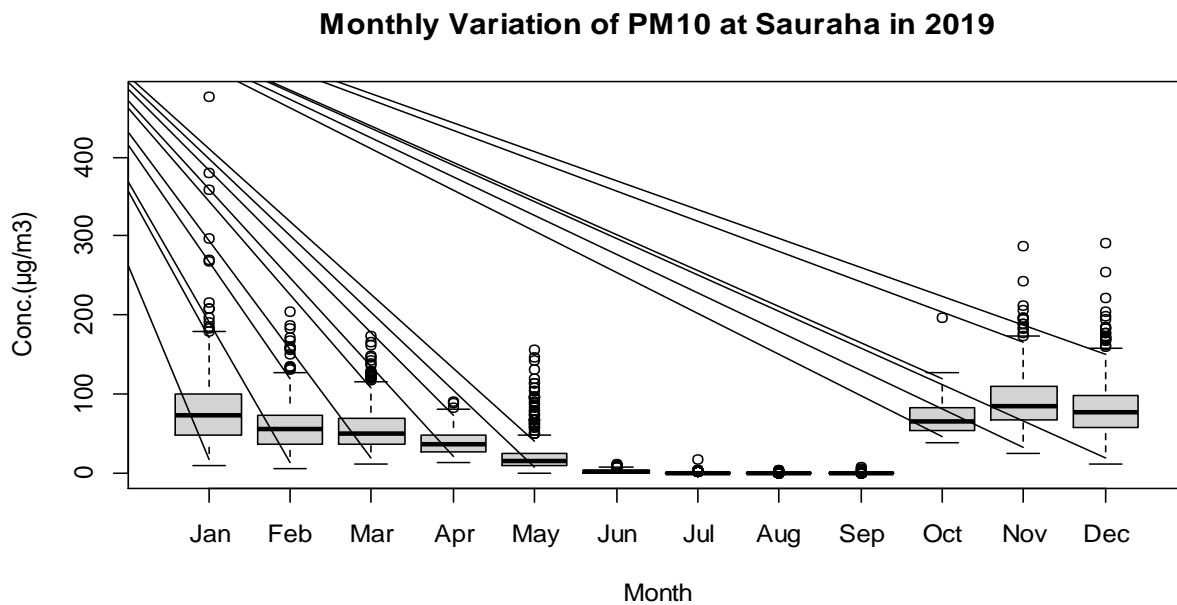


Figure 74: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

The concentration of PM₁₀ was found higher during winter followed by post monsoon (53.36 µg/m³), premonsoon(38.42) and monsoon than monsoon season as shown in figure below.

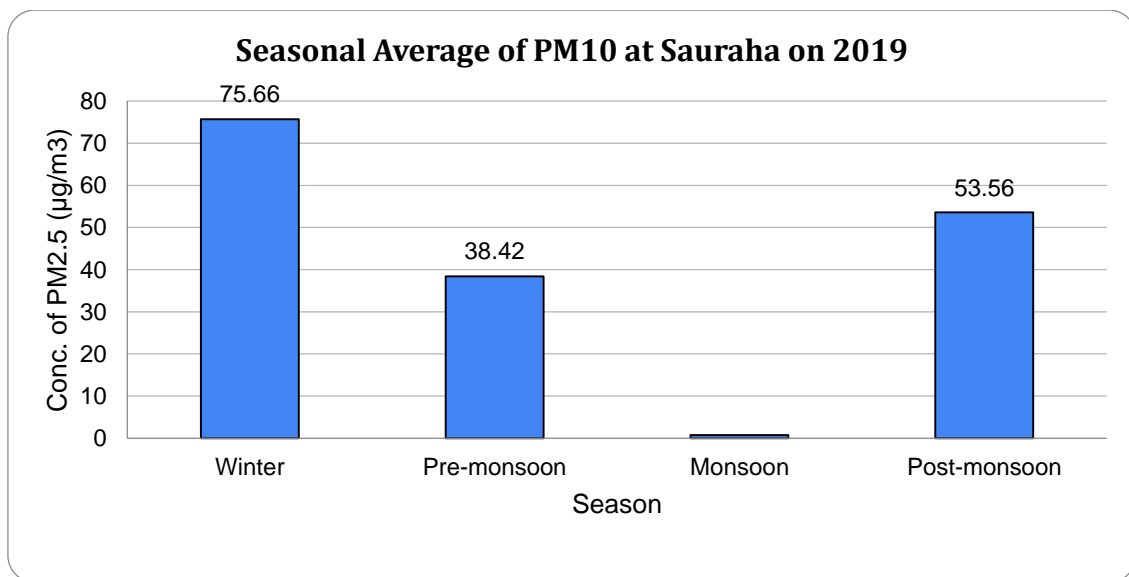


Figure 75: Seasonal variation of PM₁₀.

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown below.

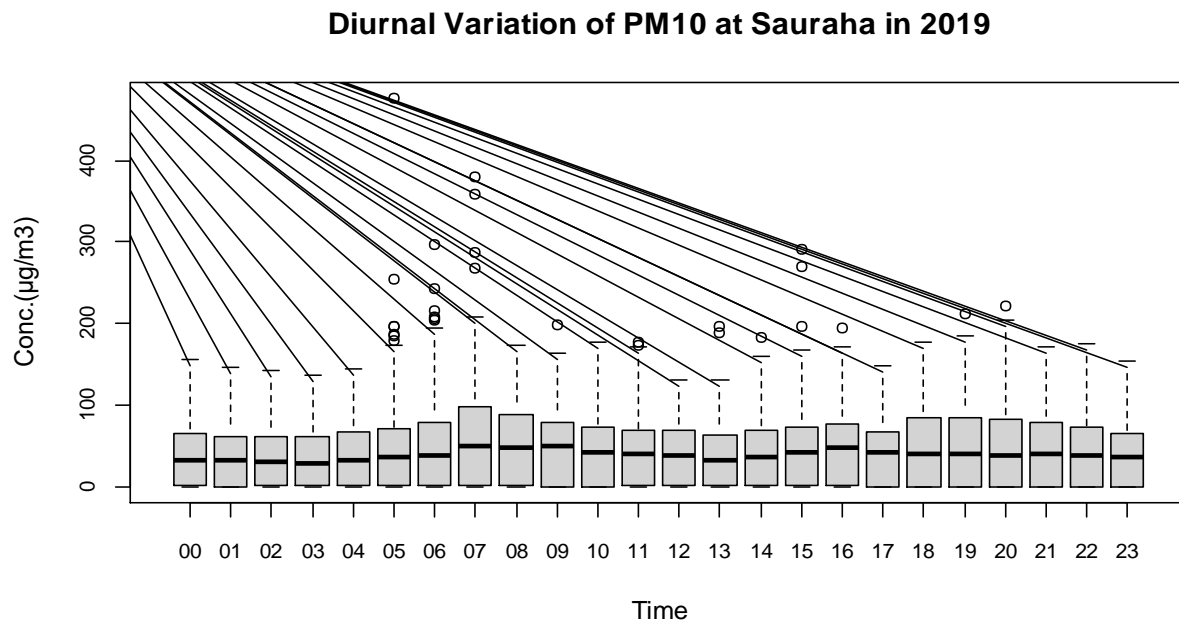


Figure 76: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2019 counts 287, of which 6 days exceed the NAAQS guideline as shown in figure below.

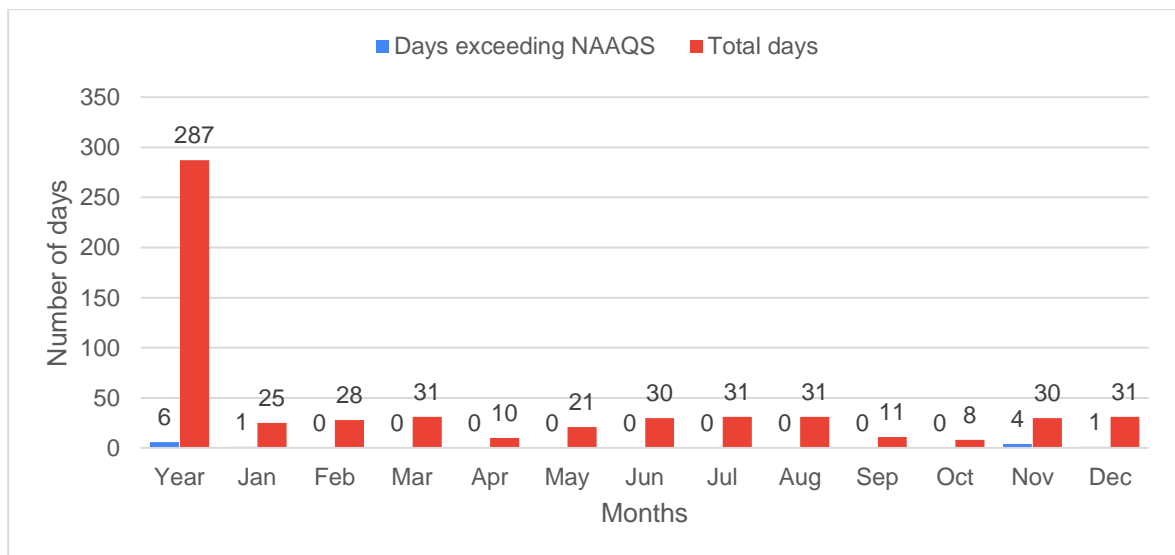


Figure 77: Compliance status of PM₁₀

2.3.4 Temporal Variation of TSP

Annual average of TSP

The annual average of TSP at Sauraha station was found to be $138.66 \mu\text{g}/\text{m}^3$. Histogram of hourly average TSP is shown in the figure below as shown in figure below.

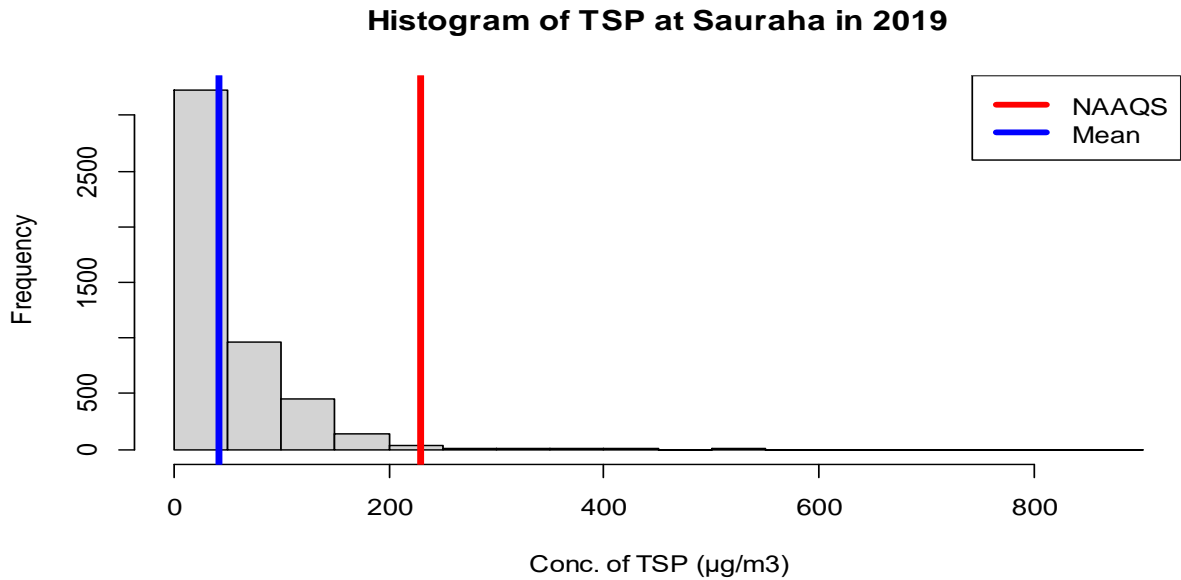


Figure 78: Histogram for the ambient concentration of TSP

Daily average of TSP:

Daily average concentration of TSP was high during November and December and was found low during July and August as shown in figure below.

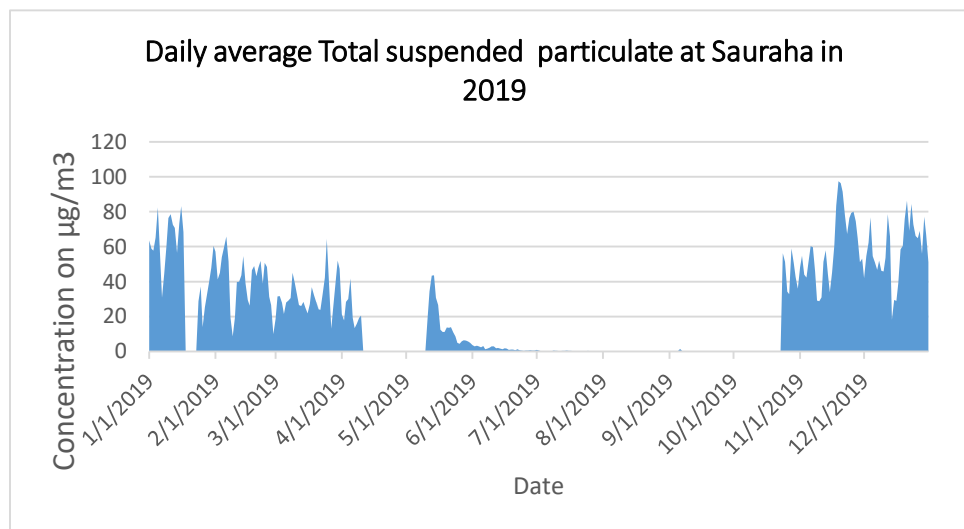


Figure 79: Daily average of TSP

Monthly average of TSP

The highest and the lowest monthly average of TSP was found during November (59.36 $\mu\text{g}/\text{m}^3$) and monsoon month respectively as shown in figure below.

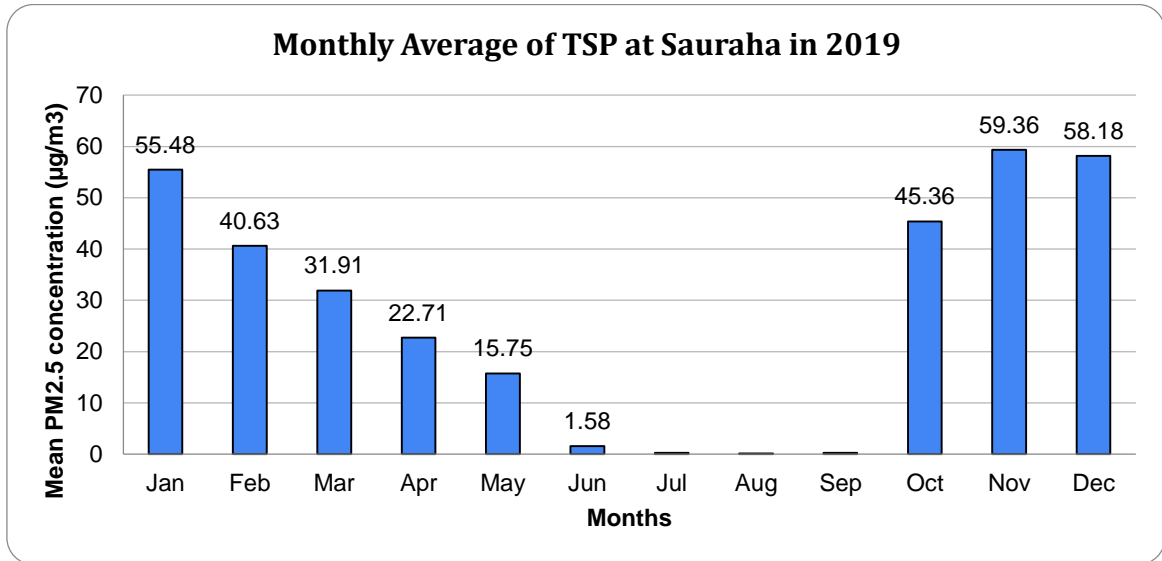


Figure 80: Monthly Average of TSP

Monthly variation of TSP

Variation in concentration of TSP was found more during October and low during June as shown in figure below.

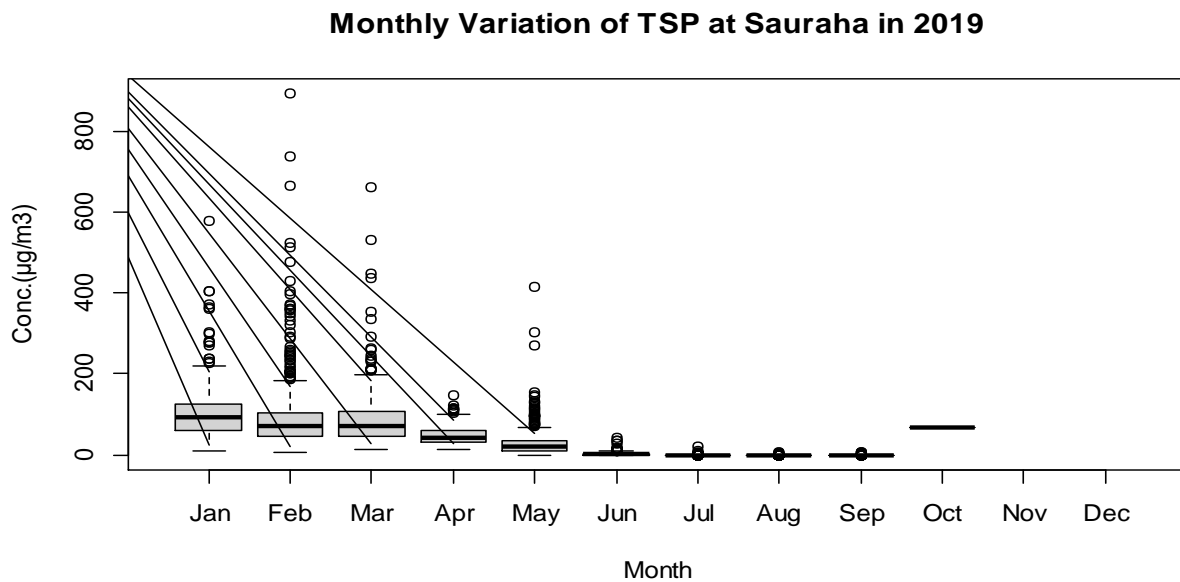


Figure 81: Monthly Variation of TSP.

Seasonal variation of average TSP concentration

Ambient concentration of average TSP are shown in the Figure 26 below. The concentration of TSP was found higher during winter followed by post monsoon, pre monsoon and monsoon season as shown in figure below.

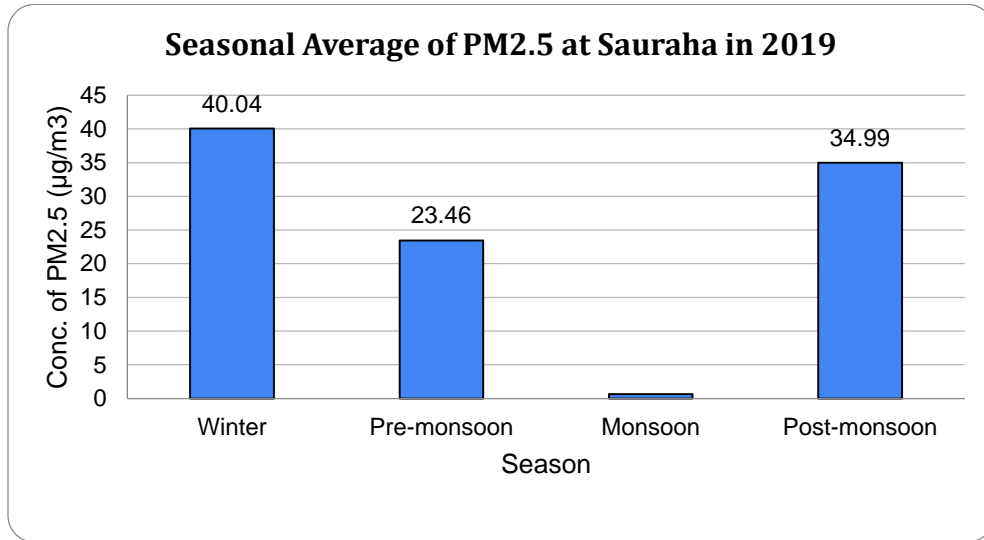


Figure 82: Seasonal variation of TSP

Diurnal variation of average TSP concentration

The diurnal variation of average TSP concentrations can be shown in the Figure 27 below. The variation in TSP concentration was high at around 5 pm and low at 2 to 3 am.

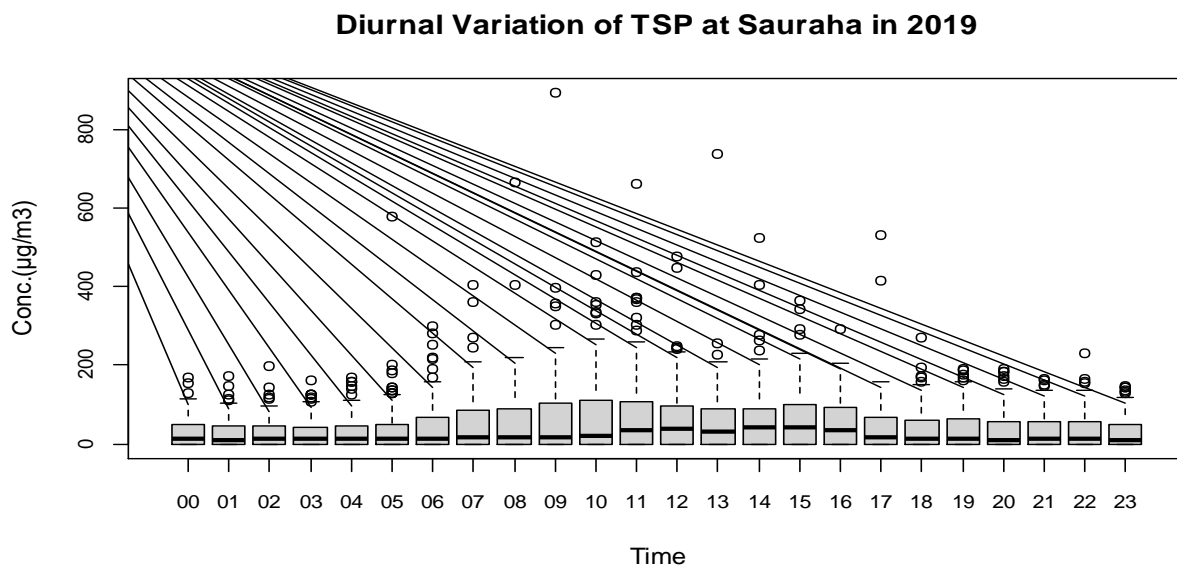


Figure 83: Diurnal Variation of TSP

Compliance status of TSP

The total days of PM_{2.5} monitored in the year 2019 counts 161, of which none of the days exceed the NAAQS guideline as shown in figure below.

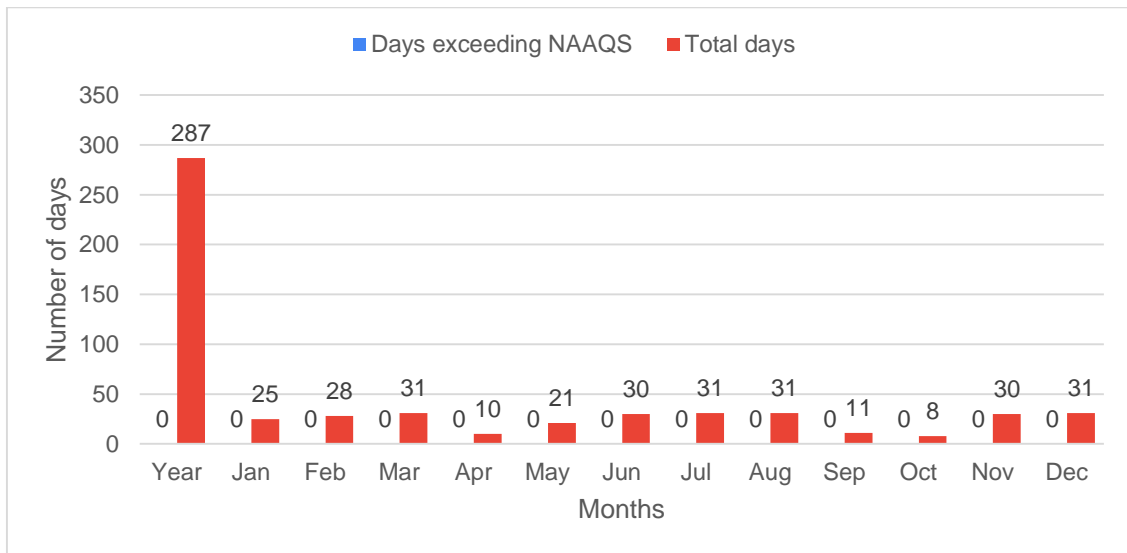


Figure 84: Compliance status of TSP

2.4 Air quality status, 2020

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

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

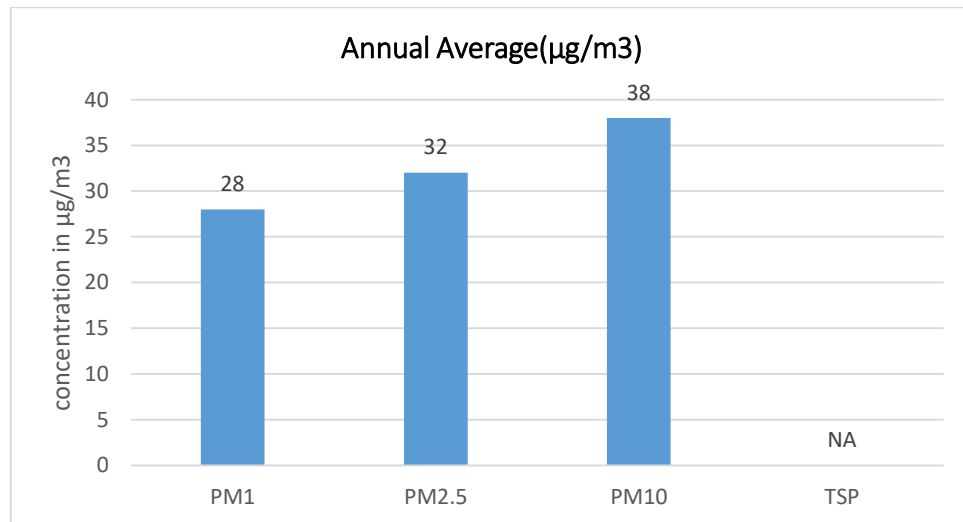


Figure 85: Annual average of Pm₁, PM_{2.5}, PM₁₀ and TSP in 2020

2.4.2 Temporal Variation of PM₁

Annual average of PM₁

The annual average of PM₁ at Sauraha station was found to be 28 µg/m³. Histogram of hourly average PM₁ is shown in the figure below.

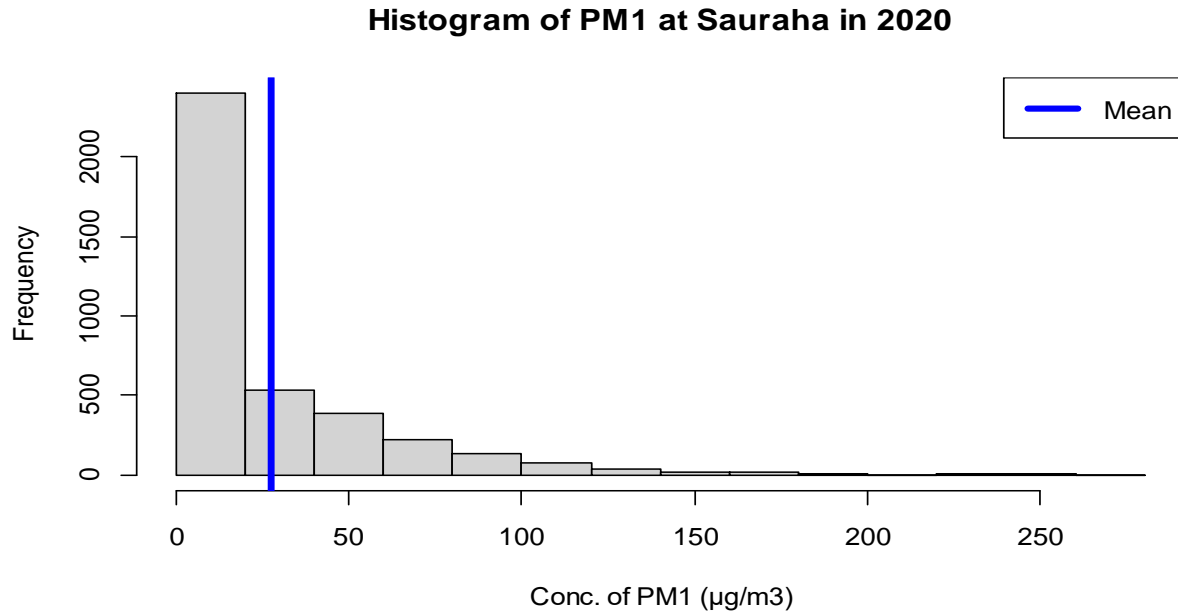


Figure 86: Histogram of PM₁

Daily average of PM₁:

Daily average concentration of PM₁ was high during December and was found low during August as shown in figure below.

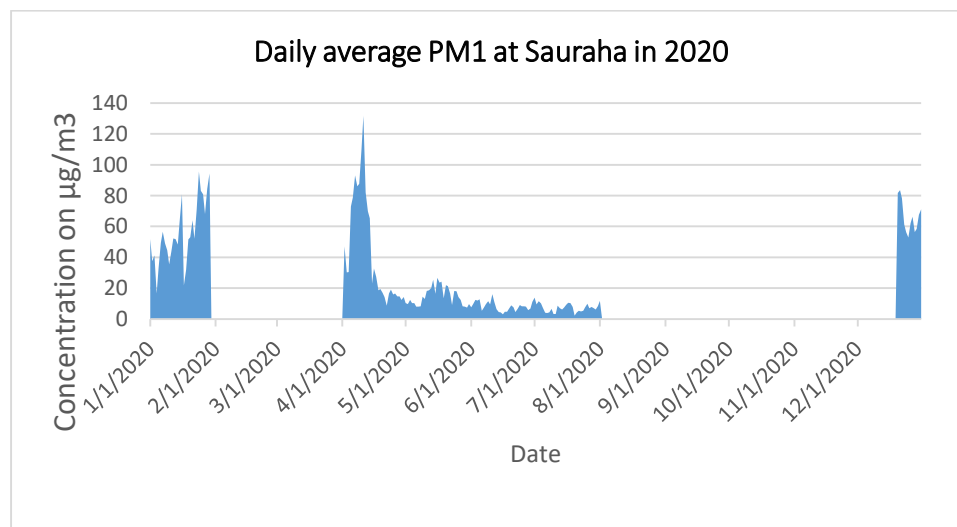


Figure 87: Daily average of PM₁

Monthly average of PM₁

The highest monthly average of PM₁ was found during December (65.86 $\mu\text{g}/\text{m}^3$).

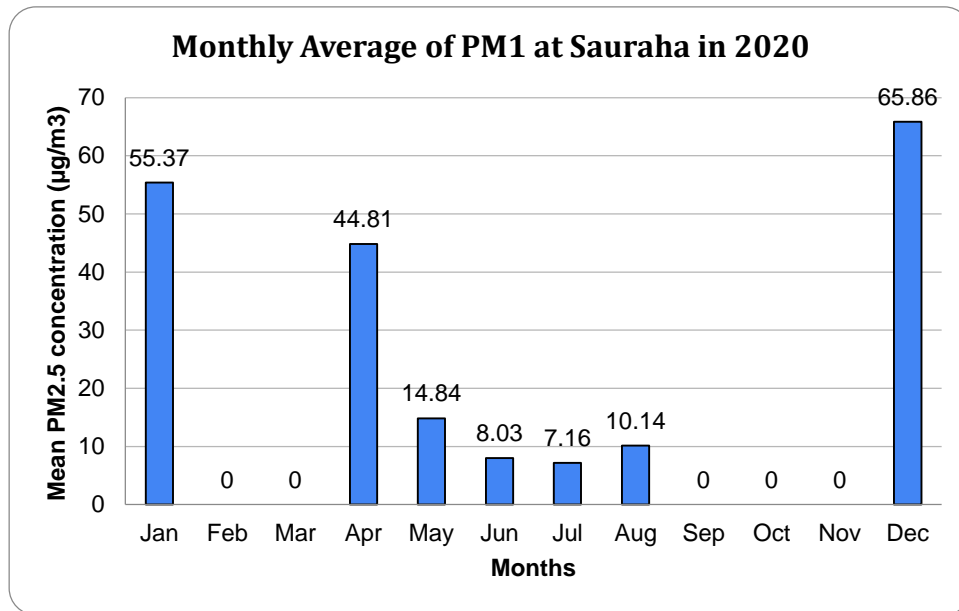


Figure 88: Monthly Average of PM₁

Monthly variation of PM₁

Variation in concentration of PM₁ shown below.

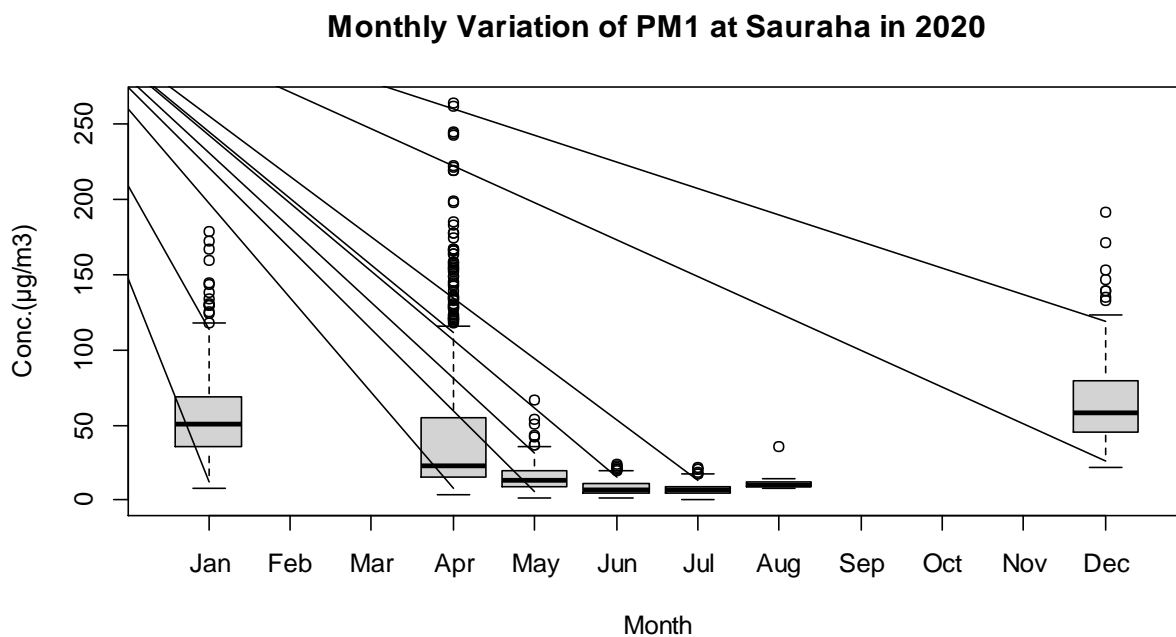


Figure 89: Monthly Variation of PM₁

Seasonal variation of average PM₁ concentration

Ambient concentration of average PM₁ is shown in below Figure 12: Seasonal variation of PM_{2.5}.

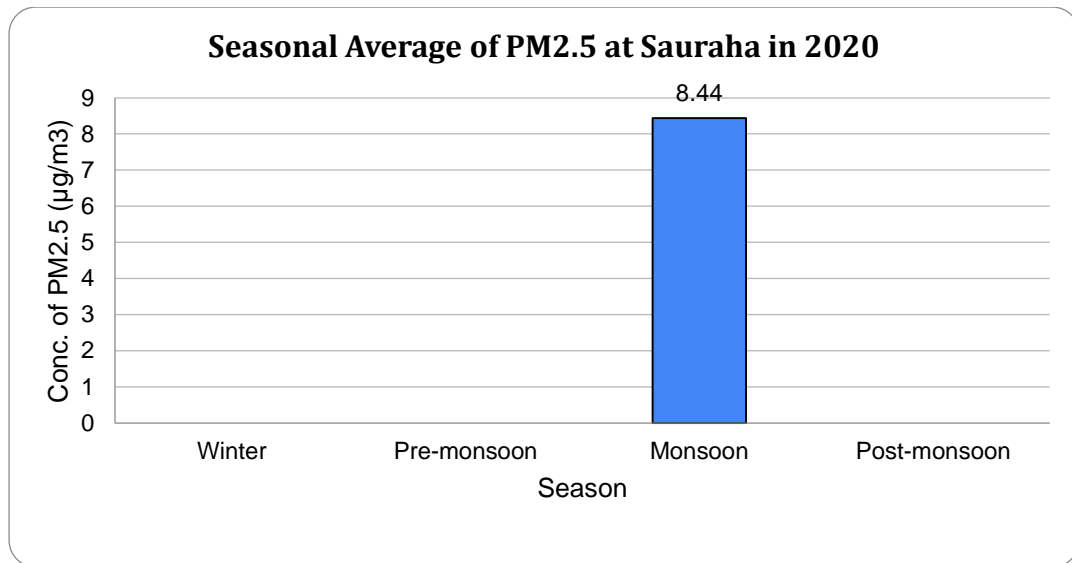


Figure 90: Seasonal variation of PM₁

Diurnal variation of average PM₁ concentration

The diurnal variation of average PM₁ concentrations can be shown in the Figure 13 below. The variation in PM₁ concentration was high at around 6 pm and low at 12 to 2 pm

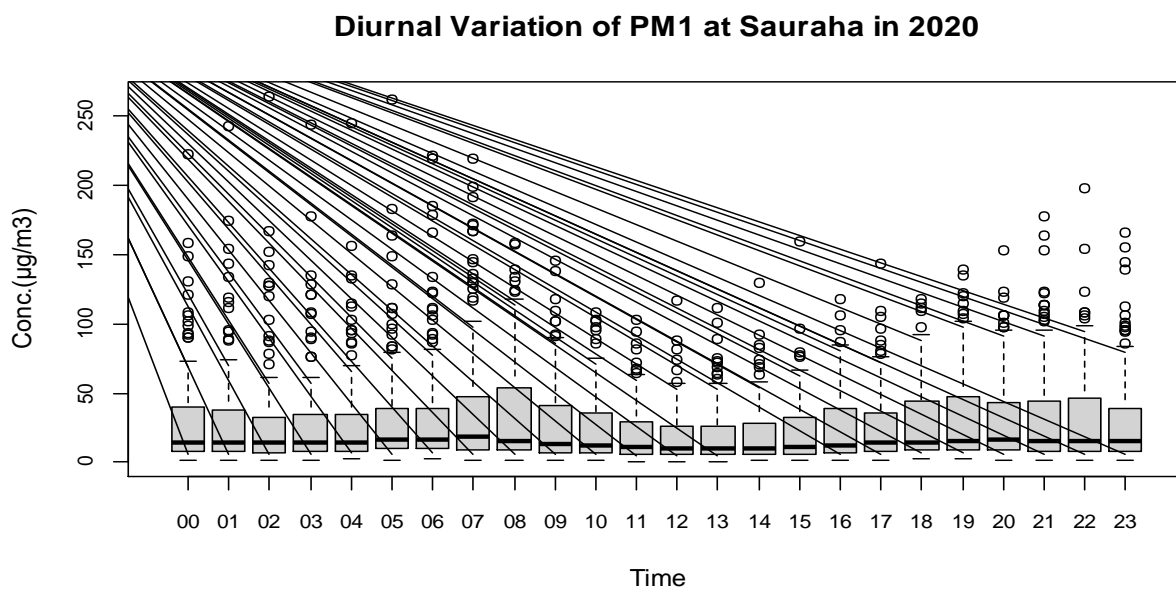


Figure 91: Diurnal variation of PM₁

2.4.3 Temporal variation of PM2.5

Annual average of PM2.5

The annual average of PM2.5 at Sauraha station was found to be 32 $\mu\text{g}/\text{m}^3$. Histogram of hourly average PM2.5 is shown in the figure below as shown in figure below.

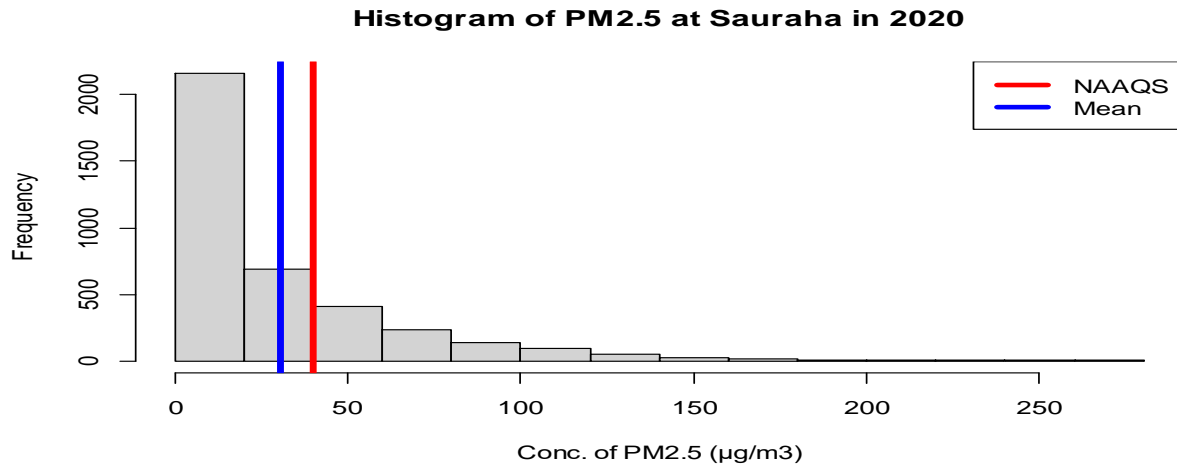


Figure 92: Histogram of PM2.5.

Daily average of PM2.5:

Daily average concentration of PM2.5 was high during April and December and was found low during June, July as shown in figure below.

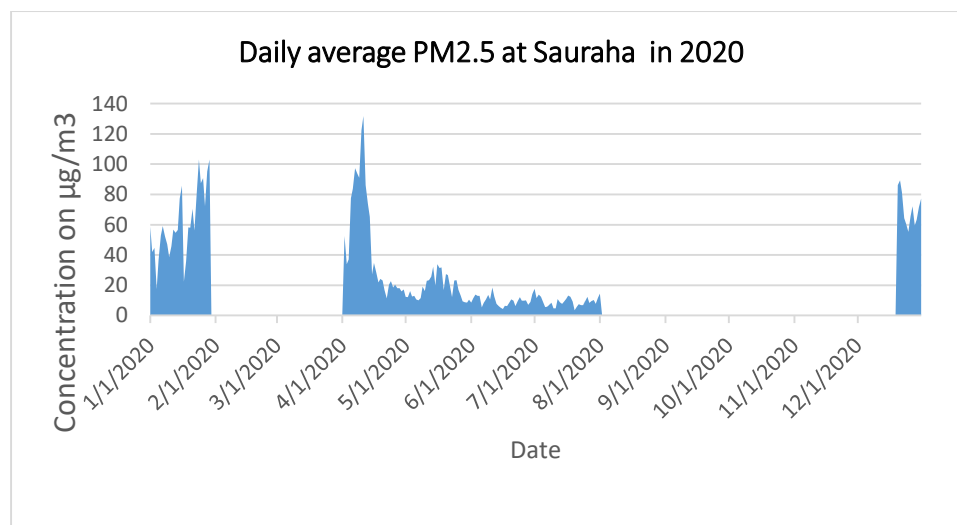


Figure 93: Daily average of PM2.5

Monthly average of PM2.5

The highest and the lowest monthly average of PM_{2.5} was found during December (90.53 µg/m³) and June (9.82 µg/m³) respectively as shown in figure below.

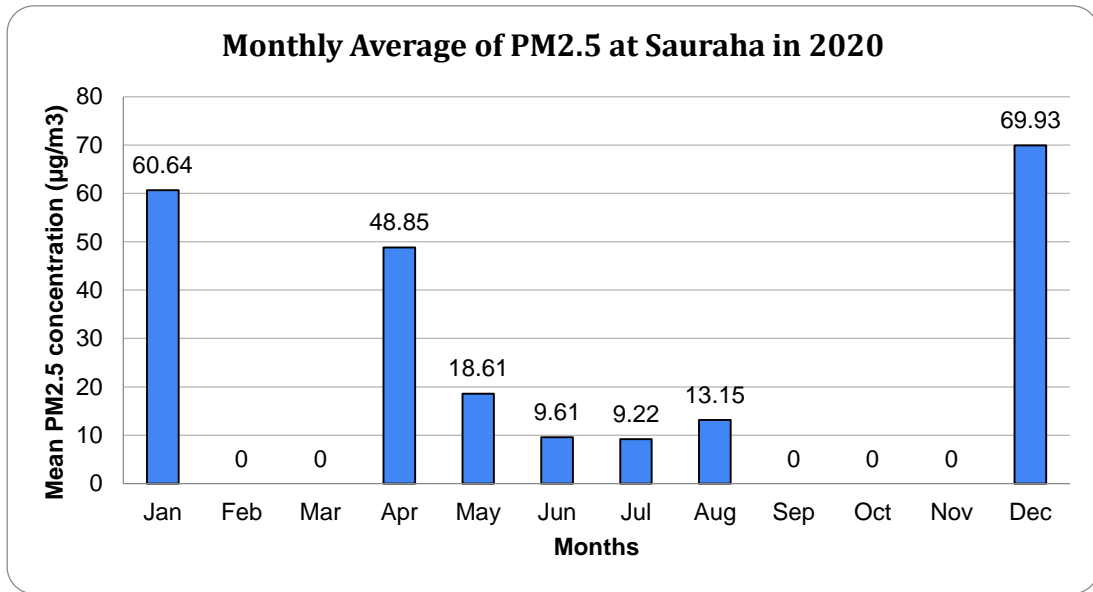


Figure 94: Monthly Average of PM_{2.5}

Monthly variation of PM_{2.5}

Variation in concentration of PM_{2.5} was found more during January, April and December whereas low during June, July as shown in figure below.

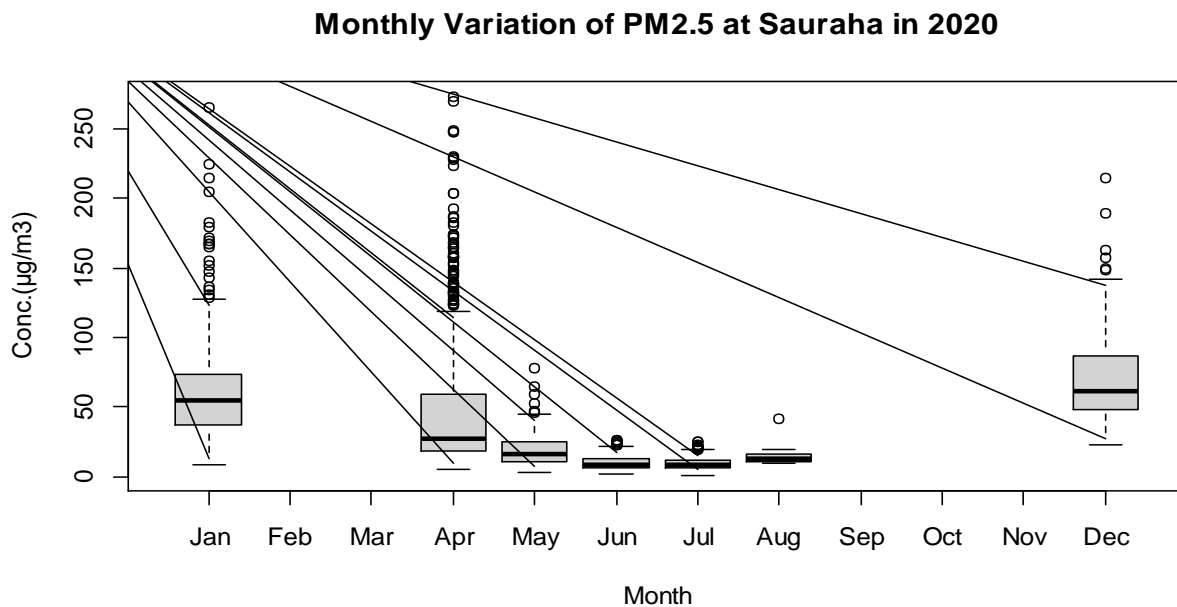


Figure 95: Monthly Variation of PM_{2.5}

Seasonal variation of average PM_{2.5} concentration

Ambient concentration of average PM_{2.5} is shown below Figure 12: Seasonal variation of PM_{2.5}.

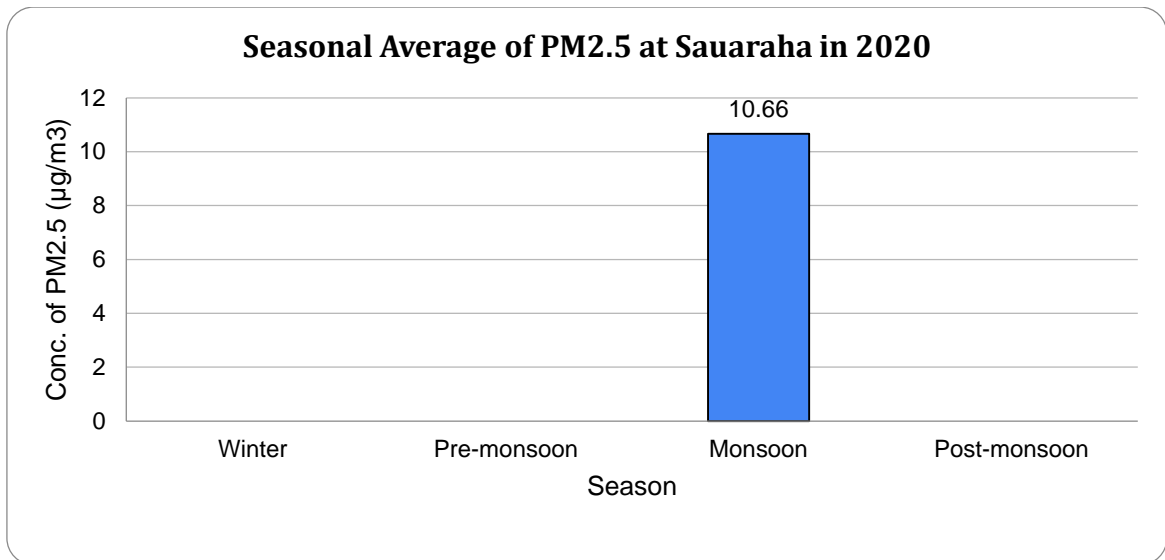


Figure 96: Seasonal variation of PM_{2.5}

Diurnal variation of average PM_{2.5} concentration

The diurnal variation of average PM_{2.5} concentrations can be shown in the Figure 13 below.

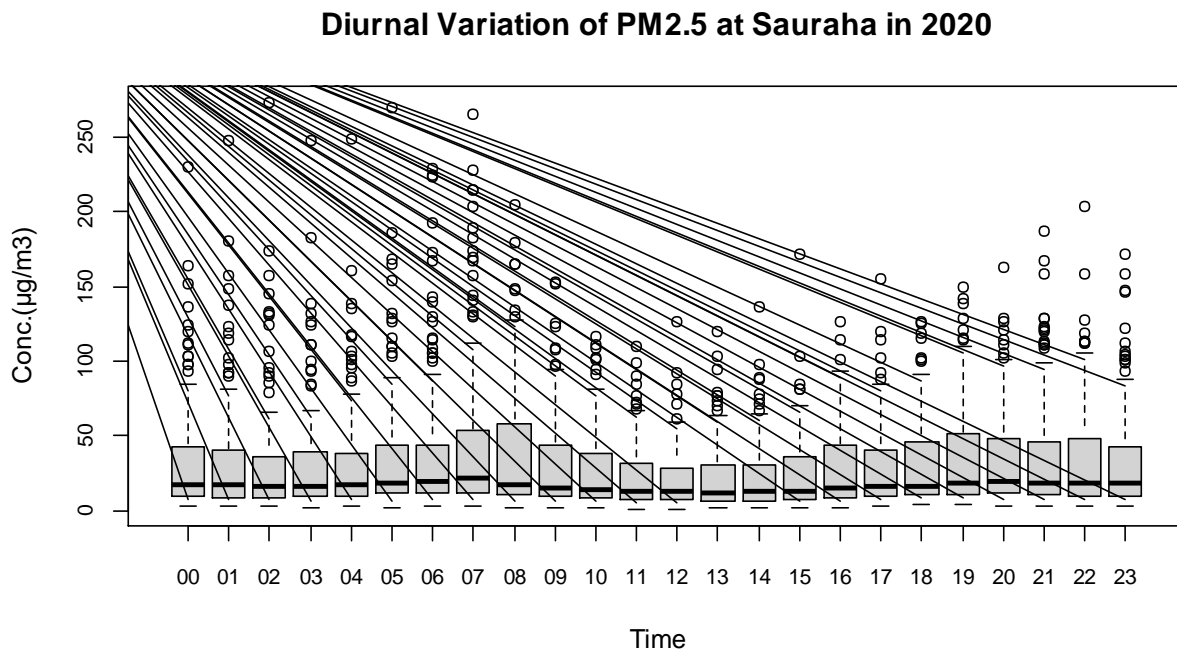


Figure 97: Diurnal variation of PM_{2.5}

Compliance status of PM_{2.5}

The total days of PM_{2.5} monitored in the year 2020 counts 162, of which 46 days exceed the NAAQS guideline as shown in figure below.

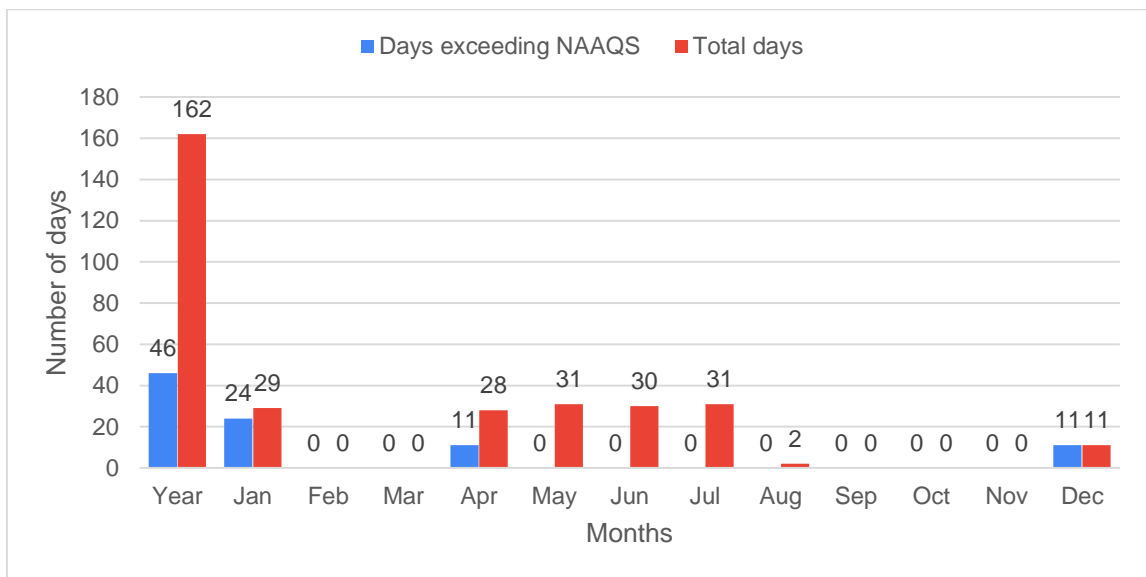


Figure 98: Compliance status of PM_{2.5}

2.4.4 Temporal variation of PM₁₀

Annual average of PM₁₀

The annual average of PM₁₀ at Sauraha station was found to be 38 µg/m³. Histogram of hourly average PM₁₀ is shown in the figure below.

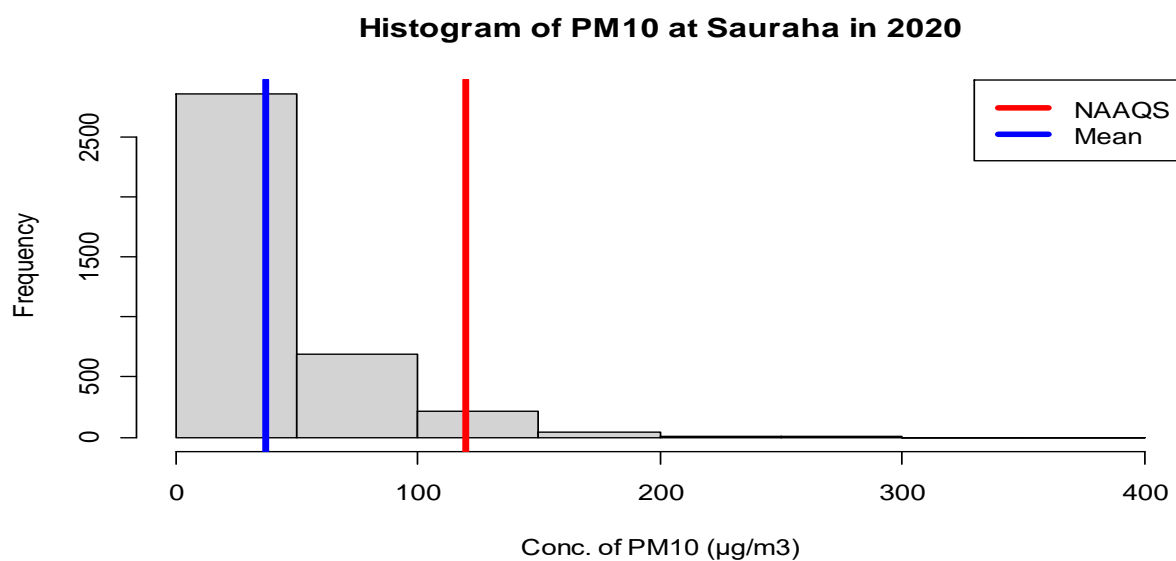


Figure 99: Histogram for the ambient concentration of PM₁₀.

Daily average of PM₁₀:

Daily average concentration of PM₁₀ was high during April and was found low during June, July as shown in figure below.

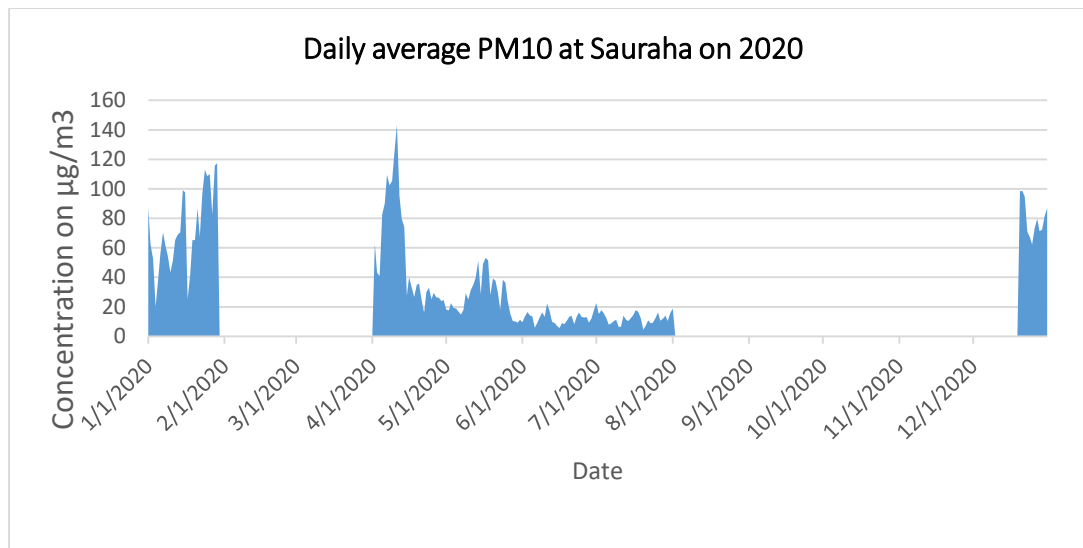


Figure 100: Daily average of PM₁₀

Monthly average of PM₁₀

The highest and the lowest monthly average of PM_{2.5} was found during December (79.1 µg/m³) and June (12 µg/m³) respectively as shown in figure below.

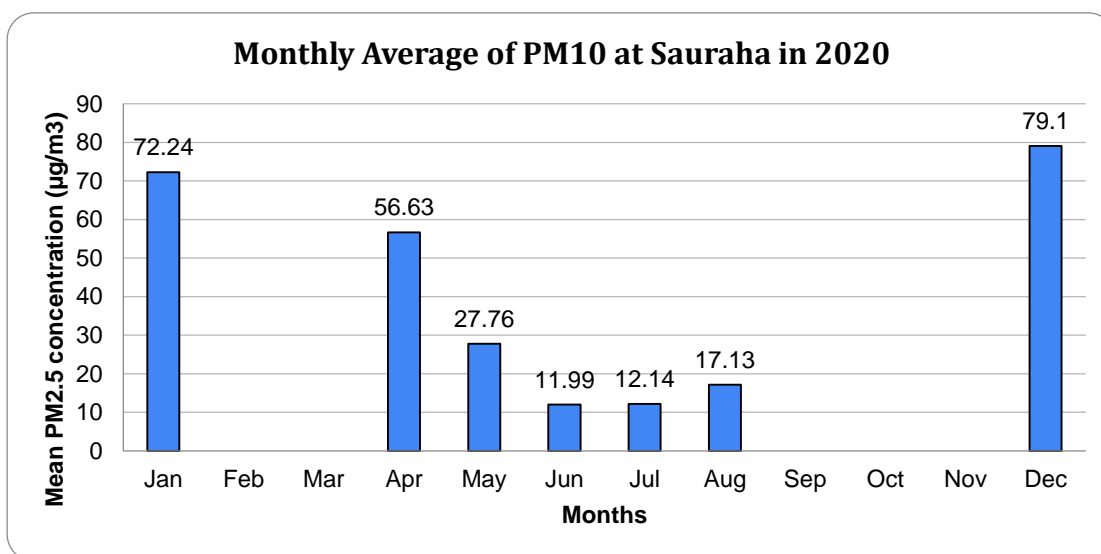


Figure 101: Monthly average of PM₁₀

Monthly variation of PM₁₀

Variation in concentration of PM₁₀ was found more during January, april and December low during June as shown in figure below.

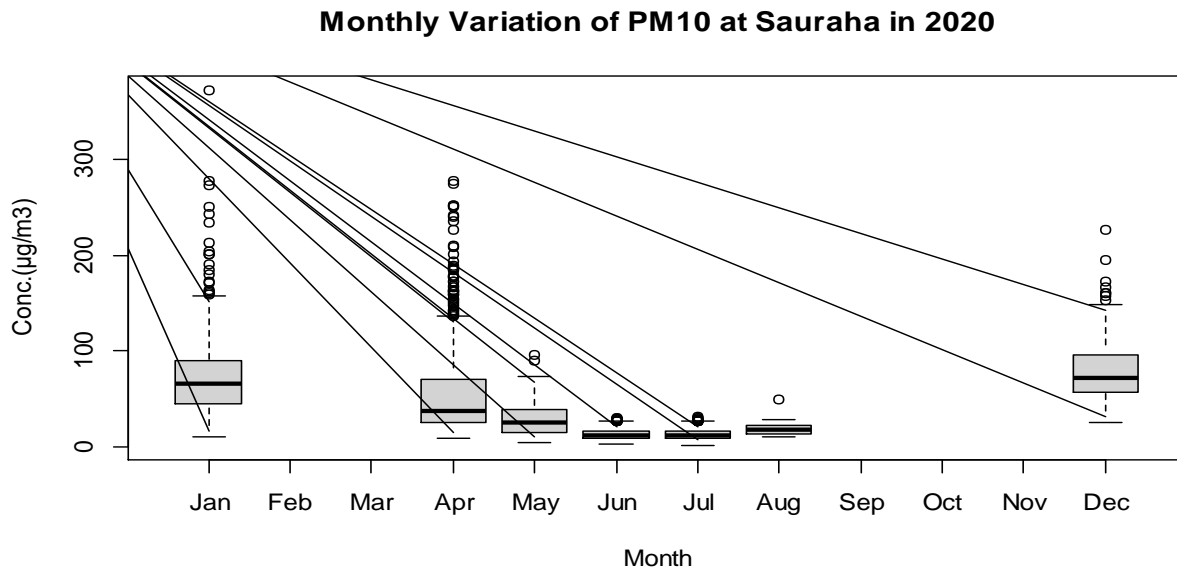


Figure 102: Monthly Variation of PM₁₀

Seasonal variation of average PM₁₀ concentration:

Ambient concentration of average PM₁₀ during monsoon (June-September), and winter(Dec-Jan) are shown in the figure below. The concentration of PM₁₀ was found higher during winter (81.12 µg/m³) than monsoon season (13.75 µg/m³) as shown in figure below.

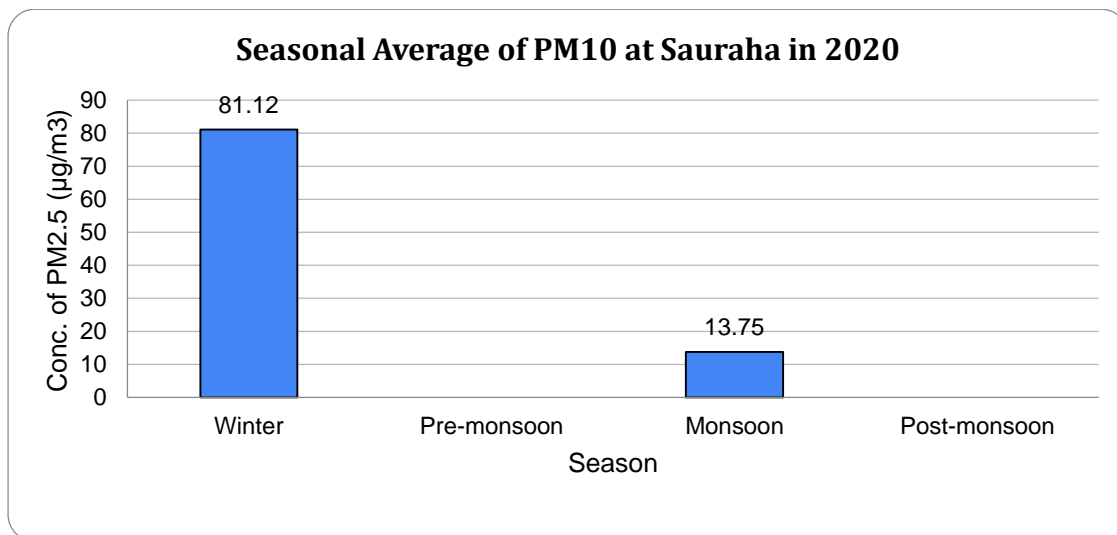


Figure 103: Seasonal variation of PM₁₀.

Diurnal variation of average PM₁₀ concentration

The diurnal variation of average PM₁₀ concentrations can be shown in the Figure 20 below.

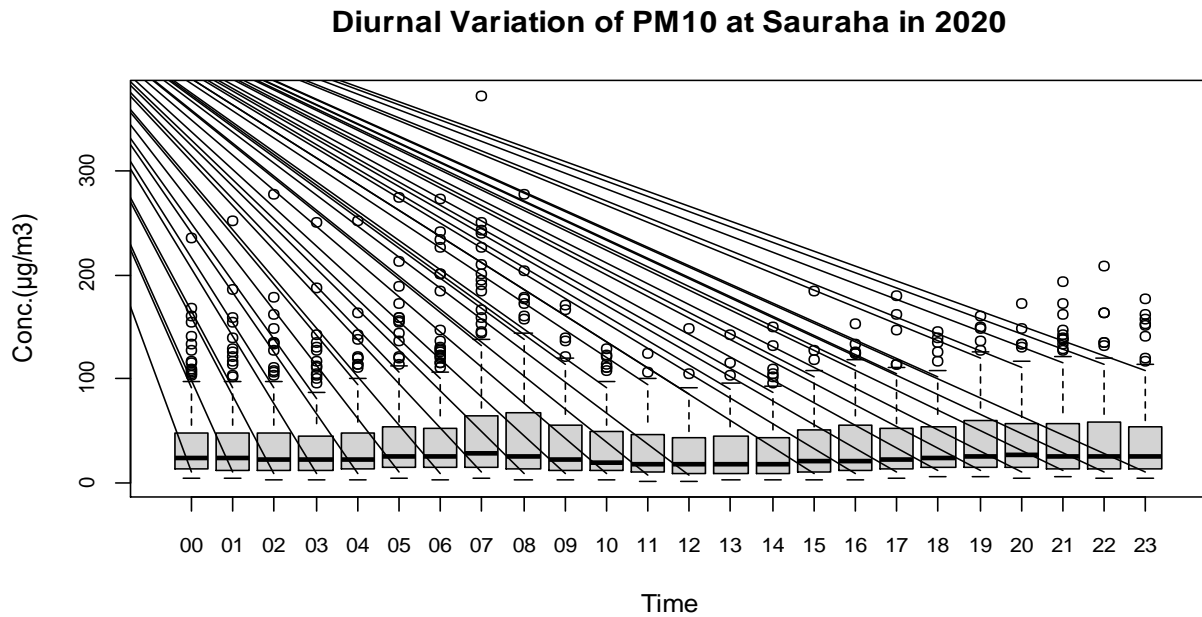


Figure 104: Diurnal variation of PM₁₀ concentration

Compliance status of PM₁₀

The total days of PM₁₀ monitored in the year 2020 counts 162, of which 2 days exceed the NAAQS guideline as shown in figure below.

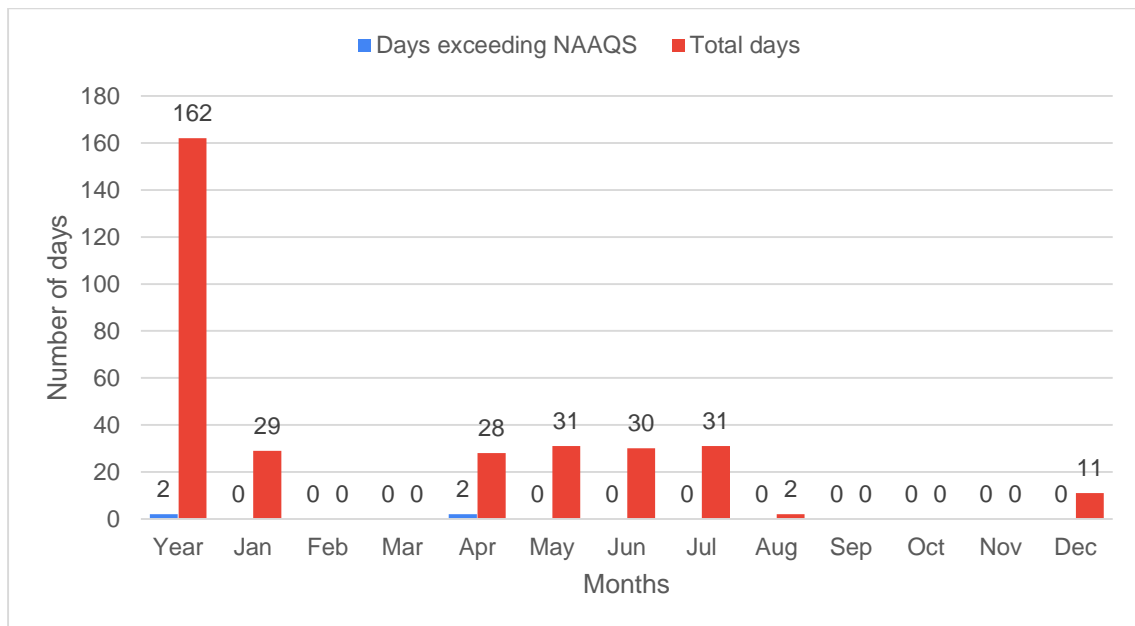


Figure 105: Compliance status of PM₁₀

TSP data (NA)

Annex

Daily Average

Date	PM1	PM2.5	PM10	TSP	Date	PM1	PM2.5	PM10	TSP
1/1/2017	55.70	66.19	102.11	69.68	1/1/2018				
1/2/2017	46.28	55.45	73.04	136.88	1/2/2018				
1/3/2017	97.00	103.60	119.15	117.15	1/3/2018				
1/4/2017				129.81	1/4/2018				
1/5/2017				143.82	1/5/2018				
1/6/2017				113.04	1/6/2018				
1/7/2017				81.18	1/7/2018				
1/8/2017				91.51	1/8/2018				
1/9/2017				97.58	1/9/2018				
1/10/2017				121.88	1/10/2018				
1/11/2017				80.50	1/11/2018				
1/12/2017				114.82	1/12/2018				
1/13/2017	86.72	95.36	113.49	161.78	1/13/2018				
1/14/2017	96.13	109.03	129.28	173.17	1/14/2018				
1/15/2017	77.29	86.35	104.05	166.01	1/15/2018				
1/16/2017	69.13	78.02	98.87	205.30	1/16/2018				
1/17/2017	84.07	94.82	118.94	218.46	1/17/2018				
1/18/2017	91.17	103.70	125.08	286.73	1/18/2018				
1/19/2017	61.84	67.68	82.71	275.09	1/19/2018				
1/20/2017	72.21	78.64	97.12	330.49	1/20/2018				
1/21/2017	88.35	98.04	122.48	340.30	1/21/2018				
1/22/2017	94.74	107.21	125.34	311.86	1/22/2018				
1/23/2017	74.86	82.92	99.62	360.98	1/23/2018				
1/24/2017	72.54	79.60	97.55	128.27	1/24/2018				
1/25/2017	67.51	74.51	88.39	154.10	1/25/2018				
1/26/2017	57.22	63.11	77.89	185.41	1/26/2018				
1/27/2017	38.28	40.38	43.74		1/27/2018				
1/28/2017	21.64	23.76	25.33		1/28/2018				
1/29/2017	47.11	50.86	55.39	81.96	1/29/2018				
1/30/2017	61.05	65.16	69.45	77.53	1/30/2018				
1/31/2017	63.97	67.68	73.01	51.55	1/31/2018				
2/1/2017	70.42	74.86	79.99	100.43	2/1/2018	84.84	94.88	111.74	117.04
2/2/2017	63.19	67.25	72.54	121.65	2/2/2018	83.07	96.43	123.42	168.90
2/3/2017	56.03	60.77	70.95	266.49	2/3/2018	85.97	101.53	124.76	146.34
2/4/2017	65.67	74.65	88.67	320.58	2/4/2018	65.43	78.79	108.41	152.02
2/5/2017	65.13	74.38	91.17	425.98	2/5/2018	61.57	72.29	101.30	144.70
2/6/2017	61.87	70.86	88.62		2/6/2018				
2/7/2017	60.11	66.89	78.58		2/7/2018				
2/8/2017	81.97	91.56	106.90		2/8/2018	114.50	129.98	162.42	217.25
2/9/2017	81.40	91.56	103.72		2/9/2018				
2/10/2017	58.65	66.07	77.42		2/10/2018				
2/11/2017	75.81	85.50	102.12	120.24	2/11/2018				
2/12/2017	81.70	91.60	112.22	109.75	2/12/2018				
2/13/2017	68.12	74.32	88.37	180.96	2/13/2018				
2/14/2017	75.99	82.62	97.40	234.33	2/14/2018				
2/15/2017	81.81	90.26	103.92		2/15/2018				
2/16/2017	79.41	87.04	102.54	127.91	2/16/2018				
2/17/2017	77.19	83.86	99.51	27.73	2/17/2018				
2/18/2017	73.32	80.64	99.21	60.04	2/18/2018				
2/19/2017	72.77	80.49	97.89	104.58	2/19/2018				
2/20/2017	105.47	115.25	131.93	67.81	2/20/2018				
2/21/2017				35.12	2/21/2018				
2/22/2017	63.95	71.61	91.83	39.58	2/22/2018				
2/23/2017	60.96	67.84	88.69	42.11	2/23/2018				
2/24/2017	51.69	56.57	73.54	49.65	2/24/2018				

2/25/2017	71.44	77.88	98.64	45.67	2/25/2018				
2/26/2017	78.00	84.87	106.52	58.82	2/26/2018				
2/27/2017	81.03	87.56	105.88	88.25	2/27/2018				
2/28/2017	83.49	90.94	109.72	110.67	2/28/2018				
3/1/2017	83.67	90.57	108.05	128.62	3/1/2018				
3/2/2017	56.26	63.59	87.95	137.21	3/2/2018				
3/3/2017	34.44	40.90	62.83	137.87	3/3/2018				
3/4/2017	42.14	48.18	75.25	131.74	3/4/2018				
3/5/2017	48.37	53.61	68.10	157.89	3/5/2018				
3/6/2017	39.10	40.30	40.80	163.59	3/6/2018				
3/7/2017	89.80	104.88	163.06	31.23	3/7/2018				
3/8/2017	47.69	53.91	78.85	58.52	3/8/2018				
3/9/2017	47.87	54.01	80.25	55.90	3/9/2018				
3/10/2017	28.96	31.84	42.08	22.87	3/10/2018				
3/11/2017	14.53	15.49	17.08	38.13	3/11/2018				
3/12/2017	28.58	30.72	34.60	64.42	3/12/2018				
3/13/2017	104.83	110.41	122.44	73.87	3/13/2018				
3/14/2017	75.26	80.20	93.03	82.56	3/14/2018				
3/15/2017	39.79	50.31	55.94	97.75	3/15/2018				
3/16/2017	90.21	96.92	122.11	43.49	3/16/2018				
3/17/2017	86.20	97.39	131.37	23.39	3/17/2018				
3/18/2017	28.96	34.30	50.25	40.69	3/18/2018				
3/19/2017	39.53	44.36	60.21	33.56	3/19/2018				
3/20/2017	37.13	38.69	40.40	45.28	3/20/2018				
3/21/2017	52.52	70.87	84.83	40.22	3/21/2018				
3/22/2017	98.82	76.54	107.97	54.24	3/22/2018				
3/23/2017	130.32	89.67	130.32	40.61	3/23/2018				
3/24/2017	134.90	91.82	136.95	62.15	3/24/2018				
3/25/2017	117.14	76.62	117.14	33.01	3/25/2018				
3/26/2017	129.14	81.84	129.82	36.45	3/26/2018				
3/27/2017	137.09	93.00	143.79	26.90	3/27/2018				
3/28/2017	113.06	84.25	113.06	36.61	3/28/2018				
3/29/2017	81.19	62.51	81.19	55.95	3/29/2018				
3/30/2017	91.50	64.97	91.50	60.76	3/30/2018				
3/31/2017	97.22	57.20	97.76	25.09	3/31/2018				
4/1/2017	117.96	70.38	121.85	19.80	4/1/2018				
4/2/2017	78.92	45.25	80.44	30.64	4/2/2018				
4/3/2017	109.19	74.10	114.82	27.30	4/3/2018				
4/4/2017	161.37	102.74	161.77	24.51	4/4/2018				
4/5/2017	167.71	112.93	173.12	26.23	4/5/2018				
4/6/2017	165.56	113.76	166.00	23.85	4/6/2018				
4/7/2017	204.60	137.87	205.31	22.84	4/7/2018				
4/8/2017	214.60	146.06	218.34	19.70	4/8/2018				
4/9/2017	282.88	193.17	286.74	20.35	4/9/2018				
4/10/2017	269.94	188.43	275.05	17.01	4/10/2018				
4/11/2017	304.65	217.43	328.16	17.56	4/11/2018				
4/12/2017	308.91	219.27	333.89	14.33	4/12/2018				
4/13/2017	306.49	224.09	311.91	12.21	4/13/2018				
4/14/2017	317.70	226.56	351.09	13.32	4/14/2018				
4/15/2017	127.94	106.75	128.34	17.20	4/15/2018				
4/16/2017	148.85	101.77	154.11	18.06	4/16/2018				
4/17/2017	184.82	143.32	156.85	18.34	4/17/2018				
4/18/2017				20.88	4/18/2018				
4/19/2017				19.96	4/19/2018				
4/20/2017	80.91	81.96	64.20	16.83	4/20/2018				
4/21/2017	46.32	52.44	66.99	16.96	4/21/2018				
4/22/2017	19.38	23.00	33.58	23.50	4/22/2018				
4/23/2017	61.69	65.79	82.71	21.18	4/23/2018				
4/24/2017	59.53	65.68	91.47	19.24	4/24/2018				
4/25/2017	68.72	80.57	146.10	16.50	4/25/2018				
4/26/2017	87.53	104.34	192.31	17.53	4/26/2018				

4/27/2017	118.05	136.81	252.74	15.72	4/27/2018				
4/28/2017				19.42	4/28/2018				
4/29/2017				20.14	4/29/2018				
4/30/2017				17.21	4/30/2018		0.00	0.00	
5/1/2017				13.31	5/1/2018	17.83	22.47	20.92	46.14
5/2/2017				16.59	5/2/2018	12.47	16.80	35.16	94.02
5/3/2017	21.58	30.23	65.42	18.11	5/3/2018	7.25	9.28	13.60	21.47
5/4/2017	22.76	30.73	59.10	17.19	5/4/2018	11.30	14.68	23.24	43.51
5/5/2017	28.31	38.95	87.24	16.73	5/5/2018	12.10	16.08	27.58	46.34
5/6/2017	38.57	51.55	122.12	23.17	5/6/2018	19.94	25.10	43.45	84.18
5/7/2017				28.45	5/7/2018	22.12	30.44	55.20	89.32
5/8/2017	24.78	36.31	74.41	26.96	5/8/2018	21.50	35.61	77.92	141.82
5/9/2017	9.54	12.18	18.52	15.72	5/9/2018	12.32	21.14	38.22	68.56
5/10/2017	12.50	16.95	32.88	15.16	5/10/2018	14.51	22.81	49.48	95.95
5/11/2017	16.31	22.72	49.31	21.68	5/11/2018	14.44	23.08	50.46	101.93
5/12/2017	17.86	23.07	39.53	15.81	5/12/2018	13.94	21.04	46.15	88.58
5/13/2017	10.93	14.39	22.84	14.53	5/13/2018	13.03	20.92	48.39	102.27
5/14/2017	14.55	18.34	27.24	11.68	5/14/2018	5.48	7.23	11.71	21.37
5/15/2017	14.14	17.86	27.08	16.89	5/15/2018	6.48	9.73	19.96	52.38
5/16/2017	11.90	16.36	29.30	18.06	5/16/2018	15.68	21.93	35.27	57.47
5/17/2017	9.66	13.55	25.44	16.53	5/17/2018	14.93	22.72	35.68	50.78
5/18/2017	10.26	14.54	29.30	20.45	5/18/2018	14.65	22.93	39.02	58.60
5/19/2017	11.98	18.85	46.42	22.85	5/19/2018	15.53	22.17	33.77	53.02
5/20/2017	13.07	22.81	59.18	26.59	5/20/2018	13.48	19.44	31.55	47.59
5/21/2017	15.71	27.30	68.65	14.65	5/21/2018	15.99	22.09	33.70	45.31
5/22/2017	16.47	27.80	72.00	10.45	5/22/2018	15.53	20.27	30.13	43.48
5/23/2017	14.66	25.33	65.37	9.90	5/23/2018	11.65	17.30	30.16	48.54
5/24/2017	16.21	28.26	67.96		5/24/2018	10.43	14.90	25.05	41.41
5/25/2017	14.85	27.83	76.45	69.68	5/25/2018	13.24	18.90	37.53	72.28
5/26/2017	15.63	25.82	74.12	136.88	5/26/2018	15.48	21.28	38.02	60.86
5/27/2017	9.19	11.15	15.89	117.15	5/27/2018	17.35	23.99	48.28	99.76
5/28/2017	11.46	15.90	28.23	129.81	5/28/2018	14.61	20.07	34.27	68.12
5/29/2017	11.17	16.24	29.62	143.82	5/29/2018	13.46	19.05	32.26	55.12
5/30/2017	7.73	10.04	14.02	113.04	5/30/2018	12.53	17.88	33.45	66.21
5/31/2017	6.34	9.14	17.67	81.18	5/31/2018	14.23	20.86	44.78	87.79
6/1/2017	10.28	15.02	32.42	91.51	6/1/2018	10.38	14.91	24.24	38.32
6/2/2017	11.14	16.46	36.54	97.58	6/2/2018	9.59	11.27	14.93	25.88
6/3/2017	14.28	22.39	46.94	121.88	6/3/2018	9.89	11.89	16.66	28.49
6/4/2017	16.82	27.30	58.54	80.50	6/4/2018	9.08	10.72	14.42	25.65
6/5/2017	11.35	15.50	25.78	114.82	6/5/2018	4.37	5.36	7.20	9.80
6/6/2017	6.22	8.13	12.53	161.78	6/6/2018	4.27	5.11	7.48	18.47
6/7/2017	10.77	14.88	23.63	173.17	6/7/2018	6.02	6.82	7.91	10.06
6/8/2017	8.89	11.85	20.25	166.01	6/8/2018	7.56	8.72	10.37	11.67
6/9/2017	10.99	16.11	27.18	205.30	6/9/2018	5.86	8.04	13.13	22.70
6/10/2017	14.37	18.23	26.94	218.46	6/10/2018	7.88	10.58	16.99	32.05
6/11/2017	11.79	15.61	27.12	286.73	6/11/2018	6.45	9.29	16.95	39.12
6/12/2017	10.79	14.29	23.03	275.09	6/12/2018	9.34	13.27	20.25	30.57
6/13/2017	9.34	12.93	27.78	330.49	6/13/2018	9.36	13.34	22.67	51.89
6/14/2017	10.19	13.32	21.48	340.30	6/14/2018	12.89	33.30	52.04	75.00
6/15/2017	11.00	14.64	23.99	311.86	6/15/2018	13.31	26.61	40.72	80.35
6/16/2017	7.12	9.32	14.06	360.98	6/16/2018	16.72	49.61	107.04	216.52
6/17/2017	10.69	13.04	18.80	128.27	6/17/2018	17.33	41.07	73.91	122.19
6/18/2017	11.20	16.87	32.17	154.10	6/18/2018	16.23	34.85	66.34	120.31
6/19/2017	16.60	23.13	38.22	185.41	6/19/2018	16.28	34.38	70.04	128.72
6/20/2017	10.01	13.38	18.94		6/20/2018	11.07	24.65	46.69	86.14
6/21/2017	8.49	11.16	15.15		6/21/2018	8.07	12.78	21.24	39.22
6/22/2017	9.35	13.40	20.66	81.96	6/22/2018	12.47	20.89	40.58	73.05
6/23/2017	7.13	10.20	16.40	77.53	6/23/2018	9.36	12.90	18.43	29.53
6/24/2017	7.59	9.92	15.00	51.55	6/24/2018	12.20	17.30	25.12	32.12
6/25/2017	6.74	8.96	13.83	100.43	6/25/2018	10.66	15.77	24.95	37.55
6/26/2017	5.28	7.60	12.14	121.65	6/26/2018	11.03	15.60	22.84	31.10

6/27/2017	4.96	7.10	12.20	266.49	6/27/2018	8.82	11.29	16.68	30.27
6/28/2017	3.27	5.70	10.46	320.58	6/28/2018	5.67	8.15	15.73	40.23
6/29/2017	4.50	6.77	12.04	425.98	6/29/2018	7.86	11.65	20.80	41.26
6/30/2017	5.58	7.35	10.43		6/30/2018	7.58	10.88	20.59	43.98
7/1/2017	5.49	7.53	11.39		7/1/2018	3.36	5.86	8.43	12.65
7/2/2017	3.69	6.00	8.62		7/2/2018	3.26	4.97	6.86	11.38
7/3/2017	2.98	5.27	7.68		7/3/2018	5.42	7.05	9.53	14.91
7/4/2017	2.99	5.51	8.10		7/4/2018	7.96	11.51	18.70	35.36
7/5/2017	5.35	7.75	10.99	120.24	7/5/2018	8.98	12.61	19.39	33.26
7/6/2017	4.78	7.99	11.45	109.75	7/6/2018	8.26	11.55	16.93	27.41
7/7/2017	4.88	7.10	10.34	180.96	7/7/2018	8.34	11.88	19.33	32.01
7/8/2017	8.30	10.83	15.52	234.33	7/8/2018	11.12	13.56	18.07	24.64
7/9/2017	8.33	10.48	14.32		7/9/2018	6.40	9.08	13.63	20.14
7/10/2017	6.59	8.83	11.95	127.91	7/10/2018	5.08	9.86	14.81	24.08
7/11/2017	3.08	6.99	10.09	27.73	7/11/2018	5.71	9.01	13.08	21.72
7/12/2017	4.04	8.10	13.80	60.04	7/12/2018	4.63	8.17	11.91	17.58
7/13/2017	5.07	7.68	12.34	104.58	7/13/2018	5.97	8.68	12.17	19.68
7/14/2017	4.86	7.81	11.74	67.81	7/14/2018	4.69	8.81	13.57	24.96
7/15/2017	4.64	6.82	9.79	35.12	7/15/2018	4.60	8.57	13.41	21.87
7/16/2017	5.55	7.71	11.57	39.58	7/16/2018	4.10	7.71	11.79	19.89
7/17/2017	3.19	5.69	9.35	42.11	7/17/2018	4.38	8.70	13.58	22.53
7/18/2017	4.20	6.80	11.65	49.65	7/18/2018	4.34	8.58	13.21	24.95
7/19/2017	4.08	7.14	11.47	45.67	7/19/2018	5.30	9.64	15.29	23.85
7/20/2017	3.24	6.12	9.47	58.82	7/20/2018	3.79	7.15	11.94	19.60
7/21/2017	2.67	4.96	7.84	88.25	7/21/2018	3.67	8.19	12.23	19.94
7/22/2017	3.65	6.37	9.93	110.67	7/22/2018	2.69	5.76	9.20	15.89
7/23/2017	2.66	6.09	9.69	128.62	7/23/2018	3.84	7.28	11.53	19.60
7/24/2017	3.45	6.85	10.19	137.21	7/24/2018	3.97	7.32	10.97	18.99
7/25/2017	3.03	6.51	9.67	137.87	7/25/2018	5.55	8.32	11.72	18.78
7/26/2017	4.10	7.53	12.72	131.74	7/26/2018	4.80	8.32	12.02	18.15
7/27/2017	9.03	12.06	18.09	157.89	7/27/2018	4.01	8.46	12.51	20.56
7/28/2017	8.51	11.56	17.90	163.59	7/28/2018	3.61	8.04	12.28	21.28
7/29/2017	6.85	8.58	11.71	31.23	7/29/2018	3.19	7.90	11.56	20.02
7/30/2017	6.38	7.79	10.33	58.52	7/30/2018	7.93	11.23	15.49	21.35
7/31/2017	5.58	8.36	12.48	55.90	7/31/2018	6.71	9.56	13.50	18.55
8/1/2017	5.62	7.53	10.84	22.87	8/1/2018	6.00	8.64	12.04	18.22
8/2/2017	5.65	7.41	10.13	38.13	8/2/2018	3.91	7.48	11.15	17.55
8/3/2017	3.19	5.07	7.21	64.42	8/3/2018	4.44	8.37	12.18	19.32
8/4/2017	3.79	6.99	10.09	73.87	8/4/2018	6.58	9.78	13.35	17.31
8/5/2017	5.59	7.81	11.22	82.56	8/5/2018	4.67	8.32	11.71	17.00
8/6/2017	6.43	7.98	10.76	97.75	8/6/2018	3.17	7.31	10.62	17.74
8/7/2017	8.71	10.45	14.09	43.49	8/7/2018	4.18	8.54	13.07	22.31
8/8/2017	9.38	11.63	15.92	23.39	8/8/2018	7.51	10.84	15.76	23.83
8/9/2017	10.03	12.56	17.22	40.69	8/9/2018	8.46	12.31	18.19	29.15
8/10/2017	6.01	7.91	10.99	33.56	8/10/2018	8.74	11.33	15.56	24.11
8/11/2017	4.39	6.01	8.15	45.28	8/11/2018	7.98	10.57	14.51	20.63
8/12/2017	4.83	6.45	8.56	40.22	8/12/2018	6.27	9.71	13.72	20.08
8/13/2017				54.24	8/13/2018	6.64	8.20	10.84	17.16
8/14/2017	55.70	66.19	102.11	40.61	8/14/2018	6.95	9.75	13.93	21.79
8/15/2017	46.28	55.45	73.04	62.15	8/15/2018	4.40	9.18	14.07	24.70
8/16/2017	97.00	103.60	119.15	33.01	8/16/2018	4.03	8.99	13.87	23.78
8/17/2017				36.45	8/17/2018	5.26	8.35	12.72	21.66
8/18/2017				26.90	8/18/2018	4.65	6.82	11.04	18.81
8/19/2017				36.61	8/19/2018	5.93	10.35	14.73	23.82
8/20/2017				55.95	8/20/2018	5.37	10.61	15.41	25.20
8/21/2017				60.76	8/21/2018	4.16	9.26	13.53	22.66
8/22/2017				25.09	8/22/2018	4.03	7.75	11.89	21.15
8/23/2017				19.80	8/23/2018	4.84	9.03	13.21	22.07
8/24/2017				30.64	8/24/2018	5.07	7.96	11.40	16.36
8/25/2017				27.30	8/25/2018	12.42	13.82	15.41	16.43
8/26/2017	86.72	95.36	113.49	24.51	8/26/2018	99.95	102.22	106.64	108.15

8/27/2017	96.13	109.03	129.28	26.23	8/27/2018	3.37	8.02	11.76	20.30
8/28/2017	77.29	86.35	104.05	23.85	8/28/2018	4.37	8.48	12.10	20.56
8/29/2017	69.13	78.02	98.87	22.84	8/29/2018	3.67	8.72	13.27	23.62
8/30/2017	84.07	94.82	118.94	19.70	8/30/2018	5.68	8.40	11.54	16.43
8/31/2017	91.17	103.70	125.08	20.35	8/31/2018	5.20	8.98	12.60	20.25
9/1/2017	61.84	67.68	82.71	17.01	9/1/2018	4.91	8.50	12.81	18.99
9/2/2017	72.21	78.64	97.12	17.56	9/2/2018	6.86	10.03	14.16	20.33
9/3/2017	88.35	98.04	122.48	14.33	9/3/2018	6.53	9.27	13.03	20.01
9/4/2017	94.74	107.21	125.34	12.21	9/4/2018	9.66	12.21	16.75	25.89
9/5/2017	74.86	82.92	99.62	13.32	9/5/2018	10.10	12.26	17.02	26.37
9/6/2017	72.54	79.60	97.55	17.20	9/6/2018	6.27	8.29	11.34	18.04
9/7/2017	67.51	74.51	88.39	18.06	9/7/2018	6.54	11.32	16.84	26.27
9/8/2017	57.22	63.11	77.89	18.34	9/8/2018	7.27	10.05	14.60	22.52
9/9/2017	38.28	40.38	43.74	20.88	9/9/2018	8.81	12.27	17.81	26.79
9/10/2017	21.64	23.76	25.33	19.96	9/10/2018	9.75	13.49	20.40	33.26
9/11/2017	47.11	50.86	55.39	16.83	9/11/2018	6.83	8.64	11.38	15.33
9/12/2017	61.05	65.16	69.45	16.96	9/12/2018	5.15	7.35	10.07	13.05
9/13/2017	63.97	67.68	73.01	23.50	9/13/2018	7.88	10.48	14.65	17.63
9/14/2017	70.42	74.86	79.99	21.18	9/14/2018	7.55	10.82	15.09	17.80
9/15/2017	63.19	67.25	72.54	19.24	9/15/2018	8.79	12.58	17.66	20.26
9/16/2017	56.03	60.77	70.95	16.50	9/16/2018	9.71	13.21	18.16	20.18
9/17/2017	65.67	74.65	88.67	17.53	9/17/2018	11.47	16.09	22.93	27.21
9/18/2017	65.13	74.38	91.17	15.72	9/18/2018	12.30	16.97	24.74	31.56
9/19/2017	61.87	70.86	88.62	19.42	9/19/2018	14.75	19.50	27.71	33.85
9/20/2017	60.11	66.89	78.58	20.14	9/20/2018	9.49	13.31	20.92	28.56
9/21/2017	81.97	91.56	106.90	17.21	9/21/2018	4.66	7.79	11.22	17.45
9/22/2017	81.40	91.56	103.72	13.31	9/22/2018	5.78	8.58	12.29	16.15
9/23/2017	58.65	66.07	77.42	16.59	9/23/2018	7.12	9.95	15.13	21.88
9/24/2017	75.81	85.50	102.12	18.11	9/24/2018	14.67	20.96	31.19	38.66
9/25/2017	81.70	91.60	112.22	17.19	9/25/2018	12.79	17.23	25.48	36.48
9/26/2017	68.12	74.32	88.37	16.73	9/26/2018	12.90	17.12	25.06	35.24
9/27/2017	75.99	82.62	97.40	23.17	9/27/2018	10.66	14.48	22.89	34.44
9/28/2017	81.81	90.26	103.92	28.45	9/28/2018	17.54	23.63	36.52	50.20
9/29/2017	79.41	87.04	102.54	26.96	9/29/2018	25.95	35.86	52.20	64.09
9/30/2017	77.19	83.86	99.51	15.72	9/30/2018	25.90	35.53	52.95	66.26
10/1/2017	73.32	80.64	99.21	15.16	10/1/2018	20.38	29.20	47.24	64.81
10/2/2017	72.77	80.49	97.89	21.68	10/2/2018	22.60	31.88	47.88	56.24
10/3/2017	105.47	115.25	131.93	15.81	10/3/2018	24.85	33.65	52.66	65.32
10/4/2017				14.53	10/4/2018	21.98	29.08	43.05	52.21
10/5/2017	63.95	71.61	91.83	11.68	10/5/2018	23.20	31.41	47.82	60.77
10/6/2017	60.96	67.84	88.69	16.89	10/6/2018	20.61	28.28	43.95	54.65
10/7/2017	51.69	56.57	73.54	18.06	10/7/2018	15.68	21.73	43.62	83.20
10/8/2017	71.44	77.88	98.64	16.53	10/8/2018	17.42	22.01	31.61	39.95
10/9/2017	78.00	84.87	106.52	20.45	10/9/2018	23.34	29.77	42.26	51.46
10/10/2017	81.03	87.56	105.88	22.85	10/10/2018	20.84	26.06	35.60	40.47
10/11/2017	83.49	90.94	109.72	26.59	10/11/2018	19.52	24.00	32.59	39.24
10/12/2017	83.67	90.57	108.05	14.65	10/12/2018	17.71	21.27	29.32	37.28
10/13/2017	56.26	63.59	87.95	10.45	10/13/2018	8.19	10.38	14.40	20.36
10/14/2017	34.44	40.90	62.83	9.90	10/14/2018	24.43	30.60	41.68	52.39
10/15/2017	42.14	48.18	75.25		10/15/2018	28.64	34.94	47.96	59.87
10/16/2017	48.37	53.61	68.10	69.68	10/16/2018	33.64	40.45	53.53	63.57
10/17/2017	39.10	40.30	40.80	136.88	10/17/2018	38.92	45.99	59.28	69.48
10/18/2017	89.80	104.88	163.06	117.15	10/18/2018	36.46	43.70	56.31	67.05
10/19/2017	47.69	53.91	78.85	129.81	10/19/2018	34.98	42.10	54.76	60.93
10/20/2017	47.87	54.01	80.25	143.82	10/20/2018	31.40	38.66	52.35	60.64
10/21/2017	28.96	31.84	42.08	113.04	10/21/2018	35.76	42.87	57.52	70.01
10/22/2017	14.53	15.49	17.08	81.18	10/22/2018	32.70	39.26	51.55	60.13
10/23/2017	28.58	30.72	34.60	91.51	10/23/2018	25.18	30.72	44.01	55.91
10/24/2017	104.83	110.41	122.44	97.58	10/24/2018	35.54	42.64	59.32	74.38
10/25/2017	75.26	80.20	93.03	121.88	10/25/2018	32.19	38.93	52.49	63.06
10/26/2017	39.79	50.31	55.94	80.50	10/26/2018	26.26	31.67	44.07	57.32

10/27/2017	90.21	96.92	122.11	114.82	10/27/2018	21.83	26.56	39.37	52.60
10/28/2017	86.20	97.39	131.37	161.78	10/28/2018	21.15	25.77	38.44	57.39
10/29/2017	28.96	34.30	50.25	173.17	10/29/2018	20.39	25.55	42.57	64.94
10/30/2017	39.53	44.36	60.21	166.01	10/30/2018	17.21	21.58	35.70	55.13
10/31/2017	37.13	38.69	40.40	205.30	10/31/2018	21.07	26.42	40.12	57.34
11/1/2017	52.52	70.87	84.83	218.46	11/1/2018	31.29	35.61	48.99	62.47
11/2/2017	98.82	76.54	107.97	286.73	11/2/2018	20.24	24.69	43.39	70.37
11/3/2017	130.32	89.67	130.32	275.09	11/3/2018	31.04	35.60	48.37	58.46
11/4/2017	134.90	91.82	136.95	330.49	11/4/2018	35.31	41.34	58.88	73.89
11/5/2017	117.14	76.62	117.14	340.30	11/5/2018	31.69	36.62	50.43	62.54
11/6/2017	129.14	81.84	129.82	311.86	11/6/2018	30.44	35.39	49.46	66.51
11/7/2017	137.09	93.00	143.79	360.98	11/7/2018	47.51	54.03	67.05	77.10
11/8/2017	113.06	84.25	113.06	128.27	11/8/2018	45.57	51.06	63.67	72.08
11/9/2017	81.19	62.51	81.19	154.10	11/9/2018	42.38	47.69	59.88	69.49
11/10/2017	91.50	64.97	91.50	185.41	11/10/2018	34.58	39.26	50.05	58.78
11/11/2017	97.22	57.20	97.76		11/11/2018	33.24	37.77	47.42	56.55
11/12/2017	117.96	70.38	121.85		11/12/2018	36.90	41.62	52.71	60.34
11/13/2017	78.92	45.25	80.44	81.96	11/13/2018	53.36	59.30	71.78	84.33
11/14/2017	109.19	74.10	114.82	77.53	11/14/2018	63.06	69.96	84.21	95.09
11/15/2017	161.37	102.74	161.77	51.55	11/15/2018	61.67	69.02	84.63	94.66
11/16/2017	167.71	112.93	173.12	100.43	11/16/2018	51.62	58.28	70.61	80.55
11/17/2017	165.56	113.76	166.00	121.65	11/17/2018	46.41	51.58	64.53	77.88
11/18/2017	204.60	137.87	205.31	266.49	11/18/2018	61.14	68.94	82.92	92.94
11/19/2017	214.60	146.06	218.34	320.58	11/19/2018	67.17	74.42	90.84	102.66
11/20/2017	282.88	193.17	286.74	425.98	11/20/2018	77.00	85.35	103.17	114.63
11/21/2017	269.94	188.43	275.05		11/21/2018	81.04	87.24	102.40	113.72
11/22/2017	304.65	217.43	328.16		11/22/2018	73.84	79.33	91.78	100.23
11/23/2017	308.91	219.27	333.89		11/23/2018	54.57	60.60	72.38	80.04
11/24/2017	306.49	224.09	311.91		11/24/2018	48.68	55.09	70.08	84.49
11/25/2017	317.70	226.56	351.09		11/25/2018	42.44	48.97	62.68	74.30
11/26/2017	127.94	106.75	128.34	120.24	11/26/2018	44.45	50.88	65.48	76.78
11/27/2017	148.85	101.77	154.11	109.75	11/27/2018	46.10	56.23	73.67	89.67
11/28/2017	184.82	143.32	156.85	180.96	11/28/2018	34.02	39.93	54.55	66.34
11/29/2017				234.33	11/29/2018	39.87	47.75	62.26	71.78
11/30/2017					11/30/2018	43.39	51.08	66.82	81.68
12/1/2017	80.91	81.96	64.20	127.91	12/1/2018	49.79	56.69	72.78	84.24
12/2/2017	46.32	52.44	66.99	27.73	12/2/2018	60.26	67.46	81.58	91.66
12/3/2017	19.38	23.00	33.58	60.04	12/3/2018	68.56	78.28	98.65	112.07
12/4/2017	61.69	65.79	82.71	104.58	12/4/2018	61.12	71.29	86.50	96.78
12/5/2017	59.53	65.68	91.47	67.81	12/5/2018	58.49	67.53	82.95	91.96
12/6/2017	68.72	80.57	146.10	35.12	12/6/2018	55.84	65.65	82.45	93.98
12/7/2017	87.53	104.34	192.31	39.58	12/7/2018	67.05	80.35	100.35	114.93
12/8/2017	118.05	136.81	252.74	42.11	12/8/2018	56.56	65.55	85.60	101.87
12/9/2017				49.65	12/9/2018	54.18	62.32	79.80	97.76
12/10/2017				45.67	12/10/2018	59.62	71.43	94.23	111.91
12/11/2017				58.82	12/11/2018	43.36	50.92	67.01	83.01
12/12/2017				88.25	12/12/2018	40.58	47.26	63.69	75.13
12/13/2017				110.67	12/13/2018	31.78	37.57	55.02	66.24
12/14/2017	21.58	30.23	65.42	128.62	12/14/2018	42.78	50.00	67.02	79.26
12/15/2017	22.76	30.73	59.10	137.21	12/15/2018	37.90	44.44	60.71	73.51
12/16/2017	28.31	38.95	87.24	137.87	12/16/2018	38.86	46.75	75.56	106.67
12/17/2017	38.57	51.55	122.12	131.74	12/17/2018	51.77	60.20	82.26	97.74
12/18/2017				157.89	12/18/2018	100.30	111.26	137.90	159.44
12/19/2017	24.78	36.31	74.41	163.59	12/19/2018	113.05	126.81	155.90	185.18
12/20/2017	9.54	12.18	18.52	31.23	12/20/2018	84.42	92.80	113.30	134.03
12/21/2017	12.50	16.95	32.88	58.52	12/21/2018	80.82	91.20	112.62	145.83
12/22/2017	16.31	22.72	49.31	55.90	12/22/2018	51.74	58.26	68.85	75.56
12/23/2017	17.86	23.07	39.53	22.87	12/23/2018	55.91	63.06	81.11	98.37
12/24/2017	10.93	14.39	22.84	38.13	12/24/2018	58.67	72.49	94.26	112.26
12/25/2017	14.55	18.34	27.24	64.42	12/25/2018	63.55	72.74	95.13	124.89
12/26/2017	14.14	17.86	27.08	73.87	12/26/2018	54.53	60.71	76.66	102.89

12/27/2017	11.90	16.36	29.30	82.56	12/27/2018	63.59	70.57	88.39	109.97
12/28/2017	9.66	13.55	25.44	97.75	12/28/2018	76.91	92.81	117.65	143.87
12/29/2017	10.26	14.54	29.30	43.49	12/29/2018	68.02	76.58	94.07	117.72
12/30/2017	11.98	18.85	46.42	23.39	12/30/2018	72.00	85.40	110.04	134.23
12/31/2017	13.07	22.81	59.18	40.69	12/31/2018	74.97	86.18	113.32	138.05

Date	PM1	PM2.5	PM10	TSP	Date	PM1	PM2.5	PM10
1/1/2019	60.10	68.62	92.89	124.11	1/1/2020	49.09	56.21	84.84
1/2/2019	61.38	69.57	89.24	107.14	1/2/2020	35.61	39.95	59.90
1/3/2019	53.94	61.30	77.19	92.14	1/3/2020	38.10	42.10	48.38
1/4/2019	75.29	84.12	106.71	133.69	1/4/2020	15.91	16.87	19.12
1/5/2019	76.97	86.41	103.84	119.66	1/5/2020	41.15	43.81	47.37
1/6/2019	53.53	60.71	77.38	92.16	1/6/2020	51.79	54.76	60.60
1/7/2019	33.04	37.71	51.19	71.31	1/7/2020	53.11	56.68	67.06
1/8/2019	44.37	51.39	66.67	80.37	1/8/2020	48.11	51.36	59.64
1/9/2019	66.40	72.88	89.45	107.93	1/9/2020	40.02	43.46	49.69
1/10/2019	74.62	85.24	103.75	122.28	1/10/2020	40.22	42.27	47.96
1/11/2019	80.38	90.88	116.22	143.54	1/11/2020	42.34	44.48	49.21
1/12/2019	70.55	80.13	97.70	114.86	1/12/2020	56.62	60.38	73.33
1/13/2019	69.53	78.96	106.36	130.13	1/13/2020	48.09	51.44	64.54
1/14/2019	54.30	60.97	78.70	100.64	1/14/2020	51.27	60.17	75.60
1/15/2019	75.12	89.98	109.76	135.98	1/15/2020	64.08	76.85	95.61
1/16/2019	83.31	103.43	140.24	178.71	1/16/2020	74.48	80.06	89.85
1/17/2019	74.50	92.77	108.02	126.37	1/17/2020	19.59	20.91	23.40
1/18/2019					1/18/2020	33.92	37.28	44.14
1/19/2019					1/19/2020	57.57	63.94	71.59
1/20/2019					1/20/2020	53.73	58.26	66.87
1/21/2019					1/21/2020	61.87	68.83	86.98
1/22/2019					1/22/2020	53.01	56.57	68.05
1/23/2019					1/23/2020	78.97	86.94	103.08
1/24/2019	27.54	30.95	37.20	40.69	1/24/2020	94.03	101.48	116.27
1/25/2019	34.04	37.36	43.49	49.16	1/25/2020	79.65	85.52	103.83
1/26/2019	14.59	16.04	18.27	18.84	1/26/2020	78.98	88.96	107.39
1/27/2019	27.08	30.62	37.14	47.51	1/27/2020	68.57	72.64	83.01
1/28/2019	34.46	38.10	45.44	57.14	1/28/2020	91.10	100.90	120.82
1/29/2019	41.77	45.14	52.80	65.88	1/29/2020	96.37	108.69	135.31
1/30/2019	48.03	53.13	63.71	78.81	1/30/2020			
1/31/2019	62.39	68.42	85.32	106.65	1/31/2020			
2/1/2019	55.11	61.11	74.34	88.56	2/1/2020			
2/2/2019	40.17	44.24	54.08	67.27	2/2/2020			
2/3/2019	44.35	48.98	60.65	74.37	2/3/2020			
2/4/2019	58.04	64.95	78.57	93.07	2/4/2020			
2/5/2019	59.91	67.13	84.76	110.61	2/5/2020			
2/6/2019	69.10	77.41	97.45	111.97	2/6/2020			
2/7/2019	40.49	43.21	45.84	46.30	2/7/2020			
2/8/2019	17.81	20.37	23.68	29.78	2/8/2020			
2/9/2019	9.06	11.09	14.84	23.76	2/9/2020			
2/10/2019	23.11	26.49	33.94	42.92	2/10/2020			
2/11/2019	42.77	49.27	59.57	71.35	2/11/2020			
2/12/2019	39.03	44.15	56.20	73.29	2/12/2020			
2/13/2019	45.30	52.50	64.56	79.54	2/13/2020			
2/14/2019	54.65	60.27	74.05	97.11	2/14/2020			
2/15/2019	36.41	39.63	45.45	59.51	2/15/2020			
2/16/2019	25.05	27.84	33.81	51.78	2/16/2020			
2/17/2019	29.09	31.73	37.70	69.97	2/17/2020			
2/18/2019	53.84	57.77	65.03	95.91	2/18/2020			
2/19/2019	43.37	48.03	58.06	79.18	2/19/2020			
2/20/2019	43.95	49.96	62.89	98.99	2/20/2020			

2/21/2019	48.32	55.49	73.22	124.10	2/21/2020			
2/22/2019	51.75	59.59	78.18	108.24	2/22/2020			
2/23/2019	36.30	42.86	59.68	168.77	2/23/2020			
2/24/2019	57.29	67.75	89.68	145.03	2/24/2020			
2/25/2019	44.42	50.39	64.95	171.51	2/25/2020			
2/26/2019	26.27	33.92	55.55	147.67	2/26/2020			
2/27/2019	25.63	31.48	42.84	113.91	2/27/2020			
2/28/2019	8.67	10.04	12.35	36.38	2/28/2020			
3/1/2019	21.77	24.19	29.17	55.08	2/29/2020			
3/2/2019	33.32	37.07	46.05	88.97	3/1/2020			
3/3/2019	32.46	35.59	42.87	97.23	3/2/2020			
3/4/2019	24.15	27.32	33.17	64.66	3/3/2020			
3/5/2019	21.92	26.46	35.84	71.10	3/4/2020			
3/6/2019	28.87	34.25	48.65	102.62	3/5/2020			
3/7/2019	29.53	34.38	47.70	81.52	3/6/2020			
3/8/2019	31.50	36.53	50.83	90.45	3/7/2020			
3/9/2019	47.13	54.21	73.46	98.17	3/8/2020			
3/10/2019	36.45	44.23	63.23	90.54	3/9/2020			
3/11/2019	32.81	41.06	61.25	85.67	3/10/2020			
3/12/2019	26.07	35.15	60.88	104.30	3/11/2020			
3/13/2019	24.90	33.51	60.22	96.17	3/12/2020			
3/14/2019	31.48	40.26	60.07	76.73	3/13/2020			
3/15/2019	20.11	27.34	48.42	88.84	3/14/2020			
3/16/2019	22.61	29.50	48.82	78.32	3/15/2020			
3/17/2019	29.97	37.19	57.72	85.25	3/16/2020			
3/18/2019	38.35	46.56	71.48	94.04	3/17/2020			
3/19/2019	28.08	34.69	62.84	128.53	3/18/2020			
3/20/2019	30.54	35.09	44.64	55.15	3/19/2020			
3/21/2019	21.20	25.92	36.53	50.93	3/20/2020			
3/22/2019	25.14	31.31	47.47	69.81	3/21/2020			
3/23/2019	33.81	41.55	61.75	88.84	3/22/2020			
3/24/2019	47.89	56.50	80.82	107.29	3/23/2020			
3/25/2019	67.58	78.55	109.19	136.16	3/24/2020			
3/26/2019	25.25	30.14	38.39	55.07	3/25/2020			
3/27/2019	15.63	19.69	27.97	44.73	3/26/2020			
3/28/2019	27.75	33.39	45.01	57.28	3/27/2020			
3/29/2019	41.88	49.65	66.14	79.54	3/28/2020			
3/30/2019	54.61	63.57	83.94	96.45	3/29/2020			
3/31/2019	40.59	48.30	64.28	81.06	3/30/2020			
4/1/2019	19.12	24.39	35.41	48.46	3/31/2020			
4/2/2019	19.53	24.31	35.58	50.83	4/1/2020			
4/3/2019	29.69	36.41	52.51	68.75	4/2/2020	45.39	50.13	57.35
4/4/2019	33.84	40.01	56.29	72.89	4/3/2020	27.23	31.08	39.41
4/5/2019	36.32	42.61	58.14	71.43	4/4/2020	48.97	52.26	59.83
4/6/2019	16.98	20.08	24.71	25.36	4/5/2020	71.74	75.13	81.59
4/7/2019	12.76	17.04	25.64	37.60	4/6/2020	86.95	91.88	98.82
4/8/2019	17.49	22.53	32.48	41.20	4/7/2020	85.82	92.03	102.09
4/9/2019	19.23	22.56	27.57	28.41	4/8/2020	94.16	101.11	110.94
4/10/2019	17.78	20.96	26.44	28.86	4/9/2020	78.57	84.26	95.42
4/11/2019					4/10/2020	137.31	143.90	152.43
4/12/2019					4/11/2020	105.63	110.08	116.59
4/13/2019					4/12/2020	75.81	80.46	89.06
4/14/2019					4/13/2020	72.33	76.19	82.40
4/15/2019					4/14/2020	49.44	52.46	57.51
4/16/2019					4/15/2020	26.18	28.53	31.04
4/17/2019					4/16/2020	32.73	35.78	39.83
4/18/2019					4/17/2020	22.52	24.63	28.39
4/19/2019					4/18/2020	20.07	23.22	29.18
4/20/2019					4/19/2020	18.15	23.71	35.72
4/21/2019					4/20/2020	18.35	24.24	37.39
4/22/2019					4/21/2020	10.14	12.95	18.18

4/23/2019					4/22/2020	10.07	12.77	18.66
4/24/2019					4/23/2020	17.43	21.13	31.37
4/25/2019					4/24/2020	18.77	22.21	31.43
4/26/2019					4/25/2020	16.07	19.22	26.75
4/27/2019					4/26/2020	16.51	20.50	29.66
4/28/2019					4/27/2020	14.09	17.56	25.27
4/29/2019					4/28/2020	13.99	16.96	23.82
4/30/2019					4/29/2020	13.00	16.59	25.93
5/1/2019					4/30/2020	14.33	17.47	24.50
5/2/2019					5/1/2020	9.14	11.26	16.02
5/3/2019					5/2/2020	9.36	12.20	17.83
5/4/2019					5/3/2020	13.96	17.70	25.68
5/5/2019					5/4/2020	8.64	10.76	14.99
5/6/2019					5/5/2020	10.16	12.81	18.79
5/7/2019					5/6/2020	8.24	11.10	17.72
5/8/2019					5/7/2020	7.39	9.27	13.18
5/9/2019					5/8/2020	9.62	13.08	21.15
5/10/2019					5/9/2020	16.57	21.21	33.14
5/11/2019	38.97	43.42	49.24	51.51	5/10/2020	10.83	14.20	20.91
5/12/2019	42.50	47.29	59.26	90.24	5/11/2020	20.00	24.59	34.55
5/13/2019	37.69	42.68	52.46	73.11	5/12/2020	18.50	23.35	35.08
5/14/2019	40.87	44.54	52.15	69.48	5/13/2020	21.14	26.91	41.74
5/15/2019	26.94	29.52	33.58	43.74	5/14/2020	22.27	28.40	45.21
5/16/2019	17.86	20.79	25.12	36.91	5/15/2020	18.95	23.20	33.62
5/17/2019	12.39	15.07	18.95	28.61	5/16/2020	27.87	35.60	52.64
5/18/2019	10.01	13.06	18.76	32.01	5/17/2020	22.12	29.80	50.04
5/19/2019	12.77	15.81	21.53	31.91	5/18/2020	22.78	29.53	49.33
5/20/2019	13.83	16.20	19.92	23.31	5/19/2020	13.15	17.16	26.67
5/21/2019	12.94	14.77	18.13	21.56	5/20/2020	23.11	28.16	40.53
5/22/2019	13.76	16.16	19.98	24.07	5/21/2020	22.01	26.81	38.22
5/23/2019	10.35	11.93	13.54	14.76	5/22/2020	12.68	15.56	23.57
5/24/2019	6.98	8.46	10.32	12.50	5/23/2020	11.40	14.53	22.20
5/25/2019	3.99	5.08	6.38	7.79	5/24/2020	17.31	22.07	36.12
5/26/2019	5.53	6.65	8.10	9.69	5/25/2020	18.54	23.99	37.89
5/27/2019	5.66	6.68	8.50	9.69	5/26/2020	13.39	15.62	21.24
5/28/2019	6.44	7.45	9.16	10.93	5/27/2020	10.95	12.05	13.68
5/29/2019	6.07	6.80	8.15	9.47	5/28/2020	9.41	10.33	11.59
5/30/2019	5.22	6.15	6.92	8.11	5/29/2020	6.89	7.70	8.96
5/31/2019	4.80	5.41	5.92	6.31	5/30/2020	8.05	9.16	10.17
6/1/2019	3.21	3.74	4.31	4.96	5/31/2020	9.57	10.31	10.90
6/2/2019	2.86	3.25	3.67	5.12	6/1/2020	7.47	8.52	9.48
6/3/2019	3.25	3.56	3.87	5.81	6/2/2020	10.54	12.20	14.48
6/4/2019	2.83	3.08	3.42	3.70	6/3/2020	11.55	13.03	15.56
6/5/2019	2.04	2.15	2.28	2.38	6/4/2020	12.56	13.51	14.65
6/6/2019	2.86	3.02	3.17	3.28	6/5/2020	11.47	11.97	12.28
6/7/2019	1.19	1.27	1.40	2.02	6/6/2020	4.65	4.88	5.02
6/8/2019	1.86	1.94	2.29	3.97	6/7/2020	8.58	9.53	11.15
6/9/2019	2.11	2.26	2.45	2.62	6/8/2020	8.99	10.09	11.85
6/10/2019	3.12	3.25	3.41	3.65	6/9/2020	11.47	13.36	16.68
6/11/2019	2.58	2.65	2.68	2.68	6/10/2020	10.87	12.62	15.58
6/12/2019	1.95	1.99	2.11	3.21	6/11/2020	16.82	19.15	23.18
6/13/2019	1.87	1.89	1.98	3.00	6/12/2020	8.44	10.21	13.72
6/14/2019	1.31	1.33	1.35	1.36	6/13/2020	5.69	7.20	9.15
6/15/2019	1.37	1.38	1.41	1.46	6/14/2020	5.17	6.83	9.81
6/16/2019	1.89	1.90	1.96	2.15	6/15/2020	3.38	4.38	5.53
6/17/2019	1.07	1.09	1.12	1.17	6/16/2020	3.31	4.78	6.58
6/18/2019	1.13	1.17	1.27	1.61	6/17/2020	4.58	6.23	8.79
6/19/2019					6/18/2020	4.77	6.24	8.34
6/20/2019					6/19/2020	7.66	9.24	11.69
6/21/2019					6/20/2020	8.31	10.31	13.10
6/22/2019					6/21/2020	7.27	9.59	13.22

6/23/2019				6/22/2020	4.66	6.42	8.65
6/24/2019				6/23/2020	6.87	9.47	13.34
6/25/2019				6/24/2020	9.63	12.74	17.60
6/26/2019				6/25/2020	7.67	9.45	12.52
6/27/2019				6/26/2020	7.92	9.53	12.20
6/28/2019				6/27/2020	9.23	11.28	14.49
6/29/2019				6/28/2020	4.12	5.79	7.85
6/30/2019				6/29/2020	7.11	9.13	12.30
7/1/2019				6/30/2020	12.01	15.22	19.69
7/2/2019				7/1/2020	14.59	18.46	23.58
7/3/2019				7/2/2020	8.74	10.80	13.60
7/4/2019				7/3/2020	11.07	13.41	17.19
7/5/2019				7/4/2020	9.95	12.23	15.74
7/6/2019				7/5/2020	6.62	8.39	11.35
7/7/2019				7/6/2020	3.44	5.44	7.77
7/8/2019				7/7/2020	3.70	6.03	8.51
7/9/2019				7/8/2020	4.65	7.08	10.21
7/10/2019				7/9/2020	6.26	7.98	10.47
7/11/2019				7/10/2020	3.10	4.58	6.28
7/12/2019				7/11/2020	3.63	5.21	7.22
7/13/2019				7/12/2020	9.02	11.05	13.96
7/14/2019				7/13/2020	7.39	9.11	11.80
7/15/2019				7/14/2020	5.82	7.60	10.00
7/16/2019				7/15/2020	7.62	9.34	12.43
7/17/2019				7/16/2020	9.54	11.49	15.31
7/18/2019				7/17/2020	11.15	14.06	19.31
7/19/2019				7/18/2020	9.53	11.60	15.09
7/20/2019				7/19/2020	6.48	7.77	9.80
7/21/2019				7/20/2020	2.31	3.78	5.06
7/22/2019				7/21/2020	4.72	6.64	8.52
7/23/2019				7/22/2020	4.48	6.54	9.11
7/24/2019				7/23/2020	5.73	7.45	9.89
7/25/2019				7/24/2020	5.07	6.81	9.14
7/26/2019				7/25/2020	7.86	9.76	12.83
7/27/2019				7/26/2020	9.35	11.70	15.56
7/28/2019				7/27/2020	8.49	9.90	11.89
7/29/2019				7/28/2020	5.96	8.51	11.19
7/30/2019				7/29/2020	8.23	10.76	14.33
7/31/2019				7/30/2020	4.91	7.28	9.77
8/1/2019				7/31/2020	10.08	12.85	17.23
8/2/2019				8/1/2020	11.90	14.32	18.02
8/3/2019				8/2/2020			
8/4/2019				8/3/2020			
8/5/2019				8/4/2020			
8/6/2019				8/5/2020			
8/7/2019				8/6/2020			
8/8/2019				8/7/2020			
8/9/2019				8/8/2020			
8/10/2019				8/9/2020			
8/11/2019				8/10/2020			
8/12/2019				8/11/2020			
8/13/2019				8/12/2020			
8/14/2019				8/13/2020			
8/15/2019				8/14/2020			
8/16/2019				8/15/2020			
8/17/2019				8/16/2020			
8/18/2019				8/17/2020			
8/19/2019				8/18/2020			
8/20/2019				8/19/2020			
8/21/2019				8/20/2020			
8/22/2019				8/21/2020			

8/23/2019				8/22/2020			
8/24/2019				8/23/2020			
8/25/2019				8/24/2020			
8/26/2019				8/25/2020			
8/27/2019				8/26/2020			
8/28/2019				8/27/2020			
8/29/2019				8/28/2020			
8/30/2019				8/29/2020			
8/31/2019				8/30/2020			
9/1/2019				8/31/2020			
9/2/2019				9/1/2020			
9/3/2019				9/2/2020			
9/4/2019				9/3/2020			
9/5/2019				9/4/2020			
9/6/2019				9/5/2020			
9/7/2019				9/6/2020			
9/8/2019				9/7/2020			
9/9/2019				9/8/2020			
9/10/2019				9/9/2020			
9/11/2019				9/10/2020			
9/12/2019				9/11/2020			
9/13/2019				9/12/2020			
9/14/2019				9/13/2020			
9/15/2019				9/14/2020			
9/16/2019				9/15/2020			
9/17/2019				9/16/2020			
9/18/2019				9/17/2020			
9/19/2019				9/18/2020			
9/20/2019				9/19/2020			
9/21/2019				9/20/2020			
9/22/2019				9/21/2020			
9/23/2019				9/22/2020			
9/24/2019				9/23/2020			
9/25/2019				9/24/2020			
9/26/2019				9/25/2020			
9/27/2019				9/26/2020			
9/28/2019				9/27/2020			
9/29/2019				9/28/2020			
9/30/2019				9/29/2020			
10/1/2019				9/30/2020			
10/2/2019				10/1/2020			
10/3/2019				10/2/2020			
10/4/2019				10/3/2020			
10/5/2019				10/4/2020			
10/6/2019				10/5/2020			
10/7/2019				10/6/2020			
10/8/2019				10/7/2020			
10/9/2019				10/8/2020			
10/10/2019				10/9/2020			
10/11/2019				10/10/2020			
10/12/2019				10/11/2020			
10/13/2019				10/12/2020			
10/14/2019				10/13/2020			
10/15/2019				10/14/2020			
10/16/2019				10/15/2020			
10/17/2019				10/16/2020			
10/18/2019				10/17/2020			
10/19/2019				10/18/2020			
10/20/2019				10/19/2020			
10/21/2019				10/20/2020			
10/22/2019				10/21/2020			

10/23/2019					10/22/2020			
10/24/2019	57.23	62.88	83.37		10/23/2020			
10/25/2019	46.51	53.46	80.50		10/24/2020			
10/26/2019	32.26	37.32	52.52		10/25/2020			
10/27/2019	39.14	44.57	61.67		10/26/2020			
10/28/2019	60.60	67.05	87.40		10/27/2020			
10/29/2019	47.94	53.31	70.33		10/28/2020			
10/30/2019	39.48	44.76	61.20		10/29/2020			
10/31/2019	38.23	43.59	64.77		10/30/2020			
11/1/2019	48.09	53.52	72.66		10/31/2020			
11/2/2019	56.65	65.23	89.59		11/1/2020			
11/3/2019	41.21	46.49	64.52		11/2/2020			
11/4/2019	41.33	47.04	66.52		11/3/2020			
11/5/2019	55.59	61.67	81.42		11/4/2020			
11/6/2019	59.37	65.68	88.80		11/5/2020			
11/7/2019	58.66	65.42	90.28		11/6/2020			
11/8/2019	41.65	47.13	66.60		11/7/2020			
11/9/2019	25.70	29.95	45.45		11/8/2020			
11/10/2019	31.37	36.59	55.38		11/9/2020			
11/11/2019	33.93	38.46	56.36		11/10/2020			
11/12/2019	55.90	61.79	87.10		11/11/2020			
11/13/2019	54.14	60.73	83.28		11/12/2020			
11/14/2019	41.35	47.30	66.17		11/13/2020			
11/15/2019	37.20	42.52	62.80		11/14/2020			
11/16/2019	47.95	53.48	75.56		11/15/2020			
11/17/2019	61.95	68.03	91.25		11/16/2020			
11/18/2019	87.62	97.32	128.98		11/17/2020			
11/19/2019	97.63	108.69	142.69		11/18/2020			
11/20/2019	96.29	105.53	138.74		11/19/2020			
11/21/2019	87.14	96.27	127.04		11/20/2020			
11/22/2019	76.24	84.70	110.97		11/21/2020			
11/23/2019	66.80	75.01	98.67		11/22/2020			
11/24/2019	81.24	89.17	115.77		11/23/2020			
11/25/2019	79.39	86.81	112.47		11/24/2020			
11/26/2019	75.99	84.96	108.62		11/25/2020			
11/27/2019	73.19	80.79	104.13		11/26/2020			
11/28/2019	64.44	71.48	93.35		11/27/2020			
11/29/2019	48.77	56.91	78.76		11/28/2020			
11/30/2019	52.80	60.23	81.06		11/29/2020			
12/1/2019	44.98	51.55	73.05		11/30/2020			
12/2/2019	55.12	60.69	80.26		12/1/2020			
12/3/2019	63.63	68.79	89.06		12/2/2020			
12/4/2019	75.90	82.88	108.76		12/3/2020			
12/5/2019	49.94	55.68	74.62		12/4/2020			
12/6/2019	50.35	56.59	80.73		12/5/2020			
12/7/2019	45.96	53.15	81.27		12/6/2020			
12/8/2019	52.37	60.65	83.09		12/7/2020			
12/9/2019	45.50	52.62	73.76		12/8/2020			
12/10/2019	47.21	53.14	75.33		12/9/2020			
12/11/2019	56.27	62.67	86.05		12/10/2020			
12/12/2019	82.01	90.90	116.85		12/11/2020			
12/13/2019	56.03	60.54	71.30		12/12/2020			
12/14/2019	17.07	18.44	22.06		12/13/2020			
12/15/2019	30.26	33.23	41.87		12/14/2020			
12/16/2019	30.05	33.41	43.23		12/15/2020			
12/17/2019	45.49	49.24	55.08		12/16/2020			
12/18/2019	59.34	64.90	74.16		12/17/2020			
12/19/2019	61.65	67.20	80.42		12/18/2020			
12/20/2019	78.23	85.42	103.20		12/19/2020			
12/21/2019	84.32	96.96	121.00		12/20/2020	81.56	86.15	98.51
12/22/2019	77.76	85.05	96.30		12/21/2020	83.78	89.20	100.50

12/23/2019	77.55	84.29	95.64		12/22/2020	74.75	79.81	88.81
12/24/2019	67.74	75.13	94.57		12/23/2020	58.58	61.97	67.20
12/25/2019	69.50	76.27	90.63		12/24/2020	60.26	64.23	72.94
12/26/2019	69.52	76.40	89.30		12/25/2020	51.49	54.34	60.76
12/27/2019	61.11	67.21	83.24		12/26/2020	63.47	66.95	75.92
12/28/2019	59.65	64.07	78.28		12/27/2020	66.84	71.78	82.03
12/29/2019	78.66	85.24	104.38		12/28/2020	53.79	57.43	65.70
12/30/2019	58.00	62.53	78.16		12/29/2020	59.81	65.19	76.89
12/31/2019	54.14	59.26	78.26		12/30/2020	66.35	70.12	77.99
					12/31/2020	75.11	81.26	92.17