# Decoding winter smog so far to expose new patterns

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New analysis of the winter pollution until November this year by the Centre for Science and Environment (CSE) shows how clean air gains of the lockdown and monsoon period were lost with the reopening of the economy and hostile winter weather. While this was expected, the deep dive analysis of the realtime data from monitoring stations across Delhi NCR and Delhi expose the changing pattern of winter pollution.

Even though the overall average level of $PM_{2.5}$ for the 11 months in 2020 is considerably lower than the previous year, the $PM_{2.5}$ levels in winter spiked to very poor to severe levels across Delhi NCR. This is a typical and predictable winter trend when continuous emissions from local sources and episodic pollution from biomass burning get trapped due to meteorological changes. But this year there is a change in the pattern that shows up in lesser number of smog episodes compared to last year, wider variation on location-wise concentration with more lower bound ranges compared to last year, higher number of days with greater contribution from the stubble burning among others. There are also days when pollution levels have dropped to moderate level even without rains but better wind conditions.

This only indicates towards the fact that the deep dive reforms and action in key sectors of pollution – vehicles, industry, power plants and waste management – will have to be scaled up at speed across the region to further bend the annual air pollution curve.

### Data used in the analysis

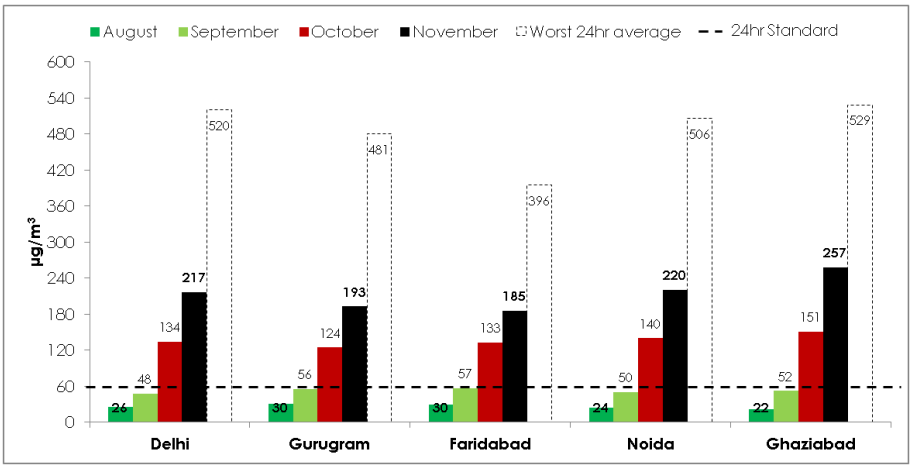
The analysis is based on publically available data from various government agencies. Most granular data (15-minute averages) has been sourced from the Central Pollution Control Board's (CPCB) official online portal Central Control Room for Air Quality Management - All India (https://app.cpcbccr.com/). This has analysed data recorded by 79 air quality monitoring stations or cent per cent of the current NCR network under the Continuous Ambient Air Quality Monitoring System (CAAQMS) of CPCB. Farm stubble fire data has been sourced from System of Air Quality and Weather Forecasting and Research (SAFAR). Weather data has been sourced from the Palam weather station of Indian Meteorological Department (IMD).

## Key highlights

**Lower average level of $PM_{2.5}$ throughout the year due to the lockdown could not prevent the winter spike:** The overall $PM_{2.5}$ average this year (until November) has been predictably lower compared to the previous year largely because of the unprecedented economic disruption during the summer lockdown and monsoon. But reopening of the economy coinciding with the onset of the winter trapping pollution made $PM_{2.5}$ levels spiral during October and November.

From the cleanest weeks of August (the cleanest month on record so far) the levels rose dramatically to one of the dirtiest November in recent years. This rise varied from 9.5 times increase in Delhi to 11 times in Ghaziabad; followed by Noida – 9.2 times, Gurugram by 6.4 times and Faridabad by 6.2 times (See *Graph 1: Pollution build-up in 2020 winter (monthly averages)*). The transient change of the lockdown phases could not be sustained without the systemic changes needed to control pollution from vehicles, industry, power plants, and waste.

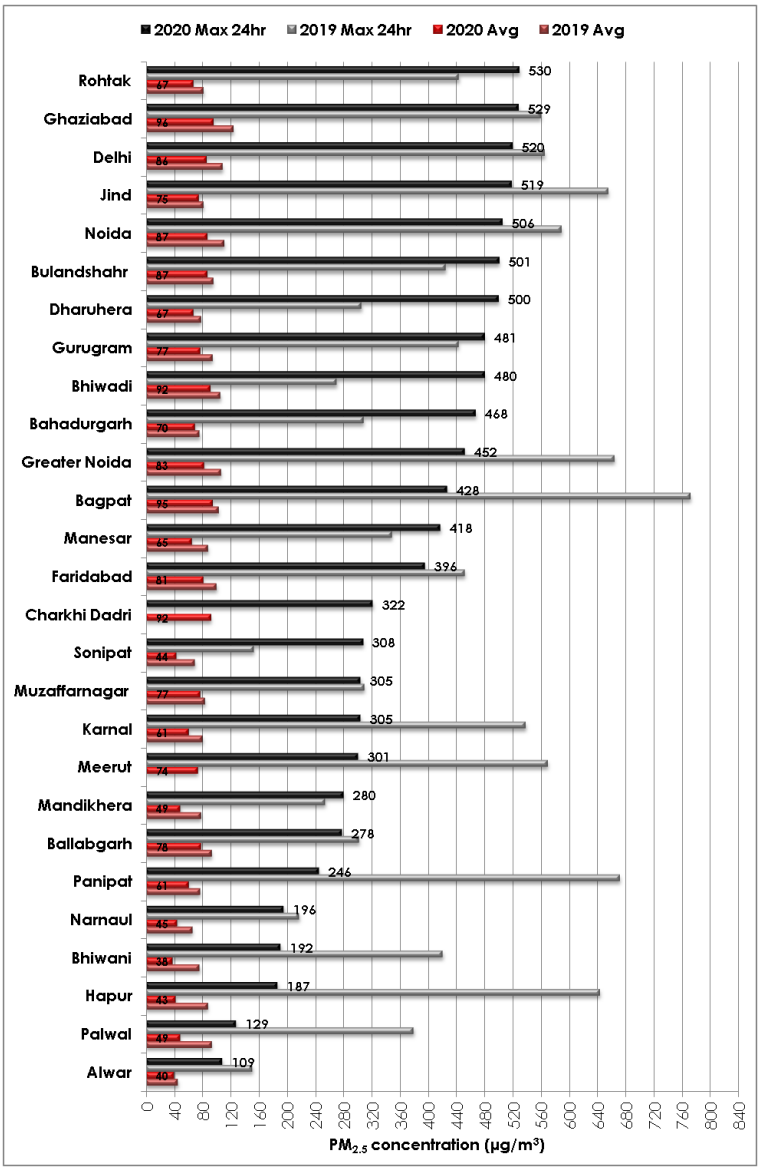
**Graph 1: Pollution build-up in 2020 winter (monthly averages)**




Note: Worst 24hr average is based on mean of all CAAQM stations in the city, not including Diwali day. Average $PM_{2.5}$ concentration for a month is based on mean of all CAAQM stations in the city.
Source: CSE analysis of CPCB's realtime air quality data

**Even with comparatively cleaner air round the year other towns in the NCR have recorded spikes as high as those observed in Delhi and big four NCR cities**: CSE has compared the annual averages of the cities and towns of the larger NCR region with that of Delhi and the big four including Gurugram, Faridabad, Noida and Gaziabad. This shows that even with much lower annual average level of $PM_{2.5}$ other smaller cities and towns in NCR experience almost same maximum levels during winter when the entire region is in airlock (See *Graph 2: Pollution among NCR cities and towns*). In fact, even Delhi that has in the recent times witnessed decline in annual average levels year-on-year basis have experienced high pollution build up during winter. This brings out the deadly combination of regional influence with local pollution when meteorology is adverse.

**Graph 2: Pollution among NCR cities and towns**

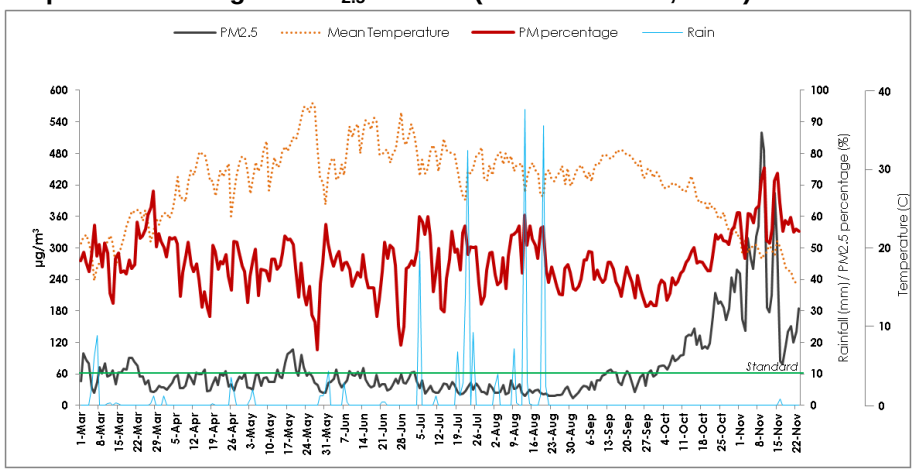



Note: 2020 numbers are based on data up to 30 Nov 2020. Data labels are for 2020 only.
Source: CSE analysis of CPCB's realtime air quality data

**Air quality gets more toxic with the onset of winter - share of tinier $PM_{2.5}$ in the $PM_{10}$ increases:** The share of tinier and finer particles in the overall coarser $PM_{10}$ concentration determines the toxicity of air. Interestingly, during lockdown, when the overall suspended coarser particles had settled down reducing the $PM_{10}$ levels, the $PM_{2.5}$ had also come down but its share was 47 per cent – higher than its usually

noted during summer. But with the onset of winter the percentage share of $PM_{2.5}$ in the overall $PM_{10}$ rose to over 70 per cent during the smog episodes in early November, and remained high at 50-60 per cent during most of November (See Graph 3: Percentage of PM2.5 in Delhi (1 Mar – 29 Nov, 2020)). The share of $PM_{2.5}$ in $PM_{10}$ was highest on Diwali reaching over 80 per cent at many locations. Tinier particles are more dangerous as they can penetrate deep inside the lungs and through blood barriers increasing health risk.

**Graph 3: Percentage of $PM_{2.5}$ in Delhi (1 Mar – 29 Nov, 2020)**

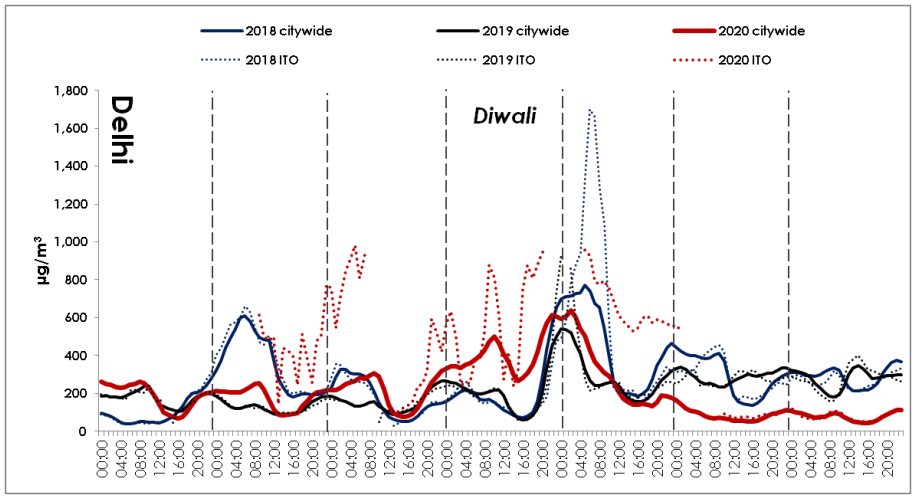



Data: CPCB ($PM_{10}$ and $PM_{2.5}$), IMD (Temperature and rainfall)
Source: CSE analysis

**Pattern of smog episode is different this year:** Technically, smog episode is defined for the purpose of emergency action under Graded Response Action Plan when the levels of $PM_{2.5}$ remain in severe category for three consecutive days. By that logic the region has experienced one severe smog episode this year (7-10 Nov, 2020) compared to two episodes last year until November (31 Oct-3 Nov, 2019 and 12-15 Nov, 2019). This year the episode preceded Diwali that also much later in November compared to end of October last year. In fact, last year Diwali had catalyzed the first big smog episode of the season.

But this year Diwali pollution from fire crackers combined with smoke from stubble burning and local pollution to start a buildup of severe-plus and extremely hazardous level on day of Diwali itself (14 Nov 2020). But this did not last long to become another smog episode as meteorology along with short rain spell helped to dissipate it quicker. The average $PM_{2.5}$ level on Diwali day in Delhi was 404 µg/m$^3$ and it dropped to 308 µg/m$^3$ the next day in contrast the trend in the previous years when the levels increased next day. This year pollution was able to disperse faster due to meteorology. But like previous years, there was dramatic change in hourly $PM_{2.5}$ concentration between afternoon and night of Diwali due to excessive firecracker busting (See *Graph 4: Impact of Diwali on hourly pollution*). The change in hourly $PM_{2.5}$ concentration between afternoon and night of Diwali was 370 µg/m$^3$, down from 480 µg/m$^3$ in 2019 and 698 µg/m$^3$ in 2018.

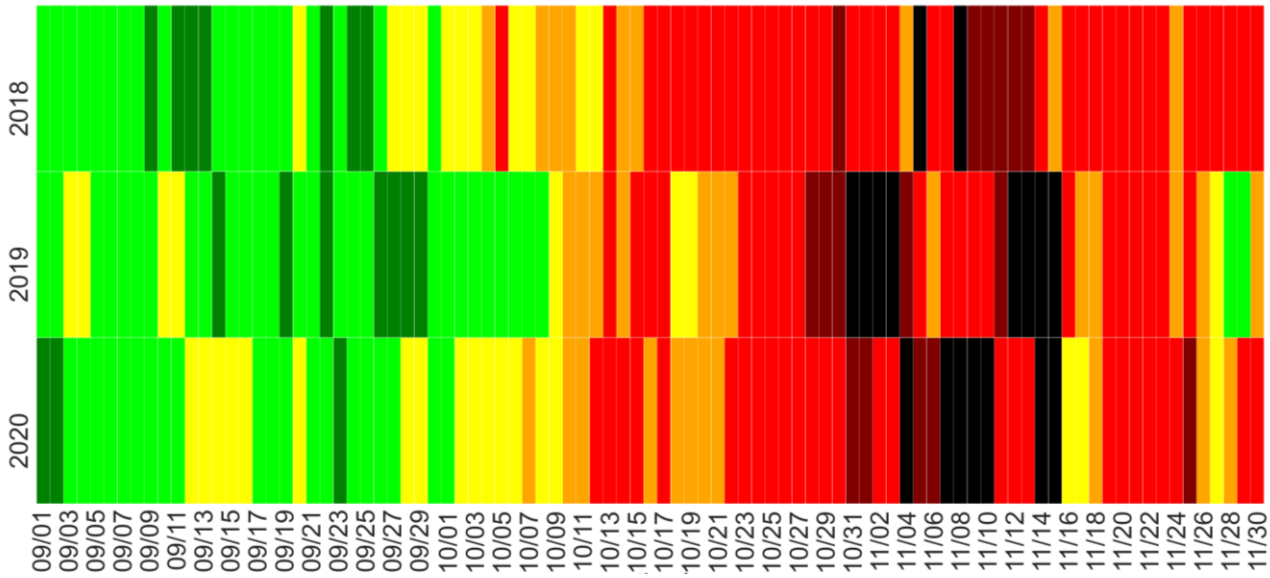
**Graph 4: Impact of Diwali on hourly pollution in Delhi**




Note: Diwali dates are 7 Nov 2018, 27 Oct 2019, and 14 Nov 2020. Citywide is based on average $PM_{2.5}$ concentration of all CAAQM stations operational in the city on a given day. Dotted lines represent a specific CAAQM station of the city to showcase variation in $PM_{2.5}$ concentrations among city's numerous CAAQM stations. CPCB portal since 2019 has a cap of 1,000 µg/m$^3$, i.e. when the $PM_{2.5}$ concentration peaks beyond 999 µg/m$^3$ (very common on Diwali night) the portal data entry goes blank, therefore the broken line in the graph at Diwali night should be read as concentration beyond 1,000 µg/m$^3$ instead of being generic missing data.
Source: CSE analysis of CPCB's real time air quality data

**Levels are more volatile recording quicker ups and downs and dispersal aided by overall downward trend in annual trends and meteorology:** The cyclical ups and down of pollution this winter is more volatile – showing quicker rise and fall than pervious winter (See *Graph 5: Heatmap of Delhi's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20*). This could also be a reflection of changes in local pollution pattern and overall downward trend while aided by the meteorology.

**Graph 5: Heatmap of Delhi's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**

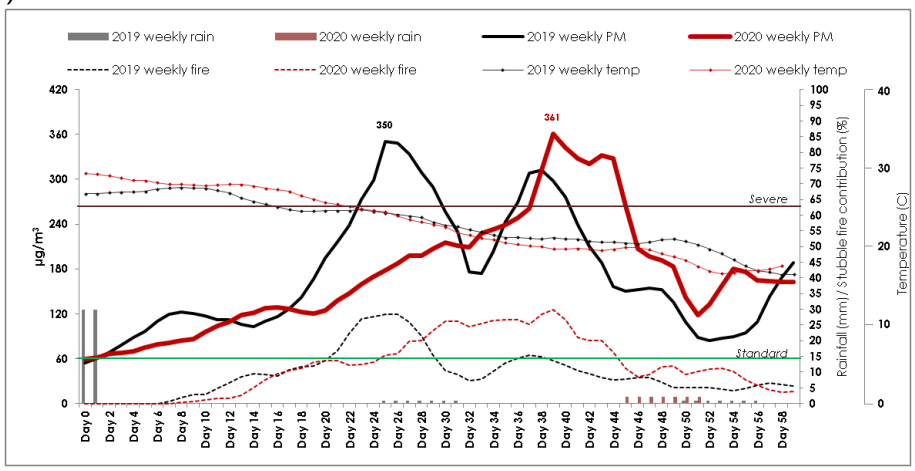



Note: Average $PM_{2.5}$ concentration for a day is based on mean of 36 CAAQM stations of Delhi. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

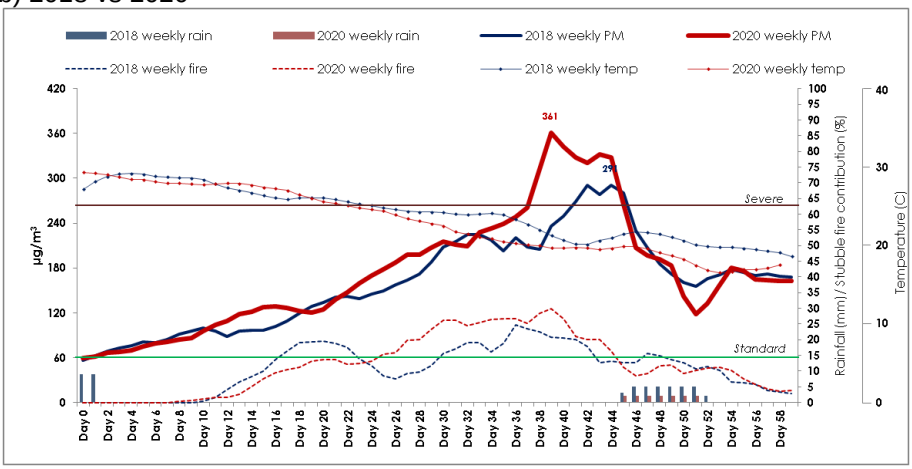
Firstly, an interesting observation is that there are days this November when air quality improved substantially without the rains but with overall improvement in wind pattern. There are three days during the second half of November in 2020 when the air quality improved to “moderately polluted” AQI category in Delhi. This is same as 2019 but the clean up in 2019 was induced by rains. In 2018, the citywide average never dropped below “poor” AQI category in November. This winter the daily citywide average dropped down even to 76 µg/m$^3$ on November 27, without any rain to help aid in the cleaning process. In fact, five stations in Delhi met the 24hr standard with Shadipur registering 41 µg/m$^3$. Gurugram (68 µg/m$^3$), Faridabad (58 µg/m$^3$), and Noida (73 µg/m$^3$) had even lower citywide average than Delhi, in fact Faridabad met the standard. Ghaziabad had a relatively higher 84 µg/m$^3$ . This is quite different compared to previous winter.

**Graph 6: Rate of increase in $PM_{2.5}$ in Delhi a) 2019 vs 2020, b) 2018 vs 2020**

a) 2019 vs 2020




b) 2018 vs 2020




Note: All values are rolling weekly average. Day 0 is the last day when the rolling weekly average was below the standard (60ug/m3). Day 0 for each year is week ending on 30 Sept 2018, 9 Oct 2019, and 2 Oct 2020.
Data: CPCB ($PM_{2.5}$), SAFAR (Stubble fire contribution), IMD (Temperature and rainfall)
Source: CSE analysis

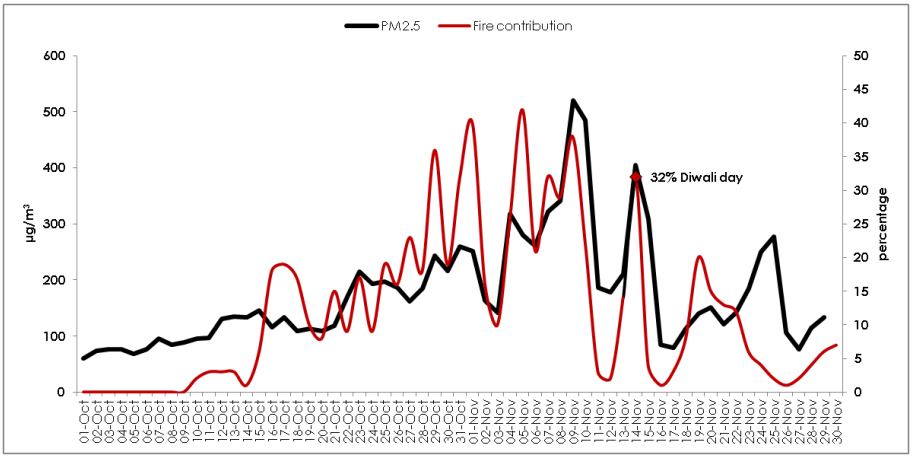
Secondly, this year local pollution across the monitoring locations of Delhi shows wider variation between lower and upper range of pollution. This is in contrast to the range of variation noted last year that was more upper bound. Even on the peak smog day in November this year, the PM2.5 levels in several stations varied from a lower bound 108 µg/m$^3$ at NSIT to 699 µg/m$^3$ at Mundaka. But last year the variation was noted at a higher range – between 351 µg/m$^3$ at Shadipur to 725 µg/m$^3$ at Alipur – while the

overall level stayed above 374 µg/m$^3$ . In fact, the standard deviation among the 36 stations of Delhi this November on an average is 60 per cent higher compared to last year across. This indicates somewhat clearing up of local pollution though meteorology plays a part.

Even the rolling weekly average rose slower this year compared to last year (See *Graph 6: Rate of increase in $PM_{2.5}$ in Delhi a) 2019 vs 2020, b) 2018 vs 2020*). It took 37 days to reach the severe category (250 µg/m$^3$) from the week that last met the standard of 60 µg/m$^3$ in early October (week ending on 2nd October, 2020). This is considerably slower rise compared to 2019 when it took 23 days. In 2018, it took 40 days but weather was also about 3$^o$C warmer compared to this November. This November is also among the coldest in the recent years according to IMD.

**Contribution of crop burning to the region's pollution was volatile and higher number of days recorded higher share:** CSE has analysed the data provided by SAFAR on daily percentage contribution of the stubble burning to the $PM_{2.5}$ concentration in Delhi-NCR depending on the direction and speed of the wind. This shows that the smoke from crop stubble fire started impacting Delhi more discerningly from 10, October 2020 onwards. This was a week earlier than last year when it started on 16 October, 2019 (See *Graph 7: Percentage contribution of stubble fire to Delhi's $PM_{2.5}$ pollution in 2020*).

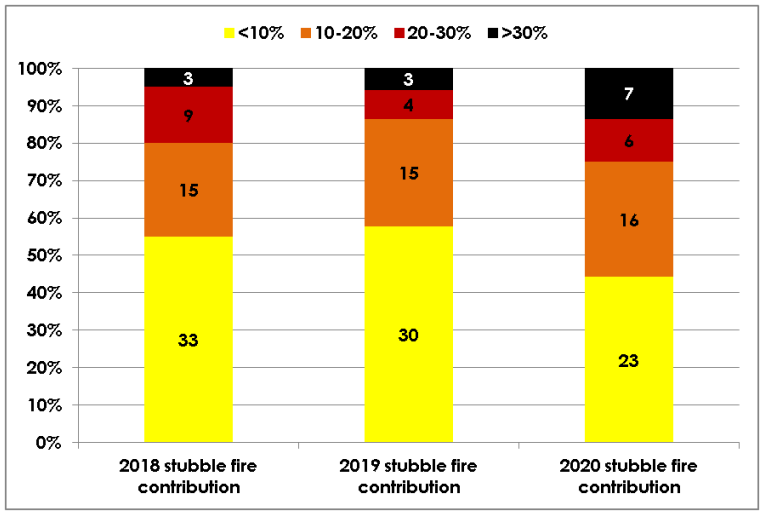
**Graph 7: Percentage contribution of stubble fire to Delhi's $PM_{2.5}$ pollution in 2020**




Note: Data up till 30 Nov 2020.
Source: CSE analysis of CPCB and SAFAR data

CSE analysed classified days (uptill 30 November) based on daily percentage contribution – less than 10 per cent, 10-20 per cent, 20-30 per cent and above 30 per cent. This shows there were 7 days this year when the contribution of smoke to Delhi's $PM_{2.5}$ concentration exceeded 30 per cent in contrast to 3 days in 2019 and 2018 (See *Graph 8: Day-wise breakup of farm stubble fire contribution to Delhi's $PM_{2.5}$ pollution load*). There were 6 days when contribution was between 20-30 per cent, (up from 4 days in 2019) and 16 days of 10-20 per cent contribution (up from 15 days in 2019) and 23 days with less than 10 per cent contribution (down from 30 days in 2019). This year Diwali pollution was also compounded by the heightened contribution of smoke from crop stubble fire as the contribution increased to 32 per cent.

**Graph 8: Day-wise breakup of farm stubble fire contribution to Delhi's $PM_{2.5}$ pollution load**



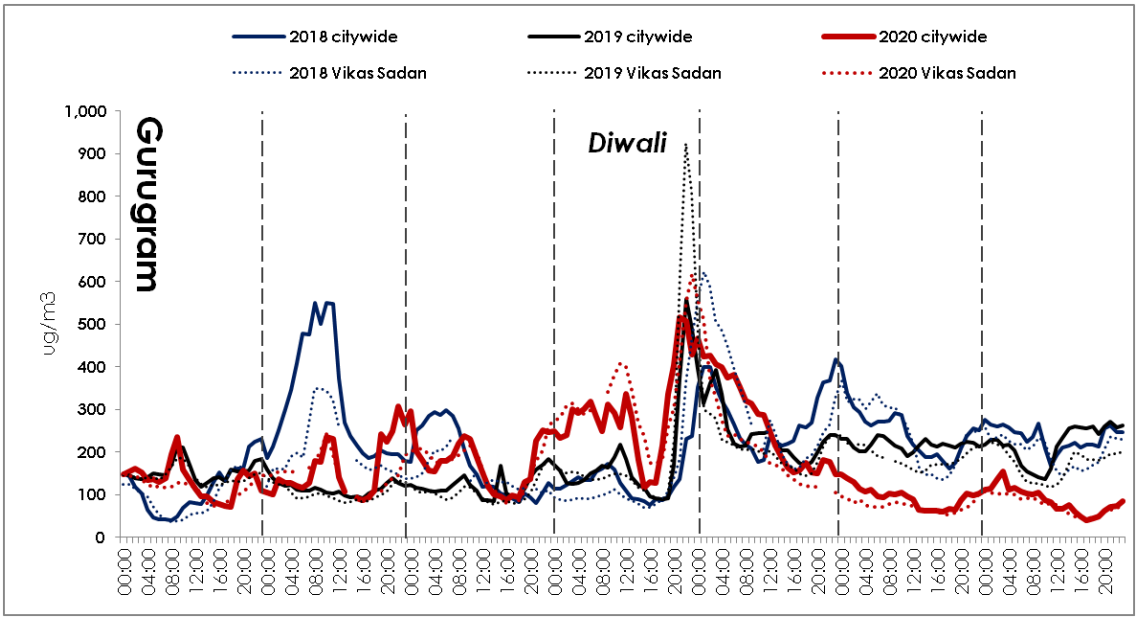

Note: For 10 Oct – 30 Nov of 2018, 2019, and 2020.
Source: CSE analysis of SAFAR data

## Need deep cuts

How the pollution level will play out during the rest of the winter remains to be seen. But it is clear that the region cannot afford to lose the wins already made and at the same time, raise the level of ambition to drive action across all key sectors of pollution and the entire region. Enforce power plant standards, eliminate coal from the industry, scale up public transport and vehicle restraint measures and manage waste to have a zero waste and zero landfill strategy.

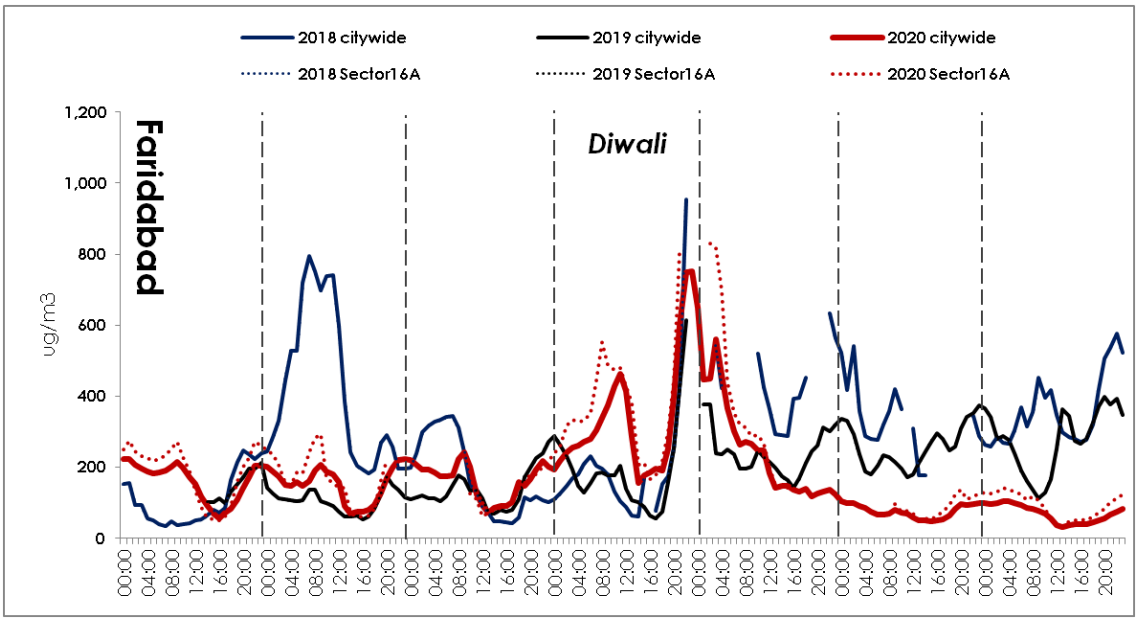
# Additional graphs for NCR cities

### Graph 4.1: Impact of Diwali on hourly pollution in Gurugram




Note: Diwali dates are 7 Nov 2018, 27 Oct 2019, and 14 Nov 2020. Citywide is based on average PM2.5 concentration of all CAAQM stations operational in the city on a given day. Dotted lines represent a specific CAAQM station of the city to showcase variation in $PM_{2.5}$ concentrations among city's numerous CAAQM stations. CPCB portal has a cap of 1,000 µg/m$^3$, i.e. when the $PM_{2.5}$ concentration peaks beyond 999 µg/m$^3$ (very common on Diwali night) the portal data entry goes blank, therefore the broken line in the graph at Diwali night should be read as concentration beyond 1,000 µg/m$^3$ instead of being generic missing data.
Source: CSE analysis of CPCB's real time air quality data

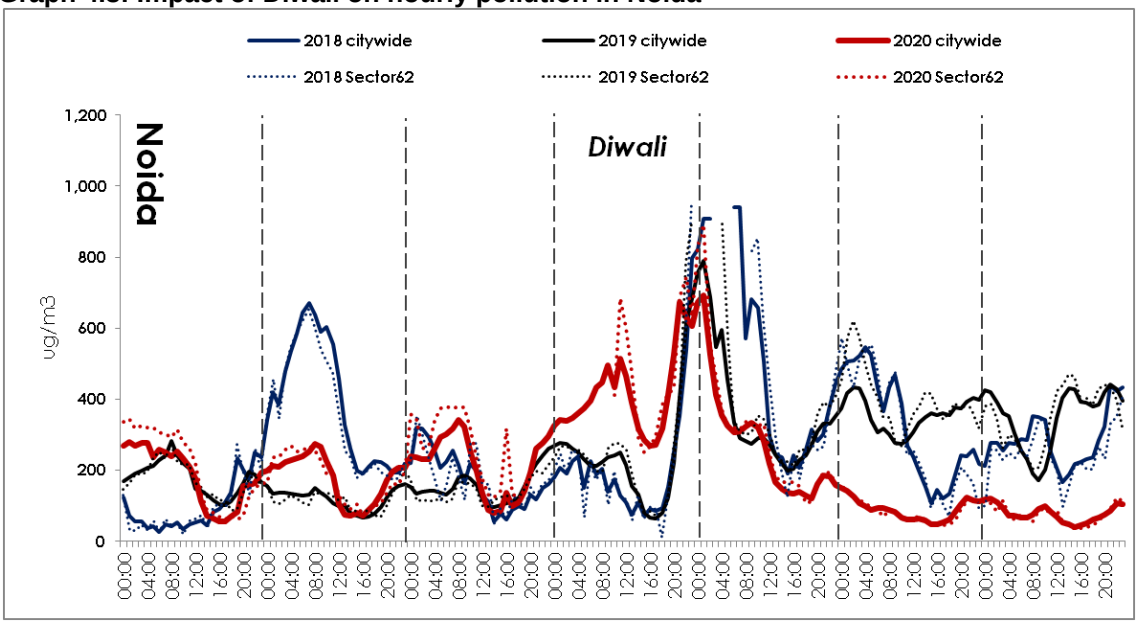
### Graph 4.2: Impact of Diwali on hourly pollution in Faridabad




Note: Diwali dates are 7 Nov 2018, 27 Oct 2019, and 14 Nov 2020. Citywide is based on average PM2.5 concentration of all CAAQM stations operational in the city on a given day. Dotted lines represent a specific CAAQM station of the city to showcase variation in $PM_{2.5}$ concentrations among city's numerous CAAQM stations. CPCB portal has a cap of 1,000 µg/m$^3$, i.e. when the $PM_{2.5}$ concentration peaks beyond 999 µg/m$^3$ (very common on Diwali night) the portal data entry goes blank, therefore the broken

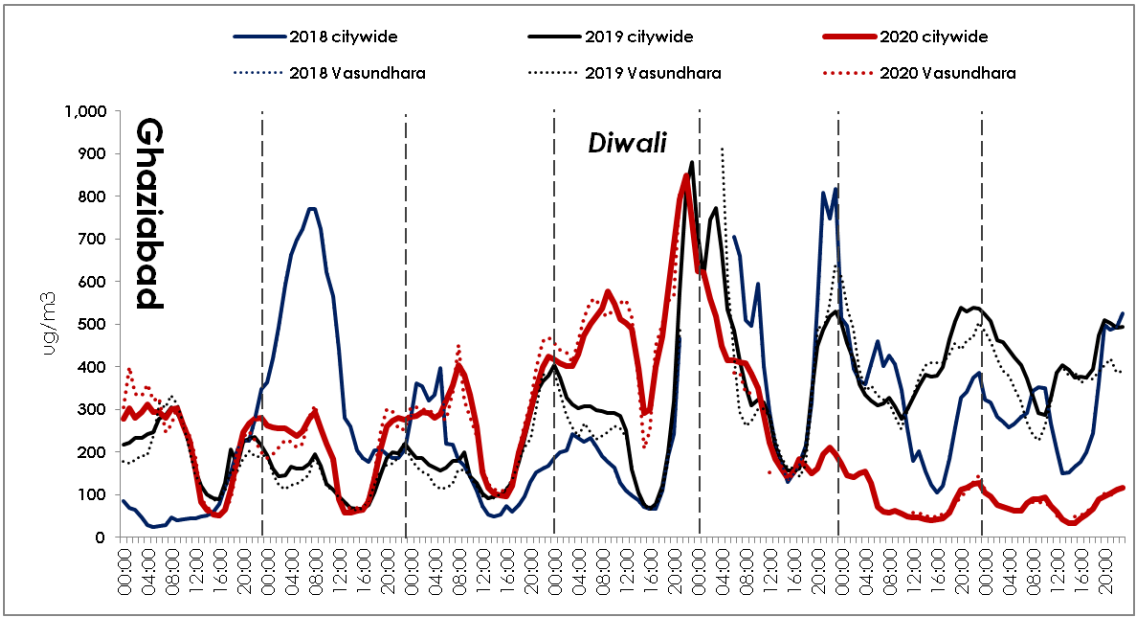
line in the graph at Diwali night should be read as concentration beyond 1,000 µg/m$^3$ instead of being generic missing data.
Source: CSE analysis of CPCB's real time air quality data

### Graph 4.3: Impact of Diwali on hourly pollution in Noida



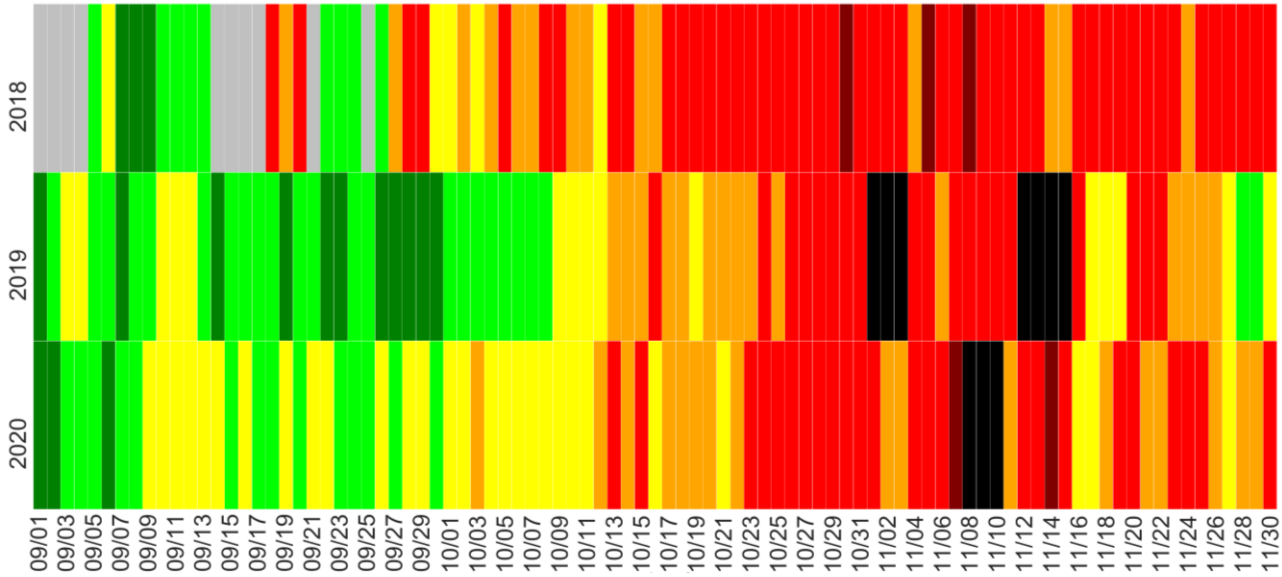

Note: Diwali dates are 7 Nov 2018, 27 Oct 2019, and 14 Nov 2020. Citywide is based on average PM2.5 concentration of all CAAQM stations operational in the city on a given day. Dotted lines represent a specific CAAQM station of the city to showcase variation in $PM_{2.5}$ concentrations among city's numerous CAAQM stations. CPCB portal has a cap of 1,000 µg/m$^3$, i.e. when the $PM_{2.5}$ concentration peaks beyond 999 µg/m$^3$ (very common on Diwali night) the portal data entry goes blank, therefore the broken line in the graph at Diwali night should be read as concentration beyond 1,000 µg/m$^3$ instead of being generic missing data.
Source: CSE analysis of CPCB's real time air quality data

### Graph 4.4: Impact of Diwali on hourly pollution in Ghaziabad



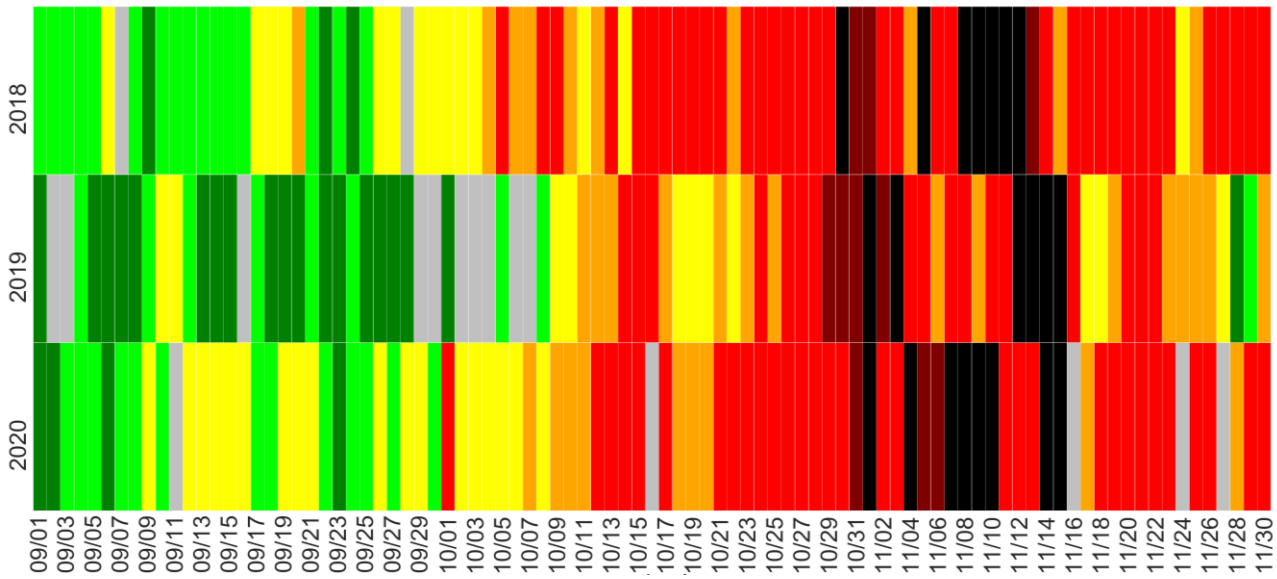

Note: Diwali dates are 7 Nov 2018, 27 Oct 2019, and 14 Nov 2020. Citywide is based on average PM2.5 concentration of all CAAQM stations operational in the city on a given day. Dotted lines represent a specific CAAQM station of the city to showcase variation in $PM_{2.5}$ concentrations among city's numerous CAAQM stations. CPCB portal has a cap of 1,000 µg/m$^3$, i.e. when the $PM_{2.5}$ concentration peaks beyond 999 µg/m$^3$ (very common on Diwali night) the portal data entry goes blank, therefore the broken line in the graph at Diwali night should be read as concentration beyond 1,000 µg/m$^3$ instead of being generic missing data.
Source: CSE analysis of CPCB's real time air quality data

**Graph 5.1: Heatmap of Gurugram's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



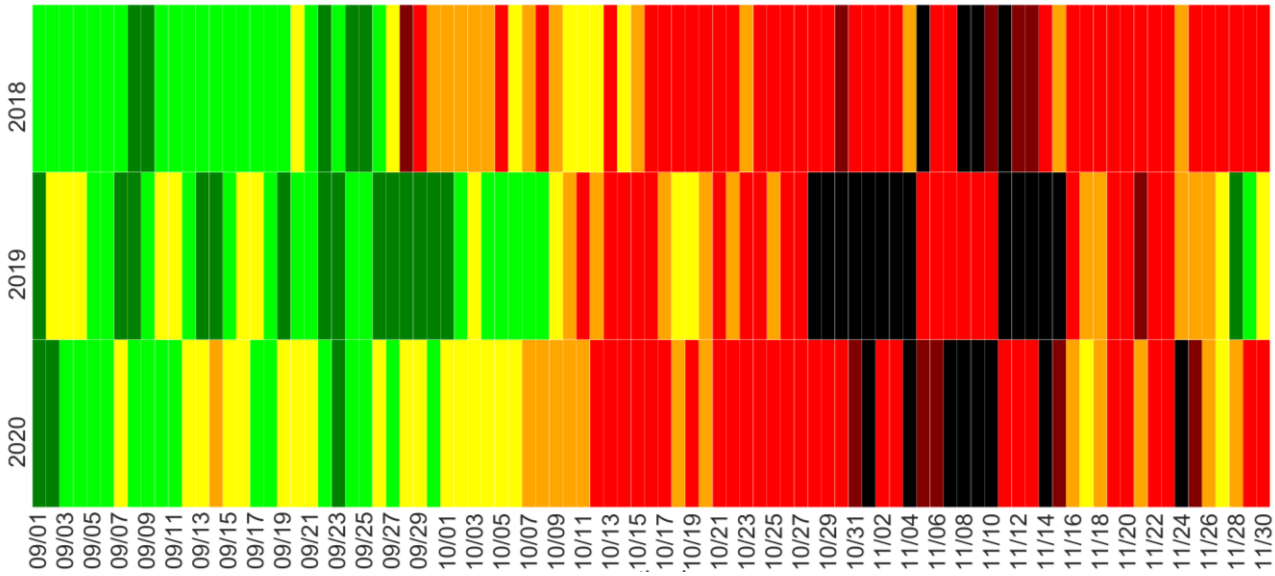

Note: Average $PM_{2.5}$ concentration for a day is based on mean of Vikas Sadan and Gwal Pahari CAAQM stations in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.2: Heatmap of Faridabad's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



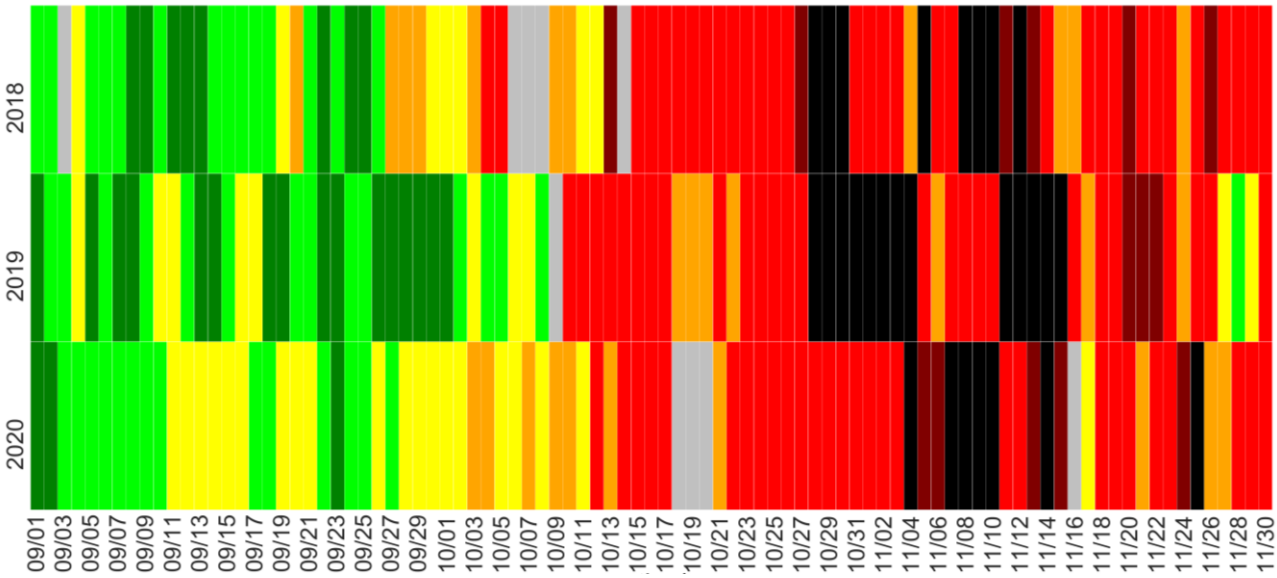

Note: Average $PM_{2.5}$ concentration for a day is based on Faridabad Sector 16A CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.3: Heatmap of Noida's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



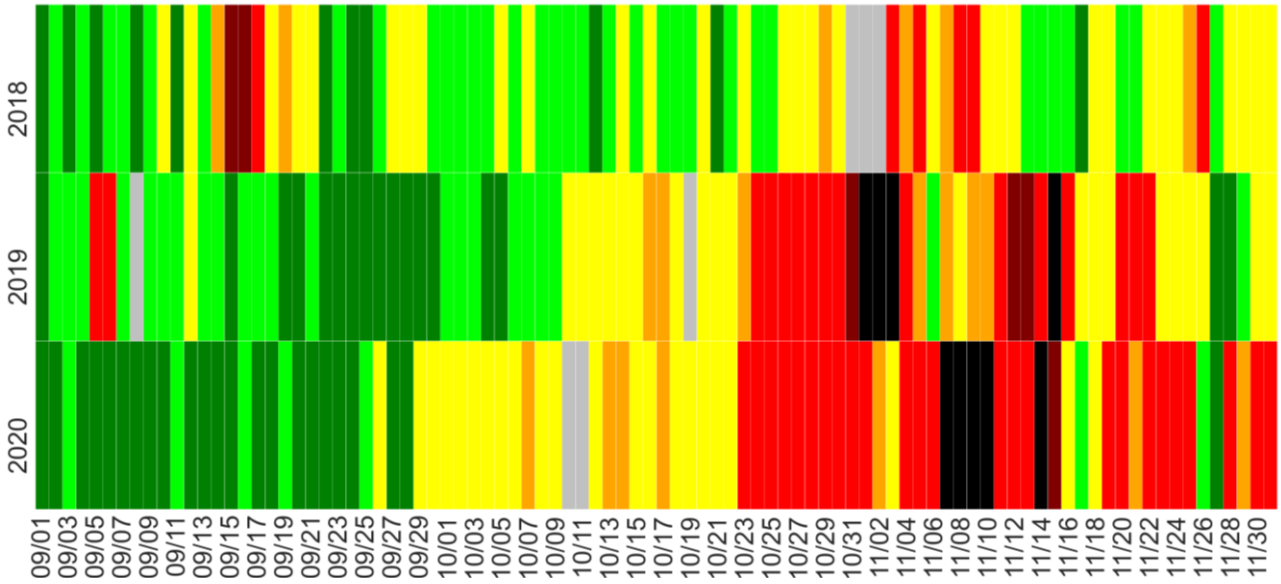

Note: Average $PM_{2.5}$ concentration for a day is based on mean of Sector 125 and Sector 62 CAAQM stations in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.4: Heatmap of Ghaziabad's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



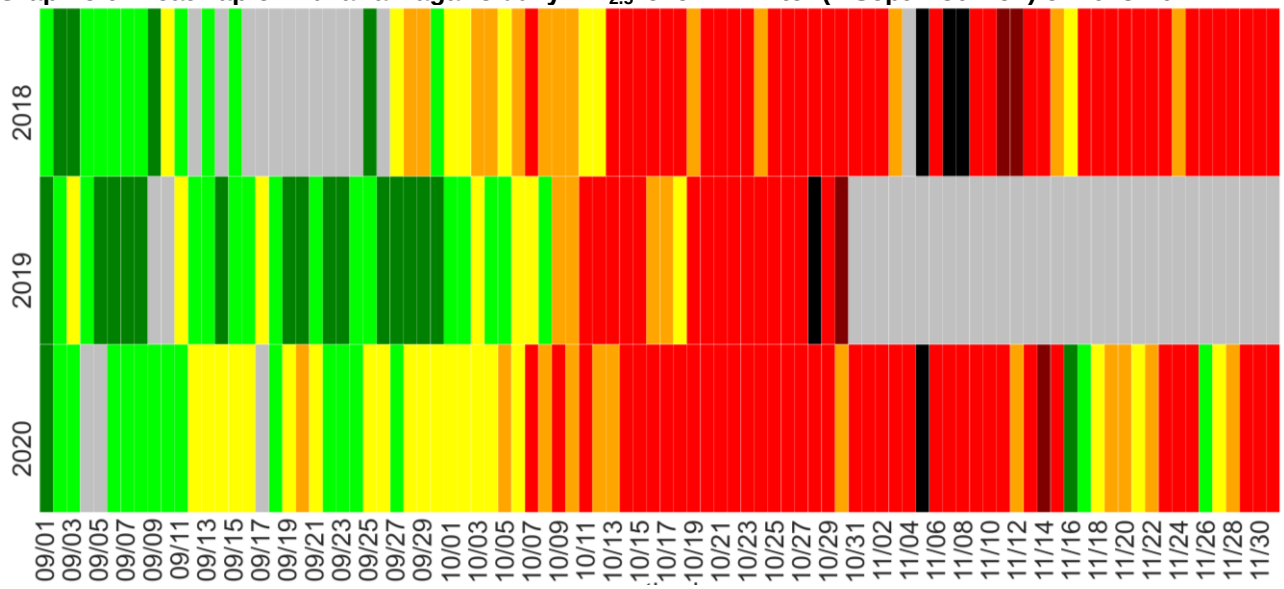

Note: Average $PM_{2.5}$ concentration for a day is based on Varundhara CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.5: Heatmap of Rohtak's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



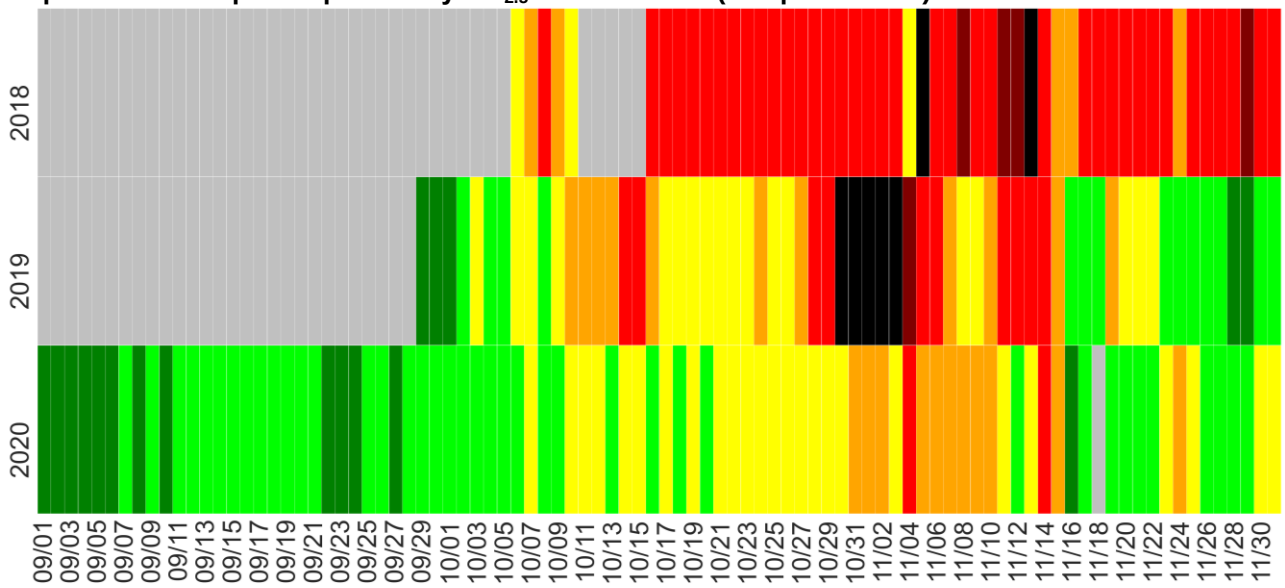

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.6: Heatmap of Muzaffarnagar's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



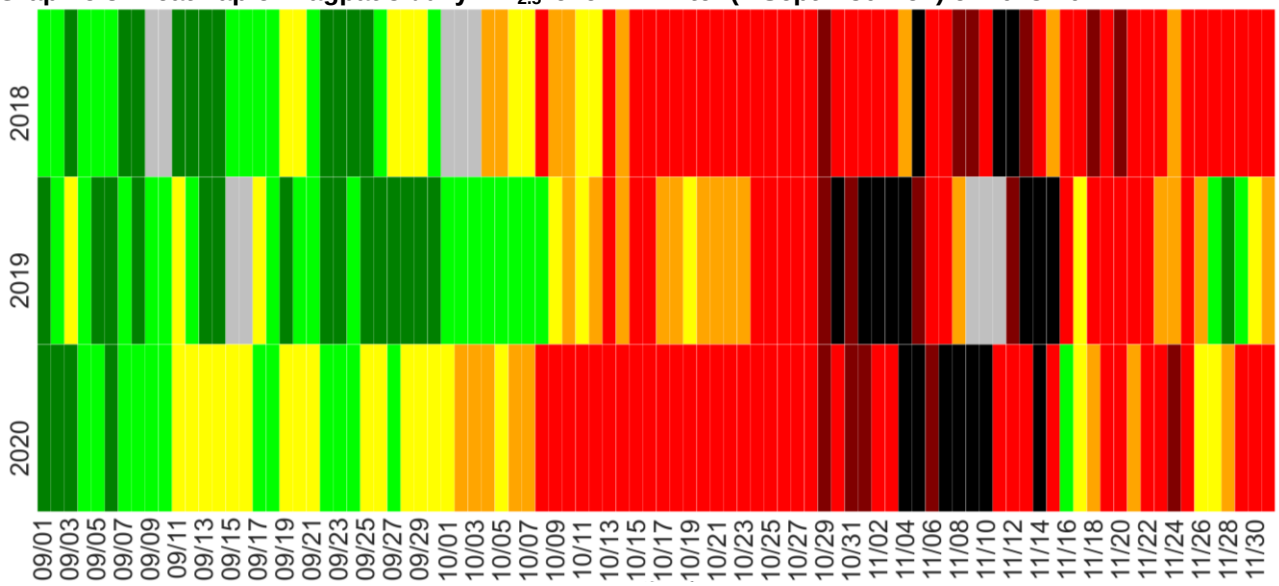

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.7: Heatmap of Hapur's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



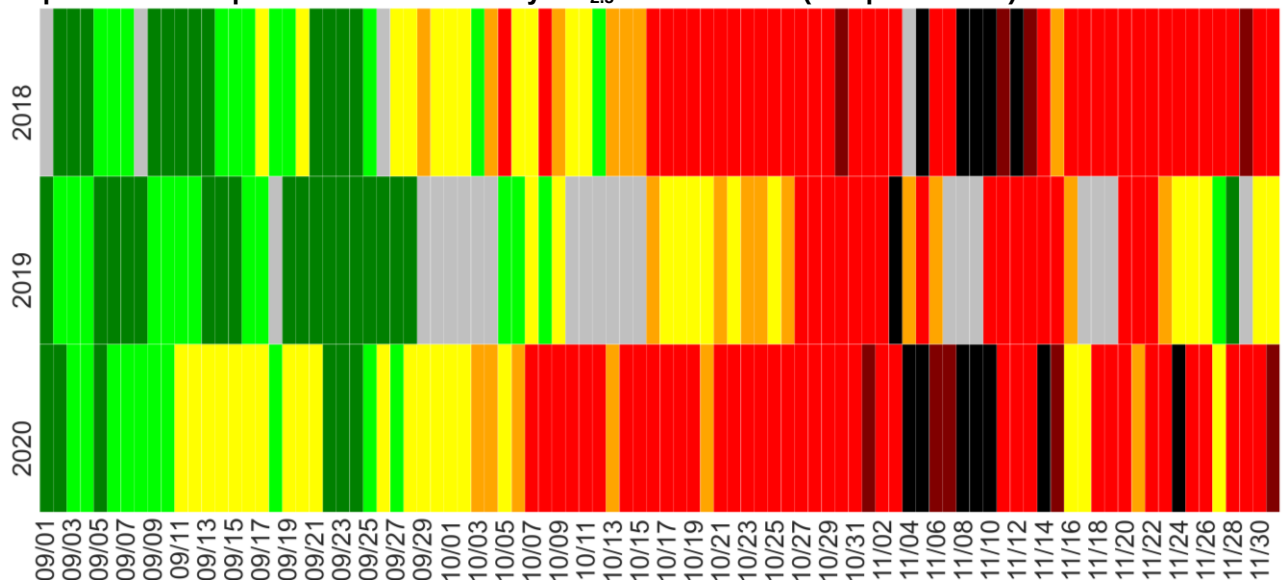

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.8: Heatmap of Bagpat's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



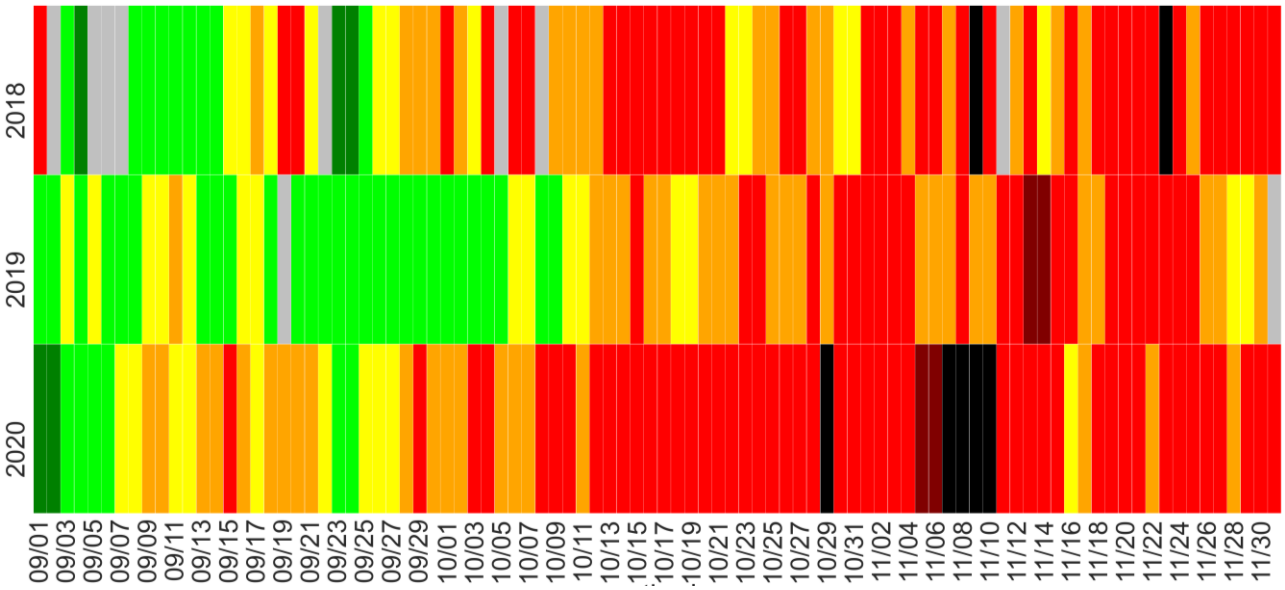

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.9: Heatmap of Bulandshahr's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



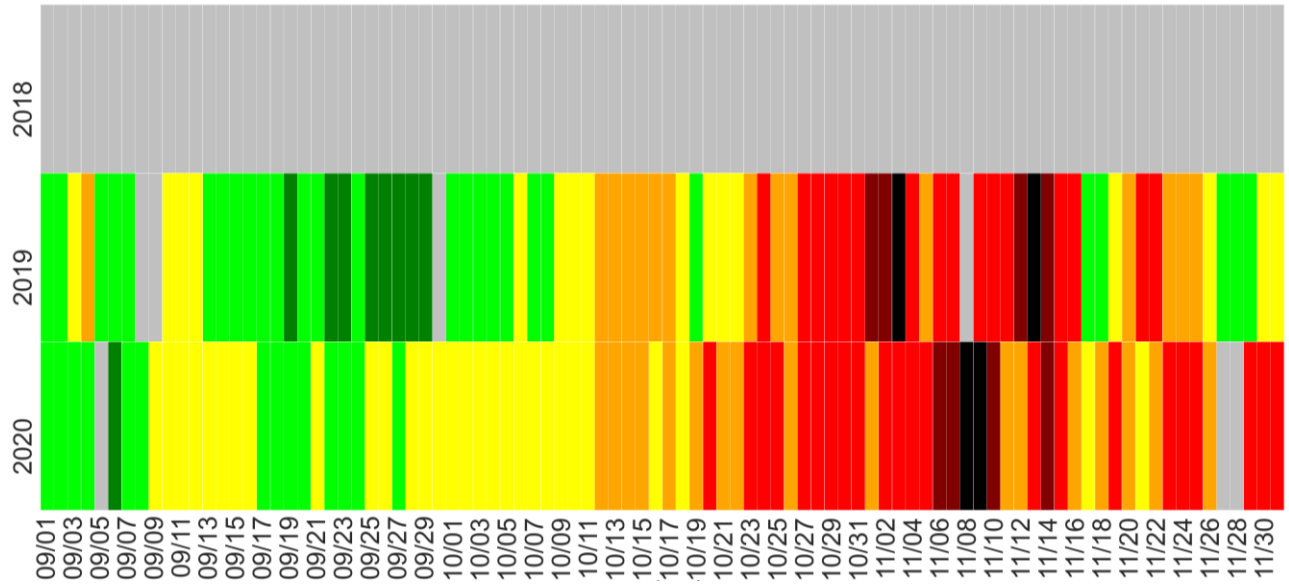

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.10: Heatmap of Bhiwadi's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



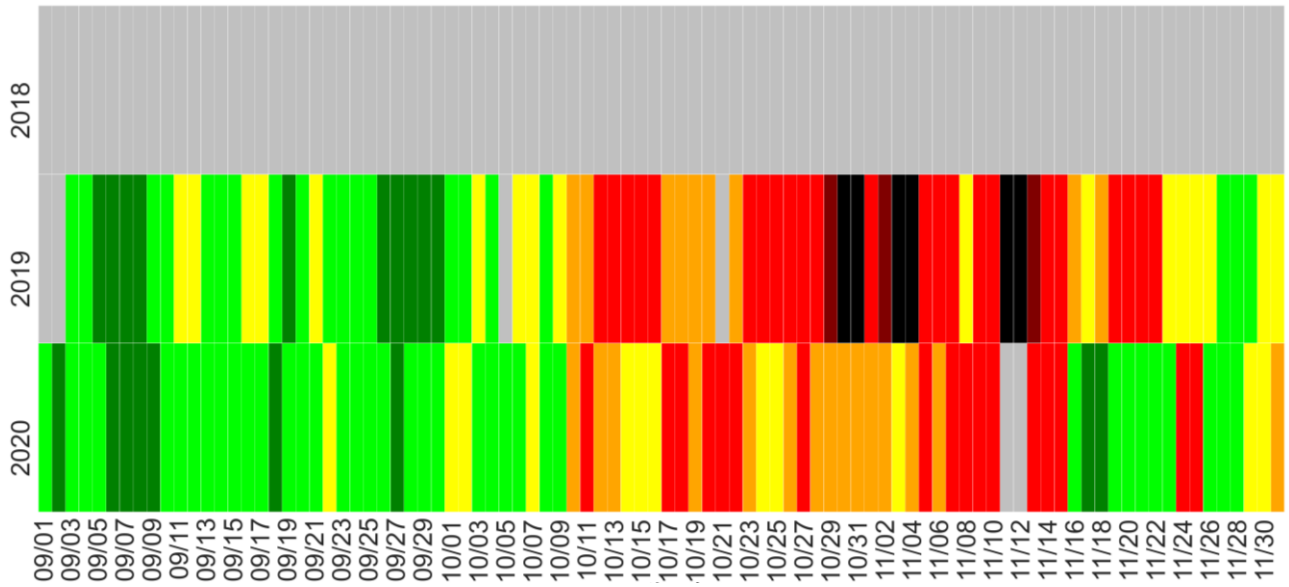

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.11: Heatmap of Manesar's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



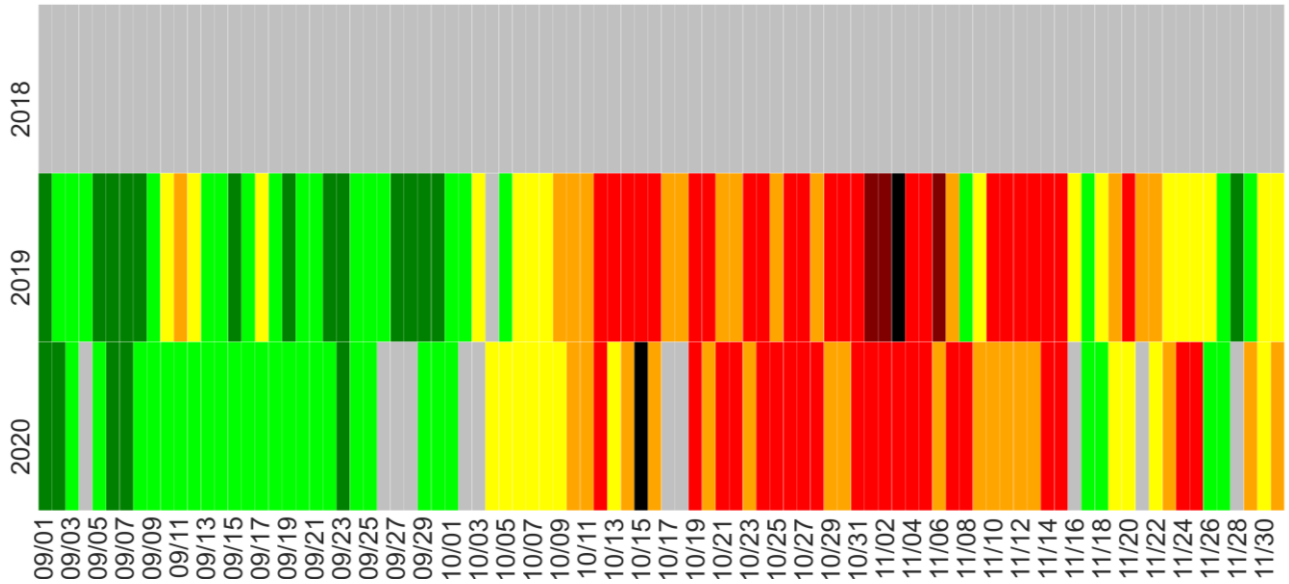

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.12: Heatmap of Panipat's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



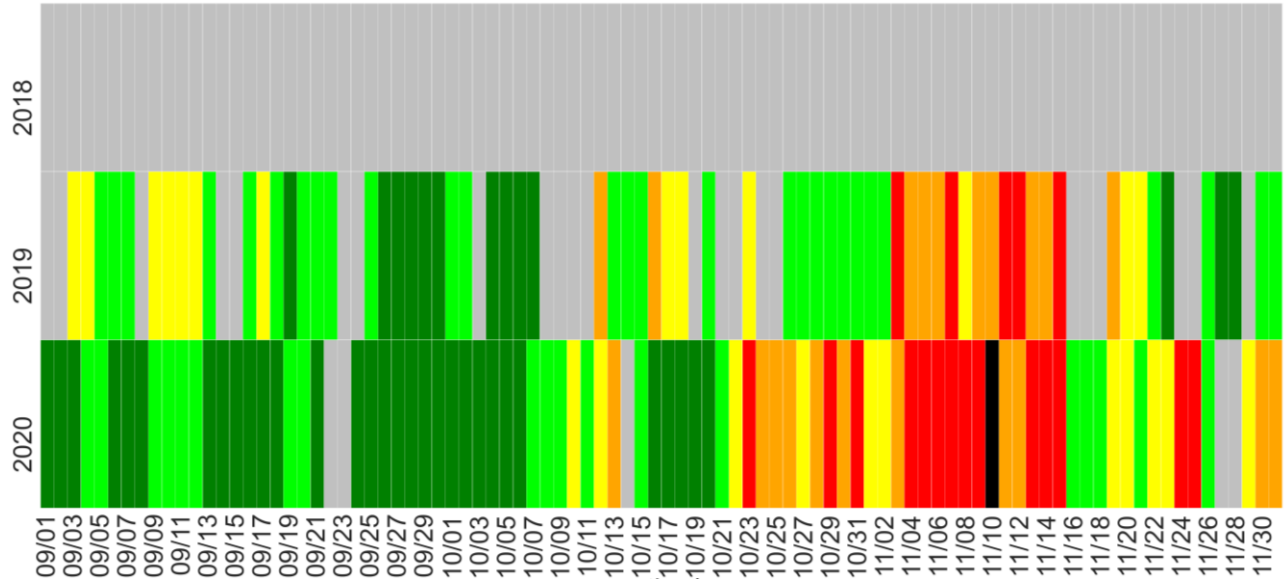

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.13: Heatmap of Karnal's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



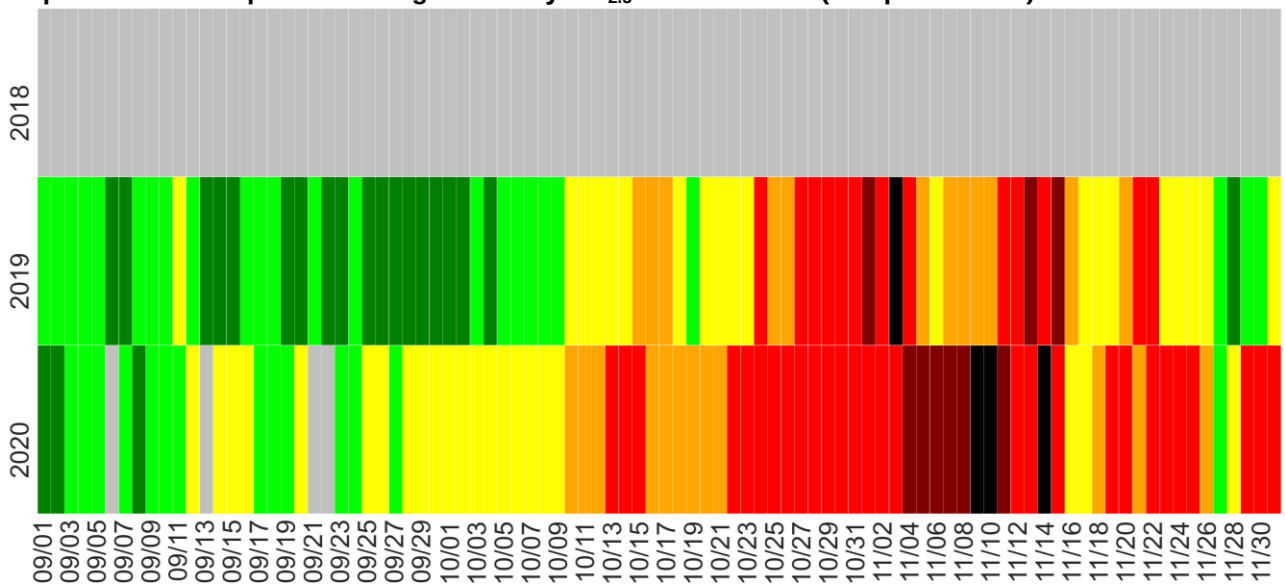

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.14: Heatmap of Sonipat's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**



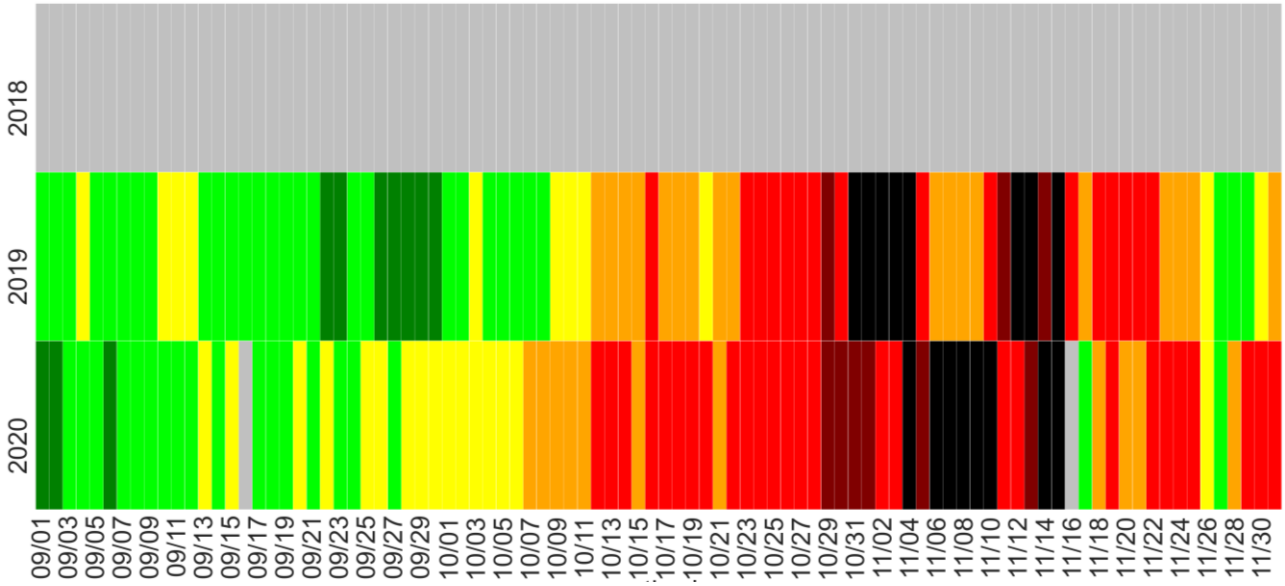

Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.15: Heatmap of Bahadurgarh's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**




Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

**Graph 5.16: Heatmap of Jind's daily $PM_{2.5}$ level in winter (1 Sept – 30 Nov) of 2018-20**




Note: Average $PM_{2.5}$ concentration for a day is based on one CAAQM station in the city. Days are colored based on AQI categories.
Source: CSE analysis of CPCB's realtime air quality data

# List of CAAQM stations in Delhi-NCR

| | State/UT | City | Name |
|---|---|---|---|
| 1 | Delhi | Delhi | Alipur, Delhi |
| 2 | Delhi | Delhi | Shadipur, Delhi |
| 3 | Delhi | Delhi | Dilshad Garden, Delhi |
| 4 | Delhi | Delhi | NSIT Dwarka, Delhi |
| 5 | Delhi | Delhi | DTU, Delhi |
| 6 | Delhi | Delhi | ITO, Delhi |
| 7 | Delhi | Delhi | Siri fort, Delhi |
| 8 | Delhi | Delhi | Mandir Marg, Delhi |
| 9 | Delhi | Delhi | Anand Vihar, Delhi |
| 10 | Delhi | Delhi | R K Puram, Delhi |
| 11 | Delhi | Delhi | Punjabi Bagh, Delhi |
| 12 | Delhi | Delhi | Aya Nagar, Delhi |
| 13 | Delhi | Delhi | Lodhi Road, Delhi |
| 14 | Delhi | Delhi | North Campus, Delhi University, Delhi |
| 15 | Delhi | Delhi | Burari Crossing, Delhi |
| 16 | Delhi | Delhi | CRRI Mathura Road, Delhi |
| 17 | Delhi | Delhi | Pusa, Delhi |
| 18 | Delhi | Delhi | IGI Airport, Delhi |
| 19 | Delhi | Delhi | East Arjun Nagar, Delhi |
| 20 | Delhi | Delhi | Ashok Vihar, Delhi |
| 21 | Delhi | Delhi | Jawaharlal Nehru Stadium, Delhi |
| 22 | Delhi | Delhi | Nehru Nagar, Delhi |
| 23 | Delhi | Delhi | Dwarka-Sector 8, Delhi |
| 24 | Delhi | Delhi | Dr. Karni Singh Shooting Range, Delhi |
| 25 | Delhi | Delhi | Patparganj, Delhi |
| 26 | Delhi | Delhi | Sonia Vihar, Delhi |
| 27 | Delhi | Delhi | Jahangirpuri, Delhi |
| 28 | Delhi | Delhi | Rohini, Delhi |
| 29 | Delhi | Delhi | Najafgarh, Delhi |
| 30 | Delhi | Delhi | Vivek Vihar, Delhi |
| 31 | Delhi | Delhi | Major Dhyan Chand National Stadium, Delhi |
| 32 | Delhi | Delhi | Narela, Delhi |
| 33 | Delhi | Delhi | Okhla Phase-2, Delhi |
| 34 | Delhi | Delhi | Wazirpur, Delhi |
| 35 | Delhi | Delhi | Bawana, Delhi |
| 36 | Delhi | Delhi | Sri Aurobindo Marg, Delhi |
| 37 | Delhi | Delhi | Pusa, Delhi |
| 38 | Delhi | Delhi | Mundka, Delhi |
| 39 | Haryana | Bahadurgarh | Bahadurgarh |
| 40 | Haryana | Ballabgarh | Ballabgarh |
| 41 | Haryana | Bhiwani | Bhiwani |
| 42 | Haryana | Charkhi Dadri | Charkhi Dadri |
| 43 | Haryana | Dharuhera | Dharuhera |
| 44 | Haryana | Faridabad | Sector 16A, Faridabad |
| 45 | Haryana | Faridabad | New Industrial Town, Faridabad |
| 46 | Haryana | Faridabad | Sector 11, Faridabad |
| 47 | Haryana | Faridabad | Sector 30, Faridabad |
| 48 | Haryana | Gurgaon | Vikas Sadan, Gurugram |
| 49 | Haryana | Gurgaon | NISE Gwal Pahari, Gurugram |
| 50 | Haryana | Gurgaon | Sector 51, Gurugram |
| 51 | Haryana | Gurgaon | Teri Gram, Gurugram |
| 52 | Haryana | Jind | Jind |
| 53 | Haryana | Karnal | Karnal |
| 54 | Haryana | Mandikhera | Mandikhera |
| 55 | Haryana | Manesar | Manesar |
| 56 | Haryana | Narnaul | Narnaul |
| 57 | Haryana | Palwal | Palwal |
| 58 | Haryana | Panipat | Panipat |
| 59 | Haryana | Rohtak | Rohtak |
| 60 | Haryana | Sonipat | Sonipat |
| 61 | Rajasthan | Alwar | Alwar |
| 62 | Rajasthan | Bhiwadi | Bhiwadi |
| 63 | Uttar Pradesh | Baghpat | Baghpat |

| | | | |
|---|---|---|---|
| 64 | Uttar Pradesh | Bulandshahr | Bulandshahr |
| 65 | Uttar Pradesh | Ghaziabad | Vasundhara, Ghaziabad |
| 66 | Uttar Pradesh | Ghaziabad | Indirapuram, Ghaziabad |
| 67 | Uttar Pradesh | Ghaziabad | Sanjay Nagar, Ghaziabad |
| 68 | Uttar Pradesh | Greater Noida | Knowledge Park III, Greater Noida |
| 69 | Uttar Pradesh | Greater Noida | Knowledge Park V, Greater Noida |
| 70 | Uttar Pradesh | Hapur | Hapur |
| 71 | Uttar Pradesh | Ghaziabad | Loni, Ghaziabad |
| 72 | Uttar Pradesh | Meerut | Jai Bhim Nagar, Meerut |
| 73 | Uttar Pradesh | Meerut | Ganga Nagar, Meerut |
| 74 | Uttar Pradesh | Meerut | Pallavpuram Phase 2, Meerut |
| 75 | Uttar Pradesh | Muzaffarnagar | Muzaffarnagar |
| 76 | Uttar Pradesh | Noida | Sector 62, Noida |
| 77 | Uttar Pradesh | Noida | Sector 125, Noida |
| 78 | Uttar Pradesh | Noida | Sector 1, Noida |
| 79 | Uttar Pradesh | Noida | Sector 116, Noida |