

## 13°C Temperature Gap Across Neighborhoods in Mumbai Highlights Growing Urban Heat Island Effect: Analysis

*Mumbai's Microclimates Exposed: Analysis shows significant temperature variation between hotter Mumbai Suburbs and other cooler pockets across Mumbai Metropolitan Region (MMR) in March 2025*

The analysis has revealed alarming temperature variations across Mumbai, pointing to an intensifying Urban Heat Island (UHI) effect in the city.

Between March 1 and March 22, 2025, suburban areas like Vasai West and Ghatkopar experienced average temperatures of 33.5°C and 33.3°C, respectively, while Powai—one of the city's greener and less densely built areas—registered a much cooler average of 20.4°C. This represents a striking 13.1°C difference within the same city.

UHI, a well-documented urban phenomenon, refers to the significant temperature difference between densely built urban zones and less developed or greener parts of a city. Heat-retaining infrastructure, such as concrete buildings and roads, a lack of vegetation, and localised pollution levels primarily drive this difference.

According to data from 22 CPCB stations, Vasai West topped the list with an average temperature of 33.5°C, followed closely by Ghatkopar at 33.3°C, and Colaba (South Mumbai) at 32.4°C. In stark contrast, Powai, a relatively green and less built-up part of the city, recorded a much cooler average of 20.4°C. Other cooler areas included Chakala (Andheri East) at 23.4°C and Chembur at 25.5°C.

The temperature differences across the city showed that while 13.1°C gap was seen between Vasai West and Powai, Colaba registered 32.4°C compared to 23.4°C in Chakala, an urban heat difference of 9.0°C. Ghatkopar, at 33.3°C, was 7.8°C warmer than Chembur, which averaged 25.5°C.

Interestingly, even Colaba, located on Mumbai's southern tip and historically known for its coastal breezes, now appears on the warmer end of the spectrum—underscoring that even so-called “cool zones” are not immune to rising heat levels.

In March 2025, Mumbai faced multiple heatwave or heatwave-like events, highlighting the city's growing intensity of extreme heat conditions. The India Meteorological Department (IMD) issued official heatwave warnings during the first half of the month, particularly between March 6 and 11, as temperatures soared close to 40°C. A combination of strong easterly winds and delayed sea breeze, caused by an anticyclone system, led to unusually high daytime temperatures, especially on March 9 and 10, when the mercury hovered around

37°C. A fresh temperature spike followed from March 15 onward, with forecasts predicting a further 2–4°C increase and warnings issued for March 18.

In another analysis conducted in May 2024, similar intra-city temperature disparities were observed across Mumbai, further reinforcing concerns around the UHI effect. The analysis, based on hourly CPCB data from 18 active monitoring locations, found that areas like Borivali East were around 13°C cooler than areas such as Worli in south Mumbai. While Worli’s dense built-up environment likely contributes to its heat retention, Borivali East benefits from relatively lower construction density and potentially more green cover. These findings highlight the importance of hyperlocal heat tracking and neighborhood-specific interventions to build resilience against heat stress in Mumbai.

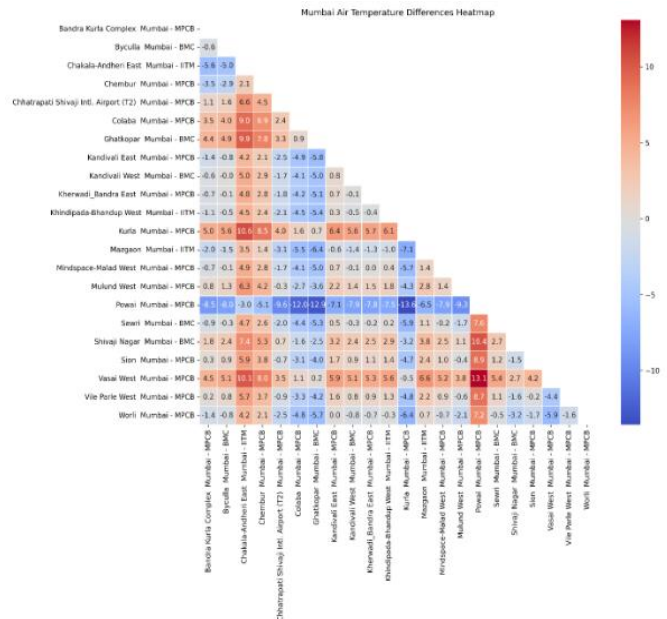
## Top 5 Warmest Locations in March 2025

1. Vasai West – 33.5°C
2. Ghatkopar – 33.3°C
3. Colaba (South Mumbai) – 32.4°C
4. Shivaji Nagar – 30.8°C
5. Chhatrapati Shivaji Intl. Airport (T2) – 30.1°C

## Cooler Locations in March 2025

- Powai – 20.4°C
- Chakala (Andheri East) – 23.4°C
- Chembur – 25.5°C

Temperature differences in Mumbai Region - March 2025

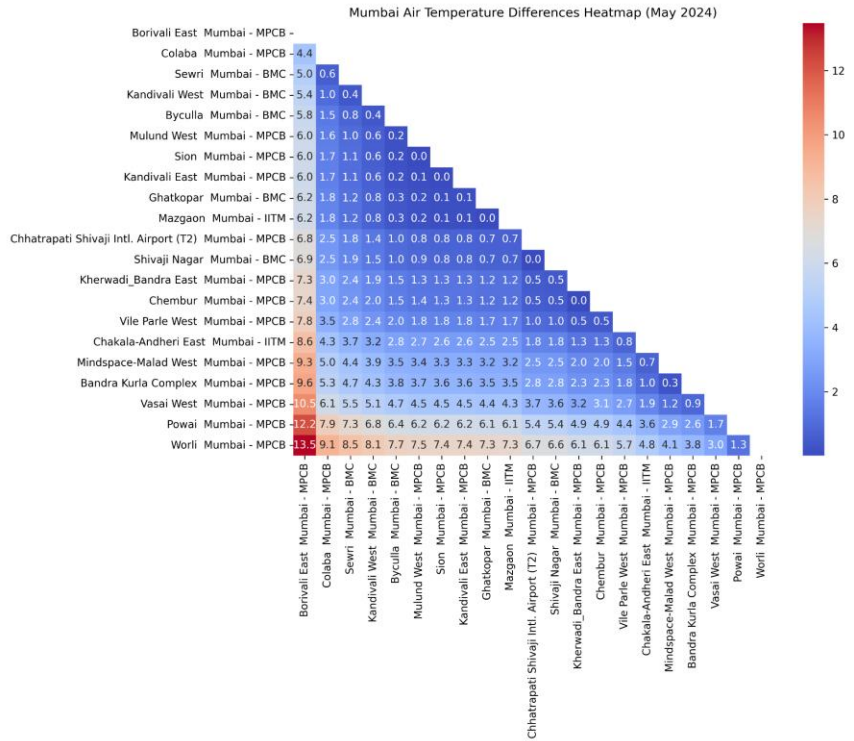


## Notable Differences

- Vasai West (33.5°C) vs. Powai (20.4°C) = 13.1°C difference
- Colaba (32.4°C) vs. Chakala (23.4°C) = 9.0°C difference
- Ghatkopar (33.3°C) vs. Chembur (25.5°C) = 7.8°C difference

## Top 5 Warmest Locations in May 2024

1. Worli – 33.5°C
2. Powai – 32.2°C
3. Vasai West – 30.5°C
4. Bandra Kurla Complex (BKC) – 29.6°C
5. Mindspace-Malad West – 29.3°C



## Top 5 Coolest Locations

1. Borivali East – 20.0°C (baseline)
2. Colaba – 24.4°C
3. Sewri – 25.0°C
4. Kandivali West – 25.4°C
5. Byculla – 25.8°C

## Maximum Recorded Temperature Difference

- Between Worli (33.5°C) and Borivali East (20.0°C) = 13.5°C