

ADVERTISEMENT

News / India / Rising 'heat stress' in six metros as humidity up, nights warmer: Study

Rising 'heat stress' in six metros as humidity up, nights warmer: Study

The combination of rising air and land surface temperatures and high relative humidity is increasing the heat index and heat stress in these cities, the study said. Heat index is a measure of discomfort felt due to high heat and humidity.

Written by [Nikhil Ghanekar](#)

New Delhi | Updated: May 28, 2024 05:18 IST





EXPRESS PREI

**How a Kerala migrant work school**

The monsoon period has become hotter in Delhi, Mumbai and Kolkata, while in Chennai, the marginal cooling during monsoon has disappeared. (Representational Image)

India's megacities of Delhi, Mumbai, Chennai, Bengaluru, Kolkata and Hyderabad are experiencing worsening "heat stress" due to a trend of rising relative humidity over the past two decades, according to a study by Delhi-based Centre for Science and Environment.

Besides rising relative humidity, these cities are also experiencing warmer nights as land surface temperatures are not falling at the same rate as a decade ago, said the analysis, blaming this on the "urban heat island" effect.

"Urban heat island" effect refers to the trapping of heat due to an increase in built-up area, declining green cover, congestion, heat absorption by urban structures, and heat generated by human activities. This causes the heart of megacities to be much warmer, especially at night, than its outskirts and neighbouring towns.

"Hot nights are as dangerous as mid-day peak temperatures. People get little chance to recover from day-time heat if temperatures remain high overnight," said Avikal Somvanshi, senior programme manager, Urban Lab, CSE.

URBAN HEAT TRAP

Drop in temperature from day-time peak to night-time low

	Kolkata	Mumbai	Bengaluru	Chennai	Delhi	Hyderabad
2014	4.0	8.9	11.9	10.5	12.0	13.7
2015	6.6	9.4	10.5	10.2	10.9	12.8
2016	6.6	5.4	10.8	8.8	11.4	12.5
2017	6.4	9.3	10.6	11.0	12.4	11.8
2018	6.3	6.6	8.9	10.3	11.4	10.7
2019	6.4	9.8	9.8	10.6	11.8	12
2020	7.9	8.0	10.1	9.5	10.6	10.9
2021	5.9	6.9	9.5	8.8	11.1	10.4
2022	5.9	7.1	9.4	8.5	10.3	9.2
2023	6.0	6.4	9.2	8.5	9.8	10.6
Average ^{0C} 2001-10	6.2	10.2	11.9	10.2	12.3	13.2

Temperature in °C

EXPRESS PREI



How a Kerala migrant works in a school

Heat index is a measure of discomfort felt due to high heat and humidity.

The combination of rising air and land surface temperatures and high relative humidity is increasing the heat index and heat stress in these cities, the study said.

Heat index is a measure of discomfort felt due to high heat and humidity.

The CSE study comes at a time when the country is seeing prolonged heatwaves this summer. [Odisha](#) recorded 18 heatwave days, while [West Bengal](#) recorded 16 in April. A long heatwave is currently prevailing over [Rajasthan](#) and parts of Haryana and Delhi. The India Meteorological Department has forecast no respite for at least three more days.

With the exception of Bengaluru, all the other metros have seen a 5-10 per cent rise in average relative humidity during summer, the study noted. According to data, in the last decade, summers in [Hyderabad](#) were 10 per cent more humid on an

average – the highest among all metros. In Delhi, [Mumbai](#), [Kolkata](#) and Chennai, humidity increased by 8 per cent, 7 per cent and 5 per cent, respectively.

ADVERTISEMENT

EXPRESS PREI



How a Kerala migrant work school

“The combination of high heat and humidity can compromise the human body’s main cooling mechanism: sweating. The evaporation of sweat from skin cools our bodies, but higher humidity levels limit this natural cooling,” the study said. The combination of these two factors makes people sick and, in some cases, can also prove fatal, even at lower ambient temperatures, it added.

The analysis stated that in Delhi, there was a direct correlation between increase in built-up area and increase in urban heat stress. “Increase in green cover shows impact on daytime temperatures but has no impact on nighttime temperature and increasing heat index in the city,” the analysis said. Delhi’s built-up area increased from 31.4 per cent in 2003 to 38.2 per cent in 2022, contributing to the rise in urban heat stress, it noted.

The heat index in the six cities was also found to be higher in the monsoon period than the pre-monsoon period of March to May, the analysis said. The monsoon period has become hotter in Delhi, Mumbai and Kolkata, while in Chennai, the marginal cooling during monsoon has disappeared. In Bengaluru and Hyderabad, the monsoon was still a bit cooler than pre-monsoon.

An assessment of heat trends is necessary to develop a comprehensive heat management plan for urban centres, said Anumita Roychowdhury, executive director, research and advocacy, CSE. “This is needed to implement emergency measures during heatwaves to protect public health, and also to develop longer

term strategies to mitigate heat by increasing green areas and waterbodies, improving thermal comfort in buildings, and reducing waste heat from vehicles, air conditioners and industries," she said.

© The Indian Express Pvt Ltd


Nikhil Ghanekar

Follow

An award-winning journalist with 14 years of experience, Nikhil Ghanekar is an Assistant Editor with the National Bureau [Government] of The Indian Express in New De. [... Read More](#)

icles air

EXPRESS PREI



How a Kerala migrant work school

First uploaded on: 28-05-2024 at 02:16 IST

TAGS: Delhi Humidity Heatstroke IMD

EXPRESS Shorts



When Virender Sehwag advised 9-year-old Aryan Khan to ask SRK not to do certain things

Entertainment May 27, 2024 18:48 IST

One of the most beloved, most destructive and greatest opening batsmen of his era, Virender Sehwag was part of the Indian cricket team that won the inaugural ICC Men's T20 World Cup in 2007. Sehwag recently recalled partying with Shah Rukh Khan and his son Arya...

[VIEW ALL SHORTS >](#)

LIVE BLOG

Cyclone Remal Live Updates: Severe cyclonic storm claims six lives in West Bengal, 8 Kolkata-bound flights diverted
10 hours ago