

Cairo car drivers exposed to dangerous levels of pollution, new study finds

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Car drivers in Cairo are exposed to dangerous levels of air pollution,

finds an unprecedented new study from the University of Surrey.

Greater Cairo, which is the sixth largest city in the world, is home to 2.4 million cars and it is thought that particulate matter (PM) concentration—i.e. air [pollution](#)—is the cause of around 10 percent of premature deaths in Egypt.

In the study "Car users' exposure to particulate matter and gaseous air pollutants in megacity Cairo," published in *Sustainable Cities and Society*, a team led by Surrey's Global Centre for Clean Air Research (GCARE), together with the American University in Cairo, investigated the contributing factors that determine [particulate matter](#) (PM) exposure levels while in a vehicle—for different car settings (open window, closed window, or with air conditioning (AC) on), during different times of the day and across various commuter routes (cross city and inner city).

The results found that Cairo motorists who drive with their windows open can be exposed to 65 percent more PM₁₀ (coarse particles) and 48 percent more PM_{2.5} (fine particles) than those who drive with windows closed and the AC on. However, many car owners simply do not have AC in their vehicles and are exposed to levels of PM₁₀ and PM_{2.5} as high as 227 and 119 $\mu\text{g}/\text{m}^3$ while driving through cross-city routes.

The study further found that evening peak hours are more congested, causing drivers to get exposed to higher pollution concentrations compared to morning peak hours.

The team also discovered that Cairo's close proximity to the desert and its low precipitation rates are contributing factors to higher concentration of PM₁₀. GCARE found that areas with high construction activity or unmaintained roads also feature higher levels of PM₁₀.

Professor Prashant Kumar, Founding Director of GCARE at the

University of Surrey, said: "Air pollution causes seven million premature deaths worldwide, disproportionately affecting poor and vulnerable communities and exacerbating inequalities in official development assistance (ODA) countries. Knowledge is invaluable in our battle against [climate change](#) and [air pollution](#), which is why we hope that our study—the first of its kind—is not the last."

More information: Rana Alaa Abbass et al, Car users exposure to particulate matter and gaseous air pollutants in megacity Cairo, *Sustainable Cities and Society* (2020). [DOI: 10.1016/j.scs.2020.102090](https://doi.org/10.1016/j.scs.2020.102090)

Provided by University of Surrey

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