

Future heat waves pose risk for population of Greater London

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Researchers estimate an additional 800 heat-related deaths per year in Greater London by 2050

(Phys.org) —A study led by Oxford University has modelled the effects of future heat waves on people living in Greater London in 2050 and concludes that the risk of heat-related deaths could be significantly reduced if buildings were adapted properly for climate change.

The model, which takes into account future changes to [urban land](#) use and man-made heat emissions, estimates an additional 800 heat-related deaths per year by 2050. Researchers used projections on likely increases in temperatures carried out by the Met Office and Newcastle University, coupled with data on demographic changes from the Office of National Statistics, to calculate the likely health risks of future heat waves for the population of Greater London.

The research, published online by the journal *Climatic Change*, says that

[policy makers](#) need to focus on how to adapt buildings and cities for future climate change. It highlights London as particularly vulnerable, owing to the so-called '[urban heat island](#)' effect, which sees cities become hotter than the surrounding areas due to high concentrations of people, buildings and activities.

The Oxford study calculates that if the likely temperature increase was lessened by 1-2°C through better ventilation, shading or other means of keeping buildings cooler, the number of heat-related deaths could be cut by between 32-69%. The study also suggests that current climate scenarios tend to underestimate the effects and risks of heat waves in urban areas because they don't account for the additional effect of the urban heat island.

It is widely known that summer heat waves lead to rises in the number of deaths and hospital admissions from thermal exhaustion, and projections suggest that heat waves are likely to become more regular and intense in the future. During the 2003 heat wave, London experienced a rise in the number of deaths of between 650 and 1,000. Hospital admissions from other heat-related conditions such as heat exhaustion and respiratory disorders also rose.

Lead author Katie Jenkins said: 'This kind of modelling approach allows us to identify the areas of our cities most at risk from future heat waves and pinpoint those who are the most vulnerable in the heat. As cities become hotter, not only are the risks of ill health and death likely to go up for the most vulnerable, but the warmer temperatures within the buildings where people live and work could be unbearable. This model shows that by 2030, up to three-quarters of residents living in flats will experience discomfort during summer heat waves. Yet, there are currently no building regulations to guide future building design on the risks of overheating.'

Professor Jim Hall said: 'We have produced a model that calculates risk based on climate data, population changes and land use. Although this study focuses on the risks for those in the Greater London area, the model can be adapted for other European cities. It allows policy makers to assess the relative risks of responses to future climate change.'

'The real problem for policy makers and planners is to bring down the likely much warmer temperatures within buildings during [heat waves](#). Generally in the UK, building stock is badly adapted for [future climate change](#) when compared with other parts of Europe. To keep cool, buildings need to have thicker walls, ventilation systems and better shading. Air conditioning is not the answer as this cooling system merely pushes warm air outside the building and causes the overall heat levels to rise. Air conditioning also uses more energy, which costs money and adds to carbon emissions, which we should be reducing.'

Provided by Oxford University

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