Toward a more localized, impact-based alert system for extreme weather to mitigate heat waves

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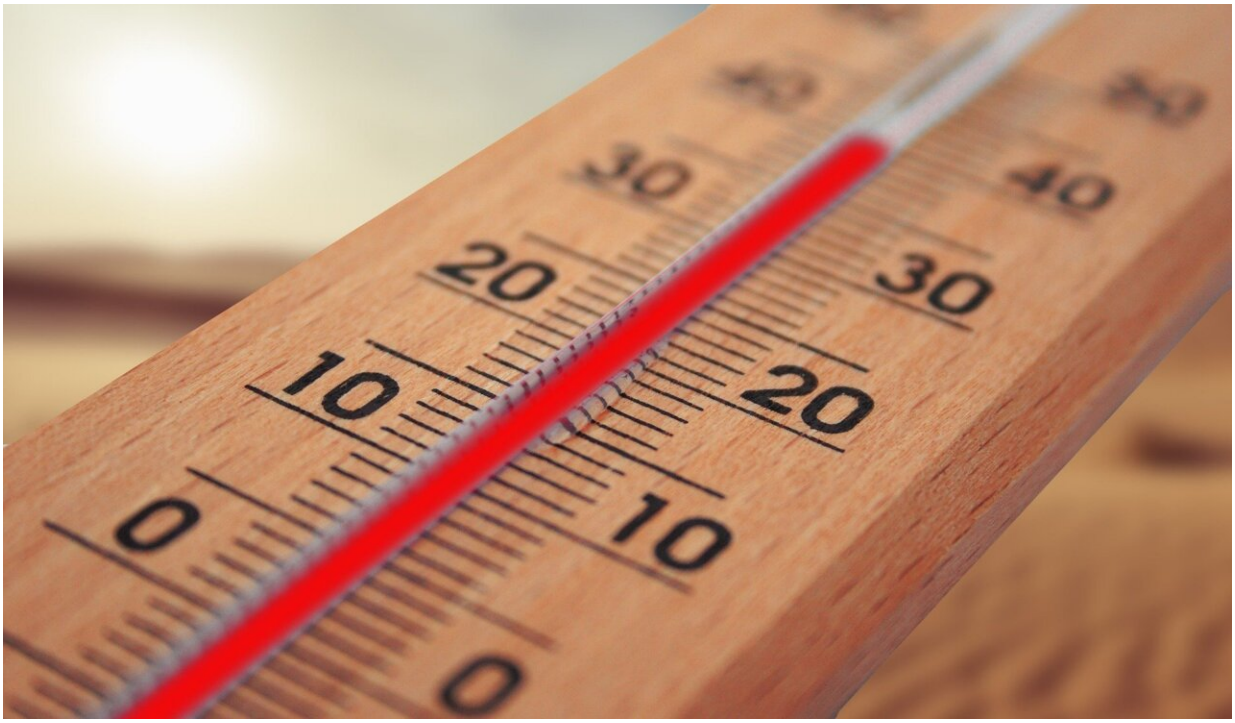

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England's extreme weather warning system could be further refined to help mitigate the public health effects of heat waves, according to a new study from the University of Surrey.

While the current alerting system is already effective in mitigating these effects, researchers found that moving further towards an impact-based alert system which focuses on the repercussions of extreme weather conditions could enable participants, including the NHS and local government, to make more informed decisions.

In practice, this would mean providing a more detailed picture of the specific conditions each area of the country will likely face when an alert is issued. Temperature levels within a Level 3 alert, for example, can range significantly, with wide-ranging impacts, and this must be clearly communicated so appropriate risk assessments can be made.

The research also emphasized that any new system would have to be able to make clear distinctions between different types of weather events and provide a clear indication of affected geographical regions.

Dr. Tom Roberts, co-author of the study at the University of Surrey says that "Early warning systems are central to improving the resilience of emergency workers, and they are an important tool that allows us to adapt to a changing climate that features more frequent extreme weather events."

"Our research suggests that the current tools in place are effective, but could begin to provide richer information to first responders and other stakeholders to help further mitigate the impacts of these extreme weather events."

The summer of 2020 saw an estimated 2,556 excess deaths during episodes of heat in England—the highest since the Heatwave Plan introduced by the U.K. government in 2004.

According to modeling undertaken as part of the third Climate Change Risk Assessment (CCRA3) for the U.K., excess deaths due to hot

weather could rise to around 7,000 by 2050 and around 12,500 per year by 2080.

Ross Thompson, principal environmental public health scientist at the U.K. Health Security Agency, says that "although our current alert system is working well, it is kept under constant review and we will continue to focus on how it can be further refined to reduce the impacts of heat waves."

"Understanding the relationship between extreme weather alerting systems, public health and the delivery of health and social care services is of central importance when planning an effective response to future extreme events."

"As we have been clear, extreme weather events lead to increased weather-related illness and excess deaths, and we are likely to see an increase as a result of climate change. We welcome this important research which will help inform our development of the current systems."

Excess deaths also occur due to extremely cold temperatures, and both ends of extreme temperatures present a significant risk to public health, particularly those with pre-existing chronic medical conditions, older people (especially those over 65) and those who are frail or socially isolated.

Roberts says that their "research also raised the issue of alert fatigue, particularly when the geographical focus of the alerts covered a very broad geographical area and could lead to alerts being sent out to emergency planners and health and social care delivery staff in unaffected areas."

"Research participants agreed that focusing on the potential impact and

likelihood of an event happening would lead to better-informed decision making."

The research was published in *Environmental Science & Policy*.

More information: Thomas Roberts et al, Stakeholder perspectives on extreme hot and cold weather alerts in England and the proposed move towards an impact-based approach, *Environmental Science & Policy* (2022). DOI: 10.1016/j.envsci.2022.07.012

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