# How climate change is affecting extreme weather events around the world: new study

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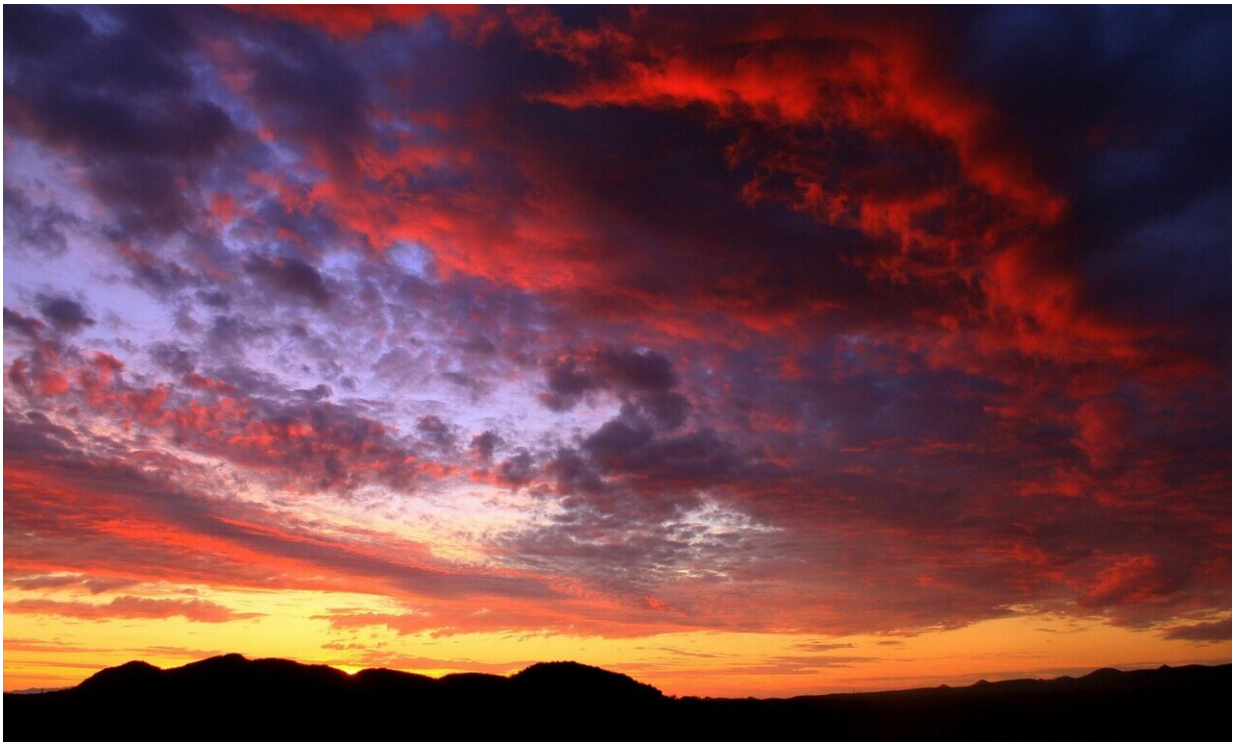

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Attribution science has led to major advances in linking the impacts of extreme weather and human-induced climate change, but large gaps in the published research still conceal the full extent of climate change damage, warns a new study released today in the first issue of *Environmental Research: Climate*.

Researchers from the University of Oxford, Imperial College London and the Victoria University of Wellington reviewed the impacts of five different types of extreme weather events and to what degree these damaging events could be attributed to human induced climate change.

To do this, they combined information from the latest Intergovernmental Panel on Climate Change reports and results from a fast increasing body of attribution studies—where weather observations and climate models are used to determine the role that climate change played in specific weather events.

They found that for some extreme weather events, such as heatwaves, the link with climate change is clear and unequivocal across the world, and that the extent of the impacts are likely being underestimated by insurers, economists and governments. For others, such as tropical cyclones, the paper shows that important differences exist between regions and the role that climate change plays in each event is more variable than for heatwaves.

"The rise of more extreme and intense weather events such as heatwaves, droughts and heavy rainfall have dramatically increased in recent years, affecting people all over the globe. Understanding the role that climate change plays in these events can help us better prepare for them. It also allows us to determine the real cost that carbon emissions have in our lives," says Ben Clarke from the University of Oxford, lead author of the study.

The authors note that there is an urgent need for more data from lower- and middle-income countries, where the impacts of climate change are more strongly felt. Research on these impacts is hampered when national weather data is not publicly available—examples include South Africa, where corruption denies funds to weather reporting facilities leading to huge data gaps in an otherwise good network; drought-prone Somalia,

where disorderly regime changes have disrupted measurements; and many countries, such as Poland, where weather data is only available for a high fee, and thus generally not for publicly funded research.

"We really don't have a comprehensive overview or detailed inventory of what impacts climate change is having today, yet," says Dr. Friederike Otto from the Grantham Institute—Climate Change and the Environment at Imperial College London, co-author of the study.

"But we do now have the tools and advanced understanding to create such an inventory, but these need to be applied more evenly across the world to improve our understanding in areas where evidence is lacking. Otherwise we are denying countries the knowledge to make the best use of sparse funds and improve chances for people to live safely and adapt to the changing climate," she concludes.

**More information:** Ben Clarke et al, Extreme weather impacts of climate change: an attribution perspective, *Environmental Research: Climate* (2022). DOI: 10.1088/2752-5295/ac6e7d

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