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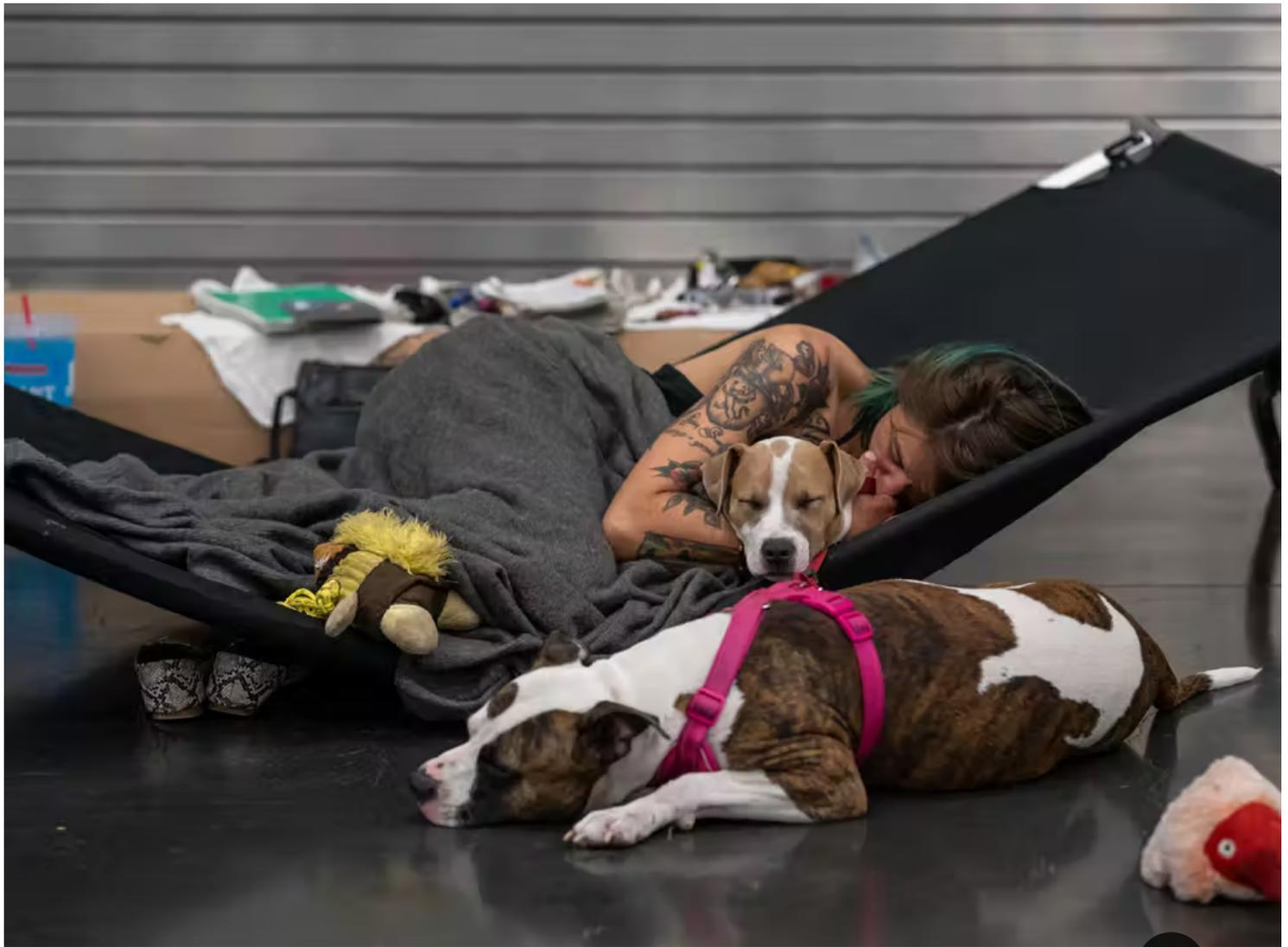
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Voices

# *As a climate scientist, I know the knock-on effects of heatwaves like these — and we need to act urgently*

Both scientists and fossil fuel executives knew this was coming for a long time

**Yangyang Xu** Texas • Thursday 01 July 2021 23:36 •  Comments



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Northwest have produced some shocking imagery, the heatwave isn't entirely surprising to scientists like me. Rare occurrences like this do happen and always have done. The mid-latitude wavy jet streams across the world mean that such areas see much greater fluctuations of daily weather. Tropical and sub-tropical climates can be actually more stable, temperature-wise, on a day-to-day basis than places like Portland, Oregon, or the Canadian Rockies. Occasional outlier events, as we've observed this week, are expected.

But the role of climate change is clearly a contributing factor here. While we might expect outlier events to happen every now and then, climate change makes them more extreme and makes them happen more often. We know this because we use complex computational systems to predict and attribute severe weather events, such as hurricanes, flooding, years-long droughts, and wildfires. With most of these major weather events, we are able to detect that the greenhouse gases emitted by human activities played a role, either by making the events more severe or pushing them from a "maybe" into a "definite".

The risks of conventionally cool regions experiencing sudden warming are obvious. Many schools in Maine have no air conditioning systems and were forced to close in a recent relatively "mild" heatwave. People's homes in Canada don't typically have AC units and are made to insulate the heat, meaning that makeshift "cooling centers" have been crowded with citizens whose homes are above 100F inside. People have died or become severely ill in nursing homes in Alpine. And the knock-on effect of all this heat can lead to thawing as far north as the Arctic, where infrastructure as varied as indigenous people's homes and — perhaps ironically — the drilling platforms of big oil companies are destabilized.

There is even a fear among climate scientists regarding frozen soils and what happens when they begin to thaw. This "great thawing" could lead to a huge release of methane gas — which is, unfortunately, another potent greenhouse gas heating

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them. Running air conditioning, of course, costs energy, leading to more carbon emissions. Lesser known is that modern AC refrigerants (not freons) continue to be potent GHGs that are vastly more damaging to the environment than the same amount of carbon dioxide. How to responsibly solve this dilemma of cooling-induced heating has been at the forefront of recent UN studies.

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When people respond to the heat with AC, trees respond by burning themselves. There’s no mystery about it. Dry and hot stuff is easily ignited, especially if the vegetation species involved have gone through droughts or are infested with bugs (both of which, we suspect, can be amplified by climate change, even if definitive evidence is yet to emerge) and have since become semi-deadwood. While directly damaging homes in peaceful towns and making the properties uninsurable, wildfires also create smoke pollution that impacts more people downwind. And that sooty, smoky air absorbs the heat, trapping it in place and causing a pollution-filled heat dome that compounds the health risk by damaging human lungs.

In the future, it’s clear that we will face more such events of extreme weather. Unfortunately, the train has left the station and it’s hard to imagine it will be turned around anytime soon. The upcoming “new normal” of frequent extreme weather worldwide will push the co-existence of us and nature out of its delicate balance. Both scientists and fossil fuel executives knew this was coming for a long time.

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world means that some particulate emissions from industrial pollution that is temporarily blocking global warming will be “unmasked” in the near term. The need to transform how we live, eat, travel, and do business to prevent greater damage is thus more urgent than we may think. This week is an opportunity for those world leaders to reassess their priorities — for the good of the whole planet and future generations.



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