As Trump attacks US science agencies, ex-Tropical Cyclone Alfred ushers in a fresh wave of climate denial in Australia

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Alfred is being used as the latest front in an ideological war, but facts are relevant to how we prepare for a climate-changed future

It’s not a good time for climate science. The Trump administration has sacked more than a thousand staff from the US National Oceanic and Atmospheric Administration, the country’s leading agency for weather forecasting and climate science, potentially damaging its ability to do lifesaving work forecasting hurricanes and other extreme weather events. The New York Times reported plans are under way to fire another 1,000. If true, that will take the cuts to about 20% of the workforce.

On Monday, it was announced Nasa was axing its chief scientist, Katherine Calvin, who had been appointed to lead the agency’s work on climate change. In trademark Donald Trump/Elon Musk style, there appears little care or sense in where cuts have been made. It’s destruction for destruction’s sake, with tens of thousands of peer-reviewed scientific papers underpinning the understanding of climate science dismissed as a “hoax” or, somehow, “woke”. As in most areas, what happens in the US on forecasting and science capability will have an impact beyond its borders.

In Australia, the past week has seen a fresh wave of climate denial as ex-Tropical Cyclone Alfred approached and hit the southern Queensland coast. News Corp outlets, in particular, have run straw man arguments attacking people that have forcefully linked the storm to the climate crisis.

Some commentators have pointed out that southern Queensland has had cyclones before. Others have suggested there is uncertainty in the data about the pace and way in which they are changing, and that climate change didn’t “cause” Alfred. Well, yes. That’s all correct, of course, but hardly the point.

What they mostly haven’t said is that the ocean and atmosphere are demonstrably warmer than even just a few years ago. Or that this means the most intense storms formed in warmer conditions carry more energy and more water. Or that the conditions under which tropical cyclones can form are moving south as the planet heats up.

Tropical cyclones can take shape when the sea is 26.5C. Temperatures at that level are not enough for a cyclone to form – a range of climatic conditions have to occur – but they are being reached and sustained more often in places further away from the equator.

As the cliche goes, the dice are increasingly loaded towards an extreme event being worse than in the past. We have loaded the dice by burning fossil fuels in greater and greater quantities. They have been the primary driver of a more than 50% increase in the amount of heat-trapping carbon dioxide in the atmosphere since pre-industrial times.

The evidence is that this is making tropical cyclones less frequent but more intense. There is data suggesting they also tend to last longer. Greater intensity plus time equals heightened risk of damage and casualties. It doesn’t mean that every cyclone or extreme storm will be more damaging than in the past. It does mean that when one comes, the potential for it to carry enough energy to wreak significant havoc is rising, not falling.

Debate over the climate crisis can seem stuck in an eternal bad faith rut

The extra energy in a cyclone has a number. Nearly 200 years ago, physicists found that if air warms by 1C it can hold about 7% more water vapour and dump more rain. It has proven remarkably correct.

What they didn’t know is that it was only part of the story – that in the case of some particularly strong storms in a warmer climate there are further multiplying factors in the atmosphere that can increase their power and lead to a 30-40% increase in localised rainfall intensity. Yes, due to climate change.

Pointing this out isn’t a “political lecture”, as the Liberal National party senator Matt Canavan suggested last week. Nor is a form of hysteria or an expression of religious belief, as an overexcited Sky News commentator claimed. It is highlighting facts that are relevant to how we might prepare for what lies ahead.

This might all feel like a statement of the painfully obvious, given the years of scientific inquiry and reporting. For those who feel that way: I hear you. Debate over the climate crisis can seem stuck in an eternal bad faith rut, even as attempts across the community to address it speed up.

But let’s consider some more facts. If you’re after a clear picture on the physical science you could do worse than listen to Prof Mark Howden, the director of the Australian National University’s Institute for Climate, Energy & Disaster Solutions and a vice-chair of the Intergovernmental Panel on Climate Change. In a state of the climate address last month – his final in the role before stepping down later this year – he set out an extraordinary list of evidence.

Some of it is reasonably well known. Best we can tell, global CO2 emissions still increased last year – by 0.8%. If we want to put an optimistic spin on it we might describe this as basically flatlining. But they’re not coming down yet.

Some of it is less well understood. Particularly: there had been a “massive step-change up” in warming since June 2023, when temperatures vaulted well beyond what was already a historically high level. Scientists don’t exactly know why this happened. Howden described the past 18 months as “mind-boggling” and “like more than a decade of temperature increase in two years”.

Scientists do know the past decade has been the hottest 10 years on record. They do know that, averaged across the globe, every day in 2024 was at least 1.25C hotter than pre-industrial levels, and three quarters were 1.5C hotter. And they do know feedback loops are making things worse. Howden gave two examples: melting of Arctic ice and tundra and massive wildfires. Both release large amounts of CO2 into the atmosphere, worsening the climate crisis, which in turn make large-scale melting and burning more likely. And so on.

Howden made a couple of overarching points. One was a barely veiled message for the political class, and perhaps those charged with holding them to account. He said that Australia had the resources and means to become a global leader in zero-emissions solutions if it had the will, but stressed: “We have to put to bed this idea that we’re tracking OK and having some aspirational target of net zero by 2050 will somehow make us avoid 1.5C [of heating above pre-industrial levels].”

The second wasn’t directed at the columnists and coal bosses who would use Alfred as the latest front in an ideological war, but could have been.

“If this isn’t certain enough,” Howden asked, “how much certainty do you need? What’s the evidence base that tips you over into taking this seriously?”

Good question.

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