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Extreme heatwave days already hitting poorer nations more than rich



Peter Hannam

When Nicholas Herold was hunting for data on how much climate change was affecting the world's poorest nations, he was surprised when he couldn't find answers in the published research.

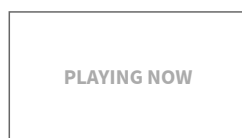
"Everyone's spoken for years about how poor countries are going to suffer more – or are suffering more – and I couldn't find one figure actually showing this," the research fellow at the Climate Change Research Centre at the University of NSW said.



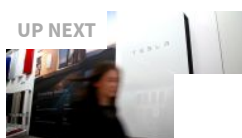
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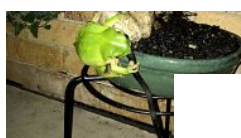
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While lots of models were in use, nobody had crunched the observations. One reason was that until recent decades, large regions particularly in Africa had only limited instrumental monitoring.

Using World Bank wealth definitions and targeting the number of days and nights that fell in the top 10 per cent of temperatures for any date, Dr Herold and fellow researchers found extreme heat readings have increased much faster in low-income nations than richer ones since at least the 1980s.

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"We expected it to be a lot worse since the [low-income] countries are near the equator but the difference of more than double is quite shocking," he said.

In [a paper published in the *Environmental Research Letters* journal](#), the researchers noted poorer nations were often located in the tropics and therefore already "close to the upper threshold for human comfort".

Based on an average of three data reanalyses, the researchers found the percentage of hot days each year in low-income countries rose from a base of 10 per cent – or 37 days – during the 1961–90 base period to 22 per cent – or 80 days – by 2010.

By contrast, rich nations had the percentage of hot days rise much slower, from 10 per cent to 15 per cent, or 37 to 55 days.



Dehydration: extreme heat in mid-2015 killed at least 800 people in Pakistan. Photo: AP

Warm nights have increased at even a faster pace, in line with global trends, with the pace of increase in poorer nations almost triple that of the rich. (See chart below, showing the number of hot days on the

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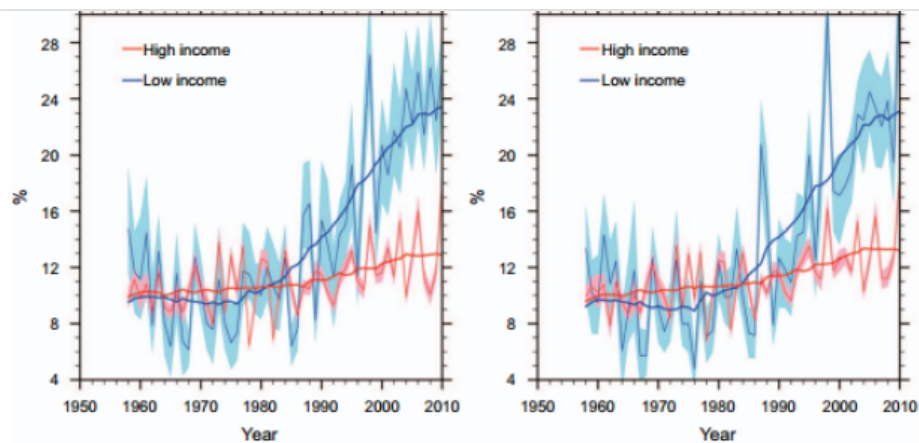
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Pre-monsoonal heat in India has been severe in many regions in recent years. Photo: AFP

"It's not good for low-income or high-income countries but it's particularly worse for the low-income countries as they are the ones which can least afford to adapt," Dr Herold said.

Poorer nations typically have far smaller accumulated or annual per-capita greenhouse gas emissions than industrialised ones. With the uneven warming trends likely to continue, poor nations have a case for demanding rich world assistance to cope with climate change, he said: Poor countries have "contributed the least, but in terms of temperature effects, they will suffer the most".



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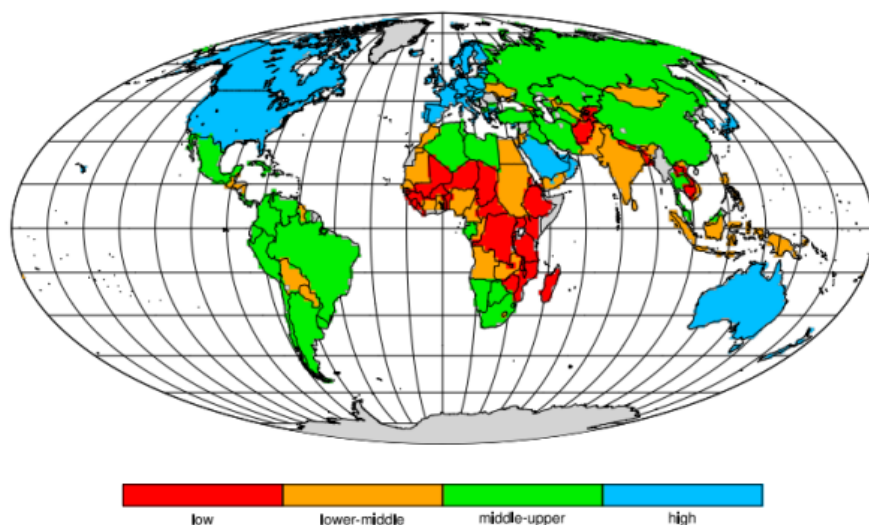
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Failed corn crop in Malawi in 2016: drought and heatwaves left some 60 million people in southern Africa dependent on food aid. Photo: Getty Images

"Our findings also lend support to calls for explicit loss and damage compensation," the paper concludes.



The scale of the threats posed by global warming was outlined at length in a recently published book, *Climate Change and the Health of Nations*, by the late Australian National University academic, Anthony McMichael.

Europe's severe heatwave killed 70,000 in 2003 and 55,000 died in 2010 in Russia, demonstrating more developed nations were also home to vulnerable people when temperatures spike.

The extreme heatwave just prior to Victoria's Black Saturday bushfires in 2009 also killed more people than the fires themselves, buckled railroads and overloaded the electricity grid, Professor McMichael noted. (Last month's record heatwave triggered power cuts in South Australia and pushed NSW's power sector to the limit too.)

While history offers many examples of how past climate change affected societies – usually detrimentally – the prospect of more rapid shifts will likely stretch rich and poor nations alike.

"We cannot predict the consequences for human populations but they may be dire – especially if *runaway* climate change occurs, Professor McMichael wrote.

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