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Paul Day  
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# Climate patterns increase air pollution deaths by 14%

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**A new study, led by researchers from Nanyang Technological University, Singapore has found that between 1980 and 2020, PM2.5 was responsible for around 135 million premature deaths, globally.**

They also found that the impact of climate patterns such as the El Niño-Southern Oscillation, the Indian Ocean Dipole, and the North Atlantic Oscillation caused a 14% rise in those deaths.



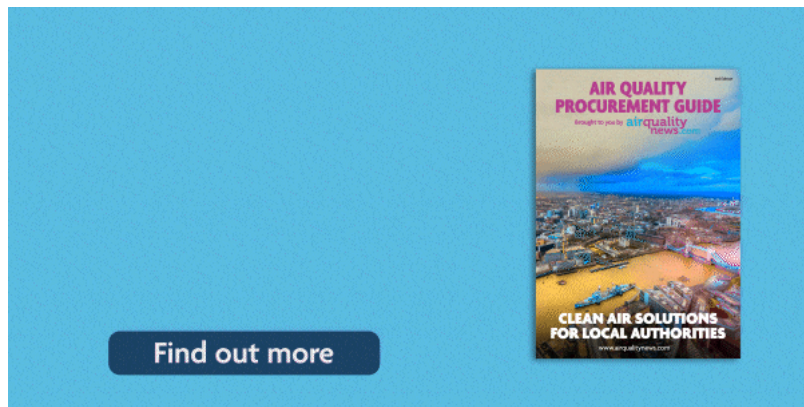
(L to R) Benjamin Horton, Steve Yim and Joseph Sung

The researchers explained that increases in temperature, changes in wind patterns and reduced rainfall can lead to stagnant air conditions and the accumulation of pollutants in the atmosphere.

All three of these weather patterns coincided in 1994, 1997, 2002, and 2015, with the Southeast Asian region being the most affected. Around 3,100 more deaths occurred in that region each year due to the higher impact of pollution worsened by the weather patterns.

The ambitious study looked at air pollution on a global scale, across a 40 year period using NASA satellite data and incidences of premature death linked to air pollution from the Institute for Health Metrics and Evaluation in the US. Additionally, they looked at the potential influence of climate patterns using data from the National Oceanic and Atmospheric Administration.

While the study covered the entire planet, it highlighted how badly Southeast Asia is affected by poor air quality, finding that Asia had 98.1 million premature deaths attributable to PM2.5 between 1980 and 2020, with China and India at 49.0 million and 26.1 million deaths respectively.



It was also found that while local emissions from industrial and residential sources caused the largest PM2.5-related health impacts, transboundary air pollution led to 23% of PM2.5 and ozone-related premature deaths. In Singapore, Brunei, and East Timor that figure rises to 50%.

First author of the study, Associate Professor Steve Yim of NTU's Asian School of the Environment and Lee Kong Chian School of Medicine, who led the study, said: 'Our findings show that changes in climate patterns can make air pollution worse. When certain climate events happen, like El Niño, pollution levels can go up, which means more people might die prematurely because of PM2.5 pollution. This highlights the need to understand and account for these climate patterns when tackling air pollution to protect the health of the global population.'

Study co-author Distinguished University Professor Joseph Sung, NTU's Senior Vice President (Health and Life Sciences), and Dean of NTU's LKCMedicine, said: 'Our study highlights how climate patterns affect air pollution, and this is crucial for healthcare professionals because it directly impacts public health. The effects of climate change and the environment on human health are not lesser than those of genomics and lifestyle patterns, and they have been increasing over the past decades.'

'By recognising these patterns, healthcare providers can better prepare for potential increases in patients seeking treatment for pollution-related ailments. Additionally, this knowledge underscores the importance of proactive measures to reduce pollution and mitigate its health impacts, ultimately helping healthcare systems manage and alleviate the burden of pollution-related illnesses on communities.'

The full research can be [read here](#)