

Severe dust storm hits Australian coastal cities

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A huge dust storm blanketed large areas of Australia's southeastern coast last Wednesday, covering cities and towns in the states of New South Wales and Queensland, before moving out to sea towards New Zealand. In Sydney, thick red clouds of dust created havoc across the city, reducing visibility, creating traffic snarls and disrupting flights.

Air pollution for Sydney reached record levels. According to John Leys, a NSW Department of Environment Climate Change and Water expert, particle concentration in the city's air spiked at 15,366 micrograms per cubic metre last Wednesday compared to just 20 microgram on a normal day. A bushfire might generate levels of 500 milligrams per cubic metre.

Health authorities advised those with chronic respiratory illnesses and heart conditions, including school children, elderly and pregnant mothers, to stay indoors. By just after midday, the NSW Ambulance Service had responded to more than 300 calls from people experiencing breathing problems.

At Sydney airport, spokesman Michael Samaras reported that 18 international flights had to be diverted to Brisbane and Melbourne. Other flights were delayed two to three hours on average. Ferries on Sydney harbour were cancelled. A second, less severe dust storm hit Sydney on Saturday.

In Queensland about 2,500 homes and business across south-east lost power. The dust storm affected Brisbane airport delaying flights by up to three hours. The worst affected areas were Kilcoy, Rochedale and MacKenzie where large trees were knocked down by high winds.

The dust storm was also devastating for rural communities. Last week high winds of up to 90 km/h swept up an estimated 140,000 tonnes of soil an hour from inland and deposited it on the coast. According to soil scientist Dr Stephen Cattle, farmers have lost their nutrient-rich topsoil which cannot be easily restored and affects their land's short and long-term productivity.

NSW Farmers Association president Charles Armstrong said 65 percent of the state is affected by drought and the extent of Wednesday's dust storm is an indication of the severity of drought and its impact on the farming community.

While dust storms are common in the outback areas of Australia, it is rare that coastal towns and cities are affected. Nothing similar has hit Sydney for 70 years. In February 1983, the city of Melbourne was enveloped in a huge cloud of dust. The last major dust storm to hit coastal areas was in 2002, when between 3.3 million and 4.8 million tonnes of dust were dumped on parts of NSW and Queensland.

CSIRO scientist Ross Mitchell, who has studied dust storms in the Lake Eyre basin for 15 years, described the level of visibility as the lowest ever seen, in particular at Birdsville where it was two to three times lower than observed before. In Broken Hill in western NSW, people reportedly could not see the end of their hands on Tuesday.

Last week's dust storm was unique in its extent and distance of travel. Dr Leys estimated that the dust plume stretched 600 kilometres along the coast from

Sydney to southern Queensland and travelled about 1,500 kilometres to get to Sydney.

Scientists believe the dust particles originated in western NSW and the lower Lake Eyre basin. A deep low-pressure system triggered a strong westerly wind, which picked up available dust caused by the protracted drought in central Australia.

The dust storm provoked discussion about the role of global warming. While there is no definitive linkage, high temperatures and a long drought did contribute to last week's event. As Dr Leys explained: "Another factor was that we had really high temperatures, some of the hottest on record. Ivanhoe, NSW, had 14 days in a row over 45C, while Adelaide broke all records."

Scientists examine dust storms as one manifestation of the complex problems associated with land degradation and desertification, which include changing weather patterns such as rainfall suppression. Some overseas studies suggest an increase in the global frequency of dust storms over the past few years.

"The numbers of major dust storms go up and down over the years," Andrew Goudie, geography professor at Oxford University, told the *Guardian*. "In Australia and China they tailed off from the 1970s then spiked in the 1990s and at the start of this decade. At the moment they are clearly on an upward trajectory."

This year major dust storms have been observed in other areas including northern China, Iraq, Iran, Pakistan, Saudi Arabia, Afghanistan, eastern Africa and Arizona. Anecdotal evidence from farmers in outback NSW also suggest that the number of storms has been rising in the past few years.

Dr Leys told the *Sydney Morning Herald* that the eight-year drought in large parts of Australia had dried out and loosened the topsoil creating conditions for dust storms, which have increased over the past seven years. He said that NSW was having "something like 10 times more dust storms than normal". Droughts in Australia are the product of a complex El Nino effect involving water currents and atmospheric patterns across the Pacific Ocean.

Some scientists have raised concerns about a linkage between large dust storms and disease. Laurence Barrie, chief researcher at the World Meteorological Organisation in Geneva, told the *Guardian*: "I think the droughts [and dust storms] in Australia are a harbinger. Dust storms are a natural phenomenon, but are influenced by human activities and are now just as serious as traffic and industrial air pollution. The minute particles act like urban smog or acid rain. They can penetrate deep into the human body."

Barrie explained dust storms might be responsible for spreading diseases over long distances, pointing to cases of meningitis in semi-arid central Africa that could be linked to Saharan storms. Scientists are also examining that possibility that cases of Sars, influenza and foot-and-mouth disease may be transmitted by dust storms.

In the final analysis, dust storms are caused by a complex set of factors that may include global warming as well as drought and land degradation caused by overstocking and over-cropping. Australia is the world's driest continent, much of it is desert and most of its soils are shallow and infertile. Many areas have been seriously compromised by overuse, creating problems such as land salination and river pollution.

The inability to resolve the broad global issue of climate change, or the more specific local issues of land use, is rooted in the anarchic profit system that puts short-term profits and national interests ahead of long-term social and environmental needs.



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