

Dust storm 'started 12 months ago'

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The spectacular dust storm that swept through much of eastern Australia on Wednesday may have had its origin 12 months ago, an Australian expert says.



Scenes like this may become more common due to climate change (User submitted: Diann Payne)

And with climate change set to bring more variability, Australia may experience more large scale dust storms in the future.

This week's storm covered a large area of eastern Australia, with PM10 (particles less than 10 micrometres) levels in most Australian cities being well above safe levels.

"They're classed as dangerous at levels above 200 micrograms per cubic metre," ABC weather forecaster Graham Creed said.

"In Sydney's east they're recording about 256, in the north-west 919 and in the south-west 1719. But Sydney is not the worst, Bathurst at the moment is 2665."

Severe weather forecaster Dr Deryn Griffiths of the Bureau of Meteorology says the dust storm started two days ago when 100 kilometre per hour winds whipped up dust from the central region of Australia.

"It started in South Australia and has since extended across all of New South Wales and into Queensland."

She says extremely dry conditions throughout the interior of the country, along with strong winds, provided the perfect recipe for the dust storm.

"The township of Moomba in South Australia has had only 11 millimetres [of rain] this year - it's very, very dry," she said.

Dr Griffiths says the dust storm is the biggest to hit the city of Sydney since the 1940s.

"In 2002 and 2003 we had a few dust storm events. In 1994 we had a couple and also in 1982," she said.

"So it happens about a couple of times each decade, but this density hasn't happened in 50 years in Sydney."

Outback origins

Associate Professor Michael Box of the School of Physics at University of New South Wales says the most likely source of the dust is the Lake Eyre Basin, which a few months ago was a wetland oasis.

"The Lake Eyre Basin area of central Australia is a dusty place, especially in early spring. Dust storms originating in this region are common, although it is far less common that the dust is carried the 1,500 kilometres to Sydney and beyond," he said.

"However, with winds of sufficient strength and the right direction dust may be carried off the Australian coast - even as far as New Zealand."

Climatologist Dr Samuel Marx of the University of Queensland says the fine particles in this dust storm were probably laid down during after the flooding rains that occurred in outback Queensland late last year.

"You often get these dust storm events after you've had wetter years," he said.

"After you've had decent rains like we had last year, you get flood waves moving through central Australia. These deposit lots of fine material and once this dries out it easily gets entrained by the wind."

Dr Marx, who has looked at Australian dust storms that have occurred over the last 10,000 years, says these events occur more often when there are greater oscillations between wet and dry periods.

Climate change

He says future climate modelling by the United Nation's Intergovernmental Panel on Climate Change (IPCC) suggests this may happen more often in the future.

"One of the predictions of the IPCC is that the Australian climate will be more variable and this should probably result in more dust storms," Dr Marx said.

But he says the role of dust in climate modelling is still a large unknown.

"It changes the thermal structure of the atmosphere. Dust particles can absorb radiation and reflect radiation - it really depends on the characteristics of the dust and where it is being transferred," he said.

Dr Marx says previous studies estimate the amount of dust in a storm of this size between 8 and 40 million tonnes, most of which will be deposited in the ocean, which could result in an explosion of phytoplankton.

"There has been quite a bit of work that has shown that these dust plumes are actually linked with phytoplankton blooms in the Southern Ocean. That's a good thing in some ways," he said.

New Zealand is also set to experience dust from this storm, having only just recovered from a similar dump last week when the city of Christchurch experienced high levels of dust blown over from Victoria's western districts.

But Dr Marx says the greatest effect from this dust storm could be felt on New Zealand's ski slopes.

"Most of the dust gets rained out on the west coast," he said.

"It's quite common to see red dust deposited through the New Zealand snowfields."