

Kate Doyle - ABC Weather

ABC NEWS

Fire weather: Cold front drags in hot, blustery air and sudden dangerous wind changes

ABC Weather / By Kate Doyle

Posted 11 Nov 2019, updated 12 Nov 2019



Fire conditions are expected to peak again on Tuesday. (Facebook: Waz Powter)

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A catastrophic fire danger is forecast for Greater Sydney, Greater Hunter, Illawarra and Shoalhaven regions on Tuesday, prompting the New South Wales Premier to declare a seven-day state of emergency.

Of course there are underlying conditions, but why is Tuesday looking so bad?

It's a cold front.

Cold fronts have resulted in disastrous fires again and again in Australia.

It was a cold front that ramped up the fires on Friday, and it was a cold front that brought on [Black Saturday \(2009\)](#), [Ash Wednesday \(1983\)](#), and [Black Friday \(1939\)](#).

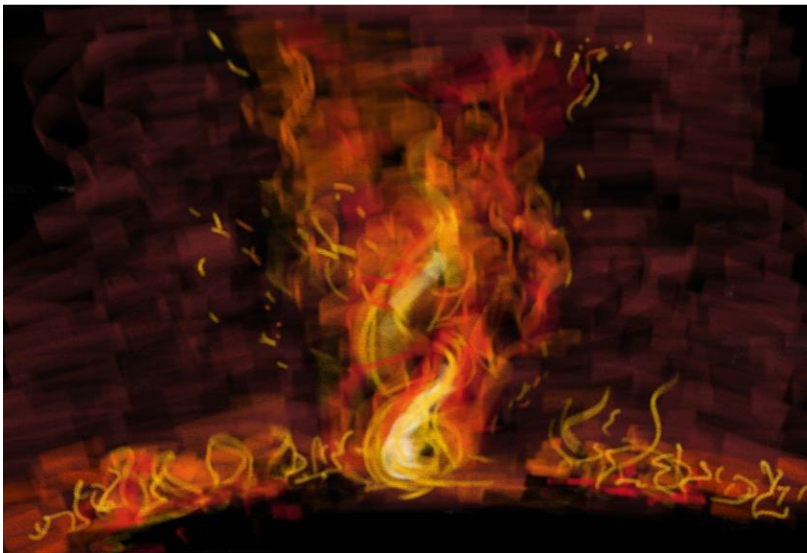
Key points:

- Cold fronts, which push hot air ahead of them, have been responsible for catastrophic bushfires in the past
- A cold front from WA and central Australia is expected after NSW experiences south-easterly winds, which means the wind direction will change rapidly

Supercell bushfire thunderstorms, tornadoes, fire-whirls and other deadly fires that spin

ABC Weather / By Kate Doyle

Posted 1 Jan 2020, updated 3 Jan 2020



Fire-whirls are just the beginning when it comes to rotation in fire. (ABC Weather: Kate Doyle)

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Yes, fires can spin. Because having flames, embers and lightning isn't enough, fires can also generate tornadoes and supercell thunderstorms.

A volunteer firefighter died on Monday when an event "which could only be described as a tornado" [picked up and rolled the truck carrying him and two other crew members](#).

With so few examples, the science behind these rotating fire systems is still being worked out, but there is no denying they are incredibly dangerous.

Spinning fire comes in three rough forms:

- **Fire-whirls** – these are relatively small on the ground but can reach hundreds of metres into the air, like a dust devil or willy-willy
- Fire-generated tornadoes – stronger than fire-whirls, these tornado-strength vortices that form during a fire are commonly known as "firenadoes"
- Supercell bushfire thunderstorms – the biggest and most dangerous form of fire

ABC NEWS

Rain isn't always helpful fighting bushfires, so what will it take to put them out?

ABC Weather / By Kate Doyle

Posted 6 Jan 2020, updated 7 Jan 2020



What you really want is lots of steady rain over an extended period. (ABC News: Karen Percy)

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The heavens have reluctantly opened, bringing a few millimetres of rain to the scorched south-east, but authorities say it can actually hinder their efforts to fight bushfires.

Up to 15 millimetres was recorded over 24 hours across some parts of the fire zone. In East Gippsland, Bairnsdale recorded 12mm, Nowa Nowa 6mm and Buchan 5.2mm.

Some areas only got a sprinkling that left nothing in the gauges.

So what will it take to get these mega-fires out?

Key points:

- A cool change has brought temporary relief for the fire-ravaged south-east, but rain can hamper firefighting efforts
- Rain can prevent back-burning, making it harder to build control lines and lead to patchy burnt

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ABC NEWS

Fire, climate change and prescribed burning: What do the experts have to say?

ABC Weather / By Kate Doyle

Posted 13 Nov 2019, updated 13 Nov 2019



Fire is a part of life in Australia, but some conditions can signal catastrophic danger. (ABC Weather: Kate Doyle)

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As flames destroyed lives and homes in recent days, there's been a lot of debate about past fires, finger-pointing over prescribed burning, questioning the influence of climate change, or if indeed it was the right time to be talking about it at all.

But what do scientists have to say?

Ross Bradstock, a bushfire risk management expert at the University of Wollongong, did not mince words when asked about the current fires.

"We are now in uncharted territory," he said.

"We've gone over the one-million-hectare mark at least for the forests and the plants in the eastern part of NSW — this is unprecedented."

Of course fires have happened before, but Dr Bradstock said the 2019-20 fire season in New South Wales had already exceeded the infamous major fire periods of [January 1994](#) and [Christmas 2001](#).

With summer still to come, and given the current forecast and outlook, things

ABC NEWS

India just had its latest monsoon withdrawal on record, so what will it mean for Australia?

ABC Weather / By Kate Doyle

Posted 23 Oct 2019, updated 23 Oct 2019



The late withdrawal from India will likely mean it's a while until the monsoon appears on our horizon. (ABC Weather: Kate Doyle)

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This year's Indian monsoon withdrawal was the latest on record by more than a week, meaning a delayed start to Australia's monsoon season is likely.

But another poor wet season isn't necessarily set in stone, because when it comes to the atmosphere, nothing is quite that clear-cut.

Every year a band of tropical moisture moves up and down the globe as Earth's tilt dictates the seasons. It goes by various names, but is often called the Inter-tropical Convergence Zone (ITCZ) and has the monsoon trough roughly embedded within it.



What has made the hail so bad over the past few days?

ABC Weather / By Kate Doyle

Posted 22 Jan 2020, updated 22 Jan 2020



Summer hailstorm smashes cars and buildings in Canberra

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From extreme heat to severe storms, Australia has been through the weather wringer in recent weeks.

In the past few days it has been hail; the same weather pattern triggering storms in Melbourne, Canberra, Sydney and the Gold Coast, according to Dr Joshua Soderholm, research scientist at the Bureau of Meteorology (BOM).

He said the broad surface trough and strong upper-level low system that moved through eastern Australia was a "quite remarkable, multi-day event" (which is meteorologist for lots of exclamation points).

