Support the Guardian
Fund the free press with $5 per month
Support us
Print subscriptions
Newsletters
Sign in
US
The Guardian
News
Opinion
Sport
Culture
Lifestyle
World Europe US news Americas Asia Australia Middle East Africa Inequality Global development

Australia weather

Explainer

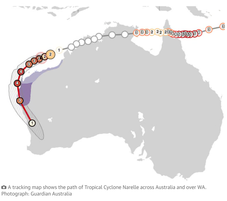
Tracing Tropical Cyclone Narelle's 'very unusual' path to hit Australia on three coastlines

It's only the third storm system in recorded history to make landfall in three Australian jurisdictions - and the first in more than 20 years

Get our breaking news email, free app or daily news podcast

Donna Lu
Fri 27 Mar 2026 10.00 EDT

Share
Prefer the Guardian on Google



A tracking map shows the path of Tropical Cyclone Narelle across Australia and over WA. Photograph: Guardian Australia

When it crossed the Western Australian coast on Friday afternoon, Tropical Cyclone Narelle became the first storm system in over 20 years to make landfall in three of Australia's states and territories.

In the preceding week, the severe storm has pummelled communities across far north Queensland and the Northern Territory.

The massive storm first hit far north Queensland as a "high-end" category 4 cyclone, before reaching the Northern Territory as a category 3 storm last Saturday and then continuing all the way west to the Indian Ocean.

By the time it approached Perth on Saturday, likely passing east of the capital city, it would have travelled more than 5,500km (3,400 miles).

Embed loop - Narelle Australia track

How common is it for a cyclone to make multiple landfalls?

The last storms to have made landfall in three Australian states and territories were Cyclone Ingrid in 2005 and Cyclone Steve in 2000.

Such cyclones have been historically rare, but when they do occur they tend to take a looping trajectory across Australia similar to Narelle's path, says Dr Milton Speer, a fellow at the University of Technology Sydney and former Bureau of Meteorology forecaster.

"Instead of going ... in the tropical easterly trade winds in the monsoon trough, they get captured by the mid-latitude westerly winds," he said. "They do take some time to curl around and head south, but when they do get captured they usually move a bit quicker."

Tropical Cyclone Narelle tracking map

Showing the path and intensity of Cyclone Narelle. This is not a live map and should not be used in the case of an emergency - refer to the Bureau of Meteorology for official warnings. Last updated 2 days ago.

Guardian graphic. Source: Bureau of Meteorology

The exact path depends on the circulation patterns of upper-level winds in the Earth's troposphere - the low layer of the atmosphere where weather occurs.

Narelle would be pushed east by a "an upper-level low pressure trough in the westerlies approaching WA," Speer said.

The path that Cyclone Narelle has taken "is very unusual, and we do - with any certainty - [only] know of one or two precursors," said Dr Joseph Christensen, a University of Western Australia historian who studies cyclones and extreme weather in WA.

He noted that reliable meteorological data on cyclones only began in the 1970s in Australia. "How often this has happened before that is really anybody's guess," he said.

"The typical West Australian cyclone will form somewhere in the Timor Sea off the Kimberley coast. It might form over the course of several days and then proceed, very broadly speaking, in a south-easterly direction.

"Narelle's taken almost the exact opposite path moving from east to west."

Did global heating play a role in fuelling Narelle's trajectory?

Climate scientists have told Guardian Australia that Cyclone Narelle's early formation and intensification was likely fuelled by global heating. They have pointed to record ocean temperatures in the Coral Sea in the weeks preceding the storm.

In order to form, cyclones need ocean temperatures to be above 26.5C, as well as favourable atmospheric conditions.

In the Coral Sea to Australia's east, Narelle moved over an area of ocean that has seen record high temperatures in recent months.

"The Coral Sea has just recorded its hottest December, hottest February, hottest summer, hottest calendar year and even the hottest financial year," climate scientist Andrew Watkins, an adjunct professor at Monash University and a councillor with the Climate Council, said last week.

Cyclones are becoming more likely to travel far distances from east to west than in previous decades as a result of global heating, Speer said, because there were fewer westerly winds towards the equator.

Global heating also means the rainfall expected from a cyclone is likely to be greater, because a warmer atmosphere can hold more water.

Graham Readfearn contributed reporting.

Explore more on these topics:
Australia weather
Queensland
Northern Territory
Western Australia
explainers

Share
Reuse this content

Advertisement


Costco Shoppers Say This $13 Find Is the "Skin lift" in a Bottle ...Read More
huggsier.com

Most viewed
Expat influencers sold Dubai to the world and were paid to look the other way. Now the dream is crumbling
Brigid Delaney
Air Canada CEO to resign after backlash to video tribute of pilots killed in crash
'Battle of the titans': Trump's distorted reality on Iran war runs into a brick wall
Israel passes law to give death penalty to Palestinians convicted of lethal attacks
Never mind leading the free world, if Donald Trump were your ageing father, when would you take away his car keys?
Gaby Hinsliff

More on this story
How Tropical Cyclone Narelle turned the sky red in Western Australia
10h ago
'Entirely wiped out' crops, buildings destroyed and weeks of recovery as cyclone damage assessed
1d ago
Sperm get lost in space. Australian research into microgravity impacts suggests
4d ago
'No one has had a dry run': weather warnings for storm-ravaged WA after Cyclone Narelle downgraded to tropical low
3d ago
Is thi quar Aust say s
18 Mar

Most viewed
1
2
3
4
5
6
7
8
9
10

World Europe US news Americas Asia Australia Middle East Africa Inequality Global development
News
Opinion
Sport
Culture
Lifestyle
Original reporting and incisive analysis, direct from the Guardian every morning
Sign up for our email
About us
Help
Complaints & corrections
Contact us
Tip us off
SecureDrop
Privacy policy
Cookie policy
Tax strategy
Terms & conditions
All topics
All writers
Newsletters
Digital newspaper archive
Bluesky
Facebook
Instagram
LinkedIn
Threads
TikTok
Advertise with us
Guardian Labs
Search jobs
Work with us
Accessibility settings
The Guardian
This is what we're up against
Support us
Maybe later