

## New Zealand weather and climate news

### *MetService mentions*

*Courtesy of MetService Library*

#### Weather: Uesi nothing out of the ordinary, lack of rain an ongoing concern

There were warnings about the wet weather ex-tropical cyclone Uesi would bring to the West Coast over the weekend - but other parts of New Zealand have seen barely any rain in weeks.

#### Something's on the horizon

Otago Daily Times

Good things take time, they used to say in those wonderful Mainland Cheese television ads. If that is the case, the confirmation MetService is finally ...

#### Smattering of rain brings no reprieve to Northland

New Zealand Herald

MetService meteorologist Kyle Lee said parts of the Northland region received rain, mainly from sunrise through to around 8am on Sunday, followed ...

#### Timaru hotter than average for February

Stuff.co.nz

The highest recorded February temperature for Timaru was in 1998 when it reached 37.8 degrees, Metservice weather communication advisor Sonja ...

#### South Island weather: Ex-Tropical Cyclone Uesi brings heavy rain and wind

Stuff.co.nz

Heavy rain and strong winds are set to hit parts of the South Island on Sunday. MetService has issued heavy rain warnings for Buller, Westland, ...

#### Ex-Tropical Cyclone Uesi still an 'intense weather system' headed towards South Island

Stuff.co.nz

On Friday morning MetService issued a heavy rain warning for Westland south of Otira from 4am Sunday until 4am Monday. Accumulative rainfall of ...

## Weather: Big dry continues for Auckland despite a few drops of rain

New Zealand Herald

If you woke up with a sprinkling of rain on your car this morning - don't get too excited. MetService says the rain was so light Auckland Airport's rain ...

## World Weather

Erick Brenstrum joins us once again to take a look at the best and the worst of world weather.

## Northland drought conditions classified 'adverse event' by government

The drought conditions in Northland have been classified as an "adverse event" for the primary sector, meaning government funding can be accessed to help out farmers.

## Farmers in Waikato hope for rain as extreme dry takes hold

Farmers in parts of Waikato are looking skyward hoping at least 100 millimetres of rain will fall within the next fortnight as an extreme dry takes hold in the region.

## Some weather events 'impossible to plan for' - Agriculture Minister Damien O'Connor

Agriculture Minister Damien O'Connor is confident Northland farmers and growers will survive a record-breaking drought.

## NZ's Big Dry: Five key questions answered

New Zealand Herald

In both seasons, the tropical Pacific has been in an El Nino-Southern Oscillation (Enso) neutral state - meaning that neither El Nino or La Nina patterns ...

## Another scorcher: Napier hits 34.2C as heat cranks up again

New Zealand Herald

The relentless Hawke's Bay summer sun is going nowhere fast. MetService meteorologist Lewis Serris said Thursday's maximum in Hawke's Bay was ...

## **MetOcean**

Stephen M. Chiswell & Philip J. H. Sutton (2020) Relationships between long-term ocean warming, marine heat waves and primary production in the New Zealand region, New Zealand Journal of Marine and Freshwater Research, DOI: [10.1080/00288330.2020.1713181](https://doi.org/10.1080/00288330.2020.1713181)

We test the paradigm that in a future warmer ocean, shallower winter mixing will lead to less net primary production (NPP), by investigating whether warming between 2002 and 2018 led to changes in NPP in the Tasman Sea/New Zealand region. The 2002–18 trend in sea surface temperature (SST) was positive over most of the region, and was driven by increasingly warmer summers and marine heat waves (MHWs) rather than year-round warming. In contrast, the trends in sea surface chlorophyll (SSC) and NPP were generally positive over the Subtropical Front (STF) and in a subtropical band north-east of New Zealand, but negative elsewhere. Regressions between SSC and SST, and between spring SSC and the coldest SST during the preceding winter, show similar spatial patterns to the SSC trend. We suggest these findings reflect different ecosystem functioning in the subtropical and subantarctic biomes that are separated by the STF. We conclude that any future warming is likely to lead to less production in the Tasman Sea, but more production over the STF. Three recent MHWs had different impacts on production, but generally led to less surface biomass north of the STF and more biomass south of the front.

## **Volcano alert/watch**

Project to focus on adapting to living with ongoing volcanic activity

The next eruption on Mt Taranaki could last for decades and cost the country billions a year, volcanologists say.

Extreme weather (and other news) – Antarctica and offshore

The Antarctica factor: Model uncertainties reveal upcoming sea level risk

Within this century already, due to Antarctica alone global sea level might rise up to three times as much as it did in the last century. This is a finding of an exceptionally comprehensive comparison of state-of-the-art computer models from around the world.

Climate change: Highest-ever temperature of over 20°C recorded in Antarctica

An El Nino is a weather event, which can cause extreme weather around the world. An El Nino comes along about every two to seven years as part of ...

## **Extreme weather (and other news) – Australia and Pacific**

### Weather systems off Samoa group and Tuvalu could become cyclones

The Samoa Meteorological Service says there are two weather systems which are of concern to Samoa.

A Tropical Disturbance near Tuvalu, TD07F, and a developing low pressure system near Samoa.

### Missing Bendigo weather pod keeps transmitting data in suspected captivity

Bendigo Advertiser

The apparent theft of a weather pod has sparked La Trobe University Technology Innovation Lab head Dr Simon Egerton's curiosity.

## **Extreme weather (and other news) – Asia and the Middle East, Africa**

### Saudi Arabia shivers in worst cold spell

The Siasat Daily

Riyadh: Saudi Arabia is experiencing its coldest weather since 2016, meteorologists said Thursday, with overnight temperatures dropping below zero ...

### Penang, Kedah facing imminent water crisis as key dams dry up

Free Malaysia Today

PBA CEO Jaseni Maidinsa said cloud-seeding operations must be urgently intensified to induce rain at the key Beris and Muda dams in Kedah so that ...

### Local Solutions Prepare South Asia for Searing Heat

Natural Resources Defense Council

This week, a regional summit of heat experts in South Asia focuses attention ... (NDMA), the India Meteorological Department, and other local partners.

### Baghdad wakes up to first snow in a decade to lighten mood after months of unrest

Iraq's capital of Baghdad woke on Tuesday (local time) to a sight not seen in more than a decade — snow.

What's behind Kenya's strange weather?

Phys.Org

This event is similar to the El Niño Southern Oscillation that occurs in the tropical Pacific Ocean. Sea surface temperatures are measured by the ...

Thailand: Growth risks intensifying amid coronavirus outbreak - ANZ

FXStreet

Thailand: Growth risks intensifying amid coronavirus outbreak - ANZ ... stemming from the coronavirus outbreak and inclement weather conditions.

### **Extreme weather (and other news) – Americas and Europe**

Storm Dennis triggers Red rain warning

The Met Office issued a Red Warning for rain – the highest level of warning - for parts of south Wales on Sunday morning.

Storm Ciara expected to cost up to £200m in insurance claims

Experts at PwC say Storm Dennis likely to add to damage with 140mm of rain predicted

Twin bomb cyclones to merge into one of strongest-ever storms in North Atlantic

A potentially unprecedented scenario is unfolding in the North Atlantic on Friday (local time), as a bomb cyclone batters Iceland with hurricane-force winds and blizzard conditions, just as another bomb cyclone, known as Storm Dennis, rapidly intensifies behind it.

January was the most unusually warm month ever recorded without an El Niño

Washington Post

January was the most unusually warm month on record to occur in the absence of an El Niño event in the tropical Pacific Ocean, in another ...

California could go through all of February without a significant storm for the first time since 1864. A ...

Business Insider UK

NOAA's Cooperative Institute for Meteorological Satellite Studies (CIMSS) shared the image on Twitter. "Can you spot the high pressure???" it wrote.

It's so cold the ground is exploding in Toronto. Here's what you need to know about 'frost quakes'

Toronto Star

... will expand, putting pressure on surrounding soil and rock until an explosion is caused, said Kelly Sonnenburg, a Weather Network meteorologist.

Water boards up taxes to tackle changing weather patterns

DutchNews.nl

Water boards up taxes to tackle changing weather patterns ... A farmer with a business worth €400,000 can expect to pay €2,526 which represents a ...

International news and research

Computer-based weather forecast: New algorithm outperforms mainframe computer systems

Posted: 13 Feb 2020 09:42 AM PST

The exponential growth in computer processing power seen over the past 60 years may soon come to a halt. Complex systems such as those used in weather forecast, for example, require high computing capacities, but the costs for running supercomputers to process large quantities of data can become a limiting factor. Researchers have recently unveiled an algorithm that can solve complex problems with remarkable facility -- even on a personal computer.

Twin Dangers of Scorching Days and Sweltering Nights Are on the Rise

The combination of day and night extreme heat will only get more frequent—and hotter—in the future

Meteorology 101: Rules For Building A Better Forecast

Forbes

It holds that the accuracy of the weather forecast improves by one day every ... and Atmospheric Administration's Earth Prediction Innovation Center.

Which forecast models do meteorologists use most?

WOODTV.com

(WOOD) — If you spend enough time listening to weather reports on the air, at one point or another you'll likely hear broadcast meteorologists make ...

Weather Source uses Snowflake to keep ahead of extreme weather

ComputerWeekly.com

... if accurate weather forecasting is not built into their business assumptions, ... Weather Source provides enterprise clients with meteorological data to ...

SERB Scientist Rajeev Mahajan calls for nodal IMD agency for climate services at ICCS-6, Pune

Indus Dictum

Dr. Mehajan highlighted that the India Meteorological Department (IMD) ... weather-ready (already unparalleled in South Asia) and climate-smart ...

Aviation

Rocket Lab wins Nasa contract to provide 'ride to the moon' for small satellite mission

Stuff.co.nz

Rocket Lab has won a \$15.5 million Nasa contract to launch a small satellite to the moon next year. The tech company will send a satellite into the ...

Climate Change is Making it Harder for Planes to Get in the Air, New Study Says

The Weather Channel

Williams and his fellow researchers studied 60 years of weather and aircraft data from Greek airports to see how warmer air temperatures and ...

Small altitude changes could cut climate impact of aircraft by up to 59%

Posted: 12 Feb 2020 09:19 AM PST

Altering the altitudes of less than 2% of flights could reduce contrail-linked climate change by 59%, says a new study.

**Business/Insurance**

## Southland still in state of emergency with repairs set to cost millions

Feb 15, 2020 06:04 am

It's too early to count the cost of last week's flooding, but it'll be significant with the repairs to Milford Road alone costing millions of dollars to fix, authorities say.

## Weather Forecasting for Business Market Booming Worldwide| Accuweather, BMT ARGOSS ...

News Parents (press release)

Latest Study on Industrial Growth of Global Weather Forecasting for Business Market 2019-2025. A detailed study accumulated to offer Latest insights ...

## **Lightning**

### New Study Hints at Bespoke Future of Lightning Forecasting

Eos

Weather forecasting has come a long way since the days of the Apollo ... colleagues describe training a machine learning algorithm on data from 12 ...

## **Climate change / global warming / sea level rise**

### January 2020: Earth's Warmest January on Record

The month was our planet's warmest ever recorded without an El Niño being present

Cloud seeding / Geoengineering

### Cloud-seeding plan aims to increase rainfall in Saudi Arabia by 20 percent

The Rahnuma Daily (press release)

RIYADH (Rahnuma): The Saudi cabinet has approved a cloud-seeding program that aims to increase rainfall in the Kingdom by almost 20 percent.

## **Emergency preparedness / disaster planning / resilience**

## How NZ would fare during a world catastrophe

Insight - The current coronavirus outbreak is serving as a real time test of New Zealand's emergency plans. But public health experts warn there are even bigger threats out there that we should also be preparing for. John Gerritsen investigates if we could cope in a global catastrophe.

## Library

### 'Weed in the dead of night': A librarian shares the secrets of book-culling

Librarian Rebecca Hastie with a crash course on the fraught task of “weeding”, the systematic removal of resources from a library collection.

Writer and reviewer David Larsen wrote an article the other week conveying his immense displeasure and concern that the National Library is removing 600,000 books from its collection. David's piece, along with the inevitable Nazi book burning comparisons in the comments section, is very much par for the course when a library begins a weeding project. For librarians, though, weeding is a crucial aspect of our professional duty to maintain collections that best serve the needs of our communities.

## **Journal and articles online**

Reremoana Theodore, Melinda Webber, Richard Blaikie & Wendy Larner (2019) Rethinking our shared futures, Journal of the Royal Society of New Zealand, 49:sup1, 1-3, DOI: [10.1080/03036758.2019.1687531](https://doi.org/10.1080/03036758.2019.1687531)

The Royal Society Te Apārangi asked a number of experts to contribute papers around rethinking our shared futures, to be included in this open access supplement of the Journal of the Royal Society New Zealand. The papers cover a range of topics including business, hauora, culture, society, environment, history and even reflections on research practice itself. They have been presented here to encourage reflection and discussion, and to help us broaden our shared understandings of the purpose, process and impact of research for everyone in Aotearoa.

### Determination of automatic weather station self-heating originating from accompanying electronics

P. Pavlasek, A. Merlone, F. Sanna, G. Coppa, C. G. Izquierdo, J. Palencar, S. Duris

e1844 | First Published: 30 September 2019

This study focuses on the most commonly used temperature sensors within automatic weather stations, with a specific focus on evaluating the self-heating effect, which originates not only from the temperature sensor itself but also from the electrical components housed together within. The results of overall self-heating indicated a  $0.07^{\circ}\text{C}$  increase in temperature for the tested sensors when using the manufacturers' minimum recommended electric current supply. The use of elevated voltage levels up to 80% of recommended values shows a temperature increase as high as  $0.32^{\circ}\text{C}$ .

Quantifying the potential for improved management of weather risk using sub-seasonal forecasting: The case of UK telecommunications infrastructure

David J. Brayshaw, Alan Halford, Stefan Smith, Kjeld Jensen

e1849 | First Published: 06 October 2019

In the United Kingdom, the telecommunication network provides an estimated net annual economic contribution of over £30 billion, yet it is exposed to considerable weather risk. This paper provides an end-to-end demonstration of the potential for skilful sub-seasonal meteorological forecasts to improve decision-making in telecommunication infrastructure management. Meteorological forecast skill is argued to be a necessary rather than a sufficient condition, with explicit modelling required to demonstrate utility to users in complex decision environments.

Major factors affecting the snow simulations by the JULES in New Zealand

Yang Yang, Michael Uddstrom, Richard Turner, Mike Revell

e1837 | First Published: 19 August 2019

Snow frequently occurs over New Zealand in a maritime climate. The seasonal snow accumulation can be 3,000–4,000 mm deep in early spring at some locations. Owing to sparse snow observations, modelling and verification was limited. The major factors affect snow simulation over New Zealand are not well known. In the present study, major factors affecting snow simulation over New Zealand were identified and discussed. The maritime climate of New Zealand may make the snow simulation more sensitive to radiation, snow albedos and precipitation phase determination than for continents.

An intuitive metric to quantify and communicate tropical cyclone rainfall hazard

An intuitive rainfall hazard metric – the “Extreme Rainfall Multiplier” (ERM) – is used to describe extreme rainfall from past tropical cyclones and could improve the communication of future extreme rainfall events.

Recent tropical cyclones (TCs) have highlighted the hazards that TC rainfall poses to human life and property. These hazards are not adequately conveyed by the commonly-used Saffir-Simpson scale. Additionally, while recurrence intervals (or, their inverse, annual exceedance probabilities) are sometimes used in the popular media to convey the magnitude and likelihood of extreme rainfall and floods, these concepts are often misunderstood by the public and have important statistical limitations. We introduce an alternative metric – the “extreme rain multiplier” (ERM), which expresses TC rainfall as a multiple of the climatologically-derived two-year rainfall value. ERM allows individuals to connect (“anchor,” in cognitive psychology terms) the magnitude of a TC rainfall event to the magnitude of rain events that are more typically experienced in their area. A retrospective analysis of ERM values for TCs from 1948 to 2017 demonstrates the utility of the metric as a hazard quantification and communication tool. Hurricane Harvey (2017) had the highest ERM value during this period, underlining the storm’s extreme nature. ERM correctly identifies damaging historical TC rainfall events that would have been classified as “weak” using wind-based metrics. The analysis also reveals that the distribution of ERM maxima is similar throughout regions of the eastern United States, allowing for both the accurate identification of locally extreme rainfall events and the development of regional-scale (rather than local-scale) recurrence interval estimates for extreme TC rainfall. Lastly, an analysis of precipitation forecast data for Hurricane Florence (2018) demonstrates ERM’s ability to characterize Florence’s extreme rainfall hazard in the days preceding landfall.

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Weather Eye with John Mauder

<https://www.sunlive.co.nz/blogs/14376-tauranga-annual-rainfalls-18982019.html>

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Thanks to our regular contributors

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