

## **New Zealand weather and climate news**

### **Courtesy of MetService Library**

**MetService mentions.**

#### **Wild weather: South Island set for rain, thunder, gale force winds, snow**

New Zealand Herald

... Tasman and the West Coast. **MetService** is predicting a period of heavy rain, and possible thunderstorms for Buller and Westland from Otira north.

#### **New Zealand weather: Wet but warm with temperatures close to May records**

New Zealand Herald

**MetService** has issued heavy rain warnings for Westland, south of Otira, through to 3pm and in the ranges of Nelson, west of Motueka, to 6pm today.

#### **Weather: Heavy rain, blustery gales and possible thunderstorms forecast this weekend**

Stuff.co.nz

**MetService** meteorologist Alwyn Bakker said the low pressure system with associated fronts would bring rain to much of the South Island, especially ...

#### **What would a dry winter mean for the country? – Expert Reaction**

Expert Reactions | Published: 05 May 2021

New Zealand may be heading into a dry winter following a month of near record-breaking dry patches across the country. So what are the flow-on effects if nature's taps stay turned off over the cold season?

#### **Experts weigh in on dry weather pattern across NZ**

WeatherWatch.co.nz

Farmers Weekly reporter Richard Rennie talks to all three big players, WeatherWatch, **MetService** and Niwa, to finally make some sense of why New ...

#### **April rainfall equal lowest for Dunedin**

If you thought Dunedin was looking a bit parched over the past month, you were right.

- **Drought declaration extended to Otago**

The Niwa weather station at Musselburgh showed the city had its equal-driest April since records began in 1918.

## **MetOcean**

### **World's oceans changing as currents show new patterns**

The Sydney Morning Herald

The changes were less evident in tropic regions, where the huge pulses associated with the **El Niño**-Southern Oscillation dominate. While the ...

## **WMO**

### **Global methane assessment released**

Posted:

A Global Methane Assessment released by the Climate and Clean Air Coalition (CCAC) and the United Nations Environment Programme (UNEP) shows that human-caused methane emissions can be reduced by up...

### **Updated 30-year reference period reflects changing climate**

Posted:

The U.S. National Oceanic and Atmospheric Administration has updated the U.S. Climate Normals to the 1991-2020 baseline period to provide a most recent baseline for climate information and services...

### **WMO joins Emergency Alerting Call to Action**

Posted:

WMO has joined with the International Federation of Red Cross and Red Crescent Societies (IFRC) and the International Telecommunications Union (ITU) to issue a joint Call to Action to improve...

### **Normal to above normal rainfall forecast for southwest monsoon season**

Posted:

Normal to above normal rainfall is most likely during the 2021 southwest monsoon season (June – September) over most parts of South Asia, according to an authoritative seasonal forecast from the...

### **Asia-Pacific region urged to “build back better”**

Posted:

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) is holding its 77th session with a focus on how to “build back better” from the COVID-19 pandemic. “The attainment...

### **CMA upgrades global numerical weather prediction GRAPES GFS Model - China Meteorological Administration**

Posted:

In April 2021, China Meteorological Administration (CMA) began the operation of an upgraded global numerical weather prediction (NWP) system — GRAPES\_GFS V3.1. The major physical improvements are...

### **The 2021 “AI Earth” Artificial Intelligence Innovation Challenge**

Posted:

The 2021 “AI Earth” Artificial Intelligence Innovation Challenge—AI Helps Accurate Weather and Ocean Forecast was organized in early February 2021 by WMO RTC Nanjing and International Association of...

### **ECOWAS commits to Hydromet services**

Posted:

The Economic Community of West African States (ECOWAS) has declared its commitment to support the development of sustainable and reliable weather, water and climate services and their delivery to end...

### **Climate change indicators and impacts worsened in 2020**

Posted:

2020 was one of three warmest years on record, despite cooling La Niña Extreme weather and COVID-19 combined in a double blow New York/Geneva, 19 April 2021 (WMO) - Extreme weather combined with...

### **2021 is “make or break year” for Climate Action**

Posted:

2021 must be the year for climate action – “the make it or break it year,” said United Nations Secretary-General António Guterres at the launch of WMO’s report on the State of the Global Climate 2020...

### **Volcano alert/watch**

### **Agencies Join Forces To Create Improved Volcanic Ashfall Forecasting**

Scoop.co.nz

The ashfall **forecasts** are based on high resolution **weather** and dispersion models ... the potential to improve volcanic ash **forecasts** for the **aviation** sector as well. ... “Depending on **weather**, ash can travel long distances and impact ...

### **Extreme weather (and other news) – Antarctica and offshore islands**

### **Kiwi launches petition to commemorate forgotten slave tragedy on NZ shores**

More than 100 men, women and children died as slaves on one of New Zealand’s most distant islands, yet no trace of their existence remains. One man is trying to change that.

### **Antarctica remains the wild card for sea-level rise estimates through 2100**

Posted: 05 May 2021 02:49 PM PDT

A massive collaborative research project offers projections to the year 2100 of future sea-level rise from all sources of land ice, offering the most complete projections created to date.

### **Catastrophic sea-level rise from Antarctic melting possible with severe global warming**

Posted: 05 May 2021 08:13 AM PDT

The Antarctic ice sheet is much less likely to become unstable and cause dramatic sea-level rise in upcoming centuries if the world follows policies that keep global warming below a key 2015 Paris climate agreement target, according to a new study.

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

### New weather warning gauge

EurekAlert

Sea surface temperature variation - in tropical Pacific in rhythm with the **El Nino**-Southern Oscillation, and in northern Indian Ocean represented by ...

### Bureau of **Meteorology** Storms Back To Work With Microsoft Digital Technologies

Which-50

The Bureau of **Meteorology** (BoM) announced this afternoon that there is a Cloud-y forecast for its return to work, moving to a digital workspace with ..

### Australian government establishes new agency to address climate change risks

Insurance Business Australia

“**Insurers** can play an important role in helping the new agency assess the impacts of extreme **weather**, including asset and community-level .

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

### Dozens Dead in Afghanistan Flooding

The Weather Channel

The Afghanistan Civil **Aviation** Authority's **Meteorological** Department had ... The severe **weather** started on May 2, according to an update from the ...

### **Flooding might triple in the mountains of Asia due to global warming**

Posted: 06 May 2021 09:58 AM PDT

A research team has revealed the dramatic increase in flood risk that could occur across Earth's icy Third Pole in response to ongoing climate change. Focusing on the threat from new lakes forming in front of rapidly retreating glaciers, a team demonstrated that the related flood risk to communities and their infrastructure could almost triple. Important new hotspots of risk will emerge, including within politically sensitive transboundary regions of the Himalaya and Pamir.

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

Meteorologists discuss the evolution of the Met Office in St. Kitts

SKNVibes.com

“We were taught not just meteorology in a general sense but more **aviation meteorology** than anything else.” “And so, it was solely directed towards ...

The rich 150-year history of the **Meteorological** Service of Canada

The Weather Network

Saturday, May 1st 2021, 6:07 am - On this day in weather history, the **Meteorological** Service of Canada was founded.

April 2021 on track to be frostiest for 60 years

Evening Standard

An average of 13 days of air frosts has already been reported across the country, according to the **Met Office**. Mist rises on the canal at Biddulph in ...

Some 984 **meteorological** disasters occurred in Turkey last year: Figures

Hurriyet Daily News

The state **Meteorology** Directorate said that due to changes in climate conditions in recent years in Turkey, the number of disasters, the duration of ...

**What this weather station on top of a volcano in Chile will teach us about climate change**

A National Geographic expedition put a weather station 21,000 feet up Tupungato to monitor the effect of climate change on glaciers.

### **International news and research**

China's Fengyun weather **data** freely available for EO applications

Space Daily

The FY Satellite **Data** Center has continuously stored Earth observation ... for Medium-Range Weather Forecasts (ECMWF) and **weather forecasting**

Grant to help Patagonia library promote **citizen science** projects

Nogales International

The library will also become a **Weather** Underground **weather** station so that residents and visitors alike may have access to an accurate **weather**

Meet the **meteorologist** for the PGA Tour - Stewart Williams

WCNC.com

The PGA Tour always has a **meteorologist** on-site for every tournament to help determine where holes and tee boxes are place, as well as protecting ...

**Ice core chemistry study expands insight into sea ice variability in Southern Hemisphere**

Posted: 05 May 2021 02:49 PM PDT

Sea ice cover in the Southern Hemisphere is extremely variable, from summer to winter and from millennium to millennium, according to a new study. Overall, sea ice has been on the rise for about 10,000 years, but with some exceptions to this trend. Researchers uncovered these findings by examining the chemistry of a 54,000-year-old South Pole ice core.

**New study tracked large sharks during hurricanes**

Posted: 06 May 2021 07:55 AM PDT

Biologists tracked large sharks in Miami and The Bahamas to understand how these migratory animals respond to major storms, like hurricanes.

## Lightning and subvisible discharges produce molecules that clean the atmosphere

Posted: 29 Apr 2021 11:19 AM PDT

Lightning bolts break apart nitrogen and oxygen molecules in the atmosphere and create reactive chemicals that affect greenhouse gases. Now, a team of atmospheric chemists and lightning scientists have found that lightning bolts and, surprisingly, subvisible discharges that cannot be seen by cameras or the naked eye produce extreme amounts of the hydroxyl radical -- OH -- and hydroperoxyl radical -- HO<sub>2</sub>.

## Weather companies

Met Office and Microsoft join forces to build world's most powerful **weather** and climate forecasting ...

Microsoft

**Business** Secretary Kwasi Kwarteng said: "This partnership between the Met Office and Microsoft to build the world's most powerful **weather** and ...

WeatherWatch joins with GlobalHQ to bring forecasting to life

WeatherWatch.co.nz

... better resilience across the country, lead the way with digital infrastructure and improve **weather** technology through its special partnership with **IBM**.

## Aviation

### Air traffic services retained for safety

Milford Sound's air traffic services are set to stay after it was deemed its current level of service was needed for it to safely operate.

Stronger jet streams are leading to longer **flight** times, research says

The Weather Network

Stronger jet streams are leading to longer **flight** times, research says. Nadine Powell **Meteorologist**. Monday, April



## **Business/Insurance**

### **Why New Zealand businesses should look to India for new opportunities**

**OPINION:** New Zealand has understandably been talking a lot lately about a very big country in Asia: China. But we need to talk about another one: India.

## **Climate change / global warming**

### **'Time for action' - Helen Clark urges climate change response**

In five years' time, Helen Clark wants to see Huntly power station no longer burning coal, a ban on fossil-fuel-powered cars into New Zealand, and agriculture paying for its emissions.

### **UN scientists: World needs to nearly halve methane emissions by 2030**

As methane is a particularly potent greenhouse gas, a UN agency has recommended urgent cuts this decade to slow global warming. Using cost-neutral and low-cost tech, the world could reduce methane by 45 per cent by 2030, a new report concludes.

### **Using **Weather** Data Helps Businesses Address Challenges Of Climate Change**

Forbes

The same strategy can be applied to our oceans. The **shipping** industry is the leading producer of sulfur emissions worldwide, with burning bunker fuel ...

## **Communications/social media**

### **Fear Is the Key to Convincing Residents to Evacuate before a Storm**

Safety officials need to use strong language and images to persuade the human psyche

## **Emergency services / preparation**

## Refined Scope For Fire And Emergency's Funding Model Review

Scoop.co.nz

It also stands the best chance of being in place by 1 July 2024 when the new levy provisions in the **Fire and Emergency New Zealand Act 2017** (the ...

## **Energy and Mining**

Hydro **power**: More dry **weather** may mean blackouts, switch to coal-generated

RNZ

Jay said as autumn and winter progress people would use more **electricity** which meant they would keep a close eye on the **demand** for **electricity** and ...

## **Fire**

Lake Ōhau wildfire cost \$1.3 million to fight

Stuff.co.nz

... Village, cost \$1,341,933 to fight according to figures released by **Fire and Emergency New Zealand** following an Official Information Act request.

## **Government (regional and national)**

**Watch live: Finance Minister Grant Robertson gives pre-Budget speech**

In his second major pre-Budget speech Finance Minister Grant Robertson has defended public service pay measures and says next week's Budget will support the economy while being cautious about debt.

## **History**

1992: The big snow

It was quickly dubbed “the big snow” and was the heaviest snowfall in three decades.

## The tragic story of the founder of **weather** forecasting in Victorian England

Washington Post

He invented a new type of barometer, delivered regular storm warnings to **ports**, and issued the first daily **weather** forecasts to newspapers.

## Always take the **weather** with you: 100 years of forecasting broadcasts

The Guardian

The **shipping forecast** was launched in 1867, when information about **marine conditions** was telegraphed to ports and harbours all round the UK coast

## **Innovation, Technologies and AI**

### Maine Smartphones Will Begin Receiving Alerts About Severe Storms

b985.fm

What are Wireless Emergency Alerts? They are messages **sent** out by the National **Weather** Service, law enforcement agencies, and the federal ...

### Garmin announces GWX 8000 StormOptix **weather radar** with automated weather threat analysis ...

Yahoo Finance

Further, Garmin tested the technology in environments conducive to producing ground clutter in order to verify the GWX 8000 StormOptix **weather radar** ..

### Teledyne e2v develops detector for improved **weather forecasting**

Electronics Weekly

It will use **data** available from the ESA Aeolus mission, which hosted the first Doppler Wind Lidar in space. The new version could ultimately be ...

## **Satellites and radar**

## Radar satellites can better protect against bushfires and floods

Phys.Org

New research led by Curtin University has revealed how **radar satellites** can ... The research used Synthetic Aperture **Radar** data obtained by the ... is that it provides all-**weather** and night-and-day capability to remotely monitor the ...

## Space weather

### Space **weather** threat: Fears solar flares will shut down Britain and cripple **satellites**

Daily Express

THE Government will publish a new "space **weather** strategy" this year as fears mount that solar flares could cripple **satellites**, disrupt radio .

## Transport/roading/shipping/freight

### America's Cup weather gear could improve Auckland Harbour Bridge safety

Weather forecasting gear from the America's Cup could be used to predict high winds on the Auckland Harbour Bridge – helping avoid a repeat of last year's damage and traffic chaos caused by toppled trucks

### With **ships** urged to speed up, cargo worth millions lost at sea

Aljazeera.com

**Weather** is getting more unpredictable, while **ships** are growing bigger, allowing for containers to be stacked higher than ever before. But greatly ...

## Journal and articles online

### Impact of assimilating Mode-S EHS winds in the Met Office's high-resolution NWP model

Zhihong Li

e1989 | First Published: 07 May 2021

Reductions in forecast errors due to the assimilation of Mode-Select Enhanced Surveillance (Mode-S EHS) winds: the red curve is the mean wind speed differences (a) and root mean square (RMS) vector wind (b)  $T + 1$  forecast errors, measured against radiosondes for a control experiment; the other three curves are the corresponding mean differences and RMS forecast errors when Mode-S winds are additionally assimilated with various data-thinning options. The experiments were performed for the winter period of November 16–December 15, 2016.

### **Understanding the dependence of storm splitting on numerical models: Comparing UM and WRF**

Anurag Dipankar, Ragi Rajagopalan, Xiang-Yu Huang

Version of Record online: 08 April 2021

The life cycle of a thunderstorm is complex, and to correctly capture its evolution is vital for a numerical model. Here we have used two well-established models (UM and WRF) to show that even in an idealized set-up the models differ significantly (see image). Results demonstrate that the models start to differ with the inclusion of rain processes, which points to the physics–dynamics coupling as a potential cause for it.

### **Evolution of convective characteristics during tropical cyclogenesis**

Gerard Kilroy

Version of Record online: 05 April 2021

Four idealized, high-resolution (500 m horizontal grid spacing), numerical simulations are used to investigate the evolution of convective structures during tropical cyclogenesis. The composite structure of the average convective element sampled changes markedly throughout the genesis period, and towards the end of the genesis phase there is a large increase in the production of cyclonic vertical vorticity in inner-core convection, which becomes dominant at low-mid levels. Irrespective of microphysical scheme and environmental sounding used, there is a short period where cumulus congestus clouds dominate, that is, when the mean cloud top is between 5 and 9 km height, a finding which is at odds with a prior theory claiming that tropical cyclogenesis

can be viewed as a two-stage process in which congestus clouds have a large dynamical and thermodynamical contribution at early stages.

**The generalized Ekman model for the tropical cyclone boundary layer revisited:  
Addendum**

Roger K. Smith, Michael T. Montgomery

Pages: 1471-1476 | First Published: 02 March 2021

Motivated by prior research examining the myth of inertial stability as a radial restoring force in the tropical cyclone boundary layer, we explore factors determining the vertical velocity at the top of the linear vortex boundary layer. Possible applications of these findings to mature tropical cyclone vortices are discussed briefly.

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Welcome to AMS News You Can Use.

Each week, we send out a sampling of recent news and items of interest in meteorology and related fields, as covered by various media outlets.

Using cosmic-ray neutron bursts to understand gamma-ray bursts from lightning

ScienceDaily - April 28, 2021

Analysis of data from a lightning mapper and a small, hand-held radiation detector has unexpectedly shed light on what a gamma-ray burst from lightning might look like - by observing neutrons generated from soil by very large cosmic-ray showers.

Data from China's Fengyun meteorological satellites available to global Earth system science applications

EurekAlert! - April 29, 2021

Since the initial FY dispatch, China has successfully launched 17 FY satellites, seven of which are currently operating in orbit.

The Lasting, Unseen Damage Of Historic Tornado Outbreaks

Forbes - April 27, 2021

Ten years ago today, the most prolific tornado outbreak on record swept across the southeastern United States. Part of a larger outbreak that started a few days earlier, the unrelenting barrage of supercells that day produced more than 200 tornadoes from Mississippi to New York.

Weather Guy Matthew Cappucci on Addressing a Big Meteorology Conference—at Age 15

Washingtonian - April 27, 2021

“I had my \$10 shirt from Kohl’s, and my mother came with me.”

Renewable Energy Is Suddenly Startlingly Cheap

The New Yorker - April 28, 2021

Now the biggest barrier to change is the will of our politicians to take serious climate action.

More severe weather threats likely in May after unusually quiet April for tornadoes

ABC News - May 3, 2021

The May 2 tornado outbreak comes after an extremely quiet April for severe weather.

Causes of extreme weather and climate events in China during 2020/21

EurekAlert! - April 28, 2021

During the summer of 2020, especially June and July, periods of extreme heavy rainfall occurred in China's Yangtze River Valley (YRV). These rain events caused the severest floods for the region since the summer of 1998.

Ottawa River reached peak level in 2019 — Canada’s #1 weather event of the year

Yahoo!News Canada - May 2, 2021

At the end of every year, Environment Canada (EC) releases the nation's Top Ten Weather Stories. The list has been compiled since 1996. It features top weather stories that captivated Canadians from across the country.

The triumphs and failures of astrometeorology

Physics Today - April 30, 2021

Although practitioners of medieval meteorology used physical data to make practical predictions of weather, the theoretical basis of the science was mistaken.

Previously unrecognized tsunami hazard identified in coastal cities

Phys.org - May 3, 2021

A new study found overlooked tsunami hazards related to undersea, near-shore strike-slip faults, especially for coastal cities adjacent to faults that traverse inland bays.

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Weather Eye with John Maunder

<https://www.sunlive.co.nz/blogs/15625-tauranga-average-afternoon-temperatures-april-19132021.html>

<https://www.sunlive.co.nz/blogs/15604-tauranga-april-rainfalls-18982021.html>

<https://www.sunlive.co.nz/blogs/15583-tropospheric-temperatures-january-1979-to-march-2021.html>

<https://www.sunlive.co.nz/blogs/15562-solar-activity-and-next-maunder-minimum.html>

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