

## New Zealand weather and climate news

Courtesy of MetService Library

### MetService mentions

#### NZ could be in for another unusually hot summer

New Zealand could be on track for another unusually hot summer, with a top climate scientist already calling the arrival of a "humdinger" La Niña system, along with likely balmy seas.

#### Southern storm: Destructive gales, torrential rain to blast South Island, lower North Island

New Zealand Herald

The **MetService** says the country is about to be hit by classic Equinoctial gales hitting first at the bottom of the country early tomorrow morning and ..

#### Classic spring weather patterns brings warnings

Stuff.co.nz

The **MetService** then issued a severe weather warning on Monday for areas that include the Canterbury High Country on Tuesday and Wednesday (the ...

#### Severe gales set to buffet South

Otago Daily Times

A **MetService** spokesman said a ridge of high pressure was expected to cover much of the country on Sunday and Monday, bringing a reprieve to the ...

#### Wild weather to hit south today, east coast swelters in balmy 24C highs

New Zealand Herald

**MetService** warns a fast-moving front will bring strong winds, with gales lashing Wellington, Wairarapa and parts of the eastern South Island.

#### The calm before the storm

Otago Daily Times

**MetService** meteorologist Thomas Adams said the fog covered most of the harbour and the eastern coastline as far as South Canterbury.

### History with airport figures

Gisborne Herald

Gisborne Herald readers may be interested to know that Niwa and the **MetService** use different stations in producing their reports on Gisborne's ...

### Stock market cyber attacks: NZX launches alternative site

New Zealand Herald

The move follows the model adopted earlier by **Metservice**, which sends people to a no-frills site in the event of a cyber attack. For the first four days of ...

### From the frying pan to the freezer for spring in Otago

So far the Otago spring has been a season of fire and ice - strong winds and frosts have dried out grasses, creating high-risk fire conditions.

### **The Southern Oscillation Index...1880- 2020**

SunLive

During **El Niño**, New Zealand tends to experience stronger or more frequent winds from the west in summer, typically leading to drought in east coast ...

### **MetOcean**

### Inpex speeds up **metocean** study for Abadi LNG scheme off Indonesia

Upstream Online

Inpex speeds up **metocean** study for Abadi LNG scheme off Indonesia. FEED bidders being formalised, while Amdal due for completion by year-end.

### **\$500 billion question: What's the value of studying the ocean's biological carbon pump?**

Posted: 10 Sep 2020 10:04 AM PDT

A new study puts an economic value on the benefit of research to improve knowledge of the biological carbon pump and reduce the uncertainty of ocean carbon sequestration estimates.

## **WMO**

### **Ozone for Life: 35 years of ozone layer protection**

Posted:

This year, the world marks the 35th anniversary of the world's most successful environmental agreement which has enabled the gradual recovery of the Earth's protective ozone layer.

### **Northern hemisphere summer marked by heat and fires**

Posted:

The Northern hemisphere had its hottest summer and hottest August on record in 2020, according to the US National Oceanic and Atmospheric Administration.

### **Active 2020 hurricane season exhausts regular list of names**

Posted:

The 2020 Atlantic hurricane season is so active that it has nearly exhausted the regular list of storm names. If this happens, the Greek alphabet will be used for only the second time on record

### **China's first upper-air UAV integrated typhoon sounding experiment**

Posted:

On the afternoon of August 2, during the impact of this year's 3rd typhoon Sinlaku on Hainan, an upper-air meteorological Unmanned Aerial Vehicle (UAV) lifted off from Boao Airport and dropped off 30...

### **Medicane hits Greece**

Posted:

Greece is being impacted by a so-called Medicane (MEDiterranean hurriCANE), bringing high winds and waves and torrential rain and the risk of flooding

### **UN Secretary-General launches United in Science report**

Posted:

United Nations Secretary-General António Guterres launched the high-level multi-agency United in Science report on 9 September with yet another appeal for urgent climate action to “ensure a liveable

### **Hurricane Sally causes major flooding as 2020 season exhausts list of names**

Posted:

The 2020 Atlantic hurricane season is so active that it has nearly exhausted the regular list of storm names. If this happens, the Greek alphabet will be used for only the second time on record

### **FOCUS-Africa launched**

Posted:

WMO and 20 partners have held the kick-off meeting to launch FOCUS-Africa - Fully Optimized User Centric Climate Services Value Chain for Southern Africa - a four-year 7 million Euro initiative...

### **WMO verifies -69.6°C Greenland temperature as Northern hemisphere record**

Posted:

The World Meteorological Organization has recognized a temperature of -69.6°C (-93.3°F) at an automatic weather station in Greenland on 22 December 1991 as the lowest ever recorded in the Northern...

### **Arctic sea ice minimum is 2nd lowest on record**

Posted:

Arctic sea ice – a key climate change indicator - has reached its annual minimum extent after the summer melt season. It was the second lowest extent only after the record low observed in 2012.

### **ECMWF**

Accelerating weather forecasting models using reduced-precision arithmetic

ECMWF

ECMWF's Annual Seminar from 14 to 18 September 2020 focuses on recent progress and future prospects in numerical methods for atmospheric and ..

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

#### **Project to monitor cyclone-hit beachfronts in Tonga**

Damaged beachfronts in Tonga due to Cyclone Harold have been cited as locations for a project that will monitor changes to the areas over time.

Our new model shows Australia can expect 11 tropical cyclones this season

Tropical cyclones are considered one of the most devastating weather events in Australia. But they're erratic — where, when and how many tropical cyclones form each year is highly variable, which makes them difficult to predict.

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

#### **2 killed, 20 wounded as floods hit Indonesian capital**

The Straits Times

A warning has been put in place by the **meteorology** and geophysics agency over the possibility of extreme **weather** on Tuesday and Wednesday.

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

#### **Ireland bids to get European weather forecasting centre relocated from the UK to Dublin**

thejournal.ie

As a result of Brexit, the European Centre for Medium-Range Weather Forecasts (**ECMWF**) will have to move from its current location in Reading to a ..

## Meteorologists run out of names as 21st tropical storm forms

MENAFN.COM

**Meteorologist** MJ Ventrice of the consulting firm The Weather Company wrote on Twitter that this is "the second time in history that we will be using the ..

## International news and research

### Undersea earthquakes shake up climate science

Posted: 18 Sep 2020 03:50 PM PDT

Sound generated by seismic events on the seabed can be used to determine the temperature of Earth's warming oceans.

### Storms Alpha and Beta named for Greek alphabet, second time ever

Phys.Org

Meteorologist MJ Ventrice of The **Weather Company** tweeted that "this is the second time in history we'll be using the Greek Alphabet." The first time ...

### New methods of measuring storms result in the discovery of vast 'megaflashes'

Geographical

The World **Meteorological** Organization recently confirmed that on 31 ... these extremes draws the youngest generation of **meteorologists** into the field.

### Kenya's First Female **Meteorological** Director

AllAfrica.com

**Meteorologists** blamed the failed rains on climate change. ... Representative of Kenya with World **Meteorological** Organisation, laughs at how Kenyans ...

### New autonomous Mayflower launches from Plymouth to gather ocean data

GPS World magazine

Live weather data is streamed from IBM's The **Weather Company**, as MAS receives forecast data and insight from the new IBM Weather Operations ..

### **How much will polar ice sheets add to sea level rise?**

Posted: 17 Sep 2020 09:28 AM PDT

Over 99% of terrestrial ice is bound up in the ice sheets covering Antarctic and Greenland. Even partial melting of this ice due to climate change will significantly contribute to sea level rise. But how much exactly? For the first time ever, glaciologists, oceanographers, and climatologists from 13 countries have teamed up to make new projections.

### **Turbulence affects aerosols and cloud formation**

Posted: 16 Sep 2020 12:48 PM PDT

Turbulent air in the atmosphere affects how cloud droplets form. New research in a cloud chamber changes the way clouds, and therefore climate, are modeled.

### **MoES Develops High-resolution Ocean Forecast System for Indian Ocean**

EE Times India

An accurate and timely **ocean forecast** system enables the safe conduct of maritime activities such as fishing, shipping, and offshore industries. In the .

### **Volcanic ash may have a bigger impact on the climate than we thought**

Posted: 11 Sep 2020 08:08 AM PDT

Volcanic ash shuts down air traffic and can sicken people. But a new study suggests that it may also be more important for Earth's climate than scientists once thought.

### **Indian monsoon can be predicted better after volcanic eruptions**

Posted: 18 Sep 2020 12:45 PM PDT

Large volcanic eruptions can help to forecast the monsoon over India - the seasonal rainfall that is key for the country's agriculture and thus for feeding one billion people. As erratic as they are, volcanic eruptions improve the predictability, a research team now finds. What seems to be a paradox is in fact due to a stronger coupling between the monsoon over large parts of South and South-East Asia and the El Niño phenomenon after an eruption.

## Weather companies

Nielsen teams with IBM on weather targeting data tool

Store Brands Magazine

... the power of weather insights from The **Weather Company** with Nielsen's Retail Measurement Services data to generate future reports for marketers.

## Advertising/promotion

IBM, Nielsen Partner on AI Weather-Based Ad Service

Wall Street Journal

International Business Machines Corp. is partnering with Nielsen Holdings PLC to offer an AI-powered service that targets digital **ads based** on

## Aviation

Tower welcomes NZ mandatory climate risk reporting

Insurance Business New Zealand

... changing sea levels, increased chances of flooding and more volatile **weather** patterns,” said Tower **Insurance** CEO Blair Turnbull (pictured).

AWOS-3 Configuration Segment Expected to Hold Dominance in Automated **Weather** Observing ...

The Cloud Tribune

Leading manufacturers of automated **weather** observing systems are prioritizing **aviation** safety and airport efficiency to gain traction among the global

## Business/Insurance

## Zurich launches climate change resilience service

Insurance Business New Zealand

As the impacts of climate change worsen year after year, **businesses** are seeking more ways to prepare for the challenges caused by natural hazards ...

## Summer Storms Bring Alberta's Tab for Severe **Weather Insurance** Claims to \$2 Billion

Insurance Journal

“**Weather** has hit our province hard this year,” said Celyeste Power, vice president, Western, **Insurance** Bureau of Canada (IBC), adding that the ...

## Event **insurance** specialist, Insure Our Event, highlights the importance of Adverse **Weather** ...

ITCM

Adverse **Weather Insurance** cover provides peace of mind that, should an event be cancelled or postponed, organisers will be able to recoup financial ...

## US **weather** & catastrophes drive over \$23bn economic costs in August: Aon

Artemis.bm

Severe storms, convective **weather** and large hail across the eastern ... Again, as much as half (or more) of this is expected to fall to the **insurance** and ..

## **Climate change / global warming**

### Climate explained: will the tropics eventually become uninhabitable?

What is the impact of temperature increases in the tropics? How likely is it that regions along the Equator will be uninhabitable due to high wet bulb temperatures such as 35°C and more in places like Singapore? Do we have models that suggest how likely this is and at what time frames?

## **El Nino / La Nina**

### **El Nino** lulls lead to harsh floods, fires and droughts: study

The Sydney Morning Herald

A study, led by CSIRO scientist Wenju Cai, found the roughly 20-year relative lull in the so-called **El Nino**-Southern Oscillation (ENSO) from 1998 will ..

## **Energy and Mining**

Transition to renewables will change when security of supply risk occurs

Tech Xplore

In the study, which was published in the Journal of Renewable **Energy** at the end of August, ... 40 years of **power demand** and **weather** data. To do this

## **Fire**

High winds exacerbating multiple fires across South Canterbury

Stuff.co.nz

A **Fire and Emergency New Zealand** (Fenz) spokesperson said the fires were exacerbated by the high winds. MetService has issued a strong wind ...

Check The Forecast Before You Light - Canterbury

Scoop.co.nz

**Fire and Emergency New Zealand** wants Cantabrians to think about the weather if they are planning to burn this spring. With spring Cantabrians see ...

Photos Show Massive Wildfires Devastating Oregon and California

Record-setting blazes fueled in part by climate change have destroyed homes and upended lives across the West

## **History**

September 10, 1961 - First Hurricane Seen From Space

On September 10th, 1961, the Television Infrared Observation Satellite, or TIROS III, spotted thunderstorms just southwest of the Cabo Verde Islands.

The thunderstorms would eventually be named Hurricane Esther, after a ship confirmed stormed circulation and a reconnaissance plane measured hurricane-level winds.

#### SNOW MAN'S LAND (EXPEDITIONARY FORCE TRAINING, FEATHERSTON CAMP)

[Historic footage of snowfall in Featherston, 1917] This is the only film in the NZFA's collection which shows members of the NZEF training, and having some fun, in New Zealand. The Featherston Military Training Camp, where this was shot, was the largest training camp in the country with the grounds covering more than 1800 acres of land. It had a capacity of 9850 soldiers and during the course of World War One nearly 60,000 men passed through it.

#### When a galeforce wind snapped a rugby goalpost at chilly Carisbrook

The day the Carisbrook goalposts broke rates as the "weirdest" goal kicking experience of Brendan Laney's rugby career.

#### Remember This? Ottawa's self-proclaimed weather prophet

OttawaMatters.com

Canadians love to talk about the weather. ... During the days before the Weather Network or Environment Canada, when Canada was ... Dr. Ezekiel Stone Wiggins, who took the weather forecasting business to a whole new level.

#### **Innovation and technologies and AI**

#### iOS 14 **Weather** app includes real-time precipitation data, more

9to5Mac

The multi-day **weather forecast** now includes the chance of precipitation for each day. These sort of hyperlocal features were the tentpole of Dark Sky, ...

#### New **Radar** Display Coming to NWS Websites

National Weather Service

Effective on or about December 8, the display of **radar** data on NWS websites will change. The use of Flash will be discontinued, and the display will ...

## **Lightning**

### **When The CIA Considered Weaponizing Lightning**

Forbes

"They claimed they had no interest in using **lightning** as a weapon," University of Florida professor Martin **Uman** told the Tampa Bay Times in 2017 ...

## **Space weather**

### **Preparing NZ for space weather that would disable the grid and internet**

Stuff.co.nz

... through the Ministry for Business, **Innovation** and Employment's Endeavour Round to figure out how to better forecast space **weather** and protect our ...

### **Solar storm forecasts for Earth improved with help from the public**

Posted: 18 Sep 2020 08:33 AM PDT

Scientists used observations recorded by members of the public to increase accuracy of computer model predictions of when harmful CMEs will hit Earth

## **Tourism**

### **Virtual tourism could offer new opportunities for travel industry, travelers**

Posted: 09 Sep 2020 05:59 AM PDT

A new proposal for virtual travel, using advanced mathematical techniques and combining livestream video with existing photos and videos of travel hotspots, could help revitalize an industry that has been devastated by the coronavirus pandemic, according to researchers.

## **Transport/roading/shipping/freight**

Stonehaven derailment: Report says climate change impact on railways 'accelerating'

BBC News

The report highlighted the need to deploy more **technology** across the network to predict failures. And it said investment in better **weather forecasting** ...

### **Journal and articles online**

#### **Synoptic and mesoscale controls for tornadogenesis on cold fronts: A generalised measure of tornado risk and identification of synoptic types**

Matthew R. Clark, Douglas J. Parker

First Published: 03 September 2020

Environments of tornadic and non-tornadic narrow cold frontal rainbands (NCFRs) are investigated using ERA-Interim reanalyses for a sample of 114 events over the UK and Ireland (44 tornadic). The results offer a practical tool for prediction of the likelihood of tornadoes in these potentially high-impact events. Of 22 analysed parameters, a bulk measure of shear vorticity, and the front-normal wind component on the cold side of the front, yield the best discrimination between event classes, showing significantly larger values in tornadic events. A generalised measure of tornado probability ( $p(\text{TN})$ ) is obtained using the distribution of points within the two-dimensional parameter space defined by these parameters. Synoptic situations commonly associated with tornadic NCFRs are identified and conceptual models describing the large-scale evolution are developed. Most events are associated with developing secondary cyclones (i.e. frontal waves) along trailing cold fronts ( $\geq 54.5\%$ ), generally within west to south-westerly large scale flow. Another significant class of event corresponds to situations where a strong mid- to upper-level jet streak cuts across the front within an amplifying large-scale flow pattern (upstream ridge building and downstream trough extension), generally within north-westerly flow (27.3%). In frontal waves, tornadoes occurred relatively early in the wave's development and just down-front of the wave centre, where rapid increases in  $p(\text{TN})$  occurred as the wave amplified. In north-westerly flow cases, tornadoes occurred along a well-defined NCFR bulge close to where the mid- to upper-level jet streak and an associated positive PV anomaly intersected the front. Analysis of a high-tornadic subset of tornadic events (NCFRs producing  $\geq 7$  tornadoes) revealed an even stronger association with frontal waves (72.2% of cases), suggesting that the highest-impact events are usually associated with secondary cyclogenesis. The possible relevance of identified environmental parameters to candidate vortex-genesis and tornadogenesis mechanisms within NCFRs and quasi-linear convective systems is discussed.

#### **Assessing the potential and application of crowdsourced urban wind data**

Arjan M. Droste, Bert G. Heusinkveld, Daniel Fenner, Gert-Jan Steeneveld

Pages: 2671-2688 | First Published: 04 May 2020

We research the value of crowdsourced urban wind observations from Personal Weather Stations. From comparison measurements against known wind speeds at two sites, we construct a Quality Assurance protocol to improve data quality. After applying this protocol, the crowdsourced data can successfully be used to calculate the urban wind speed probability distribution.

### **A weather system perspective on winter–spring rainfall variability in southeastern Australia during El Niño**

Seraphine Hauser, Christian M. Grams, Michael J. Reeder, Shayne McGregor, Andreas H. Fink, Julian F. Quinting

Pages: 2614-2633 | First Published: 28 April 2020

During El Niño, southeastern Australia typically experiences on average dry conditions. However, rainfall anomalies vary considerably from month to month. This study elucidates the contribution of synoptic-scale weather systems to this variability using a novel dataset of objectively identified weather systems. We find that a substantial fraction of the monthly rainfall variability during El Niño is related to frequency modulations of synoptic-scale weather systems, in particular of cut-off lows, warm conveyor belts, and blocking anticyclones.

### **Recalibrating wind-speed forecasts using regime-dependent ensemble model output statistics**

S. Allen, C. A. T. Ferro, F. Kwasniok

Pages: 2576-2596 | First Published: 22 April 2020

Surface winds are closely related to the prevailing atmospheric circulation and hence recently developed statistical post-processing methods that utilise weather regimes are applied here to wind-speed forecasts. Regime-dependent post-processing approaches are compared with standard methods of calibrating wind-speed ensembles in a quasigeostrophic simulation study and using reforecast data. If an accurate prediction of the regime is available, then noticeable improvements over current post-processing methods are observed at locations where wind speed is heavily affected by the underlying regime.

### **Fog in heterogeneous environments: the relative importance of local and non-local processes on radiative-advective fog formation**

L. Ducongé, C. Lac, B. Vié, T. Bergot, J. D. Price

Pages: 2522-2546 | First Published: 11 March 2020

During IOP 12 of the LANFEX campaign in Shropshire (UK), the largest valley was subject to dense fog conditions due to positive contributions from local (condensation) and non-local (advection) processes. In narrow valleys, the local formation was partially offset by non-local destruction within drainage flows. In the narrowest valley, advecting fog was even locally observed through fog overflowing from an upstream basin when drainage flow increased at a valley lateral constriction. The figure shows integrated cloud water content between the surface and 150 m height ( $\text{g}\cdot\text{m}^{-2}$ ) at 0130 UTC on 2 October 2015. Arrows show the averaged horizontal wind between 5 and 50 m above ground within the valley. Black circles show the main sites of LANFEX and the table summarises the main processes driving fog formation at each site (local for condensation/evaporation, nonal for advection).

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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.**

#### NOAA/NASA Sees Dueling Disasters in Wide Angle Satellite Image

NASA - September 15, 2020

Aerosols are the focus of this image captured on Sep. 14, 2020 by NOAA/NASA's Suomi NPP satellite, but hurricanes also make an appearance around the edges.

#### 5 Strange Things Happening Right Now In The Atlantic Hurricane Season

Forbes - September 19, 2020

The Atlantic hurricane season was expected to be a busy one, and it has held true to form.

#### Atlantic Hurricane Season Is Now Using Greek Alphabet For Only the Second Time

The Weather Channel - September 18, 2020

The 2020 Atlantic hurricane season used up its entire names list and has begun using the Greek alphabet for the rest of the season's named storms for only the second time ever.

#### 2020 Arctic sea ice minimum at second lowest on record

ScienceDaily - September 21, 2020

NASA and the National Snow and Ice Data Center (NSIDC) at the University of Colorado Boulder shows that the 2020 minimum extent, which was likely reached on Sept. 15, measured 1.44 million square miles (3.74 million square kilometers).

#### NASA-NOAA's Suomi NPP satellite finds tropical storm Noul fading over Laos

EurekAlert! - September 18, 2020

Tropical Storm Noul made landfall in central Vietnam on Sept. 17 and NASA-NOAA's Suomi NPP satellite captured an image of the storm over Laos

#### NASA satellite found Post-Tropical Storm Alpha fizzle over Portugal and Spain

Phys.org - September 21, 2020

Former Subtropical Storm Alpha was a short-lived storm that formed and fizzled within 24 hours. NASA-NOAA's Suomi NPP satellite found the remnants of former Subtropical storm Alpha spreading over Portugal and northwestern Spain.

#### NASA Looks at Rainfall Potential in Tropical Storm Beta

NASA - September 21, 2020

Tropical Storm Beta is forecast to be a soaker because of its rainfall potential and its forecast slow movement along the Texas coast.

#### We declare summer's end and autumn's sudden arrival

The Washington Post - September 18, 2020

Just like that, summer has flipped to fall in Washington. The change was unambiguous and swift, and there's no sign we'll turn back in a meaningful way.

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Weather Eye with John Maunder

<https://www.sunlive.co.nz/blogs/15028-global-temperatures-1996-august-2020.html>

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Thanks to our regular contributors.