

New Zealand weather and climate news

clips below come courtesy of MetService Library

MetService

Severe thunderstorm risk for central North Island

Parts of the central North Island are at risk of severe thunderstorms, with rainfall intensity up to 40mm an hour.

<https://www.stuff.co.nz/national/109246494/Severe-thunderstorm-risk-for-central-North-Island>

Another wet week ahead, but dry weather will come - MetService

Cooler temperatures are expected in the middle of the week, but MetService forecaster Tui McInnes said it's not expected to be freezing.

<https://www.newshub.co.nz/home/new-zealand/2018/12/another-wet-week-ahead-but-dry-weather-will-come-metservice.html>

Summer has arrived in Tauranga and the Bay of Plenty ... well, sort of

Thanks to a southerly that swept over the region, MetService meteorologist Tui McInnes said this week had been wetter than average.

https://www.nzherald.co.nz/weather/news/article.cfm?c_id=10&objectid=12172964

'Urgent' action on rain radar needed

The MetService needs to take "urgent" action to accelerate plans for a rain radar in Otago, a Dunedin city councillor says.

<https://www.odt.co.nz/news/dunedin/urgent-action-rain-radar-needed>

MetOcean

Citizen science: Students solved the mystery of the shotgun wads

There's a gun club on the Manganui and some of its "traps" – or shooting ranges – are on the riverbank and wads could easily have been shot out over the river and fallen into the water and been carried down to the coast.

To test this idea, a privately owned company called MetOcean Solutions was called upon for its expertise in modelling and oceanography.

<https://www.stuff.co.nz/science/109154285/citizen-science-students-solved-the-mystery-of-the-shotgun-wads>

Scientists watching rising Tasman Sea temperatures - again

The Tasman Sea is heating up again, a year after the rare "marine heatwave" which brought New Zealand's hottest summer on record.

<https://www.stuff.co.nz/environment/climate-news/109134264/scientists-watching-rising-tasman-sea-temperatures--again>

NIWA

Weather to settle between Christmas and New Year

While December kicked off with stormy weather, the rest of the month is expected to fluctuate between settled and unsettled bouts. Temperatures will likely be warmer in the North and cooler in the South.

<https://www.radionz.co.nz/news/national/377840/weather-to-settle-between-christmas-and-new-year>

Extreme weather (and other news) – Australia and Pacific

Queensland ex-tropical cyclone could reform, bringing heavy rain to parts of state

Ex-tropical cyclone Owen could reform later in the week, bringing heavy rain to parts of Queensland after the system crossed the coast at Port Douglas early on Monday bringing winds up to 100 kilometres per hour and dumping hundreds of millimetres of rain.

<https://www.abc.net.au/news/2018-12-10/queensland-ex-tropical-cyclone-could-reform/10599332>

Heatwave hits the Northern Territory, beating temperature records across the Top End

So the humidity is so thick you can almost see it and even the air conditioner is struggling to offer a reprieve? Welcome to the build-up.

<https://www.abc.net.au/news/2018-12-06/qld-heatwave-moves-west-nt-records-broken/10591438>

Extreme heatwave to stretch from northern WA to Adelaide and Melbourne

Western Australia's tropical north is about to experience a type of heat that is exceptional even for its standards.

<https://www.abc.net.au/news/2018-12-06/extreme-heatwave-from-northern-wa-to-melbourne-adelaide/10590776>

El Nino now very likely in Pacific this Summer

Pacific weather forecasters say the region is expected to face a full El Nino system during the next three months.

<https://www.radionz.co.nz/international/pacific-news/377468/el-nino-now-very-likely-in-pacific-this-summer>

Solomons hydropower project moves forward

The World Bank Group has welcomed the signing of a series of key agreements which it says will deliver cheaper and more reliable, renewable energy to Solomon Islands through the Tina River Hydropower Project.

<https://www.radionz.co.nz/international/pacific-news/377996/solomons-hydropower-project-moves-forward>

International news and research

After a record dry, 2018 may be the year of the Indian Ocean Dipole

The droughts of past decades have burnt the term El Nino into the Australian vocabulary, but after the drought of 2018, perhaps the IOD — short for Indian Ocean Dipole — might also become a household name.

<https://www.abc.net.au/news/2018-12-07/indian-ocean-dipole-dominant-cause-drought/10571802>

Scientists unsure if there is an upper limit to snowflake size

"The exact shape of the final snow crystal is determined by the precise path it took through the clouds," according to physicist Kenneth Libbrecht.

Read more: <https://www.upi.com/Scientists-unsure-if-there-is-an-upper-limit-to-snowflake-size/5811544451919/#ixzz5ZKIUjR72>

Breaking down what a computer forecast model really means

LEXINGTON, Ky. (WKYT) - Weather model or computer forecast model, you've heard that term tossed around quite a bit this past week. But what is a computer forecast model? A model is a computer algorithm which predicts the weather. These models run on supercomputers that compile billions of pieces of data that essentially tells you if you're going to need an umbrella or not.

<https://www.wkyt.com/content/news/Breaking-down-what-a-computer-forecast-model-really-means--502201761.html>

Topology Can Help Us Find Patterns in Weather

Topology—the study of shapes— seems to be all the rage. You could even say that data has shape, and shape matters. Shapes are comfortable and familiar concepts, so it is intriguing to see that many applications are being recast to use topology. For instance, looking for weather and climate patterns.

<https://www.hpcwire.com/2018/12/06/topology-can-help-us-find-patterns-in-weather/>

WMO

2018 UK summer heatwave made thirty times more likely due to climate change - UK Met Office

Human-induced climate change has made the 2018 record-breaking UK summer temperatures about 30 times more likely than it would be naturally, the Met Office will say at CoP24 - in Katowice, Poland – later today (Thursday 6 December 2018). Professor Peter Stott is a world-leading expert on climate attribution based at the Met Office and the University of Exeter in the UK. He said: “Our provisional study compared computer models based on today’s climate with those of the natural climate we would have had without human-induced emissions. We find that the intensity of this summer’s heatwave is around 30 times more likely than would have been the case without climate change.”

[Read more here](#)

Business/Insurance

How Fruit of the Loom uses weather data to better market fleece

At what temperature change inflection point does interest in fleece spike? Fruit of the Loom is using weather data to crunch the numbers and save on marketing.

<https://www.zdnet.com/article/how-fruit-of-the-loom-uses-weather-data-to-better-market-fleece/>

Energy and Mining

Australia in midst of \$20 billion wind and solar investment boom

The Coalition government tried to prevent it and failed, and haven't stopped complaining about it ever since. And now we can see why: Australia is in the midst of an extraordinary investment boom in large scale wind and solar projects, and battery storage, far beyond what even the industry's most ardent supporters ever imagined.

<https://reneweconomy.com.au/australia-in-midst-of-20-billion-wind-and-solar-investment-boom-15379/>

Hydrology

Councils criticised in Rotorua flooding report

An independent report into the April flooding that struck parts of Rotorua has revealed residents' frustration at what it called the 'ping ponging' of responsibilities between Rotorua Lakes Council and the Bay of Plenty Regional Council.

<https://www.stuff.co.nz/national/109246328/Councils-criticised-in-Rotorua-flooding-report>

Satellites and radar

Science: Rocket Lab to Launch 10 Cubesats for NASA Subsequent Week

Rocket Lab is set to launch its first mission for NASA next week, just a month after acing its first commercial flight.

The California-based startup is targeting the night of Dec. 12 for the ELaNa-19 mission, which will send 10 tiny cubesats to low Earth orbit for NASA. If all goes according to plan, an Electron rocket will lift off from Rocket Lab's New Zealand launch site, on the North Island's Mahia Peninsula, during a 4-hour window that opens at 11 p.m. EST (0400 GMT and 5 p.m. local New Zealand time on Dec. 13).

http://infosurhoy.com/cocoon/saii/xhtml/en_GB/science/science-rocket-lab-to-launch-10-cubesats-for-nasa-subsequent-week/

The extraordinary story of how New Zealand entered the space race

Half a century after the first manned spacecraft orbited the moon and Stanley Kubrick's 2001: A Space Odyssey surged across cinema screens, the space race is back on and New Zealand is in the game. Are we ready?

<https://www.noted.co.nz/money/business/rocket-lab-how-new-zealand-entered-space-race/>

Cyber security and IoT

Internet of Things ahead of the pack for a new global future.

The Internet of Things (IoT) concept is basically connecting any device with any other device on the internet. Or put formally "the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data." This includes everything from cellphones, coffee makers, and almost anything else you can think of. This also applies to components of machines – For example, a jet engine of an airplane or the drill of an oil rig.

<https://investorintel.com/sectors/technology/technology-intel/future-happening-now-internet-things-inc/>

Climate change / global warming / sea level rise

Climate change was behind 15 weather disasters in 2017

A drought that scorched the Great Plains of California, causing wildfires and US\$2.5 billion (NZ\$3.6 billion) in agriculture losses. Catastrophic floods that submerged more than a third of Bangladesh. Record-shattering heat waves that killed scores of people in Europe and China.

<https://www.stuff.co.nz/environment/climate-news/109247919/climate-change-was-behind-15-weather-disasters-in-2017>

We study the climate - we chose not to fly to a conference on it

OPINION: This week, more than 20,000 Earth and planetary scientists from all over the world are converging on Washington for the annual gathering of the American Geophysical Union.

<https://www.stuff.co.nz/environment/109244260/we-study-the-climate--we-chose-not-to-fly-to-a-conference-on-it>

Climate change ‘security threat’ to NZ - report

A new report from the New Zealand military has described climate change as “one of the greatest security challenges” facing the country in the coming decades, highlighting the risk of violent conflict as waters rise in the Pacific.

<https://www.newsroom.co.nz/2018/12/05/352120/climate-change-security-threat-to-nz-report>

Journal and articles online

Monthly Weather Review - Volume: 146, Number: 12 (December 2018)

ARTICLES

Impact of AMSU-A Radiances in a Column Ensemble Kalman Filter

Herschel L. Mitchell, P. L. Houtekamer, and Sylvain Heilliette

Analyzing Tropical Cyclone Structures during Secondary Eyewall Formation Using Aircraft In Situ Observations

Katharine E. D. Wunsch and Anthony C. Didlake

Latent Heat Nudging in the Canadian Regional Deterministic Prediction System

Dominik Jacques, Daniel Michelson, Jean-François Caron, and Luc Fillion

Regionally Enhanced Global (REG) 4D-Var

Michael A. Herrera, Istvan Szunyogh, Adam Brainard, David D. Kuhl, Karl Hoppel, Craig H. Bishop, Teddy R. Holt, Qingyun Zhao, and Sabrina Rainwater

Cloud Trails past Bermuda: A Five-Year Climatology from 2012 to 2016

Michael C. Johnston, Christopher E. Holloway, and Robert S. Plant

An Analog Technique to Improve Storm Wind Speed Prediction Using a Dual NWP Model Approach

Jaemo Yang, Marina Astitha, Luca Delle Monache, and Stefano Alessandrini

Probabilistic Precipitation Forecast Postprocessing Using Quantile Mapping and Rank-Weighted Best-Member Dressing

Thomas M. Hamill and Michael Scheuerer

Local Finite-Amplitude Wave Activity as a Diagnostic for Rossby Wave Packets

Paolo Ghinassi, Georgios Fragkoulidis, and Volkmar Wirth

Modified NAM Microphysics for Forecasts of Deep Convective Storms

Eric A. Aligo, Brad Ferrier, and Jacob R. Carley

Impact of Assimilating Aircraft Reconnaissance Observations on Tropical Cyclone Initialization and Prediction Using Operational HWRF and GSI Ensemble-Variational Hybrid Data Assimilation

Mingjing Tong, Jason A. Sippel, Vijay Tallapragada, Emily Liu, Chanh Kieu, In-Hyuk Kwon, Weiguo Wang, Qingfu Liu, Yangrong Ling, and Banglin Zhang

Object-Based Algorithm for the Identification and Tracking of Convective Outflow Boundaries in Numerical Models

Hristo G. Chipilski, Xuguang Wang, and David B. Parsons

The Relationship between Wave Trains in the Southern Hemisphere Storm Track and Rainfall Extremes over Tasmania

Carly R. Tozer, James S. Risbey, Terence J. O’Kane, Didier P. Monselesan, and Michael J. Pook

The Effects of Orography on the Extratropical Transition of Tropical Cyclones: A Case Study of Typhoon Sinlaku (2008)

Hilke S. Lentink, Christian M. Grams, Michael Riemer, and Sarah C. Jones

An Observing System Simulation Experiment with a Constellation of Radio Occultation Satellites

L. Cucurull, R. Atlas, R. Li, M. J. Mueller, and R. N. Hoffman

A Background Investigation of Tornado Activity across the Southern Cumberland Plateau Terrain System of Northeastern Alabama

Anthony W. Lyza and Kevin R. Knupp

Relationship between the Track and Structural Evolution of Hurricane Sandy (2012) Using a Regional Ensemble

Alex M. Kowaleski and Jenni L. Evans

Shallow Cumulus in WRF Parameterizations Evaluated against LASSO Large-Eddy Simulations

Wayne M. Angevine, Joseph Olson, Jaymes Kenyon, William I. Gustafson, Satoshi Endo, Kay Suselj, and David D. Turner

Estimation Methods for Nonhomogeneous Regression Models: Minimum Continuous Ranked Probability Score versus Maximum Likelihood

Manuel Gebetsberger, Jakob W. Messner, Georg J. Mayr, and Achim Zeileis

Insights into the Summer Diurnal Cycle over Eastern South Africa

Shunya Koseki, Benjamin Pohl, Bhuwan Chandra Bhatt, Noel Keenlyside, and Arielle Stela Nkwinkwa Njouodo

Impact of Slant-Path Radiative Transfer in the Simulation and Assimilation of Satellite Radiances in Environment Canada's Weather Forecast System

Maziar Bani Shahabadi, Josep M. Aparicio, and Louis Garand

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Thank to MetService for these clips