

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

### ***MetService mentions***

## **Heavy rain causes more Coast transport issues**

MetService meteorologist Claire Nickson said by mid-afternoon yesterday, Milford Airport had received 129mm, Franz Josef Glacier 108mm and Haast 50mm of rain.

## **Thunderstorms, heavy downpours and gusty winds to hammer North Island**

MetService meteorologist Claire Nickson said by tomorrow morning the rain band would have moved away from the West Coast of the South Island and on to the North Island.

## **Risk of small tornados, thunderstorms for much of North Island**

"For the North Island most forecasts have a period of rain developing, possibly heavy with thunderstorms," MetService meteorologist Melissa Oosterwijk said. The timing depended on when the front was moving over different parts of the country.

## **Systems collide to create tumultuous thunderstorms in central North Island**

MetService meteorologist Peter Little said the central region around Taupo, Rotorua and Taumarunui was hit by localised thunderstorms about 6pm on Sunday. They brought some wild weather after a period of relative calm.

## **Winter is coming: Sub-zero temperatures and a month's worth of rain in a night**

A high pressure system with clear skies and light winds at the bottom of the South Island sent the central Otago town of Alexandra to an overnight low of -3.9degC while Omarama in South Canterbury and Lake Pukaki dropped to -4.4C, Stephen Glassey from MetService said.

## **Winter warning after heavy rain in Auckland freezing South Island temperatures**

New Zealand Herald

Between 40mm and 70mm of rain fell on the northern suburbs, while between 20mm and 30mm fell close to the city centre, MetService meteorologist ...

Between 40mm and 70mm of rain fell on the northern suburbs, while between 20mm and 30mm fell close to the city centre, MetService meteorologist Stephen Glassey said.

## **Sunday's Weather: Mysterious flashing lights reported all over Northland**

New Zealand Herald

While some put it down to a UFO or a fire, Metservice Meteorologist Amy Rossiter confirmed there is a trough lying to the east of Northland which has ...

### **1000 lightning strikes hit the Bay of Plenty since midnight**

New Zealand Herald

More than 1000 lightning strikes across the Bay of Plenty region have been recorded since midnight. Metservice weather forecaster Hordur ...

### **Your weather: Fine day ahead for most of New Zealand after chilly start**

New Zealand Herald

MetService meteorologist Hannah Moes said Monday morning was slightly warmer than Sunday, but still dropped below 0C in places. Manapouri was ...

### **Snow on mountain brings autumnal chill to Taranaki**

Taranaki woke to the first snowfall on the mountain and a definite autumnal chill on Sunday.

### **More rain in March than usual in Taranaki but over less days**

Believe it or not Taranaki had more rain last month than it usually does in March.

It doesn't seem like it, because it didn't rain that often - most of the rain fell in just two days.

### **Volcano alert**

#### **Scientists monitoring Ruapehu as crater lake heats up**

Mt Ruapehu's Crater Lake has heated up to temperatures not seen in years – and scientists have also recorded tremor around the mountain over recent weeks.

#### **Why a big Mt Taranaki eruption just got more dangerous**

A big Mt Taranaki eruption could launch devastating pyroclastic flows across a wider area than first thought - putting more people at risk.

### **MetOcean**

#### **NZKS to test waters down SI's east coast after Cook Strait trial**

A successful "open ocean" research project in Cook Strait has prompted New Zealand King Salmon to test the waters down the east coast of the South Island.

NIWA

### **Pockets of Western Bay of Plenty facing meteorological drought**

Parts of the Western Bay of Plenty were facing a meteorological drought, according to Niwa's March Climate Summary.

The New Zealand Drought Index by Niwa and the Ministry for Primary Industries declared parts of the Western Bay of Plenty in meteorological drought conditions last week, with the rest of the region just below the margin in extremely dry conditions.

### **NIWA's Hotspot Watch**

A weekly update describing soil moisture across the country to help assess whether severely to extremely dry conditions are occurring or imminent. Regions experiencing these soil moisture deficits are deemed "hotspots". Persistent hotspot regions have the potential to develop into drought.

WMO

### **WMO holds top-level meetings in Washington**

In a series of important meetings, WMO Secretary General Petteri Taalas held talks with senior US government officials in Washington DC to discuss strategic areas of interest.

Poor rainfall threatens food security in Greater Horn of Africa

Early action needed to prevent food crisis in the Greater Horn of Africa. There is a high risk of worsening food insecurity in parts of Kenya, Ethiopia, Somalia and Uganda if forecasted...

March-April 2019 unprecedented severe rainfall in Iran - I.R. of Iran Meteorological Organization(IRIMO)

One week before Iranian New Year beginning on March 21, the provinces bordering to the Caspian Sea and those provinces in the west of Iran experienced unprecedented severe rainfall that resulted in...

### **ICT infrastructure is vital for sustainable development**

Information and Communications Technology (ICT) is critical to managing the complex, dynamic operations that evolve in disaster environments, WMO Assistant Secretary-General Wenjian Zhang told the...

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

### **Y2K of GPS causes glitch grounding Bureau of Meteorology weather balloons**

ABC Local

Y2K of GPS causes glitch grounding Bureau of Meteorology weather ... Around 30 satellites in the GPS constellation circle the planet 20,000km ...

### **Emergency service leaders demand inquiry into Australia's ability to cope with extreme weather**

SBS

Longer bushfire seasons, 'dry' lightning storms, increased flooding and higher rates of anxiety: this is Australia's future without immediate action on ...

### **'Snow, rain and storms': Cold snap heading for Australia's south-east**

9news.com.au

... mass could bring thunderstorms and rain, as well as some possible snowfall for alpine areas in Tasmania and Victoria, according to Weatherzone.

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

### **Meteorologists to visit districts to study freak storm**

Himalayan Times

Kathmandu, April 3. A team of meteorologists is visiting Bara and Parsa districts today to study the violent storm that wreaked havoc in the districts on ...

### **Weather forecasters put climate change on their maps**

Egypt Independent

“TV meteorologists are unique in that they have an ongoing conversation with the public,” Bernadette Woods, Emmy Award-winning meteorologist and ...

### **Year-round rainfall in UAE likely with cloud seeding**

Khaleej Times

There is a chance that the UAE can experience a year-round bout of intermittent rain if cloud seeding missions hit the right types of clouds and induce ...

### **Philippines: Lambunao now also under state of calamity due to El Niño**

FreshPlaza.com (press release)

The city of Lambunao, in Iloilo province, was placed under a state of calamity Monday due to the impact of El Niño. Lambunao Mayor Jason Gonzales ...

### **Spreading Drought Adds to Risks for Thailand's Cooling Economy**

Bloomberg

A spreading drought has emerged as a new risk for Thailand's cooling ... "Prolonged dry weather may lead to lower farm output, which will hurt private ...

### **Over 320000 affected by severe weather in Sri Lanka**

Web India 123

Sri Lanka's Disaster Management Centre on Tuesday said that the number of people affected by the severe dry weather conditions prevailing across ...

### **UAE Takes Lead On Tackling Climate Change And Environmental Crises In Middle East**

Eurasia Review

The UAE is also investing in energy efficiency, water conservation through humidity transfer and cloud seeding, and solid waste management.

### **Had tornado hit Bara- Parsa, Southern Nepal? Meteorologists are not sure**

<https://www.nepal24hours.com> (press release) (blog)

By Purushottam P. Khatri, KATHMANDU: Clueless over the March 31 windstorm that lashed the two Terai districts, meteorologists have still been ...

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

### **200 million in path of 'potentially historic' spring storm closing in on central US**

AccuWeather.com

"In the swath of heaviest snow, disruptions to travel, including flight cancellations and road closures, are likely," AccuWeather Senior Meteorologist ...

### **Month's worth of rain in 4 hours, deadly flooding in Brazil**

The Weather Network

Wednesday, April 10th 2019, 12:15 pm - Rio de Janeiro received more than a month's worth of rain in just four hours Monday.

### **International news and research**

#### **The signs of climate change in the Middle East**

Arab News

What value does AI-Drouer offer today, when weather forecasting technology improves at an exponential pace? Elders in the UAE have an important ...

#### **Meteorologists discuss how hurricane rating system affects public perception at weather conference**

WBTV

CHARLOTTE, NC (WBTV) - The National Hurricane Center uses a five category system to rank hurricanes with one being the weakest and five being ...

#### **Are Drones the Answer to More Accurate Weather Forecasts?**

Government Technology

And all those measurements, combined with others taken by research aircraft, weather balloons or Earth-observing satellites, give meteorologists a ...

#### **Femme fatale? US university probes link between storms with women's names and higher death ...**

Daily Mail

Storms could be given men's names in the future as the Met Office investigates a potential link between female named storms and a higher death toll.

### **Don Paul: How much skill do meteorologists have?**

Buffalo News

Meteorologists came out very well. (Oh, I can just see the comments section firing up below this article!) Fortunately, these are not anecdotal figures ("I ...

### **Where are the present computational limits of global high-resolution modelling?**

ECMWF

Peter Bauer, Deputy Director of Research and Programme Manager of the ECMWF Scalability Programme. One of the complex questions the ECMWF ...

### **Hay fever pollen 'DNA' may improve forecasts**

BBC News

He has been leading the PollerGen project at Bangor, bringing together researchers from as far a field as Australia, along with the Met Office, the ...

### **UK Pioneers First Stratospheric Measurements Using Drone Glider**

UKNow (press release)

... the first time, reaching a better understanding of meteorological conditions to enable the next generation of weather forecasting models. ... "We got amazing data in the descent from 25 kilometers, all the way down," Guzman said.

### **Floating city designed to withstand Category 5 hurricanes**

The Weather Network

Monday, April 8th 2019, 12:55 pm - Here's how living ON the water can actually protect you from severe weather events, such as hurricanes.

### **Others**

### **AccuWeather hits 650m video views on its site and apps**

Digiday

People primarily visit AccuWeather's site or use its apps to check the weather. But the company is increasingly succeeding in getting them to stick ...

## **Aviation**

### **Direct Flights to Norfolk Island**

Air Chathams just doesn't stop growing with the latest announcement of direct Auckland to Norfolk Island passenger services to begin on Friday the 6th of September 2019.

### **Know the weather better, fly cheaper: Airlines can easily save both money and the environment**

DC Velocity

"The timeliness and accuracy of our high-definition weather forecasting ... The result is that our Big Data can be developed in to Better Data for airlines.

### **US Air Force next in line for Mahia launch**

Gisborne Herald

Following its first successful rocket launch of the year, Rocket Lab's Mahia launch ... United States-based Rocket Lab last week deployed experimental ...

### **Meet American Airlines' Turbulence Guru**

Skift

Every month Skift will profile someone working in the quirkiest, most incredible and surprising jobs in travel and restaurants. Skift's relentless curiosity ...

### **Sunwing Airlines hit with nearly \$700K penalty over ice-related delays in 2018**

Globalnews.ca

The agency blamed Sunwing for its decision not to suspend operations despite weather forecasts as early as April 11 forecasting severe weather, ...

### **Space-based tracking shows how aviation connects the world**

Airline Ratings

Space-based tracking shows how aviation connects the world ... Aircraft tracking company Aireon has demonstrated the reach of aviation in the 21st ... allow them to take better advantage of favorable winds and avoid bad weather.

### **Avtech Released Weather Forecast Product Line To Reduce Airplanes Emissions**

IEN Europe

“The timeliness and accuracy of our high-definition weather forecasting ... our current WAF service, we downscale this data to approximately 140km.

Business/Insurance

### **Co-op insurance firm racks up big loss as UK weather claims bite**

Insurance Times

Co-op also took a big hit on the value of the business, with the red ink running to a £207m impairment charge on the insurance underwriting arm.

### **SoftBank buys stake in US weather startup ClimaCell**

Nikkei Asian Review

SoftBank plans to establish regional joint ventures with ClimaCell to improve the profitability of these new weather forecasting services.

### **M Science Launches Weather Data and Visualization Solution**

Associated Press

NEW YORK--(BUSINESS WIRE)--Apr 8, 2019--M Science, the pioneer in data-driven research and analytics, today launched a weather-based data ...

### **Communications/social media**

### **Cheddar, Local Now Expand Content Partnership To Distribute Weather Updates**

MediaPost Communications

Cheddar and Local Now, The Weather Channel's over-the-top streaming service, have enlarged their content partnership. Meteorologist forecasts will ...

### **ChyronHego Launches a "Fresh" Take on AR and Virtual Set Graphics for News, Weather, and ...**

TV Technology (blog)

LAS VEGAS — April 7, 2019 — ChyronHego today introduced Fresh, an all-new graphics-rendering solution that integrates Epic Games' Unreal ...

### **Lack of Indigenous language translations intensified community panic during Tropical Cyclone Trevor**

Ian Gumbula is no stranger to the destructive nature of tropical cyclones.

Key points:

Remote community worker Ian Gumbula said the stress of the coming cyclone was increased by a lack of information in local Kriol language

Mr Gumbula said people who had not self-evacuated from Ngukurr in Arnhem Land feared for their lives when the cyclone made landfall

This was despite the Bureau of Meteorology updates — all in English — saying Ngukurr would be relatively safe during the cyclone

## **Energy and Mining**

### **Gas and oil exploration move off Otago coast**

Built in late 2014, the COSL Prospector is a self-propelled, semi-submersible drilling rig designed to operate in water depths of up to 1500m, drilling to depths of 7500m. Designed for North Sea/Norwegian Sea and used in harsh environments, it keeps station using a dynamic positioning by six fixed-pitch variable speed thrusters, or an eight-line mooring system.

## **Health**

### **Big-weather data can improve healthcare**

Business Daily (press release) (blog)

In Africa, for a very long time, weather phenomenon was a concern only for farmers. Emerging weather vagaries and its trickledown impact on our ...

## **History**

### **The Deadliest Tornado in US History Blindsided the Midwest in 1925**

History

Modern meteorologists believe wind speeds topped 300 miles per hour in some locations. At one point, observers in Missouri calculated that it was a ...

## **Hydrology / Flooding**

### **The Weather Channel Flooded Charleston to Make You Give a Damn**

WIRED

So maybe this will finally break through: The Weather Channel's immersive climate change experience, which puts you deep inside an inexorably ...

## **Lightning**

### **MET staff trained on new system on lightning detection: Malawi to reduce deaths**

Nyasa Times

The Department of Climate Change and Meteorological Services (DCCMS) has trained 14 meteorologists in lightning detection system to operate the ...

## **Satellites and radar**

### **Six Ways You Used Satellites Today And Didn't Know It**

Forbes

Weather forecasts. One of the most important daily applications of satellites is in weather analysis and forecasting. Polar-Orbiting and geosynchronous ...

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

### **Extreme weather has become a real risk factor for shipping**

ShippingWatch UK

Extreme weather and floods in Europe. Storm in the Biscay. Powerful typhoons and hurricanes raging right where ships do most of their sailing.

### **Carriers making heavy weather of punctuality – but it's not all their fault**

theloadstar.com

According to Jeremy Nixon, chief executive of Ocean Network Express (ONE), global warming has triggered more adverse and variable weather ...

### **Philippines' Supreme Court orders trial of owner of sunken Princess of the Stars | #AsiaNewsNetwork**

Eleven Myanmar

Florencio Marimon to take shelter in the vicinity of Batangas province despite the weather bureau's advisory that the ship would run into the typhoon if ...

### **Weather Telematics to launch predictive road condition warning platform**

Traffic Technology Today

The Predictiv SA API (Application Programming Interface) combines road weather conditions, such as dry, wet, snowy, or icy, and road weather ...

## **Innovation and technologies (inc data and new products)**

### **Callaghan Innovation: 'Unicorns' create \$34b for New Zealand**

New Zealand 'unicorns' behind some of New Zealand's most successful innovation businesses like Rocket Lab, Xero, and LanzaTech have helped to create more than \$34 billion in value to the country – but you can't put a price on how they have helped other businesses.

## **SB Energy Invests in ClimaCell to Accelerate Deployment of its Revolutionary Weather Forecasting ...**

PRNewswire (press release)

"ClimaCell's revolutionary hyper-accurate weather forecasting technology will bring significant benefits not only to renewable energy but also to other ...

Space weather

## **New model accurately predicts harmful space weather**

A new, first-of-its-kind space weather model reliably predicts space storms of high-energy particles that are harmful to many satellites and spacecraft orbiting in the Earth's outer radiation belt.

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

### **Climate Change Concerns Create New Industry**

Bloomberg

Shippers can lose billions of dollars due to weather disasters, stranded freight trains, missed flights and closed ports. Companies including IBM and ...

### **New Satellite Photos Show Climate Change Is Sweeping Europe**

Bloomberg

Climate change is picking up pace in Europe, thrusting farmers and power generators onto the front lines of a battle with nature that threatens to upend ...

### **'Land of the short white cloud' - NZ glaciers' huge loss of ice in just 42 years**

New Zealand's glaciers have experienced a "huge loss" of ice in little more than four decades, under a trend only worsening with climate change.

### **Where there's smoke**

Destructive wildfires, driven by climate change, are going to occur more frequently. Bruce Munro and Maureen Howard take a look at what we know about that near future, what it is like fighting those fires and steps we can take to minimise the damage.

## **Odd spot**

### **Scandinavian surfers add a unique, frozen twist to the popular water sport**

AccuWeather.com

“They're a small community of local surfers with very good [skills],” Agence France-Presse (AFP) photographer Olivier Morin told AccuWeather.

## **Journal and articles online**

### **Weather**

Volume 74, Issue 4

Pages: E1, 118-136, i-iv, 137-156

April 2019

Cover Information

First Published: 01 April 2019

In this issue of Weather

Jim Galvin

Pages: E1 | First Published: 01 April 2019

Weather news

Pages: 118 | First Published: 01 April 2019

Short Article

A farewell from the Editor

Jim Galvin

Pages: 119 | First Published: 01 April 2019

Research Articles

Titanic's mirage, part 1: The enigma of the Arctic High and a cold-water tongue of the Labrador Current

Mila Zinkova

Pages: 119-128 | First Published: 18 May 2018

The 'wall' at the horizon is a Fata Brumosa display.

Radar for hydrological forecasting in the UK 50 years on

Chris Collier

Pages: 128-130 | First Published: 01 April 2019

Llandegla research station.

Short Article

Weather diaries during the easterlies of February and March 2018

W. S. Pike, Stephen Bartholomew, Malcolm Wickenden

Pages: 130-132 | First Published: 01 April 2019

Weather in my Life

Weather in my life – Penny Endersby

Penny Endersby

Pages: 132-133 | First Published: 01 April 2019

Meeting report

Meeting a global temperature goal of 1.5 degC

Michelle Cain, Alyssa Gilbert

Pages: 133-134 | First Published: 01 April 2019

Climate change shorts

Climate sensitivity: how much warming results from increases in atmospheric carbon dioxide (CO2)?

Ed Hawkins, Piers Forster, the Climate Science Communications Group

Pages: 134 | First Published: 22 January 2019

Meeting report

Weather and Sailing, 6 October 2018

Stephen Holman

Pages: 135 | First Published: 04 March 2019

Weather images

Weather images

Pages: 136 | First Published: 01 April 2019

Weather log

February 2019 Wintry start, then mild and often sunny, with a 'summery' end

Pages: i-iv | First Published: 01 April 2019

Seasonal Weather Summary

UK seasonal weather summary Winter 2018/2019

National Climate Information Centre

Pages: 137 | First Published: 01 April 2019

Research Articles

Spatial and temporal variations in the frequency of thunderstorm days over India

Omvir Singh, Pankaj Bhardwaj

Pages: 138-144 | First Published: 27 December 2017

The replacement of mercury thermometers in Stevenson screens

Ian Strangeways

Pages: 145-147 | First Published: 27 February 2019

A traditional liquid-in-glass thermometer arrangement and its direct-replacement electronic thermometer system.

The relationship between meteorological factors and the risk of bacillary dysentery in Hunan Province, China

Xuewen Li, Ning Wang, Guoyong Ding, Xiaomei Li, Xiaojia Xue

Pages: 148-153 | First Published: 22 January 2018

Model diagnostics show that there is an excellent goodness-of-fit between the number of observed and model fit cases of bacillary dysentery from the Poisson model. Regression analysis suggests that average temperature, rainfall, relative humidity and hours of sunshine can significantly increase the incidence of bacillary dysentery, with various lagged effects, and that average temperature has the strongest influence of all of the meteorological factors considered (it was found that a 1 degC rise in temperature corresponds to a 2.72% increase in the number of cases of bacillary dysentery).

Brewster's dark patch: a neglected optical phenomenon in the landscape

G. P. Können

Pages: 154-155 | First Published: 14 February 2019

Under clear skies and a low Sun, a dark patch appears on a surface of water at 90° from the Sun. The phenomenon is a naked-eye manifestation of the polarisation of the blue sky. Although this everyday-occurring phenomenon is very conspicuous, it is only since 1980 that it has been discussed in the literature.

=====  
=====

**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.

April 9, 2019

News

[The April 3-4, 1974 Super Outbreak: 8 Things It Taught Us about Tornadoes](#)

April 9, 2019 - The Weather Channel

One of the nation's most infamous tornado outbreaks was an important pivot point for forecasting.

[Read MORE](#)

[A Data-Rich Northwest Atlantic Testbed](#)

April 9, 2019 - NOAA

A team of oceanographers at NCEI created a finer-resolution map of ocean data as a test case to study the world ocean.

[Read MORE](#)

[Sierra Nevada pools and riffles are in trouble](#)

April 8, 2019 - Futurity.org

The Sierra Nevada mountain streams that naturalist John Muir extolled are now in peril, research finds.

[Read MORE](#)

[Laying the ground for robotic strategies in environmental protection](#)

April 8, 2019 - ScienceDaily

The robot is designed by Wyss Institute researchers to drive interlocking sheet piles into granular soils like sand on a beach.

[Read MORE](#)

## Radar Data Analysis Pinpoints Precipitation Risk for Vehicle Fatalities

April 7, 2019 - Claims Journal

Researchers say they have calculated a more precise measurement of the relative risk that precipitation has on fatal highway accidents.

[Read MORE](#)

## Drones could be the future of weather forecasting

April 6, 2019 - PilotOnline.com

Their atmospheric data could be used by agri-businesses for better crop management, for instance, or to help firefighters detect shifts in the wind patterns of wildfires and keep out of harm's way.

[Read MORE](#)

## Meteorologists discuss how hurricane rating system affects public perception at weather conference



April 5, 2019 - WBTV 3 News

Once a category four hurricane with top winds of 140 mph, Florence weakened to a category one storm at landfall- not the major hurricane it was expected to be. The public perceived that weakening as a lesser threat, which turned out to be a huge mistake.

[Read MORE](#)

## The Deadliest Tornado in U.S. History Blindsided the Midwest in 1925

April 5, 2019 - History.com

Overtaken trains. Timber found miles away from where it had been stored. Trees felled. Fires and close calls. A letter that flew almost 100 miles.

[Read MORE](#)

Hurricane season is approaching. Here's the first 2019 outlook from scientists.

April 4, 2019 - The Washington Post

It has been just four months since the last hurricane season ended, but it's already time to look ahead to the next.

[Read MORE](#)

Climate Preparation Report Released by Panel Previously Disbanded by Trump

April 4, 2019 - Scientific American

The report, released today in the American Meteorological Society's Weather, Climate, and Society journal, acknowledges that much of the public's attention on climate change is drawn to large-scale natural disasters, such as wildfires in California.

[Read MORE](#)

Bridging the Gap with the Science for Climate Action Network

April 4, 2019 - Eos - Earth and Space Science News

A new report identifies missing support that is slowing progress in limiting and adapting to climate change. The Science for Climate Action Network aims to provide it.

[Read MORE](#)

Weather-Induced Tsunami Waves Regularly Roll Up on U.S. Shores

April 3, 2019 - Eos - Earth and Space Science News

Roughly 25 meteotsunamis strike coastlines between Maine and Puerto Rico each year, tide gauge data reveal.

[Read MORE](#)

The Renaissance of Hydrology

March 28, 2019 - Eos - Earth and Space Science News

Hydrology has evolved as a transdisciplinary, data-driven science in a remarkably short period of time.

Read MORE

Understanding tornadoes: 5 questions answered as tornado season arrives

April 5, 2019 - The Washington Post

Penn State meteorology professors Paul Markowski and Yvette Richardson explain why tornadoes form, how to stay safe if you're near one and whether climate change is affecting tornado patterns.

Read MORE

=====

My latest WeatherEye from John Maunder

<https://www.sunlive.co.nz/blogs/13195-auranga-march-average-afternoon-temperatures-19132019.html>

=====

Thanks to our regular contributors