

Weather and climate clips

Courtesy of MetService library

MetOcean

Marine heatwaves becoming more intense, more frequent

When thick, the surface layer of the ocean acts as a buffer to extreme marine heating -- but a new study shows this 'mixed layer' is becoming shallower each year. The thinner it becomes, the easier it is to warm. The new work could explain recent extreme marine heatwaves, and point at a future of more frequent and destructive ocean warming events as global temperatures continue to climb.

Citizen science: New app for people to monitor changing coastline

Otago Daily Times

"CoastSnap will help us to better understand how the beaches respond to changes in wave conditions, **weather** and extreme storm events.

Craig L. Stevens, Joe O'Callaghan, Stephen M. Chiswell & Moninya Roughan (2021) **The physics of New Zealand's shelf seas: introduction to the special issue**, New Zealand Journal of Marine and Freshwater Research, DOI: [10.1080/00288330.2021.1877160](https://doi.org/10.1080/00288330.2021.1877160)

Aotearoa New Zealand is a marine nation. The islands are 1700 km from the nearest continental land mass, its northern coasts are bathed by warm waters arriving from the tropics, and its southern coasts sit just north of the cold Southern Ocean whipped by an unbroken band of westerly winds that circles the globe. A consequence of this is the ocean environment influences nearly all aspects of life in New Zealand. It controls the weather and climate extremes, impacts on transport, energy supply, food production, and export earnings. Daily lives at work and play are affected by how the ocean changes seasonally, interannually and inexorably with climate.

WMO

Insights in Climate Science

A spate of recent reports has highlighted accelerating climate change indicators, amid mounting popular and political momentum for more ambitious climate action. Ten New Insights into Climate...

Political and popular climate momentum mounts

Political and popular momentum is mounting for urgent action to cut greenhouse gas emissions in the face of increasing indicators and impacts of climate change. “The science has never been clearer....

New funding and strategic plan boosts Haiti’s Hydro-Meteorological Service

WMO is supporting the first ever national strategic plan to strengthen Haiti’s Hydro-Meteorological Service (UHM), as well as a new international initiative to build resilience to extreme weather and...

The Systematic Observations Financing Facility: Filling the data gaps for effective adaptation investments

Over the last two days, more than 30 global leaders joined the Climate Adaptation Summit calling for urgent action to drive a decisive shift towards climate resilient development. The climate crisis...

Monitoring & Assessment Center for GHSs & Carbon Neutrality of CMA established - China Meteorological Administration

On January 22, China Meteorological Administration (CMA) held the workshop on carbon neutrality and scientific issues, namely establishment of Monitoring & Assessment Center for GHSs & Carbon...

Meteorological support for arctic-alpine trial flight of C919 - China Meteorological Administration

At 8:28 a.m. on January 7, C919 airliner took off under the condition of -35°C at Hulunbuir Dongshan International Airport in Inner Mongolia. On January 8 and 14, the same scenario played out twice....

Covid-19 and climate dominate Davos Agenda

The COVID-19 pandemic and climate risks dominate the 2021 Davos Agenda hosted by the World Economic Forum and bringing together global decision-makers and influencers. WMO Secretary-General Prof....

Monthly Weather Summary - January 2021 - Kingdom of Bahrain

January 2021 was warmer than normal in temperatures and below-average precipitation. The mean temperature of the month was 19.0°C which is 1.5°C above the long-term normal for January and this goes...

La Niña has peaked, but impacts continue

The 2020-2021 La Niña event has passed its peak, but impacts on temperatures, precipitation and storm patterns continue, according to a new update from the World Meteorological Organization (WMO)....

Sand and dust storm impacts Europe

A major intrusion of sand and dust from the Sahara transformed skies and the landscape over Europe on the weekend of 6-7 February, with far-reaching impacts for the environment and health. It once...

ECMWF

New supercomputer to aid weather research

ECMWF is currently spending \$100 million for a new supercomputer at its data center in Italy. The GFS and European models are run multiple times ...

Extreme weather (and other news) – Antarctica and offshore

Antarctica's ice melt isn't consistent, new analysis shows

Antarctic ice is melting, contributing massive amounts of water to the world's seas and causing them to rise - but that melt is not as linear and consistent as scientists previously thought, a new analysis of 20 years' worth of satellite data indicates.

Iceperts Arrive In Christchurch

In a normal season, New Zealand's Antarctic scientists would either be at Scott Base or just returning from Antarctica. Instead they are gathering in Christchurch for the Antarctic Science Conference and the Snow and Ice Research Group workshop.

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

Heatwaves may mean Sydney is too hot for people to live in 'within decades'

Parts of Victoria and NSW are sweating through an extreme heatwave that started sweeping across Australia's southeast on Saturday.

Bureau of Meteorology's 30 years of technological advances result in better forecasting for Tasmania

ABC News

Weather forecasters today have it easy compared to 30 years ago, when all they had were a handful of blurry satellite images. Through decades of ...

International news and research

New global 'wind atlas' propels sustainable energy

Wind energy scientists have released a new global wind atlas - a digital compendium filled with documented extreme wind speeds for all parts of the world - to help engineers select the turbines in any given region and accelerate the development of sustainable energy.

Global warming found to be culprit for flood risk in Peruvian Andes, other glacial lakes

Human-caused warming is responsible for increasing the risk of a glacial outburst flood from Peru's Lake Palcacocha, threatening the city below. This study is the first to directly link climate change with the risk of flooding from glacial lakes, which are growing in number and size worldwide.

California's rainy season starting nearly a month later than it did 60 years ago

The start of California's annual rainy season has been pushed back from November to December, prolonging the state's increasingly destructive wildfire season by nearly a month, according to new research. The study cannot confirm the shift is connected to climate change, but the results are consistent with climate models that predict drier autumns for California in a warming climate, according to the authors.

COVID-19 lockdowns temporarily raised global temperatures, research shows

The lockdowns and reduced societal activity related to the COVID-19 pandemic affected emissions of pollutants in ways that slightly warmed the planet for several months last year, according to new research. The counterintuitive finding highlights the influence of airborne particles, or aerosols, that block incoming sunlight.

Sailing for Science

A new era of sailing for science is beginning, with support for vital ocean observations from the high-profile round-the-world Vendée Globe yacht...

Hurricanes and typhoons moving 30km closer to coasts every decade

High-intensity tropical cyclones have been moving closer to coasts over the past 40 years, potentially causing more destruction than before.

Climate change / global warming

The independent **Climate Change Commission** has released its draft package of advice to Government on the steps Aotearoa must take to drastically reduce greenhouse gas emissions and address climate change.

Public consultation on the draft advice begins tomorrow (Monday February 1) and runs until Sunday March 14.

Commission Chair Dr Rod Carr says the advice is ambitious but realistic and makes a clear case to Government for taking immediate and decisive action on climate change.

"As a country we need transformational and lasting change to meet our targets and ensure a thriving Aotearoa for future generations.

<https://www.climatecommission.govt.nz/get-involved/our-advice-and-evidence/>

Sea level will rise faster than previously thought

There are two main elements to observe when assessing sea level rise. One is the loss of the ice on land and the other is that the sea will expand as it gets warmer. Researchers have constructed a new method of quantifying just how fast the sea will react to warming. Former predictions of sea level have been too conservative, so the sea will likely rise more and faster than previously believed.

Health

Climate change may have driven the emergence of SARS-CoV-2

A new study provides evidence of a mechanism by which climate change could have played a direct role in the emergence of SARS-CoV-2, the virus that caused the COVID-19 pandemic.

History

1886: 'The **weather** here is fearful'

Stuff.co.nz

The opening performance of the St Leon Circus **Company** on Gloucester St was postponed, as was the annual meeting of the Blue Ribbon Gospel ...

Innovation, Technologies and AI

Skymet Weather Forecasts Monsoon Probabilities for India in 2021, Looks normal so far

Skymet Weather

It has pioneered uses for long-range Monsoon **weather** forecasts, satellite remote sensing **technologies** and unmanned aerial vehicles in India.

Next-Hour Precipitation Rolling Out in Weather App in UK and Ireland [Updated]

Mac Rumors

Apple is looking to address the MacBook Pro's reliance on dongles and adapters by adding more **ports** to the 2021 MacBook Pro models, according to ...

Maritime tech: Signal Group launches Signal Ventures

EIN News

The ecosystem already includes **technology** startups active in ship bunkering, oil and dry bulk analytics, and marine **weather**. Following the success of ...

National Hurricane Center Adds New Forecast Elements for Mariners

The Maritime Executive

Toward that goal, TAFB is introducing new experimental **weather** forecast ... as relatively low-bandwidth wifi provided in many remote marinas and **ports**. The new **weather** elements have been added to the existing set to help keep ...

Transport/roading/shipping/freight

ZeroNorth and Spire Maritime partner to integrate optimisation and weather data software

ShipInsight

Danish maritime technology company ZeroNorth and global satellite and data company Spire Maritime have announced a new partnership that ...

Journal and articles online

Using machine learning to predict fire-ignition occurrences from lightning forecasts

Ruth Coughlan, Francesca Di Giuseppe, Claudia Vitolo, Christopher Barnard, Philippe Lopez, Matthias Drusch

e1973 | First Published: 31 January 2021

A machine learning (ML) approach was used to define a predictive model for wildfire ignition based on lightning forecasts and environmental conditions. Three different binary classifiers were adopted: a decision tree, a Random Forest and an AdaBoost, showing promising results, with both ensemble methods (Random Forest and AdaBoost) exhibiting an out-of-sample accuracy of 78%.

The use of satellite data in numerical weather prediction

Roger Saunders

Version of Record online: 28 January 2021

This article describes the use of satellite data for NWP. It gives a brief history and then outlines the various different ways that satellites measure the atmosphere. Finally, a summary of the impact in the UK Met Office Unified Model of the different types of satellite and in situ observations is given.

+++++

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.

A pioneering NASA mini weather satellite ends its mission

Phys.org - February 9, 2021

After nearly 2.5 years in orbit, a shoebox-size weather satellite phoned home one last time before plunging into Earth's atmosphere and burning up on Dec. 24, 2020.

Highlighting the life of June Bacon-Bercey, a pioneer in meteorology

CBS 19 - February 8, 2021

She was the first African-American woman to earn a degree in meteorology and the first female TV meteorologist.

January 2021 was among the top-10 warmest for U.S.

NOAA - February 8, 2021

The U.S. rang in the new year with an unusually mild January 2021 that tied with 1923 for ninth-warmest January on record.

Achoo! Climate Change Lengthening Pollen Season in U.S., Study Shows

The New York Times - February 8, 2021

New research suggests that climate change is responsible for longer pollen seasons in the United States and more pollen in the air, as well.

Aeolus Mission Shines a Light on Complex Phenomenon of the Polar Vortex

SciTechDaily - February 7, 2021

As this winter's polar vortex currently sends extreme icy blasts of Arctic weather to some parts of the northern hemisphere such as the northeast of the US, scientists are using wind information from ESA's Aeolus satellite to shed more light on this complex phenomenon.

A team of climatologists is studying how to minimize errors in observed climate trend

Phys.org - February 3, 2021

The instrumental climate record is the cultural heritage of humankind, the result of the diligent work of many generations of people all over the world.

California's rainy season starting nearly a month later than it did 60 years ago

ScienceDaily - February 4, 2021

The start of California's annual rainy season has been pushed back from November to December, prolonging the state's increasingly destructive wildfire season by nearly a month, according to new research.

NOAA awards SWFO Ground System Command and Control contract

NOAA - February 5, 2021

The work will allow SWFO L1 to provide continuity of solar wind and coronal mass ejection imagery data from the Lagrange-1 point to NOAA's National Weather Service Space Weather Prediction Center in Boulder, Colorado.

The northern lights danced over Fairbanks, Alaska, in pastel shades

The Washington Post - February 4, 2021

Most people aren't outside when the temperature falls to minus-24 degrees and the wind chill plunges to minus-41, but that's just another typical Monday night in Fairbanks, Alaska.

=====

Weather Eye with John Maunder

<https://www.sunlive.co.nz/blogs/15340-tauranga-january-average-afternoon-temperatures-19142021.html>

+++++

Thanks to our regular contributors

+++++