

New Zealand weather and climate news

These clips come Courtesy of MetService Library

MetService

Blustery, wet Thursday in store for the north before chilly blast hits the country for the weekend

New Zealand Herald

MetService meteorologist Sarah Hadden said there was a complex low system over New Zealand that would pass over the country near Auckland this ...

'Messy, complex' weather hitting New Zealand 'tricky' to predict

Stuff.co.nz

According to MetService meteorologist Sarah Haddon, the country was in the midst of a complex weather system that was quite difficult to predict ...

Cold snap set for Sunday

Otago Daily Times

Spring has arrived, but it seems winter is not yet ready to farewell the South. MetService forecaster Cameron Coutts said snow was forecast to fall as ...

Sniff of rain coming Hawke's Bay's way

New Zealand Herald

Hawke's Bay could be getting some rain for most of the first half of this month, according to the latest MetService forecasts. After a dry August, with most ...

Most rain at Waikura

Gisborne Herald

The MetService heavy rainfall warning for the region remains in place, with a further 80-100mm of rain likely on top of what has already fallen, through ...

Snow may be on the way for Christchurch's Port Hills

Stuff.co.nz

Spring may have just begun, but snow is forecast to hit Christchurch's Port Hills by the end of the week, MetService says. The weather forecaster ...

Wild weather hits Auckland with trees and powerlines down

Aucklanders can expect another wet day after wild weather caused chaos overnight.

MetService said thunderstorms were possible and northeasterlies would be strong in exposed places.

'Dynamic' weather system set to bring heavy rain and strong winds

Stuff.co.nz

Grab your raincoat, because there's wet and windy weather headed to New Zealand. MetService meteorologist April Clark told Stuff on Monday that ...

Explained: Why August's weather has been so miserable

New Zealand Herald

Now meteorologists say the big drivers that gave winter a depressing third act also cooled down seas which have been running warm since 2017.

Auckland breaks record for the most number of rain days in August

Stuff.co.nz

Auckland has broken a weather record for the most rain days in a calendar month. According to Metservice, the City of Sails clocked up a total of 29 ...

Rain forecast for Hawke's Bay - but is it enough?

New Zealand Herald

Rainfall at MetService reading stations at Hawke's Bay Airport and in Hastings in August was less than half the August average, which is based on ...

Spring has arrived with predictable unpredictability

Stuff.co.nz

... meteorologists measured from September 1 to the end of November - was the unsettled nature of the weather throughout, MetService's Tom Adams ...

Competing weather forecasts from two separate Govt agencies labelled 'absurd'

Stuff.co.nz

Instead, Niwa made its own decision and, in a 2015 briefing for former National Party minister of science and innovation Steven Joyce, was quoted as ...

Auckland's rain days continue: Spike in 'very wet' days, August new rain record

New Zealand Herald

As we head into the last day of August - and the last day of winter - MetService has confirmed 29 days of rain, measured at its weather station at ...

Unsettled weather forecast over next three months

Otago Daily Times

"The central Pacific El Nino event that arrived in March this year has ended, giving way to El Nino Southern Oscillation (ENSO) neutral conditions, ...

Safety of Mt Ruapehu buildings reviewed after five skiers injured by falling ice

Ski patrol staff are reviewing the safety of all buildings on Mt Ruapehu following an incident where slabs of ice fell from a roof and hit a group of skiers.

Temperature high up in atmosphere above Antarctica sets record

The temperature many kilometres up in the atmosphere above Antarctica is the highest it's ever been for the time of year in records going back six decades.

WMO

Widespread fires harm global climate, environment

Fires that are raging in the Amazon rainforest are compounding the stress on the global climate and environment already unleashed by exceptional fires in the Arctic. There are also widespread fires...

UN chief appeals to G7 leaders for strong climate action

People all over the world are calling for a shift towards a greener, cleaner future, according to UN Secretary-General António Guterres, stressing that "we have the tools to address the climate..."

Extreme weather (and other news) – Antarctica and offshore

Antarctic weather observer not fazed by 40-hour blizzard, frozen fingers and dark winter days

ABC News

Antarctic weather observer Craig Butsch was not fazed about spending 40 hours trapped inside a shipping container. He and a team were returning ...

Extreme weather (and other news) – Australia and Pacific

Good weather mitigates king tide damage in Kiribati

Damage from this morning's king tide in Kiribati was eased by calm weather, according to a climate spokesperson.

BOM long-term outlook predicts another warm, dry spring on the way

The pitter patter of rain has been welcomed by many on the country's east coast in recent days, and there is more on the way, but the long-term outlook for spring suggests it's not a sign of things to come.

The winter was dry, the spring will likely be dry – here's why

Winter still has a few days to run, but it's highly likely to be one of Australia's warmest and driest on record. While final numbers will be crunched once August ends, this winter will probably rank among the top ten warmest for daytime temperatures and the top ten driest for rainfall.

Pacific climate change centre opens in Samoa

A new facility dedicated to helping Pacific Island countries prepare for and cope with the impacts of the climate crisis is being officially opened today in Samoa.

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

As South Asia's heat rises, living standards decline

“Around 800 million South Asians—almost half of the region’s population—live in “hotspots” or geographical areas that will experience fewer crop yields, worse health outcomes, and declining productivity. As a result, hard-fought poverty reduction may be reversed.”

Pakistan: Met Office installs new radar system

The News International

ISLAMABAD: Pakistan Meteorological Department (PMD) has installed a modern radar system, under which three to ten days weather forecast would ...

Pollution worsening droughts in India, reveals new study

Skymet Weather

A new study has shown that El Nino is not the only factor that might be worsening Droughts in the country, but pollution is to be blamed as well.

Convection-permitting models better depict the heavy rainfall events in 2016 eastern China flooding

Phys.Org

... regional scale by using the Met Office Unified Model proves the added value of the convection-permitting model in simulating heavy rainfall event.

August 2019 likely the driest and warmest on record, says Met Service

CNA

SINGAPORE: This month was likely Singapore's driest and warmest August on record, said the Meteorological Service Singapore on Friday (Aug 30).

AccuWeather's 2019 Asia autumn forecast

AccuWeather.com

"While anywhere along the coasts of the Arabian Sea and Bay of Bengal are at risk, expected weather patterns suggest that northeastern India, the ...

Bangladesh should take 'total weather insurance'

Asia Times

The industry now pays an average of \$50 billion a year in weather- and climate-related insurance losses, including property damage and business ...

Oman- GCC to use China's expertise in weather monitoring system

MENAFN.COM

... operating both geostationary and polar-orbiting meteorological satellites. They also play an important role in weather forecasts, climate predictions, ...

Pacific basin active in wake of 3 Tropical Storms, Lingling likely to impact Japan

Skymet Weather

The first one is the Tropical Depression, Kajiki which at present is in the South China Sea and is very close to the coastal parts of Vietnam. This system ...

Bihar govt signs pact with pvt firm for weather forecasts

Daijiworld.com

... Water Resource Department in disaster preparedness from the data shared ... Being India's first private weather forecasting company, we at Skymet ...

Extreme weather (and other news) – Americas and Europe

Met Office expert reveals why Cambridge is the hottest place in the UK on record

Cambridgeshire Live

The reason, Grahame Madge from the Met Office explains, is partly because of Cambridge's geographical location. Situated inland, the whole county ...

Climate change affects floods in Europe

Posted: 28 Aug 2019 11:01 AM PDT

For a long time, scientists argued whether or not climate change is affecting floods. No clear trends seemed to be evident. Now, in a major international study, data from numerous measurement stations all across Europe have been evaluated. The data clearly shows that climate change is indeed influencing the magnitude of flood events. However, climate change has different consequences in different regions.

Europe warming faster than expected due to climate change

Posted: 28 Aug 2019 07:05 AM PDT

Climate change is increasing the number of days of extreme heat and decreasing the number of days of extreme cold in Europe, posing a risk for residents in the coming decades, according to a new study.

Meteorologist: Bahamas never hit with hurricane this strong

CNN International

Hurricane Dorian continues to strengthen, with winds increasing up to 180 mph. The hurricane will be capable of catastrophic damage as it tracks ...

Rescuers preparing to go into hard-hit areas of Bahamas after historic destruction

Hurricane Dorian has left the Bahamas absolutely decimated after parking over the islands for 40 hours and pounding them with ferocious winds and surging seawaters that destroyed thousands of homes and left at least seven people dead.

Dorian leaves parts of Bahamas in ruins

Hurricane Dorian has left parts of the Bahamas in utter devastation after three days of pummeling the islands. On Tuesday some of the first glimpses of the ruins of Great Abaco Island emerged showing mile on mile of flooded streets, shredded buildings, and shipping containers thrown in every direction like toys. What appeared to be the island's airstrip- was almost completely underwater. Still, the full scale of the disaster may not come into focus until the storm passes. A number of deaths have been reported, but authorities say they expect it to rise. Messages on Twitter described whole communities being swept away. Bahamas Prime Minister Hubert Minnis has called it a historic crisis - but said he's confident

Watch Hurricane Dorian in Action in these Gifs NASA and NOAA Took from Space

Space.com

Satellites operated by NASA and the National Oceanic and Atmospheric ... The result is it's holding back heavy weather here at the moment... but ...

CNN meteorologist: Never seen anything like Dorian

CNN

CNN meteorologist Ivan Cabrera says in all his years of covering hurricanes, he's never seen a storm behave like Hurricane Dorian which has stalled ...

Trump insists meteorologists are wrong and he is right to say Hurricane Dorian could have hit ...

The Independent

Donald Trump has insisted he is right - and meteorologists are wrong - over his repeated claim Hurricane Dorian could strike parts of Alabama.

International news and research

What are spaghetti models?

WTSP.com

... computer-generated and come from places like the National Weather Service, Canada's Deterministic Prediction System and the U.K. Met Office.

Flying Into Dorian — The Job of a NOAA Hurricane Hunter Meteorologist

WeatherNation

We had a chance a chance to speak with Science Section Chief Paul Flaherty, one of the meteorologists that has been flying into and studying Dorian.

Hurricane Forecasting Gets a Boost From Cloud-Piercing Satellite Data

HPCwire

A team of researchers at Penn State have revisited this historic shortcoming of modern weather forecasting, leveraging cutting-edge satellite and data ...

[Interview] Weather forecasting to move from information-based to impact-based forecast

Mongabay-India

[Interview] Weather forecasting to move from information-based to ... In a lot of areas, we neither have proper data nor proper communication channels ...

As students map the weather, an Indian village bests its water woes

A weather station monitored by students - part of a range of water-smart innovations - has turned around a parched village

Nasa investigates impact of PHL smoke on clouds

Business Mirror

Aerosol-cloud dynamics have a profound impact on weather and climate, ... institution focused on atmospheric and Earth science in Southeast Asia.

Deep snow cover in the Arctic region intensifies heat waves in Eurasia

Variations in the depth of snow cover in the Arctic region from late winter to spring determines the summer temperature pattern in Eurasia, according to new research. In particular, deeper-than-usual snow cover in Western Russia enhanced the likelihood of summer heat waves in Europe and Northeast Asia in recent years.

Defrosting surfaces in seconds

Researchers have developed a way to remove ice and frost from surfaces extremely efficiently, using less than 1% of the energy and less than 0.01% of the time needed for traditional defrosting methods. Instead of conventional defrosting, which melts all the ice or frost from the top layer down, the researchers established a technique that melts the ice where the surface and the ice meet, so the ice can simply slide off.

Why Is Hurricane Dorian's Path So Tricky to Predict?

And here's where forecasters think the powerful storm is most likely to make landfall.

How Strong Can a Hurricane Get?

Category 5 on the Saffir-Simpson hurricane scale has no upper bound, on paper. But in theory, winds from a powerful hurricane could blow the scale out of the water, scientists say. There is no such thing as a Category 6 storm, in part because once winds reach Category 5 status, it doesn't matter what you call it, it's really, really, bad.

Hurricane Dorian forecasting shows how models have improved since Floyd in 1999

Tampa Bay Times

In 1999, according to National Hurricane Center data, the average forecast track error for tropical ... Now, with what you learned from Twitter about weather forecasting, and the benefit of hindsight, how do you deal with this today?

Earth's Orbital Shifts May Have Triggered Ancient Global Warming

A new study combining astronomical and geologic data hints at an extraterrestrial cause for extreme climate change 56 million years ago

Fighting Wildfires with Computer Models

Prescribed burns can remove excess fuel from the forest floor, and algorithms can help fire crews know where to set them

New feedback phenomenon found to drive increasing drought and aridity

A new study indicates that the world will experience more frequent and more extreme drought and aridity than currently experienced in the coming century, exacerbated by both climate change and land-atmosphere processes. The researchers demonstrate that concurrent soil drought and atmospheric aridity are largely driven by a series of land-atmosphere processes and feedback loops. They also found that land-atmosphere feedbacks would further intensify concurrent soil drought and atmospheric aridity in a warmer climate.

5G network

5G Coverage Could Set Back Accurate Weather Forecasts By 30 Years

Observer

5G cell networks are going to set back weather forecasting ~30 yrs bc they operate at frequencies too near that of water vapor in the atmosphere, ...

Weather Agencies See Risk to Future Storm Forecasting From 5G

Bloomberg

Weather agencies are warning that signals from new 5G mobile networks ... It uses frequencies of 24.25-27.5 gigahertz, while the weather satellites ...

Aviation

Can the aviation sector withstand visitor downturn?

Singapore Business Review

Their significant overseas portfolios will help them weather the rough flight. Singapore aviation services will remain resilient despite visitor volatility ...

Experimental Alaska weather product predicts clouds along routes

AOPA Pilot (blog)

A new generation of weather satellites is making it possible to help Alaska pilots anticipate weather along their route of flight. An experimental Cloud ...

Business/Insurance

Artificial intelligence meets weather: Time for change

Planning, BIM & Construction Today

Construction weather and natural climate insight will change. ... Here at MetSwift our data scientists, meteorologists, coders and business specialists ...

Grapefruit-sized hail storm in Edmonton caused \$90 million in insured damage

The Weather Network

Tuesday, August 27th 2019, 1:07 pm - More than half of the insured damages involved auto insurance coverage.

Pitney Bowes and Baron Partner to Provide Businesses with Usable Real-Time Weather Risk Data

SYS-CON Media (press release)

“We're thrilled to bring our weather expertise to Pitney Bowes, the data ... the accuracy and precision delivered by Pitney Bowes solutions, analytics, ...

Communications/social media

Weathering the storm: TG4 tells powerful stories of beating the odds

Independent.ie

At the schedule launch yesterday were TG4 weather presenters Caitlín Nic Aoidh, Mairéad Ní Chuaig and Fiona Ní Flaithearta. They were joined by ...

Weather 'wizard' wows Thailand with Facebook filter fail (Video)

Coconuts

It's hard to take storm warnings seriously when they're coming from a talking raccoon. A top government meteorological said today that he was ...

Distant Sensing and Satellite tv for pc Imaging Knowledge for Local weather Change and ...

Advanced Imaging Pro (press release)

Distant sensing, satellite tv for pc imaging and scientific visualization are used to offer scientists with knowledge on local weather change, ...

Energy and Mining

UAE meteorology centre to highlight energy sector role

Trade Arabia

The National Center of Meteorology (NCM) will highlight its important role in the ... Moreover, it will introduce trade visitors to the 'weather enhancement ... of the Regional Association II (Asia) of the World Meteorological Organization ...

Weather dependence on top of oil dependence

Defence Connect

the role of all energy sources and technologies ... The introduction of high levels of weather-dependent renewable energy is, however, destabilising ...\

Environment

Wetlands and freshwater proposals set to cause stir

A government plan to protect New Zealand's wetlands and freshwater due today will affect farmers and developers, RNZ understands.

Farming/horticulture/Aquaculture

Drought blamed for drying up Landcorp earnings and profit

New Zealand Herald

The company, which trades as Pamu, exceeded its earlier earnings forecast ... drop in milk production due to dry summer and autumn weather for the earnings fall. The company will pay a special dividend to the Government of \$5m, ...

Ontario invests in weather prediction for grape industry

Niagarathisweek.com

... the Ontario government's recent announcement of a \$67,600 investment to develop a modern weather network feeding real-time information into the ...

Health

Nelson experiences annual wave of pine pollen

It's the time of the year when puddles get rimmed with yellow and pollen covers vehicles parked outside.

Metservice pollen forecaster Dr David Fountain said the annual pollen release from pinus radiata was a phenomenon that occurred across New Zealand

'I actually had to call in sick': Why seasonal allergies are getting worse for city dwellers

Data shows pollen levels rising across Canada, including in Calgary, Montreal, Toronto

Officials puzzled after heat deaths triple in Arizona, rise fivefold in Nevada since 2014

The Seattle Times

... like better health care, more air-conditioning and improved weather forecasting. The latest data — which the CDC has compiled for all 50 states — suggests that climate change could be starting to outweigh those advances in the ...

How climate change affects your mental health

"For all that's ever been said about climate change, we haven't heard nearly enough about the psychological impacts of living in a warming world," says science writer Britt Wray. In this quick talk, she explores how climate change is threatening our well-being -- mental, social and spiritual -- and offers a starting point for what we can do about it.

Montreal Protocol's successful protection of ozone averts rise in skin cancer

Action 30 years ago to ban ozone-depleting chemicals has been "immensely successful" in stopping a significant jump in New Zealand skin cancer rates.

El Niño May Be a Culprit Behind the Cholera Epidemic in Yemen

Eos

Increased rainfall in East Africa caused by a particularly strong El Niño and subsequent weather conditions may have helped usher in one of the worst ...

History

Archaeologists in Peru find remains of 227 sacrificed children

Aljazeera.com

According to the archaeologists, the children show signs of being killed during the wet weather, probably in an attempt to "appease the El Nino ...

Most powerful hurricane in US history hit the Florida Keys on Labor Day 1935

Florida Today

Folks in 1935, before weather satellites, Doppler radar, the internet and even television, didn't have that option. And on Labor Day that year, which ...

Lightning

Earth Networks Announces Enhanced Outdoor Alerting Solutions for Lightning Protection

Olean Times Herald

GERMANTOWN, Md.--(BUSINESS WIRE)--Aug 29, 2019-- ... Companies across all industries use our weather data to automate decisions regarding ...

Transport/roading/shipping/freight

Futuristic technologies improving roadways now

Traffic Technology Today

This particular roadway with its technology stretches for 157 miles and is ... Digital speed limit signs warn motorists of weather conditions while other ...

Air Freight vs. Ground Shipping: The Pros and Cons of Each

The Strategic Sourceror (press release) (blog)

Traffic, road closures and the weather can also complicate matters. Flight delays tend to be easier to predict considering it's only a few hours long, ...

New Integrated Technology Designed to Mean Faster and Safer Berthing of Ships

The Handy Shipping Guide

... at berth in a given set of environmental and *metocean conditions. Richard Hepworth, President of Trelleborg's marine and infrastructure operation, ...

Innovation and technologies and AI

Interview: Coming Soon, Impact-Based Weather Forecasts By IMD

The Wire

In a lot of areas, we neither have proper data nor proper communication channels. ... A numerical model is the backbone of weather forecasting now.

Climate change / global warming / sea level rise

Climate change will cripple economies regardless of wealth, economists say

The United States could see a 10% loss in gross domestic product (GDP) without significant policy change, economists say in a new report

Ruth Mottram - The melting of Greenland's ice sheet

At 8.10am Glaciologist and climate scientist Ruth Mottram works for the Danish Meteorological Institute in Copenhagen where she studies the glaciers of Greenland for signs of how the world's weather is changing. Glaciers are streams of compacted ice that form over millenia, and can provide valuable water and tourism dollars for the communities around them. But with global temperatures rising, they are melting at an alarming rate.

Evidence for past high-level sea rise

Scientists, studying evidence preserved in speleothems in a coastal cave, illustrate that more than three million years ago -- a time in which the Earth was two to three degrees Celsius warmer than the pre-industrial era -- sea level was as much as 16 meters higher than the present day.

Cloud seeding / Geoengineering

US experts test new cloud-seeding technique in UAE

Khaleej Times

The UAE is getting a good number of rainy days, thanks to cloud-seeding missions. Now, a team of pilots and scientists from the US is testing a new ...

Conferences and professional development

4-14 December / Queenstown

Southern Hemisphere Conference on Permafrost

For the first time, the International Permafrost Association Regional Conference on Permafrost is coming to New Zealand.

see <https://www.southcop19.com>

Journal and articles online

Quarterly Journal of the Royal Meteorological Society

Early View

Online Version of Record before inclusion in an issue

INVITED MANUSCRIPTS

Towards a more reliable historical reanalysis: Improvements for version 3 of the Twentieth Century Reanalysis system

Laura C. Slivinski, Gilbert P. Compo, Jeffrey S. Whitaker, Prashant D. Sardeshmukh, Benjamin S. Giese, Chesley McColl, Rob Allan, Xungang Yin, Russell Vose, Holly Titchner, John

Kennedy, Lawrence J. Spencer, Linden Ashcroft, Stefan Brönnimann, Manola Brunet, Dario Camuffo, Richard Cornes, Thomas A. Cram, Richard Crouthamel, Fernando Domínguez-Castro, J. Eric Freeman, Joëlle Gergis, Ed Hawkins, Philip D. Jones, Sylvie Jourdain, Alexey Kaplan, Hisayuki Kubota, Frank Le Blancq, Tsz-Cheung Lee, Andrew Lorrey, Jürg Luterbacher, Maurizio Maugeri, Cary J. Mock, G.W. Kent Moore, Rajmund Przybylak, Christa Pudmenzky, Chris Reason, Victoria C. Slonosky, Catherine A. Smith, Birger Tinz, Blair Trewin, Maria Antónia Valente, Xiaolan L. Wang, Clive Wilkinson, Kevin Wood, Przemysław Wyszyński

Version of Record online: 23 August 2019

A significant new version of the Twentieth Century Reanalysis data assimilation system, 20CRv3, has been developed. The 20CRv3 dataset will provide an ensemble of sub-daily global atmospheric conditions spanning at least 180 years by assimilating only surface pressure observations into a coupled atmosphere–land forecast model. The new 20CRv3 system improves upon the previous system in several notable ways, including the use of upgraded data assimilation methods, a newer and higher-resolution forecast model, and a larger set of available pressure observations.

RESEARCH ARTICLES

Modifications to the representation of subgrid mixing in kilometre-scale versions of the Unified Model

Kirsty Hanley, Michael Whitall, Alison Stirling, Peter Clark

Version of Record online: 23 August 2019

The derivation of Smagorinsky–Lilly type subgrid turbulence schemes, such as that used in the Unified Model, is based on a number of assumptions, one of which is to ignore the tilting of horizontal flux into the vertical by horizontal gradients in vertical velocity. Here we show that including this extra flux in the Met Office's 1.5-km grid length UK model reduces the domain-average precipitation by reducing the number of grid points with rainfall rates greater than 4 mm/hr, which are overrepresented by the model.

RESEARCH ARTICLES

The impact of horizontal atmospheric resolution in modelling air–sea heat fluxes

Peili Wu, Malcolm Roberts, Gill Martin, Xiaolong Chen, Tianjun Zhou, Pier L. Vidale

Version of Record online: 22 August 2019

Air–sea heat exchange is complex. Adequately representing heat fluxes in numerical models poses a big challenge for modern weather forecasts and climate prediction. Using two versions of the Met Office Unified Model (MetUM) forced with observed SST from the same native grid,

we find consistent and robust evidence that increasing horizontal model resolution significantly enhances air–sea heat fluxes at the mid–high latitudes while suppressing them in the Tropics. This is because of higher ventilation efficiency in high-resolution models.

RESEARCH ARTICLES

Polar low variability and future projections for the Nordic and Barents Seas

Oskar A. Landgren, Yurii Batrak, Jan Erik Haugen, Eivind Støylen, Trond Iversen

Version of Record online: 22 August 2019

Polar lows are small but intense mesoscale cyclones that are not resolved in global climate models. We downscale a large climate model ensemble, track individual polar lows over the Nordic and Barents Sea and discuss separation of external forcing and internal variability. In the Nordic Seas, for the future scenario, we find a strong decrease in the autumn and a small increase in March, leading to a shortened and shifted future polar low season.

RESEARCH ARTICLES

What global reanalysis best represents near-surface winds?

Jaume Ramon, Llorenç Lledó, Verónica Torralba, Albert Soret, Francisco J. Doblas-Reyes

Version of Record online: 20 August 2019

The coexistence of several global reanalysis products challenges the selection of the most appropriate product to satisfy the reanalysis user needs. Here we consider a set of five state-of-the-art global reanalyses to intercompare their wind data and eventually select the product that better represents the near surface wind speeds. The verification has been done using a set of 77 tall towers distributed worldwide, whose data have been exhaustively quality controlled for that purpose. Which reanalysis best represents near-surface wind speeds?

RESEARCH ARTICLES

Energetically consistent scale-adaptive stochastic and deterministic energy backscatter schemes for an atmospheric model

Suneet Dwivedi, Christian L. E. Franzke, Frank Lunkeit

Version of Record online: 20 August 2019

(a) Kinetic energy (KE)–wave-number spectrum of the PUMA model at horizontal resolutions T21, T31, T42 and T127, for 500 hPa. The dashed curves are for unperturbed simulations,

whereas the solid curves are for simulations using the stochastic energy backscatter (SEB) scheme. (b) Same as in (a) but for the deterministic energy backscatter (DEB) scheme.

RESEARCH ARTICLES

Investigating the GPM Dual-frequency Precipitation Radar signatures of low-level precipitation enhancement

Leonardo Porcaccia, Pierre-Emmanuel Kirstetter, Viviana Maggioni, Simone Tanelli

Version of Record online: 19 August 2019

Conditional distributions of vertical profiles of reflectivities measured by the GPM Dual-frequency Precipitation Radar at (a) Ku-band Zm (Ku), (b) Ka-band Zm (Ka), and (c) their Dual Frequency Ratio DFRm, for collision-coalescence-dominant (CC; black curves) and non-CC (NCC; grey curves) profiles.

High-intensity precipitation represents a threat because of the related risk of natural disasters. Signatures of low-level precipitation enhancement that occurs in relation to collision-coalescence (CC) in the cloud warm layer are investigated in the observations from the Global Precipitation Measurement (GPM) core mission Dual-frequency Precipitation Radar (DPR) over the central/eastern Contiguous United States (CONUS) during June 2014–May 2018. The occurrence of CC-dominant precipitation is documented and the corresponding signatures of CC-dominant precipitation at Ku- and Ka-band are studied. CC-dominant profiles show distinguishing features when compared to profiles not dominated by CC, e.g. characteristic vertical slopes of reflectivity at Ku- and Ka-band in the liquid layer, lower freezing-level height, and shallower ice layer, which are linked to environmental conditions driving the peculiar CC microphysics. This work aims at improving satellite quantitative precipitation estimation, particularly GPM retrievals, by targeting CC development in precipitation columns.

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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.

News

[Hurricane Dorian: Latest updates on deadly storm's forecast track along East Coast](#)

September 3, 2019 - NJ.com

While Hurricane Dorian will be a significantly weaker storm by the time it passes far off the coast of New Jersey sometime Friday, it has taken a catastrophic toll on the Bahamas as it now bears down on Florida and other parts of the southeastern United States.

[Read MORE](#)

[A Historical Perspective on Droughts](#)

September 3, 2019 - WeatherNation

How did this early 21st-century drought really compare to those two previous droughts? NCEI scientist and drought expert, Richard Heim, set out to answer that very question.

[Read MORE](#)

[Hurricane Dorian: Watch as NOAA researchers launch a weather balloon into feeder bands](#)

September 2, 2019 - TCPalm

As hundreds of Indian River County locals fled the barrier island in Vero Beach Monday under mandatory evacuation orders, a group of severe-storm researchers rushed in the opposite direction with excitement.

[Read MORE](#)

['Disturbing': Europe Is Warming Much Faster Than Science Predicted](#)

August 29, 2019 - EcoWatch

Summers in Europe are much hotter than they used to be and winters aren't nearly as cold as they once were. And, the continent is warming much faster than climate models had once projected.

[Read MORE](#)

[Predicting Famine Well Before It Strikes](#)

September 3, 2019 - Santa Barbara Independent

In partnership with several other institutions, this team runs the FEWS NET to predict when, where, and how severe the next drought will hit Africa, Central America, parts of Central Asia, and the Caribbean.

[Read MORE](#)

[Why The Track Forecast For Hurricane Dorian Has Been So Challenging](#)

September 1, 2019 - Forbes

There is still uncertainty with the forecast so coastal Florida, Georgia, and the Carolinas should remain on high alert. Why has the track forecast been so challenging with Hurricane Dorian?

[Read MORE](#)

[How California Can Help Save Brazil's Burning Rainforests](#)

August 28, 2019 - Bloomberg

Regulations on companies producing greenhouse-gas emissions in California might soon protect tropical forests thousands of miles away.

[Read MORE](#)

[Wall Street Journal: EPA proposes rule easing regulation of methane emissions](#)

August 29, 2019 - CNN-US

The Environmental Protection Agency announced a proposal on Thursday to ease regulation of methane emissions, a particularly potent greenhouse gas believed to contribute significantly to climate change, because it believes the Obama administration improperly regulated it.

[Read MORE](#)

[What Dorian Could Do](#)

August 31, 2019 - The Atlantic

Hurricanes galvanize us to action. Climate change can, too.

[Read MORE](#)

[Breaking the Ocean Barrier](#)

August 28, 2019 - Scientific American Blog Network

When will we take one giant leap to save our seas?

[Read MORE](#)

[There's lightning inside Hurricane Dorian. It's not an optical illusion](#)

August 30, 2019 - St. Louis Post-Dispatch

People don't normally consider lightning as being part of a hurricane, but Smith said we shouldn't be surprised by it.

[Read MORE](#)

[Desert plantations found to enhance rainfall](#)

September 3, 2019 - Phys.org

A pair of researchers at the University of Hohenheim has found evidence that suggests planting forests in desert areas can lead to an increase in local rainfall.

[Read MORE](#)

[NASA's multiple views of Hurricane Dorian from space](#)

August 30, 2019 - Phys.org

Several instruments and spacecraft from NASA's Jet Propulsion Laboratory in Pasadena, California, have eyes on Hurricane Dorian, capturing different types of data from the storm.

Read MORE

American Meteorological Society

45 Beacon Street, Boston, MA, 02108-3693

Staff Email & Phone Directory

617-227-2425

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My latest WeatherEye from John Maunder

<https://www.sunlive.co.nz/blogs/13740-tauranga-august-rainfalls-18982019.html>

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