

New Zealand weather and climate news

MetService focus

Two houses struck by lightning near Wallacetown

Stuff.co.nz

How does the MetService count lightning strikes? ... MetService expected heavy rain to ease to showers in the evening and the day's high of 16 ...

MetService introduces a red warning for life-threatening weather

Stuff.co.nz

MetService senior communications meteorologist Lisa Murray said that was due to natural variability and the ability of today's computer forecasting ...

Care urged as a strong wind warning issued for Canterbury High Country

Stuff.co.nz

MetService meteorologist Claire Nickson said those in the Canterbury High Country should be prepared for gusts powerful enough to jostle high-sided ...

Your weather: Cool southerlies and showers continue into weekend

New Zealand Herald

The unsettled southerly conditions are set to continue into the weekend for most of the country. MetService meteorologist David Miller said the country ...

Wild weather hits, more to come

Otago Daily Times

The wild weather resulted in the MetService issuing a warning for severe south-to-southwest gales reaching 120kmh in coastal Clutha, and a watch for ...

Weather: Heavy rain, 100km/h gusts as 'rain-maker' hits New Zealand

Newshub

A blast of severe weather is starting to lash New Zealand - and meteorologists warn it's only going to get worse. A large 'rain-maker' in the Tasman ...

Wild weather hits the south with 120kmh wind gusts and heavy rain

Stuff.co.nz

MetService data showed just over 4mm of rain had fallen in Invercargill so far on Wednesday. Fourteen millimetres of rain was forecast for the day.

Gales disrupt power, shipping

Gisborne Herald

The MetService forecast shows wind will remain high for most of the day, ... The wild weather also caused slight delays for shipping at Eastland Port.

MetOcean

Advances in global wave modelling

At MetOcean Solutions, we continuously improve our models to ensure the highest possible performance.

Our science team has recently made great improvements in global wave hindcasting thanks to using more accurate historical winds and studying the effect of icebergs and ocean currents in ocean waves.

Ocean activity is key controller of summer monsoons

New research finds ocean activity may control the strength and intensity of summer monsoons. The results could help researchers predict how monsoons will change with warming oceans.

NIWA

Scientists study how to predict marine heatwaves

Scientists have taken a step closer to predicting marine heatwaves with new NIWA-led research finding a link between their formation and the length of time sea temperatures are warmer than normal.

<http://www.scoop.co.nz/stories/SC1905/S00031.htm>

WMO

Reports to Arctic Council confirm rapid warming, ocean acidification

New observations confirm continued rapid warming in the Arctic, driving many of the changes underway in the region, including loss of sea ice and glacier coverage, as well as changes in terrestrial...

Climate change cited in landmark report on “nature’s dangerous decline”

Climate change is one of the contributing factors cited in a new landmark report which says that nature is declining globally at rates unprecedented in human history, and that the about one million...

South Asian Climate Outlook Forum predicts normal monsoon

Normal rainfall is most likely during the 2019 southwest monsoon season (June – September) over most parts of South Asia, according to the South Asian Climate Outlook Forum (SASCOF).

Hazard warnings must reach the last mile, metre - and bucket

The Second Multi-Hazard Early Warning Conference has opened at World Meteorological Organization headquarters with calls for more impact-based warnings that reach the most vulnerable as part of wider...

IPCC Updates Methodology for Greenhouse Gas Inventories

Posted:

The Intergovernmental Panel on Climate Change (IPCC) released on Monday an update to its methodology used by governments to estimate their greenhouse gas emissions and removals. Governments are...

UN Chief Executives Board appeals for more Climate Action

Posted:

The leaders of 37 United Nations organizations called on their member states to "step up ambition and take concrete action" to limit global temperature increase from climate change. Their call for...

Extreme weather (and other news) – Australia and Pacific

Australia weather bureau sees reduced El Nino threat

The Straits Times

SYDNEY (REUTERS) - A recent cooling of the Pacific Ocean has reduced the threat of an El Nino weather event developing this year, Australia's ...

Bureau of Meteorology to cut specialist aviation staff from Cairns office

The Cairns Post

THE public service union has described the axing of specialist staff from the Bureau of Meteorology's Cairns office as a “devastating” blow for the Far ...

Tropical Cyclone Oma: a near miss for Brisbane

Australian Journal of Emergency Management

April 2019 edition

In February 2019, Tropical Cyclone Oma caused alarm in South East Queensland as the Category 2 system tracked south and then west in the Coral Sea. Some forecasts suggested it could make landfall near Brisbane but eventually it tracked back out to sea. While people in the Brisbane area had a near miss, there are some interesting aspects of this event regarding its track, position and damage potential that are worth noting from a hazard mitigation perspective.

Comparing sources of weather prediction information in the aftermath of Cyclone Debbie

Australian Journal of Emergency Management

April 2019 edition

Abstract

Tropical Cyclone Debbie, a Category 4 cyclone, crossed Australia's coast in North Queensland on 28 March 2017. Over three days, the cyclone travelled south across Queensland weakening to a low-pressure weather system. The event caused significant flooding and damage to communities. Formal sources of information related to this event included the Bureau of Meteorology and emergency services providers as well as informal sources from state-based traditional media and social media sources of Twitter and websites. This paper is based on findings of a small study to identify the differences in weather prediction information between those formal and informal sources using the Cyclone Debbie major weather event, which invoked a disaster response. This paper identifies issues associated with the dissemination and reporting of weather-based information during emergencies. These include the language used in official sources that can confuse or downplay events, inconsistent reporting between authority and non-

official sources and the lack of locally based information used by non-traditional information providers.

Traditional or contemporary weather and climate forecasts: reaching Pacific communities

28 Mar 2019

Lynda Chambers, Siosinamele Lui, Roan Plotz, David Hiriasia, Philip Malsale, Rosslynn Pulehetoa-Mitiepo, Melinda Natapei, Noel Sanau, Mike Waiwai, Lloyd Tahani, Seluvaia Finaulahi, Falosita Loloa, 'Ofa Fa'anunu, Albert Willy

Regional Environmental Change

In most countries, weather and seasonal climate forecasts are available through national meteorological services (NMSs). However, uptake of NMS forecasts in remote Pacific communities can be limited, particularly those relating to expected impacts. To address this, NMSs need a clearer understanding of the types of information local communities currently use and how this information is received, to enable them to modify their products and their delivery to better meet community needs.

Structured community interviews across four Pacific countries (Niue, Solomon Islands, Tonga and Vanuatu) were undertaken by NMSs and their in-country partners. These interviews highlighted that remote communities mainly relied on weather and climate forecasts based on traditional knowledge (TK) alone or in combination with contemporary (NMS) forecasts. Many who had access to both forecasts systems indicated that they only sourced contemporary forecasts in the lead up to and during extreme events, particularly cyclones, to assist their decision-making.

Recent extreme events in the Pacific have shown that self-reliant communities, with knowledge of traditional ways of forecasting, and responding to climate extremes, experience several benefits including reduced social-economic disruption and lower than expected death rates, particularly when combined with contemporary warnings. Therefore, there is a need to better understand the role of local traditional knowledge-based forecasts and for NMSs to work towards improving the content and communication of their forecasts to enable communities to take advantage of all available forecast information. For effective risk reduction, warnings and responses should therefore complement contemporary forecasts, rather than replace, TK-based forecasts.

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

NiMet to build capacity for Liberian metrological services

Daily Trust (press release)

He said presently NiMet produces daily weather services to Sierra – Leone and Liberia and ... In his response, the leader of the students, Lemuel Kleeme, Deputy Director for Public Affairs, Ministry of Transport Republic of Liberia, ...

Extreme weather (and other news) – Americas and Europe

UK urged to spend £1 bln a year on flood defences as world warms

The UK needs more work to "help communities better understand their risk and give them more control about how to adapt and respond," says the environment agency head

International news and research

Met Office Publishes New Supercomputer Requirements, Inches Closer to Procurement

Computer Business Review

Eight months after the UK's Met Office announced that it was seeking a new supercomputer and began initial market engagement, it now has a ...

Baron announces new weather forecasting model

American Journal of Transportation

Huntsville, AL – Baron, the worldwide provider of critical weather intelligence, announces a new weather forecasting model available immediately in ...

A Revolution in Weather Forecasting: ClimaCell Launches CBAM, its NWP Platform, Taking ...

Yahoo Finance

With CBAM, ClimaCell is offering a new modeling capability that takes weather forecasting to the next level. CBAM takes traditional data sources, ...

Lawmakers look to improve forecasting technology

E&E News

Lawmakers at two separate hearings will hear from weather forecasting experts to determine the steps necessary to maintain U.S. dominance in the ...

Others

Foresight Signs Exclusive Distribution Agreement in Japan

Associated Press

According to the agreement, Cornes Technologies will have exclusive rights ... simulating obstacle detection in harsh weather and lighting conditions.

Understory Closes \$5.25M Series B Funding Round to Expand Global Deployment of Weather ...

SYS-CON Media (press release)

The Understory weather network has been used in several industries ... We are proud to be investing again in a company that is scaling innovation ...

Nodin Acquires Data Analytics Company, Will Expand Platform To Deliver Weather-Related ...

Yahoo Finance

"Weather plays an enormous role in the profitability of companies in industries ranging from retail to hospitality to construction. Understanding that ...

Aviation

Fear of flying: Why civil aviation shake-up will have airlines and airports nervous

New Zealand Herald

Released with little fanfare on Friday by Transport Minister Phil Twyford, the Civil Aviation Bill is seen as a once-in-a generation opportunity to get ...

Aviation Weather Forecasting Services Market is Likely to reach US\$ 426.1 million in coming Years

Industry Today (press release)

Stratview Research has launched a new research report on Aviation Weather Forecasting Services Market. Published on Aug,2018, this 250-page ...

Realising Australia's potential as a rocket-launch hub

The Strategist (blog)

Already New Zealand is slightly ahead in the small satellite field thanks to Rocket Lab's regular small-mass payload launches from its base on the ...

Business/Insurance

How Modeling Weather Forecasts Improves Business Decisions

Datanami

There's no denying that weather forecasts have gotten better, which has given millions of people and businesses the ability to make better plans.

Why Neutrogena tapped into weather conditions to sell more products

The Drum

The Johnson & Johnson-owned business sought the help of Verizon Media to sell more of its moisturiser range against the growing competition in ...

Communications/social media

Why people ignore severe weather warnings (or do they?)

The Weather Network

Wednesday, May 8th 2019, 10:00 am - Severe weather warnings are more accurate than ever. So why do people still die in storms?

Atlanta station redesigns WX graphics

NewscastStudio

Now, however, the weather graphics are flatter with gradients instead of the glassu elements and have also become angled. The five day forecast also ...

Meteorologists Worry 5G Expansion Could Interfere With Weather Forecasts

Wall Street Journal

The Trump Administration's swift-moving plan to promote 5G networks is running into resistance from the weather-forecasting community. The dispute ...

Why Meteorologists Worry 5G Networks Could Degrade Weather Forecasts

Forbes

Here's where the problem comes in for weather forecasting. ... This data is critical for weather forecasting, climate assessments, and hydrological ...

Energy and Mining

Cooler Asia Summer May Add to LNG Woes as World Awash With Gas

Bloomberg

Don't count on a summer heatwave to rescue Asia's liquefied natural gas prices. Weather forecasts signal lackluster demand in the largest importing ...

UK GAS-Prices slump as warmer weather returns

Reuters Africa

Gas system oversupplied by 30 million cubic meters (mcm) with demand ... “As weather conditions become warmer this week day-ahead LDZ (local ...

AI And Machine Learning for Better Energy Demand Response

Transmission & Distribution World

AI And Machine Learning for Better Energy Demand Response ... While reliable trends exist relating to energy spikes during extreme weather events ...

Lightning

Why lightning often strikes twice

Scientists have used the LOFAR radio telescope to study the development of lightning flashes in unprecedented detail. Their work reveals that the negative charges inside a thundercloud are not discharged all in a single flash, but are in part stored alongside the leader channel at interruptions, inside structures which the researchers have called needles. This may cause a repeated discharge to the ground.

The global aircraft lightning protection systems market is expected to grow from USD 4.13 billion ...

Market Research Gazette

On the basis of end user, the global aircraft lightning protection systems ... Italy, and Russia) and Asia-Pacific (China, Japan, India, and Australia).

Eight hurt in lightning

KHOTANG, May 13: Eight people were injured in a lightning coupled with hailstorm here on Sunday evening.

Those injured are Renuka Bista of Lafyang of Rupakot Majhuwagadhi municipality-5, Diktel; her daughters Januka Bista, Anusha Bista and son Abhishek Bista; Laxmi Katawal; Khem Kumari Katawal; Padam Kumari Katawal and Meena Katawal of the same locality.

Satellites and radar

Advanced radar systems installed in new Beijing airport

China.org.cn

A number of advanced Chinese radar systems have been set up at Beijing Daxing International Airport, offering faster and more accurate weather ...

Dozens of satellites could feed NOAA's future weather models

SpaceNews

This article originally appeared in the May 6, 2019 issue of SpaceNews magazine. The U.S. National Oceanic and Atmospheric Administration's future ...

Aeolus: Wind-mapping space laser is losing power

BBC News

Europe's Aeolus satellite was launched last year to gather data to improve weather forecasts, and its observations have unquestionably proved their ...

Transport/roading/shipping/freight

Navigating a Changing Climate survey on extreme weather events launched at IAPH Guangzhou ...

Hellenic Shipping News Worldwide

Navigating a Changing Climate survey on extreme weather events ... the right decision for their own business on dealing with extreme weather events.

Innovation and technologies (inc data and new products)

Starbucks taps Microsoft ML for weather, inventory-based order suggestions

CIO Dive

Starbucks is applying Microsoft Azure's reinforcement learning technology, a type of machine learning that uses feedback to "make decisions in ...

[A weather tech startup wants to do forecasts based on cell phone signals](#)

MIT Technology Review

One airline did better than most, however. Instead of relying on the usual weather forecasts, it listened to ClimaCell—a Boston-based “weather tech” ...

New Zealand Hydrological Society Conference

3-6 December / Rotorua

The conference theme is 'Water, above, below and beyond – Challenges facing civilisation'. This sets the scene for targeted papers that demonstrate our key relevance to society. Abstract submissions now open.

Journal and articles online

Quarterly Journal of the Royal Meteorological Society

[Early View](#)

Online Version of Record before inclusion in an issue

[The impact of spin-up and resolution on the representation of a clear convective boundary layer over London in order 100 m grid-length versions of the Met Office Unified Model](#)

Humphrey W. Lean, Janet F. Barlow, Christos H. Halios

Version of Record online: 03 May 2019

For a clear convective boundary-layer case over London, order 100 m grid-length versions of the MetUM are compared with observations. Analysis shows that a sufficiently large domain is needed for Horizontal Convective Rolls formed as a spin-up artefact at the domain boundary to develop into more realistic structures downstream. Comparing 100 and 50 m grid-length models shows that whilst convective structures are not completely resolved, bulk properties such as heat flux and boundary-layer depth are adequately simulated.

[Object-based verification metrics applied to the evaluation and weighting of convective-scale precipitation forecasts](#)

Laure Raynaud, Iseline Pechin, Philippe Arbogast, Lucie Rottner, Mayeul Destouches

Version of Record online: 02 May 2019

This paper presents an object-based evaluation of precipitation forecasts from the French deterministic and ensemble high-resolution models, using a novel object detection method. Object verification metrics are then used to objectively weight ensemble forecasts based on their performance at early forecast ranges. These weights are consistent with a subjective ranking and significantly improve forecast scores at very short ranges.

Inference of stochastic parametrizations for model error treatment using nested ensemble Kalman filters

Guillermo Scheffler, Juan Ruiz, Manuel Pulido

Version of Record online: 02 May 2019

We introduce a novel Bayesian approach based on hierarchical Kalman filters to infer stochastic parameters. The technique is proposed to be applied offline as part of an a priori optimization of the data assimilation system. Parameters that control the stochastic forcing variance and spatial covariances are successfully estimated. The identified stochastic parameters not only alleviate the analysis errors associated with unresolved processes, but they also optimize the ensemble spread.

Modelling spatially correlated observation errors in variational data assimilation using a diffusion operator on an unstructured mesh

Oliver Guillet, Anthony T. Weaver, Xavier Vasseur, Yann Michel, Serge Gratton, Selime Gürol

Version of Record online: 02 May 2019

This paper describes a method for representing spatially correlated observation errors in variational data assimilation. The method is based on the numerical solution of a diffusion equation. In order to account for the heterogeneous distribution of observations, a spatial discretization technique based on the finite element method is chosen where the observation locations are used to define the nodes on an unstructured mesh on which the diffusion equation is solved. By construction, the method leads to a convenient operator for the inverse of the observation-error correlation matrix. The method produces correlation structures that match well with theory, even in areas where there are large gaps in the data distribution.

Nonlinear latitudinal transfer of wave activity in the winter stratosphere

Richard K. Scott

Version of Record online: 29 April 2019

(a) Linear wave dynamics: a small amplitude wave on the vortex edge (top line) induces a perturbation on the tropical edge of the surf zone (lower line). The perturbation decays exponentially with the width of the surf zone and is linear in the sense that the response

amplitude varies linearly with the amplitude of the vortex wave and has the same zonal wavenumber. (b) Finite-amplitude effect: a large-amplitude wave on the vortex edge reduces the distance between vortex and subtropical edge locally, resulting in a local increase of response amplitude beyond linear scaling and an increase in the zonal wavenumber of the excited response

Comparison of the Moist Parcel-in-Cell (MPIC) model with large-eddy simulation for an idealized cloud

Steven J. Böing, David G. Dritschel, Douglas J. Parker, Alan M. Blyth

Version of Record online: 29 April 2019

A detailed comparison for a rising turbulent thermal is made between a new Lagrangian-based model of moist convection (MPIC) and an established large-eddy simulation model (MONC). General features of the flow evolution compare well and converge with increasing resolution. Differences occur mostly at small scales and are a result of the different representation of mixing, which is sensitive to resolution in both models. The origin of in-cloud air is studied using MPIC's internally consistent Lagrangian diagnostics.

Modification of the convective adjustment time-scale in the Kain–Fritsch eta scheme for the case of weakly forced deep convection over the Tibetan Plateau region

Chenghai Wang, Di Wu, Feimin Zhang

Version of Record online: 29 April 2019

General uncertainty for simulation of clouds and convective precipitation occurs in almost all models. This study proposes a new convective adjustment time-scale for the KF scheme at the high-resolution simulation. The modified convective adjustment time established a good relationship with simulated convective clouds characteristics over the Tibetan Plateau region.

Quarterly Journal of the Royal Meteorological Society

Accepted Articles

Accepted, unedited articles published online and citable. The final edited and typeset Version of Record will appear in the future.

Weak- and Strong-Friction Limits of Parcel Models: Comparisons and Stochastic Convective Initiation Time

G. Hernandez-Duenas, L. M. Smith, S. N. Stechmann

First Published: 02 May 2019

Impact of non-stationarity on hybrid ensemble filters: A study with a doubly stochastic advection-diffusion-decay model

Michael Tsyrlnikov, Alexander Rakitko

First Published: 02 May 2019

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Paul W. Miller, Thomas L. Mote, and Craig A. Ramseyer

An Analysis on Perturbation Features of Convection-Allowing Ensemble Prediction Based on the Local Breeding Growth Mode

Shenjia Ma, Chaohui Chen, Hongrang He, Jie Xiang, Shengjie Chen, Yi Li, Yongqiang Jiang, Dan Wu, and Hao Luo

Spread and Skill in Mixed- and Single-Physics Convection-Allowing Ensembles

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Verification of Two Years of CNR-ISAC Subseasonal Forecasts

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Using Weather Pattern Recognition to Classify and Predict Summertime Heavy Rainfall Occurrence over the Upper Nan River Basin, Northwestern Thailand

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Hong Guan, Yuejian Zhu, Eric Sinsky, Wei Li, Xiaqiong Zhou, Dingchen Hou, Christopher Melhauser, and Richard Wobus

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Validation of Satellite Observations of Storm Damage to Cropland with Digital Photographs

Kevin Gallo, Philip Schumacher, Josh Boustead, and Alex Ferguson

Estimating Tropical Cyclone Intensity by Satellite Imagery Utilizing Convolutional Neural Networks

Buo-Fu Chen, Boyo Chen, Hsuan-Tien Lin, and Russell L. Elsberry

Meteorological Applications

Early View

Online Version of Record before inclusion in an issue

Modelling long term monthly rainfall using geographical inputs: assessing heuristic and geostatistical models

Ozgur Kisi, Sahar Mohsenzadeh Karimi, Jalal Shiri, Ali Keshavarzi

Version of Record online: 02 May 2019

One of the primary sources of water as the most important element for life is rainfall. This factor as a hydro-climate variable is involved in identifying other climate indices. In the present study, heuristic data-driven models were compared with geostatistically based models for simulating long-term monthly rainfall values using geographical inputs.

Towards operational use of aircraft-derived observations: a case study at London Heathrow airport

Andrew K. Mirza, Susan P. Ballard, Sarah L. Dance, Gabriel G. Rooney, Edmund K. Stone

Version of Record online: 02 May 2019

Mode-Selective Enhanced Surveillance (Mode-S EHS) aircraft reports can be collected at a low cost and are readily available around busy airports. Using Mode-S EHS reports from multiple aircraft, vertical temperature profiles can be constructed. After applying a smoothing filter, the temperature variance between 3,000 and 1,000 m is between 1 and 2 K; below 1,000 m it is between 2 and 4 K. These profiles may be useful in operational meteorology for identifying elevated temperature inversions above 1,000 m.

Assessing the performance evaluation of different convective parameterization schemes in simulating the intensity of severe cyclonic storms over the Bay of Bengal region

Kuvar S. Singh, Bhishma Tyagi, Virendra K. Verma, Suman Maity

Version of Record online: 30 April 2019

(a) Tracks of cyclones analysed in the study; (b) the nested domain of the model with topography (in m)

Objective verification of global in-flight icing forecasts using satellite observations: Verification of WAFS icing forecasts using satellite observations

Rebecca L. Bowyer, Philip G. Gill

Version of Record online: 30 April 2019

An objective verification framework was developed to verify routinely icing potential forecasts using a satellite-derived icing potential product as a source of truth data. To allow a fair comparison, the multilevel forecasts are processed into a single field in order to replicate best the satellite observations. Using this framework verification results of the mean icing forecasts issued by WAFS London over a 12-month period show skill but significant over-forecasting of icing events.

Long-term stability of meteorological temperature sensors

Aleksandra Kowal, Andrea Merlone, Tymoteusz Sawiński

Version of Record online: 30 April 2019

Changes of the characteristic $\Delta t = f(t_{ref})$ of the thermometer HMP 155 over 30 months.

Meteorological Applications

Accepted Articles

Accepted, unedited articles published online and citable. The final edited and typeset Version of Record will appear in the future.

Collecting and Processing of Barometric Data from Smartphones for Potential Use in NWP Data Assimilation

K. S. Hintz, H. Vedel, E. Kaas

First Published: 01 May 2019

Weather

Early View

Online Version of Record before inclusion in an issue

How important are aerosol–fog interactions for the successful modelling of nocturnal radiation fog?

C. Poku, A. N. Ross, A. M. Blyth, A. A. Hill, J. D. Price

Version of Record online: 25 April 2019

Forecasting resuspended ash clouds in Iceland at the London VAAC

Krista Hammond, Frances Beckett

Pages: 167-171 | First Published: 04 December 2018

Volcanic ash deposits from past eruptions can be resuspended during strong winds, forming clouds of ash which are then transported downwind. The London Volcanic Ash Advisory Centre (VAAC), based at the Met Office UK, provides forecasts for resuspended ash clouds in southern Iceland. In this article we consider a significant resuspended ash event on 24 April 2017 which was exceptionally well observed in satellite imagery. We examine the meteorological observations and NWP data from the event, and identify specific synoptic conditions conducive to significant remobilisation of volcanic ash in southern Iceland. These criteria will help forecasters to predict resuspended ash events in the future.

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My latest WeatherEyes from John Maunder

<https://www.sunlive.co.nz/blogs/13306-tauranga-april-rainfalls-18982019.html>

<https://www.sunlive.co.nz/blogs/13322-tauranga-average-afternoon-temperatures-april-19132019.html>

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