

## New Zealand weather and climate news

*Clips courtesy of MetService library*

### **MetService**

#### **Weather eases after wild, wet weekend**

With an update on the bad weather is MetService spokesperson Mads Naeraa-Spiers.

<http://www.radionz.co.nz/national/programmes/morningreport/audio/2018653745/weather-eases-after-wild-wet-weekend>

#### **Roads remain shut as heavy rainfall causes floods, slips**

Coromandel Peninsula had the most rain over the weekend with 106.5 millimetres recorded up in the pinnacles, MetService meteorologist April Clark said.

<https://www.msn.com/en-nz/news/national/roads-remain-shut-as-heavy-rainfall-causes-floods-slips/ar-AAA6Pbm>

#### **Storm moves across North Island, flooding roads, cutting off most of the Coromandel Peninsula**

Meteorologist April Clark said "we can expect it to sink south in the afternoon" with Gisborne also under a heavy rain warning.

<http://www.stuff.co.nz/national/105495380/after-bringing-a-tree-down-on-an-auckland-home-storm-moves-south>

#### **Cleanup begins after wild weekend weather**

MetService meteorologist Melissa Oosterwijk said 85mm of rain fell in Whitiangi in just 18 hours yesterday. The region usually gets about 200mm of rain throughout the entire month of July

<http://www.newstalkzb.co.nz/news/national/cleanup-begins-after-wild-weekend-weather/>

#### **Weather: Flooding causes roads to close in Auckland; trees come down in wild weather**

MetService meteorologist Andrew James said exposed north-eastern areas were expected to bear the brunt of it today and could expect big rainfall numbers.

[https://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=12089228](https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12089228)

### **Tolaga Bay flooding damage may take two years to fix**

The Gisborne District Council says the damage done by last month's flooding could take more than two years to fix.

<http://www.radionz.co.nz/news/national/361865/tolaga-bay-flooding-damage-may-take-two-years-to-fix>

### **Tramper found dead in Nelson Lakes was tourist**

The body of a tourist who died in the Nelson Lakes National Park was found in snow near an alpine route, police said.

The man, whose name has not yet been released, had been on a solo trip in the Mt Robert range, near St Arnaud.

<https://www.stuff.co.nz/national/105497585/Tramper-found-dead-in-Nelson-Lakes-was-tourist>

### **Erosion sends Captain Cook memorial toppling into sea in Coromandel**

A Coromandel monument marking the visit of Captain Cook to New Zealand has fallen into the sea, highlighting the area's problems with erosion, a local says.

[https://www.nzherald.co.nz/climate-change/news/article.cfm?c\\_id=26&objectid=12089365&ref=rss](https://www.nzherald.co.nz/climate-change/news/article.cfm?c_id=26&objectid=12089365&ref=rss)

## **MetOcean**

### **Why understanding oceans is vital to economy, security**

Meteorologists and oceanographers still love to talk about the 2015-16 El Niño that wasn't.

It was the weather event that was meant to deliver California from the horrible drought that had afflicted the state for four years. Emergency officials braced for widespread flooding usually associated with El Niño as Eastern Pacific Ocean temperatures jumped nearly 4 degrees Fahrenheit in the months leading up to that winter, just as they had during the great El Niños of the past. It was supposed to be, as one researcher predicted, the "Godzilla" El Niño.

<http://www.sandiegouniontribune.com/opinion/commentary/sd-utbg-oceans-scripps-weather-leinen-20180713-story.html>

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

### **Icy weather set to continue across Gold Coast**

THE GOLD COAST has shivered through another chilly morning, and according to meteorologists it's here to stay for a few more days.

<https://www.goldcoastbulletin.com.au/news/gold-coast/icy-weather-set-to-continue-across-gold-coast/news-story/37e44fc8a9f19b22e77d0d32d86d717b>

### **NSW cold snap: temperatures plummet as parts of the state blanketed in frost**

New South Wales has been gripped by freezing conditions with some parts of the state dipping below -10 degrees Celsius and others experiencing their coldest temperatures in decades.

<http://www.abc.net.au/news/2018-07-15/temperatures-plummet-as-cold-snap-hits-nsw/9995858>

### **Vanuatu opens new centres to improve disaster coordination**

The Vanuatu government has opened two new Provincial Emergency Operations Centres as part of ongoing efforts to improve national disaster coordination.

<https://www.radionz.co.nz/international/pacific-news/361423/vanuatu-opens-new-centres-to-improve-disaster-coordination>

### **NIWA warns of 'water stress' to come**

The Cook Islands is at risk of a high level of "water stress" as a result of abnormally low rainfall predicted over the next three months, says New Zealand's National Institute of Water and Atmospheric Research (NIWA).

<http://www.cookislandsnews.com/national/weather/item/70029-niwa-warns-of-water-stress-to-come>

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

#### **Sudan gets partner to deal with extreme weather**

The government of Sudan and the African Risk Capacity (ARC) sign partnership intent to work together towards helping the country better prepare to efficiently deal with extreme weather events and natural disasters.

<http://newbusinessethiopia.com/sudan-gets-partner-to-deal-with-extreme-weather/>

## **Massive overhauling required for Pakistan's prevailing flood forecasting system**

International climate experts estimate Rs1.397 billion to refurbish PMD's operational facilities

–'Early warnings system for thunderstorms, floods, and flash floods ineffective without the overhauling'

<https://www.pakistantoday.com.pk/2018/07/11/massive-overhauling-required-for-pakistans-prevailing-flood-forecasting-system/>

## **Typhoon Son Tinh likely to emerge on Monday: Taiwan forecasters**

Second half of next week should bring more clarity

<https://www.taiwannews.com.tw/en/news/3482371>

## **Hundreds of homes destroyed as dike bursts amid melting snow in northern Afghanistan**

Melting snow is being blamed for triggering a dike to burst in northern Afghanistan on Wednesday night. The torrent of flood waters swept through numerous villages, destroying hundreds of homes and claiming lives.

<https://www.accuweather.com/en/weather-news/hundreds-of-homes-destroyed-as-dike-bursts-amid-melting-snow-in-northern-afghanistan/70005472>

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

'I've lost acres of strawberries to this weather' - Farmer says he's lost €200,000 worth of fruit in the recent conditions

While hot weather has been welcomed by many, it has meant havoc for fruit growers and, in particular, has had a hugely detrimental effect on a Wexford favourite – the strawberry.

<https://www.independent.ie/business/farming/tillage/ive-lost-acres-of-strawberries-to-this-weather-farmer-says-hes-lost-200000-worth-of-fruit-in-the-recent-conditions-37104048.html>

## **UK heatwave reveals long-hidden archaeological sites buried underground**

The heatwave that has gripped the United Kingdom in recent weeks has led to drought and parched fields across much of the nation.

<http://www.abc.net.au/news/2018-07-13/uk-heatwave-reveals-underground-ancient-sites-wales/9989502>

## **FEMA was ill-prepared for Maria's widespread devastation in Puerto Rico, report says**

Hurricane Maria made landfall in Puerto Rico on Sept. 20 as a Category 4 storm. The historic storm knocked out all of the island's electric power and most of its cellphone towers.

<https://www.accuweather.com/en/weather-news/fema-was-ill-prepared-for-marias-widespread-devastation-in-puerto-rico-report-says/70005485>

## **International news and research**

### **The world has never seen a Category 6 hurricane. But the day may be coming**

As a ferocious hurricane bears down on South Florida, water managers desperately lower canals in anticipation of 4 feet of rain

<http://www.sandiegouniontribune.com/news/nation-world/la-na-hurricane-strenth-20180707-story.html>

### **Study Finds Link Between River Outflow and Coastal Sea Level**

Sea levels in coastal areas can be affected by a number of factors: tides, winds, waves, and even barometric pressure all play a role in the ebb and flow of the ocean. For the first time, however, a new study led by the Woods Hole Oceanographic Institution (WHOI) has shown that river outflow could play a role in sea level change as well.

<https://www.ecomagazine.com/news/science/study-finds-link-between-river-outflow-and-coastal-sea-level>

### **Where River Meets Ocean: Study Reveals Productivity-Size Relationship of Estuaries**

Oceanographer uncovers the relationship between size and productivity in one of the world's most complex ecosystems

<https://www.ecomagazine.com/news/science/where-river-meets-ocean-study-reveals-productivity-size-relationship-of-estuaries>

### **NOAA Research Model Brings Severe Weather Into Focus**

NOAA's two primary short-range weather models received upgrades developed by NOAA researchers that will provide more accurate hazardous weather and aviation forecasts as they roll into operations (July 12) for the National Weather Service's Storm Prediction Center, other national forecast centers and local forecast offices across the country.

<http://www.weathernationtv.com/news/noaa-research-model-brings-severe-weather-focus/>

### **Curious Questions: Are weather forecasts really as bad as you think they are?**

Weather forecasters might not always get it right, but technology is making meteorology more of an exact science than it has ever been. The BBC's Philip Avery explains.

Read more at <https://www.countrylife.co.uk/nature/curious-questions-weather-forecasts-really-bad-think-181057#7YGOyB40kT1iY22K.99>

### **NZ's biggest firewood supplier's answer to help decrease winter heating bills**

New Zealand's biggest firewood supplier City Firewood wants to help change Cantabrians' habits so they get firewood cheaper and earlier in the year.

The Christchurch firewood company says people will save a lot more money if they buy their winter firewood next year from them between October and December.

<https://www.mscnewswire.co.nz/component/k2/item/15503-nz-s-biggest-firewood-supplier-s-answer-to-help-decrease-winter-heating-bills.html>

### **Meteorologist: "This Is The Hardest Season I've Ever Forecasted"**

It's easy to become frustrated when the weatherman's forecast doesn't materialize. Can you imagine being the guy who's trying to figure out the forecast? According to two meteorologists, atmospheric factors have made this growing season's weather particularly difficult to pin point.

<https://www.agweb.com/article/meteorologist-this-is-the-hardest-season-ive-ever-forecasted/>

### **Pea shortage predicted in Britain after hot weather spell**

A shortage of peas is feared in Britain as recent hot weather means they cannot form in their pods.

<https://www.telegraph.co.uk/news/2018/07/13/pea-shortage-predicted-britain-hot-weather-spell/>

## **WMO**

### **UN Security Council session on climate-related security risks**

Climate change – and the shortages of water and food that come from it – is becoming increasingly linked to conflict, a senior United Nations official told the Security Council on

Wednesday, warning that countries most vulnerable to drought and crop failure are also most vulnerable to conflict and fragility.

[Read more here](#)

## **Business development / commodities / infrastructure etc**

### **Understory Receives Patent to Manufacture Cost-Effective Weather Stations**

MADISON, Wis.--(BUSINESS WIRE)--Jul 12, 2018--[Understory](#), the weather network and analytics company, today announced that it received a patent for its cost-effective method of manufacturing weather stations. On the heels of its [mechanical strain-based](#) weather sensor patent, this second patent significantly lowers the costs of creating resilient weather sensors and positions Understory to radically alter the global weather sensing infrastructure.

[https://www.oaoa.com/news/business/article\\_8c71271e-9963-5f68-8034-22db61ec5519.html](https://www.oaoa.com/news/business/article_8c71271e-9963-5f68-8034-22db61ec5519.html)

### **Company tracking weather at ground level is named one of the most innovative agtech startups**

Madison weather network and analytics company Understory thinks it has found a way to save insurers money after storms.

<https://www.jsonline.com/story/money/business/2018/07/12/how-one-company-estimating-storm-damage-after-severe-weather/776435002/>

### **Norman business weather platform can save lives, dollars**

The ultimate “man versus nature” drama unfolded in real life recently, as an elite Thai naval SEAL squad of divers rescued 12 young soccer players and their coach from a cave in Thailand.

[Read more here](#)

## **Aviation**

### **New Zealand exports simulation technology to Lebanon**

Air traffic controllers in Lebanon will soon be training in a ‘real world’ air traffic environment using highly advanced simulation technology developed in New Zealand.

<http://www.scoop.co.nz/stories/BU1807/S00296/new-zealand-exports-simulation-technology-to-lebanon.htm>

## **Asian Aviation Meteorological Centre commences operation**

Hong Kong (HKSAR) - The Asian Aviation Meteorological Centre (AAMC), jointly established by the Hong Kong Observatory (HKO), the Civil Aviation Administration of China (CAAC) and the China Meteorological Administration (CMA), commenced operation today (July 11). The AAMC aims at providing meteorological organisations in the region and the aviation sector with quality en-route weather information, so as to meet industry needs and improve aviation safety and efficiency.

<http://7thspace.com/headlines/542414/asian-aviation-meteorological-centre-commences-operation.html>

## **Airlines prepare for flying in hotter temps as climate change brings more extreme heat**

The busiest air travel days of the year are usually in the summer, when extreme heat is becoming more frequent.

Thunderstorms are less predictable than snow storms, presenting a logistical challenge to airlines.

American's regional jets can now fly at higher temperatures after a 120-degree day last year grounded some flights in Phoenix.

<https://www.cnbc.com/2018/07/06/flying-the-summer-months-is-a-headache-for-airlines-and-passengers.html>

## **History**

### **Dozens of Otago goldminers died in ferocious storms of 1863**

Joseph Thompson's frozen body was found, a month after he had disappeared, with his legs sticking out of a snow drift.

[https://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=12086572](https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12086572)

## **Lightning**

### **More than a dozen soldiers hospitalized following lightning strike at Fort Jackson**

A lightning strike sent 15 soldiers to the hospital in Columbia, South Carolina, on Thursday. The National Weather Service in Columbia confirmed the strike hit near Fort Jackson during a training exercise.

<https://www.accuweather.com/en/weather-news/breaking-more-than-a-dozen-soldiers-hospitalized-following-lightning-strike-at-fort-jackson/70005480>

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

#### **Record number of cruise liners and passengers heading for Napier Port**

Hawke's Bay's population is set to temporarily double with a record number of cruise liners booked to visit the region - bringing in as many as 175,000 visitors.

[https://www.nzherald.co.nz/business/news/article.cfm?c\\_id=3&objectid=12086531](https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12086531)

### **Weather, ocean impacted on port's June throughput**

Storm-related road closures and troublesome wave patterns interrupted log loading at Eastland Port during June.

<http://gisborneherald.co.nz/localnews/3461895-135/weather-ocean-impacted-on-ports-june>

### **NTSB: Icing Led to Deadly Fishing Boat Sinking**

The National Transportation Safety Board has concluded that severe icing led to the sinking of the fishing vessel Destination in the Bering Sea last year, killing six fishermen on board.

The Destination disappeared with all hands on the morning of February 11, 2017, while under way from Dutch Harbor to St. Paul. Her EPIRB activated after 0600 hours and alerted the authorities to her sinking, but no mayday call was received. SAR units located her debris field and a sheen, but no sign of her six crewmembers. Her wreckage was later found just off St. George Island, about 200 nm northwest of Dutch Harbor.

<https://www.maritime-executive.com/article/ntsb-icing-led-to-deadly-fishing-boat-sinking#gs.eRDkaoQ>

### **Cyber security and IoT**

#### **AI welcome in NZ homes, but privacy remains prime concern: survey**

'Until there's more certainty and transparency around data, privacy, and security, technology adoption in the home will be challenged.'

[Read more here](#)

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

## **Poll: Few Kiwis think world will overcome climate challenge**

Kiwis overwhelmingly think New Zealand should take action on climate change even if other nations don't - and few believe humanity will do what's needed to escape the worst impacts.

[https://www.nzherald.co.nz/climate-change/news/article.cfm?c\\_id=26&objectid=12089410&ref=rss](https://www.nzherald.co.nz/climate-change/news/article.cfm?c_id=26&objectid=12089410&ref=rss)

## **Journals online**

### **Meteorological Applications**

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Volume 25, Issue 3 Pages i - iv, 337 - 492, July 2018

The latest issue of Meteorological Applications is available on [Wiley Online Library](#)

#### ISSUE INFORMATION

##### Issue Information (pages i–iv)

Version of Record online: 9 JUL 2018 | DOI: 10.1002/met.1697

#### RESEARCH ARTICLES

##### Performance of various techniques in estimating missing climatological data over snowbound mountainous areas of Karakoram Himalaya (pages 337–349)

Neha Kanda, H. S. Negi, Madhuri S. Rishi and M. S. Shekhar

Version of Record online: 29 NOV 2017 | DOI: 10.1002/met.1699

Filling data gaps in climate studies concerning snowbound mountainous areas is significantly important. This study evaluated the performance of seven classical methods in estimating missing values of maximum temperature, minimum temperature and precipitation on different time scales. The results reveal that multiple linear regression using the least absolute deviation criterion showed best estimations for all variables at all temporal scales except monthly precipitation data. It was also found that, for any variable, the estimates were more biased for smaller time scales.

##### Influence of parameterization of soil processes on numerical forecasts of vertical profiles of air potential temperature (pages 350–356)

Grzegorz Duniec and Andrzej Mazur

Version of Record online: 24 NOV 2017 | DOI: 10.1002/met.1701

In order to improve the quality of numerical weather prediction, existing parameterizations of soil processes should be significantly improved. This research was focused on the case of 'bare soil'. The influence of the changed parameterization of water flux through the soil on forecasts of vertical profiles of potential temperature for the dry and moist cases is presented.

[Locally weighted scatter-plot smoothing for analysing temperature changes and patterns in Australia \(pages 357–364\)](#)

Wandee Wanishsakpong and Khairil Anwar Notodiputro

Version of Record online: 24 NOV 2017 | DOI: 10.1002/met.1702

The positions of 88 stations included in this study with the percentage missing data for each station.

[Nowcasting algorithm for wind fields using ensemble forecasting and aircraft flight data \(pages 365–375\)](#)

Ryota Kikuchi, Takashi Misaka, Shigeru Obayashi, Hamaki Inokuchi, Hiroshi Oikawa and Akeo Misumi

Version of Record online: 1 DEC 2017 | DOI: 10.1002/met.1704

This study proposes an algorithm that combines ensemble weather forecasting and aircraft flight data as a wind nowcasting system for safe and efficient aircraft operation. It uses an ensemble-weighted average method based on sequential importance sampling (SIS), which is a particle filter method used for forecasting the wind field in real time. The total forecast performance of the overall wind speed field was improved using the proposed method in comparison with the simple ensemble average, and the proposed method was low for computational cost and useful for nowcasting.

Figure. Forecast results of wind speed at an altitude of 10 000 m during the evaluation period, colour counter: wind speed – (a) results by simple ensemble average and (b) results by the proposed method.

[Influence of moisture source and sink regions on northeast monsoon rainfall \(pages 376–383\)](#)

P. Suneetha, P. Latha, S. Ramalingeswara Rao and O. S. R. U. Bhanu Kumar

Version of Record online: 11 DEC 2017 | DOI: 10.1002/met.1705

Meteorological subdivisions of the study.

[Assessing hydrological impacts of climate change using bias-corrected downscaled precipitation in Mae Klong basin of Thailand \(pages 384–393\)](#)

Devesh Sharma and Mukand S. Babel

Version of Record online: 14 DEC 2017 | DOI: 10.1002/met.1706

Location map of Mae Klong River basin with two reservoirs, Vajiralongkorn and Srinagarind.

Developing an MCS index using the climatology of South America (pages 394–405)

Gustavo Rasera, Vagner Anabor, Franciano Scremin Puhales and Everson Dal Piva

Version of Record online: 6 DEC 2017 | DOI: 10.1002/met.1707

This paper evaluated a new mesoscale convective system (MCS) index developed for South America (SA-MCS index). It was used in the Climate Forecast System Reanalysis (CFSR) product for 115 MCS that occurred over six years. The SA-MCS index predicted more than twice as many MCS at a distance of less than 1° from the point of maximum intensity of the index when compared with the existing index.

The high-impact 2007 hot summer over Turkey: atmospheric-blocking and heat-wave episodes (pages 406–413)

Meral Demirtaş

Version of Record online: 1 FEB 2018 | DOI: 10.1002/met.1708

The 2007 summer was extraordinary in Turkey: with the country experiencing a very hot summer, which resulted in temperatures having surpassed 40 °C in many places, and numerous places setting all-time maximum temperature records and suffering destructive fires. The June–July heat waves (HWs) affected mainly the west of Turkey. The June HW episode was more intense, but the July HW episode was extensive spatiotemporally. Both episodes were accompanied by two major atmospheric-blocking episodes. (a) Duration of HW, June 2007; (b) number of HWs, June 2007; (c) HW intensity (°C), June 2007; (d) as in (a), but for July 2007; (e) as in (b), but for July 2007; and (f) as in (c), but for July 2007.

Downscaling the contribution to uncertainty in climate-change assessments: representative concentration pathway (RCP) scenarios for the South Alborz Range, Iran (pages 414–422)

M. Mirdashtvan, A. Najafinejad, A. Malekian and A. Sa'doddin

Version of Record online: 11 DEC 2017 | DOI: 10.1002/met.1709

The potential future impacts of climate change lead to more natural hazards such as frequent wildfires, longer periods of droughts and more intense storms. Owing to their great effects on both predictions and decision-making, climate-change assessments and their uncertainty analysis can help managers to enhance preparedness and adaptation strategies in order to mitigate the consequences of natural hazards.

Estimation of the liquid water content and Z–LWC relationship using Ka-band cloud radar and a microwave radiometer (pages 423–434)

Su-Bin Oh, Yong Hee Lee, Jong-Hoon Jeong, Yeon-Hee Kim and Sangwon Joo

Version of Record online: 12 JAN 2018 | DOI: 10.1002/met.1710

(a) Ka-band cloud radar and (b) layout for instruments of the Boseong National Center for Intensive Observation of Severe Weather (NCIO). MRR, micro rain radar; GNSS, global navigation satellite system; AWS, automatic weather station.

An overview of the micrometeorological field campaign at Santa Maria, Southern Brazil: the Pampa-2016 experiment (pages 435–444)

Gervásio Annes Degrazia, Umberto Rizza, Michel Stefanello, Silvana Maldaner, Debora Regina Roberti, Luis Gustavo Nogueira Martins, Vagner Anabor, Franciano Scremin Puhales, Everson Dal Piva, Otavio Costa Acevedo, Hans Rogério Zimmermann and Cláudio Alberto Teichrieb  
Version of Record online: 6 MAR 2018 | DOI: 10.1002/met.1711

Experimental site in Santa Maria, RS, Brazil; the triangle shows the approximate location of the meteorological tower.

Long-term spatiotemporal trend analysis of precipitation and temperature over Turkey (pages 445–455)

Sinan Jasim Hadi and Mustafa Tombul  
Version of Record online: 6 MAR 2018 | DOI: 10.1002/met.1712

The precipitation in most of Turkey has an insignificant increasing trend. The temperature has a significant increasing trend over Turkey. The winter season has a decreasing precipitation trend and summer has an increasing temperature trend.

Modelling weather risk preferences with multi-criteria decision analysis for an aerospace vehicle launch (pages 456–465)

Amaury Caruzzo, Mischel Carmen Neyra Belderrain, Gilberto Fisch, George S. Young, Christopher J. Hanlon and Johannes Verlinde  
Version of Record online: 6 MAR 2018 | DOI: 10.1002/met.1713

The model proposed captures a decision maker's attitude related to three meteorological information attributes: probability, lead-time and the values of variables. The findings validate the existence of motivational risk-decision-making biases related to weather/climate issues. The application of the index brings a new perspective in weather-related decisions once the decision maker's preferences about the trade-offs between probability and lead-time are considered.

Hazardous weather conditions and multiple-vehicle chain-reaction crashes in the United States (pages 466–471)

David A. Call, Caleb S. Wilson and Kacie N. Shourd  
Version of Record online: 8 MAR 2018 | DOI: 10.1002/met.1714

Locations of multi-vehicle chain-reaction crashes, 2001–2012. (No multi-vehicle chain-reaction crashes occurred in the states of Alaska or Hawaii.) Just under 80% of crashes occurred on interstate or other limited-access divided highways.

Fine-scale analysis of a severe hailstorm using crowd-sourced and conventional observations (pages 472–492)

Matthew R. Clark, Jonathan D. C. Webb and Peter J. Kirk  
Version of Record online: 30 APR 2018 | DOI: 10.1002/met.1715

Data from privately owned automatic weather stations (AWSs) are used to construct high-resolution, gridded-surface analyses near a severe hailstorm. Data were filtered and corrected by comparison with nearby Met Office AWS data. Following the application of a time-compositing technique, corrected data were interpolated onto a regular grid. The gridded analyses resolved surface wind and pressure features on the storm scale. The realism of features was assessed by comparison with radar data and with reference to conceptual models of severe thunderstorms.

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**Monthly Weather Review - Volume: 146, Number: 7 (July 2018)**

REVIEW

Rossby Wave Packets on the Midlatitude Waveguide—A Review

Volkmar Wirth, Michael Riemer, Edmund K. M. Chang, and Olivia Martius

ARTICLES

Microphysical Properties and Radar Polarimetric Features within a Warm Front

S. Ch. Keppas, J. Crosier, T. W. Choularton, and K. N. Bower

A Three-Dimensional Scale-Adaptive Turbulent Kinetic Energy Scheme in the WRF-ARW Model

Xu Zhang, Jian-Wen Bao, Baode Chen, and Evelyn D. Grell

Effect of a High-Order Filter on a Cubed-Sphere Spectral Element Dynamical Core

Hyun-Gyu Kang and Hyeong-Bin Cheong

Application of Multivariate Sensitivity Analysis Techniques to AGCM-Simulated Tropical Cyclones

Fei He, Derek J. Posselt, Naveen N. Narisetty, Colin M. Zarzycki, and Vijayan N. Nair

A Global Climatology of Tropical Cyclone Eyes

Kenneth R. Knapp, Christopher S. Velden, and Anthony J. Wimmers

Analysis of the 16 May 2015 Tipton, Oklahoma, EF-3 Tornado at High Spatiotemporal Resolution Using the Atmospheric Imaging Radar

Andrew Mahre, James M. Kurdzo, David J. Bodine, Casey B. Griffin, Robert D. Palmer, and Tian-You Yu

Correcting Storm Displacement Errors in Ensembles Using the Feature Alignment Technique (FAT)

Derek R. Stratman, Corey K. Potvin, and Louis J. Wicker

Kinematics and Microphysics of Convection in the Outer Rainband of Typhoon Nida (2016) Revealed by Polarimetric Radar

Dan Wu, Kun Zhao, Matthew R. Kumjian, Xiaomin Chen, Hao Huang, Mingjun Wang, Anthony C. Didlake, Yihong Duan, and Fuqing Zhang

Size-Resolved Evaluation of Simulated Deep Tropical Convection

Fabian Senf, Daniel Klocke, and Matthias Brueck

Life Cycle Effects on the Vertical Structure of Precipitation in East China Measured by Himawari-8 and GPM DPR

Aoqi Zhang and Yunfei Fu

Influences of Orography and Coastal Geometry on a Transverse-Mode Sea-Effect Snowstorm over Hokkaido Island, Japan

Leah S. Campbell, W. James Steenburgh, Yaoshinori Yamada, Masayuki Kawashima, and Yasushi Fujiyoshi

A Study of the HWRF Analysis and Forecast Impact of Realistically Simulated CYGNSS Observations Assimilated as Scalar Wind Speeds and as VAM Wind Vectors

Bachir Annane, Brian McNoldy, S. Mark Leidner, Ross Hoffman, Robert Atlas, and Sharanya J. Majumdar

Potential of Voronoi Diagram for the Conserved Remapping of Precipitation

Ki-Hwan Kim, Eun-Hee Lee, and Song-You Hong

First Application of the Local Ensemble Tangent Linear Model (LETLM) to a Realistic Model of the Global Atmosphere

Sergey Frolov, Douglas R. Allen, Craig H. Bishop, Rolf Langland, Karl W. Hoppel, and David D. Kuhl

Using High-Resolution Simulations to Quantify Errors in Radar Estimates of Tornado Intensity

Nathan A. Dahl and David S. Nolan

Composite Impact of Global Hawk Unmanned Aircraft Dropwindsondes on Tropical Cyclone Analyses and Forecasts

Hui Christophersen, Altug Aksoy, Jason Dunion, and Sim Aberson

A New Look at the Identification of Low-Level Jets in South America

Maurício I. Oliveira, Ernani L. Nascimento, and Carolina Kannenberg

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**Sunspots and the Maunder Minimum Revisited**

Note: the last 16 days have been SPOTLESS!!

<https://www.sunlive.co.nz/blogs/12302-sunspots-and-maunder-minimum-revisited.html>

Thanks to our contributors.