MetSociety SPRING newsletter is available

click on https://www.metsoc.org.nz/app/uploads/2018/10/154_201809.pdf (5MB)

New Zealand weather and climate news

Courtesy of MetService Library

MetService

Sunny weather across most of the country to mark the start of daylight saving, MetService says

The first weekend of daylight saving is looking bright as MetService predicts balmy weather across most of the country.

https://www.stuff.co.nz/national/107475691/sunny-weather-across-most-of-the-country-to-mark-the-start-of-daylight-saving-metservice-says

Avalanches keep Milford Rd closed

The Milford Road will remain closed for another day due to avalanches in the area.

Forecast heavy rain on snow meant State Highway 94 was shut on Saturday as the risk of avalanche was high.

https://www.odt.co.nz/regions/avalanches-keep-milford-rd-closed

Heavy rain about western parts of New Zealand with scattered showers expected in other areas

It will be a mostly fine day for most parts of the country but there was a risk of a shower or two for most areas, MetService meteorologist Sarah Haddon said.

https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12134697

Extreme weather (and other news) – Australia and Pacific

Liua is South Pacific's first cyclone in September for 70 years

Cyclone Liua is the first cyclone to form in the south-west Pacific in the month of September for nearly 70 years.

https://www.radionz.co.nz/international/pacific-news/367412/liua-is-south-pacific-s-first-cyclone-in-september-for-70-years

Australia weather office downgrades Tropical Cyclone Liua

The Australian Bureau of Meteorology has downgraded Tropical Cyclone Liua to a subtropical system.

The Fiji Met Service says it had crossed into waters under Australia's watch overnight as a Cyclone but was later reclassified.

https://www.radionz.co.nz/international/pacific-news/367546/australia-weather-office-downgrades-tropical-cyclone-liua

Trust Me, I'm An Expert: Australia's extreme weather

It's easy to write off Australia's extreme weather as business as usual. We deal with floods, droughts, cyclones and other wild events every year. But as climate change raises global temperatures, are the droughts happening more often? Are the floods getting worse?

Read more here

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

India gears up for cyclone season, possibility of storm in Arabian Sea soon

Southwest Monsoon 2018 has begun its journey of withdrawal from West Rajasthan, setting in pace for post-Monsoon cyclone season in the country.

Sea surface temperatures (SST), both in Arabian Sea and Bay of Bengal, have been on rise for last many days. According to Skymet Weather, whenever the sun is over the equator, the heat potential of the ocean rises phenomenally. This eventually leads to increase in SSTs, which is highly conducive for formation of a cyclonic storms.

- See more at: https://www.skymetweather.com/content/weather-news-and-analysis/india-gears-up-for-cyclone-season-possibility-of-storm-in-arabian-sea-soon/#sthash.QdgBZfFD.dpuf

Typhoon bears down on Japan, areas hit by previous storm

A powerful typhoon is ripping through Japan and authorities were warning people to brace for heavy winds and rain in areas that include those devastated by a previous storm.

https://www.stuff.co.nz/world/asia/107493137/typhoon-bears-down-on-japan-areas-hit-by-previous-storm

Extreme weather (and other news) – Americas and Europe

Powerful 'Medicane' Storm Strikes Greece; Three People Missing

Greek authorities say three people are missing from the island of Evia.

The Mediterranian storm moved past the southwestern tip of the Peloponnese Saturday, with winds clocked at 55 mph.

Before arriving in Greece, the storm caused severe flooding in Nabeul, Tunisia, where at least 4 people died.

https://weather.com/news/news/2018-09-29-storm-medicane-greece-turkey-tunisia

UK Met Office Chooses Cray AI Solution to Unlock Business Value From Weather Data

Weather Center to Use Cray Urika-XC AI and Analytics Software to Develop Tailored Forecasts and Specialized Commercial Weather Products

https://www.nasdaq.com/press-release/uk-met-office-chooses-cray-ai-solution-to-unlock-business-value-from-weather-data-20180926-00623

International news and research

Is the National Weather Service a Competitor to the Private Weather Sector?

There are two questions I'm often asked by friends, acquaintances, and even colleagues in the weather industry: “Is the U.S. National Weather Service a competitor of WDT?” and “What does a private weather company like WDT do?” To the first question, I respond that WDT is not a competitor to the NWS, nor are other private weather companies, although a few may act like they are. The second question requires a longer answer and is one that I start to explore in this blog.

https://blog.weatherops.com/is-the-national-weather-service-a-competitor-to-the-private-weather-sector#.W6FR0uyphMc.linkedin

‘Exceptionally rare’ tropical cyclone baffles experts

IN WHAT has been labelled an ‘exceptionally rare’ occurrence by Australian weather experts for this time of year, a tropical cyclone has formed in Fijian waters overnight.

https://www.couriermail.com.au/news/queensland/weather/exceptionally-rare-tropical-cyclone-baffles-experts/news-story/293acab20054ee3fbf070ff7dddaa3a0

Nat’l Weather Service: Florence was unique in many respects

It didn’t just defy a model, it defied history’

WILMINGTON -- If history was any indication, Hurricane Florence should have never reached the Cape Fear region.

Two weeks after the devastating storm, meteorologists and climatologists are still studying Florence to understand what made it such a unique storm that left forecasters to rely on other resources to predict it approach.

http://www.starnewsonline.com/news/20180929/natl-weather-service-florence-was-unique-in-many-respects

Florence was the wettest storm in more than half a century, behind Harvey

NWS: 'One in a thousand year rainfall event'

https://www.channel3000.com/weather/florence-was-wettest-storm-in-over-50-years-behind-harvey/799746734

WMO

Minsk to host WMO workshops on 2-4 October

MINSK, 27 September (BelTA) – Minsk will host workshops on World Meteorological Organization (WMO) Integrated Global Observing System and the Aircraft Meteorological Data Relay on 2-4 October, BelTA learned from the Belarusian National Center for Hydrometeorology, Radioactive Pollution Control and Environmental Monitoring (Belgidromet) at the Belarusian Natural Resources and Environmental Protection Ministry.
Read full text at: http://eng.belta.by/society/view/minsk-to-host-wmo-workshops-on-2-4-october-115180-2018/

CMA consults with countries from SCO on FY-2 satellite service needs - China Meteorological Administration

On September 25, participants from Shanghai Cooperation Organization (SCO) countries, World Meteorological Organization (WMO), and Asia-Pacific Space Cooperation Organization (APSCO) gathered in China Meteorological Administration (CMA), Beijing to discuss in terms

of FY-2 satellite data reception, product application, and technical exchanges needs.
Read more here

Arctic sea ice minimum continues long-term decline

Arctic sea ice has probably reached its annual minimum for 2018, according to the National Snow and Ice Data Center (NSIDC). Sea ice extent dipped to 1.77 million square miles (4.59 million square kilometers) on September 19, and again on September 23. After that, ice extent began to rise, signalling an end to the summer melt season.

Read more here

Climate change is moving faster than we are: UN Secretary-General

The world has reached a "pivotal moment" and must change course in the next two years or risk runaway climate change, UN Secretary-General António Guterres told the General Assembly.

Read more here

Devastating tropical cyclones Florence and Mangkhut raise renewed questions about climate change

Two of the most dangerous tropical cyclones this year have made landfall, with devastating impacts. Hurricane Florence caused life-threatening storm surge, torrential rainfall and prolonged flooding to the southeast coast of USA. Typhoon Mangkhut in the western North Pacific, the most intense tropical cyclone this year, brought the equivalent of category 5 winds to the northern Philippines before heading to China. Accurate advance warnings and coordinated action with disaster management authorities helped limit the loss of life.

Read more here

Afghanistan hails new, improved hydrometerological service

A WMO-led project to establish a functioning hydrometeorological service in Afghanistan to improve early warnings and provide accessible and accurate weather forecasts to increase resilience has "achieved more than anyone could imagine," according to an Afghan government minister.

Read more here

Business development / commodities / infrastructure etc

Britain's AA profit hit by extreme weather on road to recovery

(Reuters) - Britain's AA (AAAA.L) said on Wednesday extreme weather had raised its costs and hit first-half core profit, hindering the roadside recovery and insurance group's strategic revamp.

https://uk.reuters.com/article/uk-aa-results/road-weather-woes-hurt-breakdown-service-aas-first-half-earnings-idUKKCN1M60M4?il=0

Planalytics Partners with The NPD Group to Provide Weather-Driven Demand Analytics to Retailers and Consumer Brands

PHILADELPHIA--(BUSINESS WIRE)--Sep 26, 2018--Planalytics Inc. has partnered with The NPD Group to provide consumer-focused businesses with valuable insights into how the weather affects demand for specific products. Planalytics can now apply its weather impact modeling technologies to NPD's point-of-sale (POS) data from retailers to provide companies with much-needed visibility into how a key critical external variable influences sales.

https://www.tullahomanews.com/news/business/planalytics-partners-with-the-npd-group-to-provide-weather-driven/article_073e24c3-e5d0-59ee-8ff0-f1ac3469ff38.html

Subway boosts foot traffic 31% by targeting ads based on weather patterns

The Subway sandwich chain boosted store traffic 31% by changing its ads to correspond with weather shifts. The company used artificial intelligence (AI) technology developed by International Business Machines called Weatherfx Footfall with Watson, a real-time signal-based targeting tool, to create dynamic ads for a foot-long sandwich promotion based on weather patterns, per an announcement. The chain also leveraged IBM's MetroPulse platform, which provides insights about neighborhood demographics.

https://www.mobilemarketer.com/news/subway-boosts-foot-traffic-31-by-targeting-ads-based-on-weather-patterns/533233/

Why companies blame their problems on the weather

Chief executives duck difficult questions by complaining about snow, rain and heat

https://www.ft.com/content/5e314316-c2fb-11e8-95b1-d36dfef1b89a

Destructive weather prompting corporate rethink on ignoring costs of climate change

'We ... need to think about how to build resilience,' economist says

https://www.cbc.ca/news/business/climate-change-costs-1.4833281

Aviation

Web-based weather tool created for AOPA Fly-In

Pilots setting their course for the AOPA Fly-In at Carbondale, Illinois, presented by Southern Illinois University Aviation, Oct. 5 and 6 can get a head start on their weather awareness using a web-based tool created especially for the event by the FAA's Kansas City Air Route Traffic Control Center and the National Weather Service.

https://www.aopa.org/news-and-media/all-news/2018/september/25/web-based-weather-tool-created-for-aopa-fly-in

The New Rules of Weather for Aviation Ground Operations

Operations managers in all categories of aviation, from commercial, to charter, to business, face huge challenges with the weather. Traditional weather tools don't always provide the most accurate information about the weather around airports which can lead to unnecessary cancellations or delays, and even safety risks.

http://aviationweek.com/knowledge-center/new-rules-weather-aviation-ground-operations

Energy and Mining

Impact of dam projects on the Mekong

Southeast Asia is experiencing an unprecedented hydropower boom – causing destruction to the livelihoods of fishing communities, endangered species and the ecosystem of the Mekong River, writes Andreas Neef.

https://www.asiamediacentre.org.nz/opinion/lao-dam-break-and-southeast-asias-hydropower-ambitions-andreas-neef/?utm_source=AsiaDigest30&utm_medium=email

Climate change / global warming / sea level rise

Northern Swedish cities see the effects of climate change more than anywhere else in Europe

An analysis of over 100 million data points shows that Sweden's average temperature is increasing, with the most dramatic changes in the northern cities.

Melting glaciers and humus soils in the drinking water are just some of the effects of climate change already recorded in Sweden's most northerly cities. A new analysis by the European Centre for Medium-Range Weather Forecasts (ECMWF) gives alarming figures: all of Europe's major cities are warmer than they were 100 years ago, and five of the ten cities where temperatures have risen the most are Swedish.

https://www.thelocal.se/20180926/swedens-northernmost-cities-are-getting-warmer-at-a-faster-rate-than-the-rest-of-europe

Financing climate futures - rethinking infrastructure

Synthesis and key messages for high-level discussion: New York, 25 September 2018

25 Sep 2018

OECD, United Nations Environment Programme, World Bank

OECD

This report lays out the agenda for a low-emission, resilient transformation that requires action across six key transformative areas, which should be articulated with respect to country contexts, and resource endowments and capacities: planning, budgeting, innovation, finance, development and cities.

Report Key findings

Journal and articles online

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.

Evaluation and Statistical Downscaling of East Asian Summer Monsoon Forecasting in BCC and MOHC Seasonal Prediction Systems

Ying Liu, Hong-Li Ren, Adam A. Scaife, Chaofan Li

First Published: 19 September 2018

Seasonal Forecast Skill for Extra-tropical Cyclones and Windstorms

D.J. Befort, S. Wild, J.R. Knight, J. F. Lockwood, H.E. Thornton, L. Hermanson, P. E. Bett, A. Weisheimer, G.C. Leckebusch

First Published: 19 September 2018

Meteorological Applications

Accepted Articles

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

Clustering of Rainfall Stations and Distinguishing Influential Factors using PCA and HCA Techniques over Western Dry Region of India

Deepesh Machiwal, Sanjay Kumar, H.M. Meena, P. Santra, R.K. Singh, D.V. Singh

First Published: 28 September 2018

Application of Multigrid Three-Dimensional Variation Method to a Combination of Aircraft Observations and Bogus Data for Typhoon Nida (2016)

Yudong Gao, Hui Xiao, Pak Wai Chan, Kai kwong Hon, Qilin Wan, Weiyu Ding

First Published: 28 September 2018

Higher contributions of uncertainty from global climate models than crop models in maize yield simulations under climate change

Yi Zhang, Yanxia Zhao, Liping Feng

First Published: 28 September 2018

Performance of twelve reference evapotranspiration estimation methods to Penman–Monteith method and the potential influences in northeast China

Xinyi Song, Fan Lu, Weihua Xiao, Kui Zhu, Yuyan Zhou, Zibo Xie

First Published: 28 September 2018

Estimation of Tropical Cyclone Intensity and Location over the north Indian Ocean - a challenge

S. D. Kotal, S. K. Bhattacharya, S.K. Roy Bhowmik

First Published: 27 September 2018

Calculating and communicating ensemble-based volcanic ash dosage and concentration risk for aviation

Andrew T. Prata, Helen F. Dacre, Emma A. Irvine, Eric Mathieu, Keith P. Shine, Rory J. Clarkson

First Published: 27 September 2018

Connection between mean sea level pressure in the North Atlantic for September, the AMO phase and mean temperature in Central Europe for December (1896-2015)

György Babolcsai, Tamás Hirsch

First Published: 27 September 2018

Investigation of various aerosols over different locations in South Africa using satellite, model simulation and LIDAR

Lerato Shikwambana, Venkataraman Sivakumar

First Published: 27 September 2018

How significant is sub-daily variability of rainfall for hydrological modeling of floods? – A satellite based approach to sub-daily downscaling of gauged rainfall

Pallav Kumar Shrestha, Sangam Shrestha, Sarawut Ninsawat

First Published: 27 September 2018

Modelling adverse meteorological conditions for aircraft arising from airflow over complex terrain

Jenny Stocker, David Carruthers, Kate Johnson, Julian Hunt, PW Chan

First Published: 26 September 2018

An experimental method for the evaluation of snow albedo effect on near surface air temperature measurements

Chiara Musacchio, Graziano Coppa, Andrea Merlone

First Published: 26 September 2018

Customization of WRF-ARW Model over Singapore Region: Impact of PBL Schemes, Land Use, Land Cover and Model Horizontal Grid Resolution

Srikanth Madala, Santo V. Salinas, Jun Wang, Soo Chin Liew

First Published: 26 September 2018

Consequence of meteorological factors on floods' formation in selected river catchments of Lithuania

Vytautas Akstinas, Diana Meilutyte-Lukauskiene, Jurate Kriauciuniene

First Published: 26 September 2018

Rainfall Asymmetries of Landfalling Tropical Cyclones along the South China Coast

Kelvin T. F. Chan, Johnny C. L. Chan, Wai Kin Wong

First Published: 26 September 2018

Evaluation of neuro-fuzzy technique in estimating pan evaporation values in low-altitude locations

Jalal Shiri

First Published: 26 September 2018

The effect of weather patterns on winter small city UHIs

Danijel Ivajnšič, Igor Žiberna

First Published: 26 September 2018

An objective verification system for Thunderstorm Risk forecasts

Katie Brown, Piers Buchanan

First Published: 25 September 2018

Quantifying the impact of global warming on precipitation patterns in India

Anoop Kumar Mishra

First Published: 25 September 2018

Predicting Major Peach Yield Reductions in the Midwest and Southeast U.S.

Steven E. A. Chun, David Changnon

First Published: 25 September 2018

Rocket emissions representation in atmospheric air quality models: the Short-Range atmospheric transport and reaction of gases released by solid propellant engines

Daniel Schuch, Gilberto Fisch

First Published: 25 September 2018

Impact of high resolution SST on tropical cyclone characteristics over Bay of Bengal using model simulations

Deepika Rai, S Pattnaik, P. V. Rajesh, Vivekanand Hazra

First Published: 24 September 2018

On Statistical Nowcasting of Road Surface Temperature

Zhicong Yin, Jasmina Hadzimustafic, Alexander Kann, Yong Wang

First Published: 23 September 2018

The algorithmic detection of pulse thunderstorms within a large, mostly nonsevere sample

Paul W. Miller, Thomas L. Mote

First Published: 23 September 2018

Flip-Flop Index: Quantifying Revision Stability for Fixed Event Forecasts

Deryn Griffiths, Michael Foley, Ioanna Ioannou, Tennessee Leeuwenburg

First Published: 23 September 2018

Global Positioning System precipitable water vapor (GPS-PWV) jumps before intense rain events: A potential application to nowcasting

Luiz F. Sapucci, Luiz A. T. Machado, Eniuce Menezes de Souza, Thamiris B. Campos

First Published: 23 September 2018

Correction to Beaufort estimated wind speed over the Tropical Indian Ocean

Kameshwari Nunna, T. V. S Udaya Bhaskar, E Pattabhi Rama Rao, J. V. S Raju

First Published: 23 September 2018

Wind Energy Assessment over Andhra Pradesh and Telangana Regions

G. Ch. Satyanarayana, R. H. Lucy Supriya, D. V. Bhaskar Rao

First Published: 23 September 2018

Impact of data assimilation and air-sea flux parameterization schemes on prediction of cyclone Phailin over Bay of Bengal using WRF-ARW model

K. S. Singh, Bhishma Tyagi

First Published: 23 September 2018

Solid Snowfall Rate Estimation Using a C-Band Radar

Diar Hassan, Peter A. Taylor, George A. Isaac

First Published: 23 September 2018

Investigating changes in cloud cover using long term record of precipitation extremes

Anoop Kumar Mishra

First Published: 23 September 2018

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NATURE Climate Change Magazine October 2018

TABLE OF CONTENTS

October 2018 Volume 8, Issue 10

Editorial

Correspondence

Comment

Books & Arts

Research Highlights

Loss of sea-ice algae p854
Graham Simpkins
doi:10.1038/s41558-018-0303-x

Pacific oxygen changes p854
Bronwyn Wake
doi:10.1038/s41558-018-0302-y

News & Views

A risk-seeking future pp855 - 856
Greer Gosnell
doi:10.1038/s41558-018-0281-z

Valuing climate damages at the country level pp856 - 857
Frances C. Moore
doi:10.1038/s41558-018-0285-8

Atmospheric rivers melt Greenland pp857 - 858
William Neff
doi:10.1038/s41558-018-0297-4

Fast microbes regulate slow soil feedbacks pp859 - 860
Elise Pendall
doi:10.1038/s41558-018-0291-x

Perspectives

Sequencing to ratchet up climate policy stringency pp861 - 867
Michael Pahle, Dallas Burtraw, Christian Flachsland, Nina Kelsey, Eric Biber et al.
doi:10.1038/s41558-018-0287-6

Meeting the Paris Agreement climate goals requires increasingly ambitious climate policy. A framework for ratcheting up stringency through policy sequencing is proposed and illustrated using the cases of Germany and California, USA.

Letters

Rapid coastal deoxygenation due to ocean circulation shift in the northwest Atlantic pp868 - 872
Mariona Claret, Eric D. Galbraith, Jaime B. Palter, Daniele Bianchi, Katja Fennel et al.
doi:10.1038/s41558-018-0263-1

Global ocean oxygen concentrations have been declining, with rates varying regionally. The retreat of the Labrador Current, allowing more low-oxygen subtropical waters to the coastal and shelf waters, drives the rapid decline observed in the northwest Atlantic Ocean.

Differential vulnerability to climate change yields novel deep-reef communities pp873 - 878
Martin Pierre Marzloff, Eric C. J. Oliver, Neville S. Barrett, Neil J. Holbrook, Lainey James et al.
doi:10.1038/s41558-018-0278-7

Deep reefs and their inhabitants are diverse, but environmental change, in particular warming, will cause these reefs found along southeastern Australia to tropicalize with different responses across functional groups, resulting in novel communities by the 2060s.

Rapid change in East Antarctic terrestrial vegetation in response to regional drying pp879 - 884
Sharon A. Robinson, Diana H. King, Jessica Bramley-Alves, Melinda J. Waterman, Michael B. Ashcroft et al.
doi:10.1038/s41558-018-0280-0

Vegetation in the Windmill Islands, East Antarctica, is changing rapidly in response to a drying climate. Mosses provide potentially important indicators of coastal climate change in the region.\

Microbial temperature sensitivity and biomass change explain soil carbon loss with warming pp885 - 889
Tom W. N. Walker, Christina Kaiser, Florian Strasser, Craig W. Herbold, Niki I. W. Leblans et al.
doi:10.1038/s41558-018-0259-x

Soil microbial activity is accelerated by warming and does not acclimate over periods of at least 50 years. Resulting soil carbon loss is nevertheless temporary because substrate depletion reduces microbial biomass and constrains the influence of microbes over the ecosystem.

Articles

High-risk high-reward investments to mitigate climate change pp890 - 894
Talbot M. Andrews, Andrew W. Delton & Reuben Kline
doi:10.1038/s41558-018-0266-y

In economic games, players shift to riskier contributions when targets that prevent catastrophic losses cannot be met otherwise, suggesting people are willing to invest in riskier technology when more certain options will not be sufficient to mitigate climate change.

Country-level social cost of carbon pp895 - 900
Katharine Ricke, Laurent Drouet, Ken Caldeira & Massimo Tavoni
doi:10.1038/s41558-018-0282-y

Global estimates of the economic impacts of CO2 emissions may obscure regional heterogeneities. A modular framework for estimating the country-level social cost of carbon shows consistently unequal country-level costs.

Low clouds link equilibrium climate sensitivity to hydrological sensitivity pp901 - 906
Masahiro Watanabe, Youichi Kamae, Hideo Shiogama, Anthony M. DeAngelis & Kentaroh Suzuki
doi:10.1038/s41558-018-0272-0

The connections between global mean temperature and precipitation responses to CO2 doubling (equilibrium climate and hydrological sensitivity) are driven through low-cloud responses to surface warming, according to MIROC5 perturbation experiments.

Latitudinal limits to the predicted increase of the peatland carbon sink with warming pp907 - 913
Angela V. Gallego-Sala, Dan J. Charman, Simon Brewer, Susan E. Page, I. Colin Prentice et al.
doi:10.1038/s41558-018-0271-1

Analysis of peatland carbon accumulation over the last millennium and its association with global-scale climate space indicates an ongoing carbon sink into the future, but with decreasing strength as conditions warm.

Reconciling global-model estimates and country reporting of anthropogenic forest CO2 sinks pp914 - 920
Giacomo Grassi, Jo House, Werner A. Kurz, Alessandro Cescatti, Richard A. Houghton et al.
doi:10.1038/s41558-018-0283-x

The model–inventory discrepancy in net land-use carbon emissions mainly results from conceptual differences in estimating anthropogenic forest sinks. A revised disaggregation of global land model results allows greater comparability with inventories.

Amendments & Corrections

Author Correction: A re-examination of the projected subtropical precipitation decline p921
Jie He & Brian J. Soden
doi:10.1038/s41558-018-0265-z

Author Correction: Climate–carbon cycle uncertainties and the Paris Agreement p921
P. B. Holden, N. R. Edwards, A. Ridgwell, R. D. Wilkinson, K. Fraedrich et al.
doi:10.1038/s41558-018-0235-5

Author Correction: Achieving a climate justice pathway to 1.5 °C p921
Mary Robinson & Tara Shine
doi:10.1038/s41558-018-0270-2

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Thanks to MetService for supplying these clips