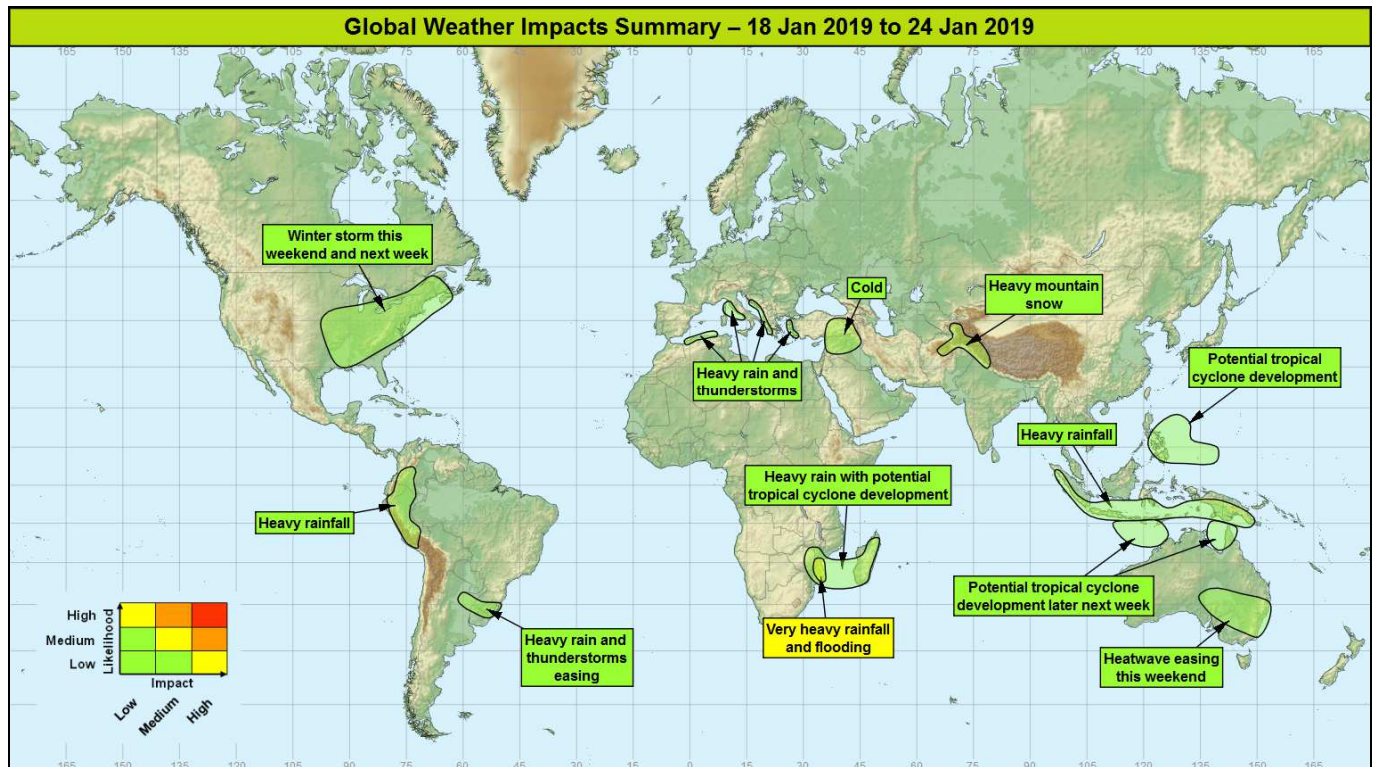


## Global Weather Impacts – Friday 18<sup>th</sup> to Thursday 24<sup>th</sup> January 2019

Issued on Friday 18<sup>th</sup> January 2019

### HEADLINES

- Heavy rainfall with a risk of flooding across southern Mozambique.
- Potential for the development of a tropical storm in the Philippine Sea.
- Major winter storm likely to affect central and eastern USA this weekend.



### DISCUSSION

#### Tropical Cyclones

There are currently no named tropical cyclones. The following areas are being monitored:

#### Northwest Pacific (Southern Philippines, Palau and Yap Islands)

##### Weather

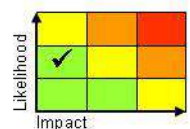
Disorganised heavy shower and thunderstorm activity in the western Pacific Ocean continues to move west and may redevelop into a tropical depression over the next few days as it moves towards the southern Philippines. Irrespective of development, frequent showers and thunderstorms are likely to produce locally 100-200mm of rain in 24 hours.

##### Discussion

The area of convection near Yap Island continues to move slowly westward and gradually develop in an environment with low to moderate vertical wind shear and very warm sea surface temperatures. There remains some uncertainty in the intensity and track forecast with the GM continuing to develop a more potent system offshore from the Philippines compared to other centres which allow a weaker system to move west across the southern islands.

##### Expected Impacts

The elevated risk of flash flooding for Yap and Palau will decrease over the weekend. Stronger winds and heavy rain will affect the southern Philippines over the weekend and early next week which will increase the likelihood of flash flooding here, along with potential for damage to property and crops. This region of the Philippines was adversely impacted in late December by the system that went on to become Tropical Storm Pabuk.



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## Mozambique Channel (Madagascar and Mozambique)

### **Weather**

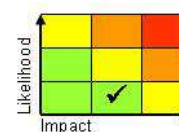
There is a low probability of a tropical cyclone developing within a broader region of frequent heavy shower and thunderstorm activity affecting Madagascar, Mozambique and Zimbabwe over the next week. Should a tropical cyclone develop, it would bring strong winds to some coastal areas in the Mozambique Channel, in addition to the heavy rainfall already affecting this region (see *Africa* section).

### **Discussion**

A low level circulation is currently located over the Mozambique coast but is likely to move offshore over the next couple of days where the environment is supportive of gradual development. However, vertical wind shear may hinder this process as well as the advection of drier air into the region later in the period.

### **Expected Impacts**

In addition to the ongoing heavy rainfall, strong winds may cause some disruption to shipping through the Mozambique Channel. Should the system impinge on land, it could exacerbate damage of property and infrastructure more than rainfall impacts alone.



## Timor Sea and Gulf of Carpentaria (Northern Australia)

### **Weather**

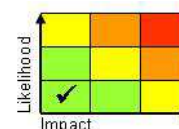
There is a low likelihood of one or more tropical cyclones developing through the second half of next week, most likely in the Timor Sea. Irrespective of development, above average rainfall is expected to affect Far North Queensland, Christmas Island, southern Indonesia and Timor Leste.

### **Discussion**

A pair of equatorial Rossby waves moving slowly westward may become foci for development, enhanced by the arrival of the MJO across the region later next week. Both GEFS and EC EPS highlight a low to moderate risk of tropical cyclone development.

### **Expected Impacts**

Localised flash flooding and strong winds affecting coastal areas of the Gulf of Carpentaria and Timor Sea should a tropical cyclone development.



## Europe

### Eastern Adriatic and Aegean coastlines, northern Algeria and western Italy

### **Weather**

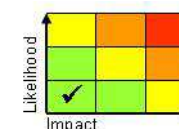
Unsettled conditions that have affected the eastern Mediterranean over recent weeks are expected to migrate into the central Mediterranean over the coming week bringing spells of heavy rain and thunderstorms. The heaviest rainfall is expected to be in coastal and mountainous areas of western Turkey, northern Algeria and the Adriatic and Tyrrhenian Seas. These are likely to produce localised rainfall accumulations of 50 to 100 mm over a few hours, falling as snow on higher ground.

### **Discussion**

A slight retrogression in the hemispheric pattern has resulted in a westward shift in the storm track across the Mediterranean. Instead, systems are now tracking across the central Mediterranean with the heaviest rainfall affecting windward coastal regions and mountain chains.

### **Expected Impacts**

Localised flash flooding leading to damage to property and infrastructure. Some temporary transport disruption is also possible. Further snowfall over mountains is expected to maintain an increased risk of avalanches.



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## North America

### Central and eastern USA and southeast Canada

#### **Weather**

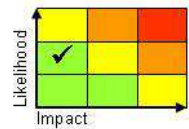
A major winter storm is expected to develop over the weekend. Heavy snow will begin on Friday night over the Central Plains and then progress eastward over the weekend with the heaviest snowfall expected from northern Ohio to New England (including Boston) where widely 30-60 cm of snow is expected. Major cities such as Chicago, Washington DC, Philadelphia and New York are likely to receive smaller amounts (up to 15 cm). Some areas will likely see freezing rain for a time, particularly across Ohio, the central Appalachian Mountains and parts of New York where up to 5mm of ice is possible. In the milder air to the south, heavy rain is expected to affect many southern and eastern states, with locally severe thunderstorms affecting the Gulf Coast. Another winter storm is likely to affect a similar region from Tuesday night through to Thursday with further disruptive snow, ice and rain impacts possible.

#### **Discussion**

The residual frontal plume that brought the latest spell of heavy rain to California on Thursday will be engaged by an upper trough extending southeast across the Rockies. The resultant area of low pressure is expected to track east-northeast with a very strong temperature gradient developing along it. This will result in an expanding envelope of precipitation containing a mixture of phases (snow, ice pellets, freezing rain and rain). There remains some small differences in the track of the low, with a sharp gradient in snowfall accumulations across populous parts of the Northeast Corridor (Washington DC to New York).

#### **Expected Impacts**

Significant transport disruption is expected this weekend across the northeast USA with difficult travel conditions expected across parts of the Plains, Great Lakes, Ohio Valley and northeast USA. Snow and ice on trees and power lines is likely to result in power disruption and make roads and pavements very slippery. Heavy rain may cause some localised flash flooding and damage to property and infrastructure, most likely across portions of the Tennessee and Ohio Valleys.



### Central America and Caribbean

Nil significant.

## South America

### Northern Argentina, far south of Brazil and northern Uruguay

#### **Weather**

The last of a protracted spell of severe thunderstorms and heavy rain events across this region is expected on Friday before much drier conditions develop over the weekend and into next week. As seen in recent days, severe thunderstorms will be capable of producing very heavy rainfall in a short period of time, large hail, strong winds and tornadoes. Localised accumulations of 100-200mm in a few hours is expected.

#### **Discussion**

Successive rounds of severe deep convection have developed along the boundary of the seasonal warm plume by a number of shortwave upper troughs. This has resulted in several days of MCS/MCC and supercell development recently. However, the northwards advance of a cold front will bring some relief to the region from this weekend.

#### **Expected Impacts**

Over the past 30 days, much of this region has seen over 300% of normal rainfall for this period, with locally 500% being recorded resulting in elevated river levels and saturated ground. Therefore, further rainfall is likely to result in a much higher likelihood of flooding, landslides, damage to property, infrastructure and crops. Large hail, lightning and strong winds can also cause some localised damage and disruption to travel.



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## Western Colombia, Ecuador and Peru

### **Weather**

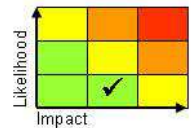
Above average rainfall in association with frequent showers and thunderstorms is expected through the next week. As seen in recent days, localised accumulations of 50-100mm of rain can be expected in a few hours, with many areas seeing 200-300mm of rain by the middle of next week. This is expected to equate to close to the January average in places.

### **Discussion**

In line with the developing El Niño, the southeasterly trade winds in the southeast Pacific are weaker than usual, this prevents the upwelling of cold water along the coastline and allows the build up of warm Pacific waters along the coastline (currently positive SST anomalies of 2 to 4°C). These weaker trades allow heating of the South American Continent to setup strong sea breezes along the coastline, drawing in this moist low-level air and allowing heavy showers and thunderstorms to form over the Andes, and also in the usually very dry areas to the west of the mountains.

### **Expected Impacts**

Increased likelihood of flash flooding and landslides from heavy rainfall.



## Africa

Algeria – See *Europe* section.

## Southern Mozambique, eastern Zimbabwe and Madagascar

### **Weather**

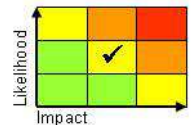
An area of low pressure in the Mozambique Channel is acting to enhance seasonal shower and thunderstorm activity across the region. There is some uncertainty in the development of this feature (see *Tropical Cyclones* section) and the impact this has on the distribution of the heaviest rainfall. However, some locations (most likely parts of southern Mozambique) are expected to receive a further 300-500mm of rain over the next week. Elsewhere, many places are likely to receive a further 100mm of rainfall. This is in addition to the 100-200, locally 350 mm of rainfall that has fallen in the past 7 days. As context, most of this region should typically receive around 100-200mm of rainfall over the course of January, with 300-400mm over northern Madagascar. Shower and thunderstorm activity should gradually decrease through next week.

### **Discussion**

Recent model runs have trended away from the low level circulation moving inland and has consequently altered the distribution of heavy rainfall across the region, tending to focus it around coastal areas of the Mozambique Channel rather than extending inland across continental Africa. As a result, this limits the severity of impacts as rivers have greater capacity and a fewer number of communities are affected.

### **Expected Impacts**

Flash flooding and an increased risk of river flooding, particularly in southern Mozambique where rainfall has already been significantly above average over the past week. Heavy rain in addition to large hail, frequent lightning and strong winds are likely to cause some damage to property, crops and infrastructure.



## Middle East

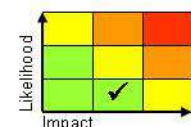
## Eastern Turkey, Lebanon, Syria and northern Iraq

### **Weather**

Below average temperatures have become established across the region with widespread frost expected overnight away from coastal areas over the weekend and early next week. Temperatures will gradually recover to nearer normal through next week.

### **Discussion**

An incursion of low WBPT airmass is now becoming slow-moving under a developing anticyclone across the region. With clearer skies and decreasing winds, this will lead to some low overnight minima before in-situ heating allows temperatures to recover to nearer normal from the west during early next week.



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## Expected Impacts

Adverse health impacts on vulnerable populations exposed to below average temperatures.

### Asia

**Southern Philippines, Indonesia, Timor-Leste, Palau and Yap Islands** – See *Tropical Cyclones* section.

### **Much of Indonesia and Papua New Guinea**

#### **Weather**

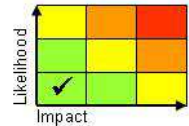
Seasonal rainfall is expected to be more intense and widespread than is usual over the next week. Up to 100 mm of rain could fall in a few hours, combined with locally strong winds or the odd tornado. Rainfall totals of up to 300 mm could accumulate in places which is equivalent to around the average January rainfall in this region.

#### **Discussion**

A combination of a Kelvin wave recently moving through the region, a strengthening cross-equatorial northerly and an emerging active MJO phase in the Indian Ocean has resulted in and will maintain enhanced seasonal rainfall through the coming week.

#### **Expected Impacts**

Localised flash flooding with some wind damage possible near severe thunderstorms. With the wet season progressing, there will be an increasing threat of landslides and river flooding as soil becomes increasingly saturated.



### **Afghanistan, Tajikistan, southern Turkmenistan, northern Pakistan and northwest India**

#### **Weather**

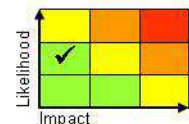
A further spell of snow is expected to affect Afghanistan, Tajikistan, southern Turkmenistan and northern Pakistan until Monday. Whilst snow will ease across much of this area next week, further snow is expected to affect northern Pakistan and northwest India. Many places are likely to see a further 20-40 cm of snow, with isolated accumulations of a metre or more over western Tajikistan and later the Kashmir region of Pakistan and India. Once drier conditions follow, cold overnight temperatures are expected to become widespread, with minima as low as -20°C possible.

#### **Discussion**

A mobile westerly pattern will extend eastward into southwest Asia through the coming week, engaging a series of high WBPT plumes. This will lead to widespread snow on the abundant elevated topography of the region.

#### **Expected Impacts**

This follows another snowfall event last week affecting a similar region. Fresh snowfall is expected to disrupt air and land-based transport networks in the region whilst power supplies could be interrupted. Cold temperatures may also have adverse impacts on human and animal health. Given the mountainous nature of these regions, there will also be an increased likelihood of avalanches.



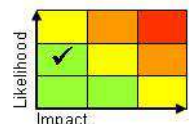
### **Australasia**

**Northern Australia** – See *Tropical Cyclones* section.

### **Southeast Australia**

#### **Weather**

The historic heatwave that has affected much of southern and eastern Australia continues, although cooler conditions have now become established across Victoria and much of South Australia. This change will extend to southern and central New South Wales on Saturday but the above average temperatures are expected to linger across northeast South Australia and remainder of New South Wales before temperatures begin to rise again further south through next week. On Thursday night, a new all-time Australian overnight heat record was recorded in Noona, NSW with a minimum temperatures of 35.9°C. Accompanying the change in cooler temperatures are scattered, locally severe thunderstorms that could produce damaging wind gusts, frequent lightning and large hail.



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**Discussion**

High temperatures are not unusual for Australia in the last decade. The Bureau of Meteorology recently announced that 2018 was the 3<sup>rd</sup> warmest year on record. These heatwaves tend to develop over NW Australia, where the town of Marble Bar has now exceeded 41 °C for a month, then spread south and east across the interior, then on to affect the more populous areas of southeastern Australia.

**Expected Impacts**

Extreme heat can impact the health of the more vulnerable people and can adversely impact on the availability of water and the power network. High temperatures can also damage transport networks, including the melting of tarmac and buckling of railway tracks. The heat, combined with prolonged dry weather will also lead to an increased risk of wildfires.

**Additional information**

Nil.

**Issued at:** 180805 UTC    **Meteorologist:** Matthew Lewis

**Global Guidance Unit**

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