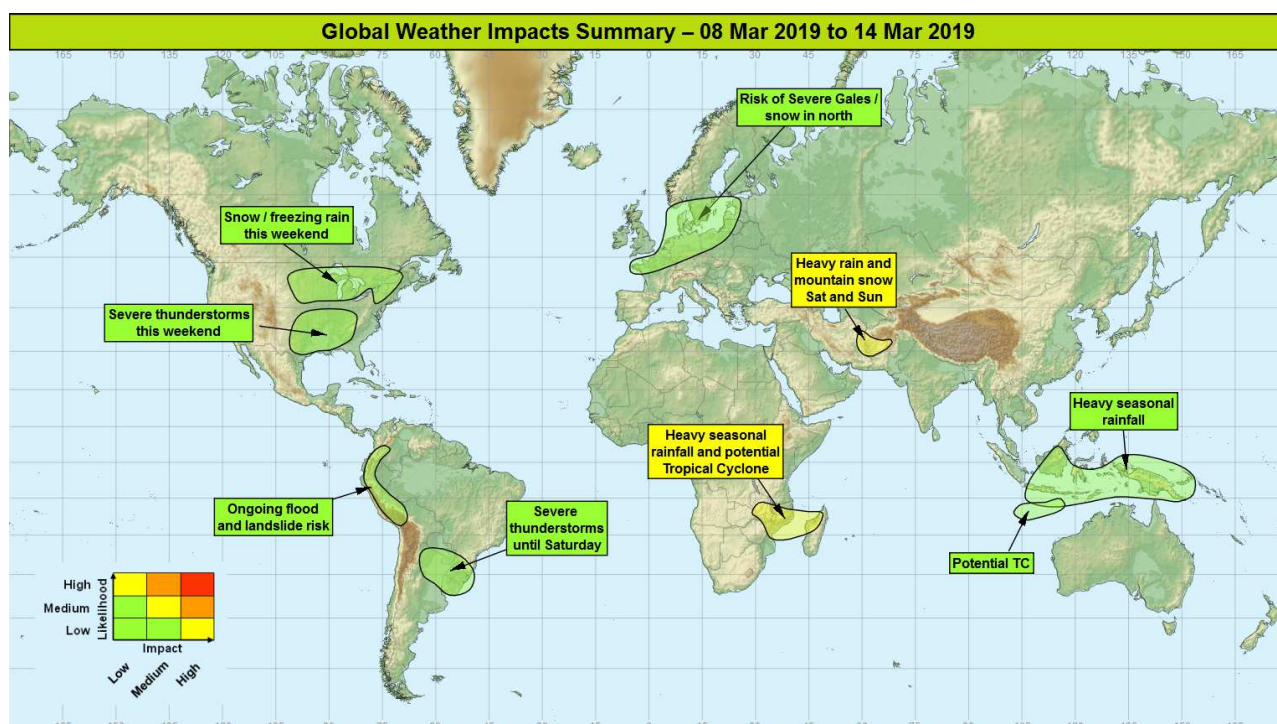


## Global Weather Impacts – Friday 8<sup>th</sup> to Thursday 14<sup>th</sup> March 2019

Issued on Friday 8<sup>th</sup> March 2019

### HEADLINES

- Further heavy rainfall across parts of Iran, Afghanistan and Pakistan.
- Torrential rainfall and a risk of tropical cyclone formation for south-eastern Africa.
- Severe thunderstorms likely across the southern USA this weekend.
- Gales or severe gales likely to affect the near continent at times this week.



### DISCUSSION

#### Tropical Cyclones

There are presently no named tropical cyclones globally, Haleh (Southern Indian Ocean) having now undergone extra-tropical transition.

#### These following areas are being monitored for Tropical Cyclone development

Mozambique Channel – See *Africa* section.

#### Timor Sea Weather

There is a growing signal from models for a development to occur in the Timor Sea, most likely early next week. At this stage any development is likely to remain well away from any land through this period.

#### Discussion

An area of enhanced convection is evident on imagery to the south of Java. As the MJO moves into the Maritime Continent (phase 4) and spawns equatorial Rossby waves in its wake, there will be an increased likelihood of TC development in this region, most likely early next week. Models differ as to where this is most likely to occur however, although EC and GFS do have a degree of agreement in producing a system which emerges into the eastern Indian Ocean early next week, but all models are in consistent in keeping developments over open water.

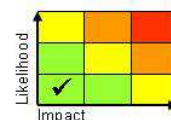
#### Expected Impacts

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None as any development looks likely to remain over open water.

## Europe

### North-western Europe

#### **Weather**

Unsettled weather is likely to affect much of north-western Europe through the coming week as developing areas of low pressure track eastwards. These are likely to produce gales or severe gales on their southern flank, while to the north where they encounter cold air some snow is likely, mainly across southern Scandinavia.

#### **Discussion**

Although there is a lot of uncertainty in the development of individual systems, there is a good signal for a period of unsettled and potentially very windy weather across much of the near continent. The uncertainty relates to frontal waves which may cross to the cold side of the powerful jet and undergo cyclogenesis, with the potential for some very potent lows to form. Differences from model to model and run to run are unlikely to resolve themselves until relatively short lead times.

#### **Expected Impacts**

The main impacts are likely to be wind related, so disruption to travel, especially aviation and marine seems likely. There is a lesser risk of disruption to power supplies from fallen trees. Some further snowfall may bring some disruption to parts of southern Scandinavia.



## North America

### South-eastern USA

#### **Weather**

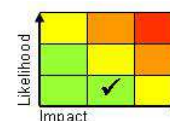
There is the potential for severe thunderstorms to break out in this region over the weekend. These could produce 50 to 100 mm of rainfall in a short period, large hail, frequent lightning and a risk of tornadoes. After a quieter interlude at the start of next week, further storms could form toward the middle of next week.

#### **Discussion**

This weekend an upper trough will move in off the Pacific, sharpening as it crosses the Rockies and drawing north a plume of warm, moist air from the Gulf of Mexico. This interaction leads to cyclogenesis with the system then moving northeast across the Great Lakes and into SE Canada. It's within the warm sector to the southeast of the low there is the potential for severe thunderstorms to break out in the Deep South, with indices suggestive of the potential for some tornadoes to form.

#### **Expected Impacts**

Heavy rain may result in some urban and river flooding, frequent lightning may disrupt power supplies, large hail damage crops and property, with a risk of greater disruption (albeit on a very localised scale) if any significant tornadoes form.



### Northern plains and Great Lakes, NE USA and SE Canada.

#### **Weather**

The developing low described in the section above will push an area of snow and freezing rain northeast through this region over the weekend, with largely dry conditions prevailing by Monday. Some areas in this zone may see an additional 20-30cm of snow fall.

#### **Discussion**

On the northern flank of the low formed by the cyclogenesis event described in the previous section precipitation bearing clouds will overrun cold low level air that has been in place across this region for much of the past week. This will result as precipitation falling as snow and freezing rain over a fairly broad region which includes many major population centres.

#### **Expected Impacts**

Snowfall, strong winds and freezing rain will likely disrupt road, rail and air travel in the region. There is a risk that accretion of snow and ice on trees and power lines may lead to some short term outages.



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## Central America and Caribbean

Nil significant.

## South America

### Northern Andes region (Southern Colombia, Ecuador, Peru and Bolivia)

#### **Weather**

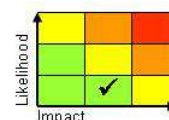
Further heavy showers and thunderstorms are expected to affect the northern Andes region for the rest of this week. The heaviest rainfall expected to be across Ecuador and Peru. Here, rainfall accumulations will vary by location due to the showery nature of the rainfall, but some places could a further 200-300 mm of rain over the next week.

#### **Discussion**

Along the Pacific coastline north of NE Peru there are positive SST anomalies, and these indicate a weakening of trade winds and the Humboldt Current in this region. This setup allows sea breezes to draw moist oceanic air to the usually dry western Andes, with an unusually high frequency of heavy showers and thunderstorms occurring here.

#### **Expected Impacts**

Flash flooding and landslides remain an ongoing threat in the mountainous areas, as well as downstream river flooding. With much of this region now preconditioned by previous rainfall, further heavy rain will produce some additional impacts. There has already been significant damage to infrastructure from flooding, with homes, bridges and roads destroyed.



### Northern Argentina, Uruguay, Paraguay and southern Brazil

#### **Weather**

Frequent showers and thunderstorms, at times organised and severe, are expected to affect the region until Saturday, with activity then easing as it moves away to the north. Thunderstorms will produce strong winds, large hail and a risk of tornadoes. During this period, some locations are likely to receive 200-300 mm of rainfall, often falling in short periods. This would represent around double the normal monthly rainfall for some locations.

#### **Discussion**

A number of disturbances embedded within the subtropical jet are expected to lead to several episodes of severe convection along the South Atlantic Convergence Zone (SACZ). This round of severe convection will ease from the south as a marked cold front moves north and brings more benign conditions by the end of the week. Ahead of the cold front the environment will often be characterised by high CAPE and shear, supporting mesoscale convective systems and supercells.

#### **Expected Impacts**

Severe thunderstorms are not unusual in this part of the world at this time of year but rainfall anomalies since the end of December have exceeded 200% in the far northeast of Argentina, across Uruguay and in the far south of Brazil. Further heavy rainfall is likely to lead to flash flooding and increased risk of landslides. Severe thunderstorms will also cause some highly localised but potentially significant property and infrastructure impacts due to strong winds, hail and lightning damage.



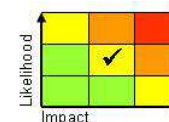
## Africa

### Mozambique, Malawi, southern Tanzania and Zambia

#### **Weather**

Showers and thunderstorms are expected to remain frequent, heavy and widespread across the region, with these being focussed by a shallow depression. The heaviest rainfall is expected to affect central Mozambique and perhaps southern Malawi. It is possible that some locations may receive in excess of 500 mm of rainfall during this period which is equivalent to around what normally falls over 4-6 weeks, although the exact location of the heaviest rainfall remains uncertain. Over the weekend the depression is signalled to move out into the Mozambique Channel and potentially develop into a tropical cyclone.

#### **Discussion**



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Progression of the MJO through Phase 3 into Phase 4 favours enhanced rainfall in this region, this rainfall has also been aided by an Equatorial Rossby Wave (ERW) that has recently crossed Madagascar and is now interacting with the monsoon low. Across much of the area rainfall has been below average over recent months, so this rainfall could be welcome to the agricultural sector. In the area around Lake Malawi rainfall has been above average over the past month, so here these additional falls may lead to greater impacts here. As noted in the previous section the monsoon low may emerge across the Mozambique Channel this weekend, here the low will experience high SSTs (~30°C) and low wind shear that may allow this feature to develop into a tropical cyclone.

## Expected Impacts

Risk of flash flooding which is a particular hazard in urban areas. Although large parts of the region are sparsely populated, some fairly heavily populated centres sit on the floodplains of central Mozambique. These events may disrupt travel, power interruptions and damage to buildings/infrastructure. If significant flooding were to occur is the major river some crops could be lost along the farmed flood plains. There is a risk of significant wind impacts, mainly in coastal areas, should a tropical cyclone form.

## Middle East

### Eastern Iran, southwest Afghanistan and northwest Pakistan.

#### Weather

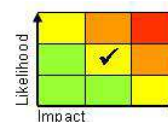
An area of rain and some mountain snow will move across the region this weekend. Widely 10-20mm of precipitation may fall, with totals locally exceeding 50mm. Over the mountains to the north of Kandahar over 50cm of additional snow may fall.

#### Discussion

A trough in the sub-tropical jet will engage a WBPT plume drawn north from the Gulf of Oman across this region this weekend. This will result in the formation of a surface depression, large areas of dense medium/high cloud and areas of precipitation. Following the passage of the upper trough benign conditions will become once more re-established early next week.

#### Expected Impacts

Following recent floods, this region is more vulnerable to poor weather than normal. The ground and rivers will be pre-conditioned for a quick response to additional precipitation. Further flash and river flooding is possible even in response to the relatively modest precipitation totals of this event. The heavy rainfall and floods of last week have left may thousands displaced in Kandahar province alone. Furthermore, there will be an increased risk of avalanche and landslides.



## Asia

### Indonesia, Malaysia and Papua New Guinea

#### Weather

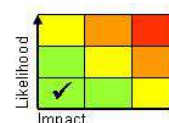
Above average rainfall is expected across many Maritime Continent islands through the next week. Whilst downpours are expected to be rather localised, they are likely to develop in a similar place each day with 100-150 mm of rain possible falling in 24 hours with some places likely to receive around 300 mm over the next week. In a typical 7-day period, this region normally receives around 50-100 mm.

#### Discussion

Over the past couple of weeks, the MJO phase has not been supportive of widespread convection but has instead allowed diurnal convection driven by the land-sea breeze cycle to become dominant. Since this is a cyclical process, convection has developed over similar locations each day, particularly along the central spine of narrow islands such as Java and East Britain. Increasingly through this week, the as the MJO moves through phase 4 convection is expected to widespread.

#### Expected Impacts

An increased likelihood of flash flooding and landslides leading to localised damage to infrastructure and property, including major cities such as Jakarta.



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# Daily Global Weather Impacts Assessment

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**Afghanistan and northwest Pakistan** – See *Middle East* section.

**Australasia**  
**Papua New Guinea** – See *Asia* section.

**Additional information**  
Nil.

**Issued at:** 080820 UTC    **Meteorologist:** Mark Sidaway

**Global Guidance Unit**

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