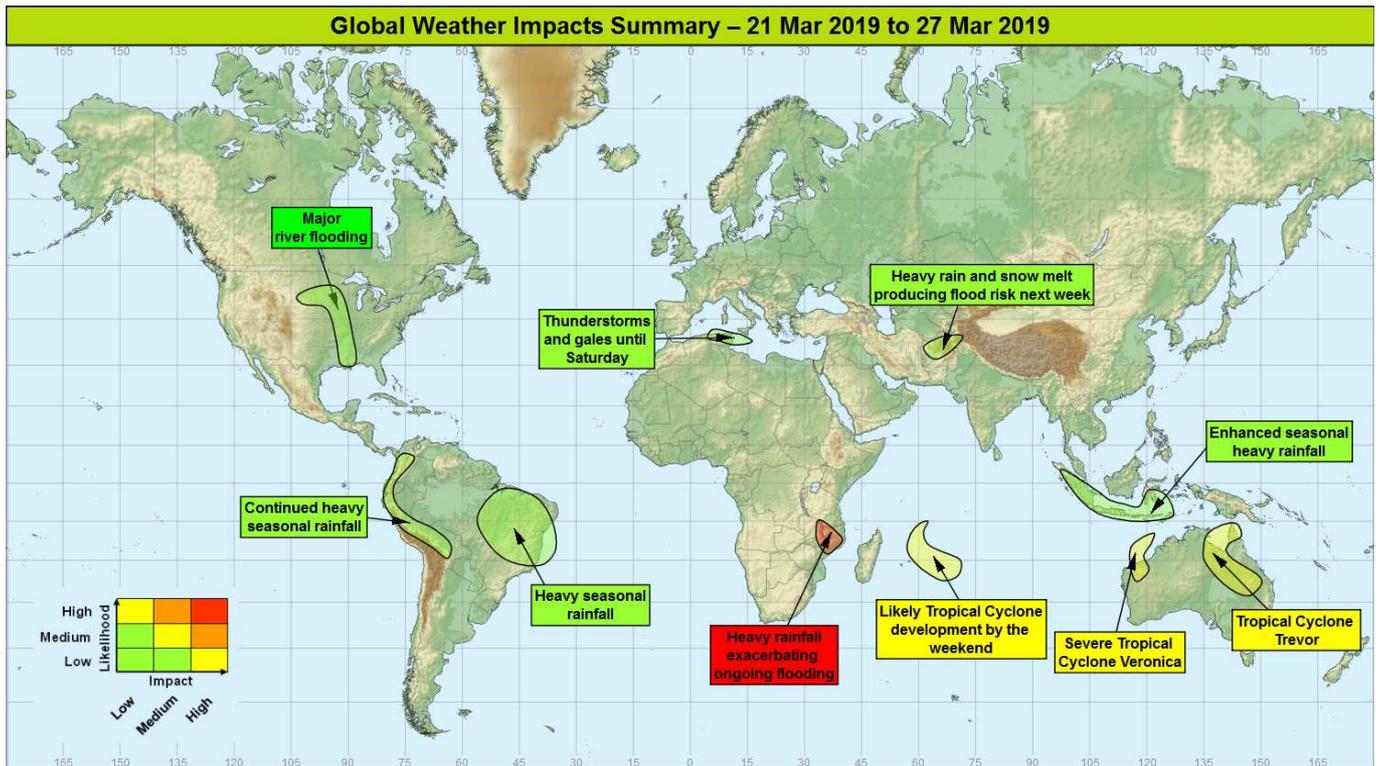


## Global Weather Impacts – Thursday 21<sup>st</sup> to Wednesday 27<sup>th</sup> March 2019

Issued on Thursday 21<sup>st</sup> March 2019

### HEADLINES

- Thunderstorms continue over northern parts of Mozambique and Malawi.
- Tropical cyclone Trevor and Veronica affecting northern Australia through the next week.
- Possibility of a strong tropical cyclone affecting Rodrigues, Reunion and Mauritius this weekend.
- Ongoing major river flooding occurring in parts of the central USA.



### DISCUSSION

#### Tropical Cyclones

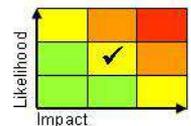
#### Tropical Cyclone Trevor (Northeastern Australia)

##### Weather

Tropical Cyclone Trevor remained a category 1 cyclone through Wednesday as it crossed the Cape York Peninsula of Queensland. Now in the Gulf of Carpentaria Trevor has strengthened to a category 2 storm with sustained winds of 60 mph at 21/0000 UTC.

Trevor is expected to strengthen through the next few days as it tracks southwest across the Gulf of Carpentaria, perhaps strengthening to a category 4 cyclone (sustained winds of 98 to 123 mph) by the time it makes landfall close to Port McArthur in Northern Territory. Through the weekend into the start of next week Trevor will weaken over land as it tracks south, further into Northern Territory, perhaps reaching Alice Springs. During the next 3 days Trevor is likely to produce a further 300-700 mm of rain on the Cape York Peninsula, north of Cairns. The focus for the rainfall then turns to the far east of Northern Territory, where up to 500 mm of rain could fall in a 3 day period, which would be over a years worth of rain in some places. Early next week the remains of Trevor are likely to track southeast into southern Queensland to bring very heavy rainfall.

##### Discussion



**This forecast may be amended at any time**

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Models are consistent with the strengthening of Trevor across the Gulf of Carpentaria during the next few days, but with some model spread in the timing and location of landfall in Northern Territory and timing and exact track south across Northern Territory. However, the areas affected are very sparsely populated.

**Expected Impacts**

Flash flooding and river flooding likely, with a storm surge onto the Gulf of Carpentaria coastline likely. Damaging winds also expected, but the areas affected are very sparsely populated which should limit the impact of this cyclone.

**Severe Tropical Cyclone Veronica (Timor Sea and Northwestern Australia)**

**Weather**

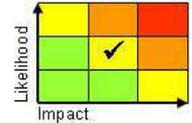
Cyclone Veronica strengthened from a category 1 cyclone to a category 4 cyclone through Wednesday, with estimated sustained winds of 120 mph at 21/0000 UTC. This cyclone is expected to continue tracking southwestwards towards the northern coast of Western Australia through the next 3 days, likely strengthening to a category 5 cyclone (the top level category with sustained winds greater than 123 mph) for a time before making landfall close to or just west of Port Hedland, Western Australia on Sunday. Veronica could bring up to 1000 mm of rain in 24 hours on landfall, which is three times the average annual rainfall in this region.

**Discussion**

An Equatorial Rossby Wave has assisted in the development of Veronica, with all models showing a southwestwards track and strengthening phase for this cyclone through the next 3 or 4 days, and much better model agreement regarding the timing and location of landfall and track thereafter.

**Expected Impacts**

Flash flooding likely, with a storm surge onto the coastline too. Damaging winds also expected, but the areas affected are very sparsely populated which should limit the impact of this cyclone.



**The following areas are being monitored for Tropical Cyclone development:**

**Southwestern Indian Ocean (Mauritius, Reunion and Rodrigues)**

**Weather**

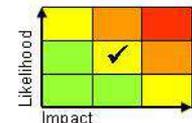
An area of thunderstorms over the southwestern Indian Ocean is expected to develop into a tropical storm during the next day or two to the northeast of Mauritius and Reunion. It is likely that this cyclone could become an intense feature through the weekend as it tracks south then southeastwards. There is a low likelihood of this system affecting Mauritius and Reunion, but the island of Rodrigues (east of Reunion) looks more at risk of being impacted this weekend. This potential tropical cyclone could produce up to 500 mm of rainfall in a 24 hour period, with hurricane force winds (sustained winds in excess of 74 mph) and a large storm surge.

**Discussion**

An Equatorial Rossby Wave has helped to organise an area of thunderstorms that is expected to strengthen into a tropical cyclone in the coming few days. All models show the development of a marked tropical cyclone, but with continued model spread for the exact track. ECMWF continues to be the model with the track closest to Reunion and Mauritius. However, most model tracks remain to the northeast of Mauritius and Reunion, but put the island of Rodrigues more at risk.

**Expected Impacts**

If this system affects one of the Mascarene Islands it will produce a threat of flash flooding, coastal flooding, landslides and damaging winds. The island of Rodrigues was impacted by Tropical Cyclone Gelena last month, which resulted in the loss of electricity to 90% of residents, and so is likely to be especially vulnerable to another strong cyclone impact.



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## Europe

### Malta, northern Tunisia and the far northeast of Algeria

#### **Weather**

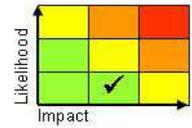
Heavy showers and thunderstorms will affect this region through the next 2 or 3 days. Up to 100 mm of rain could fall in a 24 hour period, with event totals of up to 200-250 mm possible. These rainfall totals compare to average March rainfall figures of around 50 mm. In addition to the rainfall, strong or gale force winds are expected to continue during the next few days, building rough seas.

#### **Discussion**

A disrupting upper trough will result in the development of a depression and areas of thunderstorms that will circulate the low pressure centre.

#### **Expected Impacts**

Flash flooding is a significant threat, with disruption to marine and air transport in the region.



## North America

### Central parts of the USA

#### **Weather**

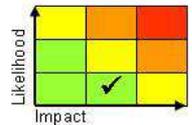
A more rapid than average thaw of the winter snow pack has resulted in major flooding through the Missouri and Mississippi river systems in recent days. The flooding is reported to be 'historic' in parts of Nebraska. It is likely that the spring flood season through these river systems will be more impactful than average in the coming weeks.

#### **Discussion**

A combination of recent very heavy rainfall and much milder weather have resulted in a rapid thaw of the snow and ice pack, sending a huge quantity of water through the Missouri and Mississippi river systems. There are presently 30 gauges in these river systems reporting major flooding levels (the highest level), with the NWS forecasting that over 100 gauges in these river systems could be reporting major flooding in the coming weeks.

#### **Expected Impacts**

River flooding that could see significant displacement of people, destruction of agricultural crops and disruption to land and river transport.



## Central America and Caribbean

Nil significant.

## South America

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

#### **Weather**

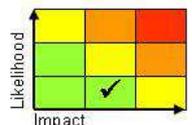
Heavy showers and thunderstorms are expected to continue to affect the northern Andes region for the next week. Rainfall accumulations will vary by location due to the showery nature of the rainfall, but locally a further 150-250 mm of rain is possible in places through the week.

#### **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 preconditioned by previous rainfall, further heavy rain will produce some additional impacts. Over recent weeks there has already been significant damage to infrastructure from flooding, with homes, bridges and roads destroyed.



**This forecast may be amended at any time**

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## Northeastern Brazil

### Weather

Increasingly widespread heavy showers and thunderstorms are expected to affect northeastern parts of Brazil from Thursday, with up to 250 mm of rain accumulating in places. This would represent 2 or 3 times the average March rainfall falling within a week.

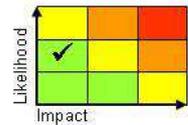
### Discussion

The South Atlantic Convergence Zone (SACZ) will push further north than usual through the coming days, likely combining with a south shifted ITCZ a little further north, to produce very large rainfall totals across a large region.

The GM, EC and GFS all produce a signal for a rare sub-tropical or tropical cyclone development close to or just offshore Brazil (between Salvador and Rio de Janeiro) this weekend or early next week. This is supported by EC and NCEP EPS tropical cyclone probability output.

### Expected Impacts

Flash flooding is the most likely impact, with the potential for landslides. However, this region of Brazil has seen below average rainfall so far through the rainy season, so river flooding and dam breaches are likely to be a lower likelihood.



## Africa

### Central and northern Mozambique, along with Malawi

#### Weather

Tropical Cyclone Idai produced very large amounts of rainfall across central parts of Mozambique and eastern Zimbabwe since Friday. The system that developed into Idai had earlier produced very large rainfall across southern Malawi and central / northern parts of Mozambique. Idai degenerated into an area of thunderstorms last weekend, with these thunderstorms transferring further north through the coming days to affect Malawi and increasingly more northern parts of Mozambique. These storms could still produce up to 50-75 mm of rain in a 24 hour period, with rainfall accumulation during the next week reaching 100-150 mm in places which is just under the average for the whole of March. Central Mozambique (including Beira) will see weakening rains through the coming few days as the most active showers and thunderstorms move north. By the start of next week the shower and thunderstorms should have become much less widespread and less heavy.

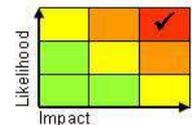
#### Discussion

This event is could become the worst Southern Hemisphere weather disaster ever recorded, with some reports that the death toll could reach 1000. There are reports that 90% of the city of Beira has been destroyed. Despite the peak rainfall transferring northwards, river flooding is likely to continue in central Mozambique for several days. This northward transfer of thunderstorms will likely exacerbate the existing flooding further north in Malawi and northern Mozambique through the rest of the week into the weekend, but with drier weather likely into next week.

Since the weather is starting to improve across the region, there is likely to be a downgrading of the impact matrix in coming days.

#### Expected Impacts

Improving weather conditions are expected for the severely impacted eastern Zimbabwe and central Mozambique in the coming days. However, Malawi and northern Mozambique that were impacted by widespread flooding around 10 days ago by the system that became Idai will see a threat of further severe river flooding from the increased thunderstorm activity.



Northern Tunisia and the far northeast of Algeria – See *Europe* section.

Mauritius, Reunion and Rodrigues – See *Tropical Cyclones* section.

## Middle East

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Nil significant.

## Asia

### Afghanistan Weather

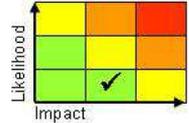
A series of active frontal systems will produce spells of heavy rain across Afghanistan next week, with up to 50-100 mm of rain likely to accumulate. The rain will be associated with very warm air that will melt the snow pack across the Hindu Kush mountains below 3000-3500 metres.

#### **Discussion**

Despite model difference, there is a strong signal for heavier than average rainfall and rising freezing levels next week across Afghanistan. There has been a deeper than average snow pack this past winter across the Hindu Kush.

#### **Expected Impacts**

The combination of heavy rain and snow melt will increase the likelihood of flash flooding, river flooding and landslides across the mountainous northern and eastern Afghanistan, with downstream river flooding possible in southwestern Afghanistan. At higher altitudes there will be an increased likelihood of avalanches with fresh snowfall.



### Central and western Indonesia

#### Weather

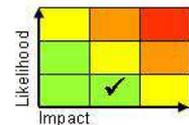
Above average rainfall is expected across many islands in this region through the next week. Whilst the heaviest downpours will be rather localised, they are likely to develop in a similar places each day with 500-100 mm of rain falling in 24 hours and some places likely to receive around 250 mm over the next week. In a typical 7-day period at this time of year, this region normally receives around 50-100 mm.

#### **Discussion**

The MJO, although weakening, will continue to help to organise and enhance convection across the region. An additional contribution is expected to be the enhanced ITCZ across the region due an increased flow and subsequent increased convergence from the south associated with Tropical Cyclone Veronica.

#### **Expected Impacts**

An increased likelihood of flash flooding and landslides leading to localised damage to infrastructure and property.



## Australasia

Northeastern and northwestern Australia – See *Tropical Cyclones* section.

### Additional information

Nil.

**Issued at:** 210800 UTC **Meteorologist:** Paul Hutcheon

**Global Guidance Unit**

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