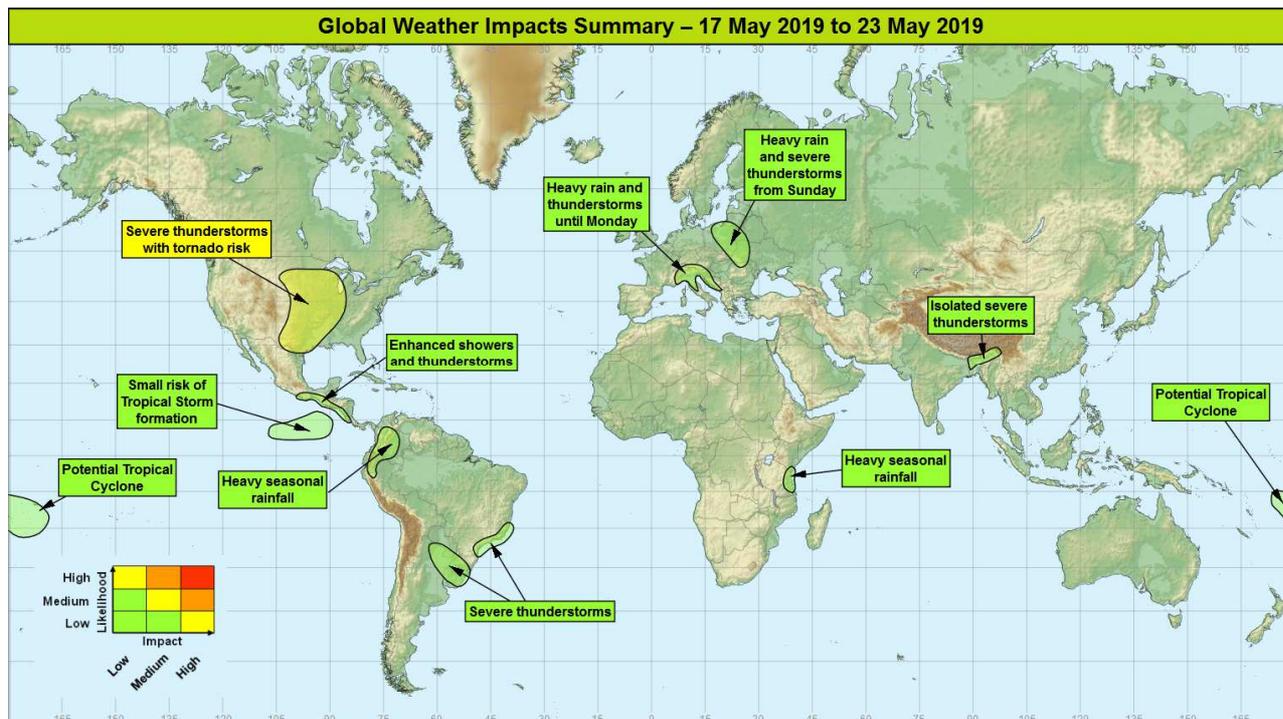


## Global Weather Impacts – Friday 17<sup>th</sup> to Thursday 23<sup>rd</sup> May 2019

Issued on Friday 17<sup>th</sup> May 2019

### HEADLINE

- Severe thunderstorm and tornado outbreak across the central and southern Plains of the US.



### DISCUSSION

#### Tropical Cyclones

*There are no tropical cyclones at time of issue.*

*However the following area is being monitored for a potential tropical cyclone:*

#### Southwest Pacific (Tuvalu, Fiji, Samoa)

##### **Weather**

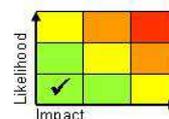
A cluster of thunderstorms over the open ocean approximately 1000km north-west of Vanuatu could organise into a weak tropical cyclone over the next few days.

##### **Discussion**

Ensemble output highlights this area as having increased potential for tropical cyclogenesis over the next few days. The signal from the global deterministic models is rather muted – should a cyclone develop it is likely to be weak in terms of wind but some output suggests significant rainfall for the islands in the region, with over 250mm being signalled for Samoa.

##### **Expected Impacts**

Should a cyclone develop, it is most likely to stay over open water and be relatively weak before dissipation. The main impact would be from heavy rain and attendant increased risk of flash flooding.



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

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## Northeast Pacific (Mexico)

### Weather

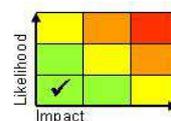
An area of persistent shower and thunderstorm activity south of the Mexican Pacific coastline may gradually develop as it drifts slowly eastward over the coming week. There is a low risk of a tropical storm forming in this region early next week.

### Discussion

Shear instability along the ITCZ which has now migrated to around 8°N in this region will likely result in the development of a shallow low level circulation. This may organise thunderstorm activity around it, and in cooperation with the favourable oceanic and atmospheric conditions in this area may allow the gradual development of a tropical storm

### Expected Impacts

Nil during this period as the weak circulation remains over open water away from land.



## Europe

### Southern Alps, Dolomites and northern Italy

### Weather

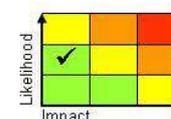
Areas of heavy rain and organised thunderstorms are expected to develop across the west of this region late Friday and spread across rest of the area on Saturday. These could locally 50 mm of precipitation in a short space and time. Although shower continue in this region next week, from Monday they will be less organised and numerous.

### Discussion

A two stage trough extension and disruption will take place across the western Med this weekend. This will aid the generation of a surface low that will draw warm moist air northeastwards from Africa, this will then destabilise beneath the upper vortex/cold pool. Although a cyclonic upper pattern will remain across this region early next week, the air beneath it will be cooler drier, which in addition to reduced wind shear will equate to less numerous and organised storms.

### Expected Impacts

Flash and alluvial flooding is likely in places, with recent fluvial flooding across Bosnia and Herzegovina and Italy highlighting the sensitivity in some parts of this region to additional rainfall. Frequent lightning and a threat of hail are additional hazards.



## Eastern Europe including, Poland, Ukraine, Belarus and Romania

### Weather

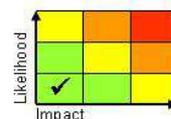
Areas of heavy rain and at times severe thunderstorms will affect this region from Sunday onwards. These showers could bring 25-50 mm of precipitation in a short time, with some unlucky locations in this zone perhaps seeing in excess in 100mm over the week.

### Discussion

Various trough extensions and disruptions (as mentioned in the previous section) will maintain a meridional and often cyclonic upper flow across this region. This will act to destabilise the underlying warm and moist airmass. Some very severe storms are signalled with >2000 J/kg of CAPE, profiles support the generation of large and low level windshear that support rotating updraughts.

### Expected Impacts

Flash flooding likely in places, additional albeit very localised impacts likely from large hail, lightning, strong winds gusts and a possibility of the odd tornado.



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## North America

### Central and southern Plains of the US, from central Texas to Nebraska

#### **Weather**

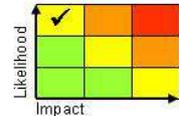
There is the threat of severe thunderstorms in this region of the USA throughout the next 7 days, with damaging winds, large hail and tornadoes. Where the most severe storms develop, 150-250 mm of rain can be expected.

#### **Discussion**

A major trough extension and then disruption across the Desert Southwest is phasing in with marked baroclinicity on its forward side. The low (unusually deep for May: sub-995hPa) is then expected to track NE across the central US. Within the broad warm sector, predominant S'y flow is signalled to draw theta-W in excess of 23°C N. As upper lapse rates increase, CAPE in excess of 2000-2500J/kg is likely. Add to this marked shear, and all the ingredients are there for a severe convective outbreak. This pattern is repeated again from Monday, with this time a sub-990hPa surface low signalled.

#### **Expected Impacts**

Flash-flooding, large to extremely large hail, damaging winds and strong tornadoes are all likely. Disruption to infrastructure as well as transport across the area (including major disruption to aviation) can also be expected. There is a high likelihood of low impacts (requiring regional resources) within this area, and a low risk of medium impact events (requiring national resources) if any particularly severe storms and/or tornadoes impact any significant population centres.



## Central America and Caribbean

### South-western areas of Mexico, Guatemala and El Salvador, as well as southern Honduras

#### **Weather**

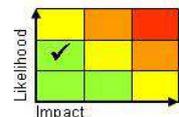
Showers and thunderstorms are likely to become more numerous and persistent across the area over the weekend, and into the middle part of next week. 50-100 mm of rain could fall locally daily, with some areas seeing 250-300 mm of rain by the end of the period. For context, the average rainfall total for Acajutla (Pacific coast of El Salvador) for May is 168.8 mm.

#### **Discussion**

The MJO is expected to continue to propagate E across the western hemisphere, ramping up convection as it does so. Activation of the ITCZ looks like being most marked along the Pacific coast of parts of Central America, and it is here that forecast profiles support deep convection. Large amounts of precipitable water are available, as well as copious amounts of CAPE (3000J/kg), the heaviest precipitation next week looks to be associated with the potentially enhanced flow ahead of the potential tropical storm development area.

#### **Expected Impacts**

Flash-flooding, landslides in what is a mountainous area, and gusty winds are all likely.



## South America

### Colombia, Ecuador, and Peru

#### **Weather**

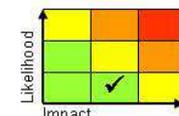
Heavy seasonal rainfall is expected across this region through the coming week with daily rounds of frequent heavy showers and thunderstorms. Where the showers occur most frequently a further 300-400 mm of rain could accumulate, which is close to the average for the whole of May in the wetter Colombian sites.

#### **Discussion**

Good model agreement for another spell of heavy seasonal rainfall towards the end of what has been an active rainy season in this region. This active period of weather is likely to be due to the passage of the MJO.

#### **Expected Impacts**

Further flash flood and landslide events seem increasingly likely through next week, threatening transport infrastructure and settlements in the region.



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**Southeast Brazil, Uruguay, Paraguay and NE Argentina**

**Weather**

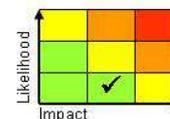
Heavy showers and severe thunderstorms will continue across this region until the end of the weekend, with each day the focus of the heaviest rainfall should tend to drift northwards. Whilst not all areas will see the most intense rainfall each day, 50-100 mm of rain could fall in places within a few hours. The average rainfall in this region for May is 100-200 mm. As this first area of intense rainfall subsides on Monday, a further pulse in activity across is likely to form across northeast Argentina and also begin to progress northeastwards.

**Discussion**

The South Atlantic Convergence Zone will remain active over the coming days. SSTs will be sufficiently high to trigger deep convection and with an onshore flow this will mean the heaviest and most frequent rain will tend to be focused near the coast. As the first region of thunderstorms weakens on Monday as the driving trough relaxes and moves offshore, a further burst in activity is likely to begin across northeast Argentina in response to a further mid-latitude trough extension.

**Expected Impacts**

Localised flash flooding and increased chance of landslides in mountainous areas. Large hail, strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities. Parts of this region have seen a wetter than usual rainy season, and so further rainfall could result in river flooding. Although exactly where the heaviest rain will fall is uncertain the area does include some densely populated regions (including Sao Paulo and Rio de Janeiro).



**Africa**

**Eastern parts of Tanzania and Kenya**

**Weather**

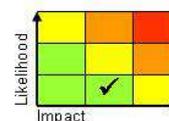
Heavy seasonal rains continue, with numerous showers and thunderstorms drifting into coastal regions off the Indian Ocean. Some large rainfall totals have been reported in recent days, and whilst some heavy rain (up to 150 mm through the next week in places) will continue across eastern parts of Tanzania and southern Kenya over the coming week, rainfall totals are likely to ease to some degree compared to the last week or so.

**Discussion**

The inter-tropical convergence zone will maintain the focus for frequent heavy showers and thunderstorms across eastern Tanzania and the extreme southeast of Kenya. Increasing south-westerly flow to the south of the ITCZ (associated with developing monsoonal flow in the Indian Ocean Basin) and the passage of an Equatorial Rossby Wave (ERW) will also contribute to the enhancement of showers and thunderstorms in this region.

**Expected Impacts**

Further flash flooding and damage to property and infrastructure is possible in large cities like Dar es Salaam and Mombasa, plus the popular tourist destination of Zanzibar.



**Middle East**

Nil significant.

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**Asia****Northeast India, Bhutan, northern Bangladesh and northern Myanmar****Weather**

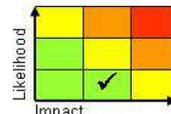
Severe thunderstorms are likely to affect the region during the next week. As well as intense rainfall (up to 150 mm daily although many areas will miss the heaviest rain), large hail and strong winds are possible.

**Discussion**

Various shortwave upper troughs moving northeast in the sub-tropical jet over northern India and Nepal will lead to destabilisation of the airmass and the development of diurnal thunderstorms. High CAPE and vertical wind shear will aid the development of severe, long-lasting storms, with hail and strong winds additional hazards.

**Expected Impacts**

Localised flash flooding and increased chance of landslides in mountainous areas. Large hail, strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities.

**Australasia**

**Tuvalu, Fiji, Samoa** – See *Tropical Cyclones* section.

**Additional information**

Nil.

**Issued at:** 170640 UTC    **Meteorologists:** Nick Silkstone / Paul Hutcheon

**Global Guidance Unit**

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

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