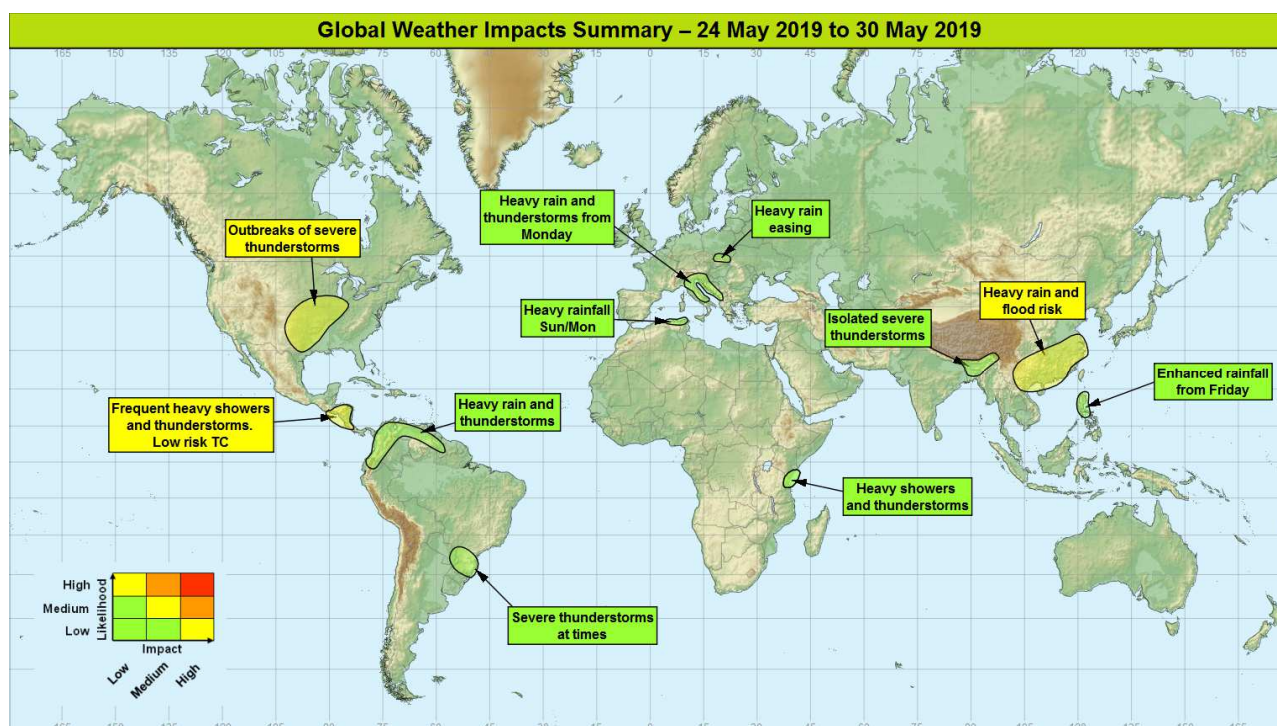


## Global Weather Impacts – Friday 24<sup>th</sup> to Thursday 30<sup>th</sup> May 2019

Issued on Friday 24<sup>th</sup> May 2019

### HEADLINE

- Severe thunderstorm outbreaks continuing across central parts of the USA.
- Very heavy rainfall is expected over parts of Central America with a small risk of tropical cyclone development.
- Very heavy seasonal rains across southeast China.



### DISCUSSION

#### Tropical Cyclones

*There are no active tropical cyclones currently. The following areas are being monitored for potential tropical cyclone development:*

#### Northeast Pacific Weather

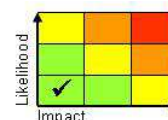
An area of persistent shower and thunderstorm activity in the vicinity of Nicaragua has a small chance of developing into a tropical storm near the Pacific coast in the next few days.

#### **Discussion**

Shear instability along the ITCZ has resulted in the development of a shallow depression. ERW shed in the wake of the recent MJO should help to organise thunderstorm activity around it, and in co-operation with the favourable oceanic and atmospheric conditions may allow the gradual development of a tropical storm.

#### **Expected Impacts**

Only a low likelihood of impacts from a tropical storm formation. However, regardless of this, heavy, organised showers associated with this system will bring an enhanced flash flood risk to parts of Central America. See Central American section for further details.



This forecast may be amended at any time

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**Europe****Southern Poland, far east of Czech Republic and north Slovakia****Weather**

These areas have seen heavy rainfall and thunderstorms through this week. In the 24 hours up to 1200 UTC on Thursday a couple of sites near the Poland and Czech border recorded in excess of 90mm (Bielsko-Biala, Poland 94mm and Lysa Hora, Czech Republic 92mm). Rain is expected to ease in over the next couple of days although parts of the Tatra mountains could still see 20-30mm over the next 24 hours. Heavy rain and thunderstorms may return to these areas from Tuesday.

**Discussion**

The upper vortex and associated low level plume will gradually decay and withdraw south-eastwards with rainfall forecast to gradually ease over the next day or so.

**Expected Impacts**

Further rainfall may exacerbate reported ongoing flooding in parts of the area, particularly southern Poland. Severe travel disruption and loss of power, communication and utilities is possible. Lower threat of land slips in the more mountainous parts of the Poland/ Slovakia border. There is now a reduced threat of flash flooding.

**Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania****Weather**

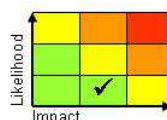
A weather system developing late this coming weekend over the Mediterranean is expected to spread a mixture of heavy showers, thunderstorms, and more persistent rain (particularly so over the Dinaric Alpine region) during the first part of next week (Mon-Wed). 50-100 mm of rain is likely to fall quite widely, with 150 to very locally 200 mm of rain falling on the most prone, exposed sites along the south-west facing hills/mountains of the Balkans.

**Discussion**

An upper trough is forecast to extend over the W'ern Med over the weekend before cutting off. The resulting upper vortex will drag north and destabilise a high WBPT on its E'ern flank leading to outbreaks of heavy rain and thunderstorms. An associated surface depression should see a SW'ly low level eventually becoming established which may focus rainfall on the windward side of the Dinaric Alps.

**Expected Impacts**

Flash flooding is the main concern – and an increased risk of landslides in the mountainous areas. Little evidence of any river flooding risk at this stage.

**North America****Central USA****Weather**

There is a continued threat of severe thunderstorms in the central portion of the USA through the coming week. Whilst not everywhere will see thunderstorms, there will be a significant severe thunderstorm threat in parts of this region each day. These storms will produce very strong winds, large hail and tornadoes, with up to 150 mm of rain falling in a 24 hour period in places, and up to 300 mm of rain possible in a few places through the next week, which is around twice the average May rainfall in this region.

**Discussion**

A series of upper troughs will sweep east across the Rockies before relaxing northeast across the Great Lakes through the next week, with the upper forcing engaging marked baroclinic zones and the pre-frontal broad warm sectors (850hPa of over 22°C) that contains the S'ly flow (low level jet). This setup will produce CAPE in excess of 2500J/kg at times, with marked shear providing the ingredients for severe convective outbreaks. This central region of the USA has already seen widespread river flooding through the last few months due to large snowpack melt and anomalously heavy rainfall. So further heavy rains will just exacerbate this impact.

**Expected Impacts**

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Flash flooding, large to extremely large hail, damaging winds and strong tornadoes are all likely. Disruption to infrastructure as well as transport disruption across the area (including major disruption to aviation) can also be expected. The longevity of this event increases the likelihood of significant population centres being impacted. Another impact could be larger scale river flooding due to already very high river levels through the central part of the USA.

## **Central America and Caribbean**

### **Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and north Panama**

#### **Weather**

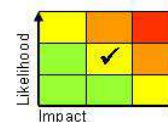
Torrential showers and thunderstorms are likely to become frequent and persistent across the area over the next 4 or 5 days. Many places will see in excess of 50mm per day, with 100 to very locally 200 mm falling where showers are most frequent each day. Through the period 150-200 mm of rain is likely in many areas, with a chance that a few spots could see in excess of 500 mm. There are signs that rainfall could begin to ease from Sunday, although this is low confidence. For context, the average rainfall total for Managua (Pacific coast of Nicaragua) for May is 166 mm, with the highest totals being forecast representing around 300% of the monthly average.

#### **Discussion**

The MJO will 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 this week looks to be associated with the potentially enhanced flow ahead of the potential tropical storm development area.

#### **Expected Impacts**

Flash-flooding, with significantly increased risk of landslides in what is a mountainous area and gusty winds are all likely. However, heavy rainfall in this region is welcome in the longer term due to the significant drought that is being experienced in this part of Central America.



## **South America**

### **North Ecuador, Colombia, Venezuela, Guyana, Suriname**

#### **Weather**

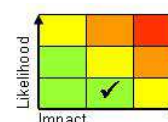
Heavy seasonal rainfall is expected across this region through the coming week with daily rounds of frequent heavy showers and thunderstorms. Where the showers occur most frequently a further 300-400 mm of rain could accumulate, which is close to the average for the whole of May in the wetter Colombian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



## **Southeast Brazil and the far east of Paraguay**

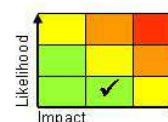
#### **Weather**

Heavy showers and severe thunderstorms will affect this region at times through the period. 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. Rain should ease over the weekend before thunderstorms return early next week.

#### **Discussion**

The South Atlantic Convergence Zone will remain active for much of this period, with a combination of short wave upper trough and the warm WBPTs triggering deep convection across this area.

#### **Expected Impacts**



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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.

## Africa

### Northeast Tanzania and southeast of Kenya

#### **Weather**

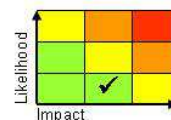
Heavy seasonal rains will continue with showers and thunderstorms drifting into coastal regions off the Indian Ocean, bringing a potential further 50-100 mm of rain per day. Over the last few weeks these areas have been much wetter than average (receiving 200-300% of average rainfall amounts). Most of the heaviest rain will be offshore but some of the coastal cities and islands in this region will also continue to see enhanced rainfall. There are signs that showers will ease in intensity over the weekend and next week.

#### **Discussion**

Steady south-southeasterly flow to the south of the ITCZ (associated with developing monsoonal flow in the Indian Ocean Basin) will contribute to the enhancement of showers and thunderstorms in this region. The anomalously warm west Indian Ocean SST's (developing positive IOD state) will also play a part. The weakening of the rains could be associated with the Equatorial Rossby Wave moving west into Africa through the weekend.

#### **Expected Impacts**

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



### North-east Algeria, North Tunisia

#### **Weather**

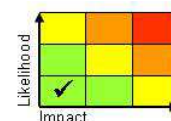
Heavy showers and thunderstorms over the weekend are likely to develop into a spell of heavy and persistent rainfall, with north facing high ground areas likely to see the highest rainfall totals. 50-80 mm of rain could fall over the course of 36-48 hours, with a low probability that some locations could see over 100 mm. This represents around 200% of the monthly rainfall for this region.

#### **Discussion**

A high WBPT on the N'ern side of a desert low will be engaged by an extending trough over the W'ern Med leading to an increase in heavy showers and thunderstorms in this area. As the low gradually moves towards the central Med this will allow a NE and then N'y flow to develop helping to focus the heaviest rainfall on windward parts of the Atlas mountains.

#### **Expected Impacts**

Flash flooding will be the primary potential hazard.



## Middle East

Nil significant.

## Asia

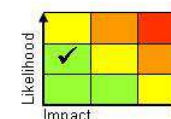
### Northeast India, Bhutan and northern Bangladesh

#### **Weather**

Severe thunderstorms will continue in the region through until the end of the weekend. As well as intense rainfall (up to 100 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.



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## Expected Impacts

Localised flash flooding and increased chance of landslides in mountainous areas bringing a danger to life. Large hail, strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities. The Bangladeshi capital, Dhaka, could see severe storms during the period.

### Southern and central China, far north of Vietnam

#### Weather

Very heavy rainfall is expected to affect parts of southern and central China from Friday, with over 200 mm possible in 24 hrs. In some areas this could lead to event totals of 350 mm. This would be over the average monthly rainfall for May (which is 150-300 mm). This rainfall is an active pulse of the seasonal Mei-yu rains, and will see severe thunderstorms in places, that could produce large hail, very strong winds and frequent lightning.

#### Discussion

There is good model agreement for an upper trough to engage a surface warm plume from Friday. This will destabilise the plume, resulting in large CAPE / vertical wind shear profiles that also contain a signal for a low level warm nose above a shallow moist zone. These are ingredients for severe convection.

#### Expected Impacts

Flooding and flash flooding are likely to be the main impacts, especially in urban areas. However, there will be an increased likelihood of landslides, with a threat of impacts on the power network from frequent lightning, and structural damage from large hail and very strong winds.



### Northern Philippines (Luzon)

#### Weather

Enhanced showers and thunderstorms in the prevailing moist easterly flow are likely to develop and spread across the northern Philippines (particularly eastern Luzon), with potential for 200-300mm over the course of a few days. This is around twice the average for May, and approaching the maximum recorded May rainfall in this area (Tuguegarao).

#### Discussion

A cold front will move south into Luzon through the next 3 days, with a low latitude upper trough enhancing frontal precip.

#### Expected Impacts

Some flash flooding is possible, with impacts should the heaviest showers fall over urban centres. Manila will be spared the worst of the showers with shelter from the easterly wind.



### Australasia

Nil significant.

### Additional information

Nil.

**Issued at:** 240720 UTC **Meteorologists:** Chris Bulmer / Brent Walker

**Global Guidance Unit**

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