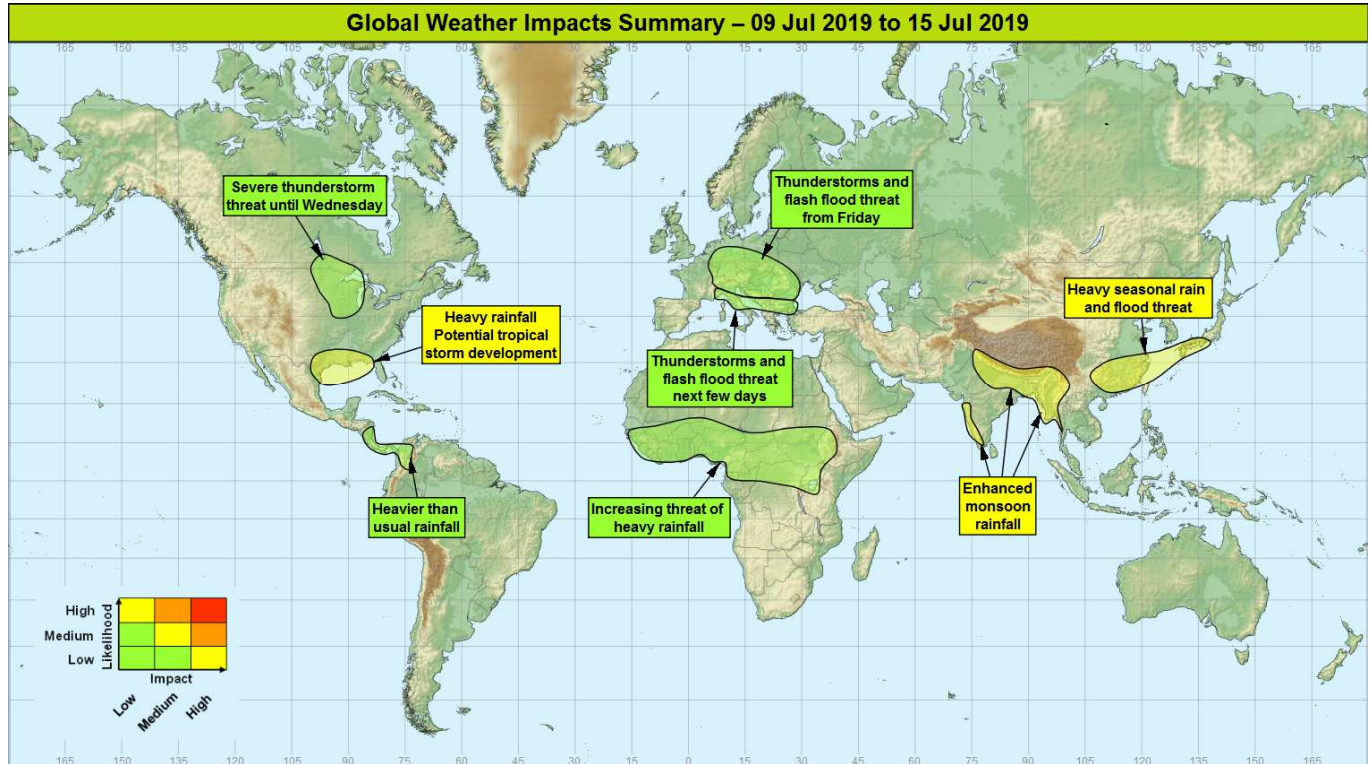


## Global Weather Impacts – Tuesday 9<sup>th</sup> to Monday 15<sup>th</sup> July 2019

Issued on Tuesday 9<sup>th</sup> July 2019

### HEADLINES

- Heavy monsoon rains continue across many parts of southern and eastern Asia, including a significant threat for Cox's Bazar in southeastern Bangladesh.
- Increasing likelihood of tropical storm formation in the northern Gulf of Mexico later this week.



### DISCUSSION

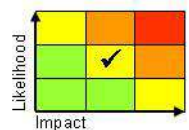
#### Tropical Cyclones

There are no named tropical cyclones at present, but the following area is being monitored for possible tropical cyclone development:

#### Gulf of Mexico and the Gulf coast states of the USA

##### Weather

A disturbance, currently over the Florida Panhandle/ southern Georgia, is expected to drift out over the Gulf of Mexico during the next few days. As this occurs, the associated thunderstorms are expected to become better organised, with the National Hurricane Center forecasting an 80% chance of a tropical cyclone formation in the next five days. If this happens, it could impact the Gulf coastline from the Florida Panhandle to Texas through the weekend and into next week, with a low likelihood of the system reaching hurricane strength. Regardless of development, increasingly heavy rain is expected to affect the region, with 500-1000mm of rainfall possible during the next week over the Gulf of Mexico and adjacent Gulf coast, mainly to the west of the Florida Panhandle into eastern Texas.



This forecast may be amended at any time

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## Discussion

Initially an upper vortex (which has tracked southward into the southeastern USA) will lead to widespread destabilisation of the high WBPT airmass over the region and allow intense and long-lived thunderstorms to break out. Later in the week, as the vortex weakens and vertical wind shear drops, the formation of tropical storm is increasingly likely in the region, aided by warmer than average sea surface temperatures. There is increasing signals from the UKGM, ECMWF and ICON models for a significant tropical system to develop.

## Expected Impacts

Impacts mainly from heavy rainfall, with flash flooding the primary hazard. Wind damage and coastal flooding would occur if a stronger tropical system develops.

## Europe

### Southern and southeastern Europe

#### Weather

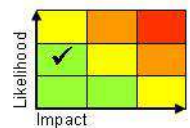
Thunderstorms will form in places during the next few days, especially across areas of high ground, producing up to 30-50 mm of rainfall in a few hours, along with large hail, gusty winds and frequent lightning. To the south of a slow-moving front temperatures will continue to be higher than average, but not reaching the heat wave levels of a week or so ago.

#### Discussion

A cold front will slowly transfer south through the next few days. A zonal flow aloft with an embedded short-wave upper trough will engage the front and the pre-frontal plume to produce a deep convective threat, especially with elevated heat source input. MCS events look unlikely, but there will likely be enough vertical wind shear to produce some organisation to the storms. Locally large ( $>1500\text{J/Kg}$ ) CAPE will produce a hail threat, with precipitable water around 40 mm allowing for a flash flood threat.

#### Expected Impacts

Flash flooding, large hail and damaging winds are possible where intense thunderstorms form.



### Central and eastern Europe

#### Weather

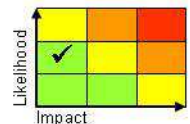
Thunderstorms will affect the west of the region on Friday, with this threat tending to transfer eastward from central to eastern Europe through the weekend. These storms could produce up to 25-40 mm of rainfall in a few hours, along with a threat of large hail, gusty winds and frequent lightning.

#### Discussion

An upper vortex is expected to transfer southeastward into central Europe by the end of this week, engaging a pre-existing plume to produce unstable profiles. Upper trough extensions southward into the vortex through the weekend will maintain the unstable regime as the whole pattern transfers eastward. MCS events look unlikely, but there will likely be enough vertical wind shear to produce some organisation to the storms. There will locally be enough ( $1000\text{J/Kg}$ ) CAPE to produce a hail threat, with precipitable water around 25-30mm bringing a risk of flash flooding.

#### Expected Impacts

Flash flooding, large hail and locally damaging winds are possible where thunderstorms form. The extent of the storms across a populated part of Europe could impact the transport network, especially aviation.



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## North America

### Northern Plains of the USA and southern parts of central Canada

#### **Weather**

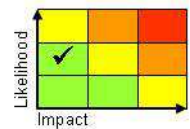
There is a threat of severe thunderstorms developing in this part of North America during the next few days. These storms could produce 50-100 mm of rain in a few hours, along with frequent lightning, large hail and strong winds, and a tornado threat.

#### **Discussion**

The combination of an eastward-travelling upper trough and a significant northward push of very high WBPT air will result in a significant likelihood of severe storms, with forecast profiles showing up to 5000J/Kg of CAPE and large vertical windshear.

#### **Expected Impacts**

Flash flooding looks likely in places, with potential for power and aviation disruption too. There is also a low likelihood of structural damage from high winds or tornadoes.



## Central America and Caribbean

### Nicaragua, Costa Rica and Panama – see *South America* section.

## South America

### Western Colombia, Nicaragua, Costa Rica and Panama

#### **Weather**

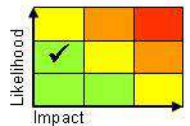
Increased frequency of heavy showers and thunderstorms are expected in this region through the next three or four days. Up to a further 200 mm of rain could fall in places, which is in excess of the average monthly rainfall at this time of year in southern parts of Central America, and well above the average monthly rainfall further south, especially in Ecuador where it is now the drier season.

#### **Discussion**

The combination of an active MJO phase and the westward progression of African Easterly Waves will enhance seasonal rainfall in this region through the next few days. In addition the potential formation of Central American Gyre is signalled in southern parts of Central America, and these systems can lead to exceptional rainfall accumulations during the rainy season. However, the MJO progression into the Indian Ocean will allow for a weakening of the rainfall later in the week.

#### **Expected Impacts**

An enhanced threat of flash flooding and landslides will be the most likely impacts this week.



## Africa

### Central parts of Africa

#### **Weather**

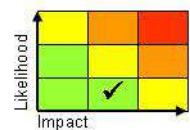
There will be an increasing likelihood of more widespread heavy showers and thunderstorms through the coming week across these central latitudes of Africa. Up to 75-100 mm of rain could accumulate in just a few hours, with a threat of strong winds. The strong winds could lift dense dust storms on the northern edge of this active shower region which still has a dry ground state.

#### **Discussion**

The advance of the MJO will likely act to enhance the convective rainfall across central latitudes of Africa along the ITCZ. This will result in more frequent and/or active African Easterly Waves, as well as a higher likelihood of large MCS events.

#### **Expected Impacts**

Flash flooding is the most likely impact, with a lower likelihood of wind damage. Dense dust storms on the northern edge of this region will produce hazardous air quality.



## Middle East

Nil.

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## Asia

### Northern India, Nepal, Bangladesh, Bhutan and western / northern Myanmar

#### **Weather**

There is a significant threat of very heavy monsoon rainfall in this region during the coming week with up to 500-750 mm of rain accumulating in places during this period, which will see many places seeing the equivalent of a month's worth of rain within a week. Most places will see over 200-300 mm during this time. The rain will come in the form of very heavy showers and thunderstorms, and could produce 100 mm of rain in a few hours. From midweek drier conditions are expected to slowly move northwards across India.

#### **Discussion**

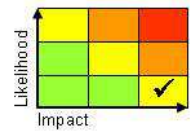
A monsoon low pressure system will track slowly westwards across northern India through the next two or three days, inducing an anomalously strong, very moist and unstable southwest monsoon flow. The combination of the monsoon low pressure system and enhanced southwesterly flow will account for the active monsoon pulse.

Models are in good agreement for this series of events, with Cox's Bazar humanitarian camps at risk of disruptive rainfall. However, totals offered by global models differ significantly, with the GM signalling twice as much rainfall as other models. Regardless, the risk of disruptive rainfall is maintained.

Later in the week the monsoon low pressure system will weaken across northwestern India, with the southwesterly flow easing, all consistent with an MJO that is expected to move into the Indian Ocean, heralding a break period in the monsoon into next week.

#### **Expected Impacts**

There is an increased threat of flooding and landslides in this region, which includes Cox's Bazar humanitarian camps. The vulnerability of these camps is thought to be much reduced compared to 12 months ago, due to the actions of international organisations (the relocation of people from the more hazardous areas, re-vegetation programs to improve land stability, improved drainage/water supply, and making materials available to improve shelters). As a result, the likelihood of international resources (additional to those already present) being required to assist with the impacts of this event is assessed to be low.



### Western India

#### **Weather**

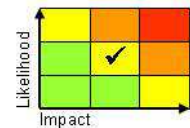
The heavy monsoon rain that has affected this region for the past week or so is expected to ease through the coming week. However, up to a further 300 mm of rain could fall in places up to midweek, which is still close to 50% of the average July rainfall.

#### **Discussion**

The active phase of the Indian Summer Monsoon is expected to cease from, midweek due to the MJO progression across Africa. This signal is supported by all models.

#### **Expected Impacts**

Torrential rain will increase the threat of flooding and landslides up to midweek.



### Southern China and southwestern Japan

#### **Weather**

Torrential rain and severe thunderstorms associated with the seasonal rains will affect this region through much of the week ahead, with 150-250 mm widely, locally as much as 400 mm falling. This is around a month to two month's worth of rain for some locations.

#### **Discussion**

Strong convergence along the Mei-yu/Baiu front will continue to provide a focus for intense rainfall and a threat of severe storms. A succession of upper troughs will engage the northern edge of the monsoon frontal plume through much of the coming week, resulting in persistent, heavy rains in places.

#### **Expected Impacts**

Both fluvial and flash flooding is possible, with an additional risk of landslides in mountainous areas. Disruption to transport and infrastructure is likely in what is a densely populated area due to the slow-moving seasonal heavy rainfall.



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**Australasia**

Nil.

**Additional information**

Parts of southern and central Alaska are experiencing a significant heat wave with temperatures in some places reaching the low to mid 30s of Celsius – Bethel Airport in the far southwest reported a maximum of 35°C on Saturday. Temperatures are expected to continue running at 15 to locally 20 degrees Celsius above normal during the next few days, with further maxima into the low to mid 30s. The heat may trigger some thunderstorms, and brings a significantly increased risk of wildfires resulting in poor air quality. However, temperatures are expected to slowly return closer to, but still above, normal through the course of the next week.

**Issued at:** 090730 UTC    **Meteorologists** Paul Hutcheon / Laura Ellam**Global Guidance Unit**

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