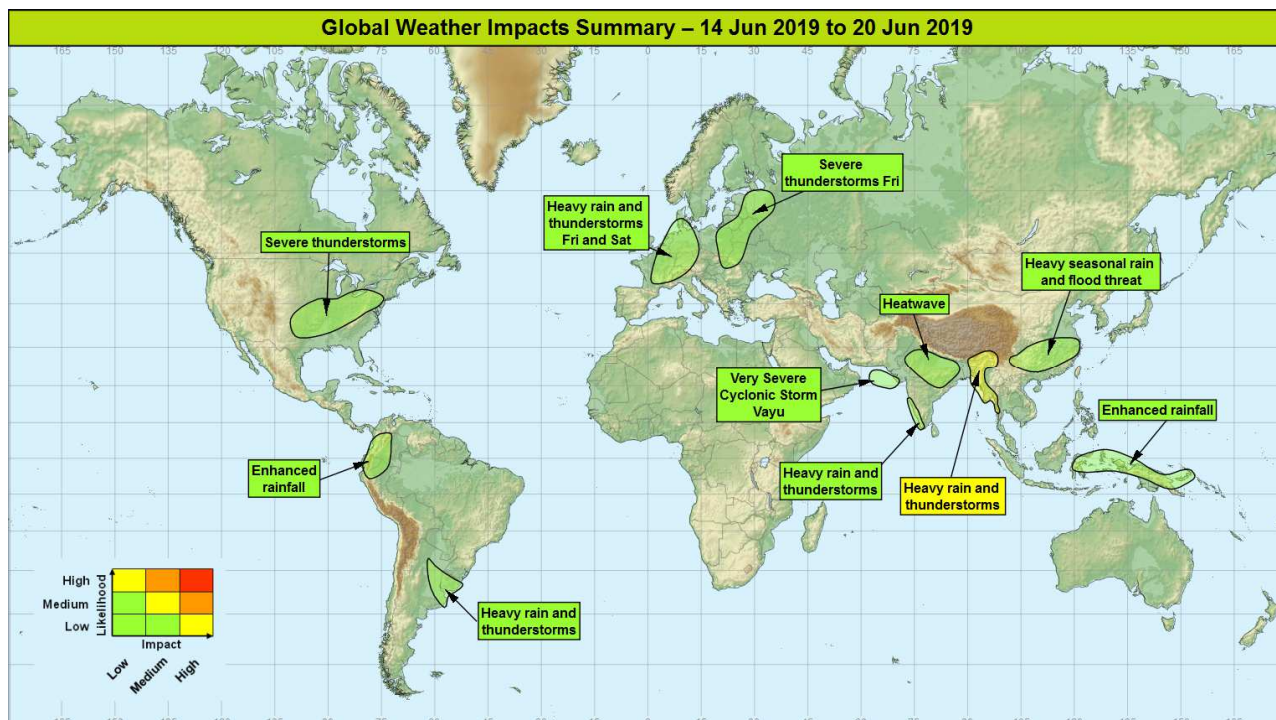


## Global Weather Impacts – Friday 14<sup>th</sup> to Thursday 20<sup>th</sup> June 2019

Issued on Friday 14<sup>th</sup> June 2019

### HEADLINES

- Very Severe Cyclonic Storm Vayu in the Arabian Sea now moving away from Gujarat, India.
- Torrential rain and thunderstorms across coastal Myanmar and south-east Bangladesh.



### DISCUSSION

#### Tropical Cyclones

#### Very Severe Cyclonic Storm Vayu, Arabian Sea, including western India Weather

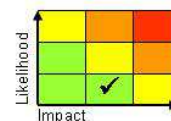
Very severe cyclonic storm Vayu (pronounced Vaa'Yu) remains offshore of Porbandar, Gujarat and is forecast to move away slowly to the west over the next few days, becoming slow-moving over the northern Arabian Sea. Strong winds and dangerous maritime conditions will persist in the vicinity of Vayu over the coming days. Whilst some heavy rain and thunderstorms are possible over western Gujarat over the next couple of days, the risk of very high totals has now largely diminished. There is a chance that the remnants of Vayu will move back east into western India next week but the system is likely to have weakened substantially before this occurs.

#### **Discussion**

Satellite imagery shows that Vayu is now moving slowly west away from India. There is a consensus that Vayu will become slow-moving over the north of the Arabian Sea and slowly weaken with significant landfall now very unlikely. However, there is growing evidence that the remnant depression will be steered east into India early next week.

#### **Expected Impacts**

Dangerous maritime conditions with large waves and strong winds close to the centre of Vayu. A much reduced threat of flooding over Gujarat.



This forecast may be amended at any time

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**Europe****East and northeast Europe****Weather**

This area which has seen successive days of severe thunderstorms this week will continue to move east. Friday looks to be the last day with the potential for organised, severe convection to form. Thunderstorms will continue to develop over parts of eastern Europe over the weekend and into next but any impacts are more likely to be very localised. Within the highlighted areas some places could see 75-100mm of rain within a few hours. Frequent lightning, large hail and strong gusty winds are also likely.

**Discussion**

A warm continental plume ahead of a waving frontal zone across central parts of Europe has been the focus for severe thunderstorms this week. Forecast profiles show large CAPE (in excess of 2000 J/Kg), with enough vertical wind shear to produce organised deep convection with MCS development likely (as has been observed). Tornadoic developments are possible at times, mainly close to advancing cold front, but strong downdraught winds are more likely. As the CoG of the upper vortex shifts to the west of the UK by the weekend this will help this plume shift eastwards and become detached from upper forcing.

**Expected Impacts**

Flash flooding along with power outages and disruption to the transport networks (especially aviation) is possible. Hail is likely to cause disruption to transport and damage to crops, some buildings and vehicles.

**Western Europe (especially France, Low Countries and Germany)****Weather**

Heavy showers and thunderstorms will develop in the southeast of this area during Friday, extending northeastwards into the weekend. Some places will see 50-75mm of rain within a short period of time. There is the potential for severe, organised thunderstorms to develop bringing large hail, strong gusty winds and frequent lightning.

**Discussion**

As the CoG of the upper vortex currently over NW Europe becomes established to the W of the UK this will allow an upper trough to swing NE'wards over W'ern Europe. There is good agreement that this will engage a sub-tropical plume drawn N'wards over the highlighted areas with areas of heavy rain and thunderstorms likely to develop. With the likelihood of CAPE in excess of 2000 J/Kg and at least moderate bulk shear severe, potentially organised convection looks.

**Expected Impacts**

Flash flooding along with power outages and disruption to the transport networks (especially aviation) is possible. Hail is likely to cause disruption to transport and damage to crops, some buildings and vehicles.

**North America****Central and eastern USA****Weather**

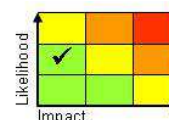
Heavy rain and thunderstorms will continue to affect the highlighted region through the next week at times. Some places could see over 50 mm in a 24 hour period, and in excess of 100mm over the week.

**Discussion**

Further plumes of warm moist air will be drawn northwards from the Gulf of Mexico and tropical Atlantic ocean into the southern and eastern United States. However with the Pacific North America (PNA) pattern now positive, the amplitude of the upper pattern across the region is much reduced. As a result only fairly modest organisation of convection is expected, with upper troughs and highest WBPT air often not co-located.

**Expected Impacts**

Flash flooding is the most likely impact, but frequent lightning, large hail, damaging winds and isolated tornadoes are also possible and may cause localised disruption and damage.



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## Central America and Caribbean

Nil significant.

## South America

### North Peru, Ecuador and Colombia

#### **Weather**

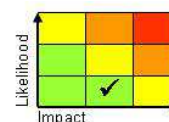
A continuation of the enhanced seasonal rains over north-west South America is expected, with a further 250-300mm likely in some places. The highest rainfall totals most likely over west facing slopes of the Andes mountains in Colombia.

#### **Discussion**

The ITCZ remains active in the areas, with a series of African Easterly Waves helping to maintain activity along it, and through this area for the next week. The Andes will likely aid lift, resulting in orographically focused rain totals.

#### **Expected Impacts**

Further flash flooding and landslides are likely in this region, along with the potential for river flooding.



### Uruguay and north-east Argentina

#### **Weather**

A repeating pattern of areas of heavy rain and thunderstorms associated with areas of warm, tropical air being drawn southwards is expected to affect this region over the next week. Some places could see 50 mm, locally 75 mm per day, with 200-250mm in some locations over the next week.

#### **Discussion**

The usual pattern of plumes of moist tropical air being drawn southwards and providing a focus for heavy rain and embedded, mostly elevated convection will take place over the next week. Upper forcing is relatively weak, although strong flow aloft will provide efficient exhaust for long lived and organised cells to develop.

#### **Expected Impacts**

Flash flooding, impacts mainly low, but a low potential of greater impacts should this heavy rain affect urban areas such as Buenos Aires and Montevideo.



## Africa

Nil.

## Middle East

Nil.

## Asia

### Central and northern India

#### **Weather**

The pre-monsoon heat wave continues across parts of central and northern India although the heat has become less oppressive over the last few days. Maximum temperatures will be widely in the low to mid 40s of Celsius each day with a much reduced chance of 50 °C being exceeded. Some areas will still be 3-7°C above average. Overnight temperatures will remain in excess of 30°C across many parts of the area.

#### **Discussion**

The arrival of the monsoon rains into India are currently around 10 days slower than average but have now begun across the south of the country. In addition, daily convection has start to trigger further north across the country with has helped limited the recent severe heat.

#### **Expected Impacts**



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Significant threat of sun and heat stress, especially affecting elderly and vulnerable groups. A detrimental effect on agriculture and power failures.

## Western India

### **Weather**

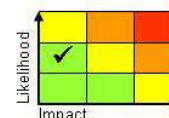
Enhanced south-westerly winds in the wake of cyclonic storm Vayu have drawn persistent moist maritime air with heavy rain and thunderstorms to coastal regions of western India. Widely 100-200mm, and in places 300-500 mm could fall over the next 5-7 days.

### **Discussion**

Enhanced flow on the S flank of Cyclonic Storm Vayu has started to bring heavy persistent rainfall to western coastal areas of India. Profiles support the release of deep and moist convection with limited CAPE, which is very efficient at producing heavy precipitation. Many factors such as frictional convergence, surface heating, and chiefly orographic uplift will allow the continual release of deep instability in this region.

### **Expected Impacts**

Flash, as well as the flooding of some smaller river catchments, is probable across parts of western India, although this is not unusual in the context of the progressing Indian Summer Monsoon, and felt to be very early in the wet season for these precipitation totals to cause major impacts.



## Eastern Bangladesh, western Myanmar and far northeast of India

### **Weather**

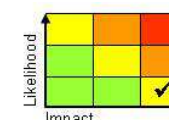
Intense showers and thunderstorms are expected in the coming days. The heaviest rainfall is likely to fall to the south of Cox's Bazar, over western facing slopes of Myanmar. However, heavy rains and thunderstorms will still spread further north at times to affect a wider area of including southern Bangladesh bringing an increased risk for Cox's Bazar. Some places could see over 500 mm over the next few days.

### **Discussion**

Strong southwest winds will draw moisture northeast into Bangladesh and Myanmar leading to a threat of frequent thunderstorms and torrential rain over coast and inland mountains over the next few days. There is a weak signal for organisation around a monsoon depression developing early next week; this may have the impact of temporarily reducing activity in the vicinity of Cox's Bazar.

### **Expected Impacts**

Flash flooding looks like the main impact, with a small risk of significant impacts on vulnerable populations within the Cox's Bazar district.



## Southern China

### **Weather**

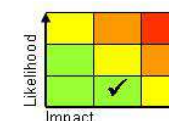
Heavy rain and thunderstorms will affect parts of southern China over the next week. 250-300 mm of rain could fall in places within a few days and there is also the potential for severe thunderstorms that could produce hail and strong winds.

### **Discussion**

Strong convergence along the monsoon frontal zone and heating of the high terrain in the moist air to its south will continue to produce heavy precipitation in the form of showers and thunderstorms. Although shear is fairly modest for mid-latitudes, in the tropics this is seemed easily sufficient for the organisation of cells.

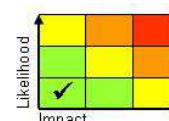
### **Expected Impacts**

Both fluvial and flash flooding are likely to be the main impacts (especially in urban areas), with the additional enhanced risk of landslides in mountainous terrain. Disruption to transport and infrastructure is also likely in what is a densely populated area.



## Maritime Continent

### **Weather**



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Heavier than normal rainfall is expected across this broad region over the next week, with more widespread than usual diurnal shower and thunderstorm development. Where showers occur, 25-50mm of rain in a few hours is likely, with some locations seeing over 200 mm of rain through the coming week.

**Discussion**

The MJO continues to move east across the Maritime Continent bringing a broad environment conducive to more widespread than average convection. Strong and consistent model signal for above average precipitation in this location.

**Expected Impacts**

Localised flash flooding and increased risk of landslides in the more mountainous terrain.

**Australasia**

Nil significant.

**Additional information**

Nil.

**Issued at:** 140645 UTC    **Meteorologists**    Chris Bulmer / D J Harris

**Global Guidance Unit**

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

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