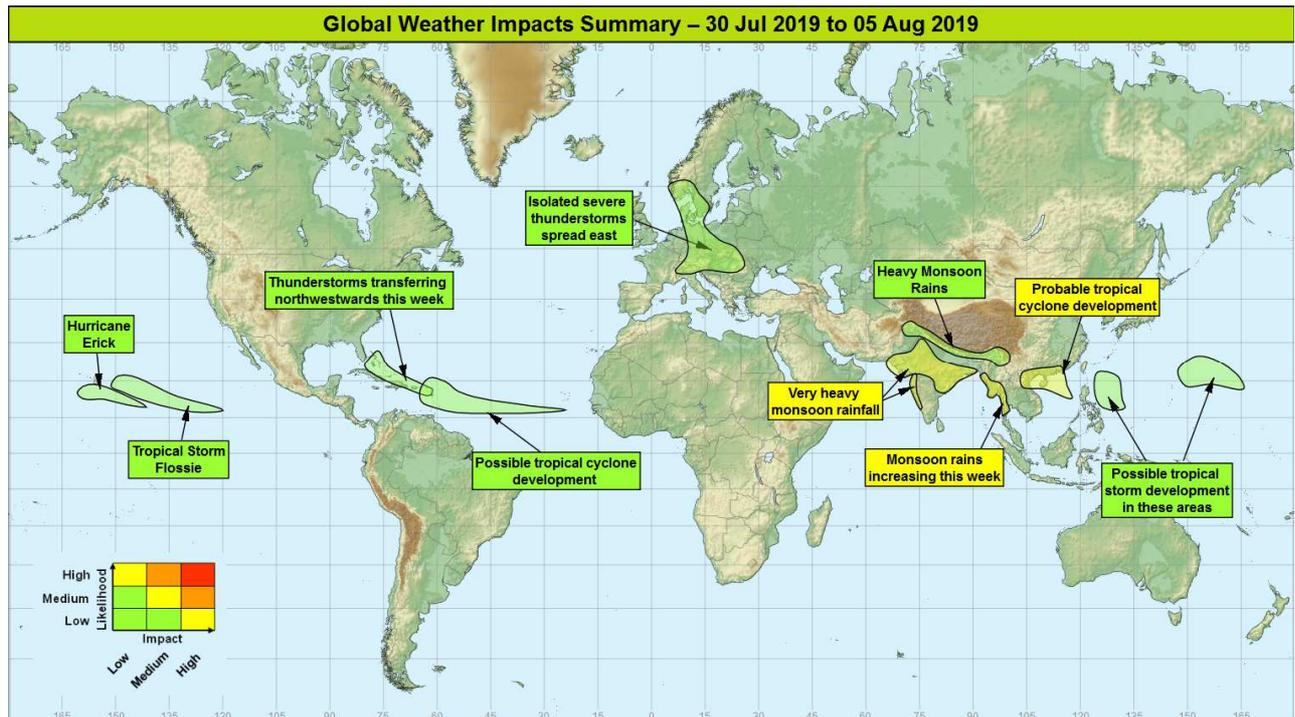


## Global Weather Impacts – Tuesday 30<sup>th</sup> July to Monday 5<sup>th</sup> August 2019

Issued on Tuesday 30<sup>th</sup> July 2019

### HEADLINES

- Further intense monsoon rainfall for parts of the Indian subcontinent this week.
- Tropical cyclone development likely impacting northern Vietnam and southern China.



### DISCUSSION

#### Tropical Cyclones

#### Hurricane Erick (eastern North Pacific, just south of Hawaii)

##### Weather

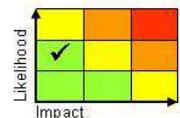
Hurricane Erick was located around 1110 miles southeast of Hilo, Hawaii at 0300 UTC. Erick has strengthened into a hurricane overnight, and is expected to remain so as it tracks westwards. Erick's strength is likely to peak on Wednesday when sustained winds are likely to reach 110 mph (Category 2). Erick will likely pass just south of Hawaii on Thursday/Friday, but by this time it is likely to only be a weak tropical storm, bringing a threat of heavy rain (100-200 mm in 24 hours) to Big Island.

##### Discussion

The official guidance from the National Hurricane Center is for a strengthening system through Wednesday, then a gradual decline to tropical storm. This is supported by the main deterministic models, with the GM sitting in the middle of the multi-model EPS spread. All models and EPS output agree on the weakening of Erick as it tracks just south of Big Island Hawaii, influenced by strong vertical wind shear from a low latitude upper trough.

##### Expected Impacts

Erick is likely to remain over open water during the most active phase of this system. However it may produce large swells in Hawaii later this week, and the weakened system may give a threat of flash flooding to far south of the Big Island.



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

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## Tropical Storm Flossie (Eastern North Pacific)

### Weather

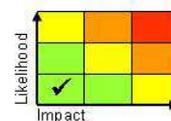
Flossie is currently located 900 miles southwest of Baja California. The system currently has sustained winds of 55 mph. Flossie is expected to reach hurricane strength through Tuesday and then undergo steady strengthening up to the weekend when sustained winds may reach 115 mph (category 3). Though this period the system will remain over open water, however it may approach Hawaii next week.

### Discussion

There is strong model agreement for Flossie to become a fairly long lived hurricane, but guidance on maximum intensity the system will attain is very uncertain. If Flossie were to undergo rapid intensification, it would have to occur in the next 36 hours while environmental conditions are favourable, and this on balance considered unlikely. Thereafter increased northerly wind should curtail further intensification.

### Expected Impacts

Nil.



*The following areas are being monitored for development:*

## South China Sea (northern Vietnam and far south of China)

### Weather

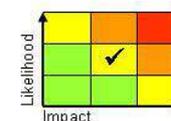
An organised area of showers and thunderstorms just west of the Philippines is likely to develop into a tropical cyclone in the next day or so, with this system then signalled to track north-west across the South China Sea to make a landfall in northern Vietnam or Southern China on Wednesday or Thursday, most likely as a rather weak system (no more than the tropical storm). Regardless of the development the system will bring heavy rainfall to southern China and northern Vietnam, with 150-250 mm falling over a wide area, and peaks of up to 700 mm.

### Discussion

An Equatorial Rossby Wave already developed a broad low level centre. Through Wednesday the system is expected to track into a favourable shear environment, with excellent upper level divergence, and warm underlying SSTs. The degree to which the system develops appears to be linked to track and forward speed of the system, with the GM being at the slower end of the spectrum it produced one of the stronger systems, with the most precipitation.

### Expected Impacts

Impacts are currently expected to mainly be from rainfall, with flash flooding the primary hazard and landslides possible in steeper terrain. A possibly prolonged event will increase the likelihood of river flooding, with wind damage only considered a lower probability if a stronger system were to develop. Hong Kong looks likely to see some impacts from this system through the week.



## Eastern Caribbean

### Weather

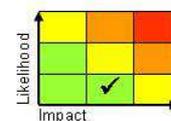
There is a low likelihood of a tropical cyclone development affecting the eastern Caribbean by the start of next week. This system is presently just an area of thunderstorms off the coast of West Africa, but is likely to undergo development through the coming week as it tracks west-northwestwards. At the moment it looks likely that any development will only result in a weak tropical storm, but intense rainfall (100 mm in a few hours) from thunderstorms is likely.

### Discussion

The GM and EC develop an African Easterly Wave as it tracks west-northwest across the Atlantic through the next week, with both models suggesting a tropical storm development by the start of next week close to the eastern Caribbean. The GFS is less keen, with EPS output only producing a low likelihood, hence the low likelihood of a medium impact event.

### Expected Impacts

Most likely impact will be from intense rainfall which could produce flash flooding and a heightened likelihood of landslides. Frequent lightning will pose a threat of power failures, with disruption to aviation possible. There is a much lower likelihood of any wind damage.



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

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## Western North Pacific Ocean

### **Weather**

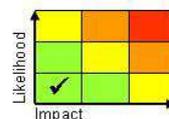
Across a broad region of the northwest Pacific there are several clusters of thunderstorms that have the potential to develop into tropical cyclones later this week, and track generally north or northwest. During this time period the only risk of impacts for land is in the South Mariana Islands (including Guam) from the weekend onwards.

### **Discussion**

A series of tropical waves, that may be sourced from AEW, ERW or breakdown of the ITCZ into eddies from shear instability are currently organising various areas of deep convection in the northwest Pacific. There remains inconsistent signal from models for the development of multiple tropical cyclones in this region over the coming week.

### **Expected Impacts**

During this period the only risk to land would be for small remote islands such as the South Mariana Islands (including Guam). These could potentially see impacts from heavy rainfall, strong winds and rough seas.



## Europe

### Central / eastern Europe and southern Scandinavia

### **Weather**

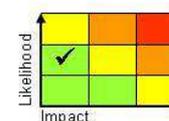
Further intense showers and threat of severe thunderstorms are expected in this part of Europe through the next 3 or 4 days, but this area is expected to shrink in size from the western edge during this time. Rainfall accumulations of up to 50-75 mm in a few hours looks possible, along with large hail, very strong winds and frequent lightning. Into the weekend activity should reduce towards near normal levels across this zone.

### **Discussion**

The very warm plume across this part of Europe will continue to be engaged by a complex system of upper troughs through the week, producing conditions for deep, complex convection. CAPE in excess of 1500J/Kg along with PWAT of 30-40 mm will produce conditions for significant convective impacts. By the weekend a combination of the plume cooling and shrinking, some weak upper ridging becoming established will lower the likelihood of the most severe convective impacts.

### **Expected Impacts**

Severe storms will produce a threat of flash flooding, damaging hail, power outages, transport disruption (especially aviation) and wind damage.



## North America

Hawaii – see *Tropical Cyclones* section.

## Central America and Caribbean

### Northeastern Caribbean islands

### **Weather**

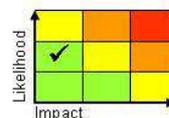
More frequent than usual thunderstorm activity will transfer northwestward from Puerto Rico and Haiti, across the Turks and Caicos Islands and eventually into the Bahamas through the next 5 days. Up to 50 mm of rain could fall in a few hours from these storms, along with frequent lightning.

### **Discussion**

A marked African Easterly Wave will produce enhanced thunderstorm activity as it slowly tracks northwestwards across this region. A combination of unfavourable vertical wind shear, dry medium level air around the wave and interaction with land should prevent development this system as it continues northwestwards.

### **Expected Impacts**

Threat of flash flooding (possibly landslides too in the more mountainous islands). Some disruption to aviation and power networks also possible.



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**South America**

Nil.

**Africa**

Nil.

**Middle East**

Nil.

**Asia**

**Northern Vietnam and far south of China** – see *Tropical Cyclones* section.

**Parts of central and northern India along with far south-eastern Pakistan**

**Weather**

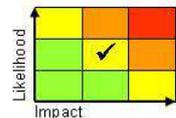
Periods of widespread, intense showers and thunderstorms will transfer from the east to west across this region through the next week, producing up to 300 mm of rain in a 24-hour period, with a threat of up to 400-600 mm through the next week in a few places. This means that some places could see several times their average July rainfall in a few days. There are some very large cities in this region that could see intense rainfall events during the next week.

**Discussion**

The main driver behind the severe monsoon conditions through the next week will be a succession of monsoon low pressure systems. These will result in the most rainfall falling in the spates lasting a day or two, with longer drier periods in between. Forecast profiles show deep skinny CAPE, with high precipitable water allowing these fairly frequent cells to produce large precipitation accumulations.

**Expected Impacts**

High likelihood of flash flooding, and an increasing threat of river flooding. An increasing likelihood of landslides in hillier regions. Significant disruption to travel is likely, especially road and rail. Densely populated regions of India and Pakistan (including some large cities) are likely to be impacted this coming week.



**Southern and western Myanmar, and far southeast of Bangladesh**

**Weather**

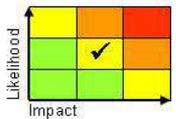
Strengthening of the monsoonal flow is expected to lead to an enhancement of rainfall in this area through the next week. 50-100 mm, locally 150 mm of rain could fall per day, with totals of up to 600 mm possible in places.

**Discussion**

As one monsoon depression moves across northern India the next few days, another is signalled to form in the Bay of Bengal later in this week. This new development will once more strengthen the south-westerly gradient and increase rainfall across this part of the world.

**Expected Impacts**

Increased risk of flash flooding and landslides. Cox's Bazar looks to be on the northern edge of this region of intense rainfall, and so the likelihood of impacts is lower here.



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## Western India (Arabian Sea coastline)

### **Weather**

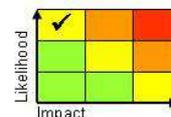
Persistent southwesterly monsoon flow into this area has seen a number of days of very heavy rain (daily totals in excess of 100 mm), with further heavy rain expected at times through the next week.

### **Discussion**

The strength of the monsoon south-westerly flow into south-western India will wax and wane as the monsoon low pressure systems track westwards to the north through the coming week. This will modulate the rainfall accumulations as we go through the next 7 days.

### **Expected Impacts**

Continued flash and river flood threat along with a high likelihood of landslides during the next few days, with potential impacts for large cities such as Mumbai.



## Northern Pakistan, Nepal, Bhutan, far northeast India and northwest Myanmar

### **Weather**

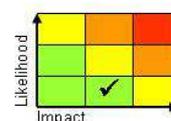
Further heavy showers and thunderstorms associated with the South Asian Monsoon in these areas are expected at times through the next week, but with rainfall totals close to expectations for the time of year with most places seeing 50-100 mm in the next week and a few up to 300 mm.

### **Discussion**

As in south-western India, this region will see activity modulated by the monsoon low pressure systems running westwards across central parts of India. These systems will increase and decrease the moist southerly flow that is responsible for the monsoon rains.

### **Expected Impacts**

Further flash flooding potential, and exacerbation of ongoing flash and river flooding. Risk of landslides in wettest areas.



## Australasia

Nil.

## Additional information

Nil.

**Issued at:** 300700 UTC

**Meteorologist:** Nick Silkstone / Paul Hutcheon

**Global Guidance Unit**

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

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