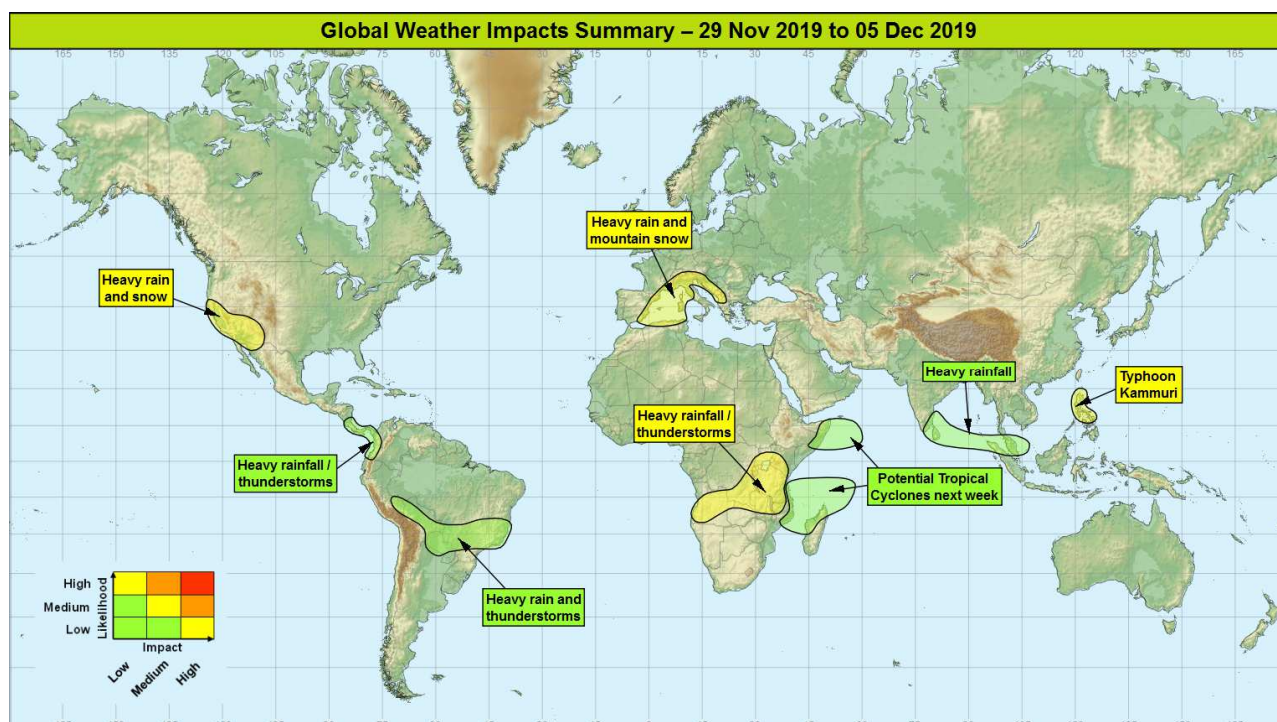


**Global Weather Impacts – Friday 29<sup>th</sup> November to Saturday 5<sup>th</sup> December 2019**

Issued on Friday 29<sup>th</sup> November 2019

**HEADLINES**

- Typhoon Kammuri expected to approach Philippines early next week as a very strong typhoon.
- Wetter than normal conditions over Eastern/Central Africa, perhaps enhanced by tropical cyclone development next week.
- Further heavy rain and mountain snow across parts of southern Europe and western USA.



**DISCUSSION**

**Tropical Cyclones**

**Typhoon Kammuri**

**Weather**

Typhoon Kammuri is now around 1000 miles east of Manila, Philippines (around 15°N) with sustained winds of around 95mph. Kammuri is expected to drift slowly west today, before accelerating over the weekend to reach the Philippines (most likely southern Luzon or the Visayas) early next week (around 06 UTC Tuesday). Kammuri is likely to be a very strong typhoon by this time, bringing very strong winds and a swathe of heavy rain (300-500mm). However at this time the precise timing/location of any landfall still has low confidence.

**Discussion**

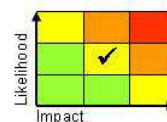
Weak wind shear and SST's of 29°C will be conducive to steady strengthening of Kammuri over the coming days, a break/col in the subtropical ridge with weak steering winds should see a slow, erratic motion take place today (Friday), before a build of pressure aloft to the N allows a westerly motion to resume and increase. Deterministic and ensemble output more or less all points towards a landfall over Central or Northern Philippines early next week, with only a small number of solutions pointing to a recurvature before reaching land. Most output does allow Kammuri to cross the Philippines quite quickly, limiting the duration of flooding rains, but 300 to locally 500mm in the space of around 36 hours, with destructive winds also probable.

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

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## Expected Impacts

Flash flooding and damaging, locally destructive winds probable in some parts of Central/Northern Philippines. Disruption of island-island marine transport.

*The following regions are being monitored for possible impactful tropical cyclone development.*

### Western Indian Ocean

#### Weather

From this weekend and into next week there is the potential for tropical storms to form in the western Indian Ocean both north and south of the Equator. The more likely area to see development is within an area of convection presently to the north-east of Madagascar. Both the actual formation of any tropical systems, and the subsequent track of any that do develop, are currently low confidence. Irrespective, enhanced showers in these regions are likely to help enhance rainfall across parts of east Africa and possibly north Madagascar.

#### Discussion

Weak wind shear and SST's some 1 to 1.5°C above normal (a result of the ongoing positive Indian Ocean Dipole event) provide the background for an increased likelihood of tropical storms. Although the NWP signal is weak, a mass of enhanced convection is present over the western Indian Ocean, and there are indications from both deterministic and ensemble output of the potential for tropical cyclogenesis in either (or both) hemisphere over the coming days. Steering flow is weak, and consequently there is very large model/ensemble spread with respect to intensity/track of any development thus far. The highlighted areas on the map correspond to the areas most under threat from any system that does form.

#### Expected Impacts

Potential for heavy rainfall over parts of Somalia, Madagascar, Comoros, Tanzania and Mozambique, but very low confidence at present. Strong winds also a threat.



### Europe

### Parts of Southern Europe

#### Weather

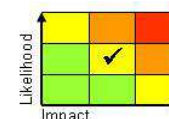
Most places drier than of late today, although an area of showers/thunderstorms likely to bring a zone of heavy rainfall (snow above 1800m) to parts of the Balkans today and tomorrow (40-60mm) accompanied by gusty winds, helping to keep conditions wetted here.

A larger scale weather system arriving across Iberia/W France on Saturday will slide south-east, bringing a spell of heavy rain, with a particular focus on parts of SE France, N Italy, and the Balkans where 100-150mm is possible in 24-36 hours early next week. Snow is likely to fairly low elevations on the Northern Alps and increasingly so across the Balkans (perhaps down to 300-500m Alps, 700-100m Balkans) as the system moves east. Mid-week, the focus will likely shift to the potential for heavy, thundery downpours affecting other parts of the Mediterranean coastline (including Algeria/Tunisia), accompanied by strong winds.

#### Discussion

Mobility remains well south-shifted, as it has done for some time now, continuing to drive destabilising frontal systems across southern Europe. One such feature crosses the Balkans today associated with a shortwave trough. A strong mid-latitude cyclone heading towards Newfoundland today will result in a strong Atlantic amplification event, culminating in a diffluent block over Western Europe and the cyclonic portion of this block residing somewhere over the western Mediterranean. As the associated vortex slides SE across Iberia the associated frontal system becomes well forced and orographically modulated over SE France and N Italy, producing large amounts of precipitation here – as it continues east the forcing necks off but could still produce large amounts of precipitation over high ground across the Balkans. The resulting cut-off vortex is likely to generate areas of deep instability and slow moving/training thunderstorms, although the location where this becomes anchored shows large variations in the models so confidence in the location of heavier rain during the middle of next week becomes lower.

#### Expected Impacts



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Flash-flooding, landslides and increased avalanche risk. Parts of SE France and NW Italy (eg. Liguria) particularly vulnerable given a similar (although more extreme) event last week. Travel disruption is possible into early next week as snow affects more populated areas.

## **North America**

### **South-west USA, North-west Mexico**

#### **Weather**

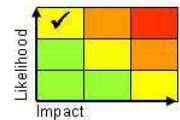
With one spell of unsettled weather now starting weaken and clear this region, although still bringing 30-50mm of rain (30-50cm mountain snow) to the southern Rockies and parts of northwest Mexico today, a spell of clearer, colder and drier weather is expected. However, another band of heavy rain/mountain snow, accompanied by strong winds, looks likely to arrive from the Pacific on Sunday, and become slow moving over California and the Sierra Nevada. 100-200mm of rain is likely over the more populated, lower ground areas, and 2-3m of snow is expected in some parts of the Sierra Nevada.

#### **Discussion**

A marked jet left exit resulted in explosive cyclogenesis just offshore of south-western Oregon on Tuesday. The resultant depression continues to move across land now whilst filling, but the associated fronts are likely to bring another day of heavy rainfall today before petering out. A lower latitude, complex and disrupting upper trough is then expected to engage a warm plume to produce an active precipitation bearing system through the weekend. As the trough undergoes multiple disruptions and mobility stalls, warm conveyor flow will be set up for a time across California, bringing a more persistent and at times heavy spell of precipitation before finally weakening and moving on mid next week.

#### **Expected Impacts**

The most significant impacts are likely across California, where heavy rainfall is likely to produce some flooding of densely populated west coast cities, whilst heavy snowfall at higher elevations brings blizzard conditions, increased avalanche risk, and major disruption to mountain passes. Strong winds could also produce some localised disruption to utilities and transport for a time early Sunday before this aspect lessens.



## **Central America and Caribbean**

### **Costa Rica & Panama** – see South America section

## **South America**

### **Western Colombia, northern Ecuador, Costa Rica and Panama**

#### **Weather**

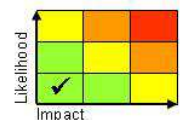
Further heavy showers are expected in this region over the next 7 days, although the most intense rainfall is likely through the next few days. 50-100 mm is likely to fall in a few places in a 24 hour period, with the potential for over 300 mm in a few spots over the week. This region has been slightly wetter than usual over the past month, and rainfall amounts over the coming week represent around a further month's worth of rainfall for the wettest spots.

#### **Discussion**

A combination of continued enhanced convection, and wetter than normal antecedent conditions, has helped to identify this region as the most likely to see impacts. Models signal 100-300mm of rain, mainly triggered by upslope motion on the western slopes of the Andes. Increased convergence over southern Central America will help to generate enhanced showers/thunderstorms today, before this weakens going into the weekend.

#### **Expected Impacts**

Flash and river flooding with landslides possible in mountainous areas. This follows on from a recent wet period across the region with significant river flooding reported over the last couple of weeks.



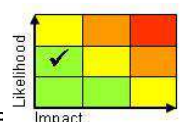
## **Bolivia, Paraguay, far north Argentina, southern Peru and southern Brazil**

#### **Weather**

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Heavy showers and thunderstorms are expected at times through the next week in this region. 40-80 mm of rainfall in a few hours is possible with a few places perhaps seeing 150-200 mm over a period of a couple of days. Additional hazards include frequent lightning strikes, large hail and a risk of tornadoes

## Discussion

Two South American Convergence Zone events are likely to affect this region through the next week, with the first one easing today across south-eastern Brazil, before the second event develops a little further south over Paraguay from later in the weekend. Forecast profiles (large CAPE and decent amounts of vertical wind shear) show the potential for severe thunderstorms as the sub-tropical jet migrates a little further north during these events and interacts with the warm plume across the region.

## Expected Impacts

Increased likelihood of flash flooding causing a danger to life, damage to property and infrastructure. Frequent lightning strikes and large hail are also possible, with a lower risk that tornadoes could also produce localised significant damage.

## Africa

### Central Africa

#### Weather

Showers and thunderstorms associated with the seasonal rains are forecast to continue to be heavier than normal over the next week, with 100-200mm, perhaps locally as much as 300mm of rain falling in frequent heavy, thundery, afternoon downpours. Much of this area has seen 200-400% of the usual rainfall over the past week, although the rainfall expected over Angola may be more welcome with much drier than average conditions here in recent times. In addition, next week there is the threat of enhanced rainfall from tropical storms, mainly a threat to Somalia, and eastern parts of Tanzania and Mozambique.

## Discussion

Enhanced seasonal rainfall in association with the strong positive Indian Ocean Dipole event which, although declining, is still in full swing. Large tracts of eastern Africa have seen well above average rainfall over the past 3-6 months, and even parts of Angola, although recently dry, have seen above normal rainfall in the past month. The combination of all these factors dramatically increases the likelihood of further flash and river flooding – potential tropical cyclones (see tropical cyclone section) adds further to this risk for select locations.

## Expected Impacts

An increased risk of flash flooding and landslides in the region, with further river flooding likely. This is also true of regions in the far south of the area which have been experiencing drought conditions. Frequent lightning is also likely, along with large hail and strong wind gusts.

**Algeria/Tunisia** – see southern Europe

## Middle East

Nil.

## Asia

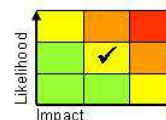
**Philippines** – see *Tropical Cyclones* section

### Malaysia, northern Sumatra, Sri Lanka and southeast India

#### Weather

Even though it is the 'rainy season' in this region heavy rainfall is expected through the next week, with some places seeing up to 300 mm through the next week (equivalent of 50-75% of the average monthly rainfall at this time of year).

## Discussion



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## Daily Global Weather Impacts Assessment

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With the MJO in the process of entering the Indian Ocean the ITCZ in the northern Indian Ocean is expected to become more active through the next week, resulting in more widespread intense convection.

### **Expected Impacts**

Increased threat of flash flooding and landslides.

### **Australasia**

Nil.

### **Additional Information**

**Eastern Australia – Wildfire:** Numerous bushfires continue in parts of eastern New South Wales, Victoria and Australian Capital Territory, and conditions conducive to wildfires are expected to continue over the next couple of days. A cold front will bring some rainfall and introduce cooler air across the region through the weekend, which will likely lower the wildfire threat and aid the containment of existing wildfires going into next week.

**Issued at:** 290815 UTC    **Meteorologists:** D J Harris / Tony Waddle

**Global Guidance Unit**

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

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