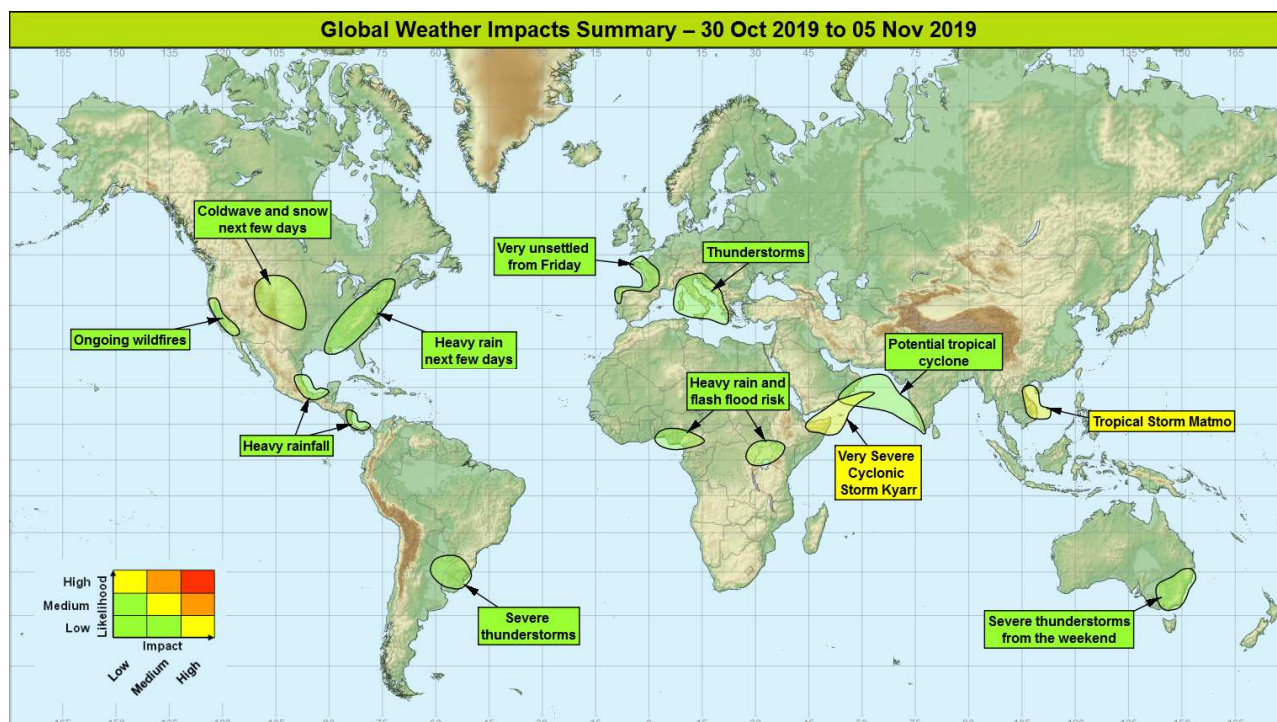


**Global Weather Impacts – Wednesday 30<sup>th</sup> October to Tuesday 5<sup>th</sup> November 2019**

Issued on Wednesday 30<sup>th</sup> October 2019

**HEADLINES**

- Very heavy rainfall over parts of Southeast Asia, in particular central Vietnam.
- Potential for another tropical cyclone to form in the Arabian Sea in addition to Kyarr.



**DISCUSSION**

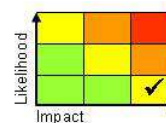
**Tropical Cyclones**

**Very Severe Cyclonic Storm Kyarr (Arabian Sea)**

**Weather**

Kyarr became the joint strongest tropical cyclone on record in the Arabian Sea last Sunday (based on maximum sustained winds of 150 mph) with the lowest ever central pressure (915 hPa) recorded for an Arabian Gulf tropical cyclone. Over the last couple of days Kyarr has slowly weakened but still has maximum sustained winds of 90 mph. Kyarr remains over the open Arabian Sea with a consistent signal for the system to track southwestwards over the coming days. This will keep the worst conditions offshore but heavy rain (up to 25-50 mm) and strong winds remain possible for the southern Oman and southern Yemen coast (average monthly rainfall is 5-10 mm). Kyarr looks most likely to reach the Yemen island of Socotra by the weekend but should have weakened substantially by this time. However, this system could bring heavy rainfall (up to 200 mm) to northern parts of Somalia this weekend and into next week. This would be over a years worth of rain in just a day or two.

**Discussion**



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

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Kyarr achieved an estimated minimum pressure of 915 hPa on Sunday, surpassing Super Cyclonic Storm Gonu in 2007. The intensity, based on official advisories from IMD, equalled that of Gonu. There is a fairly consistent signal for Kyarr to track southwest on the next few days, but with some model differences in how close the system gets to the Arabian Peninsula. Whilst this will see it move over slightly lower SSTs it is the entrainment of drier air into the western and southern flanks of the system which will most likely see Kyarr gradually weaken, with the more northern EC and GFS tracks resulting in quicker weakening than the more southern GM track.

## Expected Impacts

Dangerous swells and rip currents are likely to affect much of the Arabian Sea coastline this week, with dangerous marine conditions continuing to affect this busy shipping lane. Although the centre of Kyarr is expected to remain offshore, there is still a risk of flash flooding from thunderstorms across coastal Oman and later Socotra. In addition, strong winds may be capable of lifting dust across the southeast of the Arabian Peninsula. Severe flood impacts look possible in northern Somalia from the weekend, hence the increasing in impact assessment.

## Tropical Storm Matmo (South China Sea)

### Weather

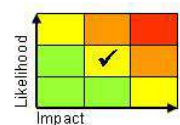
Tropical Storm Matmo was located 70 miles east of central Vietnam at 0600 UTC on Wednesday morning with sustained winds of 55-60 mph. This system is expected to make landfall later on Wednesday in central Vietnam bringing 2 or 3 days of intense rainfall to central and northern Vietnam, with up to 500 mm accumulating by the end of the week in places (up to twice the average monthly rainfall). However, Matmo will decay as a tropical storm through the day on landfall, but the remnants of Matmo will continue westwards across SE Asia, and may reappear across the Bay of Bengal as a tropical cyclone next week.

### Discussion

An equatorial Rossby wave was the trigger for the enhanced convection that formed Matmo across the South China Sea. There is good model agreement for the rapid decay of this system on Wednesday as it makes landfall, and for a heavy rain event in Vietnam. There is also reasonable agreement for the remnants of Matmo to reappear in the Bay of Bengal next week as a potential tropical cyclone.

### Expected Impacts

An increased likelihood of flash flooding and landslides across the Indochina peninsula, in particular the central and northern coastal region of Vietnam, and perhaps also Hainan.



*The following area is being monitored for tropical storm development that may affect land in the next 7 days:*

## Arabian Sea (including southern India)

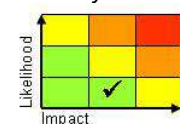
### Weather

An area of widespread and organised heavy showers and thunderstorms currently lies just off the southwest coast of India. This area is expected to track northwest adjacent to the Indian coastline over the next few days, likely developing into a tropical storm. Should this occur over the next couple of days this would be the first time on record (records dating back to the 1970s) that two Arabian Sea cyclones have existed simultaneously. Irrespective of the development heavy showers and thunderstorms will continue across parts of southern and southwest India over the next couple of days with the potential of 50-100 mm of rain to fall within a few hours in places along the coastline. By the start of next week this system could have tracked north to affect the southern fringe of the Arabian Peninsula, but here is a high level of uncertainty by then.

### Discussion

An equatorial Rossby wave has developed following the passage of the MJO across the Indian Ocean, which has now passed the southern tip of India. Imagery shows an associated area of deep convection gradually becoming more organised over the last 24 hours. Whilst there is a consistent signal for the resulting surface depression to initially track northwest, the rate of intensification is more uncertain. By the weekend a bifurcation of tracks emerge with the system either turning northeast into northwest India or curving west towards the Arabian Peninsula. At this stage, the latter is the favoured outcome.

### Expected Impacts



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Flash flooding and landslides are the most likely impacts. Significant swells and rip currents could once again affect the Arabian Sea coastline of India later this week.

## **Europe**

### **Italy, Greece and western parts of the Balkans**

#### **Weather**

Heavy showers and thunderstorms will continue across these areas over the coming week. Whilst most areas will avoid the heaviest rain there is still the potential for 50-75 mm of rain to fall within a few hours in places. During Friday and over the weekend, the wettest conditions are likely to become focused across western parts of the Balkans with 100-150 mm falling in places each day. Thunderstorms will bring additional hazards of large hail, frequent lightning and localised strong winds.

#### **Discussion**

A cyclonic upper pattern will persist through the next week leading to a continuation of unsettled conditions. As upstream mobility increases this will see a number of Atlantic plumes drawn across the region from Saturday which will act as a focus for heavy rain and thunderstorms.

#### **Expected Impacts**

Increased likelihood of flash flooding causing damage to property and infrastructure. Lightning strikes, large hail and tornadoes could also produce localised significant damage.



### **Western France, northern Spain and Portugal**

#### **Weather**

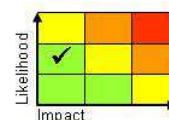
Conditions will turn increasingly unsettled from Friday onwards with spells of heavy rain followed by heavy showers. This will see rainfall totals of 50-100mm build up quite widely with parts of northwest Spain potentially seeing 200-300mm. There is also the potential for a number of disruptive strong wind events, more especially from Saturday onwards although confidence is currently low for details.

#### **Discussion**

South-shifted Atlantic mobility is expected to breakthrough later this week and into the weekend. This will steer a number of Atlantic systems into northwest Europe. With the PFJ axis likely to become established near 45 north there will be the potential for several deep low pressure systems to develop on its cold side bringing a risk of stormy conditions into Biscay and adjacent coasts.

#### **Expected Impacts**

Strong winds may bring disruption to transport and damage to infrastructure which could lead to power outages. Dangerous coastal conditions due to large waves and spray. Increased but low likelihood of flooding.



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## **North America**

### **Central USA and Rockies**

#### **Weather**

Widely below average temperatures are expected to affect a central swathe of the USA through the next few days. Daytime maximum temperatures are expected to be some 15-20°C below average across the eastern Rockies and Central Plains. Some heavy snow is also expected, particularly over Colorado, Nebraska and Kansas into Wednesday where up to 30 cm of snow is possible.

#### **Discussion**

An upper trough has introduced a Canadian airmass across the Rockies and Great Basin into the northern and central Plains. However, this will be reinforced by a colder airmass of arctic origin through Tuesday. Along each of these transitions, heavy snow is possible with the greatest likelihood of this affecting Colorado, including the Denver Metropolitan area.

#### **Expected Impacts**

Travel is likely to be impacted due to ice, snow covered roads and low visibility. Significant wind chill could cause frostbite for those exposed to very low temperatures.



### **Southern and eastern USA**

#### **Weather**

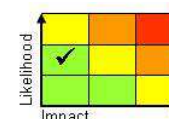
Spells of heavy rain are expected to affect the southeastern half of the USA through to Friday. Much of the region is expected to receive around 40-60 mm of rain over the next 3 days but with the potential for more localised totals of 100-125 mm (equivalent to the October monthly average). In addition to heavy rainfall, a developing area of low pressure could bring gales to a wide area of the northeast USA and southeast Canada toward the end of this week.

#### **Discussion**

A moisture-laden airmass from the Gulf of Mexico is expected to be drawn northeast ahead of a positively tilted upper trough that will slowly translate eastward through the working week. The warm conveyor belt is expected to bring widespread rain across the region, culminating in a potentially very wet and windy spell at the end of this week.

#### **Expected Impacts**

Increased likelihood of flash flooding causing some property and infrastructure damage, and transport disruption. Some additional disruption due to strong winds is possible at the end of this week.



### **California**

#### **Weather**

Winds are expected to pick up again into Wednesday and continue into Thursday likely exacerbating the severe fire conditions. Winds should ease again by Friday. The Kincadee fire in the Sonoma Valley has become California's biggest of 2019, has burnt 75,000 hectares. Over 120 structures have been destroyed and a further 90,000 are threatened.

#### **Discussion**

A return of the Santa Ana winds is expected on Wednesday and through Thursday. A state-wide emergency has been declared for California.

#### **Expected Impacts**

Extensive damage to property and infrastructure in areas affected. Power interruptions are also possible, in part as a preventative measure to reduce wildfire triggering. Poor air quality will be an additional hazard.



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## **Central America and Caribbean**

### **Southeast Mexico and southern parts of Central America**

#### **Weather**

These areas of Central America will see the most intense rainfall through the next week with up to 200-300 mm expected in places. Intense thunderstorms could produce as much as 50-100 mm in a few hours. Southeast Mexico will see the peak rainfall between Thursday and Sunday, with southern parts of Central America seeing peak rainfall from Saturday.

#### **Discussion**

A cold front will become slow moving across southeastern Mexico, producing prolonged heavy rainfall here with embedded deep convection likely due to the high sea surface temperatures of the Gulf of Mexico. Further south the cause of the heavier rainfall looks to be a Caribbean upper vortex (from a disrupted upper trough) that drifts south later this week to destabilise the resident high WBPT plume.

#### **Expected Impacts**

Flash flooding and landslides look like the most impactful events in this region.



## **South America**

### **Uruguay, northeast Argentina and southern Brazil**

#### **Weather**

Spells of heavy rain and severe thunderstorms are expected to affect over the next couple of days and then again over the weekend. Rainfall totals of 100-150 mm are possible in places each day. This equivalent to over a month's worth of rainfall (although this will only be in a few isolated locations). Frequent lightning, large hail and strong wind gusts will be additional hazards.

#### **Discussion**

The SACZ will become increasingly active during this period, enhanced by a southward extension of tropical air over central South America. This will allow a mixture of surface based and elevated convection (triggered by minor upper short waves) with severe thunderstorms possible across the area.

#### **Expected Impacts**

Flash flooding, transport disruption and a small risk of property damage from hail and wind gusts.



## **Africa**

**Somalia** – See *Tropical Cyclones* section.

### **Parts of central and eastern Africa**

#### **Weather**

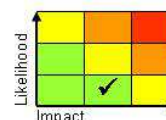
Conditions are expected to be close to normal over the coming days so whilst there will be heavy showers and thunderstorms in places any areas seeing above average rainfall will be very localised. However, with recent reports of impacts due to flooding (e.g. in northern Tanzania over the weekend) there is likely to be heightened sensitivity following a wetter than average period recently.

#### **Discussion**

A strong positive Indian Ocean Dipole (IOD) event continue although with the MJO now in Phase 3 this may be temporarily reducing the rainfall signal over east Africa. Based on the strength of the positive IOD event (largest since at least 2001) above average rainfall is likely to return over the coming weeks.

#### **Expected Impacts**

Continued increased likelihood of both flash flooding and flooding along some of the regions rivers. In addition there will be an enhanced risk of land/mudslides in areas of steep terrain.



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**Middle East**

**Oman and Yemen** – See *Tropical Cyclones* section.

**Asia**

**Western India, Vietnam along with parts of Laos, Cambodia and Hainan** – See *Tropical Cyclones* section.

**Australasia**

**Southeastern Australia**

**Weather**

Severe thunderstorm activity is expected to transfer northwards across southeastern parts of Australia this weekend and into next week. Up to 100 mm of rain could fall in a few hours, with large hail, frequent lightning and strong winds also likely. Ahead of the storms temperatures will be 5-10 Celsius above average, but temperatures will fall back to average or even below average in the wake of the storms.

**Discussion**

An active cold front will push northwards across southeastern parts of Australia from the weekend, with strong forcing from a sharp upper trough combining with very warm pre-cold frontal air to produce conditions for severe thunderstorm development,

**Expected Impacts**

Danger to life from flash flooding, large hail and frequent lightning. Aviation and power network disruption also likely.



**Additional Information**

Nil.

**Issued at:** 300820UTC    **Meteorologists:** Chris Bulmer / Paul Hutcheon

**Global Guidance Unit**

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

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