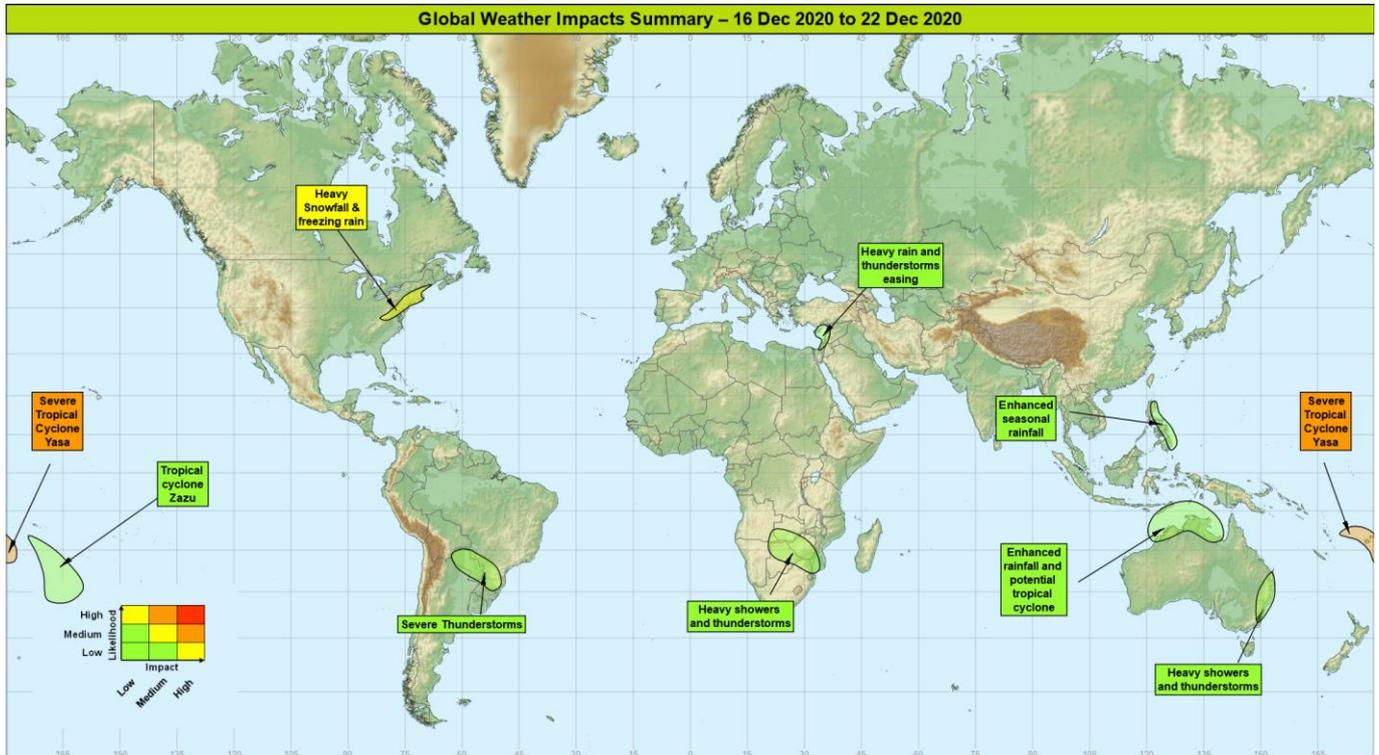


## Global Weather Impacts – Wednesday 16<sup>th</sup> to Tuesday 22<sup>nd</sup> December

Issued on Wednesday 16<sup>th</sup> December 2020

### HEADLINES

- Severe Tropical Cyclone Yasa expected to impact to Fiji during later today or Thursday.
- Heavy snowfall and freezing rain likely across a densely populated area of northeast USA on Wednesday and Thursday.



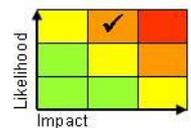
### Tropical Cyclones

#### Severe Tropical Cyclone Yasa (Fiji)

##### Weather

Severe Tropical Cyclone Yasa, named on Sunday, is the first tropical cyclone of the season in the South Pacific. It is currently located between Fiji and Vanuatu is expected to track either close to or over the main islands of Fiji (Viti Levu / Vanua Levu) – on Thursday (European time). Yasa has strengthened now to a “Category Cyclone 5” according to the RSMC in Fiji, with mean winds of over 120mph – please note that this is **not** equivalent to a NHC Atlantic Category. Although some weakening is expected through the next 24 hours, Yasa is likely to continue to produce hurricane-force winds and will bring heavy rainfall widely across the islands with 250-500mm signalled to fall in a day or so. Typically around 325mm is seen in the very wettest months of the year in this region, so Yasa may bring a months’ worth of rain within a day.

##### Discussion - Over page



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## Discussion

Although some weakening is signalled over the next 24 hours, Yasa is still expected to be a very powerful storm as it passed across Fiji, most likely on Thursday morning European time. During today the system will continue to be steered towards the east-southeast as an upper trough approaches from the west. There is now a better degree of agreement between model solutions, with the official track taking Yasa directly between Vanua Levu and Viti Levu, which is within the envelope of solutions from other global model output. The Met Office track is similar, but perhaps favouring a track slightly closer to Vanua Levu. Thereafter a continued track to the southeast then southwest is signalled with the system gradually weakening as it passes over ever-lowering SSTs, but still capable of bringing damaging winds to Fiji's numerous small islands.

## Expected Impacts

Flash and riverine flooding likely along with an enhanced risk of landslides across Fiji's main large and mountainous islands. Winds are likely to be strong enough to cause damage to buildings and infrastructure with a threat of some destruction close to the central track of Yasa. High waves and storm surge capable of inundating low lying coastal regions. Disruption to transport and utilities is expected. Yasa has the potential to be of similar strength to Cyclone Harold which impacted Fiji during April 2020.

## Tropical Cyclone Zazu Southwest Pacific (Tonga and Niue)

### Weather

Zazu will continue to track southeastwards, and gradually diminish in intensity over the rest of the week. It is now clear of land and out into the open southwest Pacific, although a few showers, strong winds and long-period swell may still affect parts of these islands at first.

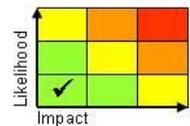
### Discussion

Zazu is now being steered southeastwards over the open southwest Pacific Ocean. In the coming days, it will move across much cooler SSTs loose convective activity, however, interaction with a mid-latitude upper trough could see a short term increase in maximum wind speeds as symmetry and convection associated with the system wains.

### Expected Impacts

As winds ease, the main hazard will be the residual swell but this will diminish with time too.

*The following areas are also being monitored for tropical cyclone development that may impact land over the coming 7 days.*



## Timor Sea (Northern and northwestern Australia)

### Weather

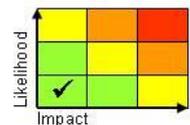
An area of enhanced shower and thunderstorm activity in the monsoon trough across the northwest of Australia may consolidate into a tropical low close to the northern coastline of Australia in this region later this week. There is a low risk that this system could strengthen into a tropical storm. Regardless of development heavy rainfall is expected across this sparsely populated region with many locations seeing 200-300mm through the coming week, locally more if a tropical cyclone does form.

### Discussion

An Equatorial Rossby Wave (ERW) will move gradually west and enhance vorticity along the monsoon trough. This and the enhanced convection associated with it could consolidate vorticity and potentially allow a tropical storm to form in this region, if this process happens quickly a cyclone could form in the Gulf of Carpentaria, but more likely will occur in the Timor Sea later in the week.

### Expected Impacts

Some minor disruption from flash or riverine flooding, with the potential for strong winds, high seas, and a modest storm surge to cause some minor damage and disruption across the sparsely-populated region.



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## Europe

### Cyprus and the Levant coastline

#### Weather

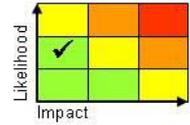
Following an exceptionally stormy start to the week when tornadoes, large hail and heavy rainfall were reported across this region, the situation should start to quieten down from now onwards. There will still be some heavy showers/thunderstorms around today though, and the main hazard will be rainfall. Although always variable in association with showers a further 50-75mm rainfall is expected in a few places (most probably along the Levant coastline).

#### Discussion

An upper vortex/cold pool lies across this region with a co-located cyclonic surface low, promoting deep convection over the warm underlying sea in this region. The centre of gravity of both the upper and surface patterns will transfer eastwards over the next couple of days in response to an upstream ridge building to the west, with more benign settled conditions becoming established across this region by Thursday.

#### Expected Impacts

Localised flash flooding. Rough sea conditions will be hazardous for small craft at first.



## North America

### Eastern/Northeastern USA

#### Weather

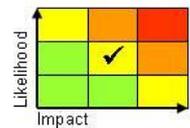
During today and tomorrow, an area of low pressure will move up the eastern coast of the USA, bringing a band of rain and heavy snow, which is expected to sweep northeastwards across this region in the next day or two. As the system progresses northward, snow will become more dominant, and some locations could see 30-50cm of snow falling within 24 hours. To the south of the snow area, heavy rain will fall, however, this is unlikely to bring many impacts. There is still some uncertainty regarding the exact location of the rain/snow partition, but most solutions bring heavy snowfall very close to some of the region's large population centres and major transport networks, i.e. New York/Baltimore, particularly the areas away from the immediate coast. In a few places there is also a risk of freezing rain, which could coat surfaces with ice and lead to locally treacherous conditions.

#### Discussion

A low latitude trough in the jet stream will initiate a major cyclogenesis event across the Carolinas on Wednesday, with the developing low then being steered northeast along the Eastern Seaboard of the USA. Although this low will bring heavy rainfall and strong winds, the main impacts are expected on the northwestern flank of the system where precipitation bands override and interact with cold air resident in the region, leading to an increasing risk of heavy snowfall and a risk of freezing rain as well.

#### Expected Impacts

Significant impacts are possible from falling snow for the transport and utility networks particularly in parts of this densely populated region. While not as widespread, freezing rain could locally produce very dangerous conditions, coating many surfaces with sheet ice – possibly bringing down power lines and other infrastructure. In addition, weather-related accidents and related health conditions will likely place additional strain on the region's health care system.



### Central America and Caribbean

Nil.

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## South America

### Paraguay, northern Argentina and southern Brazil

#### **Weather**

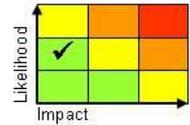
Further bouts of heavy showers and locally severe thunderstorms are likely to affect this region at times through the coming week. Rainfall totals will vary over short distances, but in the wettest locations 50-75, locally 100 mm of rain could fall in a short period. The Paraguayan capital Asuncion sees 150 mm of rainfall on average through December.

#### **Discussion**

Lobes of forcing acting on the resident warm plume will trigger repeated bouts of convection through the coming days. Forecast profiles support in excess of 2000 j/kg CAPE so some locally severe and organised storms are possible.

#### **Expected Impacts**

The main impacts are likely to be from flash flooding. Strong gusts of wind and hail may also cause some localised issues.



## Africa

### Areas of southern-central Africa

#### **Weather**

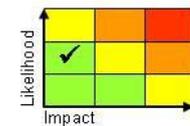
The rainy season continues across this region with further enhanced shower and thunderstorm activity over the coming week. Showers will be capable of bringing 50-100 mm of rainfall in a short duration with some locations seeing as much as 150-250 mm during the week. Typical December rainfall totals in this region are around (200-250 mm).

#### **Discussion**

As is typical for the time of year the plume of tropical air has been drawn southwards across the region of high topography, with weakening mid-latitude fronts (are their moisture footprints) making some northwards progress across the far south of the continent. This will lead to diurnal rounds of deep convection, aided by enhanced surface convergence close to the frontal zones. Profiles tend to show low shear, high precipitable water suggesting the heavy rainfall and lightning the most probable hazards.

#### **Expected Impacts**

Some flash and minor riverine flooding expected with an enhanced risk of landslides. Lightning will be an additional hazard.



## Middle East

Levant coastline – See *Europe* section.

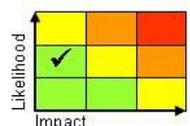
## Asia

### Parts of The Philippines

#### **Weather**

Seasonal heavy showers and thunderstorms will be more frequent and intense than usual through the coming week, with the most at-risk regions highlighted. Within rainfall totals of 50-100mm could occur in just an hour or so, with isolated spots in these regions perhaps seeing 250-500mm of rainfall through the coming week. Typically this region sees around 300-400mm of rainfall during the whole of December.

#### **Discussion**



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Within the context of the La Nina background state which favours above-average convection across this region, the passage of at least one Kelvin Wave and Equatorial Rossby Wave (ERW) couplets his area will lead to further enhanced convection in this region. PWAT is in excess of 60 mm with a high skinny CAPE environment suggestive heavy rainfall being the primary hazards.

### Expected Impacts

Potential for flash flooding and an enhanced risk of landslides.

### Australasia

**Vanuatu, Fiji, Tonga and Niue** – See *Tropical Cyclones* section.

**Northern and northwestern Australia** – See *Tropical Cyclones* section.

### Southeast Queensland and northeast New South Wales, Australia

#### Weather

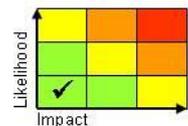
Heavy showers and thunderstorms, and perhaps more prolonged spells of heavy rain will continue today, though should gradually ease. However, during this time they could still bring a total 25-50mm if rainfall to a wide area between Brisbane and Canberra, with the potential for up to 100mm of rainfall in northeastern New South Wales. This on top of what has already fallen in recent days.

#### Discussion

A mid-latitude upper trough (cold pool) disrupted and formed a cut-off low across eastern Australia over the weekend, this feature will decay as it sinks slowly southeast through the next couple of days. Beneath this northeasterly winds draw tropical moisture across the region from the Coral Sea (PWAT is widely 40-50mm within this airmass), resulting in heavy showers and thunderstorms capable of bringing heavy rainfall to the region. A further trough extension will likely bring renewed shower activity to the region over the weekend.

#### Expected Impacts

Increased risk of flash and riverine flooding.



### Additional information

#### Northern India, Pakistan, Afghanistan and parts of eastern China

Urban pollution will continue to generate high levels of air pollution in this area over the coming months. Hazardous air quality has continued to be reported in cities in the area including Delhi, Varanasi, Lahore, and Kabul.

#### Large parts of central and eastern Asia

Very cold air from Siberia/Russia will affect these areas through the coming week, with temperatures 5-10°C below average, with some very cold nights. This will impact upon vulnerable members of the population lacking shelter and heating, particularly in places like Pakistan and India.

**Issued at:** 160845UTC

**Meteorologists:** Chris Almond / Mark Sidaway

**Global Guidance Unit**

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

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