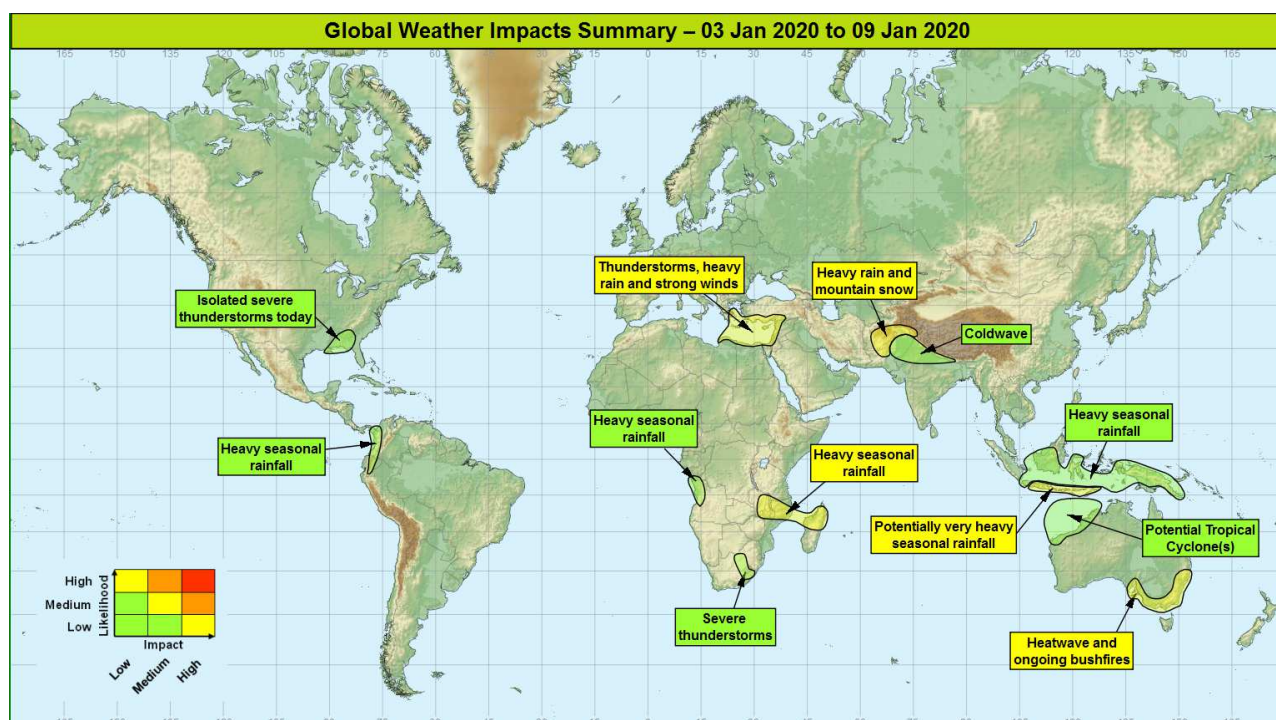


## Global Weather Impacts – Friday 3<sup>rd</sup> January to Thursday 9<sup>th</sup> January 2020

Issued on Friday 3<sup>rd</sup> January 2020

### HEADLINES

- Heavy rain and thunderstorms affecting the east Mediterranean and adjacent coasts.
- Conditions conducive for further wildfire growth and spread in Australia the next few days.
- Continued heavy seasonal rainfall in parts of eastern Africa and Indonesia.
- Further rainfall and mountain snowfall across Afghanistan and northwest Pakistan.



### DISCUSSION

#### Tropical Cyclones

*There are no active tropical cyclones at present. The following area is being monitored for potential:*

#### South-east Indian Ocean Weather

There is potential for the development of a tropical cyclone in the Timor Sea this weekend, with any system likely to be steered south-westwards, either across or close to the sparsely populated northwest of Australia early next week. This could bring strong winds and heavy rain to the region. In addition there are tentative signs for the potential develop of a further system in this region next week.

#### **Discussion**

A cold front will make progress across western Australia and reach the Timor Sea this weekend. This feature will draw tropical air south-eastwards leading to deep convection, with vorticity maintained across the frontal boundary helping organise this. A closed circulation is expected to develop over the weekend, with conditions favourable for a tropical cyclone to form (SSTs of  $>32^{\circ}\text{C}$ ), and be steered south-westwards towards the northwest of Australia. A marked MJO is expected to emerge in this region over the weekend or early next week, which would help with tropical cyclogenesis.



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

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## Expected Impacts

Any impacts would likely be confined to the sparsely populated north-west of Australia.

## Europe

**Eastern Mediterranean including southern Turkey, Crete, Cyprus, western Syria, Lebanon, Israel, and northern Libya and Egypt**

### Weather

Further spells of very unsettled weather with heavy rain, thunderstorms and some mountain snow are expected over the next 7 days. Precipitation accumulations will be highly variable but some places could receive over 200 mm through the week, with the potential for 50 mm or so to fall within a few hours. Strong to gale force winds will build rough seas at times through the Aegean Sea. Thunderstorms may spawn a few waterspouts/tornadoes in the eastern Mediterranean.

### Discussion

A highly amplified upper pattern will see repetitious upper trough extensions across the eastern Mediterranean, spawning surface lows in the same region. This will promote shower/thunderstorm activity over the comparatively warm underlying seas. Showers will be focussed onto the various WBPT plumes wrapping around the surface lows, and driven onto the coasts by the steering flows. Cold air will often feed south through the Aegean, meaning that a fair amount of these showers will fall as snow to relatively low elevations across the region. Crete in particular will likely see significant hill snow above 700-800 M elevation at times.

### Expected Impacts

Increased likelihood of flash flooding, river flooding and landslides in areas where terrain is steep. Significant snowfall will lead to travel disruption across high roads of Greece (and the islands), with perhaps an unusually high risk of avalanches. Localised damage to property and infrastructure is also possible from lightning and waterspouts moving onshore. Dangerous sea conditions are likely at times through the Aegean Sea.



## North America

**South-eastern USA**

### Weather

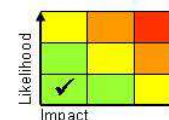
Through Friday an area of low pressure will bring heavy rain and thunderstorms to the some of the south-eastern United States. Some 30-60mm of rain is likely. A few storms may become severe bringing a threat of damaging winds and isolated tornadoes close to the Gulf coastline.

### Discussion

A complex, longwave trough has developed east of the Rockies and is now tracking NE. Ahead of this low, moisture drawn up from the Gulf will be overlain by strong vertical shear which may just about be capable of producing bow line segments and perhaps a few discrete supercells. Convective initiation may be a challenge due to abundant cloud cover in the moisture plume, and weak surface heating at this time of year. However, with PWAT in the 45mm range, some heavy rain is likely regardless.

### Expected Impacts

Flash flooding is possible, as well as localised damage to property and infrastructure from strong winds and lightning.



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**Central America**

**Southern Panama** – See *South America* section.

**South America****Panama, western Colombia, Ecuador****Weather**

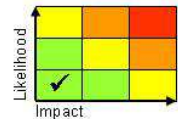
Continued heavy seasonal rainfall in the form of more widespread / frequent thunderstorms will affect areas close to the northern Andes Mountains, and southern extremity of Central America through the next week. Up to 100-200 mm of rainfall is expected in places (this is getting towards the average for the whole of January in parts of this region).

**Discussion**

With the South American Monsoon now extending well southward, daily rounds of showers and thunderstorms are expected to form to the west of the Andes of Colombia and Ecuador. The region highlighted has seen above average rainfall during the past weeks. During the next week a signal for the emergence of a strong MJO in phase 4 or 5 is likely to lead to precipitation accumulations falling below average in this area.

**Expected Impacts**

Enhanced likelihood of flash flooding and landslides

**Africa****Parts of eastern Africa, including Madagascar and Mozambique****Weather**

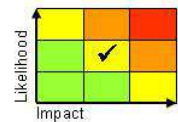
Although less pronounced than previous weeks, slightly more widespread/frequent thunderstorms are expected to continue across this region, with well above average activity expected to persist across Madagascar, as well as in the vicinity of Lake Malawi. A further 100mm could fall across parts of eastern Africa, with nearer 400mm possible across northern Madagascar through the next seven days.

**Discussion**

During tropical cyclone Calvinia's extratropical transition, the mid-latitude cold front associated with the system was pushed northeast to reach this region, before becoming slow-moving as the steering flow weakened against the regions trades. In this locality the near stationary front will be engaged by various troughs in the sub-tropical jet, causing shower and thunderstorm activity to continue at above normal levels.

**Expected Impacts**

There will be an enhanced likelihood of some flash flooding and landslides given the already wet conditions. River flooding has been reported across parts of northern Mozambique.

**Gabon, Republic of Congo, DRC and northwest Angola****Weather**

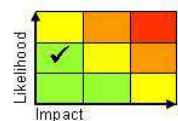
More frequent shower and thunderstorm activity is expected across this region over the coming days, before activity returns to near normal levels by the beginning of next week. During this time locally 50-100mm of precipitation could fall within a day (often falling over a much shorter duration). These values are close to the average value for the whole of January for this region which has been much wetter than average during previous weeks.

**Discussion**

A strong surge in the Harmattan winds across the Sahara are expected to penetrate all the way down into the Gulf of Guinea. These will both enhance convergence along the ITCZ (enhancing shower and thunderstorm activity), and lead to the zone of convergence becoming slightly south shifted compared to climatology. As this surge in the Harmattan eases next week precipitation in this region is expected to return close to climatology.

**Expected Impacts**

There will be an enhanced likelihood of some flash and river flooding. In addition a greater risk of landslides in areas where terrain is steep.



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**South Africa, Eswatini and Lesotho****Weather**

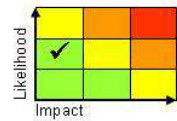
Several bouts of heavy showers and thunderstorms are likely across this region over the coming week, with Saturdays round looking particularly severe. These storms have the potential to bring 50-100mm of rainfall within a matter of hours, produce strong winds, and large damaging hail.

**Discussion**

Heat lows forming over the high South African plateau will help draw hot air southwards from the sub-tropics across the east of the country, leading to steep lapse rates in the elevated mixed layer above. Should convection trigger, profiles suggest in the region of 4000-5000 J/kg of CAPE could be released, with wind shear sufficient to allow some organisation and longevity to individual cells.

**Expected Impacts**

Potential for flash flooding, frequent lightning, large hail and strong wind gusts. A threat to life and infrastructure is also likely

**Middle East**

**Western Syria, Lebanon and Israel** – See *Europe* section.

**Asia****Afghanistan and north-western Pakistan****Weather**

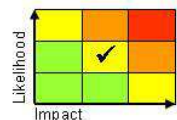
Following extreme precipitation across the region in recent days, with rain in the southwest and heavy snow falling elsewhere, a potent cold spell will now follow over the next couple of days. Minimum temperatures are likely to be exceptionally low for the region, for example to less than -10°C in Kabul. From Sunday a further spell of very wet and snowy weather spreads across the region. An additional 25-50mm of rain may fall across the usually arid southwest of the region, with potential for an additional metre of snow over the high mountains. As context, the mean precipitation for Kandahar in the south-west of the country in January is 45.8mm.

**Discussion**

The very disturbed weather across the eastern Mediterranean is signalled to shed several upper troughs into the zonal flow. The first of these is likely to cross Afghanistan on through the end of the weekend and into next week. The primary focus of ppn in association with resulting developments should be across the south of the country, where higher WBPT and PWAT allow for better rainfall chances. Further north, further heavy snow is likely across the Hindu Kush.

**Expected Impacts**

Flash flooding possible across the southwest of Afghanistan in particular, with disruptive snowfall for many elevated regions. Severe cold both before and after this event will likely impact vulnerable and exposed populations, with a rapid return to poor air quality as fires are needed for heat.



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## North India, Nepal and eastern Pakistan

### **Weather**

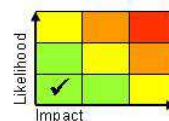
Temperatures have now recovered to nearer average across northern India and Pakistan; however a further cold spell is expected later this week and next week across the north of this region, with temperatures some 6-10°C below normal. Although the initial cold will coincide with precipitation, eventually more settled conditions will prevail with the return of dense fog and very poor air quality.

### **Discussion**

A continued succession of western disturbances originating from the Mediterranean and are expected to cross the region over the coming week. With suppressed daytime temperatures due to cloud cover as the disturbances cross, and cold airmasses being drawn south across this region in the wakes of the various disturbances. Colder than average temperatures will contribute to much poorer than average air quality in the region due to the increased demand for heating.

### **Expected Impacts**

Poor visibility has already, and will continue to, affect air, road and rail networks in the region. Below average temperatures are also likely to have a human health impact to vulnerable people exposed to near freezing overnight temperatures.



## Central and eastern Maritime Continent

### **Weather**

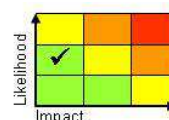
Scattered heavy showers and thunderstorms will be more frequent than usual over the next week. Some places are likely to receive up to 100-200 mm per day, although rainfall amounts will be highly variable from location to location. Much of this region has been anomalously dry over recent months, however this rainfall falling over a short duration will still likely lead to some modest and highly localised impacts similar to those seen across parts of Sumatra and western Java in recent days.

### **Discussion**

Convection has undergone an uptick in activity in recent week as the Indian Ocean Dipole (IOD) has rapidly decayed, and in recent days a marked cold surge and the passage of an equatorial Kelvin Wave has brought enhanced shower and thunderstorm activity to the region. This weekend or early next week models are consistently signalling the emergence of a strong MJO in the region which would lead to continued above average convection across the region.

### **Expected Impacts**

Increased likelihood of flash flooding and landslides.



## Central Java to Timor-Leste

### **Weather**

As discussed in the previous section, showers and thunderstorm activity is expected to be well above average over the coming week in area, however within this sub-region there are signals that locally the rainfall accumulations could be exceptional reaching over 500mm. This would represent more than a month's worth of rainfall falling within a week, with the potential for 50-100mm to fall in a matter of hours

### **Discussion**

In addition to the factors surrounding the decaying IOD and emerging MJO, the likely formation of a tropical cyclone in the Timor Sea is likely to further enhance deep convection in this region. This is likely to be achieved by cyclone helping to generate anomalously strong west to south-westerly winds and resulting in enhanced low level convergence across this region, promoting deep energetic convection in this zone.

### **Expected Impacts**

Much increased likelihood of flash flooding and landslides.



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**Australasia****Parts of southern and eastern Australia****Weather**

Numerous bush fires continue across parts of Victoria, eastern New South Wales, south-eastern Queensland and Australian Capital Territory with dry conditions persisting across much of the region. Following a respite from the severe heat through the middle of this week, a further burst of heat from the northwest will occur over the next few days, with maximum temperatures rising above 45°C in some places later this week (15°C above average).

**Discussion**

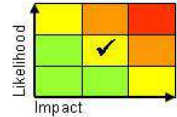
Ahead of a further cold front hot dry air drawn from the interior of the continent by strong gusty winds will the extremely hazardous fire weather conditions developing across many regions where numerous large wildfires are already burning. The cold front will bring some welcome rainfall across parts of Southern Australia and Victoria, but this rainfall is unlikely to reach New South Wales in any great quantity. In New South Wales thunderstorms along the cold front may actually end up igniting more wildfires.

**Expected Impacts**

The sheer size of many ongoing fires will continue to produce large amounts of small particulates that will contribute to hazardous air quality for several weeks to come, affecting heavily populated areas such as Sydney. Since September the bushfires have killed 18 people, and destroyed over 1200 homes across NSW and Victoria. A state of emergency has been declared for New South Wales which will begin on Friday, and last for a week.

**Additional Information**

Nil.



**Issued at:** 030805 UTC    **Meteorologists:** Nick Silkstone / Jason Kelly

**Global Guidance Unit**

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

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