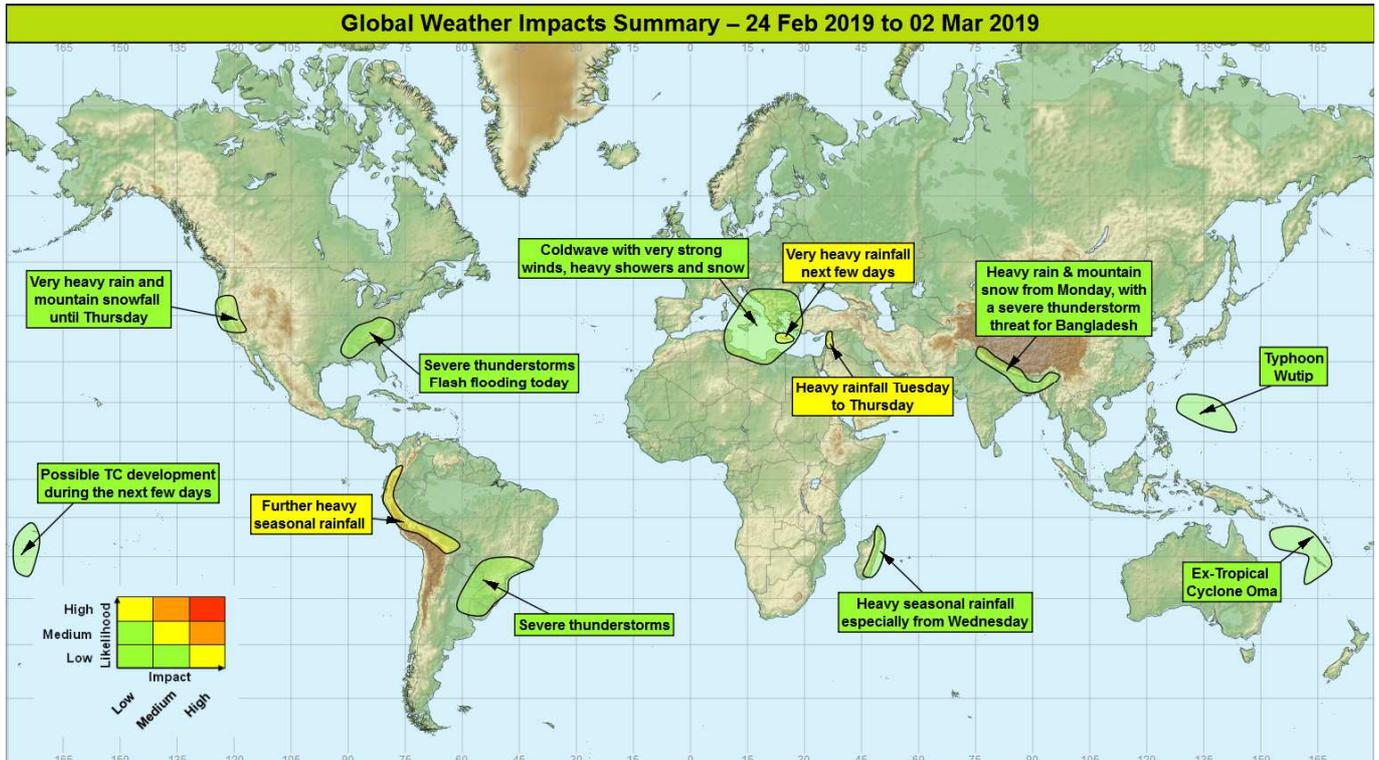


## Global Weather Impacts – Sunday 24<sup>th</sup> February to Saturday 2<sup>nd</sup> March 2019

Issued on Sunday 24<sup>th</sup> February 2019

### HEADLINES

- Heavy rain and thunderstorms continuing over Colombia, Ecuador, Peru and Bolivia with flooding likely.
- Significant flash flood threat to Crete through the next few days.
- Flash flood threat transferring east into the Levant coastline from Tuesday.
- Early start likely to the Bangladesh severe storm season this week.



### DISCUSSION

#### Tropical Cyclones

#### Typhoon Wutip (Northwest Pacific)

##### Weather

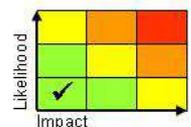
Typhoon Wutip is located near 12.7 degrees North 141.9 degrees East at 24/0300Z, and was slow-moving. Sustained winds associated with Wutip are 115 mph, with gusts to 161 mph. During the next few days Wutip is expected to weaken as it tracks slowly northwestwards, further away from Guam. Through the coming week Wutip is expected to continue on a northwest track across open water as it continues to weaken.

##### Discussion

There is fairly good model agreement for this evolution of Wutip during the next week. The loss of strength next week will be due to Wutip moving far enough north to encounter increased wind shear from the sub-tropical jet while also encountering slightly cooler water.

##### Expected Impacts

The forecast track of Wutip keeps it over open waters, with the threat to the Marianas Islands, including Guam, looking to be over. The expected track should preclude landfall, with the only impacts for marine transport in the vicinity.



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

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## Ex-Tropical Cyclone Oma (Coral Sea and New Caledonia)

### Weather

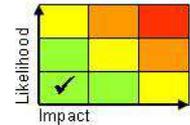
Ex-Oma, situated near 26.5 degrees South 163.7 degrees East was declassified as a tropical cyclone on Saturday, having become sub-tropical, but this system is still producing winds of tropical storm force (mean wind speeds of 39-73 mph). The forecast track of Ex-Oma is expected to take it northeastwards across New Caledonia early in the week as a weakening system. The track thereafter is increasingly uncertain, but there is confidence that this system will weaken further. The transit across New Caledonia could produce a further 25-50 mm of rain across an island that received large rainfall totals when Oma tracked south last week.

### Discussion

Oma has been engaged by a mid-latitude upper trough, which has resulted in it losing true tropical cyclone characteristics due to increased vertical wind shear. There is now better model agreement for a track northeast across New Caledonia and for the system to weaken. However, there remains a large model spread thereafter even though all models weaken the system further. BoM have placed a 5-20% probability of this system regaining tropical characteristics through the next 3 days.

### Expected Impacts

Despite Ex-Oma being expected to track across New Caledonia no significant impacts are likely due to the weakened status of the system. The main impact will be the severe gales and high seas to marine transport in the region.



## *The following area has potential for Tropical Cyclone development:*

### Southwest Pacific (Samoa and Tonga)

### Weather

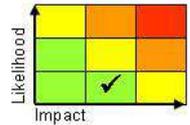
There is the potential for a tropical cyclone to develop close to Samoa through the next few days, and track south across Tonga during the first half of next week. There is still low confidence in the details of this event, but there is the potential for heavy rainfall and very strong winds for a time.

### Discussion

An equatorial Rossby wave could assist in the development of a tropical cyclone close to Samoa by the start of next week, although there is not unanimous model agreement for this. All models do track a system south across Tonga early next week, but with uncertainty on the intensity of this system. RSMC Fiji has placed a moderate to high probability of a tropical cyclone development by Tuesday.

### Expected Impacts

If this system develops, there is a threat of flash and coastal flooding along with wind damage.



## Europe

### Central Mediterranean, Southeast Europe, Tunisia and northern Libya

### Weather

This coldwave event has now reached across the central Mediterranean and into North Africa, with temperatures 5-10°C below normal being experienced. The significant snow is likely to be restricted to northwestern Turkey and parts of Greece through the next few days. Over the central Mediterranean, frequent heavy showers/thunderstorms will continue, affecting Malta, northern fringes of Libya and some of the Greek Islands, which could bring very large amounts of rain (up to 100-150 mm in 24 hours), especially to Crete – see the next event. In addition, severe gales will continue across parts of this region, producing very rough seas and possible dense dust storms over Tunisia and Libya. The Dalmatian coastline saw a very strong Bora (very cold northeasterly wind) through Friday night and Saturday, with gusts as high 109 mph at Split. This Bora eased through Saturday night and will continue to ease through Sunday. Much more settled conditions will follow from the west towards midweek.

### Discussion

The major upper trough extension has taken place across the central Mediterranean, which resulted in a surge of cold air from the northeast, producing in a deeply unstable environment over the central Mediterranean bringing the potential for very strong winds and widespread heavy showers associated with the depression.



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## Expected Impacts

Widespread severe frosts, with temperatures by day and night well below normal. Snow may cause problems for air and land transport in northwestern Turkey and parts of Greece. Flash flooding is likely in association with intense thunderstorms. The winds may be strong enough to damage some structures and the power network, and will impact air and marine transport.

### Crete Weather

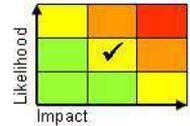
Very heavy rainfall is expected across Crete on Sunday and more especially on Monday. Frequent, heavy showers and thunderstorms will produce up to 200 mm of rainfall through the next few days, which compares to average February rainfall of 50-100 mm. The rain will fall as snow above 1200-1500 metres, resulting in unusually large amounts of mountain snowfall. In addition to the rain, there will be a threat of gales across the island and very rough seas around the Island.

### Discussion

A marked short wave upper trough will break forward from the central Mediterranean vortex, tracking towards Crete on Sunday. The upper forcing will engage a warm plume that will transfer north from eastern Libya, likely forming an occlusion that will be aligned west to east across Crete by Monday. Forecast profiles show skinny CAPE deep convection that could result in persistent heavy showers across Crete. Strong to gale northerly winds could also enhance rainfall through additional uplift across the Crete mountains. EFAS output shows 20-year return period flash flooding and extreme runoff accumulations.

### Expected Impacts

Significant threat of flash and river flooding, with an increased likelihood of landslides.



### North America

#### Parts of southeastern USA

### Weather

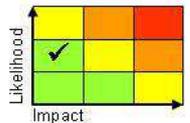
This part of the USA will see intense rainfall and severe thunderstorms this morning (Sunday) until a cold front moves through the region later in the day. There is the threat of large hail, very strong winds and tornadoes. Up to 50-100 mm of rain could fall in a 6-12 hour period.

### Discussion

A strong southwesterly upper flow combined with a warm, moist southerly low level flow will provide conditions for large CAPE/strong wind shear deep convection across some southeastern parts of the USA for a time today (Sunday). A cold front will sweep east to bring this event to an end later in the day.

### Expected Impacts

Threat of flash flooding. Disruption to travel/transport is also likely. Damage from severe thunderstorms, including large hail, very strong winds and a few tornadoes.



### Southern Oregon and northern California

### Weather

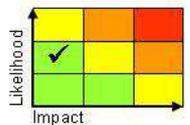
This region of the Pacific West will see several spells of very wet weather through to the middle of this coming week. This could result in up to 400 mm of rain accumulating, which is three times the average February rainfall. The rain will fall as snow on higher ground, increasing the snow pack across the Sierra Nevada.

### Discussion

A strong south-shifted Pacific jet stream will feed in a constant stream of Pacific moisture (known as the 'Pineapple Express'), resulting in a series of frontal systems impacting this part of the Pacific coastline that has seen very heavy rainfall (mountain snowfall) in recent months. The snowfall could descend as low as 800 metres above sea level initially, but the snow level will rise to 1800-2200 metres above sea level by midweek. There are still model differences regarding the position and persistence of frontal activity in this region.

### Expected Impacts

Flash, and an increasing likelihood of river, flooding. Increased likelihood of landslides. Increasing avalanche threat in the Sierra Nevada.



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## Central America and Caribbean

Nil significant.

## South America

### Northern Andes region (Southern Colombia, Ecuador, Peru and Bolivia)

#### **Weather**

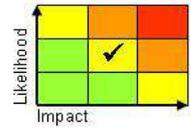
Frequent heavy showers and thunderstorms are expected to continue across the northern Andes region through the next week, extending into parts of Peru and Bolivia east of the Andes. Up to 100 mm of rain is possible each day in isolated locations (falling within the space of a few hours) with some places seeing a further 300-400 mm of rain over the next week, which would be slightly higher than the monthly average, coming on top of heavy seasonal rains through the last month.

#### **Discussion**

On Thursday 14<sup>th</sup> February, NOAA declared weak El Niño conditions in the Pacific (although the Australian Bureau of Meteorology maintains ENSO neutral conditions). Along the South American Pacific coastline north of NE Peru there are positive SST anomalies (as often seen on El Niño events), and these indicate a weakening of trade winds and the Humboldt Current in this region. This setup allows sea breezes to draw moist oceanic air to the usually dry western Andes, with an unusually high frequency of heavy showers and thunderstorms occurring here. There is also likely to be an input from the South Atlantic Convergence Zone as it moves north from Argentina.

#### **Expected Impacts**

Further flash flooding and landslides are a significant threat in the mountainous areas, even for places downstream of the mountains (where it may have been dry) as rainfall draining off the mountains causes usually dry rivers to rapidly rise and fall. Parts of Peru and Bolivia to the east of the Andes appear to have been badly affected so far, with a state of emergency declared in a number of provinces. Information on further impacts from the ongoing storms has been difficult to come by in recent days. Therefore, we continue to assess this event as yellow (medium likelihood of a medium impact event).



### Southeast Brazil, eastern Paraguay, far northeast of Argentina and Uruguay

#### **Weather**

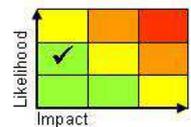
An area of severe thunderstorms is expected to continue transferring northwards over the 4 or 5 days. Rainfall totals in isolated locations may reach 75-150mm, with much of this falling in a short period of time; in addition other hazards associated with severe thunderstorms will be present.

#### **Discussion**

A southward extrusion of the monsoon plume across this region is being engaged by a shortwave upper trough in the sub-tropical jet stream, resulting in a South Atlantic Convergence Zone event, producing an active band of severe thunderstorms moving northwards across this region.

#### **Expected Impacts**

Potential for flash flooding. In addition large hail, frequent lightning, strong, gusty winds and the odd tornado may bring significant but highly localised impacts. Early next week the severe thunderstorms could reach some of the more populated and mountainous cities along Brazil's Atlantic coastline (such as Sao Paulo and Rio de Janeiro), with landslides will become an increased threat.



## Africa

Tunisia and northern Libya – See Europe section

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## Eastern Madagascar

### **Weather**

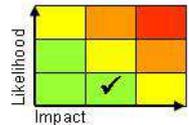
Heavy showers and thunderstorms are expected to affect eastern parts of Madagascar through the next week, especially from Wednesday. Up to 500 mm of rain could fall, with much of this perhaps falling in a few days, which is more than the February average of 300-450 mm.

### **Discussion**

The influence of a convectively coupled equatorial Rossby wave will produce an enhanced threat of heavy seasonal rainfall in eastern Madagascar through the week. The rainy season has been weak so far, so this rainfall could be welcome to the agriculture industry.

### **Expected Impacts**

Increasing threat of flash flooding and landslides through the week.



## Middle East

### Lebanon and western Syria

### **Weather**

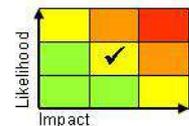
Through Tuesday, Wednesday and Thursday heavy showers and thunderstorms will affect Lebanon and the west of Syria. Up to 50 mm of rain could fall in a 6-12 hour period, with an event total of up to 150 mm. This compares to a February average rainfall of around 120 mm. The rain will fall as snow on the mountains. Strong winds on both days will pose a threat of dense lifted dust storms.

### **Discussion**

An upper trough will sweep east across the region, destabilising the boundary layer to produce deep convection. An upper ridge will follow to bring a more benign spell of weather. WBFL will be around 1500-1700 metres which will allow heavy snowfall to affect land above 1400 metres.

### **Expected Impacts**

Flash flooding and mountain snow impacts are likely to disrupt land transport and life in the region.



## Asia

Northwest Pacific – See *Tropical Cyclones* section.

### Northern India, Nepal and Bangladesh

### **Weather**

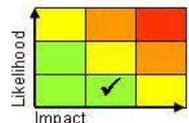
Heavy showers (falling as snow above 2000 metres) will run east across northern India and Nepal between Monday and Thursday. Up to 150 mm of rainfall could fall in places, with up to 100-150 cm of snow over the mountains. Across Bangladesh and northeast India severe thunderstorms could develop, producing up to 50-100 mm of rain in a few hours, along with a threat of frequent lightning, large hail and tornadoes. Late February is a few weeks earlier than usual for severe storms in Bangladesh and northeastern India, with Dhaka and Kolkata seeing average rainfall of only 20 mm in February.

### **Discussion**

A sharp upper trough in the subtropical jet will engage a resident high wet bulb potential temperature plume, leading to mass ascent, with strong orographic enhancement of the precipitation taking place as deep southwesterly flow runs into the Himalayas. Across Bangladesh a low level warm, moist southerly flow will combine with the strong upper level westerlies to produce a treat of severe convection, although CAPE may not reach high enough levels for true organised convection.

### **Expected Impacts**

Flash flooding will be a threat in the region, with heavy snowfall over the mountains severely disrupting travel across high mountain passes, and increasing the likelihood of avalanches. There is also a low likelihood of damage from large hail and tornadoes in parts of Bangladesh and northeast India.



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**Australasia****New Caledonia, Samoa and Tonga** – See *Tropical Cyclones* section.**Additional information**

Nil.

**Issued at:** 240745 UTC    **Meteorologist:** Paul Hutcheon**Global Guidance Unit**

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