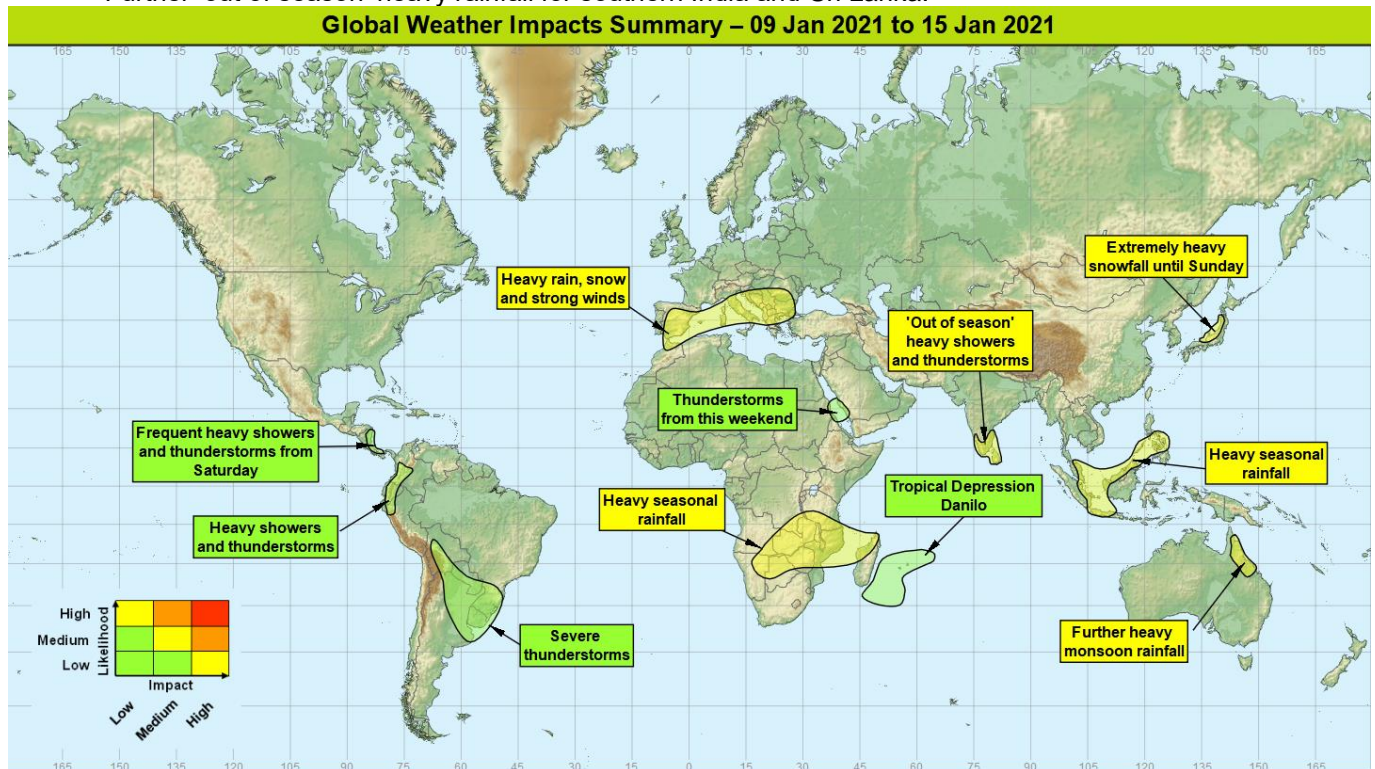


## Global Weather Impacts – Saturday 9<sup>th</sup> to Friday 15<sup>th</sup> January 2021

Issued on Saturday 9<sup>th</sup> January 2021

### HEADLINES

- Very unsettled across southern Europe and northwest Africa with heavy rain and snow.
- Strong East Asian 'cold surge' causing the heavy Japanese snowfall and heavy seasonal rainfall in Southeast Asia and Indonesia.
- Further heavy monsoon rainfall in Queensland, Australia.
- Heavy seasonal rainfall for parts of southern and central Africa.
- Further 'out of season' heavy rainfall for southern India and Sri Lanka.



### Tropical Cyclones

#### Tropical Depression Danilo – Mauritius and La Reunion

##### Weather

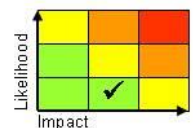
Danilo weakened to a tropical depression on Wednesday night, but will continue on a southwestward track through the coming days, likely strengthening back to a tropical storm for a time. It looks very unlikely that Danilo will strengthen to become a major system, rather that it will bring heavy rainfall to Mauritius and La Reunion through the weekend and Monday before Danilo moves away to the south or southwest on Tuesday. There is the potential for 100-150mm of rain in a 48 hour period (average January rainfall 150-300mm).

##### Discussion

The models are in fairly good agreement for a southwestward track across or close to Mauritius and La Reunion. However, there are still some minor model differences for the intensity of the system, but it looks like Danilo will remain as a weak tropical storm or depression, reducing the threat of a more damaging system. The low likelihood of significant strengthening is likely due to moderate vertical wind shear along the track and marginal 26-27°C SSTs.

##### Expected Impacts

Threat of flash flooding and rockslides with a lower likelihood of any wind damage.



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**Europe****Southern parts of Europe and Morocco****Weather**

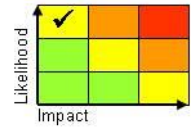
Many parts of southern Europe will see very unsettled weather at times through the next 5-7 days. Much of this area will see heavy rain, showers and thunderstorms at times with the northern fringe of the area seeing heavy snowfall, especially on higher ground. There will also be strong winds and gales in places. The heaviest rainfall clearing across the northwest of Morocco and far south of Spain today (Saturday) with a further 50-80mm possible. The other area likely to see the heaviest rainfall is Albania and Montenegro where up to 250-300mm could accumulate through the next 5 days (double the January average). However, across this southern Europe area 25-50mm of rainfall will be seen widely. Heavy snowfall (up to 30cm) looks likely to accumulate across the interior of Spain up until Saturday, with 10-20cm likely accumulating across parts of northern Italy and southeast Europe this weekend. Threat of gales across the Western Mediterranean on Saturday and then further east from Sunday.

**Discussion**

A major upper trough extension across and to the west of western Europe will feed very warm air northeastwards across the Mediterranean. This will result in a strengthening baroclinic zone that will be the focus for persistent, and sometimes, heavy rainfall. The resident cold air mass across the continent will result in heavy snowfall down to around 200-400m ASL on the northern side of this precip band. The trough extension resulted in a deep depression (named 'Filomea' by the Spanish Met Service) forming on Thursday between the Canary Isles and Madeira, with this depression then becoming a complex feature and tracking northeast across the Mediterranean into southeastern Europe as a filling feature through the weekend and into next week. The strong gradients will produce gales in places, with the likelihood of orographic enhancement of rainfall, although there will also be deep instability producing thunderstorms, especially for southwestern Europe during the next few days.

**Expected Impacts**

Flash and riverine flooding likely in places. Heavy snowfall will bring significant transport and power disruption. Winds could be high enough to cause some minor damage, with dangerous seas for maritime transport. Strong winds lifting dense dust plumes across north Africa.

**North America**

Nil.

**Central America and Caribbean****Costa Rica and Nicaragua****Weather**

Showers and thunderstorms becoming more frequent from today (Saturday), with up to 50-100mm of rain possible in a day and up to 250mm from Sunday to Thursday. The average January rainfall is 300-400mm with this being the wet season. In addition to the intense rainfall, frequent lightning is likely too.

**Discussion**

Increased low level convergence in the southern part of Central America, with the possible additional influence of tropical waves will result in a moist, more unstable environment giving rise to more widespread intense convection.

**Expected Impacts**

Flash flooding looks likely. Increasing threat of landslides. Potential for power disruption from frequent lightning.



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## **South America**

### **Southern Brazil, Bolivia, Paraguay and northern Argentina**

#### **Weather**

Heavy showers and severe thunderstorms are likely to affect this region through the coming week, with the focus of these transferring southwards into Uruguay and northern Argentina from Sunday. Rainfall totals will vary between locations but in the wetter locations 100-200 mm is possible. This tends to be the wettest time of the year in these areas with typical monthly rainfall totals in the order of 100-150 mm. Thunderstorms may be severe at times bringing additional hazards of large hail, frequent lightning and strong gusty winds.

#### **Discussion**

Tropical air is at its seasonal southern limits across South America which brings the ingredients for severe thunderstorms to develop with precipitable water in the order of 50-60mm and CAPE values over 2500 Jkg<sup>-1</sup>.

#### **Expected Impacts**

Continued threat of flash flooding and landslides. Some localised damage is possible for hail/strong winds/lightning.



### **Ecuador, southwest Colombia and northern Peru**

#### **Weather**

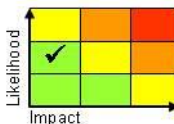
Heavier and more frequent than average showers and thunderstorms look likely through much of the next 7 days. Up to 300mm of rain is likely in places with some location likely seeing the average January rainfall in just 5 days.

#### **Discussion**

There is a consistent signal for heavier than average rainfall in this mountainous region of northwestern South America through the next week. It is difficult to assess what the driver of this enhanced rainfall is, but could be associated with tropical wave activity.

#### **Expected Impacts**

Further flash and riverine flood impacts look likely, with a continued high likelihood of landslides.



## **Africa**

### **Parts of southern/central Africa**

#### **Weather**

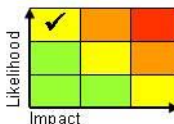
Increasingly widespread and heavy shower and thunderstorm activity is expected in this area as we go through the next 5-7 days. Up to 250mm of rain could fall in places during this period. The average January rainfall in this region is 150-300mm.

#### **Discussion**

The mechanism for this event looks like a strengthening of the large scale convergence across the region. This partly due to a surge of S'ly winds from the south and then N'ly winds from the north. It is also possible that there could be an influence from an Equatorial Rossby Wave.

#### **Expected Impacts**

Increasing threat of flash and riverine flooding, with the rainfall possibly affecting parts of the region that saw heavy rainfall from Cyclone Chalane at the end of December.



**Morocco** – See Europe section.

**Far northeast of Sudan and northern Eritrea** – See Middle East section.

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## Middle East

### Western Saudi Arabia, far northeast of Sudan, northern Eritrea and the Red Sea

#### **Weather**

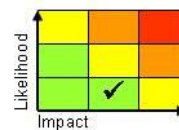
This region (including the cities of Mecca and Jeddah) will likely see heavy showers and thunderstorms this weekend and early next week. These storms could produce 50mm in a few hours along with hail, frequent lightning and strong winds. The average January rainfall in this region is no more than 10-15mm.

#### **Discussion**

A marked southward extension of the sub-tropical jet will result in upper forcing engaging a warm plume over the Red Sea providing conditions conducive for large CAPE deep convection, with significant vertical wind shear that could result in long-lived organised thunderstorms.

#### **Expected Impacts**

Flash flooding, hail and wind damage and potential power disruption from frequent lightning.



## Asia

### Parts of Southeast Asia and Indonesia

#### **Weather**

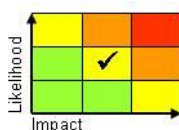
This region will see very heavy seasonal rainfall through the next 7 days through more widespread and heavier showers and thunderstorms than usual. Up to 50-100mm of rain could fall in a few hours, with some places (especially the central Philippines and the Malay Peninsula) seeing as much as 400mm during the next 7 days. This is around the average January rainfall.

#### **Discussion**

The background La Nina set up results in a wet anomaly in this region, but a combination of a very strong cold surge (NE'ly flow from the East China Sea into the South China Sea), a developing Indian Ocean MJO and a series of Equatorial Waves will result in a very wet spell for this region through the next 7 days

#### **Expected Impacts**

Higher than normal threat of flash and riverine flooding along with landslides.



## Northern Japan

#### **Weather**

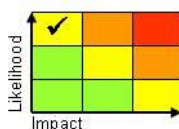
The northern part of eastern Honshu will see extremely heavy snowfall through until the end of the weekend. Through the event that commenced on Wednesday as much as 2 metres of snowfall could build up due to persistent 'lake effect' heavy showers. Strong winds will result in significant drifting of the huge snowfall.

#### **Discussion**

A marked 'lake effect' snowfall event is expected to develop for this part of Japan as an East Asian 'cold surge' results in Continental Polar (MS20°C 850hPa WBPT) air picking up moisture across the Sea of Japan (SST of 10-15°C) to produce a deeply unstable sub-zero profile.

#### **Expected Impacts**

Severe disruption to transport and power networks likely and danger to life.



## Southern India and Sri Lanka

#### **Weather**

Heavier than average rainfall is expected to continue in this region through the next 7 days, especially from the weekend. The rain will be in the form of more widespread and heavier than usual showers and thunderstorms that could produce 50-100mm, perhaps as high as 150mm, in the drier season in this region when less than 20mm usually falls through the whole of January.

#### **Discussion**

A series of Equatorial Rossby Waves look like the main driver of this unusually wet weather for January.

#### **Expected Impacts**



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Chennai has already seen the wettest January day since 1915 with some flooding impacts, so it seems reasonable to suggest further flash flooding impacts could be seen in this region from this 'out of season' heavy rainfall.

### **Australasia**

#### **Queensland, Australia**

##### **Weather**

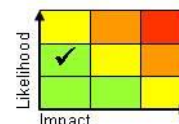
Heavy showers and thunderstorms are expected to continue through the coming 7 days over parts of Queensland. Each day 50-100 mm could fall in places, with up to 150-200 mm in possible in places over the next 7 days. This tends to be the wettest time of the year but this is still close to the typical January rainfall amounts (200-300 mm) and comes after several day of heavy rainfall associated with the remnants of Cyclone Imogen.

##### **Discussion**

The monsoon plume will remain active in this region through much of the next 7 days, partly fuelled by the remnants of Cyclone Imogen. The recent heavy monsoon rainfall has caused significant flooding across the region, and so further heavy rainfall could exacerbate the situation.

##### **Expected Impacts**

Further flash flooding likely in places along with a threat of more riverine flooding. The relatively low population density will help reduce this risk of significant impacts.



### **Additional information:**

#### **Eastern Asia**

A marked cold surge over Eastern Asia is expected to continue resulting in temperatures widely 10°C below average across the region. Beijing in China recently recorded the coldest night in the city since 1966 with a temperature of minus 20°C. This cold surge is the cause of the extreme snowfall event in Japan and the very heavy seasonal rainfall in parts of Southeast Asia and Indonesia. By early next week it is likely that the cold surge will start to ease with temperatures returning close to normal.

#### **Saharan Africa**

Large parts of northern Africa (Mainly Saharan Africa) will see very warm conditions build up over the coming days, as the deep low (mentioned in Europe section) drags some very warm air northwards ahead of it. Temperatures could be over 10°C above normal, but impacts from this are expected to be minimal. Temperatures will start to return to normal in western parts of the region this weekend and then into central parts through next week.

**Issued at:** 090600UTC

**Meteorologist:** Ele Hands

**Global Guidance Unit**

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

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