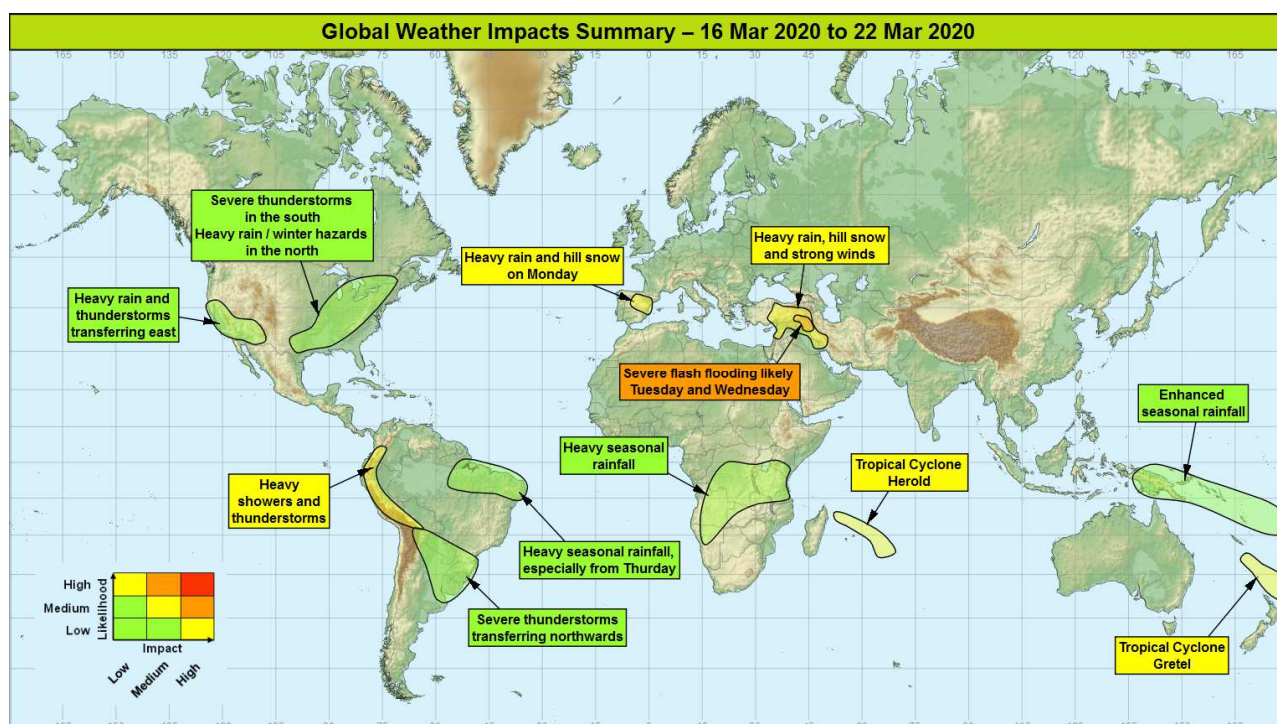


## Global Weather Impacts – Monday 16<sup>th</sup> to Sunday 22<sup>nd</sup> March 2020

Issued on Monday 16<sup>th</sup> March 2020

### HEADLINES

- Severe flash flooding likely in southeast Turkey and northern Iraq on Tuesday and Wednesday.
- Very unsettled through the next week in parts of Turkey and the Levant region.
- Flash flood and hill snow impacts for Spain today.
- Further heavy seasonal rainfall for the northern Andes in South America.
- Tropical Cyclone Herold less likely to produce significant impacts.



### DISCUSSION

#### Tropical Cyclones

#### Tropical Cyclone Herold (Southwest Indian Ocean)

##### **Weather**

Herold has strengthened during the past 24 hours to become a tropical cyclone with 10 minute sustained winds of around 80 mph, still just east of northern Madagascar.

Tropical Cyclone Herold is expected to strengthen a little more as it tracks southeastwards through the next few days, although the track is likely to take it between the islands of Mauritius and Rodrigues, but close to the latter.

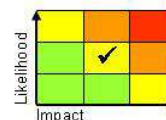
This will result in the strongest winds and heaviest rain (up to 300 mm in 24 hours) likely mostly affecting the sea, but giving a close call to Rodrigues.

Through the following few days Herold will weaken as it tracks away to the southeast.

##### **Discussion**

The combination of high SSTs, upper level divergence and weak vertical wind shear will allow further intensification over the coming days as Herold is steered southeast. Through midweek Herold will encounter cooler seas and increased vertical wind shear, leading to a weakening phase.

##### **Expected Impacts**



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

Global Guidance Unit, Operations Centre, Met Office, FitzRoy Road, Exeter, Tel: +44(0)1392 884319

VPN: n6225 4319 Email: [ggu@metoffice.gov.uk](mailto:ggu@metoffice.gov.uk)

© Crown copyright 2020. This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

Now that Herold is moving away from northern Madagascar and is more likely not to impact Mauritius the likelihood of medium impacts from flooding and wind damage is now rated as low for here, but Herold may briefly affect Rodrigues with strong winds and flash floods possible.

## **Tropical Cyclone Gretel (Southwest Pacific Ocean)**

### **Weather**

Gretel is expected to weaken through the coming days as it continues on a southeast track that should steer it passed Norfolk Island and then to the north of New Zealand, and through an unpopulated part of the Southwest Pacific.

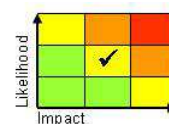
This system will produce 10 minute sustained wind strengths of up to 60 mph through Monday, with up to 200 mm of rain in 24 hours, but these conditions should not impact any populated area.

### **Discussion**

Model output favours a continues southeastwards track for this system, taking it to the north of New Zealand and weakening as it encounters cooler seas and stronger vertical wind shear.

### **Expected Impacts**

Norfolk island is at risk of very strong winds and flash flooding. Only a very low likelihood of any significant impacts to the far north of New Zealand.



## **Europe**

### **Spain**

### **Weather**

Heavy rain and showers with a threat of thunderstorms will affect some northern and eastern parts of Spain through Monday. The heaviest and most persistent rain is likely to be in east, along the coastline between Barcelona and Valencia, with up to 100 mm likely in places (this is around twice the monthly average). On higher ground (above 700 metres) heavy snow is expected, with up to 25-50 cm of snowfall possible. The rain and hill snow will ease from the west on Tuesday.

### **Discussion**

An upper trough will extend into western Europe and disrupt culminating in a cut-off upper vortex forming over Iberia by Monday. The vortex will destabilise the airmass allowing heavy showers and thunderstorms to develop. In addition, a cold front will be driven southeast across the country, with heavy, persistent rain developing along and ahead of the front in the high WBPT airmass. The cold advection will allow the rain to turn to snow on higher ground.

### **Expected Impacts**

Flash flooding may bring disruption to travel in the region, with heavy snowfall likely to impact transport and power networks on higher ground.



## **North America**

### **Southwest USA**

### **Weather**

Heavy showers and thunderstorms are likely to affect California on Monday and Tuesday before transferring east across other normally arid regions of southwest USA on Wednesday and Thursday.

Up to 100 mm of rain could fall across the Sierra Nevadas, this manifesting as large amounts of snow above 1000-1500 metres. Elsewhere, 30-70 mm of rain could fall in a few days, which is the equivalent of up to 3 times the March average rainfall.

### **Discussion**

An upper vortex is expected to track south just offshore California through the next few days before tracking east into the Rockies region around midweek. This upper air feature will be associated with a cold front that will be the focus for heavier precip.

### **Expected Impacts**

Flash flooding is the main impact, which could affect major cities in the area. Deep snow in the mountains could lead to some disruption to travel.



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

Global Guidance Unit, Operations Centre, Met Office, FitzRoy Road, Exeter, Tel: +44(0)1392 884319

VPN: n6225 4319 Email: [ggu@metoffice.gov.uk](mailto:ggu@metoffice.gov.uk)

© Crown copyright 2020. This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

## Central / eastern USA and southeast Canada

### **Weather**

The southern parts of this region will see a severe thunderstorm threat at times through the next 5 or 6 days, with the potential for intense rainfall (50-75 mm in a few hours; up to 200 mm through next week), large hail, strong winds, tornadoes and frequent lightning. Northern parts of this region will see periods of heavy rain (50-100 mm) from Wednesday to Friday. The average March rainfall in this region of interest is between 40 mm and 70 mm. The far north of this region (especially southeast Canada) could see a period of heavy snow and freezing rain.

### **Discussion**

Early this week a trailing frontal zone will be engaged by short wave upper troughs to produce a severe storm risk which will continue due to an eastward transfer of a complex upper trough. This will also result in the development of a depression and complex frontal system east of the Rockies that will sweep east across the rest of North America this week.

### **Expected Impacts**

Severe storm impacts of flash flooding, wind and large hail damage in the south, Disruption due to flash flooding and winter hazards likely in the north.



## Central America

Nil significant.

## South America

### Southern Colombia, Ecuador, Peru and northwest Bolivia

### **Weather**

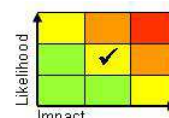
Enhanced shower and thunderstorm activity will continue across the northern Andes through the next 7 days. Rainfall accumulations could reach up to 250 mm in places, which would represent more than the average for the whole of March.

### **Discussion**

Northerly flow across Central America is expected to continue, leading to stronger than normal convergence along the ITCZ that will be south-shifted compared to climatology, bringing enhanced precipitation to this region. The likely passage of the weak MJO and at least one Westward Inertio-gravity wave through this region is also likely to contribute to enhanced rainfall. This continues the trend of above average precipitation in recent weeks making impacts more likely.

### **Expected Impacts**

Ongoing enhanced threat of flash flooding and landslides.



## Northeast Brazil

### **Weather**

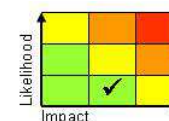
Heavy showers and thunderstorms will affect the region for much of the coming 7 days. Around 50-100 mm could fall within a few hours in places with a few locations having up to 300 mm in total for the seven-day period, equivalent to a month's worth of rain.

### **Discussion**

The ITCZ is likely to remain very active over the next week or so, mainly due to high SSTs in the South Atlantic, but possibly also some influence of the MJO and at least one Westward Inertio-gravity wave as they move through this region during the next week. Forecast profiles are very moist at depth (precipitable water around 65 mm), with relatively modest CAPE, suggesting high rainfall efficiency and the potential for large accumulations.

### **Expected Impacts**

Heavy rain will bring an enhanced threat of flash flooding and landslides, particularly in mountainous terrain.



## Northeast Argentina, Uruguay, southeast Brazil, Paraguay and southeast Bolivia

### **Weather**

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

Global Guidance Unit, Operations Centre, Met Office, FitzRoy Road, Exeter, Tel: +44(0)1392 843191

VPN: n6225 4319 Email: [ggu@metoffice.gov.uk](mailto:ggu@metoffice.gov.uk)



Pulses of severe convection are likely to develop across northern Argentina on Tuesday and then slowly transfer northwards across this region through this week. Up to 100-150 mm of rain could fall in 12-24 hours, with frequent lightning, large hail, strong winds and a threat of tornadoes also possible.

## Discussion

The South Atlantic Convergence Zone (SACZ) will transfer north and become more active as forcing from a series of upper troughs associated with a north shifting jet engages the SACZ.

## Expected Impacts

Flash flooding is the most likely impact, but with damage from lightning, strong winds and large hail possible too.

## Africa

**Northeastern Madagascar, La Reunion and Mauritius** – see *Tropical Cyclones* section.

## Parts of central and eastern Africa

### Weather

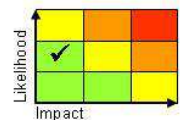
Heavy showers and thunderstorms are likely to affect a broad region of central and east Africa through the coming week. These could produce 50-75 mm of rainfall in a few hours, with over 200 mm through the week in places. This would represent the March average falling in the space of a few days.

### Discussion

There is a consistent model signal for this region of Africa to see enhanced seasonal rainfall through the next week. The advance of the MJO later next week could contribute to more widespread rainfall events.

### Expected Impacts

Increased risk of flash flooding should these thunderstorms affect a major population centre.



## Middle East

**Much of Syria, Lebanon, northern Iraq, far west of Iran and eastern Turkey**

### Weather

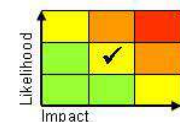
Much of this week will see unsettled weather across this region with showers or longer spells of rain that will fall as snow on higher ground (especially central Turkey and Lebanon). Much of this region will see 25-40 mm of rainfall until Saturday, with up to 50-100 mm in places. The most intense rainfall being seen in southeast Turkey and northern Iraq – see the next event. Strong winds are also expected, with the main impact being the potential for dense lifted dust plumes across parts of Syria and Iraq.

### Discussion

A complex upper trough will extend southeast and disrupt, with the vortex becoming slow moving over central Turkey to produce a prolonged unsettled spell of weather in this region.

### Expected Impacts

Flash flooding is likely, with strong winds generating localised areas of lifted dust, which could impact on aviation and human health. Heavy snowfall could become disruptive on higher ground, especially in central Turkey. This region includes areas of humanitarian concern that may be more significantly susceptible to adverse weather.



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

Global Guidance Unit, Operations Centre, Met Office, FitzRoy Road, Exeter, Tel: +44(0)1392 884319

VPN: n6225 4319 Email: [ggu@metoffice.gov.uk](mailto:ggu@metoffice.gov.uk)

© Crown copyright 2020. This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

## Southeast Turkey and northern Iraq

### **Weather**

The most severe weather in the region is expected to affect southeast Turkey and northern Iraq through Tuesday and Wednesday, with up to 100-150 mm of rainfall possible in just 36-48 hours from widespread heavy showers and intense thunderstorms. This is the equivalent of up to twice the March rainfall in a day or two.

### **Discussion**

Marked forcing from a short wave upper trough rounding the developing upper vortex will engage the cold front and pre-frontal warm plume to produce an area of enhanced deep convection. Forecast profiles show the potential for MCS development that could produce long lasting intense thunderstorms, before this warm airmass clears to the east by later on Wednesday.

### **Expected Impacts**

High likelihood of severe flash flooding events in this mountainous region, with rockslides increasingly likely. This looks like a particularly significant weather event, hence the elevation to the top of the medium impact column.



## Asia

Nil significant.

## Australasia

New Zealand – see *Tropical Cyclones* section.

## Papua New Guinea, Solomon Islands, Vanuatu and Fiji

### **Weather**

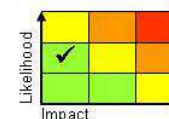
Enhanced seasonal rainfall is expected to continue across this region. Rainfall totals of widely 50-100 mm, and locally 200-300 mm are expected in frequent daily rounds of showers and thunderstorms.

### **Discussion**

The South Pacific Convergence Zone looks more active than usual through much of this week, partly in response to the southeastwards track of Tropical Cyclone Gretel to the south.

### **Expected Impacts**

Flash flooding is possible in places. Also a risk of landslides in mountainous areas.



## Additional Information

Nil.

**Issued at:** 160800 UTC    **Meteorologists:** Paul Hutcheon/ Chris Tubbs

**Global Guidance Unit**

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

Global Guidance Unit, Operations Centre, Met Office, FitzRoy Road, Exeter, Tel: +44(0)1392 884319

VPN: n6225 4319 Email: [ggu@metoffice.gov.uk](mailto:ggu@metoffice.gov.uk)

© Crown copyright 2020. This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.