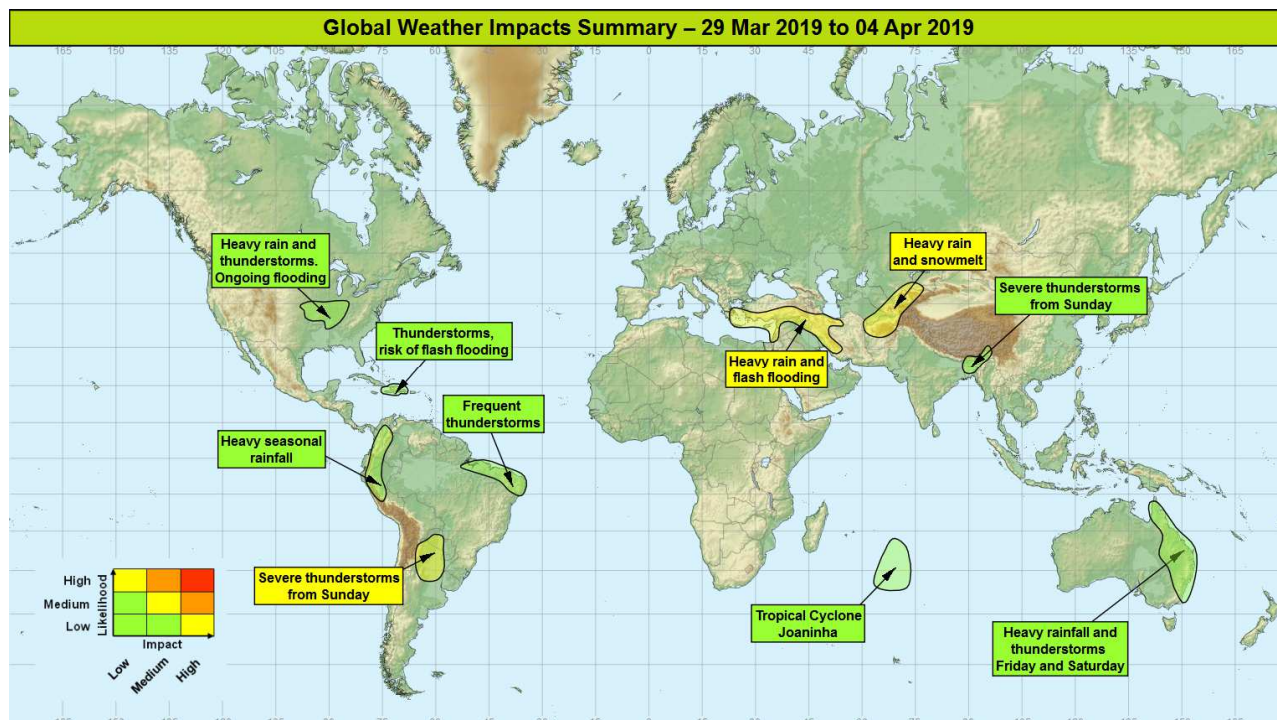


## Global Weather Impacts – Friday 29<sup>th</sup> March to Thursday 4<sup>th</sup> April 2019

Issued on Friday 29<sup>th</sup> March 2019

### HEADLINES

- Heavy rain and thunderstorms across the eastern Mediterranean and into the Middle East.
- Spells of heavy rain and snowmelt leading to probable flooding for parts of Afghanistan.
- Severe thunderstorms across northern Argentina and Paraguay from Sunday.



### DISCUSSION

#### Tropical Cyclones

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

###### **Weather**

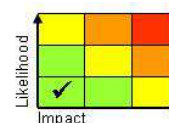
Joaninha continues to track slowly south over the open Indian Ocean. The system has weakened over the last 24 hours but remains of tropical cyclone strength with sustained winds (10-minute average) of 90mph. Joaninha is expected to southwards and weaken over the next couple of days posing no further threat to land.

###### **Discussion**

Joaninha passed Rodrigues on Tuesday, the centre in the event passing well to the north-east of the island. The system is forecast to continue south leading to increased windshear which should help accelerate its weakening.

###### **Expected Impacts**

No further 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 2019 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.

**Europe**

**Greece, Cyprus, southern Turkey** – See *Middle East* section.

**North America****Midwest and Central Plains USA****Weather**

Winter precipitation is more than 200% higher than the long-term average across many parts of the central USA. Seasonal snow melt, ice jams and heavy rain has caused flooding across parts of the Missouri and Mississippi river basins. A further 20-40 mm locally 80 mm of rainfall is expected over the next 48 hours across a broad band from the Central Plains to the Great Lakes which is likely to exacerbate ongoing impacts which are likely to persist through the spring. In addition, thunderstorms may develop across southern and eastern parts of the area. Mainly dry conditions expected from Sunday.

**Discussion**

A number of river gauges in these two major rivers are exceeding major flood stage and some remain near, or are expected to exceed record levels in the coming days. A strengthening Pacific jet stream is expected to extend eastwards and engage a warm plume emerging from the Gulf of Mexico during the next few days and generate further heavy rainfall across the Midwest and Central Plains. Meanwhile, temperatures will support continued snowmelt upstream across the far north of the country.

**Expected Impacts**

Further rainfall and snowmelt upstream is likely to exacerbate flooding across this area with additional damage to property and infrastructure. Flash flooding is also possible in urban areas.

**Central America and Caribbean****Haiti and Dominican Republic****Weather**

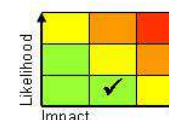
Daily heavy showers and thunderstorms are expected over the coming days over Haiti and the Dominican Republic. There is the potential for 30-50mm to fall in places each day with as much as 150-250mm building up through the period in the wettest spots. Over a month's worth of rainfall could fall within a couple of days in places.

**Discussion**

A plume of tropical air held in place by the extension of the Azores high will be engaged by a sharpening shortwave upper trough, developing frequent heavy and thundery showers. The tropical air is expected to remain over Haiti/Dominican Republic for the longest – the trough at maximum engagement on Friday before relaxing away NE'ward allowing shower activity to ease off over the weekend.

**Expected Impacts**

Increased risk of flash flooding (and increased risk of landslides in more mountainous terrain), disrupting transport, flooding homes/businesses, and posing a danger to life. Lightning strikes an additional hazard. Some of the region affected is still recovering from the devastating hurricane season of 2017, increasing vulnerability to further hazardous 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 2019 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.

## South America

### Northern Argentina and Paraguay

#### **Weather**

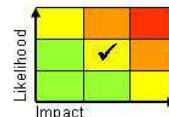
From Sunday and into next week increasingly heavy showers and severe thunderstorms are expected to develop across parts of northern Argentina and Paraguay. Each day in the worst affected areas as much as 100-150mm of rain could fall which is roughly equivalent to a month's worth of rainfall. Depending on the exact location of where the most severe thunderstorms develop, 300-400mm of rain is possible over a few days. Lightning, large hail and strong gusty winds associated with thunderstorms will be additional hazards.

#### **Discussion**

An extrusion of the tropical air will become engaged by a trough in the STJ extending over central parts of South America from Sunday. This will aid the development of organised severe thunderstorms including the likelihood of MCSs.

#### **Expected Impacts**

Very heavy rainfall increases the chances of flash flooding as well as landslides in more mountainous terrain disrupting transport, flooding property and posing a danger to life. Parts of Paraguay could be more sensitive than usual with reports of flooding during mid March. Over the last 30 days a large proportion of Paraguay and parts of northern Argentina have seen more than double of their average rainfall. Lightning strikes, large hail and the potential for tornadoes will pose additional risks to lives and infrastructure.



### Colombia, Ecuador and Peru

#### **Weather**

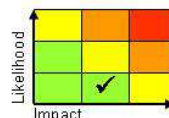
Heavy showers and thunderstorms are expected to be more numerous than normal along the northern Andes through the next week. Rainfall accumulations will vary by location due to the showery nature of the rainfall but locally a further 200-300 mm of rain is possible in a few locations over the next week.

#### **Discussion**

Despite the South American monsoon undergoing retreat across Brazil, abundant tropical moisture exists across the northern Andes to generate further heavy showers and thunderstorms. The reason for the prolonged nature of this above average rainfall is less clear since SST anomalies along the Peru to Ecuador coastline are now widely below average.

#### **Expected Impacts**

Flash flooding and landslides remain an ongoing threat in the mountainous areas, as well as downstream river flooding. With much of this region preconditioned by previous rainfall, further heavy rain will produce some additional impacts. Over recent weeks there have been reports of significant damage to infrastructure from flooding, with homes, bridges and roads destroyed.



### Northeast Brazil

#### **Weather**

A persistent feed of thunderstorms into this region could see some areas receiving 200-300mm over the course of the next week, equating to around a month's worth of rainfall for the area.

#### **Discussion**

Forecast precipitation anomalies over the next week reveal a southward shifted ITCZ, leading to a persistent feed of thunderstorms onto the coast of NE Brazil.

#### **Expected Impacts**

Increased risk of flash flooding in this region, with potential damage to property and risk to life.



**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 2019 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.

## Africa

Nil significant.

## Middle East

### Greece, Cyprus, southern Turkey, the Levant, northern Syria, northern Iraq, and western Iran

#### **Weather**

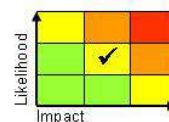
Heavy rainfall will spread from west to east stretching from Greece to northern Iraq through to Saturday, before heavy showers and thunderstorms become more widespread across much of Iraq and western Iran, especially affecting the western slopes of the Zagros mountains. Many places are likely to receive at least 50 mm of rain during this period, but locally 150-200 mm is possible and would be roughly equivalent to twice the average March rainfall. Whilst the heaviest rainfall for Greece is expected on Friday before clearing, the rest of the region is likely to experience its heaviest rainfall on Friday and through the weekend.

#### **Discussion**

A low pressure area and warm plume emerging from North Africa will provide the initial focus for thunderstorms and heavy rain, a strong N/NE'ly flow on its NW flank on Friday leading to significant orographic ppt for Crete. Increasing baroclinicity across S Turkey associated with a cold front/upper trough moving down from the N will ensure an increase in rain (modulated by the orography of S Turkey) broadly spreading W to E through Friday, before a major sharpening of the upper pattern reinforces cyclogenesis and interacts with a more potent warm plume being drawn N across Saudi Arabia and into the area of interest. This plume will provide the ingredients for severe convection across Syria, Iraq and E Iran, before clearing early next week. A combination of processes therefore sees a broad arc of heavy ppt through the region depicted in the above graphic over the coming few days.

#### **Expected Impacts**

Flash flooding is likely along with the potential for landslides in mountainous areas. Strong gusty winds and possible large hail associated with thunderstorms could cause damage to temporary or poorly built structures and are likely to lead to lifted dust in desert regions. While northern parts of Iran are experiencing significant river flooding, the majority of the new rainfall is expected to fall in the west of the country.



## Asia

### Afghanistan, Tajikistan, Kyrgyzstan and southeast Uzbekistan

#### **Weather**

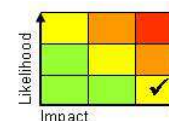
Spells of heavy rain are expected to affect the region through the next few days with the heaviest rainfall expected over parts of the northern Hindu Kush, northwestern Afghanistan, and Tajikistan. Some locations are likely to receive 70-110 mm of rain during this period. This will be associated with warm air which will further melt the large snow pack below 3000 metres.

#### **Discussion**

A plume of warm air from the Red Sea will be engaged by a series of upper troughs relaxing northeast across the region. The high freezing level will contribute to accelerated snow melt over upland areas where significant accumulations will have built up over the winter due to the numerous precipitation events that have occurred during the season so far.

#### **Expected Impacts**

The combination of heavy rain and snow melt will increase the likelihood of flash flooding, river flooding and landslides across Afghanistan (especially areas draining to the north of the Hindu Kush), Tajikistan and southeast Uzbekistan whilst at higher altitudes there will be an increased risk of avalanches.



**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 2019 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.

**Bangladesh and northeast India****Weather**

There is an increased likelihood of severe thunderstorms developing across this region from the weekend, which as well as producing large amounts of rainfall in a short space of time, will bring frequent lightning and a risk of large hail and tornadoes.

**Discussion**

We are approaching peak tornado season across this part of the world, and with very warm moist air in place a broad upper trough with embedded shortwave elements is expected to move across the region over the weekend leading to increased potential for severe storms to develop. Naturally at this lead time details are very uncertain, but all models indicate an increased risk. Forecast profiles exhibit large amounts of CAPE and strong shear, strong outflow aloft and potential for supercells and tornadoes.

**Expected Impacts**

Should these storms develop, flash flooding is a possibility, along with lightning/large hail/strong gusty winds causing a risk to life, plus damage to property and infrastructure.

**Australasia****Eastern Australia****Weather**

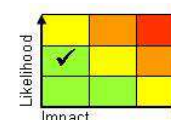
The remnants of ex-Tropical Cyclone Trevor will be drawn southeast across Queensland and begin to affect more populous parts through Friday and Saturday. The heaviest rainfall is expected to fall over the uninhabited interior, although 50-100 mm of rain is locally possible along the coast from Townsville to Brisbane. Meanwhile locally severe thunderstorms may also develop further south across New South Wales on Friday. These could produce large hail and strong winds, perhaps impacting Sydney and Canberra.

**Discussion**

There is good model agreement for the initially slow-moving remnants of Trevor to become subsumed by an upper trough extending north into New South Wales by Friday. This is expected to generate a large envelope of convective rainfall along the east coast before clearing into the Coral Sea over the weekend.

**Expected Impacts**

Despite very heavy rainfall in the interior of Queensland, this unlikely to cause significant impacts. However, locally severe thunderstorms potentially affecting major cities later in the week could cause some travel disruption, property and infrastructure damage.

**Additional information****Aftermath of Tropical Cyclone Idai (Southeast Africa)**

Tropical Cyclone Idai severely affected large parts of Mozambique as well as neighbouring countries of Zimbabwe and Malawi. Conditions across the broad region are now fairly typical for the time of year, but shower and thunderstorm activity is likely to remain slightly above average over the next week across the far north of Mozambique and northern Malawi. Elsewhere drier than average overall. Around Beira the show activity is expected to be weaker than what is usual for the time of year, with only isolated showers expected through the next week.

**Item of Interest: New Zealand, South Island**

Media reports of 1086 mm reported in 48 hours at Cropp Waterfall (975m elevation) in the recent "atmospheric river" event that affected the South Island. If official this would be a new 48 hour rainfall record for New Zealand. There is potential for further heavy rainfall over the weekend and early next week. Whilst less severe this could still impact the ongoing recovery from flooding including rebuilding a bridge on highway 6 near Franz Joseph.

**Issued at:** 290800 UTC **Meteorologist:** Chris Bulmer

**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 2019 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.