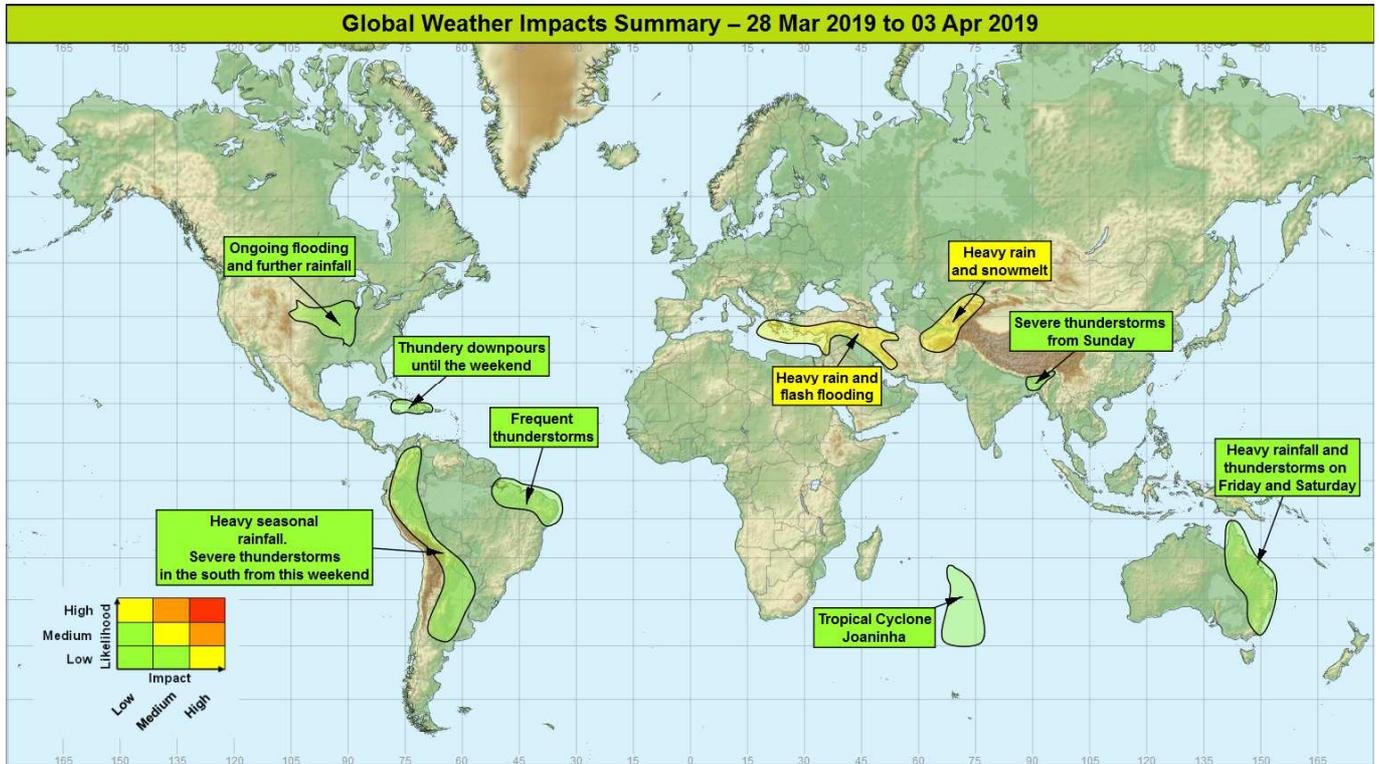


Global Weather Impacts – Thursday 28th March to Wednesday 3rd April 2019

Issued on Thursday 28th March 2019

HEADLINES

- Further heavy rain and thunderstorms across eastern Mediterranean and the Middle East.
- Spells of heavy rain and snowmelt leading to probable flooding for parts of Afghanistan.



DISCUSSION

Tropical Cyclones

Intense Tropical Cyclone Joaninha (Southwest Indian Ocean)

Weather

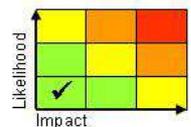
Joaninha remains a strong tropical cyclone with maximum sustained winds (10-minute average) of 115 mph, but this system has passed to the northeast of the island of Rodrigues and will continue to track southeast as it weakens, posing no further threat to land.

Discussion

Joaninha passed Rodrigues on Tuesday, the centre in the event passing well to the north-east of the island. With the system now drifting slowly southeast towards more hostile atmospheric and oceanic conditions, gradual weakening and eventually extratropical transition of Joaninha will take place.

Expected Impacts

No further impacts.



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Europe

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

North America

Midwest and Central Plains USA

Weather

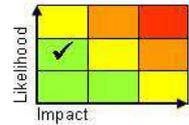
Winter precipitation has exceeded 200 % across many parts of the central USA with ongoing flooding in parts of the Missouri and Mississippi river basins. This is a combination of ice jams, snowmelt and continued aftermath of a significant rainfall event earlier this month. A further 20-40 mm locally 80 mm of rainfall is expected up to Saturday across a broad band from the Central Plains to the Great Lakes which is likely to exacerbate ongoing impacts which will persist through the spring. A few days of dry weather will follow.

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.



Central America and Caribbean

Haiti and Dominican Republic

Weather

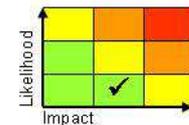
Thundery showers are expected to become more numerous over the next few days, with a particular focus over Haiti and the Dominican Republic. 20-30 mm could fall in a short space of time each day within these showers, with potential for 150 mm in extremis over the next 5 days. This could equate to twice the average March rainfall in just 5 days.

Discussion

A plume of tropical air rounding the Azores High is expected to become 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 landslip 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.



South America

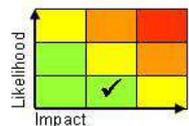
Northern Andes region (Colombia, Ecuador, Peru and Bolivia), Paraguay and northern Argentina

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.

Severe thunderstorms are likely to develop across parts of Paraguay and northern Argentina this weekend and into next week, providing the potential for 100 mm of rain to fall in just 6 hours.

Discussion



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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. In the south of the region, southward extrusion of the tropical air will become engaged by sharp troughing in the STJ, developing more organised thunderstorms/MCS developments.

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. In the south of this region, across Paraguay and northern Argentina, lightning strikes, large hail and the potential for tornadoes will pose additional risks to lives and infrastructure.

Northeast Brazil

Weather

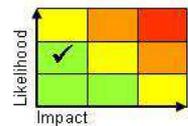
A persistent feed of thunderstorms into this region could see some areas receiving 200-300mm over the course of the next week, equating to around a month's worth of rainfall for the area.

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 risk to life.



Africa

Nil significant.

Middle East

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

Weather

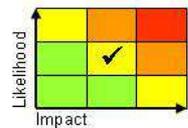
A developing weather system will see an increase of rainfall spreading from west to east stretching from Greece to northern Iraq through to Saturday, before heavy showers and thunderstorms become more widespread across much of Iraq and eastern Iran, especially affecting the western slopes of the Zagros 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 Thursday and 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 on Thursday will provide the initial focus for thunderstorms and heavy rain, strong 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

Further 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.



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Asia

Afghanistan, Tajikistan, Kyrgyzstan and southeast Uzbekistan

Weather

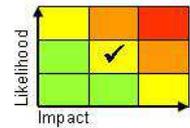
Spells of heavy rain are expected to affect the region through the next few days with the heaviest rainfall expected over parts of the northern Hindu Kush, northwestern Afghanistan, and Tajikistan. Some locations are likely to receive 75-125 mm of rain during this period. This will be associated with 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.



Bangladesh, Northeast India

Weather

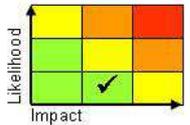
There is an increased likelihood of severe storms developing across this region from the weekend, which as well as producing large amounts of rainfall in a short space of time, will bring frequent lightning and a risk of large hail and tornadoes.

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

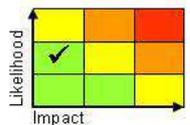
The remnants of ex-Tropical Cyclone Trevor will be drawn southeast across Queensland and begin to affect more populous parts through Friday and Saturday. The heaviest rainfall is expected to fall over the uninhabited interior, although 50-100 mm of rain is locally possible along the coast from Townsville 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

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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 northern 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, mainly through this weekend.

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 South Island. If official this would be a new 48 hour rainfall record for New Zealand.

There is the potential for another heavy rainfall event (much less extreme than the recent event) on Sunday across a similar region that experienced the recent severe weather event. Up to 150 mm of rain could fall, with the system responsible being the same one that will affect Queensland, containing the remnants of Tropical Cyclone Trevor.

Issued at: 280800 UTC **Meteorologist:** Paul Hutcheon

Global Guidance Unit

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