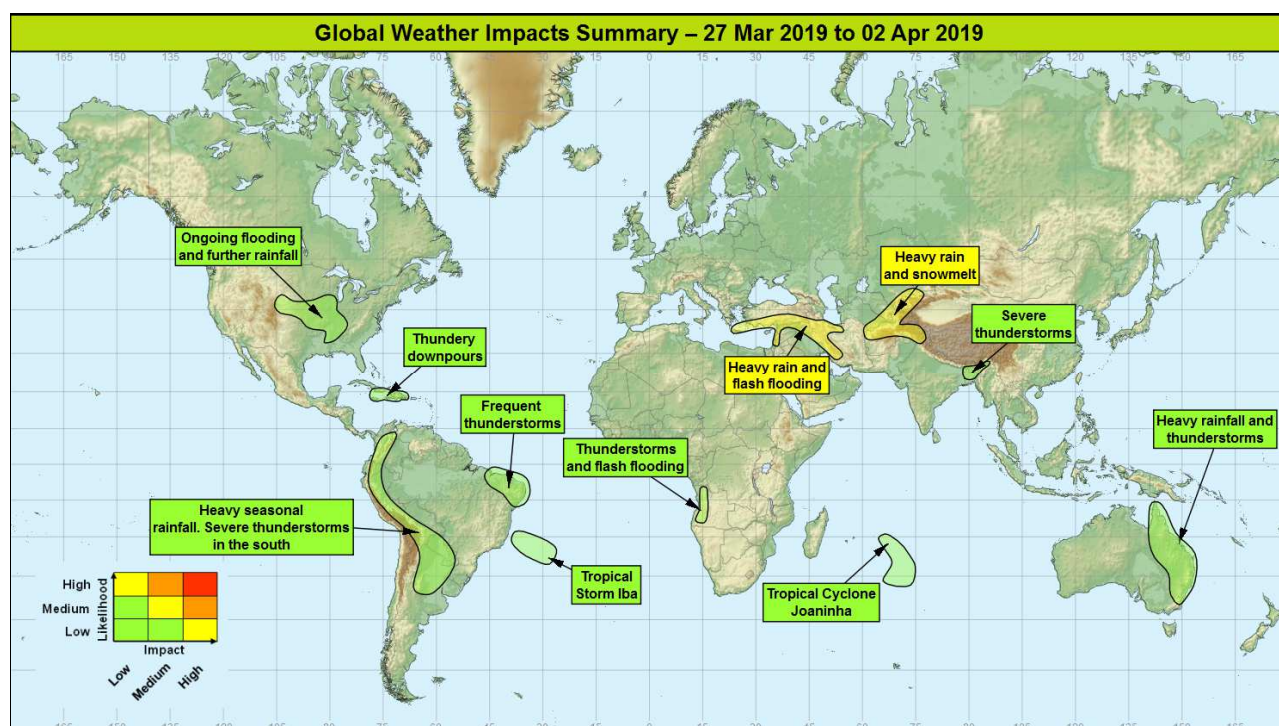


Global Weather Impacts – Wednesday 27th March to Tuesday 2nd April 2019

Issued on Wednesday 27th March 2019

HEADLINES

- Further heavy rain and thunderstorms across eastern Med and Middle East later this week.
- Spells of heavy rain and snowmelt leading to probable flooding for parts of Afghanistan, Uzbekistan and Tajikistan.
- Shower activity across areas recovering from Cyclone Idai fairly typical for the time of year.



DISCUSSION

Tropical Cyclones

Intense Tropical Cyclone Joaninha (Southwest Indian Ocean)

Weather

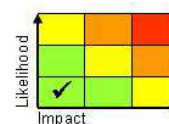
Joaninha remains a strong tropical cyclone with maximum sustained winds (10-minute average) of 110 mph, but has now cleared the island of Rodrigues and will pose no further threat to land.

Discussion

Joaninha passed Rodrigues on Tuesday, the centre in the event passing well to the north-east of the island (GM having provided the best guidance out of the 3 main models). Nevertheless, it is likely to have had significant impacts, with gusts of up to 110 mph reported at Plaine Corail and over 200mm of rain at Rodrigues airport in the north. With the system now drifting slowly south towards more hostile atmospheric and oceanic conditions, gradual weakening and eventually extratropicalisation of Joaninha is likely to take place, despite the current eyewall replacement cycle which could maintain its strength temporarily once completed.

Expected Impacts

No further impacts.



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Tropical Storm Iba (South Atlantic Ocean)**Weather**

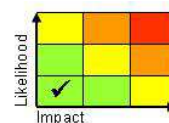
Iba remained slow-moving around 650 kilometres east-northeast of Rio de Janeiro on Wednesday morning, but is expected to start to accelerate east-south-eastwards over the open ocean through today. Whilst Iba may undergo some strengthening over the next couple of days, it will remain away from land before dissipating later in the week.

Discussion

Iba formed in an environment conducive to tropical cyclogenesis with SSTs around 1-2 °C above average (29 °C) and low vertical wind shear. However, such conditions are expected to be relatively short-lived as an upper trough will lead to increasing shear and support a transition to an extratropical system later in the week. Indeed, wind shear can already be seen to be displacing deep convection east of the centre, although winds around the system remain sufficient to class Iba as a tropical storm.

Expected Impacts

Nil.

**Europe**

Nil significant.

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 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 between Thursday and Saturday across a broad arc from Montana through Nebraska/Missouri to New York 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 record levels. A strengthening Pacific jet stream is expected to extend eastwards and engage a warm plume emerging from the Gulf of Mexico later this week 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

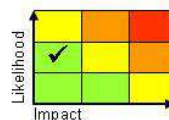
Further rainfall and snowmelt upstream is likely to exacerbate flooding across this area with additional damage to property and infrastructure.

**Central America and Caribbean****Eastern Cuba, Jamaica, 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. Showers further west are likely to ease off after Thursday, but peak across Haiti/Dominican Republic on Friday. 20-40, locally 50mm could fall in a short space of time each day within these showers, with potential for 150-200mm in extremis over the next 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.



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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) and northern Argentina

Weather

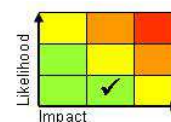
Heavy showers and thunderstorms are expected to be more numerous than normal along the northern Andes and across northern Argentina over the next week. Rainfall accumulations will vary by location due to the showery nature of the rainfall but locally a further 200-300 mm of rain is possible in a few 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. 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 northern Argentina, lightning strikes, large hail and the potential for tornadoes will pose additional risks to lives and infrastructure.



Northeast Brazil

Weather

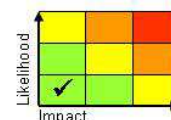
A persistent feed of thunderstorms into this region could see some areas receiving 200-300mm over the course of the next week, equating to around a month's worth of rainfall for the area.

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

Rodrigues – See *Tropical Cyclones* section.

Western Angola

Weather

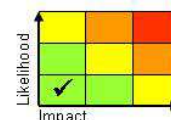
Heavy rainfall has also affected parts of Angola over the past month with the provinces of Benguela, Luanda, Huila and Zaire the most sensitive. Above average shower and thunderstorm activity is expected to continue over the next week with 30-50 mm of rainfall falling in some locations in a few hours, with locally over 100 mm falling through the week. This represents the amount of rainfall this region normally sees in the whole of March.

Discussion

Despite being the short wet season for this part of Africa, above average rainfall is set to continue with forecast tephigrams suggesting some locally severe thunderstorms are likely with in excess of 4000 J/kg CAPE.

Expected Impacts

Further flash and river flooding is possible which may cause further damage to property and infrastructure as well as remaining a threat to life.



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Middle East

Crete, southern Turkey, the Levant, northern Syria, northern Iraq, and eastern Iran

Weather

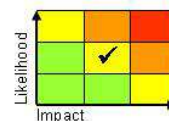
Conditions across this broad region will be fairly quiet on Wednesday, with just a further scattering of showers across the mainland, particularly northern Iraq. However, from Thursday a developing weather system will see an increase of rainfall spreading from west to east stretching from Crete to northern Iraq through to Saturday, before heavy showers and thunderstorms become more widespread across much of Iraq and eastern Iran, especially affecting the eastern slopes of the Zagros mountains. Many places are likely to receive at least 50 mm of rain during this period, but locally 200 mm is possible and would be roughly equivalent to twice the average March rainfall. Whilst the heaviest rainfall for Crete 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 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 ppn 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 ppn 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.



Asia

Afghanistan, Tajikistan, Kyrgyzstan and southeast Uzbekistan

Weather

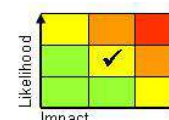
Spells of heavy rain are expected to affect the region from Wednesday through to early Saturday with the heaviest rainfall expected over parts of the Hindu Kush, NW Afghanistan, and Tajikistan. Some locations are likely to receive 75-125 mm of rain during this period. This will be associated with warm air which will further melt the voluminous 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

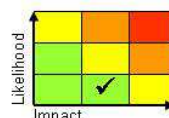
The combination of heavy rain and snow melt will increase the likelihood of flash flooding, river flooding and landslides across Afghanistan (especially areas draining to the north of the Hindu Kush), Tajikistan and southeast Uzbekistan whilst at higher altitudes there will be an increased risk of avalanches.



Bangladesh, Northeast India

Weather

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



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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**Queensland and northern New South Wales****Weather**

The remnants of ex-Tropical Cyclone Trevor will be drawn southeast across Queensland and northern parts of New South Wales and begin to affect more populous parts of these states 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 Newcastle. Locally severe thunderstorms may also produce large hail and strong winds.

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 affecting the coast 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 has 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, shower activity is expected to peak today (10-20mm for some locations) before becoming generally dry, this is below average for both March (275 mm per month) and April (140 mm per month).

Item of Interest: New Zealand, South Island

Media reports of 1086mm 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.



Issued at: 270825 UTC **Meteorologist:** D J Harris

Global Guidance Unit

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