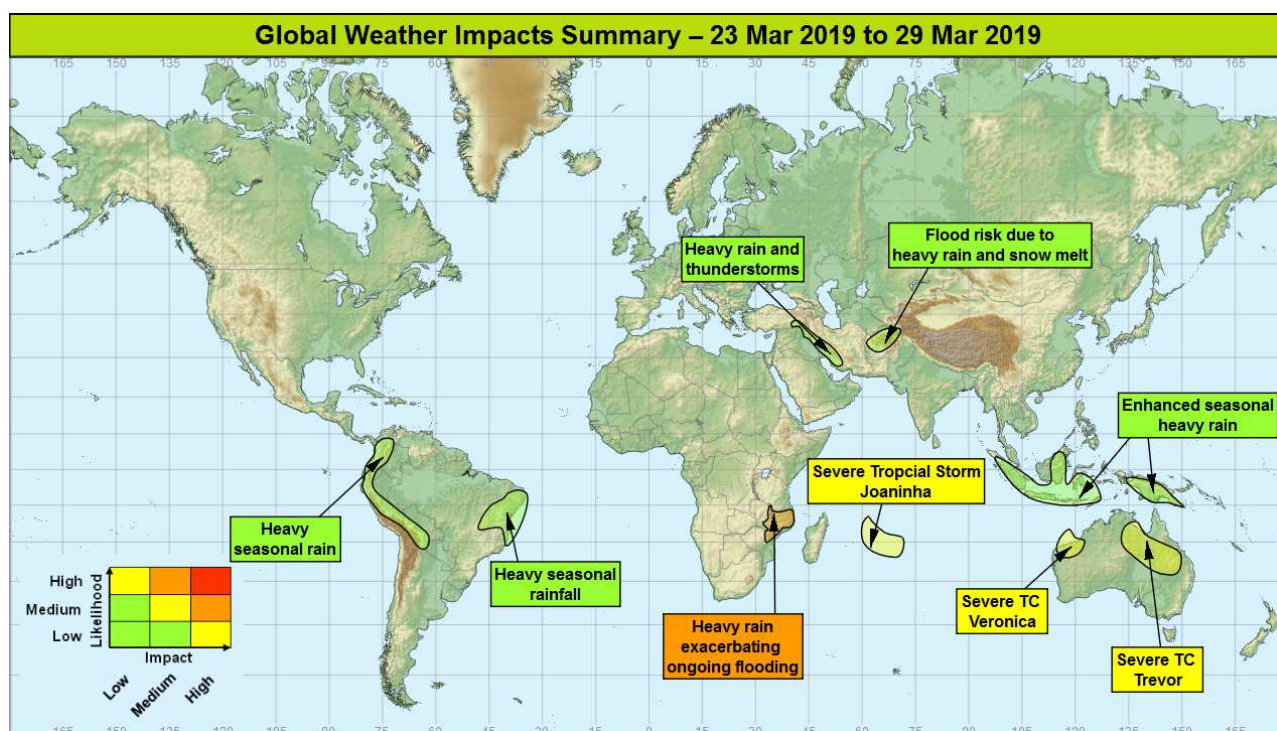


Global Weather Impacts – Saturday 23rd to Friday 29th March 2019

Issued on Saturday 23rd March 2019

HEADLINES

- Thunderstorms continue over northern parts of Mozambique and into Malawi.
- Severe tropical cyclone Trevor has made landfall over northeast Australia.
- Severe tropical cyclone Veronica is expected to make landfall over northwest Australia.
- Severe Tropical Storm Joaninha is forecast to intensify and track close to Rodrigues.



DISCUSSION

Tropical Cyclones

Severe Tropical Cyclone Trevor (North-eastern Australia)

Weather

Trevor has now made landfall as a category 4 severe tropical cyclone near the Queensland and Northern Territory border with sustained winds estimated to be around 100 mph. Trevor is now forecast to track south and then southeast into the interior of Australia, possibly close to Alice Springs, and gradually weaken. As damaging winds ease the focus will be on very heavy rainfall. Parts of the Northern Territory are likely to see 300-500 mm of rainfall over the next 2 or 3 days. Heavy rainfall is then likely to spread further southeast over parts of Queensland and towards New South Wales during next week. Heavy rainfall and thunderstorms may reach Brisbane or the Gold Coast during the middle of next week.

Discussion

Models are in relatively good agreement in the handling of Trevor over the coming days as it tracks into the interior of Australia and weakens. There is more uncertainty whether the remnants of the system will bring very heavy rainfall to more densely populated areas (e.g. Brisbane) along the east coast during the middle of next week.

Expected Impacts



This forecast may be amended at any time

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Flash flooding and river flooding likely, with a storm surge onto the Gulf of Carpentaria coastline likely. Damaging winds also expected, but the areas affected are very sparsely populated which should limit the impact of this cyclone. However, one of the world's largest zinc mines is in the region, with potential environmental impacts should it receive a direct hit.

Severe Tropical Cyclone Veronica (north-western Australia)

Weather

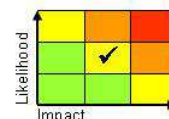
Veronica remains a category 4 cyclone, with estimated sustained winds of 105 mph at 23/0000 UTC. This cyclone is expected to continue tracking south, then south-eastwards towards the northern coast of Western Australia through the weekend before likely making landfall close to the west of Port Hedland (population around 14000), Western Australia on Sunday. Veronica could bring up to 500 mm of rain in 24 hours on landfall, which is nearly double the average annual rainfall in this region.

Discussion

An Equatorial Rossby Wave has assisted in the development of Veronica, with all models showing a similar track over the weekend. There is more uncertainty early next week whether it continues inland and weakens or tracks back offshore down the coast to the west.

Expected Impacts

Flash flooding likely, with a storm surge onto the coastline too. Damaging winds also expected, but the areas affected are very sparsely populated which should limit the impact of this cyclone.



Tropical Cyclone Joaninha (Indian Ocean primarily Rodrigues)

Weather

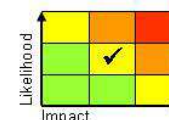
Severe Tropical Cyclone Joaninha has been named over the last 24 hours, forming out of an area of thunderstorms to the north of Mauritius in the Indian Ocean. Maximum sustained winds (as of 23/0000 UTC) are estimated to be around 55-60 mph. Joaninha is forecast to track south and then southeast over the weekend and into next week, possibly tracking close to the island of Rodrigues (350 miles east of Mauritius) on Monday or Tuesday. Joaninha is also likely to intensify during the period with winds speeds of 90-100 mph possible along with a large storm surge. Torrential rain will be an additional hazard with the potential for as much as 400-500 mm in a 24 hour period.

Discussion

An Equatorial Rossby Wave has helped to organise an area of thunderstorms that is expected to strengthen into a tropical cyclone in the coming few days. All models show the development of a marked tropical cyclone, but with continued model spread for the exact track. ECMWF continues to be the model with the track closest to Reunion and Mauritius, though even within its EPS this is a minority solution. Instead, most model tracks put the island of Rodrigues at risk, with this evolution also being closer to the official track forecast.

Expected Impacts

If this system affects one of the Mascarene Islands it will produce a threat of flash flooding, coastal flooding, landslides and damaging winds. The island of Rodrigues was impacted by tropical cyclone Gelena last month, which resulted in the loss of electricity to 90% of residents, and so is likely to be more vulnerable to another strong cyclone impact.



Europe

Nil significant.

North America

Nil significant.

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Central America and Caribbean

Nil significant.

South America

Northern Andes region (Colombia, Ecuador, Peru and Bolivia)

Weather

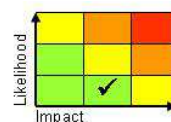
Heavy showers and thunderstorms are expected to continue to affect the northern Andes region for the next week. Rainfall accumulations will vary by location due to the showery nature of the rainfall, but locally a further 150-250 mm of rain is possible in places through the week.

Discussion

Along the Pacific coastline north of NE Peru there are positive SST anomalies, and these indicate a weakening of trade winds and the Humboldt Current in this region. This setup allows sea breezes to draw moist oceanic air to the usually dry western Andes, with an unusually high frequency of heavy showers and thunderstorms occurring here.

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.



Northeastern Brazil

Weather

Widespread heavy showers and thunderstorms are expected to affect north-eastern parts of Brazil, with up to 250 mm of rain accumulating in places. This would represent 2 or 3 times the average March rainfall falling within a week.

Discussion

The South Atlantic Convergence Zone (SACZ) will push further north than usual through the coming days, likely combining with a south shifted ITCZ a little further north, to produce very large rainfall totals across a large region. There continues to be an intermittent signal from some deterministic models runs for a rare sub-tropical or tropical cyclone development close to or just offshore Brazil (between Salvador and Rio de Janeiro) this weekend or early next week.

Expected Impacts

Flash flooding is the most likely impact, with the potential for landslides. However, this region of Brazil has seen below average rainfall so far through the rainy season, so river flooding and dam breaches are likely to be a lower likelihood.



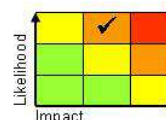
Africa

Central and northern Mozambique, along with Malawi

Weather

Tropical cyclone Idai affected large parts of Mozambique, bringing locally devastating wind and rain impacts, more particularly to the coastal city of Beira. Further heavy showers and thunderstorms are likely in the coming days, but with the focus for this shifting further north with time. Over the weekend and early next week, the focus for heaviest showers is likely to be across northern Mozambique, much of Malawi, and, at times, across the eastern coastal fringes of central Mozambique. Where these storms become long-lived/organised, they have the potential to generate 50-75mm of rain in 24 hours, with some parts of northern Mozambique perhaps seeing 100-150mm by early next week. Much of the rest of the country, including Beira, will see much less rainfall although there is the risk of further heavy showers developing across the south of the country during mid-week.

Discussion



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This event may well rank as the worst Southern Hemisphere weather disaster on record, with some reports that the death toll has exceeded 1000. There are reports that 90% of the city of Beira has been destroyed. Despite the peak rainfall transferring northwards, river flooding is likely to continue in central Mozambique for several days. This northward transfer of thunderstorms will likely exacerbate the existing flooding further north in Malawi and northern Mozambique through the weekend, but with drier weather likely into next week. Since the weather is starting to improve across the region, the impact matrix has been downgraded to amber.

Expected Impacts

Improving weather conditions are expected for the severely impacted areas of eastern Zimbabwe and central Mozambique in the coming days. However, Malawi and northern Mozambique, that were impacted by widespread flooding around 10 days ago by the system that became Idai, will see a threat of further severe river flooding from the increased thunderstorm activity.

Mauritius, Reunion and Rodrigues – See *Tropical Cyclones* section.

Middle East

Northern Iraq, far southeast of Turkey and western Iran

Weather

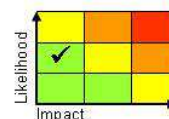
Turning very unsettled over the weekend and into early next week with heavy rain and thunderstorms developing. The heaviest rain and highest rainfall totals will be focused on the Zagros mountains with 50-100mm falling in places each day and 200-300mm possible before conditions improve by Wednesday. That would be roughly equivalent to twice as much as the average March rainfall in these areas.

Discussion

An extending upper trough from mid latitudes will interact with the sub-tropical jet leading to pronounced areas of forcing aloft to engage a number of low level warm plumes drawn north over the Middle East. This leading to cyclogenesis over Iraq during Sunday with areas of organised thunderstorms also forming. Models are in good agreement with enhanced uplift over southwest facing slopes in the Zagros mountains likely to mean these areas will see the heaviest rain.

Expected Impacts

Flash flooding is possible along with the potential for landslides in mountainous areas. Strong gusty winds associated with thunderstorms could cause damage to temporary or poorly built structures.



Asia

Afghanistan

Weather

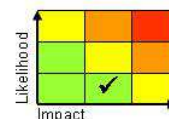
A series of active frontal systems will produce spells of heavy rain across Afghanistan next week, with up to 50-100 mm of rain likely to accumulate. The rain will be associated with very warm air that will melt the snow pack across the Hindu Kush below 3000-3500 metres.

Discussion

There is a strong signal for heavier than average rainfall and rising freezing levels next week across Afghanistan. There has been a deeper than average snow pack this past winter across the Hindu Kush.

Expected Impacts

The combination of heavy rain and snow melt will increase the likelihood of flash flooding, river flooding and landslides across the mountainous northern and eastern Afghanistan, with downstream river flooding possible in southwestern Afghanistan. At higher altitudes there will be an increased likelihood of avalanches with fresh snowfall.



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Indonesia, Malaysia, Brunei and Papua New Guinea**Weather**

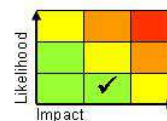
Above average rainfall is expected across many islands in this region through the next week. Whilst the heaviest downpours will be rather localised, they are likely to develop in a similar places each day with 100-150 mm of rain falling in 24 hours and some places likely to receive around 250-300 mm over the next week. In a typical 7-day period at this time of year, this region normally receives around 50-100 mm.

Discussion

The MJO, although weakening, will continue to help to organise and enhance convection across the region. An additional contribution is expected to be the enhanced ITCZ due an increased flow, and subsequent convergence, from the south associated with tropical cyclone Veronica.

Expected Impacts

An increased likelihood of flash flooding and landslides leading to localised damage to infrastructure and property.

**Australasia**

Northeastern and northwestern Australia – See *Tropical Cyclones* section.

Papua New Guinea – See *Asia* section.

Additional information

Nil.

Issued at: 230800 UTC **Meteorologist:** Chris Bulmer

Global Guidance Unit

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