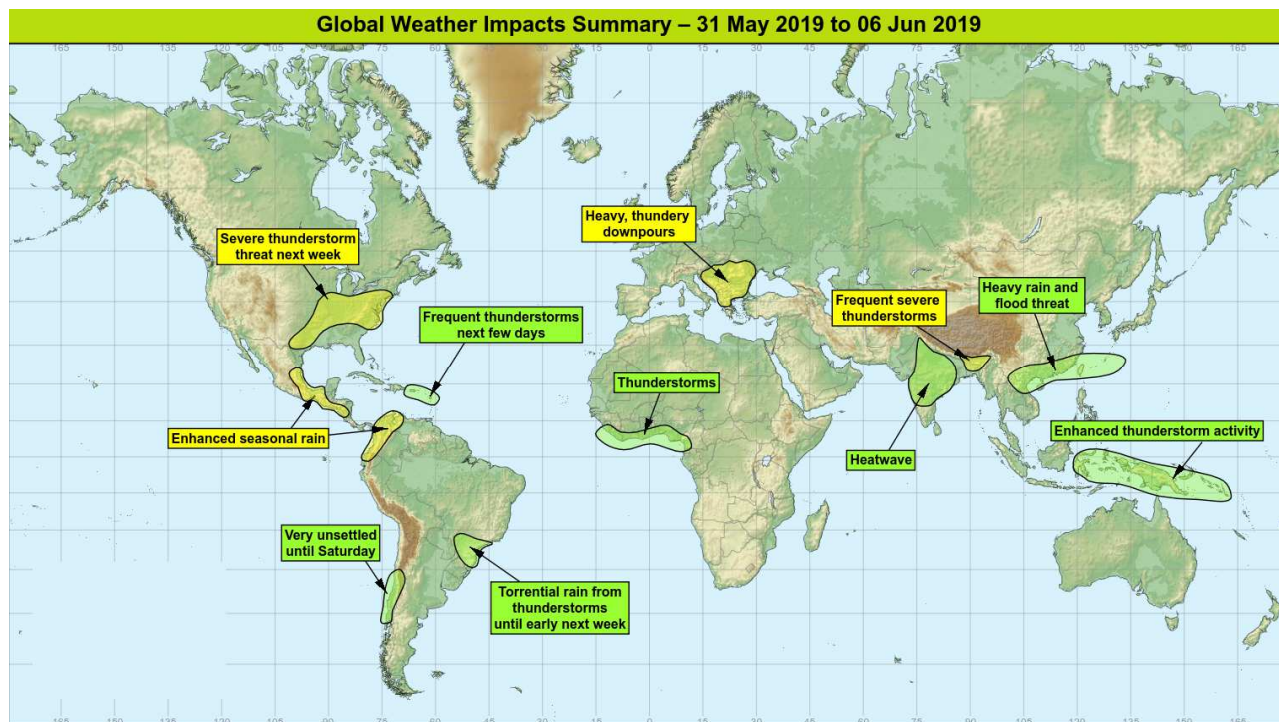


Global Weather Impacts – Friday 31st May to Thursday 6th June 2019

Issued on Friday 31st May 2019

HEADLINES

- Intense rainfall continuing across parts of Central America.
- Locally severe thunderstorms affecting parts of southeast Europe, NE India and Bangladesh.
- Severe thunderstorms in the US easing for a time.



DISCUSSION

Tropical Cyclones

There is no ongoing or expected tropical cyclone activity over the next 7 days.

Europe

Much of south-eastern Europe Weather

Heavy showers and thunderstorms will affect this region through much of the next 7 days, but although not everywhere in the region will see this type of activity every day during this period. The thunderstorms will produce up to 75 mm in a 6-12 hour period in places, with a few places seeing as much as 125 mm of rain during the next week (twice the average rainfall for May or June). Some of the storms will produce frequent lightning and large hail. This most likely focussed across Romania, Bulgaria, and areas E of here to the Adriatic Sea, the most active days look likely to be Friday and Sunday.



This forecast may be amended at any time

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Discussion

A major trough extension has taken place over the region, the resultant cut-off vortex becoming slow moving in slack flow between the PFJ to the N and the STJ to the S. Under the associated cold pool, open cell convection is likely. On the forward side of the disruption diffluent flow associated with shortwave troughs revolving around the vortex over a moist and deeply unstable airmass will lead to MCS developments focussing the heaviest rainfall over Romania, Bulgaria, and areas E of here to the Adriatic Sea. These storms have the potential to generate all severe convective hazards for the remainder of the week and well into the weekend. Day on day heating in the blocked flow will lead to thunderstorms becoming increasingly widespread across larger parts of Central/E Europe early next week.

Expected Impacts

Flash flooding is the main concern, with an increased risk of landslides in mountainous areas. Severe storms will add a significant likelihood of frequent lightning and damaging hail, along with strong and locally damaging wind gusts. River flooding is currently not expected.

North America

Central and north-eastern USA

Weather

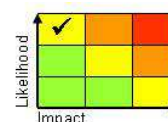
Following a break period from the severe storms this last week further storms are likely from early to mid next week. Storms that do occur will produce a threat of very strong winds, large hail and tornadoes, with up to 100 mm of rain falling in a 24 hour period in a few places.

Discussion

The recently strongly negative Pacific North American Index (PNA) which has promoted repetitious troughing across the SW of the US and a set-up conducive to severe thunderstorms is now easing back to neutral/weakly positive. This will lead to a more zonal upper pattern, with a decrease in storm activity. However, another spell of negative PNA is likely next week, increasing the severe storm threat again.

Expected Impacts

Flash flooding is likely, with a lower likelihood of large hail, damaging winds and tornadoes. Aviation and transportation likely to be affected at times. Ongoing, locally historic flooding should begin to ease as conditions become more settled through the weekend.



Central America and Caribbean

Southern Mexico, southeast to northwest Nicaragua

Weather

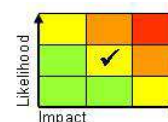
Remaining unsettled with further heavy rain and thunderstorms likely for the next week. Some places will see up to 75-125 mm in a 24 hour period, with up to 400 mm accumulating through the next week in a few spots. The most active storms are likely to be along the Pacific coastline at first, before transferring to east/southeast Mexico over the weekend as an organised tropical disturbance moves across. For a comparison with what is normal at this time of year, the average rainfall is 50-75 mm for May and around 250 mm for June as the north American monsoon progresses northwards.

Discussion

An active convective regime remains in place, with a Central American Gyre having formed, and enhancing onshore flow from the Gulf of Mexico in the north of this area, and onshore flow from the East Pacific in the south. This gyre is forecast to drift across Central America over the weekend, bringing more widespread showers inland on Saturday, with the enhancement of flow onto the eastern coast of Mexico then increasing, and flow onto the Pacific coastline decreasing thereafter. Both enhancements are likely to bring in excess of 250mm of rain to some areas, with very locally rainfall totals approaching 400mm.

Expected Impacts

Flash flooding, with significantly increased risk of landslides in what is a mountainous area and gusty winds are all likely. However, heavy rainfall in Central America will also be welcome in places in the longer term due to the significant drought in parts of this region.



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Caribbean (Dominican Republic eastwards to northern Lesser Antilles)

Weather

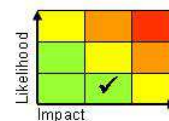
More frequent thunderstorms than are normally seen in the Caribbean in late May/early June are expected over the next couple of days, before easing early next week. These could produce up to 50-75 mm of rain in a 6 hour period, with some islands seeing a further 75-100 mm. Some islands may have received twice the average May rainfall by the end of this spell.

Discussion

A low-latitude upper trough sinking across the region will enhance showers and thunderstorms in this region, with African Easterly Wave activity perhaps also playing a part in organising convection activity. Conditions will improve in the wake of this trough, which clears the region early next week.

Expected Impacts

Flash flooding and rockslides are the most likely impacts from the weather this coming week. The severe weather could impact islands that are still recovering from the impacts of the 2017 Hurricane season.



South America

Ecuador, Colombia, Venezuela

Weather

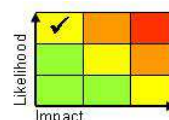
A continuation of the enhanced seasonal rainfall in this part of the world is expected, with a further 250-300mm in some places over the coming 7 days. The area most likely to see the most reliable heavy rainfall will be the west facing slopes of the Andes mountains of Ecuador and Colombia.

Discussion

The MJO has now moved on, but the ITCZ remains shifted a little south relative to normal, with the reduction in the usual wet season rains withdrawing northwards from this region a little more slowly than normal. Enhanced westerly flow onto the Pacific coastline of South America, coming over anomalously warm sea temperatures, will provide ample warm, moist and unstable air realised as heavy showers across the region. Largest rainfall amounts are likely to be on Andes, as elevated terrain and orographic lift provide the most reliable trigger mechanisms for convection.

Expected Impacts

Flash flooding and landslides are probable, and potential river flooding with this region having already experienced an anomalously wet month.



Central Chile

Weather

A spell of persistent very wet weather is expected to impact this populated part of Chile until Saturday. Periods of heavy rain and showers will bring up to 250 mm in places, especially the upslopes of the Andes, during this event (2 times the May average). As much as 150 mm of rain could fall in a 24 hour period. In addition to the heavy rain, strong or gale force northerly winds are expected. Further heavy rain in the same area is likely through the middle of next week.

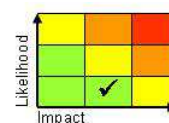
Discussion

An amplified upper pattern in the south-eastern Pacific will drive a series of frontal systems south across central Chile, with areas of marked forcing resulting in active frontal zones. Significant orographic uplift will enhance the rainfall in the region.

Precip anomalies suggest that it has been significantly drier than average during the past 6 months, but that is through the dry season, and so this anomaly may not be as significant as it looks. A similar heavy rainfall event back in June 2017 in central Chile at the start of the wet season (May to August) resulted in fatalities, damaged homes and widespread power failures due to flooding and wind damage.

Expected Impacts

Flash flooding and landslides are a significant threat, along with power network disruption due to strong winds. The cities of Santiago and Concepcion are likely to see some impacts.



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South Brazil

Weather

After recent heavy rain from severe thunderstorms, another period of torrential rain and thunderstorms is expected to continue through the weekend before easing early next week. Up to 150 mm of rain could fall in a 24 hour period, with 200 mm possible in places during the next few days (average monthly rainfall is around 100 mm).

Discussion

A trough in the STJ will engage a plume drifting south from Brazil, generating a band of thunderstorms. High PWAT and tall, skinny CAPE profiles will contribute to large volumes of rain, with this event lasting until early next week, but becoming increasingly confined to the far southeast of Brazil.

Expected Impacts

Localised flash flooding and increased chance of landslides in mountainous areas. Localised strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities. Parts of this region are recovering from ongoing flooding and this rainfall is likely to hamper this recovery.



Africa

Gulf of Guinea coast of west Africa

Weather

This region of West Africa is likely to see heavier than average rainfall through the next couple of days in the form of organised thunderstorms. Up to 75 mm of rain could fall in a 6 hour period, with up to 150 mm accumulating in places, with Friday looking like the most active day before activity eases somewhat through the weekend.

Discussion

The MJO is moving through tropical Africa through the coming few days, combining with African Easterly Waves to bring an active pulse of seasonal rainfall along the Gulf of Guinea coastline.

Expected Impacts

Flash flooding is the main threat, but with landslides likely in prone hilly regions. There are a number of very large cities along this coastline, which increases the threat of significant local impacts.



Middle East

Nil significant.

Asia

Northeast India, Bhutan and northern Bangladesh

Weather

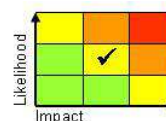
Daily rounds of severe thunderstorms are expected across this region through much of the next week. As well as intense rainfall (up to 150 mm daily, although many areas will miss the heaviest rain), large hail and strong winds are possible. Some places could see as much as 900 mm of rain during the next week, with some places receiving 2-4 times the average for this time of year.

Discussion

Shortwave upper troughs in the sub-tropical jet will transfer east over northern India and Nepal to lead to destabilisation of the very warm and moist airmass, and the development of diurnal thunderstorms. High CAPE and vertical wind shear will aid the development of severe, long-lasting storms, with hail and strong winds additional hazards.

Expected Impacts

Localised flash flooding and increased chance of landslides in mountainous areas bringing a danger to life. Large hail, strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities. The Bangladeshi capital, Dhaka, could see severe storms during the period.



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India**Weather**

The pre-monsoon heat wave is expected to intensify across parts of India through the coming week, with temperatures widely into the mid 40's of Celsius, around 5 to locally 10°C above average. This event could become more significant through the following week or two with the expected late arrival of the monsoon rains likely to aid a prolonged heat wave across the country.

Discussion

There are signals that the arrival of the monsoon rains into India will be around a week later than usual. This will allow for an extended period of day on day temperature rises that could result in a prolonged pre-monsoon heat wave.

Expected Impacts

Increased threat of heat stress and power failures.

**South-eastern China, northern Vietnam, Taiwan and the Ryukyu Islands of Japan****Weather**

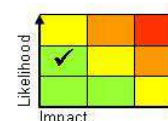
Very heavy rainfall will continue to affect parts of south-eastern China and northern Vietnam until early next week, extending east to affect Taiwan and the Ryukyu Islands of Japan, with over 200 mm possible in 24 hours. In some areas this could lead to event totals of 350 mm. This would be over the average monthly rainfall for May (which is 150-300 mm). This rainfall is associated with an active pulse of the seasonal Mei-yu rains, and will see severe thunderstorms in places, that could produce large hail, very strong winds and frequent lightning.

Discussion

There is good model agreement for an upper trough to move east and engage a surface warm plume and the seasonal monsoon (Mei-yu) front from Friday through to Monday. This will destabilise the plume, resulting in large CAPE/vertical wind shear profiles that also contain a signal for a low level warm nose above a shallow moist zone. These are ingredients for severe convection.

Expected Impacts

Flooding and flash flooding are likely to be the main impacts, especially in urban areas. Disruption to transport and infrastructure is also likely in what is a densely populated area.

**Sulawesi to the Solomon Islands****Weather**

A period of enhanced thunderstorm activity will bring accumulations of up to 80-120mm per 24 hrs to some parts of this area. This could lead to accumulations over a few days of 300 mm. (For comparison the May/June average is around 200 mm)

Discussion

The passage of a Kelvin wave and ERW activity is likely to enhance the thunderstorms across this area through the next week.

Expected Impacts

Flash flooding and landslides in steeper terrain are likely to be the main impacts.

**Australasia**

Nil significant.

Additional information

A heat wave is also in progress across south-eastern parts of the USA, with temperatures 5-10°C above average. Temperatures have been into the 40s of Celsius but are declining, with highs into the mid-30s expected over the coming days.

Issued at: 310750 UTC **Meteorologists:** Ele Hands / Nick Silkstone

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