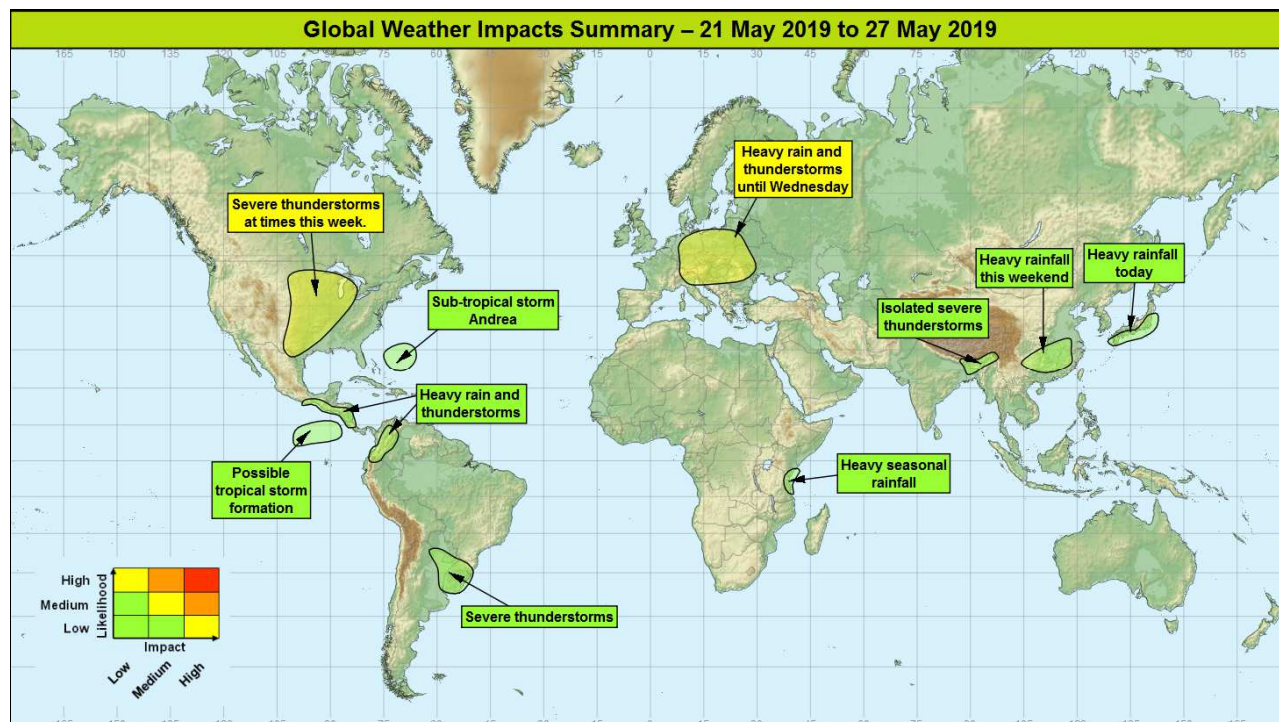


Global Weather Impacts – Tuesday 21st to Monday 27th May 2019

Issued on Tuesday 21st May 2019

HEADLINE

- Severe thunderstorms continue across the central and southern Plains of the USA.
- Heavy rain and thunderstorms across central and eastern Europe from Tuesday and Wednesday.



DISCUSSION

Tropical Cyclones

Sub-tropical storm Andrea

Weather

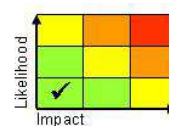
Sub-tropical storm Andrea formed on Monday night to the east of the Bahamas. Andrea had sustained winds of around 40-45 mph, with higher gusts. The system is expected continue north, before curving east, and remaining clear of any land in the next few days.

Discussion

Andrea is likely to be a short-lived sub-tropical storm, but is notable as the first named storm of the Atlantic hurricane season.

Expected Impacts

Nil significant as it is expected to remain over open water, before dissipating later tomorrow.



The following areas are being monitored for tropical cyclone development.

Northeast Pacific

Weather

An area of persistent shower and thunderstorm activity south of the Mexican Pacific coastline may gradually develop as it drifts slowly eastward over the coming week. There is a low risk of a tropical storm forming in this area early next week.



This forecast may be amended at any time

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Discussion

Shear instability along the ITCZ which has now migrated to around 8°N, this will likely result in the development of a shallow low level circulation. This may organise thunderstorm activity around it, and in cooperation with the favourable oceanic and atmospheric conditions in this area may allow the gradual development of a tropical storm.

Expected Impacts

Nil during this period as the weak circulation remains over open water away from land.

Europe**Central and eastern Europe****Weather**

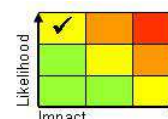
Heavy showers and thunderstorms are expected to affect large parts of central and eastern Europe over the next couple of days, with these storms producing the threat of up to 75 mm in a 6-12 hour period. There is the potential for severe thunderstorms to develop in the region which would produce the threat of very strong winds, frequent lightning large hail and possibly even a tornado. With time the most intense shower activity will migrate northeast, and even here weaken by midweek.

Discussion

A complex upper vortex will produce areas of forcing that will engage a complex warm plume across central and eastern Europe through the first part of the week. This will result in the potential for a mixture of large CAPE and skinny CAPE deep convection that when combined with modest vertical wind shear could produce MCS activity as well as high rainfall producing storms. The complex nature of the upper air and lower level thermal pattern will make it difficult to accurately predict where these storms will form. The cooling of the plume and advance of an upper ridge from the west will ease the shower threat from midweek.

Expected Impacts

Flash flooding is a significant threat, with a lower likelihood of damaging winds and large hail damage. Frequent lightning could impact aviation and power networks. There are some large cities in this region, and so there is the potential for significant disruption.

**North America****Central parts of the USA****Weather**

There is a continued threat of severe thunderstorms in this region of the USA through the next week. Whilst not everywhere in this region will see thunderstorms each day, there will be a significant severe thunderstorm threat in this region each day. These storms will produce very strong winds, large hail and tornadoes, with up to 150 mm of rain falling in a 24 hour period in places, and up to 300 mm of rain possible in a few places through the next week, which is around twice the average May rainfall in this region.

Discussion

A series of upper troughs will sweep east across the USA through the next week, with the upper forcing engaging a marked baroclinic zones and the pre-frontal broad warm sectors (850hPa of over 22°C) that contains the S'yly flow (low level jet). This setup will produce CAPE in excess of 2500J/kg at times, with marked shear providing the ingredients for severe convective outbreaks. This central region of the USA has already seen widespread river flooding through the last few months due to large snowpack melt and anomalously heavy rainfall. So further heavy rains will just exacerbate this impact.

Expected Impacts

Flash flooding, large to extremely large hail, damaging winds and strong tornadoes are all likely. Disruption to infrastructure as well as transport disruption across the area (including major disruption to aviation) can also be expected. The longevity of this event increased the likelihood of significant population centres being impacted. Another impact could be larger scale river flooding due to already very high river levels through the central part of the USA.



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Central America and Caribbean

Southwest Mexico, Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica

Weather

Showers and thunderstorms are likely to remain frequent and persistent across the area over the next few days. 50-100 mm of rain could fall locally daily, with some areas seeing accumulations of 250 mm of rain. For context, the average rainfall total for Acajutla (Pacific coast of El Salvador) for May is 168.8 mm.

Discussion

The MJO is expected to continue to propagate E across the western hemisphere, ramping up convection as it does so. Activation of the ITCZ looks like being most marked along the Pacific coast of parts of Central America, and it is here that forecast profiles support deep convection. Large amounts of precipitable water are available, as well as copious amounts of CAPE (3000J/kg), the heaviest precipitation this week looks to be associated with the potentially enhanced flow ahead of the potential tropical storm development area.

Expected Impacts

Flash-flooding, landslides in what is a mountainous area, and gusty winds are all likely.



South America

Colombia and Ecuador

Weather

Heavy seasonal rainfall is expected across this region through the coming week with daily rounds of frequent heavy showers and thunderstorms. Where the showers occur most frequently a further 300-400 mm of rain could accumulate, which is close to the average for the whole of May in the wetter Colombian sites.

Discussion

Good model agreement for another spell of heavy seasonal rainfall towards the end of what has been an active rainy season in this region. This active period of weather is likely to be due to the passage of the MJO.

Expected Impacts

Further flash flood and landslide events seem increasingly likely through next week, threatening transport infrastructure and settlements in the region.



Southeast Brazil, Uruguay, Paraguay and northeast Argentina

Weather

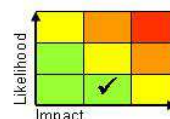
Heavy showers and severe thunderstorms will affect Southeast Brazil, parts of Uruguay, northeast Argentina and Paraguay through much of this week. Whilst not all areas will see the most intense rainfall each day, 50-100 mm of rain could fall in places within a few hours. The average rainfall in this region for May is 100-200 mm.

Discussion

The South Atlantic Convergence Zone will remain active for much of the next week, with a combination of short wave upper trough and the warm WBPTs triggering deep convection across this area.

Expected Impacts

Localised flash flooding and increased chance of landslides in mountainous areas. Large hail, strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities. Parts of this region have seen a wetter than usual rainy season, and so further rainfall could result in river flooding. Although exactly where the heaviest rain will fall is uncertain the area does include some densely populated regions (including Sao Paulo and Rio de Janeiro in the next day or two).



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Africa

Eastern Tanzania and far southeast of Kenya

Weather

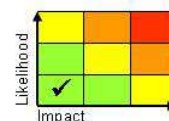
Heavy seasonal rains continue, with numerous showers and thunderstorms drifting into coastal regions off the Indian Ocean, bringing up to a further 100 mm of rain. Over the last few weeks these areas have been much wetter than average (receiving 200-300% of average rainfall amounts). Most of the heaviest rain will be offshore but there is small chance of very heavy rainfall affecting some of the coastal cities here, especially from midweek.

Discussion

The inter-tropical convergence zone will maintain the focus for frequent heavy showers and thunderstorms across eastern Tanzania and the extreme southeast of Kenya. Increasing south-westerly flow to the south of the ITCZ (associated with developing monsoonal flow in the Indian Ocean Basin) will contribute to the enhancement of showers and thunderstorms in this region.

Expected Impacts

Further flash flooding and damage to property and infrastructure is possible in large cities like Dar es Salaam and Mombasa, plus the popular tourist destination of Zanzibar.



Middle East

Nil significant.

Asia

Northeast India, Bhutan and northern Bangladesh

Weather

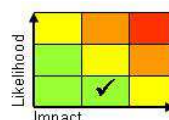
Severe thunderstorms are likely to affect the region during the next week. As well as intense rainfall (up to 150 mm daily although many areas will miss the heaviest rain), large hail and strong winds are possible.

Discussion

Various shortwave upper troughs moving northeast in the sub-tropical jet over northern India and Nepal will lead to destabilisation of the 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. Large hail, strong winds and frequent lightning are additional hazards which may cause damage to property and disruption to transport and utilities.



China

Weather

Heavy rain is likely to affect parts of southeast China over the weekend, with over 100 mm possible in 24 hrs. In some areas this could lead to event totals of 200 mm. This would be over the average monthly rainfall for May (which is around 130 mm).

Discussion

There is fairly good model agreement for a sharpening upper trough to engage a surface warm plume through the coming weekend. This will destabilise the plume, causing embedded convection with very heavy rain as well as strong, gusty winds.

Expected Impacts

Flooding and flash flooding are likely to be the main impacts, especially in urban areas.



Japan

Weather

A period of very heavy rainfall is expected to continue to affect parts of Japan through Tuesday. Up to a further 100 mm of rain could fall, on top of the widely 50-100mm that fell yesterday, with southern coasts and hills seeing the most intense rainfall. Radar derived accumulations suggest over 400mm of rain fell over Yakushima Island.



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Discussion

An active frontal system will clear east across Japan through Tuesday, continuing to be forced by an extending upper trough. The combination of the enhanced upper forcing and the strong, moist southerly flow is likely to continue to produce intense rainfall on south facing upslopes of Japan.

Expected Impacts

Flash flooding will be the main threat, but with a lower likelihood of landslides in this pre-monsoon period.

Australasia

Fiji and Samoa – See *Tropical Cyclones* section.

Additional information

Nil.

Issued at: 210745 UTC **Meteorologists:** Ele Hands / Nick Silkstone

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