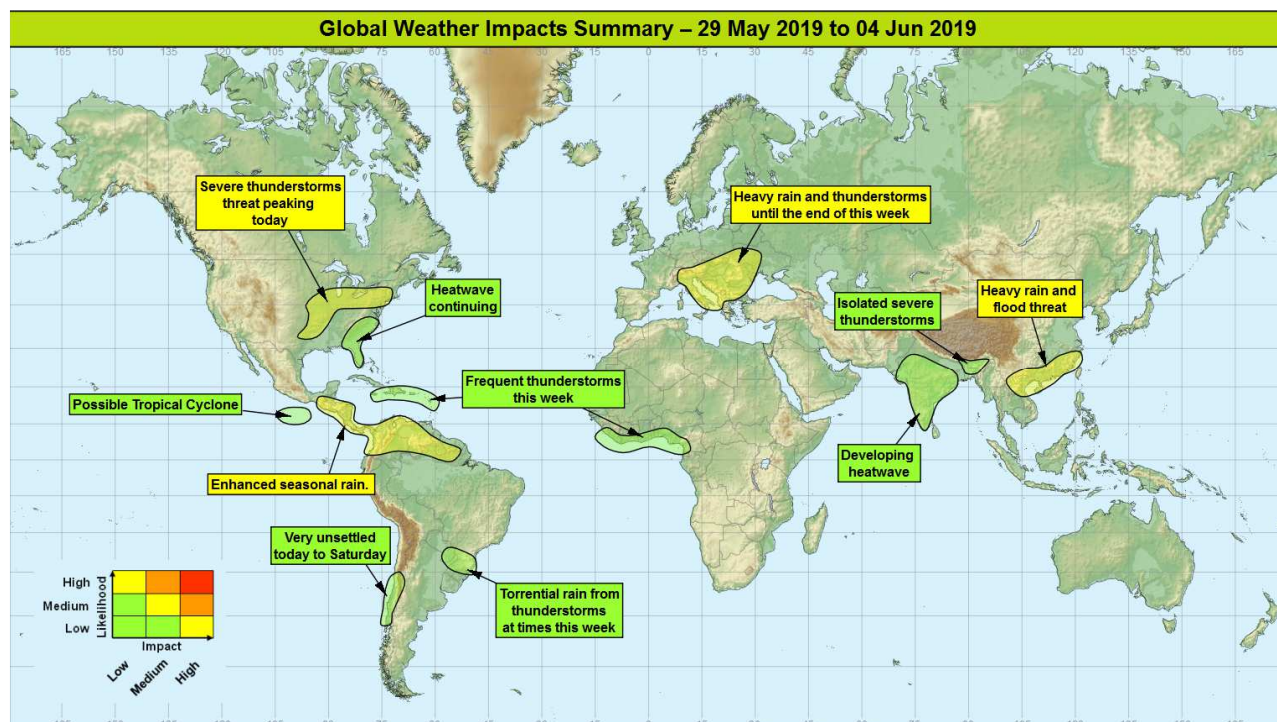


Global Weather Impacts – Wednesday 29th May to Tuesday 4th June 2019

Issued on Wednesday 29th May 2019

HEADLINE

- Locally severe thunderstorms affecting parts of Europe and USA.
- Intense rainfall across parts of Central America.
- Heavy rain and flood risk for southeast China and northern Vietnam.



DISCUSSION

Tropical Cyclones

There are no active tropical cyclones currently. The following area is being monitored for potential tropical cyclone development:

Northeast Pacific

Weather

A large area of disorganised showers and thunderstorms located a few hundred miles off the coast of southern Mexico has a 10-20% chance of forming a Tropical Cyclone over the next few days.

Discussion

An African Easterly Wave over this area may aid in the formation of a weak Tropical Cyclone over the coming days.

Expected Impacts

The system will remain over open water so no impacts are expected.



This forecast may be amended at any time

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Europe**Central parts of southern Europe, extending into the Balkans and northeast to parts of the Ukraine****Weather**

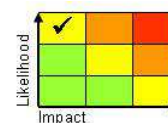
Heavy showers and thunderstorms will affect this region through the next few days, but with the activity becoming increasingly confined to south-eastern Europe later in the week. The thunderstorms will produce up to 100 mm in a 6-12 hour period in places. Some of the storms will be severe, producing very strong winds (gusts up to 50 mph), frequent lightning and large hail, with a small risk of tornadoes too.

Discussion

A major trough extension is underway across central Europe, south into Italy. The trough is signalled by all models to disrupt in the coming days, before the resultant upper low drifts slowly E into the Balkans. Under the associated cold pool, open cell convection is likely. On the forward side of the disruption diffluent flow over a moist and deeply unstable airmass will lead to MSC developments across parts of the E Balkans, north into Ukraine. These storms have the potential to generate all severe convective hazards for the remainder of the week and well into the weekend.

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, damaging hail and winds/tornadoes, which will pose a threat to life as well as power and transport networks.

**North America****Central and northeastern USA****Weather**

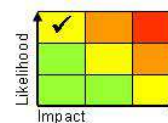
A further day of severe thunderstorm activity is likely across parts of central and north-eastern US through Wednesday. The greatest risk extends from eastern Texas and Oklahoma, north-east into the Ohio Valley and across parts of western Pennsylvania. Where they occur, storms bring a threat of very strong winds, large hail and tornadoes, with up to 100-150 mm of rain falling in a 24 hour period in places. There is then a much lower likelihood of severe storms from later in the week through the weekend.

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 signalled to ease back closer to neutral through the rest of this week. This is likely to lead to a more zonal pattern, with a decrease in storm activity. Before this happens, Wednesday is likely to be another very active day in the areas described above, with residual storms possibly lasting into Thursday in the north-east of the area.

Expected Impacts

Flash flooding, large hail, damaging winds and strong tornadoes are all likely. Aviation and transportation likely to be affected at times. Ongoing, locally historic flooding should be begin to ease as conditions become more settled through the rest of the week and into the weekend.

**Southeastern USA****Weather**

Across southeastern parts of the USA temperatures will continue to trend around 10 degrees Celsius above the late May average through the rest of the week, resulting in highs in excess of 40 degrees Celsius in places, along with overnight minima no lower than 24 degrees Celsius. Charleston (South Carolina), Savannah (Georgia) and Jacksonville (Florida) all broke the all time May maximum temperature record on Sunday, with further records likely to fall in the coming days. Temperatures, whilst still above normal, are likely to drop somewhat into the weekend.

Discussion

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A persistence of an upper trough across the western USA and a downstream upper ridge across the eastern USA (negative PNA pattern) has allowed a low level southerly flow to bring unseasonably hot air north across the southeast of the USA. This pattern will tend to break down later this week, allowing temperatures to ease back from record levels, but they will remain in the heat wave category.

Expected Impacts

Heat stress will likely be issue across the region, especially for tourists.

Central America and Caribbean**Far south of Mexico and Guatemala south to northern parts of South America****Weather**

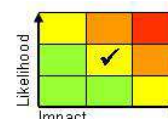
Remaining unsettled with further heavy rain and thunderstorms likely for the next week. Some places will see up to 100-150 mm in a 24 hour period, with up to 400 mm accumulating through the next week in places. The highest rainfall accumulations are likely to be seen in parts of Central America, especially the Pacific coast of Nicaragua, where there is a weak area of low pressure expected to move inland today (Wednesday). For a comparison with what is normal at this time of year, the average rainfall total for Managua (Pacific coast of Nicaragua) for May is 166 mm.

Discussion

The MJO will continue to propagate eastwards across the western hemisphere this coming week, maintaining the active convection along the ITCZ as it does so. As the week progresses the departing MJO will have less influence, but African Easterly Waves will likely maintain an active convective regime. Large amounts of precipitable water and CAPE (3000 J/kg) are present; the heaviest precipitation this week is likely to be in association with the enhanced onshore flow, this lasting until Saturday, before easing somewhat thereafter.

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.

**Caribbean (Jamaica and southern Cuba eastwards to northern Lesser Antilles)****Weather**

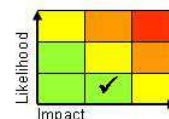
More frequent thunderstorms than are normally seen in the Caribbean in late May/early June are expected through the coming week. These storms could produce up to 75 mm of rain in a 6 hour period, with some islands seeing up to 150-200 mm of rain through the next week. So it is possible that some islands could see up to twice the average May rainfall in a few days to a week.

Discussion

A succession of African Easterly Waves will combine with the MJO to produce more frequent thunderstorms across the region than is usually seen in late May.

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**

Northern Ecuador, much of Colombia, Venezuela, Guyana, Suriname - see *Central America and Caribbean* section.

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Central Chile

Weather

A spell of persistent very wet weather is expected to impact this populated part of Chile from Wednesday to Saturday. Periods of heavy rain and showers will bring up to 300 mm in places, especially the upslopes of the Andes, during this event (2 or 3 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.

Discussion

An increasingly amplified upper pattern in the southeastern 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.



Southeast Brazil and the far east of Paraguay

Weather

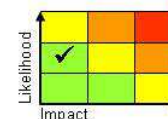
After recent heavy rain from severe thunderstorms, another period of torrential rain and thunderstorms looks likely from Thursday.

Discussion

Following the clearance of the recent SACZ plume, a sharp trough in the STJ moving across the country is engaging the plume drifting south from Brazil, generating a band of thunderstorms. High PWAT and tall, skinny CAPE profiles will contribute to large volumes of rain. A similar event is likely later in the week.

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

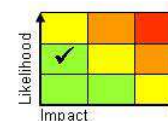
This region of West Africa is likely to see heavier than average rainfall through the next week in the form of intense rainfall. Up to 50-100 mm of rain could fall in a 6 hour period, with up to 250 mm accumulating in places through the coming week.

Discussion

The MJO will move through tropical Africa this coming week, and will combine 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.

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Asia

Northeast India, Bhutan and northern Bangladesh

Weather

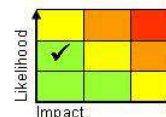
Severe thunderstorm activity is expected to increase again from Wednesday. As well as intense rainfall (up to 100 mm daily, although many areas will miss the heaviest rain), large hail and strong winds are possible.

Discussion

A shortwave upper trough 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.



India

Weather

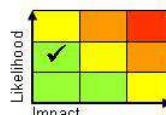
The pre-monsoon heatwave is expected to intensify across parts of India through the coming week, with temperatures beginning to rise significantly above average. This event could become more significant through the following week or two with the expected late arrival of the monsoon rains likely to aid a prolonged heatwave 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.



Southeastern China and northern Vietnam

Weather

Very heavy rainfall will continue to affect parts of southeastern China and northern Vietnam for much of the next week, 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 continue to engage a surface warm plume for the next few days, with another likely next weekend. 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.



Australasia

Nil significant.

Additional information

Nil.

Issued at: 290700 UTC **Meteorologists:** Jason Kelly / Ele Hands

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