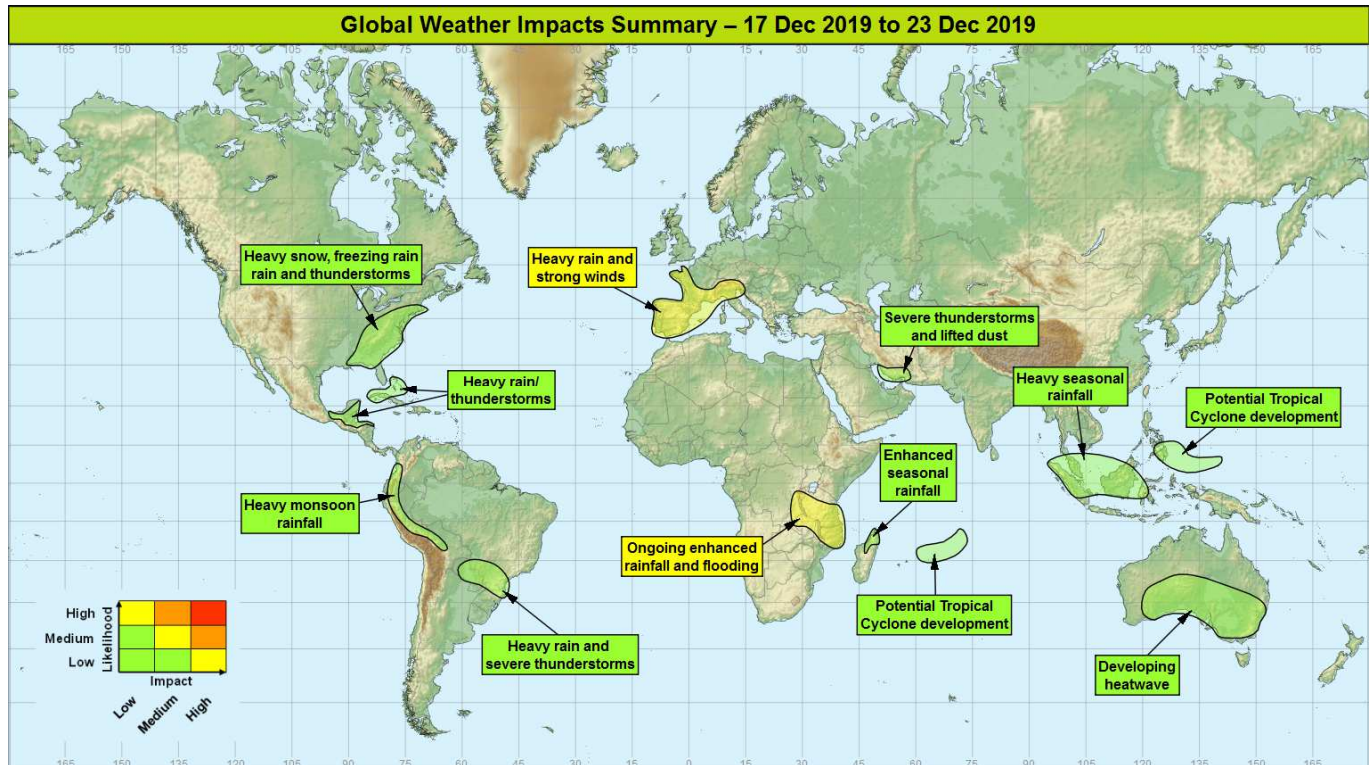


Global Weather Impacts – Tuesday 17th to Monday 23rd December 2019

Issued on Tuesday 17th December 2019

HEADLINES

- Very unsettled weather with heavy rainfall and strong winds continuing across western Europe.
- Above average rainfall and flooding across parts of eastern Africa.
- Developing heatwave across southern and eastern Australia.



DISCUSSION

Tropical Cyclones

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

Philippine Sea Weather

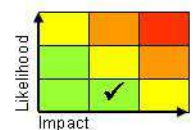
A cluster of thunderstorms currently to the north of Papua New Guinea will be steered west over the coming week. As this region approaches the southern Philippines this weekend, development of a tropical cyclone is possible. This bringing heavy rainfall (up to 200-400mm) and strong winds to parts of Mindanao Island, where a magnitude 6.8 earthquake occurred last Sunday.

Discussion

An Equatorial Rossby Wave (ERW) is organising thunderstorm activity in the Philippine Sea, this wave will gradually move westwards through the rest of this week. As this feature approaches land this weekend, it will likely experience favourable environmental conditions allowing a tropical cyclone to form. If a system forms it is signalled to remain below Typhoon strength, with the main impact being from heavy rainfall.

Expected Impacts

Flash flooding is possible across the southern Philippines, with a lower risk of damage from strong winds. Vulnerability may be higher than normal here given the recent earthquake.



This forecast may be amended at any time

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Southwest Indian Ocean

Weather

A well defined area of thunderstorm activity across the central southern Indian Ocean will gradually be steered southwest over the coming week. This system may pass just north of Rodrigues Island (Mauritius) over the weekend and bring heavy rainfall.

Discussion

A well defined ERW is already producing a well organised area of thunderstorms, this area is signalled to gradually develop into a tropical depression, with the chance of a tropical cyclone forming by the weekend. This system will be steered west or southwest by the large scale flow in the area, and may bring some heavy rainfall as it passes to the north of Rodrigues.

Expected Impacts

Flash flooding possible across Rodrigues Island this weekend.



Europe

Western Europe

Weather

An unsettled week with spells of heavy rain and strong winds. The most extreme rainfall is likely across northern Spain and Portugal, where 200-350mm could fall through the week. Heavy rain is also likely at times across the rest of the region, with 30-50mm likely widely, and up to 200mm over some high ground. The weather will generally be milder this coming week, with mountain snowfall largely restricted to above 1800 metres over the Alps.

Discussion

A powerful south shifted Atlantic jet will drive a succession of active frontal systems into western Europe. The heaviest rainfall over NW Iberia as high WBPT airmass is dredged NE from the sub-tropics. Into the weekend there is potential for further heavy rain and very strong winds to affect the region, capable of being very disruptive to western parts of the region. Already two low centres from this event have been named storms Daniel and Elsa by the Portuguese and Spanish Met services respectively, with the potential for further lows to be named later this week.

Expected Impacts

Both flash and longer term river flooding are possible, especially across parts of Iberia. Strong winds are likely to cause disruption to travel and some property/infrastructure damage, especially over the weekend. Snow will be confined to higher elevations, with snow melt at lower elevations possibly contributing to the overall flood risk. Large waves bring the potential for dangerous conditions for Atlantic coasts.



North America

Eastern USA

Weather

A multi-hazard severe weather event will affect large parts of eastern USA today. In the north of the region, snow and freezing rain are likely. Around 5-10 cm of snow could fall quite widely with up to 30 cm in places. Further south there is a risk of severe thunderstorms bringing intense downpours, some hail, strong winds and a few tornadoes.

Discussion

A confluent upper trough has interacted with a high WBPT moving drawn NE from the Gulf of Mexico to produce a fairly vigorous depression and active frontal systems. These will continue E/SE today. On the northern flank of the system heavy snow is likely as the system interacts with cold air moving south from Canada. Forecast profiles also support freezing rain in places. In the warm sector and along the cold front, isolated severe thunderstorms are possible.

Expected Impacts

A combination of heavy snow and freezing rain will bring disruption to travel in the north of the region. Flash flooding is possible in the south along with damage to property from strong winds.



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Central America**Belize, Honduras, Guatemala and southeast Mexico****Weather**

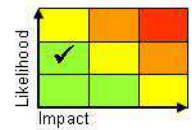
Heavy rain and thunderstorms are likely to affect the area from midweek, bringing widely 50-100mm of rain by the end of the period. Some areas could see 150-300mm of rain during Wednesday and Thursday, with much of this falling in a relatively short space of time. This equivalent to more than a month's worth of rainfall in places.

Discussion

A mid-latitude cold front is expected to enter the area late Tuesday and into Wednesday, before stalling and then acting as the focus for heavy rain and severe thunderstorms. Given the lead-time, there is excellent agreement between deterministic models with this evolution. Forecast profiles support slow-moving torrential downpours, with frequent lightning and large hail.

Expected Impacts

Flash and river-flooding. Disruption to utilities and infrastructure.

**Western Cuba, and the Bahamas****Weather**

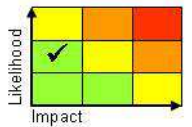
Heavy rain and thunderstorms are expected to affect the area from Thursday and through the weekend, bringing 40-80mm of rainfall fairly widely, and locally peaks of around 300mm. As much of the rainfall will be in the form of heavy showers and thunderstorm, large amounts of precipitation are likely to fall in a short duration.

Discussion

The same mid-latitude cold front discussed in the previous section will reach this region on Thursday and then become slow moving, hence remaining a focus for heavy rain and thunderstorms through into the early part of next week. Profiles support some organised and long lived cells, capable of producing slow moving torrential downpours, that will also likely produce frequent lightning and some hail.

Expected Impacts

Flash flooding is likely, especially in urban areas. Some disruption to utilities and infrastructure is possible and an increased risk of landslides in areas of steep terrain in Cuba.

**South America****Ecuador, western Colombia, Peru and Bolivia****Weather**

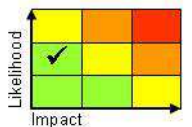
Frequent heavy showers and thunderstorms will affect these regions through the next 7 days, with the showers each day bringing 50-75 mm in just a few hours, with some locations receiving over 200 mm (around the December average rainfall). As is the nature of showers, spatial coverage on any one day will be highly variable.

Discussion

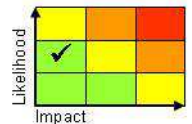
With the South American Monsoon now extending well southward, daily rounds of showers and thunderstorms are expected to form to the west of the Andes of Colombia and Ecuador, and to the east of the Andes further south. The region highlighted has seen above average rainfall during the past weeks, and is also forecast to receive the highest rainfall totals.

Expected Impacts

Flash flooding likely, with increased likelihood of landslides.

**Parts of Argentina, Paraguay, Uruguay, and southern Brazil****Weather**

An ongoing outbreak of heavy rainfall and some severe thunderstorms will continue to move northeast across this region. Frequent lightning is likely, and a risk of localised large hail. Although the initial area highlighted will see storms and rain ease this weekend, a further area is likely to form around the River Plate Estuary.



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Discussion

A shortwave upper trough in the subtropical jet will continue to run northeast east across this region engaging the high moisture plume associated with the South American Monsoon, resulting in a significant pulse of the South Atlantic Convergence Zone. As the first upper relaxes and moves offshore on Thursday and leads to a reduction in activity, the arrival of a further shortwave trough across the River Plate region on Friday will see a further pulse in activity across this zone.

Expected Impacts

Localised flash flooding, and low risk of localised damage from large hail, frequent lightning and strong wind gusts.

Africa

Parts of eastern/central Africa

Weather

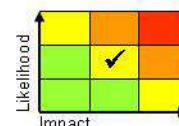
Continued widespread heavy showers and thunderstorms associated with the seasonal rains are expected to continue to be heavier than normal over the next week, with a further 100-200 mm of rain falling in places from frequent heavy, thundery, afternoon downpours. This is close to the average rainfall in this region for the whole of December, with this area having already seen 200-400% of the usual rainfall over the past few weeks.

Discussion

Enhanced seasonal rainfall in association with the strong positive Indian Ocean Dipole event which, although declining, is still influencing the large scale shower distribution. Large tracts of eastern Africa have seen well above average rainfall over the past few months. The combination of all these factors dramatically increases the likelihood of further flash and river flooding along with further deadly landslides. There are signs that the area of enhanced rainfall is slowly waning, with totals offered by extended models also slowly reducing.

Expected Impacts

Increased threat of flash flooding and landslides in the region, with further river flooding likely.



Madagascar

Weather

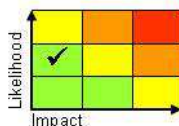
Across the far north of the island daily shower and thunderstorm activity will continue at above average frequency. Over a couple of hours 25-50 mm of rainfall is locally possible, whilst some locations may receive 150-250 mm in total overall; this representing around a month's rainfall during the wet season, following an already wet spell across this region.

Discussion

The moisture plume associated with the remnants of long since dissipated Tropical Cyclone Belna remain slow over the country. This dwindling source of moisture will act to promote shower and thunderstorm activity, albeit of gradually reducing intensity. December is a very wet month in Madagascar at the start of the annual rainy season, hence it is thought that these rainfall accumulations although high are unlikely to be overly problematic.

Expected Impacts

Localised flash flooding possible. An elevated risk of landslides in areas where terrain is steep.

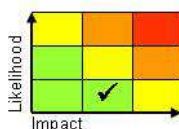


Middle East

Southern Iran, and the far north of the UAE and Oman

Weather

Through Tuesday fairly widespread thunderstorm activity will continue to affect western Iran (inc. Bushehr and Bandar Abbas) and the adjacent Arabian Gulf. Very localised heavy rainfall of 15-25 mm in a few hours is possible, with isolated spots seeing an additional 50-100 mm of rain through today, with shower activity easing markedly into Wednesday. During the whole event accumulated rainfall will be equal to the entire December average rainfall for the eastern Persian Gulf.



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Discussion

A shortwave trough in the sub-tropical jet will force a western disturbance east across the region. This will continue to lead to large areas of elevated convection developing that will likely lead to a widespread area of heavy rain and thunderstorm moving east across the Gulf through Tuesday.

Expected Impacts

Flash flooding likely in urban regions. Transport likely to be disrupted, especially aviation with the region home to several large hub airports. Strong winds and lightning will bring the risk of localised damage, and lifted dust will reduce air quality.

Asia

Malaysia, Indonesia and Brunei

Weather

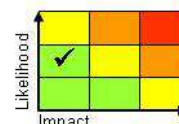
Even though it is the rainy season in this region, heavy rainfall is expected to continue through the next week with some places seeing up to 300mm (equivalent of 50-75% of the average monthly rainfall at this time of year).

Discussion

Above average SSTs in the Java Sea and surrounding waters, combined with increased convergence as a result of a stronger northeasterly flow through the South China Sea and passage of several tropical Equatorial Rossby Waves (ERW) is likely to contribute to enhanced convection through the next week. These rains have already caused significant impacts in parts of this region, with flooding being reported across parts of Malaysia.

Expected Impacts

Increased threat of flash flooding and landslides.



Australasia

Parts of central/southern Australia

Weather

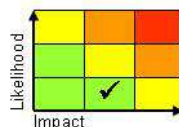
A developing northerly flow is signalled to draw hot desert air south across these parts of Australia over the coming week. Maximum temperatures are likely to be widely some 10-15°C above normal, with values possibly achieving the mid to high 40s°C, potentially approaching, and locally exceeding, all-time records for December.

Discussion

An area of high pressure to the S of Australia is likely to drift eastward, with N'y flow developing on its western flank. This is likely to result in hot desert air being drawn southward, leading to some exceptional temperatures.

Expected Impacts

Impacts on infrastructure, including road and rail, as well as utilities, can be expected. Impacts on vulnerable populations (without access to air-con) are also likely. This event is expected to be fairly long in duration, exacerbating the impacts further.



Additional Information

Eastern Australia

Numerous bush fires continue across parts of eastern New South Wales, Queensland and Australian Capital Territory with widely dry conditions persisting across all but coastal Queensland over the next week. Whilst fire weather conditions have improved relative to recent days, the sheer size of many ongoing fires will continue to produce large amounts of small particulates that will contribute to very poor air quality for several weeks to come.

Issued at: 170845 UTC **Meteorologists:** Nick Silkstone / Chris Bulmer

Global Guidance Unit

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