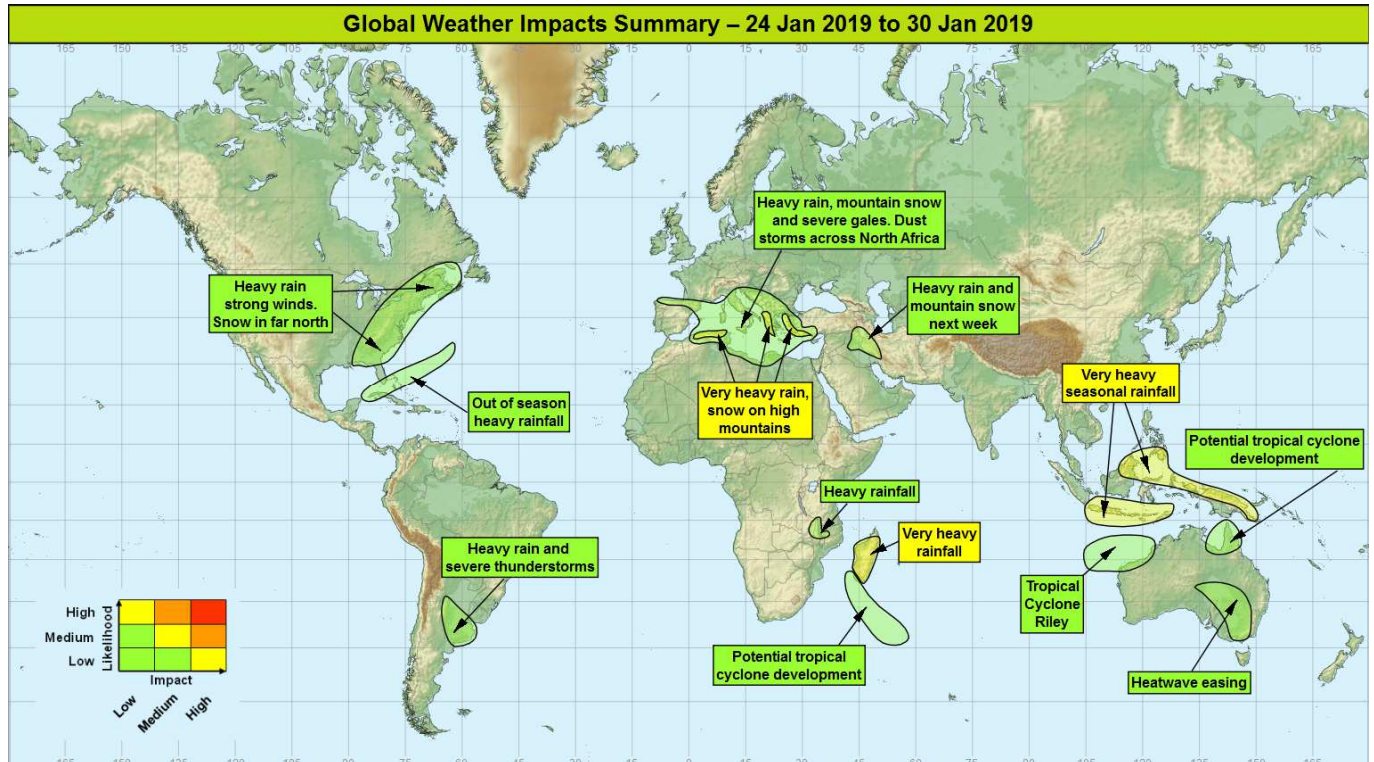


Global Weather Impacts – Thursday 24th to Wednesday 30th January 2019

Issued on Thursday 24th January 2019

HEADLINES

- Heavy rainfall across Madagascar, with a potential tropical cyclone development nearby.
- Remaining very unsettled with heavy rain and very strong winds through much of the Mediterranean.
- Very heavy seasonal rainfall across parts of the Maritime Continent.
- Heavy rain and strong winds across eastern North America today, a very cold Arctic air outbreak follows.



DISCUSSION

Tropical Cyclones

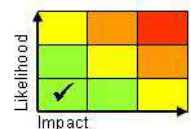
Tropical Cyclone Riley, Western Australia

Weather

Riley developed early on Thursday just off the Pilbara coast with mean wind speeds of up to 55 mph. It is forecast to track west-southwestwards and remains just offshore from Western Australia coastline through the next few days, with the storm perhaps producing mean winds that may reach close to 100 mph. Beyond that the system will head out harmlessly into the Indian Ocean. Heavy rainfall tied to the system will remain offshore; however the flow around the storm will drag tropical air inland across northwestern Australia, with thunderstorms then triggering to bring heavy rainfall to the usually dry desert areas.

Discussion

Enhanced convection in this region due to the passage of the MJO, and the various Equatorial Rossby Waves (ERW) that have formed in its wake helped create the favourable environment for Riley to develop. This environment remains favourable for the next couple of days with further strengthening of the cyclone expected. Model output consistently keeps this system on the west-southwest track, remaining just offshore from the northwestern Australian coast. As noted previously the strong north to northeast flow on the systems rearward flank draws tropical air well inland across northwest Australia. This is likely to result in thunderstorm activity across the usually dry desert region.



This forecast may be amended at any time

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Expected Impacts

Gale force winds will impact parts of the sparsely populated Pilbara coast of north-western Australia, potentially causing some minor utility disruption. Dangerous sea conditions will develop with large waves along this coastline potentially disrupting marine transport and fishing activities. Shower and thunderstorm activity may lead to some flash flooding in usually dry Wadis.

The following regions are being monitored for potential tropical developments

Gulf of Carpentaria (Northern Australia)

Weather

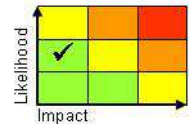
Within the area highlighted there is a moderate probability of a tropical cyclone developing over the few days. This system is expected to develop in the Gulf of Carpentaria before affecting northwestern Queensland and the Northern Territory. This system is expected to bring heavy rainfall to the sparsely populated areas of northern Australia, with strong winds also possible in and around the Cape York Peninsula.

Discussion

As the Madden Julian Oscillation (MJO) transfers eastwards across the Maritime Continent it is providing conditions suitable for enhanced convection across this region. The southern hemisphere couplet an Equatorial Rossby Wave (ERW) pair will then act as foci to organise this enhanced convection, and is likely to promote tropical cyclone development within this area. Fairly large differences remain for the location and subsequent track of this development, with some solutions allowing the system to impact the Gulf of Carpentaria, others the Coral Sea coastline.

Expected Impacts

Flash and alluvial flooding likely across the extreme north of Australia. The potential for strong winds to impact parts of Queensland and potentially the Northern Territory this weekend, these may disrupt some transport and cause some slight damage to utility networks.



Madagascar, southwest Indian Ocean.

Weather

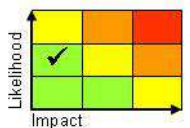
There is a moderate risk of a tropical cyclone forming in the southern Mozambique Channel over the next 24 hours. If this storm reaches tropical storm strength (the point where a name is assigned), it would be called "Eketsang". Regardless of development there is high confidence this system will track southeast past the southern tip of Madagascar overnight Thursday into Friday, and then continue southeast across the open Indian Ocean.

Discussion

Within this area of enhanced convection, a low level circulation has formed on a shear boundary where the enhanced southerly winds (associated with Ex-Desmond), met the northeasterly trade winds. Convection associated with this circulation has become organised, and is beginning to spiral around an apparent depression. The system will remain in an area marginally favourable for development with all the usual ingredients present (warm SSTs, low vertical windshear, good equatorward and poleward outflow). There is excellent model agreement for the track discussed in the weather section.

Expected Impacts

Heavy rainfall from the system is expected to impact parts of drought stricken southwestern Madagascar, but here increasing the risk of flash and alluvial flooding, plus landslides in regions where terrain is steep. Strong winds will generate rough seas and likely disrupt some maritime transport and fishing activities, as well as causing some damage to poorly planned and constructed infrastructure.



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Europe

Much of the Mediterranean and adjacent countries

Weather

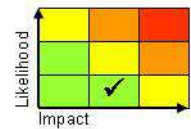
Very unsettled conditions will affect the region over the coming week, as an initial deep area of low pressure tracks slowly eastwards over the next few days, and is then followed by a further area of low pressure that is likely to develop later this weekend. Heavy rain and thunderstorms will affect many parts, with precipitation falling as snow across high mountains in the region (including across North Africa). The winds will be exceptionally strong for this area (reaching gale to severe gale force) and generate hazardous sea conditions. Winds of this strength will be capable of lifting large dust plumes from North Africa, with these potentially then being drawn into parts of southeast Europe.

Discussion

The well amplified pattern in the Atlantic will continue to see generate and feed areas of low pressure across the Mediterranean (as the case has been in recent months). The system that crosses the region until Sunday looks particularly potent, with gales developing across much of the sea area, and many locations seeing 25-50mm of rain.

Expected Impacts

Heavy rainfall will increase the risk of flash flooding, in addition enhancing the risk of landslides in areas where the terrain is steep. Snowfall over the high mountains may cause some disruption to transport over passes, and increase the risk of avalanche. The strong winds will likely generate a modest storm surge in some regions (risk of coastal flooding), dangerous sea conditions will pose a significant threat to marine transport (especially small craft). Lifted dust storms may impact on the health of the local population.



Northern Algeria and Tunisia, western Greece and the Balkans, and parts of southwest

Turkey

Weather

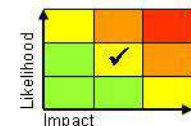
Within the region of highly disturbed weather noted above, these three sub-zones are likely to have the greatest accumulations of rainfall over the coming days. All the locations highlighted are forecast to receive 150-200mm of rain over the coming week, the rainfall enhanced by strong onshore flow and orographic effects.

Discussion

As described in the previous section. It is worth a note that soil moisture in the regions affected is already analysed at being close to saturation, meaning the impacts from this precipitation could be increased.

Expected Impacts

Heavy rainfall will increase the risk of flash flooding, in addition enhancing the risk of landslides in areas where the terrain is steep. Snowfall over the high mountains may cause some disruption to transport over passes, and increase the risk of avalanche.



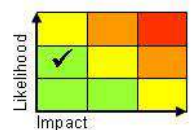
North America

Eastern USA and southeast Canada

Weather

Transient snow and freezing rain on its leading northeast edge of this zone is now confined to northeastern Canada. Across populated regions of the USA and southeast Canada the cold front trailing southwest from the system will bring very heavy rainfall, strong winds and locally severe thunderstorms today. The impacts from this system are likely to be chiefly to do with the heavy rainfall, with the addition of very strong winds across the western Atlantic Ocean and along the US coastline (including for New York and Boston). Following this system on Friday and through the weekend, a major outbreak of Arctic air will bring severe cold across eastern US, with further snowfall events possible in this region in the early part of next week.

Discussion



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Much as in the Atlantic, a highly amplified upper pattern is in place across North America and the north Pacific. Following the development and passage of the low on Thursday and Friday which will bring a range of hazards, a frigid airmass will push south across North America. Locations such as Chicago are expected to see temperatures range between -10°C and -20°C from Thursday to Saturday. Although the extreme cold will abate through Sunday and Monday (when some snow will affect the region) an even colder Arctic air outbreak is forecast to occur in the middle of next week.

Expected Impacts

Snowfall and freezing rain in the northern of this system will disrupt travel across sparsely populated areas of northeast Canada. Heavy rainfall will bring some flooding related impacts across southeastern states, with the potential for severe thunderstorms adding further threats from large hail, frequent lightning and isolated tornadoes. Strong winds along the eastern sea board are likely to lead to dangerous sea and surf conditions along the beaches, and also lead to delays and disruption to flights such as at JFK airport. Finally in the extreme cold air outbreak following the system across the east of the continent, people without access to properly heated accommodation will be at risk from cold exposure injuries.

Central America and Caribbean

Cuba, Florida, Turks and Caicos, Bahamas and Bermuda

Weather

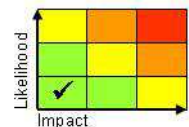
A band of rainfall will become slow moving in this region from Thursday onwards, with repeated bouts of heavy rainfall and occasional thunderstorms running northeastwards along it. Some locations in this region are expected to see rainfall amounts up to 5 times greater than what is typical here in late January (the drier season). However catchments in this region are more used to these totals in the wetter summer months.

Discussion

The system also causing the disruption across North America (described in the previous section) will push a cold front down across this region on late Thursday/early Friday, where it will then become slow moving and prone to waves as it is engaged by troughs in the highly amplified flow across the region.

Expected Impacts

Heavy rainfall will increase the risk of flash and alluvial flooding, in addition enhancing the risk of landslides in areas where the terrain is steep. Thunderstorms adding further threats from hail and frequent lightning.



South America

Northeast Argentina and southwest Uruguay

Weather

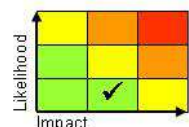
Further bouts of severe thunderstorms will affect this region over the coming days, with the potential for very heavy rainfall (locally in excess of 100mm) to accumulate in a short period of time. Friday and Saturday look to be particularly active days.

Discussion

The South American convergence zone will be active through the coming week. Areas of severe thunderstorms will form as the South American monsoon plume is engaged by troughs in the sub-tropical jet. Storms could be very severe with CAPE signalled to exceed 5000 J/Kg at times. This along with marked vertical windshear makes MCS and supercell formation likely.

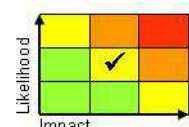
Expected Impacts

Heavy rainfall will bring some flooding related impacts mainly of the flash variety if urban areas are impacted. Severe thunderstorms adding further threats from very large hail, frequent lightning, strong gusty winds and isolated tornadoes.



Africa

Madagascar



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Weather

Heavy rain and thunderstorm activity could cause between 150-300mm of rainfall to fall in some locations through the next few days, representing up to double the normal rainfall for this period (which is in the rainy season). A significant portion of this rainfall can be attributed to the flow around the likely development of a tropical cyclone just to the south of Madagascar that will push southeast into the Indian Ocean Channel (*See Tropical Cyclone section*). By the later part of the upcoming weekend, rainfall is forecast to return to near normal levels in this region.

Discussion

In and around a tropical cyclone that will likely develop just to the south of Madagascar (*see Tropical Cyclone section*) an area of enhanced showers and thunderstorms will exist throughout this region. The rainfall totals will be enhanced by the strong flow surrounding the likely tropical cyclone leading to the orographic enhancement of rainfall. Recent reports of landslides and flooding in this region suggest that the area is susceptible to greater than usual impacts from the upcoming rain.

Expected Impacts

Heavy rainfall will increase the risk of flash and alluvial flooding, plus landslides in regions where terrain is steep.

The area surrounding Lake Malawi, Malawi, Mozambique, Zambia and Tanzania.

Weather

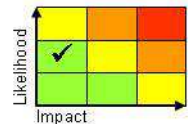
An area of enhanced shower and thunderstorm activity is forecast to impact Lake Malawi and surrounding countries over the coming week. Some locations in this region could receive around 250mm of rainfall over the week, representing double the normal amounts.

Discussion

A moisture plume loosely tied to the remnants of Ex-Tropical Storm Desmond will combine with strong upper level divergence to promote active convection over this region over the coming week. Showers and thunderstorms are likely to follow the pattern of forming over land around the lake by day, and then over the lake itself by night. There have been recent reports of flooding in this region, hence this additional precipitation is expected to cause greater than usual disruption.

Expected Impacts

Heavy rainfall will increase the risk of flash and alluvial flooding, plus landslides in regions where terrain is steep. Thunderstorms may generate frequent lightning posing a threat to people work outdoors, and strong winds generated by storms may lead to hazardous conditions out over the lake.



Algeria and Libya – See *Europe* section.

Asia

Much of Indonesia and Papua New Guinea

Weather

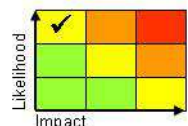
The usual seasonal rainfall is expected to be more intense and widespread than is usual over the coming week. Up to 100 mm of rain could fall in a few hours, combined with locally strong winds or even a tornado. Rainfall totals of up to 350 mm could accumulate in places which is equivalent to around the whole of the average January rainfall in this region.

Discussion

With the Madden Julian Oscillation (MJO) running through the region over the coming days, the usual convection will be more intense and widespread than usual. The MJO has also triggered several over tropical waves, and these will enhance and focus convection even further. Finally a cold surge running down the South China Sea is expected to cross the equator and reach Java, further enhancing the intensity of precipitation in this sub-region.

Expected Impacts

Heavy rainfall will increase the risk of flash and alluvial flooding, plus landslides in regions where terrain is steep. Thunderstorms will produce frequent lightning, with the potential for an isolated thunderstorm or waterspout.



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Zagros Mountains, Turkey, Iraq and Iran**Weather**

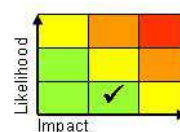
Through Sunday and Monday a band of very heavy rainfall will push northeast across this region. Although this rainfall will be heavy across much of Iraq, it will be especially heavy as it reaches the Zagros Mountains (falling as snow above approximately 2000 M). Around 25-50mm of rainfall could fall across low lying areas of Iraq, and more than a metre of snow could fall over the high mountains through the two days.

Discussion

A sharp upper trough moving east from the Mediterranean will draw a plume of warm moisture laden air northeastwards from the Red Sea, and then increasingly engage this plume through Sunday and Monday generating heavy precipitation across Iraq, and the Zagros Mountains in particular. Despite the high precipitation rates indicated, profiles in the region only indicate isolated embedded thunderstorms.

Expected Impacts

Heavy rainfall will increase the risk of flash and alluvial flooding, in addition enhancing the risk of landslides in areas where the terrain is steep. Snowfall over the high mountains may cause some disruption to transport over passes, and increase the risk of avalanches.

**Australasia**

Northern Australia – See *Tropical Cyclones* section.

Southeastern Australia**Weather**

The recent heat wave will peak on Thursday across the more populous southeast of the country. Over following few days temperatures will return to near normal, but through this transition there will be a risk of a few severe thunderstorms.

Discussion

High temperatures are not unusual for Australia in the last decade, and a couple more days of the current heat wave are expected. The arrival of the cold front from the southwest will allow temperatures to return back to more normal values.

Expected Impacts

Impact on health of vulnerable populations. Melting of roads and buckling of railways impacts infrastructure. Thunderstorms adding further threats from hail and frequent lightning, whilst wildfires become more probable (potentially ignited by lightning as the thunderstorms will be present in the transition to colder conditions).

**Additional information**

Nil.

Issued at: 240830 UTC **Meteorologist:** Nick Silkstone

Global Guidance Unit

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