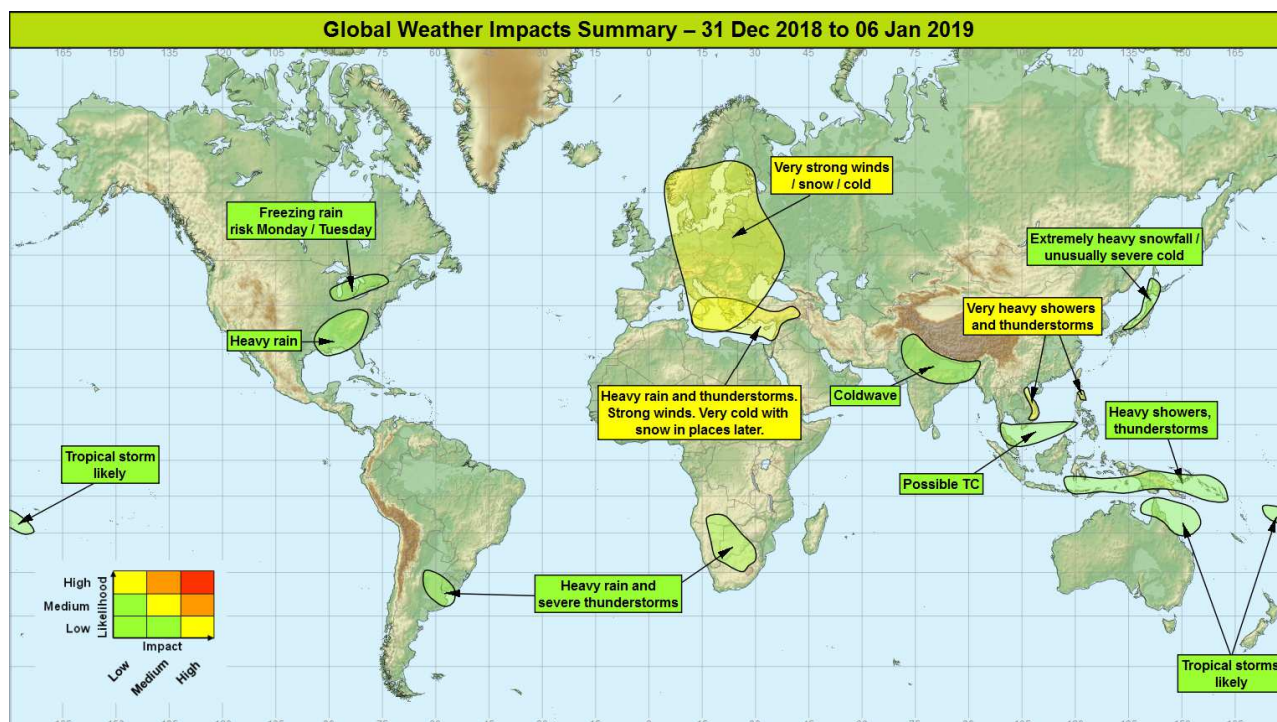


Global Weather Impacts – Monday 31st December 2018 to Sunday 6th January 2019

Issued on Monday 31st December 2018

HEADLINES

- Very heavy rainfall continues across central Vietnam and the northeastern Philippines.
- Likely Tropical Cyclone formation close to northern Australia and Fiji.
- Further disturbed weather likely across the eastern Mediterranean / Levant region.
- Significant cold plunge across central and eastern Europe this week.



DISCUSSION

Tropical Cyclones

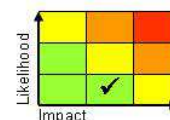
There are no named systems at this time. The following areas are being monitored for development.

Philippines and South China Sea Weather

A tropical depression which crossed the central Philippines through the weekend has now emerged into the South China Sea, but has decayed to a remnant low for the time being. The system is forecast to remain over open sea until the middle of next week, probably tracking towards the Gulf of Thailand. A minority of solutions see the landfall of a weak system in southern Vietnam or Cambodia, while the majority track a more significant system, possibly a tropical storm towards the Malay Peninsula by the end of the week.

Discussion

Conditions are favourable for some modest re-strengthening of this system as it crosses the South China Sea into the middle of next week. It is likely to become a tropical depression once again within 24 hours, with an increased chance of becoming a tropical storm as it moves west across the South China Sea. Due to large model spread there is large uncertainty in the track of this system. However there is a growing consensus for landfall on the Malay Peninsula toward the end of the week.



This forecast may be amended at any time

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Expected Impacts

The main impacts from this system will be heavy rainfall resulting from the strong flow it has induced to the north into eastern Luzon and Vietnam (see Asia section). There is a risk of heavy rainfall, flash flooding and landslides across the Malay Peninsula later this week, with some heavy rainfall for the extreme southern tip of Vietnam.

Gulf of Carpentaria and Coral Sea

Weather

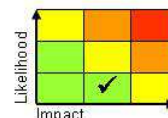
A tropical low has now formed close to the Cape York Peninsula in northern Queensland, Australia. The system is expected to strengthen over the Gulf of Carpentaria through the coming 24 hours, probably into a tropical storm. This system is then signalled to track back east across Cape York, then potentially curve back south or south-westwards towards the Queensland coastline towards the end of the week. Heavy rainfall is expected across the region with some locations likely to see well in excess of 500mm over the week.

Discussion

The monsoon trough has formed across this region with a number of weak tropical lows able to be identified within it. One of these has now developed into a more substantial low and is presently moving through a region favourable for development, probably to tropical storm strength within the next 24 hours. All models then take this system back east across the Cape York Peninsula. After emerging into the Coral Sea it's probable that the storm will recurve back toward the Queensland coast later this week.

Expected Impacts

Very heavy rainfall and locally gales are expected to affect portions of northern Queensland through Monday and Tuesday. Longer term it's possible that parts of eastern Queensland may see further impacts from this system. Although this region is sparsely populated, there are some population centres such as Cairns.



Fiji

Weather

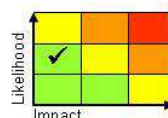
A tropical low lies to the north-west of Fiji and looks likely to become a tropical storm within the next 12 to 24 hours. The system is expected to pass close to or perhaps across northern Fiji later today. A further system may follow mid to late next week but the uncertainty in any potential track or intensity is far higher. Further commentary to be provided if necessary on this system over the coming days as confidence increases.

Discussion

A low developed in the monsoon trough close to the Solomon Islands then tracked slowly east across northernmost parts of Vanuatu. Conditions remain favourable for modest strengthening. The storm will be steered southeastwards by the prevailing flow, passing close to or across northern Fiji later today. Although the strongest winds are expected to pass north of Fiji, some very heavy rainfall is signalled for Northern Division through Monday.

Expected Impacts

Heavier than usual monsoon rainfall across this region could bring some very localised flash flooding.

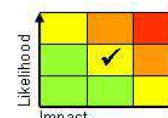


Europe

Southern Italy, Greece, Cyprus, The Levant, Turkey, northern Syria and northern Libya

Weather

A further spell of disturbed weather is likely to affect much of the eastern Mediterranean and parts of the Levant this week. Heavy rainfall, showers and thunderstorms (in places accompanied by gales) will develop fairly widely, with the heaviest rainfall developing from Monday onwards around Greece and the Aegean Sea, progressing eastwards over the following few days. Up to 100mm could be seen on each day in a few locations. In addition to the rainfall a plunge of very cold air into the region could bring some snowfall and unusually low temperatures to parts of the central Mediterranean by the end of the week.



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Discussion

A major trough extension into the central Mediterranean has initiated cyclogenesis. This slow moving system will be the focus for the development of bands of heavy rainfall, showers and thunderstorms which transfer only slowly east and southeastwards through the early part of the week. Later this week yet another trough will plunge south and likely form another low pressure system. In addition all models signal a surge of unusually cold air southwards across central Europe then into the central Mediterranean by the latter part of the week, with the potential for significant snowfall and exceptionally low temperatures for the likes of central and southern Italy, including Sicily, and Greece.

Expected Impacts

Further heavy rainfall will lead to an enhanced risk of flash flooding and landslides in a region which has seen a lot of wet weather in recent weeks. In addition strong winds and below average temperatures are likely to affect vulnerable populations in parts of southern Turkey and The Levant. Later this week there is a risk of significant snowfall and unusually cold temperatures for parts of central and southern Italy and Greece.

Central and eastern Europe.**Weather**

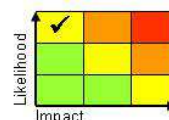
A plunge of exceptionally cold air is expected across Scandinavia, into much of central and eastern Europe through the middle to latter part of this week. Very strong winds will accentuate the cold in many areas. The cold will eventually make it as far south as the central Mediterranean. (see above)

Discussion

An area of low pressure is expected to cross northern Scandinavia during Monday and Tuesday. This, combined with a N-S elongated high over the UK will lead to a very tight pressure gradient, which will drive a plunge of very cold air southwards into the continent.

Expected Impacts

Gales or severe gales are likely across Denmark, northern Germany and Poland, the Baltic States and southern Scandinavia with disruption to travel, especially aviation and marine likely. Some disruption to power supplies likely. Frequent and heavy snow showers will also affect travel in parts of the region.

**North America****Southern Plains and southeast USA****Weather**

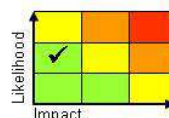
A spell of heavy rain is expected through Monday and Tuesday with some locations receiving 50-100 mm of rain. Consequently, taking into account the previous rainfall over the last few days, many locations are likely to receive the equivalent of a months' rainfall within a 6 day period. It's possible a further system may develop toward the end of the week in a similar area.

Discussion

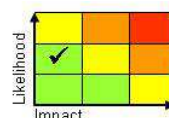
A major trough extension and partial disruption over the Four Corners regions will draw up another plume of higher WBPT air across the southeast USA early next week which will be the focus for cyclogenesis. Whilst thunderstorm activity is possible with this system too, the combination of large CAPE and shear is not expected. A further trough extension is signalled later in the week which may well result in a similar evolution across this region before the weekend.

Expected Impacts

A wetting-up process from previous rainfall events has made an increasing number of catchments sensitive to further rainfall. This additional rainfall is likely to result in surface water and some river flooding, with impacts most likely across the Mid-Atlantic to southern Appalachians.

**Great Lakes and SE Canada****Weather**

On the northern flank of the system described above there is the risk of a zone of freezing rain. This extends through the Great Lakes area and into SE Canada, and could potential impact some major cities such as Chicago and Toronto.



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Discussion

The northern flank of the system will engage the cold air over Canada later Monday and early Tuesday. Forecast profiles show a risk of freezing rain through this region for a time, before the cold air reasserts itself as the system pulls away.

Expected Impacts

Risk of significant disruption to transport and power supplies.

Central America and Caribbean

Nil significant.

South America

Northern Argentina and Uruguay

Weather

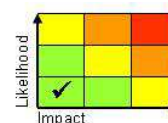
Frequent heavy showers and thunderstorms are expected to develop through the next 3-4 days producing a combination of heavy, short-period rainfall, large hail, damaging wind gusts and a few tornadoes.

Discussion

Successive episodes of severe convection are expected as the seasonal warm plume is drawn south and engaged by shortwave upper troughs crossing South America. A combination of large CAPE (at times exceeding 4000 Jkg^{-1}) and vertical wind shear will support the development of persistent MCS and discrete supercells.

Expected Impacts

Impacts will be fairly localised given the nature of showers, but flash flooding from heavy rainfall is likely, including around the capital city Buenos Aires. Additionally, large hail, frequent lightning and strong winds are likely to cause some damage to property and infrastructure, as well as pose a threat to life.



Africa

Southern Africa, including parts of Namibia, Angola, Botswana and South Africa

Weather

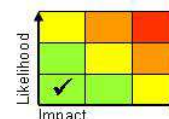
Heavy thunderstorms are expected across this region over the next few days. These could locally bring 50-100mm of rainfall in a short period, with some locations potentially seeing over 200mm through the week. In addition to heavy rainfall, these will likely produce frequent lightning, strong downdraughts and large hailstones.

Discussion

A slow moving upper trough will overlay a zone of high WBPT air across the high landmass of southern Africa. Heating each day will allow the generation of severe thunderstorms, with the most severe likely to be from southeast Angola and northeast Namibia across Botswana into South Africa. Here upper winds will support the generation of more long lived cells such as MCS.

Expected Impacts

The majority of the area highlighted is sparsely populated; however there are some large densely populated cities within it including Johannesburg. Impacts will be fairly localised given the nature of showers, but flash flooding from heavy rainfall is likely. Additionally, large hail, frequent lightning and strong winds are likely to cause some damage to property and infrastructure, as well as pose a threat to life.



Northern Libya – See *Europe* section.

Middle East

Syria and Levant – See *Europe* section.

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Asia**Vietnam and northeast Philippines****Weather**

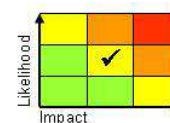
Enhanced shower and thunderstorm activity is expected in this region over the coming week, with the heaviest rainfall occurring in locations exposed to the prevailing and strong at times northeasterly wind such as Vietnam and the northeast Philippines. Much of region highlighted will receive between 100-200mm over the next week, equivalent to around the average December monthly rainfall, with some locations receiving up to 400mm.

Discussion

The already strong E to NE'ly flow (cold surge) will be further enhanced by the likely tropical depression or storm that will cross the South China Sea over the next day few days. This will result in increased atmospheric moisture, and the production of a steady stream of heavy showers feeding onto the coastlines of Vietnam and the northeastern Philippines.

Expected Impacts

Flash and fluvial flooding, will likely lead to damage to property, infrastructure and agricultural land. Disruption to transport is probable, and increased potential for landslides in more mountainous areas.

**Parts of Indonesia, Timor-Leste, Papa New Guinea, Melanesia, through to Fiji.****Weather**

Heavy showers and thunderstorms will bring above average rainfall to the region over the next week. Up to 100 mm could fall in any one location in a 24-hour period, but many places will remain dry. 200-300 mm could to accumulate in some places by the end of this period, which is roughly a month's worth of rain.

Discussion

The presence of the MJO in phase 6 will continue to enhance convection significantly, with an increase in Equatorial Rossby Wave (ERW) activity. One or more tropical lows, described in the *Tropical Cyclone* section, may also act to organise shower and thunderstorm activity within this region.

Expected Impacts

Flash flooding and enhanced risk of landslides are the most likely impacts.

**Northern India, Pakistan, Nepal, Bhutan and Bangladesh****Weather**

Below average temperatures are expected to persist across the region into next week with minimum temperatures falling close to freezing in places. Patches of dense fog are also likely to develop which could be slow to clear during the morning.

Discussion

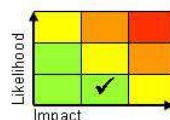
A cold front followed by a build of pressure across the region has resulted in a largely subsided airmass persisting with smoke and pollution becoming trapped within a relatively shallow boundary layer. A large diurnal range under clear skies will support some locally low minima, particularly in the north of the region. Some recovery of temperatures closer to average is likely later this week.

Expected Impacts

Colder than average conditions and poor air quality may result in adverse health impacts for vulnerable populations exposed to these lower temperatures. Low visibility may result in delays for some rail and air transport in the region.

**Japan****Weather**

A plunge of cold air has brought exceptionally heavy snowfall to parts of northern and western Japan. Some places have already seen as much as two metres of snowfall, and a further metre may accumulate in the coming few days, mainly in areas bordering the Sea of Japan. Strong winds are leading to blizzard conditions, along with severe wind chills. Although heavy snowfall often occurs in northern Japan, it is unusual for such an intense and prolonged outbreak. This is the latest in a series of natural disasters to hit Japan in 2018 which have included torrential rain, typhoons, earthquakes and an intense summer heat wave.



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Discussion

A flow of very strong northerly winds have brought very cold air southwards. As this air crosses the relatively warm waters of the Sea of Japan it becomes unstable, with frequent squat winter CB streaming into coastal areas of Hokkaido and Honshu, leading to exceptionally heavy snowfall in places. Although the strength of the winds are likely to ease, further snow showers look likely to continue in similar areas for several days to come.

Expected Impacts

Severe disruption to travel through the affected areas with many towns and villages cut off. Disruption to power supplies likely along with an increased risk of avalanches in mountainous regions.

Australasia

Papua New Guinea, Solomon Sea, Fiji and northern Australia – see *Tropical Cyclone* and *Asia* sections.

Additional information

On the 22nd December, a tsunami affected the coastline surrounding the Sunda Strait between Java and Sumatra. The weather in the region is characterised by scattered heavy showers and thunderstorms in association with the northeast monsoon. Showers and thunderstorms tend to form in the Strait overnight and through the early morning, and then inland (preferentially over mountainous areas) from around early afternoon, and this typical pattern is expected through the coming days.

Issued at: 310900 UTC **Meteorologist:** Mark Sidaway / D J Harris

Global Guidance Unit

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