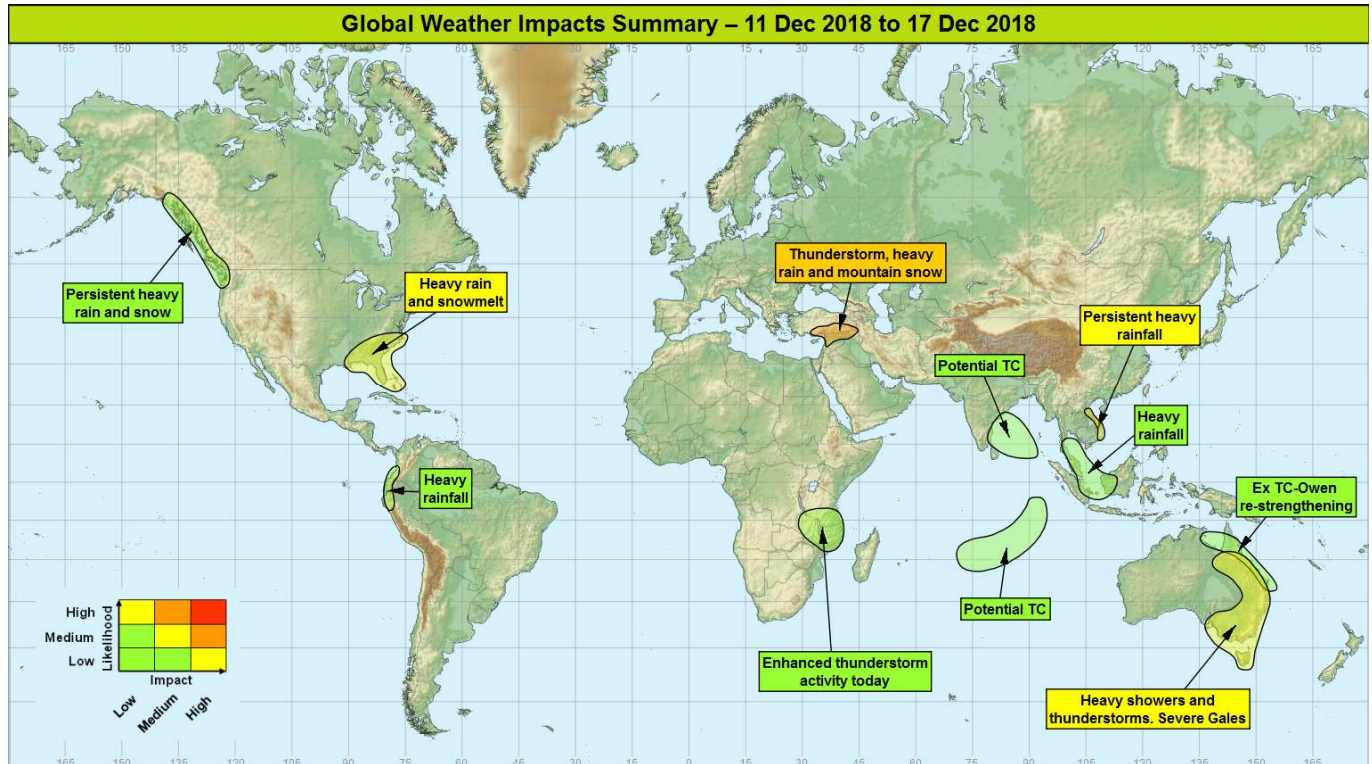


Global Weather Impacts – Tuesday 11th December to Monday 17th December 2018

Issued on Tuesday 11th December 2018

HEADLINES

- Further heavy rain and thunderstorms across the eastern Mediterranean and parts of the Middle East.
- Persistent heavy rainfall for Vietnam, leading to further flooding.
- Heavy rain and snowmelt later this week could lead to severe flooding in parts of SE USA, mainly Carolinas.



DISCUSSION

Tropical Cyclones

There are no active tropical cyclones at this time.

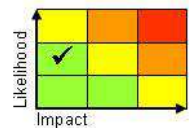
Potential Tropical Cyclones

Ex Tropical Cyclone Owen (Australia)

Weather

Ex-Tropical Cyclone Owen is now over the Gulf of Carpentaria. Over the next few days Owen is expected to strengthen and bring increasingly strong winds to the northeast Northern Territory and northwest Queensland coastline, and spells of heavy rain, before most likely heading back southeast across northern Queensland later this week/over the weekend. Owen could make landfall with sustained winds of over 80mph, with gusts of over 130mph, and 300-400 millimetres of rain in a day, which is around double the December average for this region. Owen will most likely weaken overland but re-emerge into the Coral Sea and track close to the east Queensland coastline.

Discussion



This forecast may be amended at any time

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Models are in increasing agreement that the remnants of what was once Tropical Cyclone Owen will redevelop into a TC in the next day or two, whilst low vertical wind shear and SST's of around 30°C will potentially lead to significant strengthening. The official guidance calls for a Cat 3 (sustained 10-min winds of 64kn, equivalent to a Cat 1 Atlantic hurricane) by Thursday, whilst the GM indicates that this could come with gusts of over 120kn. There remains a reasonable model spread in terms of its track once it makes landfall across NW Queensland, but most output suggests that only modest weakening will occur and the system may hug the coastline fairly closely, bringing the potential for fairly widespread impacts. As well as the winds, the system is likely to bring further heavy rain to a similar area that was previously affected by the remnants of Owen on previous days.

Expected Impacts

Given much of this rainfall is falling across a very sparsely populated region, the impacts for this event are likely to be fairly small, although given the potential wind strengths where they do occur they could be significant. Flash, and possibly river flooding is likely across northern Queensland, and possibly further south along the eastern coast too. Strong winds would lead to localised damage to buildings, infrastructure, and pose a danger to life. Away from these impacts, the rainfall should generally bring welcome relief from the heat and wildfires which have affected this region recently.

Bay of Bengal, east India and Sri Lanka

Weather

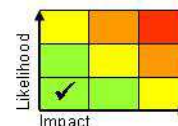
A tropical system looks likely to develop in the Bay of Bengal over the next couple of days, with potential for it to strengthen into a tropical cyclone. There is low confidence in the track and potential intensity of this feature, should it develop, but most evidence favours a fairly weak system heading towards southeast/central India/Sri Lanka late this week. Regardless of whether or not a tropical cyclone develops, heavy rainfall is expected at times in this region.

Discussion

As the MJO moves from the Indian Ocean and into the Maritime Continent, conditions become more favourable for tropical cyclone genesis in the Bay of Bengal during next week, particularly in association with Equatorial Rossby Wave activity shed by the departing MJO convection. All main deterministic models now indicate a tropical system developing within the next few days (in some cases quite a potent one), whilst ensembles give a moderate signal. Deterministic and ensemble products suggest the potential for a tropical cyclone to develop from around midweek. Confidence is low in any details associated with this possible system.

Expected Impacts

Should a cyclone develop, strong winds will generate rough seas and large waves. The most probable impacts are from heavy rain should a system form and intersect land, bringing potential flash flooding and landslides, with a lower prob of damage/disruption due to strong winds.



Southern Indian Ocean

Weather

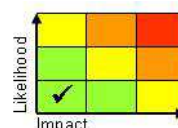
There are increasing indications that a tropical cyclone will develop in the southern Indian Ocean during mid to late part of this week, almost mirroring the development expected in the Bay of Bengal. Should it indeed develop, it is not expected to impact land.

Discussion

As the MJO moves from the Indian Ocean and into the Maritime Continent, conditions become more favourable for tropical cyclogenesis in the Southern Indian Ocean due to shedding of Equatorial Rossby Waves (as in Bay of Bengal on the other side of the equator). Both deterministic and ensemble products suggest the potential for one dominant tropical cyclone develop during the later part of this week.

Expected Impacts

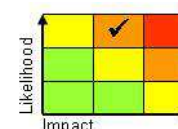
No impacts expected on land. Rough seas are possible.



Europe

Eastern Mediterranean, adjacent countries and N Iraq

Weather



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Heavy showers, thunderstorms, and longer spells of rain associated with a slow moving weather system are expected to continue in this area over the next couple of days. Some very intense downpours, especially across southern Turkey and the Levantine coastline where daily rainfall accumulations could be around 100 mm. Precipitation is increasingly likely to fall as snow across the Turkish mountains.

Discussion

A strong jet rounding the base of the eastward trough, part of a larger omega blocking pattern currently over Europe, has initiated cyclogenesis over the Black Sea. The trailing cold front and associated warm (PS 12°C WBPT) plume will be the most actively forced part of the system, and is likely to become the focus of heavy showers and thunderstorms (locally organised/persistent) through today across the Eastern Med and into Syria. Colder air tucking in behind will allow ppn from a wave induced along the trailing front to turn increasingly to snow over the higher ground of southern Turkey, and perhaps bring snow showers in the wake of the final clearance to the Troodos mountains of Cyprus. Meanwhile the wave is expected to bring significant rainfall to N Syria and lower ground of SE Turkey before clearing.

Expected Impacts

Significant impact on the various refugee camps and migrant populations along the Turkey/Syria border, with flooding and destruction of shelters. Thunderstorms will lead to a continued threat of flash flooding, with additional hazards from a combination of strong winds, large hail, frequent lightning and a few tornadoes/waterspouts. Landslides are also possible across more mountainous parts of southern Turkey. Snow over the high mountains may cause some disruption to both travel and infrastructure.

North America

Southeast United States (especially the Carolinas), north Bahamas.

Weather

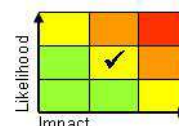
An active weather system is expected to develop later this week, bringing heavy rain to areas recently affected by heavy snowfall. A combination of heavy rain and snowmelt could see the equivalent of over 500mm of rainfall being discharged into the river systems in a day, which would be over 6 times the monthly average for December. Thunderstorms to the southeast of the main rain area could bring bursts of heavy rain and the odd tornado.

Discussion

Following the severe winter storm which brought significant snowfalls from Texas across to the Carolinas over the past few days, a relatively quiet and cold spell of weather is expected with little scope for a thaw. Later in the week, most likely Friday, another significant rain-bearing system is expected to affect some of those areas affected by the previous winter storm, with the combination of heavy rain and warm tropical air leading to significant snowmelt and potential for severe flash and particularly riverine flooding. 50-100mm on top of 40-60cm snow could lead to the equivalent of over 500mm of rainfall entering the river system in a single day, over 6 times the monthly average for December. In addition, thunderstorms to the SE of the main rain area could bring localised flash flooding, and the odd tornado.

Expected Impacts

River flooding is likely to be the main impact, which could possibly be quite widespread in parts of the Carolinas. Significant flooding of homes and businesses could occur, with localised transport disruption. Localised flash flooding and wind damage elsewhere from thunderstorms.

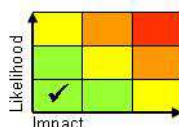


Far west of Canada, and extreme northwest of United States

Weather

A succession of Pacific weather systems will see 300 to locally 500 mm of rain build up through the coming week, although much of this will be over high ground areas and locked up as snow. This is a fairly typical occurrence for this time of the year in this region. Vancouver could see as much as 150mm of rain through the week, which is around half a month's worth of rainfall.

Discussion



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A number of frontal systems are expected to drive in from the Pacific, with a strong orographic modulation to ppn. Despite this being a fairly usual occurrence here for the time of year, models do show anomalously high rainfall totals with respect to climate. Vancouver in particular, often close to the warm sector/triple points of the various systems may see especially heavy rain at times, but most of the heaviest precipitation will be locked up as snow over the W slopes of the Rockies. This will help to mitigate against any significant impacts.

Expected Impacts

Some localised flooding is possible, particularly in and around the urban areas of Vancouver and Seattle.

Central America and Caribbean

North Bahamas – See North America

South America

Western Colombia, Ecuador and northwestern Peru

Weather

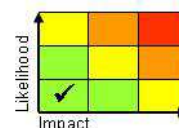
Heavy rainfall is expected to affect these areas through much of the coming week in the form of heavy showers or thunderstorms. Precipitation totals will be highest in Colombia (in some places over 250mm through the week), but most anomalous in northwestern Peru, where up to five times the normal rainfall could occur.

Discussion

The usual effect of trade winds crossing northwards across the equator and being deflected to the right will result in the usual onshore moisture laden flow across Colombia, with additional moisture sourced from anomalously warm waters of South America (due to the developing El Nino). However the unusually light nature of the trade winds is signalled to lead the heating of the high mountains just inshore, these then setting up sea breezes each day and drawing moisture air inland that will allow the formation of heavy showers and thunderstorms in usually fairly dry areas.

Expected Impacts

Flash flooding and enhanced risk of landslides are the main impacts over the coming week, with these more likely in the usually drier areas of western Ecuador and northwest Peru.



Africa

Northern Mozambique, eastern Zambia and southern Tanzania

Weather

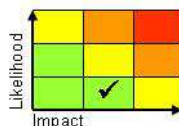
Enhanced and locally severe thunderstorm activity is expected across this region today. The storms could produce 50 to 100 mm of rain in a short period, with gusty winds, frequent lightning and hail possible.

Discussion

The sharp trough which drove a cold front north across the region is now relaxing away southwards, with the cold front decelerating and becoming weak. Uplift associated with the frontal boundary is likely to trigger enhanced and organised thunderstorms through today, with forecast profiles supporting very deep and vigorous convection bringing prolonged heavy showers and a risk of hail. The warm plume drawn south ahead of it will continue to be the focus for thunderstorm development displaced further S than normal over the following few days, but activity is likely to fall back to near normal levels.

Expected Impacts

Impacts are likely to include flash flooding, frequent lightning and locally large hail. Heavy rainfall will also lead to an enhanced landslide risk in mountainous areas. Disruption to travel to and through the region is possible, with the risk of some disruption to power supplies.



Middle East

Northern Iraq and Syria - see European Section

Asia

India and Sri Lanka – see Tropical Cyclones section

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Vietnam Weather

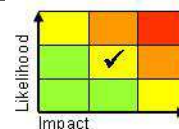
Heavy showers and thunderstorms are expected to continue across coastal Vietnam for the next several days, brought in on a persistent moist NE'ly wind. Typical daily accumulations in the region of 50-100 mm are expected, but some locations could see a daily total of as much as 200 mm. Cumulative totals of 300-500 mm are likely fairly widely through the coming week, on top of in places already incredibly heavy rainfall over the past couple of days. This represents around 1 to 2 months worth of rainfall for these locations, but generally falls short of the monthly extremes.

Discussion

A persistent cold surge in the NE'ly monsoon flow will impinge on a large part of coastal Vietnam over the next several days, bringing in fairly persistent rounds of heavy showers and thunderstorms. Model signals indicate that rainfall is likely to be less than that which has been observed recently, with 960mm in 48 hours at Da Nang leading to severe flooding in the city, transport disruption due to landslides, and two reported fatalities. However, daily totals could still approach 200mm, with more likely 50-100 mm observed most days, and cumulative totals of 300-500 mm over the next 5 days.

Expected Impacts

Flash flooding of homes, businesses and urban areas. River flooding also likely. Disruption to transport and enhanced risk of landslides. Danger to life.



Southern Thailand, Malaysia, Singapore, Indonesia (Borneo and South Sumatra)

Weather

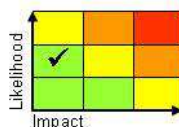
Further heavy showers are expected to affect this region. In the north of the area, shower activity is likely to peak today, with around 50-75 mm of rain, before rainfall totals slowly reduce over the coming days. Later in the week, a more significant and organised area of showers looks likely to develop further S, bringing a couple of days of enhanced very heavy showers with up to 200 mm possible.

Discussion

The cold surge described above is expected to continue, and will bring further heavy showers to the Malay Peninsula, before gradually easing through the next few days. The persistent cold surge is then forecast to spawn a Borneo Vortex, which should it develop would bring a markedly enhanced area of showers and thunderstorms to coastal regions of Indonesia.

Expected Impacts

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



Australasia

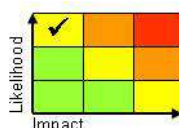
Australia - North Queensland and east Queensland coast – see *Tropical Cyclones* section

Eastern Australia and Tasmania

Weather

A deep area of Low Pressure is expected to develop over SE Australia around the middle of the week, which is likely to generate a band of organised, severe thunderstorms moving across eastern Australia and probably becoming slow moving over/near to the coast by the weekend. To the south and east of the low, strong to gale force winds are expected to develop, with the potential for severe gales (sustained winds of over 47 mph) around coastal areas adjoining the Tasman Sea. These will also be accompanied by less heavy, but more persistent rain. Thunderstorms could generate 50-100 mm per day as they move through, whilst over 100mm could fall in the space of a couple of days in the rain area further south. Parts of NE Tasmania exposed to the strong E'ly wind could record much higher totals, 200-400 mm possible. This represents 1-2 months worth of rainfall for many areas, and possibly record breaking amounts in NE Tasmania.

Discussion



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Models are in good agreement that a sharp upper trough driving a cold front E into SE Australia over the next couple of days will both draw in a warm, very unstable plume of air ahead, and later cut-off to develop a potent and slow moving area of Low Pressure. Whilst much of this rain will be welcome, it is an unusually unsettled spell for this time of year and is likely to have some flooding impacts in the more densely populated areas along the east and south coasts. Whilst there are some differences in the shape of the Low, all models develop a depression in a similar area, and highlight the risk of very strong winds through the Tasman Sea and into Adelaide.

Expected Impacts

Flash flooding of urban areas around the coastline in particular, especially as the weather system becomes slow moving into the weekend. River flooding may become an increasing risk for parts of NE Tasmania. Large hail and lightning will pose an additional hazard, and danger to life. Strong winds developing may lead to some disruption to transport, and rough seas affecting maritime craft.

Additional information

Nil.

Issued at: 110800 UTC **Meteorologist:** D J Harris

Global Guidance Unit

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