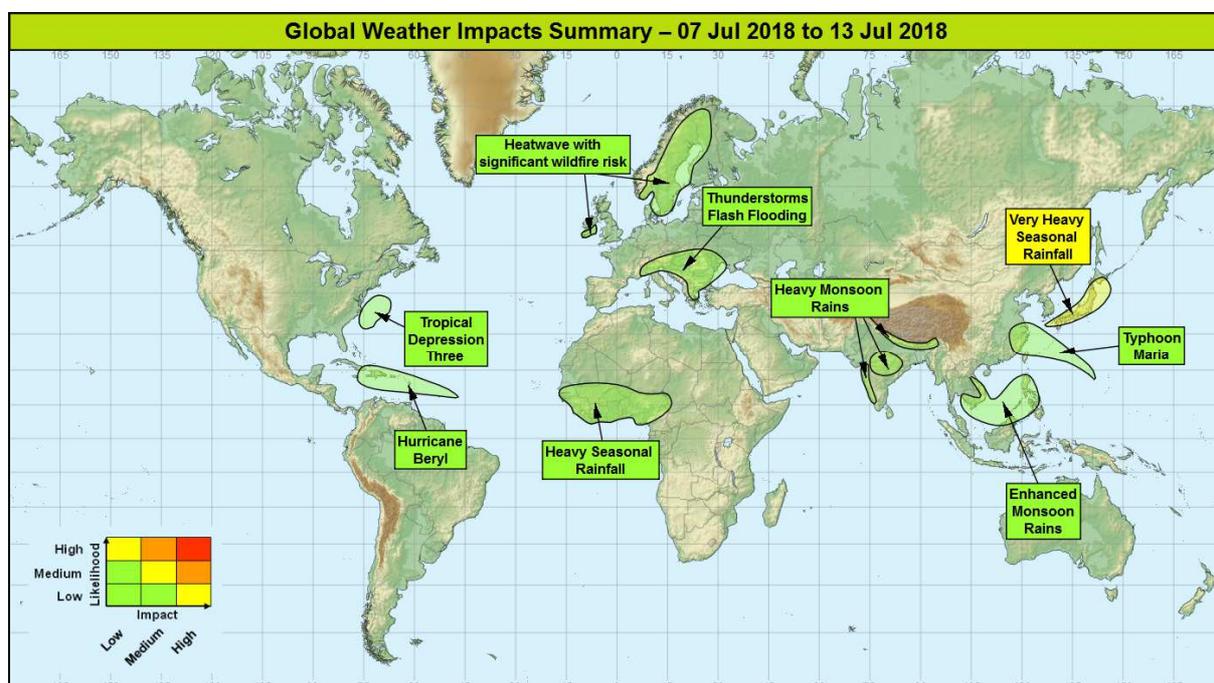


Global Weather Impacts – Saturday 7th to Friday 13th July 2018

Issued on Saturday 7th July 2018

HEADLINES

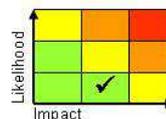
- Very heavy seasonal rainfall continues across Japan, significant flooding is expected in this region over the coming days.
- Hurricane Beryl is the first hurricane of the Atlantic 2018. It is a very small system that is expected to slowly weaken as it approaches the Lesser Antilles late on Monday.
- Violent Typhoon Maria moves slowly northwest and weakens as it approaches the Chinese Coastline in the middle of next week.



DISCUSSION

Tropical Cyclones

Violent Typhoon Maria (W Pacific) – Over the past 24 hours Maria strengthened further reaching Violent Typhoon, late on Friday the system completed an eyewall replacement. With the system remaining over an area of favourable Sea Surface Temperatures (SSTs) and vertical windshear further intensification is likely in the next 12-24 hours as the new eyewall begins to contract. By mid-Sunday conditions become less favourable for the system as outflow channels become much reduced, with a steady decline in intensity likely after that.



At 00:45 UTC on the 7th July Violent Typhoon Maria was located 17.2° N and 140.8°W with a motion towards the northwest at less than 5mph. The system has mean wind speeds of 120 mph, with maximum gusts likely reaching 175 mph. Further intensification of the system is likely over the next 36 hours with the mean and gusts reaching 130 and 185 mph respectively. Beyond mid-Sunday the storm is expected to gradually weaken as it tracks west-northwest towards the Chinese Coastline on Wednesday, by this time Maria is expected to be a fairly weak typhoon.

Much of the heavy rain will fall over open ocean, with a corridor of 100-250mm extending either side of the storms track. Some of Japan's south-western most islands will see this

This forecast may be amended at any time

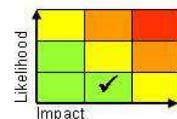
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precipitation on Tuesday, and then the extreme north of Taiwan plus Eastern China will see this precipitation through Wednesday.

Over a wide area of the far Northwest Pacific and East China Sea Maria is likely to produce hazardous winds and waves and cause disruption to one of the world's busiest shipping lanes early next week. Potentially destructive winds are likely across some of Japan's south-western most islands (such as Okinawa) along with heavy rainfall (flash flooding) in this region. Into the middle of next week, impacts from strong winds, a storm surge and heavy rainfall (flooding) may impact an area of the East Asian Coastline between Taipei (Taiwan) and Shanghai (China).

Hurricane Beryl (North Atlantic) – Beryl remains an incredibly compact hurricane with hurricane force winds extending out a mere 12 miles from the centre of the storm. The incredibly small scale of Beryl poses many problems for the forecasting of the system. For example the shear indices calculated by the SHIPS model used by the National Hurricane Center calculates shear relative to the system on a much larger scale than Beryl, so these figures may not be representative. In addition the Dvorak Satellite Technique used to assess the system is prone to large errors with storms around this strength, and with storms on such small a scale.

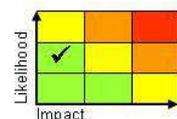


Beryl remains surrounded by dry mid level air on its northern and western flanks, but somehow has managed to isolated itself from this and gain intensity moving from tropical storm to a category 1 hurricane over the past 24 hours. As the system progresses westwards vertical shear remains low for the next 36-48 hours, so further slight intensification is possible during this time as it tracks westwards. As the system begins to approach the Lesser Antilles late on Monday, the system will accelerate, and be subject to upper level westerly's, and these factors combining to produce vertical wind shear that should see a weakening then decaying of the system.

At 00:00 UTC Beryl was located at 10.6 °N and 47.8° W moving west at 15mph. Initially maximum sustained winds are 80mph. Further strengthening may occur over the next 24 hours with these reaching 90mph, with an uncertain pace of weakening forecast after that. Beryl may just retain weak hurricane strength as she approaches Lesser Antilles late on Monday, with the most likely track seeing Beryl move between Dominica and Martinique. If Beryl is not a tropical storm by this point it is expected to become one early on Tuesday, with weakening to a tropical wave occurring after that. In addition to the very narrow corridor of strong winds, an area where 50-100mm of rain will fall will be associated with the storm.

Impacts to land are likely to be related to strong gusty winds across portions of the Lesser Antilles, such as tree damage and power line damage. With enhanced rainfall potentially leading to some localised flooding. Enhanced waves will prevent some marine activities in smaller craft, and lead to potentially dangerous conditions along coastlines and beaches.

Tropical Depression Three (North Atlantic) - An area of well defined low pressure is located southeast of North Carolina. Over the past 24 hours this system has developed deep enough convection and a well-defined circulation allowing it to become classified as a tropical depression. Over the next few days the system will remain in an area favourable for gradually intensification as it becomes slow moving and meanders around off the coast of North Carolina. By the middle of next week the system is expected to be picked up by the mid-latitude flow and intensify (perhaps to hurricane strength) as it is steered north, then northeast and begins to undergo extra-tropical transition.



At 00:00 UTC Tropical Depression Three was located at 32.2°N and 73.8°W and moving northwest at 5 mph. Initially intensity is set at a maximum sustained wind of 35mph with gusts of 45mph. Over the next few days the depression is forecast to intensify into a tropical storm (named "Chris") and become slow moving off the North Carolina coastline.

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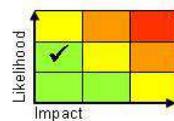
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During the middle of next week a jet stream is forecast to pick-up the storm and push it quickly northeast into the open waters of the North Atlantic. As it is undergoing this transition from a tropical to extra-tropical system it may briefly achieve hurricane status.

As the system is forecast to remain over the ocean throughout its life cycle impacts will largely be limited to activities along the coastline and in the ocean. Large waves are likely to pose a hazard to small craft, and in additional these large waves may break on beaches along the Carolina and coastlines of adjacent states.

Europe

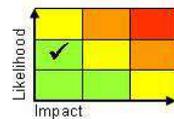
Central and Eastern Europe – Very moist, warm air over Europe will continue to spawn some locally severe thunderstorms over the next few days. These storms are likely to develop during the afternoon and persist into the evening and slowly decay overnight. High resolution models such as the Euro4 will probably capture these quite well, while the GM will struggle to capture the diurnal cycle.



The main areas at risk of seeing severe thunderstorms over the next few days are across Switzerland, Southern Germany, Austria, Northern Italy, Slovenia, Croatia, and extending across the Balkans into northeast Greece. Some place could see around 50-100mm of rain falling in a short period, along with a risk of strong gusty winds and large hail.

The main impacts are likely to come from flash flooding, but there will also be an increased risk of landslides in Alpine areas. Meanwhile, large hail could damage crops, vehicles and some property. At the same time, large slow-moving thunderstorms will be disruptive to aviation.

Western Europe – A large area of high pressure will become established across most of western Europe over the next few days. A combination of clear skies, dry antecedent conditions and a period of above-average temperatures will lead to high temperatures over the weekend.



High temperatures will continue across parts of Ireland and Scandinavia over the next few days with temperatures widely 5-8°C above average. Daytime temperatures are likely to reach the around 30°C in Ireland, and the high 20's across Scandinavia.

The continuation of heatwave conditions may lead to some health impacts from high temperatures and locally poor air quality. In addition, the high temperatures and dry ground conditions increase the risk of wildfires.

North America

Nil significant.

Central America and Caribbean

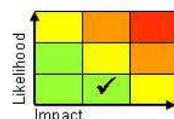
Nil significant.

South America

Nil significant.

Africa

Equatorial West Africa and southern Sahel – Further African Easterly Waves will move westwards across the region bringing periods of heavy rainfall and dust storms on the northern flanks.



Areas of intense thunderstorms will continue to affect central Africa, producing spells of

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torrential rainfall. Most places in this region will see 50-100mm of rainfall over the next 5-6 days, with as much as 250mm likely in some locations.

These storms will also produce strong winds and dense dust storms on their northern fringe (over the southern Sahel).

These storms are likely to produce flash flooding, with an increased likelihood of landslides. Flash flooding will pose a risk to life, as well as damaging infrastructure and transport networks (e.g. roads and bridges). Meanwhile, large scale thunderstorms near the West Africa coast may result in re-routing of some air traffic.

Middle East

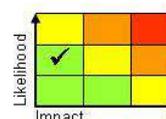
Nil significant.

Asia

Central India – Across Central India States a monsoon low pressure has formed over the previous 24 hours, this will bring an area of enhanced precipitation. The heaviest rainfall will tend to migrate northwest with time.

Heavy shower and thunderstorm activity will continue through this area for the next 5-6 days. Each day 25-50mm will fall widely with peaks of the order of 100-200mm.

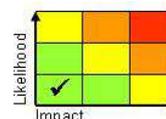
Impacts will include both flash flooding (particularly across urban areas), and as rainfall accumulations build up over the coming week or so some alluvial flooding likely in some of the larger rivers that cross this area.



Northern India, Nepal, much of Bangladesh, Bhutan and northern Myanmar – The monsoon plume remains pushed up against the Himalayas with deep convection breaking out daily over the mountains. However over the next few days activity will generally be slightly suppressed as a dominant upper high migrates westwards over the zone, as this upper high clears slightly enhanced deep convection will begin to occur next week.

After a few quieter days, heavy showers and thunderstorm activity will become enhanced towards the middle of next week. Throughout this zone daily accumulations of 25-50mm of precipitation are likely, however moving into next week the heaviest rainfall likely to reach 100 to 200 mm per day. While not unusual during the monsoon season, this is above average.

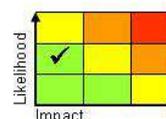
As we have seen during similar events over recent weeks these heavy rains will enhance the flash flood potential, with landslides likely in the more mountainous regions. Recently at least 12 people lost their lives in these floods across Nepal, with damage to property and parts of the transport network.



Western India – A surge currently occurring in the Somali Low Level Jet will transfer across the Arabian Sea and enhance the Southwest Monsoon flow across western India.

There is a continued risk of heavy rainfall over the next 6 days. 50-100mm of rainfall may occur each day within this region, with some locations recording totals in excess of up to 400mm over the period.

This amount of rainfall is not unusual for this region; however, the heavy rains maintain a likelihood of some flooding and landslides, posing a danger to life, as well as damage to property and infrastructure.

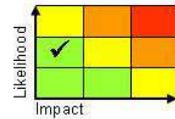


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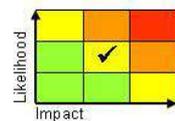
Philippines, Malaysia, Vietnam and Cambodia – The Madden Julian Oscillation is now beginning to emerge over the Maritime Continent, this has led to a broadly enhanced monsoon flow across the region. Across the Philippines this flow will be further enhanced from Monday as Typhoon Maria moves to the past the northeast of the islands (at a distance of several hundred miles), and further enhances the southwesterly monsoon flow across Luzon in its wake.



Enhanced monsoon rains are signalled in this region over the coming week, this will be in the form a heavy showers and thunderstorms (as typical for the tropics). Most locations in this zone should see daily precipitation accumulations of 25-50mm, with peaks in excess of 100mm each day. From Monday the western Philippines may see more typically 50-100mm of precipitation each day, with peaks near 200mm.

Impacts include the usual enhanced risk of flash flooding, and landslides in mountainous areas. With the risk of these impacts affecting the highly populated Greater Manila Metropolitan Area, and also parts of Southeast Asia popular with British travellers.

Japan – The 'Baiu front' will remain very active across this part of eastern Asia during the next 36 hours, beyond that the upper pattern will become more ridged, and precipitation accumulations reduce through this region.



Very heavy showers and thunderstorms will continue after a weeks exceptional rainfall in this zone. Further rainfall totals are expected to be quite variable, but some locations are likely to receive a further 250-500mm over the next couple of days (following from a week where in excess of 1000mm has been recorded in some locations). Although the heaviest rainfall has now moved away from China it was reported on Tuesday that 16 people had been killed and 92,000 evacuated in the region affected by heavy rain. On Friday it was reported that Japan have evacuated 570,000 people as widespread major flooding occurred across Central and Southern Japan, with at least 4 people having been reported to have lost their lives.

Flash flooding events are likely, with an increased likelihood of landslides in more mountainous areas. These conditions will be dangerous to life, and will likely disrupt transport networks and pose a threat to property. Severe flooding is expected across Japan, and there is also a risk of flooding along the Yangtze river through China (from precipitation that fell earlier this week), although this is difficult to assess as large hydroelectric dams can modify/store the passage of floodwater.

Australasia

Nil significant.

Additional Information

FIFA Football World Cup, Russia – The 2018 Football World Cup continues until 15th July. The forecast for the next England match against Sweden (at 3pm British Summer Time on Saturday) in Samara is for very warm sunshine and a temperature of around 26°C.

Cave Rescue area, Chiang Rai, Thailand – After a recent break in the monsoon rains (suppressed compared to usual), the rains will return to this region in the coming 48 hours and are expected to continue with average or slightly above average precipitation totals over most days over the coming week. At least 10-25mm is possible each day, with the potential for 50mm. Over the coming week total of around 100mm expected over the coming week, with nearer 200mm possible over the surrounding mountains.

Issued at: 070500 Z **Meteorologist:** Nick Silkstone

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