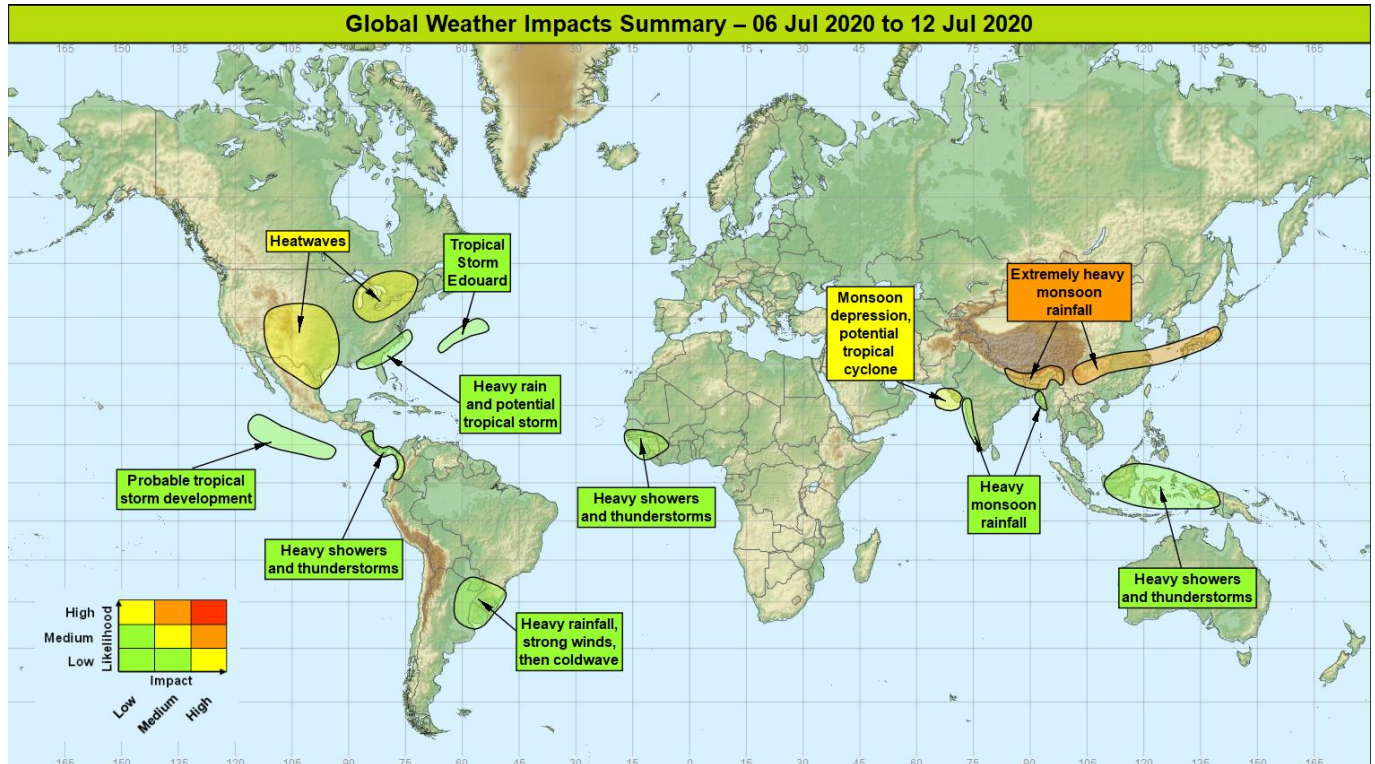


Global Weather Impacts – Monday 6th to Sunday 12th July 2020

Issued on Monday 6th July 2020

HEADLINE

- Extremely heavy monsoon rainfall continues for parts of South and East Asia.
- A potential tropical storm close to the India / Pakistan border in the northern Indian Ocean.
- Significant heatwaves are underway and developing across the parts of North America.



DISCUSSION

Tropical Cyclones

Tropical Storm Edouard, North Atlantic **Weather**

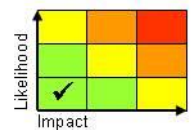
Tropical Storm Edouard formed on Sunday night to the northwest of the Bermuda, the system is now quickly moving northeast across the open North Atlantic and will decay into an extratropical storm within the next 24-36 hours.

Discussion

After spending much of the weekend as a tropical depression, deep convection around the storm allowed intensification into the tropical storm overnight. Edouard is now being steered quickly northeast as it is engaged by a mid-latitude upper trough, after passing over cooler seas and experiencing increased wind shear the likely decay into an extra tropical storm and merge with an existing frontal zone.

Expected Impacts

Nil.



This forecast may be amended at any time

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The following area is being monitored for possible formation.

Northern Indian Ocean, India / Pakistan border region

Weather

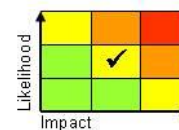
A monsoon depression currently located across Gujarat in northwest India will remain slow moving and bring heavy rainfall to this region and Sindh Province in southern Pakistan, around 200-400mm could fall in this areas in the next 3 days (150-300mm the July average in this region). From Wednesday this depression is depression is expected to move west just offshore, and there is a small risk it could develop into a tropical cyclone during this time and bring further heavy rainfall to the region.

Discussion

Over recent days deep convection around this depression has brought heavy rainfall to the region, with this near stationary pattern likely to continue for the next few days. Into midweek the depression is expected to move offshore along the monsoon front, with a small window for development over very warm seas before vertical wind shear increases and renders the environment unfavourable. Phase diagrams for solutions which allow this to occur show the development of a deep symmetric warm core system.

Expected Impacts

Risk of flash flooding both from standing water and small water courses, especially if heavy precipitation effects an urban area. If a modest tropical does develop midweek, a small risk of some disruption from strong winds and rough seas.



Northeastern Gulf of Mexico / northwest Atlantic

Weather

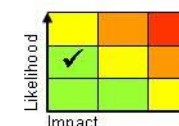
Within an area of disorganised showers and thunderstorms sat in the northeastern Gulf of Mexico there is a small risk that a weak tropical storm briefly on Monday. This area then moves inland across southeastern parts of the USA where it could produce rainfall accumulations of the order of 50-100mm from the Florida Panhandle to the Carolinas. Around midweek as this area then emerges into the northwestern Atlantic, there is a further opportunity for a tropical storm to develop.

Discussion

Various small vortices are evident along a stalled mid latitude front, and convection is becoming semi-organised about them. One such feature offshore from the Florida Panhandle has a small chance of developing tropical characteristics today, before been steered northeast by an approach minor upper tropospheric trough. After this zone emerges into the Atlantic midweek conditions are more favourable for the gradual development of the tropical storm.

Expected Impacts

The potential for flash and some riverine flooding over coming days. Later in the week depending on the degree of development some rough sea may affect the US east coast.



Northeast Pacific

Weather

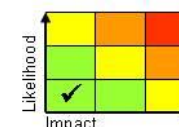
Several areas of disorganised shower and thunderstorm activity well off the Mexican coastline may organise into at least one tropical storm over the coming days. Any system that forms will be steered northwest into the open Pacific Ocean.

Discussion

Several African Easterly Waves (AEWs) are organising convection in this area with environmental conditions favourable for the development of tropical cyclones. Thankfully any systems that do form will be steered northwestwards by the prominent sub-tropical ridge to the north and remain over the open ocean.

Expected Impacts

Nil expected.



Europe

Nil.

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North America

USA, Canada, and northern Mexico

Weather

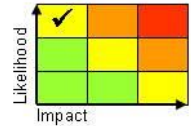
Several heatwaves are already underway across North America at the present time. The event across the northeast states and eastern Canada will see daytime maximum temperatures reach widely 10°C above average, with night time minima similar to the usual daytime maxima at 20-25°C. This represents maximum temperatures into the mid (locally high) 30s°C. This northeastern heatwave will peak midweek and then ease into next weekend. Meanwhile a heatwave currently underway in Mexico and the southwestern USA will expand northeast and continue to intensify through the week, here again maximum temperatures will more than 10°C above average, this represents the low to mid 40s°C.

Discussion

A strong upper high cells remains slow moving across the southwestern USA and northern Mexico with an upper ridge extending northeastwards from this. Through a combination of warm advection, day on day heating through cumulative heating and warming of the airmass through adiabatic subsidence and compression several major heatwaves will affect the region. In northeast some mid-latitude mobility is expected to cut across the upper high and lead to a reduction in temperatures next weekend, however throughout this period the upper high in the southwest remains in place and allows the heat to continue to build even beyond next weekend.

Expected Impacts

Impacts relating to heat stress on human and animal health. In addition extreme heat in developed countries can place a great strain on infrastructure and utilities for example electrical networks, due to the coupled demand for power to aid air conditioning, while at the same time the heat reduces the efficiency of power lines. In addition an enhanced risk of wildfires.



Southeastern USA – See Tropical cyclones section

Central America and Caribbean

Costa Rica, Panama, Nicaragua and western Colombia

Weather

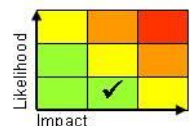
Above-average shower and thunderstorm activity will occur across this region. Showers and thunderstorms could bring up to 50mm of rainfall over a short duration, with up to 250 mm possible throughout the week across the mountains of Central America and as much as 300-400mm across the Colombian Andes.

Discussion

The ITCZ is expected to remain fairly active across this region, with the passage of several African Easterly Waves (AEW), bringing periods of enhanced activity to Central America. Further south enhanced low-level moisture convergence across the Colombian Andes will lead to enhanced activity here.

Expected Impacts

An enhanced risk of flash flooding and landslides.



South America

Western Colombia – See Central America and Caribbean section

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**Paraguay, Uruguay, northeastern Argentina and southern Brazil****Weather**

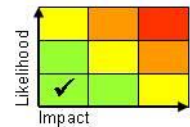
Heavy rainfall will primarily affect Paraguay, the extreme northeast of Argentina and Brazil until Wednesday with the potential for up to 100-200mm of precipitation over a few days. As the rain clears a deep area of low pressure will form and move offshore, this will bring usually strong winds to Uruguay and Brazil, with even gales possible along the coastline. Following in the wake of this further cold air will flood north across the region, with well below average temperatures and even some unusual night time frosts.

Discussion

Two troughs within the subtropical jet will engage a plume of tropical air drawn south, the first will cause a flat wave to run along the frontal enhancing precipitation, before the second sharper trough causes a major cyclogenesis event to take place midweek. This second event will again bring heavy rainfall, but in addition strong winds, and cold air in the wake of the low. The cold advection will cause a build in pressure and lead to overnight frosts

Expected Impacts

Rainfall will bring an increased risk of flash and riverine flooding. Strong winds may damage some infrastructure and disrupt transport, and the cold wave that follows may impact negatively on frost sensitive crops across the large and productive agricultural region.

**Africa****West Africa between Senegal and the Ivory Coast****Weather**

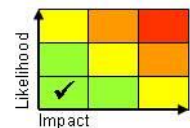
Periods of above average shower and thunderstorm activity will affect this region. Showers associated with each event may bring 50mm or so of rainfall in a very short duration, with unlucky locations seeing 100-200mm through the week. Across the far north of this area thunderstorms will bring less rainfall, but will bring strong and gusty winds which are able to lift dust plumes. Between 250-500mm per month is a typical accumulation in July.

Discussion

Several marked African Easterly Waves (AEWs) will cross the area during the coming week, with heavy rainfall associated with these features across much of the region, and dry thunderstorms producing strong winds and lifting dense dust plumes in the far north.

Expected Impacts

An enhanced risk of flash flooding and landslides, with significant impacts probably only occurring if the larger rainfall totals affect any of the major urban centres in this region.

**Middle East**

Nil.

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Asia

Central and eastern China, South Korea and Japan

Weather

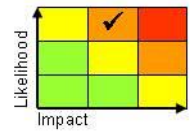
Following exceptional rainfall across these regions over recent days and weeks, the monsoon front that extends from Central China to Japan is expected to remain very active through the coming week. Extensive heavy and persistent rainfall (at times in the form of showers) will bring some incredible rainfall totals to the region over the coming week. Across a widespread area between 100-200mm are expected, and peak accumulations over the hills and mountains are likely to be in the region of 750-1000mm across both China and Japan (less amounts on Jeju Island, South Korea).

Discussion

With a strong BSISO1 in phase 3 or 4 the Beiu monsoon front will be very active this week. This will combine with the very warm and moist airmass (PWAT > 75mm) and will generate torrential rainfall, showers and thunderstorms, with significant orographic component. Media reports suggest that across the region millions of people (including within large cities) are being affected by flooding, with many deaths from landslides and floods reported in both countries over recent days. Despite the rivers flow within China especially being heavily regulated by dams and reservoirs, recent flooding in major cities downstream from some if these structures suggests that many of these have reached capacity and are now unable to stem flood waters.

Expected Impacts

Widespread surface and continued significant riverine flooding affecting some large cities, and likelihood of landslides in the higher terrain. In addition there is a small chance of the failure of some flood prevention infrastructure such as dams and levees.



Northeast India, Nepal, northern Bangladesh, Bhutan, and northern Myanmar

Weather

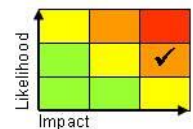
Following recent extreme rainfall across the hills and mountains in this region further heavy monsoon rainfall is expected through the coming week, particularly towards the end of the week and in to the weekend. Across low lying areas totals of 100-200mm are widely expected, with the hills and mountains again likely to see 500-1000mm over the coming week. This compares to the typical average at this time of year of 400-500mm across low lying regions, and at least 1000mm per month over the mountain sites. Recent rainfall has brought significant flooding across the region, although levels in the larger low lying rivers are now slowly retreating, this additional rain will see levels rise once again in the coming week or two.

Discussion

Having a strong BSISO1 in phase 3 or 4 correlates with above average rainfall across this region. With a monsoon depression located over Odisha/West Bengal an anomalously strong southerly to southwesterly monsoon flow across the Bay of Bengal is drawing extremely high precipitation water (PWAT) airmass (>75mm) across this region. This will generate further torrential downpours from rain, showers and thunderstorms, with the mountains seeing the highest totals. Despite this occurring relatively early in the monsoon season, flooding and widespread population displacement has already been widely reported. Although recent observations show levels in the larger rivers and flood plains to be slowly receding, modelling taking into account this additional rainfall suggests that within a week levels will have returned to levels seen during the recent floods, and will likely rise even higher.

Expected Impacts

Widespread surface and continued significant riverine flooding affecting the region, and likelihood of landslides in the higher terrain.



Southern Pakistan and northwest India – See Tropical Cyclones section

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Western India, southeastern Bangladesh and northwestern Myanmar

Weather

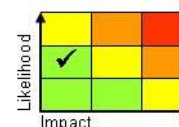
Further heavy monsoon rainfall is expected across these regions in the coming week. Widespread heavy showers and thunderstorms. 50-100 mm of rainfall per day is possible, with some elevated areas seeing 150-300 mm over the week. This hills in this region typically receive around 750-1000mm of rainfall in July, so this current event is slightly above average.

Discussion

Across a wide area of the Indian Ocean and Bay of Bengal the southwesterly monsoon flow is anomalously strong, this likely to be aided by the two active monsoon depression in the north of both basins. This brings high PWAT air to the coastlines of the region, when forced to rise over terrain convection is released and heavy rainfall occurs.

Expected Impacts

An increased risk of flash flooding and landslides where terrain is steep.



Parts of Malaysia and Indonesia

Weather

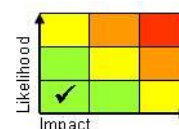
Above average rainfall will continue across this region in the form of heavy showers and thunderstorms. These will be capable of locally bringing 50-100 mm of precipitation in a short duration, with some locations likely to see 150-250 mm through the coming days, although some mountainous parts of the island of New Guinea could see over twice this amount. Average precipitation accumulations at this time of year across this region is around 250 mm.

Discussion

Strong and consistent signal from NWP for slightly enhanced rainfall across this region. Profiles in the area show large amounts of precipitation water (PWAT), and large skinny CAPE so heavy rainfall likely to be the most disruptive element.

Expected Impacts

An increased risk of flash flooding and landslides in regions where terrain is steep.



Australasia

Nil.

Additional Information

Cox's Bazar, southeast Bangladesh

Around average shower and thunderstorm activity in this area through the next few days, then increasing to above average activity for the duration of the week. Around 200mm of precipitation is expected in total through the coming week, which is close to average in what is a very wet time of year for this region.

Western Yemen

Above average shower activity across this region over the coming few days, it is possible showers could bring 25-50mm of rainfall in a short duration, with some unlucky locations perhaps seeing 75mm or so across a few days. Although showers will remain in the region, from midweek their frequency and coverage should return to nearer average. Some isolated flash flooding is possible if heavier showers affect an isolated urban area.

Issued at: 060800UTC **Meteorologist** Nick Silkstone / Chris Almond **Global Guidance Unit**

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