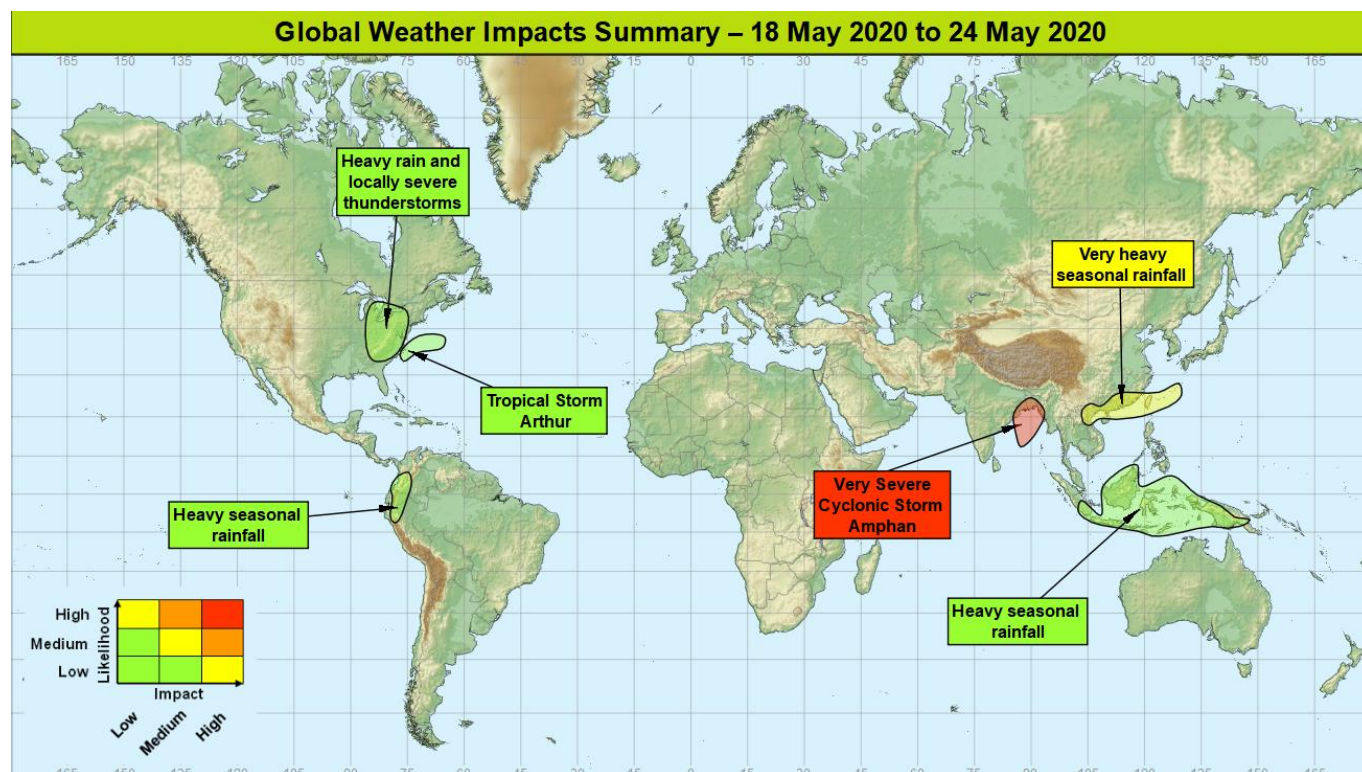


Global Weather Impacts – Monday 18th to Sunday 24th May 2020

Issued on Monday 18th May 2020

HEADLINES

- Significant impacts likely midweek in Bangladesh and NE India from Extremely Severe Cyclonic Storm Amphan.
- Very heavy seasonal rainfall for northern Vietnam, southern China and Taiwan.



DISCUSSION

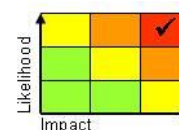
Tropical Cyclones

Extremely Severe Cyclonic Storm Amphan: Bay of Bengal, eastern Indian and Bangladesh

Weather

Cyclonic Storm Amphan (pronounced Um-pun) formed Saturday in the southern Bay of Bengal. Amphan has gradually moved north and then northeast in the last few days. Amphan has also strengthening to become an Extremely Severe Cyclonic Storm in the last 24 hours, and is expected to intensify further to become a Super Cyclonic Storm today (equivalent to a Category 4 system on the Saffir-Simpson Hurricane Wind Scale). This is likely to be the peak in strength of the cyclone, gradually becoming less intense as it tracks across the northern Bay of Bengal. The storm is expected to make landfall probably across West Bengal in India or southwest Bangladesh around 12Z on Wednesday, probably between Digha and Hatya islands as a Cyclonic storm (equivalent to a Category 2 system on the Saffir-Simpson Hurricane Wind Scale) around midday. The system will bring exceptional rainfall with a corridor of 250-500mm falling along the western flank of the storm, destructive winds, phenomenally rough seas, and potentially a large storm surge (potentially ~ 4 to 5 metres above the normal tide) along the coastline and well inland within the Ganges/Brahmaputra delta region.

Discussion



This forecast may be amended at any time

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An Equatorial Rossby Wave (ERW) organised convection in this region, promoting formation of a broad circulation. Within a zone of very favourable atmospheric conditions, including the approaching MJO, Amphan formed on Saturday. These favourable conditions remain through the next few days with very high underlying SSTs (30-31°C), deep moisture in the atmosphere surrounding the system, excellent poleward and equatorial outflow and low vertical wind shear. Model guidance is now consistent that Amphan will continue to strengthen further over the next 12 to 24 hours, into a Super Cyclonic Storm, as it continues northwards. Model differences remain regarding the east-west location and timing of landfall, however ensembles suggest that the most probable location will be India/Bangladesh border around midday Wednesday (UK time), bringing a multitude of hazards.

Expected Impacts

Flash flooding and significant structural wind damage is likely for parts of northeast India and Bangladesh. The storm surge could bring significant flooding/inundation well inland to the east of the landfall location and have a very high level of impact, particularly if the surge phases in with astronomical high tides.

Tropical Storm Arthur: North Atlantic

Weather

A tropical low has become sufficiently organised overnight to be upgraded to Tropical Storm Arthur, the first named storm of the 2020 Atlantic season, with 1-minute sustained winds of 40mph. Arthur will drift slowly north-eastwards whilst fluctuating in intensity (although remaining below hurricane strength), with a risk it could bring some heavy rainfall (30-60mm) and gusty winds to coastal districts of North Carolina on Monday.

Discussion

A previously baroclinic system has developed sufficient tropical characteristics overnight (deep convection, warm core, small radius of maximum winds) to be classed as a tropical storm. In the near term, Arthur will move over cool waters on the poleward side of the Gulf Stream, but the preferred track takes it back over warm waters again close to the Carolinas coastline on Monday, where it could bring strong winds and heavy rain. The precise track of Arthur carries larger than usual uncertainty however it is unlikely to be an especially impactful storm.

Expected Impacts

Locally rough seas along the eastern seaboard of the USA, and a low risk of some minor flooding across North Carolina.



Europe

Nil, but see additional information.

North America

North Carolina – see *Tropical Cyclones section*

Northeastern USA and southern Great Lakes areas of Canada

Weather

Further heavy rain showers and thunderstorms will affect this area through until Tuesday with the heaviest precipitation tending to transfer east with times. Although heavy rainfall will be most reliable across the north of the area where locally 100-150mm is possible over the coming couple of days, a few severe thunderstorms may occur further south bringing a small risk of additional hazards above the rainfall alone.

Discussion

An upper trough exiting from the Rockies on Sunday will develop a surface low which will run east across the northeastern States of the USA through the next few days. Along and just to the north of the surface low heavy rainfall will be the primary hazard, with further more short-lived heavy rainfall along the surface cold front, and the risk of a few severe thunderstorms forming in the warm sector ahead of this.

Expected Impacts



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Flash flooding likely in some locations, with the risk of damage to utilities, property and disruption to transport from frequent lightning, hail, strong winds and an isolated tornado.

Central America and the Caribbean

Nil.

South America

Western Colombia, Ecuador, and Peru

Weather

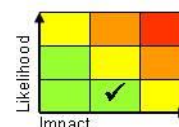
Further heavy rainfall from widespread showers and thunderstorms will hit this region at times through the next week. Widespread rainfall of 50-100 mm is expected across much of this region, with up to 300 mm in a few places.

Discussion

Further above average convection in the north of South America this coming week. Tropical waves may play a role in this with the likely passage of a Kelvin Wave (KW) across the region during the next couple of days. However the dominant factor is deemed to be greater than average moisture convergence due to slightly stronger than average trade winds across the tropical Atlantic and Caribbean, and above average SSTs just off the coastlines of Ecuador and Colombia. The heavier rainfall will also be seen to the east of the highlighted region, but the impacts in the rainforest are not likely to be as significant as along the Andes Mountain chain.

Expected Impacts

Further flash flood and landslides are likely within the mountainous terrain of the region.



Africa

Nil, but see additional information.

Middle East

Nil, but see additional information.

Asia

Northeast India and Bangladesh – see Tropical Cyclones section

Northern Vietnam, southern China and Taiwan

Weather

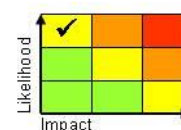
Exceptionally active pulses of the seasonal Mei-yu rains (including thunderstorms) are expected through the next week. As much as 250 mm of rain could fall in just 24 hours in some locations. During the week 100-200mm of precipitation is likely to fall widely across the highlighted area, with some locations signalled to see between 600-800mm over the week. In this region the average May rainfall is between 200-300mm.

Discussion

An exceptionally active period of rains appear likely along the seasonal monsoonal/baroclinic hybrid frontal zone. This due to strong thermal gradient and low level convergence along the front, and near permanent upper troughing overlying the zone. The major longwave upper ridge extending from western China to arctic Russia leads to little or no synoptic scale progression and allows near stationary zone of upper troughing downstream of this across Vietnam and southern China.

Expected Impacts

Flash and in smaller catchments some riverine flooding likely. Given that this is occurring at the beginning of the wet southwest monsoon season in this region, larger rivers are likely to have capacity to deal with this rainfall. There will also be an enhanced threat of landslides in areas where terrain is steep.



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Parts of Indonesia and Papua New Guinea**Weather**

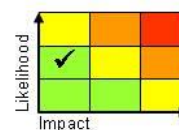
Heavier than average rainfall looks likely through the coming week in parts of this region due to more widespread and intense thunderstorms than usual. Up to 150-250 mm of rain could fall in places, with some parts of this region seeing the average May rainfall within a week.

Discussion

Precipitation anomalies across parts of this region are signalled to be above average this week. This is felt likely to be tied to the above average SSTs surrounding the region in the eastern Indian Ocean, South China Sea, and western tropical Pacific, in association with a developing MJO in the Indian Ocean that will transfer east through the region during the next week and enhancing deep convection.

Expected Impacts

Higher than usual likelihood of flash flooding and landslides.

**Australasia****Papua New Guinea – see Asia section****Additional Information:**

- **A heatwave is expected to continue across parts of northeast Africa, the Levant and southeast Europe** through much of the next week, with temperatures more than 10°C above average, resulting in some early season heat stress impacts.
- **A few showers and thunderstorms across western Yemen** will occur each day over the Highlands in the west of the country through the next week, perhaps becoming more numerous as the week progresses. They do not look heavy enough to result in severe impacts at present.
- **Cox's Bazar in southeast Bangladesh:** There is a significant likelihood of heavy showers and thunderstorms from the middle of next week, due to the arrival of moist southwesterly winds (in the wake of cyclonic storm Amphan moving across the northern Bay of Bengal). Although the risk of severe impacts from this cyclone are considered low in this region (although this will need to be closely monitored), rough seas are likely to prevent fishing and give dangerous beach conditions in the region.

Issued at: 180725UTC **Meteorologists:** Laura Ellam / Tony Wardle

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