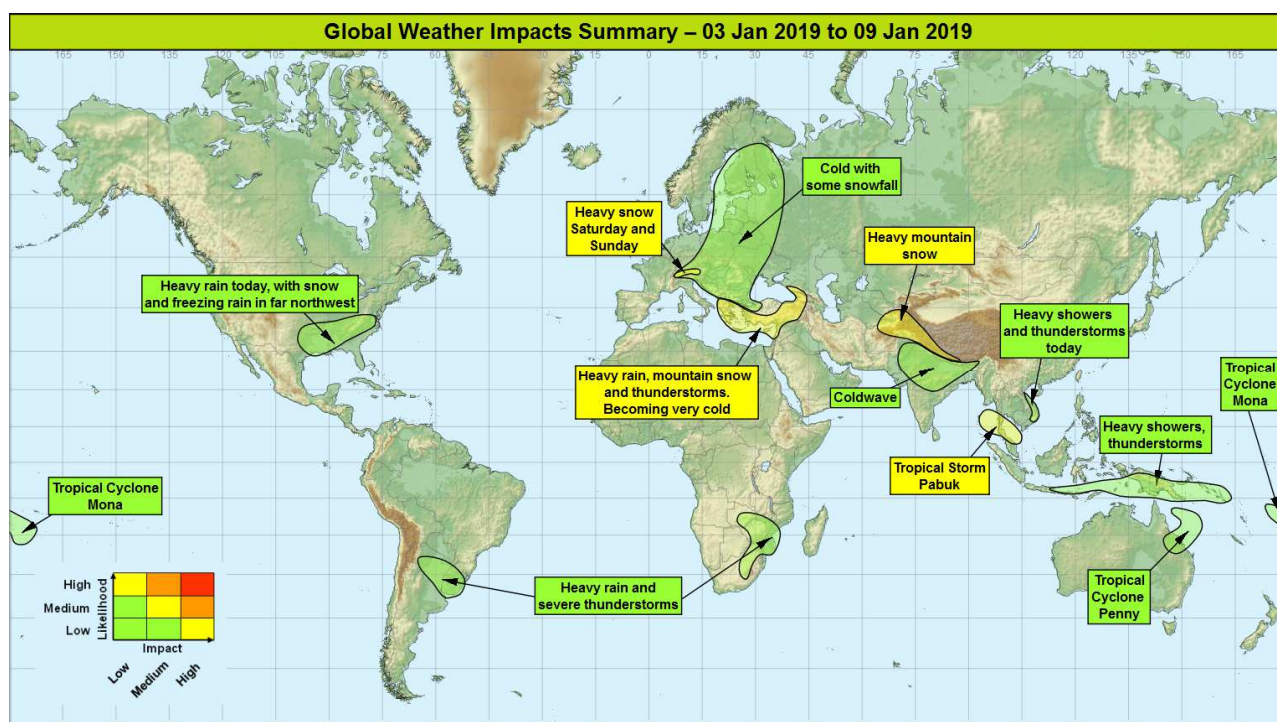


Global Weather Impacts – Thursday 3rd to Wednesday 9th January 2019

Issued on Thursday 3rd January 2019

HEADLINES

- Tropical Storm Pabuk will impact areas of Thailand popular with western tourists over the coming days.
- Two tropical storms in the southwest Pacific basin, named Penny and Mona will likely bring impacts for Australia and the Fiji region respectively.
- A cold plunge outbreak with some heavy snowfall across central and eastern Europe this week.
- Cold with heavy snowfall across the mountains of Afghanistan, Pakistan, India and Nepal.



DISCUSSION

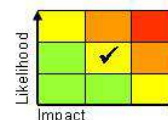
Tropical Cyclones

Tropical Storm Pabuk, Thailand and Malaysia Weather

Tropical Storm Pabuk has continued on a westwards track and moved into the Gulf of Thailand, sustained winds currently remain around of 40 mph, with gusts to 60 mph. It is expected to now move northwest with slight strengthening likely before making landfall over the Malay Peninsula, most likely across southern Thailand close to Ko Samui, late on Friday. Pabuk is forecast to weaken slightly as it crosses the Malay Peninsula, and then weaken further as it emerges into the Bay of Bengal on Saturday. Between Thursday and Sunday heavy rain associated with the system is likely to bring in excess of 100mm of rainfall to a wide area where the average January rainfall is less than 100 mm. Peak rainfall in this region could be as high as 500 mm in some locations.

Discussion

Conditions are favourable for some modest strengthening of this system as it crosses the Gulf of Thailand. The latest official advisories indicate modest strengthening to reach sustained wind speeds of around 50 mph on Friday. Ensemble spread in the forecast track is relatively low, with high confidence in a landfall somewhere over Southern Thailand later Friday.



This forecast may be amended at any time

Global Guidance Unit, Operations Centre, Met Office, FitzRoy Road, Exeter

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Expected Impacts

The main impacts from this system will be heavy rainfall, with an enhanced risk of flash flooding and landslides across the Malay Peninsula over the coming days. In addition strong winds will generate rough seas, curtailing marine transport (ferries), fishing activities. Over land the winds will be capable of felling trees, causing road blockages and utility outages. This region contains a large number of holiday resorts popular with European tourists at this time of year.

Tropical Cyclone Penny, Australia Weather

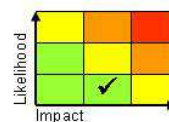
Tropical Cyclone Penny weakened while passing over the Cape York Peninsula, North Queensland, on Tuesday and emerging into the Coral Sea. Penny has now re-strengthened into a tropical cyclone with sustained winds of around 45 mph. The system is forecast to fluctuate in intensity over the coming few days as it begins to re-curve back towards Queensland over the weekend, most likely making landfall south of Townsville on Monday. Heavy rain associated with the system is likely to bring 100mm of rainfall to a fairly wide area around Townsville, with peaks of over 250mm in some locations.

Discussion

Penny has moved back over the Coral Sea and is in an area which is favourable for further development of the tropical cyclone. Models are in consistent in a turn back towards Queensland on over the weekend, but there is a fairly large spread in potential tracks thereafter and uncertainty over where it may make landfall, but somewhere south of Townville is now considered most probable

Expected Impacts

Impacts are expected to be low for the next few days as Penny moves over open water, but heavy rainfall and flash flooding are likely over the weekend as it is likely to move back close towards the Queensland coast.



Tropical Cyclone Mona, Fiji, Tonga, and Niue Weather

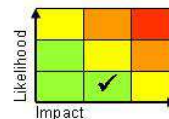
Mona formed on Wednesday evening and is currently located to the north of Fiji with sustained winds of around 45-50 mph. It is likely to strengthen further and then pass close to or across Vanua Levu, Fiji on late Friday or early Saturday, and across Tonga and Niue later on Saturday. Some locations along the path of the cyclone will see 200-400mm of rainfall in a short period, however the current most likely track means that much of the will miss the largest and most populous island in Fiji. The other islands along the systems paths being very small and limestone based, meaning the rain that falls on them will quickly be discharged into the sea.

Discussion

Conditions remain favourable for slight strengthening. The storm will be steered south-eastwards by the prevailing flow towards the northern Fijian Islands. However, there remain large model differences regarding timing and track, so confidence is low for the level of impact.

Expected Impacts

Gale force winds, high seas and torrential rainfall are likely to cause disruption to road, sea and air travel across region; affect utilities; with a heightened risk of flash flooding and landslides. The current most likely path suggests the system will avoid Fiji's most populace and largest island, where flooding impacts would have to potential to be greater.



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Europe**Greece, Cyprus, The Levant, Turkey, Georgia and northern Syria****Weather**

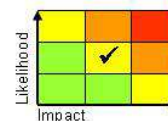
A low pressure system, to the southeast of Greece will trundle eastwards during Thursday and Friday bringing heavy rain, thunderstorms and strong winds to parts of the region. This will be followed by some very cold air in its wake. Up to 100mm of rain could be seen on each day in a few locations. In addition to the rainfall the plunge of very cold air could bring some significant snowfall and unusually low temperatures to parts of the central Mediterranean by the end of the week, Greece in particular could see some significant snowfall, with over 50 cm likely in some locations through Thursday and Friday. Further frontal systems will bring more heavy rainfall to parts of southern Turkey and the Levant through the weekend and into next week.

Discussion

A major trough extension into the central Mediterranean has caused a relatively deep low pressure system to the southeast of Greece. This system will be the focus for the development of bands of heavy rainfall, showers and thunderstorms which transfer east. In addition all models signal a surge of unusually cold air southwards across central Europe then into the central Mediterranean in the wake of this low, with the potential for significant snowfall and exceptionally low temperatures across Greece, Turkey, Georgia and Russia.

Expected Impacts

Further heavy rainfall will lead to an enhanced risk of flash flooding and landslides in the region after 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. Significant snowfall and unusually cold temperatures for parts of Greece, will likely block roads, cause utility outages and give a risk of avalanches in mountainous regions.

**Northeast, central and eastern Europe****Weather**

A plunge of very cold air will affect this region over the next week, with the cold air becoming ever more confined to the southeast of this region with time. Very strong winds will accentuate the cold in some areas, particularly parts of Croatia on Thursday. The cold will eventually make it as far south as the central Mediterranean (see above). Within this zone there will be areas of snow and snow showers.

Discussion

The area of low pressure on Wednesday has now moved across into western Russia and become slow moving. This low will slowly fill over the next few days, but continuing to force outbreaks of mostly light snowfall, and drawing a cold arctic maritime airmass southwards in its wake. A further low will form across Scandinavia on Friday, this time pushing a warm front SE across the area and bringing a further period of snowfall to this zone.

Expected Impacts

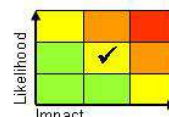
Severe cold will stress vulnerable sections of the population across a wide area. In additional snowfall will likely lead to some localised disruption of travel.

**Alps, Switzerland, Austria and southern Germany****Weather**

Within the broad zone of cold and snow mentioned above, conditions will exist for significant snowfall across the Swiss, southern German and Austrian Alps (including some cities such as Munich and Innsbruck). The heaviest snowfall is signalled on Saturday and Sunday, but in total over coming 5 days some parts of the higher Austrian Alps are likely to see over 2 metres of fresh snowfall, with over 50 cm possible in cities such as Innsbruck.

Discussion

Again the warm front (which will stall against the Alps) and brisk northerly flow associated with the low described in the previous section will bring heavy snowfall to this region, particularly the Austrian Alps over the coming days.

Expected Impacts

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Even in a region so well prepared for such weather, this amount of snowfall is likely to cause disruption to air and land based transport. With Saturday (and to a lesser extent Sunday) being a busy switchover day for people on skiing holidays, the disruption has the potential to affect many more people than it would on any other day. Additional snow will also increase the risk of avalanche in the region.

North America

Southern and eastern USA

Weather

An area of low pressure is expected to develop over the Gulf of Mexico on Thursday and move east-northeast across the southern states and then towards New York by the weekend. This will be accompanied by areas of heavy rain and thunderstorms on its southern and eastern quadrants; while localised heavy snow and freezing rainfall is possible on its northwestern flank. By Friday this feature will only be bringing moderate rainfall.

Discussion

A major trough extension and disruption over the Four Corners regions has drawn up another plume of higher WBPT air across the southeast USA later which is now acting as a focus for cyclogenesis. As the warm air is pushed north and over-runs the cold boundary layer, significant snowfall and freezing rain are possible across Texas, Oklahoma, and Arkansas on Thursday.

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. Snowfall in the region is likely to cause some impacts to travel.

Central America and Caribbean

Nil significant.

South America

Northern Argentina, southern Brazil and Uruguay

Weather

Further rounds of frequent heavy showers and thunderstorms are expected to develop in this area through the next week 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. Additionally, large hail, frequent lightning and strong winds are likely to cause some damage to property and utilities infrastructure, as well as pose a threat to life.

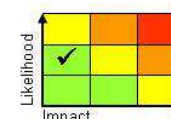
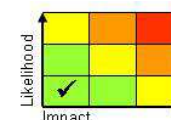
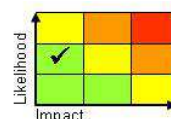
Africa

Southern Africa, including parts of Botswana, Zimbabwe, Mozambique and South Africa

Weather

Heavy thunderstorms are expected across this region over the week. 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



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A quasi-stationary plume of high WBPT air across the high landmass of southern Africa will provide the focus for daily thunderstorm activity over the plateau. The most severe likely to be across Botswana into South Africa, here upper winds will support the generation of more long lived cells such as MCS. With the greatest precipitation totals likely to come from the storms in the more tropical northern section of this region.

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, crops and infrastructure, as well as posing a threat to life.

Middle East

Syria and Levant – See *Europe* section.

Asia

Vietnam

Weather

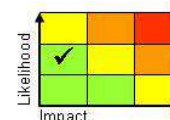
Enhanced shower and thunderstorm activity is expected in this region today (Thursday), with the heaviest rainfall occurring along the central coast exposed to the prevailing northeasterly wind. Some places will receive between 50-100 mm. This will be the final day of this event, with rainfall returning close to normal levels into the weekend.

Discussion

The already strong E to NE'ly flow (cold surge) has been further enhanced by Tropical Storm Pabuk passing to the south. This has resulted in increased atmospheric moisture and a steady stream of heavy showers feeding onto the coastline of Vietnam, as Pabuk moves away this enhanced flow and number of showers will both reduce.

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 and Melanesia.

Weather

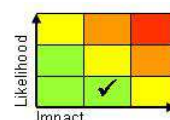
Heavy showers and thunderstorms will bring above average rainfall to the region over the next week. Up to 100 mm could fall in any one location in a 24-hour period, but many places will remain dry. 200-300 mm could to accumulate in some places by the end of this period, which is roughly a month's worth 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) and Kelvin Wave (KW) activity. Activity is now signalled by reducing across Sumatra, Borneo and western Java.

Expected Impacts

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



Northern Pakistan, Northern India, 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. Areas of dense fog and poor air quality are also likely to develop which could be slow to clear by day.

Discussion

A large stagnant area of cold air associated with high pressure over northern India will be slow moving over the next week. In addition, the strong subsidence inversion will result in poor visibility, fog and very poor air quality.

Expected Impacts



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Colder than average conditions and very poor air quality will 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.

Afghanistan, southern Turkmenistan, Tajikistan, and northern Pakistan, northern India and Nepal

Weather

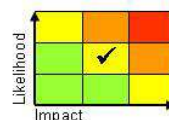
Heavy snow is expected on Friday and Saturday across mountainous parts in the west of the region, and on Sunday and Monday across mountainous parts in the east. Some places are likely to see 50-60 cm of snow.

Discussion

A marked upper trough and associated frontal systems will sweep eastwards across the region from Thursday to Monday, bringing heavy rain to low levels and heavy snow across hills and mountains.

Expected Impacts

Heavy snow will cause disruption to transport, and a heightened risk of avalanche in some areas. In the past winters, this amount of snow has caused damage to buildings and loss of life where roofs have collapsed under its weight.



Australasia

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

Additional information

Nil.

Issued at: 030755 UTC **Meteorologist:** Nick Silkstone

Global Guidance Unit

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