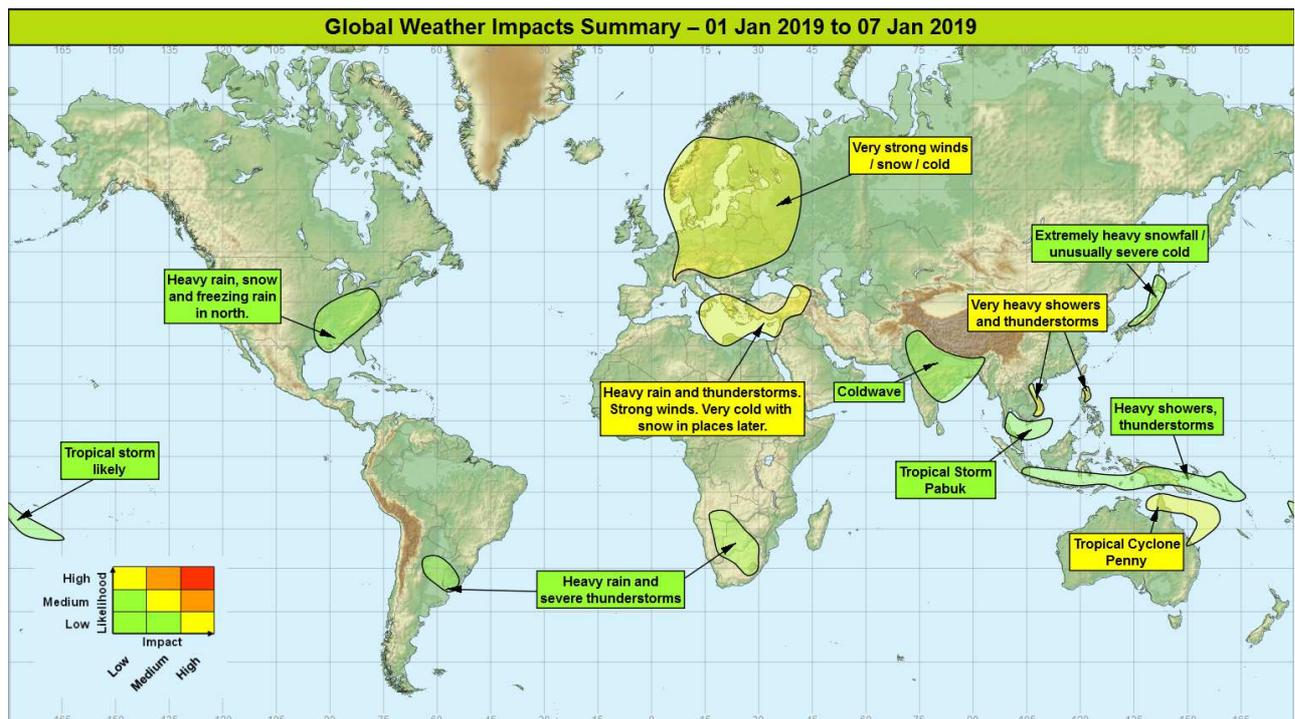


**Global Weather Impacts – Tuesday 1<sup>st</sup> to Monday 7<sup>th</sup> January 2019**

Issued on Tuesday 1<sup>st</sup> January 2019

**HEADLINES**

- Tropical Cyclone Penny affecting the Cape York Peninsula in Queensland, Australia.
- Very heavy rainfall continues across central Vietnam.
- Likely tropical storm formation close to Fiji, whilst Tropical Storm Pabuk forms in South China Sea.
- Further disturbed weather likely across the eastern Mediterranean / Levant region.
- Cold plunge across central and eastern Europe this week.



**DISCUSSION**

**Tropical Cyclones**

**Tropical Cyclone Penny Weather**

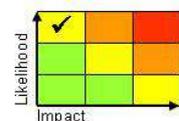
Tropical Cyclone Penny formed in the Gulf of Carpentaria on Monday night and made landfall just south of Weipa (York Peninsula, North Queensland, Australia) this morning as a Category 1 Cyclone (sustained winds of 46 mph). Penny is forecast to move eastwards across the peninsula on Tuesday and Wednesday, before moving into the Coral Sea and then potentially recurving back towards Queensland over the weekend. Many places will see torrential rainfall with 200-300mm likely over the next 24-36hrs.

**Discussion**

The monsoon trough has formed across this region with a number of weak tropical lows able to be identified within it. One of these has developed into a tropical cyclone (Penny). All models then take this system back east across the Cape York Peninsula. After emerging into the Coral Sea it's probable that the storm will recurve back toward the Queensland coast later this week.

**Expected Impacts**

Very strong winds are expected near the Gulf coasts, especially near the town of Weipa and may cause some localised damage. The main impacts will come from heavy rainfall giving a high likelihood of localised flooding.



**This forecast may be amended at any time**

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### **Tropical Storm Pabuk**

#### **Weather**

Tropical Storm Pabuk formed this morning from the tropical depression moving slowly westwards over the South China Sea, with sustained winds of 40 mph. It is expected to move west-southwestwards during Tuesday and slowly strengthen before making landfall over the Malay Peninsula, probably over southern Thailand, by the end of the week. The system is likely to pass close to southern Vietnam bringing heavy rain for a time on Wednesday and Thursday.

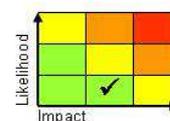
#### **Discussion**

Conditions are favourable for some modest strengthening of this system as it crosses the South China Sea. The latest official advisories indicate modest strengthening to around 45kn over the next 72 hours, which is in good agreement with the current model signal, although intensities are generally difficult to predict more than a day or so ahead and it is possible that this is a conservative forecast given high SSTs and favourable upper level outflow. Ensemble spread in the forecast track is relatively low, with high confidence in a landfall somewhere over Southern Thailand later Friday or early Saturday.

#### **Expected Impacts**

The main impacts from this system will be heavy rainfall resulting from the strong flow it has induced to the north into eastern Luzon and Vietnam (see Asia section). There is a risk of heavy rainfall, flash flooding and landslides across the Malay Peninsula later this week, with some heavy rainfall also for the extreme southern tip of Vietnam directly from Pabuk.

*The following areas are also being monitored for development.*



### **Fiji and Tonga**

#### **Weather**

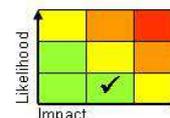
A tropical low was just to the north of Fiji at 00UTC Tuesday, moving southeast. It may strengthen to a tropical storm within the next 6-12 hours as it continues south-eastwards. The system is expected to pass close to or perhaps across Tonga later today. A further system may follow in the next few days but the uncertainty in any potential track or intensity is far higher. Further commentary to be provided if necessary on this system over the coming days as confidence increases.

#### **Discussion**

Conditions remain favourable for modest strengthening. The storm will be steered south-eastwards by the prevailing flow, passing close to or across Tonga later today.

#### **Expected Impacts**

Although the strongest winds are likely to remain offshore, very heavy rainfall is expected across the northern eastern Fijian Islands and Tonga today, and this could bring some very localised flash flooding.



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**Europe**

**Southern Italy, Greece, Cyprus, The Levant, Turkey, Georgia, northern Syria and northern Libya**

**Weather**

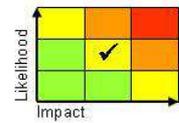
A low pressure system to the southwest of Greece will trundle eastwards over during Tuesday and Wednesday, bringing heavy rain, thunderstorms and strong winds to parts of the region. This will be followed by another, similar system on Thursday and Friday, with some very cold air in its wake. Up to 100mm 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.

**Discussion**

A major trough extension into the central Mediterranean has caused cyclogenesis to the west-southwest of Greece. This system will be the focus for the development of bands of heavy rainfall, showers and thunderstorms which transfer east and south-eastwards through the next few days. Later this week yet another trough will plunge south and likely form another low pressure system. In addition all models signal a surge of unusually cold air southwards across central Europe then into the central Mediterranean by the latter part of the week, with the potential for significant snowfall and exceptionally low temperatures for the likes of central and southern Italy, including Sicily, and Greece.

**Expected Impacts**

Further heavy rainfall will lead to an enhanced risk of flash flooding and landslides in a region which has seen 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. Later this week there is a risk of significant snowfall and unusually cold temperatures for parts of central and southern Italy and Greece.



**Northeast, central and eastern Europe**

**Weather**

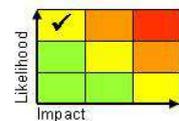
An active weather system moving across Sweden and Finland on Tuesday, and western Russia on Wednesday, will bring heavy snow and strong winds, followed by a plunge of cold air through the middle to latter part of this week. Very strong winds will accentuate the cold in many areas, particularly Norwegian Sea, southern North Sea and southern Baltic Sea coastlines. The cold will eventually make it as far south as the central Mediterranean (see above).

**Discussion**

An area of low pressure is expected to cross northern Scandinavia today (Tuesday), bringing heavy snow to Finland in particular. This, combined with a N-S elongated high over the UK will then lead to a very tight pressure gradient, driving a plunge of cold air southwards into the continent.

**Expected Impacts**

Gales or severe gales are likely across Denmark, northern Germany and Poland, the Baltic States and southern Scandinavia, combined with heavy snow in places, leading to locally significant travel disruption. Some disruption to power supplies likely. There will be an increased risk of avalanches for eastern Norway and the north-eastern Alps in particular.



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**North America**

**Southern Plains and southeast USA**

**Weather**

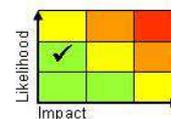
An area of low pressure is expected to develop over the Gulf of Mexico on Thursday and move north-northeast across the southern plains and then towards New York by the weekend. This will be accompanied by areas of heavy rain and thunderstorms on its southern and eastern quadrants; while heavy snow and freezing rain are possible on its northern and western flanks.

**Discussion**

A major trough extension and disruption over the Four Corners regions will draw up another plume of higher WBPT air across the southeast USA later this week which will be the focus for cyclogenesis. As the warm air is pushed north and over-runs the cold boundary layer, significant freezing rain and ice pellets are possible.

**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.



**Central America and Caribbean**

Nil significant.

**South America**

**Northern Argentina and Uruguay**

**Weather**

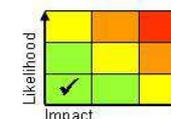
Frequent heavy showers and thunderstorms are expected to develop through the next 2-3 days producing a combination of heavy, short-period rainfall, large hail, damaging wind gusts and a few tornadoes.

**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<sup>-1</sup>) and vertical wind shear will support the development of persistent MCS and discrete supercells. In fact a remnant mesoscale convective vortex (MCV) across northern Argentina on Monday night is likely to see supercell develop during Tuesday and be the focus for torrential rainfall and a risk of tornadoes.

**Expected Impacts**

Impacts will be fairly localised given the nature of showers, but flash flooding from heavy rainfall is likely, particularly near Santa Fe and Parana today. Additionally, large hail, frequent lightning and strong winds are likely to cause some damage to property and infrastructure, as well as pose a threat to life.



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**Africa**

**Southern Africa, including parts of Namibia, Angola, Botswana, Lesotho and South**

**Africa**

**Weather**

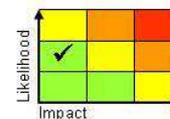
Heavy thunderstorms are expected across this region over the next 4-5 days. These could locally bring 50-100mm of rainfall in a short period, with some locations potentially seeing over 200mm through the week. In addition to heavy rainfall, these will likely produce frequent lightning, strong downdraughts and large hailstones.

**Discussion**

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 from southeast Angola and northeast Namibia across Botswana into South Africa. Here upper winds will support the generation of more long lived cells such as MCS.

**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.



**Northern Libya** – See *Europe* section.

**Middle East**

**Syria and Levant** – See *Europe* section.

**Asia**

**Vietnam and northeast Philippines**

**Weather**

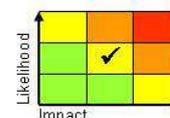
Enhanced shower and thunderstorm activity is expected in this region over the next 3-4 days, with the heaviest rainfall occurring in locations exposed to the prevailing (and occasionally strong) north-easterly wind such as Vietnam and the northeast Philippines (today). The wettest weather is expected across Vietnam over the next few days before easing on Friday. Much of region highlighted will receive between 100-150mm during the events, with some locations (in Vietnam) possibly receiving up to 300mm.

**Discussion**

The already strong E to NE'ly flow (cold surge) will be further enhanced by the likely tropical depression crossing the South China Sea. This will result in increased atmospheric moisture, and the production of a steady stream of heavy showers feeding onto the coastlines of Vietnam and the north-eastern Philippines.

**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. Rainfall across significantly impacted areas of Bicol and Samar is only likely to hamper rescue/recovery efforts, with the heaviest rainfall in the Philippines expected further north today across NE Luzon.



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**Parts of Indonesia, Timor-Leste, Papa New Guinea, Melanesia, through to Fiji and Tonga.**

**Weather**

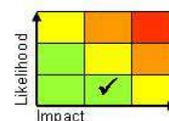
Heavy showers and thunderstorms will bring above average rainfall to the region over the next week. Up to 100 mm could fall in any one location in a 24-hour period, but many places will remain dry. 200-300 mm could to accumulate in some places by the end of this period, which is roughly a month's worth 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. One or more tropical lows, described in the *Tropical Cyclone* section, may also act to organise shower and thunderstorm activity within this region.

**Expected Impacts**

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



**Northern and Eastern India, Pakistan, Nepal, Bhutan and Bangladesh**

**Weather**

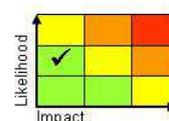
Below average temperatures are expected to persist across the region into next week with minimum temperatures falling close to freezing in places. Patches of dense fog are also likely to develop which could be slow to clear during the morning.

**Discussion**

A cold front followed by a build of pressure across the region has resulted in a largely subsided airmass persisting with smoke and pollution becoming trapped within a relatively shallow boundary layer. A large diurnal range under clear skies will support some locally low minima, particularly in the north of the region. Some recovery of temperatures closer to average is likely later this week.

**Expected Impacts**

Colder than average conditions and poor air quality may 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.



**Australasia**

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

**Additional information**

Nil.

**Issued at:** 010900 UTC    **Meteorologist:** Neil Armstrong / D J Harris

**Global Guidance Unit**

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