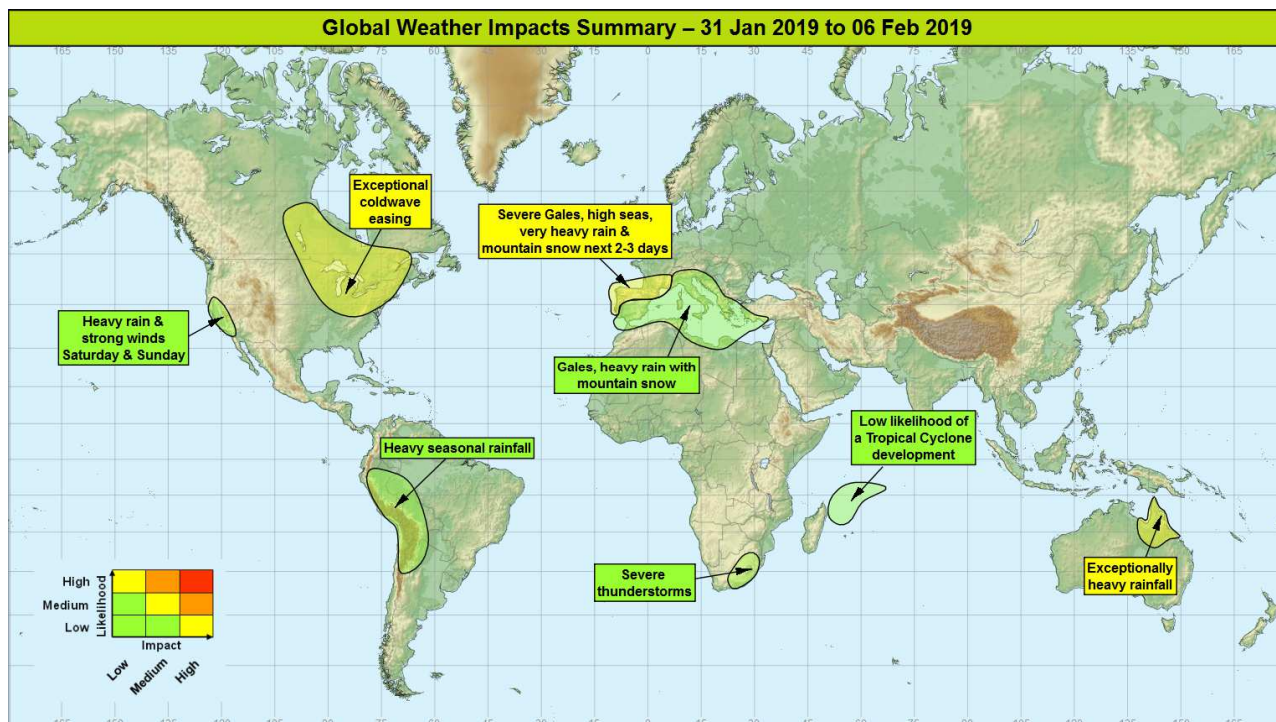


Global Weather Impacts – Thursday 31st January to Wednesday 6th February 2019

Issued on Thursday 31st January 2019

HEADLINES

- Exceptional cold temperatures across the eastern half of North America easing through the next few days.
- Exceptionally heavy monsoon rainfall over northeastern Australia through the next week.
- Further widely unsettled weather for southern Europe and the Mediterranean.



DISCUSSION

Tropical Cyclones

There are currently no active tropical cyclones.

The following regions are being monitored for potential tropical cyclone development:

Southwestern Indian Ocean

Weather

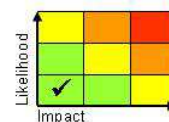
There is a low likelihood of a tropical cyclone development to the northeast of Madagascar next week. Although any development is likely to remain offshore through this period, there is a risk that the system could go on to affect Reunion and Mauritius.

Discussion

An area of shear instability on the ITCZ is signalled to become to generate an enclosed circulation over the weekend. This will likely begin to organise deep convection in its vicinity with conditions becoming favourable for the gradual development of a tropical cyclone during the middle part of next week. There is still low confidence regarding this development, with the signal markedly varying between different model output. The 00Z GM continues to be the most marked signal and takes a cyclone into northeastern Madagascar, but there is no support from the EC or GFS for this, and so this is thought to be an outlier solution.

Expected Impacts

Since any development is likely to remain offshore during this period, impacts will be restricted to strong wind and rough sea impacts on marine transport.



This forecast may be amended at any time

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

Tel: +44(0)1392 884319 VPN: n6225 4319 Email: ggu@metoffice.gov.uk

© Crown copyright 2019 This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

Europe

Much of southern Europe and the Mediterranean, along with northern parts of Morocco, Algeria, Tunisia and Libya

Weather

Remaining very unsettled through the rest of this week, and into next week across this region. Periods of heavy rain and thunderstorms will affect much of this region. Through the next week many locations could see 50-100 mm of rainfall, with peak accumulations of up to 400 mm possible in the Balkan mountain region (which would be twice the average January or February rainfall). At higher elevations the rainfall will fall as snow, as low as 1000 M over the southern Alps, and 800 m over the Pyrenees.

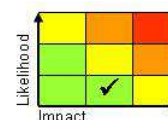
Very strong winds will also be seen across large parts of this region, with gales and very rough seas likely. The winds will be strong enough across parts of North Africa to lift dense dust storms that could extend north into southern Europe at times.

Discussion

A series of trough extensions and disruptions will occur across this region over the coming week, and these features will help develop deep surface lows in the Bay of Biscay, and Central Med. Bands of heavy rainfall will surround these systems, and strong winds will help to orographically enhance the precipitation totals across high ground. On the northern edge of these lows colder continental air will result in a threat of significant snowfall on the northern edge of frontal zones, especially at higher elevations.

Expected Impacts

Flash flooding and river flooding are significant threats in this region, with an enhanced likelihood of landslides in areas where the terrain is steep. Dangerous marine conditions are expected, with large waves and the possibility of coastal flooding. Heavy snowfall chiefly over the regions mountains, but could transiently impact some cities in northern Italy too. Lifted dust storms may impact on aviation and the air quality across North Africa and southern Europe.



Northern and western Iberia and southwest France

Weather

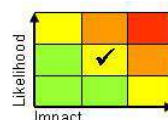
Within the broader green zone highlighted above (that will bring impacts through the coming week), Storm Helena (named by the Spanish Met Service) will bring a period of severe gales (gusts up to 60mph), very heavy rainfall and mountain snow to this area through Friday and Saturday.

Discussion

Through Friday and Saturday a deep area of low pressure (named Storm Helena) will be forced by a trough extension and disruption driving southeast from Biscay into the western Med, with Helena taking a similar track. After a period of severe gales across northern Iberia on Saturday, the strongest winds will transfer into the Catalan regions of Spain and France on Saturday as a strong Mistral flow develops. Throughout the period the strong N to NW'ly wind will lead to 100 mm of precipitation falling on the hills of this region. This will be locked up as snow above 1800 M on the cold front, and above 800 M in the post frontal airmass showers.

Expected Impacts

Flash flooding and river flooding are significant threats in this region, with an enhanced likelihood of landslides in areas where the terrain is steep. Dangerous marine conditions are expected, with large waves and the coastal flooding likely. Heavy snowfall is expected over fairly modest hills, with an enhanced risk of avalanches on mountains.



This forecast may be amended at any time

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

Tel: +44(0)1392 884319 VPN: n6225 4319 Email: ggu@metoffice.gov.uk

© Crown copyright 2019 This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

North America**Central and eastern North America****Weather**

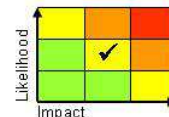
Exceptionally cold temperatures have been affecting the northern Mid-west of the USA and Central Canada over the past few days, and will extend east to the Eastern Seaboard through Thursday. Across a wide area temperatures are forecast to be in excess of 20 °C below average. Major cities including Chicago, Detroit, Toronto and Montreal will be impacted. The Eastern Seaboard and the more southern States will not be quite as severely cold, but will still see temperatures of 10 °C below average. Through the weekend milder air will push across the region from the southwest, with temperatures returning to near normal values, this transition will be accompanied by some snowfall, mostly around the northern Great Lakes, where generally 5-10cm of snow could fall. Fairly strong winds will produce a significant wind chill, making temperatures of minus 25 °C feel more like minus 35 °C.

Discussion

A long fetch northerly flow on the rear flank of a vortex extending that has moved into northeast Canada has advected exceptionally cold arctic air to a large portion of North America. Strong winds will add a significant wind chill to already exceptionally cold temperatures. The National Weather Service of the USA has described this event as a very dangerous and life threatening Arctic blast, and the coldest Arctic airmass intrusion in recent memory.

Expected Impacts

Exposure to this exceptional cold spell, without specialist cold climate clothing is likely to result in a danger to health or life from a variety of cold weather injuries (frostbite, hypothermia etc). Snowfall (or blowing snow) may cause some minor disruption to travel. Utilities may be severely impacted by things such as frozen water pipes. The severe cold alone may be enough to cause disruption to travel, for example temperatures will fall low enough for diesel fuels to gel.

**California****Weather**

Heavy rainfall, falling as snow on the Sierra Nevada mountains, is expected to affect much of California on Saturday and Sunday, including Los Angeles. As much as 100 mm of rain could fall near the coast, with peak rainfall of 200 mm in the mountains (accumulating as snow at above 1500 M). There is also the threat of gale force winds across California for a time, building very rough coastal seas.

Discussion

A diffluent upper trough will engage a baroclinic zone in the west Pacific on Friday, this will spins up a small but potent surface low that will push across California this weekend. An active cold front extending south from this low will bring heavy rainfall and mountain snowfall to California on Saturday and Sunday. Although there remains some uncertainty for the development of the surface low, all solutions show this feature bringing unusually strong winds to the central and northern parts of the States western coastline.

Expected Impacts

Flash flooding is likely, along with an enhanced threat of mudslides (especially in burn scar regions). Very strong winds could disrupt aviation and bring down some trees, and could build dangerous marine conditions and cause coastal flooding.

**Central America and Caribbean**

Nil significant.

This forecast may be amended at any time

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

Tel: +44(0)1392 884319 VPN: n6225 4319 Email: ggu@metoffice.gov.uk

© Crown copyright 2019 This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

South America**Peru, Bolivia, northern Chile, Ecuador, northwest Argentina and western Brazil****Weather**

Frequent heavy showers and thunderstorms will affect this area through the coming week, resulting in heavy seasonal rainfall.

Up to 100-150 mm of rain is possible in 24 hours, with a weekly peak total of up to 400 mm (around twice the monthly average).

There is the potential for significant water to run towards the Pacific through the desert regions of northwestern Chile and southwestern Peru.

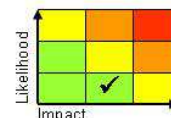
Northwestern Argentina is at threat of severe thunderstorms that could result in intense rainfall, frequent lightning, large hail, strong winds and tornadoes.

Discussion

The progression of the MJO into Phase 7 through the next week is likely to be contributing to the period of enhanced seasonal rainfall in this part of South America. In addition an unusually strong sub-tropical high located in the River Plate region, will continue to drag the monsoon plume south across this part of South America. This high will also cause a weakening of the trade winds across the Eastern Pacific (off the northern Chile and southern Peru coastlines), resulting in sea breezes drawing moist oceanic air inland, allowing some convection to break out across the usually very dry Atacama desert and western Andes.

Expected Impacts

Flash flooding and landslides are a significant threat in the mountainous areas. Flash flooding also possible if thunderstorms impact urban areas. Severe thunderstorms also bring the threat of large hail damage, frequent lightning that could disrupt aviation and power networks, strong gusty winds and isolated tornadoes. Across the desert regions the unusually high level of rainfall runoff may bring severe flooding in the usually dry alluvial plains that many people live and farm along.

**Africa****Northern parts of Morocco, Algeria, Tunisia and Libya** – See *Europe* section.**Central and eastern South Africa and Lesotho****Weather**

Severe thunderstorms are expected to affect this region through the coming week, with the peak activity tending to migrate northeast with time. These storms will produce intense rainfall, with up to 75-100 mm of rain falling in a few hours (the equivalent of a months worth of rain). Frequent lightning, large hail and strong winds are also likely.

Discussion

A complex upper trough will become slow moving across southeast South Africa, with the marked upper forcing engaging a very warm plume that has been brought south from sub-tropical latitudes. This will result in large CAPE storms, with good vertical wind shear allowing for severe, long lasting storms to develop.

Expected Impacts

Severe thunderstorms will bring the threat of flash flooding, large hail damage, frequent lightning that could disrupt aviation and power networks, strong gusty winds.

**Middle East**

Nil significant.

Asia

Nil significant.

This forecast may be amended at any time

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

Tel: +44(0)1392 884319 VPN: n6225 4319 Email: ggu@metoffice.gov.uk

© Crown copyright 2019 This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.

Australasia**Northern Australia****Weather**

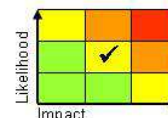
Frequent spells of intense rainfall and thunderstorms are expected throughout the next week. Urban areas along the Great Barrier Reef coastline are likely to see some intense downpours, this includes Cairns, Townsville and Mackay. At this stage, large parts of northern Queensland look likely to see 200-400 mm during this period with some areas seeing as much as 1000 mm. There is currently a low probability of some parts seeing in excess of 1000 mm during this period. Average monthly rainfall for this region is between 200-500 mm.

Discussion

The monsoon trough currently sits over the north of Queensland focusing convection here. A tropical low is embedded within it and this will probably help to focus severe convection and heavy rainfall. In addition, the MJO now moving over the western Pacific (phase 6-7) may be having some influence in enhancing activity here. Whilst models are in good agreement of large totals accumulating over the coming week there are significant differences with the GM currently at the extreme end of solutions in producing spot maxima over the next 6 days of 1500 mm.

Expected Impacts

Rainfall will be the primary cause of impacts, with severe flash and river flooding potential quite widely across the northern Queensland. This will likely lead to the disruption of transport and utilities through this sparsely populated region, and the potential for some isolated communities to be cut-off for a number of days.

**Additional information**

Nil.

Issued at: 310730 UTC **Meteorologist:** Nick Silkstone

Global Guidance Unit

This forecast may be amended at any time

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

Tel: +44(0)1392 884319 VPN: n6225 4319 Email: ggu@metoffice.gov.uk

© Crown copyright 2019 This information is for use by UK government only. It does not replace the advice and guidance provided by the official meteorological service for this region. Where there is a requirement to share this information with non-UK government agencies, please contact the Met Office to discuss.