Cyclones

I’m going to outline several pieces of information relating to cyclones.

How cyclones typically form, the terms people use in relation to cyclones, the history of cyclones events within Australia. The responsible authorities and warning processes, what basic actions community members can undertake in the event of a cyclone event.

Cyclones events are termed differently depending on where they occur. If a cyclone occurs in the southwest Pacific we call these storms “tropical cyclones”. If they occur in the northwest Pacific they are called “typhoons” and in the Atlantic, they are called “hurricanes”.

Interestingly, in the southern hemisphere including Australia, tropical cyclones spin clockwise whereas in the northern hemisphere, they spin anticlockwise.

How do cyclones form? As you can see on this diagram, between 5 and 20 degrees north and south of the equator, tropical cyclones typically form because of the conditions that include very warm seawater, a humid atmosphere together with wind enables the centre of the storm to rotate.

Once a tropical cyclone forms it can last for a few hours to two or more weeks. Cyclones have very erratic travel paths; they can move fast or slow and even stop for periods of time. They can change direction, turning back on themselves. They can gain strength or become weaker and less intense.

As soon as a tropical cyclone crosses the coast, it starts to die; it loses its energy because it is no longer connected to the ocean, which is where it gets its energy.

Cyclone season in Australia is generally between November and April, however cyclones can occur outside those months. In an average year, about 8 cyclones affect Australia (but this is highly variable).

Category intensity is based on estimated maximum wind gusts occurring closest to the eye of the storm. If wind speeds are less than 35 knots or 63 km per hour the storm is considered a “tropical low”. Other category levels are outlined on the diagram here.

Tropical cyclones can cause harm through four specific processes; these are strong wind, heavy rain, flooding over land and storm surges at the coast. Historically, the strong winds and sea surges have been the reason that people have been killed.

Tropical cyclones regularly affect Australia, as demonstrated on this diagram, which indicates the tropical cyclones that have affected Australia from 1970 until 2006. Quite a number of events over 36 years.

Most of these events have affected Queensland, Northern Territory and Western Australia, due to their location close to the equator. At times, however, cyclones may move further south. The Bureau of Meteorology (BOM) provides information about tropical cyclones that have occurred in Western Australia dating back to 1993. The BOM also provides information about tropical cyclones that have affected towns in Western Australia dating back to the 19th century. This diagram highlights the events affecting Western Australia between 1906 and 2006 (same as 3).

This diagram (4) demonstrates the cyclones that have affected the Northern Territory from 1963 to 2006. A number of cyclone events have occurred due to the Northern Territory coastline being so close to the equator. Tropical cyclones here may form close to the coastline and so therefore do not have enough time to become very intense and are often only minor events when they make landfall. This however can mean that there is an often only short early warning time to prepare. You may recall Cyclone Tracy that struck Darwin on Christmas Day in 1974. This was one of the most devastating tropical cyclones to have affected Australia since European settlement.

In Queensland this diagram outlines tropical cyclones that affected the state from 1906 to 2006. More information about these events can be found by visiting the BoM website. The deadliest tropical tropical cyclone to affect Australia since European settlement occurred in Queensland in 1899, taking over 300 lives.

Tropical cyclones are twice as likely to occur during La Niña than El Niño periods in Queensland due to levels of humidity.

The Bureau of Meteorology (BoM) monitors and provides information on cyclone forecasts and cyclone warning services. The BoM has comprehensive information available about cyclones on their website. The BoM has links to State and Territory Bureau offices as well as Emergency Service agencies.

If you are in NSW this will be coordinated via the SES, in Queensland – Emergency Queensland, in the Northern Territory with the Police, Fire and Emergency service (PFES), in Western Australia through the Department of Fire and Emergency services (DFES). These service agencies in each state have the local knowledge that effects what should be done in particular areas. This means people can be informed about what action needs to be taken.

The BOM have three information levels – 1. A tropical cyclone information bulletin issued if there is an active cyclone in the Australian region but is not expected to impact land based communities within 48 hours. 2. The Tropical cyclone watch, this is issued if a cyclone is expected to affect coastal communities within 48 hours but not within 48 hours and 3. The tropical cyclone warning, issued if a cyclone is expected to affect coastal communities within 24 hours.

If a cyclone warning is issued you need to consider preparation. Go to the BOM website highlighted here providing you with a checklist of actions that can be undertaken. As previously mentioned the cyclone season is generally between November and April.

It is important to consider preparation prior to the cyclone season. You can check with your local council or building control authority to see if your home has been built to cyclone standards. Check that the walls, roof and eaves of your home are secure. Trim trees and branches and make sure they are well clear of your home (get council permission). Clear your property of loose material that could blow about and possibly cause injury or damage during extreme winds. Preferably fit shutters, or at least metal screens to all glass areas. In case of storm surge/tide warning, know your nearest safe high ground and safest access route to it.

Prepare an emergency kit containing a portable battery radio; this will be of use if the television isn’t working – you can ask a non-deaf person to explain what instructions may be given via the radio. A torch and spare batteries, first aid kit manual, masking tape for windows and waterproof bags. water containers, dried or canned food and a can opener, matches, fuel lamp, portable stove, cooking gear, eating utensils and keep a list of emergency phone numbers on display. Check neighbours, especially if recent arrivals, to make sure they are prepared.

If a cyclone warning is issued, re-check your property for any loose material and tie down (or fill with water) all large relatively light items such as boats or rubbish bins. Ensure you have plenty of fuel. Re-check your emergency kit to ensure you have everything ready. Fill up containers with water. Ensure you know which is the strongest part of the house is, it may be a hallway or bathroom, so you know where the safest place will be. Make sure household members know this information. Check that neighbours are aware of the situation and are preparing. Tune to your local TV for further information and warnings.

When a cyclone warning is issued, you will need to have your emergency kit and pack an evacuation kit. This will include warm clothes, essential medications, baby formula, nappies, valuables, important papers, such as birth certificates or passports, photos and mementos in waterproof bags to be taken with your emergency kit. Large/heavy valuables could be protected in a strong cupboard.

If requested by local authorities, collect children from school or childcare centres and return home. Close shutters or board up or heavily tape all windows, draw curtains and lock doors. Put wooden or plastic furniture in your pool or inside with other loose items. Park Vehicles under solid shelter with the handbrake on and in gear. Remain indoors with your pets. Stay tuned to your TV for further information.

If you are given a warning to evacuate, it’s important to remember to lock doors, turn off power, gas and water, take your evacuation and emergency kits. Ensure you wear strong shoes (not thongs) and tough clothing for protection. If you are evacuating out of town, take pets and leave early to avoid heavy traffic. Ensure you are keeping an eye out for flooding or fallen trees. If you are evacuating to an evacuation shelter, you can take books or games for children with you to keep them entertained. Also bring bedding. Wherever you are commuting, you need to follow the instructions of emergency service personnel. Some evacuation centres do not allow pets, you may need to leave pets behind, protected, with food and water.

When a cyclone strikes, disconnect all electrical appliances stay tuned to the radio for updates if you have someone who can relay information to you. You will need to stay inside and shelter (well clear of windows) in the strongest part of the building, i.e. cellar, internal hallway or bathroom. Keep evacuation and emergency kits with you. If the building starts to break up, protect yourself with mattresses, rugs or blankets under a strong table or bench or hold onto a strong fixture, e.g. a water pipe. Beware of the calm ‘eye’. If the wind drops don’t assume the cyclone is over, violent winds may soon resume from another direction. Wait for the official ‘all clear’.

If you are driving, stop, put the handbrake on and in gear, keep well away from the sea and clear of trees, power lines and streams. Stay in the vehicle.

After the cyclone has passed don’t go outside until you are officially advised it is safe. Check for gas leaks; don’t use electrical appliances if it’s wet. The radio will be a source of information to gain official warnings and advice. If you had to evacuate, or did so earlier, don’t return until advised by authorities. Use a recommended route and don’t rush. Beware of damaged power lines, bridges, buildings, and trees and don’t enter floodwaters. Do not go sightseeing, check/help neighbours instead. Don’t make unnecessary phone calls, only use the phone for emergency calls.

I’m now going to summarise the information presented in this video.

Tropical cyclones in Australia typically the northern part of Australia. Occasionally cyclones do affect the southern part of the country.

Cyclone season is generally between the months of November and April.

Historically, tropical cyclones have predominately affected Queensland, Northern Territory and Western Australia.

Cyclones can move great distances inland.

During a cyclone event strong wind, flooding, heavy rain and coastal storm surges can all cause harm to people and infrastructure.

The Bureau of Meteorology (BOM) is responsible for detection, monitoring and providing early warnings about cyclone events, so that preparations can be undertaken.

You may not live in an area that is affected by tropical cyclones but if you travel to a place affected by tropical cyclones, you could be affected. It is your responsibility to understand the hazard and take appropriate actions. It is important you are well prepared for cyclone events.