

WHAT IS A CYCLONE?

A **tropical cyclone** is a term used to describe a rotating, organised system which originates over tropical or subtropical waters and has closed, low-level circulation. Cyclones have gale force winds (sustained winds of 63km/hour or greater, with gusts in excess of 90km/hour) which can extend hundreds of kilometres from the centre of the cyclone. Once a tropical cyclone reaches maximum sustained winds exceeding 118km/h it is classified as a **severe tropical cyclone**. Cyclones are also known as hurricanes or typhoons, depending upon the location in which the storm forms.

WHERE DO CYCLONES OCCUR?

Most cyclones in Western Australia impact the state's northwest. The coast between Broome and Exmouth is the most cyclone prone area in the whole of Australia; however cyclones can occur in any area of tropical or subtropical waters.

WHEN DO CYCLONES OCCUR?

Cyclones form when the surface temperature of the ocean is above 26.5 degrees Celsius. In Western Australia this is typically between November to April with February and March being the most likely months for cyclone formation. Once formed, they can remain sustained over lower sea-surface temperatures.

HOW ARE CYCLONES MEASURED?

In Australia, the severity of a cyclone is classified from 1 (weakest) to 5 (strongest), dependent on the maximum mean sustained wind speed as shown below:

	Mean wind speeds (km/hour)	Typical Gusts (km/hour)
• Category 1	63-88	<125
• Category 2	89-117	125-164
• Category 3	118-159	165-224
• Category 4	160-199	225-279
• Category 5	>200	>279

Examples of notable cyclones in WA:

APRIL 1978: ALBY

Category 4
Landfall: Southwest WA
Max wind gust: 150km/hr

FEB 1995: BOBBY

Category 4
Landfall: Pilbara Coast
Max wind gust: 270km/hr

MARCH 1999: VANCE

Category 5
Landfall: Pilbara coast
Max wind gust: 267km/hr
One of the strongest cyclones ever to affect mainland Australia.

APRIL 2000: ROSITA

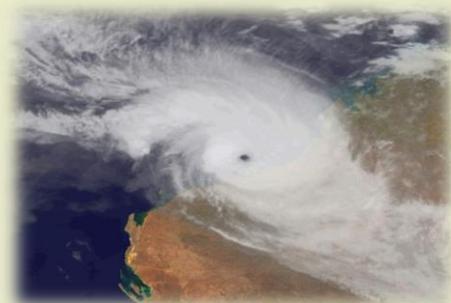
Category 5
Landfall: Kimberley coast
Max wind gust: 290km/hr

MARCH 2007: GEORGE

Category 5
Landfall: Pilbara coast
Max wind gust: 275km/hr

DEC 2013: CHRISTINE

Category 3
Landfall: Pilbara Coast
Max wind gust: 220km/hr



WHAT ARE THE IMPACTS OF A CYCLONE?

Storm surge – The low pressure associated with a cyclone creates a bulge in the sea surface; when combined with significant winds driving water onshore, a storm surge can inundate land near the coast. If a storm surge occurs at the same time as the high astronomical tide, inundation can be extensive, particularly in low lying areas.

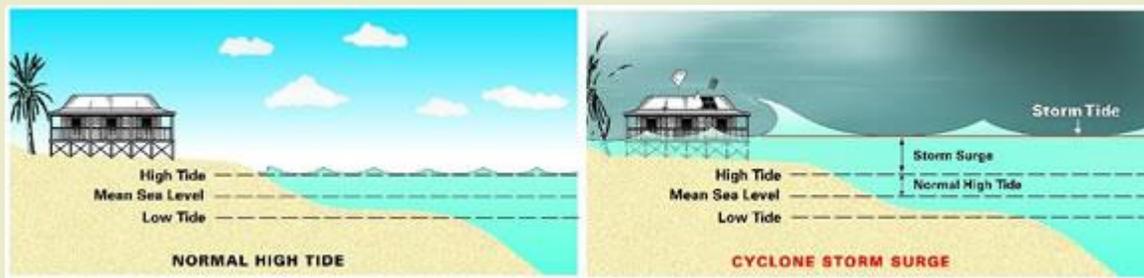


Image courtesy of the Bureau of Meteorology, Australian Government

High winds – The strength of cyclonic winds can cause significant damage to property, infrastructure, crops and upcoming harvests. In addition, debris that becomes airborne can cause significant damage.

(!) Remember: As the cyclone 'eye' passes through, you may experience a temporary lull in the wind. However, this will soon be replaced by severe winds from another direction.

Heavy Rainfall – Cyclones hold large amounts of moisture and release significant rainfall over extensive areas. This rainfall often leads to flooding and has the potential to cause landslides. In addition, it may compound inundation caused by storm surge. Heavy rainfall can inundate land, isolate communities and impact infrastructure.

WHICH PARTS OF WA ARE AT RISK FROM A CYCLONE?

Typically cyclones develop between 5 and 15°S and reach their maximum intensity between 10 and 20°S. Therefore, the most likely locations at risk from a cyclone are those in the coastal north west of the state. As they move further south or inland, cyclones often weaken as they encounter unfavourable climatic and geographical conditions. Often these decaying systems can produce significant rainfall across inland areas.

More information can be found at:

www.bom.gov.au

www.dfes.wa.gov.au

www.geoscience.gov.au