



# YBCS Air Traffic Operations

Cairns International Airport consists of a single runway in the direction 15/33 magnetic.

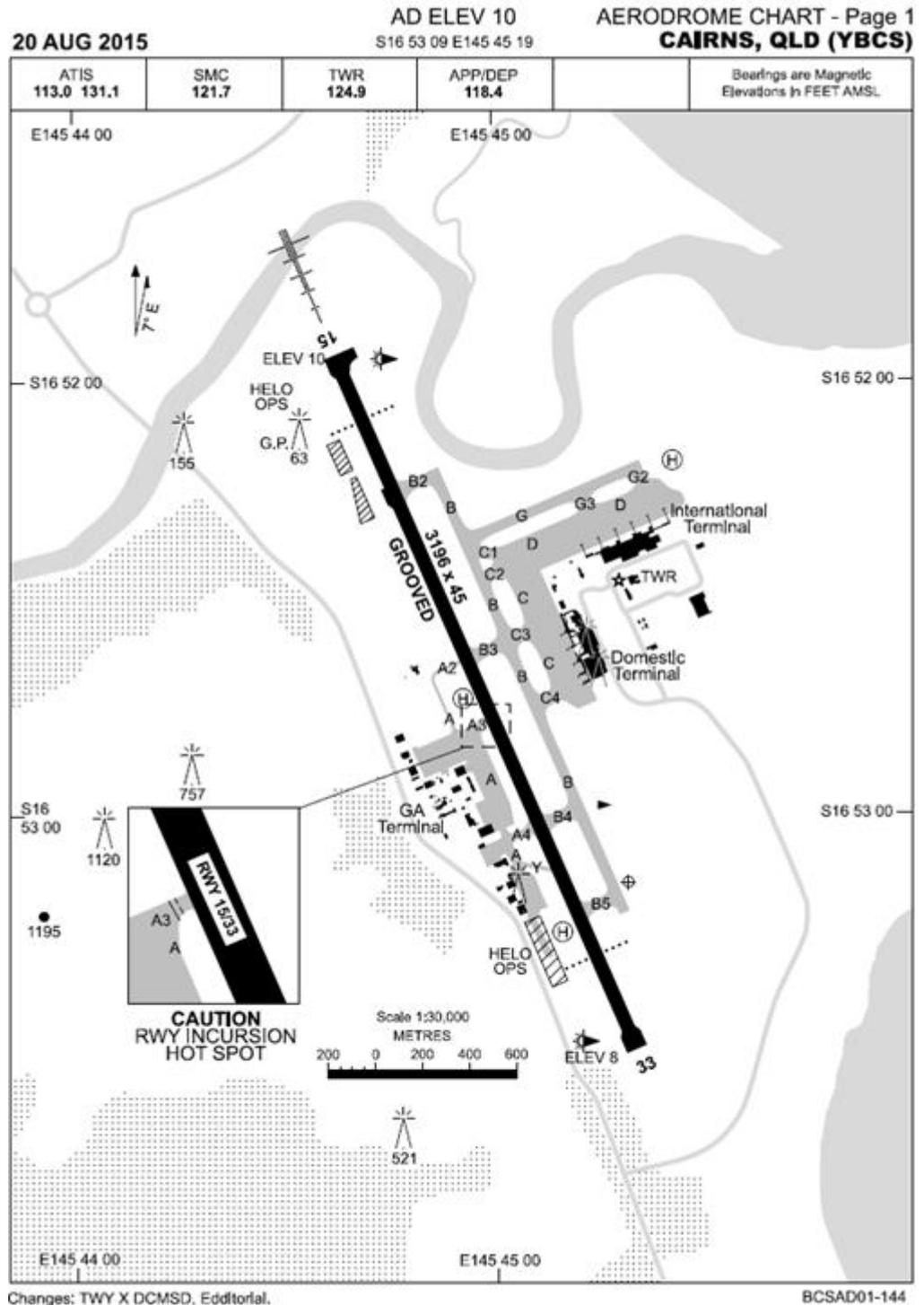


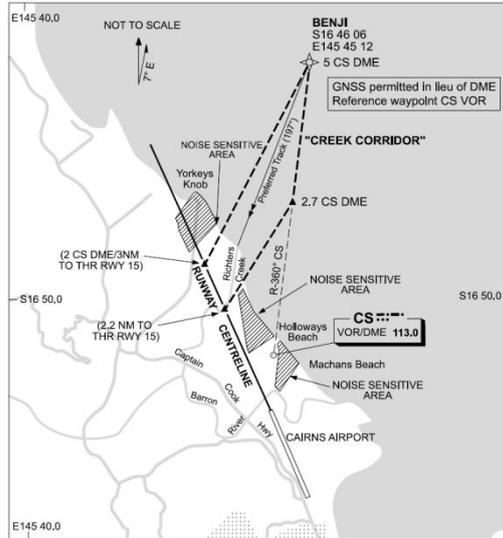
Figure 1: Cairns Airport Aerodrome Chart (Source: Airservices Australia)

## Noise Abatement

Cairns Airport is not required to implement a curfew; however operations are limited to reduce the noise impact of aircraft noise on the communities surrounding the airport. Some of these procedures include: preferred operations on runway 15 until downwind exceeds 5 knots, tracking via noise corridors, jets minimum altitude for overflying suburbs

(Changes to the previous version have been highlighted in yellow)

on departure, full length runway use for departures after 2300 local and restrictions on training aircraft. For example, in VMC high performance aircraft arriving on Runway 15 are required to track via the "Creek Corridor", thereby limiting the aircraft noise impact on the suburbs of Yorkey's Knob and Holloways Beach.



**Figure 2: Creek Corridor Noise Abatement Procedure**  
(Source: Airservices Australia)

### Terminal Area (TMA)

This term is used to describe the designated area of controlled airspace surrounding a major airport where there is a high volume of traffic. The Terminal Area (TMA) is a 36nm radial area Cairns DME (sited at Machans Beach).

Within the TMA there are a number of corridors for arriving and departing aircraft. The high terrain close to the airport and the approach paths has considerable impact on the processing of traffic by ATC.



**Figure 2: Cairns Terminal Airspace**  
(Source: Airservices Australia)

### Runway Direction

It is important to remember that although runway direction is annotated in magnetic co-ordinates, wind direction is reported in degrees true. The conversion for Cairns airport is as follows:

**Table 1: Cairns Runway Direction Conversion Table**

Runway	Magnetic	True
15	150	157
33	330	337

\*Please note that you refer to a runway direction as it is being travelled on. Using RWY15 means landing and departing towards the SSE. This is the opposite of reported wind direction but in general results in the runway in use being aligned to the wind direction.

### Nomination Of Runways

The nomination of runway is determined by Air Traffic Control (ATC) using a preferred runway or take-off direction. ATC shall not nominate a particular runway for use if an alternative runway is available, when:

**Table 2: Runway Wind Thresholds**

	Dry	Wet
Crosswind	>20kts	>20kts
Downwind	>5kts	0kt

(\*Please note that thresholds relate to sustained wind gusts as well as mean wind speeds.)

If possible, aircraft will take off and land with a head wind. A tail wind on landing is acceptable up to 5 knots on a dry runway. Tail winds are unacceptable on wet runways. When departing with a tail wind, the take-off distance increases so the runway length is important.

As there is no alternative runway available, when crosswind exceeds 20 knots, the runway selection is determined by downwind.

Departures and arrivals do not have to occur on the same runway. The unsuitability of instrument approaches to the duty runway may also require departures and arrivals to operate in opposite direction to each other. This is a rare occurrence and places a high toll on aircraft movement rates.

Landing and take-off distances differ with aircraft-type, weight, atmospheric pressure and temperature. The active runway will have to be able to accommodate the majority of traffic.

### Forecasting for Cairns Airport

Forecasters for Cairns airport can contact NOCMET for information on the operational effect caused by a TAF amendment. Alternatively, forecasters may contact Cairns Tower directly if the need arises.

It is expected that forecasters can provide meaningful information to Air Traffic Controllers regarding Cairns Airport when requested.



### Peak Times

Generally peak demand for traffic movements at Cairns airport occurs between 9-10am and 11am-1pm (adjusted 1hr earlier for EDST as there is no daylight savings time in Queensland). Additional loads can occur on both Monday mornings and Friday afternoons.

The forecasting of holding near or during these hours must be considered carefully. The removal or movement of holding that affects these periods may prompt a call to NOCMET prior to the TAF amendment.

### Wind Forecasts

The TAF can be used by forecasters to routinely provide information about significant wind changes that affect ATC runway decisions.

Cairns is generally subject to the south east trade winds throughout the year. However, NE sea breezes develop during the day especially in temperatures over 30 degrees.

Accurately forecasting a north-easterly wind is critical to planning a runway change from Runway 15 to Runway 33.

An unplanned/unexpected change of runway causes the re-direction of aircraft leading to an additional 10-20 mins delay in arrivals during peak periods. ATC use the forecast, pilot reports and the environmental effects of the wind change on Cairns Harbour to manage the timing of a runway change.

### Thunderstorms at YBCS

Thunderstorm cells identified on ATSAS/ATIFS within 10nm of Cairns airport affect the ability of aircraft to land and the provision of services to aircraft once on the ground. The movements of aircraft into and out of bays are affected due to ramp closures and the removal of ground staff from the tarmac.

Airline WHS regulations require the removal of ground staff from the tarmac when a thunderstorm is within 5nm, with an 'on-alert' status for a thunderstorm within 10nm. This decision is an important part of the duties of the Virgin and Qantas meteorologists.

In prolonged thunderstorm events this can lead to an accumulation of aircraft waiting on the ground to be handled.

Additionally the ability of forecasters to predict or recognise wind outflow from nearby thunderstorms is important in the management of tactical runway changes.

### Thunderstorms in the TMA (36nm)

Thunderstorms within the Terminal Area (TMA - 36nm) also affect operations. Specifically thunderstorms in the entry corridors to the northwest and southeast of Cairns airport have major impacts on traffic flow.

The ability to forecast organized thunderstorms in these areas can provide Airservices the capability to open additional corridors and re-route aircraft to minimise delays.

Within the TMA, any thunderstorm or moderate convective activity can present major traffic handling issues for ATC. If this activity is adjacent to the ILS track for Runway 15, or in 'the valley' to the south of Cairns Airport affecting final approach for Runway 33, the airport can affectively be closed for arrivals.

### Fog

It is rare for fog/mist to affect Cairns Airport, however fog/mist does often form around the airfield, in the valley south of the airport and on the higher ground to the SW. Fog affects Cairns airport approximately one day every five years.

There have been cases of extended fog periods over the airport exceeding 2 hours caused by sea fog. This is extremely rare, and may happen 2 or 3 times in a ten year period.

### Cloud/Visibility

Low cloud and/or reduced visibility on approach will necessitate the use of an instrument approach when a visual reference with the runway is not available. Any instrument approach has a specified decision height (landing minima) at which a 'missed approach' must be initiated if the required visual reference to continue the approach has not been established.

This decision height (DH) can vary and will depend on the available equipment for the runway. The DH is approximately 250ft AGL for an Instrument Landing System (ILS) category 1, the most common instrument approach on runways at Australian major airports. Visibility and cloud are less critical during take-off, with most commercial jet aircraft allowed to depart with visibility over 550m.

Cloud and visibility has a large effect on an aircraft's arrival into Cairns. Cairns Airport has a Category 1 ILS on Runway 15, however the decision height is only 380ft AGL. Runway 33 is serviced by a localizer approach with a minimum decent altitude of 790ft AGL for medium and large aircraft. Cairns Airport is critically affected by reductions to cloud base and visibility owing to the high minima and the subsequent distance from the runway that missed approach decisions must be made.



Table 3: Summary of Decision Point Triggers

Phenomena	Criteria	Potential Effect
Cloud (>3octas)	<3000ft	Instrument approach
	<2000ft	Reduced rate of traffic
	<200ft	Low visibility operations
Visibility	≤5000m	Instrument approach
	≤1500m	Low visibility operations
	≤800m	Low visibility operations, take offs cease.
Downwind	>5kts/0kts (dry/wet)	Change of runway

### Other Weather Events

Tropical weather associated with the monsoon trough can affect Cairns over a number of days or even weeks. Consistent rain and low visibility, combined with variable winds may result in difficult conditions for aviation. A reciprocal runway operation, with aircraft landing downwind on a wet runway (due to instrument approach availability or suitability) is not unusual.

Large rainfall events and storm surges also accompany cyclonic systems. Cairns Airport Cyclone Plan will normally close the airport at least 6 hours before the area is affected by destructive winds. The re-opening of the airport after a cyclone is subject to a serviceability inspection and staff availability, and usually will not occur until at least 12 hours after the passage of the cyclone.

Cairns Airport is well protected from storm surge and flooding by an extensive network of levy ways and water pumping stations.

*This is a reference card intended to educate users on the phenomena that affect Air Traffic Flow Management (ATFM) and is based on information obtained from Airservices Australia. The card was accurate on 02/09/2015 – Version 2.0, but may be subject to short term changes that are not reflected in this document. There may also be other factors beyond the meteorological conditions affecting ATFM on any particular day. Airservices Australia, **NOC** should be contacted for all day of operations information related to arrival/departure rates and runway configurations. Please email any feedback, corrections or comments to [SRAT@bom.gov.au](mailto:SRAT@bom.gov.au).*