



YPDN Air Traffic Operations

Darwin International Airport consists of two intersecting runways in the direction 11/29 and 18/36 magnetic.

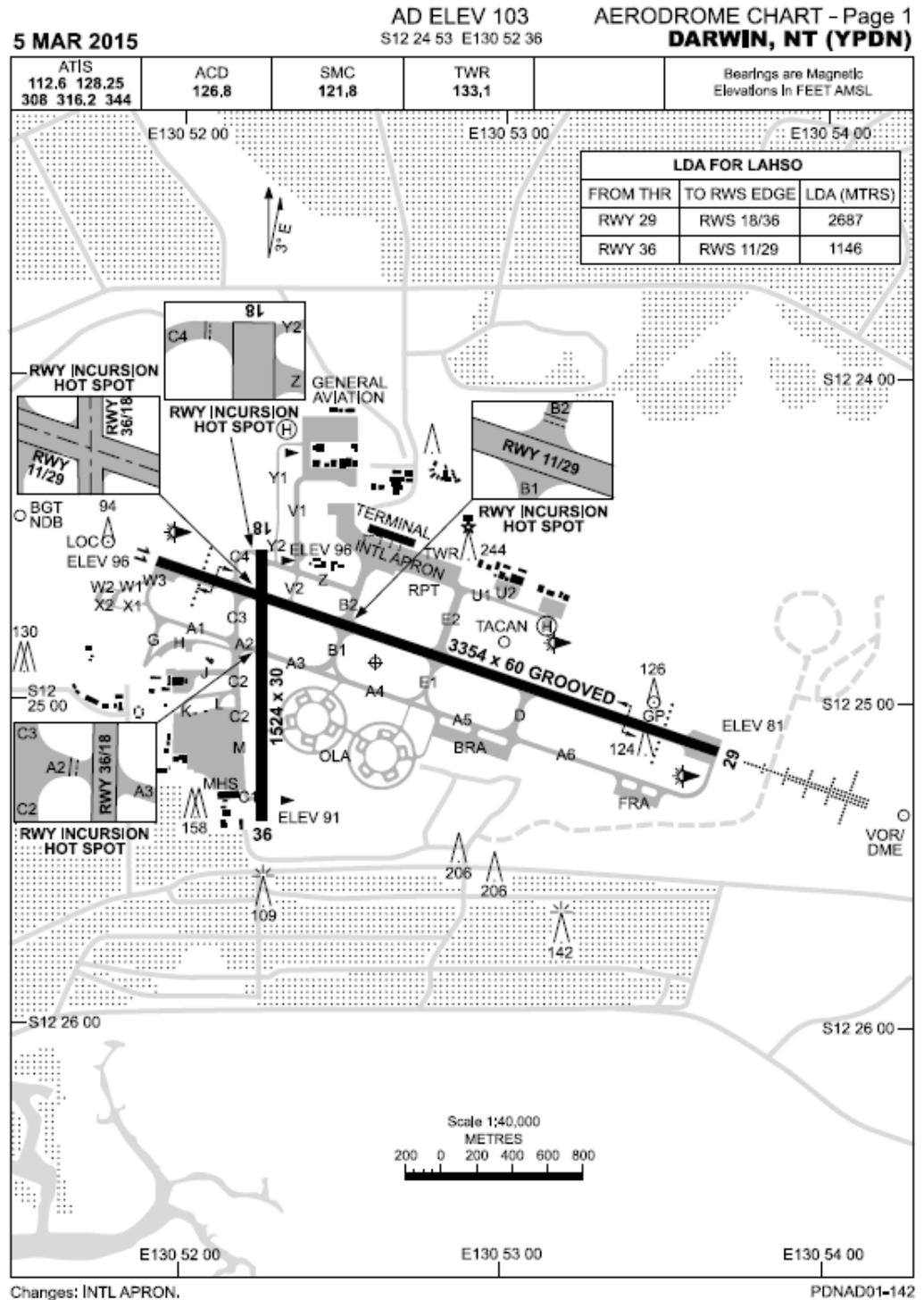


Figure 1: Darwin Airport Aerodrome Chart (Source: Airservices Australia)

Noise Abatement

Darwin 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. The preferred operating runway for take-off and landing is runway 11/29.

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 40nm radial area of Darwin Airport. Within the TMA there are a number of corridors for arriving and departing aircraft.

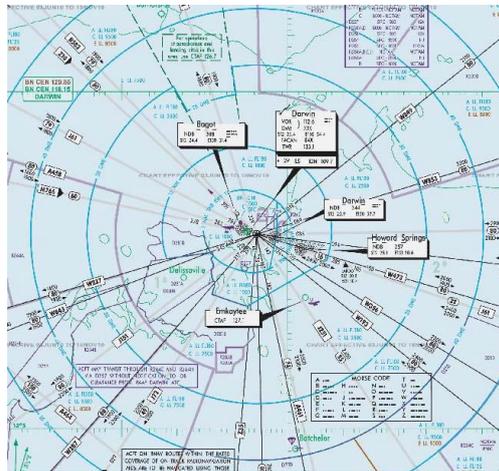


Figure 2: Darwin Terminal Airspace
(Source: Airservices Australia)

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 Darwin airport is as follows:

Table 1: Darwin Runway Direction Conversion Table

Runway	Magnetic	True
11	106	109
18	177	180
29	286	289
36	357	360

*Please note that you refer to a runway direction as it is being travelled on. Using RWY18 means landing and departing towards the S. 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. The air traffic services at Darwin Airport are provided by RAAF Base Darwin. 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.

There is no alternative runway available at Darwin for large jet aircraft. Thus when crosswinds exceed 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 Darwin Airport

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

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

Peak Times

Generally peak demand for traffic movements at Darwin airport occurs between 7-9am, 11:30am-2pm, and 3-5:30pm (adjusted 1hr earlier for EDST as there is no daylight savings time in Northern Territory).

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.

Darwin is generally subject to east-south east winds throughout much of the year. Approximately 60-65% of runway use occurs on runway 11 at Darwin Airport. However, NW afternoon sea breezes regularly develop in the early afternoon.

Accurately forecasting wind shifts in Darwin is critical to planning a runway change from Runway 29 to Runway 11.

The north-westerly monsoonal winds from October to March can commonly lead to the use of Runway 29.

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.



Thunderstorms at YPDN

Thunderstorm cells identified on ATSAS/ATIFS within 10nm of Darwin 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. It has been noted that the gust fronts from thunderstorms can cause multiple wind changes over a short period.

Thunderstorms in the TMA (40nm)

Thunderstorms within the Terminal Area (TMA - 40nm) also affect operations. Single cell thunderstorm in the TMA cause minor disruptions to air traffic at Darwin. The exception is thunderstorm activity adjacent to the ILS track for Runway 29, or affecting final approach for Runway 29 in Instrument Meteorological Conditions (IMC).

Organized thunderstorms activity is commonly seen in the south east of the TMA and moves westwards. This activity has rarely been seen to impacts air traffic.

Fog

It is rare for fog/mist to affect Darwin Airport, however fog/mist does often form around the airfield. Fog forms at Darwin airport approximately three to five times a year.

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.

Darwin Airport has a Category 1 ILS on Runway 29 with a decision height of 290ft AGL and/or 800m. There is no terrain surrounding Darwin Airport. Thus low cloud and low visibility conditions do not impact air traffic often.

Table 3: Summary of Decision Point Triggers

Phenomena	Criteria	Potential Effect
Cloud (>3octas)	<1100ft	Instrument approach
	<200ft	Low visibility operations
Visibility	≤4400m	Instrument approach
	≤800m	Low visibility operations, take offs cease.
Downwind	>5kts/0kts (dry/wet)	Change of runway



Australian Government
Bureau of Meteorology

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 9/12/2015 – Version 1.0, 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.

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