



DOCUMENT
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DOCUMENT TITLE
METEOROLOGY FOR AUSTRALIA

CHAPTER 30 – AUSTRALIAN CLIMATOLOGY

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CLIMATOLOGY AUSTRALIA

OVERVIEW

LOW LEVEL WINDS

Winter (July)

Northern Australia:	SE Trades
Southern Australia:	SW

Summer (January)

Northern Australia (north of ITCZ):	NW Monsoons
Northern Australia (south of ITCZ):	SE Trades
Southern Australia:	NW – SW

VISIBILITY

- ITCZ
- Dust in central Australia, northern part of desert in winter, southern part of desert in summer
- Radiation fog in southern Australia in winter may occur if conditions are suitable.

FREEZING LEVEL

January

(north):	16,000 ft.
(south):	10,000 ft.

July

(north):	15,000 ft.
(south):	5,000 ft.

TROPOPAUSE

January

(north):	54,000 ft.
(south - warm air)	51,000 ft.
(south - cold air)	38,000 ft.

July

(north)	53,000 ft.
(south - warm air)	49,000 ft.
(south - cold air)	34,000 ft.

CLOUD/PRECIPITATION/ICING

Summer (north): ITCZ - Cu/Cb/Ts, heavy rain, severe icing

Winter (north) Clear

(east coast) Cu/Cb/Ts/+SH,

(south) Cu/Cb with fast moving cold fronts.

UPPER WINDS

Winter

Darwin: 30 kts westerly

Centre: 80 - 90 kts STJ westerly

South: 40 - 50 kts westerly

Summer

Darwin: 10 kts easterly

South: 40 kts westerly

Tropical Savanna

- Hot, wet summers
- Warm and very dry winters

Tropical Maritime North East

- Hot, wet summers
- Warm drier winters

Desert

- Hot, dry summers
- Mild dry winters

Semi dessert

Warm Temperate South East

- Hot, wet summers
- Cool to mild wet winters

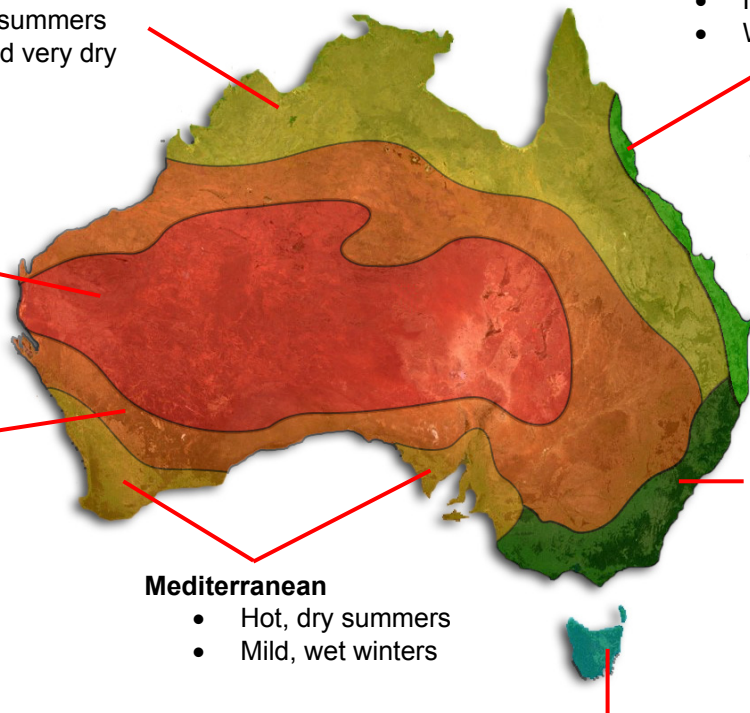
Mediterranean

- Hot, dry summers
- Mild, wet winters

Cool Temperate

- Warm, wet summers
- Cool to mild wet winters

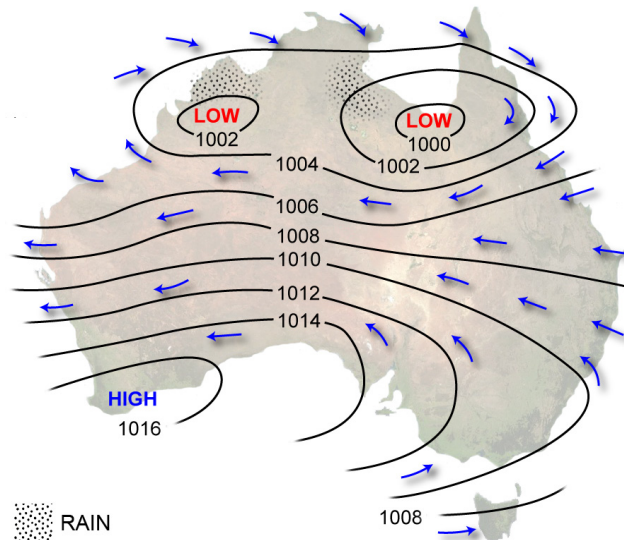
Major Climatic Zones of Australia



AUSTRALIAN WEATHER AND PRECIPITATION IN SUMMER

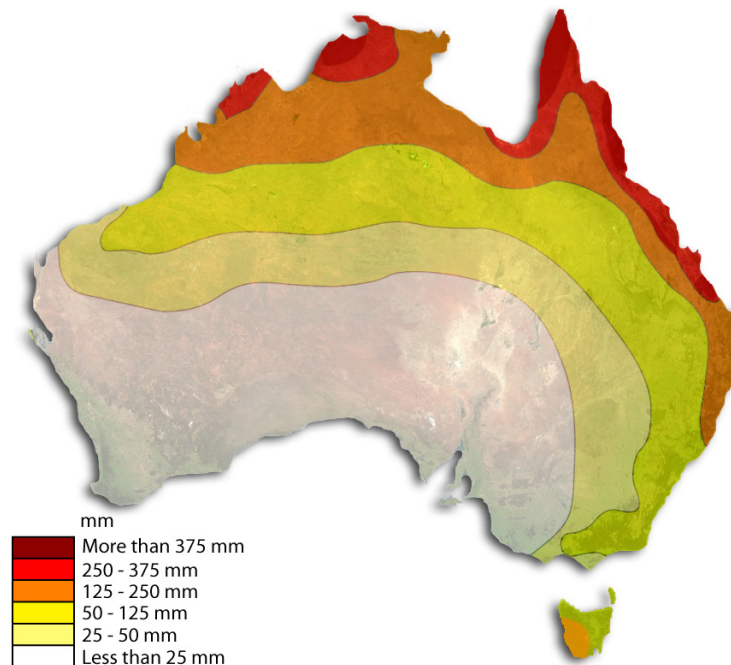
Latitude	Western	Central	Eastern
10° - 20 °	Hot days, warm nights, frequent cloud and Ts with locally heavy rains from W. Monsoon decreasing towards the SE Trades. South, fine with tropical cyclones possible in late summer.	Hot days, warm nights frequent cloud and locally heavy rains from NW Monsoon, rapidly decreasing towards the south. Fine, hot spells with SE Trades.	Hot humid days, warm humid nights. Frequent cloud and heavy thunderstorms. Rain from NW, orographic rain from SE decreasing rapidly towards the interior. Tropical cyclones possible in late summer.
20° - 30°	Fine, very hot days under heat low. Mild nights. Rare local thunderstorms. Tropical cyclones likely in late summer.	Very hot days, mild nights. Rare local thunderstorms in northern part of NW. Fine, dry and dusty with SE Trades.	Hot humid days, warm humid nights. Frequent frontal and orographic cloud and rain from E, decreasing rapidly towards the interior. Tropical cyclones possible in late summer.
30° - 40°	Fine, warm and occasionally very hot days from anticyclonic easterlies, regular cool changes. SW sea breeze frequent, mild or cool nights. Little or no rain	Fine, hot days with NE anticyclonic air, regular cool changes. S sea-breeze frequent. Mild nights. Rare rain from a tropical cyclone in late summer.	Warm, occasionally very hot, dry days with NW anticyclonic air. Regular W cool changes with cloud and front rains. Nights mild to cool.
40° - 44°	At sea: fine, mild to warm and occasionally hot days from N anti-cyclonic air, alternating with regular W cool changes. Cool nights. Some W frontal rain.	At sea: fine, mild to warm and occasionally hot days from N anti-cyclonic air. Regular cool W changes often with some frontal rain.	Cool W winds with frontal clouds and rain, alternating with fine warm days of N anti-cyclonic air. Nights cool.

Normal Australian Summer Weather



Typical Summer Weather Map

- Equatorial low pressure system and north west monsoon winds (**E** air masses) bring rain to northern Australia.
- Maritime easterly air streams bring rain to east coast and adjacent highlands.
- Interior and south-west areas with cT air masses, are hot and very dry.

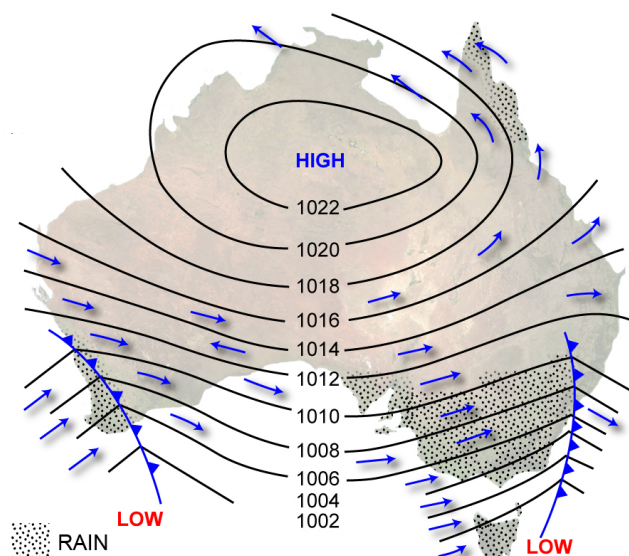


January average precipitation

AUSTRALIAN WEATHER AND PRECIPITATION IN WINTER

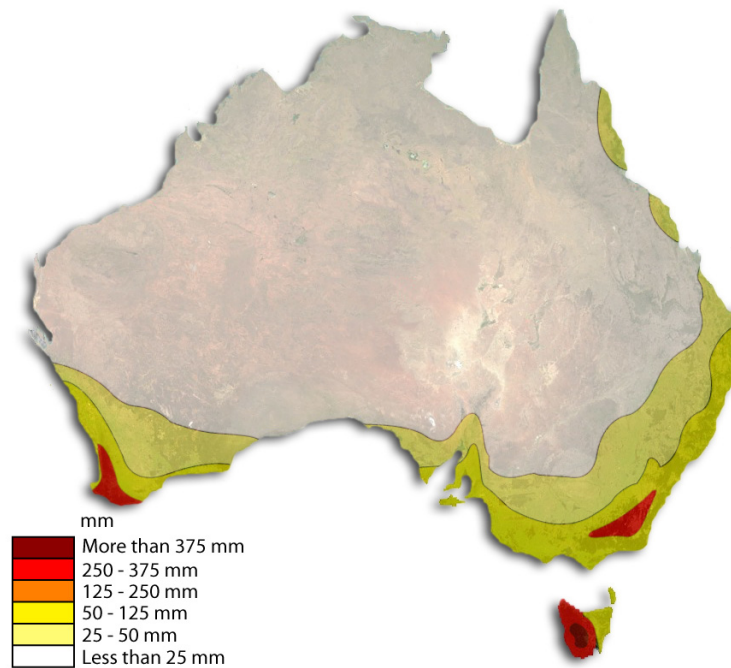
Latitude	Western	Central	Eastern
10° - 20 °	Fine and very dry. Warm to mild days, cool nights with SE Trades.	Fine, dry, warm days. Mild to cool nights with SE Trades.	Fine, dry, warm to mild days. Mild to cool nights. Orographic cloud and rain on coastal highlands from SE Trades.
20° - 30°	Fine and dry. Mild days, cool to cold nights. SE Trades in N, and variable anti-cyclonic winds and frontal rains in S.	Fine and very dry, mild days. Cool to cold nights. SE Trades in N and variable anti-cyclonic wind and occasional light frontal rain in S.	Variable, mild to cool days, cold nights. Fine with Tc air and mostly rainy, stormy with fronts and Tm air.
30° - 40°	Variable, cool days, cool to cold nights. Heavy rains from W fronts (Tm air). Fine with NE (Tc) anti-cyclonic air.	Cool days, cool to cold nights. Rain from W fronts, fine with N (Tc) anti-cyclonic air.	Cool to cold days, cold nights. Variable with frontal cloud and rain (Tm, Pm air) alternating with fine Tc days.
40° - 44°	At sea: cool days, cold nights. Strong gusty winds and frontal rain from W depressions and fronts.	At sea: cool days, cold nights. Strong gusty winds and frontal rain from W depressions and fronts.	Cold or cool days, cold nights. Strong gusty winds and frontal rain, mostly from W, but occasional heavy frontal rains from E.

Normal Australian Winter Weather



Typical winter weather map

- Westerly (mP air masses), low pressure systems, and their fronts bring precipitation to southern parts of Australia.
- Easterly winds (mP and mT air masses) may bring some rain to the north-east coast.
- The high pressure systems result in fine dry weather with dry off-shore winds (cT air masses) in northern Australia.



July average precipitation