The Bureau of Meteorology

2025 SES
Weather and Seasonal Briefing

Part 1: Seasonal Outlook
Part 2: Winter Hazards

Gianni Colangelo
Bureau of Meteorology

The Bureau of Meteorology

Part 1: Seasonal Outlook

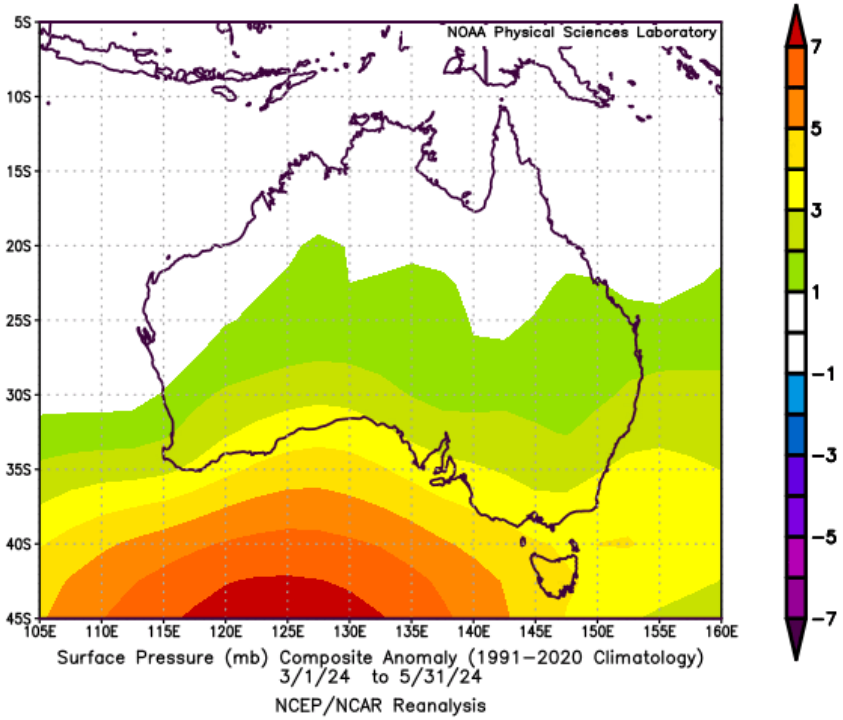
Reflection on 2024

- Autumn 2024 Very Dry Conditions
- Winter 2024 Rainfall Surplus

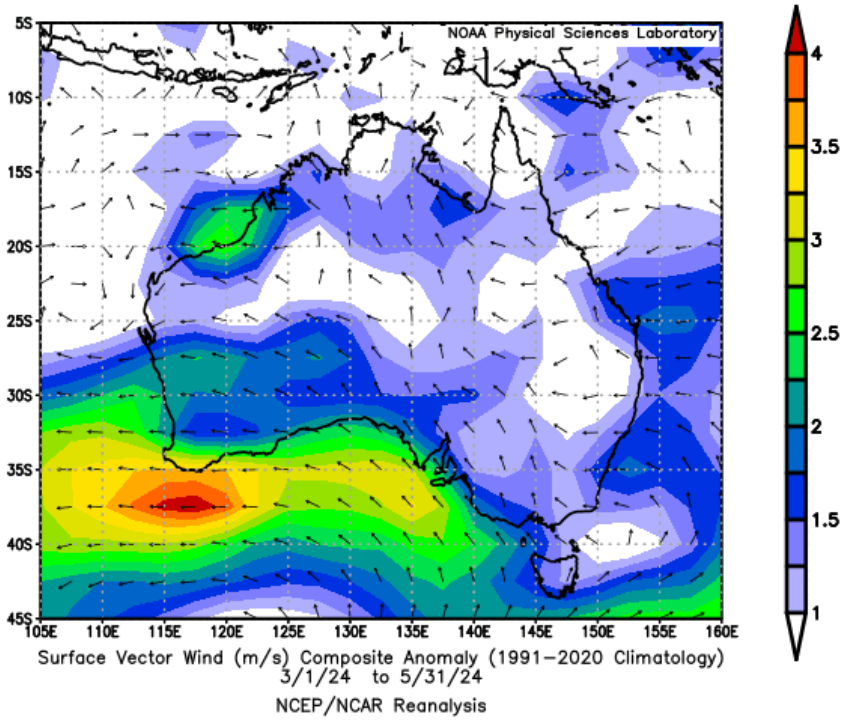
Autumn and Winter 2025

- Autumn 2025 Dry Conditions
- Winter 2025 Forecast

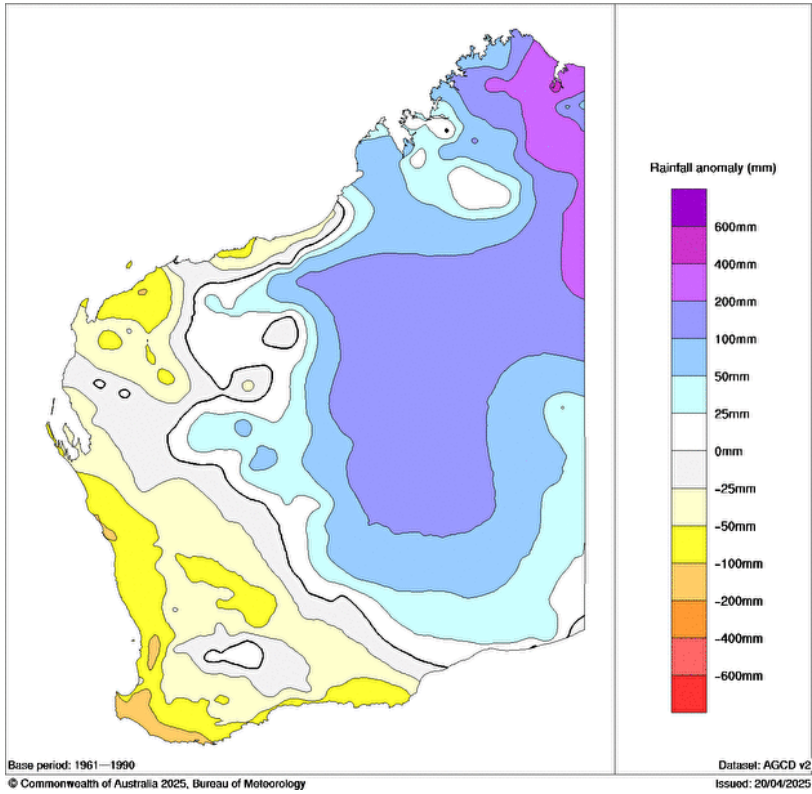
2024 Autumn Analysis



Pressure Anomaly

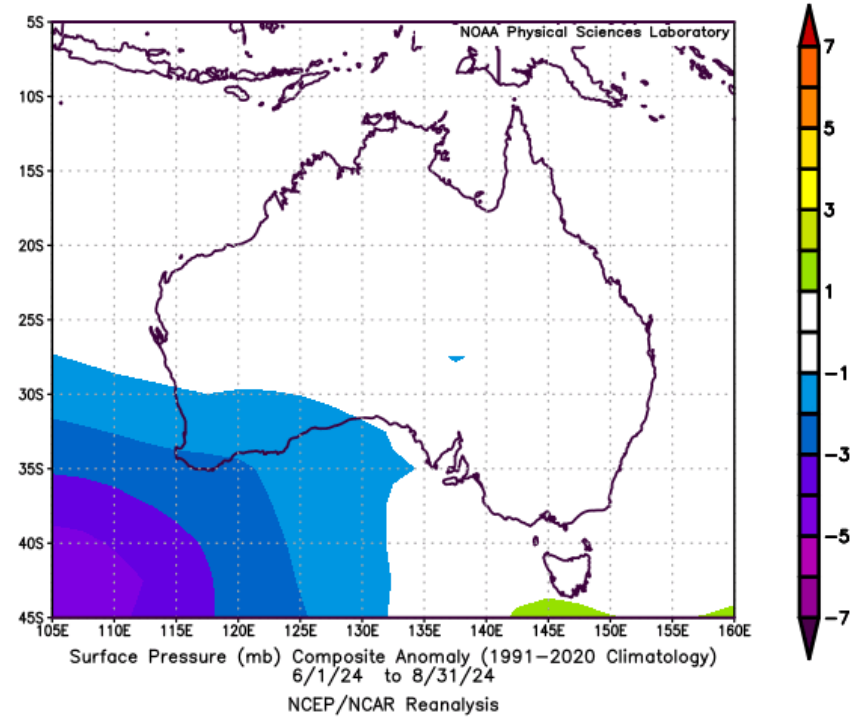


Wind Anomaly

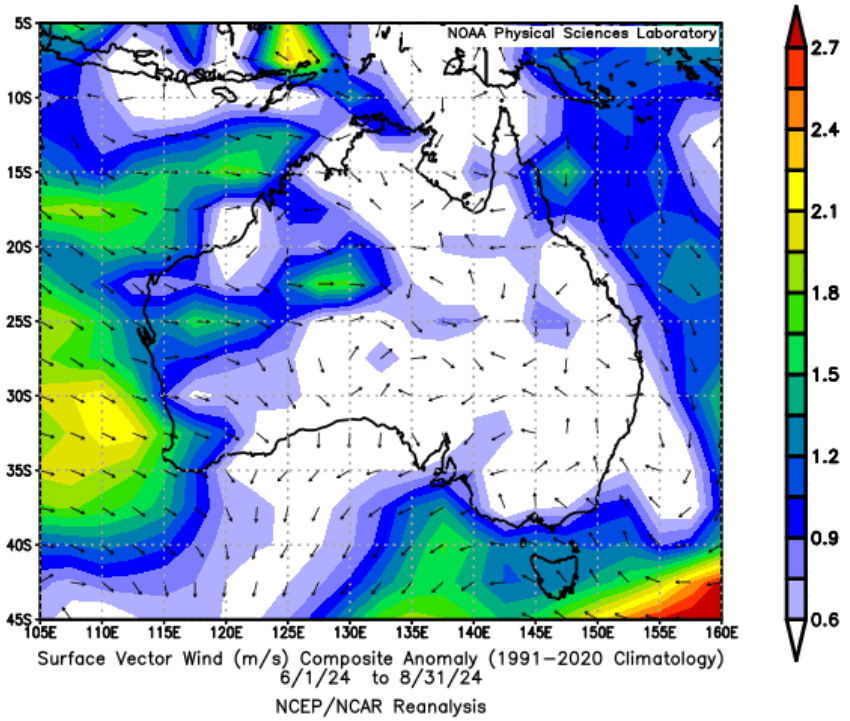


Rain Anomaly

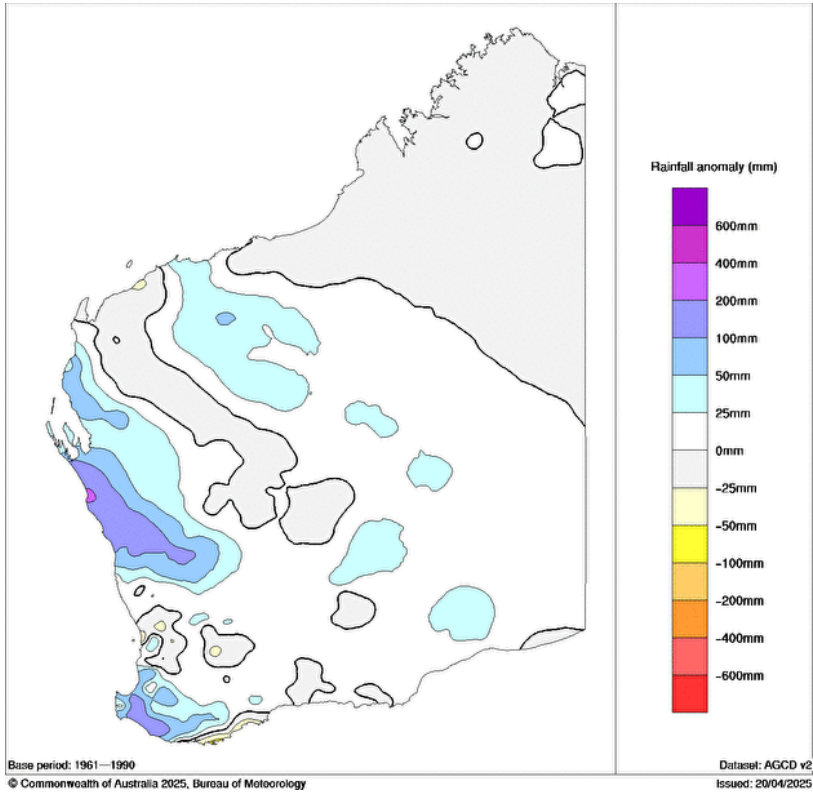
2024 Winter Analysis



Pressure Anomaly

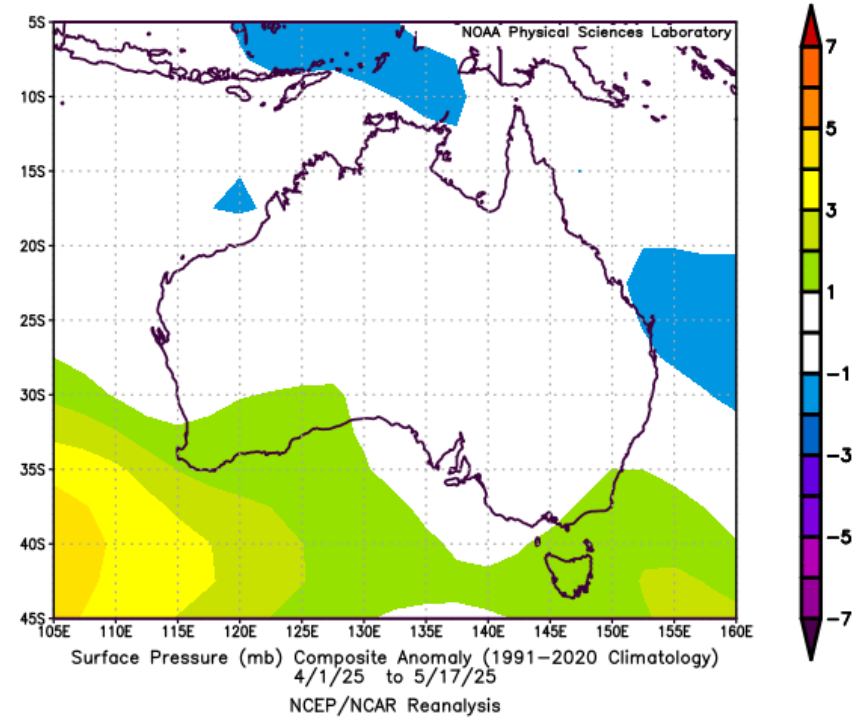


Wind Anomaly

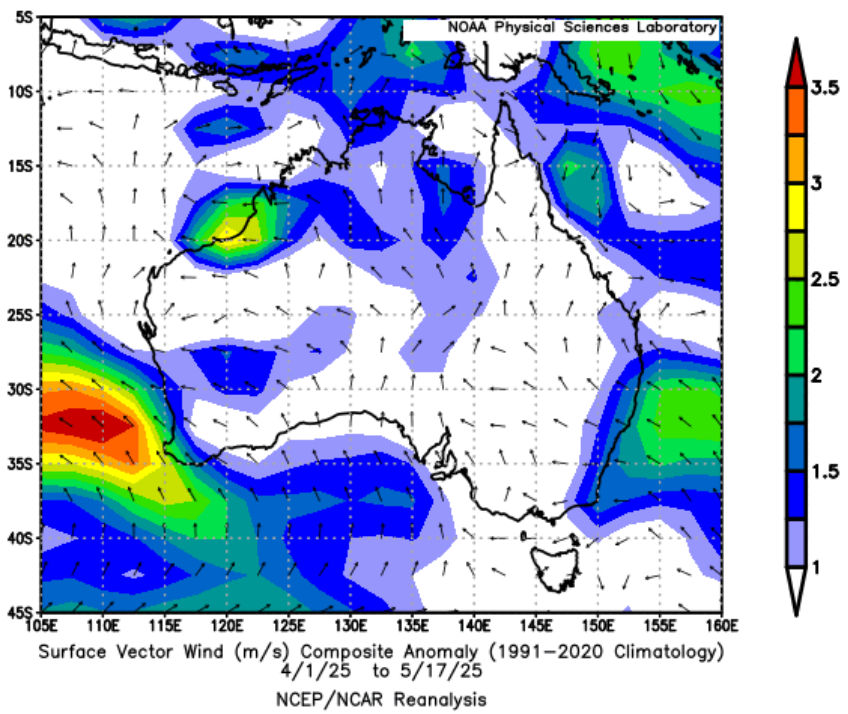


Rain Anomaly

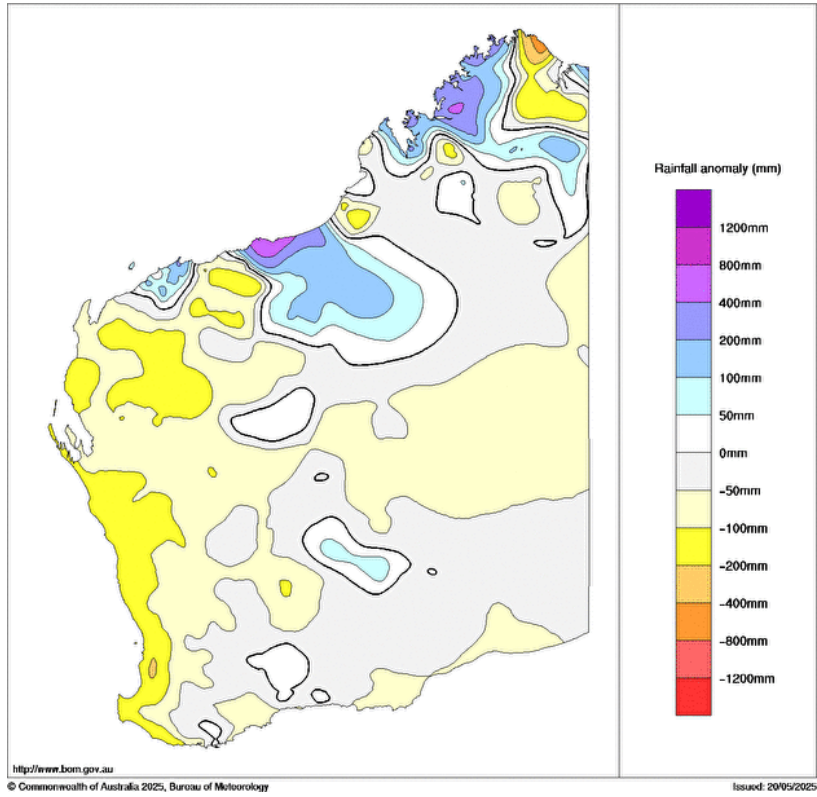
2025 Autumn Analysis



Pressure Anomaly



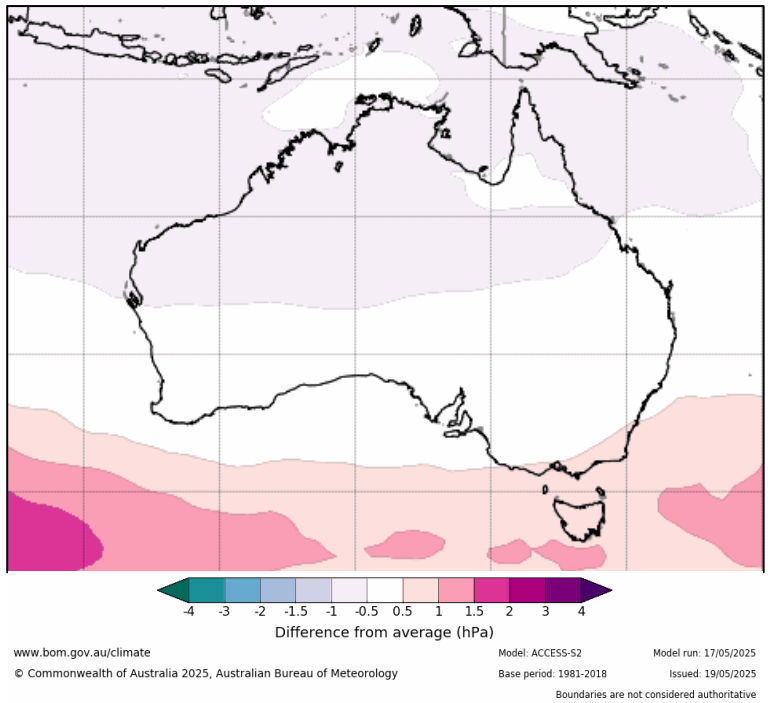
Wind Anomaly



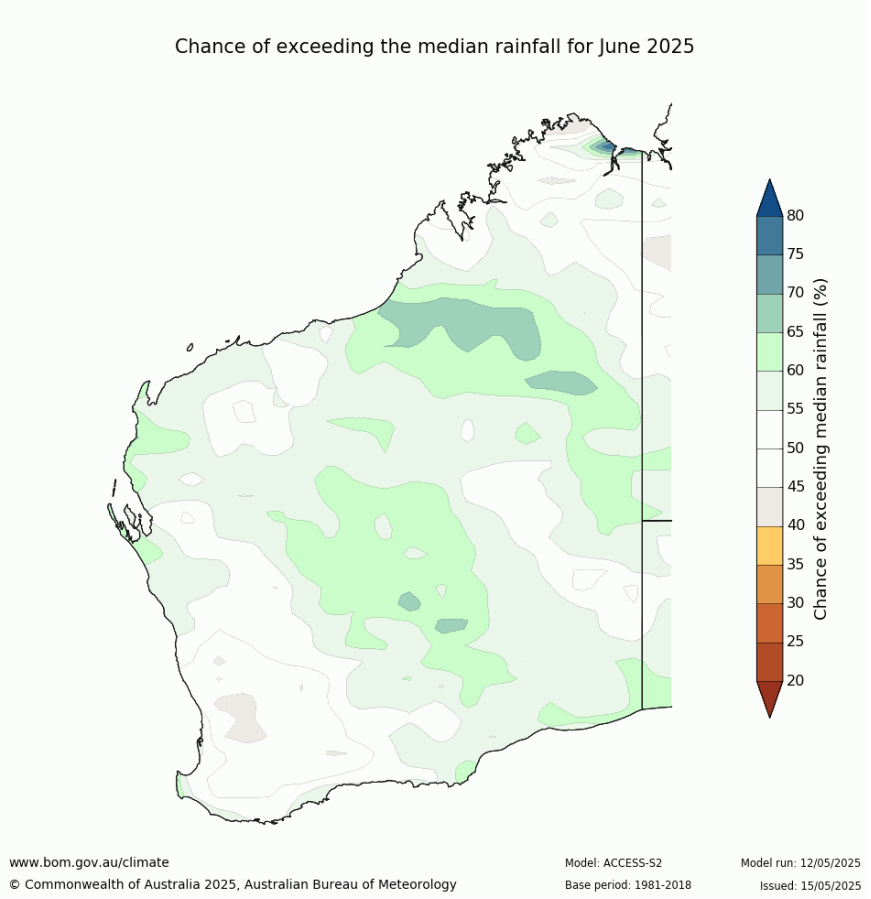
Rain Anomaly
(Year to date)

OFFICIAL

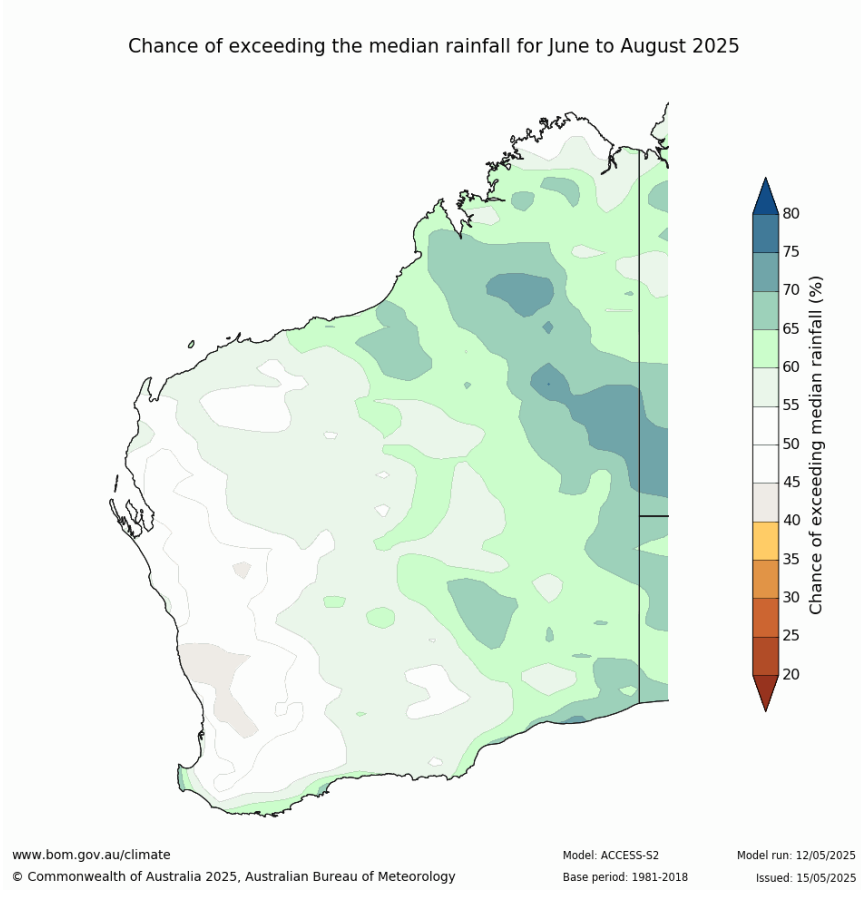
2025 Winter Forecast



Pressure Anomaly



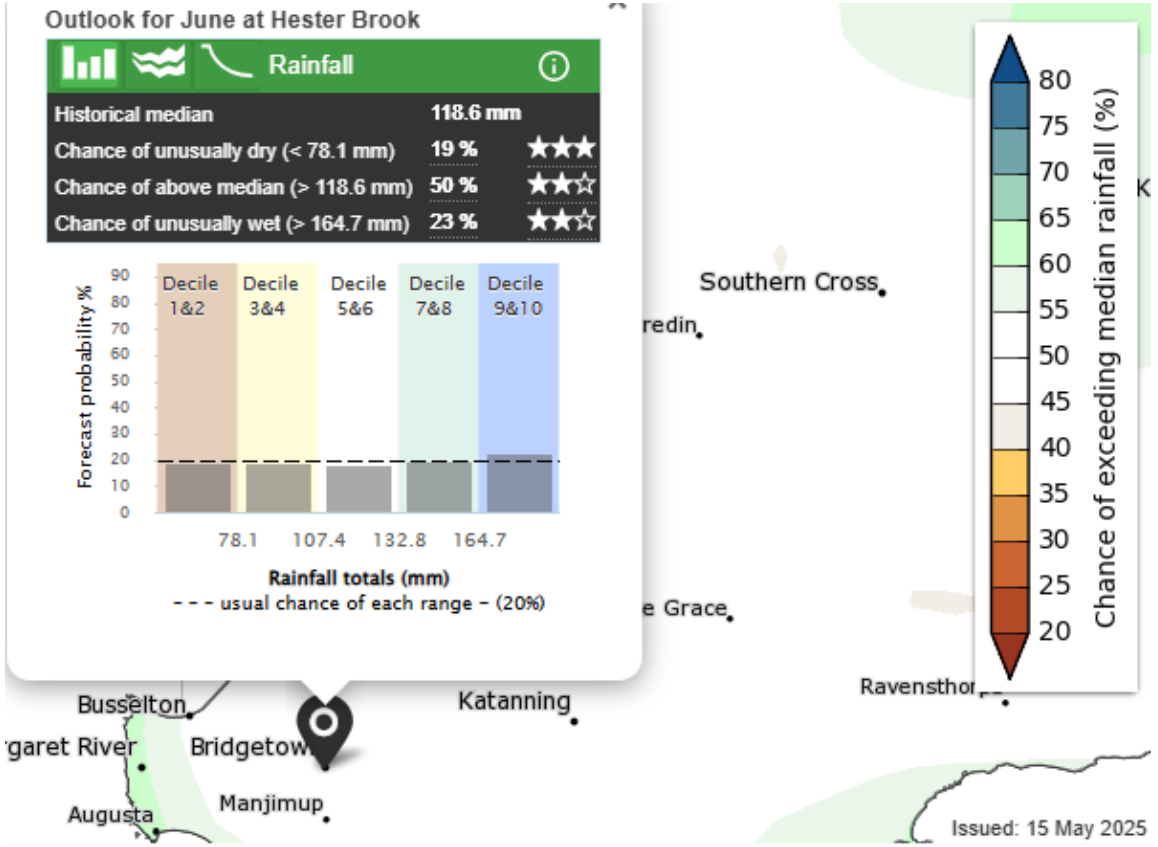
June Rainfall
Probability above average

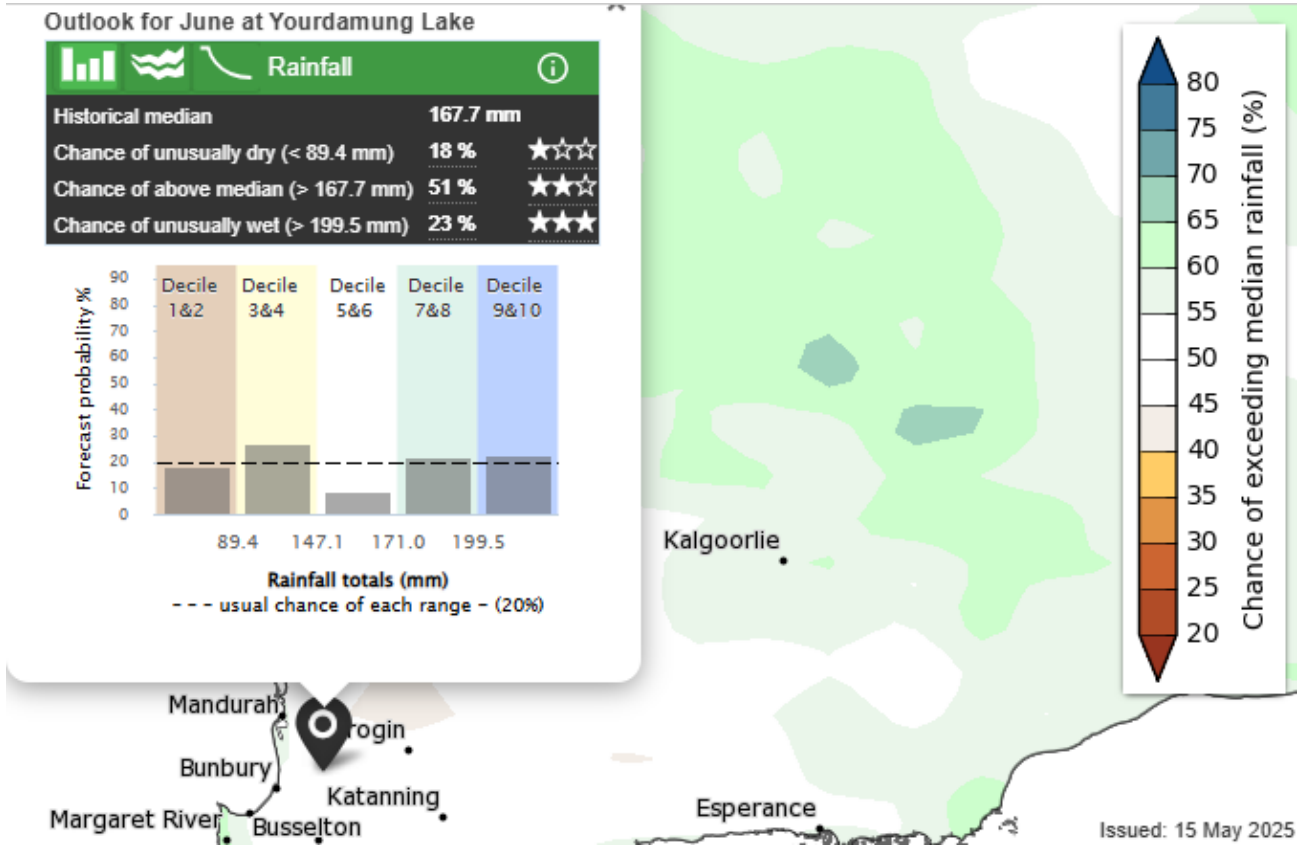


June - Aug Rainfall
Probability above average

OFFICIAL

Interpreting Forecast Winter Rain





http://www.bom.gov.au/climate/outlooks/

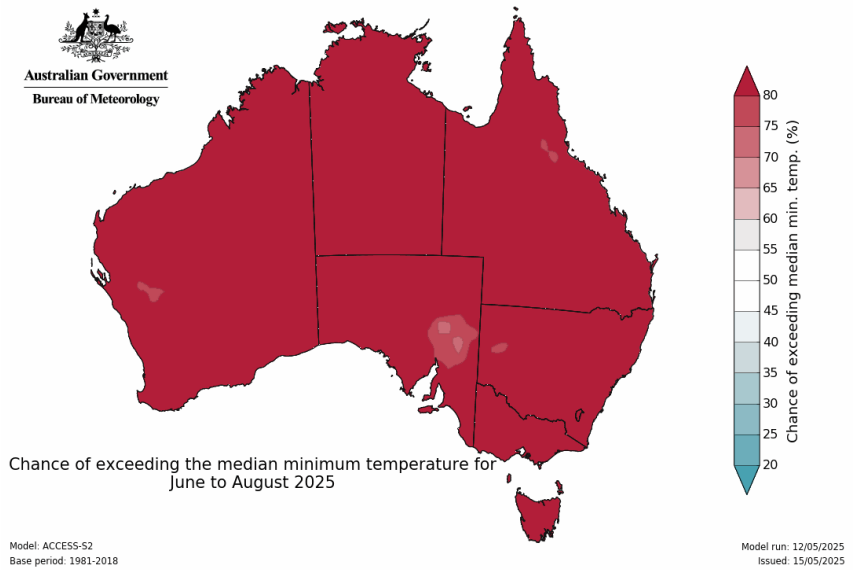
OFFICIAL

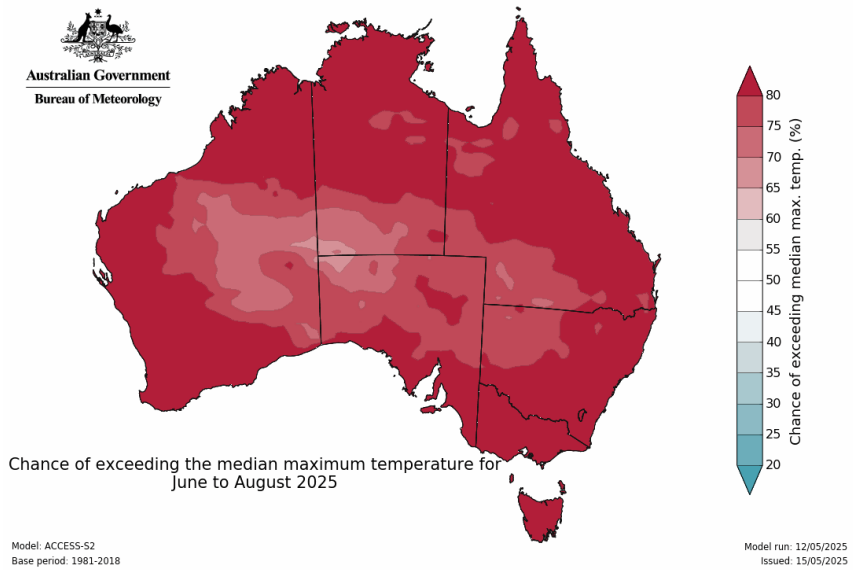
2025 Winter Forecast Max/Min Temperature

Min Temperature

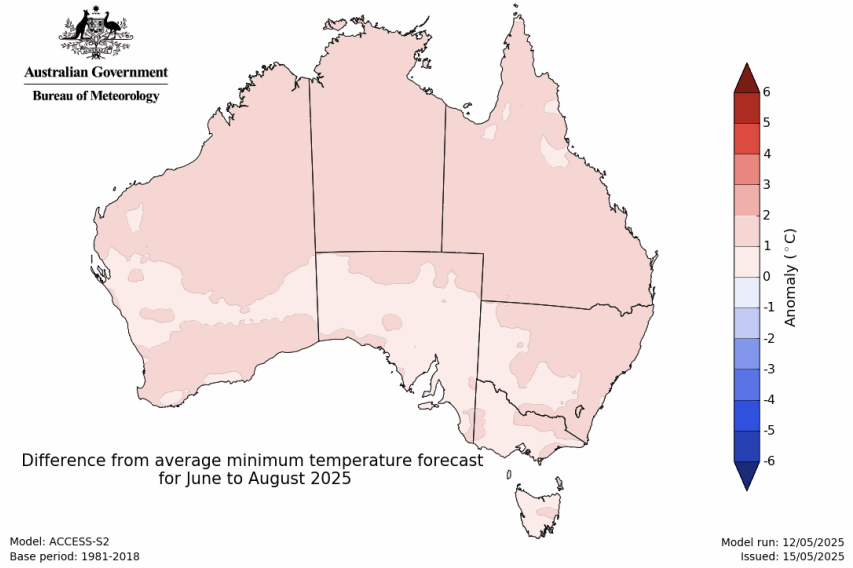
Max Temperature

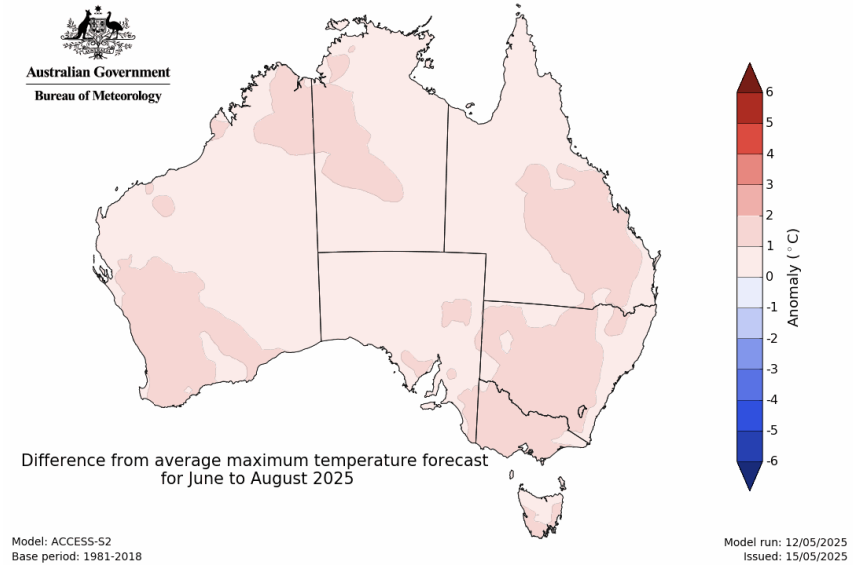
Chance above Median





Anomaly





The Bureau of Meteorology

Part 2: Winter-Season Hazards

Tornadoes and Storm Damage Events

- May 10th 2024 – Bunbury Tornado
- June 1st 2024 – Bunbury Storm (Downburst)
- July 22nd 2024 – Roleystone Storm

Storm Surge

- July 6th 2024 – Storm Surge (inundation and coastal erosion)

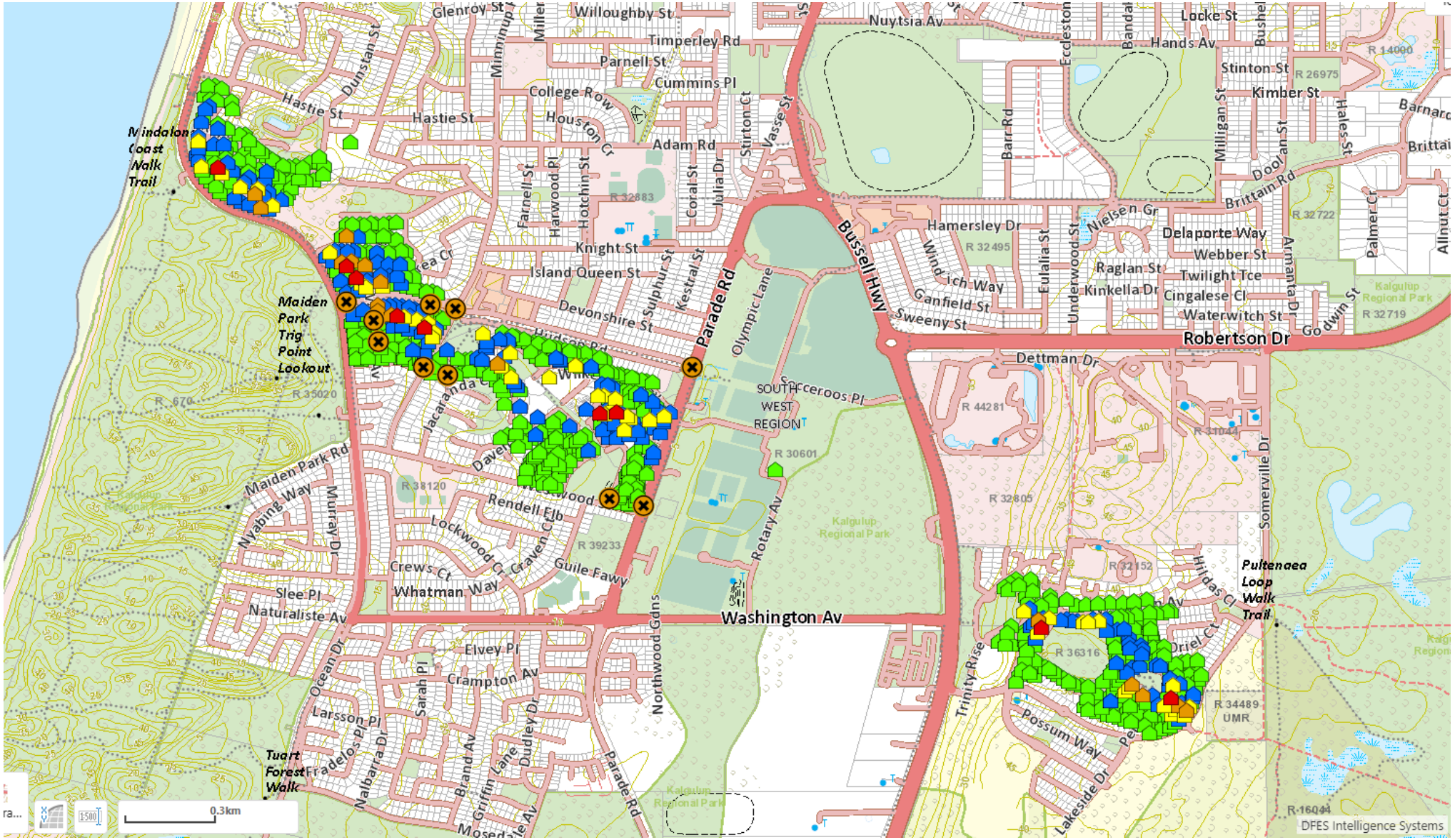
The Bureau of Meteorology

Case Event – Bunbury Tornado 10th May 2024

General Tornado info for SW WA

- Many thunderstorms carry with them a slight chance of tornado development.
- Predicting tornadoes is extremely difficult and specific warnings are only issued if signs consistent with tornadoes occurring are visible on radar or direct observations are received.
- The majority of cool season tornadoes occur in the absence of a strong cold front or deep low pressure system.
- Typical tornado paths are around 10-100 metres wide and several kilometres long, and often last as little as half an hour.
- In the 60's and 70's an average of 1 to 2 winter tornadoes were reported each year, but with the spread of population along the coast we've seen the average number of tornado reports increase to between 5 and 6 per year (2 to 3 in the Perth Metropolitan area).
- The actual number of tornadoes is likely to be higher still. Tornadoes often occur in outbreaks so that every few years we see 4 or 5 tornadoes in a single day such as on 14 July 2014 when 5 tornadoes occurred.

Bunbury Tornado – May 10th 2024



OFFICIAL

Bunbury Tornado – Building damage

Bunbury Tornado
Vegetation damage

The Bureau of Meteorology

Case Event – Bunbury Storm (Downburst) 1st June 2024

General Thunderstorm info

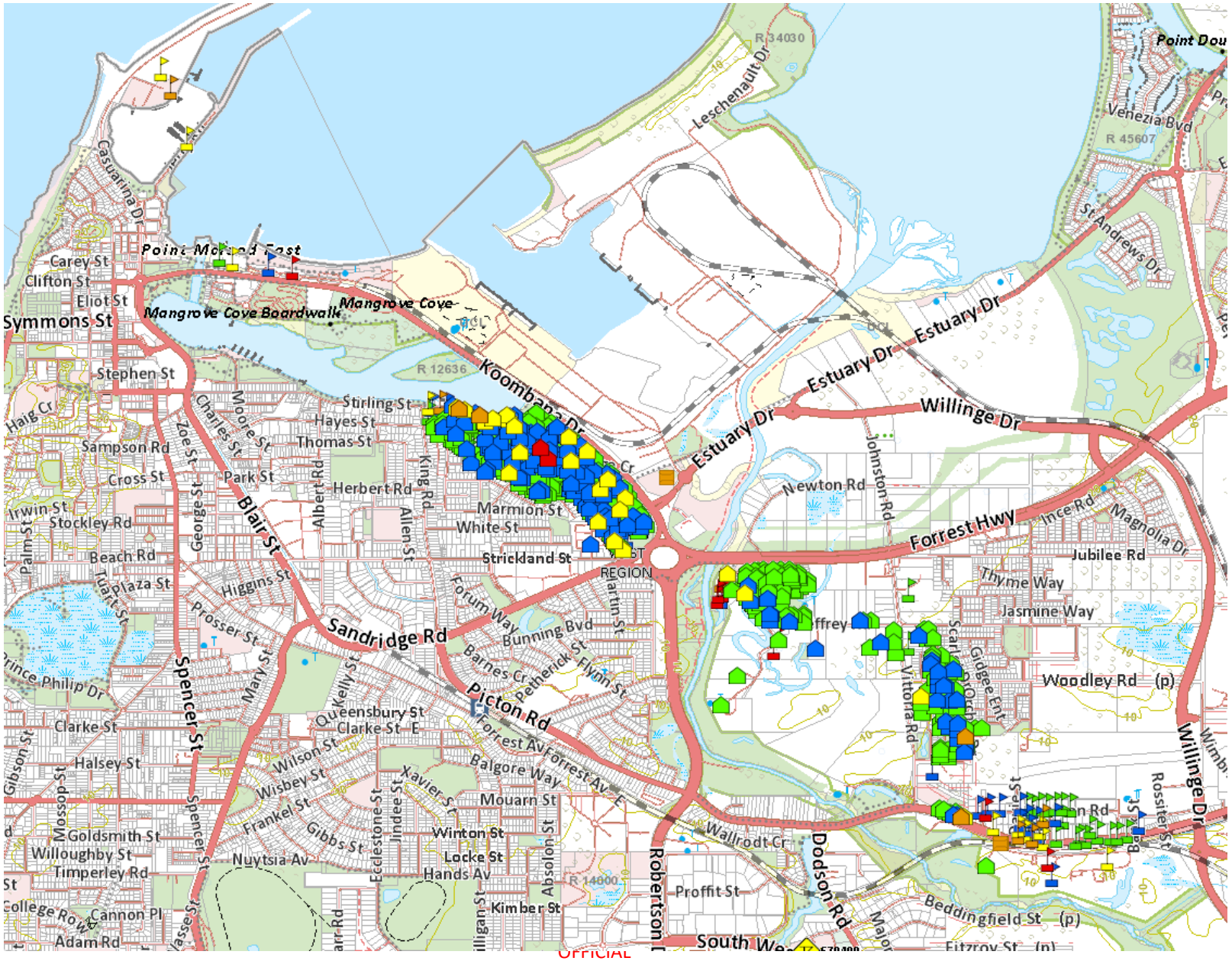
- The gusty winds that come from thunderstorms are called “downbursts”.
- Downbursts result from rain dragging down air with it, hitting the ground and “splashing” in all directions.
- The strongest winds from downbursts occur when there are strong winds aloft that continue their horizontal momentum when hitting the ground. Also along the leading edge of a cell as the “splash” is moving in the same direction as the storm.

This Storm Event

- Two storms, each with a downburst, hit Bunbury at the same time, with their apex moving through northern Bunbury (Koombana)

OFFICIAL

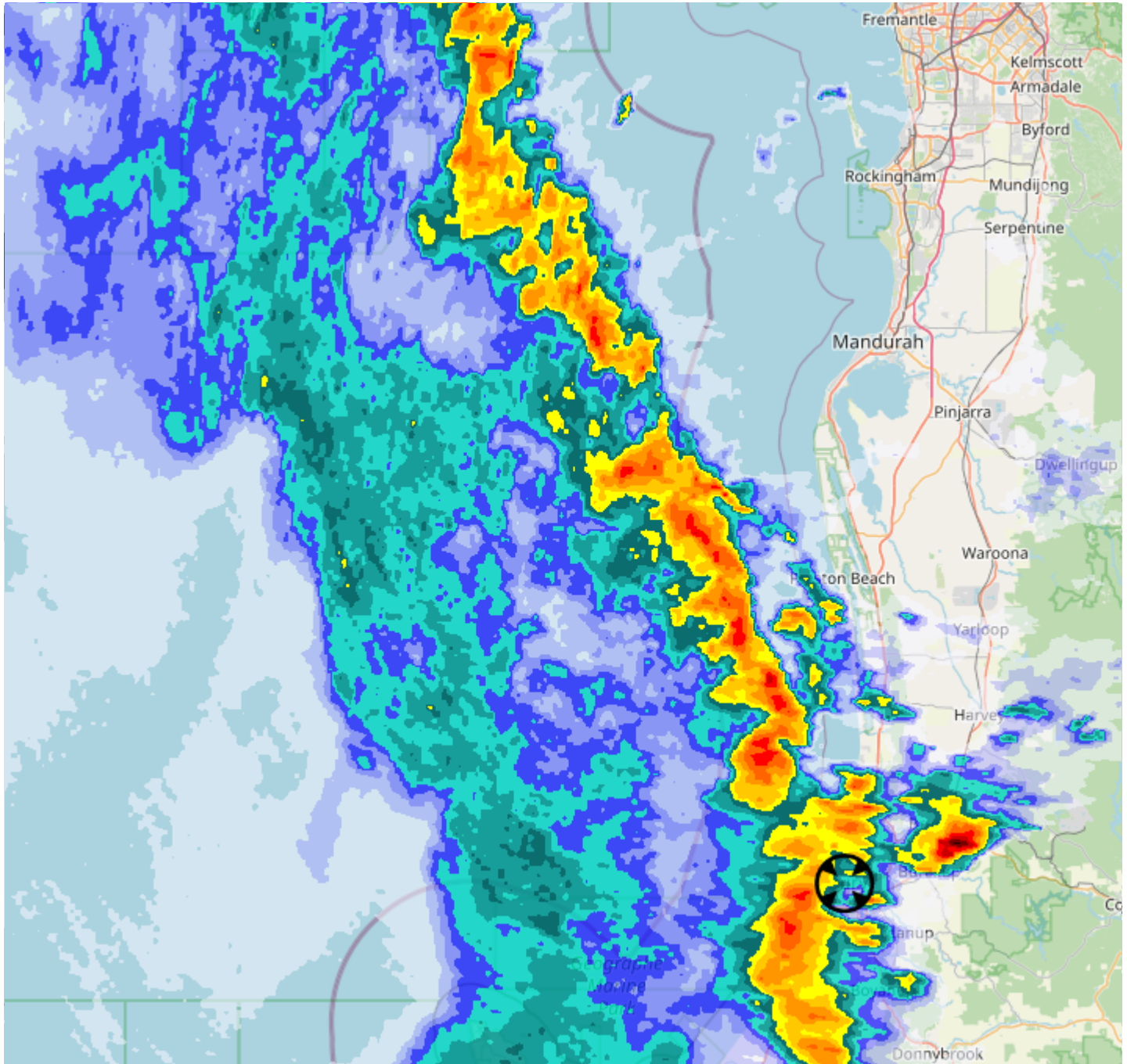
Bunbury Storm event – 1st June 2024



OFFICIAL

OFFICIAL

Radar




Jetty Rd LPR

The Bureau of Meteorology

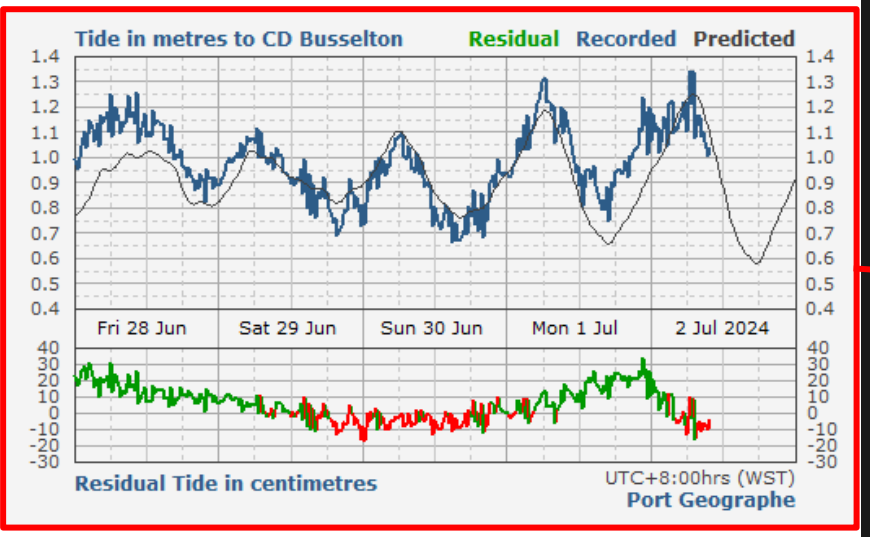
Case Event:

Roleystone Storm 22nd July 2024

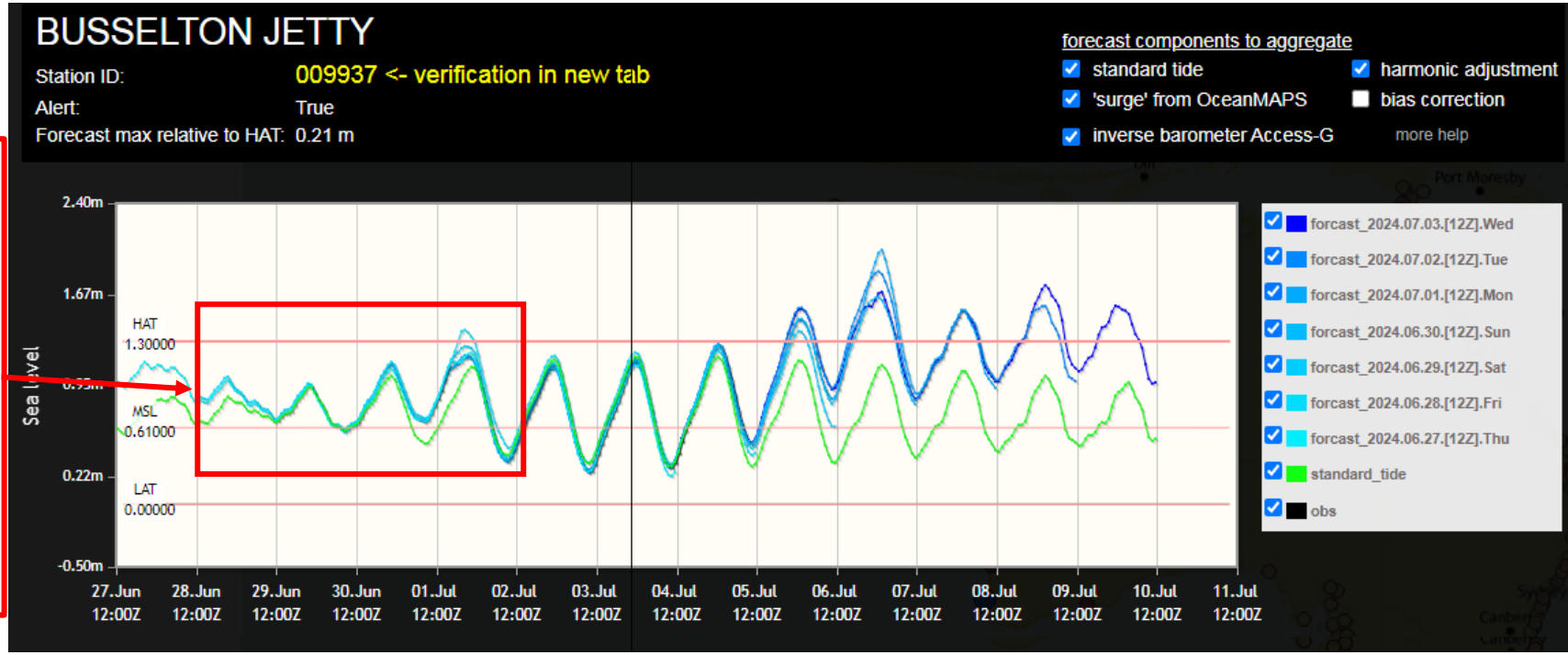
Notable factors:

- Mostly a rain event, some wind
- Isolated damage
- Shallow roots
- Sodden soils

Case Event – Busselton Storm Surge 6-7th July 2024



Tide height from DoT

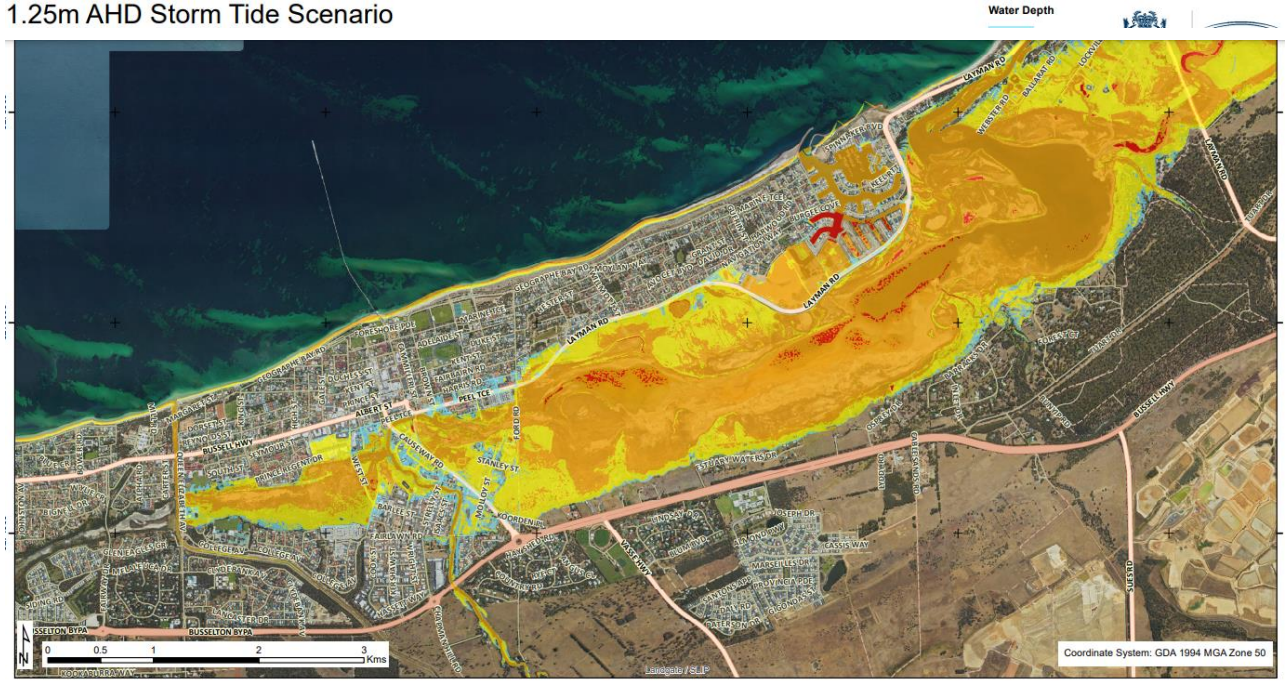


Forecast from BoM systems (Internal)

Storm Surge
DFES Inundation Mapping

Height above HAT (m)	HAT	-0.75	-0.50	-0.25	0.00	0.25	0.50	0.75	1.00	1.25	1.50
Port Geographe	CHD	0.69	0.94	1.19	1.44	1.69	1.94	2.19	2.44	2.69	2.94
	AHD	0.01	0.26	0.51	0.76	1.01	1.26	1.51	1.76	2.01	2.26

East Busselton
1.25m AHD Storm Tide Scenario



East Busselton
1.75m AHD Storm Tide Scenario

Storm Surge – Inundation

Storm Surge – Coastal Erosion

The Bureau of Meteorology

Thank You!