

Review of Namoi Air Quality

May 2017 – July 2018

Namoi Region Air Quality Advisory Committee, 6 September 2018, Gunnedah

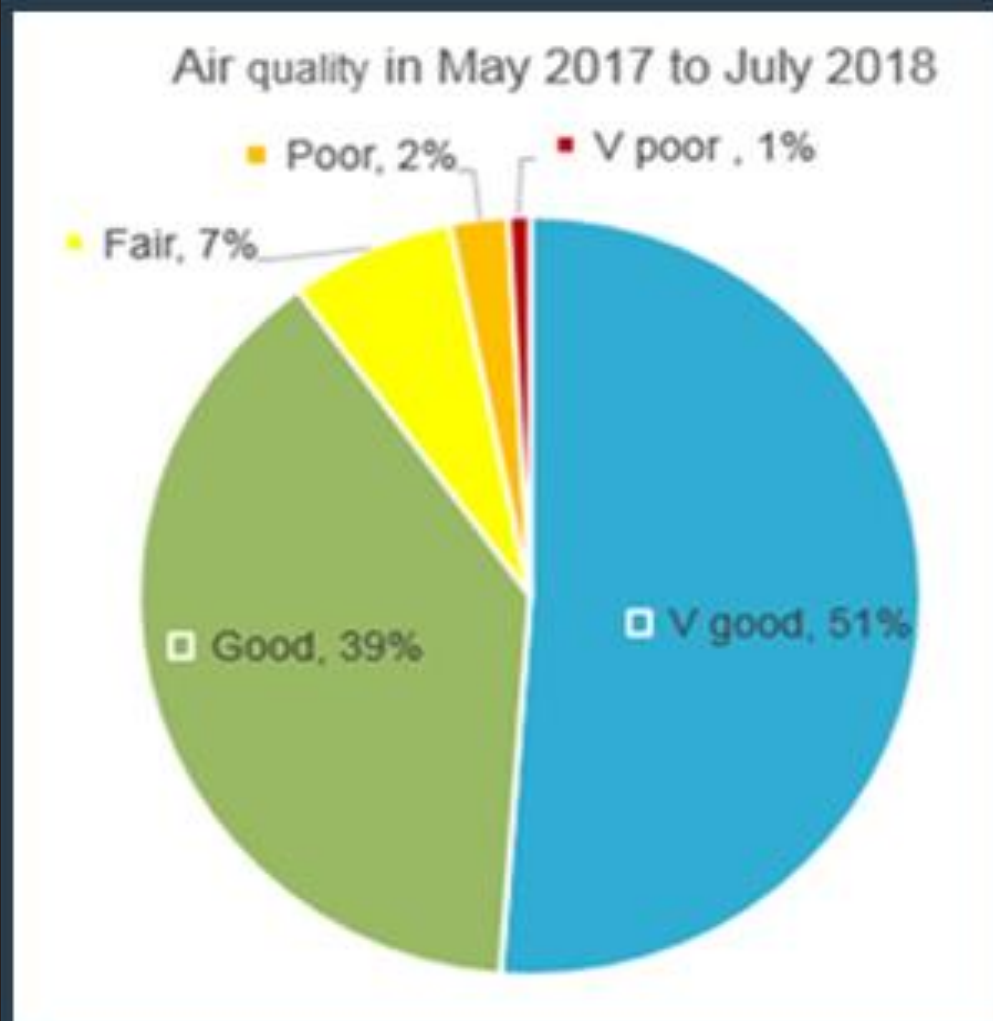


Overview

1. Air Quality Index, Namoi May 2017 to July 2018
2. PM₁₀ and PM_{2.5} trends
3. Poor air quality events:
 - Regional PM₁₀ on 15 April 2018
 - Gunnedah PM_{2.5} on 14-21 July 2018

Air Quality Index: Namoi Region, May 2017 to July 2018

90%
Very Good
to
Good



AQI Category and Values	Air Pollution Level
Very Good 0-33	0-33% of national standard
Good 34-66	34-66% of national standard
Fair 67-99	67-99% of national standard
Poor 100-149	100-149% of national standard
Very poor 150-200	150-200% of national standard
Hazardous 200+	≥ 200% of national standard

Days above benchmark concentrations

Station Type	Station	PM ₁₀ daily [50 µg/m ³ benchmark]	PM _{2.5} daily [25 µg/m ³ benchmark]	NO ₂ hourly [12 pphm benchmark]	O ₃ hourly [10 pphm benchmark]
OEH	Narrabri	1	0	-	-
OEH	Gunnedah	1	4	0	0
OEH	Tamworth	3	0	-	-
Industry	Maules Creek	1	0	-	-
Industry	Wil-gai	5	0	-	-
Industry	Breeza	1	0	-	-
Industry	Werris Creek	1	0	-	-

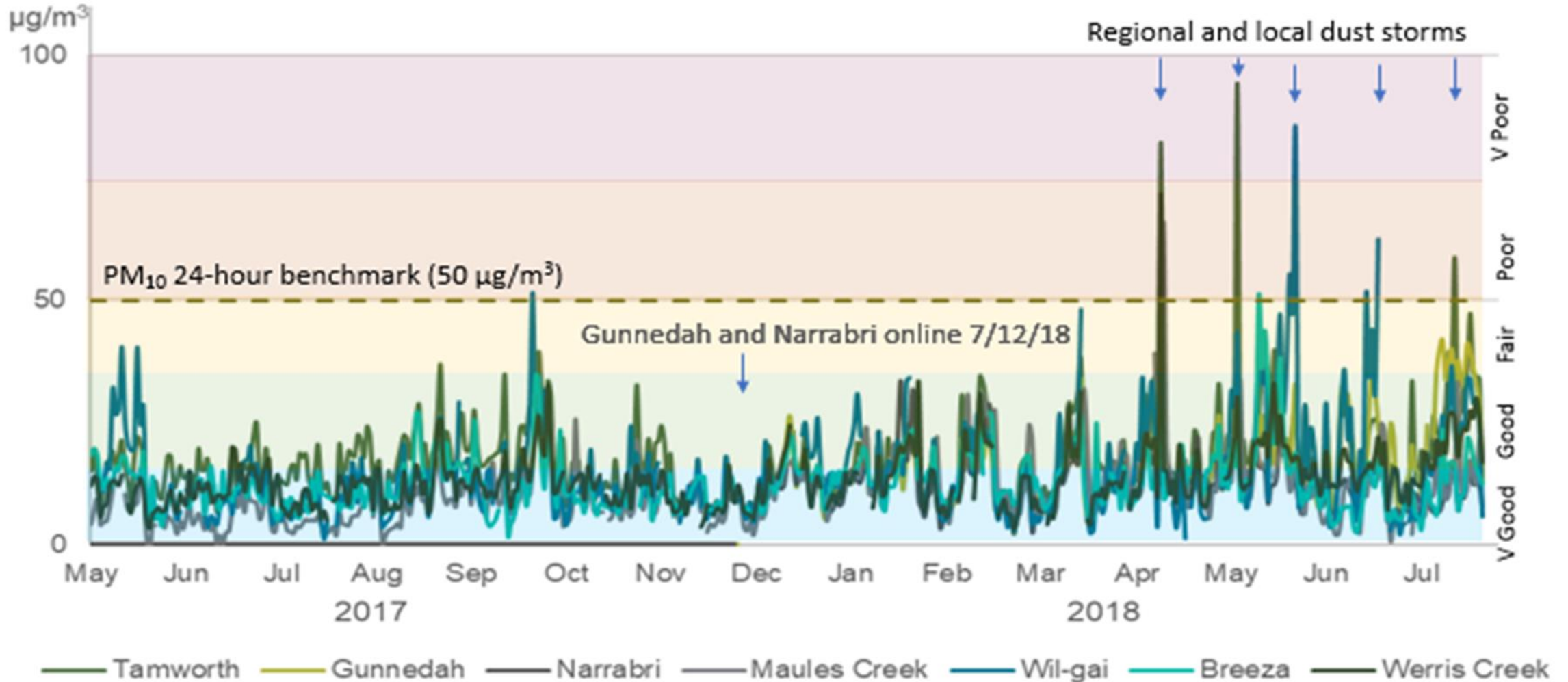
- = not monitored,

µg/m³ = microgram per cubic metre

pphm = parts per hundred million by volume (i.e. parts of pollutant per hundred million parts of air)

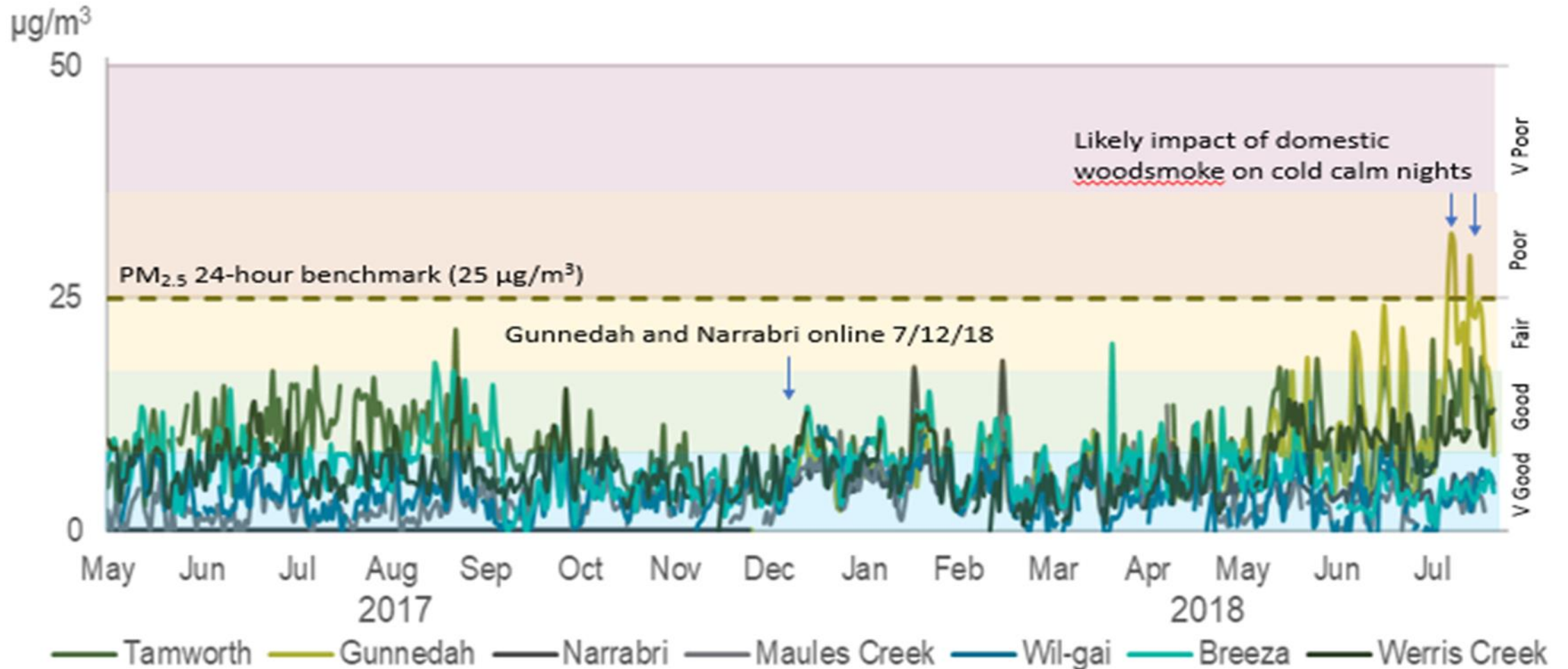
Daily average PM₁₀ May 2017 to July 2018

Very Good to Good



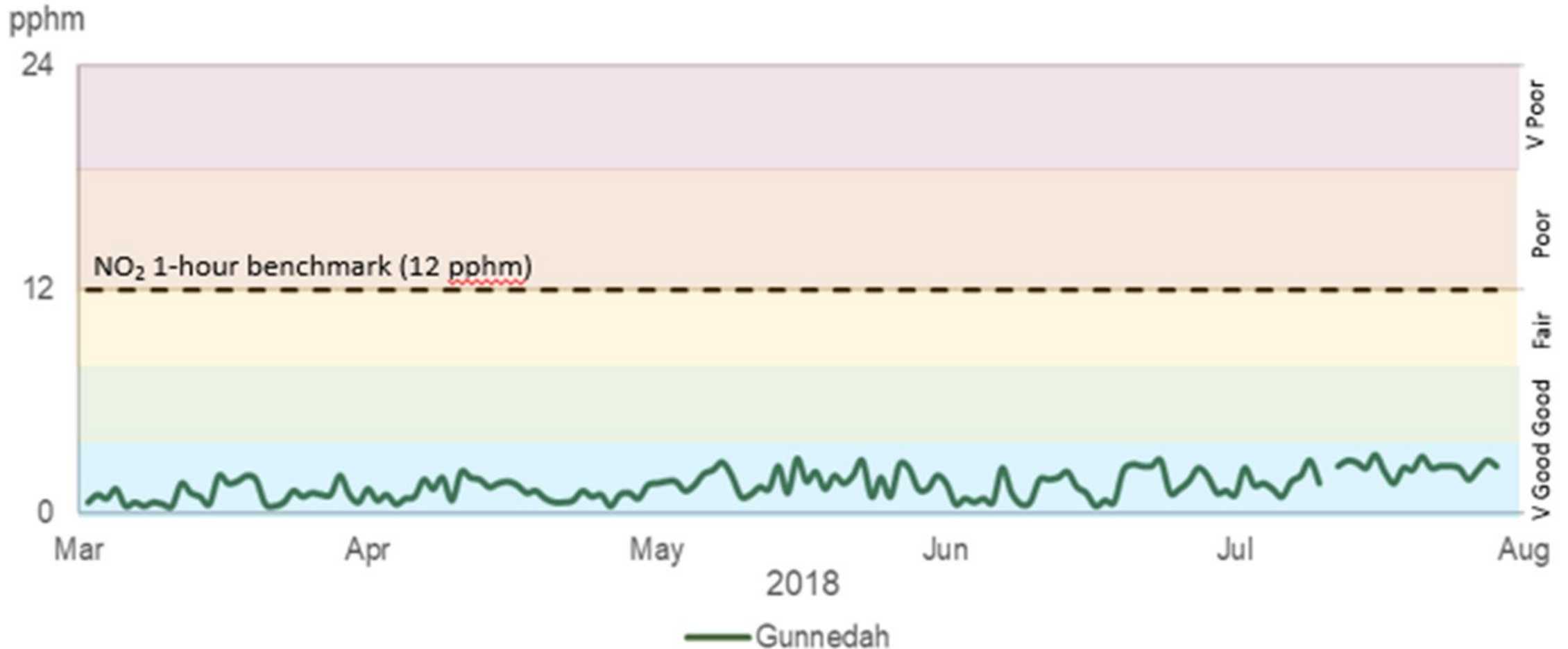
Daily average PM_{2.5} May 2017 to July 2018

Very Good to Good



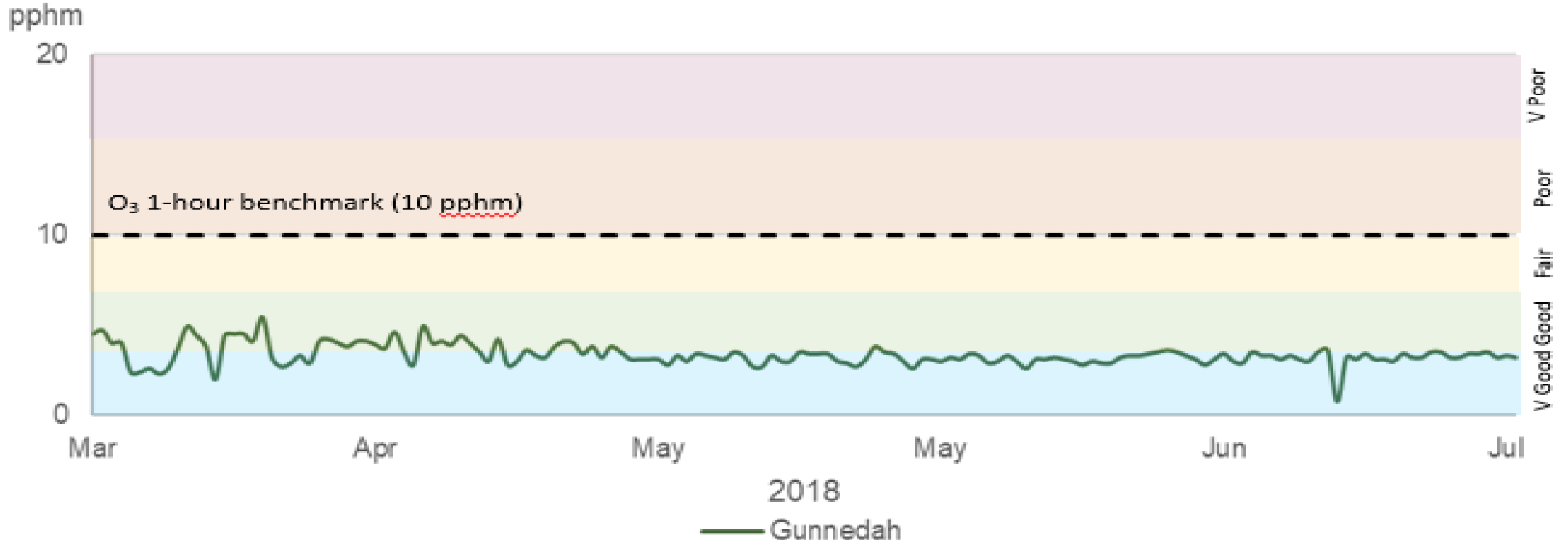
Daily Maximum 1-hour Nitrogen Dioxide Gunnedah, March to July 2018

Very Good



Daily Maximum 1-hour Ozone Gunnedah, March to July 2018

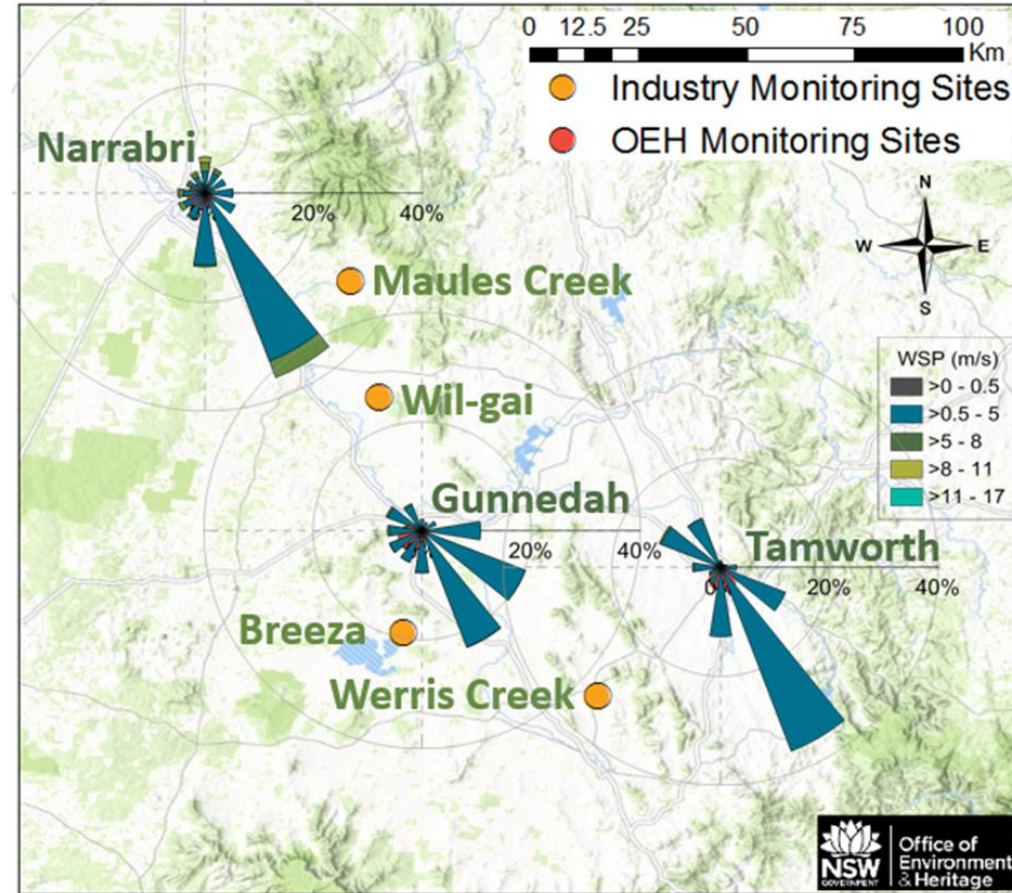
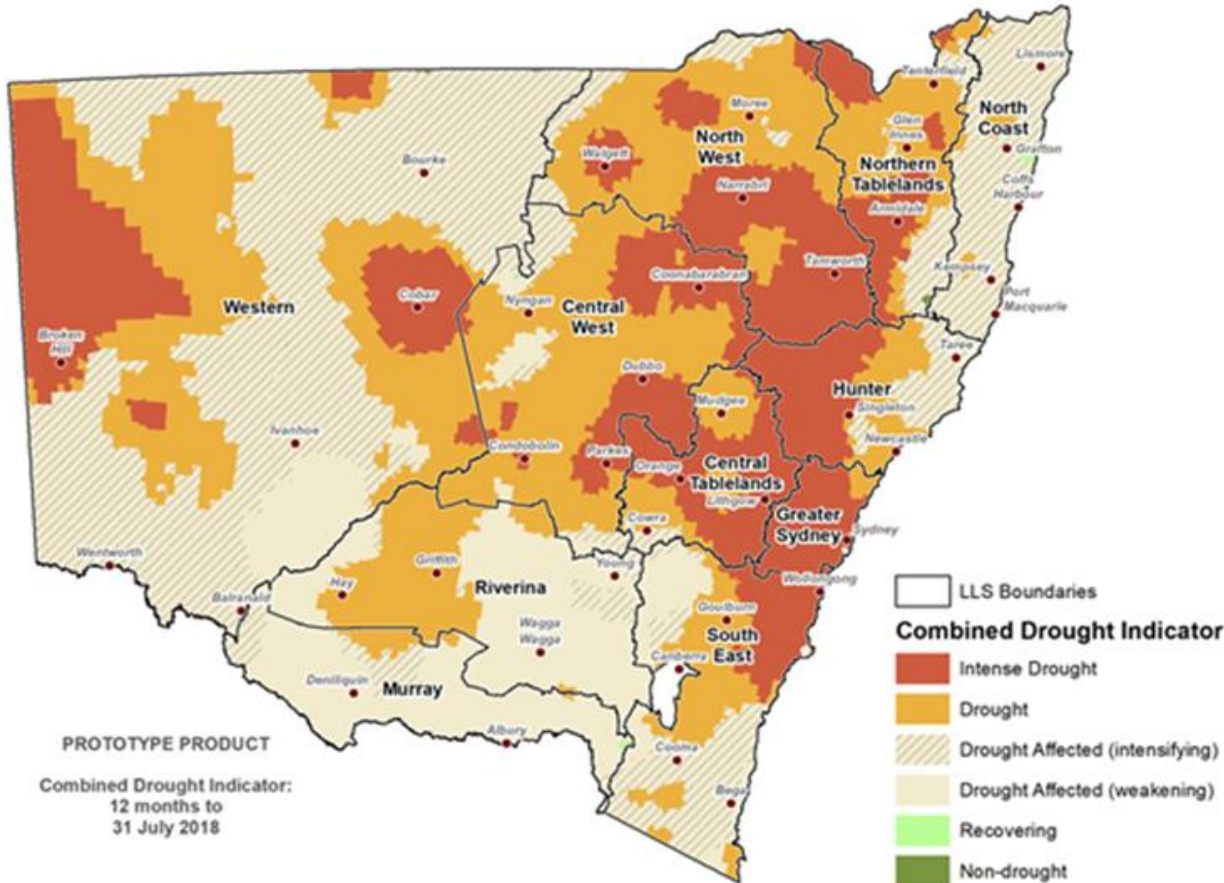
Very Good to Good



Seasonal Weather and Climate

Rainfall very much below average
 Maximum temperatures highest on record
 Intense Drought

South-easterly winds

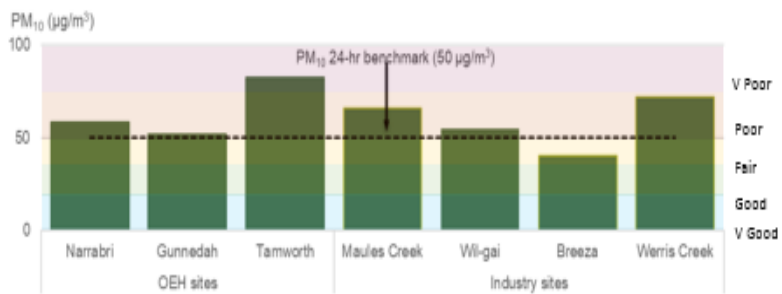


Regional Dust Storm 15 April 2018

24-hour PM₁₀ **Poor** to **Very Poor**

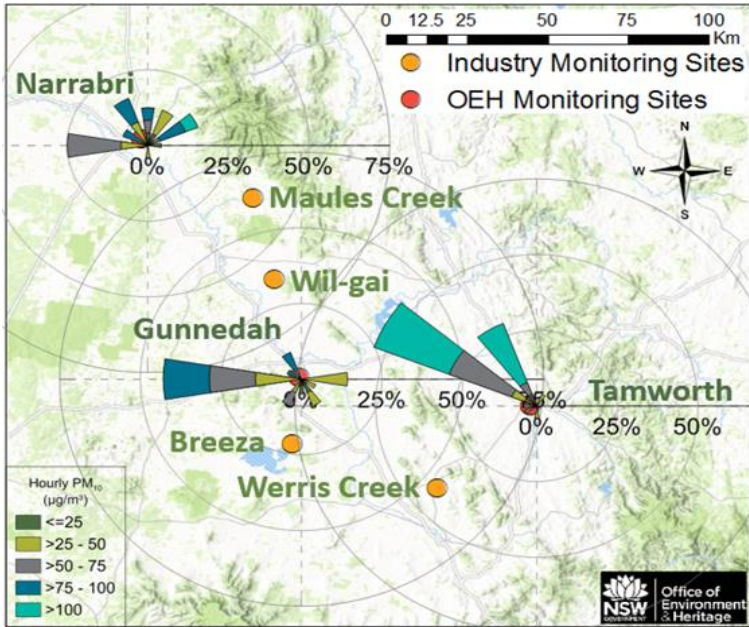
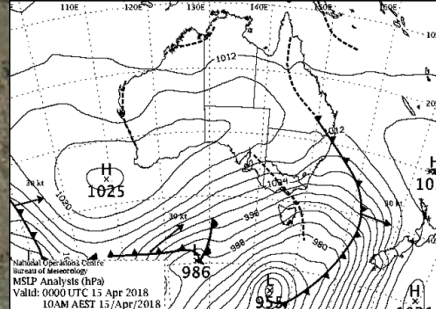
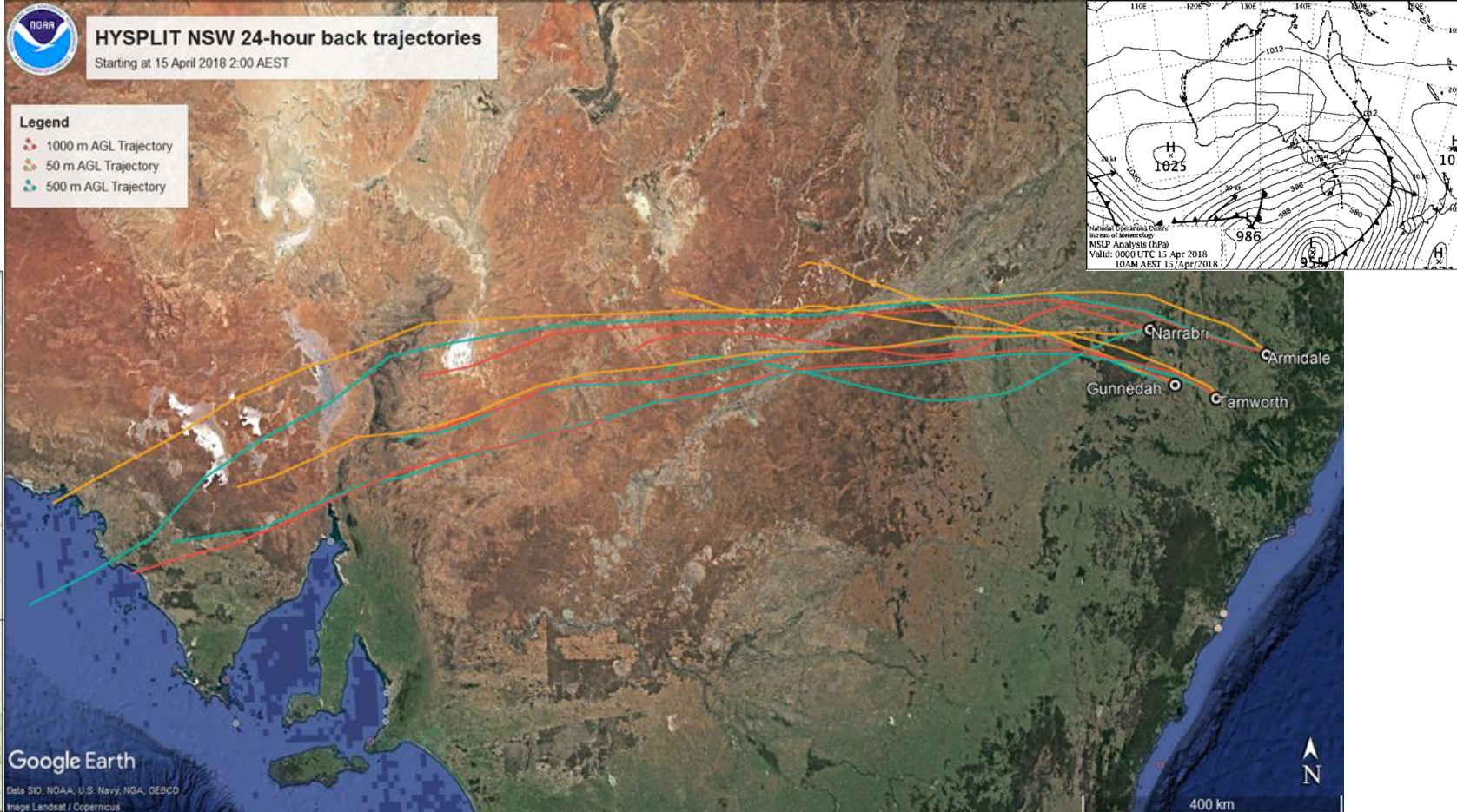
Westerly winds

Dust transported long-range with cold front



HYSPLIT NSW 24-hour back trajectories
Starting at 15 April 2018 2:00 AEST

- Legend**
- 1000 m AGL Trajectory
 - 50 m AGL Trajectory
 - 500 m AGL Trajectory

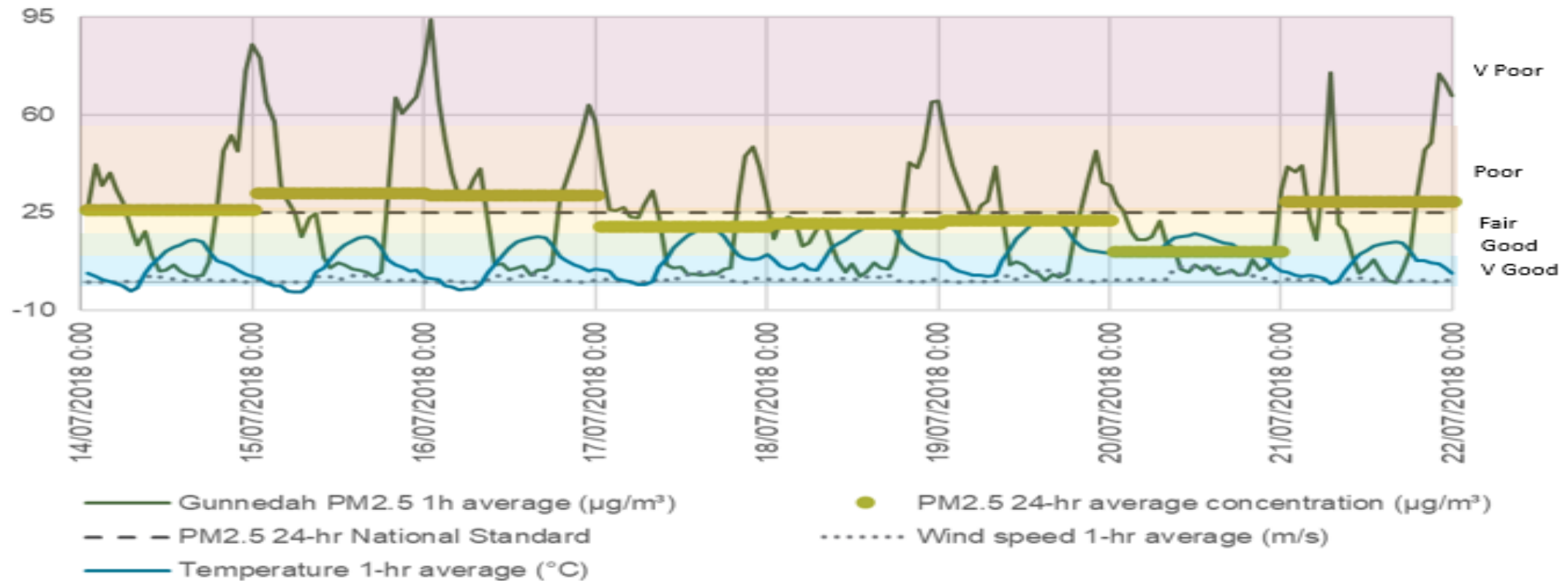


Gunnedah 14-21 July 2018

24-hour PM_{2.5} Fair to Poor

Peak 1-hour PM_{2.5} overnight

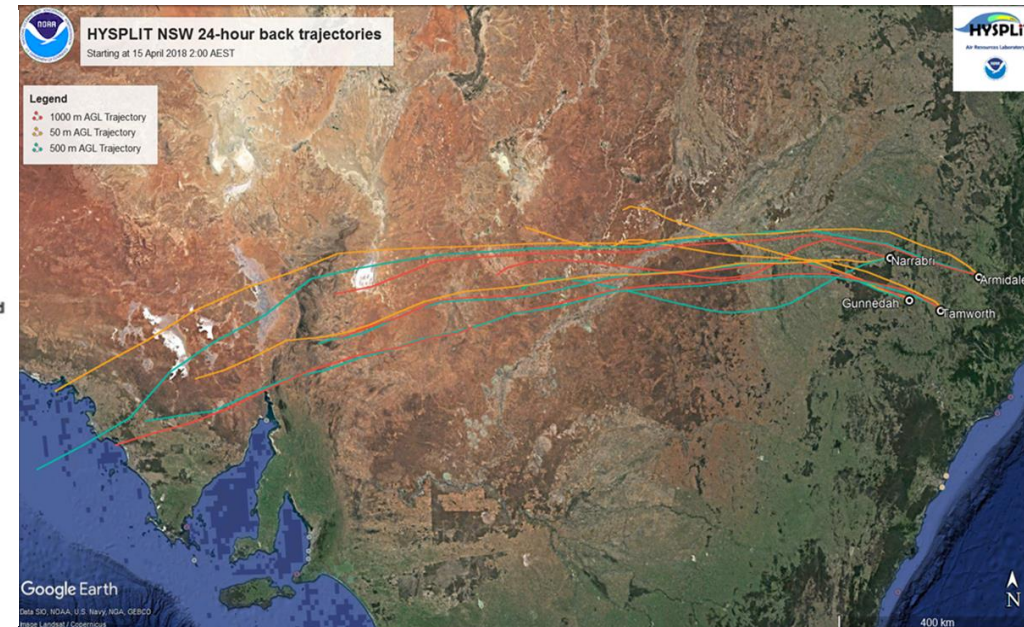
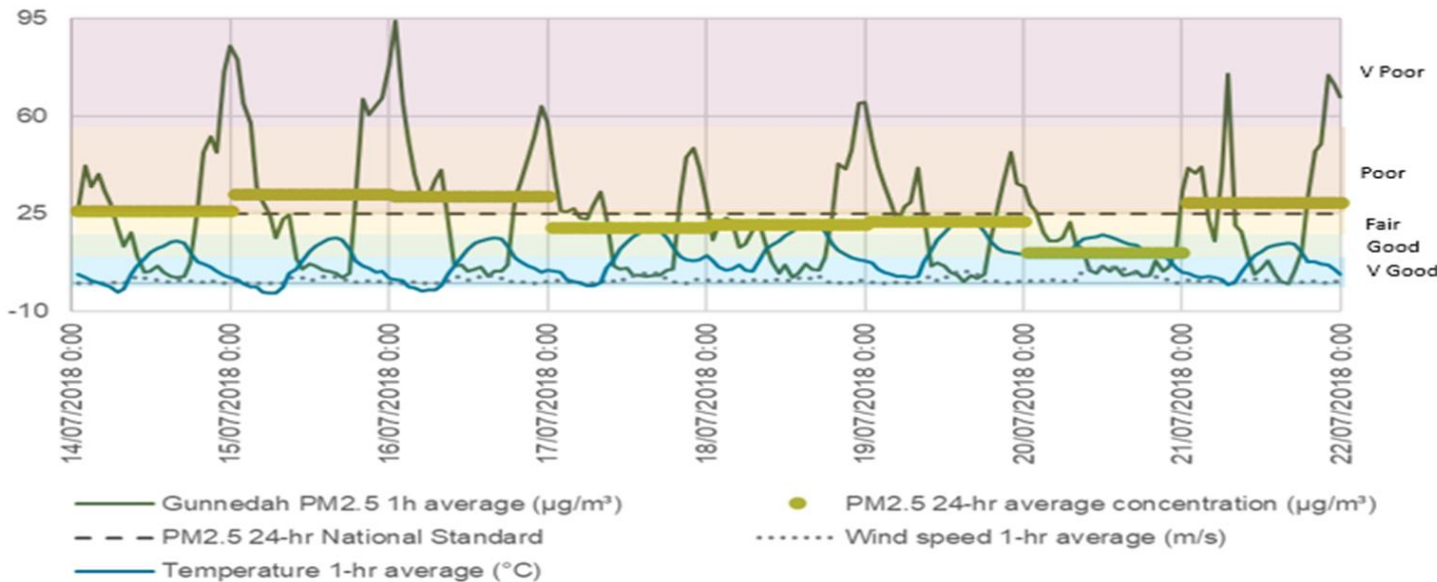
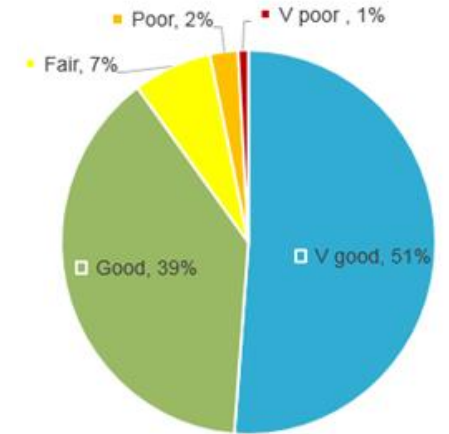
Very low temperatures and wind speeds overnight



Summary

90% **Very Good** to **Good**
Local and regional sources affect air quality

Air quality in May 2017 to July 2018





Community reporting

Online Air Quality Index and data Online Newsletter

Air Quality Monitoring Network
May 2017 to July 2018

Air quality monitoring in the Namoi/North-West Slopes Region
Air quality in the NSW Namoi/North-West Slopes was generally good from May 2017 to July 2018. Seven air quality monitoring stations currently operate in the region (Figure 1).

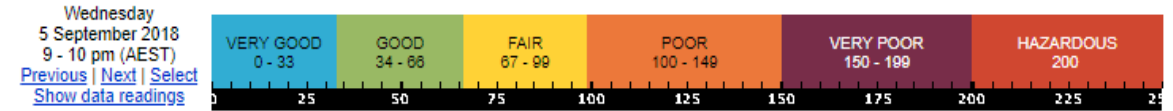
Figure 1 Air quality monitoring stations in the Namoi/North-west Slopes Region
The NSW Office of Environment and Heritage (OEH) operates the stations at Tamworth (since October 2000), Gunnedah and Narrabri (both since December 2017). Data are reported in near-real time on the OEH's web site (<https://www.environment.nsw.gov.au/airqualitydata.htm>). Industries currently operate the monitoring stations at Mauls Creek, Wilgal, Breeza and Werris Creek (since July 2015). Data are reported weekly on the NSW Environment Protection Authority website (<https://www.epa.nsw.gov.au/your-environment/air/regional-air-quality/namoi-air-quality-monitoring-project/>).

All stations continuously monitor airborne particle matter, measured as PM₁₀ and PM_{2.5} (particles with sizes less than or equal to 10 and 2.5 micrometres, respectively). The Gunnedah station continuously monitors gaseous air pollutants, nitrogen dioxide (NO₂) and ozone (O₃).

Days above benchmark concentrations¹
The region experienced nine days over the PM₁₀ benchmark and four days over the PM_{2.5} benchmark. Table 1 shows all sites recorded at least one day with PM₁₀ levels above the daily benchmark. Gunnedah recorded four days with PM_{2.5} levels above the daily benchmark (see below).

Station Type	Station	PM ₁₀ daily [50 µg/m ³ benchmark]	PM _{2.5} daily [25 µg/m ³ benchmark]	NO ₂ hourly [12 ppb/m benchmark]	O ₃ hourly [116 ppb/m benchmark]
OEH	Narrabri	1	0	-	-
OEH	Gunnedah	1	4	0	0
OEH	Tamworth	3	0	-	-
Industry	Mauls Creek	1	0	-	-
Industry	Wilgal	5	0	-	-
Industry	Breeza	1	0	-	-
Industry	Werris Creek	1	0	-	-

¹ The National Environment Protection (Ambient Air Quality) Measure (ANZECC) sets national standards for urban air pollutants.
Air quality in the North-West Slopes, May 2017 – July 2018



Pollutants		Ozone	Ozone	Nitrogen dioxide	Visibility	Carbon monoxide	Sulfur dioxide	Particles	Particles	Site AQI	Regional AQI
		O3	O3	NO2	NEPH	CO	SO2	PM10	PM2.5		
Averaging Periods		1-hour average	rolling 4-hour average	1-hour average	1-hour average	rolling 8-hour average	1-hour average	rolling 24-hour average	rolling 24-hour average	highest level at the site	highest level for the region
Sydney East	Randwick										35
	Rozelle	6	11	20	8	0	0	22	25	25	
	Lindfield										
	Chullora	1	1	24	35	4	1	33	25	35	
	Earlwood	1	5	17	26			27	20	27	
Sydney North-west	Macquarie Park	1	6	8	18	1	0	18	20	20	
	Parramatta North										
	Richmond										
	St Marys										
Sydney South-west	Vineyard										
	Prospect										
	Bargo										54
	Bringelly				13			54	19	54	
	Camden	1	8	13	11	1		16	19	19	
Campbelltown West	0	5	30	11	3	1	17	23	30		
Liverpool	1	1	20	25	6	1	35	33	35		
Illawarra	Oakdale	17	26	4	6					26	
	Wollongong				15			23	19	23	23
	Kembla Grange				8			22		22	
Albion Park Sth	3	12	9	10		0	17	22	22		
Lower Hunter	Wallsend	1	10	16	15		0	17	15	17	32
	Newcastle	16	26	9	19	4	0	28	12	28	
	Beresfield	1	16	19	10		1	16	32	32	
Central Coast	Wyong	0	9	9	13	1	0	11	8	13	13
Central Tablelands	Bathurst										
Northern Tablelands	Armidale				5			8	12	12	12
	Gunnedah	23	30	1				11	11	30	30
North-west Slopes	Narrabri							5	5	5	
	Tamworth							9		9	
South-west Slopes	Albury										27
	Wagga Wagga Nth							27	17	27	
Upper Hunter - Muswellbrook	Muswellbrook				12		1	29	16	29	29
Upper Hunter - Singleton	Singleton				5		0	16	20	20	20

NSW ALERTS **SYDNEY FORECAST**

Updated hourly **GOOD** Updated daily at 4:00pm

Thu 6 Sep 2018

Gaps indicate that an instrument was not online for that period OR an average could not be calculated as there were not enough valid hourly data values OR that a pollutant is not measured at the site. Data from monitoring sites is collected, stored and shown in reports using Australian Eastern Standard time (AEST). Normally data for any hour should be available approximately 30 minutes later. However, during daylight saving, data is still collected and stored in AEST and will be presented with an apparent 90 minutes delay.



Questions?

Thank you