

Weather for Sailors

The Fundamentals-Enclosed Waters



House rules & explanation

The sessions will go for approximately 2 hours including presentations, chats and exercises

There will be a 10 min break in the middle

Teams – protocols and tools

Chat – general chit-chat. Attendee participation is very much encouraged



Q&A – specific Questions & Answers

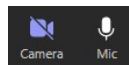


○Moderator – might not raise a question to the presenter if they know the topic is coming up

Raise hand



Audio and Video sections



Polls, Quiz's



Select “View” the “Focus on content” will provide a better experience





Greg Patten



Simon Dryden



Ray Shaw

Weather for Sailors

Module 1, Fundamentals and planning for a 3+day Coastal Passage.

This is a resource page for those enrolled into the Weather for Sailors. Please bookmark this page as additional resources will be added throughout the course. For course dates, please [click here](#)

Teams Link

Join the course via this Team link which will be open 30 mins before the starting time of 7pm on each night of the course. Join early [via this link](#)

Pre Course Learning

We ask all students to complete some pre-learning prior to attending the instructor led sessions or alternative before the start on night 2 on June 18th. The ORCV uses Learnupon for delivery of this content with an email sent on how to login. Completing this online content is estimated to take roughly 3 - 4 hours.

Poll

What type boating do you do

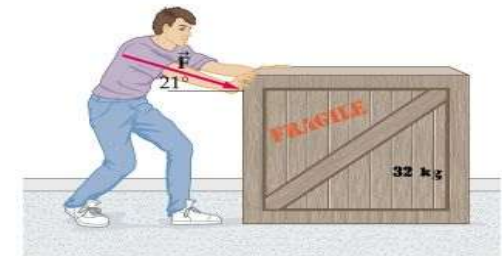
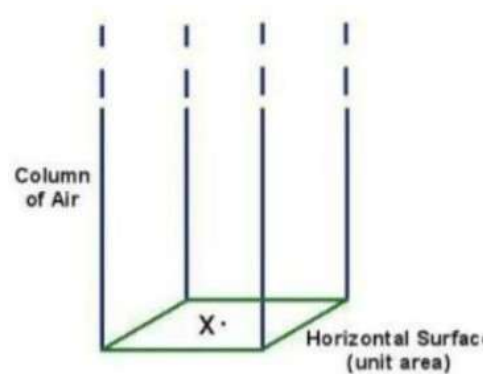
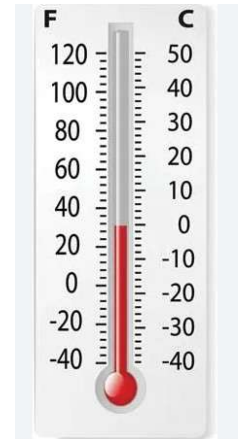
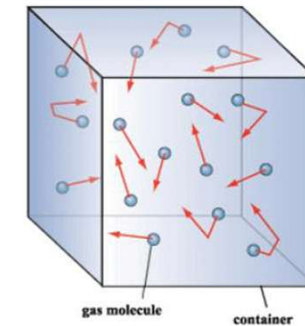
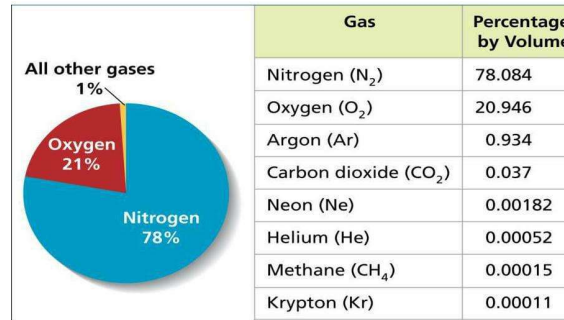


Poll

What are the most important things for you for a sail
in the bay

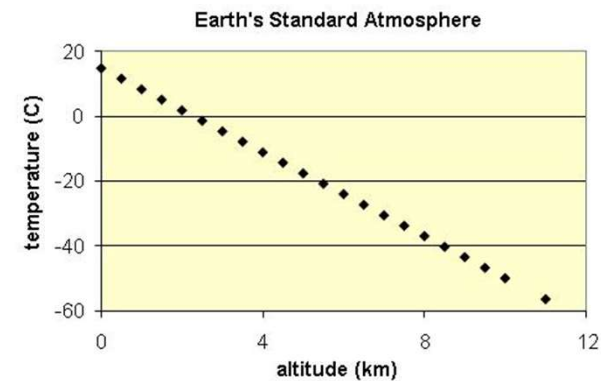
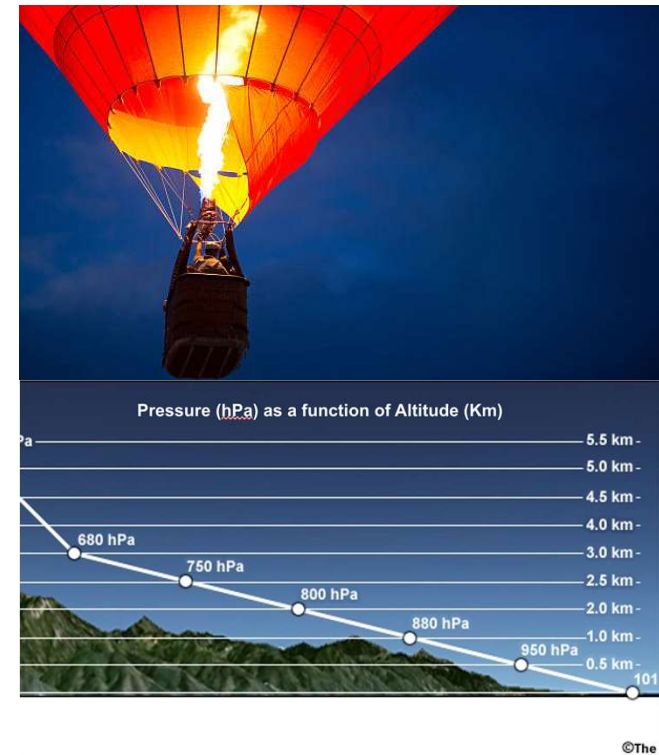
Some Basic Concepts

- Weather
- Climate
- Air
- Temperature ($^{\circ}\text{C}$)
- Pressure (mbar or hPa)
- Humidity (%)
- Wind - speed and direction
- Speed and velocity
- Force – causes things to change velocity (N)



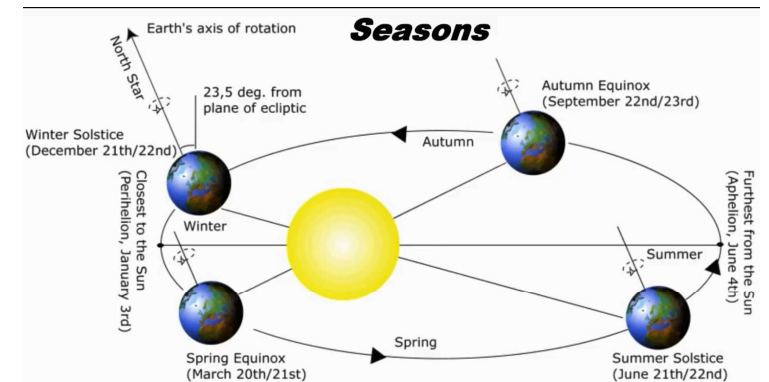
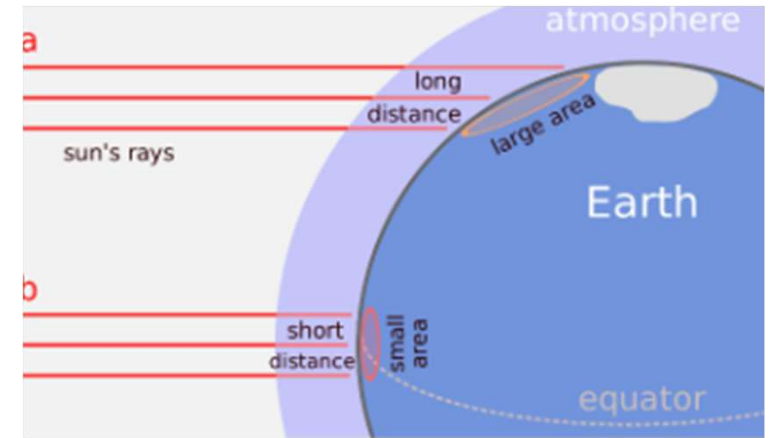
More Basic Concepts

- Hot air rises – lower density
- Cold air descends - heavier
- Air Pressure decreases with altitude (smaller column of air above)
- Air Temperature decreases with altitude in the Troposphere (less earth heating)
- Air flows from regions of high pressure to lower pressure

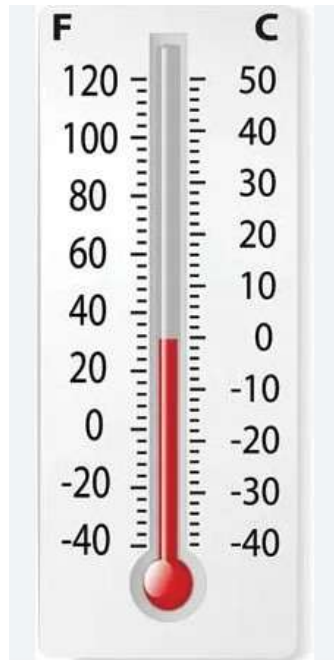


What Causes Changes in the Weather?

- Heating of the Earth by the Sun
- Uneven due to terrain, oceans, cities causing temperature differences
- Equatorial Regions heated more than the Polar Regions
- Night and Day Caused by the Earth's rotation about its axis
- Seasons caused by the Earth's tilt to its axis of rotation and the revolution about the Sun



Measurement of Weather Data is Key



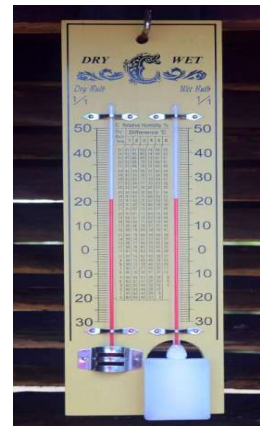
Temperature



Air Pressure



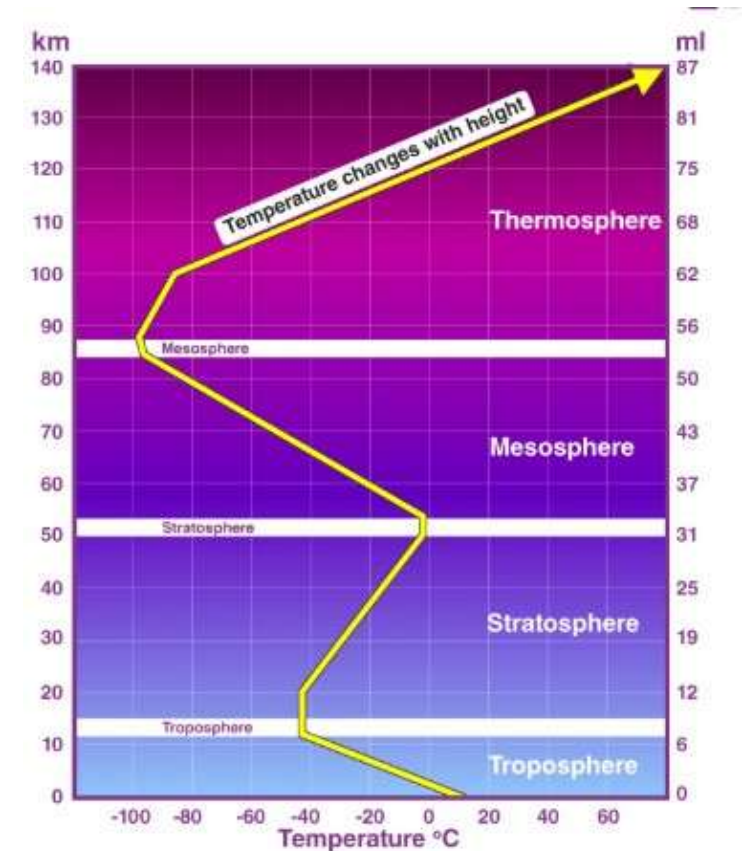
Wind Speed and Direction



Humidity

Air Temperature

- The weather occurs predominantly in the troposphere (up to 15 km)
- Air temperature in the troposphere decreases with height (typically $6.5^{\circ}\text{C}/\text{km}$ but depends on air movement and humidity)
- Due to increasing distance from the earth which is the source of heat
- Temperature increases with height in the stratosphere due to the ozone layer absorbing rays.



Temperature Variation with Height

Air Pressure

- Air pressure is the weight of the column of air above an area on Earth's surface
- Air pressure decreases with altitude
- Differences in air pressure key to wind speed and direction as a gas will flow from higher to lower pressures regions

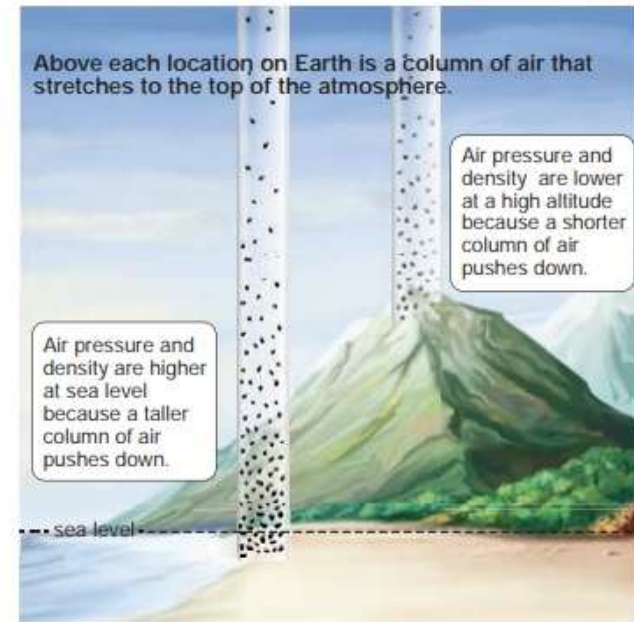


Figure 1.10 Atmospheric pressure acts like a column

Poll

Is the wind direction where it is coming from or where it is blowing to?

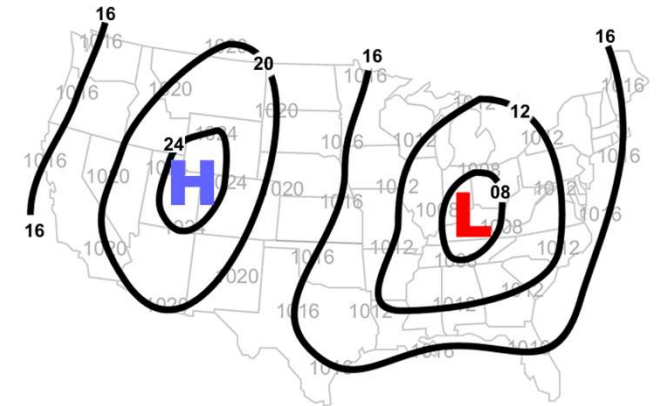
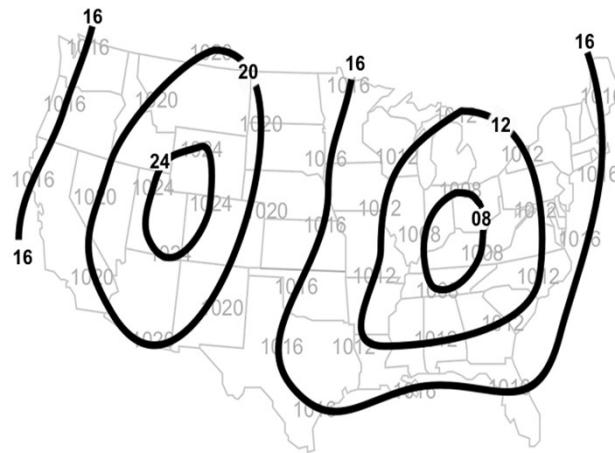
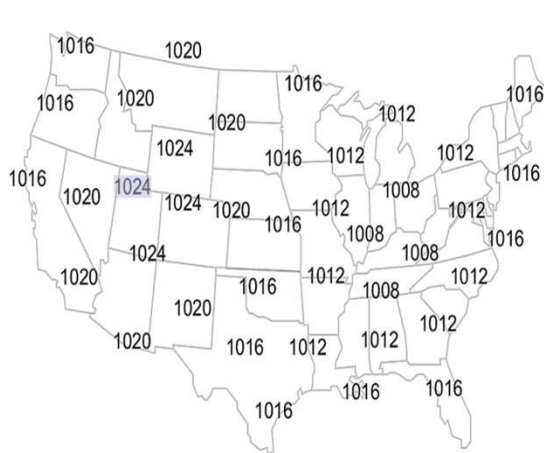
Poll

Are the seasons caused by the Earth's rotation on its axis or its revolution about the sun?

Poll

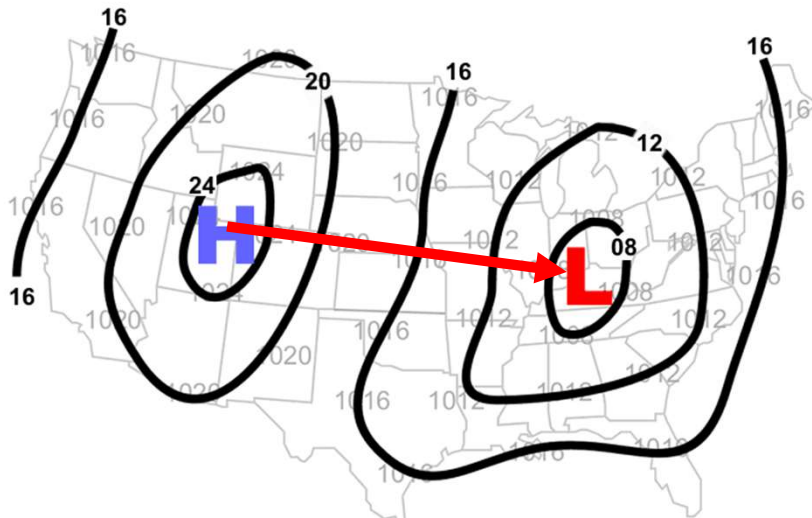
Does temperature increase or decrease with height in the Troposphere?

Measurement of Atmospheric Pressure

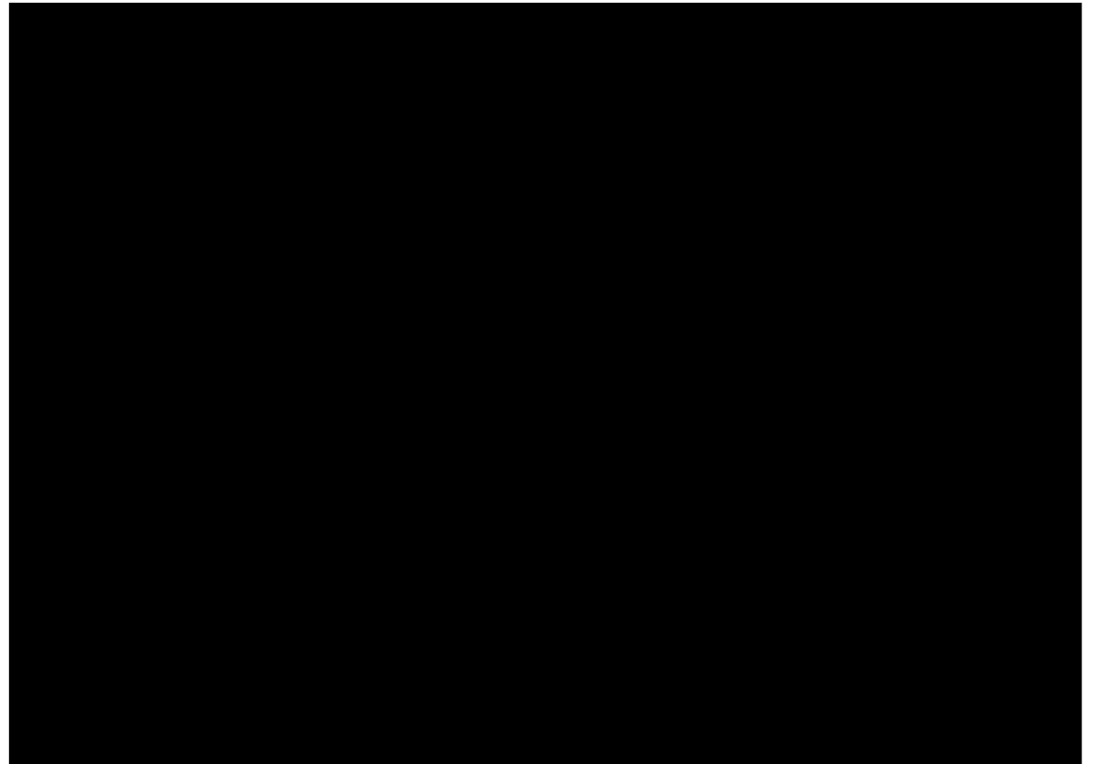


- Measure the pressure all over the country at sea level
- Join all the points with the same pressure to form isobars (equal barometric pressure)
- Identify the high (anticyclone) and low (cyclone) pressure regions

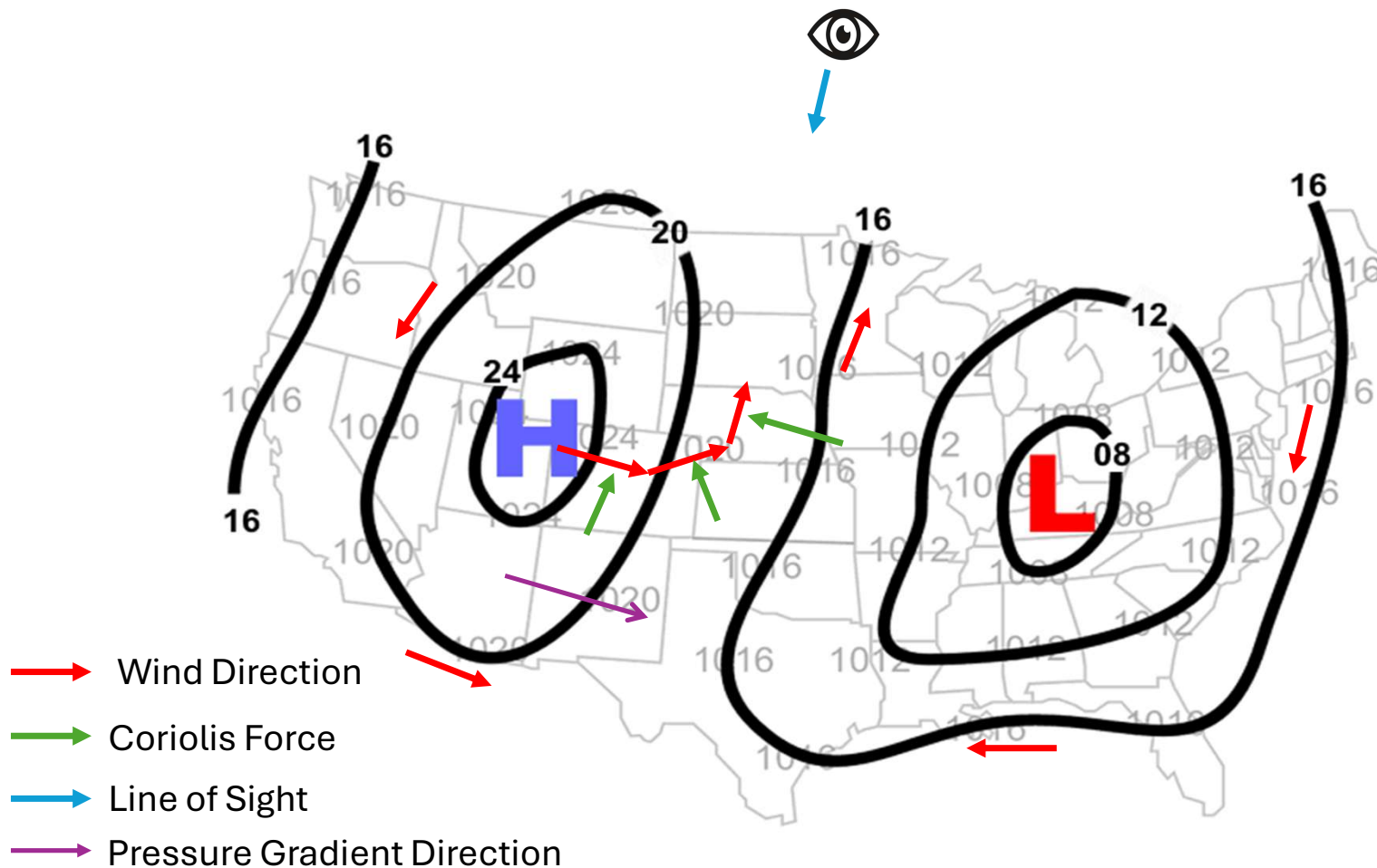
Wind Direction?



- Would expect the wind to blow directly from high to low pressure, but the Earth rotates!
- No Coriolis force at the Equator and maximum at the poles
- Coriolis force proportional to the wind speed

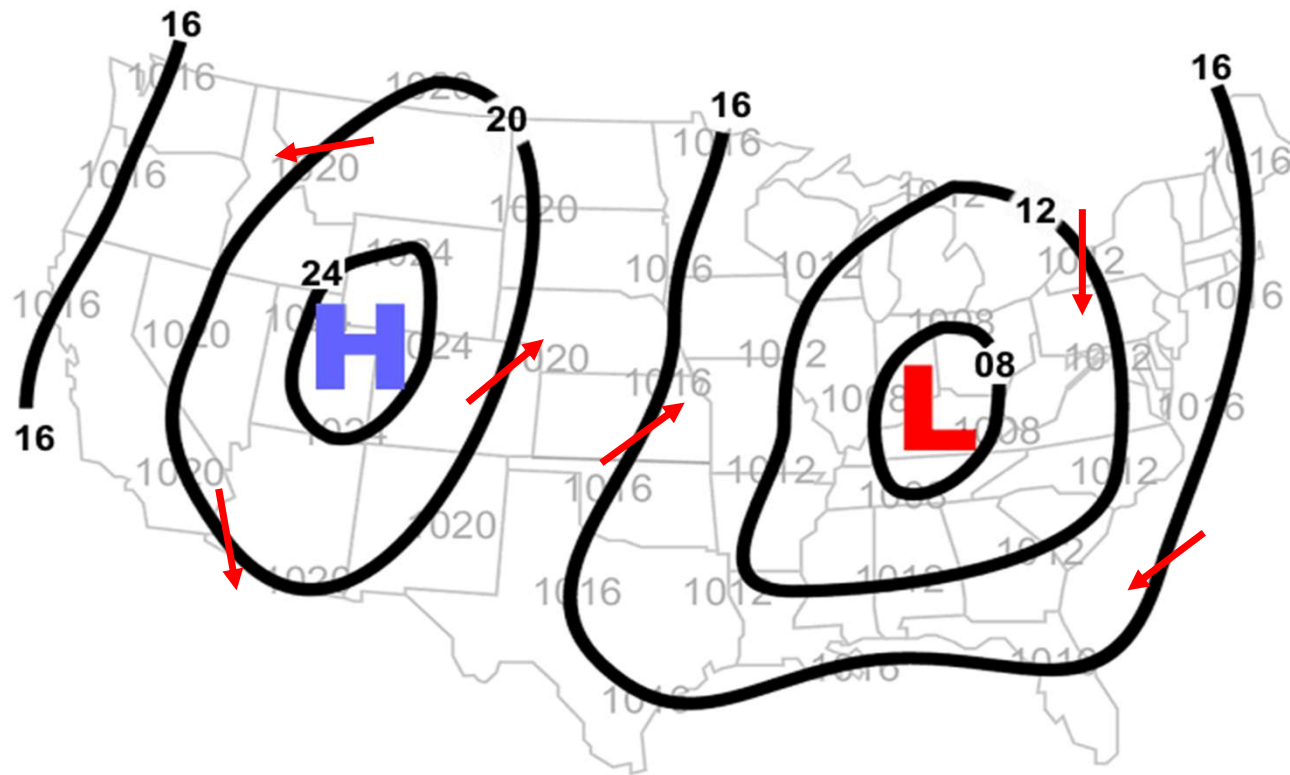


Effect of Coriolis on Wind Direction



- Wind starts off going from high to low pressure but is bent by the Coriolis force (90 deg from direction)
- Wind direction parallel to the isobars in the upper atmosphere
- Shown for the Southern Hemisphere
- Clockwise around a low
- Anticlockwise around a high
- Opposite Direction in the Northern Hemisphere
- Gives rise to Buys Ballots Law: face the wind and the high pressure is on the right (Southern Hemisphere)

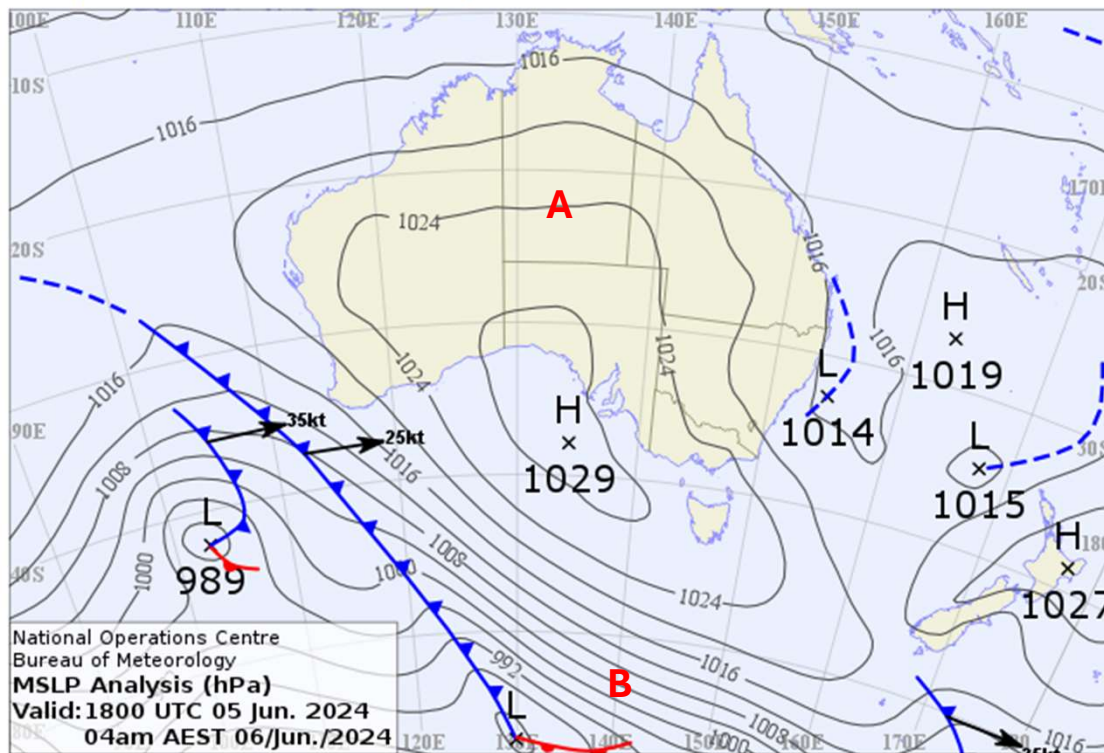
One Final Wrinkle!



- Friction at the Earth's surface due to land, seas, waves, cause the wind to be not quite parallel to the isobars
- Wind direction angled at about 15 degrees to the isobars as shown
- Clockwise about a low pressure system, towards the centre, anticlockwise about a high pressure system, away from the centre
- Opposite for the northern hemisphere

Australian Weather Map

Analysis for 18:00 UTC on Wednesday 5 June 2024



Points to Notice

- Regions of high and low pressure (1013 mb is the reference pressure)
- Red and blue lines denote fronts, troughs and ridges to which we will return
- Closer spaced isobars mean stronger winds – latitude dependent
- Winds even stronger when isobars are really curved
- MSLP Analysis means current situation
- Prognosis means the future outlook

Poll

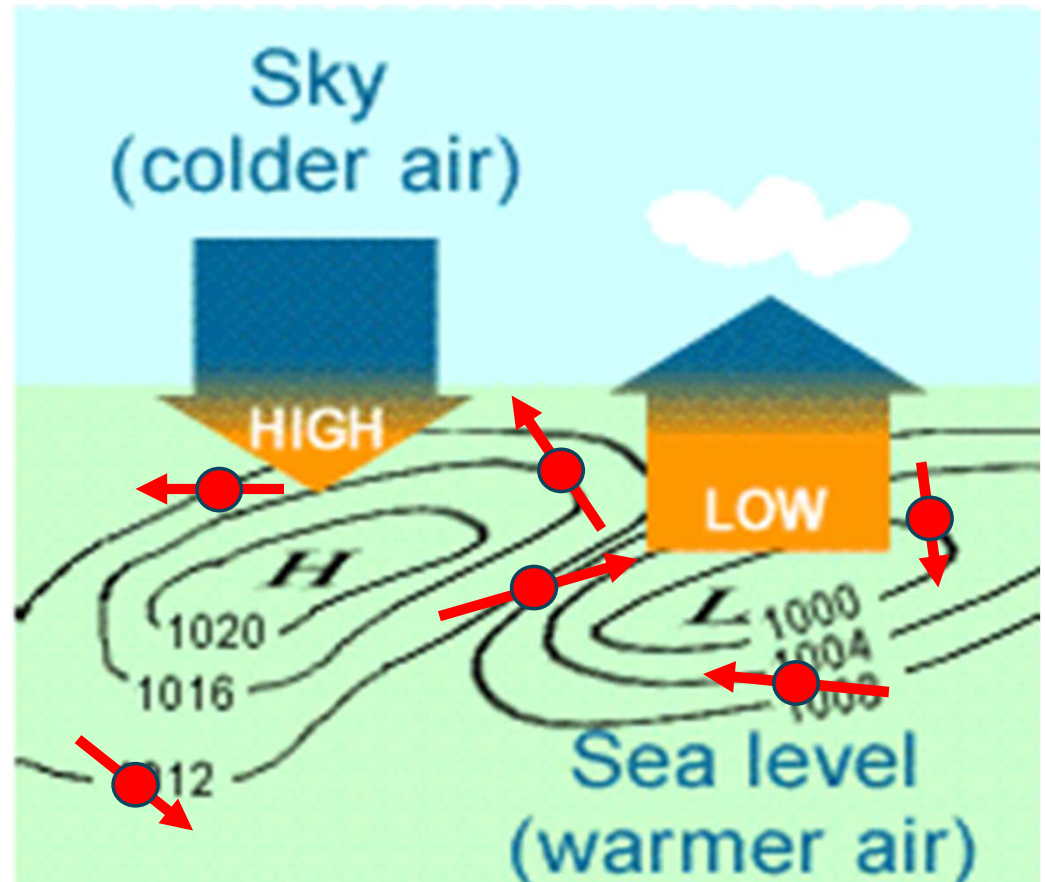
What is the wind direction at A on the weather map?

Poll

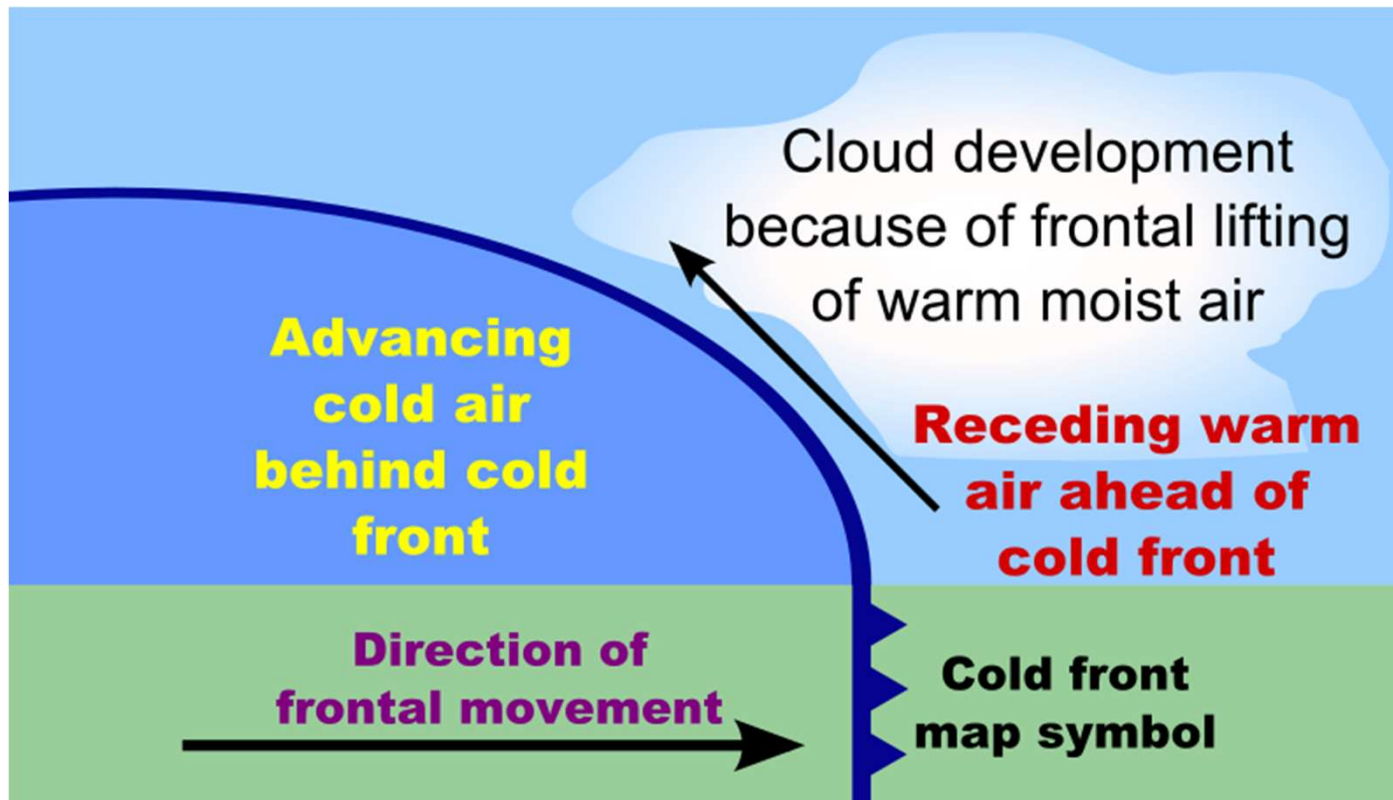
What is the wind direction at B on the weather map?

Highs and Lows

- High – High Pressure System. Descending, colder air (heavier), warming as it descends, any water droplets evaporate, clear skies
- Low – Low Pressure System. Rising, warmer air (lighter), air cools as it rises, water vapour condenses to form water droplets, cloudy skies
- Monitor changes in pressure by watching the barometer
- A 3mbar/3hours drop tell you a low pressure system is approaching



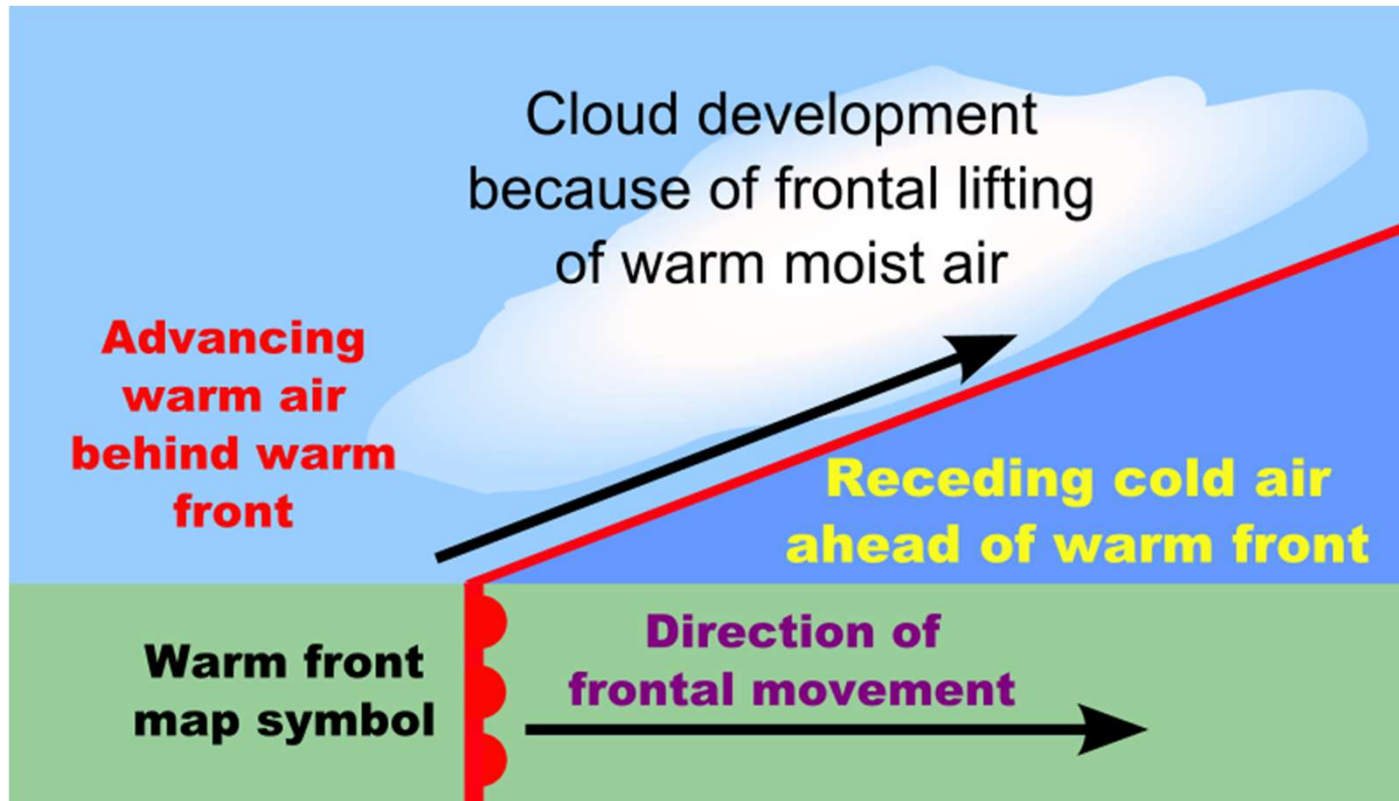
FORMATION OF A COLD FRONT



- Approaching cold air wedges under warmer air
- Warmer air rises, water vapour condenses, rain and even storms
- Change in wind direction with the passage of the front, gusty winds, can be quite violent
- Significant drop in temperature



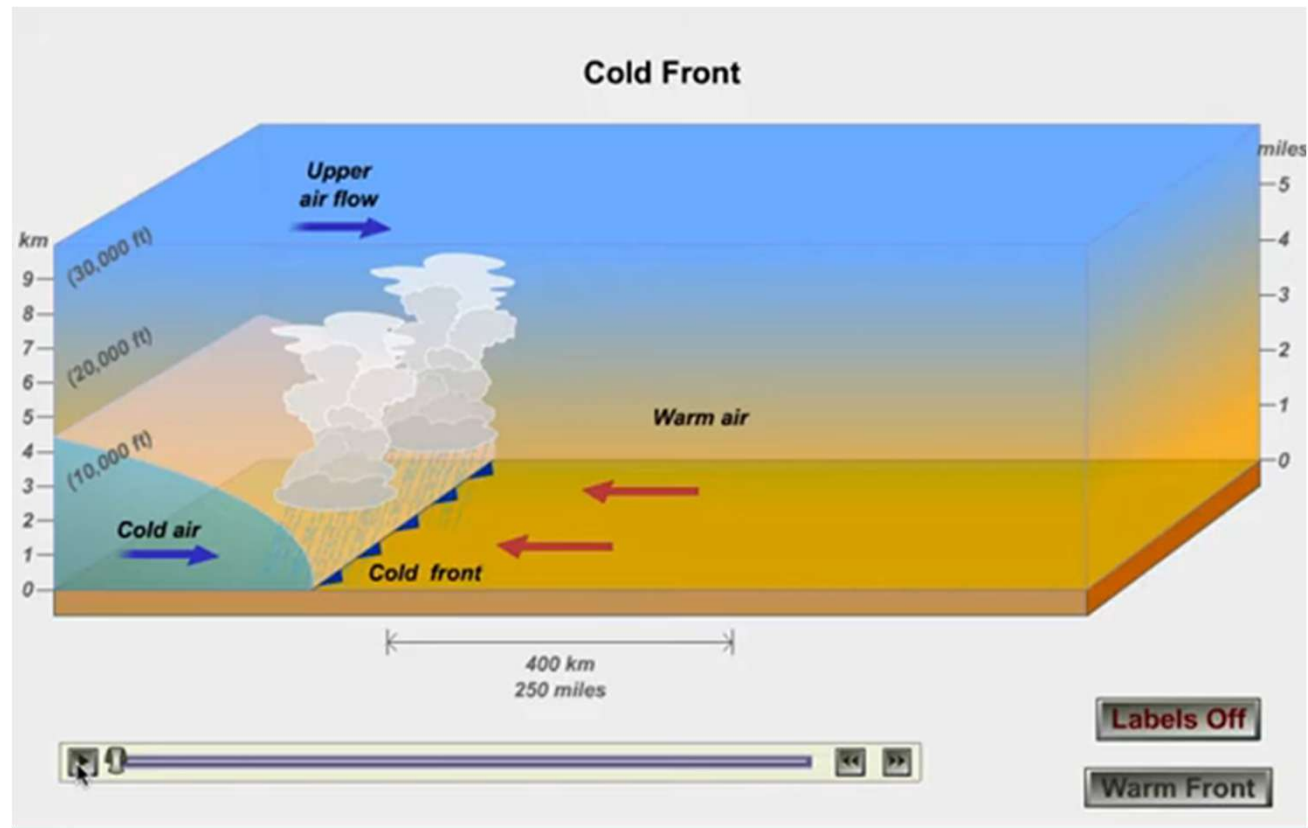
FORMATION OF A WARM FRONT



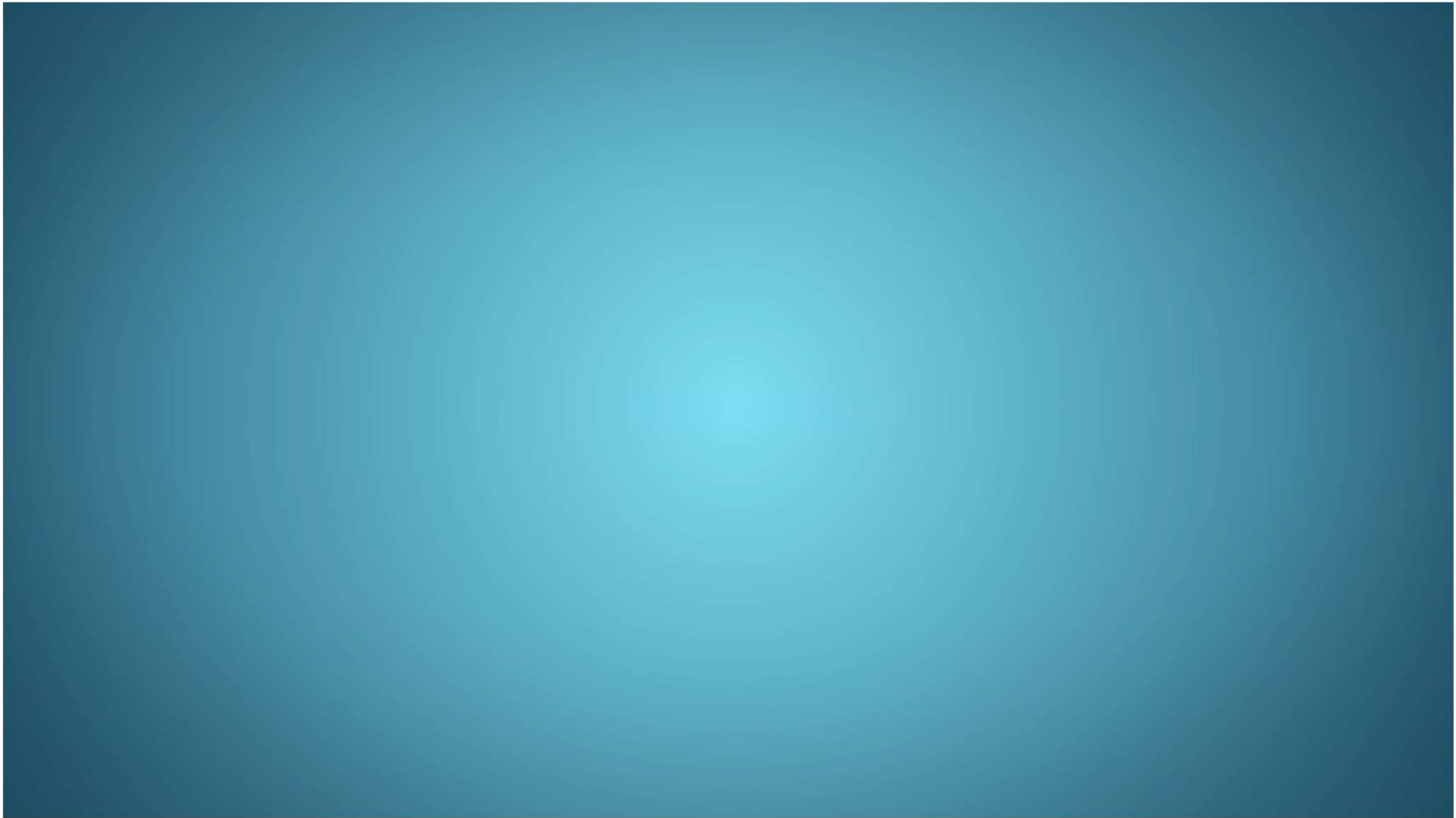
- Not common in Australia
- Tend to form south of the continent and move further south
- Usually slow moving and broad coverage
- Rising moist air produces clouds and usually rain
- Warmer temperatures behind the front



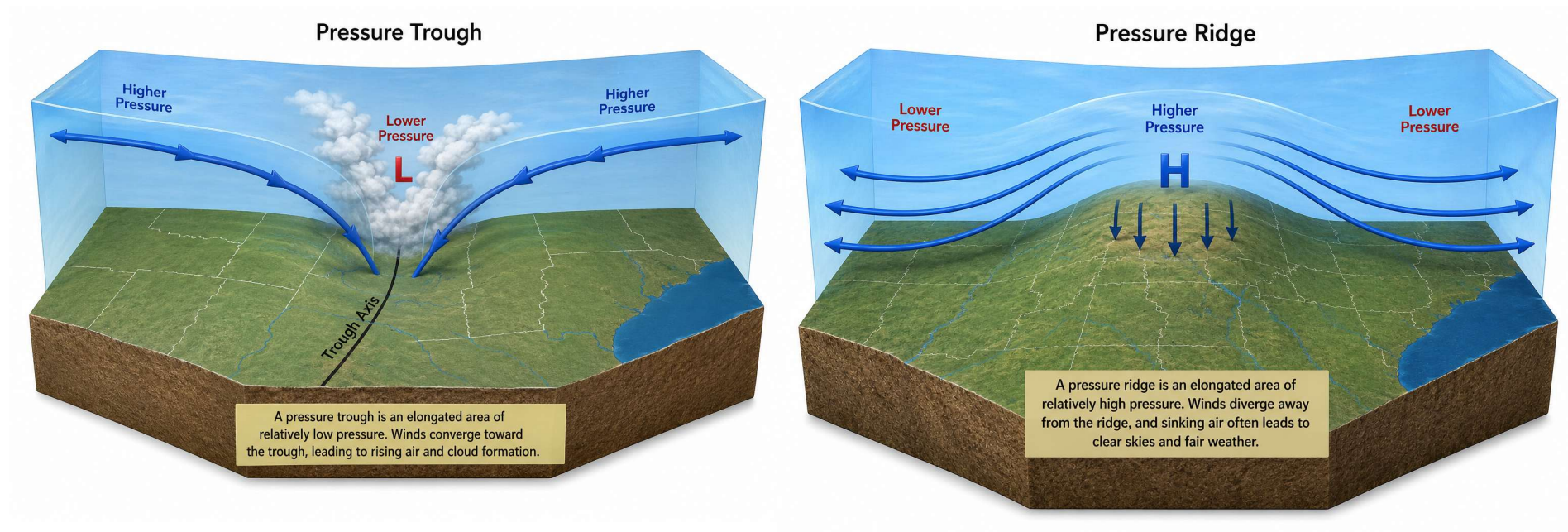
ANIMATION OF FRONT FORMATION



COLD FRONTS IN AUSTRALIA



Isobar Ridges and Troughs



A line joining points of low pressure

A line joining points of high pressure

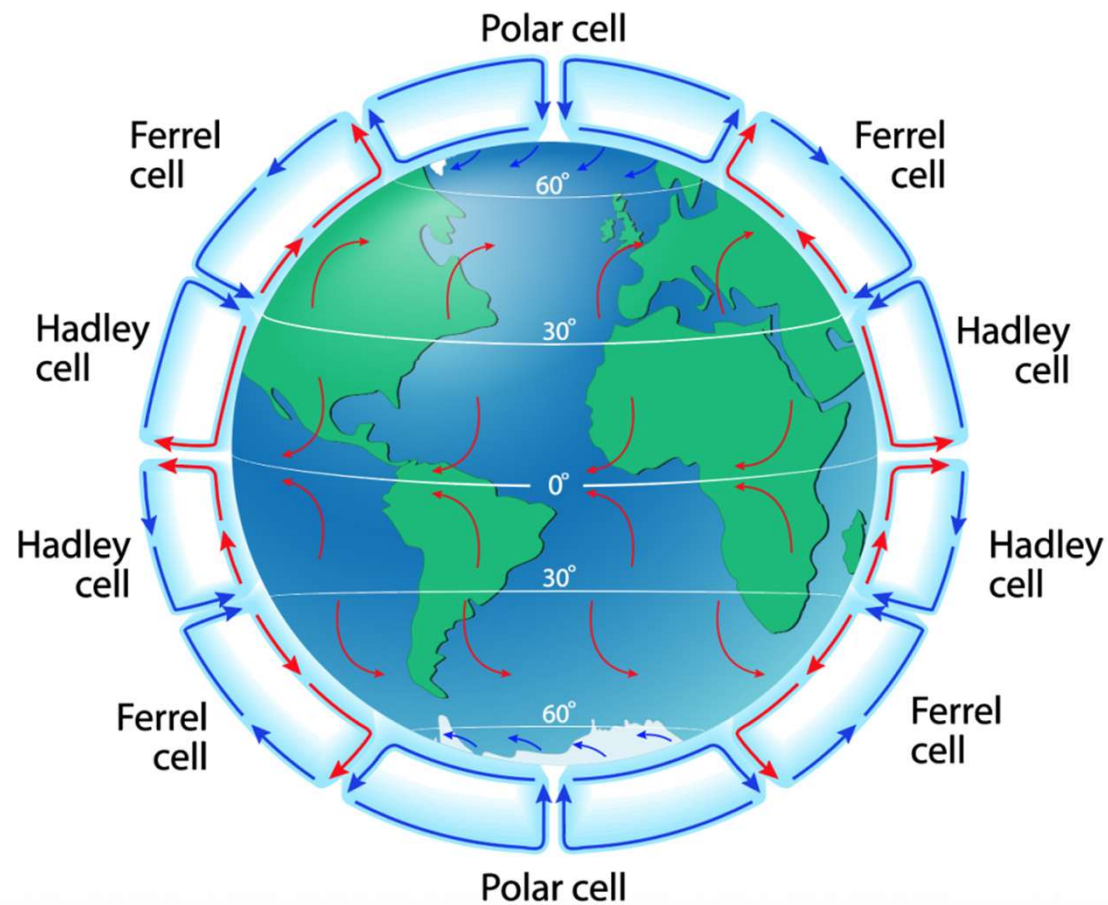
RIDGES AND TROUGHS

- Conditions along the ridge (elongated region of higher pressure), under the influence of the high- pressure systems dry, warmer, descending air, tend to be stable and drier.
- Troughs(elongated area of lower pressure) often result in increased cloud cover and precipitation due to ascending, cooling air. Shifting winds, rain, snow, or even thunderstorms can develop along and near the trough axis.

Poll

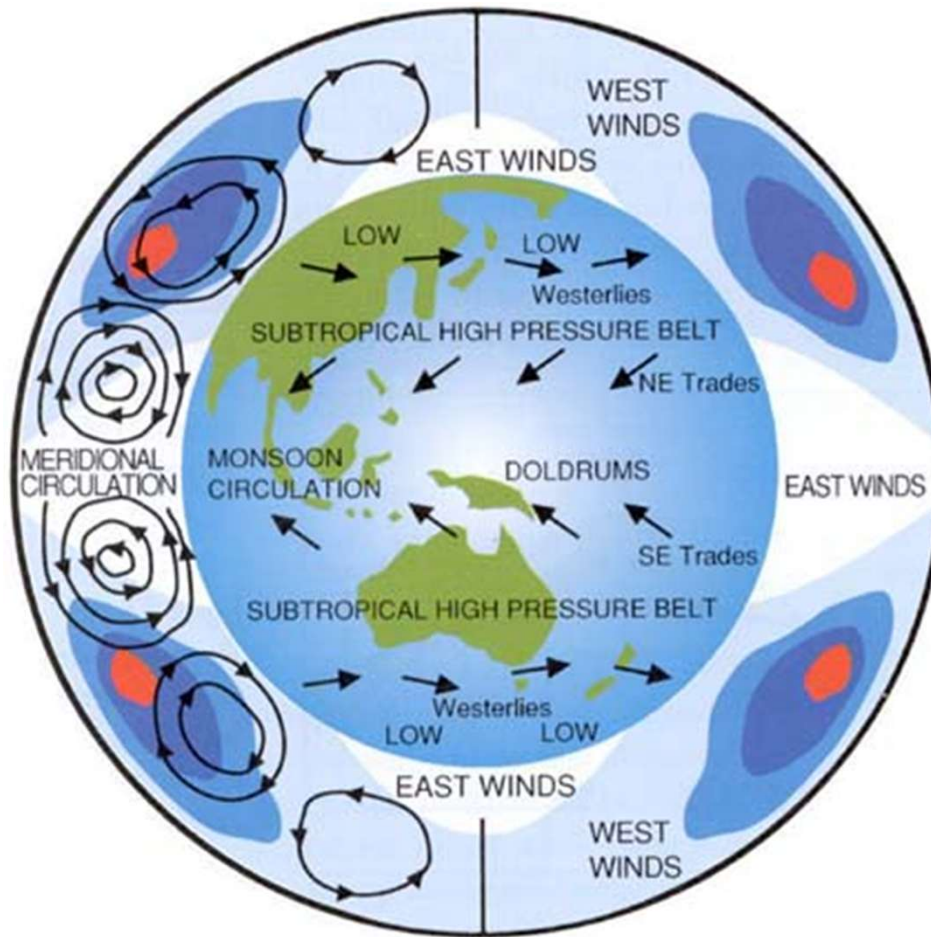
Does air rise or fall in a high-pressure system ?

GLOBAL ATMOSPHERIC CIRCULATION



- Warm air rises, cools and falls back to Earth
- Formation of circulation cells
- Curvature of wind patterns due to the Coriolis Force
- Zones where winds converge or diverge

LOCAL GLOBAL CIRCULATIONS



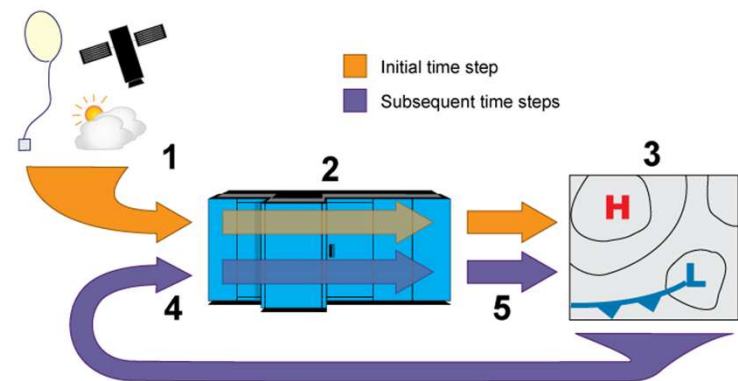
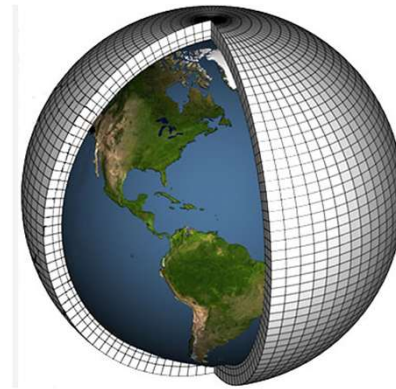
- Doldrums region near the Equator
- Trade Winds in the mid-latitudes, direction (SE or NE) due to the Coriolis Force
- Westerly flows towards the polar regions

WEATHER FORECASTING

- It all starts with actual observations at a given point in time
- Data from ground stations, ships, balloons, planes, satellites
- The more observations the better
- Traditionally, the weather map is produced and past experience used to forecast future weather
- More modern approach is to use computer modelling

Computer Modelling

- Describe the atmosphere as a three-dimensional grid volume
- Collect all the data as usual for as many grid volumes as possible
- Use the laws of physics to determine how the air will move in a unit of time
- Take the result and feed it back into the computer to calculate the next time interval
- Produce the forecast

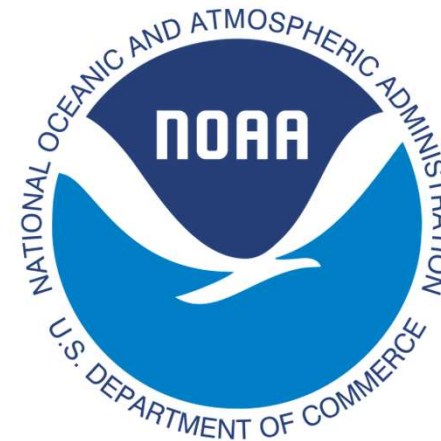


Computer Modelling

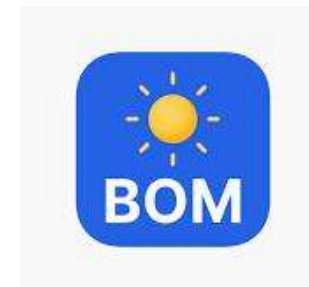
- Many different computer models from various countries
- Smaller grid intervals give better forecasts but takes more computing power
- Models very good in the short term (3-5 days)
- Model forecasts very sensitive to the input data quality (the Butterfly Effect)
- Vary the input data slightly and re-run the models to assess forecast sensitivity and improve longer term outlook (ensemble averaging)



ECMWF MODEL



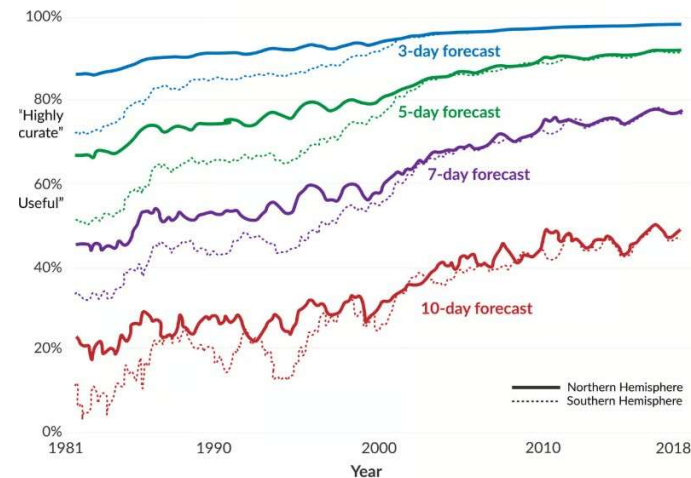
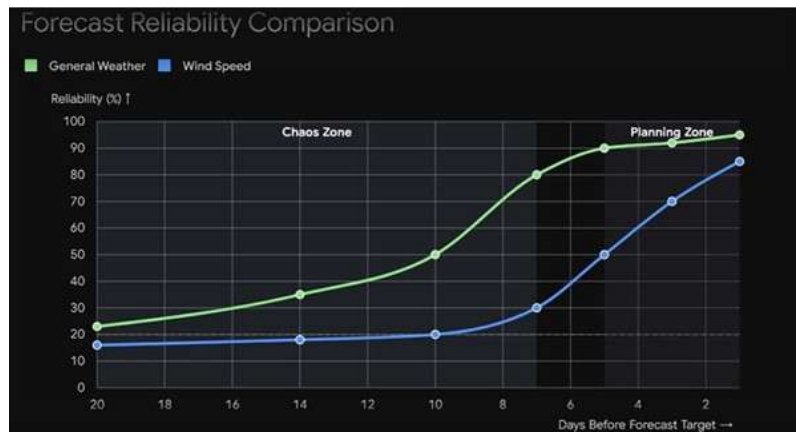
GFS MODEL



ACCESS MODEL

Computer Modelling

- Just how reliable are the forecasts?



- Compare historical model data and actual weather data and then use modern data analysis (AI?) to refine forecasts.
- Stay tuned!

Poll

The best computer weather model is:

- ECMWF
- GFS
- ACCESS
- ALL OF THE ABOVE

Weather for Sailors

The Fundamentals-Enclosed Waters



Weather Technology

Short Term tools

Medium Term tools

Long Term Tools

Some of the Weather Tech that we will look at

- BOM
- BOM App
- MetEye
- ECMWF long range synoptic charts. cmwf.int/en/forecasts/charts
- Baywinds <http://baywx.com.au/>
- Windy LOTS OF models
- Predictwind 6 models
- Grib files

Explore our new website today



avourite locations

Tootgarook
Victoria 3941



Bureau of Meteorology

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[bom.gov.au](https://www.bom.gov.au) and 6 more links

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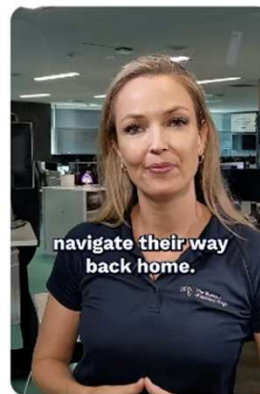
For You



Climate and water long-range forecast, issued 14



How do we



Meet Hector



Climate and water long-range forecast, issued 28



Australia's

Severe weather update

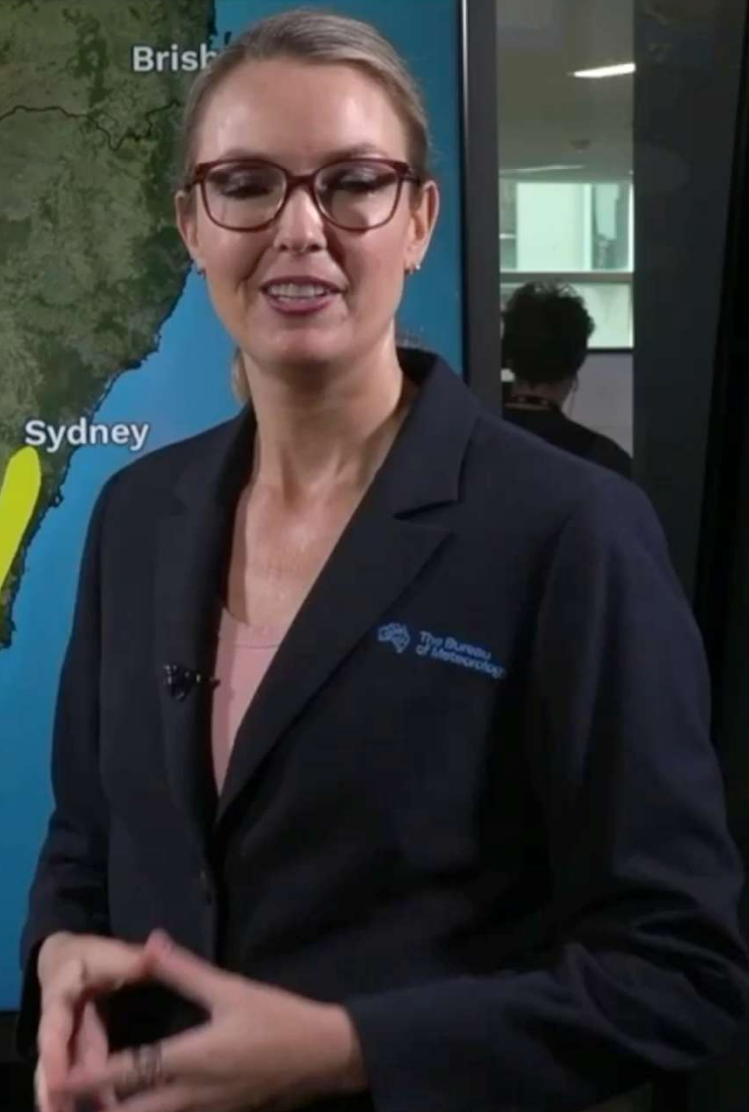
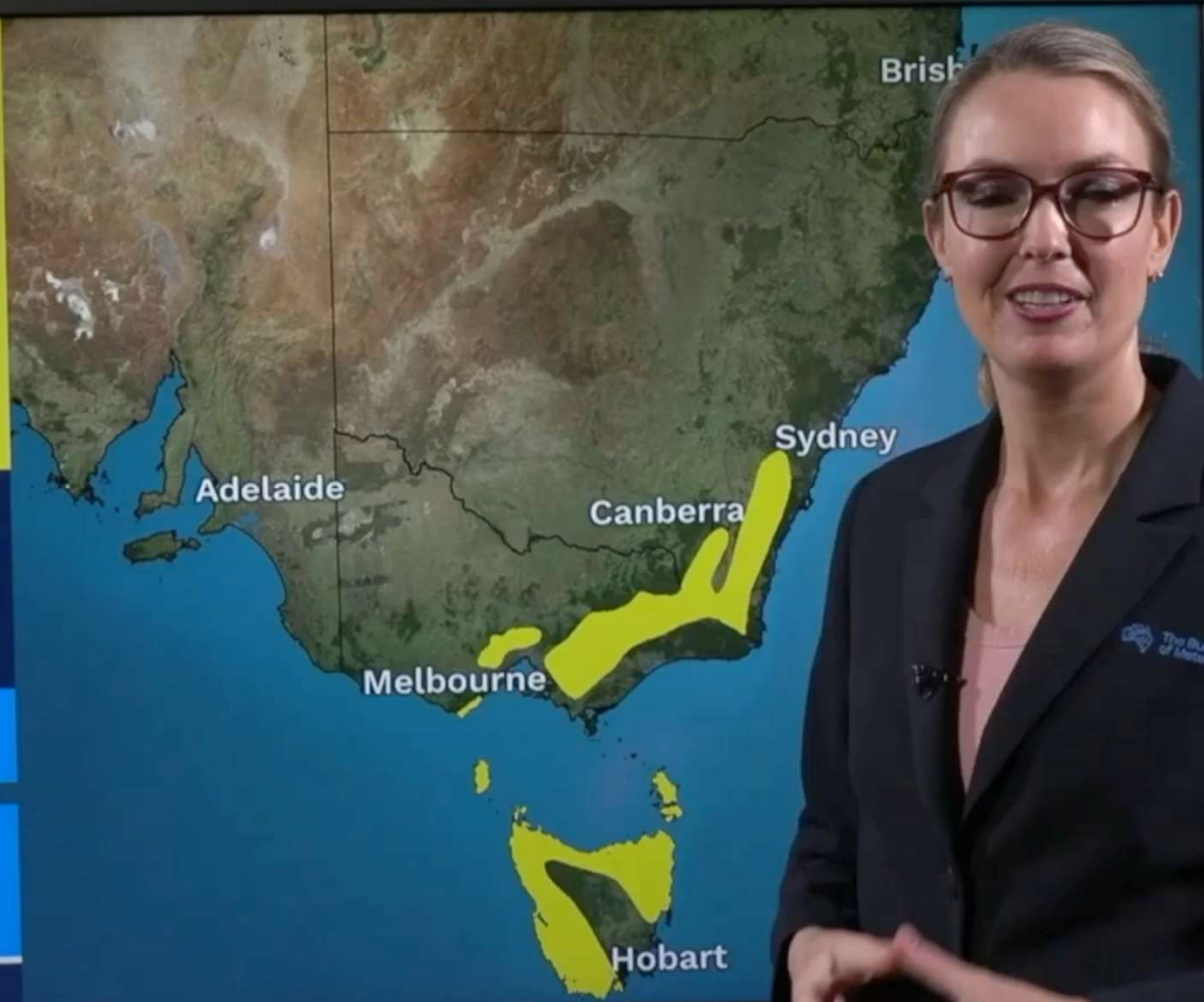


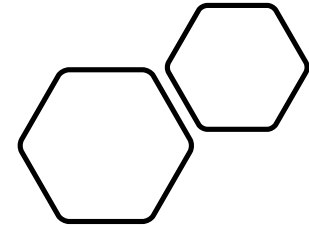
10 Jun 2024



Sarah Scully
Meteorologist

Current 3:30pm AEST 10/06/2024





Q Safety Beach, VIC

12.8°

Feels like 7.2°



15°

Max

8°

Overnight min

2-15mm

Rain



Showers. Wind easing.

Show less about today



Current weather

⬇ NNW 28 km/h Wind

54 km/h Gust

77% Humidity

0mm Rain since 9am

Rain

75% (high) chance of at least 2mm

50% (medium) chance of at least 6mm

25% (low) chance of at least 15mm

Mornington Peninsula area

Cloudy. Very high chance of showers, becoming less likely this afternoon. The chance of a thunderstorm late this afternoon and evening, possibly severe. Winds northerly 30 to 45 km/h turning westerly 25 to 40 km/h in the early afternoon.

Sun, moon and UV

⬆ 7:34 am Sunrise

⬇ 5:07 pm Sunset

🌙 Waxing crescent Moon phase

🌕 First quarter, 14 June Next moon phase

Home

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Map

Warnings

Q Safety Beach, VIC

12.8°

Feels like 7.2°



15°

Max

8°

Overnight min

2-15mm

Rain



Showers. Wind easing.

Show more about today

Temperature and rain

Wind and waves

Humidity

Show all

Today

10am

11am

12pm

1pm

2pm

3pm

4pm

5pm

6pm

7pm

8pm

9pm

10pm

11pm

Tomorrow

12am

1pm



14°

14°

15°

15°

15°

15°

15°

14°

13°

12°

11°

11°

10°

10°

10°

10°

Feels like

7°

8°

8°

9°

9°

10°

10°

9°

8°

7°

6°

5°

5°

5°

5°

4°

Rain 50% (medium) chance of at least

1mm

0mm

0mm

0mm

0mm

1mm

Daily forecast

Home

Past

Map

Warnings

Q Safety Beach, VIC

12.9°

Feels like 5.6°



15°

Max

8°

Overnight min

2-15mm

Rain

Showers. Wind easing.



Show more about today

Temperature and rain

Wind and waves

Humidity

Show all

Today

Tomorrow

10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm	12am	1am
Wind															
															
NNW 48 km/h	NNW 52 km/h	NW 48 km/h	NW 50 km/h	WNW 44 km/h	WNW 37 km/h	WNW 41 km/h	WNW 33 km/h	WNW 33 km/h	WNW 33 km/h	WNW 35 km/h	WNW 43 km/h	WNW 39 km/h	W 41 km/h	W 43 km/h	W 43 km/h
Gust															
63 km/h	69 km/h	65 km/h	67 km/h	59 km/h	50 km/h	56 km/h	44 km/h	46 km/h	46 km/h	48 km/h	57 km/h	54 km/h	54 km/h	57 km/h	57 km/h
Total wave height 															
															
Varied 2.1m			Varied 2.1m			Varied 1.7m		Varied 1.3m				Varied 1.4m		Varied 1.6m	

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Warnings

BOM Weather	×
Notifications	→
Settings	→
Support	
About	→
Accessibility	→
Privacy	→
Feedback	→

Measurement

Wind speed

- ☒ km/h
- ☐ knots

Weather forecast descriptions always show wind speed in km/h. Waters forecast descriptions always show knots.

Display

- ☒ System
- ☐ Light
- ☐ Dark

System automatically changes the display based on your device settings.

Show more about today



- Temperature and rain
- Wind and waves
- Humidity
- Show all

Today														Tomorrow	
10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm	12am	1am
Wind															
 NNW 26 knots	 NNW 28 knots	 NW 26 knots	 NW 27 knots	 WNW 24 knots	 WNW 20 knots	 WNW 22 knots	 WNW 18 knots	 WNW 18 knots	 WNW 18 knots	 WNW 19 knots	 WNW 23 knots	 WNW 21 knots	 W 22 knots	 W 23 knots	 W 23 knots
Gust															
34 knots	37 knots	35 knots	36 knots	32 knots	27 knots	30 knots	24 knots	25 knots	25 knots	26 knots	31 knots	29 knots	29 knots	31 knots	31 knots
Total wave height 															
 Varied 2.1m				 Varied 2.1m			 Varied 1.7m		 Varied 1.3m			 Varied 1.4m		 Varied 1.6m	

Daily forecast

- Weather
- Waters and tides

Port Phillip

Today11 June

Gale warning

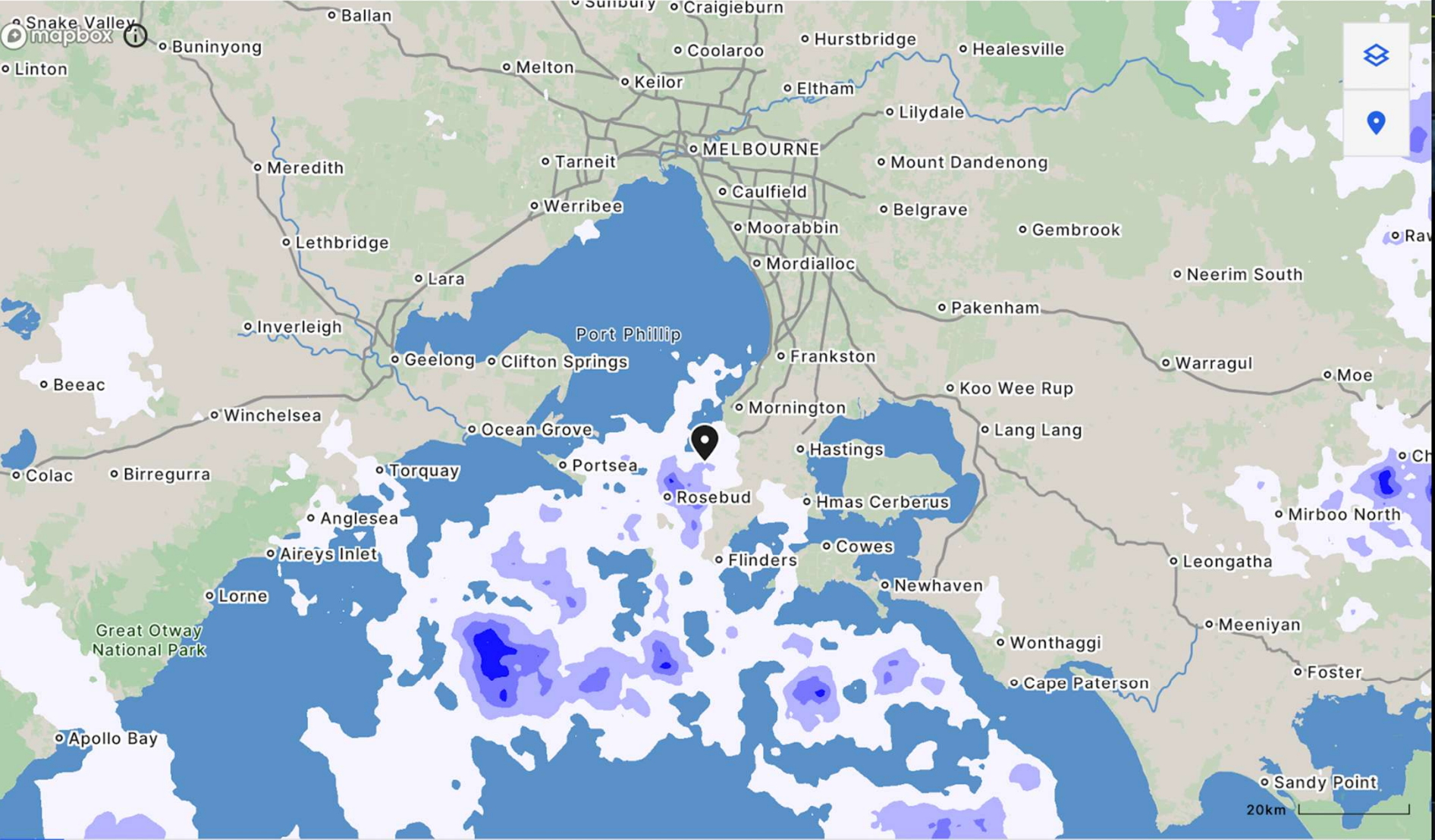
WindNorthwesterly 20 to 30 knots, reaching up to 35 knots in the morning.
Winds tending westerly 15 to 25 knots in the late afternoon then
increasing to 20 to 30 knots in the late evening.

Seas1 to 2 metres, decreasing to 1 to 1.5 metres during the afternoon.

WeatherCloudy. 80% chance of showers.

TidesHovell Pile

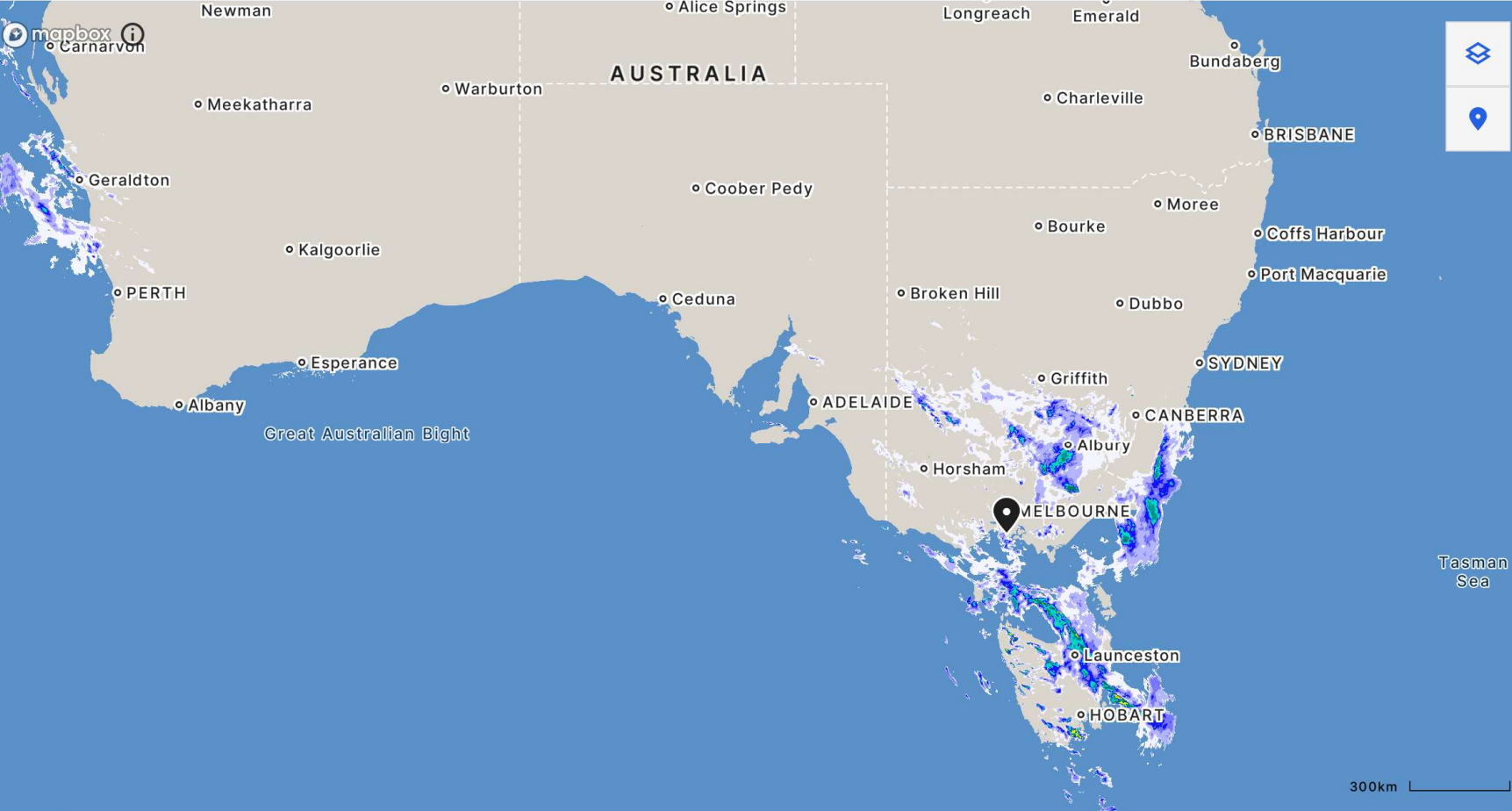
- ↓ 12:00am, 0.69m Low
- ↑ 5:07am, 0.99m High
- ↓ 11:49am, 0.41m Low
- ↑ 7:01pm, 1.07m High



Rain

Light

Heavy ⓘ



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Map

Warnings

⚠ 3 warnings

- **Severe weather warning**
For North Central, North East, Central, West and South Gippsland and East Gippsland forecast districts

→
- **Sheep graziers warning**
For North Central, North East, Central, West and South Gippsland and East Gippsland forecast districts

→
- **Marine wind warning**

→

Last updated now



Marine wind warning

Issued at 10:00 am EST on Tuesday 11 June 2024 (1 hour ago).

Updated Marine Wind Warning Summary for Victoria for the period until midnight EST Wednesday 12 June 2024.

Wind Warnings for Tuesday 11 June

Gale Warning for the following areas: Port Phillip, West Coast, Central Coast, Central Gippsland Coast and East Gippsland Coast

Strong Wind Warning for the following area: Western Port

Wind Warnings for Wednesday 12 June

Gale Warning for the following areas: West Coast, Central Coast, Central Gippsland Coast and East Gippsland Coast

Strong Wind Warning for the following areas: Port Phillip, Western Port and Gippsland Lakes

The next marine wind warning summary will be issued by 4:40 pm EST Tuesday.

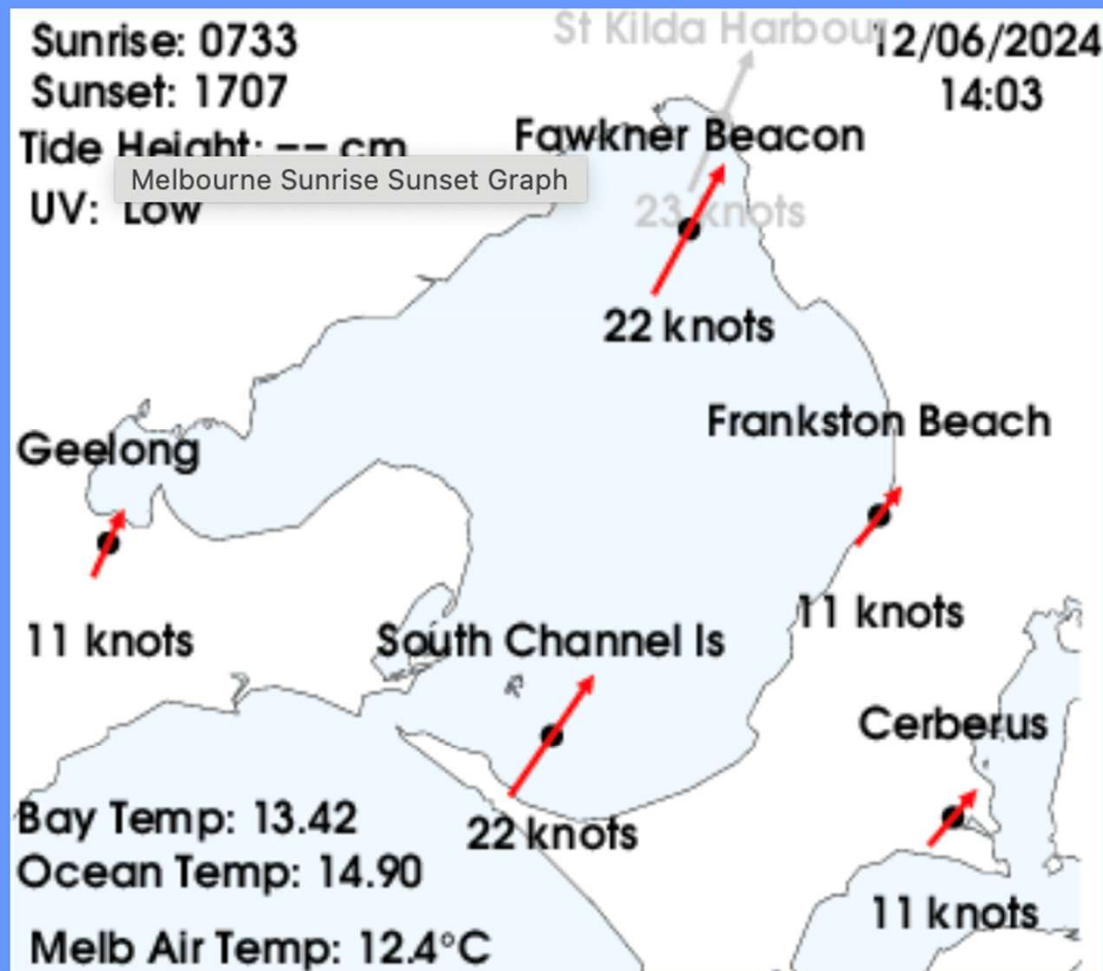
Check the latest [Coastal Waters Forecast or Local Waters Forecast](#) for information on wind, wave and weather conditions for these coastal zones.

Poll

What are the advantages of the BOM App?

OBSERVATIONS LAST UPDATED: 14:03 Wednesday 12 June 2024

Click on the Arrows for Todays Wind Graphs



WEST COAST

	Date/Time EST	Wind			Highest Wind Gust		Sea Height m	Swell			Vis km	Cloud	Weather	Temp °C	Press MSL hPa	Rain since 9am mm
		Dir	Spd kts	Gust kts	Dir	kts time		Height m	Period s	Dir						
Portland Airport	11/11:30am	WNW	17	25	NNW	37 04:25am	-	-	-	-	10	Partly cloudy	-	14.9	1007.9	0.2
Portland Harbour	11/11:01am	WNW	16	27	-	-	-	-	-	-	-	-	-	16.0	1007.1	-
Cape Nelson	11/11:30am	WNW	22	33	NNW	42 04:32am	-	-	-	-	-	-	-	15.6	1007.0	0.0
Port Fairy	11/11:30am	WNW	15	22	NNW	31 01:54am	-	-	-	-	-	-	-	16.3	1006.9	0.0
Warrnambool	11/11:30am	NW	21	27	NNW	41 02:18am	-	-	-	-	10	Partly cloudy	-	15.9	1007.3	0.0

CENTRAL COAST

	Date/Time EST	Wind			Highest Wind Gust		Sea Height m	Swell			Vis km	Cloud	Weather	Temp °C	Press MSL hPa	Rain since 9am mm
		Dir	Spd kts	Gust kts	Dir	kts time		Height m	Period s	Dir						
Cape Otway	11/11:30am	WNW	18	27	N	41 01:01am	-	-	-	-	-	-	-	13.5	1001.6	1.6
Aireys Inlet	11/11:30am	NW	16	19	NNW	42 08:09am	-	-	-	-	-	-	-	12.0	-	2.4
Geelong Racecourse	11/11:30am	NW	21	29	NW	34 08:53am	-	-	-	-	-	-	-	14.1	-	0.6
Point Wilson	11/11:30am	NW	30	34	NW	36 11:26am	-	-	-	-	-	-	-	-	-	-
Avalon	11/11:30am	NW	24	30	NNW	45 05:15am	-	-	-	-	7	Partly cloudy	-	13.9	1007.8	0.0
Point Cook	11/11:30am	N	16	27	N	42 03:52am	-	-	-	-	10	Partly cloudy	-	15.8	1007.3	0.2
Laverton	11/11:30am	NW	15	21	N	32 02:55am	-	-	-	-	75	Mostly clear	-	15.7	1007.9	0.0
Melbourne (Olympic Park)	11/11:30am	N	11	17	N	33 07:15am	-	-	-	-	10	-	-	13.9	1008.4	0.0
Fawkner Beacon	11/11:30am	N	21	25	N	51 03:54am	-	-	-	-	-	-	-	-	-	-
South Channel Island	11/11:30am	NW	26	32	N	48 04:58am	-	-	-	-	-	-	-	-	-	-
St Kilda Harbour RMYS	11/11:30am	N	12	16	NNE	41 06:06am	-	-	-	-	-	-	-	-	-	-
Moorabbin Airport	11/11:30am	NNW	22	29	N	41 04:24am	-	-	-	-	10	Partly cloudy	-	13.4	1007.9	0.0

100 m wind and mean sea level pressure

High resolution forecast

Base time

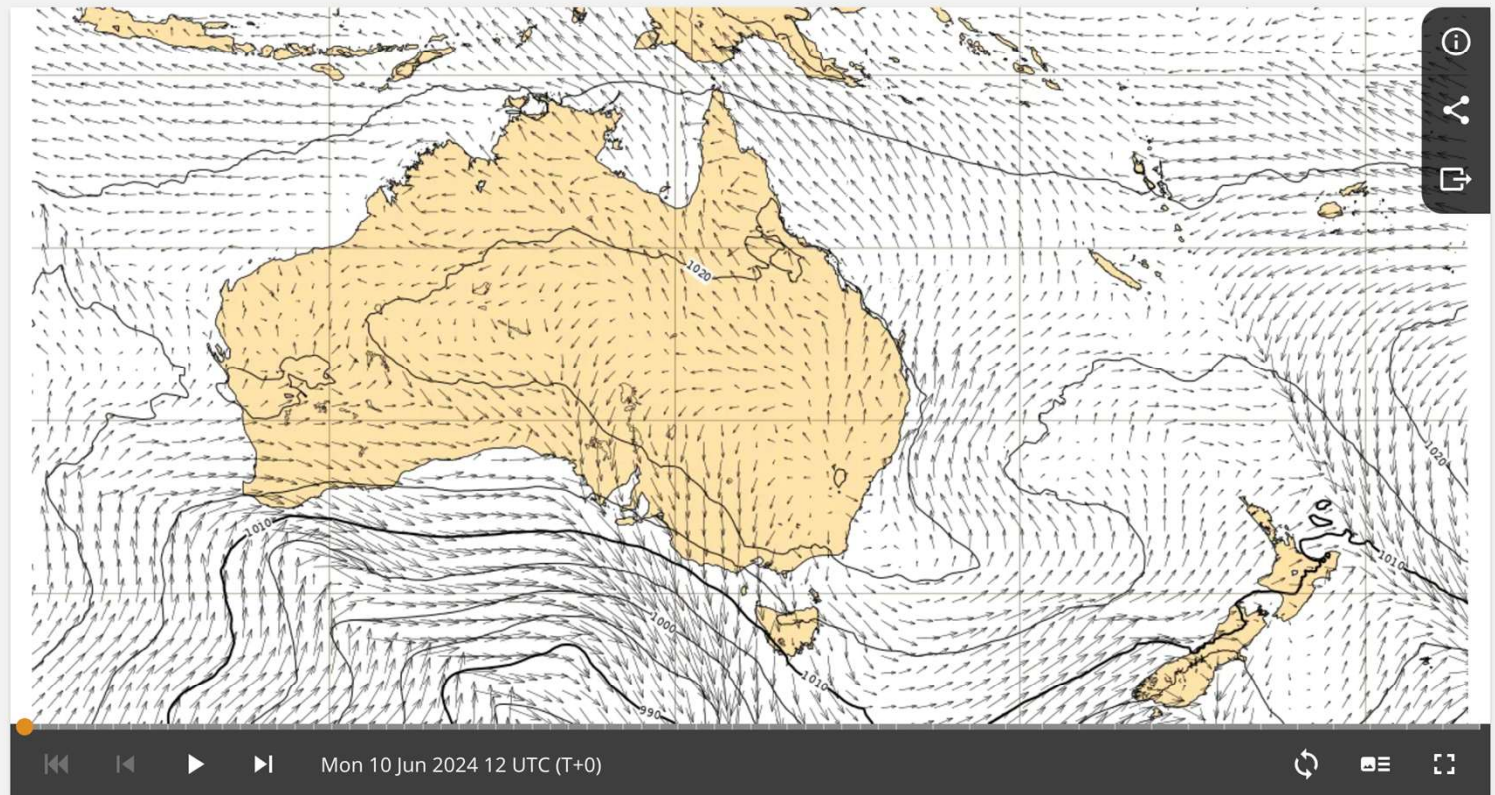
Mon 10 Jun 2024 12 UTC

Valid time

Mon 10 Jun 2024 12 UTC (T+0)

Area

Australasia



These charts are the most recent from the ECMWF's early-run high resolution (HRES) forecast.

Weather Maps

Search BOM Synoptic charts

<https://www.bom.gov.au/australia/charts/?ref=tr>

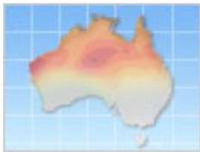
[Bureau Home](#) > [Australia](#) > **Weather Maps**

Weather Maps

From Wednesday 13 March 2024 we are changing the system we use to produce the Gradient Level Wind Analysis and Asia Mean Sea Level Pressure charts.

You may notice minor differences in the appearance of the charts. You can send questions or feedback to weatherquestions@bom.gov.au

Numerical Weather and Ocean Prediction Maps



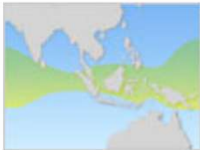
- [Interactive Weather and Wave Forecast Maps](#)

Australian Region



- [Mean Sea Level Pressure \(MSLP\) map](#)
- [Latest Colour Mean Sea-Level Pressure Analysis and Infrared Greyscale Satellite](#)
- [Short-term forecast](#)
- [Forecast map for next 4 days](#)
- [UV Forecast](#)

Tropical Region



Mean Sea Level Pressure (MSLP)

- [Asia MSLP Analysis 00 UTC](#)

Gradient Level Wind (GLW)

- Gradient Level Wind Analysis: [00 UTC](#) or [12 UTC](#)
- Pacific Ocean GLW (A): [00 UTC](#) or [12 UTC](#)
- Indian Ocean GLW (B): [00 UTC](#) or [12 UTC](#)

Related Information

- ▶ [Analysis & Prediction Operations Bulletins](#)
- ▶ [Interpreting the MSLP Analysis](#)
- ▶ [Interpreting the Gradient Level Wind Analysis \(Asia Region\)](#)



Winter 2024

Climate and water
long-range forecast

Find out more >

[Advertisement](#)

NWP Data Files

- ▶ [ACCESS Data Files Documentation](#)
- ▶ [AUSWAVE Data Files Documentation](#)



Cold front



Developing cold front



Warm front



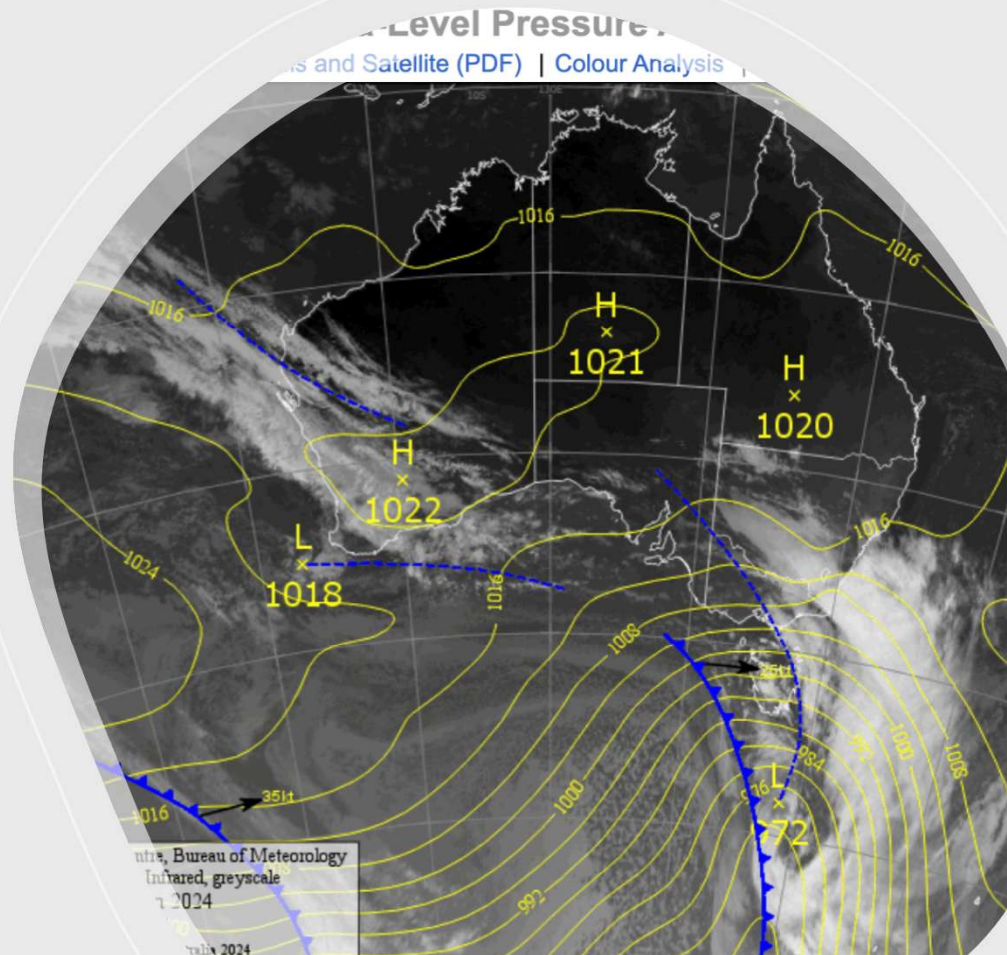
Developing warm front



Occluding front



Occluded front



Animate



Select a day or time to see its map

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

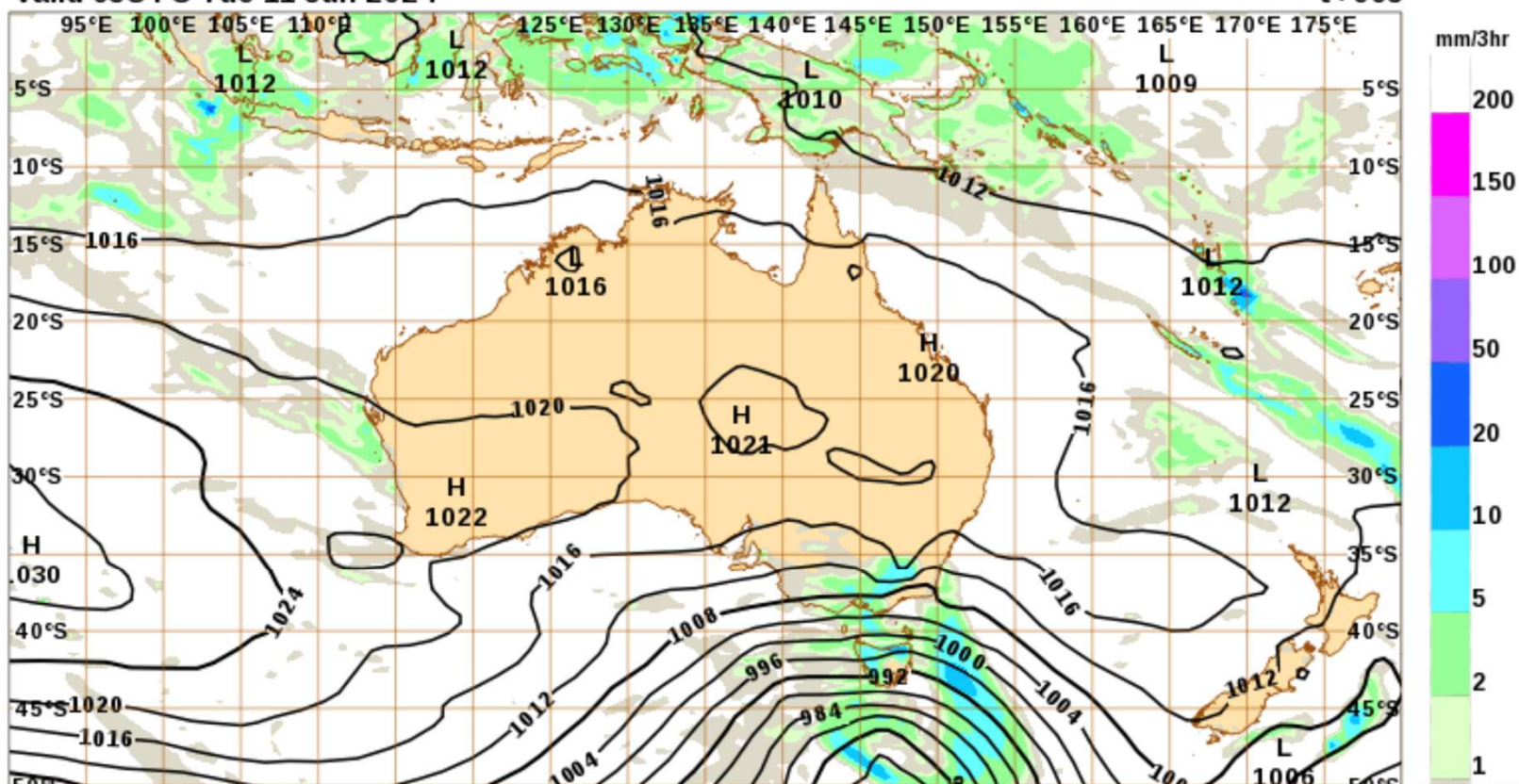
SUNDAY

MONDAY

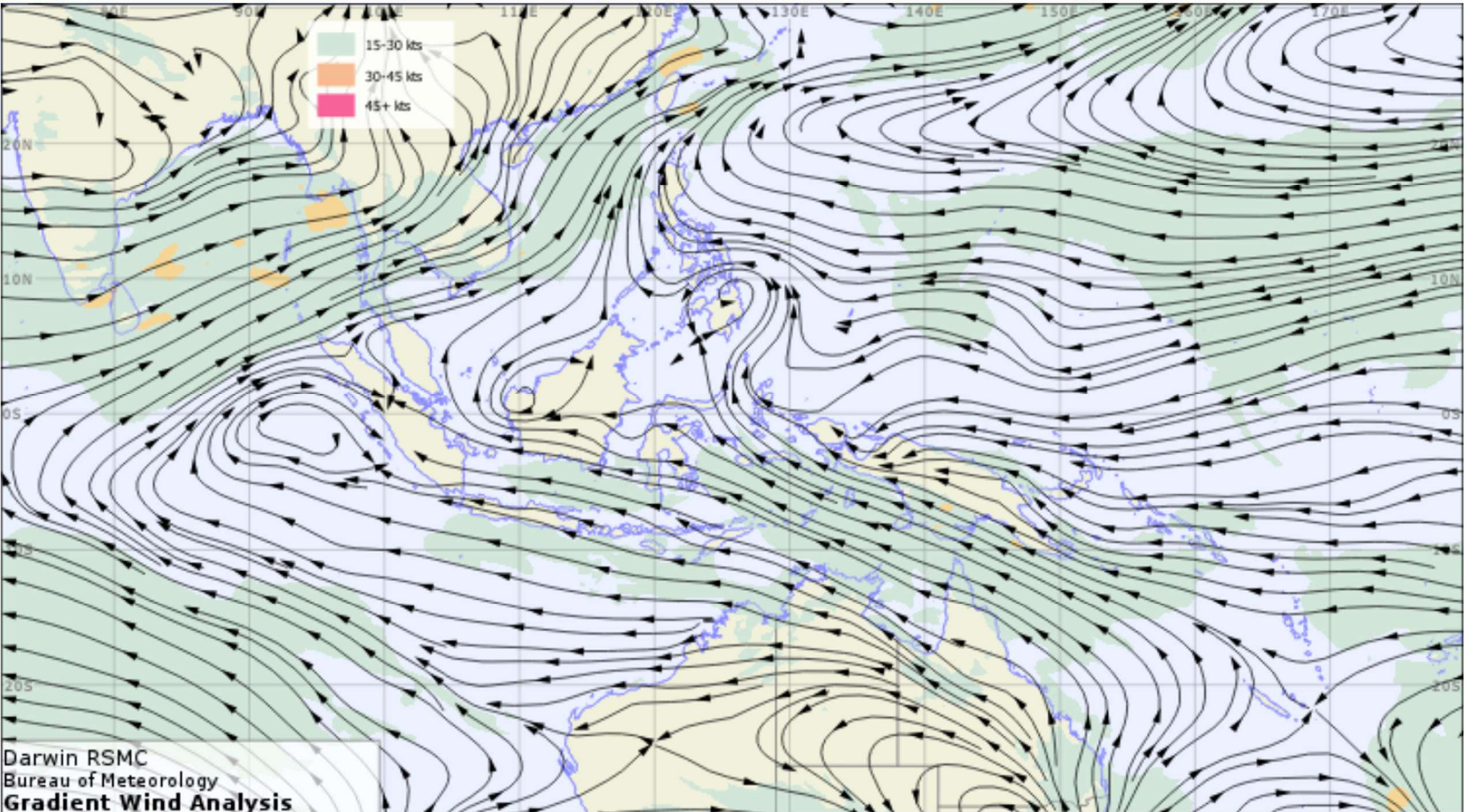
13 16 19 22 01 04 07 10 13 16 19 22 01 04 07 10 13 16 19 22 01 04 07 10 16 22 04 10 16 22 04 10 16 22 04 10 16 22

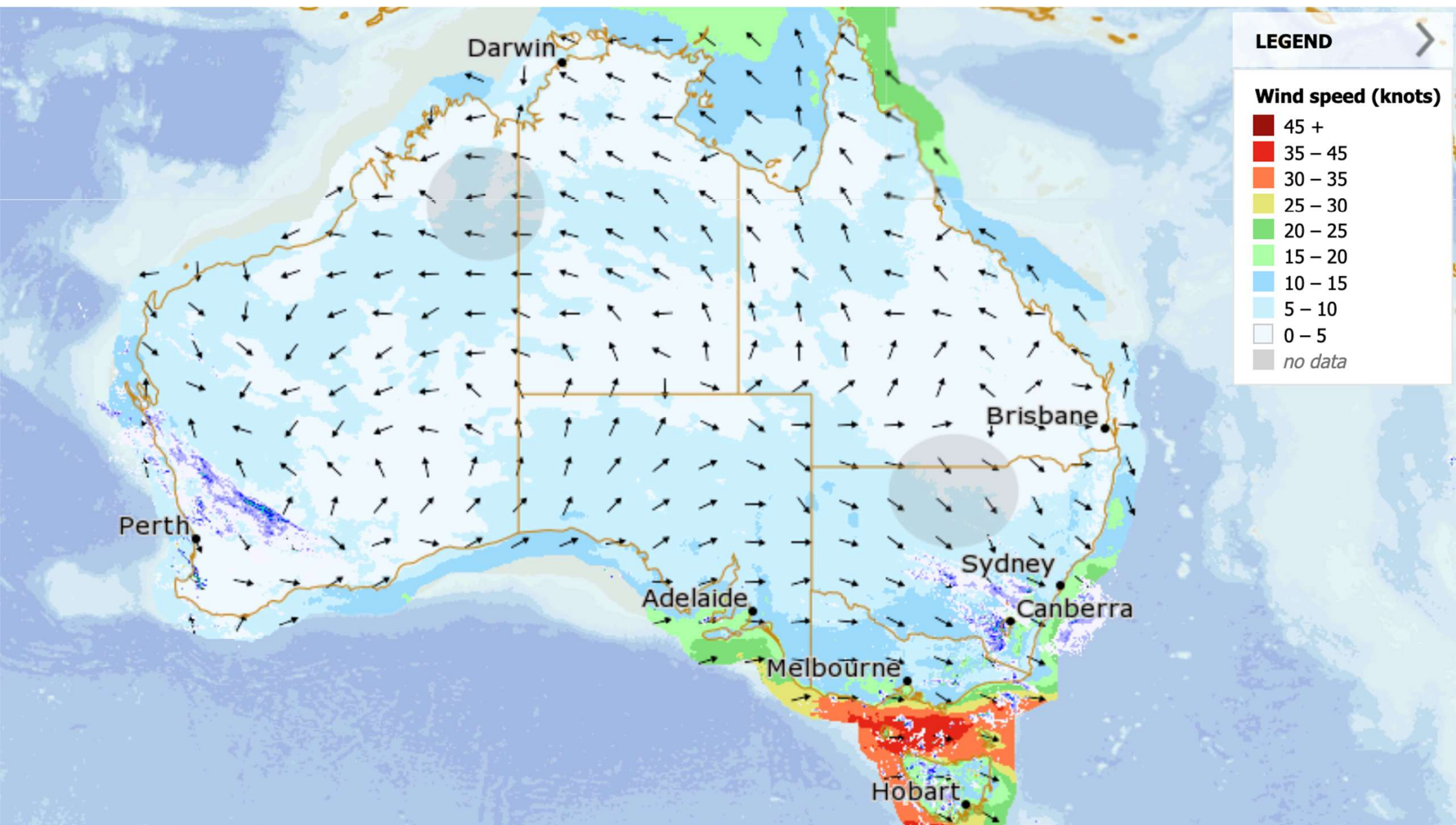
MSLP / Precip (03 hourly)
Valid 03UTC Tue 11 Jun 2024

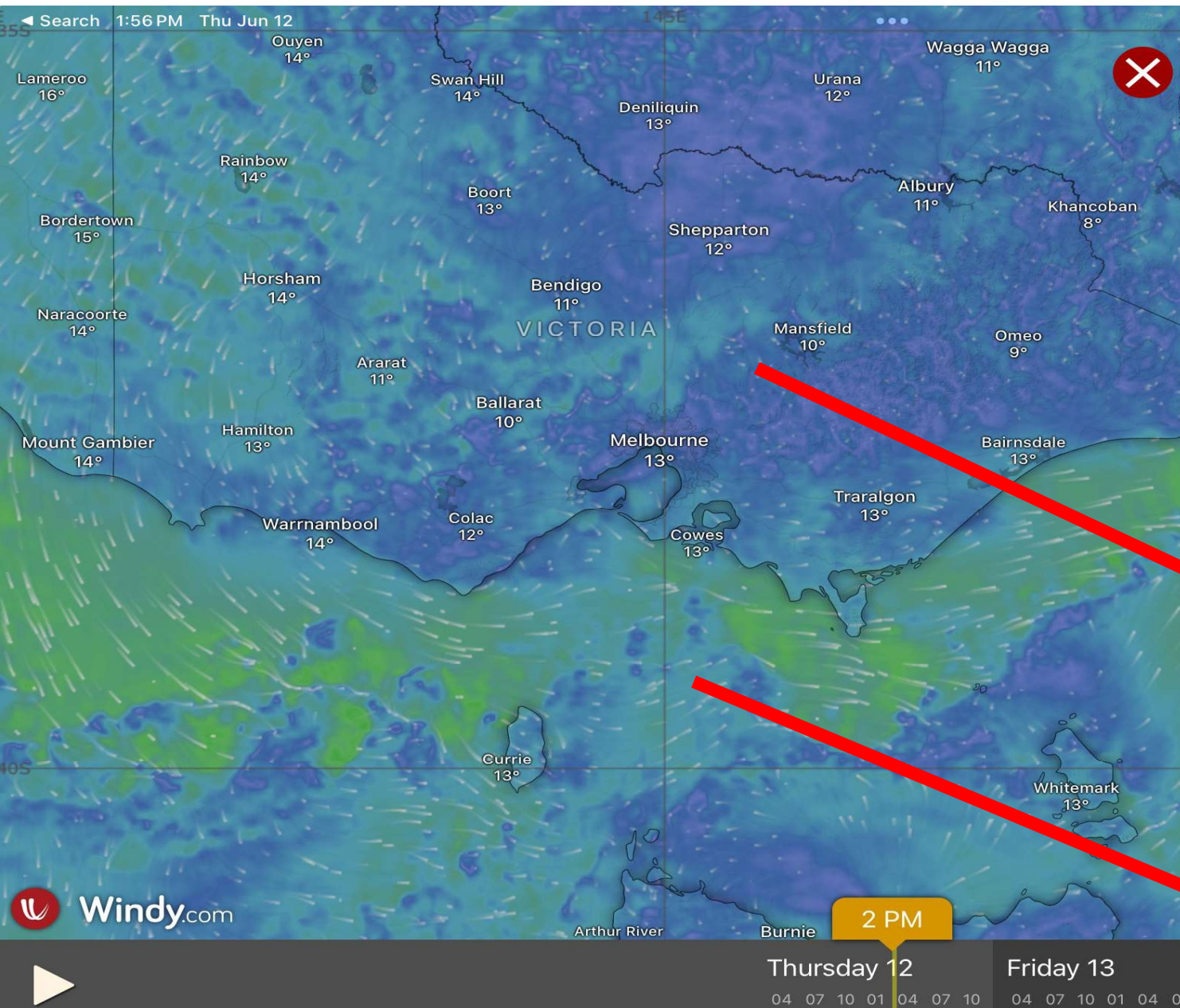
ACCESS-G3
t+003



[Printable Colour Analysis \(PDF\)](#) [Printable B&W Analysis \(PDF\)](#) [Interpreting the gradient level wind analysis](#)







Tide forecast

Radiation

Active fires

Air quality stations

Radiosondes

Long tap favourite items to pin them to the quick menu

Forecast model

ECMWF^{9km} GFS^{22km} ICON^{13km}

ACCESS^{12km} ACCESS-C SY^{1.5km}

ACCESS-C VT^{1.5km}

Forecast updated 1h 5m ago (ref 00Z)
Update expected at 07:51 PM, in 5h 54m 36s

About these data >

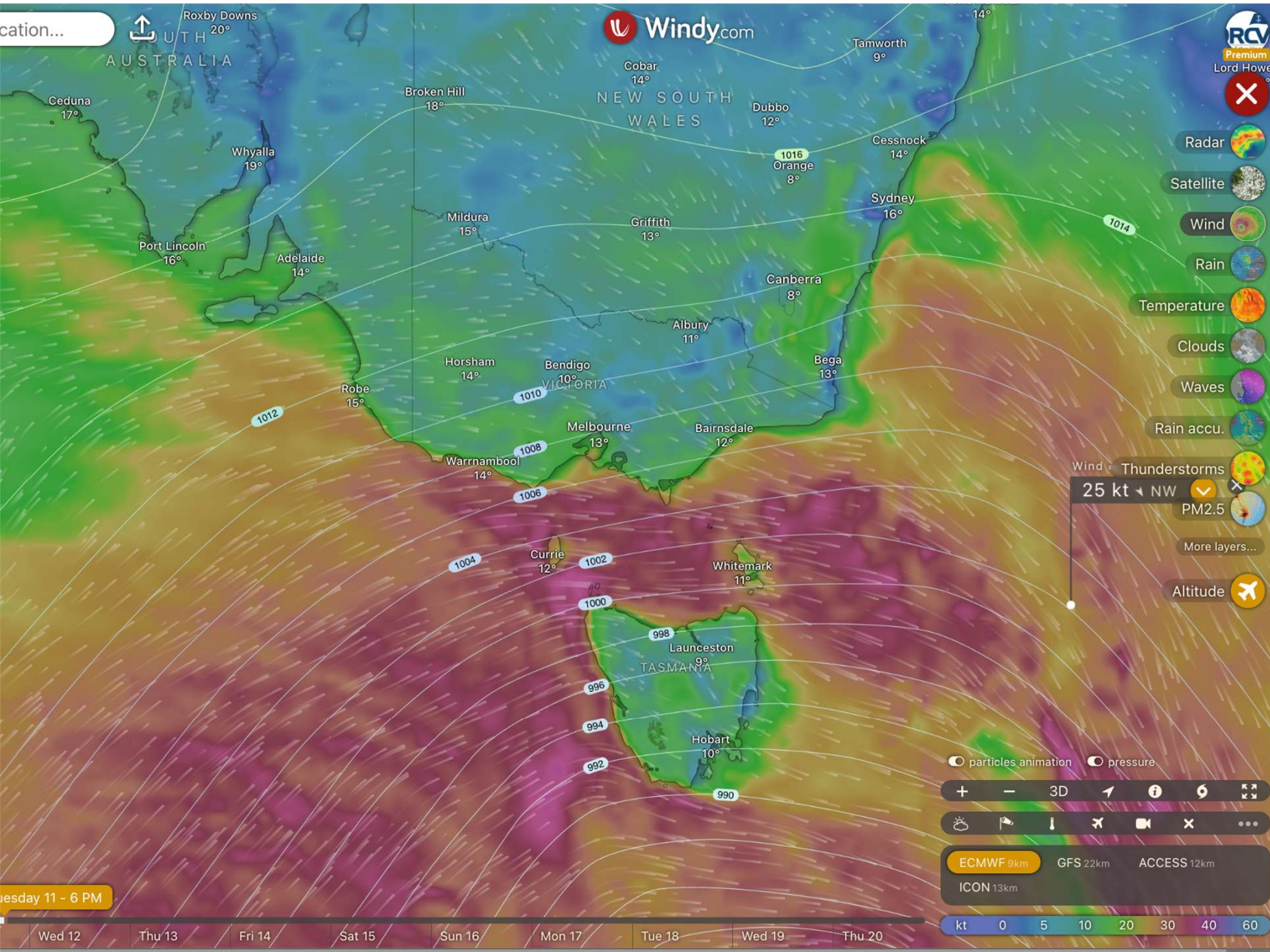
App add-ons

Widgets

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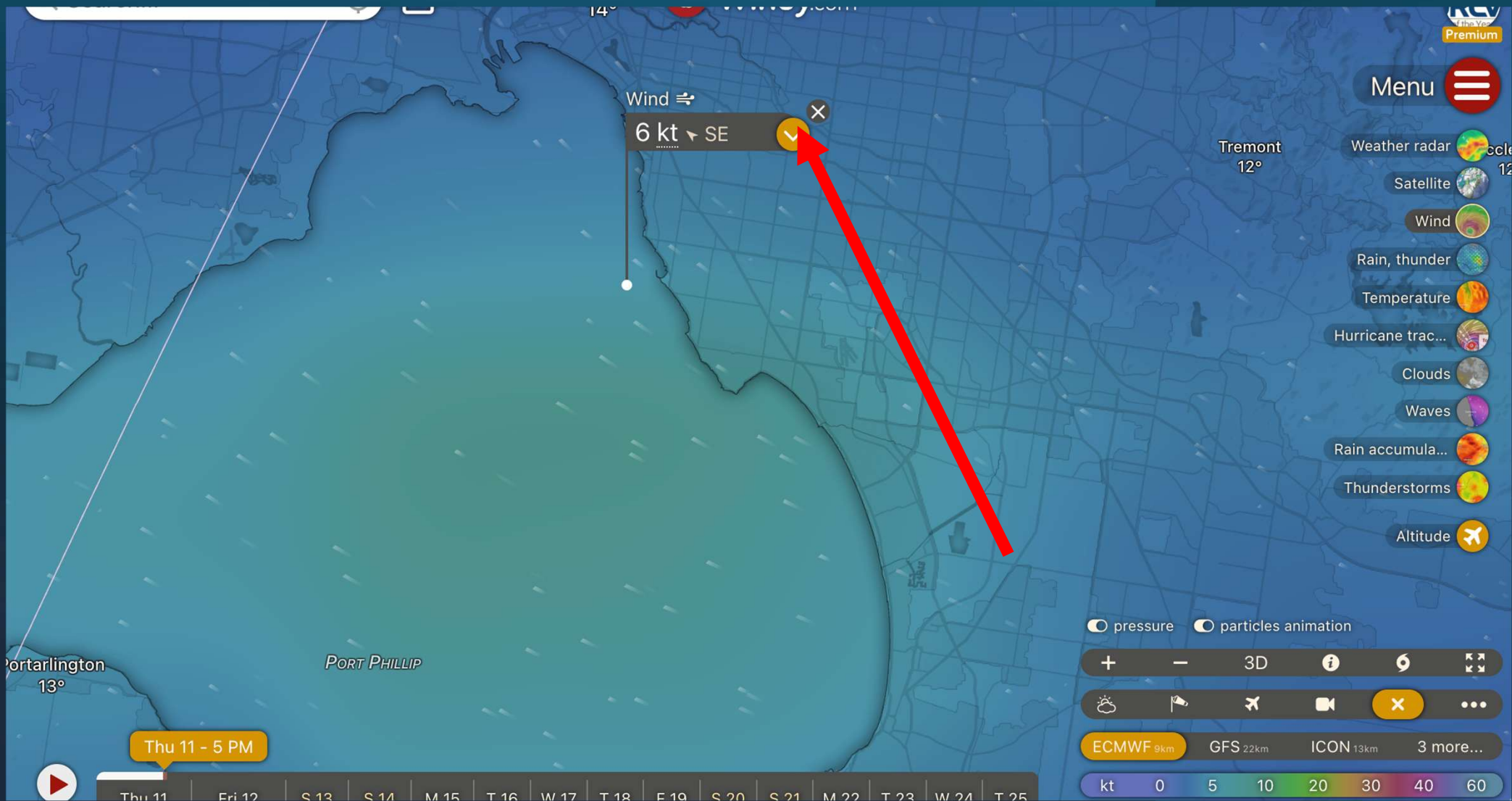


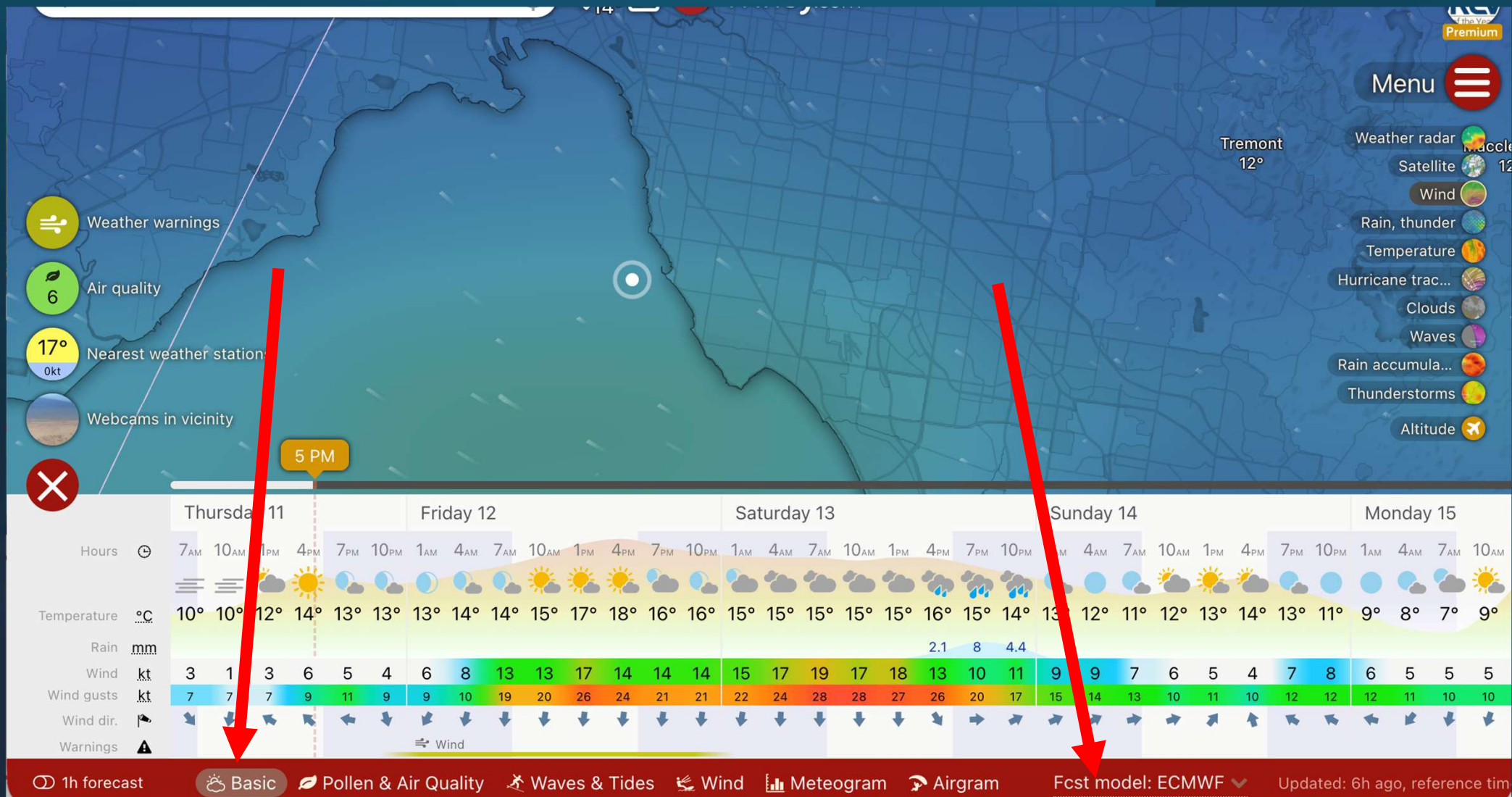
RCV Premium Lord Howe I

Drought monitoring Fire danger Weather warnings Extreme forecast

Display on map

- ☐ Particles animation
- ☐ Isolines of pressure
- ☒ Empty map
- ☒ My favorites
- ☒ Forecasted weather
- ☒ Reported wind
- ☒ Reported temp.
- ☒ Recent precip.
- ☒ Airports
- ☒ Webcams
- ☒ Paragliding spots
- ☒ Kite/WS spots
- ☒ Surfing spots
- ☒ Tide forecast
- ☒ Radiation
- ☒ Active fires
- ☒ Air quality stations
- ☒ Radiosondes





50

Air quality

15°

Nearest weather stations

Webcams in vicinity

Weather, ra...

14°

Wind

Temperature

Clouds

Rain accu...

Satellite

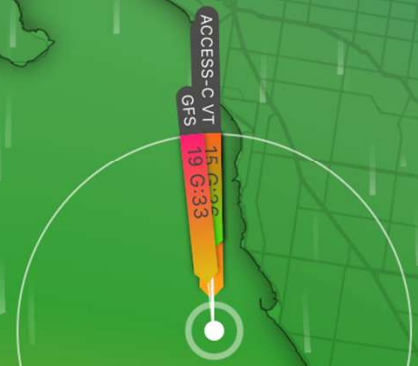
Rain, thund...

Hurricane t...

Waves

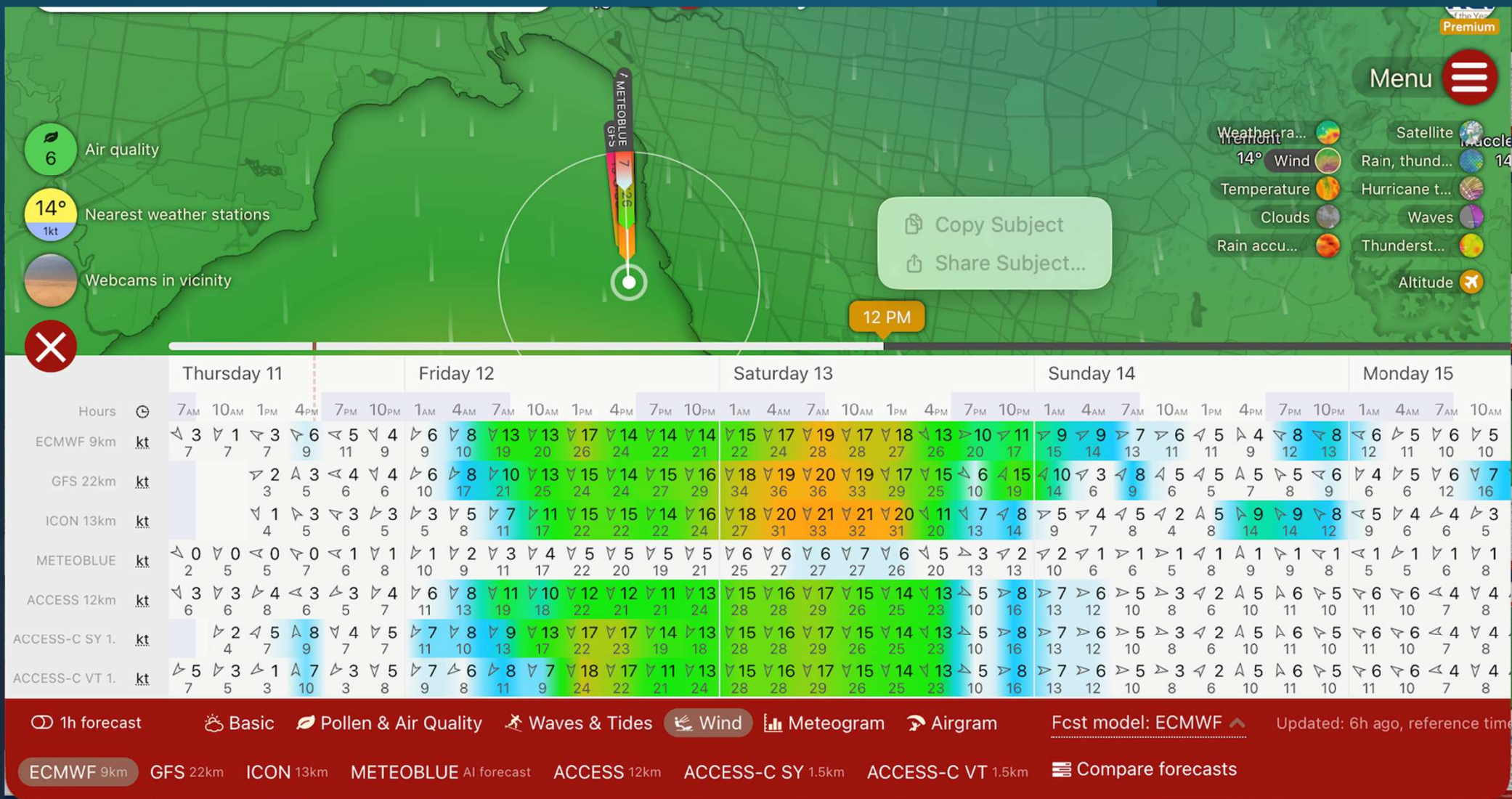
Thunderst...

Altitude



12 PM

		Thursday 11						Friday 12						Saturday 13						Sunday 14						Monday 15									
Hours	☉	7AM	10AM	1PM	4PM	7PM	10PM	1AM	4AM	7AM	10AM	1PM	4PM	7PM	10PM	1AM	4AM	7AM	10AM	1PM	4PM	7PM	10PM	1AM	4AM	7AM	10AM	1PM	4PM	7PM	10PM	1AM	4AM	7AM	10AM
ECMWF 9km	kt	↘3 7	↘1 7	↘3 7	↘6 9	↘5 11	↘4 9	↘6 9	↘8 10	↘13 19	↘13 20	↘17 26	↘14 24	↘14 22	↘14 21	↘15 22	↘17 24	↘19 28	↘17 28	↘18 27	↘13 26	↘10 20	↘11 17	↘9 15	↘9 14	↘7 13	↘6 11	↘5 11	↘4 9	↘8 12	↘8 13	↘6 12	↘5 11	↘6 10	↘5 10
GFS 22km	kt			↗2 3	↗3 5	↗4 6	↘4 6	↘6 10	↘8 17	↘10 21	↘13 25	↘15 24	↘14 24	↘15 27	↘16 29	↘18 34	↘19 36	↘20 36	↘19 33	↘17 29	↘15 25	↘6 10	↘15 19	↘10 14	↘3 6	↘8 9	↘5 6	↘5 5	↗5 7	↗5 8	↘6 9	↘4 6	↘5 6	↘6 12	↘7 16
ICON 13km	kt			↘1 4	↘3 5	↘3 6	↘3 5	↘3 5	↘5 8	↘7 11	↘11 17	↘15 22	↘15 22	↘14 22	↘16 24	↘18 27	↘20 31	↘21 33	↘21 32	↘20 31	↘11 20	↘7 13	↘8 14	↘5 9	↘4 7	↘5 8	↘2 4	↗5 8	↗9 14	↗9 14	↗8 12	↘5 9	↘4 6	↘4 6	↘3 5
METEOBLUE	kt	↘0 2	↘0 5	↘0 5	↘0 7	↘1 6	↘1 8	↘1 10	↘2 9	↘3 11	↘4 17	↘5 22	↘5 20	↘5 19	↘5 21	↘6 25	↘6 27	↘6 27	↘7 27	↘6 26	↘5 20	↘3 13	↘2 13	↘2 10	↘1 6	↘1 6	↘1 5	↘1 8	↗1 9	↗1 9	↘1 8	↘1 5	↘1 5	↘1 6	↘1 8
ACCESS 12km	kt	↘3 6	↘3 6	↘4 8	↘3 6	↘3 5	↘4 7	↘6 11	↘8 13	↘11 19	↘10 18	↘12 22	↘12 21	↘11 21	↘13 24	↘15 28	↘16 28	↘17 29	↘15 26	↘14 25	↘13 23	↘5 10	↘8 16	↘7 13	↘6 12	↘5 10	↘3 8	↘2 6	↗5 10	↗6 11	↘5 10	↘6 11	↘4 10	↘4 7	↘4 8
ACCESS-C SY 1.	kt		↘2 4	↘5 7	↗8 9	↘4 7	↘5 7	↘7 11	↘8 10	↘9 13	↘13 17	↘17 22	↘17 23	↘14 19	↘13 18	↘15 28	↘16 28	↘17 29	↘15 26	↘14 25	↘13 23	↘5 10	↘8 16	↘7 13	↘6 12	↘5 10	↘3 8	↘2 6	↗5 10	↗6 11	↘5 10	↘6 11	↘4 10	↘4 7	↘4 8
ACCESS-C VT 1.	kt	↘5 7	↘3 5	↘1 3	↗7 10	↘3 3	↘5 8	↘7 9	↘6 8	↘8 11	↘7 9	↘18 24	↘17 22	↘11 21	↘13 24	↘15 28	↘16 28	↘17 29	↘15 26	↘14 25	↘13 23	↘5 10	↘8 16	↘7 13	↘6 12	↘5 10	↘3 8	↘2 6	↗5 10	↗6 11	↘5 10	↘6 11	↘4 10	↘4 7	↘4 8

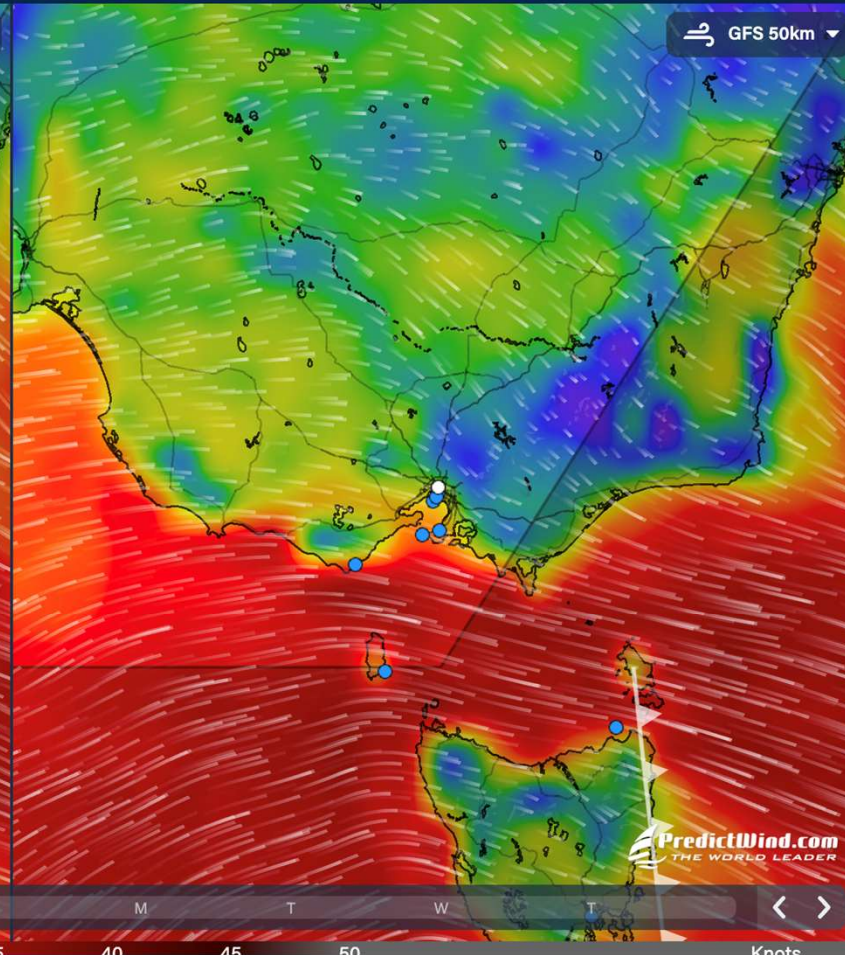
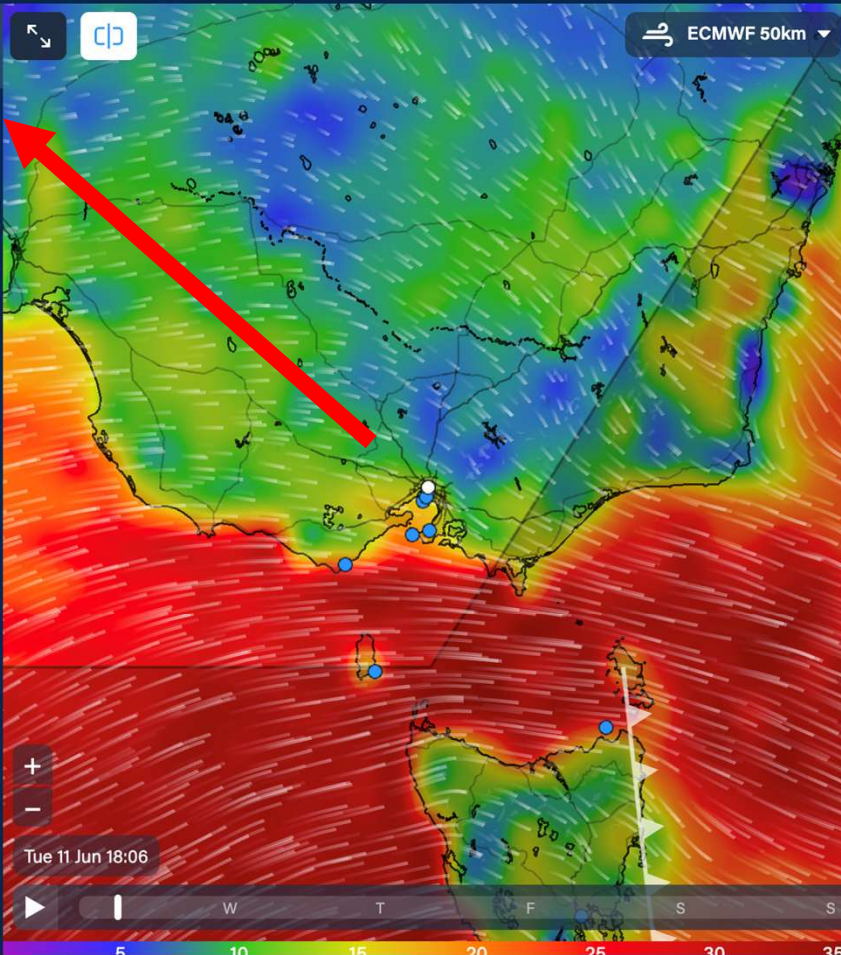


Melbourne

All forecasts expected to update in 10 hours

Forecasts

- Daily Briefing
- Forecast Tables
- Forecast Graphs
- Wind Maps
- Gust Maps
- CAPE Maps
- Wave Maps
- Currents Maps
- Rain Maps
- Cloud Maps
- Isobar Maps



Sail Routing

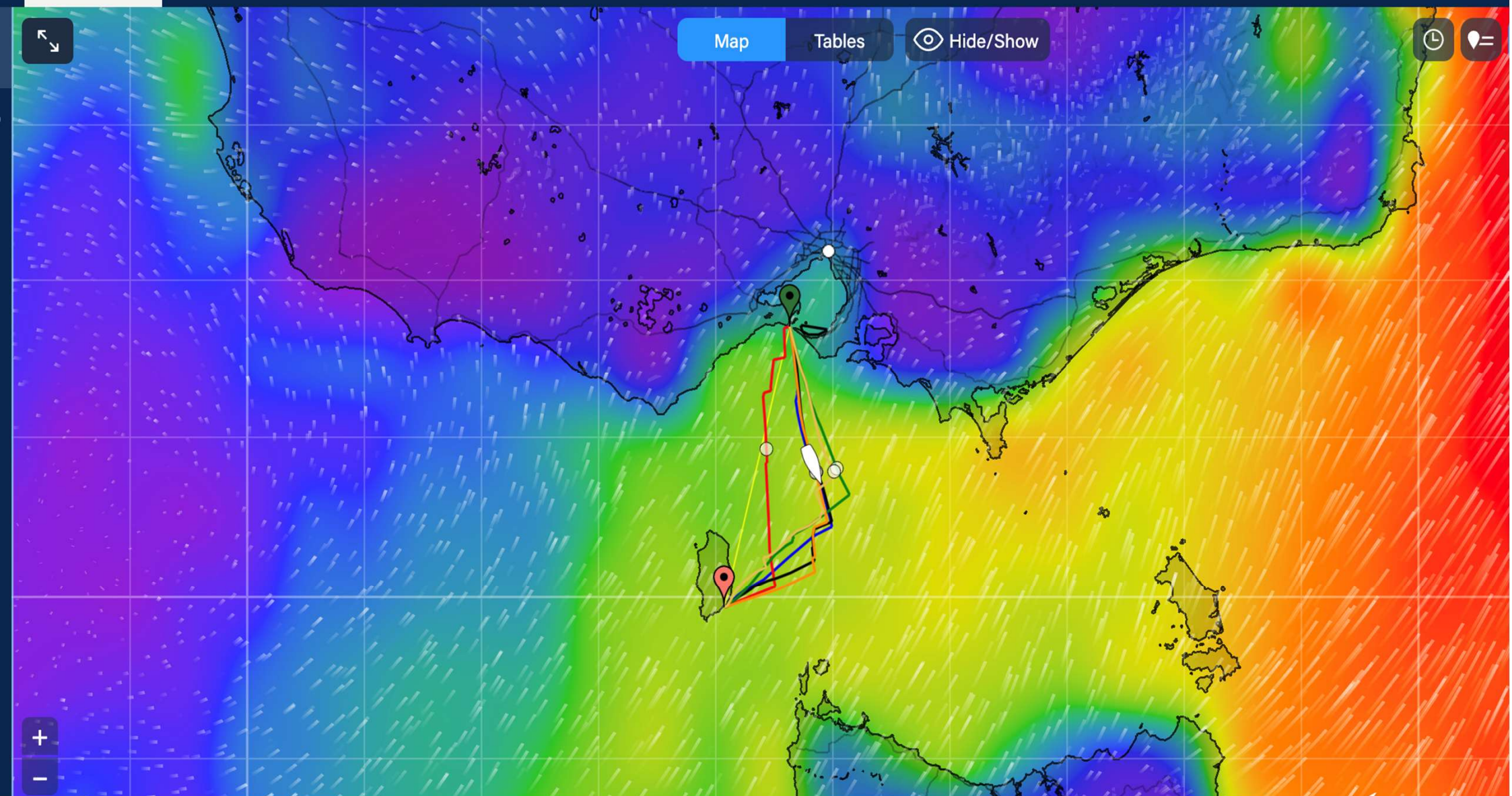
Routing Preferences

EN

Map

Tables

Hide/Show





Map

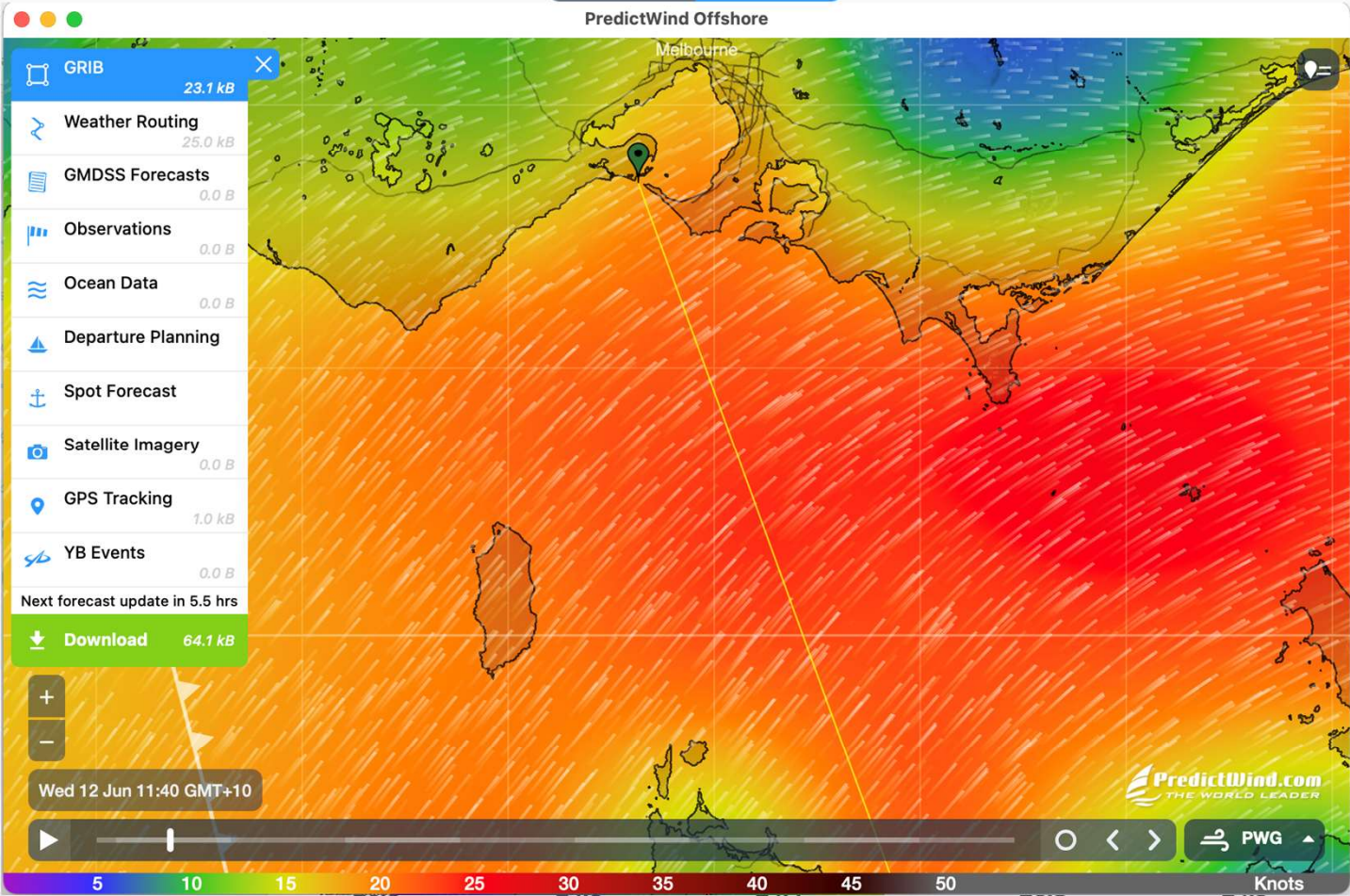
Tables



Graph

Wind

Timezone
Start Time
Finish Time
Time Taken
Motoring Time
Distance Traveled
Average Speed (kts)
Passage Time (days)
Motoring Time (days)
Max Wind Speed (Knots)
Min Wind Speed (Knots)
Avg Wind Speed (Knots)
Max Gust (Knots)
Max CAPE (J/kg)
Max Rain (Millimeters/Hour)



Timezone	GMT+10:00
Start Time	12 Jun 15:00
Finish Time	13 Jun 17:00
Time Taken	30s
Motoring Time	1 day 2h 0m 43s
Distance Traveled	136.3 NM
Average Speed (kts)	5.2
Passage Time (days)	1.08
Motoring Time (days)	0.00
Max Wind Speed (Knots)	16.7
Min Wind Speed (Knots)	2.6
Avg Wind Speed (Knots)	9.6
Max Gust (Knots)	24.1
Max CAPE (J/kg)	22.55
Max Rain (Millimeters/Hour)	0.1

[Home](#) / Mean sea level pressure and 850 hPa wind speed

Mean sea level pressure and 850 hPa wind speed

High resolution forecast

Base time

Tue 11 Jun 2024 12 UTC



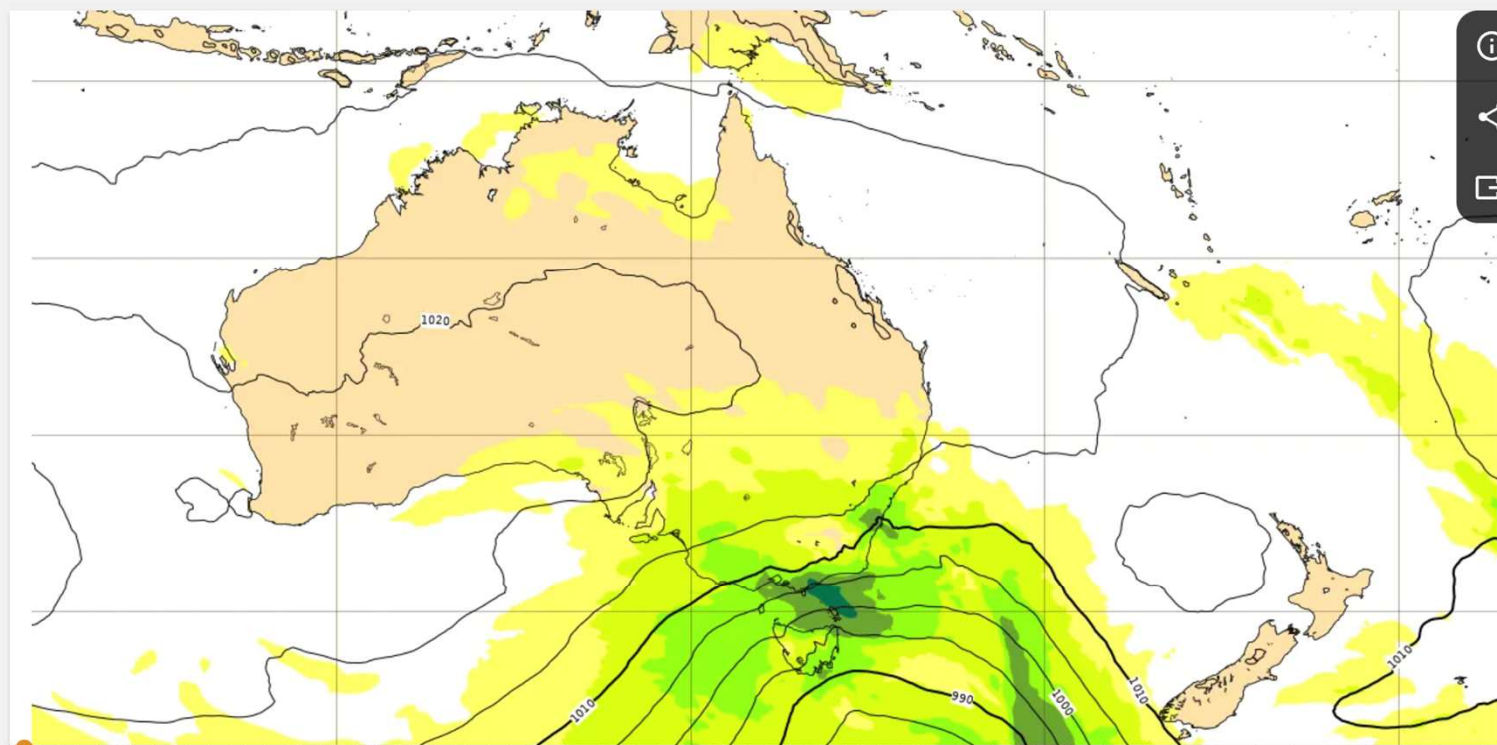
Valid time

Tue 11 Jun 2024 12 UTC (T...



Area

Australasia



Tue 11 Jun 2024 12 UTC (T+0)



Weather for Sailors

The Fundamentals-Enclosed Waters



Home Work

- Complete your online course
- Complete the knowledge books 1 and 2
- Familiarize yourself with all links
- Upload the GPX file to Windy and plan that you will be leaving on Friday the 21 June on you journey to Lakes Entrance
- **Contact Ray and Simon Training@orcv.org.au**