# Understanding Weather through the Web and on SmartPhone apps.

Terry Hart

Former Bureau of Meteorology employee

## **Topics**

- What is the weather now?
- What is the forecast?
- Past weather and climate

## Plan

1300 - 1345 Bureau of Meteorology web site

BREAK - questions, and requests or special interests?

1400 – 1500 Other apps and web sites – Australia and overseas OK?

There are lots of web references. So if you would like the handout notes for the presentation or the presentation itself, I can e-mail them to you. I have a sign up sheet for your e-mail address.

# BoM web site <a href="www.bom.gov.au">www.bom.gov.au</a>

- Satellite images
- Current Weather (Melbourne, Victoria)
- Radar (if interesting)
- Weather maps
- Forecasts and Warnings
- Climate information
- Tides
- MetEye web mapping viewer
- Archives

## BoM web site

# www.bom.gov.au





Sydney Now

25.8°

ESE 13km/h

Max 27°

Possible storm

Melbourne Now

18.0°

SSE 13km/h

Max 20°

Rain, easing in the Partly cloudy.

Brisbane Now

31.6°

SE 4km/h мах 33°

Perth

Now

ESE 9km/h

Max 35° Sunny.

Adelaide

Now 19.6°

S 17km/h

Max 24°

Partly cloudy.

Hobart Now

18.8°

SE 13km/h

Max 22° Possible late

shower.

Canberra

Now 23.7°

NW 7km/h

Max 27°

NW 19km/h

Darwin

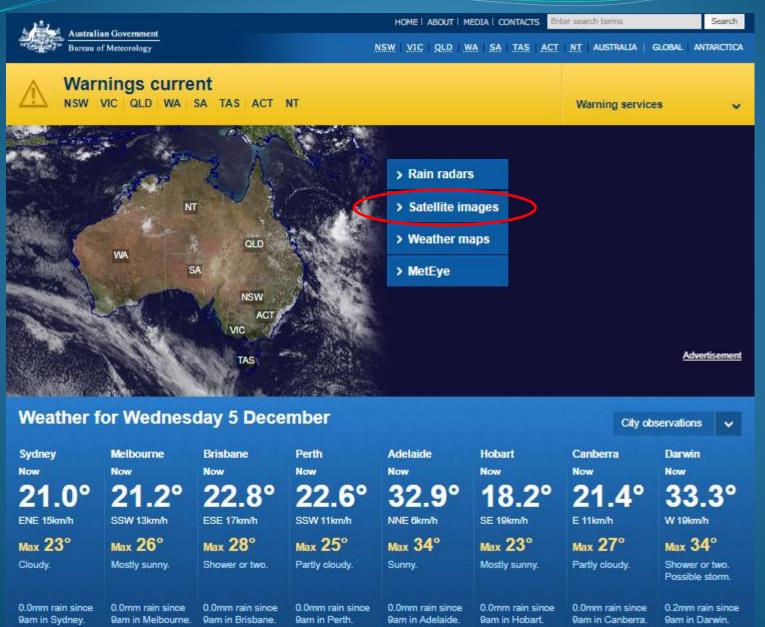
Now

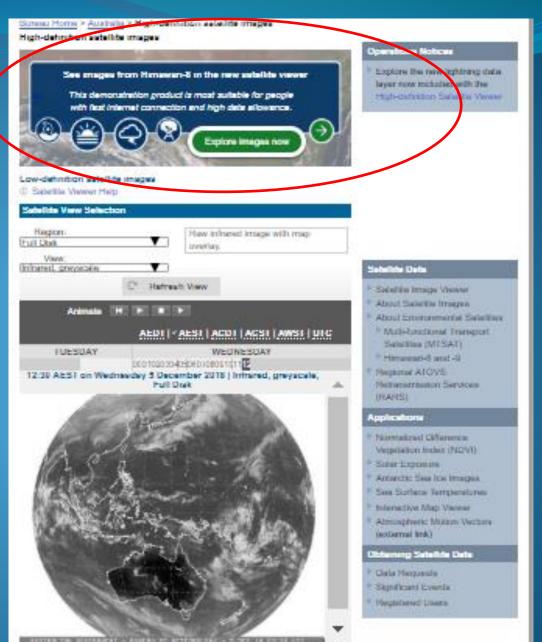
City observations

Max 33°

Shower or two. Possible shower.

# BoM web site www. bom.gov.au



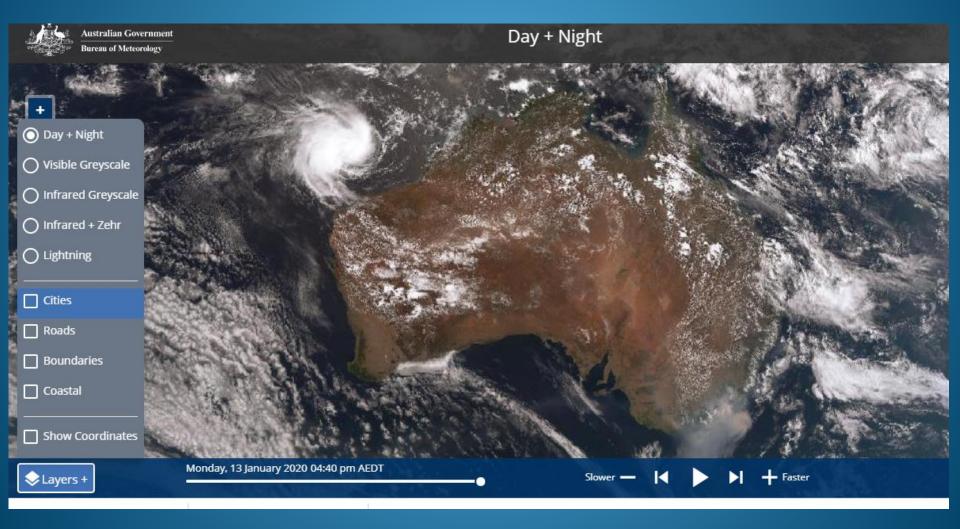


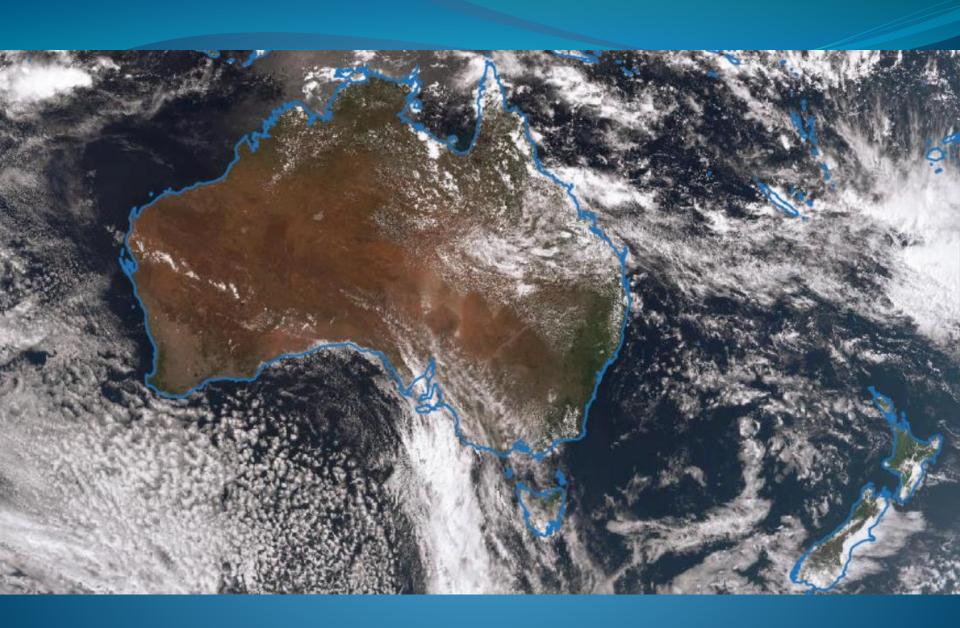
Satellite images

http://www.bom.gov.au/australia/satellite/

# High resolution satellite image time lapse

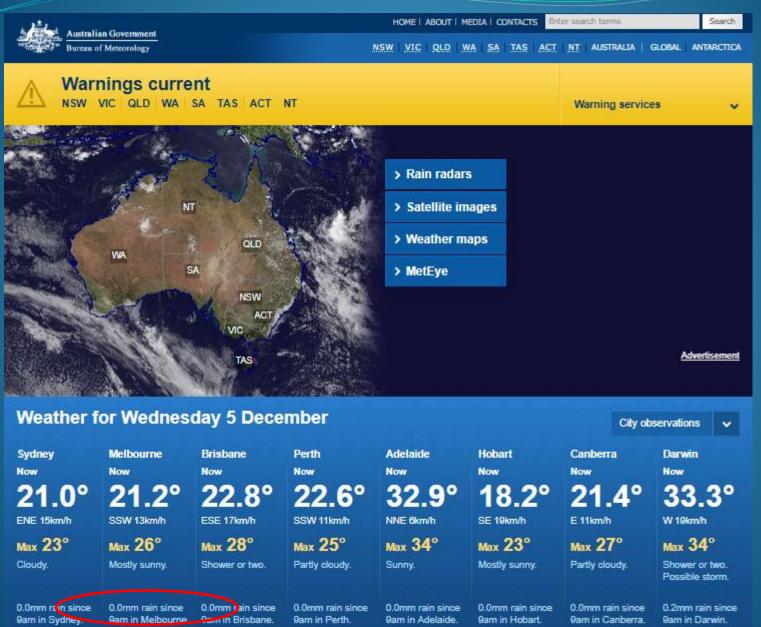
http://satview.bom.gov.au/





3 pm Monday 11 January 2021

# BoM web site www. bom.gov.au



## **Current weather observations**

# http://www.bom.gov.au/vic/observations/melbourne.shtml

#### Latest Weather Observations for the Melbourne Area

About weather observations | Map of Melbourne area stations | All VIC observations | Latest VIC observations | Latest Coastal VIC observations

IDV60900

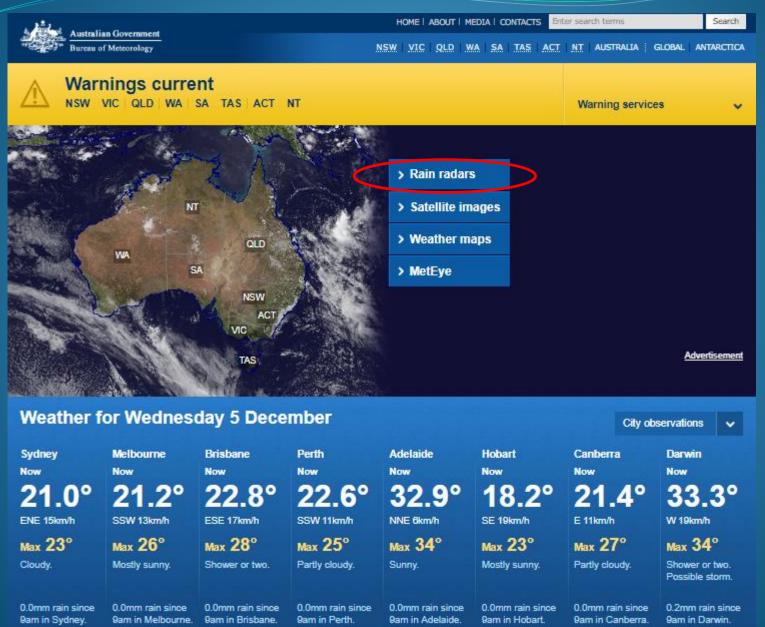
Issued at 3:21 pm EDT Monday 11 January 2021 (issued every 10 minutes, with the page automatically refreshed every 5 minutes)

Where no observation is available within the last 75 minutes, the latest observation is shown in *italics* and coloured and removed from the table after Station names link to data for the previous 72 hours. These observations have not been quality controlled.

#### MELBOURNE AREA

	Date/Time	Temp	Арр	Dew Point	Rel Hum	Delta-	Wind			Press Rain MSL since		Low	High	Highest Wind Gust				
	EDT	°C	Temp .°C	<u>Point</u> °C	Mum %	<u>.</u> c	Dir	Spd km/h	Gust km/h	Spd kts	Gust	hPa	since 9am mm	Low Temp °C time	Temp °C time	Dir	km/h time	kts
Melbourne (Olympic Park)	11/03:20pm	36.5	33.7	11.3	22	15.0	NNW	17	22	9	12	1007.9	0.0	19.5 04:37am	36.5 03:20pm	NNW		22 02:04pm
Melbourne Airport	11/03:20pm	35.9	27.1	3.6	13	17.1	N	39	44	21	24	1008.5	0.0	18.2 04:16am	36.0 03:00pm	N	57 03:18pm	31 03:18pm
Avalon	11/03:20pm	36.3	28.3	9.0	19	15.7	N	41	54	22	29	1007.3	0.0	15.9 04:51am	37.1 03:17pm	N	54 03:20pm	29 03:20pm
Cerberus	11/03:20pm	35.9	31.6	7.0	17	16.1	N	19	26	10	14	1008.0	0.0	16.4 12:23am	36.4 03:16pm	NNW		22 11:06am
Coldstream	11/03:20pm	35.7	31.8	8.5	19	15.5	N	19	26	10	14	1009.1	0.0	13.9 05:37am	35.8 01:05pm	NNE		22 01:58pm
Essendon Airport	11/03:20pm	35.7	29.7	5.1	15	16.5	NNW	26	41	14	22	1008.3	0.0	18.9 05:39am	36.6 03:16pm	NNW	54 03:11pm	29 03:11pm
Fawkner Beacon	11/03:20pm	-	-	-	-	-	NNW	35	41	19	22	-	-	-	-	N	57 01:48pm	31 01:48pm
Ferny Creek	11/03:20pm	30.8	28.8	8.5	25	12.6	N	9	11	5	6	-	0.0	23.4 12:58am	31.0 03:19pm	NE	33 06:14am	18 06:14am
Frankston (Ballam Park)	11/03:20pm	35.5	32.5	10.5	22	14.7	NNW	17	22	9	12	-	0.0	17.4 04:41am	35.7 03:20pm	NNW		19 02:40pm
Frankston Beach	11/03:20pm	-	-	-	-	-	NNW	15	15	8	8	-	-	-	-	NNW		16 02:08pm
Geelong Racecourse	11/03:20pm	36.0	29.0	6.2	16	16.4	NNW	32	37	17	20	-	0.0	15.8 04:15am	36.9 02:56pm	N	48 12:56pm	26 12:56pm
Laverton	11/03:20pm	35.8	28.6	7.8	18	15.8	NNW	35	43	19	23	1008.0	0.0	17.1 06:45am	36.3 01:46pm	N	54 01:16pm	29 01:16pm
Moorabbin Airport	11/03:20pm	35.5	30.9	11.2	23	14.4	N	26	39	14	21	1008.1	0.0	17.4 06:02am	36.8 01:55pm	-	50 01:58pm	27 01:58pm
Rhyll	11/03:20pm	30.3	27.4	13.9	36	9.9	NNW	22	26	12	14	1008.3	0.0	19.1 06:53am	32.5 02:47pm	NNW		18 11:58am
Scoresby	11/03:20pm	35.0	33.9	15.3	30	12.4	N	15	26	8	14	-	0.0	17.0 04:45am	35.9 03:14pm	NNW		24 01:35pm
Sheoaks	11/03:20pm	34.3	27.6	5.7	17	15.6	NNW	30	37	16	20	1008.0	0.0	17.1 02:44am	35.4 02:29pm	NNW		26 01:26pm
South Channel Island	11/03:20pm	-	-	-	-	-	N	35	37	19	20	-	-	-	-	N	39 10:52am	21 10:52am
St Kilda Harbour RMYS	11/03:20pm	-	-	-	-	-	NW	41	52	22	28	-	-	-	-	NNW		29 01:58pm

# BoM web site www. bom.gov.au



# http://www.bom.gov.au/australia/radar/

#### Radar Images

Select location to see its image (or use Radar sites tables: NSW/ACT | VIC | QLD | WA | SA | TAS | NT)



Dedicated Weather Watch Radars should be online at all times, with images updated approximately every 10 minutes, unless there are technical difficulties or scheduled maintenance.

Part-time Windfinding Radars have routine periods when weather watch coverage is not available <u>See</u> availability table.

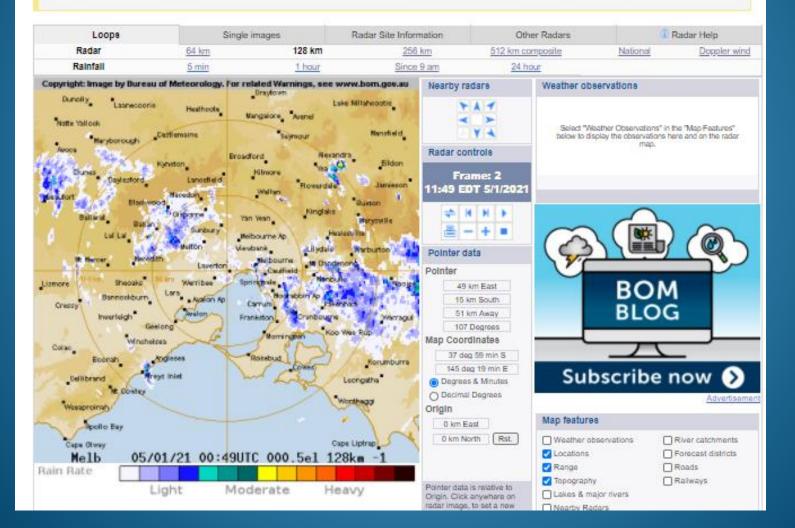
# http://www.bom.gov.au/australia/radar/

Bureau Home > Radar Images > 128 km Melbourne Radar Loop

#### 128 km Melbourne Radar Loop

View the current warnings for Victoria

This radar may be experiencing intermittent technical issues and our technicians are currently investigating. In the meantime, please view the alternative radar at Broadmeadows, other radar locations or satellite cloud and lightning imagery and watch for current weather warnings. Check MetEye for weather forecasts and current observations.



## Want to look at radar data in the past?

## http://www.theweatherchaser.com/radar-loop/

The Weather Chaser

Weather Radar Map BoM Radar Observations Snow Composite Radar Forecasts Sat Links

Like 71



#### Quick Links

Timelapse videos Will I Get Wet? Custom Weather Vis Aus Summaries Bom Radar Loops Snow Forecasts

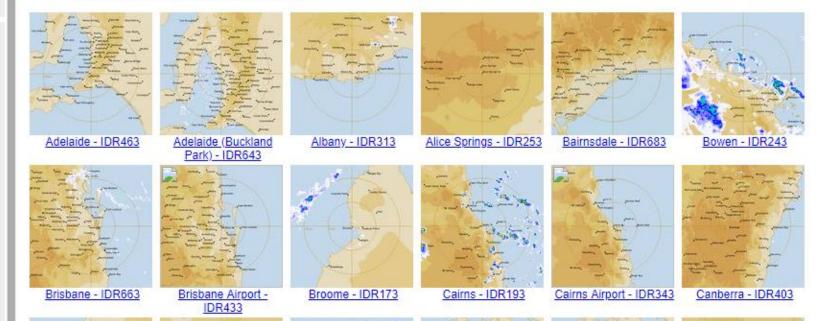
Aus Weather Map

#### BoM Weather Radar Loops Archive - Rain Rate & Doppler Wind

Historical & Current BoM weather radar loops for Australia inclding rain rate, and doppler wind radars. See a day, or a week of archived weather

Follow the links for the last day of radar images for the given location. Archives for older dates are maintained back into 2008, with more in the process of being added.

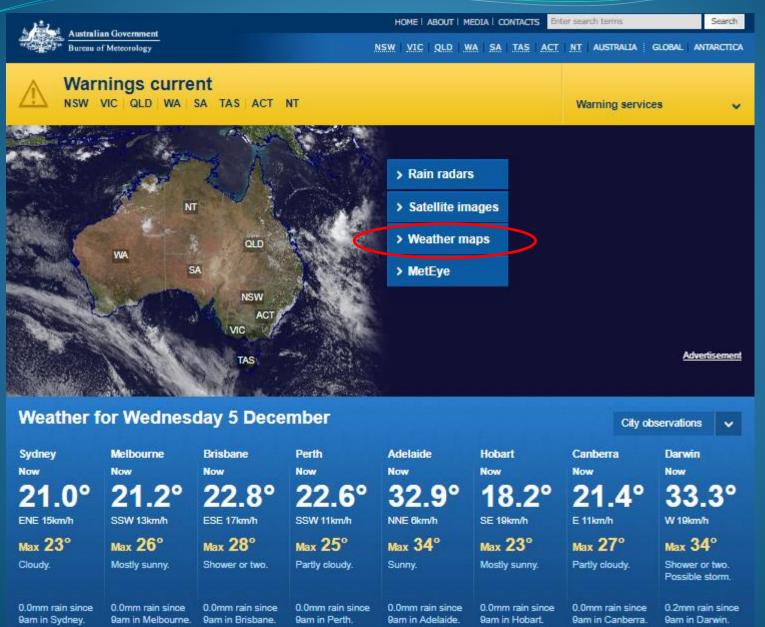
See Also: Archived Monthly Weather Satellite Movies for Australia



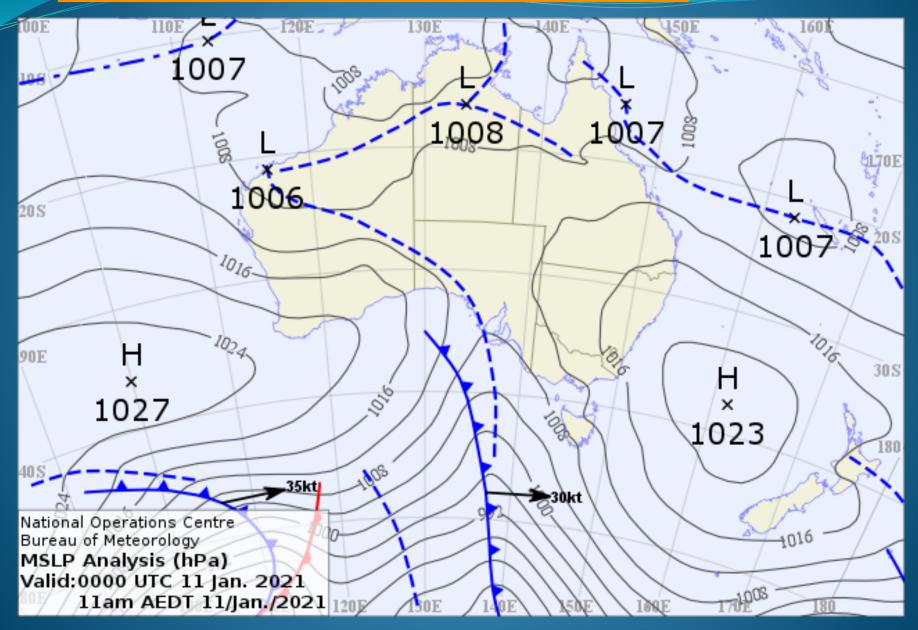
2018-12-31 00:00 UTC +6h www.lightningmaps.org Strokes: 10849

Lightning maps

# BoM web site www. bom.gov.au



# http://www.bom.gov.au/australia/charts/



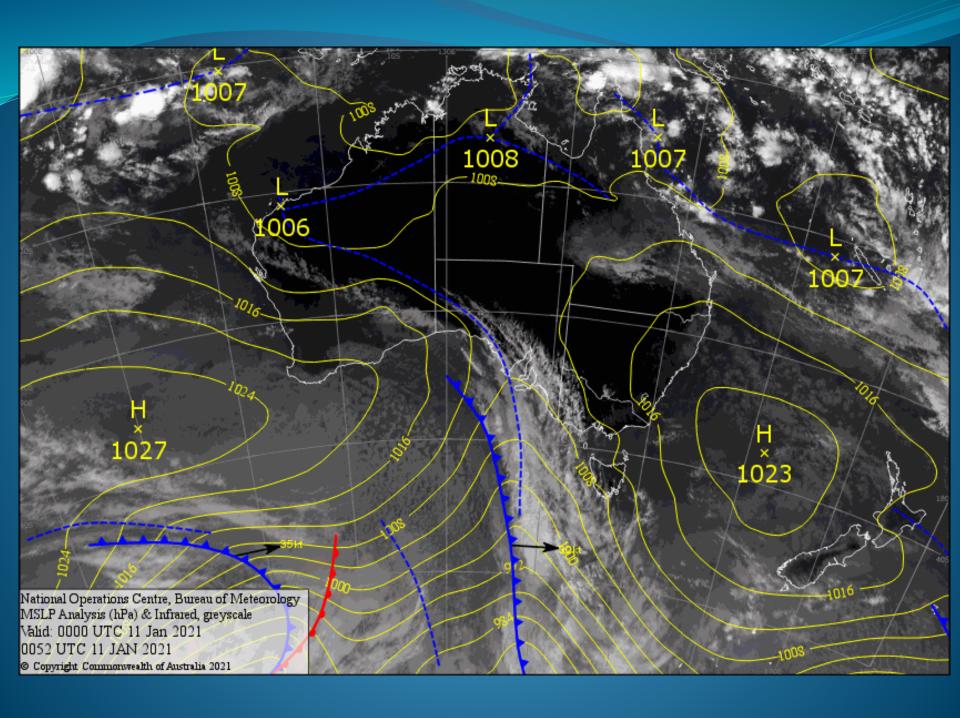
## Difference between weather and climate?

**Climate** is the collective effect of weather events. It deals in statistics such as averages, extremes and typical weather.

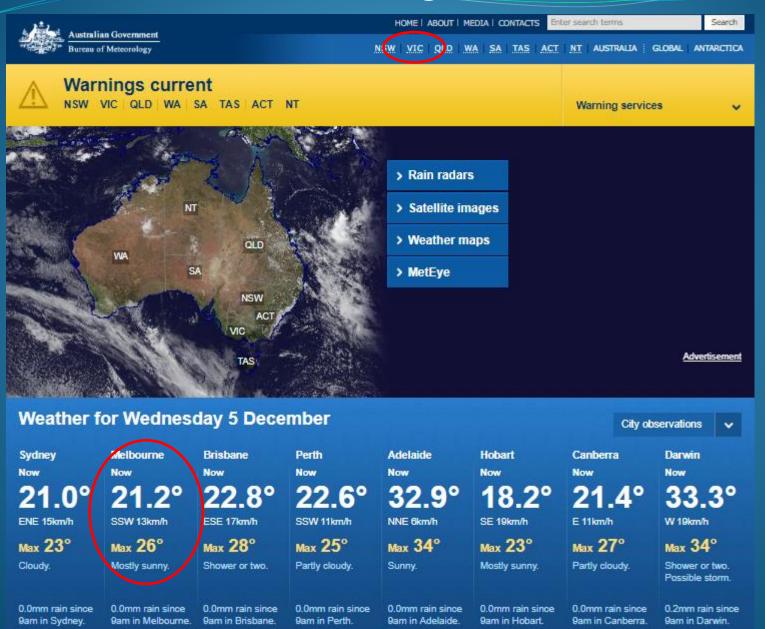
## Weather maps

Three basic rules for reading weather maps in our part of the world:

- The wind blows clockwise around lows, and anticlockwise around highs (in the Southern Hemisphere; the opposite way in the Northern Hemisphere)
- the closer the isobars (lines of equal pressure), the stronger the wind
- rain and thunderstorms tend to occur in the low pressure zone between highs.



# BoM web site www. bom.gov.au



## **Melbourne Forecast**

# http://www.bom.gov.au/vic/forecasts/melbourne.shtml

#### Melbourne Forecast



View the current warnings for Victoria

Forecast issued at 5:05 am EDT on Monday 11 January 2021.

#### Forecast for the rest of Monday



Max 38

Hot. Mostly sunny.

#### Melbourne area

Hot, before a cooler change late in the evening. Mostly sunny morning with cloud increasing during the afternoon. Slight chance of a shower in the northwest suburbs later tonight with possible thunder. Winds north to northeasterly 15 to 25 km/h tending north to northwesterly 25 to 35 km/h in the morning then becoming light in the late evening.

Fire Danger - Very High

Sun protection recommended from 9:10 am to 5:40 pm, UV Index predicted to reach 12 [Extreme]

#### Tuesday 12 January



Min 17 Max 23

Partly cloudy.

Chance of any rain: 20%

#### Melbourne area

Partly cloudy. Slight (20%) chance of a shower in the early morning with possible thunder. Winds southwesterly 15 to 25 km/h turning southerly 20 to 30 km/h early in the

Sun protection recommended from 9:10 am to 5:40 pm, UV Index predicted to reach 12 [Extreme]

#### Wednesday 13 January



Min 13 Max 34 Partly cloudy.

0 to 0.4 mm Possible rainfall:

Chance of any rain: 30%

#### Melbourne area

Hot, Sunny morning, Slight (30%) chance of a shower in the afternoon and evening. Light winds becoming north to northwesterly 15 to 25 km/h during the day then turning west to southwesterly 20 to 30 km/h during the afternoon.

Sun protection recommended from 9:10 am to 5:40 pm, UV Index predicted to reach 11 [Extreme]

#### Thursday 14 January



Min 15 Max 21 Cloudy.

#### Melbourne area

Partly cloudy. Winds southwesterly 15 to 25 km/h turning southerly 20 to 30 km/h during the afternoon.

/ day Town Forecasts											
	Location	Min	Max								
	Melbourne	-	38								
*	Geelong	-	38								
	Laverton	-	38								
	Tullamarine	-	38								
	Scoresby	-	38								
	Watsonia	-	39								
	Mount Dandenong	-	33								
	Yarra Glen	-	37								
	Frankston	_	36								



7 des Tesse Francisco

## **BOM Weather app**

Download now →

Advertisement

## **Forecasts**

# http://www.bom.gov.au/vic

Bureau Home > Australia > Victoria Weather and Warnings

### Victoria Weather and Warnings



View the current warnings for Victoria

#### Forecasts

All forecasts

Melbourne forecast

7-day town forecasts via clickable map

Marine services

- District and marine forecasts via clickable map
- Weather and wave forecast maps – next 7 days (MetEye)

Weather system maps – next 4 days

#### Australian Alps Weather

Alpine weather overviews

#### Observations

All observations

Melbourne area latest observations

VIC latest observations

Latest rainfall & river conditions via clickable map

#### Radars

Melbourne radar



Select location to see its image.

All radar sites for Victoria

#### Past Weather

Data and graphs

Climate extremes

Climate averages

Maps

Monthly statistics

Maps of recent & past conditions

#### Outlooks

Rainfall

Temperature

Seasonal streamflow

#### Water Storage

Discover how much



# **Weather Maps**

# http://www.bom.gov.au/australia/charts/

bureau Horne z Australia z weather waps

#### Weather Maps

#### Numerical Weather and Ocean Prediction Maps



Interactive Weather and Wave Forecast Maps
Numerical Weather Prediction (NWP) Products

#### 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

#### Southern Hemisphere



- Southern Hemisphere MSLP Analysis
- Pacific Ocean MSLP Analyses
- Indian Ocean MSLP Analyses



- Analysis & Prediction Operations Bulletins
- Interpreting the MSLP Analysis
- Interpreting the Gradient Level Wind Analysis (Asia Region)



#### **NWP Data Files**

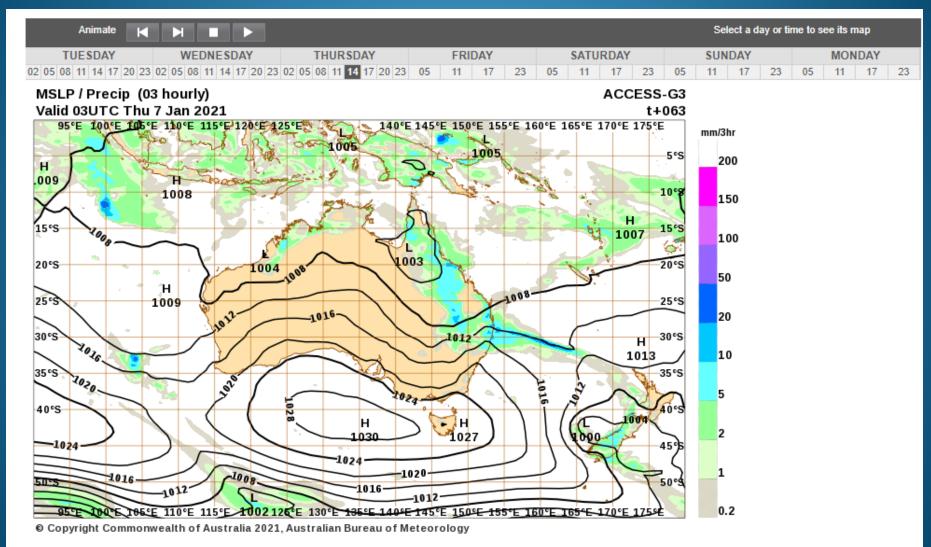
- ACCESS Data Files Documentation
- AUSWAVE Data Files Documentation

#### **Map Archives**

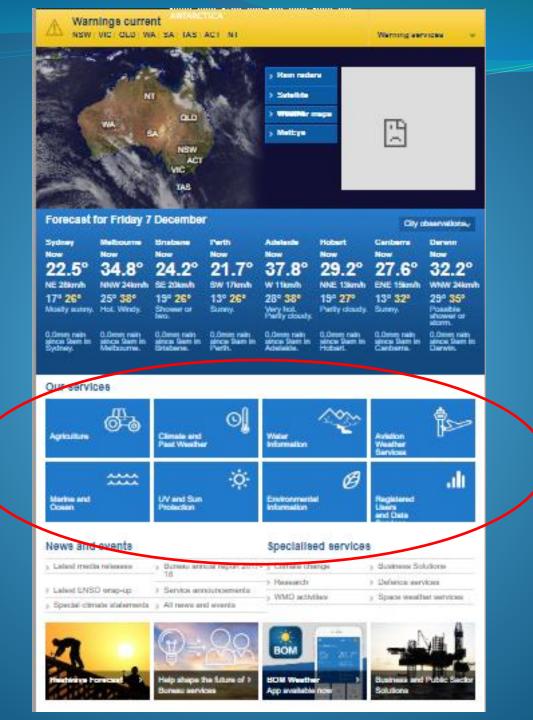
- Analysis Chart Archive
- Climate Map Archive

# **Computer forecast weather maps**

# http://www.bom.gov.au/australia/charts/viewer/



Forecast for 14:00 AEDT on Thursday 7 January 2021



## **Climate and past data**

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



HOME | ABOUT | MEDIA | CONTACTS

Enter search terms

Search

SA TAS ACT NT AUSTRALIA

ANTARCTICA

Temperature



Bureau Home > Long-range weather and climate

#### Long-range weather and climate



Monthly, seasonal, annual and event summaries. Climate reports and summaries



Outlooks & drivers

News & reports

Weather station data

Data services

Maps - history to now

Maps - averages

Climate change

Extremes and records

About Australian climate



Moderate to heavy falls across the northern tropics: moderate falls across eastern Australia.

Weekly rainfall report. 22 Dec 2020



Monsoon arrives early at Darwin

Weekly tropical climate note 22 December 2020



First quarter of 2021 likely to be wetter than average, particularly eastern states; warmer days in coastal regions; warmer nights almost Australia-wide.

Rainfall and temperature outlooks 24 December 2020



La Niña continues; may be approaching its peak Climate Driver Update 22 December 2020

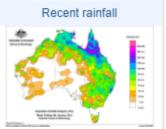


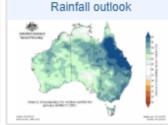
Deficiencies expand in southeast Queensland and continue in WA

Drought statement 4 December 2020

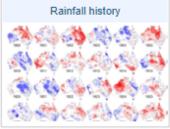


Early rainfall onset likely for most of northern Australia Northern rainfall onset outlook 27 August 2020





Rainfall



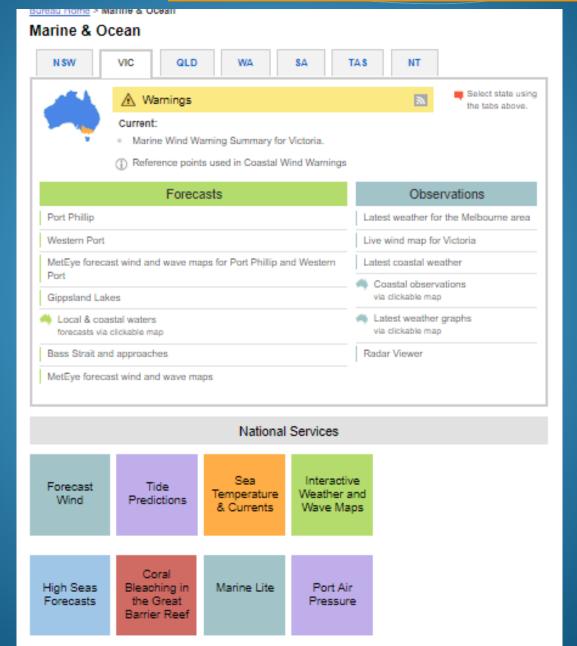




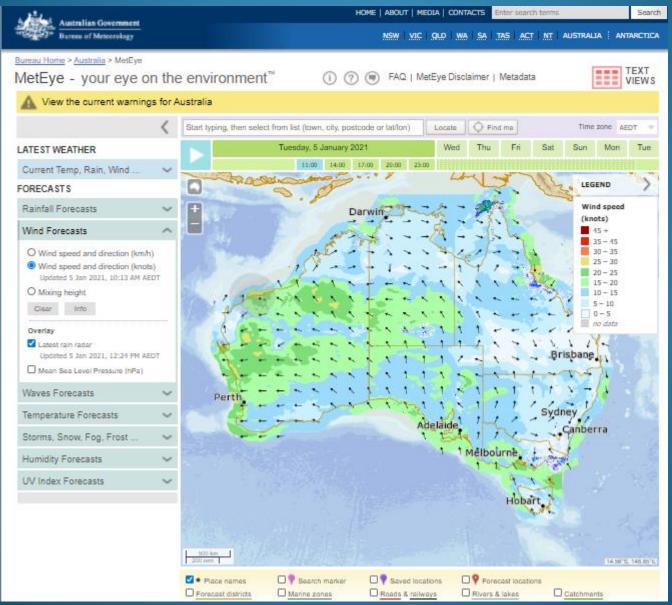


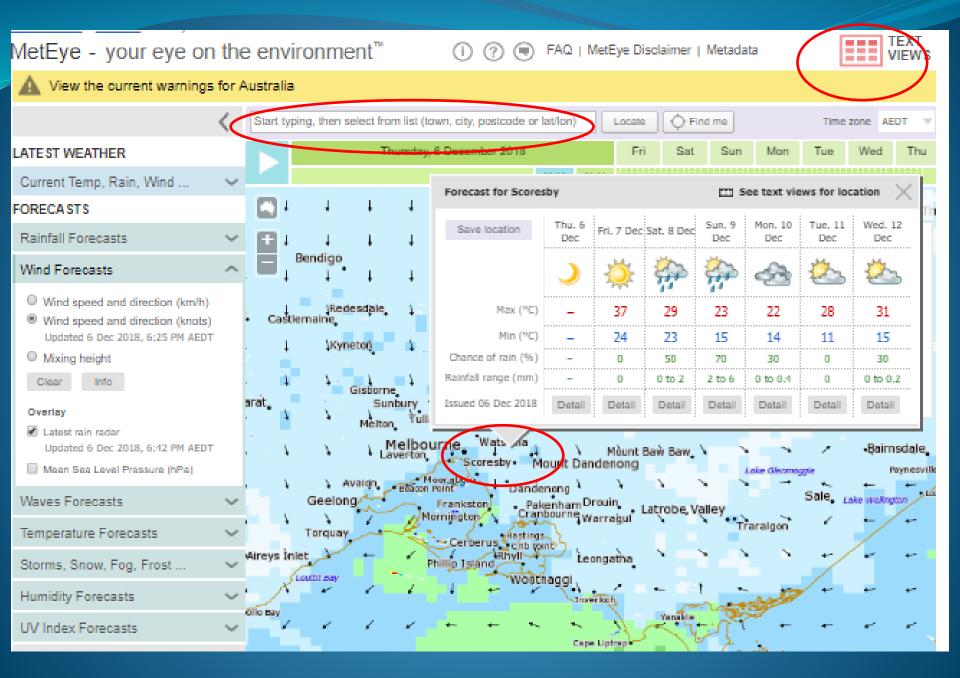
## **Marine and Ocean**

# http://www.bom.gov.au/marine



# MetEye – a point and click map view of weather forecasts for any location <a href="http://www.bom.gov.au/australia/meteye">http://www.bom.gov.au/australia/meteye</a>





## Text view — using Nunawading as the location

Home | Places | Victoria | Nunawading Weather

## Nunawading Weather (beta)





View the current warnings for Victoria

Change location | Start typing, then select from list (town, city, postcode or lat/lon)

Locate

Find Me

17.4 °C

Lowest 9:30 pm

Highest 15.2 °C 18.1 °C

12:00 pm

#### 0 mm

of rain since 9 am

#### Latest weather at 12:20pm

Humidity Wind Direction

17 km/h Wind Speed

9 knots

28 km/h Highest Gust 15 knots (11:18am)

#### WEATHER STATION

#### Scoresby

Approx. 9.5 km away

( 0 0 0 0 0 )

ID: 95867

Forecast

issued at 11:00 am AEDT on Tuesday 5 January 2021.

Tuesday 7777

Rest of A 14 °C 21 °C

#### When will it rain?

	Possible rainfall	Chance of any rain
11:00 am - 2:00 pm	0.4 - 2 mm	60%
2:00 pm - 5:00 pm	1 - 3 mm	80%
5:00 pm - 8:00 pm	0 - 0.8 mm	40%
8:00 pm - 11:00 pm	0 mm	20% 1000000000
11:00 pm - 2:00 am	0 mm	10%    00000000
2:00 am - 5:00 am	0 mm	10%    000000000



Possible rainfall: 0 to 0.4 mm

Chance of any rain: 40%



Possible rainfall: 0 mm

Chance of any rain: 0% 00000000000

Fri 8 Jan 🦠



Possible rainfall: 0 mm

Chance of any rain: 0% 00000000000

WEATHER OVERVIEW

DETAILED 3-HOURLY FORECAST

EXTENDED FORECAST (7-DAY)

CURRENT AND PAST WEATHER.



#### RADAR



## MetEye

- Underlying MetEye is a database of the official forecasts in gridded format
- The database is produced by Bureau forecasters working on guidance that comes from the computer weather models
- It is updated twice a day but old data is rolled off
- Other weather web sites and apps use a similar underpinning IT architecture but are often based on raw computer model output (often the USA model as it is freely available)
- The best computer model for the globe as a whole at the moment is that of the European Centre for Medium-Range Weather Forecasts (ECMWF)
- A good time for a break and questions



#### Download Australia's official weather app today





#### Australia's official weather app. Live, local and from the trusted source.

Download BOM Weather for access to localised hourly and 7 day forecasts, radar and warnings – wherever you are – from Australia's official weather source, the Bureau of Meteorology.

Available free and ad free on mobile and tablet devices, with widgets for Android users.



Tablet

Mobile

#### Radar

Our popular rain radar, now with pan and zoom



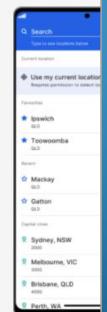
#### Hourly forecast

Hourly forecast information for 72 hours ahead



#### Locations

Save favourites and vilocations





# Mobile Phone version (continued)

nd view recent

#### Daily forecast

View daily forecasts, now with UV and fire danger ratings

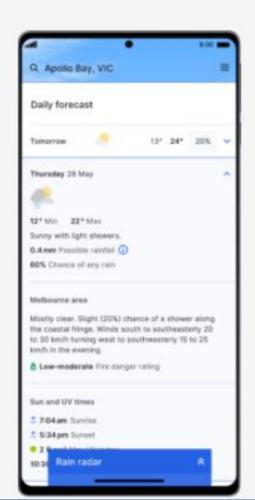
#### Warnings

View localised weather warnings

#### Widget

Add widgets for locations that matter to you











# **BOM Weather App**

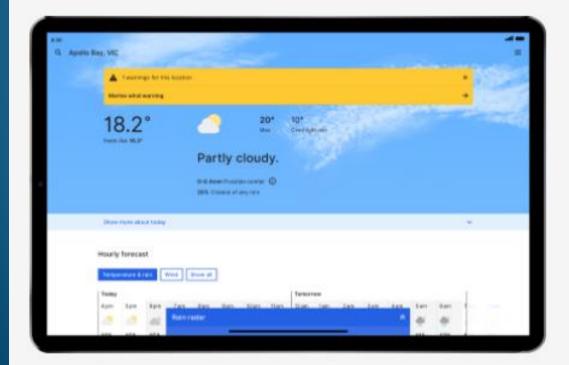
# **Tablet version**

Mobile

Tablet

#### Weather overview

View weather that moves with your location



#### Radar

Our popular rain radar, now with pan and zoom







1.8

Chance of any

30.5°

Show more about today

#### 3 hourly forecast for the days ahead

	Today			Tomorro	w							Wednesd	fary										
		8pm	Tlpm	2am	5am	Bam	11am	2pm	5pm	8pm	11pm	2am	5am	Bam	11am	2pm							
		*	*	*		*	*	*	*	*	*	*	BIE	*	<b>**</b>	<del>**</del>							
20		27°	21°	19°	17°	19°	27°	33°	33°	30°	25°	22°	21°	24°	30°	33°							
		ance of																					
		0%	0%	0%	0%	0%	0%	5%	10%	0%	0%	5%	20%	10%	30%	50%							

A No Warnings

Show more

#### Forecast for the days ahead



# Weather.bom.gov.au

A web page suitable for desktop computer, tablet, or smartphone.

#### Rain radar



# Features of BOM Weather – and many other similar apps.

- Bureau's weather warnings, forecasts and observations all specific to the user's location
- A radar viewer that allows users to pan and zoom between radars
- regularly updated advice on whether it's likely to rain at a location (if radar coverage is available)
- 3-hourly weather forecasts for the next 48 hours showing how the weather will change throughout the next two days
- metadata showing when the forecast was published, and where observation data are sourced.

#### Weatherzone

### http://www.weatherzone.com.au/

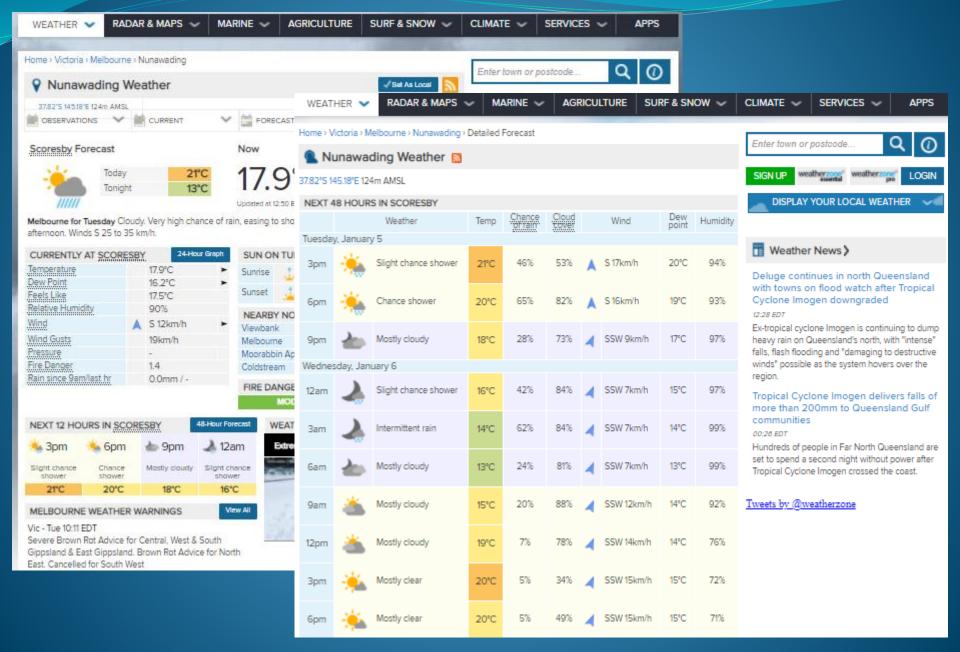




Weatherzone – originally developed by a former BoM employee but now owned by Nine Media. It uses Bureau data mostly. Some free services but others require a subscription.

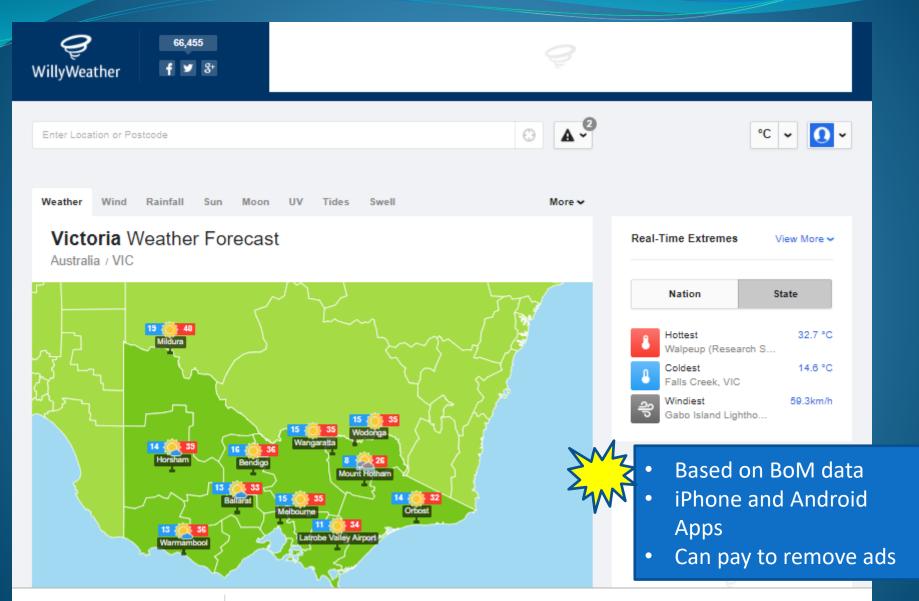
#### Weatherzone

### http://www.weatherzone.com.au/



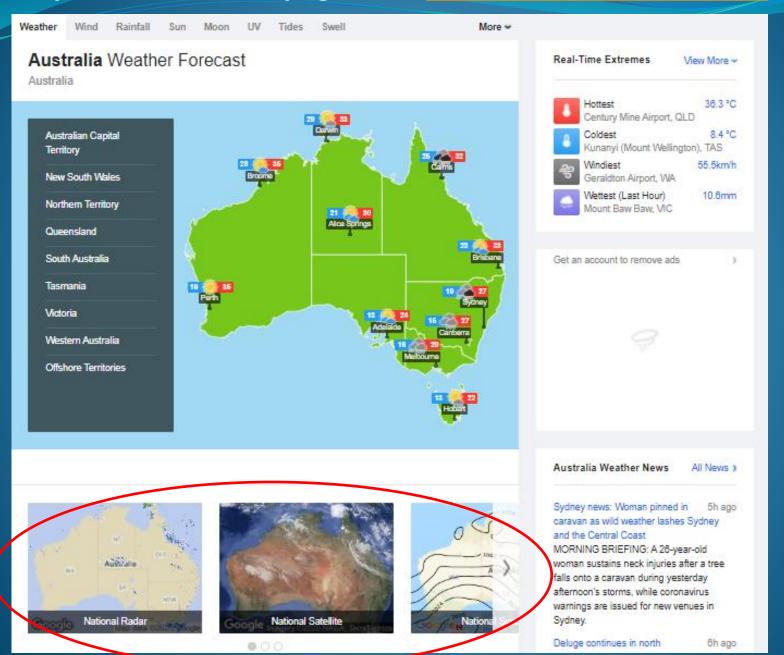
#### WillyWeather

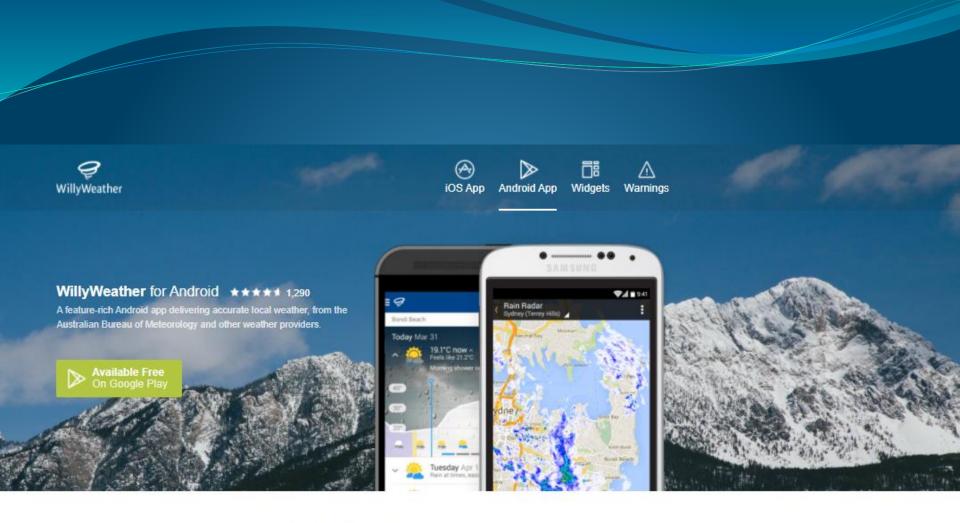
### https://www.willyweather.com.au/



#### Willy Weather – web page

#### www.willyweather.com.au

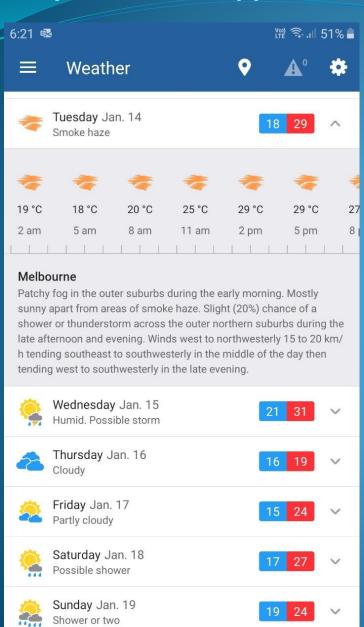




"Best Weather app ever!"

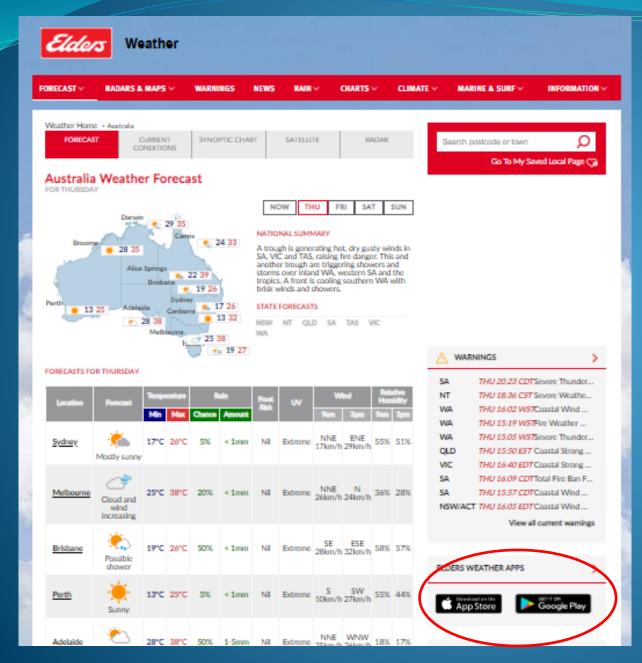
- Oscar Purtell

### Willy Weather – app





#### https://www.eldersweather.com.au/

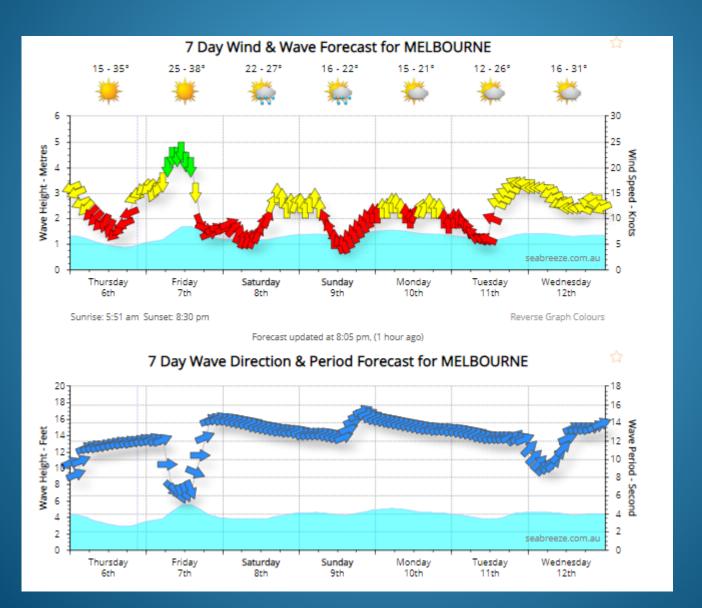


Based on Information provided by Weatherzone



### https://www.seabreeze.com.au/weather/

### Also available as Smartphone/tablet app





of design, graphs, charts and maps to display the weather information so you can be sure you are up to date with all the weather information.







Australian Weather (AUS Weather) apps for iPhones, iPad Android devices are weather tools for every day weather for professionals. We aim to display all important weather inforuser friendly interface that anyone can understand. It uses of design, graphs, charts and maps to display the weather so you can be sure you are up to date with all the weather

Australian Weather

Information

## Richmond Are Cover to over

#### Auto Location Finder

No matter where you are in Australia be assured the auto location finder will find the weather information for you. Auto location is impelemented in all our apps and in the top favorite location. Auto location will locate your position and display the weather conditions specifically for that location.



#### Charts, Graphs and Maps

A picture is worth a thousand words. The use of charts, graphs and maps we made our app easy to read so you don't have to spend your time decrypting the weather information. Visualy see the current and forecast weather information with the aid of powerful visual representations.



#### Accurate Information

We know that the main feature about any weather information is to have accurate weather observations and forecasts. So our apps are constantly updated from Australian Bureau of Meteorology (BOM). Thanks to these guys (BOM) we (Australians) have one of the most comprehensive and precise meteorology data in the world.

So you will be confident that you are getting the best weather observations and forecasts.



Australian Weather

Information for iPad

#### Radar Maps

Radar maps are one of the most powerful tools any weather user has in their disposal. So we have one of the fastest and latest radar maps available. The radar maps are:

- > Rain Radars (64km, 128km, 256km, 512km)
- Rainfall Radars (6 min, 1 hour, Since 9am, 24 hour)
- Doppler Wind Radar
- National Rain Radar with Satellite Cloud Cover

Since we know the importance of viewing rain patterns and predictions

we have placed a static radar image in the home observation screen so you can view any incoming rain.



#### 7 Day forecast

Our weather forecasts are detailed with all the information you will need to plan the week ahead. We provide once of the most detailed 7 day forecasts with the max temperature, min temperature, chance of rain and wind predictions.

This app is the only exclusive app that provides a District Forecast for a more in depth analysis of the forecast.



#### Marine and Moon Information

We have a Marine and Moon section where you can view tidal and moon information. These are great tool for outdoor people and want to know the tides, moon information. Also use moon major and moon minor periods to predict the best fishing and hunting periods of days of the week.



#### **Push Notifications**

Receive notifications on the hour for today's weather. Let the weather information come to you with our push notifications. So you can have the weather information ready on your screen with your morning alarm.

Receive push notifications Warnings for your state. Stay on top of any weather dangers coming your way with early Warning notifications.

All push notifications are customisable via the app.



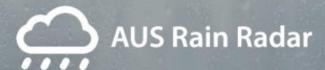
Even notification about rainfall expected in the near future!



#### **Badge Updates**

View the current temperature, today's max and min temperature on your home screen with badge push updates. View the temperature without opening the app by pushing weather information to the badge icon.





Local and national BOM rain radars with the most accurate Australian weather forecasts available.



Download it from APP STORE



Download it from GOOGLE PLAY



https://www.rainparrot.com/

Only for Apple







### Weather Puppy: Real Time Weather Forecast & Radar

Weather Creative Inc. Weather

\* \* \* \* \* 17,836 ±

3+

Contains Ads - Offers in-app purchases

O This app is compatible with your device.

Add to Wishlist

install

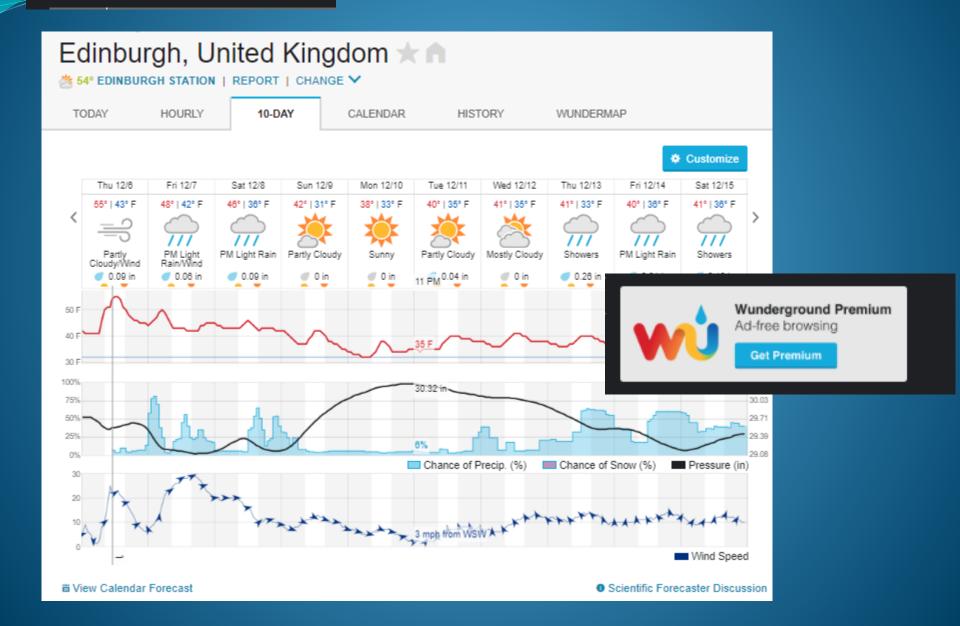




Download Weather Puppy, the best weather app that makes you smile every time you check the weather.



### https://www.wunderground.com/





### Weather Underground: Forecasts

Editors' Choice

Weather Underground Weather

\*\*\* 360,659 .



Contains Ads · Offers in-app purchases

6 This app is compatible with all of your devices.

Add to Wishlist

Install





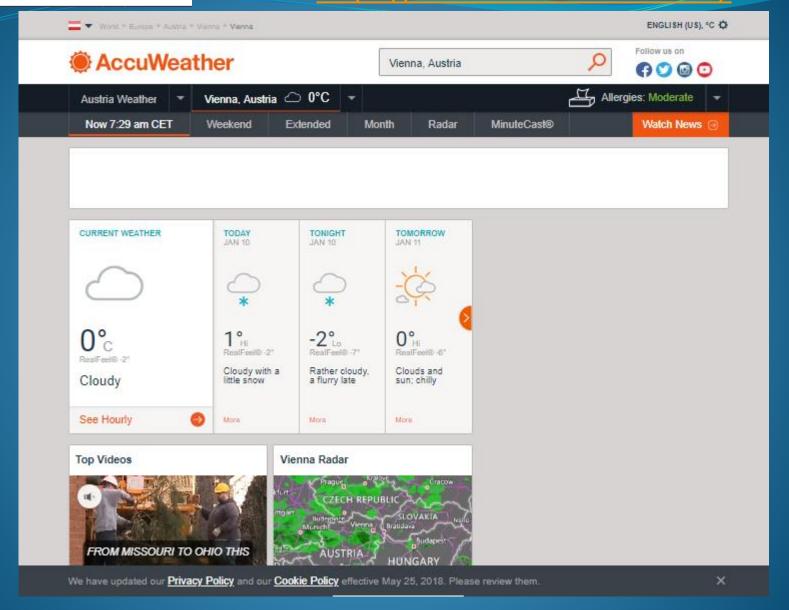




The new Weather Underground Android app provides the world's most accurate hyper-local weather



#### https://www.accuweather.com/



Major US weather service company – providing forecasts worldwide



#### AccuWeather - Weather Alerts 49

Live forecast & storm radar AccuWeather International, Inc.

#21 in Weather

\*\*\*\* 4.6 • 18.9K Ratings

Free - Offers In-App Purchases

Screenshots IPhone IPad Apple TV Apple Watch









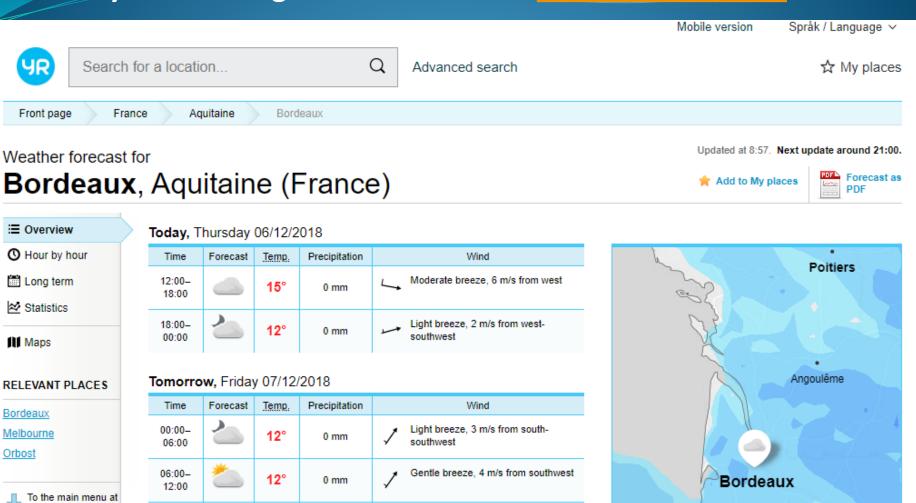
#### **Norway Meteorological Institute**

the page bottom

12:00-

18:00

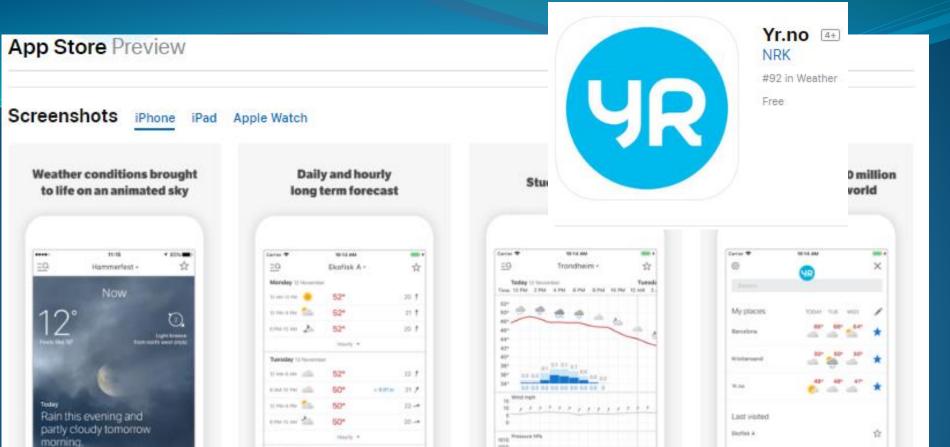
#### https://www.yr.no/



Gentle breeze, 5 m/s from south-

2.9 mm

13°



INPK C ....

New Yr on iPhone and iPad is different from anything else you've seen in weather forecasting: Scroll through a beautiful and animated sky to see how the weather changes hourly, and get all the need-to-know details at the same time.

marine A

Graph

The weather visualization makes it a fun experience to check the weather - even when it's raining! more

N

#### **World Meteorological Organization** worldweather.wmo.int World Weather Information Service METEOROLOGICAL ORGANIZATION Official Forecasts f 🔰 🕶 🔯 🔠 🗸 Home Personalize What's New Links Severe Weather Cloud Atlas About Apps Support Home > Asia > India > Mumbai Add Your Own City Please enter city / country / territory name Q Share Mumbai Date Temp (°C) Description Cond India 7 Dec 20°C | 34°C Clear (Fri) **32°C 3 △** 33% 8 Dec 20°C | 34°C Clear (Sat) ₩NW 9 km/h 21°C | 33°C 9 Dec Clear N.B. (Sun) Thu, 6 Dec 2018 2:30 PM (Local Time) 10 Dec 21°C | 33°C Clear (Mon) 11 Dec 20°C | 32°C Clear (Tue) 12 Dec 20°C | 32°C Clear (Wed) India Meteorological Department Issued at 3:00 PM (Local Time) 6 Dec 2018

Official weather forecasts from national weather services



#### World Weather Information Service

Official Forecasts

Home Personalize What's New Links Severe Weather Cloud Atlas About Apps Support













#### MyWorldWeather

The "MyWorldWeather" is the mobile application of the "World Weather Information Service", supporting the major iPhone and Android platforms. Equipped with location-based technology to detect a user's locality, the application can automatically display the latest official weather forecasts for the city closest to the user from over 1.600 cities around the world.









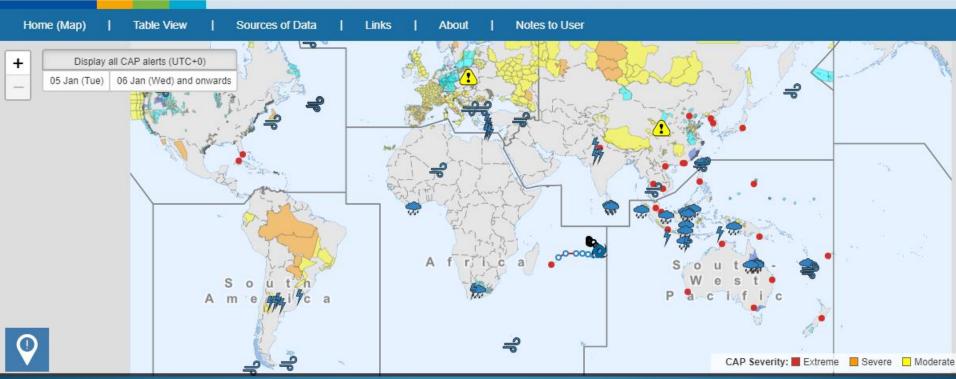
This website is operated on behalf of WMO by Hong Kong Observatory of Hong Kong, China.

Personalize What's New Home

### https://severeweather.wmo.int/v2/



#### Severe Weather Information Centre 2.0 (Beta)





SAFETY

PAST WEATHER

(3)

Local forecast by "City, 8t" or ZIP code

HOME

Enter location \_\_\_ Go

FORECAST



INFORMATION

EDUCATION

NEWS

SEARCH

ABOUT

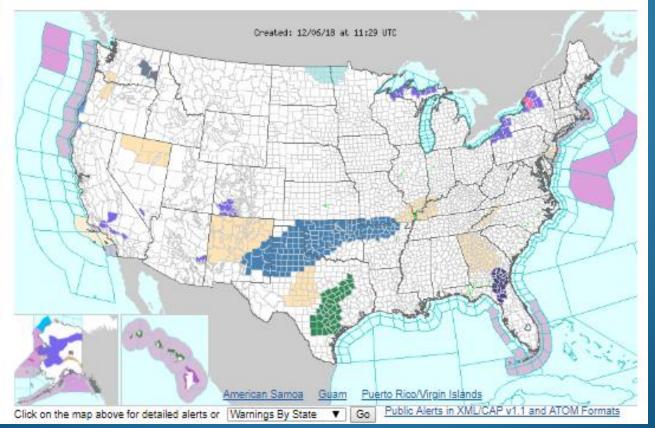
Developing Storm to Threaten Southern States with Heavy Rain Friday into the Weekend; Ice and Snow on the Northern Edge

A developing storm will track across the Southern Plains Friday to the Southeast states and possibly the Mid-Atlantic Coast through Sunday. On the warmer side of the storm, heavy rainfall could cause flooding of low lying areas particularly from Southeast Texas into western Louisiana. Along the northern edge of the storm, potential exists for heavy snow, ice, and dangerous travel conditions. Read More >

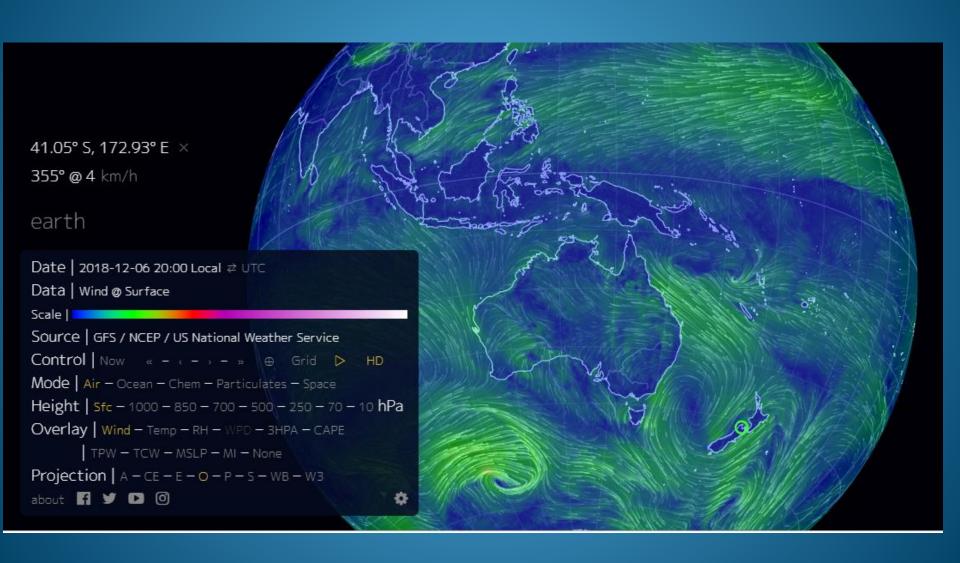




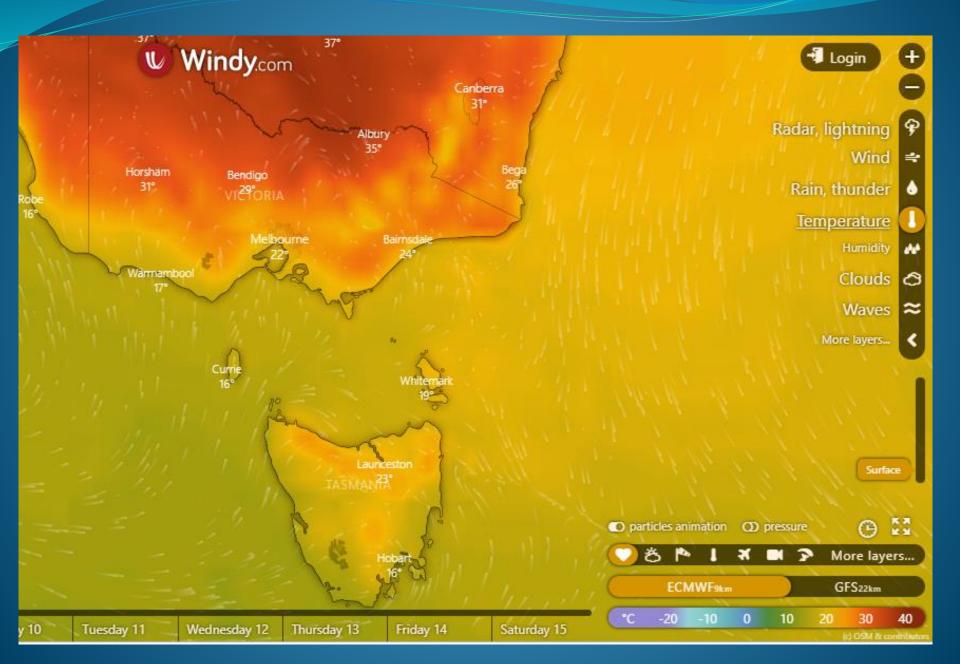
ACTIVE ALERTS FORECAST MAPS RADAR RIVERS, LAKES, RAINFALL AIR QUALITY SATELLITE PAST WEATHER



### https://earth.nullschool.net/



#### www.windy.com





# Windy.app: wind forecast & marine weather

Windy Weather World Inc Weather

\* \* \* \* \* 55,826 #

**D**-

Offers in-app purchases

This app is compatible with your device.

Installed



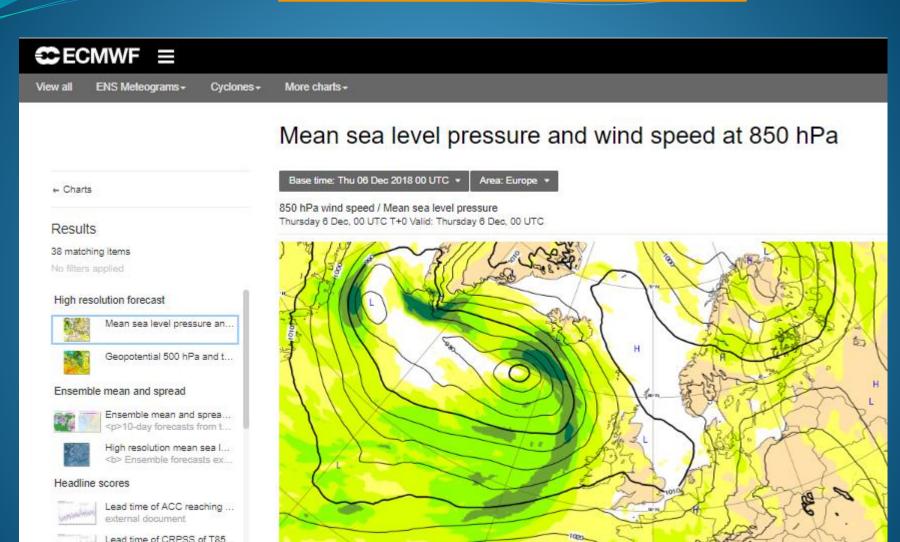






windy.app - wind, waves and weather forecast app for surfers, kitesurfers, windsurfers, sailors and other wind sports.

#### www.ecmwf.int/en/forecasts/charts



external file

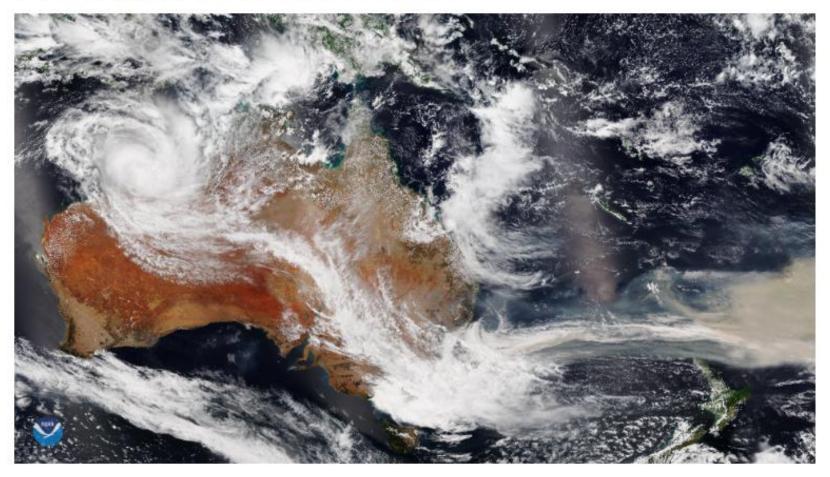
external file

Lead time of CRPSS of 24h...

Lead time of 1-SEEPS of 2...

### https://www.nesdis.noaa.gov/satellites-image-of-the-day

#### Rain Brings Some Relief to Australia



As wildfires in Australia continue to burn throughout the continent, sooty rain and cooler temperatures have finally brought some welcome relief to affected communities and fire crews from Sydney to Melbourne, with "torrential" rain reported in some parts of New South Wales (NSW).

**Download Image** 

If you would like the handout notes for the presentation or the presentation itself please let me know.

Questions?