

Local Government Planning Day

September 18, 2009

Thresholds and alert systems

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Department of Health



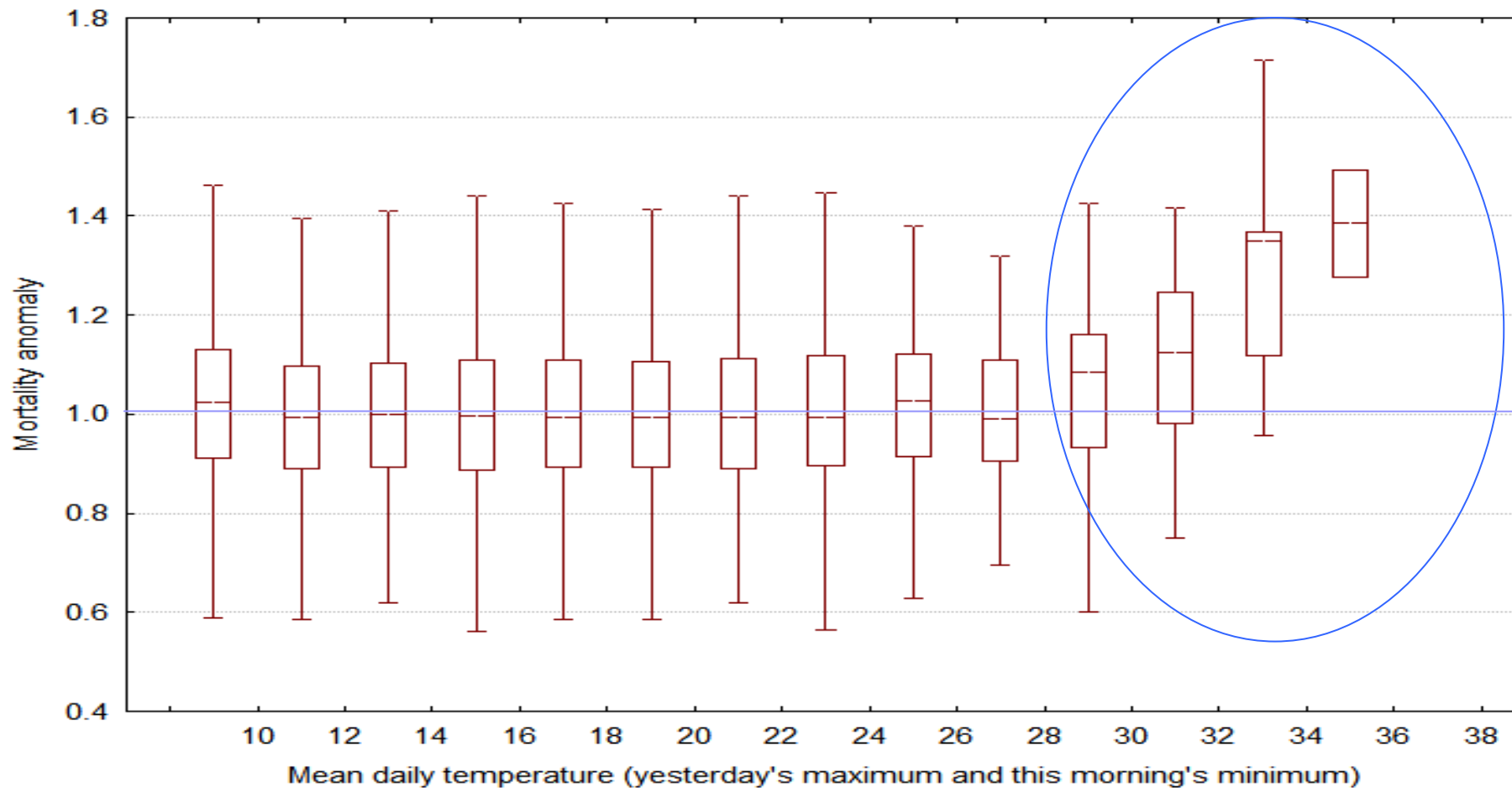
Temperature thresholds

- Temperature above which mortality and morbidity increase above a baseline measure
- This is higher in warmer climates
- Varies depending on place, demographic profile of the community, housing, behaviour and other vulnerability factors
- For example in some European cities the temperature thresholds are as low as 25°C
- There is no international or national standard definition or formula for a temperature threshold

A simple heat alert system for Melbourne

- Monash University developed a system based on
 - BoM observed maximum and minimum daily temperatures
 - Daily mortality data for the 64 years and older age group
- The system showed that
 - Mean of daily min and daily max $\geq 30^{\circ}\text{C}$ results in a 15-17% increase of average daily mortality in those aged 65 years and older

Mortality persons aged 64 years and older.



Nicholls, N. Skinner, C. Loughnan, M. Tapper, N. 2008. Int J Biometeorol

A simple heat alert system for Melbourne

- January 2008 – March 2009
 - Analysed 7-day predictions of maximum and minimum daily temperatures
 - Calculated means
 - Notified pilot project councils, regions and stakeholders
- Supporting actions
 - Significant media for the Chief Health Officer in preparing the community
 - Agreed health messages with Ambulance Victoria
 - Nurse-on-call scripts revised
 - Departmental ECC operating
 - Bureau of Meteorology web site, Victorian heatwave alert visited 38,517 times

A simple heat alert system for Melbourne

The Bureau of Meteorology has forecast very high temperatures above heatwave thresholds until Saturday, 31 January.

Following this, high temperatures up to the mid 30s are forecast across the entire State except the Hume Region. Although these do not meet heatwave thresholds, after the week of extreme temperatures, power failures and bushfires, the messages in relation to caring for vulnerable people during heatwaves will still be important.

Please continue to monitor your local forecasts when considering the activation of your heatwave or emergency arrangements.

The latest 7 day forecasts can be accessed from the Bureau website <http://www.bom.gov.au/weather/vic/maps/vic-forecast-map-7-day.shtml>

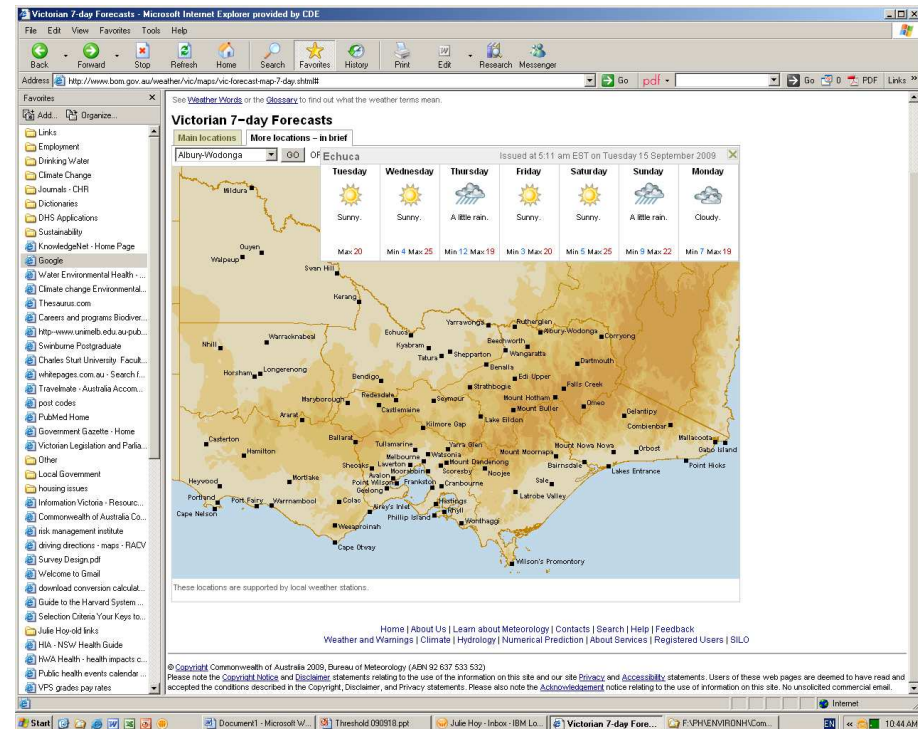
Date	Region notified	Reason for notification
12/01/2009	All regions	High temps over next 2 days; threshold exceeded in Wodonga
20/01/2009	Hume	High temps over next 2 days; threshold exceeded in Wodonga
27/01/2009	All regions	Very high temps next 5 days; threshold exceeded at least once in all regions.
30/01/2009	Hume	Very high temps forecast with Hume threshold exceeded 4 times over the week.
30/01/2009	All regions	Heatwave thresholds exceeded for next day (except Geelong) and high temps forecast after this.
05/02/2009	All regions	High temps and strong winds for next 3 days; threshold exceeded in 3 regions
24/02/2009	All regions	High temps for most regions; poor air quality may impact on temporary accommodation (bushfires) may be affected

Finding the weather forecasts

<http://www.bom.gov.au/weather/vic/maps/vic-forecast-map-7-day.shtml>

This currently:

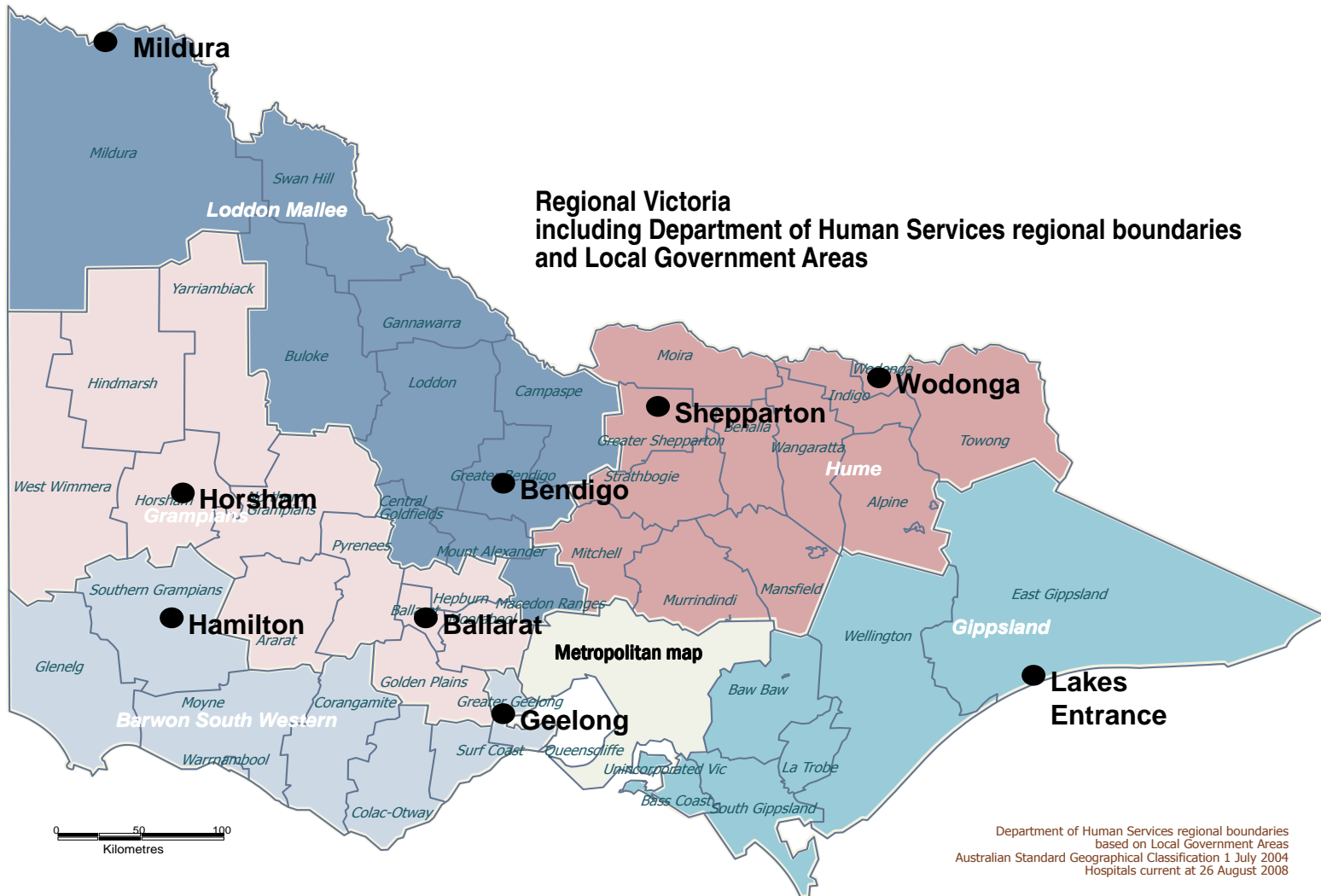
- Provides 7-day forecasts for approximately 80 centres
- Updated twice daily
- Needs to be manually extracted



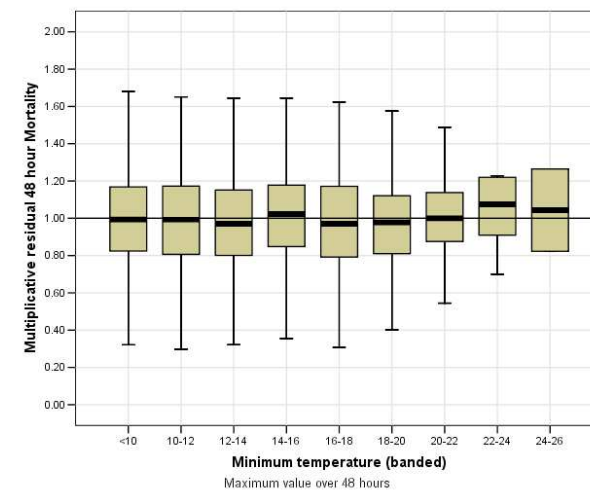
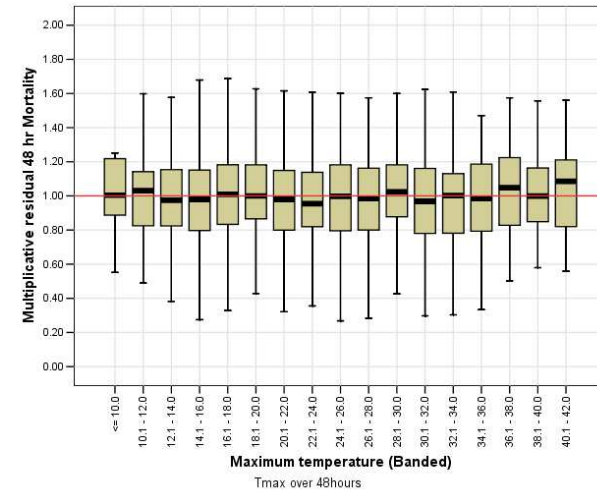
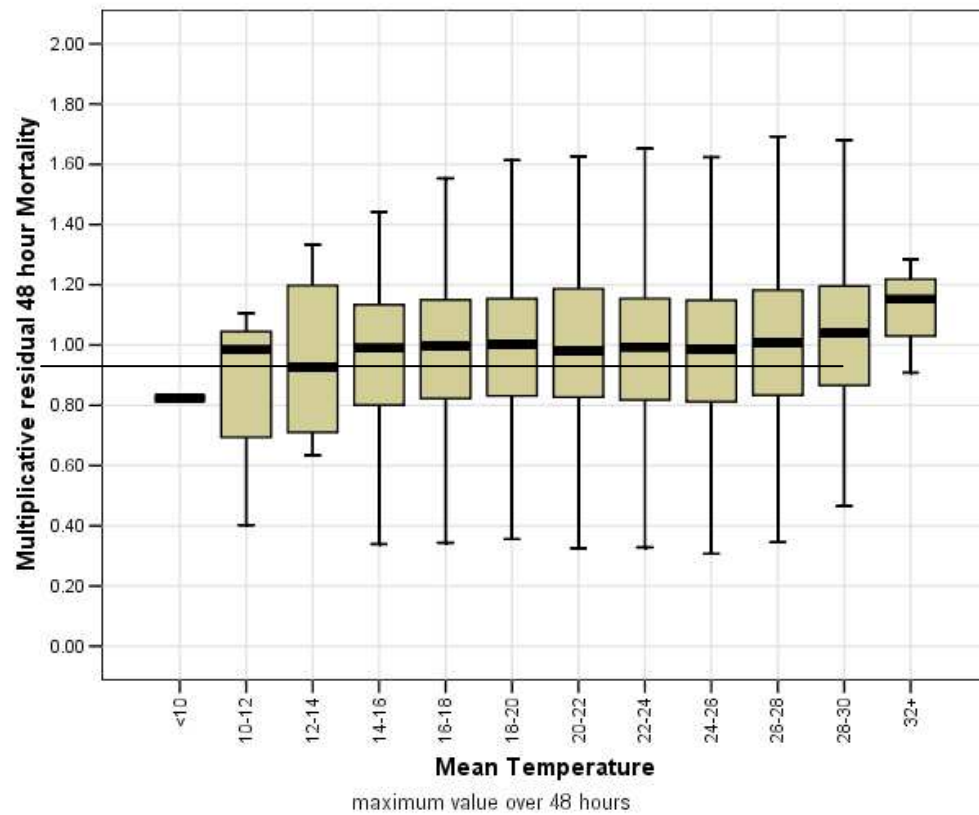
Constructing a statewide system

- Daily observed max/min temperatures 1990-2006 – 2 stations in each DHS / DoH region
- Use of statistical districts for mortality data - approximately 2 per DHS / DoH region
- Identify relationships between max/min/mean and mortality and anomalous mortality

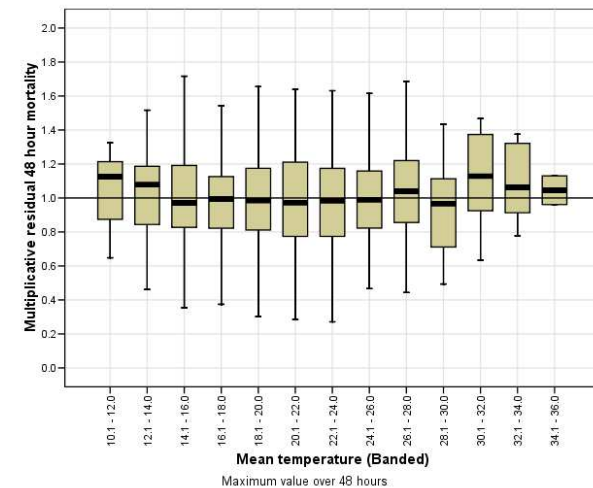
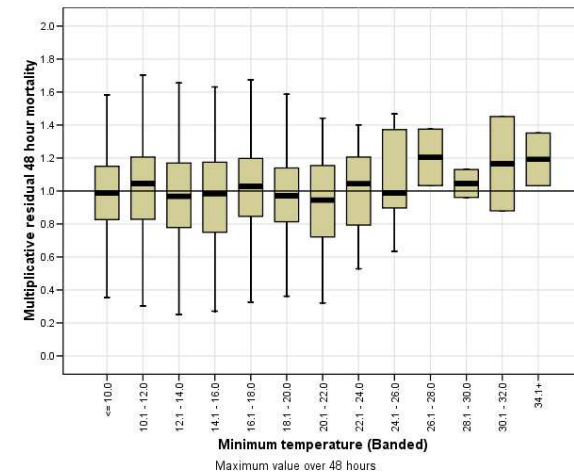
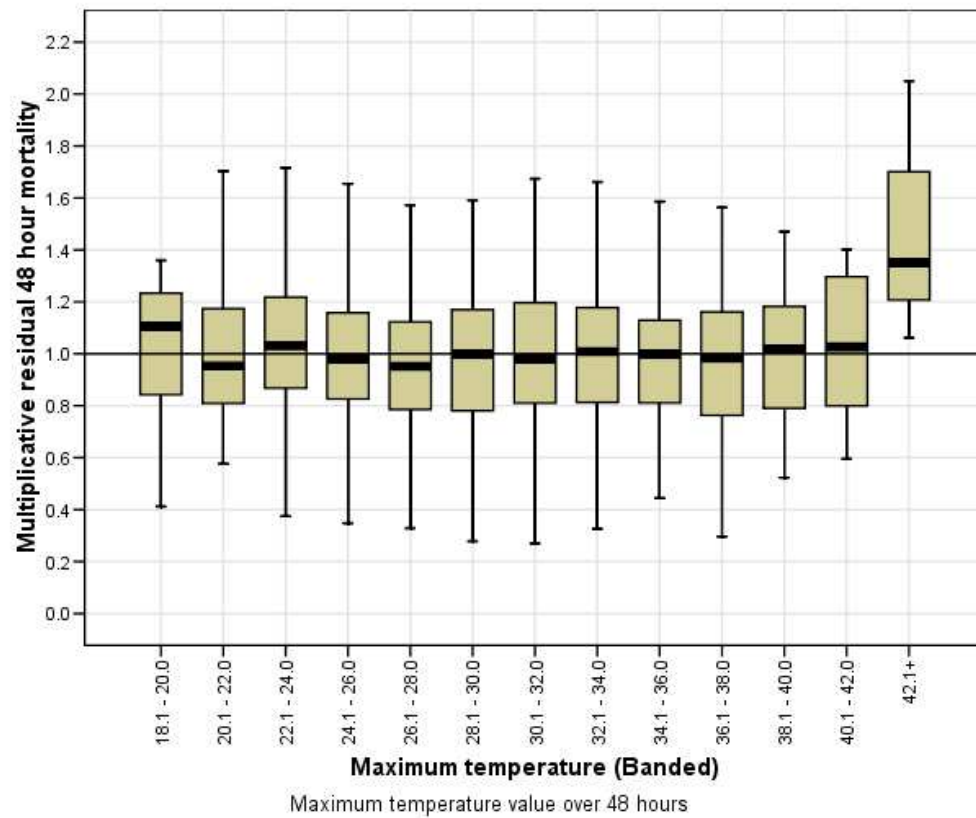
Constructing a statewide system



Results for Bendigo Region

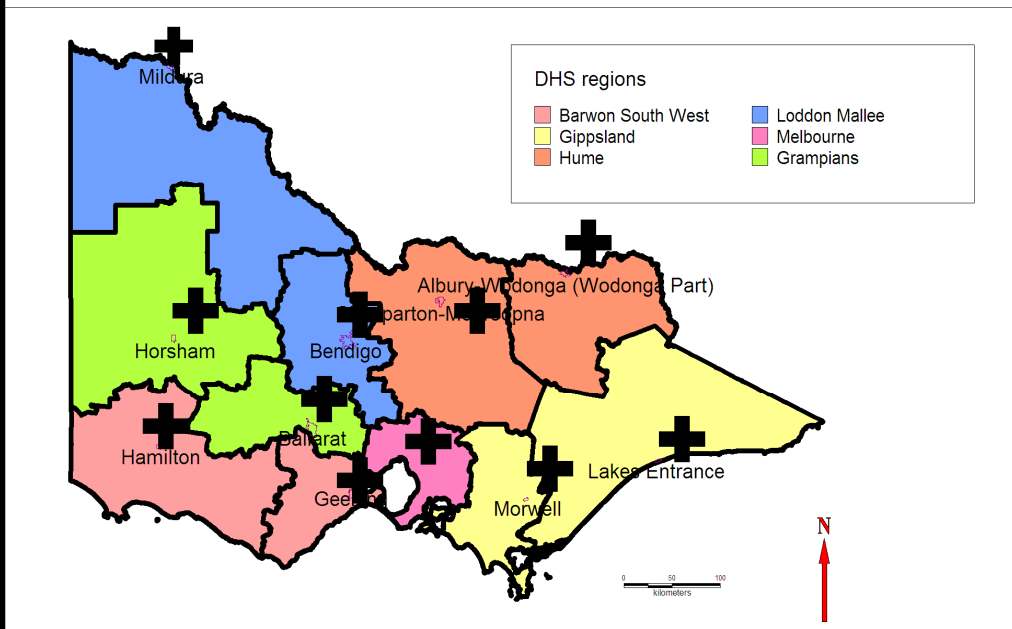


Results for Shepparton-Goulburn Region



Victorian Heat Health Thresholds

Region/City	Signal
Melbourne	Mean 30°C
Bendigo	Mean 32°C
Wodonga	Max 40°C
LaTrobe Valley	Mean 30°C (max is 36°C)
Horsham	Mean 32°C (max is 40°C)
Hamilton	Mean 34°C (min is 24°C)
Lakes Entrance	Mean 30°C (max is 38°C)
Geelong	Mean 28°C
Shepparton	Mean 30°C (max is 43°C, min 26°C)
Ballarat	Mean 30°C
Mildura	Mean 35°C (max is 44°C, min 29°C)

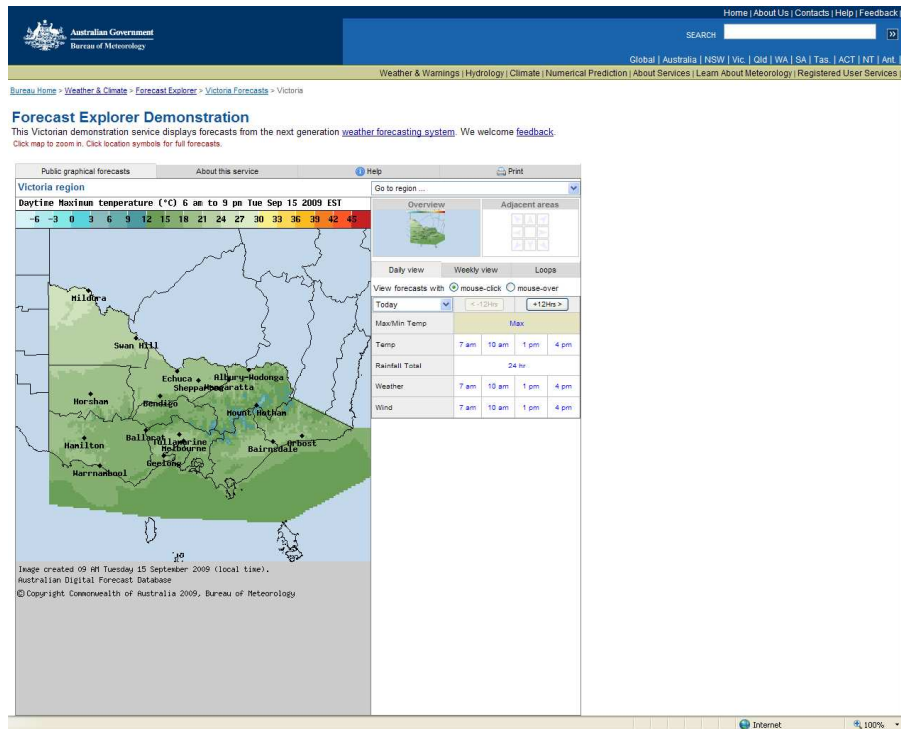


Loughnan, Nicholls & Tapper; Monash University, 2009

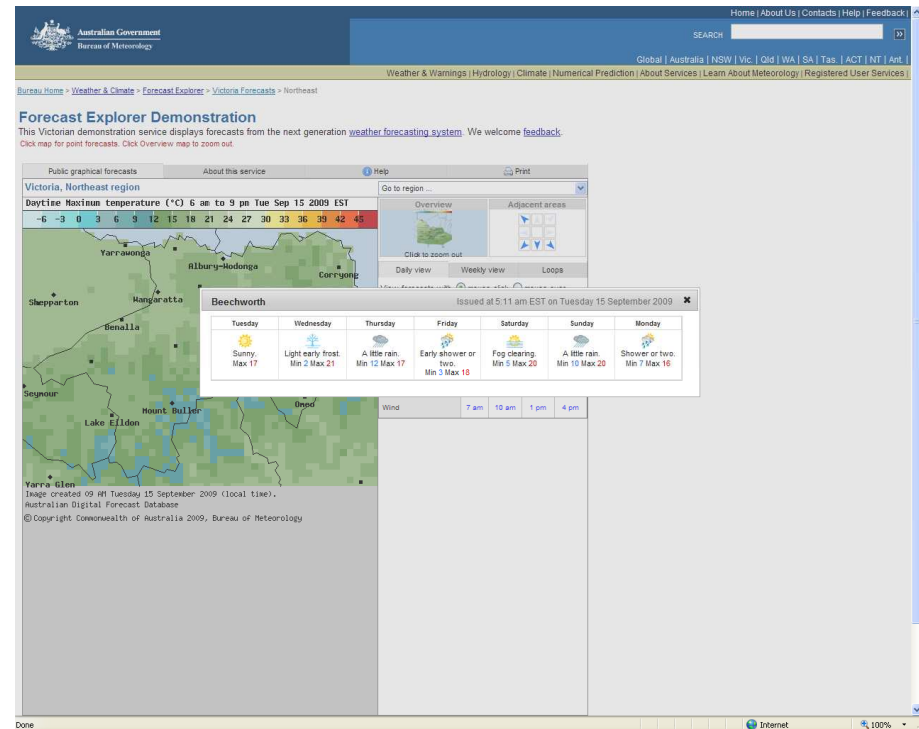
New and improved BoM services

- 7-day forecasts for the whole state
- Max and min temperatures, 3 hourly temperatures, 3-hourly rainfall amounts, 24-hour rainfall totals and 3-hourly wind speeds and directions
- Specific locations, plus other locations by grid
- Harvest data for down-load

New and improved BoM services



Whole state



Regions

Or your house if you know the geographic coordinates

Public graphical forecasts About this service Help Print

Victoria, Northeast region

Daytime Maximum temperature (°C) 6 am to 9 pm Tue Sep 15 2009 EST

-6 -3 0 3 6 9 12 15 18 21 24 27 30 33 36 39 42 45

7 Day Forecast for 36.2°S 146.38°E

	Tue 15 Sep	Wed 16 Sep	Thu 17 Sep	Fri 18 Sep	Sat 19 Sep	Sun 20 Sep	Mon 21 Sep
Max Temperature (°C)	16	18	22	18	19	21	20
Min Temperature (°C)	0	1	11	2	4	9	6
Amount of rain (mm)	0-1 mm	0-1 mm	5-10 mm	0-1 mm	0-1 mm	5-10 mm	4-5 mm

Weather: 7 am 10 am 1 pm 4 pm
Wind: 7 am 10 am 1 pm 4 pm

Image created 09 AM Tuesday 15 September 2009 (local time).
Australian Digital Forecast Database
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