

Generating automated seasonal climate outlooks utilising the Multivariate ENSO Index (MEI)

Harvey Stern*

Bureau of Meteorology, Australia

'THORPEX addresses the influence of sub-seasonal time-scales on high-impact forecasts out to two weeks, and thereby aspires to bridge the "middle ground" between medium range weather forecasting and climate prediction...' (Shapiro and Thorpe, 2004). Wolter and Timlin (1993) developed the Multivariate ENSO Index (MEI) as a tool to monitor ENSO on various variables observed over the tropical Pacific, namely, sea-level pressure, surface wind, sea surface temperature, surface air temperature, and cloudiness. The MEI is computed for each of twelve sliding bi-monthly seasons. The purpose of the current paper is to report upon relationships between the MEI, and rainfall and temperature in various Victorian Districts during the three-month season following (Figure 1), to comment upon how to realise their value (Stern and Dawkins, 2004), and to explain the methodology used

to automatically generate associated seasonal climate outlooks (Figure 2) as a component of a system that also generates extended day-to-day weather forecasts (Stern, 2007), thereby addressing the aspiration of THORPEX.

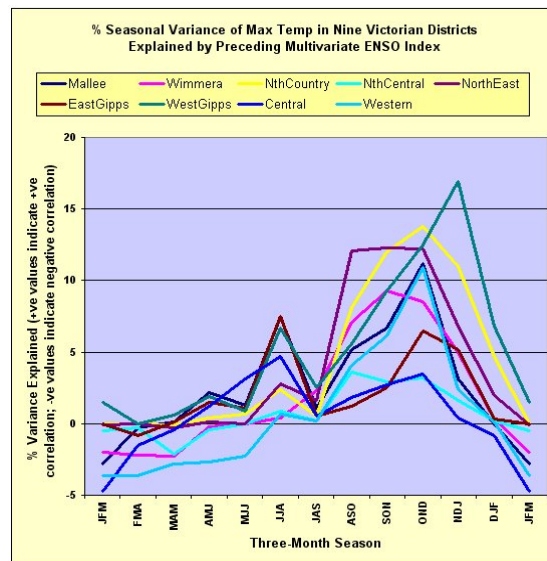


Figure 1 Percent seasonal variance of max temp explained by the MEI.

THREE MONTH OUTLOOK FOR OCT/NOV/DEC:

Click image below for comprehensive Pacific picture

Sea Surface Temperature and Winds
Data as of yesterday

The average Southern Oscillation Index (SOI) ([Click here for recent history](#)) for the past 90 days is -0.82, the average SOI for the past 30 days is 7.02, and the expected Multivariate ENSO Index (MEI) for AUG/SEP is -0.19. Such a value of MEI indicates a very weak La Niña. This suggests:

RAINFALL: There is a very slightly enhanced chance that total OCT/NOV/DEC rainfall will be above normal in all Victorian Districts.

OVERNIGHT TEMPERATURES: There is a very slightly enhanced chance that average OCT/NOV/DEC overnight temperatures will be above normal in the EAST GIPPSLAND, WEST GIPPSLAND, and WESTERN Districts, there is a very slightly enhanced chance that overnight temperatures will be below normal in the MALLEE and WIMMERA Districts, and little indication that overnight temperatures will be different to normal in other Victorian Districts.

DAYTIME TEMPERATURES: There is a very slightly enhanced chance that average OCT/NOV/DEC daytime temperatures will be below normal in all Victorian Districts.

Weather Pattern for Mon-24-9-2007:
High near Head of the Bight.
Moderate to fresh westerly flow across Victoria.

Day & Date	Morning	Afternoon	Min Temp (deg C)	Max Temp (deg C)	Precip Amount (mm)	Precip Prob (%)	9am Wind/3pm Wind Melb Apt (km/hr)
Mon-24-9-2007	Cloudy.	Partly Cloudy.	11	19	0	39	W 15 SW 15

Figure 2 Extract from the system's output generated on Sun-23-9-2007.

*Corresponding author address: Bureau of Meteorology, Box 1636, Melbourne, Australia, 3001; Email: h.stern@bom.gov.au