Verifying the accuracy of Day-11 to Day-14 forecasts
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A "real time" trial of a methodology utilised to generate Day-1 to Day-7 forecasts, by mechanically integrating (that is, combining) judgmental (human) and automated predictions, has been ongoing since August 2005.

Since August 2006, forecasts have also been generated for beyond Day-7 (out to Day-10), whilst since January 2009, forecasts have also been generated out to Day-14.

The specific purpose of the present paper is to provide an updated assessment of the accuracy of the experimental day-to-day weather forecasts at the 'outer limit' of potential forecast capability, namely, for Days 11-14.

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Figure 1 illustrates the 12-month 'running' average correlation coefficients (Days 11-14) between forecast and observed minimum temperature and maximum temperature, precipitation probability and precipitation amount, for Melbourne. The temperature correlation coefficients were higher (reflecting more skilful forecasts) than those for precipitation.

Figure 1:
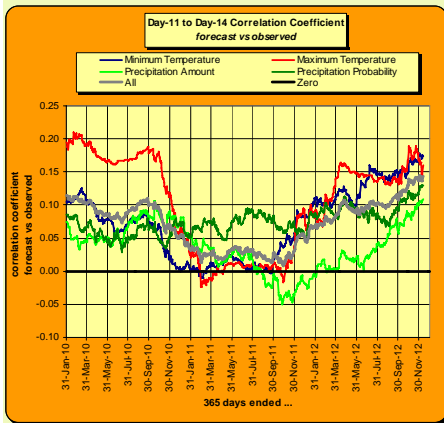
Correlation coefficients for the four elements averaged about 0.12 during the first year of experimental forecasts to January 2010. However, the forecasts temporarily deteriorated in association with the recent La Niña event.

To place the foregoing into perspective, Figure 2 illustrates the 12-month average 'running' correlation coefficients, for the lead times Day 1-4, Day 5-7, Day 8-10 and Day 11-14. As did the Day 11-14 set of forecasts, the Day 1-4, Day 5-7 and Day 8-10 sets of forecasts also temporarily deteriorated in association with the recent La Niña event.
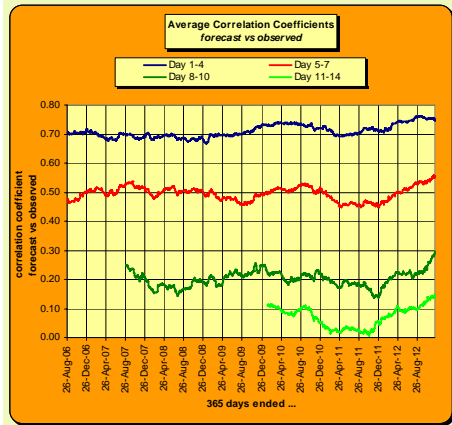
Figure 2:

Figure 3 illustrates the 12-month 'running' correlation coefficients, specifically for each of Days 11, 12, 13 and 14, between forecast and observed minimum temperature, for Melbourne. During the most recent twelve months to December 2012, the Day-11 correlation coefficient was an encouraging 0.27, but for Day-14 it was only 0.05.
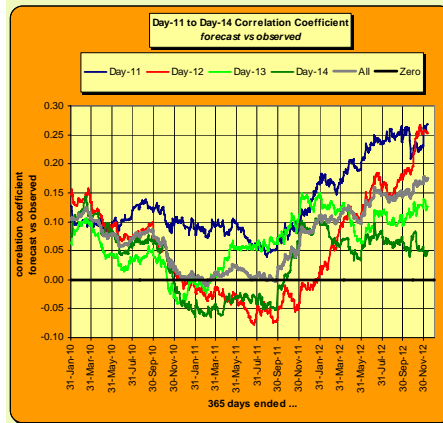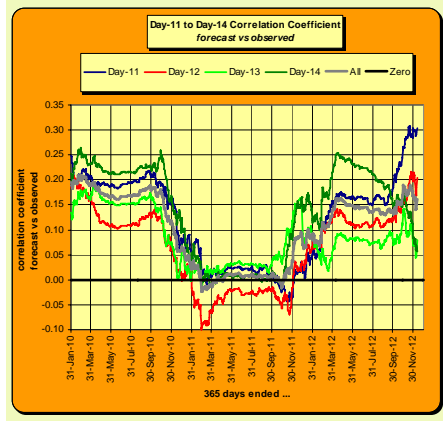
Figure 3:

Figure 4 illustrates the 12-month 'running' correlation coefficients, specifically for each of Days 11, 12, 13 and 14, between forecast and observed maximum temperature, for Melbourne. During the most recent twelve months to December 2012, the Day-11 correloient coefficient was an encouraging 0.30, but for Day-14 it was only 0.06.

Figure 4:

Figure 5 illustrates the 12-month 'running' correlation coefficients, specifically for each of Days 11, 12, 13 and 14, between forecast and observed precipitation amount, for Melbourne. During the most recent twelve months to December 2012, the Day-11 correlation coefficient was 0.13, whilst for Day-14 it was 0.12.
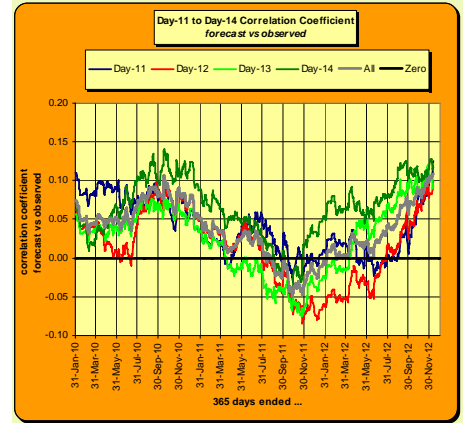
Figure 5:

Figure 6 illustrates the 12-month 'running' correlation coefficients, specifically for each of Days 11, 12, 13 and 14, between forecast and observed precipitation probability, for Melbourne. During the most recent twelve months to December 2012, the Day-11 correlation coefficient was 0.16, whilst for Day-14 it was 0.08.

Figure 6:

Lorenz suggested a limit of day-to-day weather forecasting skill out to Day-15. The performance of the experimental Day 11 to Day-14 predictions during the course of the "real time" trial reported herein suggest that it may not be long before Lorenz's suggested limit is reached.