An evaluation of NIWA's climate predictions for May 2002 to April 2007.

An analysis prepared for the New Zealand Climate Science Coalition by Malcolm Taylor, 13 May 2007
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In line with a suggestion by Terry Dunleavy, the temperature outcomes were compared with NIWA's predictions to determine the prediction accuracy. As exact climate data was not available, a subjective evaluation has been used by looking at the outcome maps as published in NIWA's publication "The Climate Update." The results taken over the 5 year period from May 2002 to April 2007 indicated that NIWA were correct in approximately 50% of their predictions. It is believed that the main contributor to these forecasts is Dr Jim Salinger. This note is from his NIWA profile: *"Jim now works as a senior climate scientist preparing climate updates, as well as leading various research projects on New Zealand climate change."*

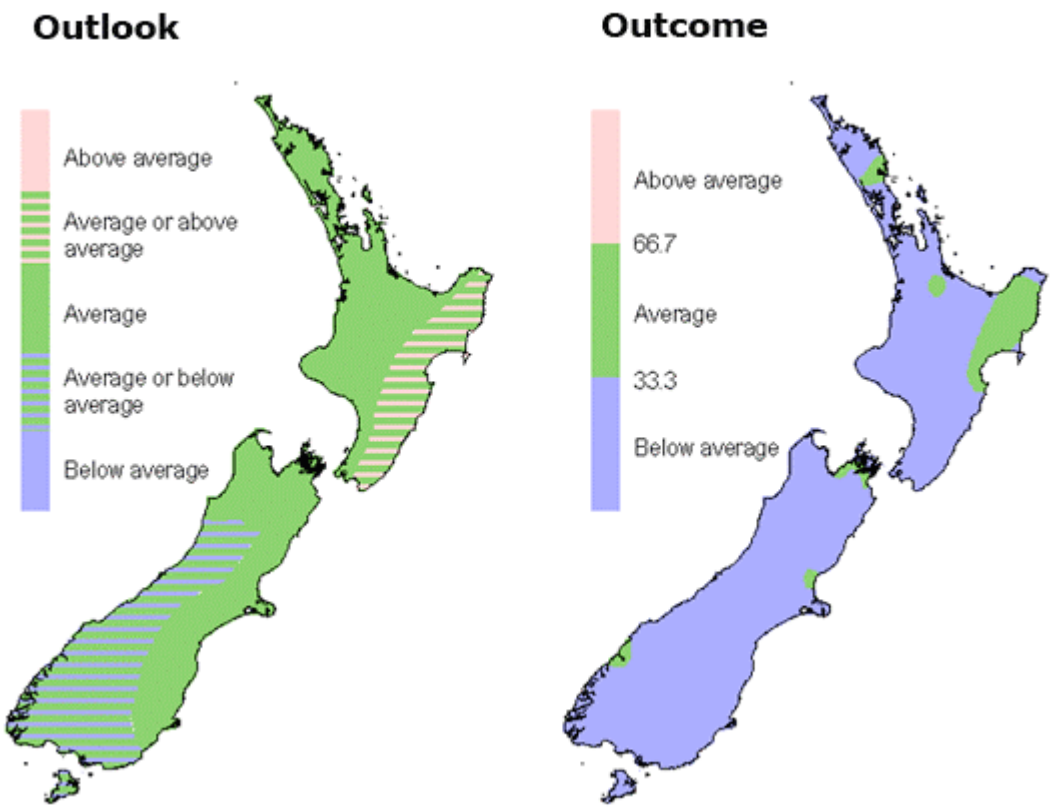
Methodology: For each month the issue of NIWA's publication "The Climate Update" was opened from the archive at http://www.niwascience.co.nz/ncc/cu/archive and the relevant comparison map was viewed. The maps were visually split into six zones, and an analysis of each zone was made as to what was forecast and what was the outcome. The Zones were:
Zone 1 – Northland, Auckland, North waikato.
Zone 2 – Western North Island
Zone 3 – Eastern North Island
Zone 4 – Northern South Island (north of Kaikoura and Buller)
Zone 5 – Western South Island (including headwaters of the southern lakes)
Zone 6 – Eastern South Island

The zones were coded as W for warmer than average, WA for average to above average, A for Average, CA for average to cooler than average, and C for cooler than average. By looking at each zone an estimate was made as to how accurate NIWA were with their predictions. The results were put into an excel spreadsheet. When NIWA say that temperatures will be average to below average, then if the outcome is either average or below average, NIWA claim a correct forecast. This assessment considers that when NIWA use a dual forecast of this nature then they are completely correct if a zone has some parts average and some below average, and are partly correct if an entire zone is average or below average.

The following is an example taken from issue 91, January 2007. It looks at the outlook and outcome for October to December 2006 The results are: NIWA were wrong in Zones 1, 2, 4, and 6, and half correct in Zones 3 and 5. This was assessed as 15% correct for the country

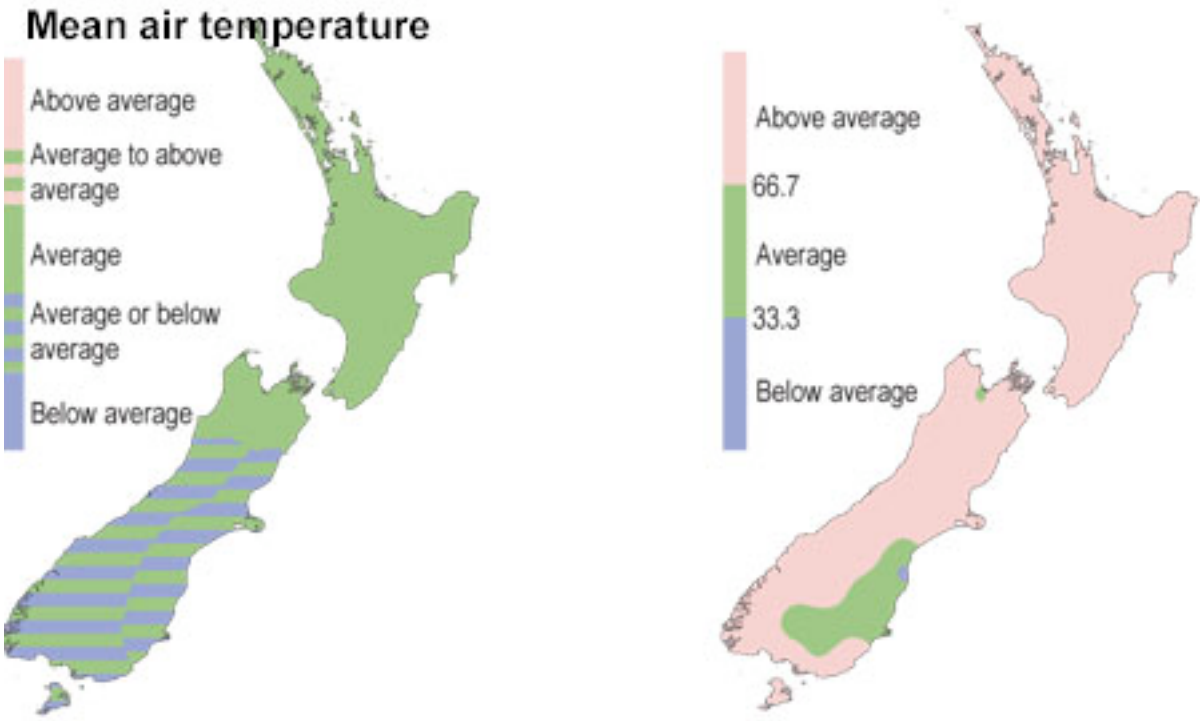
91	Jan-07	Oct	Dec	A, A, WA, A, CA, A	C, C, CA, C, C, C	15

In NIWA's own analysis they claim *"Air temperatures were as forecast for the south and west of the South Island, but lower than expected in other regions."*

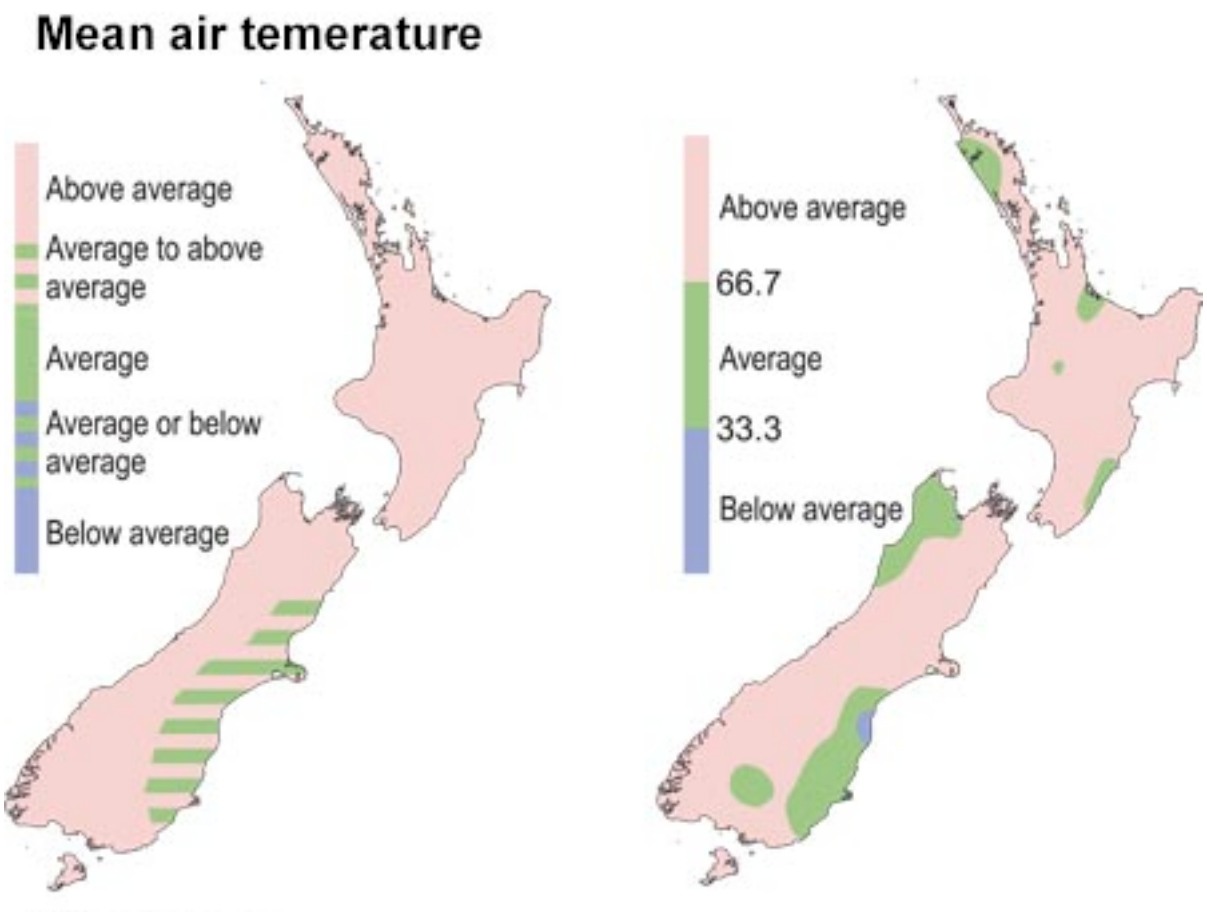


Results: The results were extremely varied. Over the 60 periods studied NIWA scored a better than 67% accurate prediction on 25 occasions and were worse than 33% accurate on 26 occasions. The overall accuracy was 48%. However as this was a subjective evaluation this is not significantly different from 50% correct. The surprising outcome is that they were within the 33% - 67% range only 9 times.

There does not appear to be any pattern to the timing of either very good, or very bad predictions. E.g. for the period April – June 2003 (Issue 49) the following was the outlook and the outcome. NIWA couldn't have been more wrong.

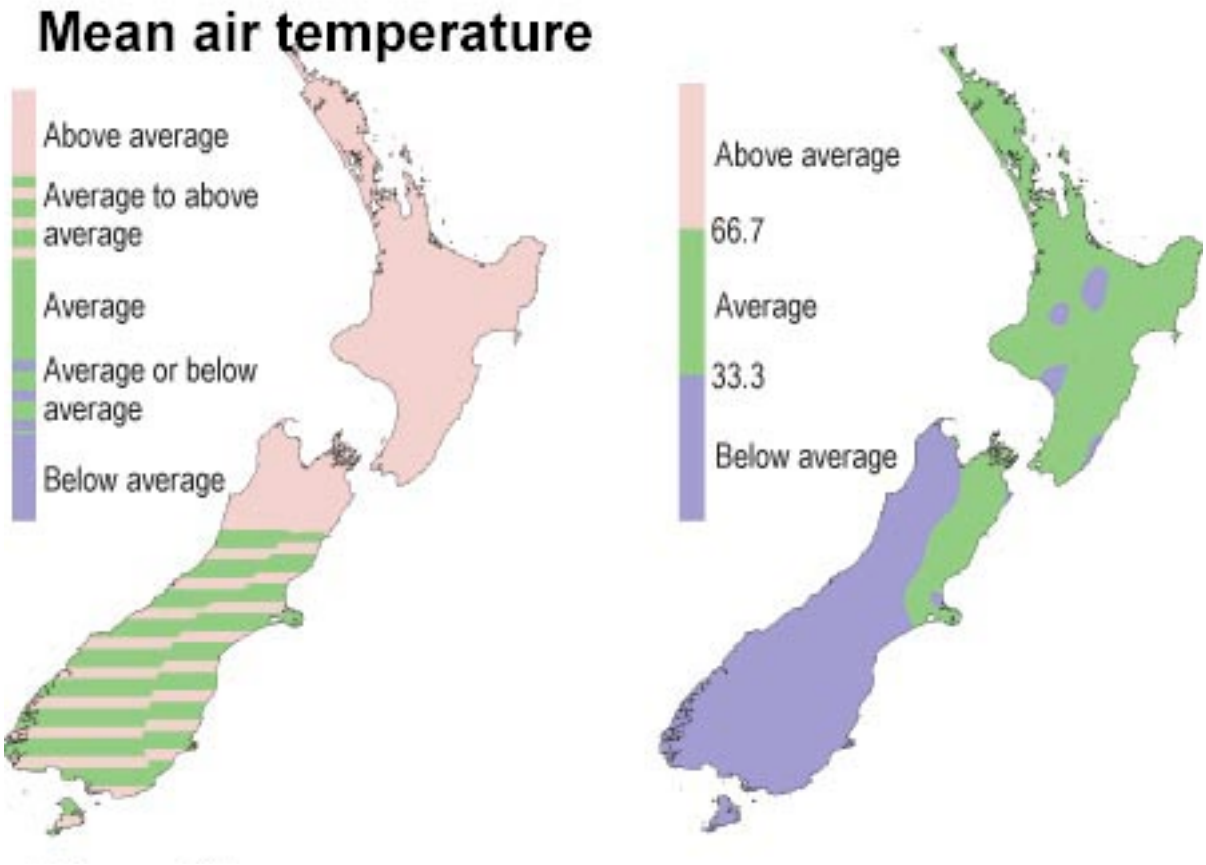


Yet 2 months later for June to August 2003 (Issue 51) they were perfect.



Some notably bad predictions were:

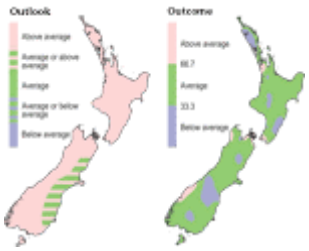
Issue 54: September – November 2003



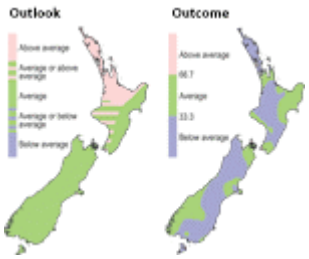
Issue 64: July – September 2004 and Issue 65 August – October 2004. (unable to copy images)

64	Oct-04	Jul	Sep	WA, WA, WA, A, A, A	C, C, C, C, C, C	0
65	Nov-04	Aug	Oct	WA, WA, W, A, A, A	CA, C, C, C, C, C	0

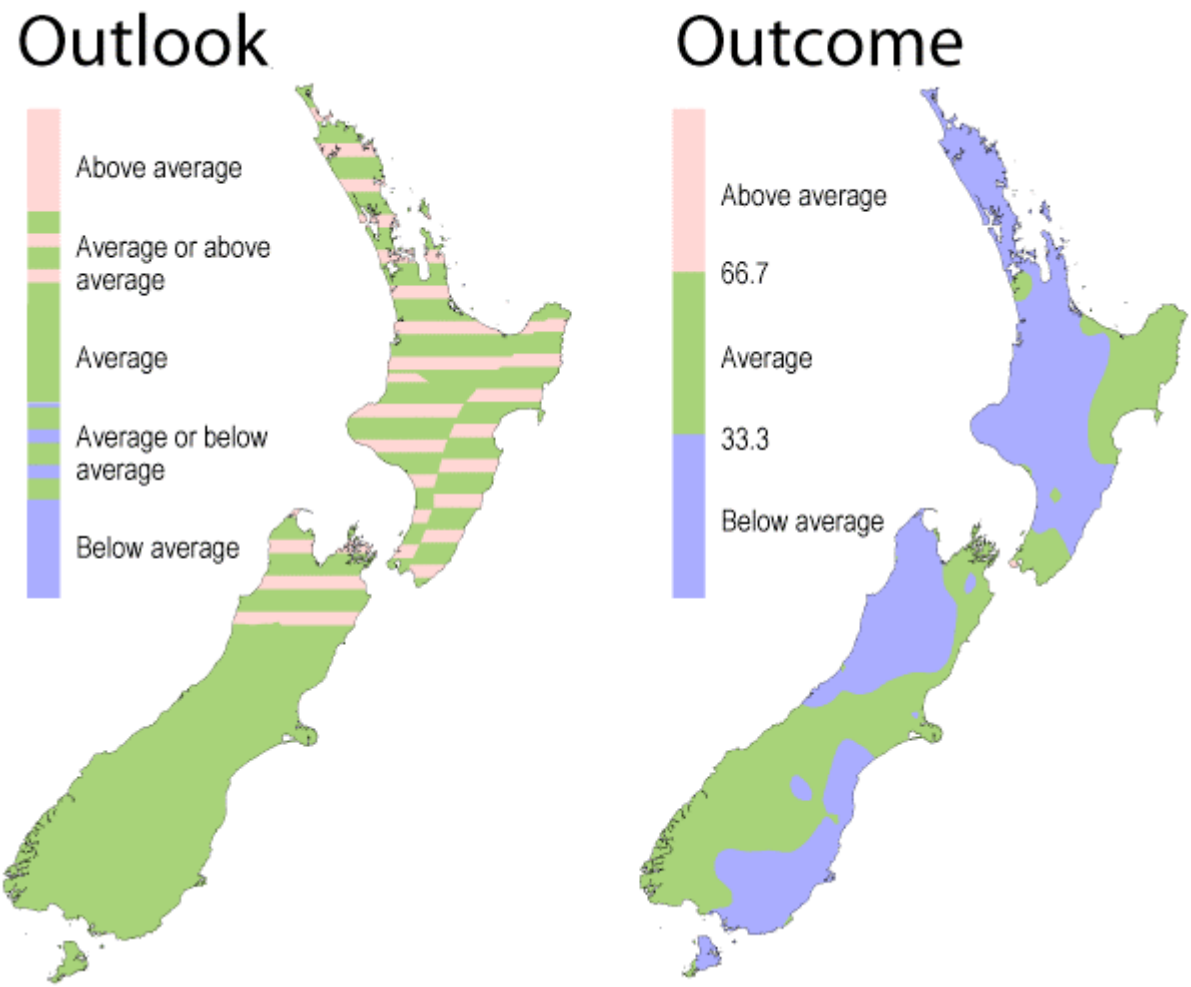
Issue 85: April – June 2006 (unable to copy large images)



Issue 86: May – July 2006



Issue 87: June – August 2006



Conclusion: The overall impression is that the NIWA projections are no better than guess work.