Unqualified reporting of “expected” climate change trends

Dr B Basil Beamish
Senior Lecturer in Mining Engineering, School of Mechanical and Mining Engineering, The University of Queensland, Brisbane Qld 4072

On Friday 29 October 2010, The Cairns Post reported on the recently released Climate Change Report with respect to impacts on the Far North Queensland region. One of the statements contained in the article was:

“The number of days over 35C in Cairns is expected to triple and the Gulf and Cape can expect longer drier spells interrupted by more intense rainfall.”

If we just focus on the number of days over 35C statement, then how is this qualified? The words “expected to triple” are with respect to what baseline? How is this expectation derived, from historical data or models? The historical data can easily be checked by downloading the records for Cairns from the BOM website (http://www.bom.gov.au). The results are shown in Figure 1.

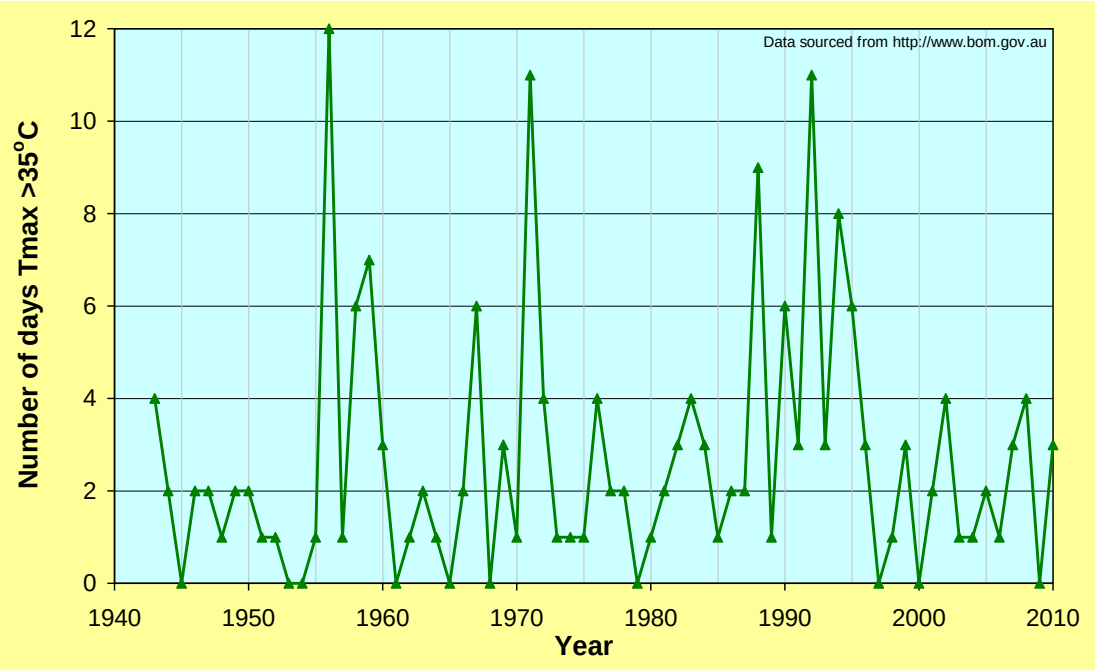

Figure 1 Temperatures for Cairns above 35°C from 1943 to present

The long term average number of days above 35°C is 3 per year. There have been four years in the past (1956, 1971, 1988 and 1992) when the number of days has trebled or more above the long term yearly average. It can therefore be expected that this may occur again in the future as part of the natural variation; in fact looking at the frequency of these events, Cairns is overdue for another one of these above average years. The interesting question is should this not occur for say the next 10 years, does this refute the expectation being reported in this newspaper article? Does this graph in fact support the concept that there has been a lack of evidence for warming in the Cairns region since 1996 and is the natural climate cycle in this region still operating within an historical range? Is there justification for an alternative

view that the climate in Cairns may be moving into a cooling phase? As usual only time will tell.

Returning to the use of the unqualified word such as “expected”, what does this mean? There is no probability assigned to this descriptor. Yet based on the historical data a probability can be assigned to the hypothesis of a trebling of the number of days with temperatures above 35°C from the long term average for Cairns. According to the records this value is 0.06 (or a 6% chance). Ironically there is twice as much chance (14.7%) that there will be no days above 35°C.

The warmest period for Cairns shown in Figure 1 is from 1988 to 1995, and currently 2010 has reached the long term average of 3 days above 35°C. With the current La Nina pattern in effect it will be interesting to see what maximum temperatures are recorded for November and December of 2010. At this stage it is clear that the 2000’s have not shown any unprecedented warming in the Cairns region based on this maximum temperature parameter.