

# S28. INCREASED LIKELIHOOD OF BRISBANE, AUSTRALIA, G20 HEAT EVENT DUE TO ANTHROPOGENIC CLIMATE CHANGE

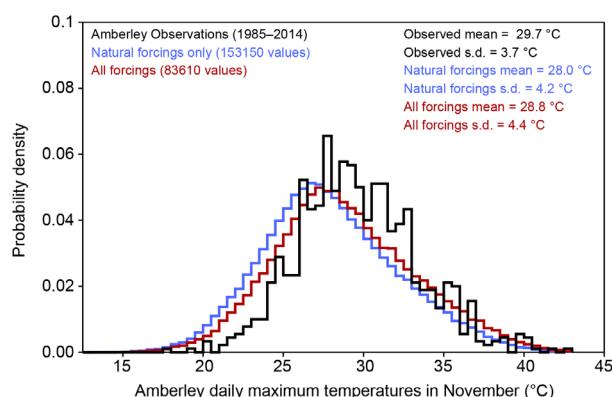
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The weather@home natural and all forcings simulations over the Brisbane gridbox have more spread than the 1911–40 AWAP gridbox observations (main text Fig. 28.1). The lower spread in the AWAP observations, which are calculated using available station data in the vicinity of the gridbox (see Jones et al. 2009 for details), is partially caused by the influence of more coastal station observations moderating the temperatures in the AWAP gridbox. When a station slightly further inland (Amberley), although still in the same weather@home gridbox, is plotted with the weather@home simulations, there is better agreement in the spread of the distributions (Fig. S28.1). This confirms that the weather@home model is simulating realistic distributions of daily maximum temperatures over the Brisbane area.

Unfortunately the Amberley station observations only begin in 1941 so no direct comparison with the natural-forcings ensemble is possible.

Amberley was hotter than Brisbane and the AWAP gridbox temperature values over 14–16 November with maximum temperatures of 35.8°C, 43°C, and 41.7°C. Therefore, higher thresholds for the FAR calculations could have been used. The use of 34°C and 38°C FAR thresholds was tested in the paper, however, and the differences in the results were not very large.



**FIG. S28.1. Probability density functions of November maximum temperatures for Amberley station (27.6°S, 152.7°E,) near Brisbane for the 1985–2014 period (black), and the weather@home model run for 2014 with natural forcings only (blue) and all forcings (red). The weather@home distributions have not been bias corrected in this figure. The mean and standard deviations of each distribution are shown.**

## REFERENCES

Jones, D. A., W. Wang, and R. Fawcett, 2009: High-quality spatial climate data-sets for Australia. *Aust. Meteor. Ocean. J.*, **58**, 233–248.