

METEOROLOGICAL CONDITIONS AND WILDFIRE RELATED HOUSE LOSS IN AUSTRALIA

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Introduction

The objective of this research is to characterise the importance of weather data during major event that have lead to house loss.

Preliminary investigation into the fire weather severity and house loss have indicated that there are clear correlations and features within this relationship. This has prompted a more detailed analysis of this relationship.

As data becomes available in regards regional frequency of extreme fire weather a clear determination of the most appropriate design fire for which a community may have to prepare for can be defined. This estimation can influence policy implementation at a regional scale.



Table 1 House loss in Australia between 1957 and 2005 (QLD, WA and NT are not included in the analysis)

States	Houses loss between 1957 and 2005
Victoria	2766
Tasmania	1365
NSW	865
ACT	526
South Australia	503
Queensland	195
Western Australia	43
Northern territory	1
Total	6264

Methodology

The relationship between house loss rate per single event and the localised fire weather under which this house loss occurred has been analysed.

Historical house loss data in Australia and meteorological data has been compiled between 1957 and 2005 (see table 1). For each location of house loss, temperature, relative humidity, wind speed and direction have been extracted and FFDI and GFDI calculated (using no slope assumption).

Further analysis has occurred on the data set regarding:

- House loss in relation with FFDI, GFDI, T, RH and wind (relation with FFDI shown in Fig 1)
- The Fire weather frequency (percentile) for the main station plotted with significant fire event (see Fig 3)

Results

House loss greater than 50 loss above level of FFDI 40
Note this threshold is likely to be around 60 with the used of more localise station and inclusion of slope data

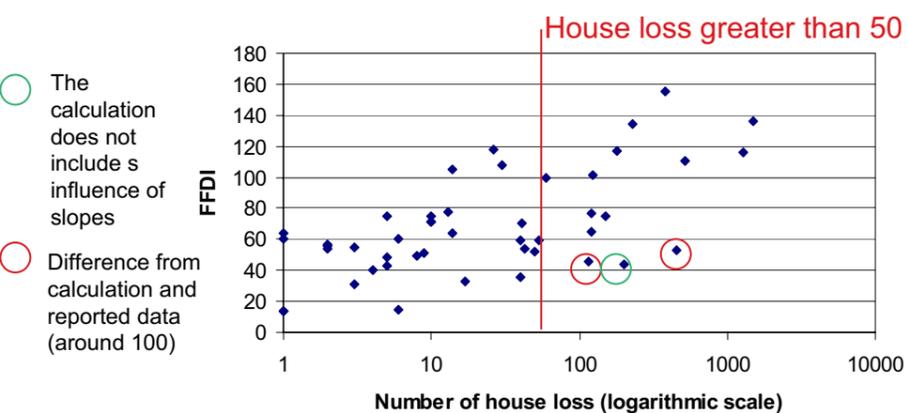


Figure 2 House loss in relation with FFDI level

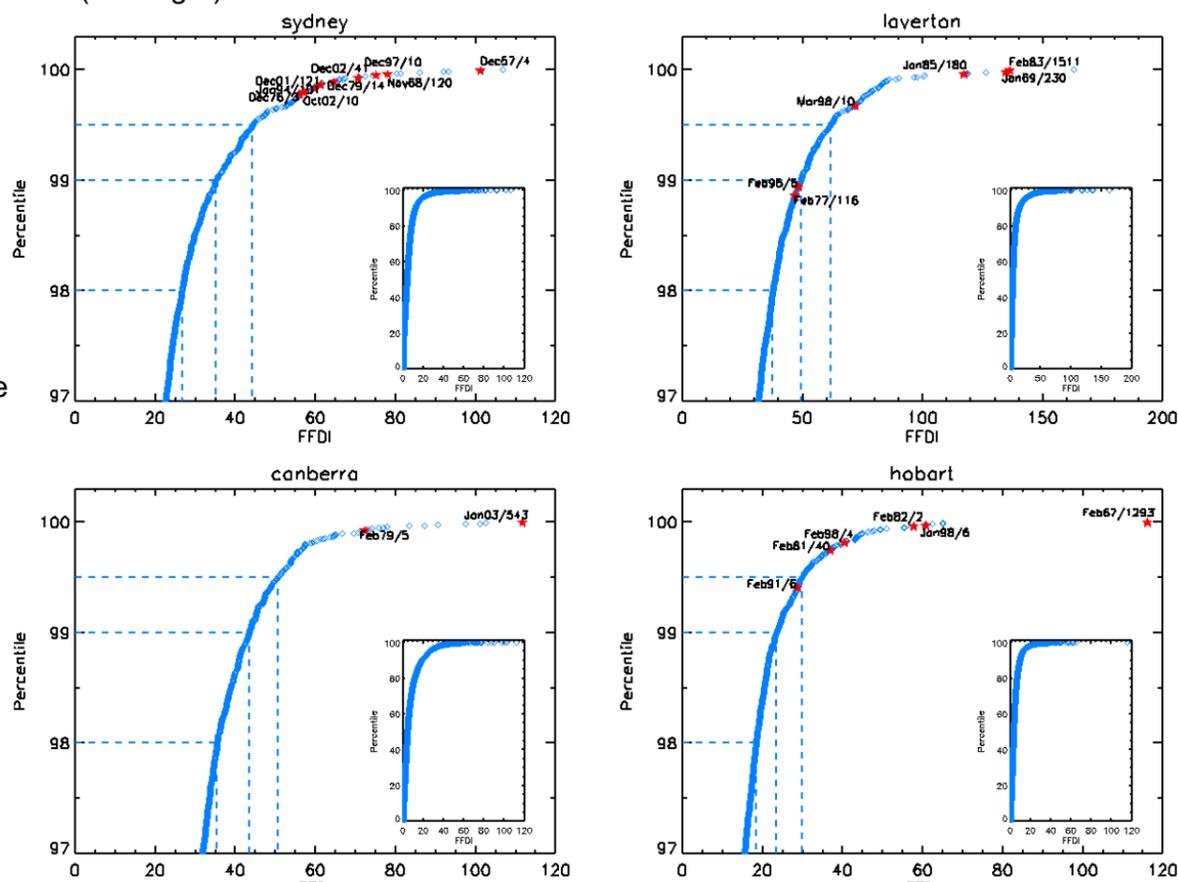


Figure 3 Percentile for Sydney, Laverton, Canberra and Hobart Station