An Australian Fire Weather Dataset: 1957-2003

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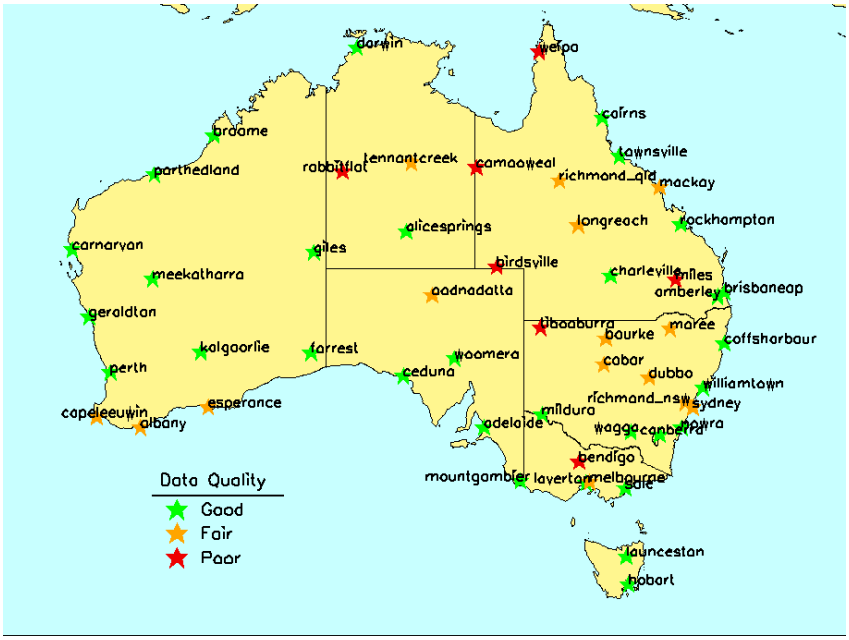
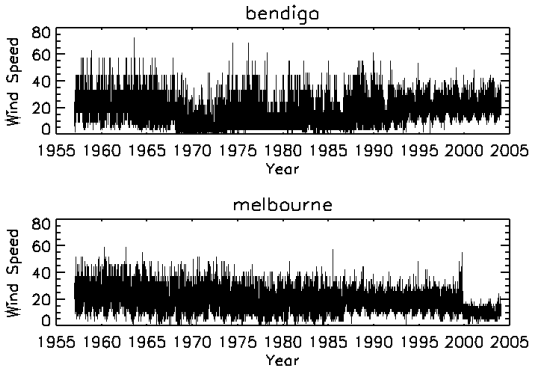
- 54 stations across Australia
- Daily values of McArthur Forest Fire Danger Index (FFDI)
- 'Extreme' FFDI -- based on daily maximum temperature, minimum relative humidity (RH) and maximum wind speed.
- Drought Factor computed from KBDI
- FFDI quality generally good. Lower quality stations have long gaps in the time series and/or quality issues with the wind data.



Map showing station location and data quality of the fire weather dataset



Daily maximum wind speed (km/h) at Bendigo and Melbourne

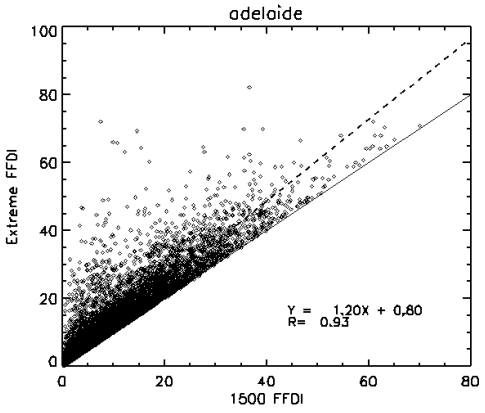
Wind Data Issues

- AWS anemometers have fewer calms and lower variance due to their performance and response characteristics
- Remote stations early in record have only estimates of wind speed and show 'discrete' wind speeds
- Changing the exposure of the anemometer alters the wind measurement
- These factors act to produce a non-homogeneous wind record. All stations are affected to some degree by these issues

Which FFDI to use?

- Extreme FFDI is typically 1.2 times higher than 'pure' 1500 (3pm) values.
- Inland stations often have early wind maxima (nocturnal low-level jet) and late RH minima (18), especially in summer
- Coastal stations have early RH minima (09,12) due to the sea breeze
- Points with low 1500 values and high extreme values are apparently associated with cold fronts, etc.

Extreme FFDI gives a good estimate of the 'worse-case' fire weather on a given day



Scatterplot of 1500 FFDI against 'extreme FFDI