



# TASMANIAN FFDI STATISTICS

## Background

Forest Fire Danger Index (FFDI) was calculated using data obtained from Bureau of Meteorology (BOM) automatic weather stations up until July 2016. Graphs have been produced to show how FFDI fluctuated over the calendar year, and to allow for comparison between the different weather stations.

## Chart Information

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## Data Access

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The FFDI statistics and charts were prepared using BOM data. To view the terms under which the data can be used, visit <http://reg.bom.gov.au/data-access/3rd-party-attribution.shtml>.

Some data on this app. is sourced from the Bureau of Meteorology.

View Data Click here to view the FFDI charts:

<https://goo.gl/2MpSgU>

## Definitions

FFDI (Y axis, left hand side) The McArthur Forest Fire Danger Index (FFDI, McArthur 1967) integrates weather variables to assess fire danger, calculated as a numerical index, based upon the principle that fire danger is determined by wind speed, fuel moisture content, and fuel availability. Fuel moisture is calculated implicitly by inclusion of air temperature and relative humidity in the slide-rule and equations



(Matthews 2009). FFDI was calculated using 10-minute-averaged weather data, as:

$$FFDI = 2.0 \exp (-0.450 + 0.987 \ln(D) - 0.0345 RH + 0.0338T + 0.0234U_{10})$$

where  $D$  is the Drought Factor,  $RH$  is the relative humidity (%),  $T$  is the air temperature ( $^{\circ}C$ ) and  $U_{10}$  is the average 10-m open wind speed (km/h).

Fire Danger Rating (Y axis, right hand side)

The Fire Danger Rating (FDR) warns of the potential impact of a bushfire on any given day, based on forecast weather conditions. Categories Severe, Extreme and Catastrophic indicate a fire is likely to become fast-moving and uncontrollable. For more information, see

<http://www.fire.tas.gov.au/Show?pageId=colFireDanger#FDI-guide>

Mean maximum FFDI

The average daily maximum FFDI, for each month and as an annual statistic, calculated over all years of record.

95th percentile maximum FFDI

95th percentile of maximum daily FFDI. Percentile values are used to give an indication of the spread of the observations over the period of record; in this case, daily observations within a month. Over the long term about one day in twenty can be expected to have a maximum FFDI exceed the 95th percentile value. To determine the 95th percentile of a series of observations, the data are first arranged in order from lowest to highest, and the first input value is selected whose position in the ordering equals or exceeds the specified percentile.

99th percentile maximum FFDI

99th percentile of maximum daily FFDI. Percentile values are used to give an indication of the spread of the observations over the period of record; in this case, daily observations within a month. Over the long term about one day in 100 (or one day roughly every 3 years) can be expected to have a maximum FFDI exceed the 99th percentile value. To determine the 99th percentile of a series of observations, the data are first arranged in order from lowest to highest, and the first input value is selected whose position in the ordering equals or exceeds the specified percentile.

Highest FFDI

The highest maximum daily FFDI observed at the site.

Dataset completeness

The actual number of 10 minute averaged FFDI data points vs the expected number of data points, based on the data start and end dates, expressed as a percentage. Values less than 100% are caused by missing data values which may be a result stations being offline or not reporting all required values to complete an FFDI calculation.

Data start

First data record for the site.

Data end

Last data record for the site.

### References

Matthews, S. 2009. A Comparison Of Fire Danger Rating Systems For Use In Forests. Australian Meteorological and Oceanographic Journal 58: 41-48.

McArthur, A.G. 1967. Fire Behaviour in Eucalypt Forests. Commonwealth Australia Forest and Timber Bureau Leaflet Number 107. 36pp.