

An initial assessment of fire danger in New Zealand's climatic regions

By Grant Pearce

Introduction

Although not having one of the worst fire climates in the world, New Zealand experiences around 2000 vegetation fires each year. Strong winds, often associated with high temperatures and low humidities, can combine to produce dangerous fire weather situations. Not surprisingly, some of this country's most serious fires have occurred under such extreme burning conditions. To effectively manage this risk, New Zealand fire managers therefore require a knowledge of these extremes and their likelihood of occurrence, in relation to long-term averages of fire weather and fire danger conditions.

This issue of the *Fire Technology Transfer Note (FTTN)* updates results and progress on the assessment of fire dangers within New Zealand's regional climatic zones. This project aims to produce a methodology for analysing historical weather and fire danger records so that the number of days falling into each of the fire danger classes can be determined. It is also planned to eventually produce a reference manual containing probability relationships for each of the weather and FWI System components for regional weather stations, so that the likely frequency of occurrence for combinations of conditions can be calculated. Quantification of New Zealand's fire climates will then provide an extremely useful tool for fire management planning.

Methods

In 1992, historical climate data for a number of weather station locations was obtained from the Meteorological Service of New Zealand Ltd. to

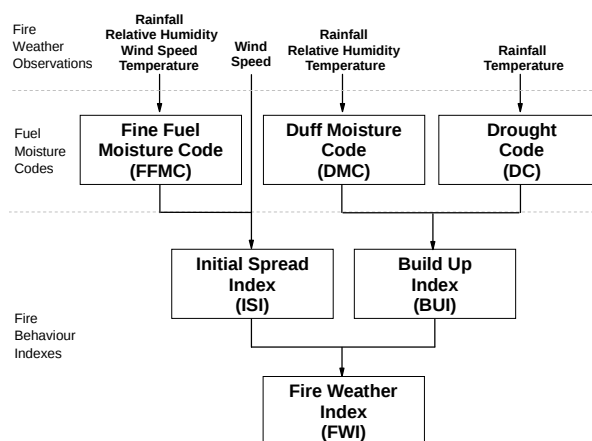


Figure 1. Structure of the Fire Weather Index System (after Anon. 1993).

enable a regional assessment of fire dangers. This data included 1200-hr NZST observations of temperature, relative humidity, wind speed (and direction), and 24-hr rainfall, as inputs into calculation of the components of the Fire Weather Index (FWI) System (Fig. 1).

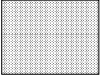
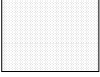
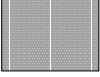
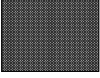
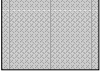
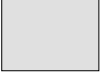
Calculation of FWI System codes and indices requires a continuous record for each of the input weather elements. However, in the process of manipulating the obtained climatological data sets into the format required for calculation of FWI System values, a number of problems were encountered regarding missing or incomplete data.

Of the 25 stations for which information was originally supplied, only 20 were deemed to have sufficient length of record (i.e., a minimum of 10 years) to carry out a statistical analysis of averages and, of these stations, only three were sufficiently error-free to enable



Figure 2. Map of New Zealand climate regions (after NZMS 1983), including weather stations used for analysis of regional fire climates.

Table 1. New Zealand climate regions and weather stations included in the analysis of regional fire climates.

Figure Key	Climate Region	Description of Climate Type (after NZMS 1983)	Weather Stations	Length of Record
	A1	Warm humid summers, mild winters. Annual rainfall 1000 to 1500 mm with a winter maximum. Prevailing wind southwest but occasional strong gales and heavy rains from the east or northeast from Hamilton northwards.	Kaitiaia Dargaville Auckland	33 17 29
	A2	Similar to A1 but much wetter. Annual rainfall 1500 to 2500 mm.	Coromandel Rotorua New Plymouth	17 31 20
	B1	Sunny, rather sheltered areas which receive rains of very high intensity at times from the northeast and north. Very warm summers and mild winters. Annual rainfall 1000 to 2000 mm with a winter maximum.	Tauranga Nelson	25 33
	B2	Less sunny than B1. Cooler winters with frequent ground frosts.	Taupo	19
	C1	Very warm summers, day temperatures occasionally rise above 30 °C with dry föhn northwesterlies. Annual rainfall 1000 to 1500 mm; marked decrease in amount and reliability of rain in spring and summer. Moderate winter temperatures with maximum rainfall in this season.	Gisborne Kaikoura	33 31
	C2	Drier than C1, rainfall 600 to 1000 mm. Summer droughts common.		
	C3	Cooler and wetter than C1. Very heavy rain at times from the south and southeast. Annual rainfall mainly 1500 to 2500 mm.		
	D1	West to northwest winds prevail with relatively frequent gales. Annual rainfall 900 to 1300 mm. Rainfall reliable and evenly distributed throughout the year. Warm summers and mild winters.	Ohakea Paraparaumu Wellington	32 33 35
	D2	Wetter than D1 with annual rainfall 1300 to 2000 mm.		
	E1	Small temperature range. High rainfall increasing rapidly with height. Minimum rainfall in winter in the south. Prevailing winds southwest but gales infrequent in spite of exposed coastline.	Westport Hokitika	26 31
	E2	More sheltered than E1. Little seasonal variation in rainfall, but a larger range in temperature with frequent winter frosts.		
	F1	Low annual rainfalls of 500 to 800 mm in the south, slightly more in winter than in other seasons. Warm summers with occasional hot föhn northwesterlies giving temperatures above 30 °C. Cool winters with frequent frosts and occasional snow. Northeasterlies prevail with northwesterlies inland.	Christchurch	35
	F2	Cooler and wetter than F1 with rainfalls 800 to 1500 mm. Northwesterlies predominate with occasional very strong gales, especially along river valleys. Snow may lie for weeks in winter.	Queenstown	17
	F3	Semi-arid areas with annual rainfall 300 to 500 mm. Very hot summers and cold winters.		
	G1	Warm summers and cool winters. Rainfall 500 to 900 mm, evenly distributed but slight winter maximum.	Dunedin	32
	G2	Wetter than G1 with rainfall 900 to 1300 mm. Generally windier, with frequent showers in coastal districts.	Invercargill	35
	M	High rainfall mountain climates. Conditions vary greatly with altitude and exposure.		

calculation of FWI values immediately. The remaining 17 stations all included periods of missing data, in some cases of a year or more.

To develop a method for assessing regional fire dangers based on the components of the FWI System, problems of missing and/or incomplete data had to first be overcome, and an agreement was therefore reached with the National Institute of Water and Atmospheric Research (NIWA) for access to their national Climate Database¹. This provided several options for completing station records including substitution with records from a suitable neighbouring station, preferably within the same climatic zone (see Fig. 2), or from the nearest station contained in NZ Forest Service fire danger records, archived by the National Rural Fire Authority.

Calculation of FWI System components for each station, using the equations of Van Wagner and Pickett (1985), was possible once a continuous record of weather inputs had been established. The fire danger class for each day of record was then determined by calculating the potential head fire intensity and allocation of a descriptive term to values based on the ranges specified by Alexander (1994):

Low	L	≤ 10.5 kW/m
Moderate	M	10.6 - 500.5 kW/m
High	H	500.6 - 2000.5 kW/m
Very High	VH	2000.6 - 4000.5 kW/m
Extreme	E	≥ 4000.6 kW/m

In the case of the Forest fuel type, this was carried out by inputting the calculated ISI and BUI components of the FWI System into the appropriate equations for fire intensity using the conifer plantation fuel model (C-6) from the Canadian Fire Behaviour Prediction (FBP) System (Forestry Canada Fire Danger Group 1992).

As historical grassland *degree of curing*² information is not available, it was not possible

to calculate the Grassland fire danger class. However, methods for assessing the effect of weather and seasonal conditions on the curing of grassland areas are being investigated as part of the Fire Research programme's grassland curing project, and in the future it is hoped that these will enable the retrospective estimation of the degree of curing and, when combined with the ISI component using the natural/standing grass (O-1b) fuel type from the FBP System (Forestry Canada Fire Danger Group 1992), determination of the Grassland fire danger class for these climatological records.

Often included with commercial FWI calculation software, the *Daily Severity Rating*³ (DSR) is a numerical measure which rates the daily fire severity at a particular station based on the FWI. Severity ratings can be calculated for any desired period by simply summing the individual DSRs and then dividing by the number of days in the chosen time period, e.g., Weekly (WSR), Monthly (MSR) or Seasonal Severity Ratings (SSR) (Harvey *et al.* 1986). In this study, the Cumulative Daily Severity Rating (CDSR) was determined by summing the individual daily DSR values for each year of record, and these were then averaged over that period to provide an objective measure by which the severity of fire dangers at individual stations could be compared.

On completion of a database of weather inputs and FWI System codes and indices for each station, an analysis of long-term descriptive statistics (i.e., means, minimums and maximums, etc.) was carried out. Computation of fire danger class frequencies was achieved by sorting and counting the data for each period of analysis by fire danger class.

It was also decided to include the "fire season", defined for the purposes of this study as the seven month period from October 1 to April 30, as a distinct analysis period. It provides a more meaningful indicator of the general fire climate of a region for the period when fires most commonly occur than either the annual or individual monthly values. Testing of the

¹ Administration and maintenance of the Climate Database became the responsibility of NIWA with the "corporatisation" of the MetService in July 1992.

² The *degree of curing* is "an estimate of the proportion of dead material expressed as a percentage of the total volume of grass" (Gates 1987).

³ The DSR is designed so that the impact of the FWI is reduced at low values but rises sharply as FWI increases, thus better reflecting control difficulty and the amount of work required to suppress a fire (Van Wagner 1987).

validity of current fire season start and end dates will also result from the comparison of "fire season" statistics with those for individual months.

Results and discussion

Despite problems with missing data for many weather station records, analysis of the fire climatology for 20 stations was possible (see Table 1).

Summary tables, containing the long-term averages and extremes (i.e., maximum and minimum values) by month and year for each of the weather inputs and FWI system codes and indices, were produced for each regional weather station. These summaries are attached as an Appendix to this *FTTN*. The tables provide an invaluable tool that enables fire managers to assess the severity of prevailing fire weather and fire danger conditions against both long-term average and extreme conditions at the appropriate regional station.

The fact that many of New Zealand's major fires have occurred under some of the most severe burning conditions has been demonstrated on numerous occasions. For example, the country's highest maximum air temperature of 42.4 °C was recorded at Rangiora in Canterbury (and also at Ruatoria, NZMS 1996) on 7 February 1973, the same day as major fires occurred at nearby Ashley Forest⁴ and Clifton Hill⁵. Several other serious vegetation fire incidents also occurred around the region on this day when Christchurch Aero's noon temperature reached 39 °C, the highest in 35 years of records (see Appendix, page 25). In contrast, the average noon temperature at Christchurch Aero in February is 19.6 °C.

The Purakanui Fire⁶, which occurred approximately 15 km northeast of Dunedin on 6 November 1994, burned under the influence of very strong nor'westerly winds (70 km/h at noon). This resulted in some of the highest FWI System values ever recorded at Dunedin Aero (ISI 161, FWI 129, see page 27) and, in fact, anywhere in New Zealand.

Similarly, the recent Berwick Forest Fire⁷ of 26 February 1995, also near Dunedin, burned under hot dry conditions, with the noon values for temperature (32 °C) and relative humidity (16%) very close to the extremes recorded at the Dunedin Aero⁸ station (see page 27).

Whilst the fire climate of Christchurch and the Canterbury region is well known, that of Dunedin and coastal Otago is not perceived to be anywhere near as severe, despite the occurrence of these significant fire events in recent years. This points to the need for an improved awareness among fire managers of the fire climate component of their fire environments.

The relative severity of the fire climates for the stations included in this analysis can be seen in their rankings in Table 2, based on two alternative means of comparison: the long-term average Cumulative Daily Severity Rating (CDSR) (Harvey *et al.*, 1986), and frequency of days falling into each of the Forest fire danger classes, as determined from the criteria outlined by Alexander (1994). Of the 20 stations analysed to date, Christchurch and Gisborne have the most severe fire climates, while Westport and Hokitika are the least severe, based on both the CDSR and number of days in the Very High and Extreme Forest fire danger classes.

⁴ The 1973 Ashley Forest Fire was ignited by sparks from a grader, and resulted in the loss of 194 ha of primarily 11 y.o. radiata pine plantation (see Fogarty 1994 (*FTTN* 3), Pearce and Alexander 1994).

⁵ Occurring on the Port Hills above Christchurch, the 1973 Clifton Hill Fire burned an area of approximately 100 ha, destroyed two houses and damaged nine other properties (Pearce 1994a).

⁶ The 1994 Purakanui Fire burned approximately 210 ha, some 25 ha of which was plantation forest. In addition, more than 30 houses were threatened and 150 people evacuated (White 1995).

⁷ The Berwick Forest Fire burned an area of 250 ha, including 181 ha of mixed species plantation forest (Fogarty *et al.*, in press).

⁸ These values may differ from those quoted elsewhere (e.g., Fogarty *et al.*, in press) due to differences between observations recorded by the two automatic weather stations at Dunedin Aero, Network Nos. I50921 (used here) and I50922.

Table 2. Average fire climate severity for regional weather stations from around New Zealand.

Regional Station	Cumulative Daily Severity Rating (CDSR)	VH + Ext FFDC Frequency (days/yr)
Christchurch	1282	39.1
Gisborne	1046	33.3
Wellington	881	17.6
Ohakea	601	13.7
Nelson	519	10.1
Dunedin	495	7.6
Kaitaia	428	10.0
Auckland	413	7.8
Kaikoura	392	4.3
Tauranga	369	6.6
Paraparaumu	310	3.9
Queenstown	293	4.6
Rotorua	226	2.1
Taupo	224	2.9
Coromandel	204	1.1
Dargaville	188	2.2
Invercargill	159	0.3
New Plymouth	89	0
Westport	61	0
Hokitika	43	0

The results of the analyses described above provide an insight into the extremes experienced at 20 weather station locations from around New Zealand. Fortunately, the availability of complete data sets for Christchurch and Gisborne is also indicative of the likely extremes for New Zealand as a whole, as these two stations experience arguably the most severe fire weather of anywhere in the country. However, more stations are required to ensure that the variability between climate regions is covered.

A number of other issues relating to the analysis of climate and fire danger data must also be resolved before a final regional fire climatology can be produced. In particular, the information provided must be of use to rural fire managers, and not simply included as the result of statistical analyses. For example, everyone knows the long-term minimum rainfall recorded at a particular site will be zero, or that the minimum ISI value experienced will also be zero, so why include these in a summary?

Statistics must also be relevant and, in the case of average daily rainfall, for example, should

this figure be an average of all observations or just of those days on which rainfall occurred? Maybe another statistic would be more valid, such as the monthly rainfall total, or number of rain days above a rainfall threshold.

The whole question of the validity of averaging climate and fire danger data also needs to be resolved, including use of a long-term *mean* versus the *median*⁹ as an averaging measure. Averages can be markedly affected by extreme values and for this reason a 30- or 35-year period is commonly used for the determination of climatological “normals”. In the case of FWI data, Van Wagner and Pickett (1985) noted that

“the FWI itself is not considered suitable for averaging, and should be used as its single daily value only... the DSR is the function of the FWI specifically designed for averaging...”

In contrast, Simard (1973) stated that in using a 10-year sample of data, the average FWI value was considered to be a valid measure of the distribution of the individual index values. Hence, the validity of using averages for periods of less than 30 years needs to be investigated for both the weather inputs and resulting FWI System components.

One means of resolving these averaging issues, and of providing information that would be of more use to fire managers and planners is the inclusion of relative frequency or probability distributions for both climatic and FWI System data (e.g., Kiil *et al.* 1977). Not only would this provide a more accurate summary of the distribution of the data, it would also allow a wider range of fire behaviour scenarios to be utilised in fire management planning than could be achieved by simply using the average or worst case conditions.

The probability distribution for a given weather input or FWI System component is obtained by determining the relative frequency or proportion of values which are greater than or equal to a given value. For example, from Fig. 3a, all temperature values at Christchurch

⁹ The arithmetic *mean* is the average value obtained by summing the individual values and dividing by the number of occurrences, whereas the *median* is the middle value when data are arranged in order of magnitude.

Aero are greater than or equal to 0 °C (i.e., $P = 1.0$), whereas half ($P = 0.5$) are greater than 15 °C. Similarly, the probability that the FWI is greater than or equal to 20 at Christchurch Aero is about 0.2 (or 20%), and only 0.05 (5%) for an FWI of 40 (Fig. 3b).

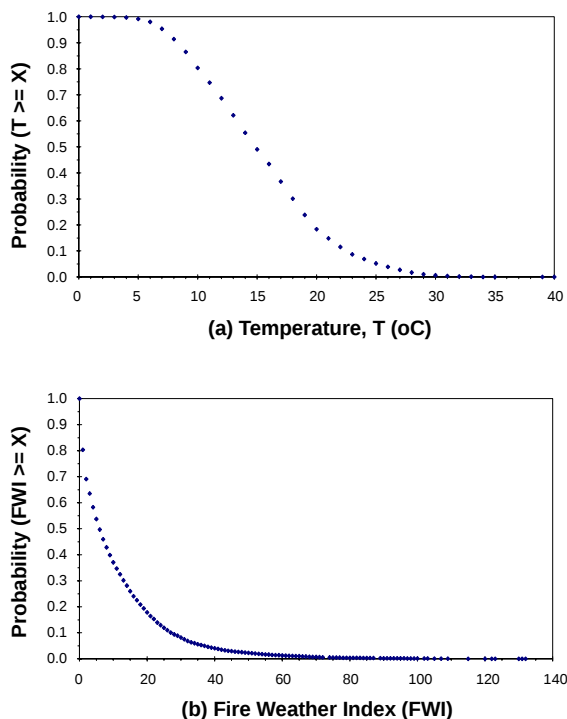


Figure 3. Probability distributions for (a) Temperature, and (b) FWI for any month at Christchurch Aero.

The use of the regional fire climate data contained in the summary tables and application to fire management can be illustrated by revisiting the Queenstown Gondola preparedness planning scenario used in *FTTN 4* (Pearce 1994b). This exercise assumed that a fire ignited at the base of the slope beneath the gondola would burn uphill through the conifer stand, and asked how long the fire would take to reach the restaurant at the top of Bob’s Peak under “average” and “worst case” conditions (Fig. 4). Therefore, how long would authorities have to evacuate patrons from the facility under these two situations?

From the tabular fire climate summary for Queenstown (Appendix, page 26), “average” conditions for February are an FFMCI of 77 and wind speed of 14 km/h; this corresponds to an ISI of 1.5 (Anon. 1993). With an average BUI

of 31, a fire would spread at only 2 m/h on flat ground, using the rate of spread tables for the C-6 (Mature Radiata Pine Stand) fuel type included with *FTTN 4*, or 12 m/h on a 30° slope (Slope Correction Factor, SCF = 6). Thus, the fire would take some 66 hours to travel the 792 m to the restaurant, and would either be self-extinguishing due to the moist conditions or readily suppressed within this time.

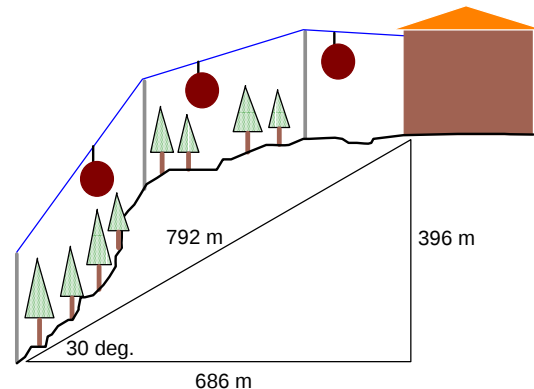


Figure 4. Diagrammatic representation of the Queenstown gondola.

Under “worst case” conditions, using the maximum values recorded for Queenstown in February (page 26), at an FFMCI of 95 and winds of 48 km/h, the ISI is 97 (Anon. 1993). With this ISI and the maximum BUI of 110, the rate of spread of the fire in a mature pine stand would be about 2000 m/h on flat ground, or 12 000 m/h on a 30° slope. Hence, the fire would take only 4 minutes to reach the restaurant under these drier and windier conditions, and evacuation would not be a safe strategy. A better option under extreme conditions might be to restrict public access to the walkway beneath the gondola, thereby limiting the chances of an ignition.

Future developments

The compilation, analysis and production of summary tables for these 20 weather stations represents only the first stage in the assessment of a regional fire climates for New Zealand. However, it illustrates the severity of the fire climate in many otherwise unrecognised parts of the country and, in doing so, demonstrates the need for an improved awareness of the fire weather component of the New Zealand fire environment among fire managers.

Over the coming months, staff from the Fire Research programme hope to produce probability distributions for all the variables for each weather station, and to ultimately produce these along with the summary tables in a reference manual or interactive software package. Once completed, this will provide an invaluable tool with applicability to all stages of fire management, from improved timing of prevention efforts to use in preparedness planning of, for example, evacuation procedures or initial attack resource requirements.

In the meantime, however, fire managers are now in a position to utilise the information contained in this *FTTN* to improve the understanding of the weather and fire danger components of their local fire environments. The long-term averages and extremes contained in the summary tables, together with an indication of the relative fire climate severity of the various climatic regions, provide rural fire managers with an opportunity to undertake some management of the associated risks by applying this information to their everyday fire planning and operations.

Acknowledgments

The assessment of a regional fire climates for New Zealand was initiated by Marty Alexander (then on secondment to FRI from Forestry Canada) following discussions with the MetService in 1992. Thanks are extended to Vaughan Gera and Kimberly Robertson (FRI) for their efforts in compiling the data sets, and to Allan Penney (NIWA) for assistance with accessing the Climate Database. Comments and advice on this work received from Liam Fogarty (FRI) and his provision of Figure 4, and of Figure 2 by Karl Majorhazi (National Rural Fire Authority), are also gratefully acknowledged.

References

- Alexander, M.E. 1994. Proposed revision of fire danger class criteria for forest and rural areas in New Zealand. National Rural Fire Authority, Wellington. Circular 1994/2. 73 p.
- Anon. 1993. Fire Weather Index System Tables for New Zealand. National Rural Fire Authority in association with the New Zealand Forest Research Institute. Wellington, N.Z. 48 p.
- Fogarty, L.G. 1994. Fire problem, what fire problem? - a review of "Fire danger ratings associated with New Zealand's major pine plantation wildfires" by H.G. Pearce and M.E. Alexander. Fire Technology Transfer Note 3 (April 1994).
- Fogarty, L.G.; Jackson, A.F.; Lindsay, W.T. (in press). Fire behaviour, suppression and lessons from the Berwick Forest Fire of 26 February 1995. FRI Bulletin No. 197, Forest and Rural Fire Scientific and Technical Series.
- Forestry Canada Fire Danger Group. 1992. Development and structure of the Canadian Forest Fire Behaviour Prediction System. Forestry Canada, Science and Sustainable Development Directorate, Ottawa, Ontario. Information Report ST-X-3, 63 pp.
- Gates, A. 1987. Fuel state reports, 1987-88 fire season. Bushfire Council of New South Wales, Sydney.
- Harvey, D.A.; Alexander, M.E.; Janz, B. 1986. A comparison of fire-weather severity in northern Alberta during the 1980 and 1981 fire seasons. Forestry Chronicle 62: 507-513.
- Kiil, A.D.; Miyagawa, R.S.; Quintilio, D. 1977. Calibration and performance of the Canadian Fire Weather Index in Alberta. Environment Canada, Canadian Forestry Service, Northern Forest Research Centre, Edmonton, Alberta. Information Report NOR-X-173. 45 p.
- NZMS. 1983. Climatic map series (1:200 000). Part 2: Climate regions. New Zealand Meteorological Service. NZMS Miscellaneous Publication 175.
- NZMS. 1996. New Zealand's eye on the sky weather trivia calendar - 1996. Meteorological Service of New Zealand and Ocean Fun Unlimited.
- Pearce, H.G. 1994a. Fire danger ratings associated with New Zealand's major rural-urban interface fires: a comparison with international rural-urban interface events. Interactive poster presentation, Forest and Rural Fire Association of New Zealand (FRFANZ) 4th Annual Conference, August 3-5, 1994, Rotorua.
- Pearce, H.G. 1994b. Applications of rate of spread information to fire suppression planning. Fire Technology Transfer Note 4 (October 1994).
- Pearce, H.G.; Alexander, M.E. 1994. Fire danger ratings associated with New Zealand's major pine plantation wildfires. Proceedings, 12th Conference on Fire and Forest Meteorology, October 25-29, 1993, Jekyll Island, Georgia, U.S.A., pp 534-543.
- Simard, A.J. 1973. Forest fire weather zones of Canada. Environment Canada, Canadian Forestry Service. (Poster with text).
- Van Wagner, C.E. 1987. Development and structure of the Canadian Forest Fire Weather Index System. Canadian Forestry Service, Ottawa, Ontario. Forestry Technical Report 35. 37 p.
- Van Wagner, C.E.; Pickett, T.L. 1985. Equations and FORTRAN program for the Canadian Forest Fire Weather Index System. Canadian Forestry Service, Ottawa, Ontario. Forest Technical Report 33. 18 p.
- White, D.B. 1995. Purakanui Fire, 6 November 1994 to 28 November 1994. Proceedings, Forest and Rural Fire Association of New Zealand (FRFANZ) 5th Annual Conference, August 2-4, 1995, Nelson.

Station Name: <u>Dargaville</u>			Period: 1 Jan 79 - 31 Dec 95								Length of Record: 17 years			
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON
Temperature, degrees Celsius														
Mean	22.1	22.2	21.4	19.2	16.6	14.6	13.7	14.1	15.3	16.7	18.3	20.5	17.9	20.0
Max.	27.8	27.4	27.3	26.2	24.0	23.8	19.3	19.1	21.3	22.4	26.0	26.0	27.8	27.8
Min.	14.0	15.9	14.4	10.3	8.7	7.3	7.0	6.0	8.3	8.7	7.2	14.1	6.0	7.2
Relative Humidity, %														
Mean	68	70	68	69	73	76	77	73	69	72	70	69	71	69
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	24	26	25	41	23	42	43	36	24	32	44	36	23	24
Wind Speed, km/h														
Mean	12.8	12.5	13.0	12.9	12.5	12.4	13.1	15.3	16.2	16.7	15.6	12.8	13.8	13.8
Max.	44.0	44.0	82.0	56.0	59.0	56.0	56.0	82.0	83.0	56.0	56.0	44.0	83.0	82.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	2.6	2.5	3.1	2.9	3.7	4.1	4.2	4.2	3.5	2.7	2.5	2.5	3.2	2.7
Max.	65.5	77.8	98.8	56.7	80.0	76.5	67.0	63.0	44.6	43.0	47.5	65.3	98.8	98.8
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	80.2	71.4	96.5	87.6	114.4	122.1	130.6	131.4	105.5	84.4	76.4	76.4	98.1	81.8
Seasonal Rainfall, millimetres														
Mean													1177.0	572.9
Fine Fuel Moisture Code, FFMC														
Mean	71.1	72.8	72.6	70.9	63.5	57.2	55.1	58.3	66.5	64.9	71.3	73.4	66.4	80.0
Max.	89.3	89.3	89.7	88.2	90.5	85.0	84.8	86.2	86.5	87.5	88.0	90.5	90.5	90.5
Min.	0.0	5.2	4.1	7.0	1.0	2.5	0.2	2.4	13.8	2.4	15.2	8.1	0.0	0.0
Duff Moisture Code, DMC														
Mean	21	18	13	10	5	1	1	2	4	6	10	17	9	14
Max.	73	73	53	35	21	7	9	9	15	24	41	69	73	73
Min.	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Drought Code, DC														
Mean	240	290	251	214	129	48	21	12	15	36	89	168	125	183
Max.	459	523	497	479	403	219	156	81	67	131	214	366	523	523
Min.	7	13	5	4	2	1	1	1	1	3	6	7	1	3
Initial Spread Index, ISI														
Mean	3.2	2.9	2.9	2.5	1.5	1.0	0.9	1.4	2.1	2.2	2.7	2.9	2.2	2.7
Max.	27.5	22.2	21.1	22.3	27.5	10.2	13.0	47.4	50.2	31.2	23.2	29.0	50.2	31.5
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	32	30	21	16	8	2	2	2	5	8	15	26	14	21
Max.	101	98	78	53	37	12	13	13	17	29	54	92	101	101
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire Weather Index, FWI														
Mean	7.1	6.3	5.0	3.6	1.4	0.5	0.4	0.7	1.5	2.3	3.7	5.6	3.1	4.8
Max.	49.5	42.3	33.8	35.9	21.8	6.9	10.8	21.3	24.6	30.9	38.5	47.9	49.5	49.5
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	27.16	20.60	13.84	15.36	6.35	.83	1.84	6.09	7.86	11.77	17.42	25.60	27.16	27.16
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	1.55	1.17	.79	.47	.12	.02	.02	.05	.13	.27				

Station Name: <u>Auckland Aero</u>			Period: 1 Jan 67 - 31 Dec 95			Length of Record: 29 years			FIRE					
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	SEASON
Temperature, degrees Celsius														
Mean	21.8	22.1	21.0	18.4	15.6	13.4	12.5	13.5	14.7	16.3	18.3	20.3	17.3	19.7
Max.	27.7	27.0	28.0	24.5	21.0	19.4	20.0	25.0	21.0	23.0	24.0	26.0	28.0	28.0
Min.	15.0	14.4	12.1	11.3	8.8	0.0	6.1	3.0	7.0	10.0	12.0	13.0	0.0	10.0
Relative Humidity, %														
Mean	66	66	68	73	77	80	79	76	74	72	69	68	72	69
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	33	38	19	39	44	46	28	21	30	39	32	36	19	19
Wind Speed, km/h														
Mean	22.3	20.8	20.7	20.3	19.4	18.1	18.7	21.7	23.8	25.3	24.3	23.0	21.5	22.4
Max.	57.4	61.1	74.1	64.8	66.7	74.1	66.7	64.8	65.0	63.0	63.0	55.6	74.1	74.1
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	2.3	2.5	2.6	3.2	3.1	3.7	4.1	3.7	3.2	2.6	2.7	2.7	3.0	2.7
Max.	75.7	161.8	76.6	58.4	112.7	88.8	97.0	80.3	47.7	50.6	69.3	141.6	161.8	161.8
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	72.0	71.8	79.3	95.2	95.1	109.7	126.9	113.8	94.6	80.5	81.5	85.1	92.1	80.8
Seasonal Rainfall, millimetres													1105.5	565.4
Fine Fuel Moisture Code, FFMC														
Mean	79.0	79.3	76.9	72.4	67.0	59.2	59.0	62.6	66.7	72.1	74.7	76.6	70.4	75.8
Max.	90.0	89.6	93.0	89.1	86.6	84.8	84.7	93.7	87.4	88.6	89.7	89.3	93.7	93.0
Min.	0.0	10.4	0.0	11.1	3.7	0.0	0.0	6.5	3.1	8.3	1.4	0.3	0.0	0.0
Duff Moisture Code, DMC														
Mean	22	26	18	10	4	1	1	2	3	7	12	15	10	16
Max.	92	117	73	42	33	10	8	16	17	31	47	56	117	117
Min.	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Drought Code, DC														
Mean	223	296	288	226	138	66	23	12	15	39	86	146	129	185
Max.	512	662	671	620	457	381	149	80	65	134	259	360	671	671
Min.	7	6	8	3	2	1	1	1	1	3	5	6	1	3
Initial Spread Index, ISI														
Mean	6.0	5.6	4.9	3.7	2.5	1.6	1.6	2.3	3.1	4.2	5.0	5.2	3.8	4.9
Max.	39.0	38.2	26.3	54.3	29.4	26.0	18.4	26.7	51.9	25.0	36.6	34.6	54.3	54.3
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	34	41	30	18	7	2	2	2	4	9	17	23	16	24
Max.	120	162	111	71	48	18	11	16	17	39	62	72	162	162
Min.	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Fire Weather Index, FWI														
Mean	11.7	12.2	9.2	5.3	2.1	0.8	0.8	1.3	2.1	4.1	6.9	8.5	5.4	8.2
Max.	66.3	85.4	47.1	57.1	22.8	11.3	13.9	18.7	32.2	30.8	40.2	56.6	85.4	85.4
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	45.62	71.39	24.92	34.93	6.88	1.99	2.88	4.83	12.68	11.72	18.76	34.42	71.39	71.39
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	3.08	3.20	2.09	.98	.22	.05	.06	.11	.25	.56	1.30	1.80	1.31	

Station Name: <u>Coromandel</u>			Period: 1 Jan 79 - 31 Dec 95								Length of Record: 17 years				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON	
Temperature, degrees Celsius															
Mean	21.5	21.6	20.7	18.6	16.2	14.1	13.2	13.8	15.0	16.5	18.1	20.1	17.4	19.6	
Max.	26.3	27.3	27.2	29.0	21.4	19.3	18.6	24.3	22.0	22.0	24.0	25.8	29.0	29.0	
Min.	15.0	15.8	13.3	8.0	7.4	7.2	7.3	7.7	9.6	9.9	13.0	14.5	7.3	8.0	
Relative Humidity, %															
Mean	69	69	69	70	72	75	75	72	71	69	69	69	71	69	
Max.	100	100	97	98	100	100	100	97	99	100	100	97	100	100	
Min.	14	32	40	11	45	44	45	35	44	39	32	41	11	11	
Wind Speed, km/h															
Mean	18.9	18.2	18.5	16.9	15.6	15.4	15.6	17.4	19.3	21.2	19.8	18.0	17.9	18.8	
Max.	48.0	46.0	59.0	56.0	54.0	56.0	56.0	56.0	54.0	54.0	54.0	46.0	59.0	59.0	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-hr Rainfall, millimetres															
Mean	4.1	4.3	5.8	5.0	4.2	5.9	7.2	6.5	5.2	4.8	4.4	3.8	5.1	4.6	
Max.	133.6	161.8	137.1	184.1	175.8	92.4	185.9	145.3	170.5	92.7	106.1	153.0	185.9	185.9	
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Monthly Rainfall, millimetres															
Mean	126.8	121.5	180.0	148.9	129.7	175.8	224.1	200.8	156.1	147.9	130.7	117.4	155.0	139.0	
Seasonal Rainfall, millimetres															
Mean													1859.6	973.2	
Fine Fuel Moisture Code, FFMC															
Mean	75.6	75.3	72.3	71.4	68.9	60.6	60.0	61.3	65.2	69.5	71.5	74.9	68.9	72.9	
Max.	92.4	89.1	88.7	89.6	86.5	85.7	85.6	86.9	86.9	87.6	89.6	89.1	92.4	92.4	
Min.	11.5	0.0	6.8	9.7	8.1	1.8	4.0	5.8	9.5	2.1	10.7	8.6	0.0	0.0	
Duff Moisture Code, DMC															
Mean	17	15	10	9	5	2	1	2	3	6	9	14	8	11	
Max.	68	55	34	32	22	10	9	10	16	21	37	55	68	68	
Min.	0	1	0	0	0	0	0	0	0	0	0	1	0	0	
Drought Code, DC															
Mean	176	189	125	96	51	16	9	10	11	24	54	110	72	110	
Max.	474	406	385	340	275	78	36	45	55	102	169	346	474	474	
Min.	7	6	5	3	1	1	1	1	1	3	5	6	1	3	
Initial Spread Index, ISI															
Mean	4.3	4.0	3.6	3.0	2.3	1.6	1.4	1.7	2.2	3.3	3.4	3.8	2.9	3.6	
Max.	38.9	24.1	30.1	17.5	14.0	10.3	8.9	17.2	16.0	25.5	31.7	24.3	38.9	38.9	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Buildup Index, BUI															
Mean	27	23	15	14	7	3	2	3	4	7	13	21	11	17	
Max.	97	74	50	45	36	15	11	13	16	28	46	75	97	97	
Min.	1	2	0	0	0	0	0	0	0	0	0	1	0	0	
Fire Weather Index, FWI															
Mean	7.9	7.0	4.9	3.8	1.9	0.9	0.7	1.0	1.5	3.1	4.3	6.1	3.6	5.3	
Max.	44.7	34.0	28.1	19.3	11.9	10.2	7.7	12.7	15.7	20.5	33.2	29.0	44.7	44.7	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Daily Severity Rating, DSR															
Max.	22.68	13.99	10.00	5.14	2.18	1.67	1.00	2.44	3.55	5.72	13.36	10.53	22.68	22.68	
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Monthly/Seasonal Severity Rating, MSR/SSR															
Mean	1.65	1.32	.												

Station Name: <u>Rotorua</u>			Period: 1 Jan 65 - 31 Dec 95								Length of Record: 31 years				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON	
Temperature, degrees Celsius															
Mean	20.7	20.7	19.2	16.4	13.3	10.9	10.2	11.2	12.8	14.9	17.1	19.1	15.5	18.3	
Max.	29.0	29.0	25.6	21.4	20.2	17.2	25.0	25.0	21.0	21.0	25.0	27.0	29.0	29.0	
Min.	12.0	10.5	10.7	8.3	5.2	4.0	4.6	4.0	6.1	6.6	9.4	11.1	4.0	6.6	
Relative Humidity, %															
Mean	64	64	66	69	73	76	75	73	69	67	65	65	69	66	
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Min.	29	33	35	35	39	33	41	28	15	24	26	25	15	24	
Wind Speed, km/h															
Mean	15.8	15.1	15.1	15.5	15.6	15.2	15.0	16.0	17.6	18.0	17.6	17.0	16.1	16.3	
Max.	52.0	46.0	59.0	48.0	65.0	56.0	54.0	54.0	59.0	56.0	56.0	48.0	65.0	59.0	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-hr Rainfall, millimetres															
Mean	3.4	3.7	3.7	3.8	3.6	4.3	4.3	4.9	4.1	3.7	3.4	3.9	3.9	3.7	
Max.	163.8	198.1	108.5	103.6	114.8	110.3	84.9	143.8	99.8	118.8	88.4	106.2	198.1	198.1	
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Monthly Rainfall, millimetres															
Mean	105.2	103.4	116.1	114.1	112.0	129.9	133.3	152.4	123.8	113.5	102.7	121.8	119.0	110.0	
Seasonal Rainfall, millimetres													1428.3	776.9	
Fine Fuel Moisture Code, FFMC															
Mean	76.0	76.1	74.8	71.6	67.9	61.2	61.7	61.4	66.0	70.4	72.8	74.0	69.5	73.7	
Max.	91.9	90.4	89.2	89.0	87.2	87.0	85.5	91.0	86.8	89.1	90.4	90.6	91.9	91.9	
Min.	0.0	0.0	0.0	3.3	0.0	0.8	0.8	1.1	1.3	4.4	4.4	0.0	0.0	0.0	
Duff Moisture Code, DMC															
Mean	20	21	15	11	5	2	2	2	4	7	11	14	9	14	
Max.	80	87	59	58	20	13	13	11	18	29	37	48	87	87	
Min.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
Drought Code, DC															
Mean	152	195	159	120	59	23	9	9	11	29	63	96	76	115	
Max.	443	534	547	498	241	202	102	37	47	102	203	256	547	547	
Min.	7	5	4	3	1	1	1	1	1	2	4	5	1	2	
Initial Spread Index, ISI															
Mean	4.1	3.9	3.4	3.0	2.3	1.7	1.7	1.7	2.3	2.9	3.4	3.6	2.8	3.5	
Max.	39.6	23.2	14.8	35.4	27.6	17.4	13.1	16.4	13.9	19.9	26.2	17.3	39.6	39.6	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Buildup Index, BUI															
Mean	29	32	23	17	7	3	2	3	4	8	15	20	13	20	
Max.	108	119	90	87	32	18	14	12	18	32	48	63	119	119	
Min.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
Fire Weather Index, FWI															
Mean	8.1	8.0	5.8	4.3	2.1	1.0	0.8	0.9	1.6	2.9	4.6	5.8	3.8	5.6	
Max.	56.5	46.3	29.8	28.2	19.8	13.2	11.4	14.0	13.6	19.4	26.3	28.6	56.5	56.5	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Daily Severity Rating, DSR															
Max.	34.28	24.18	11.07	10.04	5.37	2.62	2.03	2.89	2.77	5.16	8.89	10.27	34.28	34.28	
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Monthly/Seasonal Severity Rating, MSR/SSR															
Mean	1.79	1.65	.95	.64	.20	.07	.0								

Station Name: <u>New Plymouth</u>		Period: 1 Jan 76 - 31 Dec 95										Length of Record: 20 years		
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON
Temperature, degrees Celsius														
Mean	20.0	20.4	19.3	17.1	14.5	12.6	11.8	12.4	13.5	14.8	16.5	18.4	15.9	18.1
Max.	25.0	26.0	26.0	24.0	21.0	18.5	18.0	18.7	20.8	25.7	23.0	25.0	26.0	26.0
Min.	14.0	13.0	13.4	9.7	6.1	7.0	5.0	4.0	6.4	8.9	10.0	13.0	4.0	8.9
Relative Humidity, %														
Mean	73	71	72	74	76	78	78	76	76	77	75	75	75	74
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	41	39	28	40	47	46	32	39	46	45	42	28	28	28
Wind Speed, km/h														
Mean	21.3	20.0	20.6	20.8	22.1	21.8	21.0	22.4	24.1	24.2	23.6	22.8	22.1	21.9
Max.	56.0	56.0	70.0	67.0	61.0	63.0	65.0	63.0	59.0	57.0	63.0	61.0	70.0	70.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	3.3	3.0	3.6	4.7	4.0	4.9	5.0	4.0	3.6	3.8	3.7	3.5	3.9	3.7
Max.	63.2	80.2	134.7	118.2	63.5	70.1	69.0	66.9	54.9	81.4	59.0	67.4	134.7	134.7
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	103.4	85.8	111.2	141.9	123.2	146.6	153.7	124.9	108.0	116.3	109.7	108.7	119.4	111.0
Seasonal Rainfall, millimetres													1433.3	776.9
Fine Fuel Moisture Code, FPMC														
Mean	72.9	75.4	72.0	68.5	65.0	58.4	57.1	60.0	62.4	64.9	69.0	70.5	66.3	70.4
Max.	89.0	89.8	90.1	88.5	86.0	84.8	84.7	87.2	87.0	88.3	88.0	90.7	90.7	90.7
Min.	1.6	8.0	0.0	2.1	2.6	1.0	0.0	0.7	0.0	4.3	0.0	7.5	0.0	0.0
Duff Moisture Code, DMC														
Mean	5	6	5	4	3	2	2	2	3	4	5	5	4	5
Max.	14	16	20	16	8	7	8	9	9	16	12	13	20	20
Min.	2	1	1	1	0	0	0	0	0	1	1	1	0	1
Drought Code, DC														
Mean	131	167	169	110	40	18	8	9	10	22	46	84	67	104
Max.	370	446	540	448	307	168	56	70	39	78	139	191	540	540
Min.	7	6	5	2	1	1	1	0	1	3	5	6	0	2
Initial Spread Index, ISI														
Mean	3.8	4.4	3.8	3.3	2.6	2.1	1.7	2.2	2.6	2.7	3.4	3.4	3.0	3.5
Max.	31.6	26.1	31.2	31.5	21.3	17.4	19.6	21.1	16.6	16.2	36.2	24.4	36.2	36.2
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	9	10	8	6	3	2	2	3	3	5	7	9	6	8
Max.	20	24	23	17	12	8	8	8	10	15	15	18	24	24
Min.	3	2	2	1	0	0	0	0	1	1	2	2	0	1
Fire Weather Index, FWI														
Mean	3.7	4.5	3.5	2.6	1.5	1.1	0.8	1.2	1.5	1.8	2.9	3.2	2.3	3.1
Max.	23.2	26.0	27.9	22.3	15.5	10.1	12.2	16.2	11.7	16.4	23.7	22.1	27.9	27.9
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	7.11	8.70	9.82	6.64	3.47	1.63	2.29	3.77	2.13	3.83	7.36	6.50	9.82	9.82
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	.43	.59	.43	.27	.12	.07	.05	.09	.12	.15	.31	.34		

Station Name: <u>Gisborne</u>			Period: 1 Jan 63 - 31 Dec 95								Length of Record: 33 years				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON	
Temperature, degrees Celsius															
Mean	22.9	22.5	21.0	18.4	15.6	13.1	12.4	13.5	15.2	17.3	19.4	21.5	17.7	20.4	
Max.	35.0	37.0	31.8	26.6	24.9	22.0	35.0	30.0	23.2	28.0	32.0	34.0	37.0	37.0	
Min.	14.0	13.0	11.0	9.0	6.1	3.7	2.0	6.1	1.1	7.7	10.0	10.0	1.1	7.7	
Relative Humidity, %															
Mean	57	61	63	65	67	71	70	67	63	61	58	58	63	60	
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Min.	22	18	29	28	33	35	12	10	29	25	14	15	10	14	
Wind Speed, km/h															
Mean	21.3	19.8	18.3	17.0	17.5	17.2	17.2	18.6	20.7	22.3	23.4	22.1	19.6	20.6	
Max.	53.7	64.8	75.9	64.8	55.6	74.1	51.9	55.6	68.5	66.7	66.7	64.8	75.9	75.9	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-hr Rainfall, millimetres															
Mean	1.7	2.7	2.9	3.1	3.1	3.9	3.6	3.1	2.8	2.1	2.0	2.0	2.8	2.4	
Max.	56.8	150.3	156.1	101.8	112.4	156.2	200.0	113.0	63.0	91.2	58.2	67.1	200.0	156.1	
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Monthly Rainfall, millimetres															
Mean	53.4	76.7	89.0	94.4	95.6	117.3	113.1	95.1	85.2	66.4	61.5	61.3	84.1	71.8	
Seasonal Rainfall, millimetres													1009.1	502.7	
Fine Fuel Moisture Code, FFMC															
Mean	81.7	79.1	76.9	73.7	71.4	65.7	65.6	68.8	73.0	76.7	79.6	80.0	74.3	78.2	
Max.	94.8	95.7	92.3	91.6	90.0	88.4	97.3	94.6	91.2	93.0	94.6	96.6	97.3	96.6	
Min.	0.0	7.9	0.0	2.4	1.9	0.8	0.0	0.0	2.1	8.4	11.7	2.5	0.0	0.0	
Duff Moisture Code, DMC															
Mean	35	32	24	17	9	4	3	5	9	15	24	32	17	26	
Max.	180	132	152	127	67	26	13	29	54	74	102	150	180	180	
Min.	2	0	0	0	0	0	0	0	0	1	0	0	0	0	
Drought Code, DC															
Mean	305	346	314	248	158	76	31	30	35	66	130	220	162	232	
Max.	619	769	865	881	664	427	283	126	142	221	372	535	881	881	
Min.	7	6	5	3	1	0	1	1	1	3	5	34	0	3	
Initial Spread Index, ISI															
Mean	8.6	7.0	5.6	4.4	4.0	2.7	2.7	3.4	4.9	6.8	8.6	8.2	5.6	7.0	
Max.	64.7	89.0	67.8	35.6	35.1	68.6	52.4	44.6	53.8	135.9	146.6	100.3	146.6	146.6	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Buildup Index, BUI															
Mean	53	50	38	27	15	6	4	7	11	19	31	44	25	37	
Max.	188	172	211	183	105	44	21	31	53	79	120	157	211	211	
Min.	3	0	0	0	0	0	0	0	0	1	0	1	0	0	
Fire Weather Index, FWI															
Mean	19.0	15.7	11.5	7.9	5.3	2.3	1.9	3.1	5.4	9.2	14.3	16.8	9.3	13.5	
Max.	80.8	112.5	112.9	77.9	69.1	40.6	32.1	34.8	37.2	90.2	123.7	93.6	123.7	123.7	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Daily Severity Rating, DSR															
Max.	64.63	116.17	116.93	60.68	49.04	19.14	12.63	14.55	16.38	78.63	137.35	83.82	137.35	137.35	
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Monthly/Seasonal Severity Rating, MSR/SSR															
Mean	7.00	5.58	3.67												

Station Name: <u>Paraparaumu</u>			Period: 1 Jan 63 - 31 Dec 95										Length of Record: 33 years	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON
Temperature, degrees Celsius														
Mean	19.5	19.7	18.7	16.5	13.9	12.0	11.2	11.9	13.1	14.5	16.1	18.0	15.4	17.6
Max.	28.0	25.0	25.5	24.0	21.0	18.1	20.0	25.0	21.1	20.6	25.0	26.0	28.0	28.0
Min.	11.0	10.0	8.8	6.5	7.0	5.0	4.0	4.0	5.5	6.4	8.0	10.0	4.0	6.4
Relative Humidity, %														
Mean	68	68	68	69	72	73	73	71	71	71	70	70	70	69
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	23	31	38	34	33	39	33	21	30	33	36	30	21	23
Wind Speed, km/h														
Mean	21.8	20.1	19.7	19.3	19.8	19.0	18.4	20.6	22.2	23.1	22.7	21.9	20.7	21.1
Max.	63.0	54.0	61.0	89.0	74.0	59.0	56.0	56.0	70.0	63.0	65.0	54.0	89.0	89.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	2.5	2.0	2.2	2.7	3.1	3.4	3.4	3.1	3.0	2.9	2.8	2.8	2.8	2.6
Max.	66.0	64.3	97.9	94.0	64.7	54.3	76.2	65.3	56.0	27.7	72.3	76.6	97.9	97.9
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	76.8	55.1	69.3	82.5	95.5	102.4	104.7	95.5	89.2	89.0	84.9	86.3	85.9	77.7
Seasonal Rainfall, millimetres													1031.1	544.0
Fine Fuel Moisture Code, FFMFC														
Mean	76.7	78.0	75.8	73.7	69.1	64.7	64.0	66.7	68.9	70.2	72.8	73.8	71.2	74.4
Max.	91.2	90.4	89.6	88.6	87.3	86.9	86.6	93.0	87.6	88.3	89.3	89.6	93.0	91.2
Min.	6.2	1.9	0.0	0.9	0.0	1.1	0.0	7.3	6.5	2.0	0.0	9.1	0.0	0.0
Duff Moisture Code, DMC														
Mean	16	21	19	11	5	3	2	3	4	6	10	13	9	14
Max.	75	76	103	66	27	13	13	16	21	28	39	56	103	103
Min.	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Drought Code, DC														
Mean	202	269	279	237	149	66	28	16	16	33	72	137	125	174
Max.	431	594	656	660	583	352	169	133	126	127	197	337	660	660
Min.	7	6	5	3	1	1	0	1	1	2	4	6	0	2
Initial Spread Index, ISI														
Mean	5.0	5.0	4.3	3.6	3.0	2.3	2.1	2.6	3.1	3.6	4.0	4.2	3.6	4.2
Max.	45.6	30.9	23.1	27.7	24.6	27.8	27.8	30.5	33.6	21.9	26.8	27.3	45.6	45.6
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	26	34	30	19	9	4	3	3	5	8	14	20	15	22
Max.	103	111	145	106	49	21	19	19	21	36	52	75	145	145
Min.	1	3	0	0	0	0	0	0	0	0	0	0	0	0
Fire Weather Index, FWI														
Mean	8.8	10.2	8.4	5.6	3.0	1.6	1.2	1.7	2.4	3.5	5.2	6.6	4.8	6.9
Max.	69.7	45.9	44.9	33.1	27.0	24.1	25.4	17.3	30.4	28.6	38.7	34.7	69.7	69.7
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	49.73	23.72	22.84	13.31	9.29	7.59	8.35	4.22	11.43	10.29	17.59	14.50	49.73	49.73
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	1.88	2.29	1.80	.89	.35	.14	.09	.14						

Station Name: Westport

Period: 1 Jan 71 - 31 Dec 95

Length of Record: 25 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON
Temperature, degrees Celsius														
Mean	18.2	18.7	18.0	16.0	13.3	11.0	10.6	11.7	12.8	13.9	15.3	16.9	14.7	16.7
Max.	25.0	26.0	25.4	22.2	19.3	17.8	18.0	18.0	22.6	21.0	23.8	24.4	26.0	26.0
Min.	10.7	11.8	9.4	8.6	6.6	4.0	5.0	5.7	4.0	5.7	9.0	8.0	4.0	5.7
Relative Humidity, %														
Mean	73	72	71	72	75	74	73	70	71	73	72	74	73	73
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	36	24	25	23	28	22	24	18	21	29	23	30	18	23
Wind Speed, km/h														
Mean	18.4	16.9	16.6	14.9	12.5	12.2	12.0	13.6	17.4	19.6	19.3	18.8	16.0	17.8
Max.	65.0	65.0	67.0	56.0	74.0	65.0	70.0	61.0	56.0	74.0	59.0	74.0	74.0	74.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	6.2	4.7	5.5	6.1	6.9	6.8	6.4	6.1	6.9	6.2	6.0	6.9	6.2	6.0
Max.	148.5	71.2	99.4	110.9	83.0	94.5	87.1	55.0	108.4	111.8	73.0	83.6	148.5	148.5
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	192.0	132.8	170.5	182.7	214.6	204.0	197.5	187.8	206.3	191.9	178.8	215.3	189.5	180.6
Seasonal Rainfall, millimetres														
Mean													2274.4	1264.2
Fine Fuel Moisture Code, FFMC														
Mean	65.4	68.6	66.1	60.4	52.4	52.4	51.9	55.1	54.8	58.0	61.1	60.0	58.8	62.7
Max.	90.0	91.0	92.4	90.4	89.6	91.1	87.8	89.4	90.4	88.4	90.6	89.1	92.4	92.4
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	1.1	0.0	0.0
Duff Moisture Code, DMC														
Mean	7	8	6	4	2	1	2	2	2	3	4	5	4	5
Max.	35	38	30	36	21	12	14	14	19	16	24	23	38	38
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drought Code, DC														
Mean	54	64	52	26	9	7	6	7	6	12	23	32	25	37
Max.	194	186	190	154	80	41	37	35	41	49	106	133	194	194
Min.	6	5	3	2	1	0	1	1	0	2	4	5	0	2
Initial Spread Index, ISI														
Mean	2.5	2.8	2.5	1.9	1.0	1.3	1.1	1.3	1.5	1.8	2.1	2.0	1.8	2.2
Max.	18.1	25.9	30.2	17.3	14.0	67.7	9.2	21.1	20.2	19.9	20.4	27.2	67.7	30.2
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	10	11	9	6	2	2	2	2	2	3	6	6	5	7
Max.	46	50	40	46	25	13	15	14	18	18	25	32	50	50
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire Weather Index, FWI														
Mean	3.0	3.4	2.7	1.6	0.6	0.7	0.6	0.8	1.0	1.2	1.9	1.8	1.6	2.2
Max.	25.8	28.3	29.0	15.3	10.5	41.0	11.0	18.7	18.1	15.7	15.6	18.9	41.0	29.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	8.60	10.10	10.57	3.40	1.76	19.46	1.89	4.87	4.57	3.56	3.51	4.93	19.46	10.57
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	.40	.45	.32	.16	.04	.08	.03	.06	.10	.09	.18	.19	.	

Station Name: <u>Hokitika</u>			Period: 1 Jan 65 - 31 Dec 95								Length of Record: 31 years				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON	
Temperature, degrees Celsius															
Mean	17.9	18.3	17.5	15.3	12.6	10.4	9.9	11.2	12.4	13.6	15.2	16.8	14.2	16.3	
Max.	29.0	27.0	25.8	23.0	20.0	17.0	16.5	20.0	20.7	23.0	25.0	24.0	29.0	29.0	
Min.	10.0	10.0	9.0	6.7	5.4	3.8	3.0	3.0	5.0	4.4	5.0	8.3	3.0	4.4	
Relative Humidity, %															
Mean	75	74	73	73	74	74	72	70	72	73	74	76	73	74	
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Min.	21	23	23	22	22	33	25	22	18	23	26	29	18	21	
Wind Speed, km/h															
Mean	17.0	15.3	14.4	12.6	10.7	10.2	10.5	12.8	15.4	17.8	18.0	17.9	14.4	16.1	
Max.	50.0	48.2	55.6	51.9	48.2	46.3	59.3	55.6	55.6	51.9	61.1	55.6	61.1	61.1	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-hr Rainfall, millimetres															
Mean	8.5	5.8	6.9	7.9	7.8	7.6	7.1	7.3	8.9	8.4	8.4	8.6	7.8	7.8	
Max.	131.9	143.4	166.1	147.6	119.1	103.4	135.5	175.3	137.8	111.0	166.3	144.0	175.3	166.3	
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Monthly Rainfall, millimetres															
Mean	263.8	165.1	215.3	236.6	240.6	228.3	220.5	227.8	268.0	259.7	250.9	266.0	236.9	236.8	
Seasonal Rainfall, millimetres													2842.6	1657.3	
Fine Fuel Moisture Code, FFMC															
Mean	61.7	65.4	62.8	57.6	50.9	50.9	51.1	54.3	51.7	54.9	58.3	57.4	56.4	59.7	
Max.	91.2	90.8	91.6	90.1	90.3	88.7	89.1	89.8	92.7	91.0	90.5	89.5	92.7	91.6	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Duff Moisture Code, DMC															
Mean	6	7	6	3	2	2	2	2	3	3	4	4	4	5	
Max.	42	38	34	29	19	12	16	14	22	19	28	38	42	42	
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Drought Code, DC															
Mean	44	52	32	17	9	7	6	7	7	10	22	29	20	29	
Max.	199	182	163	126	70	33	36	34	41	52	94	136	204	204	
Min.	6	5	3	2	1	0	0	0	1	2	3	5	0	2	
Initial Spread Index, ISI															
Mean	1.9	2.1	1.9	1.3	1.0	1.0	1.0	1.4	1.3	1.5	1.8	1.6	1.5	1.7	
Max.	15.4	19.5	18.0	13.3	15.4	12.2	12.9	24.9	28.0	13.6	17.8	13.3	28.0	19.5	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Buildup Index, BUI															
Mean	8	10	7	4	3	2	2	2	3	3	5	6	5	6	
Max.	42	38	34	29	19	12	16	14	22	19	28	38	42	42	
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fire Weather Index, FWI															
Mean	2.1	2.5	1.9	1.0	0.7	0.6	0.6	0.9	1.0	1.0	1.6	1.5	1.3	1.6	
Max.	17.7	19.7	20.8	12.9	16.7	12.4	12.4	17.5	26.9	13.4	20.1	14.2	26.9	20.8	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Daily Severity Rating, DSR															
Max.	4.41	5.32	5.83	2.52	3.98	2.34	2.35	4.31	9.25	2.70	5.51	2.97	9.25	5.83	
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Monthly/Seasonal Severity Rating, MSR/SSR															
Mean	.22	.26	.20	.08	.05	.04	.04	.08	.10	.08	.17	.14	.12	.16	

Station Name: <u>Christchurch Aero</u>		Period: 1 Jan 61 - 31 Dec 95		Length of Record: 35 years		FIRE								
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	SEASON
Temperature, degrees Celsius														
Mean	20.2	19.6	18.0	15.4	12.0	9.0	8.6	10.2	12.5	15.1	17.0	18.8	14.7	17.7
Max.	35.0	39.0	31.0	30.0	25.0	22.0	17.7	21.1	24.0	29.0	30.0	34.0	39.0	39.0
Min.	10.0	10.0	8.0	5.6	2.0	1.0	1.1	0.4	2.2	2.7	6.0	9.0	0.4	2.7
Relative Humidity, %														
Mean	56	59	62	65	70	74	73	68	63	58	55	57	63	59
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	7	12	13	19	22	21	28	20	16	13	13	12	7	7
Wind Speed, km/h														
Mean	21.8	20.6	19.4	17.2	15.7	13.2	14.4	17.0	19.3	21.0	21.9	22.7	18.7	20.7
Max.	53.7	59.3	61.1	70.4	55.6	55.6	63.0	63.0	66.7	61.1	64.8	55.6	70.4	70.4
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	1.1	1.5	1.8	1.8	1.8	1.9	2.2	1.9	1.5	1.4	1.6	1.5	1.7	1.6
Max.	110.4	36.2	101.5	74.6	36.5	55.2	77.0	56.5	41.0	43.0	56.5	79.5	110.4	110.4
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	44.9	41.2	57.1	52.6	56.9	56.4	67.1	60.1	45.2	42.9	49.3	46.3	51.7	47.7
Seasonal Rainfall, millimetres													620.0	334.2
Fine Fuel Moisture Code, FFMC														
Mean	81.6	80.7	77.2	75.5	69.7	64.5	64.4	69.0	74.5	78.6	79.3	80.2	74.6	79.0
Max.	98.1	98.1	95.1	92.9	92.5	91.4	90.5	91.7	92.0	95.1	95.9	97.2	98.1	98.1
Min.	11.7	7.7	1.4	0.0	0.6	0.0	0.0	0.0	0.2	6.2	0.7	16.5	0.0	0.0
Duff Moisture Code, DMC														
Mean	34	39	28	21	11	5	3	6	12	20	25	30	19	28
Max.	103	164	105	94	54	23	22	27	55	95	101	94	164	164
Min.	3	3	0	0	0	0	0	0	0	1	0	1	0	0
Drought Code, DC														
Mean	371	446	439	405	317	223	156	118	106	133	192	283	265	323
Max.	742	795	801	785	793	551	534	383	407	508	544	732	801	801
Min.	6	169	36	30	23	1	0	0	1	0	6	25	0	2
Initial Spread Index, ISI														
Mean	9.6	7.6	6.6	4.6	3.1	2.0	2.1	3.2	5.3	7.6	9.0	9.3	5.8	7.8
Max.	105.5	116.1	124.0	59.8	39.6	84.8	50.8	56.4	92.4	126.2	120.6	144.8	144.8	144.8
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	53	61	47	36	19	8	6	9	16	27	36	45	30	44
Max.	143	211	148	130	87	38	39	36	58	129	132	143	211	211
Min.	5	5	0	0	0	0	0	0	0	1	1	1	0	0
Fire Weather Index, FWI														
Mean	19.8	18.2	14.0	9.5	4.6	1.9	1.6	3.4	7.0	12.0	15.2	17.8	10.4	15.2
Max.	121.8	122.9	115.3	63.5	59.5	65.4	24.7	37.6	77.9	130.3	102.7	130.8	130.8	130.8
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	133.72	135.91	121.32	42.25	37.68	44.42	7.91	16.73	60.56	150.58	98.82	151.69	151.69	151.69
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	7.94	6.76	50.20	2.51	.92	.26	.17	.52	1.					

Station Name: <u>Queenstown</u>			Period: 1 Jan 79 - 31 Dec 95								Length of Record: 17 years				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON	
Temperature, degrees Celsius															
Mean	17.2	16.6	14.7	12.3	8.5	5.4	4.7	7.2	9.8	12.0	14.3	16.0	11.5	14.7	
Max.	29.0	26.0	25.0	21.5	19.0	15.0	13.2	15.5	18.9	23.0	25.0	26.0	27.0	27.0	
Min.	6.0	5.0	0.0	2.7	-1.8	-5.8	-5.9	0.0	1.0	3.2	5.0	7.0	-5.9	0.0	
Relative Humidity, %															
Mean	56	59	62	63	69	73	73	67	62	58	55	56	63	58	
Max.	100	96	95	96	100	99	100	100	99	98	100	100	100	100	
Min.	17	14	26	18	31	34	36	26	29	23	20	22	14	14	
Wind Speed, km/h															
Mean	16.1	14.3	12.8	10.7	9.5	9.3	8.9	9.4	12.7	15.2	15.6	16.6	12.6	14.5	
Max.	37.0	48.0	41.0	46.3	41.0	46.0	41.0	37.0	46.3	46.3	46.0	40.7	48.0	48.0	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-hr Rainfall, millimetres															
Mean	2.6	2.1	2.3	1.9	2.2	2.3	1.8	2.3	1.7	2.3	1.8	2.3	2.1	2.2	
Max.	63.0	52.8	85.7	26.0	48.8	52.0	44.5	56.2	45.0	48.9	46.2	58.8	85.7	85.7	
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Monthly Rainfall, millimetres															
Mean	79.9	59.3	72.0	55.6	68.7	70.2	55.2	71.6	51.6	72.4	53.3	72.6	65.2	66.5	
Seasonal Rainfall, millimetres													782.5	465.2	
Fine Fuel Moisture Code, FFMC															
Mean	77.2	76.9	73.4	72.1	66.2	59.9	61.0	64.9	71.7	74.0	77.5	76.5	70.9	75.4	
Max.	92.8	94.9	91.5	92.8	87.3	86.4	85.0	88.3	89.3	90.9	92.7	93.0	94.9	94.9	
Min.	10.6	9.5	5.5	14.1	3.1	6.6	5.1	5.6	14.7	13.5	12.4	11.4	3.1	5.5	
Duff Moisture Code, DMC															
Mean	17	20	13	9	5	2	1	3	7	11	18	18	10	15	
Max.	54	78	53	38	21	10	5	13	27	35	50	62	78	78	
Min.	1	1	0	0	0	0	0	0	0	0	1	1	0	0	
Drought Code, DC															
Mean	227	259	254	230	166	75	42	21	20	40	96	167	132	181	
Max.	407	473	487	446	345	294	186	132	89	114	259	309	487	487	
Min.	6	6	21	11	1	0	0	0	0	2	4	6	0	2	
Initial Spread Index, ISI															
Mean	4.6	4.2	3.1	2.4	1.5	1.1	1.1	1.5	2.5	3.4	4.4	4.4	2.8	3.8	
Max.	25.2	45.1	27.5	24.0	10.9	10.3	14.6	12.3	13.9	25.4	26.2	31.1	45.1	45.1	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Buildup Index, BUI															
Mean	28	31	23	17	8	3	2	3	7	12	23	27	15	23	
Max.	80	110	80	63	35	17	10	15	28	35	68	82	110	110	
Min.	2	2	0	0	0	0	0	0	0	0	0	3	0	0	
Fire Weather Index, FWI															
Mean	8.6	8.4	5.5	3.5	1.4	0.6	0.5	0.8	2.3	4.1	7.3	8.1	4.2	6.5	
Max.	41.0	54.3	51.7	31.5	14.2	10.6	9.1	10.5	14.3	31.1	38.9	55.0	55.0	55.0	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Daily Severity Rating, DSR															
Max.	19.43	32.05	29.35	12.20	2.98	1.78	1.35	1.76	3.01	11.92	17.70	32.72	32.72	32.72	
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Monthly/Seasonal Severity Rating, MSR/SSR															
Mean	1.95	1.95	1.03	.52	.11	.03	.02	.05	.						

Station Name: Dunedin Aero

Period: 1 Jan 64 - 31 Dec 95

Length of Record: 32 years

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON
Temperature, degrees Celsius														
Mean	18.2	18.1	16.6	14.1	10.4	7.7	7.3	9.6	12.0	13.9	15.6	17.1	13.3	16.2
Max.	31.0	33.0	29.0	26.0	24.0	19.0	17.2	24.0	24.0	28.0	30.0	30.0	33.0	33.0
Min.	8.0	7.0	7.3	3.4	-0.1	-1.6	-1.0	1.1	2.7	2.2	4.4	2.2	-1.6	2.2
Relative Humidity, %														
Mean	62	64	65	67	72	75	72	69	64	61	62	63	67	64
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Min.	25	16	25	27	30	27	18	22	20	17	21	15	15	15
Wind Speed, km/h														
Mean	20.1	17.7	17.2	15.6	15.5	13.9	12.8	16.0	18.3	21.0	22.0	20.7	17.6	19.2
Max.	64.8	63.0	66.7	82.0	72.2	66.7	70.4	61.1	64.8	68.5	70.4	70.4	82.0	82.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-hr Rainfall, millimetres														
Mean	2.3	1.9	2.2	1.5	1.9	1.9	1.6	1.5	1.6	1.9	1.8	2.4	1.9	2.0
Max.	66.1	98.0	86.1	40.6	67.5	73.4	44.6	66.7	64.1	63.5	61.5	35.3	86.1	86.1
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Monthly Rainfall, millimetres														
Mean	72.6	52.3	67.1	46.1	59.9	55.5	48.2	46.6	48.2	58.8	54.2	73.0	56.9	60.6
Seasonal Rainfall, millimetres													682.6	424.2
Fine Fuel Moisture Code, FFMC														
Mean	75.7	76.8	74.7	73.3	67.6	64.8	64.6	70.2	73.0	74.9	75.9	74.2	72.1	75.1
Max.	92.9	96.0	92.8	90.2	89.6	89.9	90.1	92.1	92.3	92.2	94.2	94.2	96.0	96.0
Min.	14.1	14.4	2.3	0.0	5.5	0.0	1.5	4.8	1.9	10.8	12.3	16.0	0.0	0.0
Duff Moisture Code, DMC														
Mean	16	20	18	14	7	3	3	5	8	13	15	15	11	16
Max.	44	78	82	92	40	15	16	20	34	45	46	58	92	92
Min.	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Drought Code, DC														
Mean	281	332	328	327	276	196	156	130	121	132	178	240	224	259
Max.	523	649	666	730	610	491	412	396	362	431	489	497	730	730
Min.	27	92	3	3	1	0	0	0	1	2	4	35	0	2
Initial Spread Index, ISI														
Mean	5.5	4.9	4.4	3.7	2.8	2.2	1.9	3.0	4.1	5.4	6.1	5.2	4.1	5.0
Max.	55.0	53.9	95.6	114.5	79.8	51.3	65.4	51.8	55.1	75.2	161.2	184.8	184.8	184.8
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buildup Index, BUI														
Mean	27	33	30	24	12	6	5	8	13	19	24	24	19	26
Max.	72	120	126	140	68	28	28	28	48	71	62	71	140	140
Min.	1	1	0	0	0	0	0	0	0	0	1	0	0	0
Fire Weather Index, FWI														
Mean	9.1	9.2	8.2	5.9	3.1	1.7	1.3	2.9	4.7	7.4	9.0	8.3	5.9	8.2
Max.	58.6	68.0	91.5	80.3	67.5	26.7	39.8	37.7	40.7	75.2	129.0	105.9	129.0	129.0
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Severity Rating, DSR														
Max.	36.59	47.64	80.65	63.90	47.09	9.09	18.47	16.80	19.23	56.94	147.99	104.44	147.99	147.99
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Monthly/Seasonal Severity Rating, MSR/SSR														
Mean	2.26	2.25	2.13	1.33	.57	.20	.15	.39	.85	1.73				

Station Name: <u>Invercargill</u>			Period: 1 Jan 61 - 31 Dec 95								Length of Record: 35 years				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	FIRE SEASON	
Temperature, degrees Celsius															
Mean	16.4	16.5	15.2	12.9	10.0	7.4	7.1	8.9	10.9	12.6	14.0	15.6	12.3	14.7	
Max.	28.0	29.0	26.1	23.0	19.8	16.0	16.0	15.3	20.0	24.0	26.0	27.0	29.0	29.0	
Min.	7.0	7.7	6.0	4.0	0.0	-1.1	-1.6	1.3	3.0	3.0	2.0	3.3	-1.6	2.0	
Relative Humidity, %															
Mean	69	69	71	75	79	81	80	74	70	67	68	68	73	70	
Max.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Min.	36	32	35	44	44	48	41	27	38	27	34	29	27	27	
Wind Speed, km/h															
Mean	23.9	22.0	21.4	19.8	19.2	17.0	15.2	17.9	21.9	25.8	25.9	23.4	21.1	23.2	
Max.	70.4	74.1	67.0	64.8	74.1	81.5	64.8	75.9	74.1	75.9	72.2	68.5	81.5	75.9	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
24-hr Rainfall, millimetres															
Mean	3.8	2.8	2.9	3.5	3.5	3.3	2.6	2.2	2.6	2.9	2.7	3.1	21.1	23.2	
Max.	134.4	61.0	53.9	46.4	46.0	43.2	33.8	43.4	35.2	51.0	46.0	49.7	134.4	134.4	
Min.	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Monthly Rainfall, millimetres															
Mean	114.4	80.3	89.2	103.8	107.5	100.4	80.8	68.2	79.4	89.9	81.7	97.0	91.1	93.8	
Seasonal Rainfall, millimetres													1092.6	656.4	
Fine Fuel Moisture Code, FFMC															
Mean	70.0	72.1	68.8	63.1	57.1	52.5	53.6	62.7	66.5	68.8	70.6	70.2	64.6	69.1	
Max.	89.7	91.3	90.4	88.2	86.0	84.9	84.6	87.1	89.1	90.5	90.3	91.1	91.3	91.3	
Min.	4.3	6.8	0.0	1.6	4.2	0.0	0.0	3.9	2.9	9.9	2.9	6.2	0.0	0.0	
Duff Moisture Code, DMC															
Mean	8	9	7	3	1	1	1	2	4	5	7	8	5	7	
Max.	38	38	28	19	13	6	5	10	25	27	29	31	38	38	
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Drought Code, DC															
Mean	141	163	167	119	54	17	9	9	15	30	66	107	74	113	
Max.	367	394	387	322	279	166	107	52	100	135	216	246	394	394	
Min.	6	5	4	2	0	0	0	0	0	2	3	5	0	2	
Initial Spread Index, ISI															
Mean	4.1	4.2	3.4	2.2	1.4	1.0	0.9	1.9	2.8	4.3	4.5	4.0	2.9	3.8	
Max.	50.5	66.7	34.2	43.5	53.7	18.7	28.7	31.9	61.1	101.0	124.3	77.0	124.3	124.3	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Buildup Index, BUI															
Mean	14	16	12	6	2	1	1	2	4	7	11	13	7	11	
Max.	52	58	46	32	22	8	5	13	31	33	40	43	58	58	
Min.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fire Weather Index, FWI															
Mean	5.0	5.4	3.8	1.7	0.7	0.3	0.3	0.9	1.9	3.5	4.7	4.7	2.7	4.1	
Max.	49.3	49.3	39.3	28.2	21.2	8.9	12.7	15.9	31.1	44.6	62.8	53.7	62.8	62.8	
Min.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Daily Severity Rating, DSR															
Max.	26.94	26.94	18.04	10.06	6.06	1.31	2.45	3.65	11.90	22.63	41.36	31.36	41.36	41.36	
Min.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
Monthly/Seasonal Severity Rating, MSR/SSR															
Mean	.88	1.02	.60	.19	.05	.01	.01	.07	.21	.57	.81	.			