Form 1

Fire Weather Recording Form

Fire Name:	Fuel type:		Assessor:
Date:	Slope:	Aspect:	
Location:	Elevation:		

Time	Location or Marker	Temp (C°) Dry bulb	Wet bulb	RH (%)	Wind speed (avg) km/h	Wind speed (max) km/h	Wind dir. (°)	Cloud Cover (%)	Comments/observations, e.g.: Weather – changes in wind, temp, cloud, rain, frontal passage, etc. Fire behaviour – torching/crowning, spotting, smouldering hotspots, etc.

Time	Location or Marker	Temp (Cº) Dry bulb	Wet bulb	RH (%)	Wind speed (avg) km/h	Wind speed (max) km/h	Wind dir. (º)	Cloud Cover (%)	Comments/observations, e.g.: Weather – changes in wind, temp, cloud, rain, frontal passage, etc. Fire behaviour – torching/crowning, spotting, smouldering hotspots, etc.

Fire Behaviour Recording Form

Fire Name:	Slope:	Assessor:
Date:	Aspect:	
Location:	Elevation:	

Time	Location or Marker	Fire Behaviour Characteristics				Photo Number	Comments/observations (observation at flank or front, spotting distances, ROS, key resource arrival time)
		Flame Length (m)	Fire Type[1] (S,T,C)	Column Type[2] (1-10)	Fuel Type Involved		

[1] Use **S** for surface fire, I for intermittent and **C** for crown fire.
[2] Use the smoke pattern/convection column type numbers.

Time	Location or Marker	Fire Behaviour Characteristics				Photo Number	Comments/observations (observation at flank or front, spotting distances, ROS, key resource arrival time)
		Flame Length (m)	Fire Type[1] (S,T,C)	Column Type[2] (1-10)	Fuel Type Involved		

[1] Use **S** for surface fire, **I** for intermittent and **C** for crown fire.
[2] Use the smoke pattern/convection column type numbers.

Form 3

Site Specific Weather Forecast Request
Instruction & Notes

Site specific weather forecast requests should be made for fires that will exceed initial attack, have potential for extreme fire behaviour, or for planned ignitions. This form is primarily for field use documentation of weather observations and/or forecasts. Whenever possible, a copy of the actual Site Specific Weather Forecast should be used for operational briefings and/or included in the fire documentation.

* If possible attach 48 hours of hourly weather data from the nearest NRFA RAWS.

Instructions

1. **Name of Fire/Incident:** Use incident or project name.
2. **Control Agency:** Agency with primary responsibility for managing the incident.
3. **Request Made:** Date and time (use 24-hour clock).
4. **Location:** Lat/Long, Map grid reference, or Easting/Northing.
5. **Landmark:** The closest drainage name or landmark from a topographical map. Attach location map if possible.
6. **Aspect:** One of the 8 major cardinal points (N, SE, NW, etc.) to designate general aspect.
7. **Size of Project:** In hectares.
8. **Elevation:** Designate elevation in metres; Top and Bottom refer to elevation of fire.
9. **Fuel Type:** Description of fuel.
10. **Expected Ignition:** Estimated ignition time and date for planned projects.
11. **Weather Conditions at Project or from Nearby Weather Station:** Fill in the closest weather station. In the Place column, put On-site (which refers to the description used in Number 4). If the observations are taken off-site, specify the location. In the Elevation column, put the actual elevation for the observations (may or may not be the same as in Number 8).
12. **Send Forecast To:** Specify how the forecast will be broadcast or sent, especially if it differs from normal radio relay or faxing procedures (i.e., having copies faxed to mobile units, office, or stations), and also the name of the contact who will be receiving the request (may differ from the person making the forecast request).

Notes

For planned burn projects, weather forecasters can work with you ahead of time and either do some "practice" forecasts or provide you with weather information for planning.

Critical observation times:

- 0600-0800 for low temperature and humidity recovery data.
- 1400-1600 for high temperature, low humidity and strongest diurnal winds.

Also note the time the morning inversion broke, when the winds shifted to upslope and upvalley, and cloud development of cover and type.

If local weather station data is not available, try to record three weather observations 30 to 60 minutes apart for the request.

For better service, do not send a request in just prior to ignition. Also if regular on-site weather observations were made, send those in as well to the weather forecaster.

If the weather forecaster does not hear from you, the weather forecaster will assume the forecast was accurate. If the forecast does not match what is actually occurring, let the weather forecaster know. Feedback is crucial for improving forecast accuracy. Forecasts can be updated. If at anytime you do not understand what the forecast is telling you, or you have questions about its content for whatever reason, do not hesitate to call the weather forecaster and discuss the matter.

Form 3

Ensis Bushfire Research
Forestry Road
University of Canterbury
PO Box 29-237, Fendalton
Christchurch, New Zealand

tel: 03 364 2949

To: Metservice
Attn: Duty Forecast Desk
Wellington
New Zealand

Tel: 04 470 0785 (primary)
04 470 0767 (backup)

Fax: 04 471 2078

Date:
From:
No. of pages:
Subject:

Site Specific Weather Forecast Request

(See reverse for instructions)

1. Name of Incident or Project:	2. Control Agency:	3. Request Made Time: Date:
4. Location (lat/long):	5. Landmark:	6. Aspect:
7. Size of Incident or Project:	8. Elevation Top / Bottom	9. Fuel Type: / 10. Expected Ignition Time: Date:

11. Weather Conditions at Incident or Project or from Weather Station. Closest weather station:

Time	Place	Elevation	Wind Speed/Direction		Temp/ Dry bulb	Wet bulb	RH	Dew Point	Remarks (Indicate precipitation, cloud type and % cover, wind and frontal conditions, etc.)

12. Send Forecast To (Person):	Send Forecast To (Location):	Send Forecast Via:	Send Copy To:

For a forecast output, please provide the following information:

- General situation statement for the day and following day(s).
- Detailed weather forecast for the following four days consisting of:
  - Maximum and minimum temperatures.
  - Maximum and minimum RH.
  - Wind direction and speed at different times of the day.
  - Dew point temperature in the early afternoon.
  - Likelihood of rain.
- A general outlook for the area from days 5 through 10.
- Weather charts for NZ for the day issued, and the following 2 days.

Form 4

Fire Behaviour Research Observation Form

Location:	Burn number:	Plot Number:
Date:		Assessors:
Start Time:	Finish Time:	
Fuel Type:	Plot Photo Time & Number:	
Ignition Procedure:		

Time	Location or Marker	Fire Behaviour Characteristics *Flame height (m)*	Flame length (m)	Camera & Photo number	Comments- Fire spread direction, spotting, etc.

Figures 1 - 10. Typical smoke patterns/convective column types and expected fire spread characteristics (adapted from Kerr *et al.* 1971 and Luke 1961).

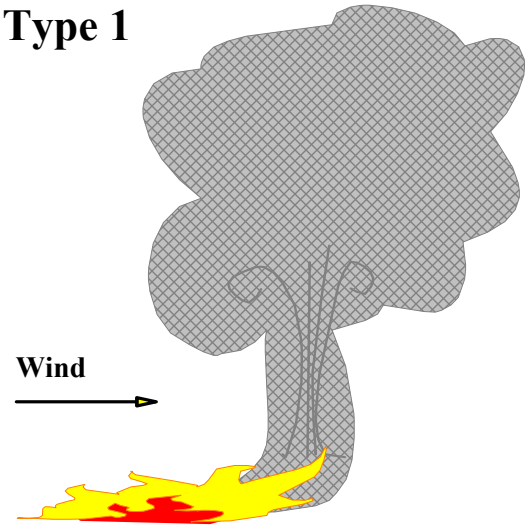


Figure 1. *Type 1:* Towering convection column with light surface winds. Indicates rapid to moderate fire spread until atmospheric or fuel conditions ameliorate.

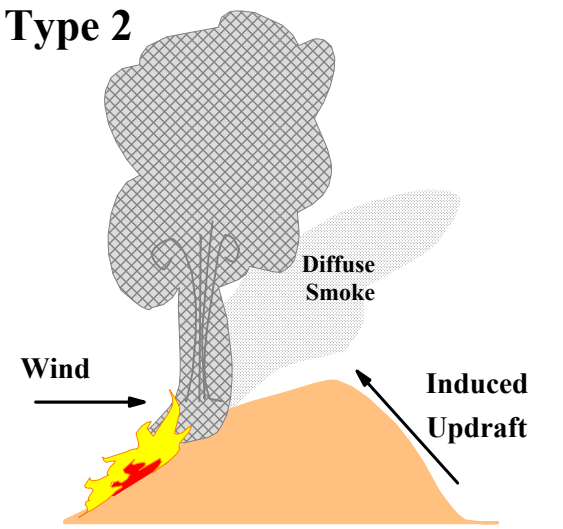


Figure 2. *Type 2:* Towering convection column over a slope. Indicates rapid short-term spread until convection is cut-off at ridge crests.

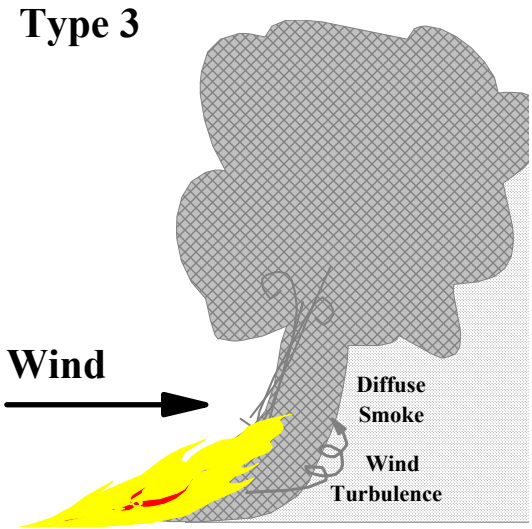


Figure 3. *Type 3:* Strong convection column from a fire driven by strong surface winds. Indicates fast, erratic fire spread with short distance spotting.

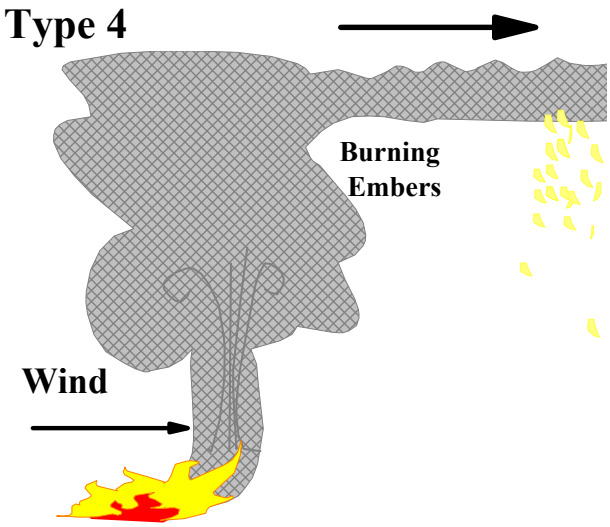


Figure 4. *Type 4:* Strong convection column cut-off by strong upper level wind shear. Steady or erratic fire spread with long-distance spotting.

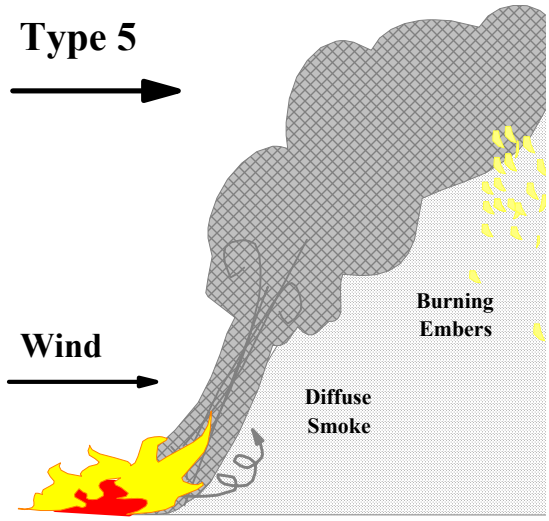


Figure 5. *Type 5:* Strong convection column tilted by moderate surface winds that strengthen with height. Indicates rapid and erratic fire spread with both short- and long-distance spotting.

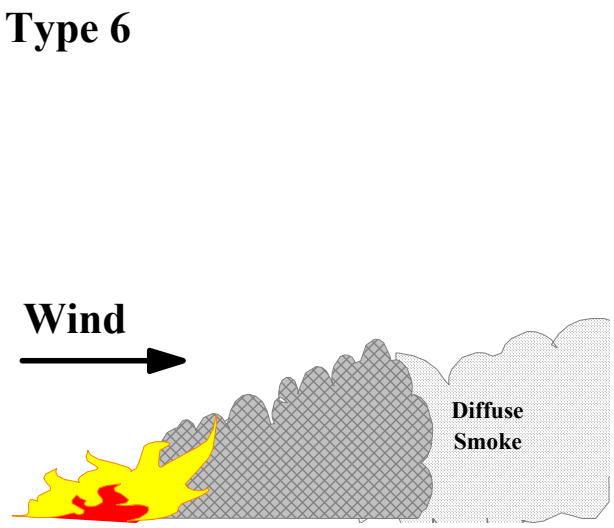


Figure 6. *Type 6:* Strong convection column in strong surface winds. Very rapid fire spread driven by fire and wind energy; frequent close spotting is likely.

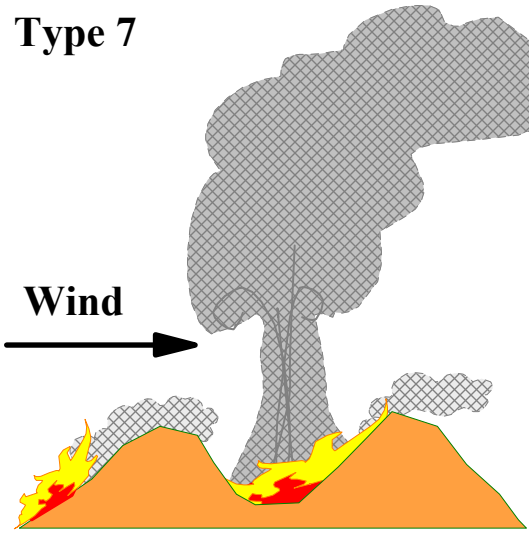


Figure 7. *Type 7:* Strong surface winds and convection column in mountainous topography. Rapid fire spread both up and down slope with frequent spotting and area ignition.

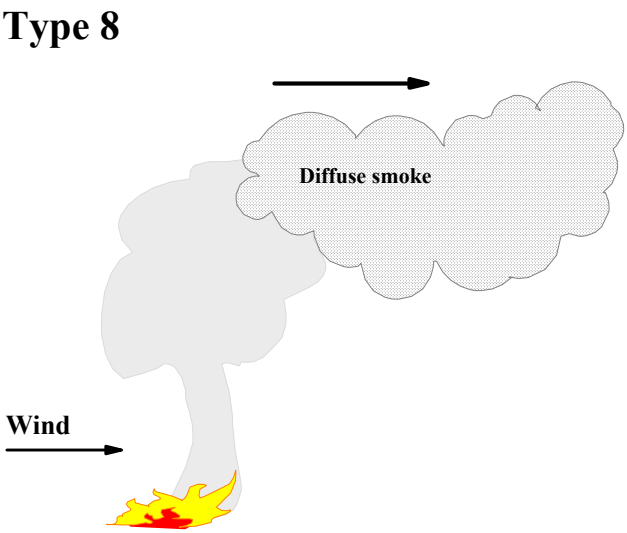
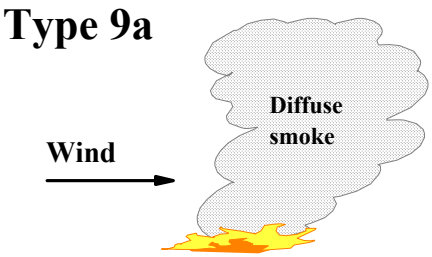


Figure 8. *Type 8* Weak convection column and diffuse smoke in light surface winds which increase with height. Moderate to fast fire spread with short to medium distance spotting possible.



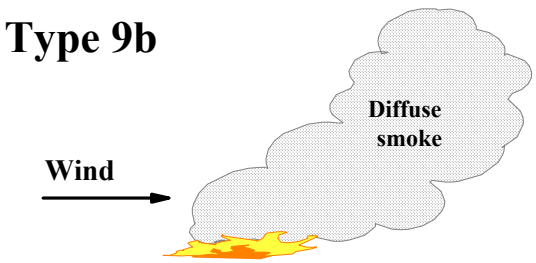


Figure 9. *Type 9a & 9b*: No convection column and diffuse smoke only, in light surface winds which increase with height in example 9b. A quietly smouldering fire is anticipated.

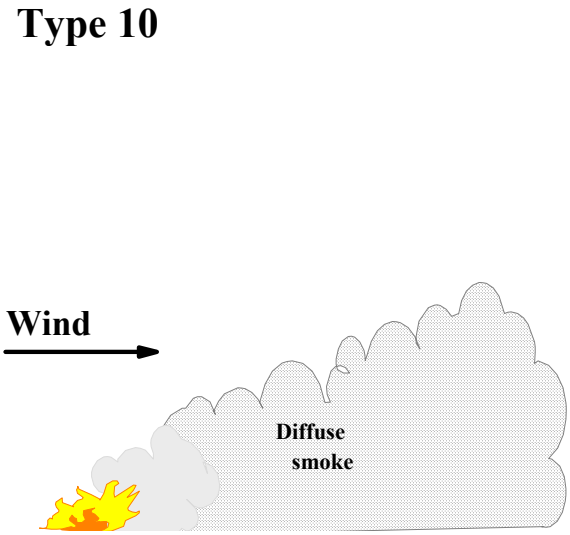


Figure 10. *Type 10*: Weak convection column and diffuse smoke, in moderate surface winds that increase with height. Low to moderate fire spread with short distance spotting possible.

Photo Record Sheet

Camera:	Pixel:
Photographer:	Unit:

#	Date	Time	Plot ID/GPS	Azimuth	Subject

Camera:	Pixel:
Photographer:	Unit:

#	Date	Time	Plot ID/GPS	Azimuth	Subject