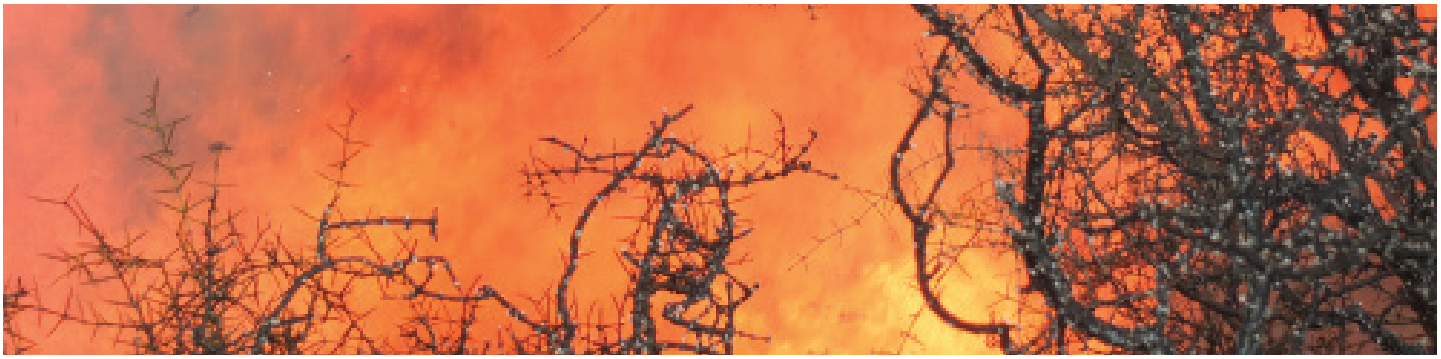

New Zealand Seasonal Fire Danger Outlook 2017/18

ISSUE: North Island, February 2018

SCION
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Current fire danger situation & outlook:

In January, New Zealand was dominated by high pressure over the country with intermittent intense lows. Humid northeast winds also prevailed across New Zealand during the month. In general, we experienced warm humid weather during January, with many locations experiencing record-breaking heat. Heavy rain and gales were also experienced across most of the North Island.

On average, Moderate to High fire potential currently exists in the Hauraki, Great Barrier Island, Wairarapa and Hastings areas. Low fire danger and fire climate severity exists elsewhere across the north (Figures 1 & 5). FWI System codes and indices, especially the BUI, are indicating elevated fuel dryness for Hauraki/Matamata, Hastings and Wairarapa. Elevated DCs also exist in Auckland, Waikato, Gisborne, Hawkes Bay, Wairarapa, and parts of Taranaki, Manawatu/Wanganui and Wellington. Elsewhere, fire potential is generally Low to Moderate on average.

Locations that are showing extremely dry soils are along the east coast and in the lower north (Figure 3). This is also reflected in the soil moisture anomaly map (Figure 4), where soils are much drier than normal along the east coast (especially for Gisborne, Palmerston North and Masterton), Whakatane and South Taranaki. The Horowhenua and Kapiti Coast areas are also showing signs of meteorological drought (based on the NZDI reported by NIWA). Significant rainfalls recorded over northern and central New Zealand have resulted in wetter than normal soils for this time of the year (Figure 4).

The ENSO Outlook remains for a weak La Niña, with observations in the tropical Pacific suggesting this event may have already peaked and be in the early stages of decline. International climate models suggest a continued decay of La Niña conditions over the next three months, and a return to neutral conditions in early autumn (April 2018).

The outlook for the next three-month period is for higher pressures than normal in the east and south of the country, but lower pressure than normal over the Tasman Sea, extending over the North Island. Warmer temperatures, occasional significant rainfalls and north-easterly winds are expected.

February is forecast for above average temperatures, with temperatures expected to climb in the second half of the month. However, there are some week-to-week changes that will offer some relief from the non-stop heat. Expect intermittent rainfalls and long dry spells across the North Island.

With predicted warm temperatures combining with underlying dryness, fire dangers and fire climate severity for February are expected to climb for locations along the east coast (Figure 1 & 5). The fire season years of 2016/17, 2013/14, 2012/13 & 2008/09 are potentially good indicators for what to expect this coming fire season (Figure 9).

Based on the current situation, the February outlook and historical La Niña years, regions to watch for elevated fire activity in February are Northland, Waikato, along the east coast and lower North Island (especially parts of Gisborne, Hawkes Bay, Wairarapa, and Wanganui/Manawatu). However, as with this time last year, any major rain events in the next few weeks will provide some welcome relief and reduce the fire dangers and severities.

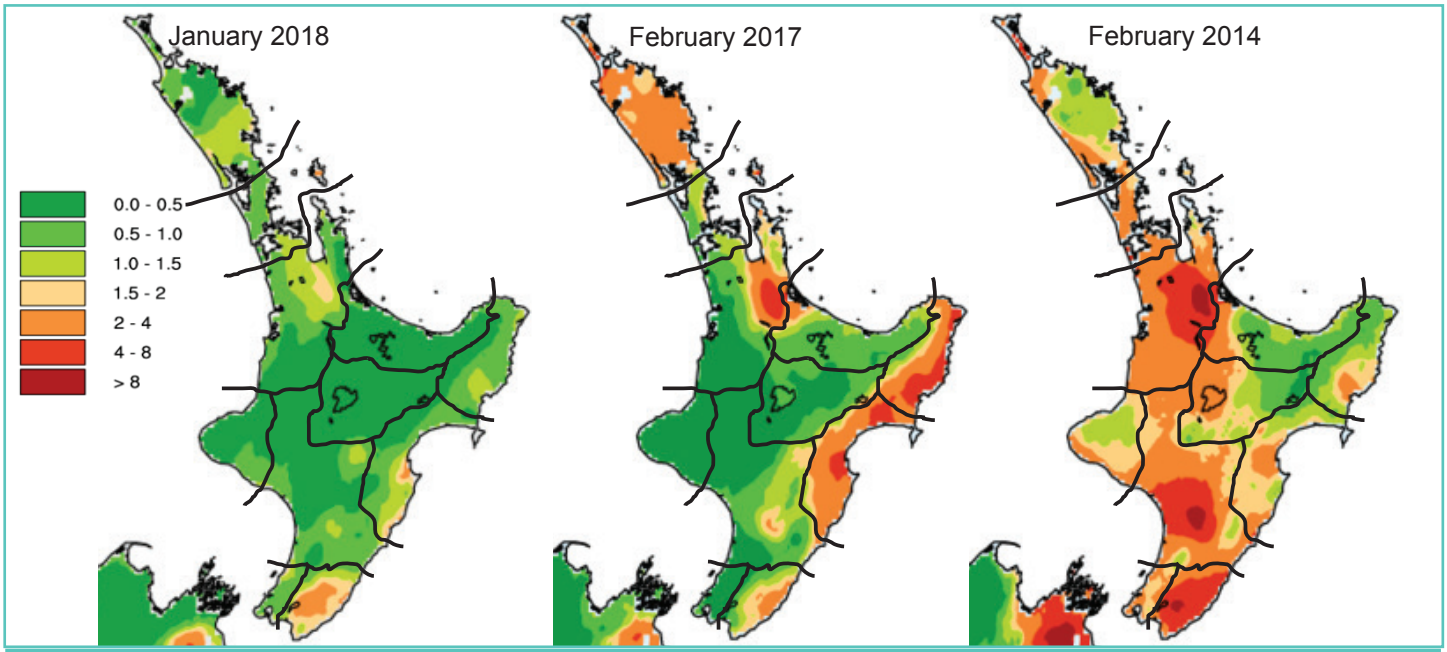

Figure 1. Monthly average Severity Rating for: current (left), last year (middle), and the 2013/14 Neutral to weak La Nina year (right).

EXPECTED CLIMATE OUTLOOK:

The current El Niño-Southern Oscillation (ENSO) state remains a weak La Niña, however recent observations in the tropical Pacific suggest this event may have peaked and be in the early stages of decline. International climate models suggest a continued decay of La Niña conditions over the next three months and a return to neutral conditions in early autumn (April 2018).

Seas around New Zealand, in the Tasman Sea and in the Southwest Pacific Ocean, remain extremely warm, following on from a marine heat-wave event in the last quarter of 2017. Sea surface temperatures (SSTs) are currently in excess of 2 degrees above normal around most of the coastline, with areas of 3 degrees above the norm to the west of the country. In contrast, below average Pacific Ocean temperatures continue along the equator, associated with the weak La Niña. Significantly warmer than average SSTs are likely to persist for at least part of the next 3 months (February – April 2018), although the anomalies are expected to ease off slightly over the same period.

The southern hemisphere Tropical Cyclone risk for New Zealand remains normal or above normal.

Soil moisture (Figure 3 & 4)

Across the North Island, soil moisture levels generally increased in northern areas while decreasing in eastern and southern regions. Dry soils are found along the east coast and in the lower North Island (Figure 3). The Far North and Kaipara districts, and parts of Waikato, are also showing signs of drying. Northern and central North Island are much wetter for this time of the year than normal (Figure 4).

This month: February 2018

February rainfall totals (including the ex-Cyclone Fehi event) are predicted to be normal to above normal right across New Zealand. The tropics hold the key to New Zealand rainfall for February 2018, but we can expect intermittent rainfalls and long dry spells across the North Island.

February monthly temperatures are forecast to be above average. However, there will be week-to-week changes that will offer some relief from the non-stop heat. Expect temperatures to climb again in the second half of the month.

Further ahead: February – April 2018

New Zealand's climate over the next three-month period is expected to be dominated by the very warm ocean waters present around the country. Higher pressures than normal are forecast in the east and south, while lower pressures than normal are forecast over the Tasman Sea, extending over the North Island. Warmer temperatures, occasional significant rainfall and north-easterly winds are expected because of the combination of the pressure pattern with the marine heat wave.

For the next three months (Jan – Mar 2018):

Temperatures are forecast to be above average for all regions. Rainfall totals are forecast to be above normal in the North Island. Soil moisture levels and river flows are forecast to be above normal in the north of the North Island, and about equally likely to be normal or above normal for all remaining regions.

Regional breakdown (Figure 2):

Temperatures are most likely to be:

- above average (70% chance) for Northland, Auckland, Waikato, Bay of Plenty, Central North Island, Taranaki, Whanganui, Manawatu & Wellington;
- above average (60% chance) for Gisborne, Hawkes Bay & Wairarapa.

Rainfall is most likely to be:

- above normal (50% chance) for Northland, Auckland, Waikato, & Bay of Plenty;
- above normal (45% chance) for the Central North Island, Taranaki, Whanganui, Manawatu, Wellington, Gisborne, Hawkes Bay & Wairarapa.

Soil moistures are most likely to be:

- above normal (50% chance) for Northland, Auckland, Waikato, & Bay of Plenty;
- above normal (35 to 40% chance) or near normal (35 to 40% chance) for the Central North Island, Taranaki, Whanganui, Manawatu, Wellington;
- above normal (35% chance) or near normal (35% chance) for Gisborne, Hawkes Bay & Wairarapa.

Last month: January 2018

Looking back, high pressure frequented the east of the country and over the south of the South Island. Intermittent intense lows also developed over the north Tasman Sea, which produced heavy rain for northern regions of both Islands. January rainfall totals were well above normal across the North Island (excluding Gisborne and Hawkes Bay).

Humid northeast winds prevailed across New Zealand

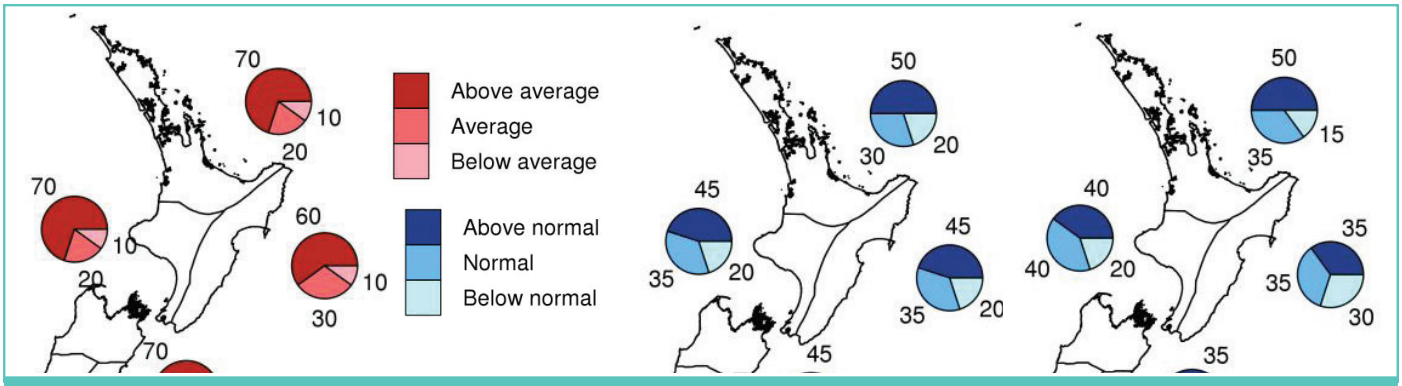

Figure 2. Outlook for Feb - Apr 2018: air temperature (left), rainfall (middle), available soil moisture (right). Source: NIWA.

during the month, and the combination of these winds and the pre-existing marine heat-wave, produced record-breaking January heat. Temperatures were well above average (>1.20°C of average) for the entire country, and locations in every region recorded either their record or near-record January temperature.

Grass growth:

Depending on where you are in the country, grass curing could be patchy over a series of paddocks/area, especially during the 40-80% curing period. Or if you are experiencing summer droughts, curing will become more continuous in the dry phase of 70 – 100% curing. Above 80% curing, fuel moisture content begins to be significantly influenced by the environmental factors (humidity, temperature and wind).

For areas experiencing high curing values, now is the time to be prepared. Wildfires burning under these high grass curing conditions can spread very quickly, produce large to very tall flame heights (2 m+), be very intense and much more difficult to suppress. Some areas would also have experienced abundant grass growth over the last month, increasing the fuel loading.

For some parts of the country still undergoing bouts of rainfall, it's not uncommon to see green grass growth under the dry vegetation. This can help reduce or halt a fire's spread (depending on the amount). However, fires will still race along the tops in places experiencing a dense/continuous top cover of dry grass. Heavy and prolonged rains can delay the maturing process until the onset of hot dry weather conditions, when curing will proceed rapidly. Rainfall before 60% curing will prolong grass life and slow the curing process, while rainfall after 60% will not delay the curing of mature grass.

The finer details:

As summer progresses, many parts of the country that are experiencing lack of rainfall are observing landscapes changing from a vibrant green to yellow or straw colour. Cured grass at this stage heightens the potential for a fire to ignite and spread in these fuels. The risk of grass fires starting and spreading in these areas is amplified further by high temperatures, low humidity and strong winds.

Grassland curing will affect fire behaviour in many ways: it increases the amount of dead material present and affects fuel moisture content. The result is an increased chance of fire ignition, rates of spread and fire intensity.

The moisture content of fine grass fuels (as well as pine litter and other fine fuels) also dramatically affects the ignition potential and ability of a wildfire to spread. High amounts of moisture increase the heat absorption and thermal conductivity of fuel, so that more heat is required for the fuel to reach its ignition temperature. As grasses cure and become drier, less heat is required to ignite and sustain a fire.

What would La Niña mean for New Zealand?

La Niña tends to warm the ocean surrounding New Zealand, which encourages frequent lows and sub-tropical storms for the north, occasionally stretching down as far as Canterbury. During a La Niña, north-easterly and easterly winds are more frequent, resulting in the risk of heavy rain and flooding. New Zealand is typically warmer than average during a La Niña, although there are regional and seasonal exceptions.

La Niña typically brings more storms, clouds, humidity and rain to the north and east of New Zealand. During a La Niña summer, anticyclones are more frequent, bringing dry weather. With a weak La Niña expected, it means our 'local' climate players (the Southern Ocean southerlies and Tasman Sea lows) will continue to take turns ruling our weather. This is a good reminder that local climate patterns (blocking Highs over or near New Zealand, Lows over the Tasman Sea or to the north of the country, and the southern ocean storms) generally 'trump' climate patterns such as El Niño and La Niña.

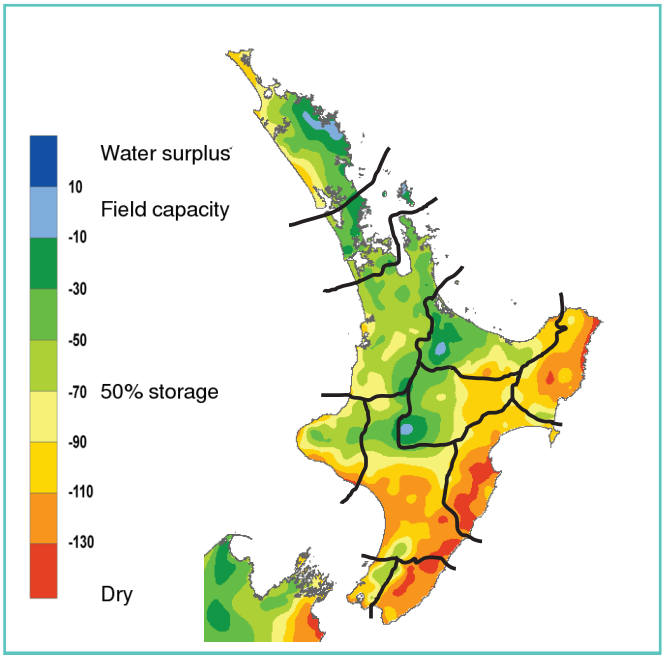

Figure 3. Soil moisture deficits as of 06/02/2018.
Source: NIWA.

Note: Soil moisture deficit means the amount of water needed to bring the soil moisture content back to field capacity, which is the maximum amount of water the soil can hold.

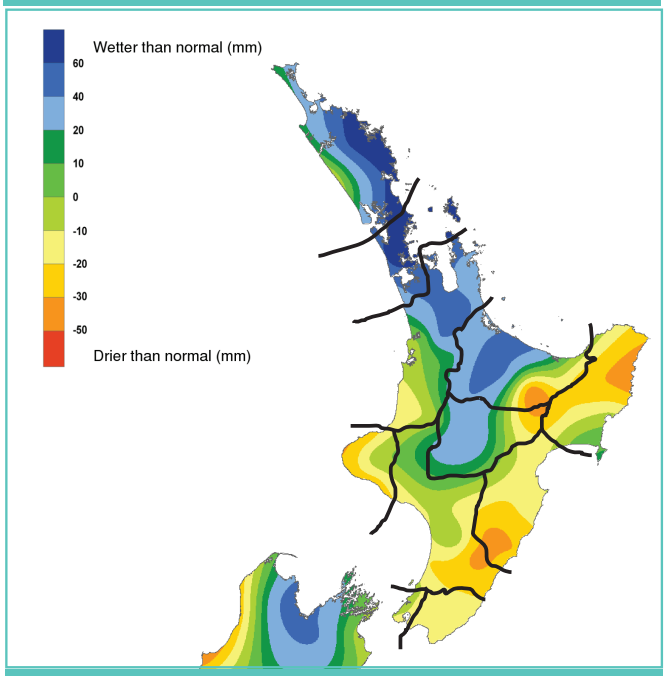

Figure 4. Soil moisture anomaly as of 06/02/2018.
Source: NIWA.

Note: Soil moisture anomaly means the difference between the historical normal soil moisture deficit (or surplus) for a given time of year and actual soil moisture deficits.

Background info

The intention of these monthly outlooks is to provide a heads up on current and potential fire danger for the North and South Islands. This is not a detailed fire seasonal outlook for specific localities, nor does it summarise fire potential (which depends on fuel conditions (i.e. grass curing), risks of ignitions, recent fire history and fire management resources available in an area as well as weather and climate).

It should be used as a prompt for local and regional discussions/debates on fire potential, and where things are at, where it is heading, and to drive awareness about what this might mean in your patch and for your neighbours. Now is the chance to carry out your pre-planning if you haven't done so already.

Fine Fuel Moisture Code (FFMC)

An indicator of the relevant ease of ignition and flammability of fine fuels.

0 - 74	Difficult
75 - 84	Moderately easy
85 - 88	Easy
89 - 91	Very easy
92 +	Extreme easy

Duff Moisture Code (DMC) A rating of the average moisture content of loosely compacted organic soil layers (duff/humus) of moderate depth, and medium-sized woody material

0 - 10	Little mopup needs
11 - 20	Moderate
21 - 30	Difficult
31 - 40	Difficult & extended
41 +	Difficult & extensive

Drought Code (DC) A rating of the average moisture content of deep, compact, organic soil layers, and a useful indicator of seasonal drought effects on forest fuels and amount of smouldering in deep duff layers and large logs.

0 - 100	Little mopup needs
101 - 175	Moderate
176 - 250	Difficult
251 - 300	Difficult & extended
301 +	Difficult & extensive

Buildup Index (BUI)

Combines the DMC and DC, and represents the total amount of fuel available for combustion.

0 - 15	Easy control
16 - 30	Not difficult
31 - 45	Difficult
46 - 59	Very difficult
60 +	Extremely difficult

Initial Spread Index (ISI) Combines the effect of wind speed and the FFMC, providing a numerical rating of potential fire spread rate.

0 - 3	Slow rate of spread
4 - 7	Moderate fast
8 - 12	Fast
13 - 15	Very fast
16 +	Extremely fast

Fire Weather Index (FWI)

Combines the ISI and BUI to indicate the potential head fire intensity of a spreading fire (on level terrain).

0 - 5	Low fire intensity
6 - 12	Moderate
13 - 20	High
21 - 29	Very High
30 +	Extreme

Daily Severity Rating (DSR) A numerical rating of the daily fire weather severity at a particular station, based on the FWI. It indicates the increasing amount of work and difficulty of controlling a fire as fire intensity increases. The DSR can be averaged over any period to provide monthly or seasonal severity ratings.

Monthly Severity Rating (MSR) is the average of the DSR values over the month. DSR and MSR captures the effects of both wind and fuel dryness on potential fire intensity, and therefore control difficulty and the amount of work required to suppress a fire. It allows for comparison of the severity of fire weather from one year to another.

0 - 1	Low fire behaviour potential
1 - 3	Moderate fire potential
3 - 7	High to very high fire potential
7 +	Extreme fire behaviour potential

Acknowledgements:

Fire Danger interpretation was from information gathered from the Average Monthly Maps for: Severity Rating, FWI, BUI, ISI, DC, DMC, FFMC. These maps were obtained from the National Rural Fire Authority Fire Weather System powered by Eco Connect.

Information on the Expected Climate Outlook was gathered from:

- MetService, Rural Monthly outlooks: www.metservice.com/rural/monthly-outlook
- NIWA, Seasonal Climate outlook: www.niwa.co.nz/climate/sco
- Australian Bureau of Meteorology Climate outlooks http://www.bom.gov.au/climate/ahead/?ref=ftr

Front Cover Image:
2013 Prescribed burn, Waihopai Valley, John Foley Fire and Emergency New Zealand).

If you are keen to submit a weather and fire related photo that will appear on the front page, please email:

- a high resolution image(s)
- with details on the location and the photographer's name and organisation.
- to: Veronica.Clifford@scionresearch.com

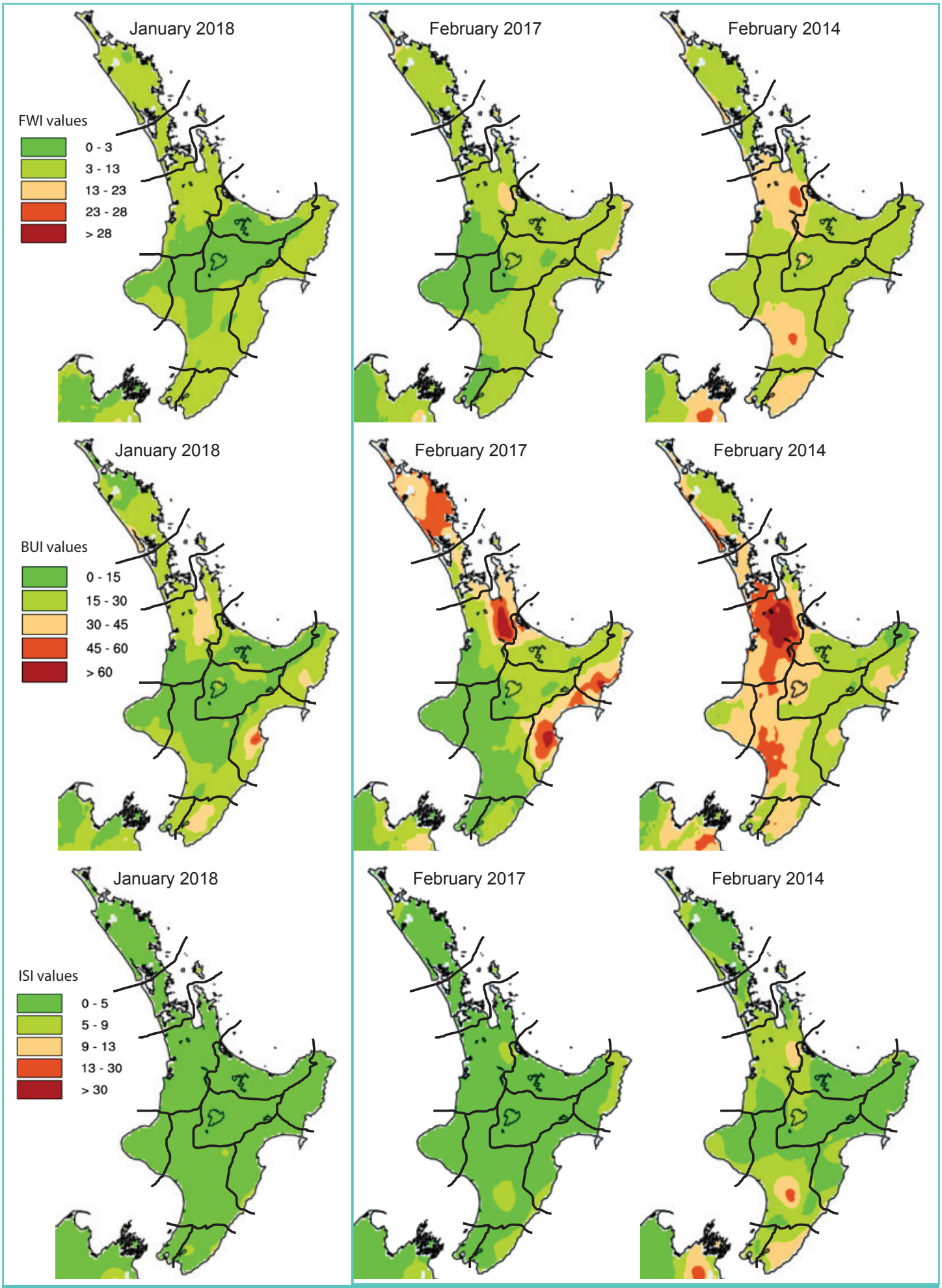

Figure 5. Current Monthly Average for the: Fire Weather Index (top), Buildup Index (middle) and Initial Spread Index (below).

Figure 6. Average Monthly values of: Fire Weather Index (top), Buildup Index (middle) and Initial Spread Index (below); for the previous year (left) and during the 2013/14 Neutral year followed by a weak La Niña year (right).

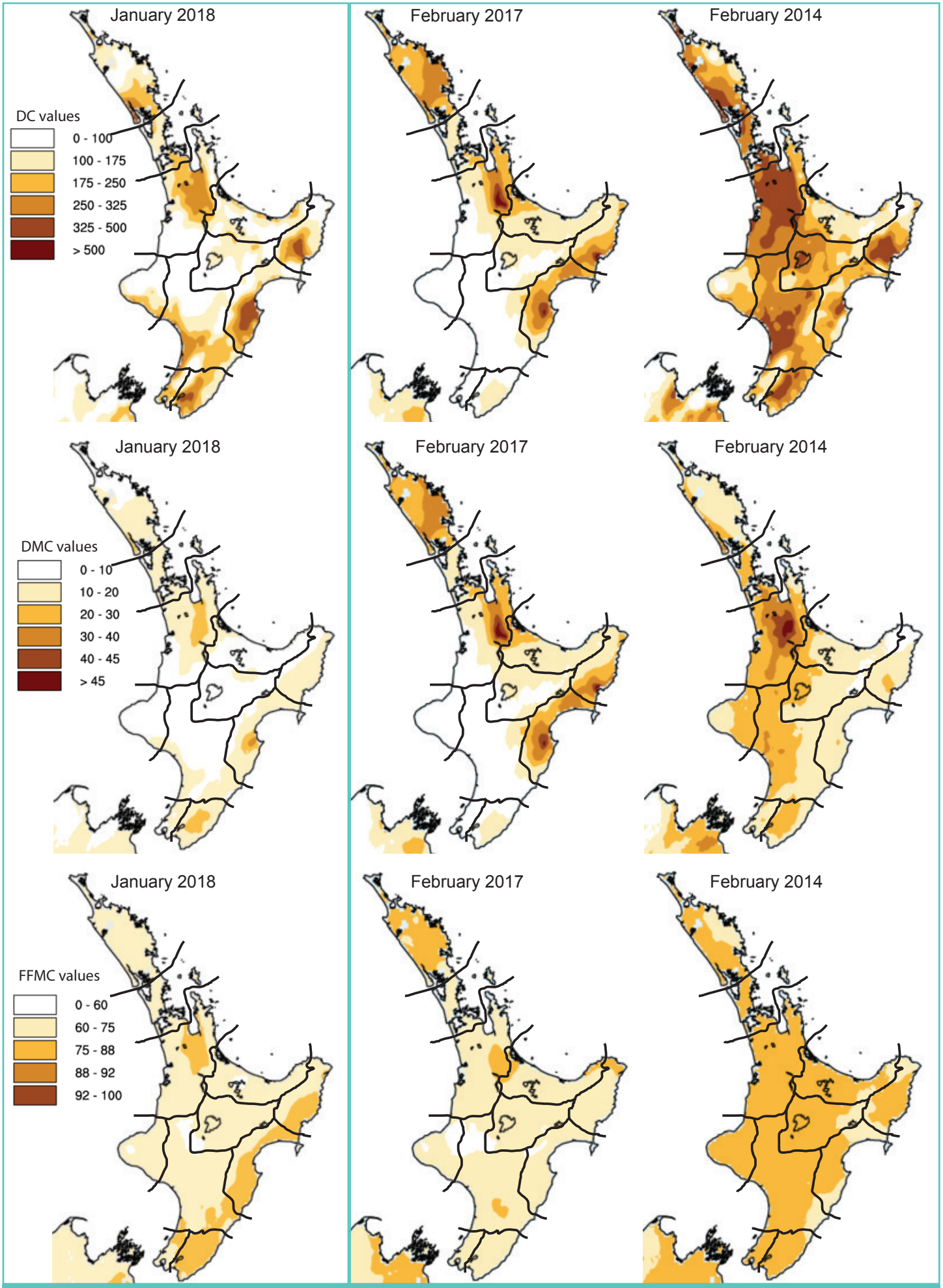

Figure 7. Current monthly average for the: Drought Code (top), Duff Moisture Code (middle) and the Fine Fuel Moisture Code (below). Average monthly values of: Drought Code (top), Duff Moisture Code (middle) and Fine Fuel Moisture Code (below); for the previous year and during the 2011/12 weak La Niña year.

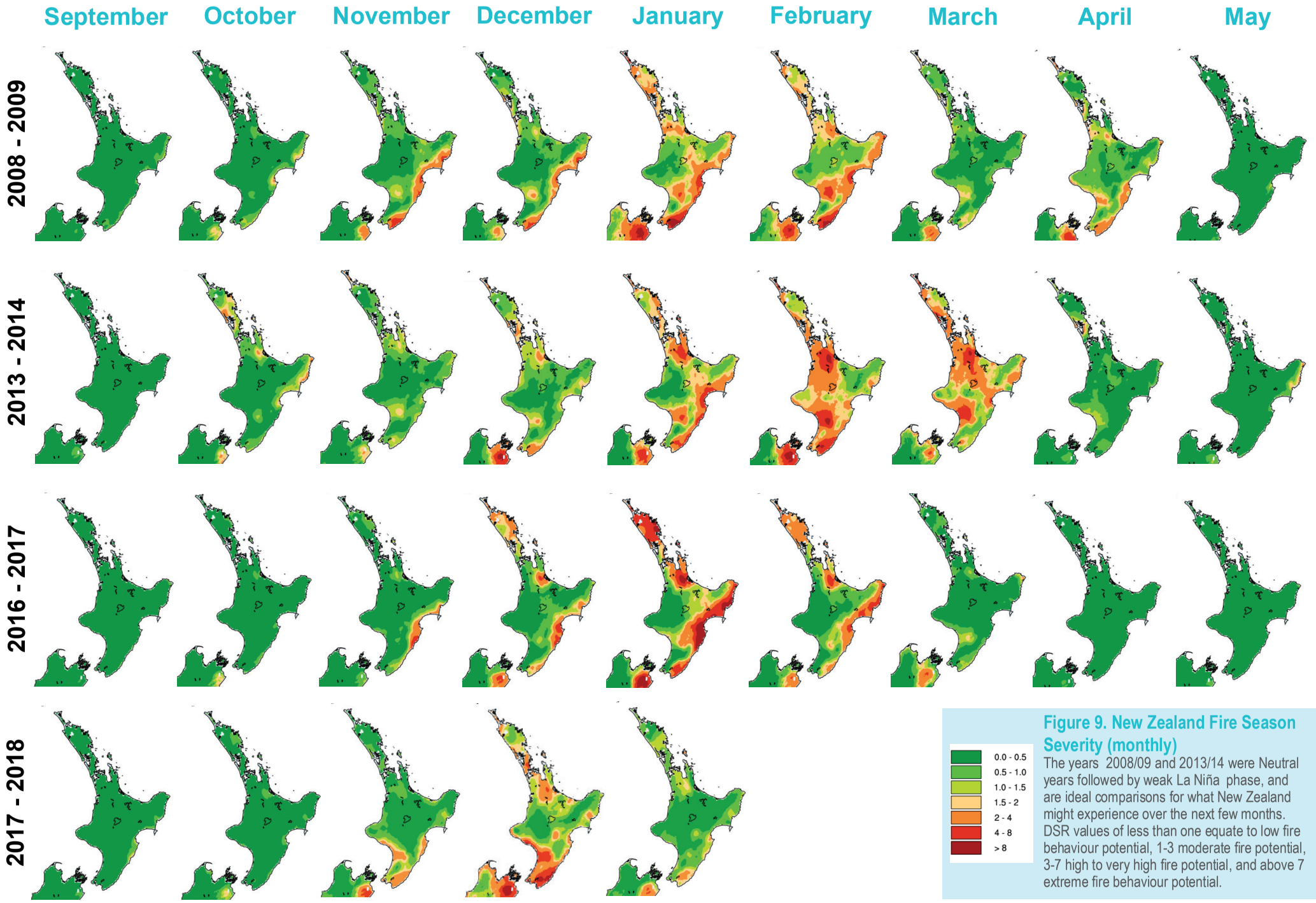

Figure 9. New Zealand Fire Season Severity (monthly)

The years 2008/09 and 2013/14 were Neutral years followed by weak La Niña phase, and are ideal comparisons for what New Zealand might experience over the next few months. DSR values of less than one equate to low fire behaviour potential, 1-3 moderate fire potential, 3-7 high to very high fire potential, and above 7 extreme fire behaviour potential.

Tracking of trends in BUI, DC and CDSR:

Comparisons of fire dangers for individual indicator stations for different regions are shown overleaf due to increasing fire activity and an increasing likelihood for fire danger and severity across the country. This is in tabular format.

Trends for Drought Code (DC), Buildup Index (BUI) and Cumulative Daily Severity Rating (CDSR) are provided for all stations in a PDF format. For those who are interested in tracking fire season trends for all your weather stations on a more frequent basis (as opposed to the monthly analysis done here), you can download the summary PDF graphs and Excel sheets, and R scripts (to make the pdfs) using the link on the right: (**or click here**)

Link: https://www.dropbox.com/sh/1qy0b1rauv0t6g4/AAC4ziYCv9FUP6a5o7R-HHjna?dl=0

The more detailed regional outlooks highlight where Buildup Index (BUI), Drought Code (DC) and Cumulative Daily Severity Rating (CDSR) values sit in comparison with previous fire seasons. The graphs display:

- Bold red line is the current fire season
- Bold black line is the long-term average
- Light grey shaded areas indicate the range based on historical max and mins
- We've also colour coded the 2013/14 Neutral year followed by a weak La Niña season blue.

Northern North Island:

Northland

Soil moisture:

- Soils across the region are showing signs of dryness in the Far North and coastal Kaipara (Figure 3).
- The soil moisture anomaly map is indicating that Northland has been wetter than normal for this time of the year, but about normal for coastal Kaipara (Figure 4).

Fire weather codes and indices:

- Stations to watch are: Pouto

- Current BUIs across the region range from 4 to 15, indicating that the difficulty of control will generally not be difficult. The exception is Pouto (47), which indicates control will be difficult.
- BUIs across the region are below average for this time of the year, except Pouto, which is above average.
- Maximum BUIs typically peak during February, and can range between 110 and 200.

- Current DC values are generally 90 to 150, except Dargaville (205), Mangakahia (259) and Pouto (433). This indicates that there is a moderate requirement for mop up needs in most locations, and up to difficult and extended mop up requirements in heavy fuels for locations with elevated values.
- DCs are generally below historical averages across the region, except Pouto which is well above the average.
- Maximum DC values typically peak during February or March.

- CDSR values across the region are mixed, with most stations below but some at or above their historical averages.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- With forecast warm temperatures and above normal rainfall, fire dangers and fire climate severity could increase over summer, especially if the soils continue to dry further. But with additional major rain events, this would keep the fire danger Low.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Far North						
Aupouri Peninsula raws	below	below	below	below	well above	well above
Waitangi Forest raws	below	below	below	below	below	below
Kaikohe aws	below	below	below	well below	below	below
Kaikohe raws	below	below	below	below	below	below
Hokianga raws	below	below	below	below	on trend	slightly below
Whangarei / Kaipara						
Opouteke raws	below	below	below	below	slightly above	slightly below
Mangakahia raws	below	below	on trend	slightly below	below	below
Whangarei raws	below	below	below	below	well below	well below
Whangarei Aero aws	below	below	below	below	below	below
Dargaville raws	below	below	slightly below	below	on trend	slightly below
Pouto raws	above	on trend	well above	well above	slightly above	slightly below

Auckland

Soil moisture:

- Soil moisture levels across the Auckland region are generally between 50% or nearing field capacity (Figure 3).
- The soil moisture anomaly map shows that the soils are wetter than normal for this time of the year (Figure 4).

Fire weather codes and indices:

- Stations to watch are: None

- BUIs across the region range from 2 to 10, indicating that the difficulty of control should be easy.
- BUIs across the region are below average for this time of the year, and during the similar 2013/14 weak La Niña fire season.
- Maximum BUIs typically peak during February, and can range between 100 and 180.

- Current DCs range between 35 and 125, except Kaipara (175), indicating mop up needs in heavy fuels are generally little to moderate.
- DCs across the region are below, to well below, average for this time of the year.
- DC values typically peak around late February, where maximum values can be expected to range between 500 and 800.

- CDSR values across the region are mixed, with stations below, at, or above their historical averages.
- Current fire severity and danger for this region are, on average, Low to Moderate, but High for Great Barrier Island (Figure 1 & 5).
- With forecast warm temperatures and above normal rainfall, expect fire dangers and fire climate severity to increase over summer. But with further major rain events, this would keep the fire danger Low.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Great Barrier Island						
Great Barrier Island raws	below	below	below	below	on trend	below
Northern						
Mahurangi Forest raws	well below	well below	well below	well below	below	below
Kaipara raws	below	below	below	below	slightly below	on trend
Woodhill raws	well below	well below	below	below	on trend	slightly below
Southern						
Clevedon Coast raws	below	below	below	below	above	above
Cornwallis Depot raws	well below	below	well below	well below	slightly above	above
Waharau raws	below	below	well below	well below	slightly above	slightly above
Patumahoe raws	below	below	below	below	below	on trend

Waikato

Soil moisture:

- Soil moisture levels are about 50% storage capacity in the north and showing signs of drying in the south of the region (Figure 3).
- This is reflected in the soil moisture anomaly map, which shows wetter than normal soils for Thames-Coromandel, Hauraki and Matamata districts (Figure 4). Slightly drier than normal conditions exist for the Waitomo, Otorohanga and Waipa districts.

Fire weather codes and indices:

- Stations to watch are: None

- Currently BUIs across the region range from 4 to 22, indicating fire control will generally not be difficult.
- BUI values are below the averages for this time of the year.
- Maximum BUI values usually peak around late February, at around 100 to 160.

- Current DCs range between 20 to 170, except Waeranga (190). This indicates little to moderate mop-up needs in heavy fuels in most areas, extending to more difficult needs in Waeranga.
- DCs are below average levels, and those of the 2013/14 fire season, for this time of the year.
- Maximum DC values typically peak during March, and can range between 450 and 800.

- CDSR values across the region are generally below, or at, the historical average.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- With forecast warm temperatures and above normal rainfall, fire dangers and fire climate severity could increase as summer progresses, especially if the underlying dry conditions continue to dry further. But with further major rain events, this would keep the fire danger Low.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Thames Valley						
Waikawau Bay raws	below	well below	well below	well below	below	below
Whangamata raws	below	below	below	below	below	below
Paeroa raws	below	below	below	below	slightly above	on trend
Paeroa aws	below	below	well below	well below	on trend	slightly below
Waeranga raws	new station	new station	new station	new station	new station	new station
Waihi Gold raws	below	below	below	below	below	below
Waihi raws	below	below	well below	well below	below	below
Waikato / Waitomo						
Hamilton raws	below	below	slightly below	below	on trend	on trend
Hamilton Aero Aws	below	below	slightly below	below	on trend	on trend
Taharoa raws	below	below	below	below	well below	well below
Port Taharoa aws	below	below	below	below	on trend	below
Athol raws	below	below	slightly below	below	below	below
Waitomo raws	below	below	below	well below	on trend	on trend
Piopio raws	new station	new station	new station	new station	new station	new station

Central & Eastern North Island:

Bay of Plenty

Soil moisture:

- Soil moistures in the west of the region are leaning towards field capacity, whereas in the east (Whakatane and Opotiki) they are showing signs of dryness (Figure 3).
- The soil moisture anomaly map reflects this, and shows soils are much wetter than normal for this time of the year in the west, and drier than normal in the east (Figure 4).

Fire weather codes and indices:

- Stations to watch are: Waimana

- BUIs across the region generally range from 8 to 22. This indicates that the difficulty of control will generally be not difficult. The exception is Waimana (142), where control would be extremely difficult.
- BUI values are below average for this time of the year, and the levels recorded during the 2013/14 weak La Niña fire season, except Waimana which is above average levels.
- BUIs typically peak in late February, and maximum values can be expected to range between 120 and 160.

- Current DCs range between 30 and 160. These values indicate a low to moderate risk of extended mop-up needs in heavy fuels. The exceptions to this are Opotiki (208), Waihau Bay (299) & Waimana (602), where there is a risk of difficult to extensive mop-up needs.
- DCs are generally below the averages for this time of the year, and also the levels recorded during the 2013/14 fire season, except Waihau Bay, Opotiki and Waimana, which are above average.
- Values typically peak during February or late March, and can reach maximum values between 550 and 700.

- CDSR values are below the historical average, and the levels seen in the 2013/14 fire season.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- With forecast warm temperatures and above normal rainfall, fire dangers and fire climate severity could increase as summer progresses, especially if the underlying dry conditions continue to dry further. But with further major rain events, this would keep the fire danger Low.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Coastal						
Waihi Beach raws	new station	new station	new station	new station	new station	new station
Waihau Bay raws	below	on trend	slightly above	above	below	on trend
Tauranga Aero SYNOP	below	below	below	below	below	below
Tauranga raws	below	below	below	below	below	below
Minden raws	new station	new station	new station	new station	new station	new station
Te Puke ews	below	below	below	below	below	slightly below
Whakatane raws	below	below	below	below	below	below
Whakatane Aero aws	below	below	below	below	below	below
TECT All Terrain Park raws	new station	new station	new station	new station	new station	new station
Rotoehu raws	below	below	below	below	below	on trend
Opotiki raws	below	below	slightly above	slightly above	on trend	below
Rotorua / Kawerau / Whakatane						
Kawerau raws	below	below	below	below	well below	well below
Rotorua raws	below	below	below	below	slightly below	on trend
Rotorua Aero aws	below	below	below	below	below	slightly below
Waimana raws	new station	new station	new station	new station	new station	new station
Galatea raws	below	below	below	below	below	below

Central North Island

Soil moisture:

- Soil moistures in the west of the region are at 50% storage and leaning towards field capacity, whereas soils in the east are indicating signs of dryness (Figure 3).
- The soil moisture anomaly map reflects this, and shows soils are much wetter than normal for this time of the year in the west, and drier than normal in the east (Figure 4).

Fire weather codes and indices:

- Stations to watch are: None

- BUIs across the region now range from 9 to 26. This indicates that heavy and medium fuels are not readily available for combustion and the difficulty of control will generally be easy to not difficult.
- BUI values are generally below, to slightly below, the averages for this time of the year and the levels observed during the 2013/14 fire season.
- BUIs typically peak in late February, when maximum values can reach between 120 and 150.

- Current DCs generally range between 50 to 170, which indicate there is some risk of mop-up difficulty in heavy fuels. The exceptions are Minginui (243) & Tahorakuri (294), which would have difficult to extended mop up requirements.
- DC values are mixed, and either below, at, or above the averages for this time of the year.
- Values typically peak during February or late March, with maximum DC values reaching between 450 and 650.

- CDSR values are generally below their historical averages and 2013/14 fire season.
- Current fire severity and danger for this region are, on average, Low (Figure 1 & 5).
- With forecast warm temperatures and above normal rainfall, fire dangers and fire climate severity could increase over summer, especially if the underlying conditions continue to dry. But with further major rain events, this would keep the fire danger Low.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Taupo / Whakatane						
Goudies raws	below	below	below	below	well below	well below
Tahorakuri raws	slightly below	slightly below	above	slightly above	below	below
Tihoi raws	new station	new station	new station	new station	new station	new station
Ruatahuna raws	new station	new station	new station	new station	new station	new station
Minginui raws	slightly below	on trend	slightly above	slightly above	below	below
Taupo raws	below	below	below	below	below	on trend
Taupo Aero SYNOP	below	below	slightly below	below	below	below
Matea raws	slightly below	below	on trend	below	well below	well below
Rotoaira raws	new station	new station	new station	new station	new station	new station
Hautu raws	new station	new station	new station	new station	new station	new station

Gisborne

Soil moisture:

- Soils are dry across the region, and extremely dry along the coast (Figure 3).
- The soil moisture anomaly map shows soils are much drier than normal, except in the southern locations (Wharerata) where it is about normal for this time of the year (Figure 4).

Fire weather codes and indices:

- Stations to watch are: None

- Currently BUIs across the region range from 11 to 32. This indicates that heavy and medium fuels are starting to become available for combustion in some areas, but the difficulty of control will generally be easy to moderately difficult.
- BUI values are currently below, or on trend with, the historical averages for this time of the year.
- BUIs typically peak during February, with maximum values reaching between 80 and 160.

- Currently DC values are generally ranging between 170 and 400, except Raparapaririki (73), indicating moderately difficult to difficult and extensive mop-up requirements are expected.
- DCs across the region are split slightly below, at, or slightly above their historical averages, and also values seen in the 2013/14 weak La Niña fire season.
- DC values typically peak in late March, where maximum values can range between 400 and 800.

- CDSR values across the region are below both the historical average and 2013/14 fire season.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- Temperatures and rainfall are forecast to be above average for February. Expect fire dangers and fire climate severity to increase over this region if the underlying conditions continue to dry. However, any major rain events will provide some relief.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Gisborne						
Hicks Bay SYNOP	on trend	on trend	slightly below	slightly below	below	below
Poroporo raws	slightly below	on trend	slightly below	on trend	well below	well below
Raparapaririki Raws	new station	new station	new station	new station	new station	new station
Wharekopae raws	new station	new station	new station	new station	new station	new station
Pouawa raws	below	on trend	slightly above	slightly above	well below	well below
Gisborne raws	below	below	slightly above	on trend	below	on trend
Gisborne Aero SYNOP	below	below	on trend	slightly below	below	on trend

Hawkes Bay

Soil moisture:

- Soil moisture levels across the region are dry, especially for Hastings and Central Hawkes Bay districts (Figure 3).
- The soil moisture anomaly map shows drier than normal soils across the region, especially so for Central Hawkes Bay (Figure 4).

Fire weather codes and indices:

- Stations to watch are: Wairoa

- Currently BUIs across the region generally range from 6 to 30, indicating that heavy and medium fuels are in some cases becoming available for combustion, and the difficulty of control is increasing. The exceptions are Wairoa (130), Napier (60), Crownthorpe (52), Bridge Pa (60), Ongaonga (52) & Waipukurau (57), where the fuels are readily available and difficulty of control will be very difficult.
- BUI values are either below, or at, the historical averages for this time of the year.
- BUIs typically peak around February, where maximum levels can range between 70 and 225.

- DC values are currently generally between 70 and 420, indicating moderate to extensive mop-up requirements in some places. The exceptions are Wairoa (520), Napier (490) & Bridge Pa (515), where difficult and extensive mop-up should be expected.
- DCs for stations north of Napier are generally below the historical average for this time of the year, except Kaiwaka, which is above average. The remaining stations in the southern half are generally on trend or slightly above their historical averages.
- DC values peak around late February or March, when maximum values can reach between 350 and 850.

- CDSR values are below, or well below, the historical averages and also values observed in the 2013/14 weak La Niña fire season.
- Current fire severity and danger for this region are, on average, Low in Wairoa, but Moderate to High in Hastings and Central Hawkes Bay (Figure 1 & 5).
- Temperatures and rainfall are forecast to be above average for February. Expect fire dangers and fire climate severity to climb if the underlying conditions remain dry. However, any major rain events will provide some relief.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Wairoa						
Kaitawa raws	below	below	below	below	well below	well below
Tuai raws	on trend	on trend	on trend	below	well below	well below
Wharerata raws	below	on trend	below	below	well below	NA
Cricklewood raws	below	below	slightly below	below	well below	well below
Wairoa raws	new station	new station	new station	new station	new station	new station
Mahia raws	below	below	on trend	slightly above	below	below
Mahia aws	below	below	below	slightly below	below	below
Hastings						
Te Haroto raws	below	below	below	below	well below	well below
Te Pohue raws	below	on trend	slightly below	on trend	below	below
Kaiwaka raws	on trend	slightly above	above	above	well below	well below
Waihau raws	below	below	below	slightly below	below	below
Napier Aero SYNOP	on trend	slightly above	above	slightly above	slightly below	below
Napier raws	on trend	slightly above	slightly above	on trend	below	below
Crownthorpe raws	on trend	on trend	on trend	on trend	below	below
Bridge Pa raws	slightly below	on trend	slightly above	slightly above	below	below
Te Apiti Road raws	new station	new station	new station	new station	new station	new station
Central Hawke's Bay						
Gwavas raws	slightly below	slightly below	on trend	slightly below	below	below
Ongaonga raws	on trend	on trend	slightly above	on trend	below	well below
Waipukurau raws	on trend	on trend	on trend	on trend	below	slightly below
Porangahau raws	new station	new station	new station	new station	new station	new station

Lower North Island:

Taranaki

Soil moisture:

- Soil moistures across the region are about 50% of field capacity inland (Stratford), and drier along the coast of New Plymouth and South Taranaki (Figure 3).
- The soil moisture anomaly map shows a transition from soils being much drier than normal in the west to about normal in the east of the region (Figure 4).

Fire weather codes and indices:

- Stations to watch are: None

- BUIs now range between 13 and 34. This indicates that heavy and medium fuels are becoming available for combustion in some areas and the difficulty of control will generally be easy to moderate.
- BUI values are mixed, with stations below, at, or slightly above the averages for this time of the year, and levels recorded during the 2013/14 fire season.
- BUIs typically peak at values of around 70 to 120 in late February or early March.

- DCs across the region currently range between 230 and 330, indicating a risk of difficult to extensive mop-up requirements. The exceptions are Opunake (424), Tikorangi (157) & Marco (78), indicating either more extensive or lesser mop up needs, respectively.
- DC values are generally above their historical averages and the 2013/14 fire season for this time of the year, except Marco & Eltham, which are below the average.
- DC levels can increase to a peak of 350 to 700 in early March.

- CDSR values are generally above, to well above, their historical averages and the 2013/14 season.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- Both above average temperatures and rainfall are forecast for February. Expect fire dangers and fire climate severity to increase over this region if the underlying conditions continue to dry. But with further major rain events, this would keep the fire danger Low.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Taranaki						
New Plymouth SYNOP	on trend	slightly below	above	above	well above	well above
Tikorangi raws	new station	new station	new station	new station	new station	new station
Marco raws	below	below	below	below	on trend	slightly above
Okato raws	slightly below	below	above	above	above	above
Opunake raws	new station	new station	new station	new station	new station	new station
Eltham raws	below	slightly below	on trend	slightly below	on trend	slightly above
Ngamatapouri raws	new station	new station	new station	new station	new station	new station
Whareroa raws	slightly above	on trend	above	above	above	above
Hawera aws	on trend	slightly below	above	above	above	above
Waverly raws	slightly below	below	above	above	well above	well above

Manawatu-Wanganui

Soil moisture:

- Soils are dry across this region, being very dry for Tararua, Manawatu, Horowhenua, Rangitikei and Whanganui (Figure 3).
- The soil moisture anomaly map shows soils are wetter than normal for Ruapehu, but drier than normal for Manawatu, Horowhenua and Tararua districts (Figure 4).

Fire weather codes and indices:

- Stations to watch are: Wanganui Aws, Waione East and Levin

- BUIs currently range between 3 and 35 for the Ruapehu, Rangitikei, Whanganui, Manawatu, Palmerston North and southern Tararua areas, indicating that heavy and medium fuels are becoming available for combustion in some areas and the difficulty of control will easy to moderate. Exceptions to these include Whanganui (60), Waitarere Forest (39), Levin (42), Dannevirke (46) and Waione East (60). These values indicate fuels are readily available and any fires in these areas will be more difficult to control.
- BUIs for this time of the year are generally below, or at, the historical average levels, and values observed during the 2013/14 weak La Niña fire season. The exceptions are Whanganui, Levin and Waione East, which are above the average and 2013/14 fire season values.
- BUIs typically peak in March, where maximum ranges can be between 80 and 170.

- DCs are generally ranging between 80 to 230 for the Ruapehu, and inland Whanganui, Rangitikei and Manawatu areas, and between 290 to 450 for the coastal Whanganui, Rangitikei and Manawatu, Palmerston North, Horowhenua & Tararua areas. These values indicate that mop-up needs could be difficult and extensive, particularly in the latter areas.
- DCs are generally below average levels in the inland areas, and either on trend or above average levels for the coastal and southern areas for this time of the year, with Wanganui Aws and Levin at a record high for this time of the year.
- DC values typically peak between 300 and 700 in late February or early March. For some stations, they can remain high (400+) until early May.

- CDSR values are generally below average in inland areas, and above average in coastal and southern areas.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- Above average temperatures and above normal rainfall are forecast for February. Expect fire danger and fire climate severity levels to increase if the underlying conditions continue to dry. However, any major rain events will provide some relief.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Ruapehu						
Kirikau Raws	new station	new station	new station	new station	new station	new station
National Park raws	below	below	well below	well below	below	below
Paradise Valley raws	below	below	slightly below	slightly below	well below	below
Desert Road Summit raws	below	below	below	below	below	below
Three Kings raws	slightly below	below	below	below	above	above
Waimarino Forest raws	below	below	slightly above	slightly above	below	on trend
Waiouru Airstrip aws	well below	well below	well below	NA	below	on trend
Westlawn raws	below	below	on trend	slightly below	below	below
Tarn Track Raws	new station	new station	new station	new station	new station	new station
Rangitikei						
Ngamatea raws	below	slightly below	below	below	on trend	slightly above
Whangaehu raws	on trend	slightly below	well below	well below	below	well below
Raumai raws	slightly below	below	on trend	slightly below	above	above
Whangaehu						
Ranana raws	new station	new station	new station	new station	new station	new station
Wanganui Spri. Park ews	slightly below	below	on trend	slightly below	above	above
Matarawa raws	on trend	NA	slightly above	NA	well above	NA
Wanganui aws	above	slightly above	well above	well above	above	above
Whanganui raws	slightly below	below	above	on trend	on trend	slightly below
Manawatu						
Tapuae raws	below	slightly below	below	below	below	on trend
Feilding raws	new station	new station	new station	new station	new station	new station

Manawatu-Wanganui continues

Station Name	BUI trends		DC trends		CDSR trends	
Palmerston North City						
Palmerston North SYNOP	below	below	slightly below	below	above	above
Ngahere Park raws	on trend	slightly below	on trend	on trend	slightly above	above
Horowhenua						
Waitarere Forest raws	on trend	on trend	above	above	slightly above	slightly above
Levin aws	slightly above	slightly above	well above	well above	well above	well above
Tararua						
Dannevirke ews	on trend	slightly above	above	above	slightly below	below
Waione East raws	slightly above	above	above	above	well above	well above
Pahiatua ews	on trend	on trend	above	slightly above	above	slightly above
Akitio ews	on trend	on trend	slightly above	slightly above	on trend	on trend
Alfredton South raws	slightly below	slightly below	above	above	above	above

Wairarapa

Soil moisture:

- Soils are close to 50% of storage capacity for this time of the year (Figure 3).
- The soil moisture anomaly map shows soils are wetter than normal (Figure 4).

Fire weather codes and indices:

- Stations to watch are: Masterton Aero

- BUIs are currently ranging between 25 to 55, except Masterton Aero (90). This indicates that heavy and medium fuels are generally readily available for combustion and the difficulty of control will be difficult to very difficult.
- BUIs are generally on trend with average values for this time of the year, except Masterton Aero, which is above. However, the levels are generally above that seen during the 2013/14 fire season.
- BUI values typically peak at most stations in the region in late January to mid-February (100 – 180).

- DCs across the region are ranging between 170 to 410, indicating the heavy and deep organic fuels are becoming readily available, and there is a risk of difficult to extensive mop-up needs.
- DCs are generally above average levels, and those seen in the 2013/14 fire season, for the same time of the year.
- DC values usually peak in late February, reaching between 500 and 800, and can remain high at some stations until early May.

- CDSR values are mixed, and either below, at, or above the historical averages.
- Fire severity and fire danger levels for the region are, on average, Moderate to High (Figure 1 & 5).
- Above average temperatures and above normal rainfall are forecast for February. Expect fire dangers and fire climate severity in this region to increase further if the underlying conditions continue to dry. However, any major rain events will provide some relief.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Masterton / Carterton						
Castlepoint SYNOP #	slightly below	on trend	slightly below	slightly below	on trend	slightly above
Crofoot raws #	below	slightly below	slightly below	slightly below	slightly below	on trend
Holdsworth Station raws	on trend	slightly above	above	above	slightly above	above
Masterton Aero aws *	well above	well above	well above	well above	above	above
Homebush raws *	well above	well above	slightly above	above	on trend	on trend
Ngaumu Forest raws	on trend	slightly above	slightly above	slightly above	on trend	slightly above
South Wairarapa						
Featherston Raws	new station	new station	new station	new station	new station	new station
Haurangi raws	on trend	on trend	above	above	above	above
Stony Creek raws	on trend	on trend	slightly above	above	on trend	slightly above
Ngawi aws ^	on trend	slightly above	slightly below	above	slightly below	on trend
Palliser raws ^	slightly above	above	slightly above	above	below	on trend

Wellington

Soil moisture:

- Soils are dry across the Wellington region, but less so in Upper Hutt (Figure 3).
- The soil moisture anomaly map shows soils are about normal for this time of the year across the region (Figure 4).

Fire weather codes and indices:

- Stations to watch are: None

- BUIs are currently between 10 and 30, indicating that heavy and medium fuels are not readily available for combustion and the difficulty of control should be relatively easy. The exception is Titahi Bay (48), where more difficult fire control could be expected.
- BUI values are below, to on trend, with the averages for this time of the year.
- BUIs typically peak at values up to 100 around late February.

- DC values are currently ranging between 200 and 360, except Titahi Bay (455), indicating that heavy fuels and deep organic layers are available, and mop-up requirements could be difficult to extensive.
- DCs are generally at or above averages for this time of the year, and also levels seen during the 2013/14 fire season.
- DCs typically peak in late February (600 -700) and remain high until late April.

- CDSR values across the region are generally above average, and also above levels seen during the 2013/14 weak La Niña fire season.
- Current fire severity and danger for this region are, on average, Low to Moderate (Figure 1 & 5).
- Above average temperatures and above normal rainfall are forecast for February. Expect fire dangers and fire climate severities to increase further if conditions continue to dry. However, any major rain events will provide some relief.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 2011/12	**vs. average**	vs. 2011/12	**vs. average**	vs. 2011/12
Kapiti Coast						
Te Horo Raws	NA	NA	NA	NA	NA	NA
Paraparaumu Aero	NA	NA	NA	NA	NA	NA
Titahi Bay Raws	NA	NA	NA	NA	NA	NA
Porirua Elsdon Park aws	NA	NA	slightly above	above	slightly above	above
City						
Belmont raws	slightly below	below	slightly above	below	on trend	on trend
Long Gully Raws	NA	NA	NA	NA	NA	NA
Wellington Aero SYNOP	slightly below	slightly above	slightly above	above	above	above
Rimutaka Forest raws	slightly below	slightly above	slightly above	above	above	above

Pacific Islands:

Chatham Island

- 12 noon monthly average temperatures experienced over January were slightly higher than December and were still above average (about 2°C).
- Total rainfall for the month of January was slightly higher than December, but still well below normal, with approximately half the average rainfall expected.

- Note: The historical averages are based on a 17-year average from stations at the Chatham Island Aero (Chatham Island Aero SYNOP and Chatham Island Ews stations) and a 19-year average from stations at Waitangi (Waitangi Raws and Chatham Islands Aws (Waitangi) stations).

Fire weather codes and indices:

- Stations to watch are: Waitangi

- BUI values range from 26 in the north to 50 in the south. This indicates that heavy and medium fuels are available for combustion in the south and the difficulty of control would be difficult.
- BUI values are currently trending at or above average levels for this time of the year.
- Historically the values tend to peak from early February until March (up to 80).

- DCs are ranging between 75 in the north to 510 in the south, indicating that heavy fuels and deep organic layers are available, and likely present difficult and extensive mop-up requirements.
- The drought indices are generally trending at or above the historical averages for this time of the year.
- Maximum DCs typically peak (around 300 – 600) during February.

- The CDSR is split either slightly below or above the historical averages for this time of the year.
- Currently, the Chatham's are experiencing Moderate to High fire severity and Moderate to High fire danger. As we near the peak summer season, expect fire dangers to remain elevated. Fire severity and danger levels are expected to remain High throughout the first half of February.

Station Name	BUI trends		DC trends		CDSR trends	
	vs. average	vs. 11/12	vs. average	vs. 11/12	vs. average	vs. 11/12
Chathams						
Kaiwhata raws	new station	new station	new station	new station	new station	new station
Chatham Islands Aero	below	below	below	below	well above	well above
Waitangi raws	new station	new station	new station	new station	new station	new station