

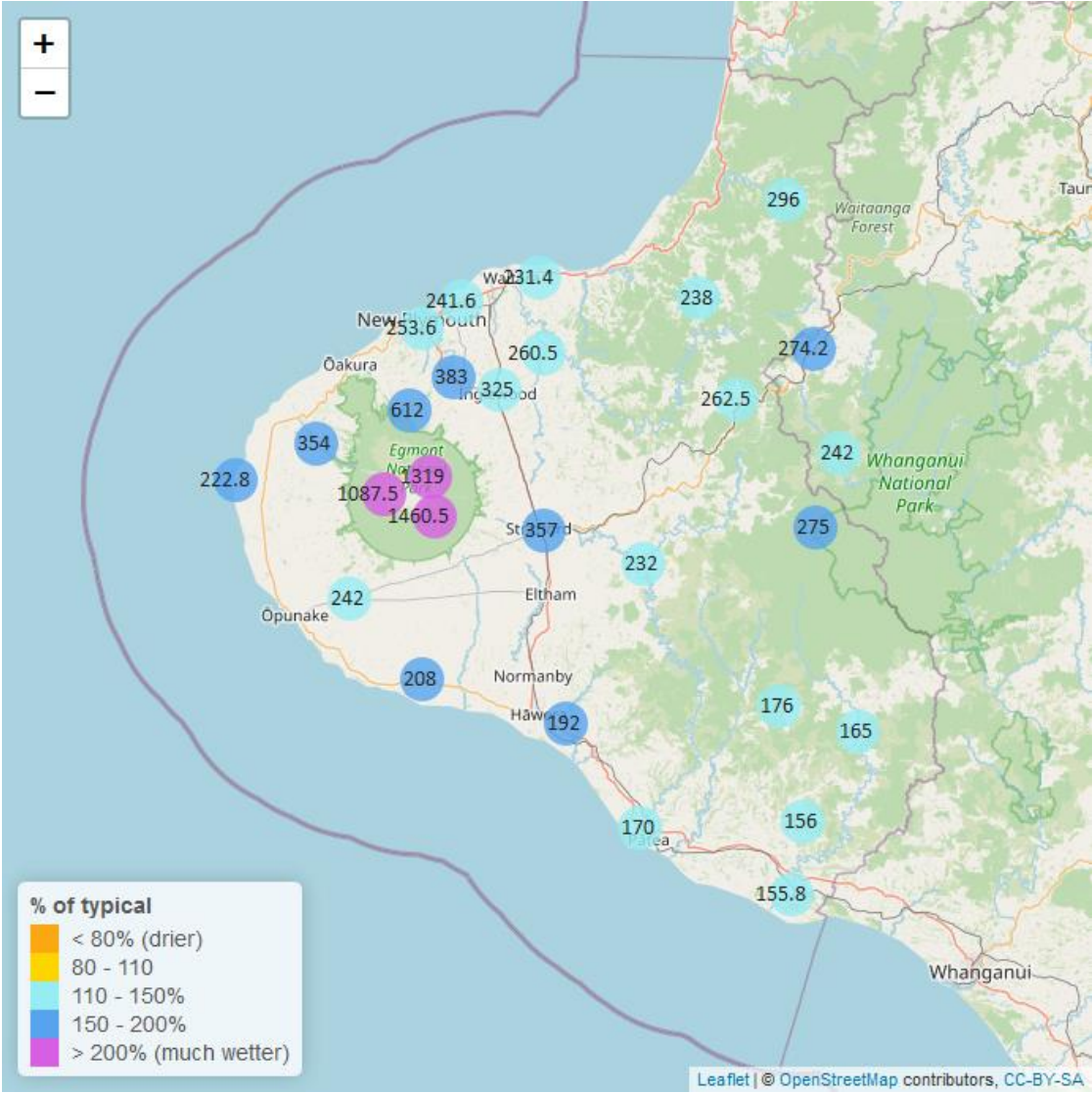
Taranaki Regional Council Monthly Rainfall and Environmental Data Report for May 2023

12 June, 2023

Note: The data presented here are provisional data only and may change as a result of quality control at a later date.

1. Rainfall

Map 1: May total rainfall (mm) and percentage of long-term mean (colour key).



Map1a. Total rainfall 1st January to end May (mm) and percentage of long-term mean (colour key)

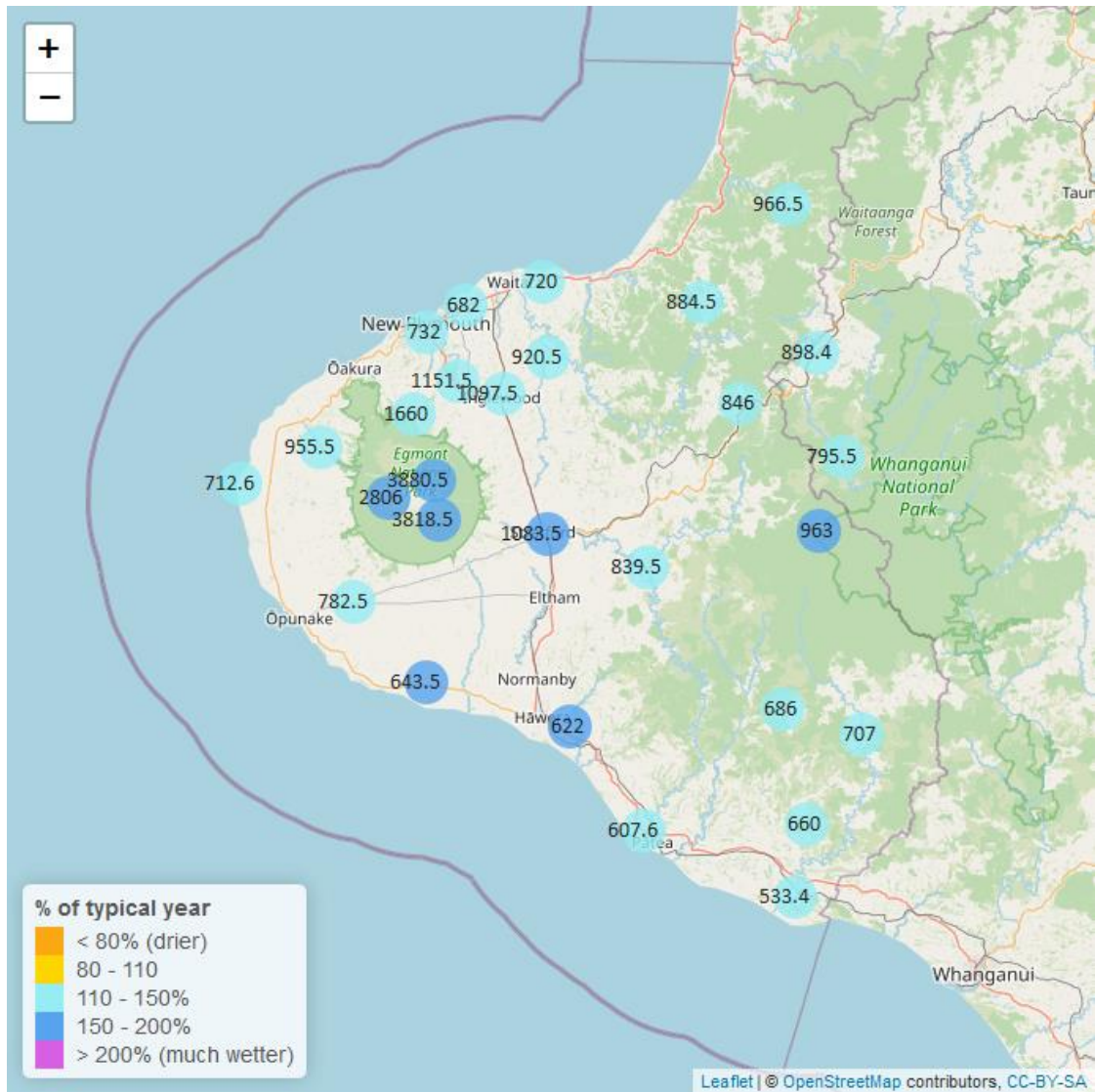


Table 1: Rainfall May and year to date totals for rain gauge sites in Taranaki.

Rain gauge	May			Year to Date			Records Began
	# days with rain	Total rain (mm)	% of typical month	Total to date (mm)	% of typical year to date	% of typical full year	
North Egmont at Visitors Centre	26	1319.0	200.2	3880.5	165.4	55.9	1991
Dawson Falls	28	1460.5	237.0	3818.5	180.1	64.2	1933
Kapoaiaia at Kahui Hut	28	1087.5	221.0	2806.0	160.3	53.5	2006
Mangorei Upper at Forest Hill	25	612.0	155.6	1660.0	129.5	43.6	2018
Waiwhakaiho at Hillsborough	24	294.5	156.4	817.5	117.4	44.6	2013
Brooklands Zoo at New Plymouth	24	253.6	146.9	732.0	117.4	45.2	2012
Mangati at SH3	23	241.6	148.2	682.0	115.2	44.0	2013
Motunui M39 at Weston W3	24	231.4	144.6	720.0	124.9	45.7	1999
Waiwhakaiho at Egmont Village	23	383.0	169.2	1151.5	133.2	47.5	1991
Manganui at Everett Park	23	260.5	131.2	920.5	122.7	44.3	1987
Inglewood at Oxidation Ponds	24	325.0	141.1	1097.5	134.3	46.6	2000
Stony at Mangatete Bridge	26	354.0	175.9	955.5	129.5	47.6	2004
Kapoaiaia at Lighthouse	22	222.8	168.7	712.6	134.2	51.2	1930
Taungatara at Eltham Rd	20	242.0	144.4	782.5	139.0	49.4	2005
Kaupokonui at Glenn Rd	17	208.0	183.6	643.5	153.9	54.9	1998
Patea at Stratford	25	357.0	171.9	1083.5	156.1	56.5	1999
Mangaehu at Bridge	22	232.0	146.8	839.5	146.1	52.7	1999
Kotare at OSullivans	23	296.0	139.4	966.5	131.1	44.8	1998
Uruti at Kaka Rd	23	238.0	117.0	884.5	112.8	39.6	1991
Pohokura Saddle	25	262.5	145.0	846.0	122.8	42.4	1991
Omaru at Charlies	24	275.0	163.6	963.0	155.0	53.0	2006
Omahine at Moana Trig	25	176.0	110.6	686.0	122.7	47.1	2007
Waitotara at Rimunui Station	21	165.0	124.3	707.0	147.1	51.3	1994
Waitotara at Ngutuwera	18	156.0	128.4	660.0	143.4	51.3	1999

Rain gauge	May			Year to Date			Records Began
	# days with rain	Total rain (mm)	% of typical month	Total to date (mm)	% of typical year to date	% of typical full year	
Tawhiti at Duffys	19	192.0	185.7	622.0	154.6	56.2	1994
Patea at Bore 3	20	170.0	143.7	607.6	139.7	51.2	2006
Waitotara at Hawken Rd	18	155.8	121.5	533.4	110.8	44.2	2016
Whangamomona at Marco Road	26	274.2	151.7	898.4	139.7	45.7	2018
Whangamomona at Bridge to Somewhere	19	242.0	148.3	795.5	140.2	45.8	2018
Waitanguru at Mangaotaki	23	344.5	133.4	1145.0	139.0	44.8	1990

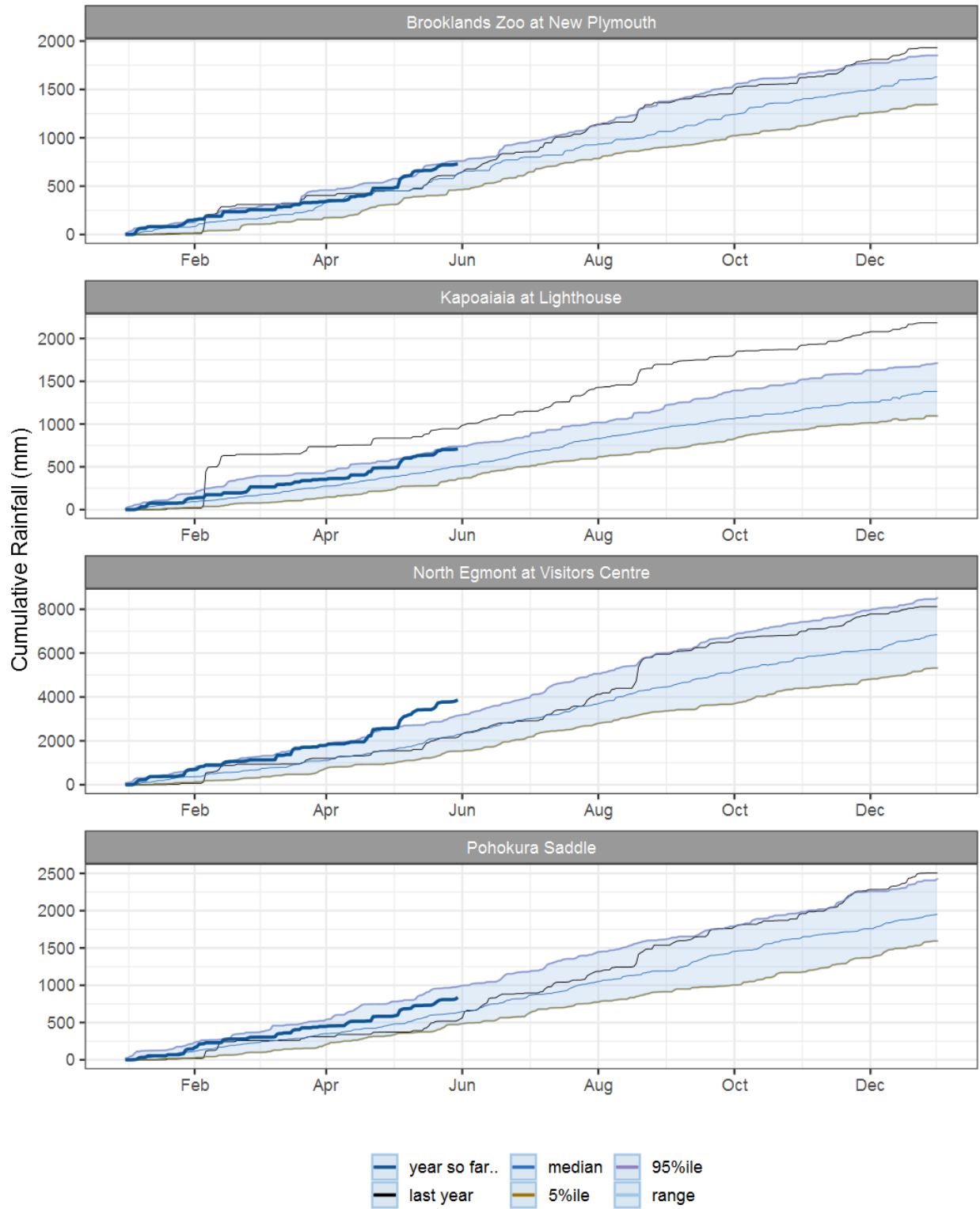


Figure 1.1: This years and last years data set in context of historic record at selected rain gauge sites in Taranaki.

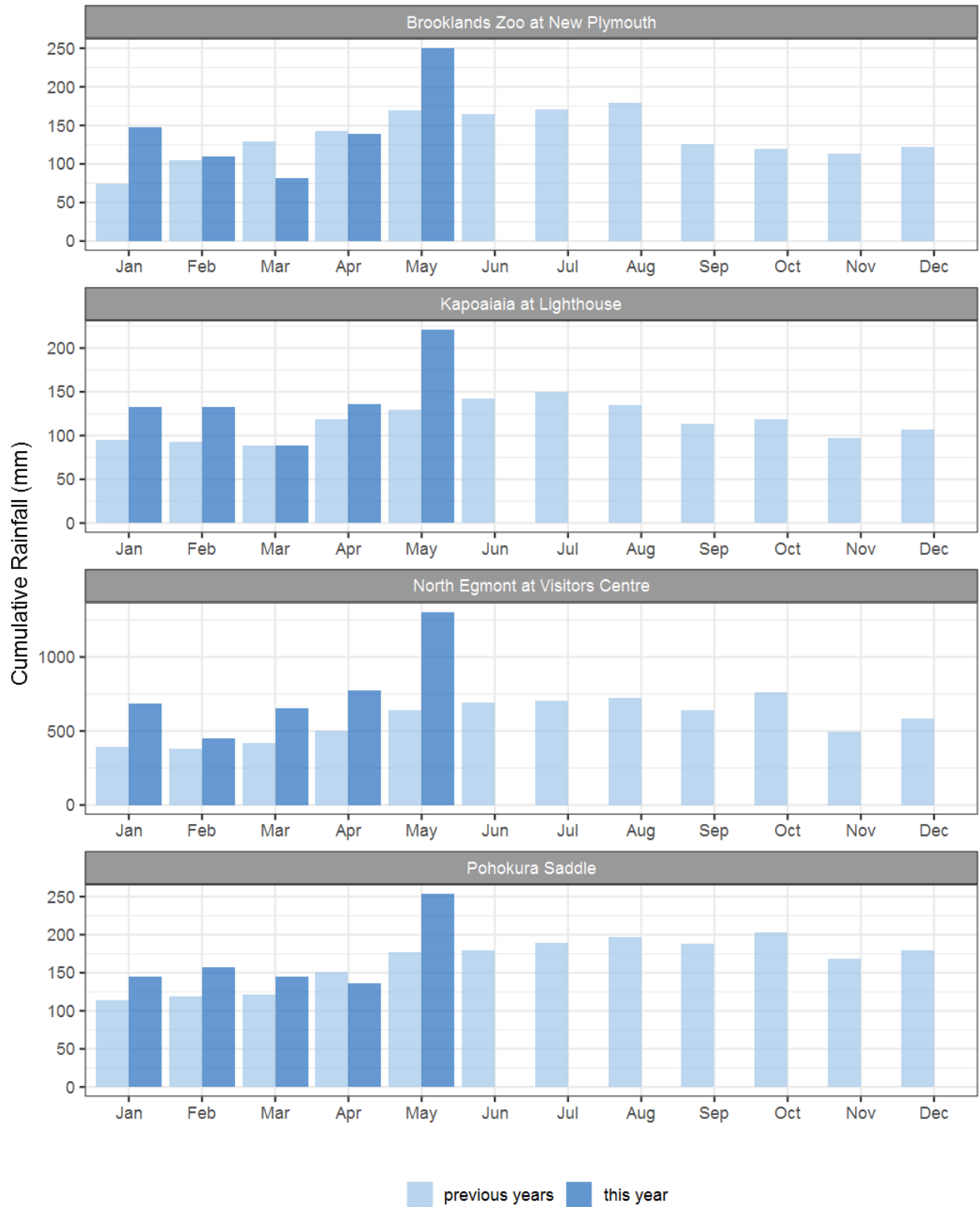


Figure 1.2: Monthly rainfall totals for this month and the mean of all previously recorded months.

2. River Flow

Map 2: May mean river flows (m3/sec), with difference as % of long-term mean

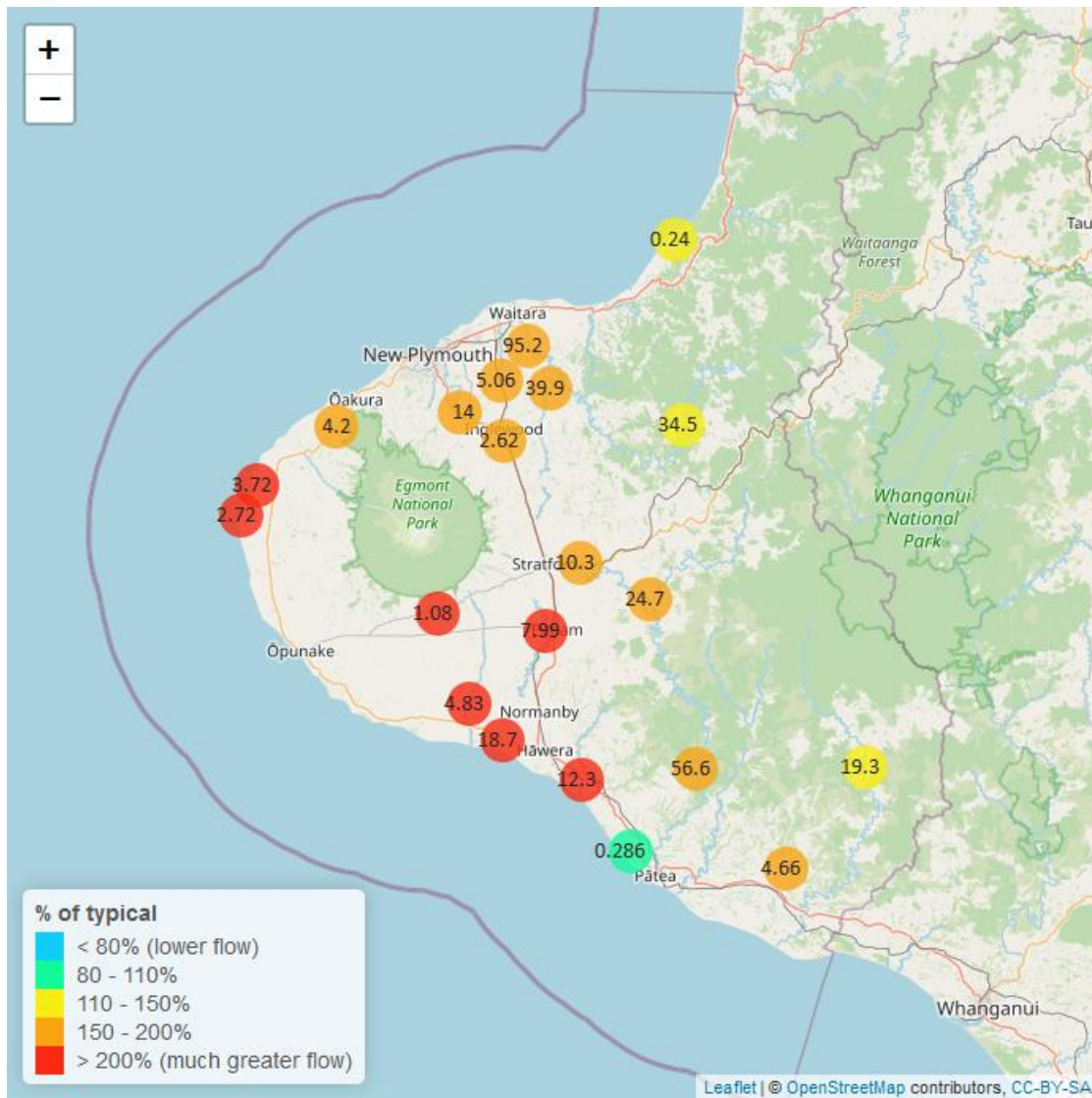


Table 2: Summary of high, low and mean flow for May and for May in all preceding years of record.

May 2023 - Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		May maximum	Data years
	current month	historic	current month	historic	current month	historic		
Kaikura below 7346	0.53	0.54	0.20	0.15	0.29	0.28	1.73	8
Kapoiaia at Lighthouse	12.00	3.77	0.33	0.32	2.72	1.28	37.50	36
Kapuni at Normanby Rd	10.50	4.76	1.43	0.37	4.83	1.91	52.60	24
Mangaehu at Bridge	88.30	45.50	6.28	2.83	24.70	13.70	127.00	45

May 2023 - Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		May maximum	Data years
	current month	historic	current month	historic	current month	historic		
Manganui at Everett Park	134.00	71.40	10.20	4.12	39.90	22.00	383.00	30
Mangaoraka at Corbett Rd	11.50	6.61	1.53	0.37	4.67	2.32	52.00	48
Mangati at SH3	0.61	0.34	0.12	0.02	0.32	0.14	2.40	10
Mangawheroiti Above Intake W.W	3.43	1.05	0.33	0.14	1.08	0.43	6.66	10
Mangorei at Pipebridge	27.80	9.30	1.67	0.50	7.96	3.14	286.00	13
Moumahaki at Johnston Rd	13.20	8.65	0.84	0.44	4.66	2.51	122.00	5
Ngatoro at SH3	11.60	4.08	0.70	0.32	2.62	1.40	35.70	33
Patea at McColls Bridge	119.00	72.80	6.55	2.57	56.60	32.20	210.00	32
Patea at Skinner Rd	28.60	16.80	4.02	1.23	10.30	5.95	76.10	45
Tangahoe below Railway Bridge	30.20	17.20	3.04	1.14	12.30	5.63	171.00	5
Tawhiti at Duffys	3.71	1.60	0.87	0.21	2.13	0.61	8.39	37
Tawhiti below Meat Plant	1.58	1.42	0.63	0.26	1.05	0.63	4.39	12
Timaru at Tataraimaka	17.20	7.97	0.69	0.39	4.20	2.53	72.20	10
Waikaramarama at Bridge	0.83	0.74	0.03	0.01	0.24	0.18	7.90	5
Waingongoro at Eltham Rd	23.80	8.55	3.06	0.54	7.99	2.99	50.00	48
Waingongoro at SH45	43.00	19.00	6.73	1.69	18.70	6.82	97.30	42
Waiongana at SH3a	15.70	8.67	1.43	0.56	5.06	3.03	64.10	43
Waitara at Bertrand Rd	286.00	211.00	26.60	9.29	95.20	62.70	651.00	43
Waitara at Purangi Bridge	136.00	106.00	4.80	1.19	34.50	26.00	171.00	24
Waitotara at Rimunui Station	68.50	55.10	5.38	2.86	19.30	16.40	182.00	18
Waiwhakaiho at Egmont Village	61.10	25.10	2.95	2.20	14.00	8.43	246.00	43
Warea at Coast	13.00	4.55	0.72	0.30	3.72	1.57	30.80	6
Weraweraonga at 749 Mangawhio Rd	7.72	8.10	0.49	0.15	2.52	2.17	71.50	6

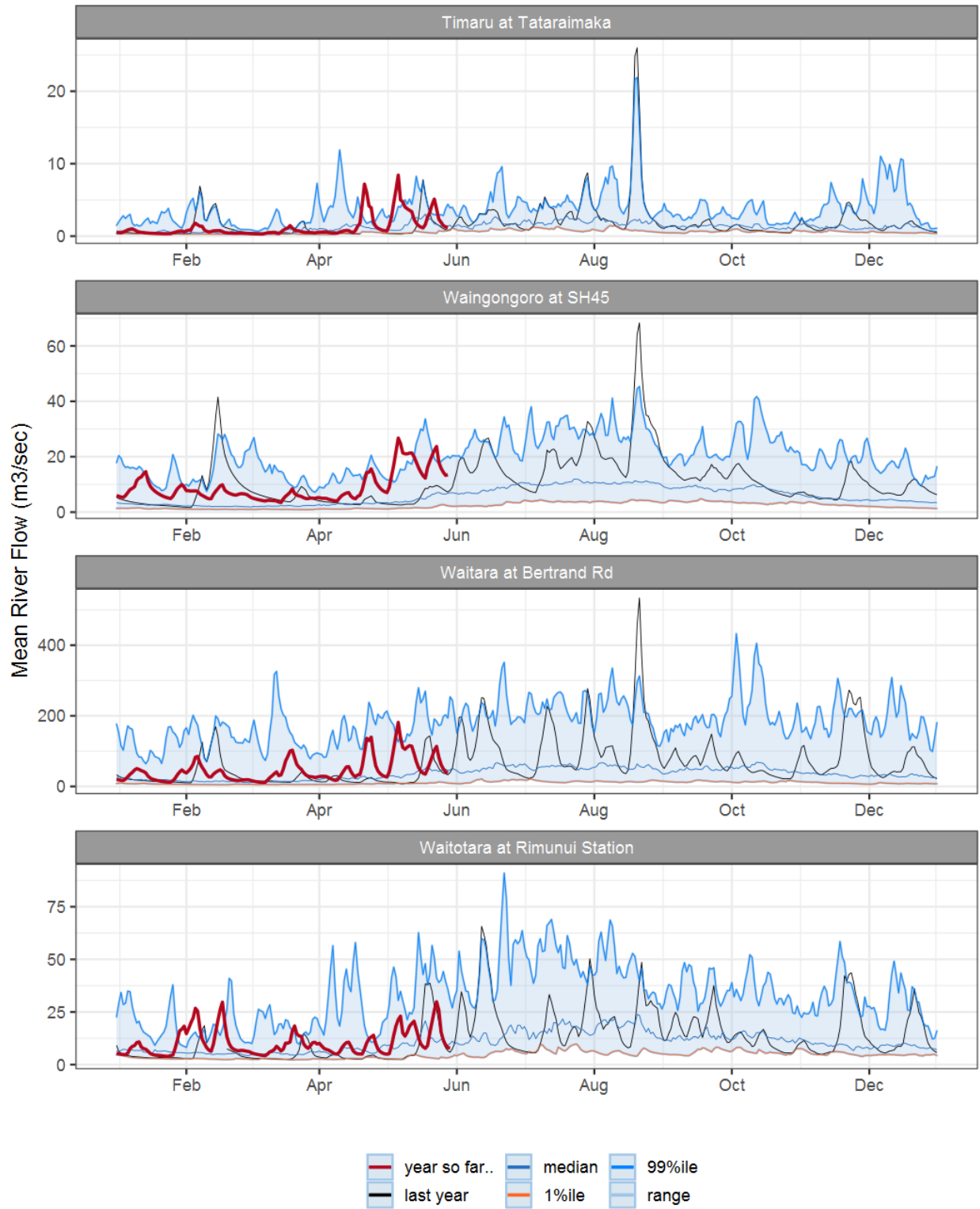


Figure 2.1: Running average river flows for selected sites, set in context of the historic record.

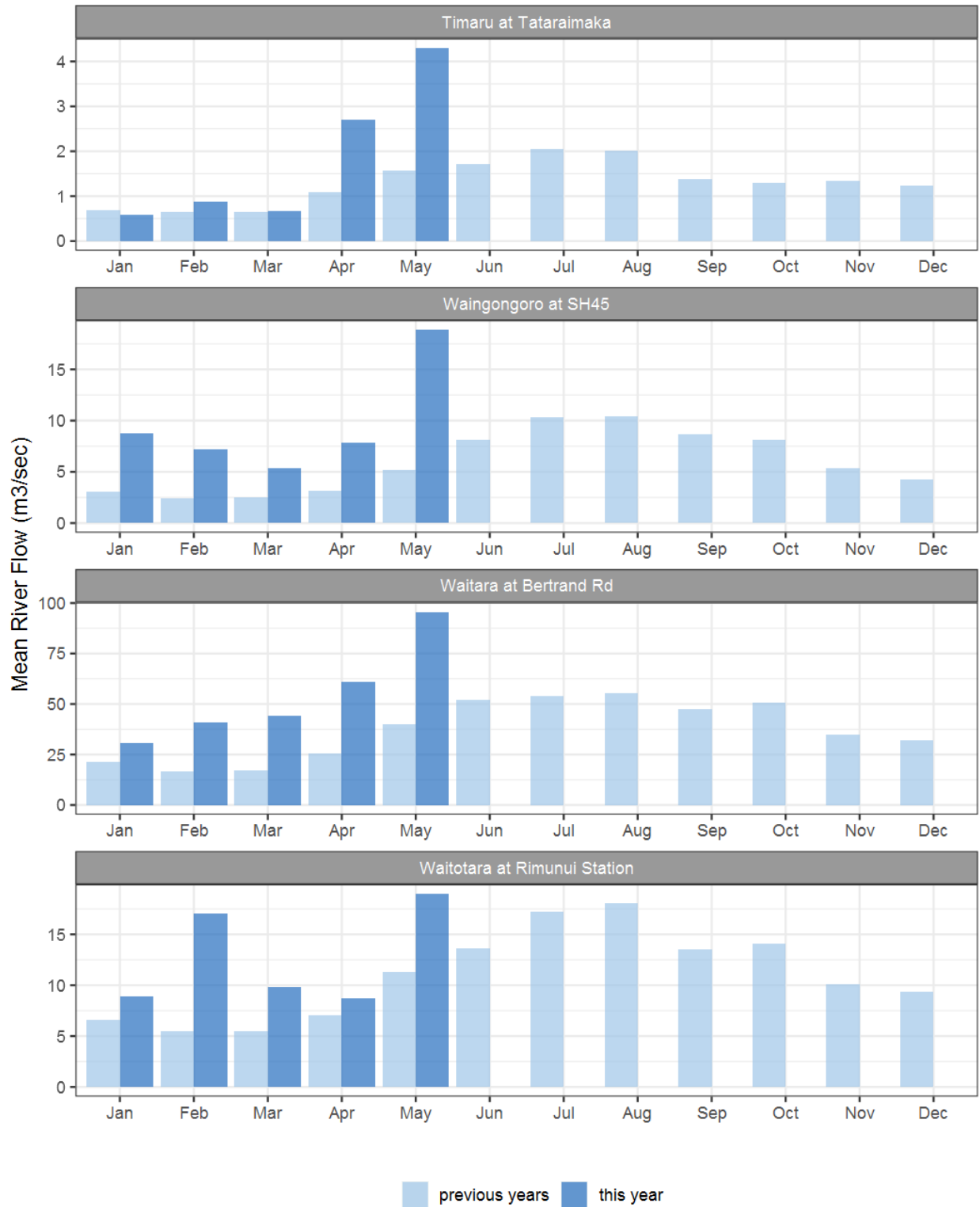


Figure 2.2: Monthly mean river flow for this month and the mean of all previously recorded months.

3. River Temperature

Map 3: May mean water temperature with difference to long-term mean (°C)

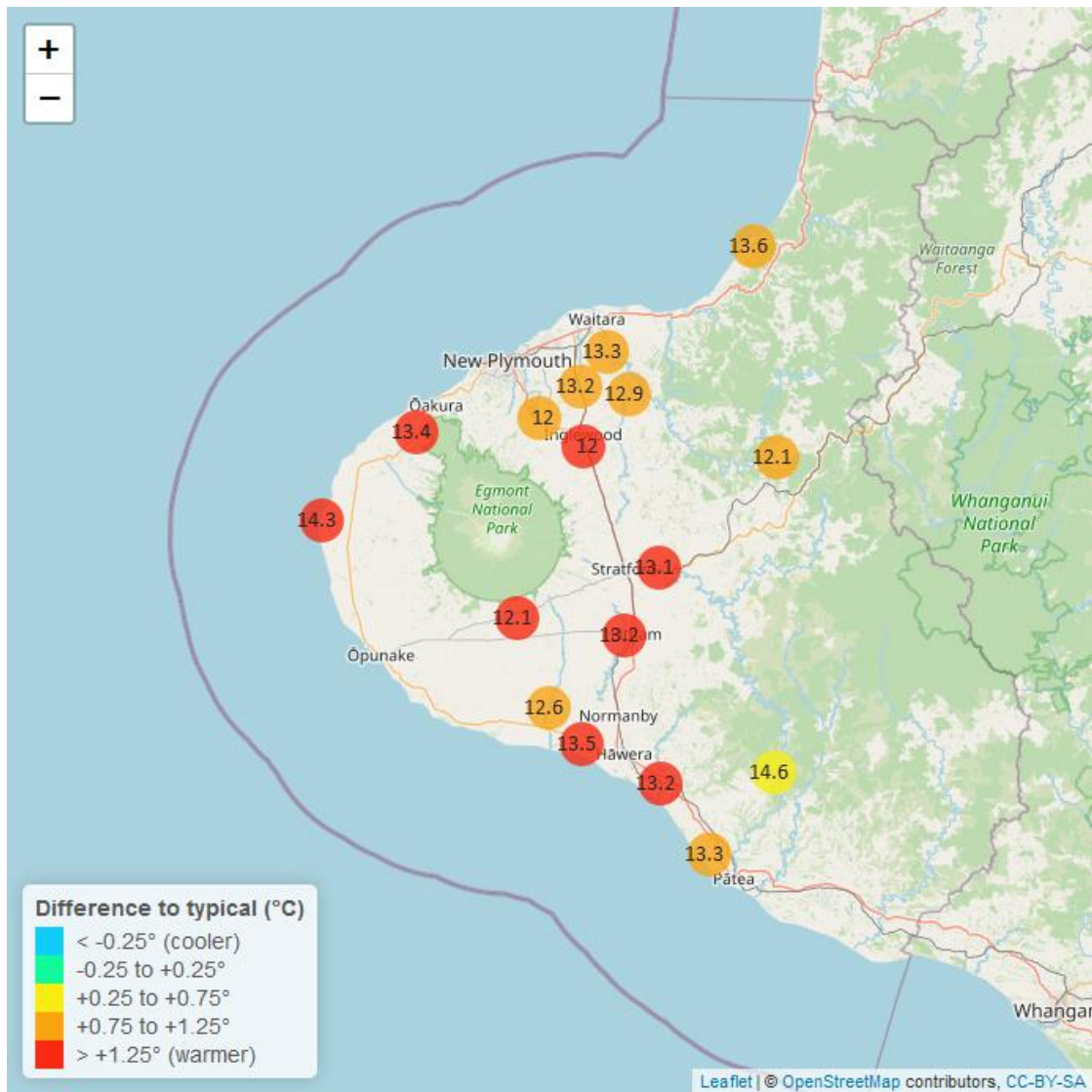


Table 3: Summary of high, low and mean river temperature for the May and for May in all preceding years of record.

May 2023 - River Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		May maximum	data years
	current month	historic	current month	historic	current month	historic		
Kaikura below 7346	15.6	15.0	11.00	9.84	13.3	12.50	16.1	8
Kapoaiaia at Lighthouse	17.5	15.6	12.40	9.18	14.3	12.60	18.6	23
Kapuni at Normanby Rd	15.3	14.6	10.10	8.22	12.6	11.40	16.9	24
Manganui at Everett Park	15.5	14.5	10.20	8.94	12.9	11.80	16.3	13
Mangaoraka at Corbett Rd	16.3	15.4	12.20	10.10	14.2	12.90	17.3	19
Mangati at SH3	17.3	16.8	13.80	12.50	15.6	14.50	18.4	10
Mangawheroiti Above Intake W.W	14.2	11.7	10.40	7.41	12.1	9.68	14.7	10
Mangorei at Pipebridge	15.6	14.3	10.80	9.18	13.2	11.90	16.6	8
Matau at Woolshed	14.4	13.8	9.39	8.01	12.1	11.20	14.9	5
Ngatoro at SH3	14.6	13.5	9.39	7.85	12.0	10.70	15.9	21
Patea at McColls Bridge	16.0	16.5	13.30	12.30	14.6	14.30	16.5	7
Patea at Skinner Rd	15.4	13.8	10.80	8.69	13.1	11.40	16.2	19
Tangahoe below Railway Bridge	15.8	14.5	10.90	8.50	13.2	11.80	16.6	5
Tawhiti at Duffys	16.1	15.2	12.60	8.97	14.2	12.20	16.5	19
Tawhiti below Meat Plant	16.1	15.6	11.20	9.61	13.6	12.60	16.7	23
Timaru at Tataraimaka	15.9	14.4	11.30	9.26	13.4	12.10	16.9	9
Waikaramarama at Bridge	16.0	14.8	11.30	9.49	13.6	12.40	16.3	5
Waingongoro at Eltham Rd	15.3	13.5	11.30	8.41	13.2	11.20	16.1	18
Waingongoro at SH45	16.2	14.8	11.40	8.94	13.5	12.00	16.9	18
Waiongana at SH3a	15.6	14.9	10.90	9.29	13.2	12.30	16.6	12
Waitara at Bertrand Rd	15.7	14.6	11.00	9.60	13.3	12.10	16.5	36
Waiwhakaiho at Egmont Village	14.5	13.4	9.46	8.06	12.0	10.80	15.3	31

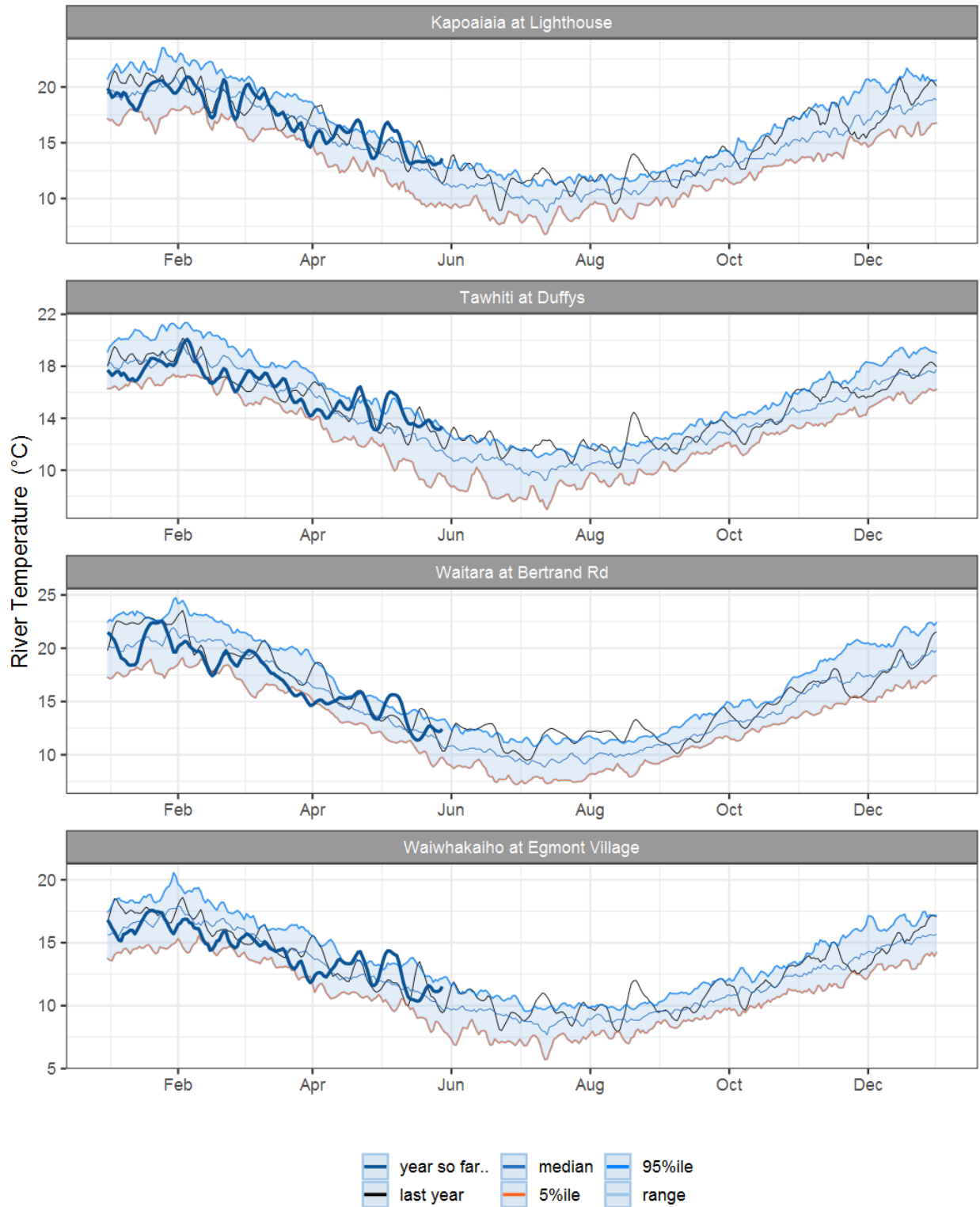


Figure 3.1: Running average river temperature for selected sites, set in context of the historic record.

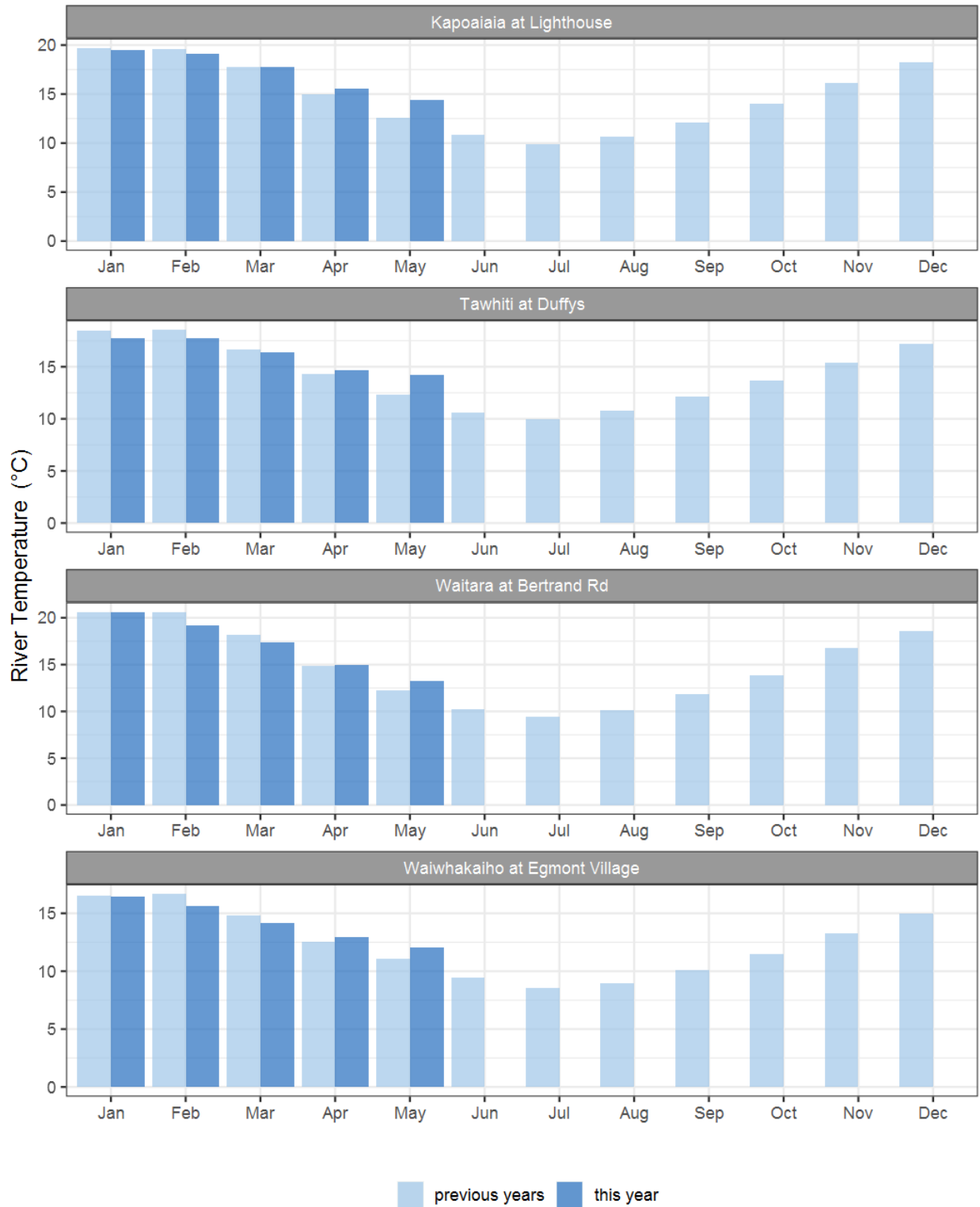


Figure 3.2: Monthly mean river temperature for this month and the mean of all previously recorded months.

4. Air Temperature

Map 4: May mean air temperature with difference to long-term mean (°C)

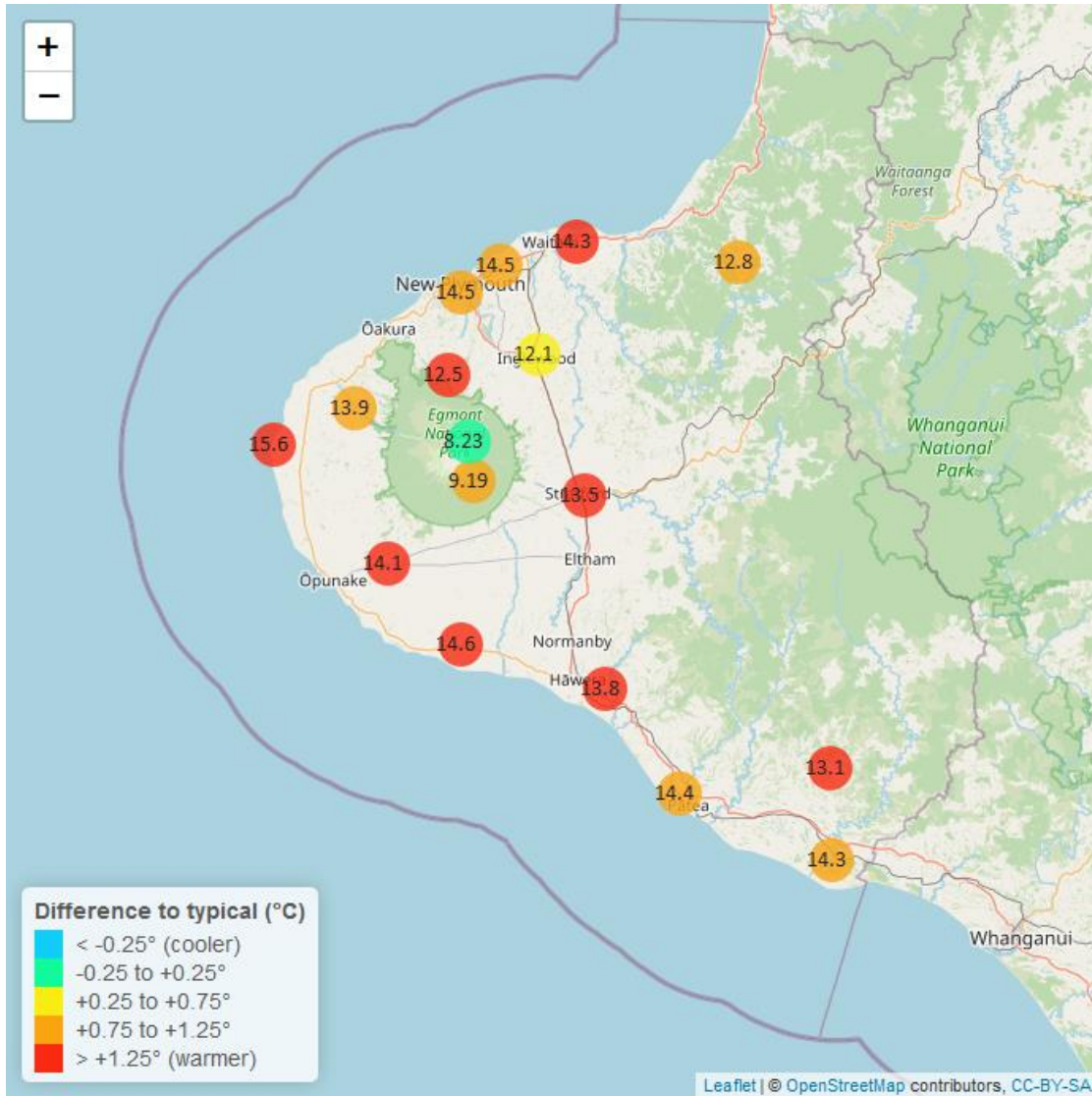


Table 4: Summary of high, low and mean air temperature for May and for May in all preceding years of record.

May 2023 - Air Temperature (°C)								
Monitoring Site	Highs		Lows		Mean		May maximum	data years
	current month	historic	current month	historic	current month	historic		
Brooklands Zoo at New Plymouth	19.2	18.7	7.61	6.99	14.50	13.30	21.4	11
Dawson Falls	13.5	13.4	3.52	2.88	9.19	8.13	14.9	7
Inglewood at Oxidation Ponds	17.2	17.3	4.42	4.61	12.10	11.50	19.7	11

May 2023 - Air Temperature (°C)								
Monitoring Site	Highs		Lows		Mean		May maximum	data years
	current month	historic	current month	historic	current month	historic		
Kapoaiaia at Lighthouse	19.5	18.1	9.71	8.02	15.60	14.10	22.7	11
Kaupokonui at Glenn Rd	19.3	18.5	7.58	6.06	14.60	13.20	21.5	8
Mangati at SH3	19.0	18.8	7.01	6.62	14.50	13.40	21.7	10
Mangorei Upper at Forest Hill	16.5	15.4	6.76	5.72	12.50	11.10	18.3	6
Motunui M39 at Weston W3	18.8	17.7	7.43	6.43	14.30	12.80	21.2	6
North Egmont at Visitors Centre	12.5	13.0	2.23	2.62	8.23	8.00	13.7	8
Patea at Bore 3	19.4	18.4	7.60	6.78	14.40	13.20	21.6	10
Patea at Stratford	18.2	17.0	6.67	5.08	13.50	11.50	20.3	11
Stony at Mangatete Bridge	18.2	17.8	8.65	7.54	13.90	13.10	21.9	7
Taungatara at Eltham Rd	19.0	17.4	7.59	6.48	14.10	12.70	21.3	8
Tawhiti at Duffys	19.1	18.1	4.56	2.87	13.80	12.10	21.2	10
Uruti at Kaka Rd	17.5	16.2	6.66	5.73	12.80	11.60	19.2	5
Waitotara at Hawken Rd	19.7	18.5	7.82	6.30	14.30	13.10	22.4	7
Waitotara at Ngutuwera	18.9	17.8	6.97	6.54	13.90	12.50	21.3	5
Waiwhakaiho at Hillsborough	18.7	17.8	7.89	7.57	14.30	13.20	20.9	11
Weraweraonga at 749 Mangawhio Rd	19.6	18.3	5.38	3.71	13.10	11.60	22.6	6

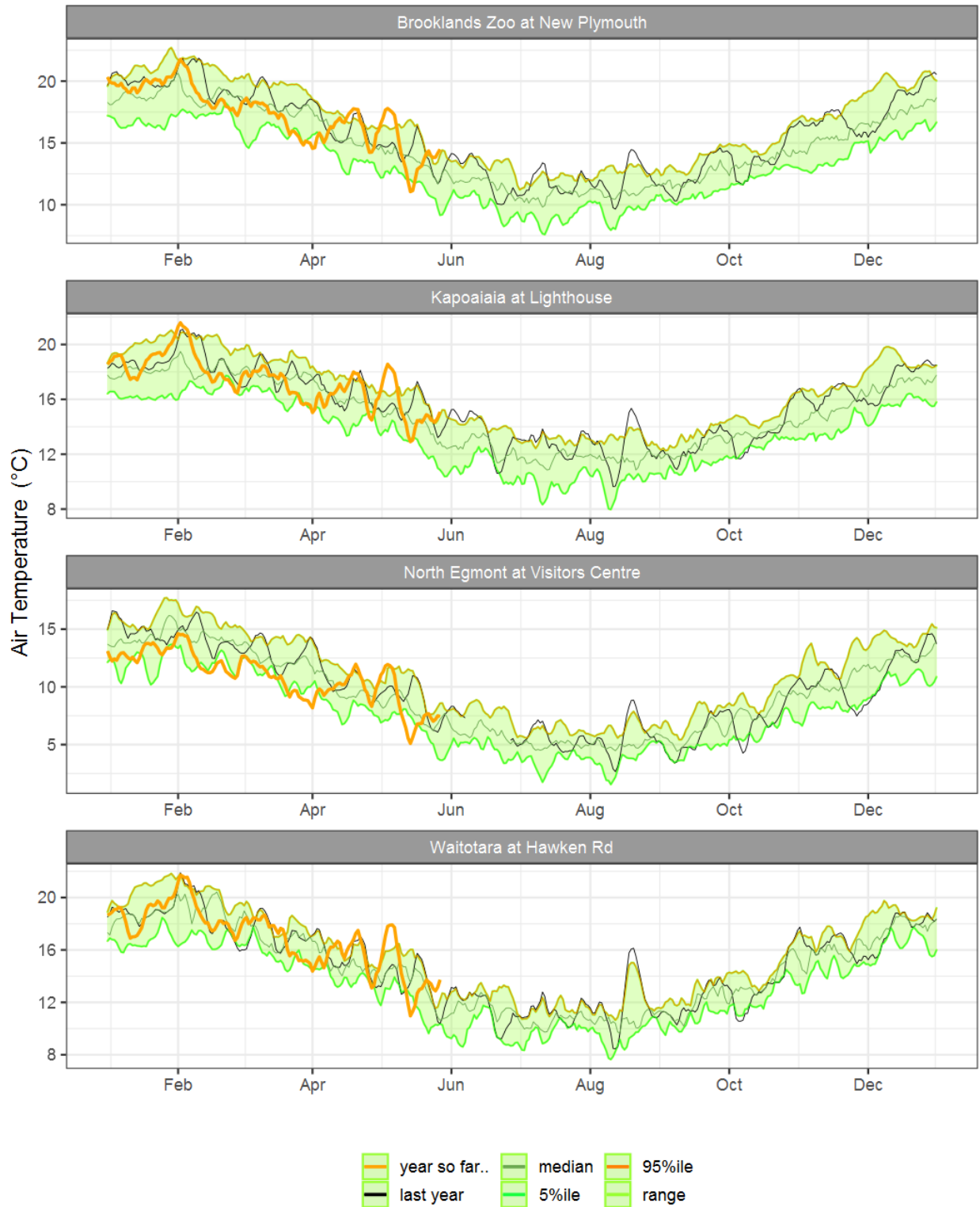


Figure 4.1: Running average air temperature for selected sites, set in context of the historic record.

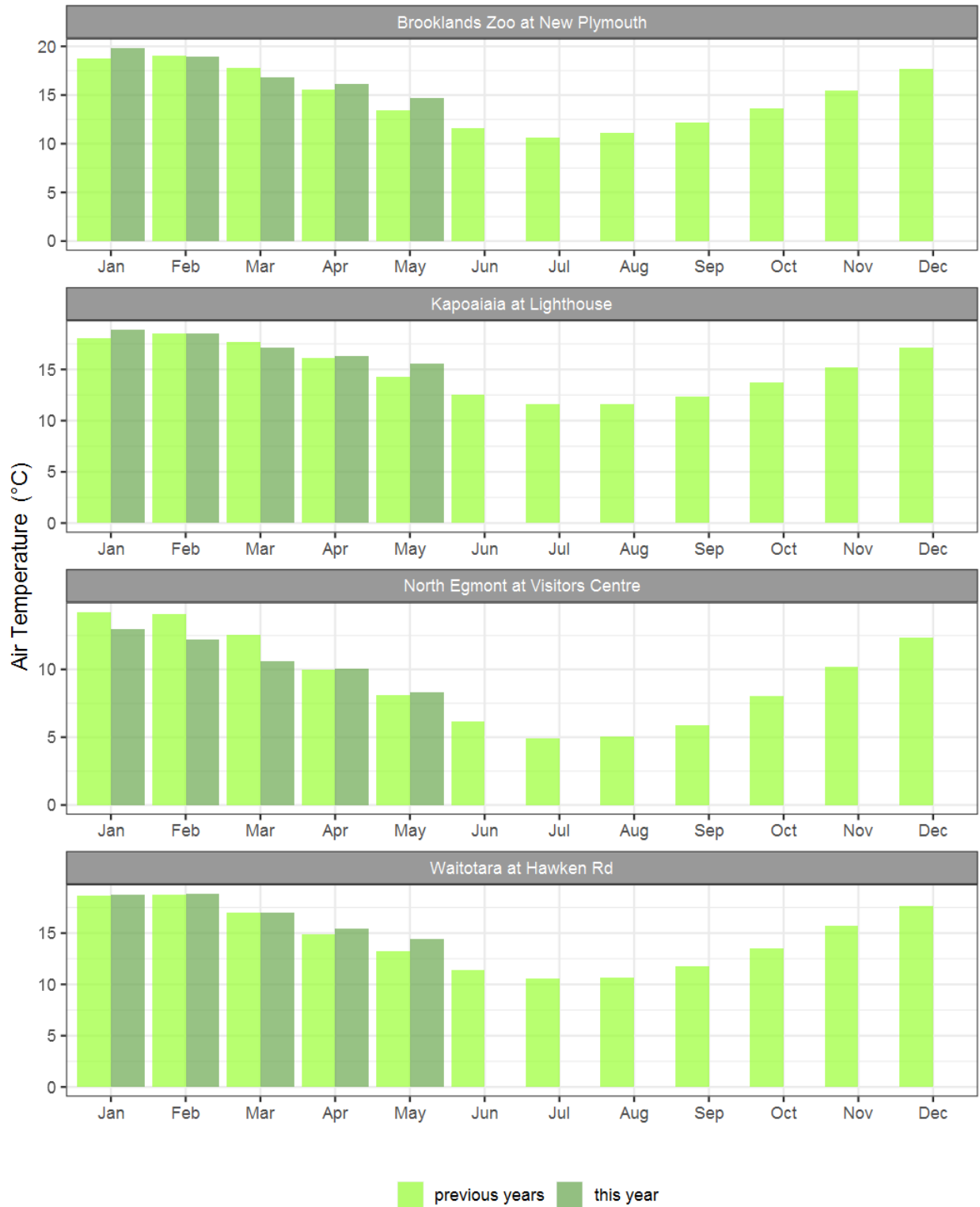


Figure 4.2: Monthly mean air temperature for this month and the mean of all previously recorded months.

5. Soil Moisture

Map 5: May mean soil moisture content (%)

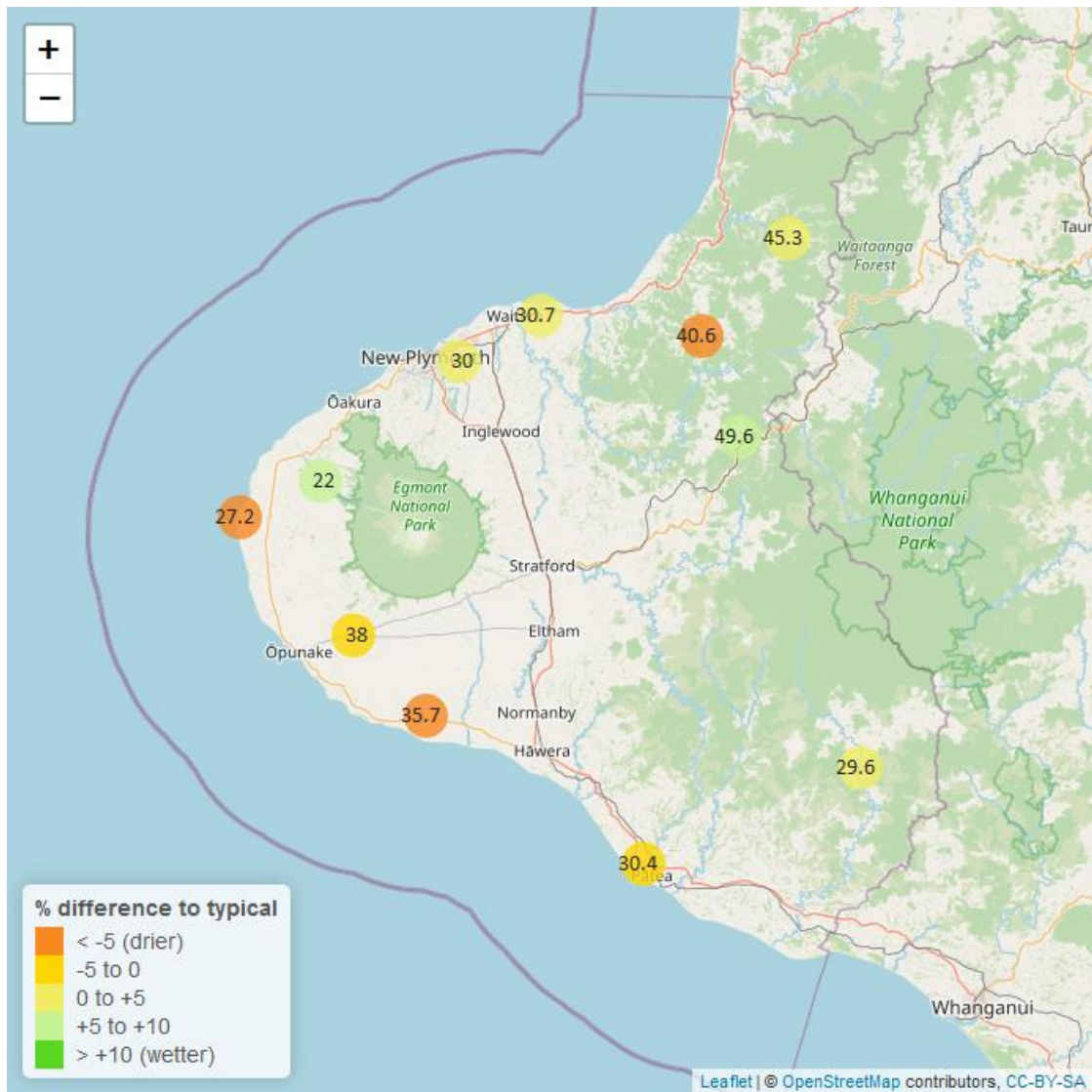


Table 5: Summary of high, low and mean soil moisture for this May and for May in all preceding years of record.

May 2023 - Soil Moisture (%)								
Monitoring Site	Highs		Lows		Mean		May maximum	Data years
	current month	historic	current month	historic	current month	historic		
Kapoaiaia at Lighthouse	28.9	31.8	26.1	19.50	27.2	25.5	31.7	11
Kaupokonui at Glenn Rd	37.8	42.0	32.3	18.90	35.7	32.3	39.8	12
Kotare at OSullivans	50.2	48.7	40.6	31.80	45.3	39.5	57.6	11
Motunui M39 at Weston W3	32.7	31.6	29.6	17.30	30.7	27.8	34.5	10
Patea at Bore 3	32.5	33.3	28.0	24.20	30.4	28.2	36.9	6
Pohokura Saddle	55.4	50.6	45.9	30.40	49.6	42.1	57.8	9
Stony at Mangatete Bridge	26.6	23.3	18.2	9.35	22.0	16.3	31.8	7
Taungatara at Eltham Rd	41.5	43.6	35.5	25.90	38.0	36.6	44.1	9
Uruti at Kaka Rd	41.8	44.7	39.5	35.10	40.6	40.3	42.0	12
Waitotara at Rimunui Station	31.7	31.2	28.4	24.10	29.6	27.5	33.1	6
Waiwhakaiho at Hillsborough	31.8	31.5	26.2	22.60	30.0	26.8	33.1	11

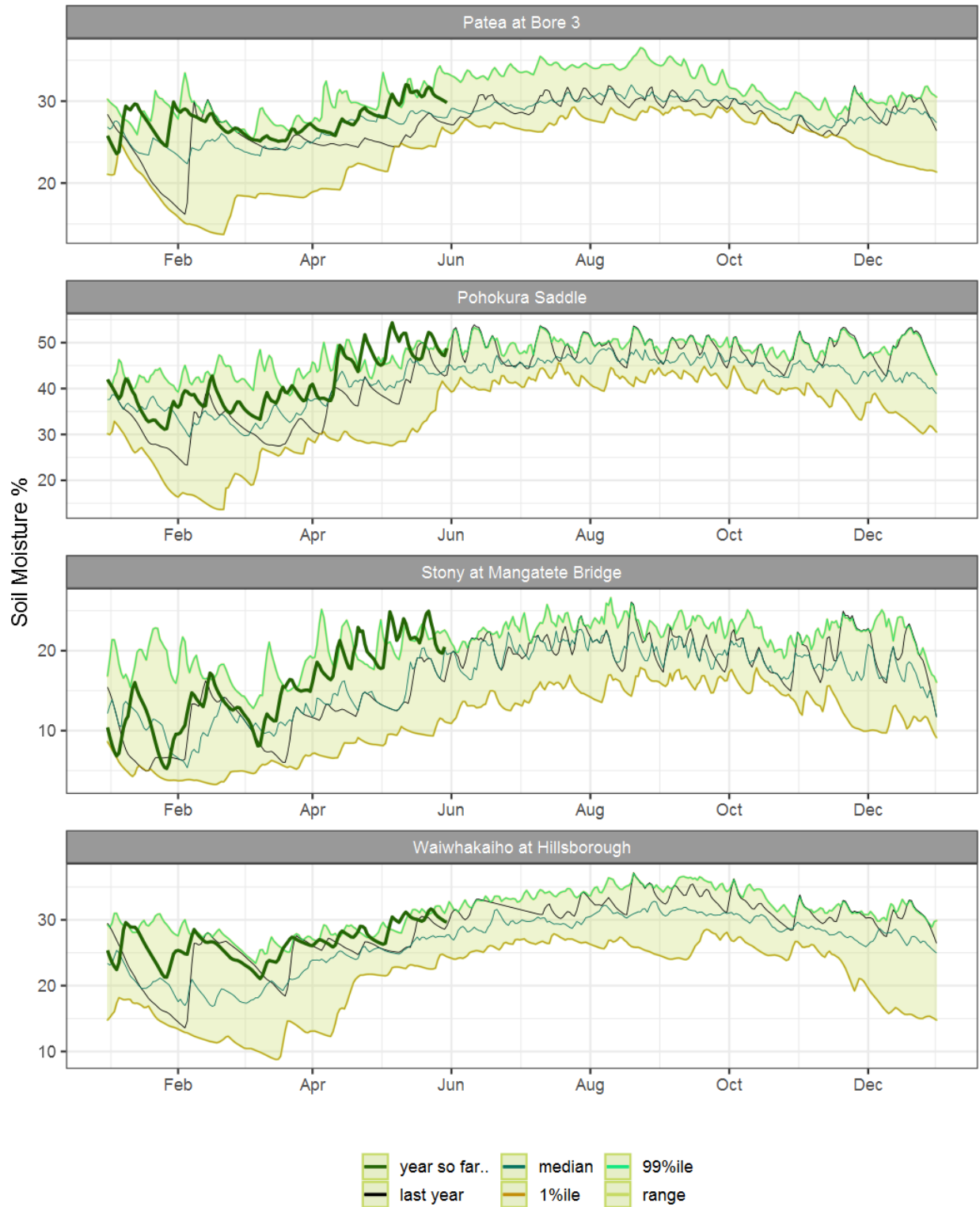


Figure 5.1: Running average soil moisture for selected sites, set in context of the historic record.



Figure 5.2: Monthly mean soil moisture for this month and the mean of all previously recorded months.

6: Soil Temperature

Map 6: May mean soil temperatures with difference to long-term mean (°C)

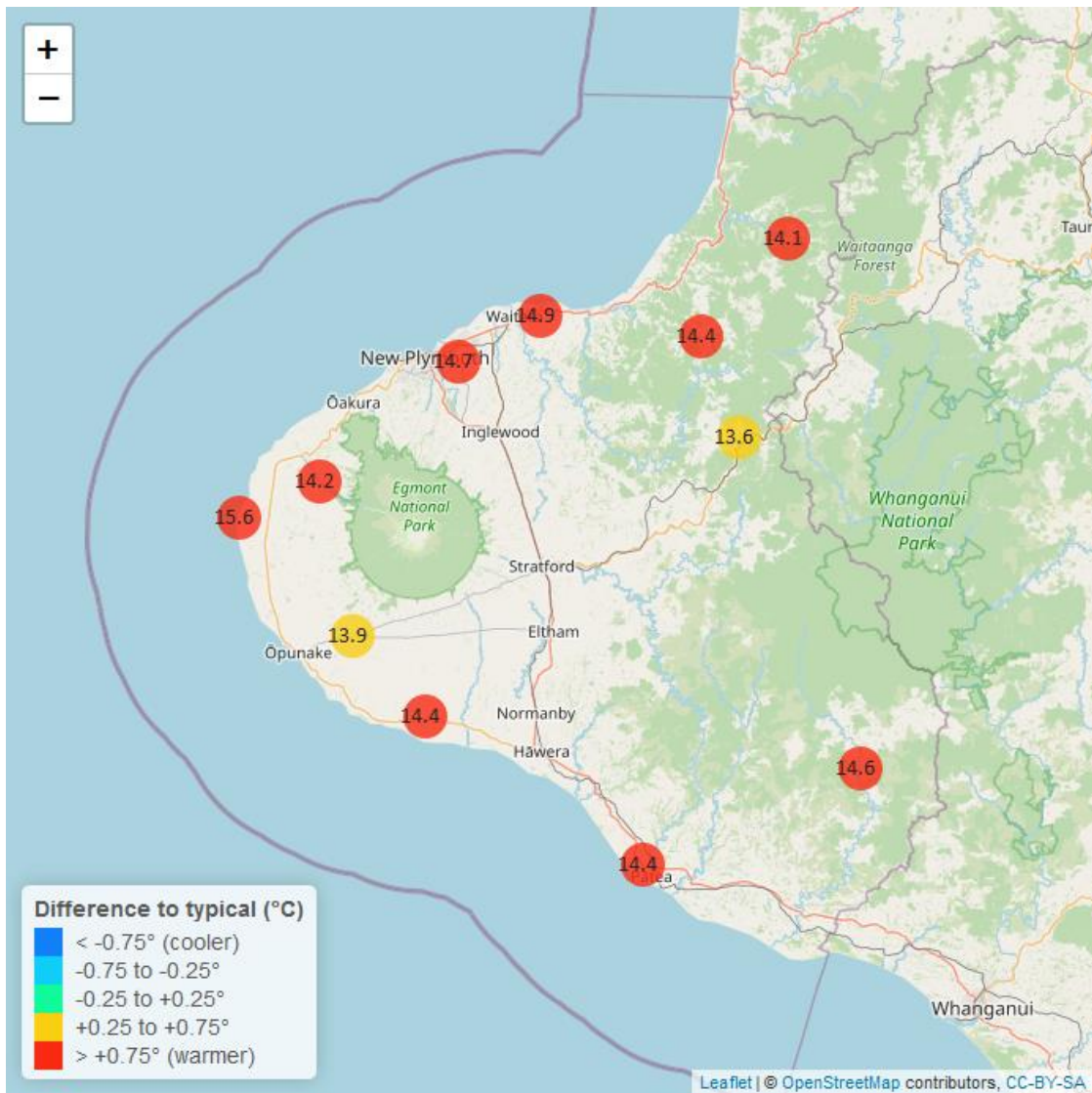


Table 6: Summary of high, low and mean soil temperature for this May and for May in all preceding years of record.

May 2023 - Soil Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		May maximum	data years
	current month	historic	current month	historic	current month	historic		
Kapoaiaia at Lighthouse	18.4	17.1	12.8	11.60	15.6	14.4	18.9	11
Kaupokonui at Glenn Rd	16.8	16.0	12.8	11.20	14.4	13.6	16.9	12
Kotare at OSullivans	17.0	15.5	12.0	9.24	14.1	12.5	17.0	11
Motunui M39 at Weston W3	17.6	16.0	12.8	10.60	14.9	13.5	17.7	10
Patea at Bore 3	17.0	15.7	12.6	10.60	14.4	13.4	17.1	6
Pohokura Saddle	16.0	15.3	12.0	10.20	13.6	12.9	16.1	9
Stony at Mangatete Bridge	17.2	16.0	12.0	9.70	14.2	13.2	17.6	6
Taungatara at Eltham Rd	16.7	15.8	11.3	10.50	13.9	13.3	17.2	9
Uruti at Kaka Rd	16.4	15.7	13.0	10.20	14.4	13.3	16.4	12
Waitotara at Rimunui Station	17.7	15.8	11.9	10.40	14.6	13.5	17.9	6
Waiwhakaiho at Hillsborough	17.2	16.3	12.9	11.10	14.7	13.8	17.3	11

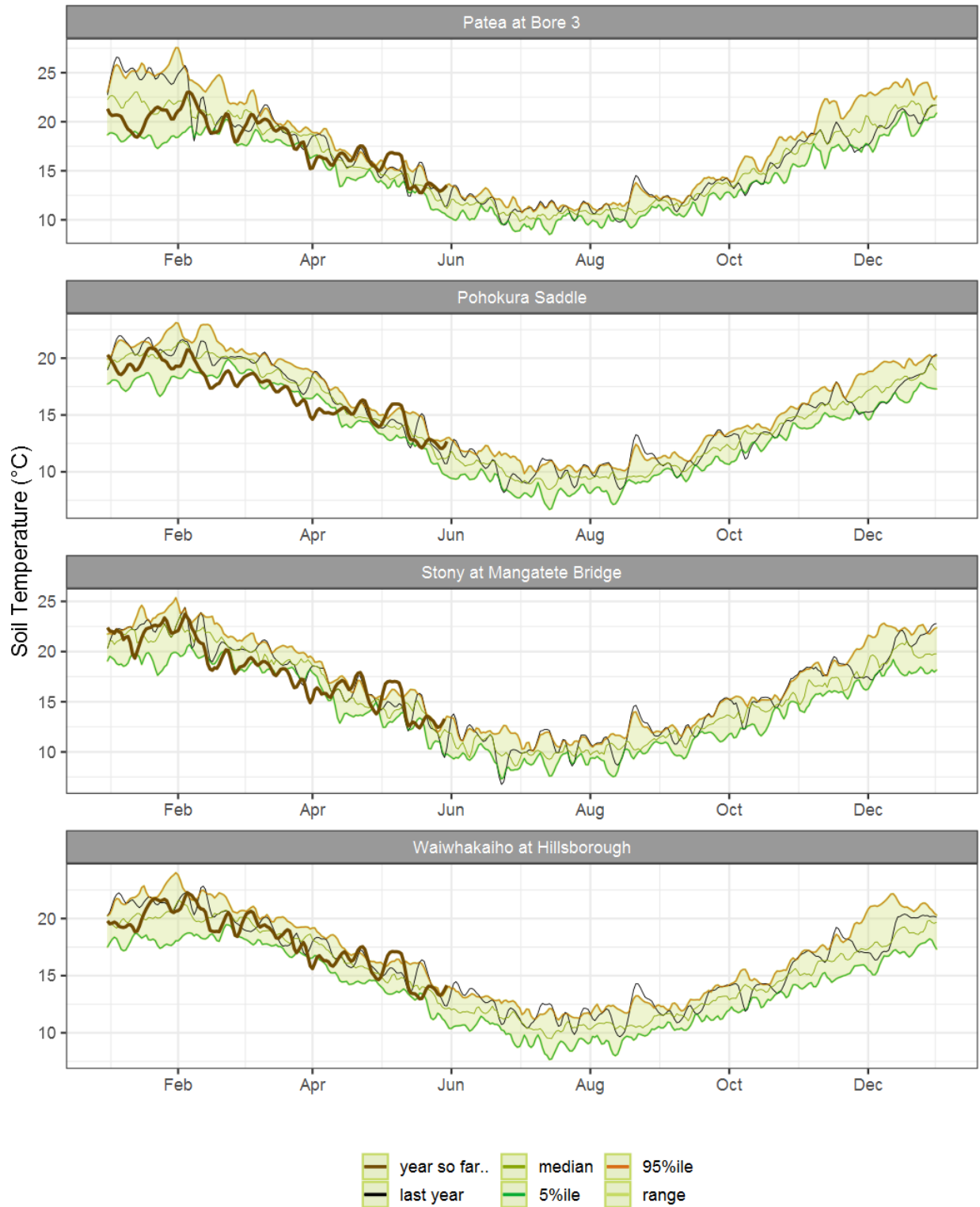


Figure 6.1: Running average soil temperature for selected sites, set in context of the historic record.



Figure 6.2: Monthly mean soil temperature for this month and the mean of all previously recorded months.

7: Wind Speed (maximum gust)

Map 7: May mean of wind speed (maximum gust in each 10 minutes) with difference to long-term values (km/hr)

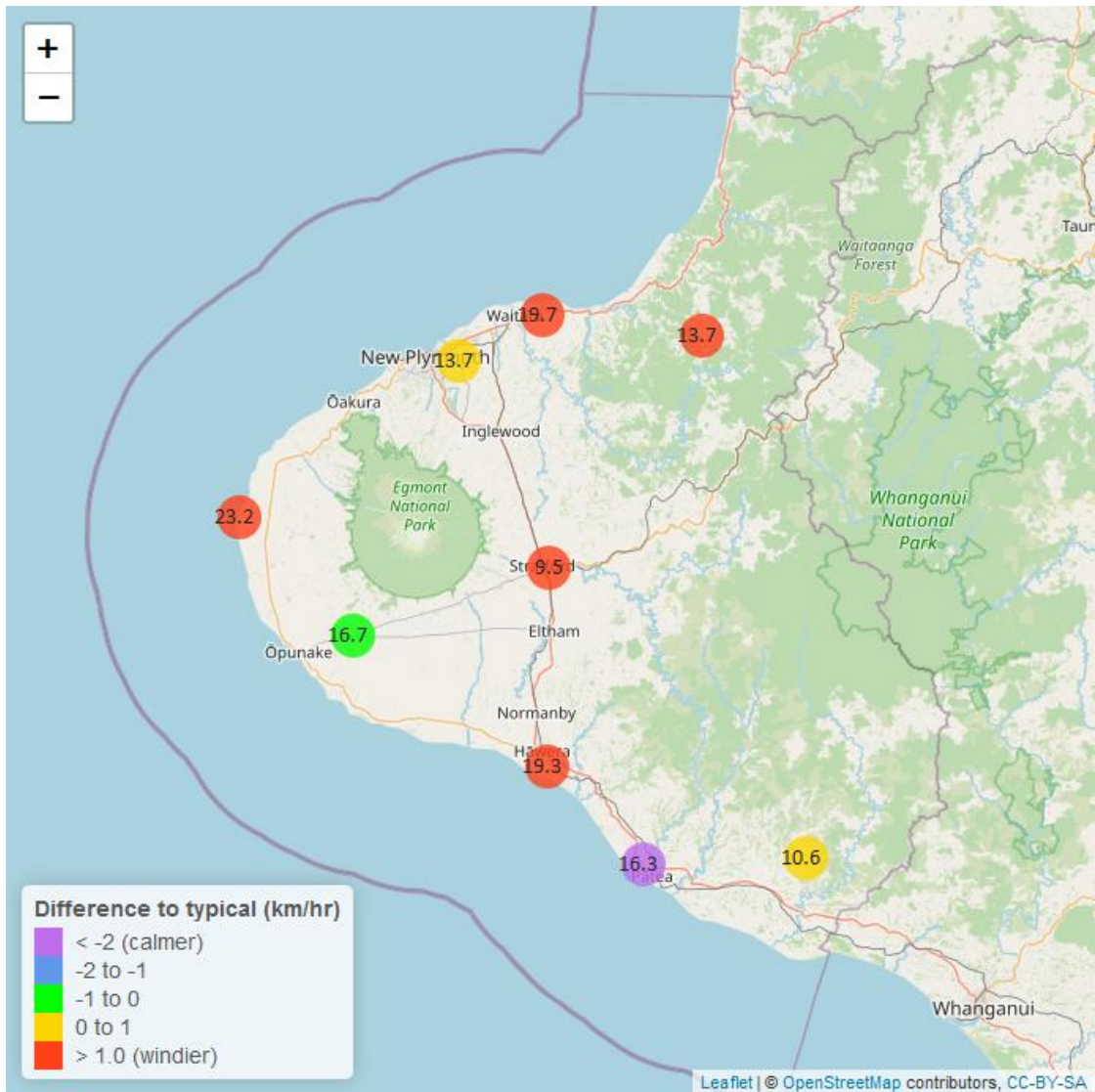


Table 7: Summary of high, low and mean wind speed for this May and for May in all preceding years of record.

May 2023 - Wind Speed (average) - (km/hr)								
Monitoring Site	Highs		Lows		Mean		May maximum	Data years
	current month	historic	current month	historic	current month	historic		
Hawera AWS	34.3	36.1	8.33	5.56	19.3	17.70	55.6	18
Kapoaiaia at Lighthouse	41.4	41.5	7.59	6.12	23.2	21.00	53.8	22
New Plymouth AWS	41.7	39.8	6.48	5.56	19.7	18.70	52.8	15
Patea at Bore 3	35.3	41.1	5.94	6.64	16.3	19.30	56.3	7
Patea at Stratford	19.0	17.7	3.15	2.24	9.5	7.73	26.2	17
Taungatara at Eltham Rd	31.5	32.5	6.31	6.64	16.7	17.00	54.2	7
Uruti at Kaka Rd	28.7	22.9	3.43	3.25	13.7	10.80	43.4	24
Waitotara at Ngutuwera	21.3	21.9	3.59	1.93	10.6	10.20	28.9	25
Waiwhakaiho at Hillsborough	28.0	28.8	4.72	3.78	13.7	13.40	61.9	6

Table 8: Summary of high, low and maximum wind gusts for this May and for May in all preceding years of record.

May 2023 - Wind Speed (Max. Gust) - (km/hr)								
Monitoring Site	Highs		Lows		Mean		May maximum	Data years
	current month	historic	current month	historic	current month	historic		
Hawera AWS	85.2	74.1	22.2	18.5	49.3	44.3	88.9	18
Kapoaiaia at Lighthouse	72.6	81.5	25.1	20.2	47.3	49.9	88.6	22
New Plymouth AWS	79.6	83.3	29.6	18.5	48.1	47.5	100.0	15
Patea at Bore 3	78.8	82.0	18.9	19.2	44.9	46.9	81.8	7
Patea at Stratford	63.7	63.7	13.0	15.8	36.9	35.5	73.1	17
Taungatara at Eltham Rd	90.9	77.8	19.3	20.4	50.7	46.7	91.5	7
Uruti at Kaka Rd	77.8	72.7	18.0	17.9	46.2	39.1	118.0	23
Waitotara at Ngutuwera	87.5	68.6	23.4	16.4	44.6	38.9	90.4	24
Waiwhakaiho at Hillsborough	64.8	71.4	24.7	18.0	43.3	41.8	105.0	5

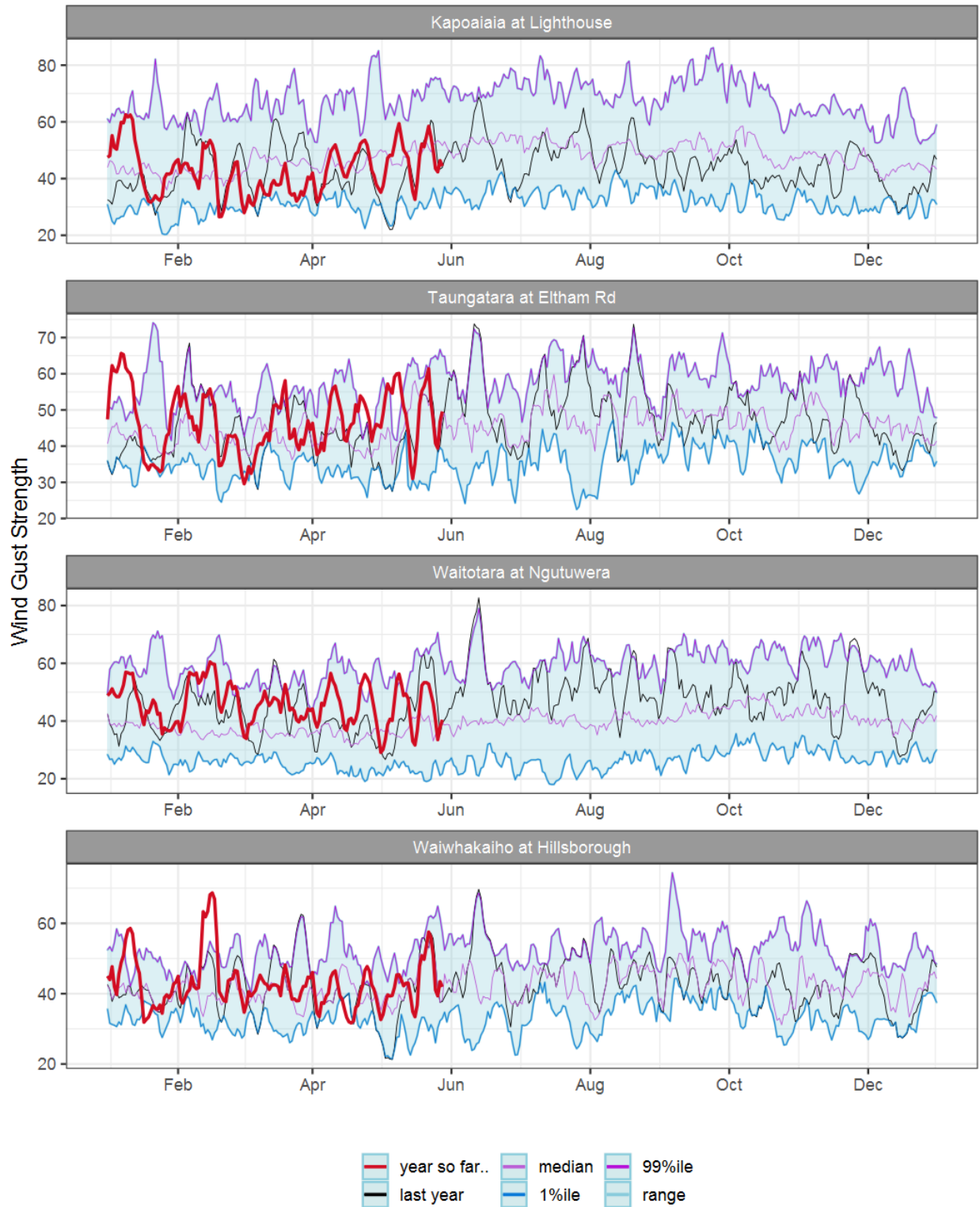


Figure 7.1: Running average wind gust strength for selected sites, set in context of the historic record.

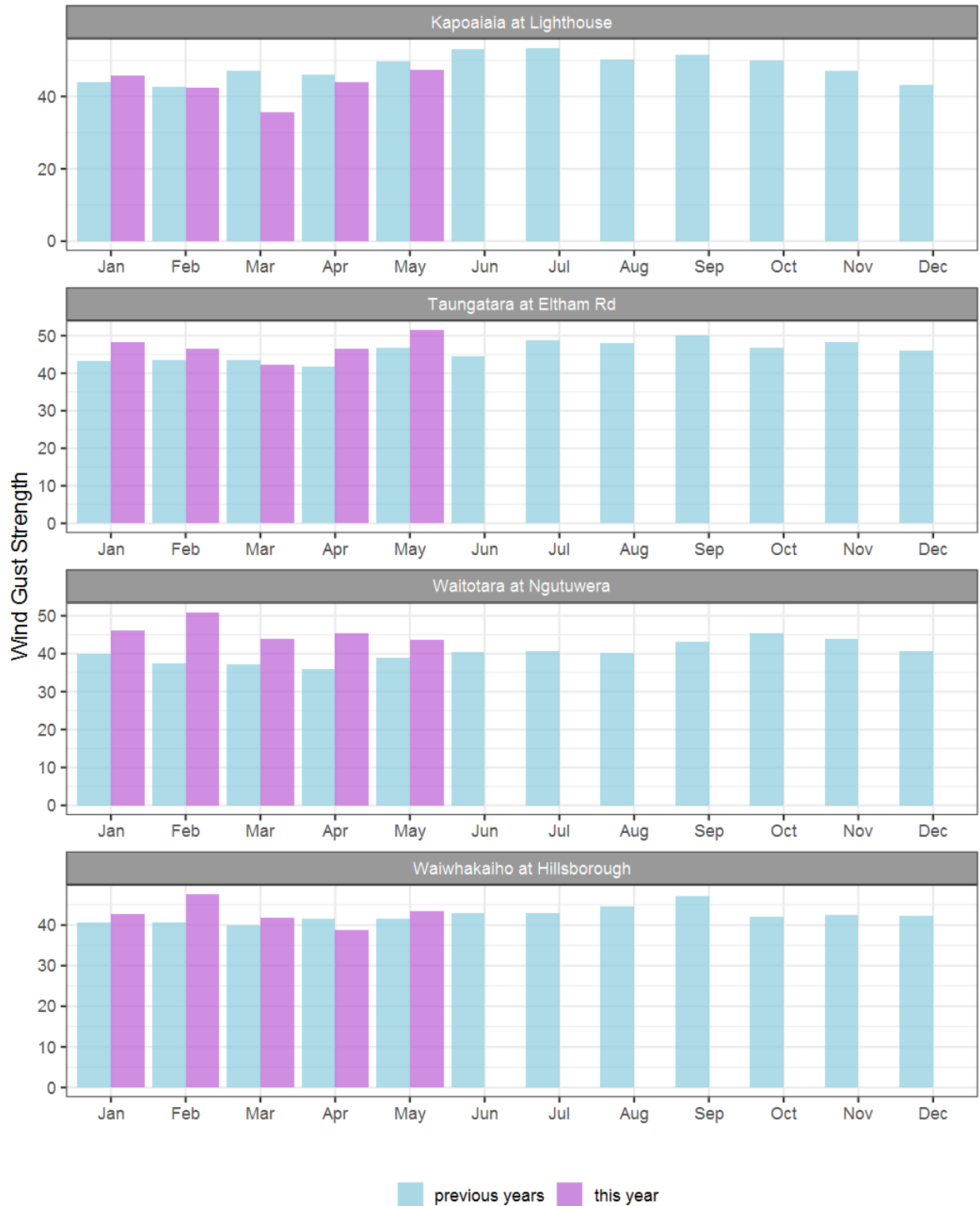


Figure 7.2: Monthly mean wind gust strength for this month and the mean of all previously recorded months.

Summary of month's conditions

Rainfall

On average rainfall for May was 257.2 mm, 48% more typical May rainfall, and ranging from 11% more rainfall at Omahine at Moana Trig, and 86% more rainfall at Tawhiti at Duffys than a typical May.

Year to date rainfall ranges from 11% more rainfall at Waitotara at Hawken Rd, and 78% more rainfall at Whanganui at Mataimona Trig, with an average of 36% more than normal. Compared to typical full year totals, on average sites have already received 48% of a typical years rainfall, with the highest value at Hawera AWS, 57% of normal, whereas Uruti at Kaka Rd sits at 40% of the typical years total.

River Flow

Mean river flows for May were 94.6% greater than typical values, low flows were 191.4% greater, and high flows 96.6% greater than typical values. The maximum river flow recorded in May was 651 m³/sec at Waitara at Bertrand Rd.

River Water Temperature

Mean river (non-mountain) water temperatures were 13.3 °C, an average of 1.3 °C warmer than long-term May values. Nighttime-low water temperatures were on average 1.9 °C warmer than historic lows, and day-time high temperatures were on average 1.1 °C warmer than historic highs. The maximum river water temperature recorded in May was 18.6 °C at Kapoiaia at Lighthouse.

Air Temperature

The average air temperature for the region (excluding Te Maunga sites) was 13.3 °C, which is 1.2 °C warmer than long-term May averages. Low air temperatures for May were on average 0.9 °C warmer than the May average for previous years. Day-time high temperatures were on average 0.8 °C warmer than historic highs. The maximum air temperature recorded in May was 22.7 °C at Kapoiaia at Lighthouse.

Soil Moisture

The average soil moisture for May across sites in Taranaki Region was 34.5%. Soil moistures were on average 3.3% wetter than typical May values. On average, low soil moistures were 8.3% wetter than previous lows, and the highs were on average 0.1% drier than previous values for May.

Soil Temperature

May soil temperatures were generally 1 °C warmer than long-term averages. Average nighttime low soil temperatures were 1.9 °C warmer than recorded lows, and upper day-time soil temperatures were on average 1.2 °C warmer than long-term May highs. The maximum soil temperature recorded in May was 18.9 °C at Kapoiaia at Lighthouse.

Wind Speed (average and 10 minute gust)

This gives an indication of windier months and locations. May average wind speeds were 16.6 km/hr, with average gust strength of 46.8 km/hr, these were 0.6 km/hr stronger, and 2.4 km/hr gustier than the long-term average. Average calm weather wind speeds were 0.9 km/hr stronger than recorded lows, and windy conditions were on average 0.3 km/hr lighter than long-term May highs. The maximum wind gust recorded in May was 118 km/hr at Uruti at Kaka Rd.

Notes: Low and high values refer to the upper and lower 5th percentiles of the historic record for each site (wind, river flow and soil moisture are upper and lower 1st percentiles). These percentile values give a better indication of the general upper and lower range of the historic data against which to compare the current month. For example, minimum air temperature, because it is the lowest recorded value, accentuates the difference of the current month's colder conditions relative to the historical data. The start year (records began) for each site and variable in the respective tables shows the length of data used to compute historic highs, lows, and "typical values". Sites with a longer data record will generally provide a more reliable comparison to values in the current year.

Report date 12 June, 2023.