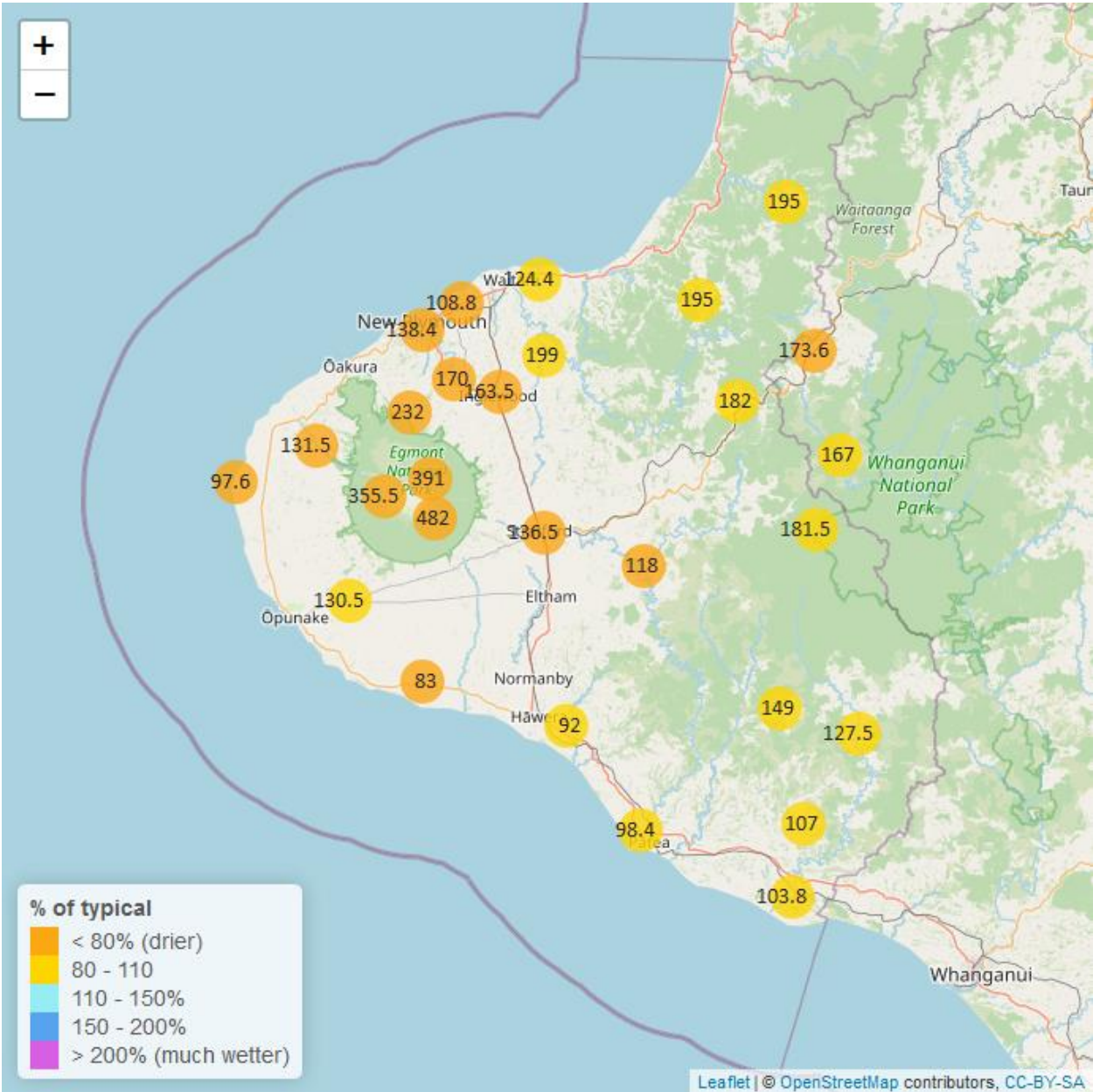


Taranaki Regional Council Monthly Rainfall and Environmental Data Report for August 2023

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



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

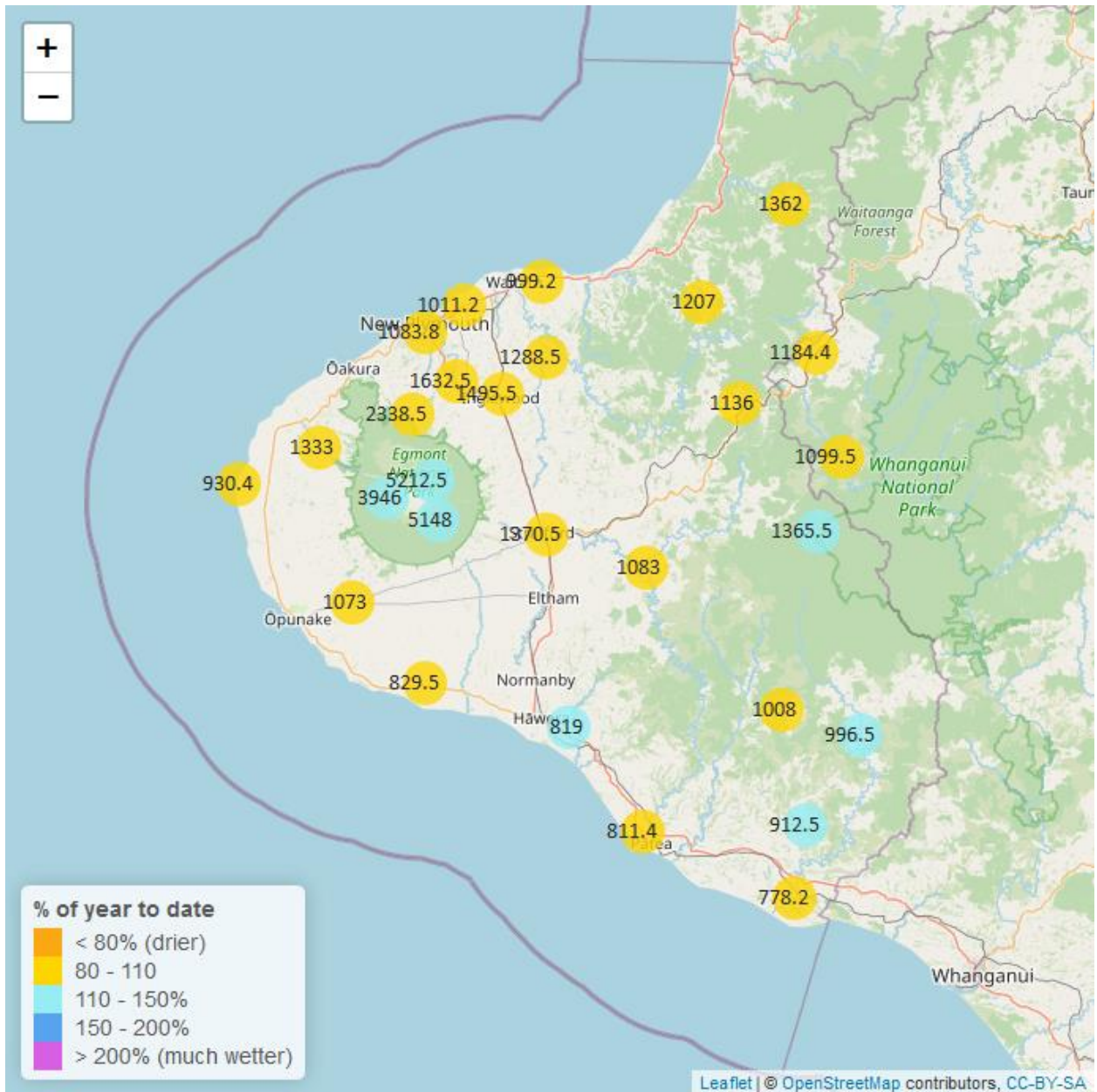


Table 1: Rainfall August and year to date totals for rain gauge sites in Taranaki.

Rain gauge	August			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	24	391.0	54.5	5212.5	117.0	75.1	1991
Dawson Falls	22	482.0	76.1	5148.0	128.7	86.6	1933
Kapoaiaia at Kahui Hut	25	355.5	65.7	3946.0	115.0	75.2	2006
Mangorei Upper at Forest Hill	21	232.0	56.4	2338.5	93.6	61.5	2018
Waiwhakaiho at Hillsborough	15	132.5	66.9	1175.0	93.1	64.2	2013
Brooklands Zoo at New Plymouth	17	138.4	77.9	1083.8	95.3	67.0	2012
Mangati at SH3	18	108.8	66.7	1011.2	94.6	65.3	2013
Motunui M39 at Weston W3	16	124.4	80.2	999.2	94.8	63.4	1999
Waiwhakaiho at Egmont Village	19	170.0	74.8	1632.5	104.5	67.3	1991
Manganui at Everett Park	21	199.0	100.8	1288.5	96.0	62.0	1987
Inglewood at Oxidation Ponds	16	163.5	73.6	1495.5	99.3	63.5	2000
Stony at Mangatete Bridge	21	131.5	65.2	1333.0	100.2	66.4	2004
Kapoaiaia at Lighthouse	22	97.6	72.5	930.4	97.5	66.9	1930
Taungatara at Eltham Rd	18	130.5	86.8	1073.0	103.4	67.7	2005
Kaupokonui at Glenn Rd	16	83.0	78.0	829.5	108.1	70.8	1998
Patea at Stratford	17	136.5	63.3	1370.5	102.8	68.9	1999
Mangaehu at Bridge	18	118.0	72.5	1083.0	103.2	68.0	1999
Kotare at OSullivans	19	195.0	101.2	1362.0	102.0	63.1	1998
Uruti at Kaka Rd	17	195.0	95.9	1207.0	86.8	54.0	1991
Pohokura Saddle	18	182.0	93.6	1136.0	90.5	56.9	1991
Omaru at Charlies	22	181.5	97.1	1365.5	113.8	75.1	2006
Omahine at Moana Trig	20	149.0	90.6	1008.0	89.6	59.0	2007
Waitotara at Rimunui Station	17	127.5	102.2	996.5	113.2	72.3	1994
Waitotara at Ngtuwera	17	107.0	94.4	912.5	111.0	71.0	1999

Rain gauge	August			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	18	92.0	94.1	819.0	114.2	74.0	1994
Patea at Bore 3	20	98.4	83.7	811.4	103.9	68.4	2006
Waitotara at Hawken Rd	18	103.8	100.0	778.2	95.6	64.5	2016
Whangamomona at Marco Road	20	173.6	77.4	1184.4	92.0	60.3	2018
Whangamomona at Bridge to Somewhere	18	167.0	90.1	1099.5	98.4	63.4	2018
Waitanguru at Mangaotaki	18	187.5	71.8	1683.0	103.0	65.9	1990

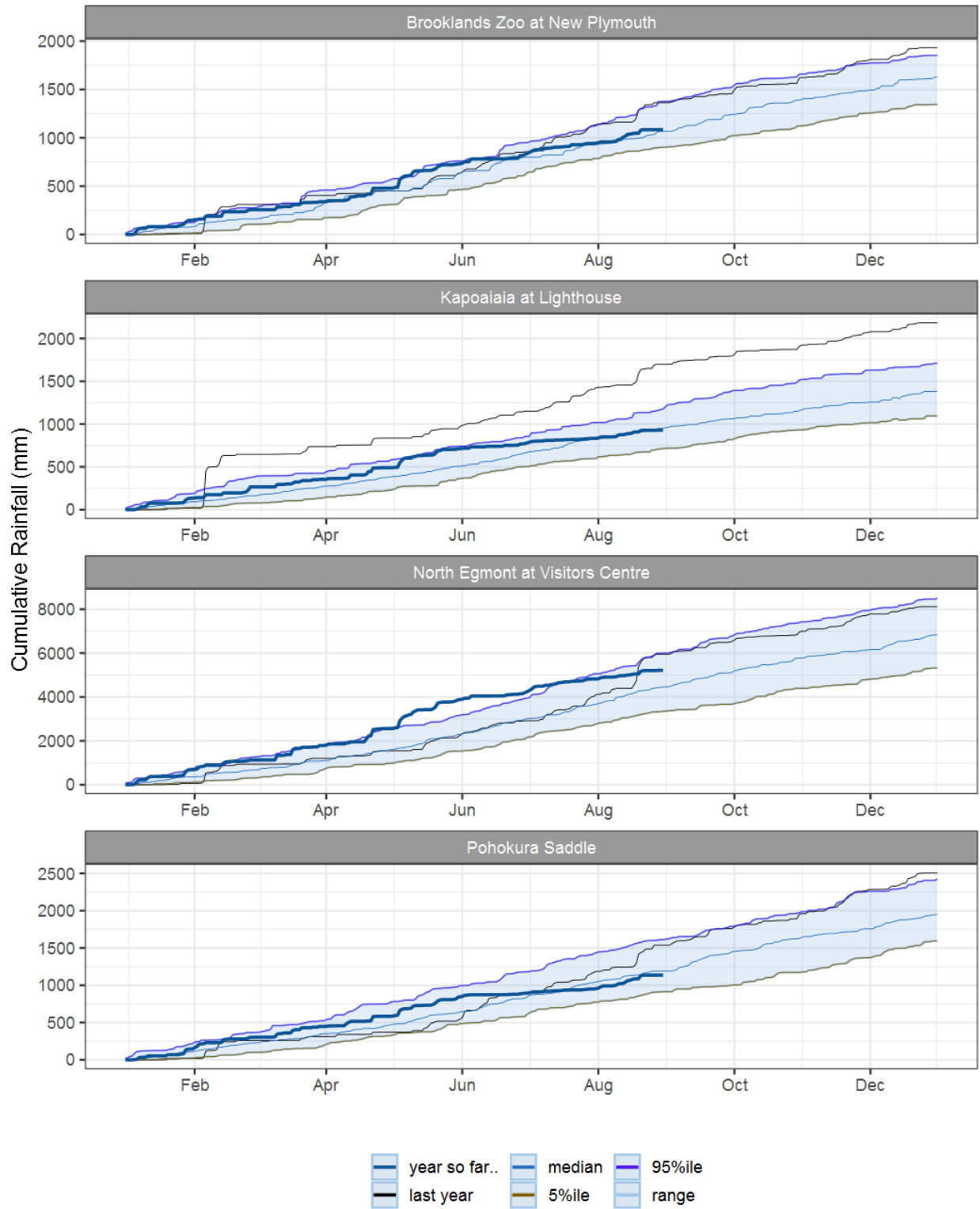


Figure 1.1: This years and last years data set in context of historic record at selected rain gauge sites in Taranaki.

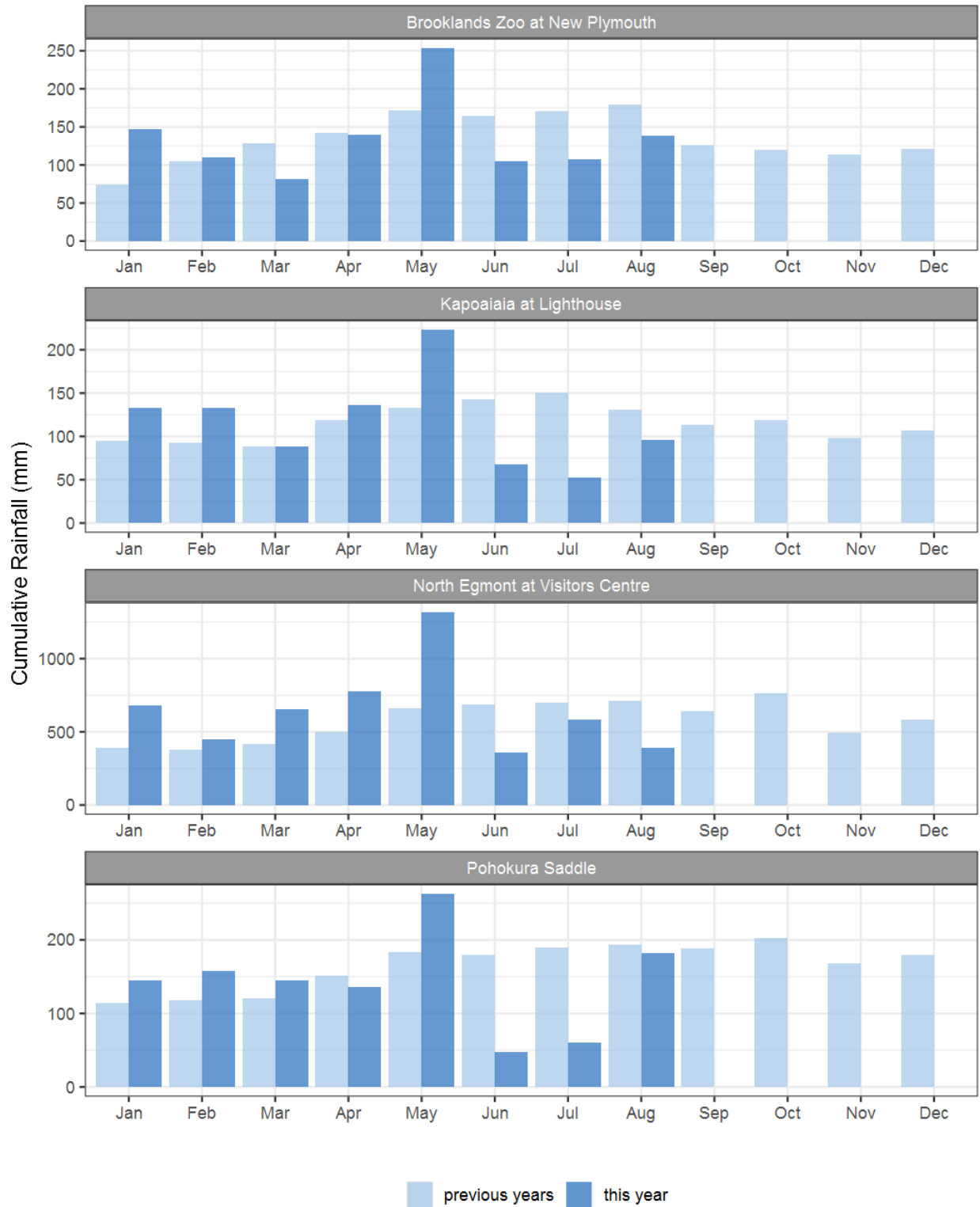


Figure 1.2: Monthly rainfall totals for this month and the mean of all previously recorded months.

2. River Flow

Map 2: August mean river flows (m3/sec), with difference as percentage of long-term mean.

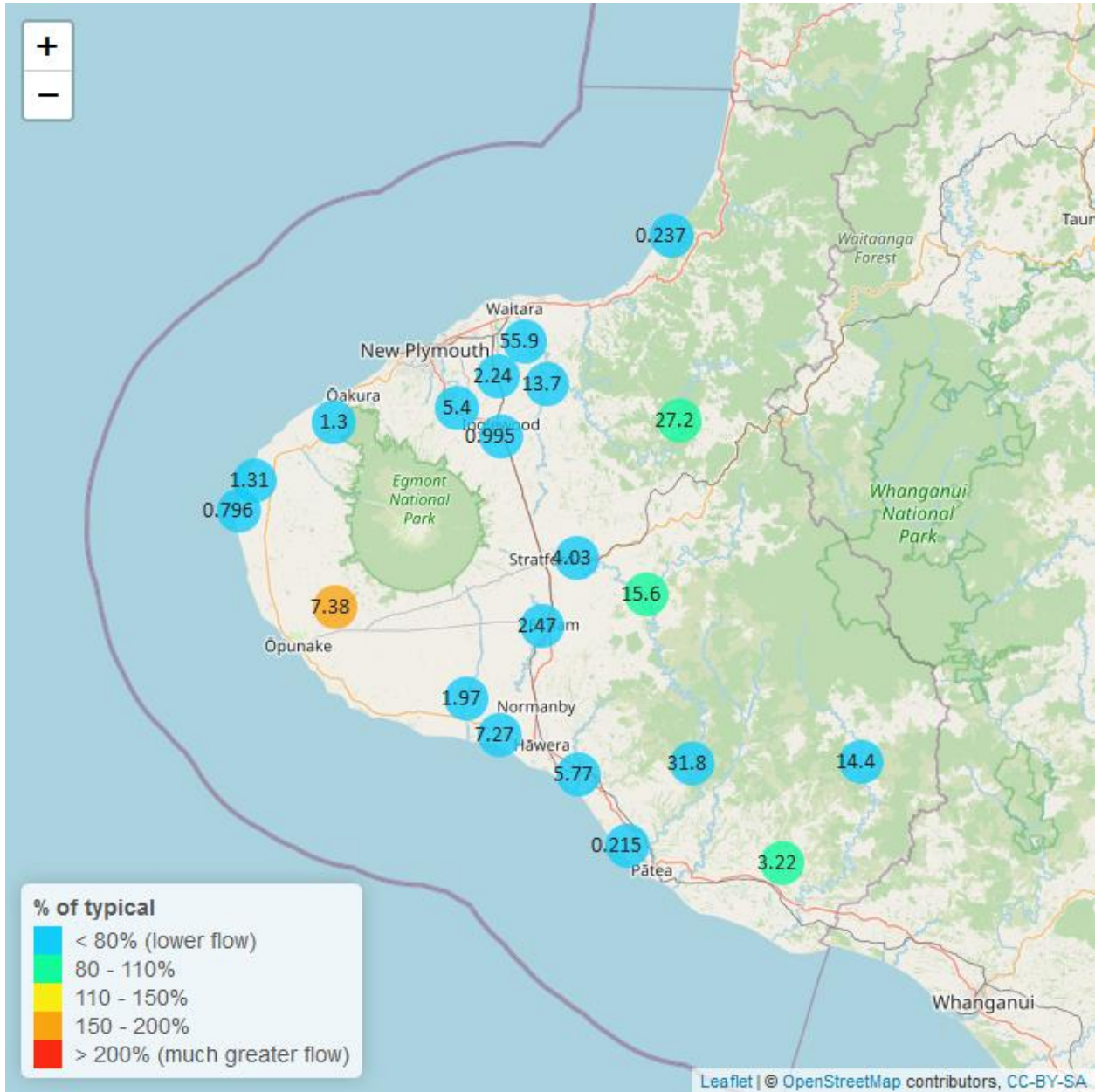


Table 2: Summary of high, low and mean flow for August and for August in all preceding years of record.

August 2023 - Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		August maximum	Data years
	current month	historic	current month	historic	current month	historic		
Kaikura below 7346	0.27	0.65	0.18	0.17	0.22	0.36	0.93	7

August 2023 - Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		August maximum	Data years
	current month	historic	current month	historic	current month	historic		
Kapoaiaia at Lighthouse	2.38	3.82	0.26	0.47	0.80	1.49	5.97	37
Kapuni at Normanby Rd	2.90	5.57	1.36	1.06	1.97	3.08	43.70	24
Mangaehu at Bridge	41.20	52.50	4.68	4.46	15.60	18.20	79.00	45
Manganui at Everett Park	31.60	68.30	0.52	5.91	13.70	25.20	162.00	32
Mangaoraka at Corbett Rd	4.27	7.24	1.24	0.74	2.24	2.95	26.20	48
Mangati at SH3	0.36	0.51	0.15	0.06	0.24	0.20	1.12	10
Mangorei at Pipebridge	4.45	9.36	0.80	0.73	1.94	3.94	24.20	14
Moumahaki at Johnston Rd	8.20	8.76	1.00	0.75	3.22	3.26	23.20	5
Ngatoro at SH3	1.72	4.45	0.55	0.39	1.00	1.60	14.80	35
Patea at McColls Bridge	66.70	107.00	5.91	4.05	31.80	47.90	68.70	33
Patea at Skinner Rd	7.95	17.30	2.45	2.01	4.03	7.28	33.20	45
Tangahoe below Railway Bridge	12.70	21.80	2.75	2.92	5.77	9.36	29.10	5
Tawhiti at Duffys	1.70	2.60	0.77	0.46	1.12	1.33	3.38	38
Tawhiti below Meat Plant	0.98	1.82	0.79	0.53	0.89	1.15	1.82	12
Timaru at Tataraimaka	2.71	7.47	0.61	0.66	1.30	3.21	21.10	10
Waiaua 2 at Barraclough Opuia	9.89	9.79	6.02	1.48	7.38	4.23	12.80	5
Waikaramarama at Bridge	0.70	1.85	0.03	0.03	0.24	0.50	10.90	5
Waingongoro at Eltham Rd	4.51	10.40	1.61	1.23	2.47	4.32	25.30	48
Waingongoro at SH45	12.10	26.30	5.33	4.20	7.27	12.20	36.60	42
Waiongana at SH3a	4.44	8.92	1.10	0.82	2.24	3.56	22.20	43
Waitara at Bertrand Rd	152.00	234.00	18.60	15.50	55.90	78.00	277.00	43
Waitara at Purangi Bridge	79.10	107.00	3.85	2.04	27.20	30.20	195.00	24
Waitotara at Rimunui Station	35.40	59.80	5.16	5.22	14.40	21.90	61.90	18
Waiwhakaiho at Egmont Village	11.60	25.80	2.54	2.53	5.40	9.43	66.10	43
Warea at Coast	2.86	4.83	0.68	0.60	1.31	2.09	4.73	6
Weraweraonga at 749 Mangawhio Rd	4.17	8.08	0.38	0.50	1.58	2.54	17.00	6

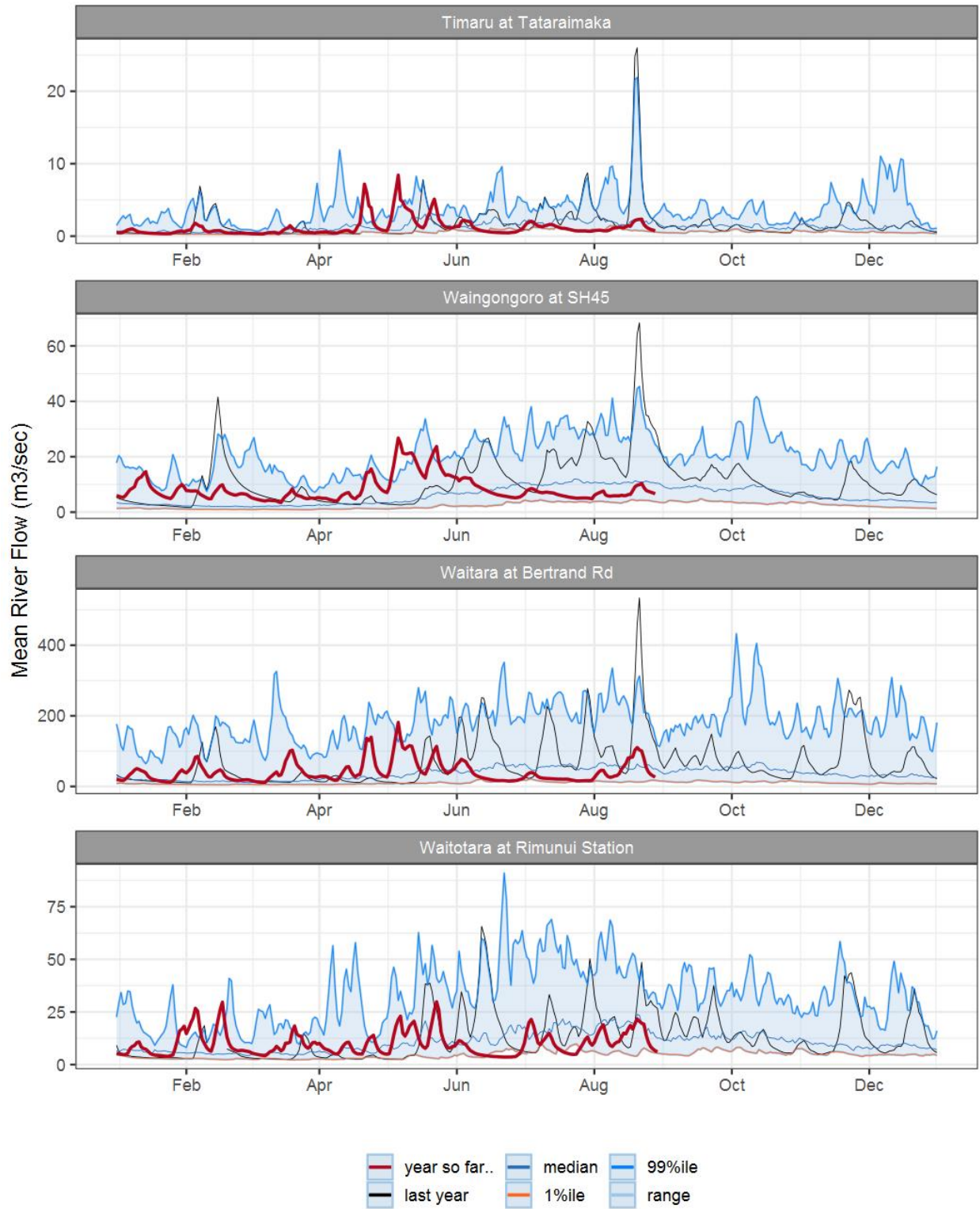


Figure 2.1: Running average river flows for selected sites, set in context of the historic record.

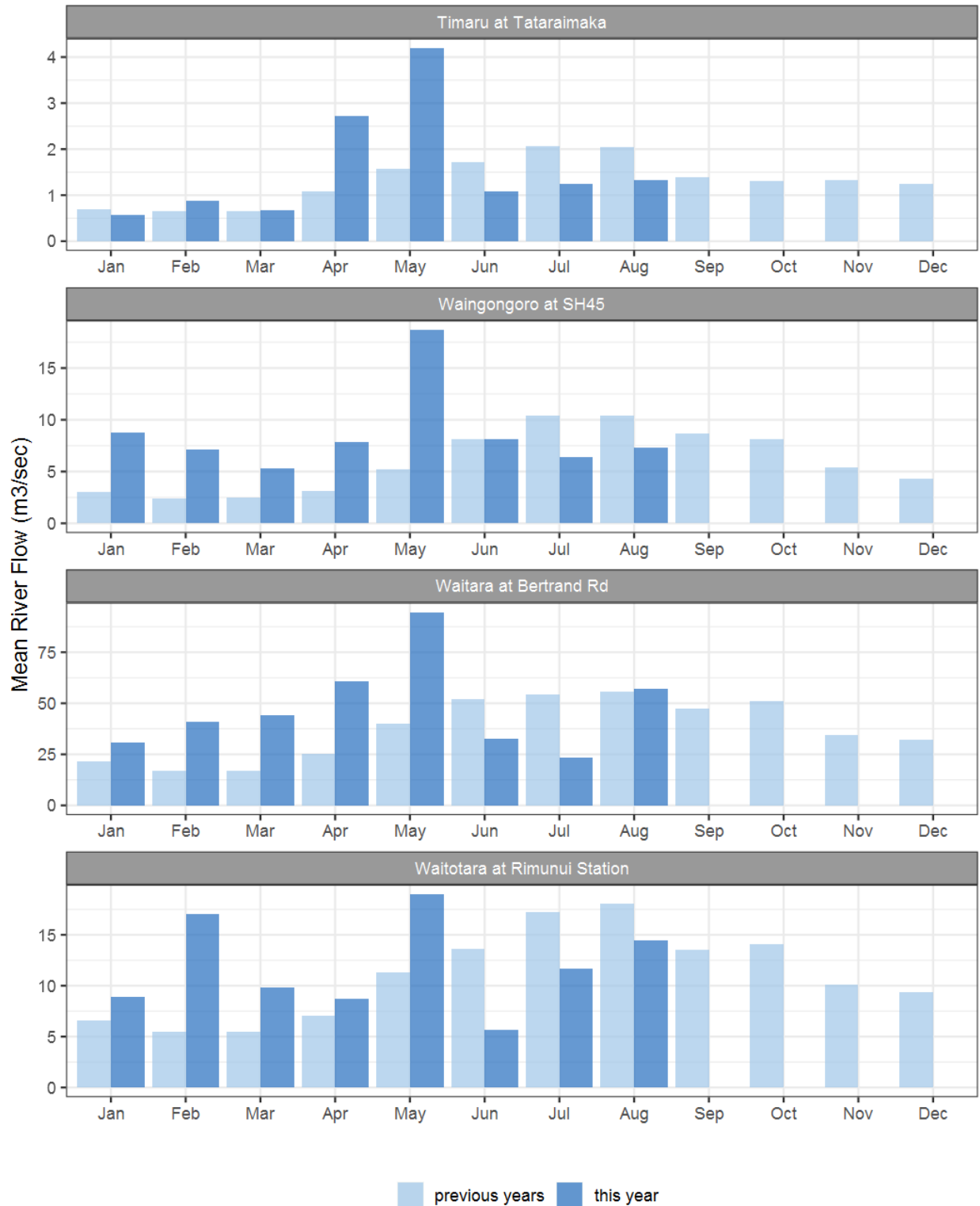


Figure 2.2: Monthly mean river flow for this month and the mean of all previously recorded months.

3. River Temperature

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

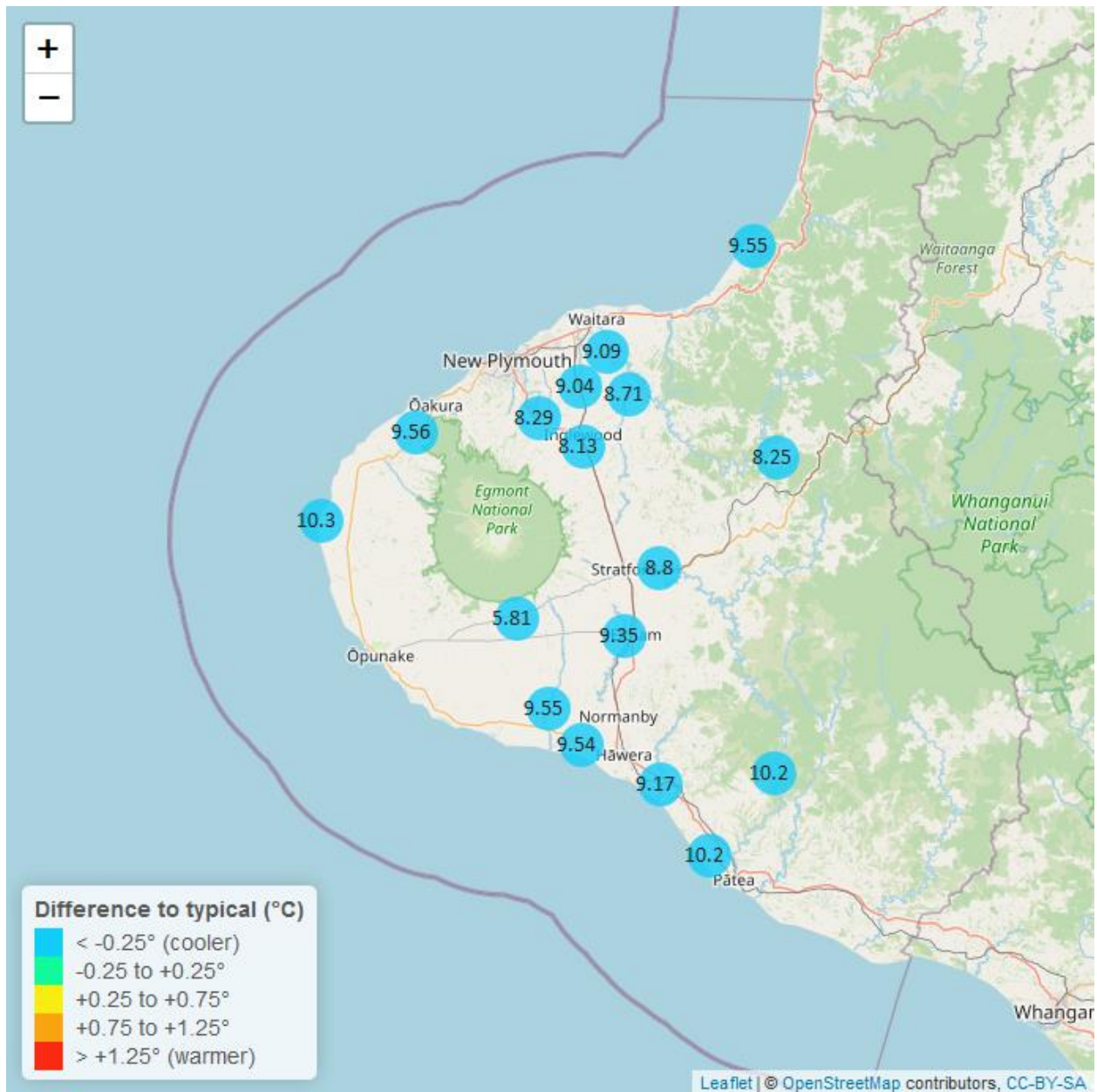


Table 3: Summary of high, low and mean river temperature for August and for August in all preceding years of record.

August 2023 - River Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		August maximum	data years
	current month	historic	current month	historic	current month	historic		
Kaikura below 7346	11.80	12.90	8.430	8.75	10.20	11.00	12.60	7
Kapoaiaia at Lighthouse	12.20	13.00	8.340	7.92	10.30	10.70	13.40	25
Kapuni at Normanby Rd	11.40	12.10	7.610	7.61	9.55	9.93	12.80	24
Manganui at Everett Park	10.40	11.90	7.080	7.99	8.71	10.10	11.00	14
Mangaoraka at Corbett Rd	11.40	13.10	8.410	9.26	10.10	11.40	12.20	19
Mangati at SH3	13.60	15.20	10.700	11.00	12.30	13.00	14.10	10
Mangawheroiti Above Intake W.W	8.70	9.58	0.806	6.42	5.81	8.13	9.47	10
Mangorei at Pipebridge	10.70	12.10	7.390	7.98	9.16	10.20	11.50	8
Matau at Woolshed	9.93	12.00	6.350	7.91	8.25	10.00	10.40	6
Ngatoro at SH3	9.58	11.00	6.570	6.65	8.13	9.02	10.10	22
Patea at McColls Bridge	10.90	11.60	9.560	9.73	10.20	10.60	11.20	9
Patea at Skinner Rd	10.30	11.50	6.970	7.80	8.80	9.83	10.70	19
Tangahoe below Railway Bridge	10.60	12.30	7.770	8.50	9.17	10.50	11.40	5
Tawhiti at Duffys	12.10	12.70	9.650	8.60	11.10	10.80	12.20	19
Tawhiti below Meat Plant	11.60	12.50	8.740	8.13	10.20	10.60	12.20	24
Timaru at Tataraimaka	11.00	12.50	7.950	8.49	9.56	10.70	11.80	8
Waikaramarama at Bridge	11.20	12.80	7.730	9.03	9.55	11.00	11.90	5
Waingongoro at Eltham Rd	10.80	11.60	7.740	8.03	9.35	9.93	11.70	18
Waingongoro at SH45	11.10	12.20	7.440	8.74	9.54	10.60	11.90	18
Waiongana at SH3a	10.70	12.10	7.120	8.28	9.04	10.30	11.50	12
Waitara at Bertrand Rd	10.20	11.80	7.920	8.26	9.09	10.20	10.90	33
Waiwhakaiho at Egmont Village	9.74	10.80	6.640	6.62	8.29	8.88	10.60	32

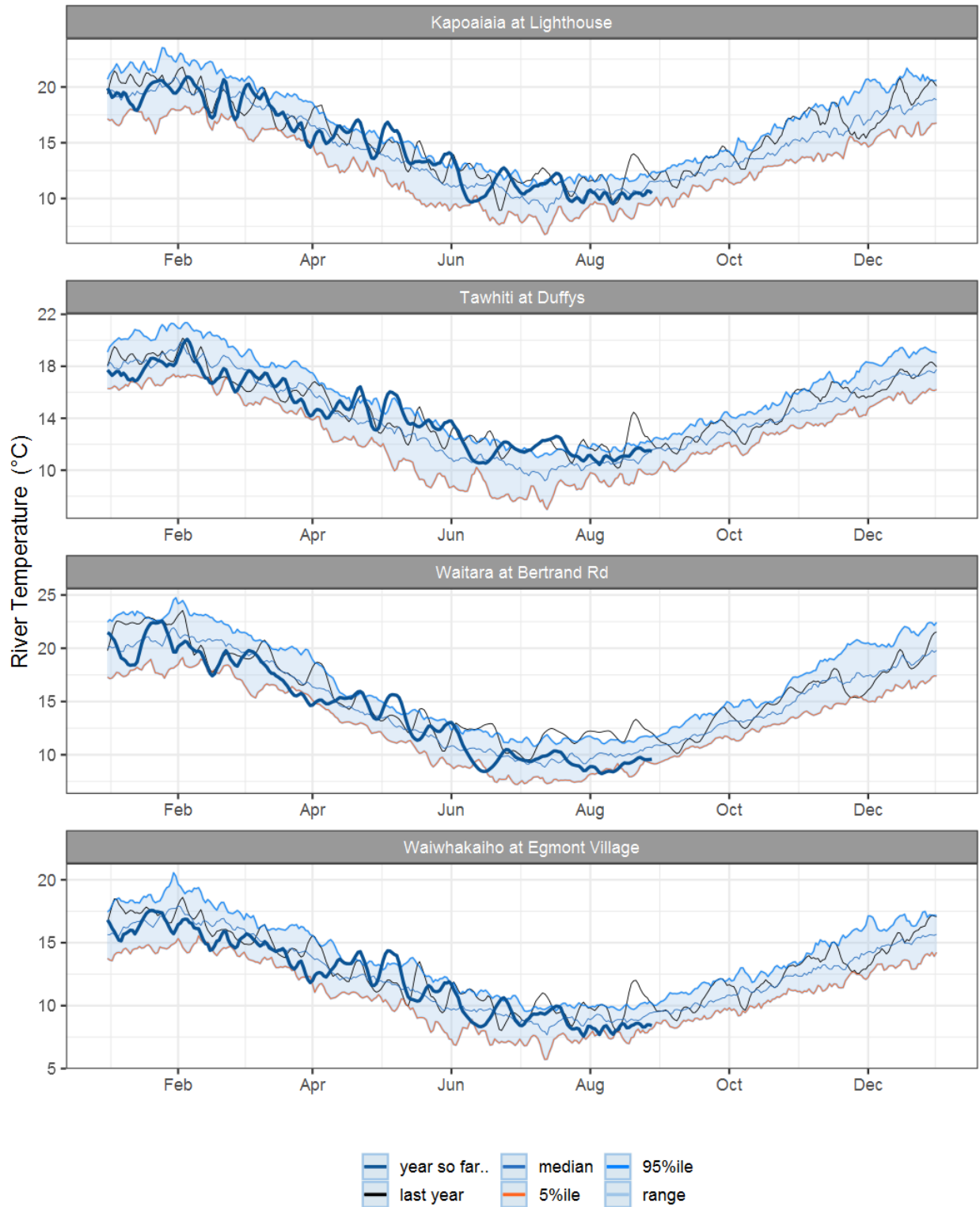


Figure 3.1: Running average river temperature for selected sites, set in context of the historic record.

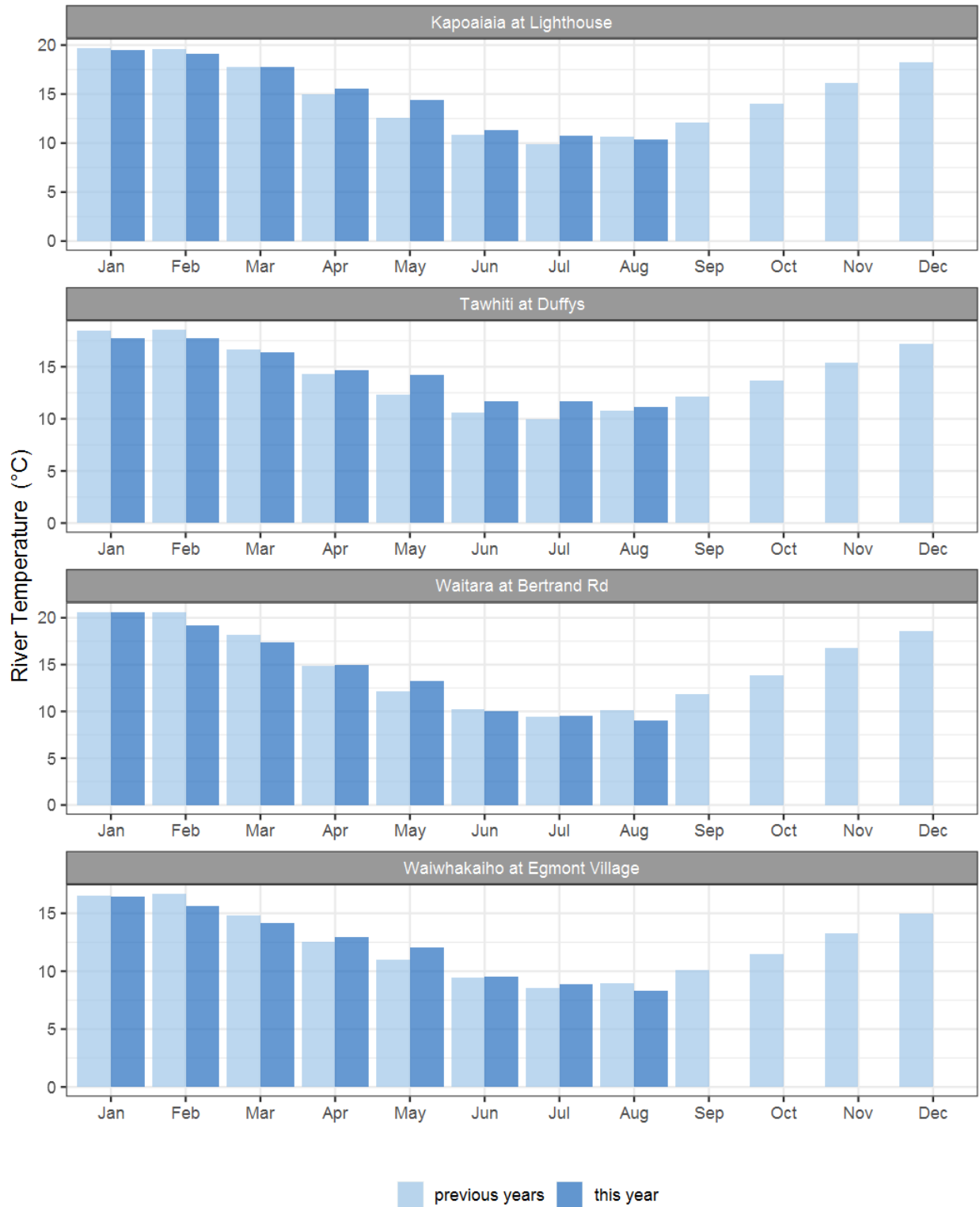


Figure 3.2: Monthly mean river temperature for this month and the mean of all previously recorded months.

4. Air Temperature

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

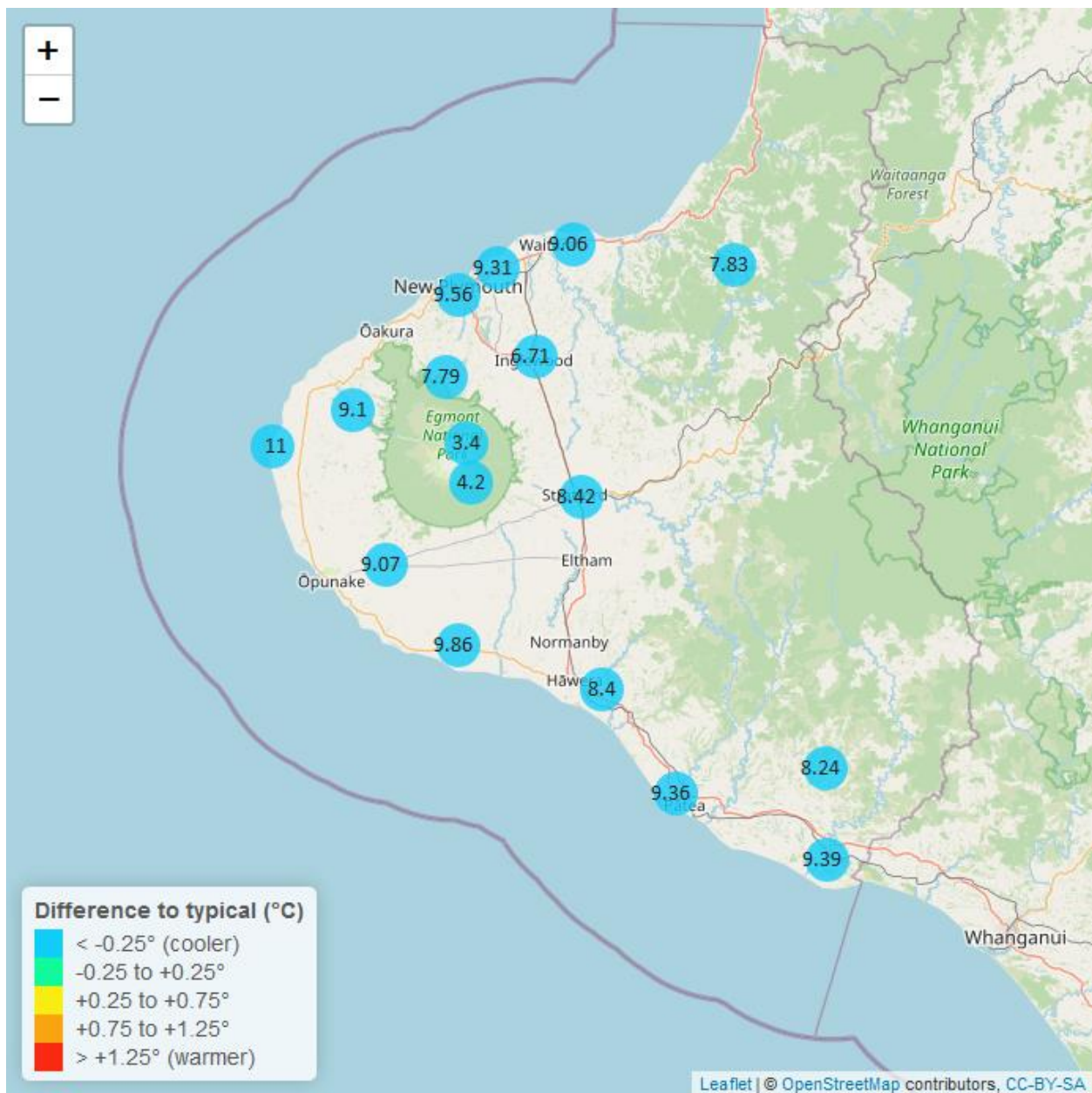


Table 4: Summary of high, low and mean air temperature for August and for August in all preceding years of record.

August 2023 - Air Temperature (°C)								
Monitoring Site	Highs		Lows		Mean		August maximum	data years
	current month	historic	current month	historic	current month	historic		
Brooklands Zoo at New Plymouth	15.20	16.10	3.330	5.770	9.56	11.10	17.1	11
Dawson Falls	8.33	9.68	0.368	0.447	4.20	5.29	11.7	8
Inglewood at Oxidation Ponds	11.80	14.40	0.501	3.570	6.71	9.48	14.0	11
Kapoaiaia at Lighthouse	14.10	15.00	5.750	6.390	11.00	11.60	15.8	11
Kaupokonui at Glenn Rd	13.90	15.50	4.370	4.380	9.86	10.80	16.1	8
Mangati at SH3	14.00	15.40	2.820	5.630	9.31	11.30	15.5	10
Mangorei Upper at Forest Hill	11.20	12.10	3.620	4.700	7.79	8.72	14.9	6
Motunui M39 at Weston W3	13.30	14.80	3.690	5.490	9.06	11.00	14.8	6
North Egmont at Visitors Centre	7.32	9.20	-0.627	0.583	3.40	5.11	10.9	8
Patea at Bore 3	13.40	14.90	3.850	5.200	9.36	10.60	15.6	11
Patea at Stratford	13.50	14.30	2.780	3.800	8.42	9.41	16.2	11
Stony at Mangatete Bridge	12.70	14.40	5.090	5.580	9.10	10.50	15.9	7
Taungatara at Eltham Rd	13.00	14.50	4.090	4.670	9.07	10.20	14.3	8
Tawhiti at Duffys	13.60	15.10	0.725	1.890	8.40	10.00	16.4	10
Uruti at Kaka Rd	11.90	13.30	3.240	4.810	7.83	9.30	13.9	5
Waitotara at Hawken Rd	13.80	15.60	3.580	4.940	9.39	10.80	16.6	7
Waitotara at Ngutuwera	12.70	14.70	3.050	5.220	8.61	10.30	15.7	5
Waiwhakaiho at Hillsborough	13.30	14.70	3.980	6.590	9.34	11.00	14.9	11
Weraweraonga at 749 Mangawhio Rd	14.10	16.10	1.520	2.560	8.24	10.20	25.0	6

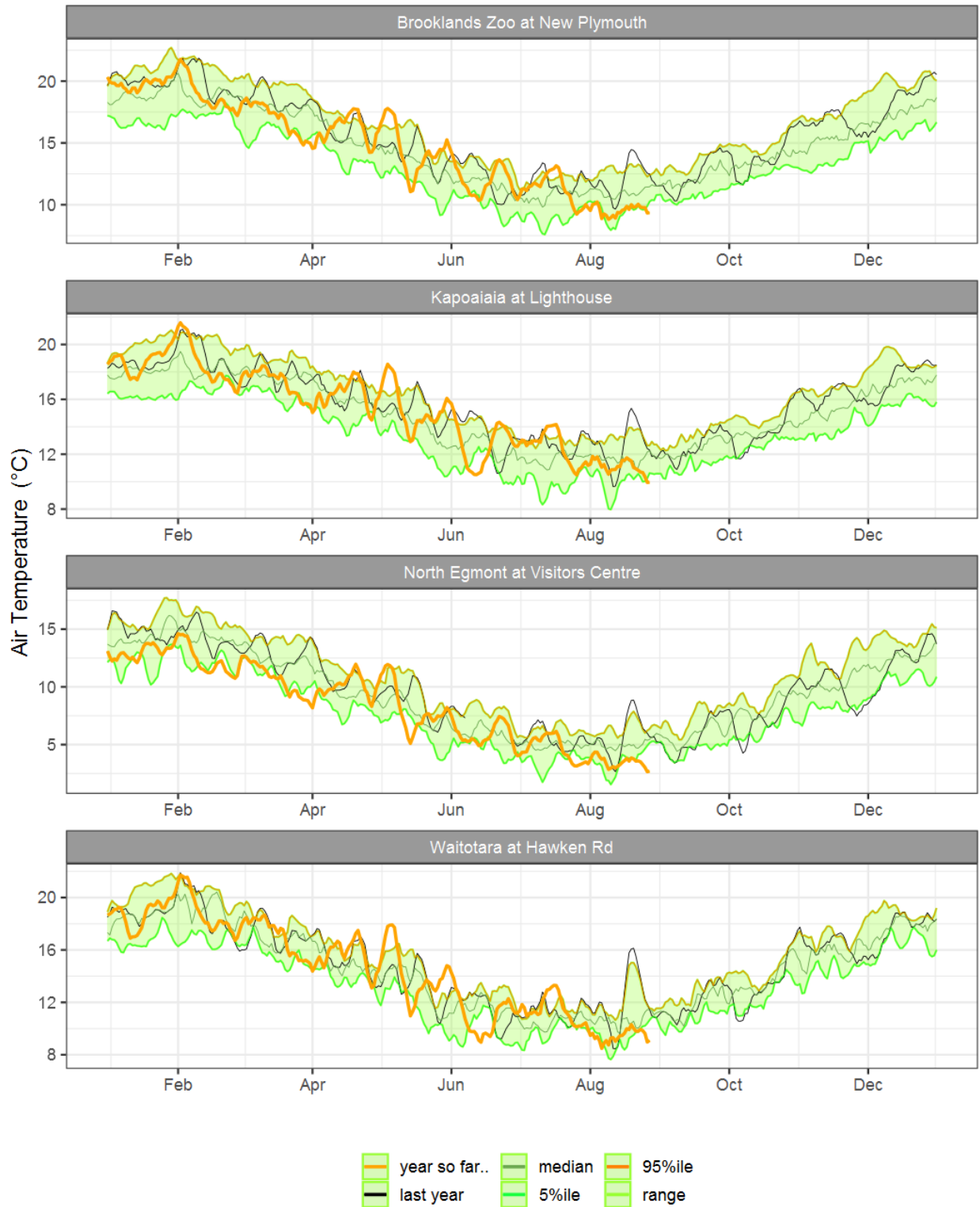


Figure 4.1: Running average air temperature for selected sites, set in context of the historic record.

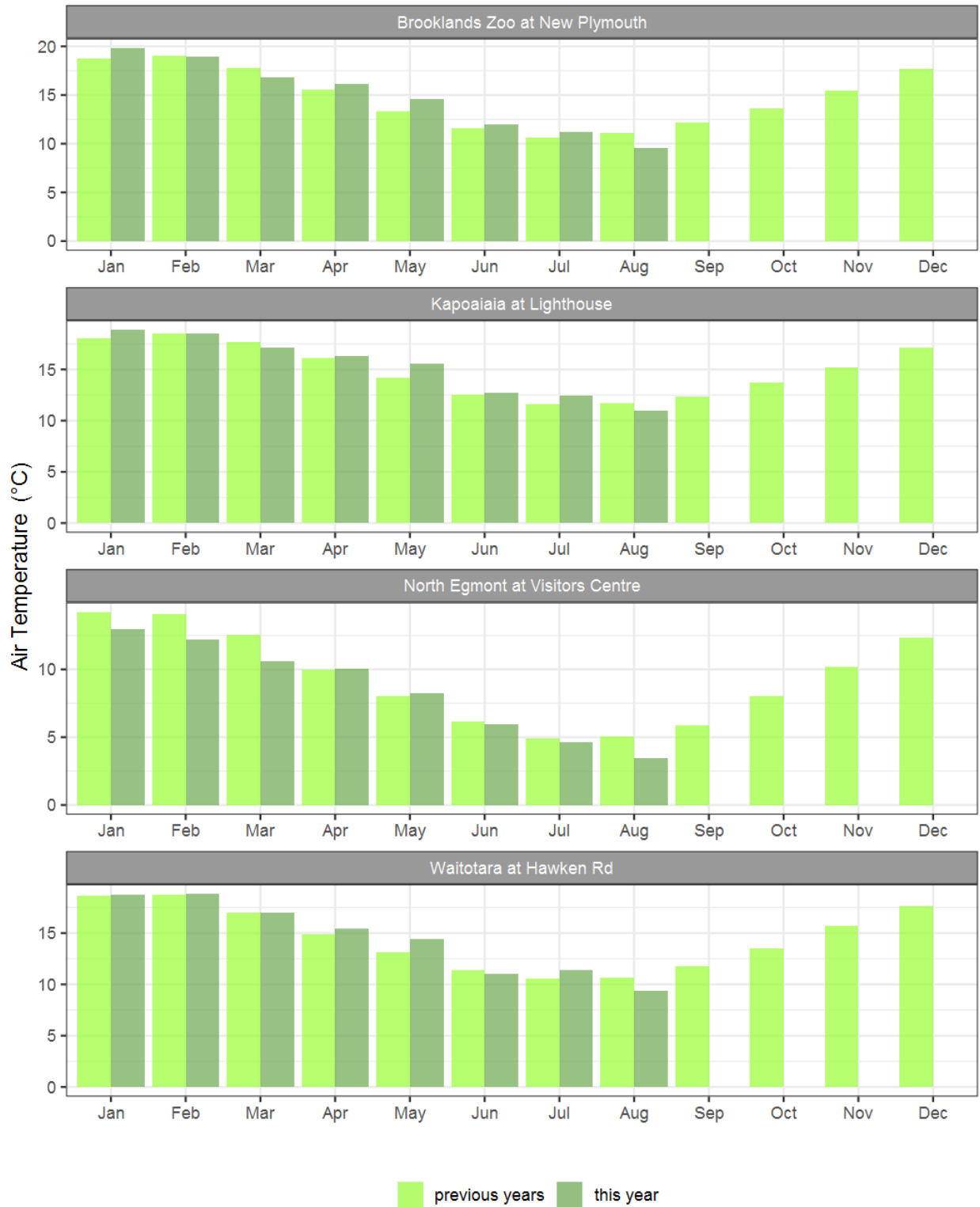


Figure 4.2: Monthly mean air temperature for August and the mean of all previously recorded months.

5. Soil Moisture

Map 5: August mean soil moisture content (%).

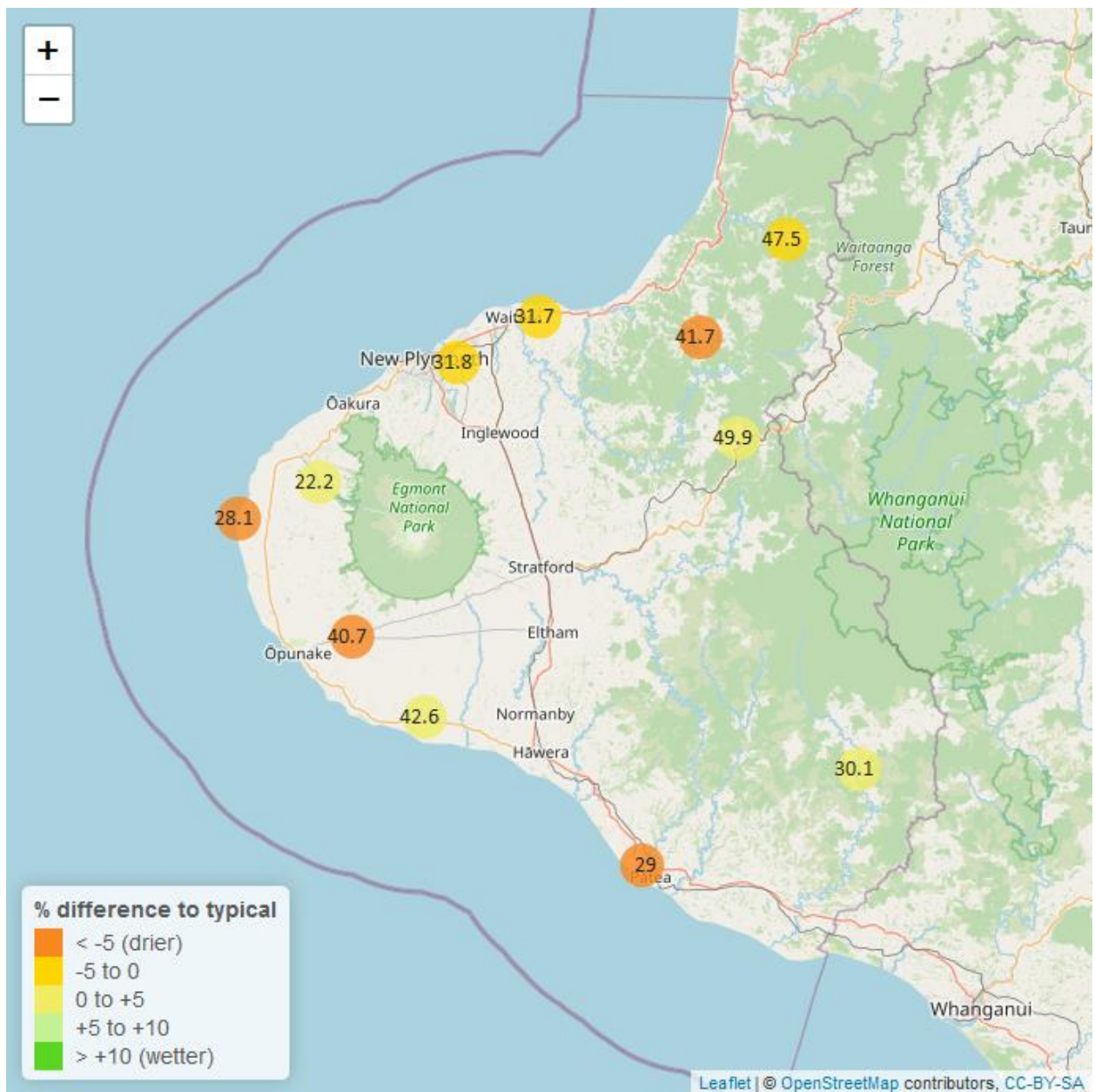


Table 5: Summary of high, low and mean soil moisture for August and for August in all preceding years of record.

August 2023 - Soil Moisture (%)								
Monitoring Site	Highs		Lows		Mean		August maximum	Data years
	current month	historic	current month	historic	current month	historic		
Kapoaiaia at Lighthouse	29.1	35.4	27.2	23.3	28.1	28.3	29.7	12
Kaupokonui at Glenn Rd	46.6	46.1	38.2	32.6	42.6	38.3	47.9	12
Kotare at OSullivans	51.8	52.2	43.3	37.4	47.5	44.2	55.4	11
Motunui M39 at Weston W3	32.8	33.8	30.8	29.3	31.7	31.6	33.5	10
Patea at Bore 3	30.1	35.1	27.9	26.6	29.0	30.6	30.6	7
Pohokura Saddle	53.9	51.6	46.7	40.2	49.9	46.4	55.1	8
Stony at Mangatete Bridge	25.9	25.7	18.5	14.9	22.2	20.2	29.3	7
Taungatara at Eltham Rd	43.3	47.0	38.9	29.5	40.7	38.8	44.6	10
Uruti at Kaka Rd	42.9	47.7	40.1	39.8	41.7	43.3	43.1	12
Waitotara at Rimunui Station	31.8	31.4	28.3	26.2	30.1	28.9	32.3	6
Waiwhakaiho at Hillsborough	34.1	35.8	29.8	25.8	31.8	31.0	36.5	11

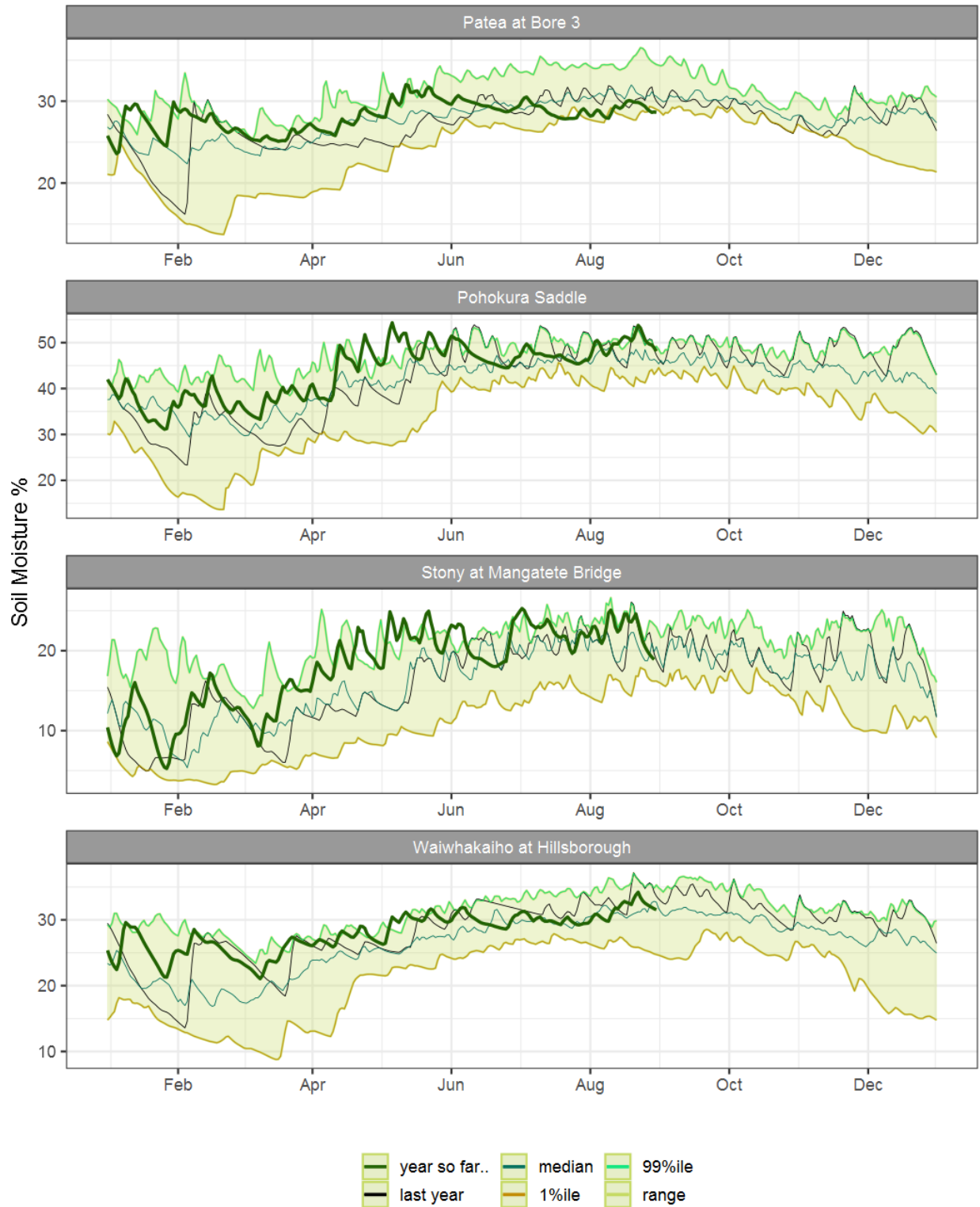


Figure 5.1: Running average soil moisture for selected sites, set in context of the historic record.



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

6: Soil Temperature

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

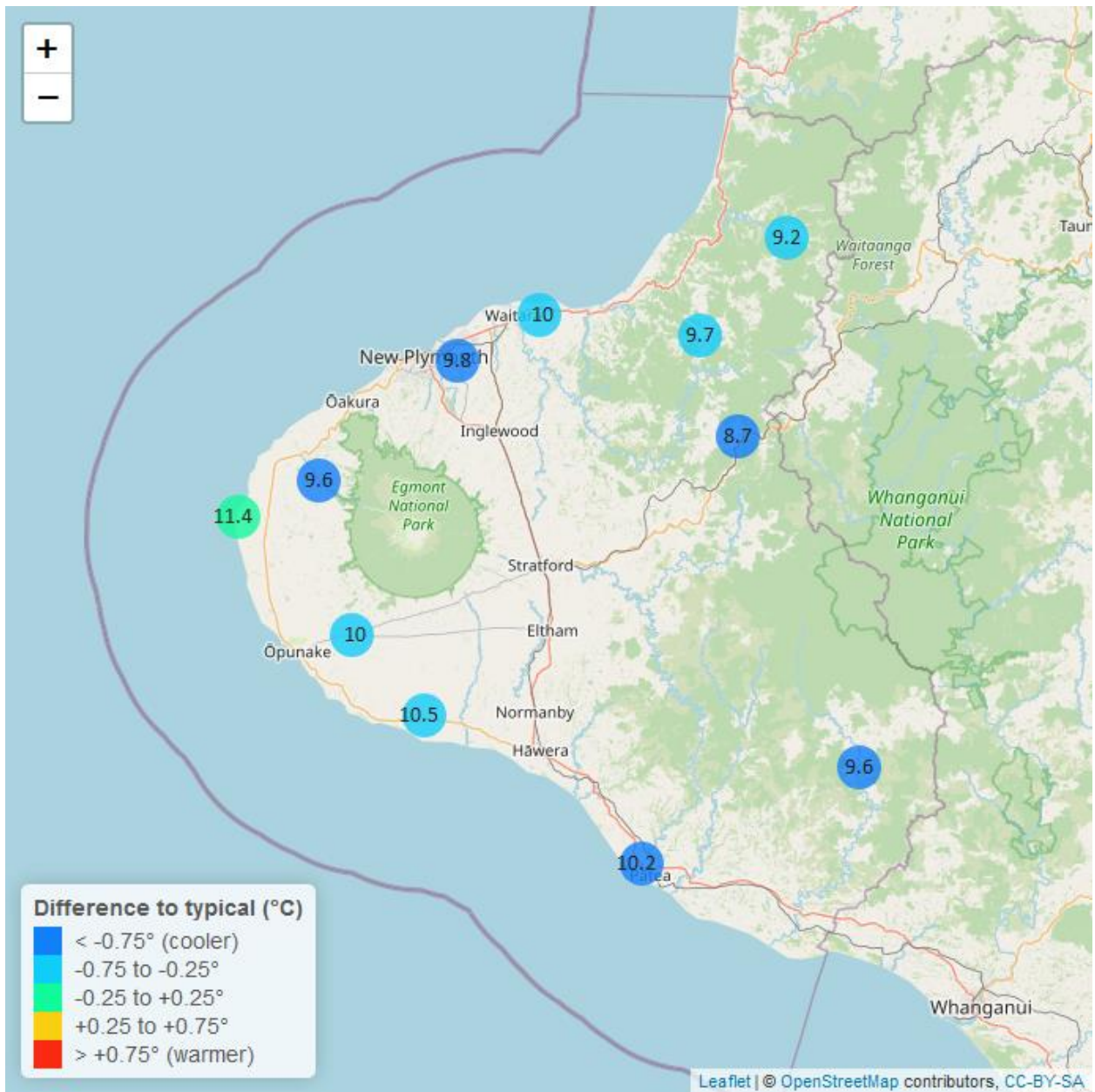


Table 6: Summary of high, low and mean soil temperature for August and for August in all preceding years of record.

August 2023 - Soil Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		August maximum	data years
	current month	historic	current month	historic	current month	historic		
Kapoaiaia at Lighthouse	13.30	13.5	9.49	9.25	11.4	11.60	14.3	12
Kaupokonui at Glenn Rd	11.30	12.6	9.60	8.90	10.5	10.80	11.8	12
Kotare at OSullivans	10.10	11.9	8.43	7.50	9.2	9.89	10.4	11
Motunui M39 at Weston W3	11.10	12.4	8.80	8.63	10.0	10.50	11.7	10
Patea at Bore 3	11.80	12.8	8.62	8.91	10.2	11.00	12.8	7
Pohokura Saddle	9.53	11.5	7.69	7.82	8.7	9.64	10.1	8
Stony at Mangatete Bridge	10.60	12.6	8.53	8.53	9.6	10.60	11.1	6
Taungatara at Eltham Rd	11.30	12.1	8.61	8.60	10.0	10.50	17.4	10
Uruti at Kaka Rd	10.00	12.0	9.28	7.98	9.7	10.20	10.5	12
Waitotara at Rimunui Station	11.30	13.3	7.96	8.72	9.6	11.00	12.4	6
Waiwhakaiho at Hillsborough	10.90	12.7	8.88	8.96	9.8	10.90	11.6	11

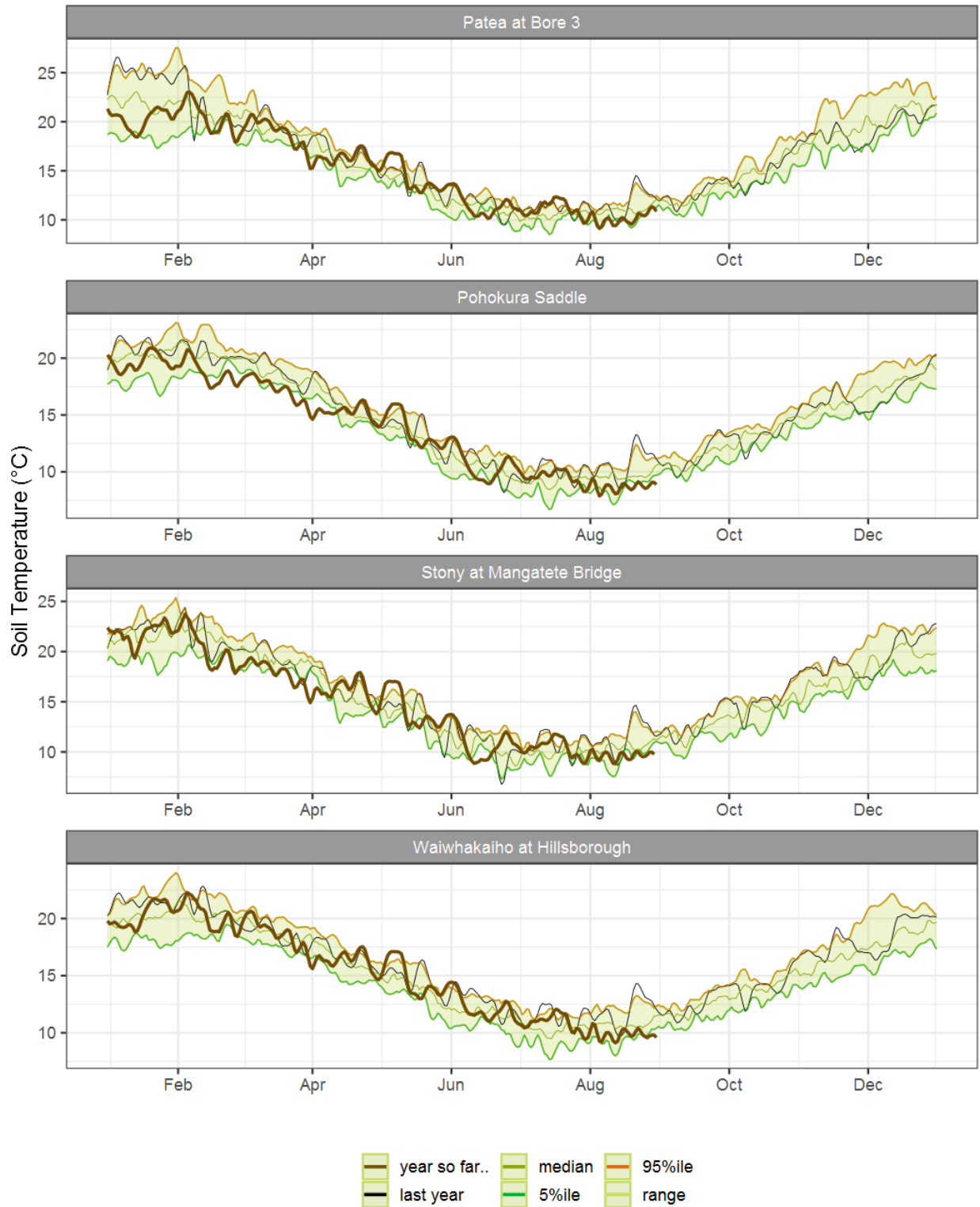


Figure 6.1: Running average soil temperature for selected sites, set in context of the historic record.



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

7: Wind Speed and Maximum Gusts

Map 7: August mean of wind speed with difference to long-term values (km/hr).

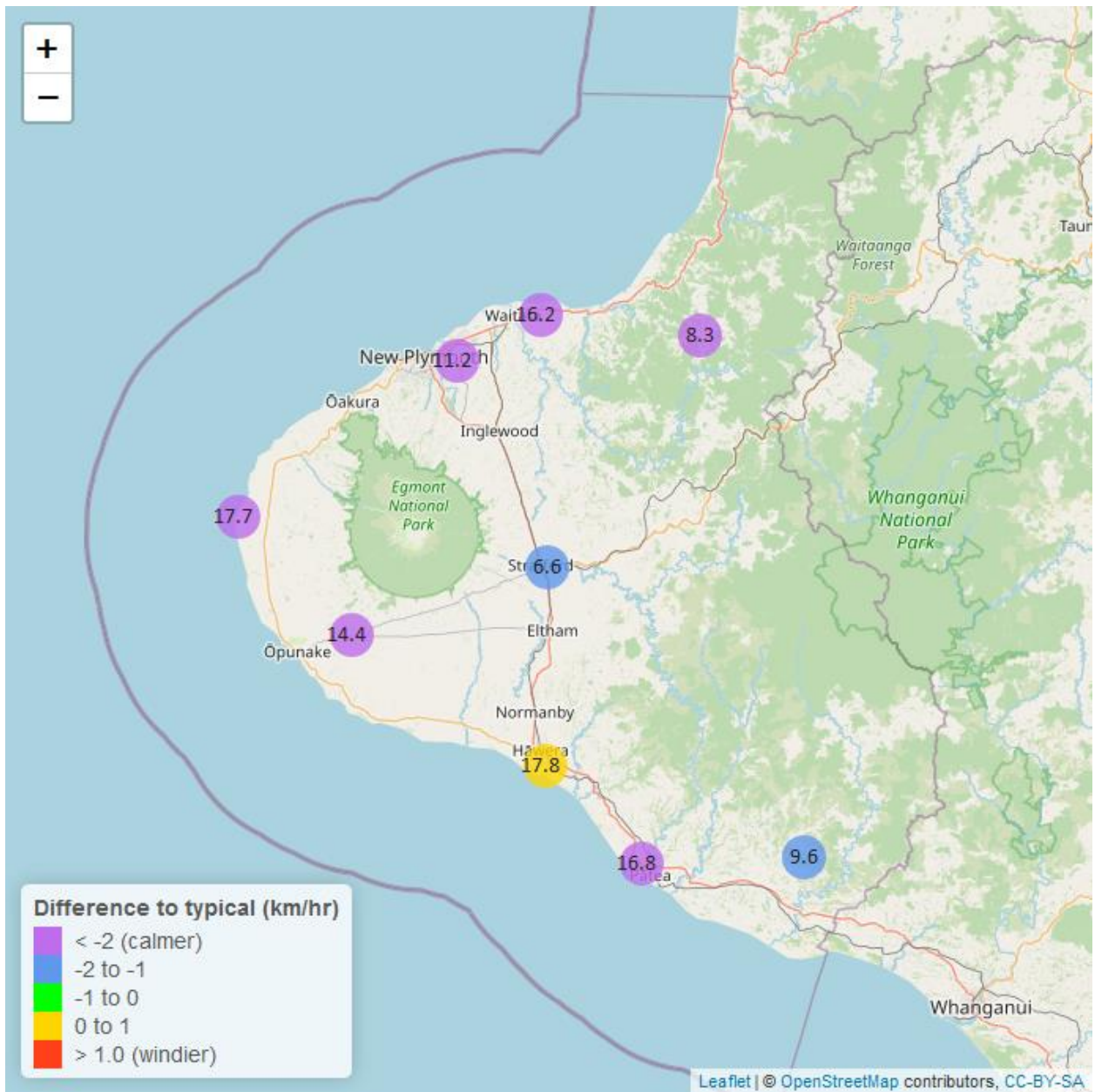


Table 7: Summary of high, low and mean wind speed for August and for August in all preceding years of record.

August 2023 - Wind Speed (average) - (km/hr)								
	Highs		Lows		Mean			
Monitoring Site	current month	historic	current month	historic	current month	historic	August maximum	Data years
Hawera AWS	33.3	36.1	6.48000	5.56	17.8	17.70	54.6	18
Kapoaiaia at Lighthouse	33.9	40.7	5.89000	6.63	17.7	21.00	56.5	25
New Plymouth AWS	32.4	38.0	6.48000	5.56	16.2	18.70	55.6	15
Patea at Bore 3	32.4	39.1	6.64000	6.35	16.8	19.20	50.3	7
Patea at Stratford	15.7	18.7	2.46000	2.50	6.6	8.45	31.5	17
Taungatara at Eltham Rd	29.9	32.6	5.98000	6.39	14.4	17.00	45.0	8
Uruti at Kaka Rd	21.1	25.1	0.00179	3.43	8.3	11.70	33.4	25
Waitotara at Ngutuwera	19.8	22.4	3.77000	2.13	9.6	10.60	32.0	25
Waiwhakaiho at Hillsborough	24.2	29.1	3.74000	4.13	11.2	14.40	39.6	6

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

August 2023 - Wind Speed (Max. Gust) - (km/hr)								
	Highs		Lows		Mean			
Monitoring Site	current month	historic	current month	historic	current month	historic	August maximum	Data years
Hawera AWS	75.9	74.1	18.5	20.4	40.7	44.9	81.5	18
Kapoaiaia at Lighthouse	61.8	81.2	15.1	21.6	40.3	50.3	79.0	25
New Plymouth AWS	72.2	79.6	20.4	20.4	39.3	46.9	102.0	15
Patea at Bore 3	78.4	78.8	15.8	20.1	42.6	46.7	78.6	7
Patea at Stratford	58.3	63.3	12.6	18.7	33.1	37.4	73.1	17
Taungatara at Eltham Rd	68.9	77.9	17.6	21.8	42.0	47.3	92.0	8
Uruti at Kaka Rd	67.7	69.9	16.9	19.8	39.9	41.7	108.0	24
Waitotara at Ngutuwera	74.5	68.6	20.5	17.0	43.7	40.4	130.0	25
Waiwhakaiho at Hillsborough	67.4	69.8	19.4	20.3	40.5	44.2	88.0	6

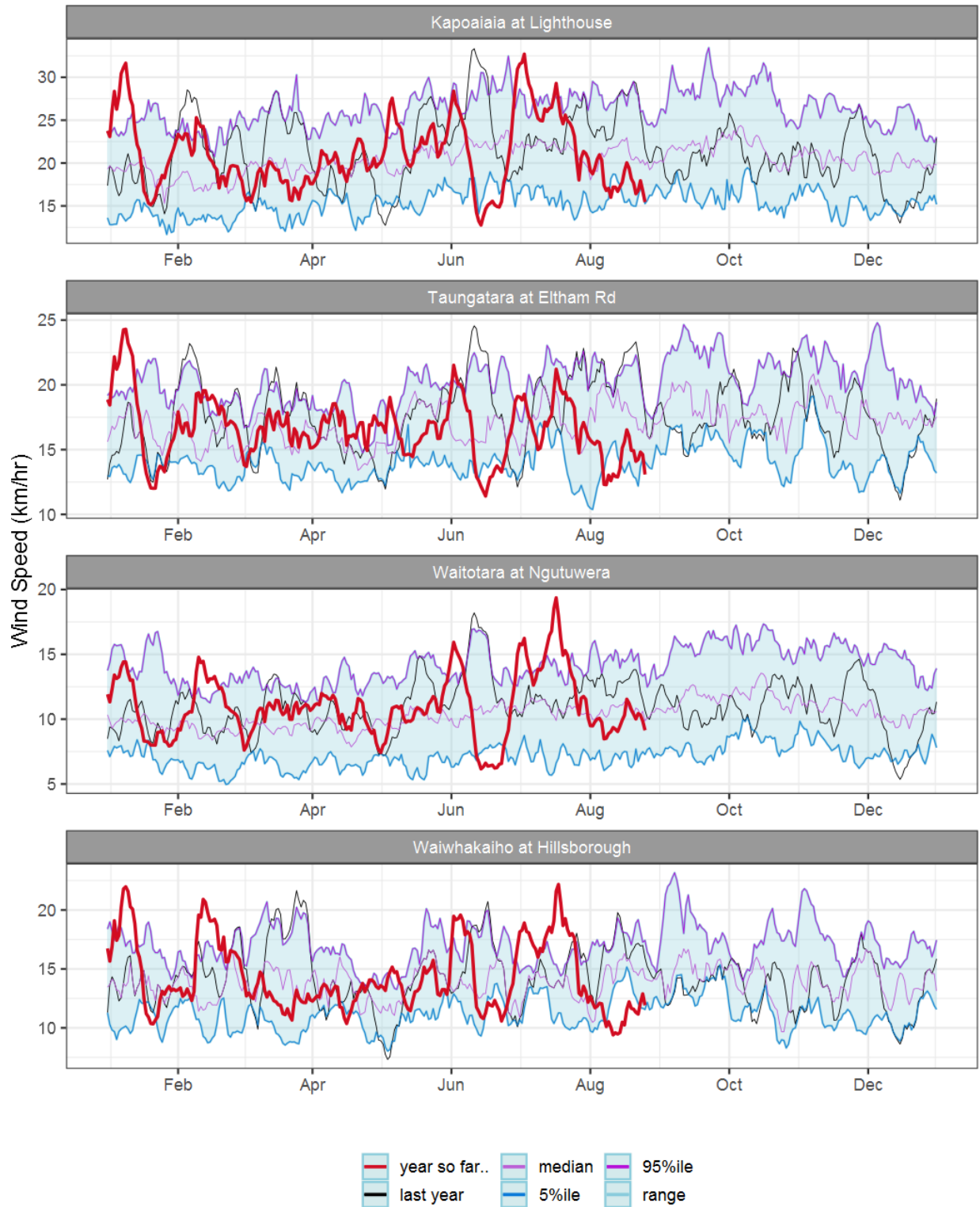


Figure 7.1: Running average wind speed (km/hr) for selected sites, set in context of the historic record.

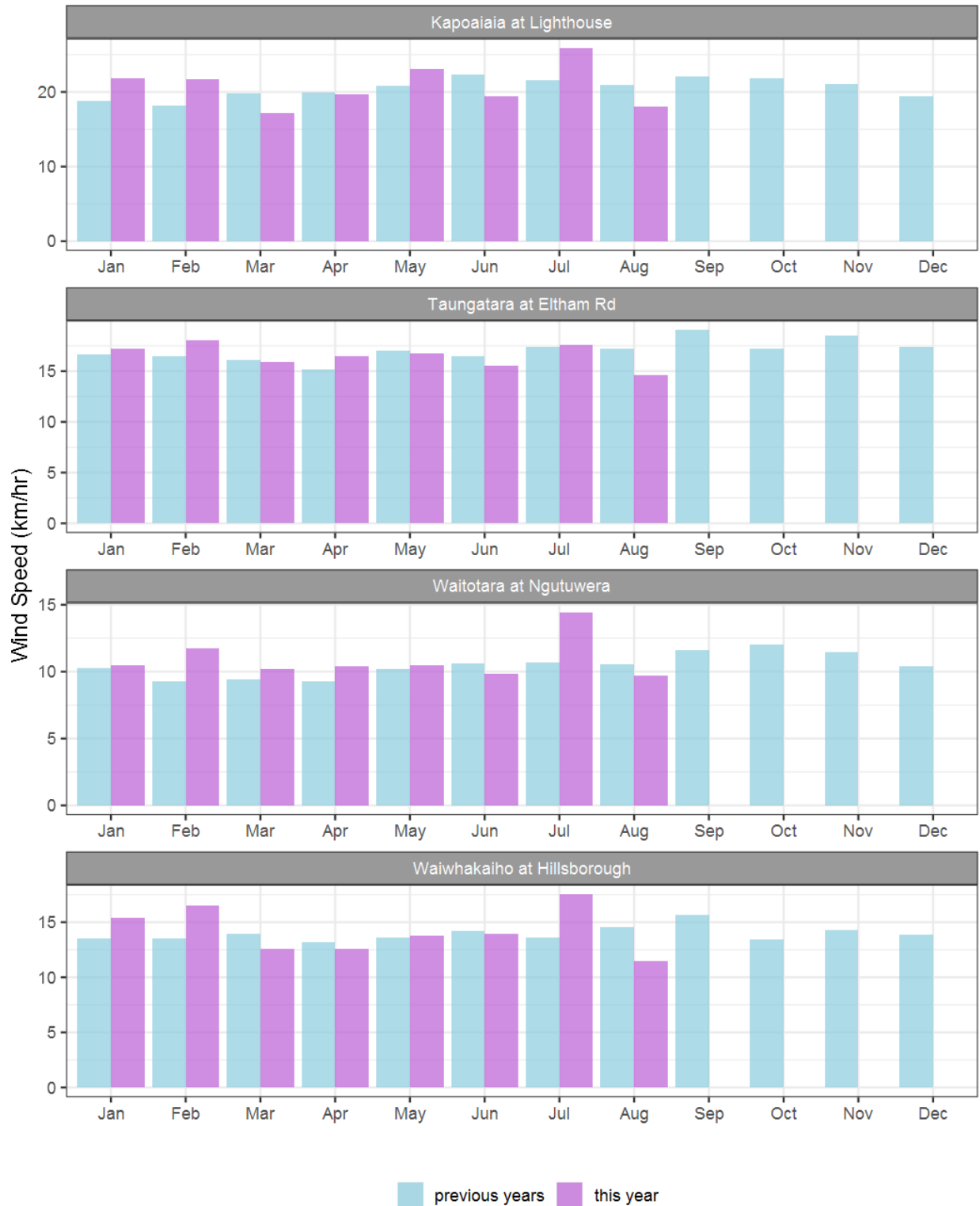


Figure 7.2: Monthly mean wind speed (km/hr) for selected sites, relative to the mean of all previously recorded months.

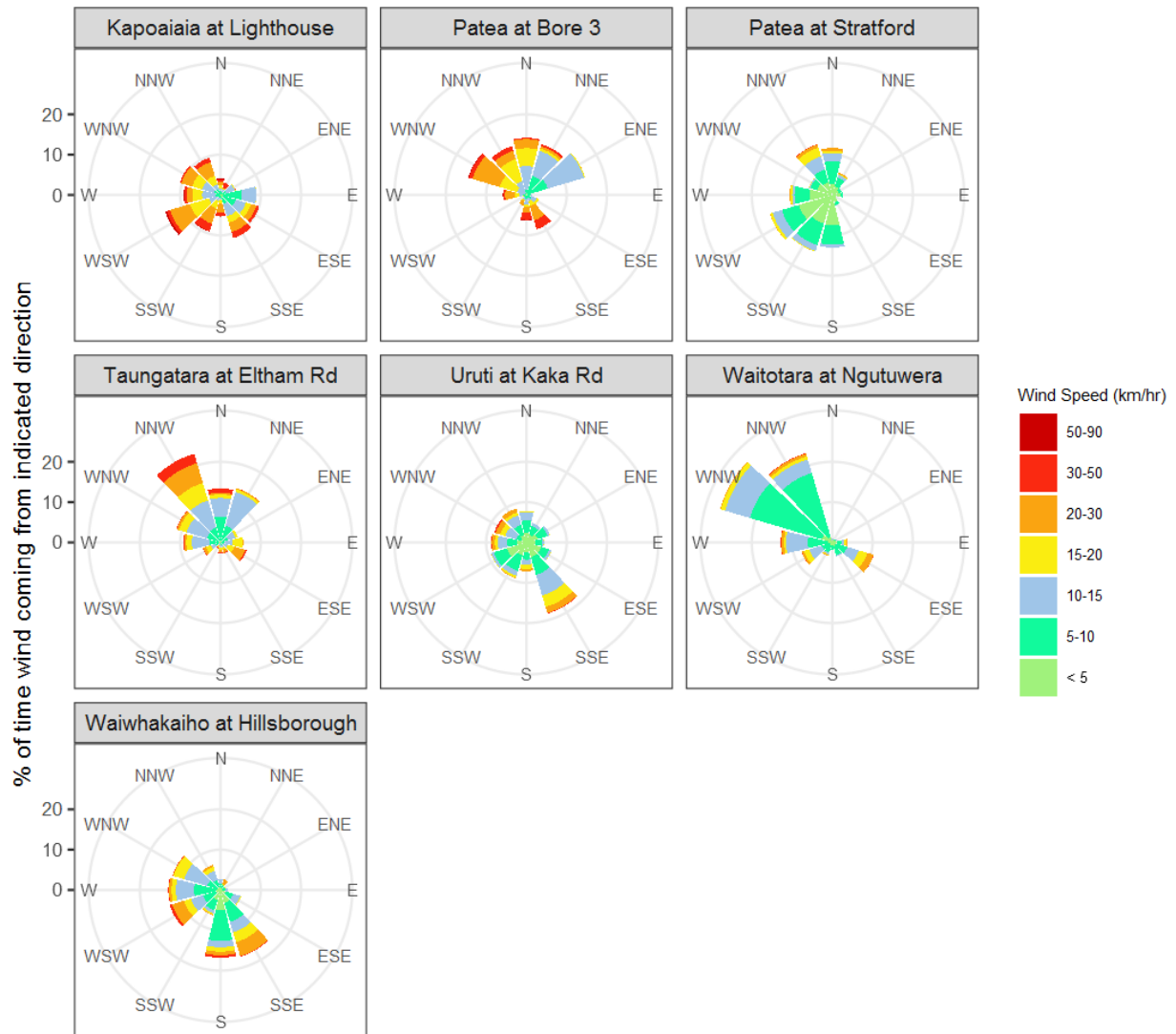


Figure 7.3: Wind roses for August for average wind speed (km/hr).

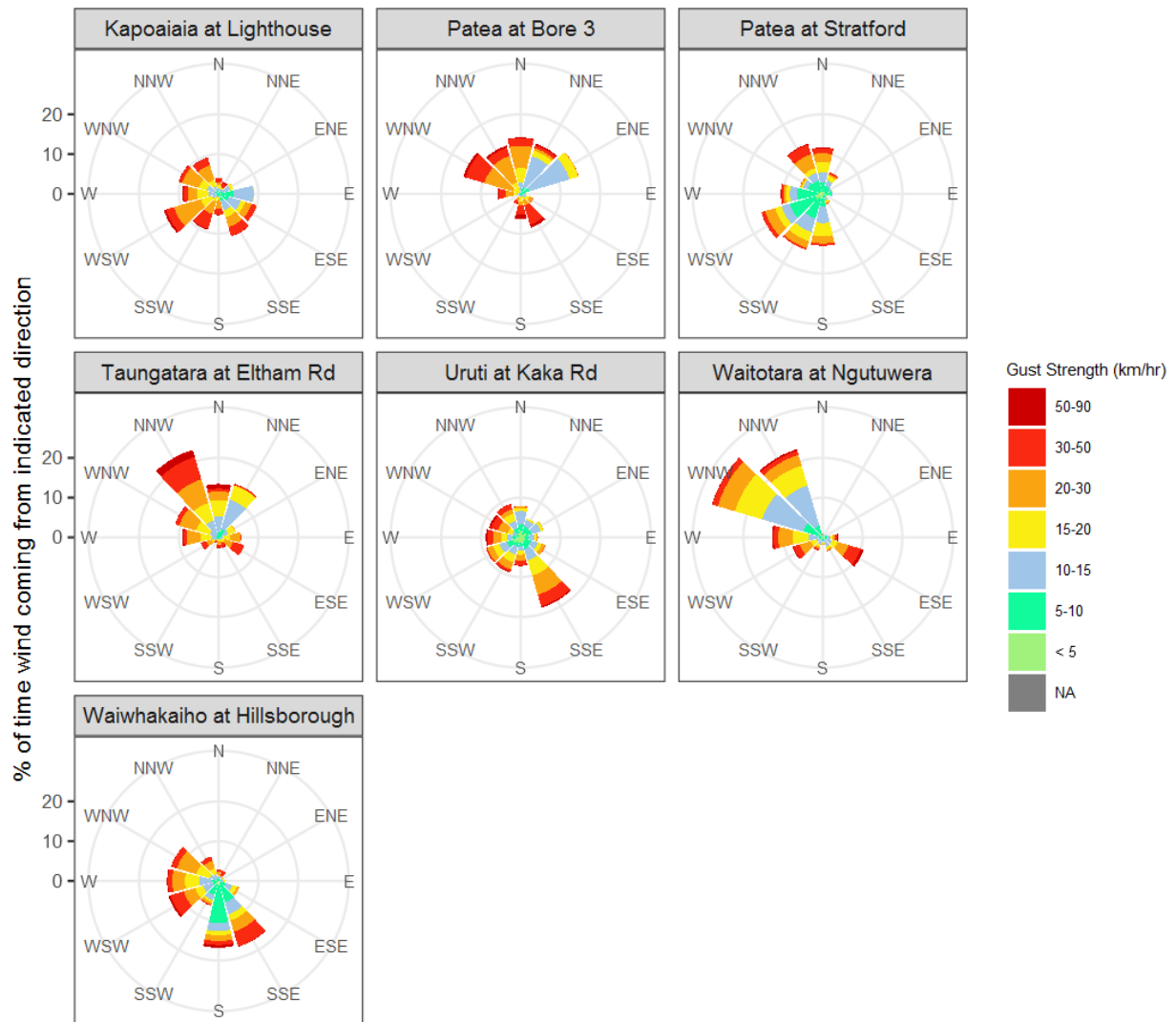


Figure 7.4: Wind roses for August for maximum wind gust (km/hr).

Summary of month's conditions

Rainfall

On average rainfall for August was 145.4mm, 17% less typical August rainfall, and ranging from 44% less rainfall at Mangorei Upper at Forest Hill, and 2% more rainfall at Waitotara at Rimunui Station than a typical August.

Year to date rainfall ranges from 13% less rainfall at Uruti at Kaka Rd, and 14% more rainfall at Tawhiti at Duffys, with an average of the same as normal. Compared to typical full year totals, on average sites have already received 66% of a typical years rainfall, with the highest value at Omaru at Charlies, 75% of normal, whereas Uruti at Kaka Rd sits at 54% of the typical years total.

River Flow

Mean river flows for August were 29.6% lower than typical values, low flows were 26.2% greater, and high flows 43.4% lower than typical values. The maximum river flow recorded in August was 277 m³/sec at Waitara at Bertrand Rd.

River Water Temperature

Mean river (non-mountain) water temperatures were 9.4°C, an average of 1°C cooler than long-term August values. Nighttime-low water temperatures were on average 0.7°C cooler than historic lows, and day-time high temperatures were on average 1.2°C cooler than historic highs. The maximum river water temperature recorded in August was 14.1°C at Mangati at SH3.

Air Temperature

The average air temperature for the region (excluding Te Maunga sites) was 8.3°C, which is 1.5°C cooler than long-term August averages. Low air temperatures for August were on average 1.4°C cooler than the August average for previous years. Day-time high temperatures were on average 1.5°C cooler than historic highs. The maximum air temperature recorded in August was 25°C at Weraweraonga at 749 Mangawhio Rd.

Soil Moisture

The average soil moisture for August across sites in Taranaki region was 35.9%. Soil moistures were on average 1.2% wetter than typical August values. On average, low soil moistures were 4% wetter than previous lows, and the highs were on average 1.8% drier than previous values for August.

Soil Temperature

August soil temperatures were generally 0.7°C cooler than long-term averages. Average nighttime low soil temperatures were 0.2°C warmer than recorded lows, and upper day-time soil temperatures were on average 1.5°C cooler than long-term August highs. The maximum soil temperature recorded in August was 17.4°C at Taungatara at Eltham Rd.

Wind Speed (average and 10 minute gust)

August average wind speeds were 14km/hr, with average gust strength of 41.1km/hr, these were 2.3km/hr lighter, and 4.2km/hr weaker than the long-term average. Average calm weather wind speeds were 0.1km/hr lighter than recorded lows, and windy conditions were on average 4.5km/hr lighter than long-term August highs. The maximum wind gust recorded in August was 130km/hr at Waitotara at Ngutuwera. Cape Egmont is generally the windiest station the TRC monitors, and Stratford is often the calmest.

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: 5 September, 2023.