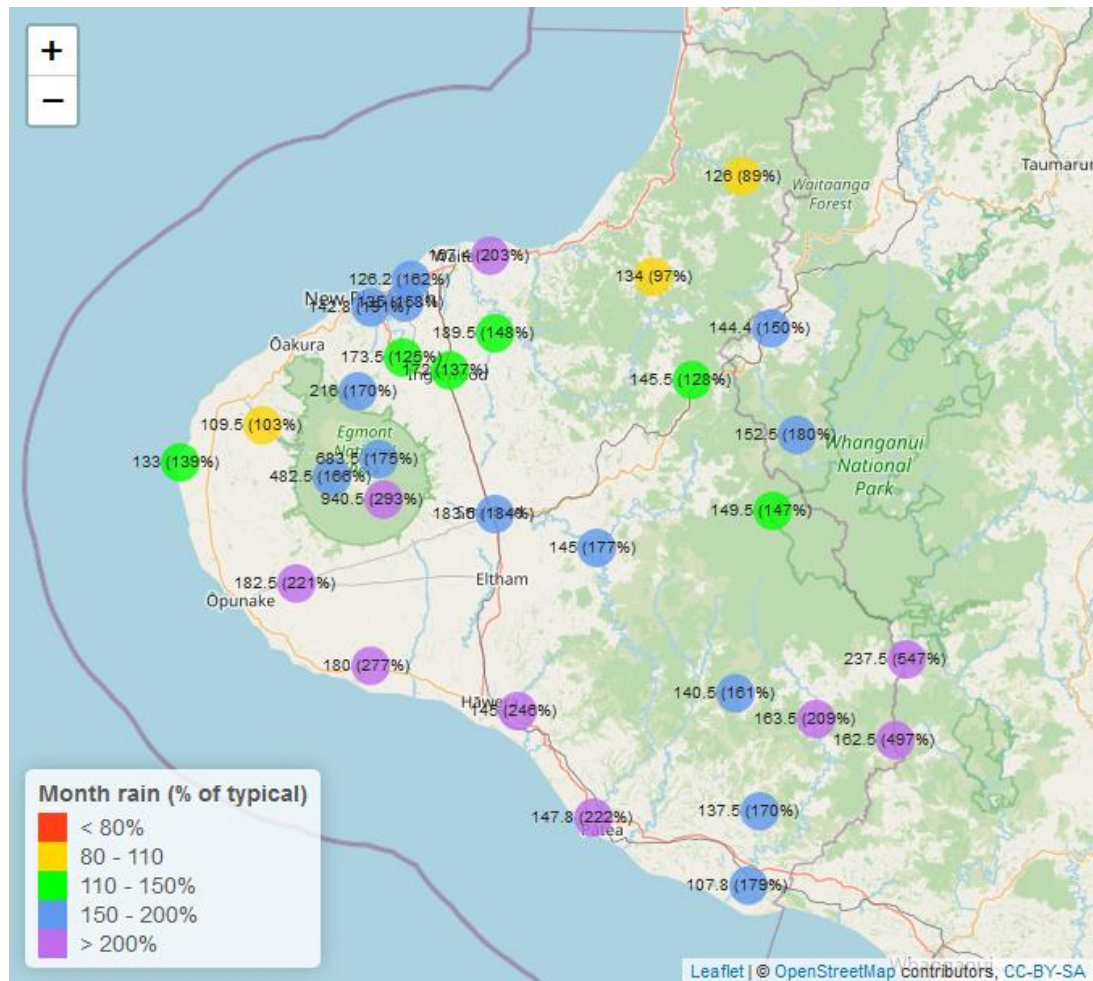


Taranaki Regional Council Monthly Rainfall and Environmental Data Report for January 2023

Note: Provisional Data Only.

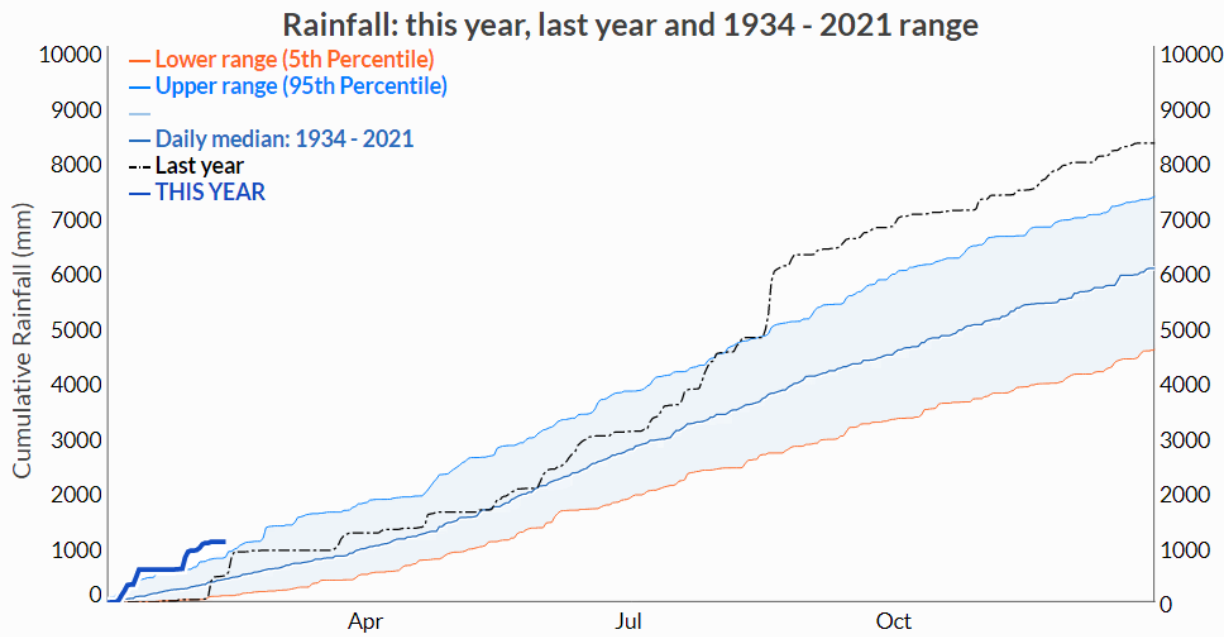
1. Rain gauge values at 28 sites in Taranaki



Map 1. Month total rain (mm) and percentage of long-term mean.

Dawson Falls (Mountain)

The rainfall statistics for this site are based on the rain year from 1 January 2023.



Waiwhakaiho at Egmont Village (New Plymouth Area)

The rainfall statistics for this site are based on the rain year from 1 January 2023.

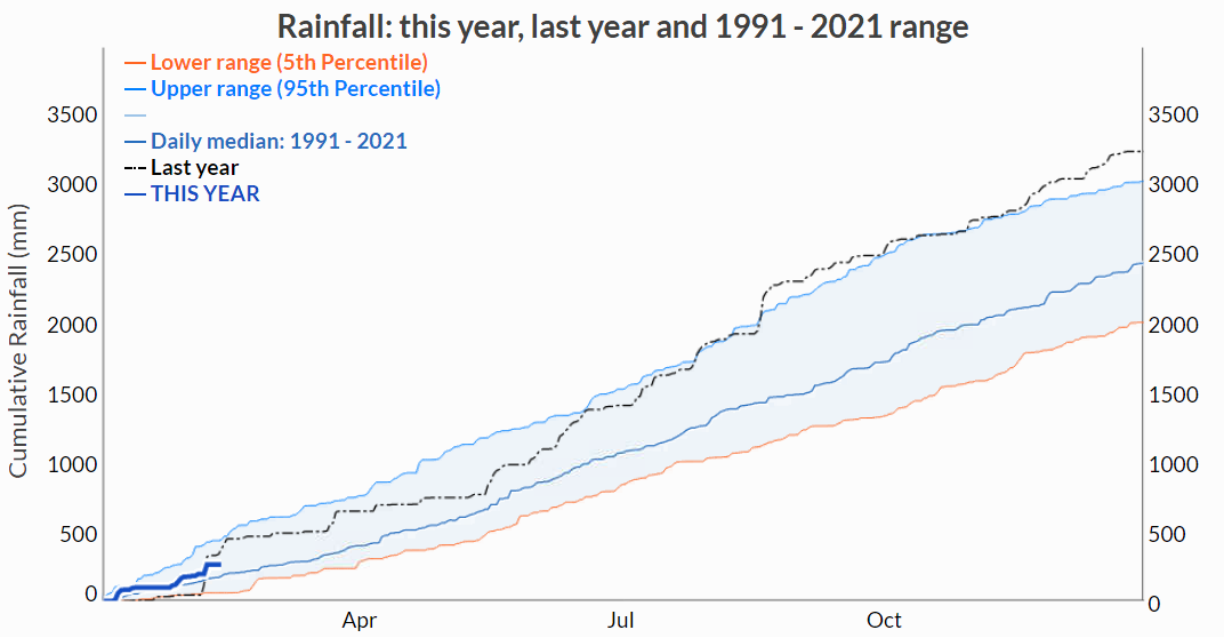


Figure 1. Example rain total accumulation comparisons for two selected sites in Taranaki.

Table 1: Rainfall monthly and year to date totals at 27 rain gauge sites in Taranaki.

Rain gauge	January			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	
N Egmont VC	17	683.5	175	683.5	175	10	1991
Dawson Falls	16	940.5	293	940.5	293	16	1934
Kahui Hut	16	482.5	166	482.5	166	9	2006
Forest Hill	14	216.0	170	216.0	170	6	2018
Hillsborough	11	135.0	158	135.0	158	7	2013
Brooklands Zoo	14	142.8	191	142.8	191	9	2012
Bell Block	15	126.2	162	126.2	162	8	2013
Motunui	14	167.4	203	167.4	203	11	1999
Egmont Vill	14	173.5	125	173.5	125	7	1991
Everett Pk	14	189.5	148	189.5	148	9	1987
Inglewood	13	172.0	137	172.0	137	7	2000
Stony R	12	109.5	103	109.5	103	5	2004
Cape Egmont	10	133.0	139	133.0	139	10	1930
Taungatara	12	182.5	221	182.5	221	12	2005
Kaupokonui	13	180.0	277	180.0	277	15	1998
Stratford	14	183.5	184	183.5	184	10	1999
Mangaehu	13	145.0	177	145.0	177	9	1999
Kotare OSullivans	13	126.0	89	126.0	89	6	1998
Uruti Kaka Rd	13	134.0	97	134.0	97	6	1991
Pohokura Saddle	15	145.5	128	145.5	128	7	1991
Omaru Charlies	13	149.5	147	149.5	147	8	2006
Omahine Moana Trg	15	140.5	161	140.5	161	10	2007
Rimunui Station	14	163.5	209	163.5	209	12	1994
Ngutuwera	12	137.5	170	137.5	170	11	1999
Hawera Tawhiti	13	145.0	246	145.0	246	13	1994
Patea Bore3	12	147.8	222	147.8	222	12	2006
Hawken Rd	11	107.8	179	107.8	179	9	2016
Te Tuhi Jn	15	162.5	497	162.5	497	11	2019
Mataimona Trig	15	237.5	547	237.5	547	14	2019

Rain gauge	January			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	
Marco Road	15	144.4	150	144.6	150	7	2018
Br to Somewhere	15	152.5	180	152.5	180	9	2018

2. River Flow at 32 sites in Taranaki

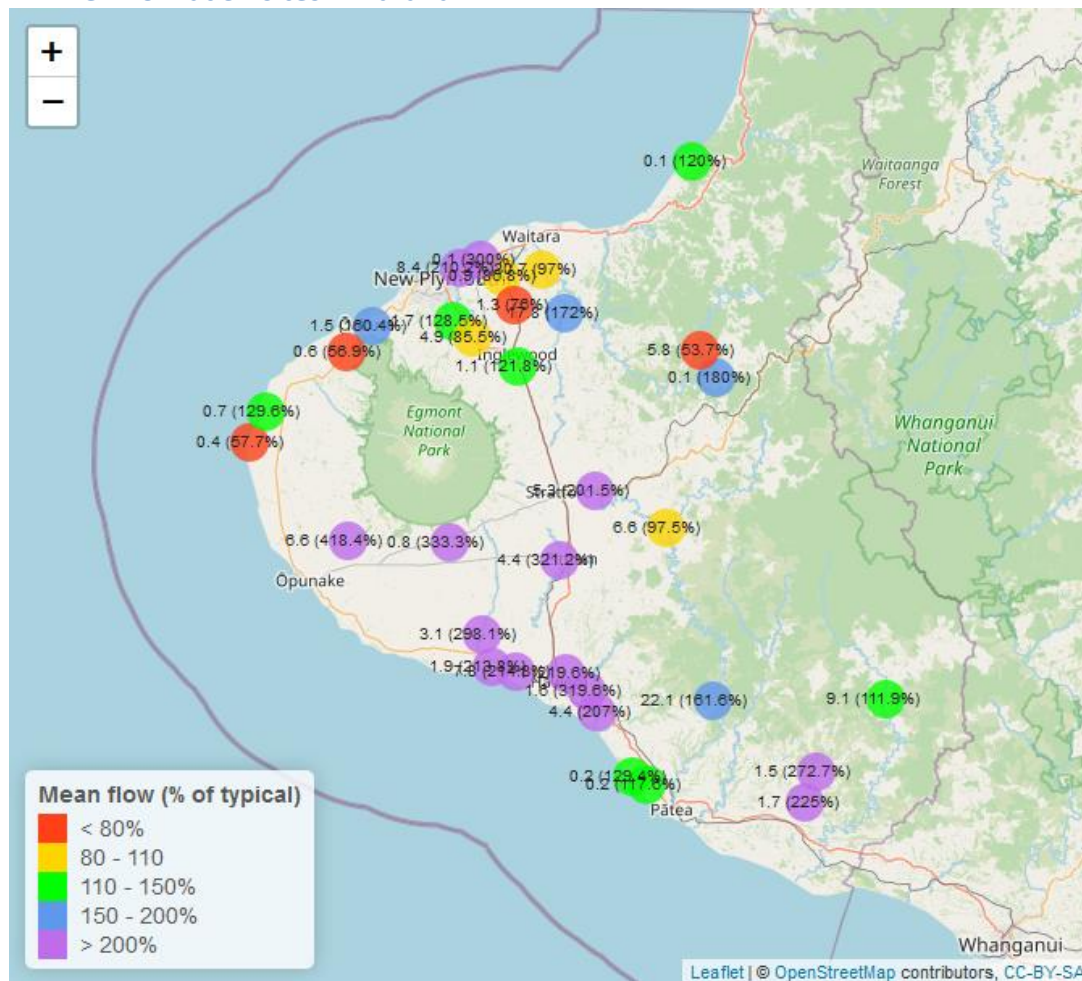


Table 2: Summary of high, low and mean flow for the current reporting month and the same month for all preceding years of record.

Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		Data years	Records began
	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic		
Inaha at Lower Inaha Rd	5.37	1.58	0.79	0.41	1.9	0.87	3	2020
Kaikura below 7346	0.41	0.34	0.12	0.05	0.2	0.17	8	2015
Kapoaiaia at Lighthouse	1.28	2.04	0.17	0.26	0.4	0.78	36	1987
Kapuni at Normanby Rd	7.17	2.32	1.15	0.36	3.1	1.04	23	2000
Mangaehu at Bridge	20.75	18.29	3.07	2.03	6.6	6.80	43	1980
Manganui at Everett Park	57.42	28.60	6.34	3.61	17.8	10.33	31	1992
Mangaoraka at Corbett Rd	1.74	3.15	0.43	0.23	0.9	1.06	41	1981
Mangaroa at Manawapou Rd	0.43	0.39	0.12	0.04	0.2	0.17	4	2019
Mangati at SH3	0.26	0.10	0.06	0.01	0.1	0.04	10	2013
Mangawheroiti Above Intake W.W	2.65	0.38	0.23	0.14	0.8	0.24	10	2013
Mangorei at Pipebridge	4.80	3.43	0.76	0.38	1.7	1.30	13	2010
Matau at Woolshed	0.19	0.08	0.05	0.03	0.1	0.05	5	2018
Moumahaki at Johnston Rd	6.73	1.15	0.54	0.35	1.7	0.76	5	2018
Ngatoro at SH3	2.81	2.27	0.46	0.27	1.1	0.87	29	1976
Oakura at Victoria Rd	4.65	2.07	0.62	0.47	1.5	0.91	4	2019
Patea at McColls Bridge	53.87	49.56	3.73	2.23	22.1	13.69	36	1987
Patea at Skinner Rd	13.05	7.51	2.08	0.72	5.3	2.63	42	1980
Tangahoe below Railway Bridge	12.86	4.39	1.96	1.11	4.4	2.13	5	2018
Tawhiti at Duffys	3.00	1.25	1.09	0.19	1.6	0.51	36	1986
Tawhiti below Meat Plant	1.84	0.95	0.70	0.24	1.0	0.46	12	2010
Timaru at Tataraimaka	1.39	2.36	0.32	0.31	0.6	1.02	9	2014
Waiaua 2 at Barraclough Opu	16.57	2.33	2.64	1.06	6.6	1.58	4	2019
Waikaramarama at Bridge	0.18	0.11	0.01	0.01	0.1	0.05	5	2018

Recorded flows (m3/sec)								
River and Site	Highs		Lows		Mean		Data years	Records began
	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic		
Waingongoro at Eltham Rd	10.96	3.89	2.22	0.40	4.4	1.37	41	1982
Waingongoro at SH45	17.02	9.47	4.41	1.23	7.8	3.63	41	1982
Waiongana at SH3a	3.24	5.08	0.61	0.40	1.3	1.71	41	1982
Waitara at Bertrand Rd	81.08	101.19	11.42	6.67	30.7	31.69	39	1984
Waitara at Purangi Bridge	23.24	35.90	0.88	0.57	5.8	10.70	23	2000
Waitotara at Rimunui Station	33.81	19.51	3.62	2.91	9.1	8.09	18	2005
Waiwhakaiho at Egmont Village	14.65	16.47	2.06	2.02	4.9	5.71	41	1982
Waiwhakaiho at Vickers Rd	25.54	9.04	2.29	1.74	8.4	4.01	3	2020
Warea at Coast	1.17	0.91	0.47	0.32	0.7	0.54	5	2016
Weraweraonga at 749 Mangawhio Rd	6.46	1.09	0.35	0.10	1.5	0.55	5	2018

Water T °C (diff to historic)

- < 0°
- 0 - 0.2°
- 0.2 - 0.5°
- 0.5 - 1.0°
- > 1.0°

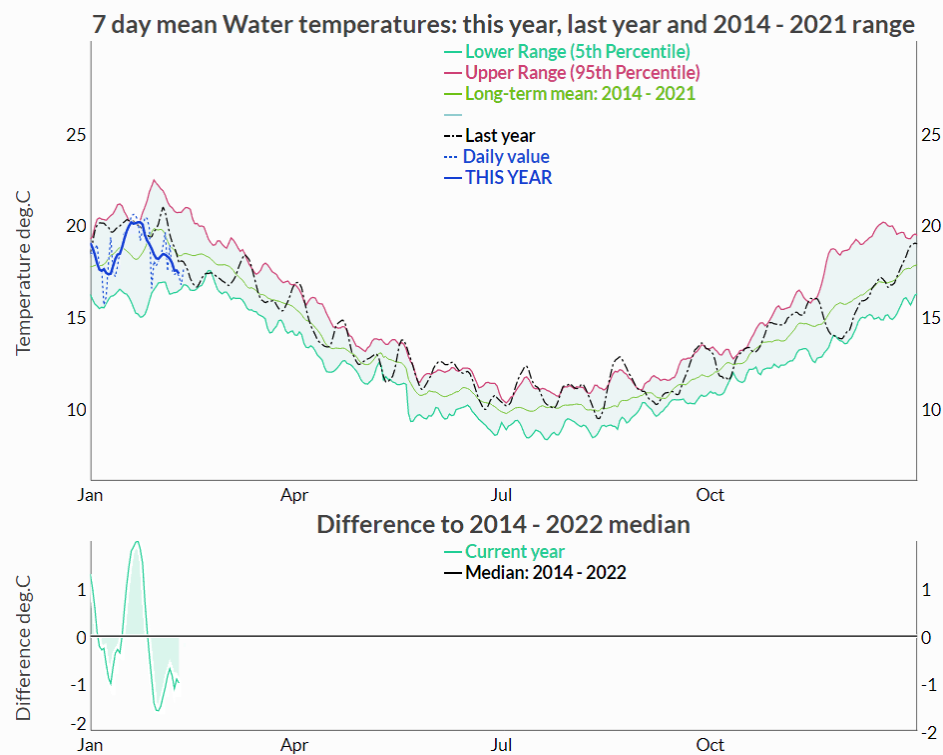
Map labels: Opunake, Egmont National Park, Patea, Whanganui National Park, Waitara, New Plymouth, Ingham, Stratford, Patea.

Map data points (Temperature, Difference to historic):

Location	Temperature (°C)	Diff to historic (°C)
Waitara	17.7	0.19
New Plymouth	18.1	-0.13
Ingham	17.5	-0.31
Stratford	18	-0.9
Opunake	16.8	-0.12
Patea	20.8	-1.33
Other locations	19.5, 20.4, 18.4, 18.6, 16.4, 16.7, 16.9, 18.4, 17.8, 20.6	-0.31, -0.36, 0.74, 0.12, -0.07, -0.77, -0.88, -0.89, -1.47, -0.98, -0.8, -1.32, -1.28

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

Mangorei at Pipebridge



Patea at Skinner Rd

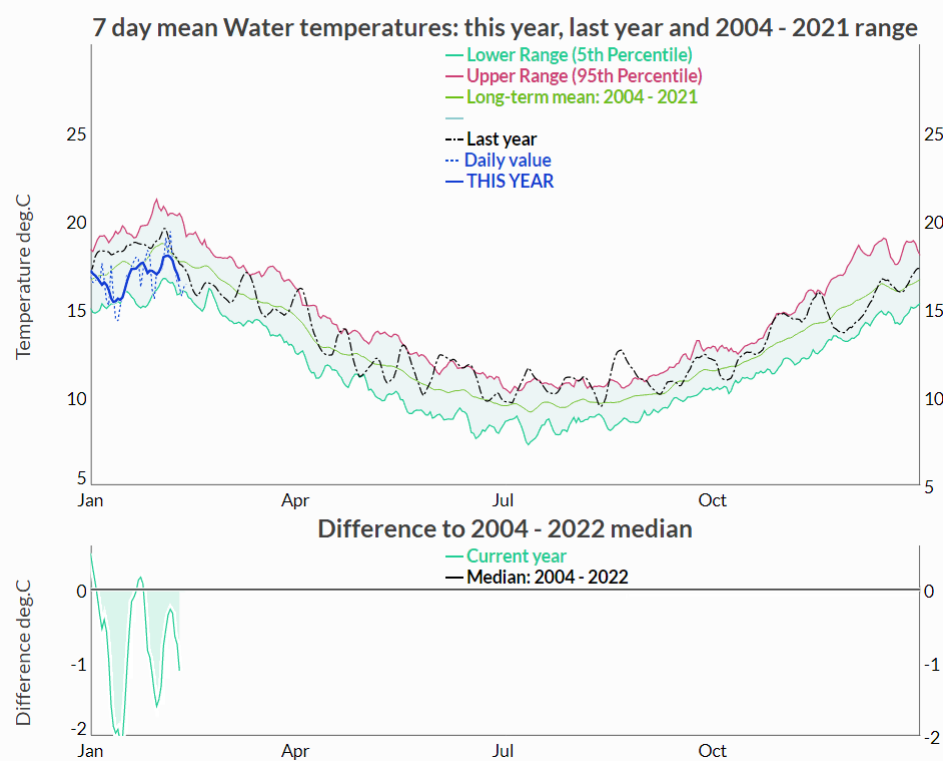


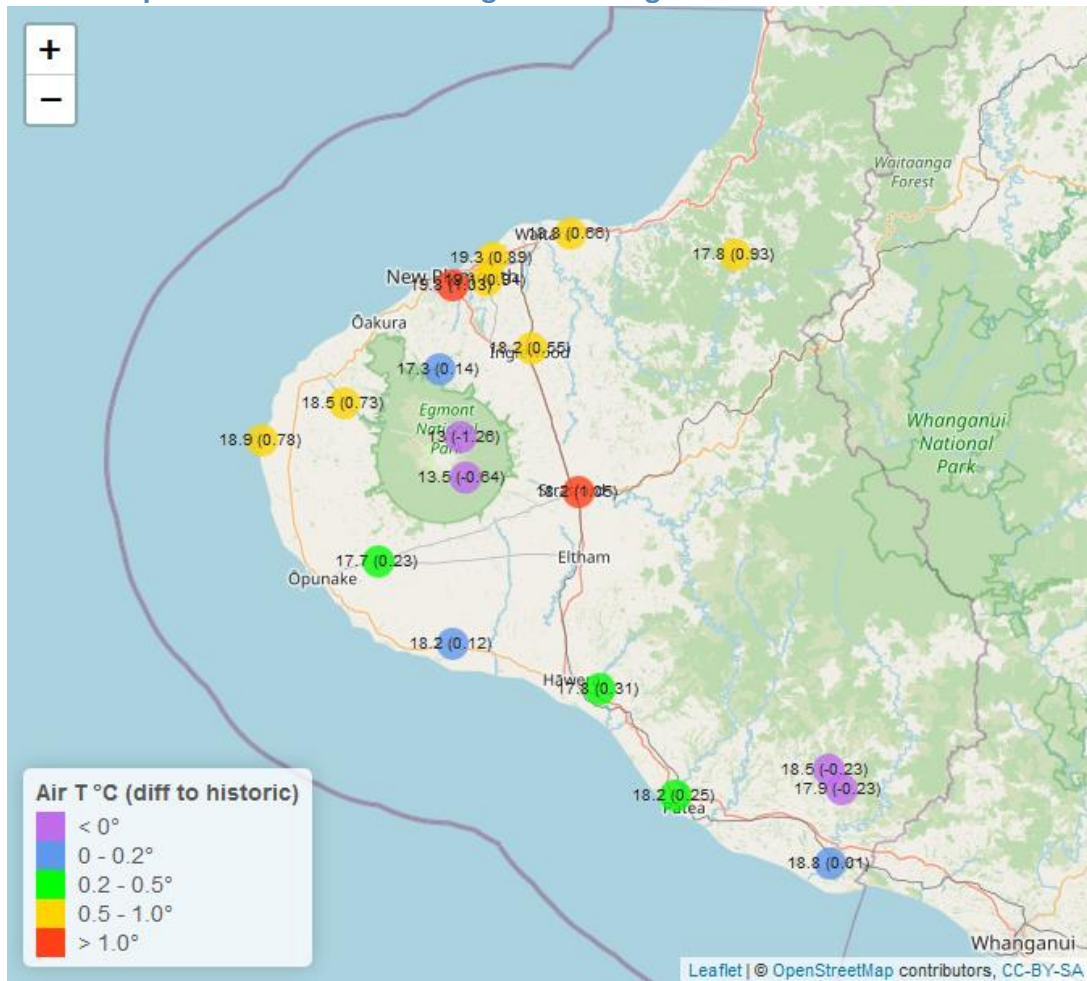
Figure 2. Example river temperature comparisons for two selected sites in Taranaki.

Table 3: Summary of high, low and mean river temperature for the current reporting month and the same month for all preceding years of record.

Monthly River Temperatures (°C)								
	Highs		Lows		Mean			
Monitoring Site	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic	Data years	Records began
Inaha at Lower Inaha Rd	21.19	21.94	16.00	15.94	18.4	18.53	3	2020
Kaikura below 7346	18.88	20.00	14.88	14.44	16.7	17.17	8	2015
Kapoaiaia at Lighthouse	20.89	24.38	17.54	15.72	19.5	19.77	24	1999
Kapuni at Normanby Rd	20.70	23.50	13.75	14.10	16.9	18.40	23	2000
Manganui at Everett Park	20.84	22.46	15.38	15.46	18.0	18.93	14	2009
Mangaoraka at Corbett Rd	20.58	22.68	14.34	15.20	17.1	18.75	19	2004
Mangaroa at Manawapou Rd	23.17	22.25	18.40	16.56	20.8	19.54	4	2019
Mangati at Ponds	23.79	24.35	18.36	18.06	20.9	21.22	4	2019
Mangati at SH3	19.59	20.23	16.85	15.69	18.2	17.94	11	2006
Mangawheroiti Above Intake W.W	14.12	16.15	11.26	10.86	12.7	13.37	10	2013
Mangorei at Pipebridge	21.72	22.80	15.61	14.38	18.6	18.52	9	2014
Matau at Woolshed	19.03	22.51	14.66	13.83	16.6	17.69	5	2018
Ngatoro at SH3	18.94	20.56	14.06	13.70	16.4	17.18	23	1982
Oakura at Victoria Rd	22.85	22.80	16.13	15.37	19.3	19.23	4	2019
Patea at McColls Bridge	23.06	24.50	18.12	19.38	20.6	21.85	8	2015
Patea at Skinner Rd	19.07	21.23	14.39	14.10	16.6	17.50	19	2004
Tangahoe below Railway Bridge	21.00	23.12	16.38	16.38	18.4	19.77	5	2018
Tawhiti at Duffys	19.21	21.80	16.29	15.63	17.8	18.55	19	2004
Tawhiti below Meat Plant	19.31	21.40	15.69	15.54	17.4	18.37	25	1993
Timaru at Tataraimaka	21.09	21.36	16.37	13.88	18.4	17.65	9	2014
Waiaua 2 at Barraclough Opua	21.54	21.94	13.53	12.36	16.8	16.88	4	2019
Waikaramarama at Bridge	18.63	19.96	16.87	15.04	17.7	17.52	5	2018

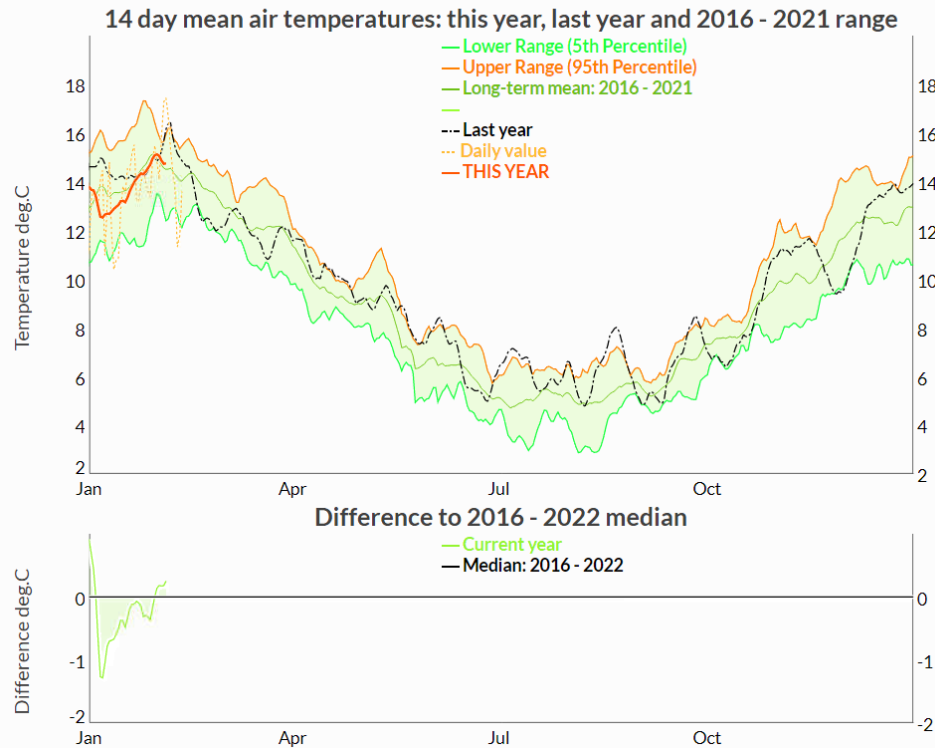
Monthly River Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records began
	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic		
Waingongoro at Eltham Rd	19.46	21.60	14.35	13.90	16.7	17.57	19	2000
Waingongoro at SH45	21.11	22.90	15.51	15.88	18.2	19.49	18	2004
Waiongana at SH3a	20.31	21.44	15.12	14.48	17.5	17.77	11	2012
Waitaha 1 at SH3	19.94	20.75	16.51	15.19	18.0	17.72	4	2019
Waitara at Bertrand Rd	23.37	23.87	17.54	17.21	20.5	20.64	36	1982
Waiwhakaiho at Egmont Village	19.02	19.99	14.29	13.10	16.4	16.46	31	1992
Warea at Coast	25.10	25.04	16.60	16.25	20.4	20.71	4	2019

4. Air Temperature at 19 sites throughout the region



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

Dawson Falls



Brooklands Zoo at New Plymouth

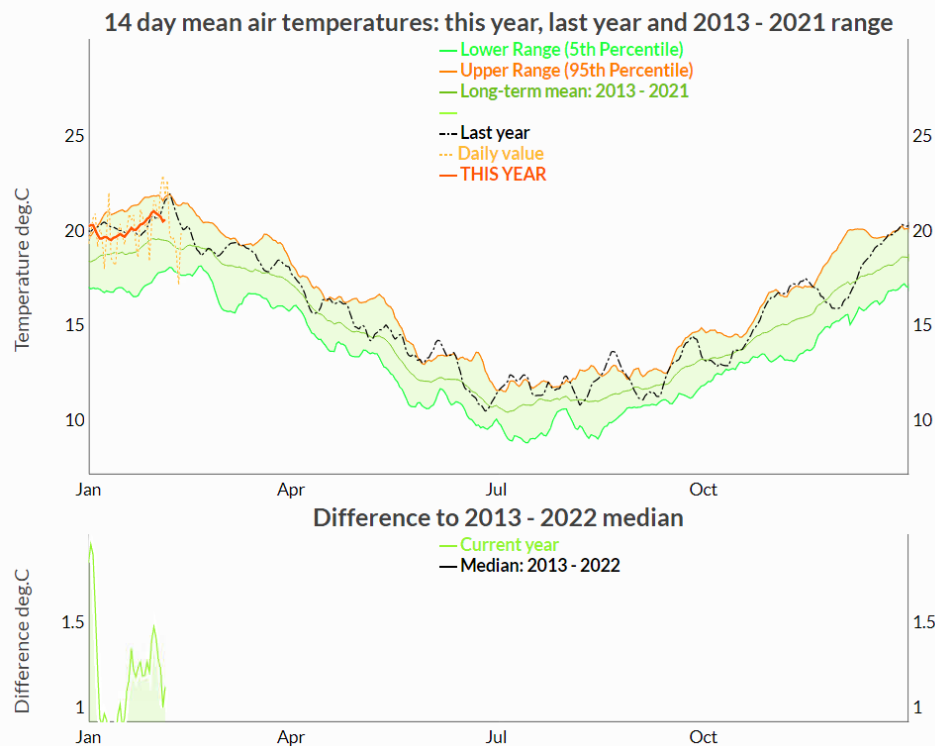
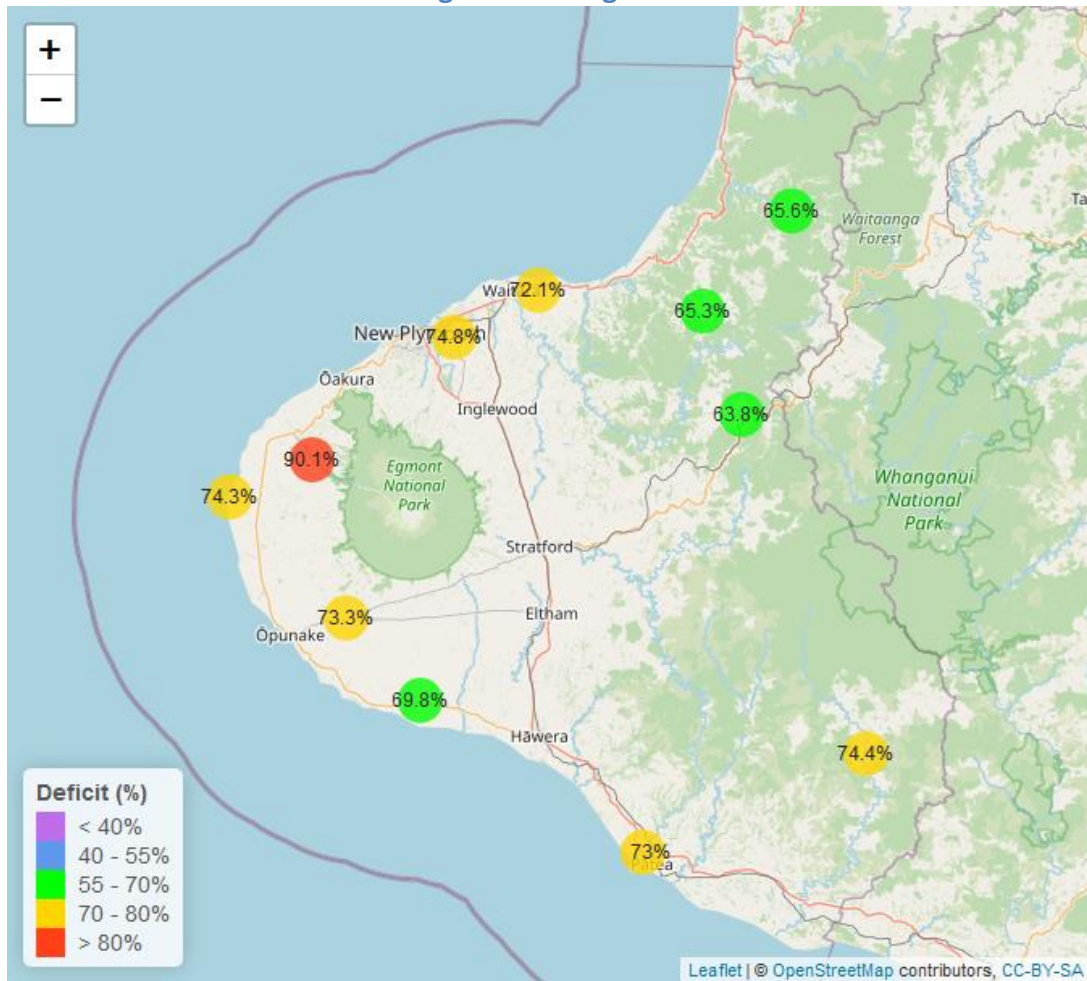


Figure 3. Example air temperature comparisons for two selected sites in Taranaki.

Table 4: Summary of high, low and mean air temperature for the current reporting month and the same month for all preceding years of record.

Monthly Air Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records Began
	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic		
Brooklands Zoo at New Plymouth	25.19	25.19	15.02	12.60	19.8	18.80	11	2012
Dawson Falls	17.83	21.00	9.81	7.23	13.5	14.11	7	2016
Inglewood at Oxidation Ponds	24.09	25.35	12.63	10.73	18.2	17.64	11	2012
Kapoaiaia at Lighthouse	22.40	22.23	14.86	13.44	18.9	18.11	10	2013
Kaupokonui at Glenn Rd	23.27	23.70	12.75	12.05	18.2	18.06	8	2015
Mangati at SH3	23.35	23.59	14.84	12.73	19.3	18.39	10	2013
Mangorei Upper at Forest Hill	20.94	22.92	13.47	11.54	17.3	17.12	5	2018
Motunui M39 at Weston W3	22.71	23.37	14.32	12.43	18.8	18.12	6	2017
North Egmont at Visitors Centre	17.36	20.50	9.35	8.11	13.0	14.25	8	2015
Patea at Bore 3	22.59	23.23	13.24	12.37	18.2	17.95	11	2012
Patea at Stratford	24.54	24.54	13.32	10.77	18.2	17.16	11	2012
Stony at Mangatete Bridge	22.75	23.26	13.86	12.25	18.5	17.74	7	2016
Taungatara at Eltham Rd	22.34	22.82	13.11	12.14	17.7	17.47	7	2016
Tawhiti at Duffys	23.00	23.44	10.51	9.92	17.8	17.51	9	2014
Uruti at Kaka Rd	22.04	23.07	13.40	11.25	17.8	16.85	4	2019
Waitotara at Hawken Rd	23.81	24.24	13.34	12.80	18.8	18.79	7	2016
Waitotara at Ngutuwera	22.77	23.81	12.74	12.27	17.9	18.14	5	2018
Waiwhakaiho at Hillsborough	23.38	23.70	15.09	12.78	19.1	18.13	10	2013
Weraweraonga at 749 Mangawhio Rd	24.52	25.55	11.54	10.82	18.5	18.73	5	2018

5. Soil Moisture at 11 sites throughout the region



Map 5: Month mean soil moisture deficit ($100 - \text{soil moisture}$, %).

Waiwhakaiho at Hillsborough

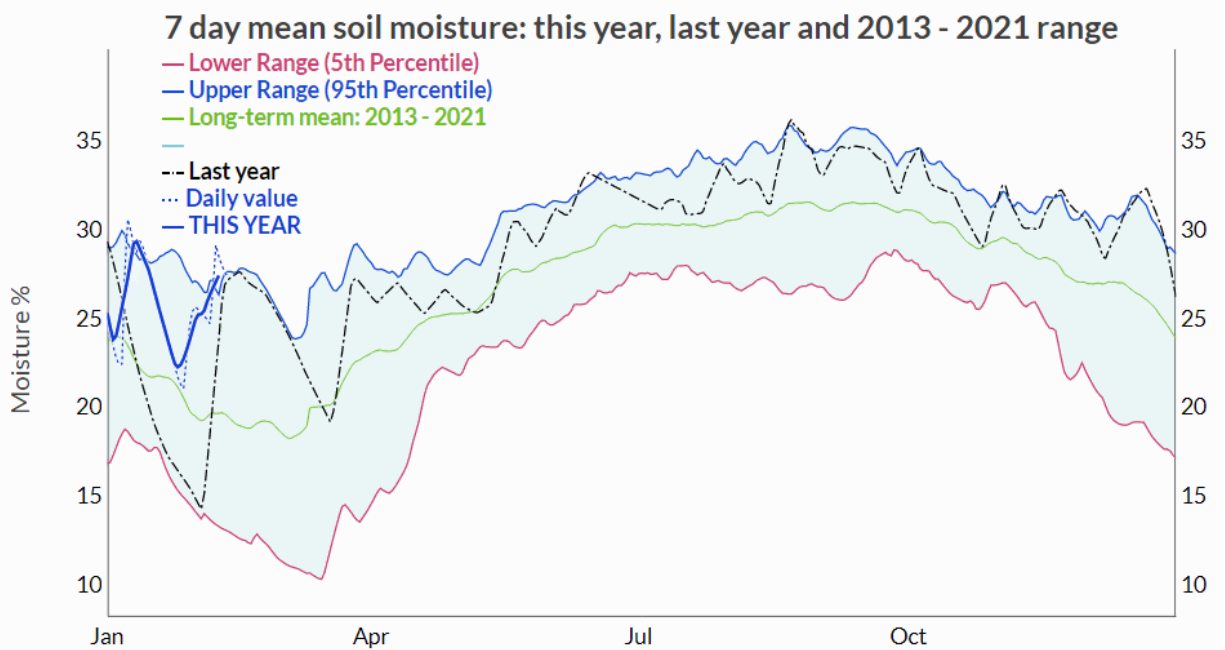
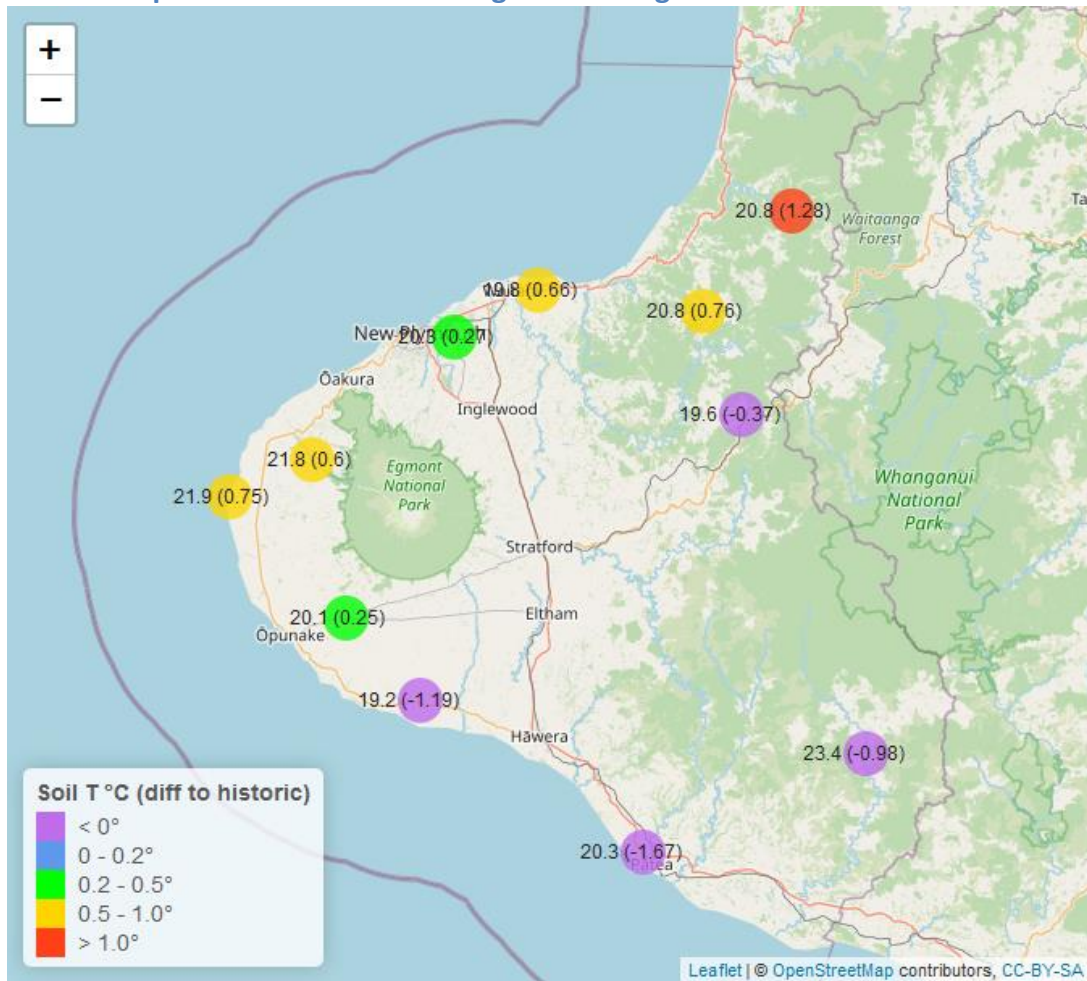


Figure 4. Example soil moisture variation for a site in Taranaki (note: this is moisture content, 100 – deficit).

Table 5: Summary of high, low and mean soil moisture for the current reporting month and the same month for all preceding years of record.

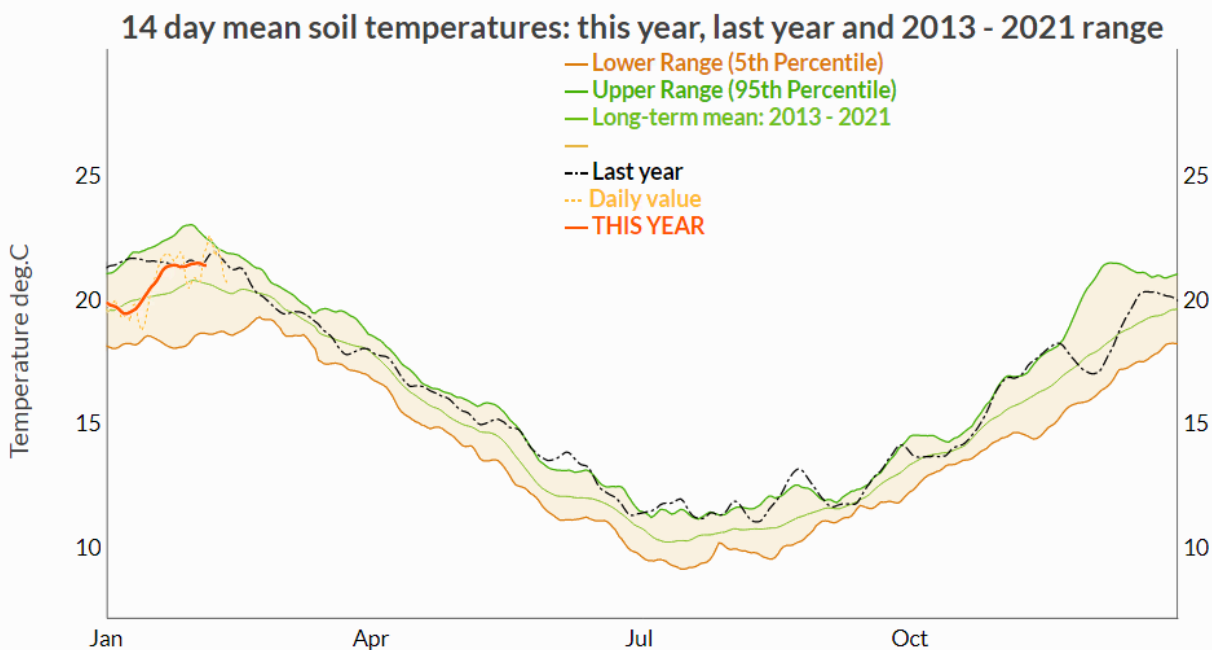
Monthly Soil Moisture Extremes (%)								
Monitoring Site	Highs		Lows		Mean		Data years	Records began
	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic		
Kapoaiaia at Lighthouse	26.93	25.64	24.14	9.56	25.70	18.53	11	2012
Kaupokonui at Glenn Rd	35.24	34.20	25.27	11.61	30.21	21.24	12	2011
Kotare at OSullivans	41.10	44.07	28.17	21.41	34.41	34.23	11	2012
Motunui M39 at Weston W3	31.44	29.62	24.31	13.80	27.90	22.27	9	2014
Patea at Bore 3	30.25	29.80	23.27	17.45	27.05	24.52	6	2017
Pohokura Saddle	42.99	44.31	30.94	19.67	36.19	34.56	8	2015
Stony at Mangatete Bridge	15.89	20.59	5.29	4.17	9.93	10.86	7	2016
Taungatara at Eltham Rd	34.26	38.90	19.68	11.18	26.73	24.23	9	2014
Uruti at Kaka Rd	39.11	43.96	30.07	19.32	34.65	34.56	11	2012
Waitotara at Rimunui Station	29.31	25.76	23.09	18.21	25.56	22.58	6	2017
Waiwhakaiho at Hillsborough	29.59	29.67	21.11	15.00	25.20	21.76	10	2013

6: Soil Temperature at 11 sites throughout the region



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

Waiwhakaiho at Hillsborough



Waitotara at Rimunui Station

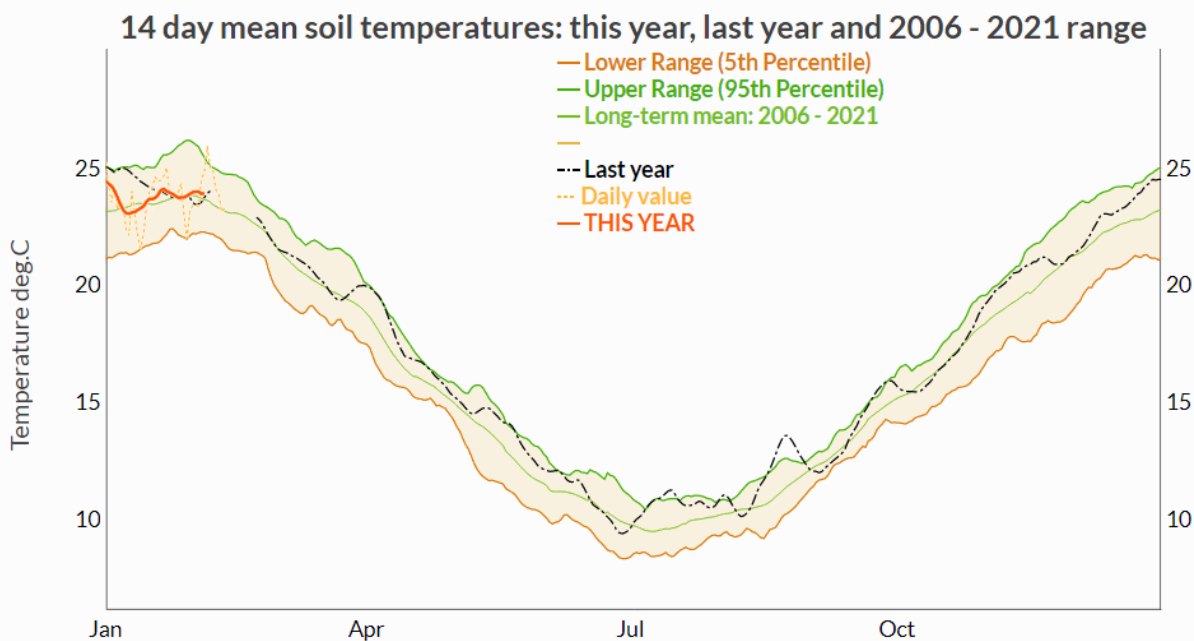
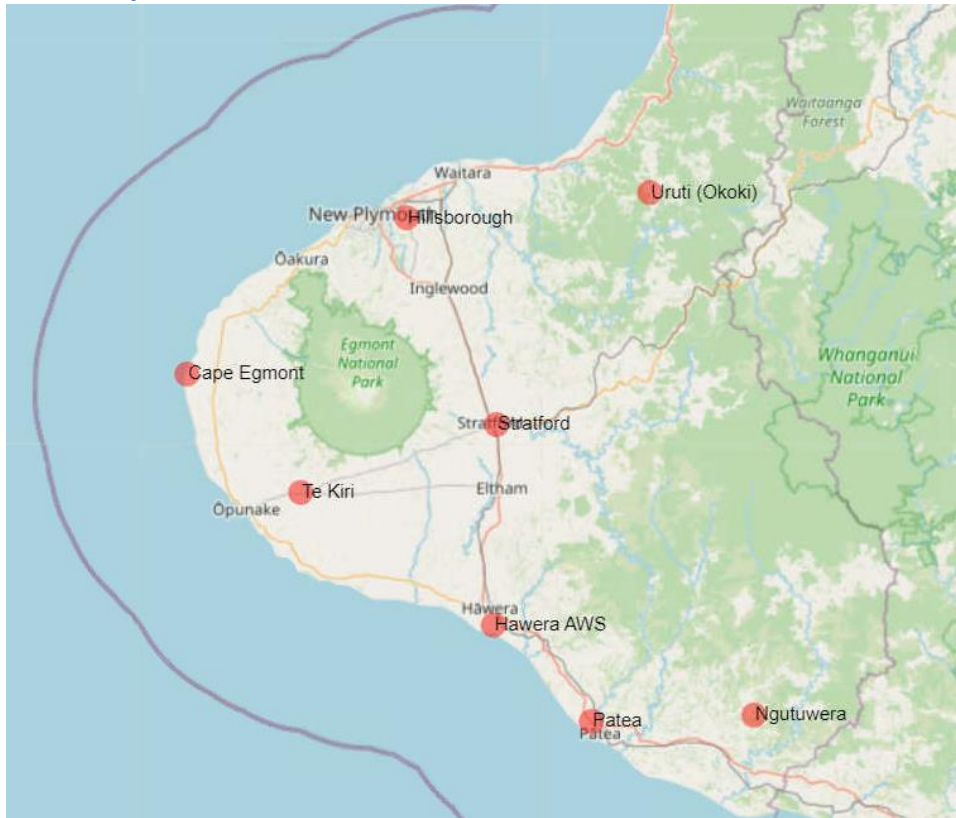


Figure 5. Example soil temperature comparisons for two selected sites in Taranaki.

Table 6: Summary of high, low and mean soil temperature for the current reporting month and the same month for all preceding years of record.

Monthly Soil Temperatures (°C)								
Monitoring Site	Highs		Lows		Mean		Data years	Records Began
	January 2023	January Historic	January 2023	January Historic	January 2023	January Historic		
Kapoaiaia at Lighthouse	23.62	24.77	20.13	18.10	21.9	21.17	11	2012
Kaupokonui at Glenn Rd	20.20	24.10	17.60	17.80	19.2	20.42	12	2011
Kotare at OSullivans	21.65	22.69	19.82	16.28	20.8	19.47	11	2012
Motunui M39 at Weston W3	20.88	22.07	18.44	16.30	19.8	19.17	9	2014
Patea at Bore 3	21.83	26.88	18.33	17.36	20.3	21.95	6	2017
Pohokura Saddle	21.18	22.10	18.50	17.08	19.6	19.97	8	2015
Stony at Mangatete Bridge	23.80	24.40	19.20	17.90	21.8	21.22	6	2016
Taungatara at Eltham Rd	22.80	23.27	17.30	16.80	20.1	19.89	9	2014
Uruti at Kaka Rd	21.86	22.44	19.53	17.50	20.8	20.03	11	2012
Waitotara at Rimunui Station	25.34	27.40	21.62	21.55	23.4	24.42	5	2018
Waiwhakaiho at Hillsborough	22.12	22.65	18.76	17.48	20.3	20.03	10	2013

7: Wind speed in Taranaki



Map 7: Wind speed monitoring stations in Taranaki.

Waiwhakaiho at Hillsborough

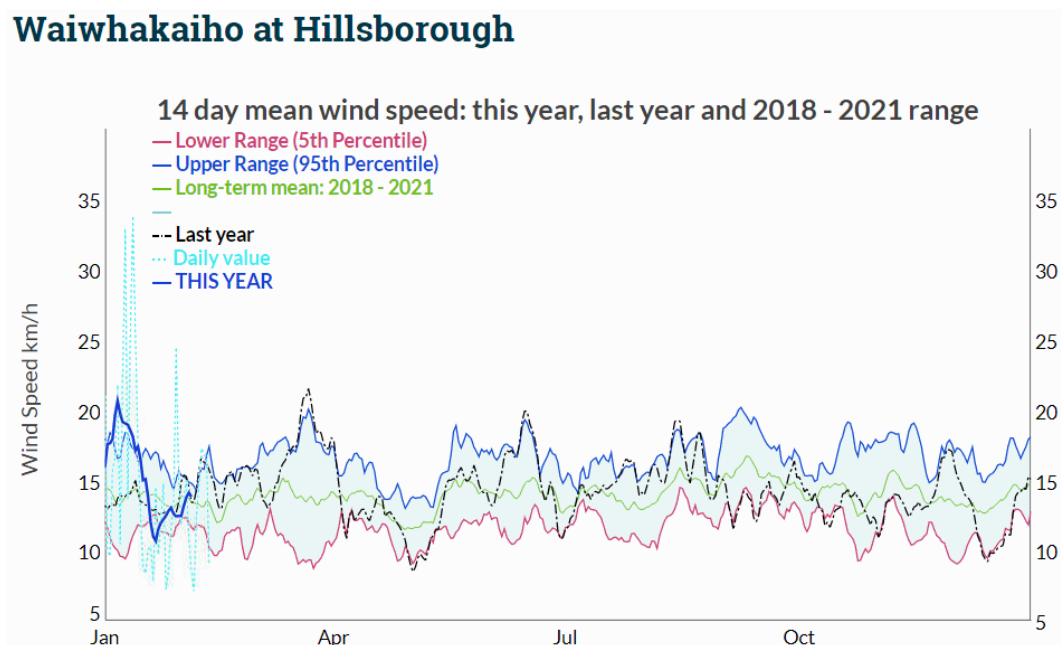


Figure 6: Example wind speed variations for a site in Taranaki.

Summary of months conditions

January 2023 weather in Taranaki was characterised by an initial cool wet and windy period, followed by two weeks of dry settled weather with drying soils, declining river flows, and warmer temperatures, and going-out with very heavy rains throughout the region and especially heavy in the southern-eastern hill country.

Rainfall

Rainfall for January was on average 193.5% of the long-term average, and ranged from 89% at Kotare at O'Sullivan's to 547% of the typical range at Whanganui at Mataimona Trig (note that the rainfall record here is short, 4 years, so a full range of typical conditions has not yet been collected). Rainfall was highest in the south-west ring-plain area, and in the south and eastern parts of the hill country.

Compared to typical full year totals, on average sites have already received 9.3% of a typical years rainfall, with the highest value 15% at Kaupokonui at Glenn Rd, whereas Stony at Mangatete Bridge sits at 5% of the typical years total.

River Flow

Mean river flows for January were generally above typical January averages at around 179.9%. Both low and high flows were around twice typical January values (at 224.7%, and 226%).

River Water Temperature

Mean river non-mountain water temperatures were 18°C, an average of -0.5°C cooler than long-term January values. Nighttime-low water temperatures were on average 0.6°C warmer than historic lows. Day-time high temperatures were on average -1.4°C cooler than historic highs.

Air Temperature

The average air temperature for the region (excluding Te Maunga sites) was 18.4°C, which is 0.3°C warmer than the long term January average. Low air temperatures for January were on average 1.5°C warmer than previously recorded lows. Day-time high temperatures were on average -0.9°C cooler than historic highs.

Soil Moisture

Mean soil moistures for January were 3.1% higher than typical historical values. On average, low soil moistures were 8.5% wetter than previous lows, and the highs were -0.9% drier than previous general observations. The average soil moisture was 27.6%.

Soil Temperature

Mean January soil temperatures were the same as the normal long-term average, although nighttime lows were on average 1.4°C warmer, and day-time highs were on average -1.6°C cooler than long-term January highs.

Notes: Above we refer to low and high values, these are the upper and lower 5th percentiles of the range. These values give a better indication of the general upper and lower range of the historic observations against which to compare the current month. Please do not hesitate to contact us if you require any further information.

Report date 11 February, 2023.