

Rainfall Performance

During December 2023, high amounts of rainfall were observed over the northern and extreme eastern parts of the country. Omega III (284mm), Okahao (156mm), Mukwe (134 mm) and Caprivi River Lodge (118.5mm) (see Table 1).

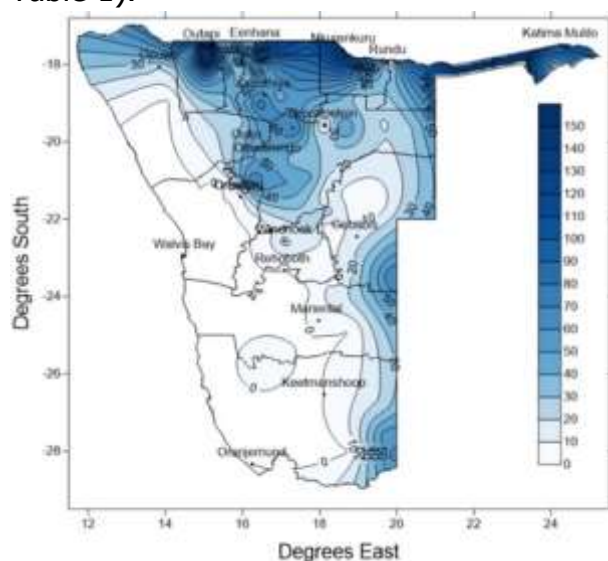


Figure 1 December 2023 rainfall in millimeters

The bulk of the country received below-normal rainfall for the month (colored red in *Fig.2*). The northern Kunene, Ohangwena, Oshana, Oshikoto, and parts of Omusati, Kavango West and Kavango East regions received below-average rainfall concerning the departure from its normal for December 2023. (see Figure 2).

Furthermore, table 1 below illustrates the performance of the rainfall as it was recorded in terms of specific stations from which data was received.

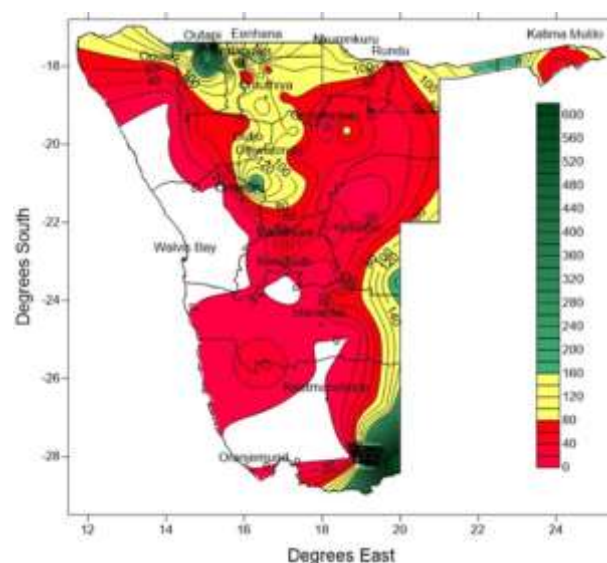


Figure 2 December 2023 percent of normal rainfall

On a seasonal scale (1 October 2023 to 31 December 2023), the performance was mostly below-normal (red color) rainfall for the bulk of the country. However, normal (yellow color) rain was observed mostly over the northern regions and above normal

(green color) rainfall over northern Kunene and Omusati regions (see Figure 3).

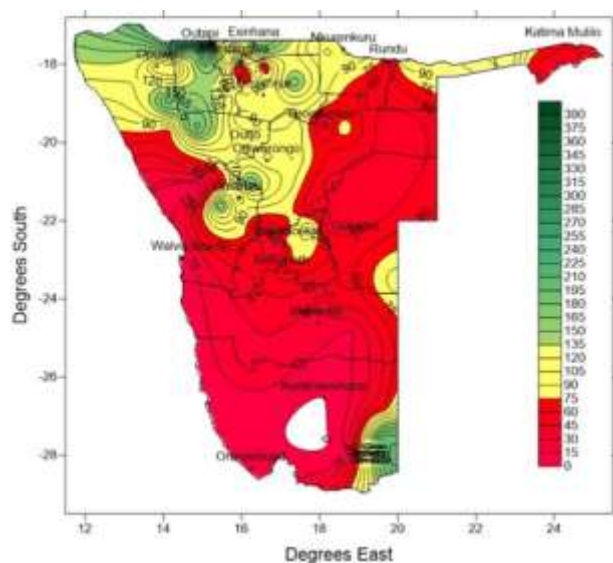


Figure 3: 1 October to 31 December 2023 percent of normal rainfall

Temperature Analysis

Although globally average near-surface air temperatures are at a record high or boiling largely, Namibia's December 2023 average near-surface air temperatures were near average with 24.8 °C, 0.6 °C above the 1991-2020 average. The southeastern Karas and central Erongo regions recorded cooler-than-average temperatures for the month, while above-average temperatures were observed over the remainder of the country.

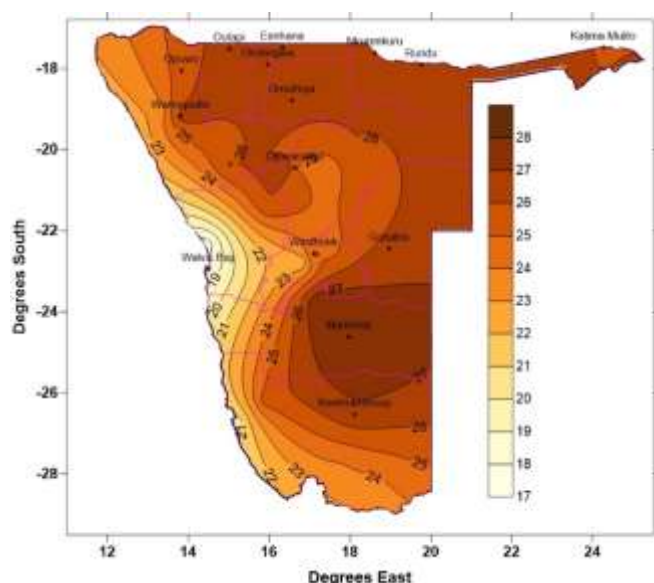


Figure 4 Average temperature for December 2023 in degrees Celsius

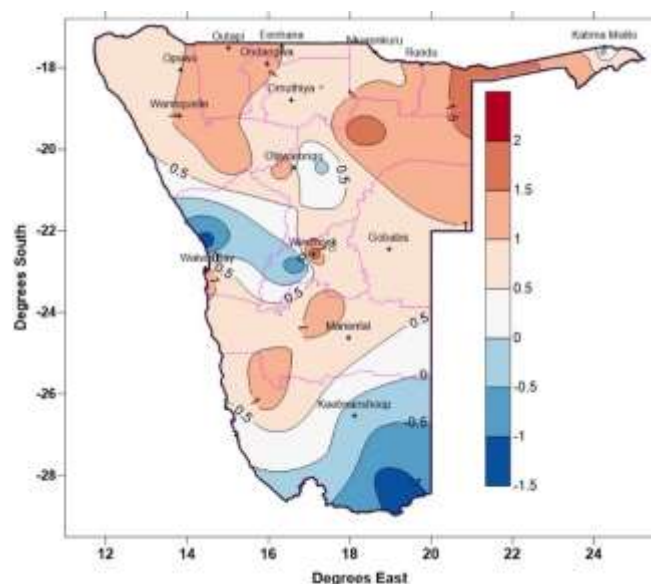


Figure 5 Average temperature anomaly for December 2023 in degrees Celsius

On the other hand, maximum temperature shows that heat wave conditions were observed for two to three weeks over large parts of the country. The Karas (except southeastern parts), Harpdap, and Kunene regions experienced three weeks of maximum temperatures exceeding 35 °C, while Khomas, Omaheke, and Otjozondjupa regions had the last two weeks above 35 °C. The highest maximum temperature for the month of 41.9 °C was recorded at Keetmanshoop, followed by Warmquelle in Kunene region at 41.0 °C.

It is important to note that average temperature is a statistical calculation affected by extreme values e.g. Keetmanshoop recorded 41.9 °C maximum and a minimum temperature of 21.0 °C on 22 December, but the average temperature for the same day is 30.6 °C.

Rainfall Prediction for January 2024

Rainfall forecasts are provided as probabilistic and deterministic forecasts on monthly and seasonal scales.

During January 2024, below-normal rainfall is likely over most of the country, except over southwestern Namib where normal rainfall is expected (see Fig. 6 below).

CCA_ensemble - Probabilistic Forecast

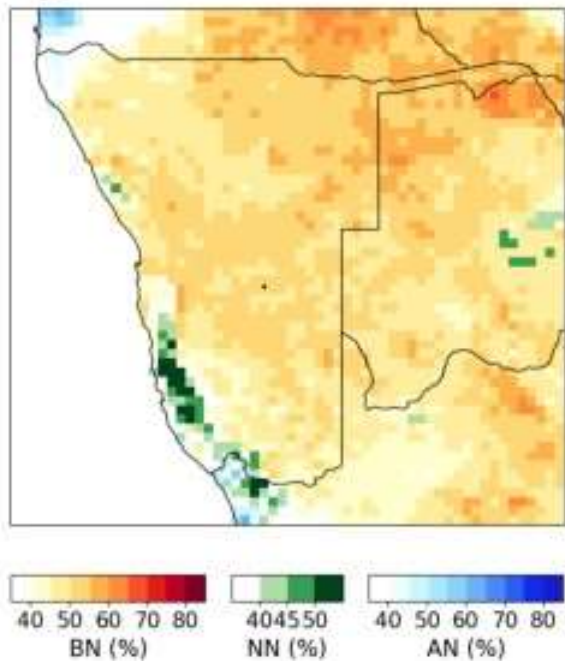


Figure 6 Probabilistic Forecast for January 2024

The corresponding forecast is provided in millimeters below in Figure 7. The forecast is an approximation and local variations can be

anticipated.

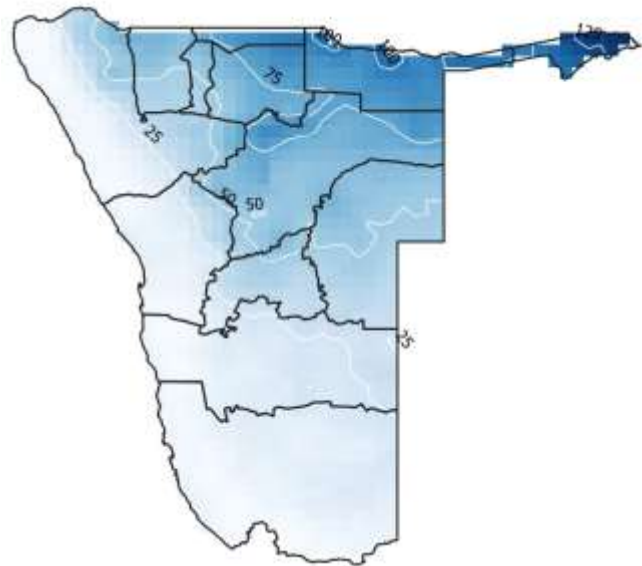


Figure 7 Rainfall forecast in millimeters for January 2024

The Karas, Hardap, western Erongo and extreme western Kunene regions are expected to receive rainfall approximately below 25 mm for January 2024, while the remainder of the interior is expected to receive above 25 mm. The highest amounts of rainfall approximately 125mm is anticipated over the Zambezi region during January 2024.

Projections for February to April 2024

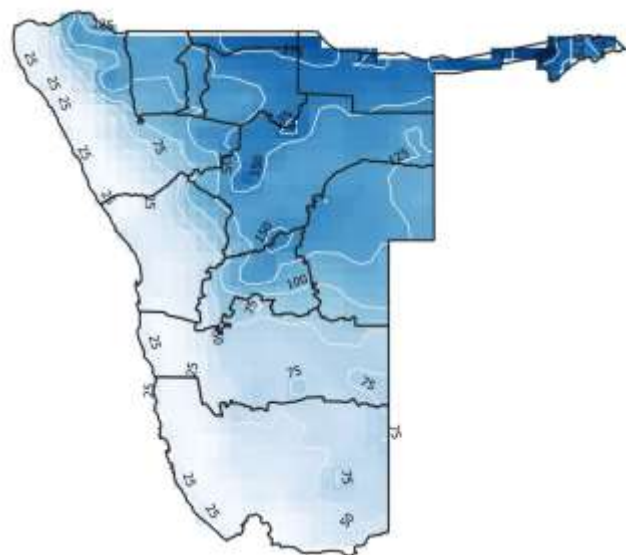


Figure 8 Rainfall forecast in millimeters for February to April 2024.

The period from 1 February to 30 April 2024 is projected to experience suppressed rainfall. There is a high likelihood of below-normal rainfall for the same period. Figure 8 is the forecast in millimeters.

Table 1. Namibia Rainfall Performance at Specific Places – December 2023

Station	01-10 Dec 2023	11-20 Dec 2023	20-31 Dec 2023	Highest Daily Falls (mm)	Month Total (mm)	Normal (mm)	Departure (%)	December 2023 Total and Relative Performance		
								2023 Total	Normal (mm)	Departure (%)
Endundja	18.0	2.8	40.5	20.0	61.3	67	-9	143.4	128	12
Ongha	68.0	7.0	54.0	54.0	129.0	84	54	273.0	157	74
Okalongo	53.0	9.5	0.2	28.0	62.7	48	31	138.7	102	36
Oshifo	62.0	0.0	47.0	40.0	109.0	47	132	259.0	89	191
Omafo	59.3	28.0	7.4	30.0	94.7	65	46	190.9	124	54
Ongenga	48.0	1.0	3.5	34.0	52.5	57	-8	86.1	114	-24
Onawa	39.0	0.0	132.0	132.0	171.0	38	350	306.4	82	274
Eenhana	48.0	17.0	3.5	43.5	68.5	75	-9	240.9	142	70
Katima Mulilo Airport	3.7	26.0	59.6	40.0	89.3	123	-27	135.3	205	-34
Katima Mulilo ADC	0.0	77.0	10.0	32.0	87.0	140	-38	119.0	235	-49
Caprivi river Lodge	13.0	47.5	58.0	34.0	118.5	136	-13	174.9	227	-23
Omauni	17.0	18.0	65.5	54.0	100.5	91	10	167.5	169	-1
Etyai	25.5	29.0	0.0	17.0	54.5	51	7	85.0	103	-17
Onesi	64.0	0.0	0.0	38.0	64.0	48	33	167.9	93	81
Oshikuku	44.0	0.0	25.0	24.0	69.0	47	47	88.0	99	-11
Kasheshe	16.0	21.0	58.0	21.0	95.0	133	-29	133.0	221	-40
Mpungu	2.0	59.0	55.0	55.0	116.0	98	18	149.8	173	-13
Kahenge	3.0	19.0	127.0	51.0	149.0	100	49	186.0	170	9
Bukalo ADC	3.0	24.2	67.5	15.5	94.7	130	-27	101.3	211	-52
Ongula ya Netanga	53.0	0.0	0.0	25.0	53.0	57	-7	67.0	113	-41
Tsandi	49.5	0.0	61.5	29.0	111.0	43	158	161.5	96	68
Epembe	52.0	0.0	68.0	68.0	120.0	66	82	178.0	128	39
Oshigambo	48.1	0.0	50.0	50.0	98.1	49	100	155.4	101	54
Uukwangula	21.0	0.0	16.0	20.0	37.0	45	-18	76.0	96	-21
Okaku	14.4	7.0	34.0	34.0	55.4	47	18	123.3	97	27
Ruuga	0.0	41.0	39.0	41.0	80.0	74	8	118.0	143	-17
Omage III	5.2	151.2	128.3	105.0	284.7	140	103	303.2	231	31
Okahao	55.0	0.0	101.0	50.0	156.0	48	225	202.4	104	95
Mashare	0.0	31.5	54.9	23.9	86.4	78	11	161.2	152	6
Kaisosi	0.0	0.0	0.0	0.0	0.0	75	-100	50.9	149	-66
Ompundja	23.0	0.0	14.0	14.0	37.0	45	-18	76.0	96	-21
Ngoma	2.0	73.0	17.0	35.0	92.0	128	-28	141.5	210	-33
Eheke	34.7	0.0	49.5	49.5	84.2	40	111	120.9	88	37
Onayena	0.9	40.0	30.5	38.0	71.4	54	32	116.7	109	7
Sachona	24.0	38.2	57.4	23.5	119.6	141	-15	156.3	239	-35
Chichimane	5.0	0.0	45.0	35.0	50.0	118	-58	87.2	203	-57
Olukonda	26.0	0.0	32.5	30.0	58.5	39	50	91.5	91	1
Enguwantale	19.0	3.5	0.0	19.0	22.5	55	-59	89.3	102	-12
Mukwe	0.0	77.6	57.0	44.0	134.6	91	48	166.4	165	1
Okatyali	0.0	0.0	27.5	27.5	27.5	40	-31	32.0	90	-64
Opuwo ADC	9.8	0.0	11.0	11.0	20.8	39	-47	51.2	71	-28

Station	01-10 Dec 2023	11-20 Dec 2023	20-31 Dec 2023	Highest Daily Falls (mm)	Month Total (mm)	Normal (mm)	Departure (%)	December 2023 Total and Relative Performance		
								2023 Total	Normal (mm)	Departure (%)
Onyulaye	0.0	0.0	0.0	14.0	31.9	63	-49	43.9	121	-64
Omakange	5.0	0.0	25.0	25.0	30.0	42	-29	60.0	82	-27
Engombe	69.5	0.0	27.0	39.0	96.5	42	130	116.5	86	35
Okani	45.5	0.0	3.0	23.0	48.5	42	15	119.0	86	38
Onankali	55.5	4.7	42.5	45.0	102.7	57	80	140.7	108	30
Omuntele	15.0	0.0	18.0	18.0	33.0	53	-38	67.2	103	-35
Kaoko-Otavi	9.6	8.0	0.0	8.0	17.6	36	-51	77.9	68	15
Okashana	9.0	10.0	40.0	22.0	59.0	58	2	98.5	114	-14
Okapya	21.0	16.7	29.5	22.5	67.2	71	-5	232.5	143	63
Mururani	20.0	9.0	0.0	9.0	29.0	75	-61	89.0	145	-39
Namutoni	4.5	19.1	20.1	10.0	43.7	59	-26	118.5	117	1
Oruvandjai	0.0	0.0	0.0	0.0	0.0	27	-100	105.5	55	92
Halali	8.0	32.0	36.8	19.5	76.8	54	42	108.9	103	6
Okaukuejo	8.2	17.1	18.2	14.0	43.5	44	-1	79.0	81	-2
Anderson Gate	23.5	0.0	0.0	13.5	23.5	47	-50	66.8	89	-25
Huttenhof	3.5	44.5	16.0	23.0	64.0	69	-7	112.5	141	-20
Mkata	4.0	2.0	13.0	6.0	19.0	69	-72	52.0	140	-63
Grootfontein Airport	5.8	0.0	0.0	4.6	5.8	76	-92	55.0	155	-65
Tsumkwe	13.0	10.0	10.5	10.0	33.5	71	-53	54.5	133	-59
Kamanjab	15.5	0.0	0.0	15.5	15.5	23	-33	96.1	51	88
Otjituuo	17.5	6.0	30.0	30.0	53.5	58	-8	104.0	119	-13
Otavi	9.6	39.0	25.0	25.0	73.6	68	8	147.2	140	5
Erwee	0.0	0.0	0.0	0.0	0.0	15	-100	21.0	30	-30
Outjo	29.3	0.0	14.5	15.5	43.8	38	15	84.8	84	1
Okomumbonde	18.0	15.6	0.0	9.1	33.6	60	-44	123.1	116	6
Otjiwarongo	47.1	0.0	0.0	40.0	47.1	45	5	81.1	94	-14
LaPaloma	3.5	7.0	31.0	26.0	41.5	58	-28	72.0	112	-36
Okondjatu	6.6	0.0	10.5	6.1	17.1	60	-72	47.2	114	-59
Ombona	15.9	37.0	17.0	37.0	69.9	35	100	122.7	72	70
Omatjetje	0.0	0.0	0.0	0.0	0.0	21	-100	26.1	43	-39
Otjikururume	33.0	2.5	14.5	16.0	50.0	45	11	82.0	86	-5
Uis	0.0	0.0	0.0	0.0	0.0	15	-100	0.0	29	-100
Rodenbeck	0.0	11.4	0.3	10.2	11.7	60	-81	52.9	116	-54
Omaruru	5.5	0.0	0.0	5.5	5.5	22	-75	35.5	45	-21
Tubusis	0.0	0.0	0.0	0.0	0.0	13	-100	44.0	26	69
Epukiro	0.0	0.0	0.0	0.0	0.0	50	-100	35.5	107	-67
Ondunduwazirapi	18.5	0.0	5.5	10.0	24.0	59	-59	42.5	110	-61
Steinhausen	9.3	7.0	7.0	7.3	23.3	56	-58	50.8	111	-54
Okahua	15.0	11.0	2.0	11.0	28.0	46	-39	95.0	91	4
Omateva	3.0	0.0	2.0	3.0	5.0	48	-90	40.2	94	-57
Westenfallenhof	1.2	0.0	0.0	1.2	1.2	26	-95	22.1	53	-58
Pioniers Park	11.6	0.0	0.0	7.1	11.6	32	-64	38.7	67	-42
Otjimbingwe	0.0	0.0	0.0	0.0	0.0	9	-100	16.3	22	-26
Bergvlug	12.1	0.0	0.0	6.5	12.1	33	-63	57.0	74	-23
Windhoek	22.4	0.0	9.8	11.8	32.2	31	4	57.8	70	-17

Station	01-10 Dec 2023	11-20 Dec 2023	20-31 Dec 2023	Highest Daily Falls (mm)	Month Total (mm)	Normal (mm)	Departure (%)	December 2023 Total and Relative Performance		
								2023 Total	Normal (mm)	Departure (%)
Eros Airport	21.0	0.0	0.0	11.4	21.0	29	-28	21.0	68	-69
Binsenheim	27.5	0.0	0.0	12.0	27.5	36	-24	65.0	75	-13
Walvis Bay	0.0	0.0	0.0	0.0	0.0	0	0	0.0	0	0
Rehoboth	0.0	0.0	0.0	0.0	0.0	15	-100	27.2	39	-30
Coridor13	0.0	6.0	65.0	45.0	71.0	38	87	85.5	86	-1
Olifantwater	1.4	0.0	3.5	3.5	4.9	26	-81	25.7	56	-54
Gomchanas-Ost	19.2	0.0	2.5	18.8	21.7	24	-10	30.1	46	-35
Hoachanas	3.0	0.0	0.0	3.0	3.0	21	-86	11.0	41	-73
Gochas	0.0	0.0	0.0	0.0	0.0	28	-100	6.5	52	-88
Gibeon	0.0	0.0	0.0	0.0	0.0	13	-100	6.5	31	-79
Aruab	3.6	0.0	0.0	3.0	3.6	8	-55	5.8	20	-71
Tses	0.0	0.0	0.0	0.0	0.0	8	-100	1.6	22	-93
Bethanie	0.0	0.0	0.0	0.0	0.0	6	-100	0.0	15	-100
Keetmanshoop	0.0	0.0	0.0	0.0	0.0	11	-100	0.0	29	-100
Aroab	0.0	0.0	23.0	13.0	23.0	19	21	23.0	38	-39
Naos_Karas	10.5	0.0	6.0	9.0	16.5	16	3	16.5	41	-60
Snyriver-Noord	3.0	0.0	47.5	47.5	50.5	15	237	66.5	33	102
Karasburg	0.0	0.0	0.0	0.0	0.0	14	-100	3.6	28	-87
Ariamsvlei	0.0	0.0	61.0	33.0	61.0	9	578	61.0	28	118
Oranjemund	0.0	0.0	0.0	0.0	0.0	3	-100	1.0	10	-90

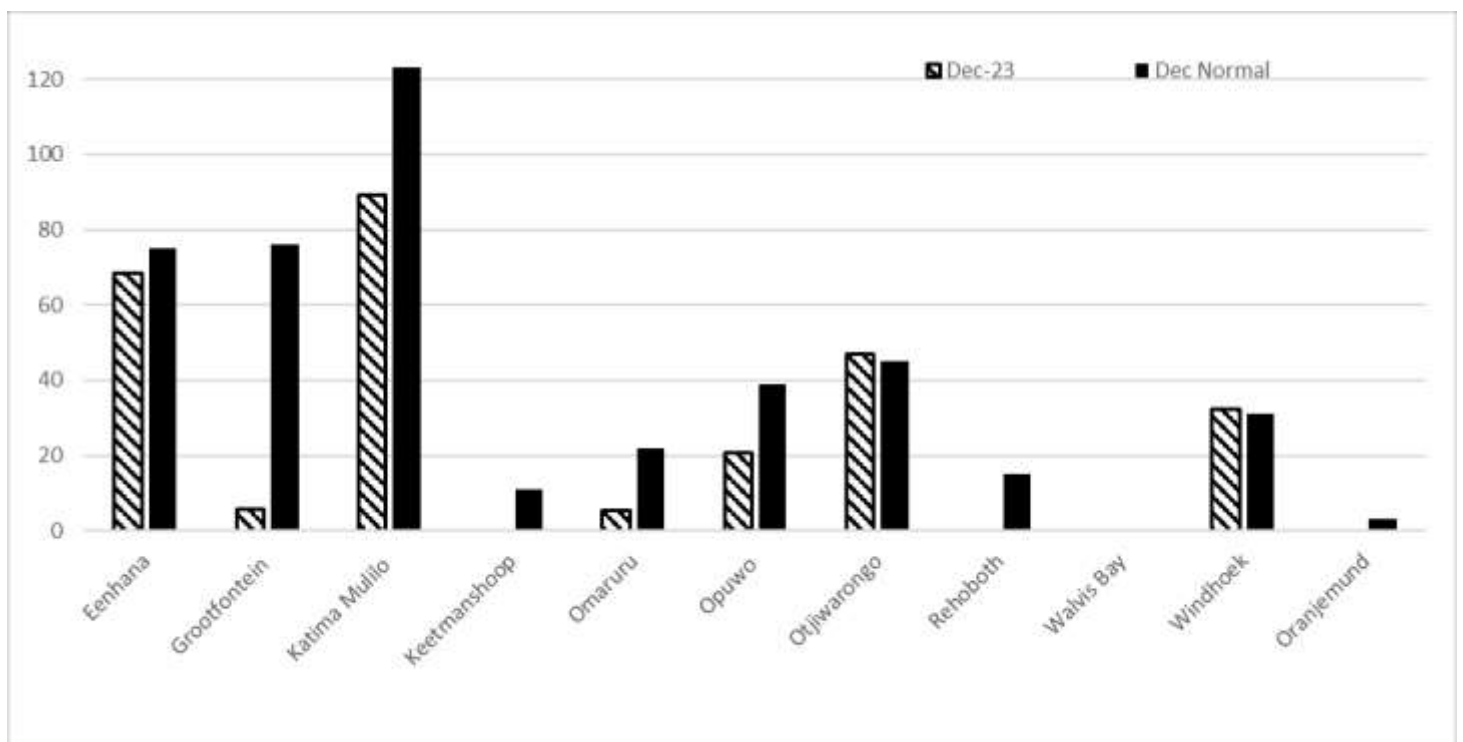


Figure 9 Progressive Chart for December 2023

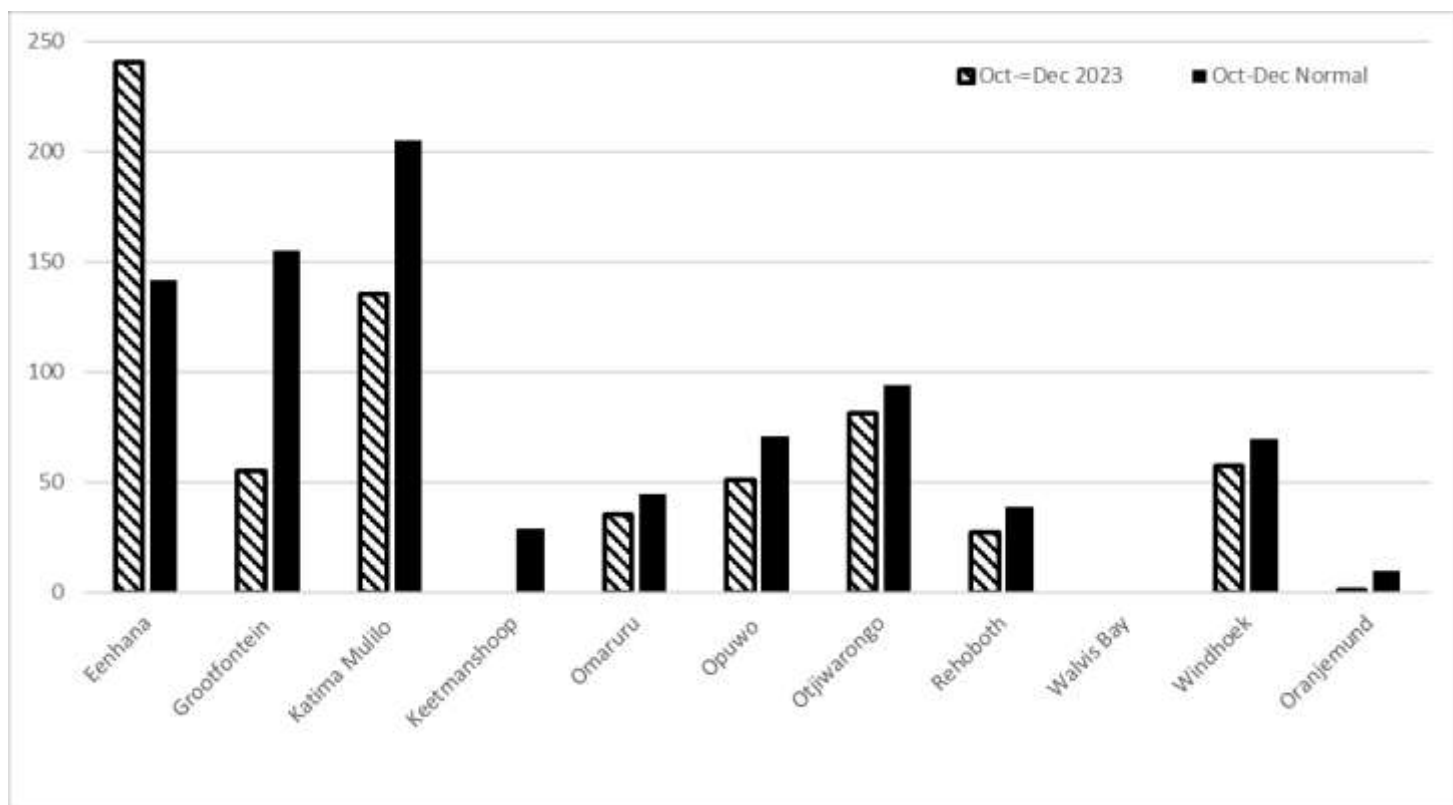


Figure 10 Progressive Chart October to December 2023