



Botswana Environment Statistics Climate Digest

October 2022 – March 2023

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Preface

This report is the first edition of the biannual climate statistics digest for the year 2022/23. The report represents statistics Botswana's continued progress focused on the monitoring of climate statistics, and the availing of data for climate trend analysis. The indicators covered in this report are guided in part by the United Nations Framework for the Development of Environment Statistics (UNFDES).

Climate statistics are useful for trends analysis and review of climate related performances in human livelihoods, health, social and economic activities. All aspects of life are affected directly by climate, which is the core determining factor of how people and other organisms live and interact on planet earth. Climate determines food availability and the habitability of regions and environments. Extreme climate events are recorded and monitored for better understanding and planning to ensure minimum casualties and disturbances to lives, as well as for adaptation strategies to climate change phenomena. Statistics Botswana strives to facilitate informed planning and decision making through trends analysis and climate statistics reporting in these submissions.

I would like to extend my gratitude and appreciation to stakeholders and data providers, particularly the Department of Meteorological Services and Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) whose contributions were invaluable in the production of this Digest.

For more information and further enquiries, contact the Directorate of Stakeholder Relations at **3671300**. All Statistics Botswana outputs/publications are available on the website at **www.statsbots.org.bw** and at the Statistics Botswana Resource Centre (Head-Office, Gaborone).



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July 2026

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Executive Summary

The period under review is the warm and wet season of October 2022 to March 2023.

Goodhope received the highest amount of total monthly rainfall in February 2023, which was 181.1 mm followed by Sowa which received 158.1 mm total monthly rainfall during the month of November 2022, and Lephephe which received 145.3 mm of rainfall during the month of December 2022. Werda was the wettest area having received 454.0 mm of rainfall followed by Sowa at 439.1 mm and Goodhope at 424.7 mm of rainfall received during this six month period.

The lowest mean monthly temperature was 15.8 °C at Goodhope during the month of March 2023, followed by 15.9 °C in November 2022 and 16.5 in March 2023 in Werda. During the period of October 2022 to March 2023 the highest mean monthly maximum air temperature was at Tubu recording 39.9 °C in October 2022 followed by 38.6°C in December 2022 and 37.8 °C at Mababe in October 2022.

The highest temperature recorded was 43.8°C followed by 43.0 °C at Tsabong station and 43.0 °C at Tubu station, all during December 2022.

The strongest winds were in Goodhope, with a mean monthly maximum wind speed of 2.9m/s followed by Mahalapye at a speed of 2.7m/s and Sowa and Lephephe at 2.6m/s in October 2022. The lowest mean monthly wind speed was recorded in December 2022 at Baines Drift at 0.3m/s and at Shakawe, Mababe, and Baines Drift in February 2023 also at 0.3m/s.

The highest wind speed recorded was 12.3 m/s in November 2022 at Sowa followed by 12m/s at Tsabong in December 2022 and lastly 11.7 in October 2022 at Goodhope. These wind speed recordings fall in the category of strong breeze on the Beaufort Scale.

The highest predominance of wind direction recorded between October 2022 and March 2023 is that of Baines Drift where 48.9 percent of the winds were from the east north east direction and Lephephe where 48.9 percent of the winds were from the south and Goodhope where 40.1 percent of the winds were from the north east direction.

Nationally winds were predominantly from east north east 28.7 percent of the days in October 2022, followed by predominance of 21.1 percent from the east and 20.2 percent from the east north east in January 2023.

The highest predominance by maximum wind speed direction is that for Lephephe with 50.5 percent of the days recording strongest winds blowing from the South, followed by Baines Drift with 40.7 percent of the days recording strongest winds blowing from east north east and Mahalapye, where 29.7 percent of the winds blew from north east.

The strongest winds for each of the months for the country blew mainly from the north east 24.3 percent of the days in October 2022, followed by east north east at 21.1 percent of the days in October 2022 and the east north east at 20.5 percent of the days in March 2023. Overall, the strongest winds blew from east north east at 16.8 percent of the days followed by north east at 15 percent, and east at 11.5 percent of the days.

The highest mean monthly relative humidity was recorded in January 2023 at 85.3 percent followed by 82.1 percent in February 2023 both at Pandamatenga and Mababe had the third highest relative humidity recorded in January 2023 at 80.6 percent. The lowest mean

monthly relative humidity was recorded at Pandamatenga in October 2022 at 28.9 percent followed by Sowa with 29.8 percent and thirdly Tshane and Ghanzi with 32 percent all in October 2022.

February had the highest relative humidity average for all stations during the six (6) month period. Highest relative humidity extremes were reached from the months of December 2022 to March 2023. The lowest humidity extremes were recorded during October 2022.

Introduction

Over long periods of time conditions of the atmosphere change, and this affects human livelihoods in different ways, either directly through health or indirectly through human activities such as economic or agricultural practices.

Climate monitoring is very important as climate affects almost every aspect of our lives. With a better understanding of long term pattern of weather conditions and its impacts, governments and decision makers are able to define and implement appropriate mitigation and adaptation policies.

Botswana is climatically classified as arid to semi-arid and is drought prone, with highly erratic rainfall that ranges from 250mm in the South East to around 650mm in the north.

2. RAINFALL

The period under study is the wet season and is characterised by warm to hot temperatures.

2.1 Monthly Rainfall

Table 1 shows the total monthly rainfall in millimetres (mm) for the stations that have data.

Table 1: Total Monthly Rainfall (mm) October 2022 to March 2023

Station	October	November	December	January	February	March
Werda	29.8	93.5	70.9	82.8	68.5	108.5
Mahalapye	32.6	86.8	85.8	41.6	85.3	16.4
Shakawe	12.0	48.6	88.7	51.9	65.9	19.1
Pandamatenga	3.3	86.5	85.5	85.5	111.8	26.5
Lephephe	30.2	64.3	145.3	36.0	74.0	35.4
Ghanzi	16.5	13.8	48.0	39.2	106.6	36.6
Sowa	0.0	56.2	87.3	98.5	158.1	39.0
Goodhope	27.2	77.1	55.6	35.2	181.1	48.5
Tsabong	71.9	93.1	86.7	82.7	19.6	7.3

Source: Department of Meteorological Services

Other stations were left out due to unavailability of data.

According to **Table 1** above, Goodhope received the highest amount of total monthly rainfall in February 2023, which was 181.1 mm followed by Sowa which received 158.1 mm total monthly rainfall also during the month of February 2023, and Lephephe which received 145.3 mm of rainfall during the month of December 2022.

2.2 Total Rainfall

Table 2 shows the total rainfall received by the stations from October 2022 to March 2023 (Wet Season). Werda was the wettest area having received 454.0 mm of rainfall followed by Sowa at 439.1 mm and Goodhope at 424.7 mm of rainfall received during this six month period.

Table 2: Total Rainfall by Station (mm) October 2022 to March 2023

Station	Total Rainfall (mm)
Werda	454.0
Sowa	439.1
Goodhope	424.7
Pandamatenga	399.1
Lephephe	385.2
Tsabong	361.3
Mahalapye	348.5
Shakawe	286.2
Ghanzi	260.7

Source: Department of Meteorological Services

Computation of total rainfall received during the period from October 2022 to March 2023 for Jwaneng, SSKIA, Kasane , Selebi Phikwe, Letlhakane, Maun, Francistown and Ncojane stations were not carried out as data was insufficient due to the stations being inactive for a long time leading to no data captured during some months.

3. TEMPERATURES

Botswana's diurnal temperature is high, and this is normal for semi-arid and arid climates. The temperatures also vary spatially, with extremes common in the north-eastern and the south-western regions of the country

3.1 Minimum Air Temperatures

Table 3 shows the mean monthly minimum air temperatures in degrees Celsius °C. In Botswana the period from October to March is characterised by spring and summer temperatures.

Table 3: Mean Monthly Minimum Air Temperatures °C (October 2022 to March 2023)

Station	October	November	December	January	February	March
Shakawe	16.9	19.0	19.5	19.4	18.7	19.3
Pandamatenga	19.8	18.6	18.7	18.9	17.9	18.0
Mababe	19.4	20.4	19.7	19.6	21.6	19.9
Tubu	23.0	24.1	25.0	24.2	23.7	23.1
Sowa	20.6	19.4	19.9	19.3	19.9	18.5
Ghanzi	17.8	17.8	19.0	18.1	18.3	17.8
Goodhope	17.2	15.9	16.8	17.8	17.3	15.8
Tsabong	16.7	17.0	19.1	19.7	18.3	16.6
Mahalapye	18.4	18.3	19.0	19.1	19.1	17.9
Lephephe	17.3	17.8	18.4	17.8	18.9	16.9
Tshane	17.7	17.9	-	-	18.9	18.1
Baines Drift	-	-	20.2	21.1	20.4	17.9
Werda	-	-	-	-	17.9	16.5

Dash (-) = no data

Source: SASSCAL

The lowest mean monthly temperature was 15.8 °C at Goodhope during the month of March 2023, followed by 15.9 °C in November 2022 and 16.5 in March 2023 in Werda.

3.2. Maximum air temperatures

Table 4 shows the mean monthly maximum air temperatures for the period October 2022 to March 2023. The maximum air temperatures show the hottest parts of Botswana during the spring and summer seasons.

Table 4: Mean Monthly Maximum Air Temperatures °C (October 2022 to March 2023)

Station	October	November	December	January	February	March
Shakawe	36.3	33.9	34.1	31.8	33.2	33.6
Pandamatenga	35.0	31.2	30.7	28.3	29.9	32.0
Mababe	37.8	33.5	34.5	31.4	31.9	34.7
Tubu	39.9	37.3	38.6	37.1	36.4	37.7
Sowa	36.1	33.4	33.3	31.6	31.1	32.6
Ghanzi	35.1	31.8	33.3	33.7	31.9	32.2
Goodhope	31.7	27.9	29.1	30.8	29.4	29.4
Tsabong	35.9	33.7	34.9	35.6	33.2	33.5
Mahalapye	33.4	31.2	32.1	32.9	30.0	31.1
Lephephe	34.2	30.6	31.9	32.2	30.5	31.7
Tshane	34.7	31.7	-	-	32.8	33.2
Baines Drift	-	-	32.7	32.9	30.5	31.3
Werda	-	-	-	-	32.1	32.3

Dash (-) = no data

Source: SASSCAL

During the period of October 2022 to March 2023 the highest mean monthly maximum air temperature was at Tubu recording 39.9 °C in October 2022 followed by 38.6°C in December 2022 and 37.8 °C at Mababe in October 2022.

3.3 Maximum temperature extremes

Table 5 shows the highest maximum air temperatures recorded for the stations, during the period October 2022 to March 2023. The highest daily temperature recorded was 43.8°C followed by 43.0 °C during December at Tsabong station and 43.0 °C during December at Tubu station.

Table 5: Highest Maximum Temperatures Recorded (°C) (October 2022 to March 2023)

Temperature (°C)	Month	Station
43.8	December	Tsabong
43.0	December	Tsabong
43.0	December	Tubu

Source: SASSCAL

4. WIND SPEED AND DIRECTION

Wind is a physical quantity that represents the movement of air currents. It has a numerical magnitude (wind speed) and a direction (wind direction). Wind speed is measured in metres per second (m/s) while wind direction is expressed in degrees.

4.1. Mean Monthly Maximum Wind Speed

Table 6 shows the mean monthly maximum wind speed for the period October 2022 to March 2023.

Table 6: Mean Monthly Maximum Wind Speed (m/s) (October 2022 to March 2023)

Station	October	November	December	January	February	March
Shakawe	1.0	0.8	0.9	1.1	0.3	1.1
Pandamatenga	2.3	1.4	1.2	1.8	0.4	1.6
Mababe	1.9	1.3	1.6	1.8	0.3	1.4
Tubu	1.7	1.6	1.7	2.0	0.4	1.5
Sowa	2.6	1.7	1.5	2.1	1.1	1.8
Ghanzi	1.6	1.3	1.1	1.8	0.7	1.6
Goodhope	2.9	2.3	2.2	2.4	1.3	2.1
Tsabong	0.9	0.9	0.7	1.3	0.7	1.3
Mahalapye	2.7	2.1	1.9	2.3	1.5	2.1
Lephephe	2.6	1.7	1.3	2.1	1.7	1.4
Tshane	1.3	0.9	0.8	1.4	0.6	1.5
Baines Drift	1.2	0.5	0.3	0.5	0.3	0.4
Werda	-	-	-	1.6	0.6	1.4

Dash (-) = no data

Source: SASSCAL

The strongest winds were in Goodhope, with a mean monthly maximum wind speed of 2.9m/s followed by Mahalapye at a speed of 2.7m/s then Sowa and Lephephe at 2.6m/s in October 2022. The lowest mean monthly wind speed was recorded in December 2022 at Baines Drift at 0.3m/s and at Shakawe, Mababe, and Baines Drift in February 2023 also at 0.3m/s.

4.2 Highest wind speed recorded

Table 7 shows the highest wind speed recorded during the period of October 2022 to March 2023. The wind speed recordings are the highest recorded in a 24 hour period.

The highest wind speed recorded was 12.3 m/s in November at Sowa followed by 12m/s at Tsabong in December and lastly 11.7 in October at Goodhope. These wind speed recordings fall in the category of strong breeze on the Beaufort Scale. (See **Table 15** in **Appendix**).

Table 7: Maximum Wind Speed (m/s) (October 2022 to March 2023)

Speed (m/s)	Beaufort Classification	Month	Station
12.3	Strong Breeze	November	Sowa
12.0	Strong Breeze	December	Tsabong
11.7	Strong Breeze	October	Goodhope

*see table 15 in the appendix

Source: SASSCAL

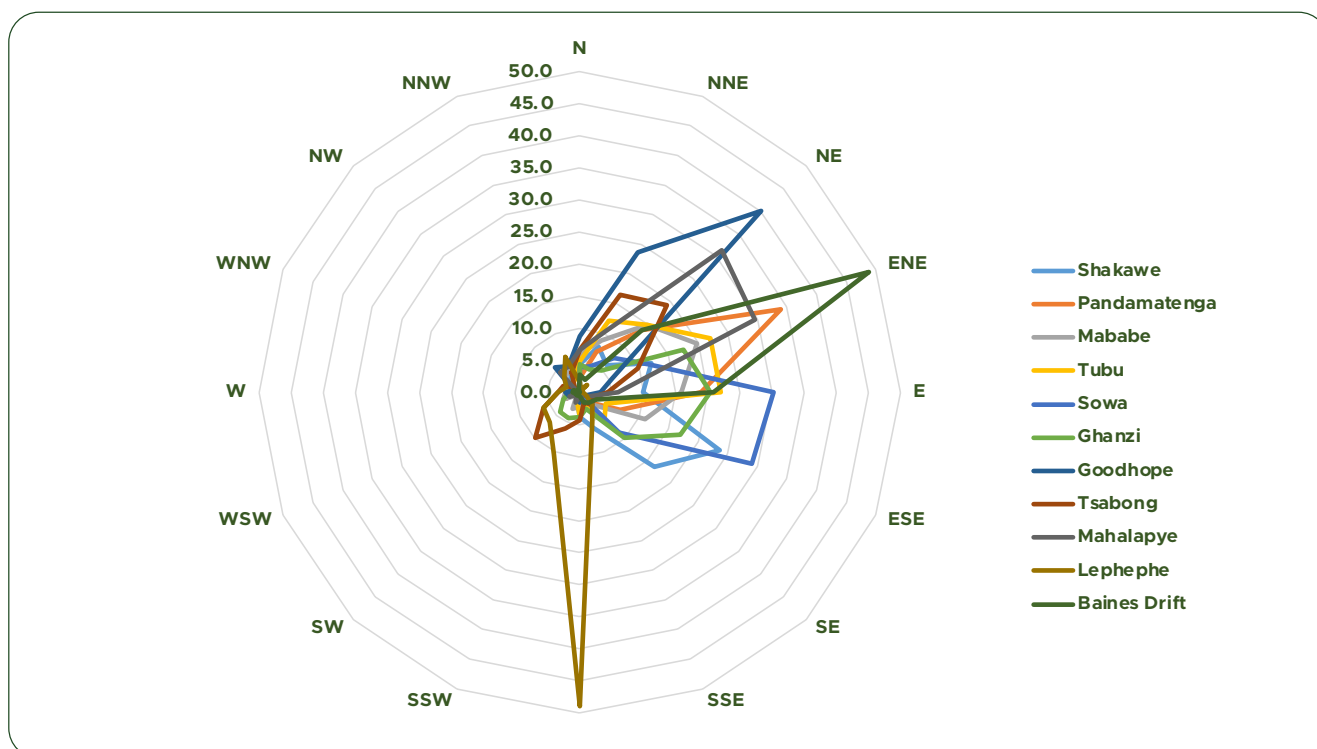
4.3 Wind direction

Table 8 shows the stations predominant wind direction as a percentage of the days recorded between the month of October 2022 and March 2023. The highest predominance is that of Baines Drift where 48.9 percent of the winds were from the east north east direction and of Lephephe where 48.9 percent of the winds were from the south and Goodhope where 40.1 percent of the winds were from the north east direction. Figure 1 shows this graphically.

Table 8: Percentage of predominant winds by station (October 2022 to March 2023)

Station	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Shakawe	4.4	7.7	6.0	12.1	9.9	23.6	16.5	6.0	3.8	1.1	1.1	1.1		1.1	2.2	3.3	100.0
Pandamatenga	2.3	6.9	13.8	33.9	19.0	6.9	2.3	2.3	1.1	0.0	0.0	2.3	0.6	0.6	4.6	3.4	100.0
Mababe	6.0	8.8	14.8	19.8	15.9	11.0	2.7	2.2	2.2	2.7	0.5	2.7	2.2	1.1	3.3	3.8	100.0
Tubu	4.9	12.1	14.8	22.0	22.0	4.4	5.5	2.2	3.8	1.1	0.5	0.5	0.5	1.6	1.6	2.2	100.0
Sowa	3.8	4.4	7.7	11.5	30.2	29.1	8.8	0.5	1.1	0.5	0.0	0.5	0.5	0.5	0.5	0.0	100.0
Ghanzi	4.4	3.8	4.9	17.6	20.3	17.0	9.9	2.7	3.8	4.4	4.4	2.7	1.6	1.1	1.1	0.0	100.0
Goodhope	8.8	23.6	40.1	5.5	3.3	1.1	0.0	0.5	1.6	0.5	0.0	1.6	2.2	1.1	5.5	4.4	100.0
Tsabong	6.6	16.5	19.2	9.9	4.4	2.2	2.7	1.6	4.4	6.0	9.9	6.0	3.3	2.7	1.1	3.3	100.0
Mahalapye	6.6	10.4	31.3	29.7	6.0	1.6	0.5	0.0	0.5	1.6	0.5	1.6		0.5	4.4	4.4	100.0
Lephephe	1.6	0.5	1.6	0.0	0.5	1.1	2.7	4.9	48.9	10.4	6.6	6.0	3.3	2.2	3.3	6.0	100.0
Baines Drift	2.7	2.2	13.7	48.9	20.9	2.7	2.2	1.6	0.5	0.5	0.5	0.5	1.1	1.1	0.0	0.5	100.0

Source: SASSCAL

Figure 1: Percentage of predominant winds by station (October 2022 to March 2023)

4.4 National wind direction

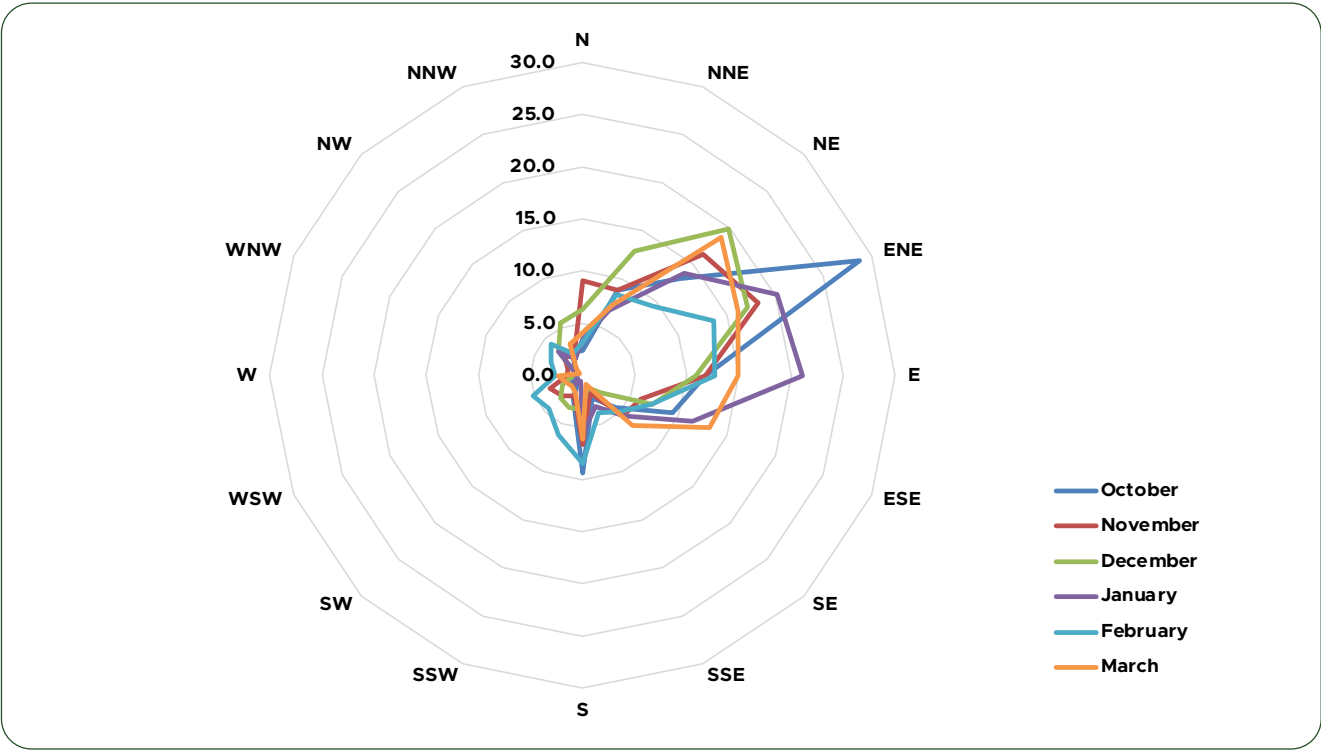
Table 9 shows the country's wind direction for the period of October 2022 to March 2023 as a percentage of the total number of days for that period. Nationally winds were predominantly from east north east 28.7 percent of the days in October 2022, followed by predominance of 21.1 percent from the east and 20.2 percent from the east north east in January 2023. Figure 2 shows the country's predominant winds graphically.

Table 9: Monthly National Wind Direction by Percentage of Days

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
October	2.3	8.8	13.2	28.7	11.7	9.4	4.4	2.3	9.4	2.3	0.6	1.8	0.6	0.9	1.2	2.3	100.0
November	9.1	8.8	16.4	18.2	11.8	6.1	5.5	1.8	6.7	2.1	2.7	3.3	1.5	1.5	2.4	2.1	100.0
December	6.3	12.9	19.8	17.1	10.8	7.2	2.4	1.2	3.3	3.3	3.0	2.1	0.9	0.9	3.3	5.4	100.0
January	3.5	6.7	13.8	20.2	21.1	11.4	5.6	3.2	5.6	0.6	1.2	0.6	0.6	0.9	3.2	1.8	100.0
February	3.2	8.4	9.4	13.6	12.7	7.1	4.9	3.9	8.4	6.2	4.5	5.2	2.6	3.2	4.2	2.3	100.0
March	4.1	7.3	18.8	16.1	15.0	13.2	6.7	0.9	6.2	1.8	1.5	1.8	2.3	0.3	0.9	3.2	100.0

Source: SASSCAL & Department of Meteorological Services

Figure 2: Monthly National Wind Direction by Percentage of Days (October 2022 to March 2023)



4.5 Maximum wind speed by direction

Maximum wind speed by direction is the direction from which the maximum wind speed was moving and it indicates the direction of the strongest winds for the stations and the country.

Table 10 and **figure 3** show the percentage maximum wind speed directions for the stations, which is, a percentage of the number of days the recordings were taken during the period October 2022 to March 2023.

Table 10: Percentage Maximum Wind Speed Directions by Station October 2022 to March 2023

Station	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Shakawe	2.7	4.4	6.6	11.0	17.6	15.4	13.7	7.1	1.6	3.8	5.5	2.2	2.2	2.2	1.6	2.2	100.0
Pandamatenga	1.7	10.9	17.8	19.5	16.1	5.7	2.9	2.9	3.4	1.1	3.4	1.7	1.7	1.1	6.3	3.4	100.0
Mababe	7.1	7.1	15.4	18.7	9.3	9.3	3.8	4.9	2.7	2.7	1.6	3.8	1.1	1.6	4.4	6.0	100.0
Tubu	5.5	13.7	23.6	14.8	13.7	2.2	4.9	6.6	3.8	3.3	0.5	0.0	1.1	2.7	1.1	2.2	100.0
Sowa	2.2	3.8	13.7	20.3	10.4	15.9	9.3	4.9	3.3	1.6	2.2	3.8	3.3	0.5	2.7	1.6	100.0
Ghanzi	4.9	5.5	3.8	19.8	19.2	7.7	6.6	6.0	7.1	3.8	1.1	2.7	4.4	3.8	2.2	1.1	100.0
Goodhope	1.6	18.7	28.0	12.1	3.8	1.1	2.7	2.7	3.3	2.2	2.2	4.9	7.1	4.9	3.8	0.5	100.0
Tsabong	1.6	11.5	11.5	6.6	9.9	5.5	5.5	4.9	3.8	6.0	8.2	6.0	7.1	3.3	4.4	3.8	100.0
Mahalapye	1.6	8.2	29.7	22.5	7.7	7.7	3.8	4.4	1.1	0.0	3.8	2.2	1.6	1.1	2.2	2.2	100.0
Lephephe	6.6	1.1	1.1	0.0	1.1	1.1	5.5	7.7	50.5	3.8	4.4	1.6	2.7	2.7	3.8	6.0	100.0
Baines Drift	3.3	6.6	15.4	40.7	18.1	2.2	3.8	0.5	2.2	0.0	0.5	1.1	2.2	0.0	1.6	1.6	100.0

Source: SASSCAL

The highest predominance by maximum wind speed is that for Lephephe with 50.5 percent of the days recording strongest winds blowing from the South, followed by Baines Drift with 40.7 percent of the days recording strongest winds blowing from east north east and Mahalapye, where 29.7 percent of the winds blew from north east.

Figure 3: Percentage Maximum Wind Speed Directions by Station (October 2022 to March 2023)

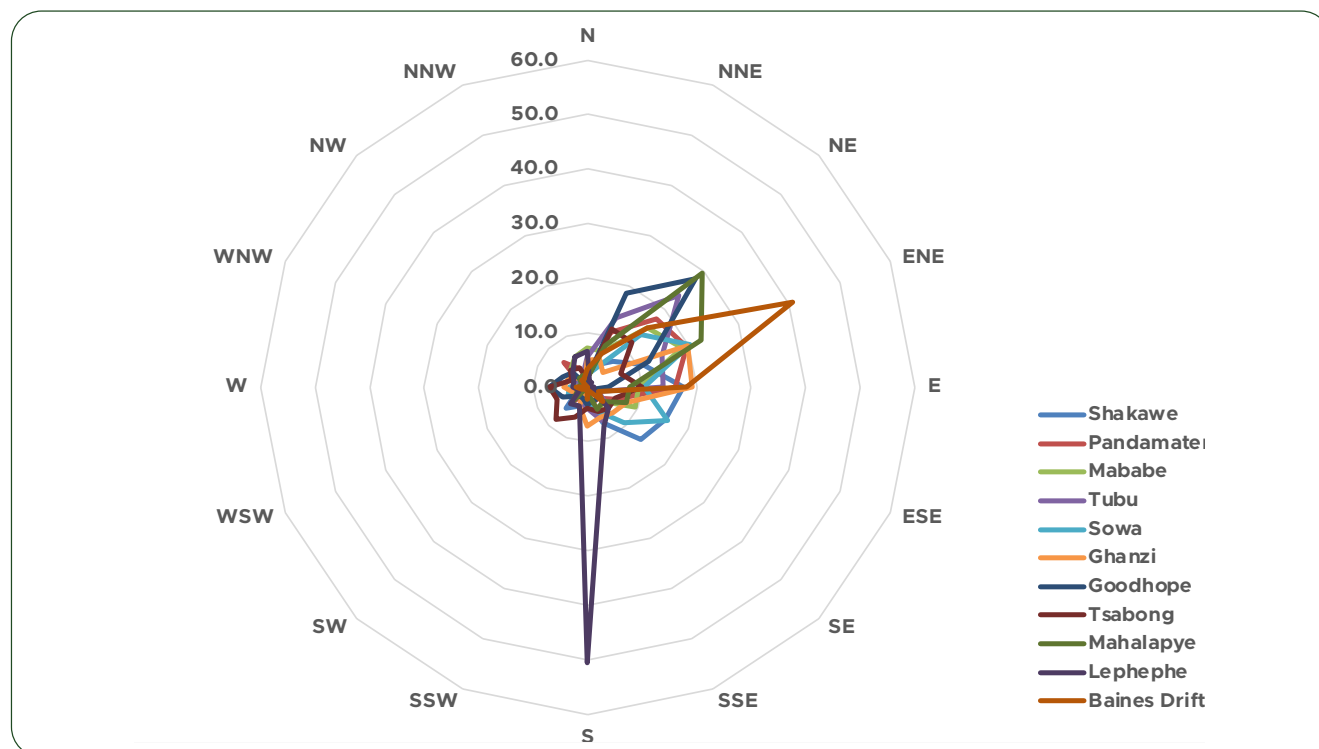


Table 11 and **figure 4** show the maximum wind speed directions for the country as a percentage of the days recordings were taken by month, for the period October 2022 to March 2023.

Table 11: National percentage maximum wind speed directions by month (October 2022 to March 2023)

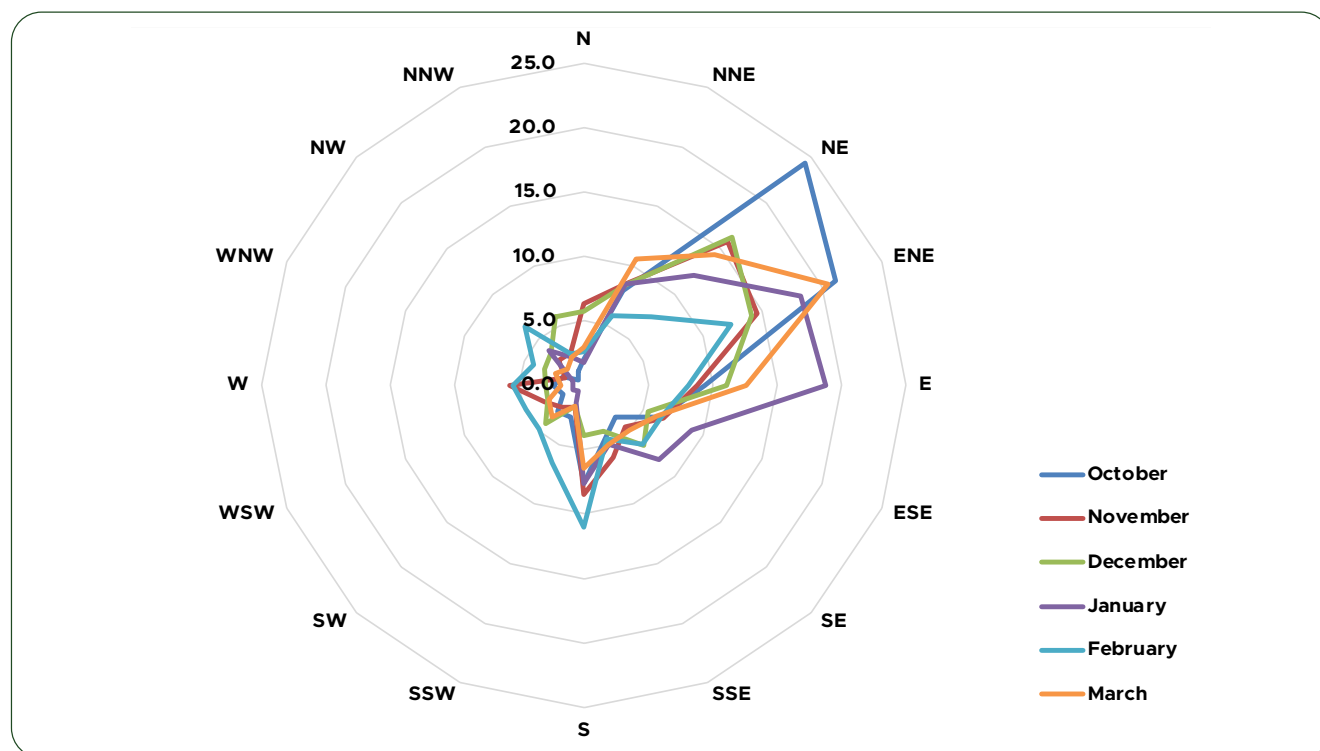
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
October	2.1	7.9	24.3	21.1	9.4	6.5	3.5	4.4	7.6	2.6	2.9	1.8	2.3	1.8	0.6	1.2	100.0
November	6.4	8.5	15.8	14.5	8.8	6.7	4.5	6.1	8.5	1.8	2.4	3.3	5.8	1.5	2.7	2.7	100.0
December	5.7	8.4	16.2	14.1	11.1	5.4	6.6	3.9	3.9	1.8	4.2	3.0	3.0	3.3	3.6	5.7	100.0
January	1.8	8.5	12.0	18.2	18.8	9.1	8.2	5.0	7.6	1.5	0.6	0.9	0.9	0.9	3.8	2.3	100.0
February	2.6	5.8	7.5	12.3	8.1	6.5	6.5	4.5	11.0	6.5	4.9	4.9	5.5	4.2	6.5	2.6	100.0
March	2.9	10.6	14.4	20.5	12.6	6.2	5.0	5.0	6.5	1.8	3.5	2.9	1.8	2.3	1.8	2.3	100.0
Overall	3.6	8.3	15.0	16.8	11.5	6.7	5.7	4.8	7.5	2.7	3.1	2.8	3.2	2.3	3.2	2.8	100.0

Source: SASSCAL

The strongest winds for each of the months for the country blew mainly from the north east 24.3 percent of the days in October 2022, followed by east north east at 21.1 percent of the days in October 2022 and the east north east at 20.5 percent of the days in March 2023.

Overall, the strongest winds blew from east north east at 16.8 percent of the days followed by north east at 15 percent, and east at 11.5 percent of the days.

Figure 4: National percentage maximum wind speed directions by month (October 2022 to March 2023)



5. RELATIVE HUMIDITY

Humidity is atmospheric moisture, it is a quantity representing the amount of water vapour in the atmosphere, while relative humidity (expressed as a percent) also measures water vapour, relative to temperature of the air. A hundred percent relative humidity means that the air is saturated and the water vapour condenses into tiny water droplets while Zero relative humidity mean that the air is dry. Humidity has an effect on human wellbeing through the prevalence of microorganisms that need moisture in the air, such as dust mites, which in turn can lead to allergies and disease such as asthma. Extremely low humidity can cause dryness of the eyes and the skin, exacerbating conditions such as eczema. Humidity also determines how comfortable or uncomfortable the weather feels.

5.1 Mean monthly relative humidity

Table 12: Mean Monthly relative humidity - Percentage (October 2022 to March 2023)

Station	October	November	December	January	February	March	Station Average
Shakawe	35.9	58.9	60.4	72.5	67.4	64.1	59.9
Pandamatenga	28.9	68.7	67.5	85.3	82.1	67.8	66.7
Mababe	33.9	67.4	64.3	80.6	79.6	69.6	65.9
Tubu	38.4	59.0	57.4	67.0	72.5	64.4	59.8
Sowa	29.8	57.0	57.4	64.8	74.0	58.4	56.9
Ghanzi	32.0	57.3	55.5	52.6	65.3	59.0	53.6
Goodhope	44.7	69.9	71.8	58.0	70.7	66.5	63.6
Tsabong	-	-	-	-	-	-	-
Mahalapye	43.0	61.5	62.4	54.0	74.7	58.0	58.9
Lephephe	38.0	60.2	62.7	57.4	74.2	60.9	58.9
Tshane	32.0	50.5	34.6	42.0	59.2	52.9	45.2
Baines Drift	36.5	57.1	61.6	54.1	77.0	63.3	58.3
Werda	-	-	-	50.2	67.6	63.7	60.5
Monthly Average	35.7	60.7	59.6	61.5	72.0	62.4	59.0

Dash (-) = no data

Source: SASSCAL

The highest mean monthly relative humidity was recorded in January 2023 at 85.3 percent followed by 82.1 percent in February 2023 both at Pandamatenga and Mababe had the third highest relative humidity recorded in January 2023 at 80.6 percent. The lowest mean monthly relative humidity was recorded at Pandamatenga in October 2022 at 28.9 percent followed by Sowa with 29.8 percent then Tshane and Ghanzi with 32 percent all in October 2022.

5.2 Highest relative humidity

Table 13 shows the highest relative humidity recorded for each station by month, during the period October 2022 to March 2023.

Table 13: Highest relative humidity by percentage (October 2022 to March 2023)

Station	October	November	December	January	February	March	Station Average
Shakawe	66.2	81.3	86.4	84.1	88.6	87.2	82.3
Pandamatenga	50.4	95.2	95.5	99.9	100.0	83.3	87.4
Mababe	62.5	93.5	85.7	94.9	96.3	89.4	87.1
Tubu	81.9	94.7	98.7	87.5	94.2	91.7	91.5
Sowa	58.2	86.6	86.3	92.9	95.8	83.1	83.8
Ghanzi	69.2	92.9	85.6	83.5	86.4	89.8	84.6
Goodhope	96.8	94.9	100.0	88.7	95.8	92.7	94.8
Mahalapye	91.6	83.3	84.0	90.9	89.1	72.6	85.3
Lephephe	85.1	85.8	92.5	87.3	89.6	86.2	87.8
Tshane	85.9	99.3	40.5	64.2	92.9	86.1	78.2
Baines Drift	72.1	94.2	86.4	92.2	94.1	79.7	86.5
Werda	-	-	-	83.2	95.2	90.2	-
Monthly Average	74.5	91.1	85.6	87.4	93.2	86.0	82.8

Dash (-) = no data

Source: SASSCAL

February had the highest relative humidity average for all stations during the six (6) month period. Highest relative humidity extremes were reached from the months of December 2022 to March 2023.

5.3 Lowest relative humidity

Table 14 shows the lowest relative humidity recordings for the stations, during the period October 2022 to March 2023. The lowest humidity extremes were recorded during October 2022. October recorded the lowest monthly average relative humidity extremes for the period.

Table 14: Lowest relative humidity percentage of month by station (October 2022 to March 2023)

Station	October	November	December	January	February	March	Station Average
Shakawe	19.2	32.9	33.4	53.8	39.9	47.9	37.9
Pandamatenga	17.7	27.5	36.2	66.5	57.4	52.7	43.0
Mababe	21.2	37.3	40.7	62.4	52.1	47.9	43.6
Tubu	23.1	31.2	32.1	42.0	41.3	45.5	35.9
Sowa	14.6	27.4	31.2	39.1	52.2	38.6	33.9
Ghanzi	15.2	31.3	28.8	30.4	38.2	36.1	30.0
Goodhope	20.8	36.9	44.6	35.2	33.2	43.8	35.8
Mahalapye	17.7	39.4	30.4	32.9	53.3	38.8	35.4
Lephephe	14.9	37.4	37.3	36.6	58.0	35.3	36.6
Tshane	10.8	23.2	24.7	32.9	34.5	22.8	24.8
Baines Drift	16.2	29.5	39.7	38.1	64.7	42.2	38.4
Werda	-	-	-	34.6	48.3	40.3	-
Monthly Average	17.4	32.2	34.5	42.0	47.8	41.0	36.4

Dash (-) = no data

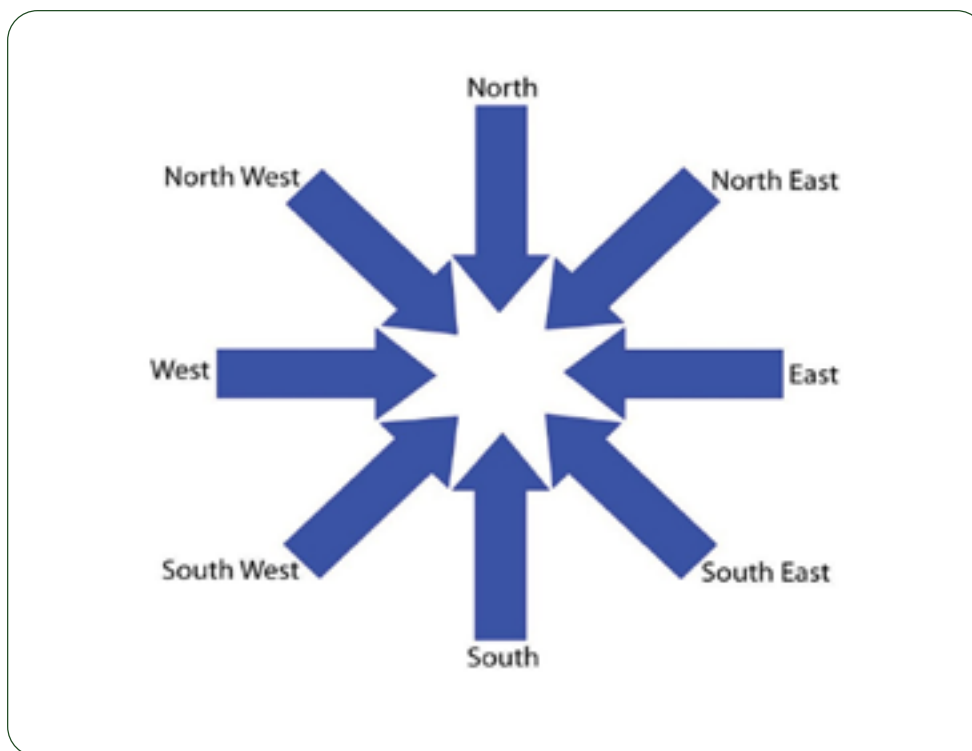
Source: SASSCAL

APPENDIX

Table 15: Wind Scale

m/s	Km/h	Beaufort scale	Label	Effects
0 - 0.2	1	0	Calm	Calm. Smoke rises vertically.
0.3-1.5	1-5	1	Light Air	Wind motion visible in smoke.
1.6-3.3	6-11	2	Light Breeze	Wind felt on exposed skin. Leaves rustle.
3.4-5.4	12-19	3	Gentle Breeze	Leaves and smaller twigs in constant motion.
5.5-7.9	20-28	4	Moderate Breeze	Dust and loose paper raised. Small branches begin to move.
8.0-10.7	29-38	5	Fresh Breeze	Branches of a moderate size move. Small Trees begin to sway.
10.8-13.8	39-49	6	strong Breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.
13.9-17.1	50-61	7	Near Gale	Whole trees in motion. Effort needed to walk against the wind. Swaying of skyscrapers may be felt, especially by people on upper floors.
17.2-20.7	62-74	8	Gale	Twigs broken from trees. Cars veer on road.
20.8-24.4	75-88	9	Severe Gale	Larger branches break off trees, and some small trees blow over. Construction/ temporary signs and barricades blow over. Damage to circus tents and canopies.
24.5-28.4	89-102	10	Storm	Trees are broken off or uprooted, saplings bent and deformed, poorly attached asphalt shingles and shingles in poor condition peel off roofs.
28.5-32.6	103-117	11	Violent Storm	Widespread vegetation damage. More damage to most roofing surfaces, asphalt tiles that have curled up and/or fractured due to age may break away completely.
>32.7	>118	12	Hurricane	Considerable and widespread damage to vegetation, a few windows broken, structural damage to mobile homes and poorly constructed sheds and barns. Debris may be hurled about.

Figure 5: Wind Direction Illustration



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