

BOTSWANA ENVIRONMENT STATISTICS

CLIMATE DIGEST

MARCH 2022

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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 towards the focused monitoring of climate statistics, and the availing of data for climate trends 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).



Dr. Burton S. Mguni
Statistician General
May 2023

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EXECUTIVE SUMMARY

The period under review is the warm and wet season of October 2021 to March 2022.

Pandamatenga received the highest total rainfall in a month at 369.5 mm in January 2022 followed by Tubu recording 195.0 mm in March 2022 and Maun recording 194.4 mm in December 2021. The wettest area was Pandamatenga, recording a total of 628.2 mm followed by Goodhope recording 565.0 mm and Maun recording 481.8 mm over the period of six months.

The lowest mean monthly minimum air temperature was that for Tsabong at 12.0 °C, followed by Werda at 12.7 °C and Goodhope at 13.2 °C all recorded in October 2021. The highest mean monthly maximum temperature was for Tubu at 40.5 °C in November 2021, and 38.2 °C in October 2021, followed by Mababe at 38.1 °C in November 2021. The highest maximum temperatures for the period were all recorded at Tubu as follows; 43.9 °C in October 2021, 43.6 °C in November 2021 and 43.5 °C in October 2021.

During this period, winds were strongest in Goodhope, with the highest mean monthly maximum wind speed of 7.7 m/s, followed by Tsabong at 6.8 m/s and Mababe at 6.6 m/s all in October 2021. Sowa had the lowest mean monthly maximum wind speed at 0.4 m/s in March 2022 followed by Baines Drift at 0.9 m/s in February and March 2022.

The highest wind speed recorded was 12.7 m/s followed by 11.4 m/s and 11.3 m/s all in October 2021 and all recorded at Goodhope. These wind speed recordings fall in the category of Strong Breeze on the Beaufort scale (see Table 17 in the Appendix).

The most wind direction predominance was that for Baines Drift where 53.3 percent of the winds were from the east north east, followed by Mahalapye where 31.3 percent of the winds were from the east north east and Goodhope where 26.9 percent of the winds were from the north east.

Nationally, winds were predominantly from the north east 23.1 percent of the days in February 2022, followed by predominance of 21.8 percent from the east in October 2021, and 21.1 percent from the north east in March 2022.

The highest predominance by maximum wind speed was that for Baines Drift with 42.2 percent of the days recording strongest winds blowing from the east north east followed by Goodhope, where 30.2 percent of the strongest winds blew from the north east direction and Mahalapye, where 24.7 percent of the winds blew from the north east.

Nationally, the strongest winds for each month blew mainly from the east north east at 19.3 percent of the days in January 2022, followed by the east north east at 18.2 percent of the days in February 2022 then north east and east north east at 18.0 percent of the days in March 2022.

Overall, the strongest winds blew from the east north east at 15.5 percent of the days, followed by the north east at 14.4 percent and the east at 10.9 percent of the days.

The highest mean monthly relative humidity was recorded for Pandamatenga at 89.6 percent in December 2021, and 88.4 percent in January 2022 followed by Tubu at 84.9 percent in March 2022. The lowest mean monthly relative humidity was recorded for Tshane at 32.1 percent followed by Ghanzi at 35.0 percent and Pandamatenga at 38.9 percent, all in October 2021. High relative humidity extremes were reached during the months from December 2021 to March 2022. March recorded the highest average relative humidity extremes for the period. The lowest humidity extremes were recorded during October 2022. October recorded the lowest monthly average relative humidity extremes for the period.



1. INTRODUCTION

Climate is important to human livelihoods because it influences human life directly through well being and health and indirectly through human activities such as economic or agricultural practices. This report covers the period from October 2021 to March 2022.

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

2. RAINFALL

The period under study is the wet season and is characterised by warm or 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 Precipitation (mm) (October 2021 to March 2022)

	October	November	December	January	February	March
Ghanzi	10.4	24.0	129.5	66.1	10.6	119.6
Goodhope	53.6	75.3	136.0	104.7	44.7	150.7
Mahalapye	27.1	74.4	77.7	66.6	21.5	22.1
Pandamatenga	12.9	32.0	144.2	369.5	10.7	58.9
Sua Pan	27.8	37.6	81.7	107.1	36.1	108.2
Tsabong	44.1	3.8	107.8	53.2	45.1	89.9
Tshane	9.3	0.0	16.4	156.0	26.8	86.7
Werda	0.0	17.9	76.5	43.2	18.2	76.1
Shakawe	10.1	33.8	23.0	170.9	32.2	162.3
*SSKIA	39.5	33.4	118.4	30.1	28.7	72.3
Selibe Phikwe	5.2	33.7	141.2	80.5	85.0	15.0
Letlhakane	32.2	33.1	80.1	52.4	15.5	57.6
Kasane	0.0	49.6	0.0	186.2	36.2	33.4
Lephephe	8.4	111.7	80.5	59.2	51.9	98.7
Jwaneng	24.4	83.0	150.3	59.1	46.3	107.0
Maun	19.2	43.6	194.4	179.9	21.3	23.4
Tubu	0.0	159.6	93.4	0.0	0.0	195.0
Mababe	0.0	0.0	54.0	107.0	26.0	74.0
Francistown	22.3	145.5	29.8	134.4	21.4	53.3

Source: Department of Meteorological Services

*SSKIA- Sir Seretse Khama International Airport

Pandamatenga received the highest total rainfall in a month at 369.5 mm in January 2022 followed by Tubu recording 195.0 mm in March 2022 and Maun recording 194.4 mm in December 2021.

2.2. Total Rainfall

Table 2 shows the total rainfall by the station during the wet season from October 2021 to March 2022. The wettest area was Pandamatenga, recording a total of 628.2 mm followed by Goodhope recording 565.0 mm and Maun recording 481.8 mm over the period of six months.

Table 2: Total rainfall (mm) by the station (October 2021 to March 2022)

Station	Total Rainfall (mm)
Pandamatenga	628.2
Goodhope	565.0
Maun	481.8
Jwaneng	470.1
Tubu	448.0
Shakawe	432.3
Lephephe	410.4
Francistown	406.7
Sua Pan	398.5
Selibe Phikwe	360.6
Ghanzi	360.2
Tsabong	343.9
SSKIA	322.4
Kasane	305.4
Tshane	295.2
Mahalapye	289.4
Lelthakane	270.9
Mababe	261.0
Werda	231.9

Source: Department of Meteorological Services
 *SSKIA- Sir Seretse Khama International Airport

3. TEMPERATURES

Botswana's diurnal temperature range 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).

The coolest mean monthly minimum air temperature during the period October 2021 to March 2022 was recorded in the south-western parts of the country, where the diurnal temperature range is highest.

**Table 3: Mean monthly minimum air temperatures (degrees Celsius)
(October 2021 to March 2022)**

Station	October	November	December	January	February	March
Baines Drift	17.2	18.2	17.8	18.3	18.3	17.0
Ghanzi	14.9	20.9	20.2	19.7	19.1	18.5
Goodhope	13.2	14.2	16.7	18.6	18.2	16.9
Lephephe	-	19.1	15.6	14.7	17.6	15.9
Mababe	20.3	20.7	20.3	19.1	16.3	18.0
Mahalapye	16.0	21.1	21.3	20.7	20.4	18.6
Pandamatenga	18.8	19.3	19.7	19.0	18.6	19.5
Sowa	18.3	25.4	24.3	22.5	22.0	20.9
Tsabong	12.0	16.0	16.2	17.7	17.5	15.8
Tshane	13.5	-	-	-	-	-
Tubu	22.9	23.6	23.8	23.1	-	-
Werda	12.7	16.7	18.0	19.3	18.9	17.3

Source: Department of Meteorological Services and SASSCAL

Dashes (-) show no data

The lowest mean monthly minimum air temperature was that for Tsabong at 12.0 °C, followed by Werda at 12.7 °C and Goodhope at 13.2 °C all recorded in October 2021.

3.2. Maximum air temperatures

Table 4 shows the mean monthly maximum air temperatures for the period October 2021 to March 2022. The maximum air temperatures show the hottest parts of Botswana during the spring and summer seasons.

**Table 4: Mean monthly maximum air temperatures (degrees Celsius)
(October 2021 to March 2022)**

Station	October	November	December	January	February	March
Baines Drift	29.5	33.3	31.2	30.4	33.5	31.1
Ghanzi	32.8	35.3	32.1	31.2	32.7	28.1
Goodhope	27.4	32.0	28.0	27.9	30.9	26.3
Lephephe	-	33.8	29.8	30.1	32.8	-
Mababe	36.7	38.1	34.4	30.4	-	-
Mahalapye	30.2	32.7	29.5	29.1	32.3	29.3
Pandamatenga	34.0	35.1	31.2	26.9	30.7	28.9
Sowa	34.3	35.5	32.8	30.1	33.4	30.1
Tsabong	31.1	35.0	32.4	33.1	34.4	29.7
Tshane	31.1	35.1	31.8	31.3	32.6	28.5
Tubu	38.2	40.5	36.5	33.5	36.0	33.7
Werda	30.8	35.7	31.2	31.6	33.6	29.0

Source: Department of Meteorological Services and SASSCAL

Dashes (-) show no data

The highest mean monthly maximum temperature recorded during the period October 2021 to March 2022 was for Tubu at 40.5 °C in November 2021, and 38.2 °C in October 2021, followed by Mababe at 38.1 °C in November 2021.

3.3. Maximum temperature extremes

Table 5 shows the highest maximum air temperatures recorded for the stations, during the period October 2021 to March 2022. The highest maximum temperatures for the period were all recorded for Tubu at 43.9 °C in October 2021 followed by 43.6 °C in November 2021 and 43.5 °C in October 2021.

Table 5: Highest maximum temperatures recorded (degrees Celsius) (October 2021 to March 2022)

Temperature (°C)	Month	Station
43.9	October	Tubu
43.6	November	Tubu
43.5	October	Tubu

Source: Department of Meteorological Services and SASSCAL

4. WIND SPEED AND DIRECTION

Wind speed is measured in metres per second (m/s) while wind direction is expressed in degrees. Wind direction is expressed in terms of the direction that the wind is blowing from. For example, northerly winds blow from the north to the south.

4.1. Mean monthly maximum wind speed

Table 6 shows the mean monthly maximum wind speed for the period October 2021 to March 2022.

Table 6: Mean monthly maximum wind speed (m/s) (October 2021 to March 2022)

Stations	October	November	December	January	February	March
Baines Drift	5.7	3.0	2.6	2.1	0.9	0.9
Ghanzi	6.2	2.0	2.0	2.4	1.7	2.1
Goodhope	7.7	3.4	3.0	2.9	2.1	2.3
Lephephe	-	2.5	2.4	3.1	2.1	-
Mababe	6.6	3.0	3.2	3.3	-	-
Mahalapye	6.4	2.6	2.2	2.9	2.0	2.3
Pandamatenga	5.9	1.8	1.5	2.3	1.7	1.6
Shakawe	-	1.3	1.2	1.7	1.1	1.3
Sowa	5.9	1.7	1.8	2.4	1.7	0.4
Tsabong	6.8	2.2	2.6	2.4	1.7	2.1
Tshane	5.9	2.2	2.2	2.1	1.6	1.9
Tubu	5.2	1.8	1.6	2.2	1.5	1.7
Werda	5.8	2.1	2.1	1.9	1.3	1.6

Source: Department of Meteorological Services and SASSCAL
 Dashes (-) show no data

Winds were strongest in Goodhope, with the highest mean monthly maximum wind speed of 7.7 m/s, followed by Tsabong at 6.8 m/s and Mababe at 6.6 m/s in October 2021. Sowa had the lowest mean monthly maximum wind speed at 0.4 m/s in March 2022 followed by Baines Drift at 0.9 m/s in February and March 2022.

4.2. Highest wind speed recorded

Table 7 shows the highest wind speed recorded during the period of October 2021 to March 2022. The wind speed recordings are the highest recorded in a 24 hour period.

The highest wind speed recorded was 12.7 m/s followed by 11.4 m/s and 11.3 m/s in October 2021, recorded for Goodhope. These wind speed recordings fall in the category of Strong Breeze on the Beaufort scale. (See Table 17 in the appendix).

Table 7: Maximum wind speed (m/s) (October 2021 to March 2022)

Speed m/s	*Beaufort classification	Month	Station
12.7	Strong Breeze	October	Goodhope
11.4	Strong Breeze	October	Goodhope
11.3	Strong Breeze	October	Goodhope

*See table 17 in the appendix

Source: Department of Meteorological Services and SASSCAL

4.3. Wind direction

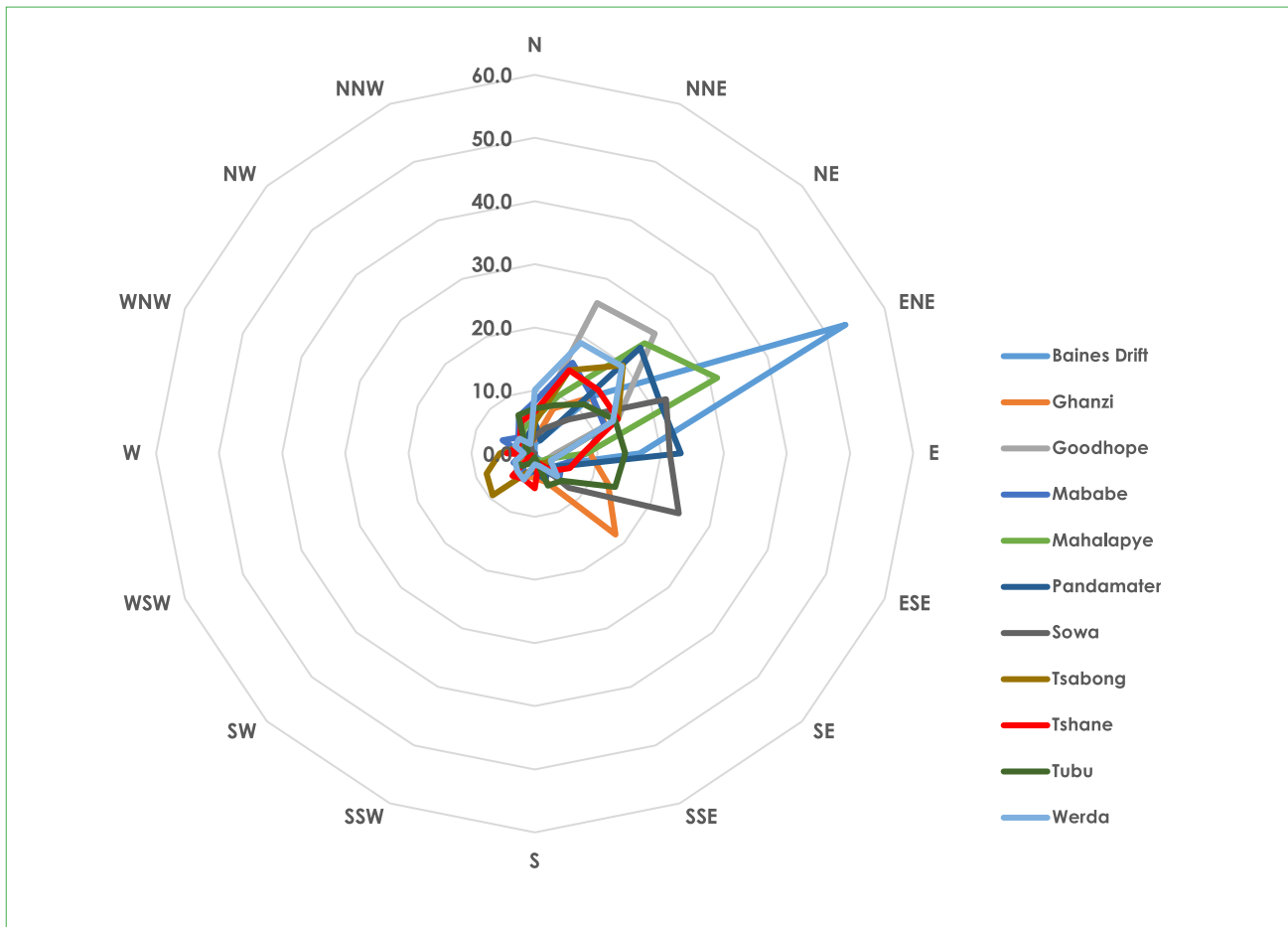
Table 8 shows the stations' predominant wind direction as a percentage of the days recorded between October 2021 and March 2022. The highest predominance is that of Baines Drift where 53.3 percent of the days the winds were from the east north east, followed by Mahalapye where 31.3 percent of the of the days the winds were from the east north east and Goodhope where 26.9 percent of the days the winds were from the north east. **Figure 1** shows this graphically.

Table 8: Percentage of predominant winds by station (October 2021 to March 2022)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
Baines Drift	1.7	2.2	12.8	53.3	16.7	4.4	3.3	0.6	1.1	1.1	0.0	1.1	0.0	0.0	1.7	0.0
Ghanzi	2.2	7.7	12.6	12.1	8.8	12.6	18.1	4.9	3.8	3.8	3.3	2.7	1.6	0.5	1.6	3.3
Goodhope	4.9	25.8	26.9	14.3	3.3	2.2	1.6	1.1	2.7	0.5	2.2	1.1	2.2	2.2	3.8	4.9
Lephephe	1.7	0.8	5.8	4.2	6.7	10.8	20.8	25.8	12.5	2.5	0.8	3.3	1.7	0.8	0.0	1.7
Mababe	8.3	15.6	12.8	11.9	8.3	4.6	5.5	2.8	2.8	3.7	2.8	3.7	1.8	5.5	3.7	6.4
Mahalapye	5.5	9.9	24.7	31.3	8.2	2.2	1.6	1.1	1.6	0.5	2.2	0.5	1.6	1.6	2.7	4.4
Pandamatenga	5.1	2.3	23.7	21.5	23.2	5.1	2.8	4.5	2.8	0.6	0.6	0.6	0.6	1.7	2.3	2.8
Shakawe	7.3	9.9	9.3	7.3	11.3	7.9	18.5	5.3	6.0	3.3	3.3	2.6	1.3	0.7	2.0	4.0
Sowa	2.7	4.4	7.7	22.5	21.4	24.7	7.7	1.6	1.1	1.6	0.5	0.5	0.0	1.1	0.5	1.6
Tsabong	4.9	14.3	19.8	14.3	4.4	2.7	2.2	1.6	2.2	3.3	9.3	8.2	5.5	2.7	2.7	1.6
Tshane	6.6	14.3	14.3	14.3	7.7	6.0	3.8	1.6	5.5	4.4	4.9	0.5	4.4	2.7	3.3	5.5
Tubu	7.2	8.3	11.0	13.8	14.4	13.8	6.1	5.5	0.6	1.7	2.8	3.3	1.7	1.1	2.2	6.6
Werda	10.1	19.0	19.6	13.4	4.5	2.8	5.0	2.2	1.7	4.5	3.9	3.4	1.7	3.4	3.4	1.7

Source: Department of Meteorological Services and SASSCAL

Figure 1: Percentage predominant winds by station (October 2021 to March 2022)



4.4. National wind direction

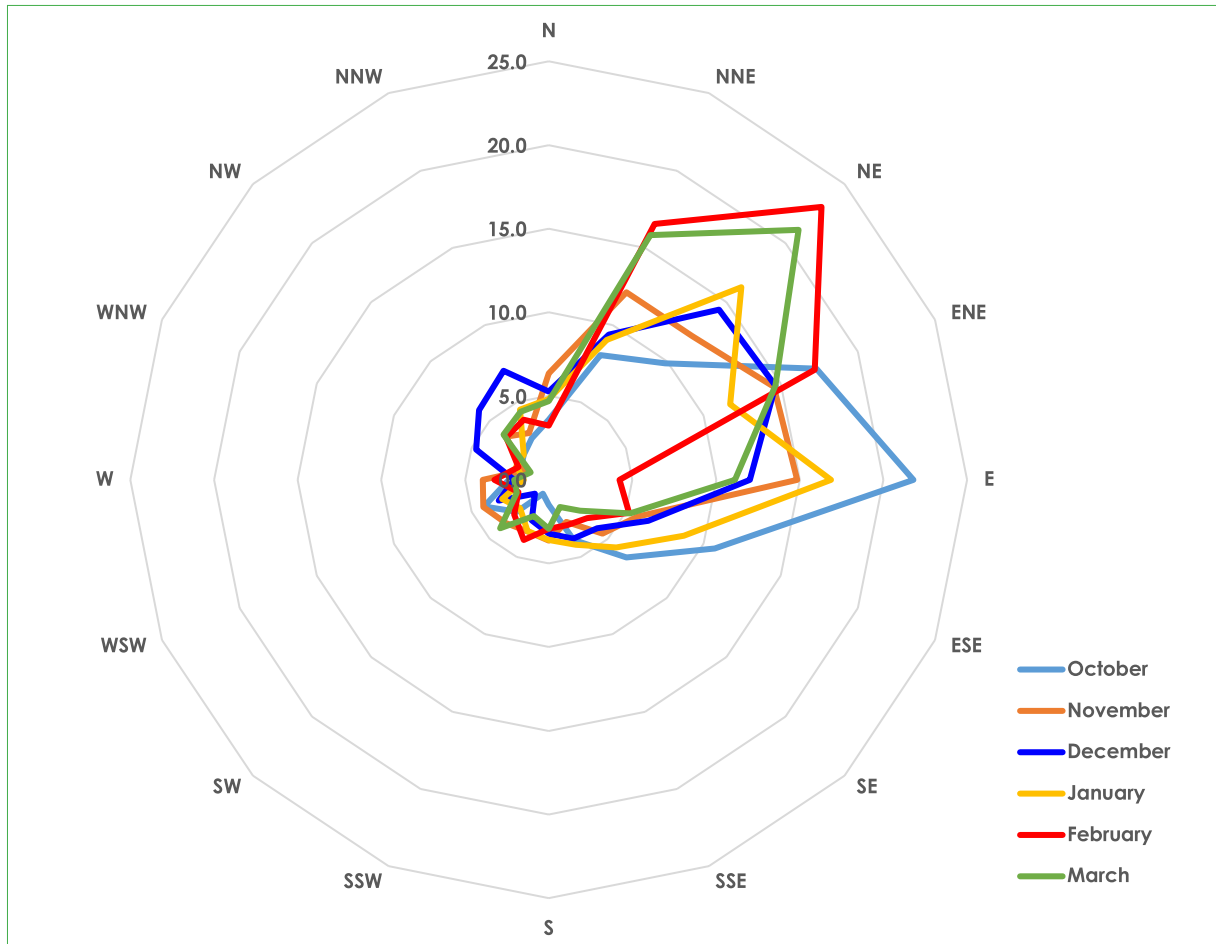
Table 9 shows the country's wind direction for the period of October 2021 to March 2022 as a percentage of the total number of days for that period. Nationally, winds were predominantly from the north east 23.1 percent of the days in February 2022, followed by predominance of 21.8 percent from the east in October 2021, and 21.1 percent from the north east in March 2022. **Figure 2** shows the country's predominant winds graphically.

Table 9: National wind direction by percentage of days (October 2021 to March 2022)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
October	3.6	8.1	9.9	17.3	21.8	10.7	6.6	3.9	1.5	0.9	2.7	4.2	2.4	1.8	2.1	2.7	100.0
November	6.4	12.1	12.1	14.5	14.8	5.8	4.5	2.7	3.6	3.3	3.6	4.2	3.9	1.5	3.6	3.0	100.0
December	5.3	9.4	14.4	14.7	12.0	6.5	4.1	3.8	3.2	2.6	1.2	3.2	2.1	4.7	5.9	7.0	100.0
January	4.8	9.0	16.3	11.7	16.9	8.7	5.7	4.2	3.6	3.3	2.4	3.0	1.5	2.1	2.1	4.5	100.0
February	3.2	16.6	23.1	17.2	4.2	5.2	3.2	2.9	2.9	3.9	2.9	1.9	3.2	1.9	3.6	3.9	100.0
March	4.7	15.8	21.1	14.7	11.1	5.3	2.6	1.8	2.9	2.3	4.1	2.1	2.1	1.2	3.8	4.4	100.0

Source: Department of Meteorological Services and SASSCAL

Figure 2: National wind direction by percentage of days (October 2021 to March 2022)



4.5. Maximum wind speed by direction

Maximum wind speed by direction is an indication of the direction of the maximum wind speed recorded. 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 2021 to March 2022.

Table 10: Percentage maximum wind speed directions by station (October 2021 to March 2022)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
Shakawe	2.6	5.3	10.6	7.9	12.6	13.2	13.9	5.3	2.0	3.3	2.6	7.3	4.6	3.3	2.0	3.3	100.0
Mababe	14.7	7.3	15.6	10.1	10.1	3.7	4.6	6.4	0.9	3.7	2.8	1.8	0.0	5.5	3.7	9.2	100.0
Mahalapye	1.1	8.8	24.7	22.0	11.0	4.9	2.7	4.4	0.0	1.1	2.7	2.7	5.5	3.3	3.3	1.6	100.0
Pandamatenga	4.0	5.1	19.8	22.6	14.7	3.4	5.6	6.8	3.4	1.7	1.7	1.7	1.1	2.3	4.0	2.3	100.0
Sowa	1.1	8.2	8.8	12.1	13.7	20.9	9.3	3.3	2.2	0.0	3.8	6.0	3.8	0.5	4.4	1.6	100.0
Tsabong	1.6	12.1	20.3	11.5	2.7	4.4	3.3	3.8	4.4	3.3	5.5	7.1	9.3	4.9	2.7	2.7	100.0
Tshane	5.5	7.1	8.8	13.2	4.9	4.4	5.5	4.4	5.5	2.2	7.7	1.1	4.9	9.3	7.1	8.2	100.0
Tubu	7.7	9.4	8.3	16.0	21.0	3.9	7.2	6.6	3.3	2.2	1.1	1.7	0.6	2.2	2.2	6.6	100.0
Werda	10.6	19.0	13.4	9.5	4.5	4.5	1.1	1.7	3.4	4.5	5.0	5.6	5.0	3.9	2.8	5.6	100.0
Ghanzi	3.8	5.5	6.0	16.5	15.9	15.9	9.9	2.7	6.0	3.8	3.8	3.3	1.6	0.5	1.6	2.7	100.0
Baines Drift	1.7	5.6	12.8	42.2	18.3	6.1	2.8	0.6	1.7	0.0	1.7	1.7	0.6	1.1	1.7	1.7	100.0
Lephephe	1.7	5.0	5.0	2.5	5.8	12.5	11.7	19.2	19.2	3.3	1.7	0.8	1.7	3.3	5.0	1.7	100.0
Goodhope	2.7	10.4	30.2	8.2	4.4	3.3	1.6	6.0	1.1	4.4	3.8	3.8	9.3	3.8	2.2	4.4	100.0

Source: Department of Meteorological Services and SASSCAL

The highest predominance by maximum wind speed is that for Baines Drift with 42.2 percent of the days recording strongest winds blowing from the east north east followed by Goodhope, where 30.2 percent of the strongest winds blew from the north east direction and Mahalapye, where 24.7 percent of the winds blew from the north east.

Figure 3: Percentage maximum wind speed directions by station (October 2021 to March 2022)

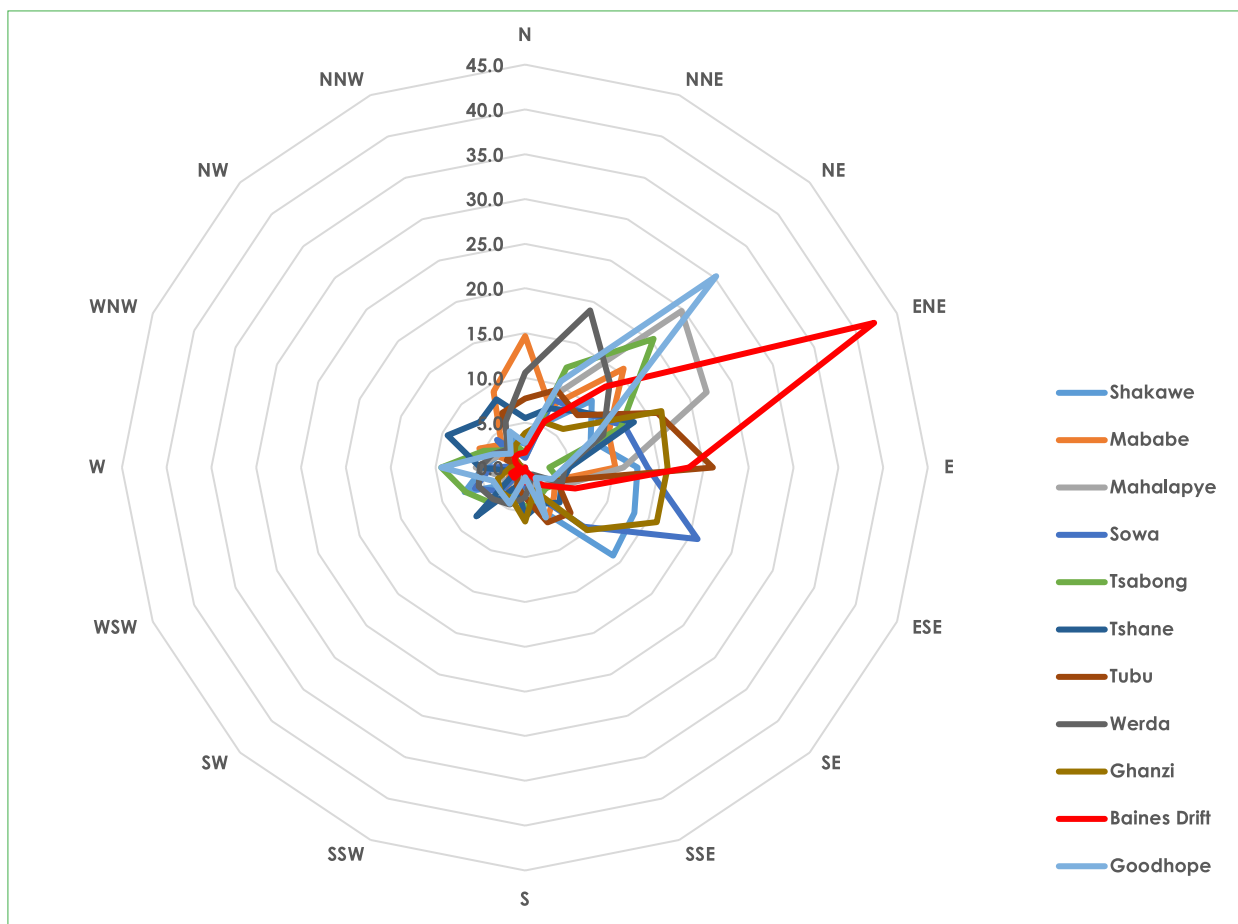


Table 11 and Figure 4 show the maximum wind speed directions for the country as a percentage of the days recordings were taken by month, for the period October 2021 to March 2022.

Table 11: National percentage maximum wind speed directions by month (October 2021 to March 2022)

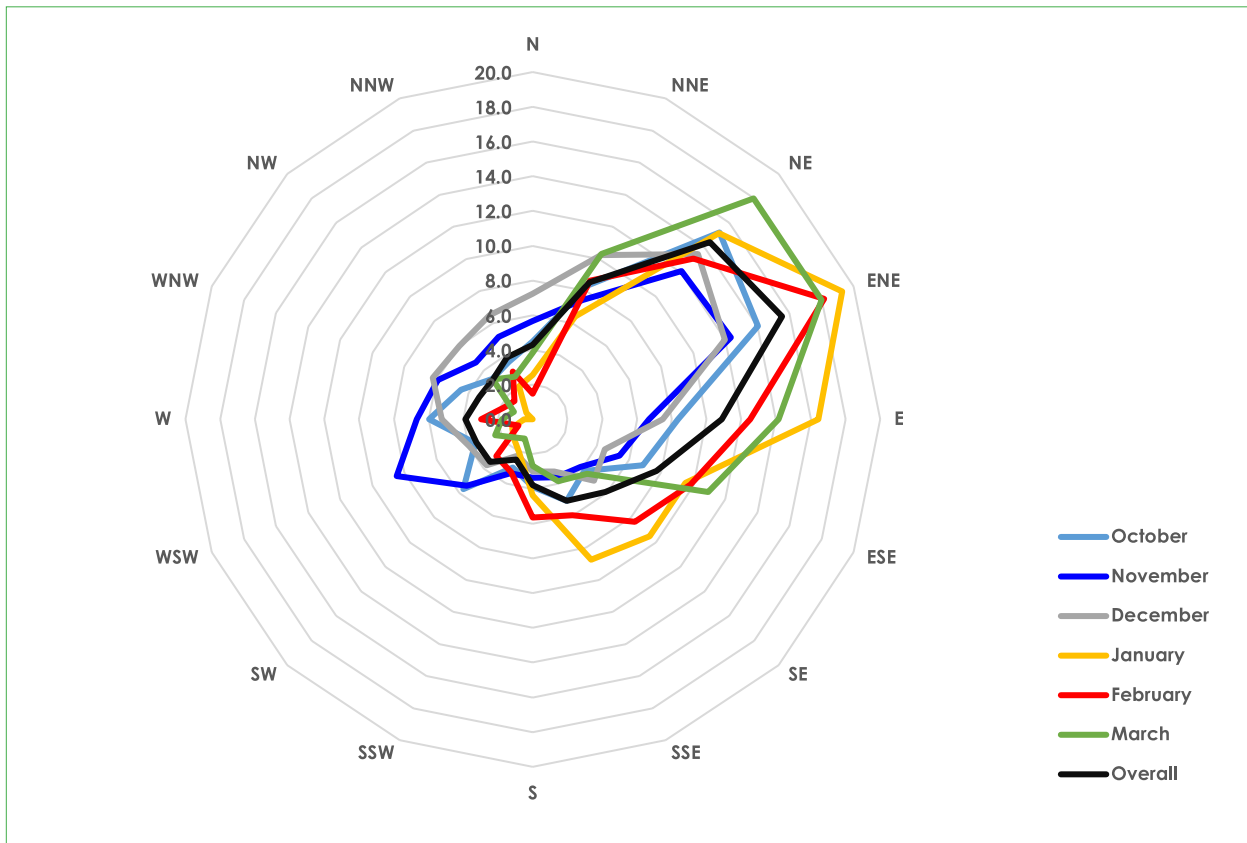
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
October	4.5	8.4	15.2	14.0	8.4	6.9	4.2	5.1	3.9	3.0	5.7	3.6	6.0	4.5	3.3	3.6	100.0
November	5.7	7.5	12.1	12.3	6.7	5.4	3.9	3.6	3.3	3.3	5.4	8.5	6.7	5.9	4.6	5.1	100.0
December	7.2	10.2	13.5	12.0	7.5	4.5	5.0	3.2	3.0	2.2	3.7	4.0	5.2	6.2	6.0	6.5	100.0
January	2.6	6.4	15.2	19.3	16.5	9.5	9.5	8.7	4.4	2.1	1.5	1.3	0.5	0.0	0.5	2.1	100.0
February	1.5	8.6	13.1	18.2	12.5	9.8	8.3	6.0	5.7	3.3	3.0	0.9	3.0	1.8	1.5	3.0	100.0
March	3.8	10.3	18.0	18.0	14.2	10.9	4.4	3.8	2.7	1.2	1.5	2.4	1.8	1.2	3.2	2.7	100.0
Overall	4.3	8.5	14.4	15.5	10.9	7.7	5.9	5.1	3.8	2.5	3.5	3.5	3.9	3.3	3.2	3.9	100.0

Source: Department of Meteorological Services and SASSCAL

The strongest winds for each month for the country blew mainly from the east north east at 19.3 percent of the days in January 2022, followed by the east north east at 18.2 percent of the days in February 2022 then the north east and the east north east at 18.0 percent of the days in March 2022.

Overall, the strongest winds blew from the east north east at 15.5 percent of the days, followed by the north east at 14.4 percent, and the east at 10.9 percent of the days.

Figure 4: National percentage maximum wind speed directions by month (October 2021 to March 2022)



5. RELATIVE HUMIDITY

Relative humidity is a measure of the amount of water vapour in the air in relation to the maximum amount of vapour or moisture the air can hold at a given temperature, expressed as a percentage. The higher the temperature the higher the amount of vapour or moisture the air can hold. Moisture is added to the air by evaporation and removed from the air by condensation.

Humidity has an effect on human’s well-being 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 shows the mean monthly relative humidity for the period from October 2021 to March 2022.

Table 12: Mean Monthly relative humidity Percentage (October 2021 to March 2022)

	October	November	December	January	February	March	Station average
Shakawe	-	-	-	76.7	71.5	81.2	76.5
Pandamatenga	38.9	60.5	89.6	88.4	74.3	82.7	72.4
Mababe	41.3	61.2	83.1	75.0	-	-	65.2
Tubu	42.7	60.7	75.5	80.8	74.6	84.9	69.9
Sowa	41.6	57.0	71.8	73.7	54.9	67.6	61.1
Ghanzi	35.0	52.7	62.8	65.9	59.6	75.6	58.6
Baines Drift	50.5	49.8	74.4	60.3	48.4	51.9	55.9
Mahalapye	48.7	70.6	82.4	69.3	59.2	66.4	66.1
Lephephe	-	74.4	82.1	67.2	57.3	-	70.3
Tshane	32.1	41.9	51.9	63.2	57.5	71.3	53.0
Werda	41.5	47.9	58.8	65.1	58.1	73.2	57.4
Goodhope	51.5	62.0	63.6	73.9	63.3	79.4	65.6
Monthly Average	42.4	58.0	72.4	71.6	61.7	73.4	64.3

Source: Department of Meteorological Services and SASSCAL
 Dashes (-) show no data

The highest mean monthly relative humidity was recorded for Pandamatenga at 89.6 percent in December 2021, and 88.4 percent in January 2022 followed by Tubu at 84.9 percent in March 2022. The lowest mean monthly relative humidity was recorded for Tshane at 32.1 percent followed by Ghanzi at 35.0 percent and Pandamatenga at 38.9 percent, all in October 2021.

5.2 Highest relative humidity

Table 13 shows the highest relative humidity recorded for each station by month, during the period October 2021 to March 2022.

Table 13: Highest relative humidity percentage of month by station (October 2021 to March 2022)

	October	November	December	January	February	March	Station average
Shakawe	-	76.5	89.9	96.9	89.9	92.7	89.2
Pandamatenga	64.6	91.8	100.0	100.0	96.9	100.0	92.2
Mababe	69.2	79.3	83.1	95.9	-	-	81.9
Tubu	95.6	67.3	91.5	98.9	93.3	97.6	90.7
Sowa	70.1	86.9	83.4	88.9	74.1	87.7	81.9
Ghanzi	84.9	60.0	89.4	97.3	85.4	95.1	85.4
Baines Drift	79.1	96.2	99.8	88.3	66.0	86.0	85.9
Mahalapye	75.0	97.4	100.0	86.3	71.2	98.9	88.1
Lephephe	-	86.0	89.4	89.0	76.4	-	85.2
Tshane	83.7	55.2	87.4	93.5	81.8	96.9	83.1
Werda	99.3	65.5	94.8	92.9	83.6	99.0	89.2
Goodhope	90.3	86.2	98.5	94.0	83.6	99.5	92.0
Monthly average	81.2	79.3	92.5	93.2	81.2	95.6	87.2

Source: Department of Meteorological Services and SASSCAL
 Dashes (-) show no data

High relative humidity extremes were reached during the months from December 2021 to March 2022. March recorded the highest average relative humidity extremes for the period.

5.3 Lowest relative humidity

Table 14 shows the lowest relative humidity recordings for the stations, during the period October 2021 to March 2022. The lowest humidity extremes were recorded during October 2021. October recorded the lowest monthly average relative humidity extremes for the period.

**Table 14: Lowest relative humidity percentage of month by station
(October 2021 to March 2022)**

	October	November	December	January	February	March	Station average
Shakawe	-	24.2	52.7	48.0	58.9	69.5	50.7
Pandamatenga	13.4	26.3	26.4	63.5	54.2	63.7	41.3
Mababe	16.3	17.1	30.5	53.3	-	-	29.3
Tubu	12.9	19.3	46.0	50.8	54.6	70.8	42.4
Sowa	10.5	23.7	30.9	50.1	41.0	49.1	34.2
Ghanzi	13.3	17.7	33.8	45.0	43.1	58.9	35.3
Baines Drift	16.6	21.7	34.3	41.4	38.1	37.5	31.6
Mahalapye	13.6	21.6	43.9	54.2	45.1	49.9	38.1
Lephephe	-	18.8	48.1	48.2	40.2	-	38.8
Tshane	11.5	16.6	26.5	24.7	34.6	49.4	27.2
Werda	15.7	19.1	41.4	35.0	36.0	55.7	33.8
Goodhope	16.3	18.8	51.7	48.2	46.1	60.3	40.2
Monthly average	14.0	20.1	37.6	46.8	43.3	55.0	35.7

Source: Department of Meteorological Services and SASSCAL

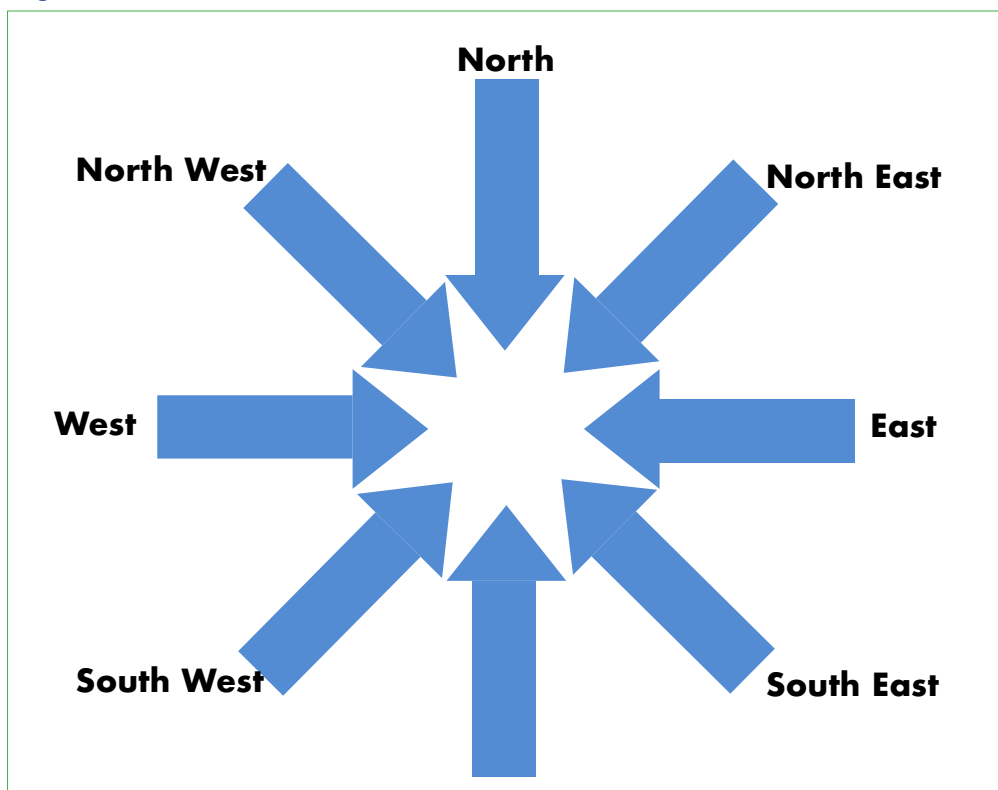
Dashes (-) show no data

6. 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: Winds Direction illustration



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