

The Prevalence of Temperate Climates in Capital Cities across Africa: The African Union, the African Diaspora, and Africa's Development

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Abstract

This study examines the prevalence of temperate climates in capital cities/regions across Africa. Sixteen (27.6%) of the 58 capital cities/regions in Africa have elevation levels of 1000 meters or higher, ranging from 1011 meters to 2405 meters. Of 40 capital cities/regions in Africa, 17 (42.5%) have very pleasant average annual maximum daytime temperatures ranging from 73.04 degrees to 83.12 degrees. For the minimum annual nighttime temperatures, 21 (52.5% out of 40) capital cities/regions have temperatures ranging from 51.6 degrees to 69.62 degrees; and 10 (25%) have temperatures in the 50s, ranging from 51.6 degrees to 59.18 degrees. Of 39 capital cities/regions in Africa with available annual rainfall data, 8 (20.5%) have 100 days or more of rainfall, ranging from 114 days in Kigali, Rwanda, to 162 days in Conakry, Guinea (the highest on the mainland of Africa), and 178 days in Port Louis, Mauritius (an island nation); and 27 (69.2%) have 50 days or more of rainfall. In 10 (17.2%) of the 58 capital cities/regions in Africa, the temperature rarely goes below 70 degrees; and in 17 (29.3%) of them the temperature rarely goes below the 20s, 30s, and 40s. Of the 35 capital cities/regions with available annual sunshine hours data, only 5 (14.3%) are below 2000 hours; and 10 (28.6%) with annual sunshine hours of 3000 or more. Of 32 capital cities/regions with available annual humidity data, 9 (28.1%) have figures ranging from 29% to 59 percent. Of 34 capital cities/regions with available annual precipitation data, 15 (44.1%) have figures of 1000 or more, ranging from 1004 to 2876. The study recommends that the African union lead the way to prepare for the movement of people in Africa and the African diaspora to capital cities/regions in Africa, as they are among the areas with temperate climates. Both the African Union and the United States government must work to promote interreligious dialogue in Africa, since Christians are now

the majority in Africa, and most of the Black people relocating to Africa from the United States are also Christians.

Keywords

Africa, Capital Cities, Temperate Climate, Altitude, Latitude, Rainfall, Migration, Diaspora, Development, United States

1. Introduction

The categorization of countries or entities under geographic zones tends to be connected to climate. For example, of 58 countries/entities in Africa, 44 (75.9%) are categorized under tropics, and 14 (24.1%) are categorized under equatorial tropics/subtropics, subtropical, subtropical/desert, subtropics of the northern hemisphere and subtropics of the southern hemisphere (Kaba, 2024a: p. 65; also see Beck et al., 2018; Cole, 2008; Domroes, 2003). The phenomenon called latitude is connected to this categorization of countries and entities, because it relates to temperate climates, which sometimes is a proxy for cooler climates or climatic seasons. The farther away a country or geographic territory is from the equator (north or south, or up or down, or Northern Hemisphere and Southern Hemisphere), the more temperate the climate is reported to be. For example, “the geographical coordinates of Washington, D.C. are 38.895 deg latitude, -77.036 deg longitude, and 20 ft [6.1 meters] elevation.” These geographical coordinates of Washington, D.C. are connected to its climate or weather. For example, its “summers are warm and muggy, the winters are very cold and snowy, and it is partly cloudy year round. Over the course of the year, the temperature typically varies from 29° F to 88° F and is rarely below 17° F or above 96° F” (“Climate and Average Weather Year Round in Washington, D.C. United States,” 2024). Comparing Washington, D.C. to its southern neighbor, Mexico City, with “geographical coordinates of ... 19.428 deg latitude, -99.128 deg longitude, and 7349 ft [2,240 meters] elevation,” its “wet season is warm and overcast and the dry season is comfortable and partly cloudy. Over the course of the year, the temperature typically varies from 43° F to 80° F and is rarely below 37° F or above 86° F” (“Climate and Average Weather Year-Round in Mexico City Mexico,” 2024). In Africa, in Dakar, Senegal, which is almost surrounded by the North Atlantic Ocean, its “geographical coordinates... are 14.694 deg latitude, -17.444 deg longitude, and 39 ft [11.9 meters] elevation”, and its “summers are long, hot, oppressive, and overcast and the winters are long, comfortable, dry, windy, and partly cloudy. Over the course of the year, the temperature typically varies from 65° F to 88° F and is rarely below 61° F or above 92° F” (“Climate and Average Weather Year-Round in Dakar, Senegal,” 2024).

The information presented above illustrates that both latitude and altitude play important roles in the climate of a geographic region. For example, com-

pared to Mexico City, Washington, D.C. is on a higher latitude, which results in both the low for 'temperature varies' and 'rarely below' are below the freezing point of 32 degrees or lower. However, the fact that its altitude or elevation from sea level is only 20 feet is a significant contributing factor as to why its "summers are warm and muggy" and the high for the 'weather varies' is 88 degrees and 'rarely above' 96 degrees. For Mexico City, its latitude figure is half that of Washington, D.C., the low for it varies figure is 43 degrees and the low for the 'rarely below' figure is 37 degrees. However, because of its significantly high altitude of 7349 feet, is a significant factor as to why the high for it varies temperature is 80 degrees and the high for 'rarely above' figure is 86 degrees.

For Dakar, Senegal, with its latitude figure of 24.2 deg lower than that of Washington, D.C., yet its high varies figure of 88 degrees is the same as Washington, D.C. and the high for its rarely above is 92 degrees, four degrees below the figure for Washington, D.C. at 96 degrees. One can provide two explanations for this observation. The first is that the eastern seaboard of the United States shares the North Atlantic Ocean as Dakar, and Senegal in general. The second explanation is that Dakar as a peninsular goes out west deep into the ocean, to the point whereby it is almost surrounded by the North Atlantic Ocean. In fact, the westernmost point of Africa is found in Dakar. This is the reason why it is noted above about Dakar that its "winters are long, comfortable, dry, windy..." because the North Atlantic Ocean gets very cold from December to early May. For example, every single day for the entire month of March 2024, the daily temperature for Dakar, Senegal, was in the 70s in the day (mostly from 70 degrees to 78 degrees, with the exception of 1:45 pm, 2 pm and 3 pm on Tuesday, March 5, when it was at 80 degrees; and Sunday, March 17: 12 pm at 81 degrees; 1 pm at 82 degrees; 2 pm at 85 degrees; 3 pm at 85 degrees; 4 pm at 82 degrees; and 5 pm at 81 degrees) and during nighttime the temperature dropped below 70 degrees every single night, ranging from 69 degrees to 65 degrees, starting in some days as early as 6 pm in the evening, to the next morning up to 9 am. During this same month of March 2024, it was also windy almost every single day and night ranging from 6 miles per hour wind to up to 18 miles per hour wind. However, at least 90% of the time during the month of March 2024, the wind speed ranged from 10 to 20 miles per hour. This is despite the altitude of Dakar being only 39 feet (Source: see Methodology Section; also see [Collins, 2011: p. 3650, pp. 3658-3659](#)).

The information presented above shows that although a country or geographic entity would be categorized as the Tropics, it could have a higher altitude, which could contribute to a temperate climate. This is one of the major findings in this study—that most capital cities/regions in Africa have relatively very high altitudes. Other indicators or characteristics of temperate climates that are found in this study are as follows: rainfall, cold temperatures (e.g., below 70 degrees Fahrenheit), relatively low humidity, snowfall, wind, location by the coast, such as the North Atlantic Ocean, or rivers and lakes. It is noted that: "Temperate

climates of the Earth are characterized by relatively moderate mean annual temperatures, with average monthly temperatures above 10°C [50 degrees Fahrenheit] in their warmest months and above -3°C [26.6 degrees] in their colder months” (Pratolongo et al., 2019; also see Mohammed et al., 2021: p. 1030; Peel et al., 2007; “Temperate Climates,” 2024).

This study is very relevant at this moment in history because it is important to people residing in Africa as a source of useful climate data as increasing numbers of them are relocating to capital cities/regions, which are characterized as high-altitude areas, with temperate climates. This study is also useful to the increasing numbers of people in the African diaspora now relocating part-time or full-time to different parts of Africa. The people seeking temperate climates in Africa would use this study as a source of useful information as they make their decisions as to where to relocate on the continent, especially as these capital cities/regions have more amenities. Interestingly, this study shows that a high majority of the 83 million people who reside in all capital cities/regions in Africa as of December 31, 2023, are in higher elevation locations.

This study examines the prevalence of temperate climates in capital cities/regions in Africa. The study begins with an explanation of the methodology. Next, the findings of the study are presented. Next, a discussion section of the study is presented. This last section of the study will focus on the future relocation of people in Africa and members of the African diaspora relocating to Africa moving to capital cities/regions with temperate climates, and the economic, health, and social implications of such movements.

2. Methodology, Data Availability and Limitations of the Study

The data for the variables in this study are compiled from various entities or organizations. The reason is that there is no one organization that provides all the variables covered in this study. In addition, there continues to be limitations in the availability of climate and other relevant data for various countries in Africa. For example, in discussing the ongoing challenges of finding weather or climate data for African countries, Collins (2011) points to “some of the problems in trying to establish a weather station network that includes the technological and scientific underdevelopment of many African countries exacerbated by civil war, extensive poverty, and political instability. In addition... Africa has been under-represented in international efforts to improve research capabilities, observing facilities, operational forecasting, and meteorological education” (p. 3650; also see Kaba, 2024a: pp. 58-59). Collins (2011) continues:

“...weather stations first emerged in the south of Africa and then along the coasts. These locations would therefore have the longest records.... the lack of temperature measurements in Africa (and other locations such as South America) in comparison to North America and Europe... the network of 1152 World Meteorological Organization (WMO) World Weather Watch

(WWW) stations in Africa has an average density of weather stations of just one per 26,000 km² (this is 8 times lower than the minimum recommended level given by the WMO). The location of these weather stations is also unevenly distributed. Of the operational weather stations, some do not have long climate records and some are not publically available” (p. 3650; also see Kaba, 2024a: pp. 58-59).

The available data for the capital cities/regions in Africa are compiled from various sources. The population, elevation, average annual temperature (minimum, night and maximum, day, are converted from Celsius to Fahrenheit), number of annual sunshine hours, number of annual rainy days, precipitation, and humidity data, for the capital cities/regions are compiled from WorldData.info. The population data for the capital cities/regions are regularly updated, and the figures in this study are as of December 31, 2023. The “Over the course of the year, the temperature typically varies from” (low and high), and temperature “is rarely below... or above” data for the capital cities/regions are compiled from Weather Spark (as of December 31, 2023), which “offers detailed reports of the typical weather for 145,449 locations worldwide.” (<https://weatherspark.com/about>). The elevation (sea level) for the capital cities/regions are as of March 18, 2024, and are from Weatherspark.com. The elevation figures are converted from feet to meters.

The weather data for Dakar, Senegal, presented above for the entire month of March 2024 are compiled from the website of the Weather Channel in the United States

(<https://weather.com/weather/tenday/l/4cff97cd159bc9f2254e835e4582419edaaa2ad94879beaa19efd8fde9043800>). I recorded the Weather Channel’s daily (for at least 42 consecutive hours) and 10-day (ten consecutive days) weather forecast for Dakar, Senegal, every single day from February 28, 2024, to April 1, 2024 (apart from March 4, 9, 15, 18, and 27). However, as noted above, every hour and day in the month of March 2024, were captured. Also note that a recording was conducted on the day before and after each of the five days listed above that I did not record.

3. Findings

The findings of this study illustrate that the continent of Africa has a lot more capital cities/regions with cool or temperate climates than one would expect given the perception of Africa as a whole, as a very hot continent. It is a fact that the period from 10 am to 5 pm during the day most of the time, the temperature in most African nations would be relatively high. However, the data show that for many months in the year, a very high number of capital cities/regions across Africa experience temperate climates. Even in some countries where the temperature can go up to or above 100 degrees, they tend to experience low relative humidity.

3.1. Population of Capital Cities/Regions in Africa in 2023

According to **Tables A1-A6** (in Appendix), as of December 31, 2023, the total population of all capital cities/regions in Africa is 83,375,750. Of that total, capital cities/regions in Middle Africa accounted for 25,673,365 (30.8%); Eastern Africa, 22,882,724 (27.4%); Western Africa, 17,361,679 (20.8%); Northern Africa, 15,648,357 (18.7%); and Southern Africa, 1,809,625 (2.2%). It is useful to note that the totals for Africa and Northern Africa do not include the population of Laâyoune/El Aaiún, Western Sahara (196,000), which is part of Morocco.

The capital cities/regions in Africa with a population of 1 million or more are as follows: Kinshasa, Democratic Republic of Congo, 14,970,000 (17.95% of total), Cairo, Egypt, 9,539,673 (11.4%), Nairobi, Kenya, 4,397,073 (5.3%), Yaoundé, Cameroon, 2,765,600 (3.3%), Abuja, Nigeria, 2,750,000 (3.3%); and Lagos, 14,234,000 (17.1%), Addis Ababa, Ethiopia, 2,739,551 (3.3%), Algiers, Algeria, 2,712,944 (3.25%), Luanda, Angola, 2,571,861 (3.1%), Ouagadougou, Burkina Faso, 2,415,266 (2.9%), Mogadishu, Somalia, 2,388,000 (2.9%), Brazzaville, Republic of Congo, 2,308,000 (2.8%), Dodoma, Tanzania, 2,083,588 (2.5%); and Dar es Salaam, 6,400,000 (7.7%), Bamako, Mali, 1,810,366 (2.2%), Lusaka, Zambia, 1,747,000 (2.1%), Harare, Zimbabwe, 1,698,122 (2.04%), Conakry, Guinea, 1,659,785 (2%), Accra, Ghana, 1,594,419 (1.91%), Kampala, Uganda, 1,507,000 (1.8%), Dakar, Senegal, 1,146,053 (1.4%), Antananarivo, Madagascar, 1,275,207 (1.53%), Tripoli, Libya, 1,126,000 (1.4%), N'Djamena, Chad, 1,092,000 (1.31%), Maputo, Mozambique, 1,080,277 (1.3%), Tunis, Tunisia, 1,056,247 (1.3%), Freetown, Sierra Leone, 1,056,000 (1.3%), Niamey, Niger, 1,026,848 (1.23%), and Monrovia, Liberia, 1,011,000 (1.21%).

The following capital cities/regions have populations of less than 1 million: Lilongwe, Malawi, 989,000 (1.2%), Asmara, Eritrea, 963,000 (1.2%), Nouakchott, Mauritania, 958,399 (1.2%), Bangui, Central African Republic, 889,000 (1.1%), Kigali, Rwanda, 859,332 (1.03%), Lomé, Togo, 840,000 (1%), Pretoria, South Africa, 741,651 (0.9%); and Johannesburg, 957,441, 1.2%), Libreville, Gabon, 703,904 (0.84%), Khartoum, Sudan, 639,598 (0.77%), Rabat, Morocco, 573,895 (0.7%); and Casablanca, 5,117,832, 6.1%), Djibouti City, Djibouti, 475,000 (0.6%), Windhoek, Namibia, 429,974 (0.52%), Bissau, Guinea-Bissau, 387,909 (0.47%), Maseru, Lesotho, 331,000 (0.4%), Malabo, Equatorial Guinea, 316,000 (0.38%), Yamoussoukro, Cote d'Ivoire, 279,977 (0.34%); and Abidjan, 5,616,633, 6.74%), Porto-Novo, Benin, 264,000 (0.32%); and Cotonou, 679,012, 0.81%), Gaborone, Botswana, 246,000 (0.3%), Juba, South Sudan, 230,000 (0.28%), Saint-Denis, Reunion, 147,000 (0.18%), Port Louis, Mauritius, 143,574 (0.17%), Praia, Cabo Verde, 130,000 (0.16%), Mbabane, Eswatini, 61,000 (0.07%), Mamoudzou, Mayotte, 57,000 (0.068%), São Tomé, Sao Tome & Principe, 57,000 (0.068%), Moroni, Comoros, 54,000 (0.065%), Banjul, Gambia, 31,000 (0.04%), Victoria, Seychelles, 26,000 (0.031%), Gitega, Burundi, 23,000 (0.03%); Bujumbura, 497,000, 0.6%), and Jamestown, Saint Helena, 657 (0.0008%) (**Tables A1-A6**).

It is useful to note that Africa's 1.448 billion people in 2023, which accounted for 18.14% of the world population of 7.979 billion, reside on a landmass of 30.32 million sq km, which is 20% of the world total landmass of 148.94 million sq km. Of Africa's total population in 2023, Eastern Africa accounted for 32.3%; Western Africa, 30.5%; Northern Africa, 17.9%; Middle Africa, 14.7%; and Southern Africa, 4.6 percent (Kaba, 2024a: p. 57).

3.2. Elevation Level of Capital Cities/Regions in Africa

Many African countries have capital cities/regions that rank among the capital cities/regions in the world with the highest elevation. According to **Tables A1-A6**, as of March 18, 2024, the following capital cities/regions had an elevation level of 1000 meters or higher: Addis Ababa, Ethiopia, 2405 meters, Asmara, Eritrea, 2334 meters, Gitega, Burundi, 1712 meters (Bujumbura, 805 meters), Nairobi, Kenya, 1684 meters, Windhoek, Namibia, 1656 meters, Maseru, Lesotho, 1552, Kigali, Rwanda, 1542 meters, Harare, Zimbabwe, 1494 meters, Antananarivo, Madagascar, 1274 meters, Pretoria, South Africa, 1332 meters (Johannesburg, 1767 meters), Lusaka, Zambia, 1277 meters, Kampala, Uganda, 1223 meters, Mbabane, Eswatini, 1209 meters, Dodoma, Tanzania, 1125 meters (Dares Salaam, 24.1 meters), Lilongwe, Malawi, 1056 meters, and Gaborone, Botswana, 1011 meters,

The following capital cities/regions had an elevation level of 100 meters to less than 800 meters: Yaoundé, Cameroon, 726 meters, Juba, South Sudan, 517.9 meters, Abuja, Nigeria, 476.1 meters (Lagos, 11 meters), Jamestown, Saint Helena, 426 meters, Khartoum, Sudan, 381 meters, Bangui, Central African Republic, 351.13 meters, Bamako, Mali, 338 meters, Ouagadougou, Burkina Faso, 299 meters, N'Djamena, Chad, 299 meters, Brazzaville, Republic of Congo, 284.1 meters, Kinshasa, Democratic Republic of Congo, 281 meters, Yamoussoukro, Cote d'Ivoire, 214 meters (Abidjan, 10.1 meters), Niamey, Niger, 206 meters, and Algiers, Algeria, 186 meters.

The following capital cities/regions had an elevation level of less than 100 meters: Luanda, Angola, 73.2 meters, Maputo, Mozambique, 70.1 meters, Laâyoune/El Aaiún, Western Sahara, 67.97 meters, Victoria, Seychelles, 60.05 meters, Freetown, Sierra Leone, 49.1 meters, Rabat, Morocco, 46.03 meters (Casablanca, 27 meters), Saint-Denis, Reunion, 45.11 meters, Malabo, Equatorial Guinea, 40 meters, Accra, Ghana, 32.9 meters, Monrovia, Liberia, 32 meters, Moroni, Comoros, 27.13 meters, Cairo, Egypt, 22.9 meters, Tunis, Tunisia, 22.9 meters, Mamoudzou, Mayotte, 22.7 meters, Tripoli, Libya, 21.03 meters, Porto-Novo, Benin, 20.12 meters (Cotonou, 7 meters), Praia, Cabo Verde, 18 meters, Mogadishu, Somalia, 14.02 meters, Bissau, Guinea-Bissau, 13.11 meters, Conakry, Guinea, 13.11 meters, Dakar, Senegal, 11.9 meters, Nouakchott, Mauritania, 10.1 meters, Libreville, Gabon, 7.9 meters, São Tomé, São Tomé & Príncipe, 7.9 meters, Djibouti City, Djibouti, 6.1 meters, Lome, Togo, 6.1 meters, Banjul, Gambia, 4.9 meters, and Port Louis, Mauritius, 3 meters (**Tables A1-A6**).

It is useful to note that the African continent is endowed with tens of thousands of kilometers of total coastline. For example, in 2023, Africa's total coastline of 40,188 km is 11.3% of the total 356,000 km coastline of the world (Kaba, 2024a: p. 57).

3.3. Over the Course of the Year Temperature Typically Varies from Low to High in Capital Cities/Regions in Africa

According to **Tables A1-A6**, as of November 25, 2023, over the course of the year the temperature typically varies from low in the following capital cities/regions in Africa: Maseru, Lesotho, 30 degrees, Gaborone, Botswana, 41 degrees, Algiers, Algeria, 42 degrees, Pretoria, South Africa, 42 degrees (Johannesburg, 36 degrees), Mbabane, Eswatini, 43 degrees, Lusaka, Zambia, 46 degrees, Tunis, Tunisia, 46 degrees, Windhoek, Namibia, 46 degrees, Harare, Zimbabwe, 47 degrees, Rabat, Morocco, 47 degrees (Casablanca, 49 degrees), Addis, Ababa, Ethiopia, 48 degrees, Asmara, Eritrea, 48 degrees, Gitega, Burundi, 49 degrees (Bujumbura, 63 degrees), Tripoli, Libya, 49 degrees, Antananarivo, Madagascar, 50 degrees, Cairo, Egypt, 50 degrees, Lilongwe, Malawi, 52 degrees, Laâyoune/El Aaiún, Western Sahara, 54 degrees, Nairobi, Kenya, 54 degrees, Dodoma, Tanzania, 58 degrees (Dares Salam, 68 degrees), N'Djamena, Chad, 59 degrees, Abuja, Nigeria, 60 degrees (Lagos, 75 degrees), Nouakchott, Mauritania, 60 degrees, Kigali, Rwanda, 61 degrees, Maputo, Mozambique, 61 degrees, Kampala, Uganda, 62 degrees, Jamestown, Saint Helena, 63 degrees, Niamey, Niger, 63 degrees, Bamako, Mali, 64 degrees, Banjul, Gambia, 64 degrees, Khartoum, Sudan, 64 degrees, Ouagadougou, Burkina Faso, 64 degrees, Bangui, Central African Republic, 65 degrees, Dakar, Senegal, 65 degrees, Saint-Denis, Reunion, 65 degrees, Bissau, Guinea-Bissau, 66 degrees, Yaoundé, Cameroon, 66 degrees, Yamoussoukro, Cote d'Ivoire, 66 degrees (Abidjan, 73 degrees). Brazzaville, Republic of Congo, 67 degrees, Kinshasa, Democratic Republic of Congo, 67 degrees, Luanda, Angola, 67 degrees, Port Louis, Mauritius, 67 degrees, Moroni, Comoros, 69 degrees, Praia, Cabo Verde, 69 degrees, Juba, South Sudan, 71 degrees, Libreville, Gabon, 73 degrees, Mamoudzou, Mayotte, 71 degrees, Malabo, Equatorial Guinea, 73 degrees, São Tomé, São Tomé & Príncipe, 73 degrees, Accra, Ghana, 74 degrees, Djibouti City, Djibouti, 74 degrees, Freetown, Sierra Leone, 74 degrees, Lomé, Togo, 74 degrees, Monrovia, Liberia, 74 degrees, Conakry, Guinea, 75 degrees, Mogadishu, Somalia, 75 degrees, Porto-Novo, Benin, 75 degrees (Cotonou, 75 degrees), and Victoria, Seychelles, 76 degrees (**Tables A1-A6**).

For the high, over the course of the year, as of November 25, 2023, the temperature typically for the following capital cities/regions in Africa are as follows: Djibouti City, Djibouti, 106 degrees, Khartoum, Sudan, 106 degrees, N'Djamena, Chad, 106 degrees, and Niamey, Niger, 106 degrees. They are followed by Bamako, Mali, 103 degrees, Ouagadougou, Burkina Faso, 103 degrees, Juba, South Sudan, 102 degrees, Bissau, Guinea-Bissau, 96 degrees, Cairo, Egypt, 96 degrees, Nouakchott, Mauritania, 96 degrees, Banjul, Gambia, 95 degrees, Bangui, Cen-

tral African Republic, 94 degrees, Yamoussoukro, Cote d'Ivoire, 94 degrees (Abidjan, 89 degrees), Tunis, Tunisia, 94 degrees, Abuja, Nigeria, 93 degrees (Lagos, 91 degrees), Tripoli, Libya, 92 degrees, Accra, Ghana, 91 degrees, Brazzaville, Republic of Congo, 90 degrees, Kinshasa, Democratic Republic of Congo, 90 degrees, Lomé, Togo, 90 degrees, Porto-Novo, Benin, 90 degrees (Cotonou, 89 degrees), Gaborone, Botswana, 89 degrees, Mogadishu, Somalia, 89 degrees, Windhoek, Namibia, 89 degrees, Dakar, Senegal, 88 degrees, Laâyoune/El Aaiún, Western Sahara, 88 degrees, Malabo, Equatorial Guinea, 88 degrees, Monrovia, Liberia, 88 degrees, Moroni, Comoros, 88 degrees, Victoria, Seychelles, 88 degrees, Conakry, Guinea, 87 degrees, Dodoma, Tanzania, 87 degrees (Dares Salam, 90 degrees), Libreville, Gabon, 87 degrees, Mamoudzou, Mayotte, 87 degrees, Luanda, Angola, 87 degrees, Lusaka, Zambia, 87 degrees, Yaoundé, Cameroon, 87 degrees, Algiers, Algeria, 86 degrees, Freetown, Sierra Leone, 86 degrees, Lilongwe, Malawi, 86 degrees, Port Louis, Mauritius, 85 degrees, Saint-Denis, Reunion, 85 degrees, Maputo, Mozambique, 84 degrees, São Tomé, São Tomé & Príncipe, 84 degrees, Pretoria, South Africa, 83 degrees (Johannesburg, 78 degrees), Harare, Zimbabwe, 82 degrees, Kampala, Uganda, 82 degrees, Kigali, Rwanda, 82 degrees, Maseru, Lesotho, 81 degrees, Nairobi, Kenya, 81 degrees, Praia, Cabo Verde, 81 degrees, Antananarivo, Madagascar, 80 degrees, Rabat, Morocco, 80 degrees (Casablanca, 79 degrees), Gitega, Burundi, 78 degrees (Bujumbura, 88 degrees), Asmara, Eritrea, 77 degrees, Addis, Ababa, Ethiopia, 75 degrees, Mbabane, Eswatini, 74 degrees, and Jamestown, Saint Helena, 73 degrees (Tables A1-A6).

3.4. Rarely Below and Rarely above Temperatures in Capital Cities/Regions in Africa

According to Tables A1-A6, as of November 25, 2023, over the course of the year, the following capital cities/regions in Africa have temperatures rarely below the 20s to 40s: Maseru, Lesotho, 24 degrees, Gaborone, Botswana, 34 degrees, Algiers, Algeria, 35 degrees, Pretoria, South Africa, 36 degrees (Johannesburg, 30 degrees), Mbabane, Eswatini, 37 degrees, Windhoek, Namibia, 39 degrees, Tunis, Tunisia, 40 degrees, Rabat, Morocco, 41 degrees (Casablanca, 42 degrees), Addis, Ababa, Ethiopia, 42 degrees, Harare, Zimbabwe, 42 degrees, Maputo, Mozambique, 42 degrees, Tripoli, Libya, 44 degrees, Asmara, Eritrea, 45 degrees, Gitega, Burundi, 45 degrees, Antananarivo, Madagascar, 46 degrees, Cairo, Egypt, 46 degrees, Lusaka, Zambia, 46 degrees, and Lilongwe, Malawi, 47 degrees.

The following capital cities/regions in Africa have temperatures rarely below the 50s to 70s: Laâyoune/El Aaiún, Western Sahara, 50 degrees, Nairobi, Kenya, 50 degrees, N'Djamena, Chad, 53 degrees, Nouakchott, Mauritania, 53 degrees, Abuja, Nigeria, 54 degrees, Dodoma, Tanzania, 55 degrees (Dar es Salam, 65 degrees), Khartoum, Sudan, 57 degrees, Bamako, Mali, 58 degrees, Kigali, Rwanda, 58 degrees, Niamey, Niger, 58 degrees, Yamoussoukro, Cote d'Ivoire, 58 degrees

(Abidjan, 69 degrees), Bangui, Central African Republic, 59 degrees, Ouagadougou, Burkina Faso, 59 degrees, Banjul, Gambia, 60 degrees, Kampala, Uganda, 60 degrees, Dakar, Senegal, 61 degrees, Bissau, Guinea-Bissau, 62 degrees, Jamestown, Saint Helena, 62 degrees, Saint-Denis, Reunion, 62 degrees, Yaoundé, Cameroon, 62 degrees, Port Louis, Mauritius, 63 degrees, Brazzaville, Republic of Congo, 64 degrees, Kinshasa, Democratic Republic of Congo, 64 degrees, Luanda, Angola, 64 degrees, Praia, Cabo Verde, 67 degrees, Juba, South Sudan, 68 degrees, Mamoudzou, Mayotte, 68 degrees, Moroni, Comoros, 68 degrees, Freetown, Sierra Leone, 69 degrees, Lomé, Togo, 69 degrees, Malabo, Equatorial Guinea, 70 degrees, Monrovia, Liberia, 70 degrees, Porto-Novo, Benin, 70 degrees (Cotonou, 71 degrees), Djibouti City, Djibouti, 71 degrees, Libreville, Gabon, 71 degrees, Conakry, Guinea, 72 degrees, Accra, Ghana, 73 degrees, Mogadishu, Somalia, 74 degrees, Victoria, Seychelles, 74 degrees, and São Tomé, São Tomé & Príncipe, 75 degrees (**Tables A1-A6**).

According to **Tables A1-A6**, as of November 25, 2023, over the course of the year, the following capital cities/regions have temperatures rarely above: Djibouti City, Djibouti, 110 degrees, Khartoum, Sudan, 110 degrees, N'Djamena, Chad, 110 degrees, Niamey, Niger, 110 degrees, Ouagadougou, Burkina Faso, 107 degrees, Juba, South Sudan, 107 degrees, Bamako, Mali, 106 degrees, Nouakchott, Mauritania, 105 degrees, Banjul, Gambia, 102 degrees, Cairo, Egypt, 102 degrees, Tunis, Tunisia, 102 degrees, Bissau, Guinea-Bissau, 101 degrees, Tripoli, Libya, 101 degrees, Abuja, Nigeria, 100 degrees, Bangui, Central African Republic, 100 degrees, Yamoussoukro, Cote d'Ivoire, 98 degrees (Abidjan, 92 degrees), Gaborone, Botswana, 97 degrees, Laâyoune/El Aaiún, Western Sahara, 97 degrees, Brazzaville, Republic of Congo, 94 degrees, Kinshasa, Democratic Republic of Congo, 94 degrees, Windhoek, Namibia, 94 degrees, Accra, Ghana, 93 degrees, Dakar, Senegal, 92 degrees, Dodoma, Tanzania, 92 degrees (Dar es Salaam, 92 degrees), Algiers, Algeria, 92 degrees, Lomé, Togo, 92 degrees, Lusaka, Zambia, 92 degrees, Porto-Novo, Benin, 92 degrees (Cotonou, 91 degrees), Lilongwe, Malawi, 91 degrees, Maputo, Mozambique, 91 degrees, Mogadishu, Somalia, 91 degrees, Monrovia, Liberia, 91 degrees, Yaoundé, Cameroon, 91 degrees, Libreville, Gabon, 90 degrees, Luanda, Angola, 90 degrees, Malabo, Equatorial Guinea, 90 degrees, Moroni, Comoros, 90 degrees, Conakry, Guinea, 89 degrees, Freetown, Sierra Leone, 89 degrees, Harare, Zimbabwe, 89 degrees, Mamoudzou, Mayotte, 89 degrees, Maseru, Lesotho, 89 degrees, Pretoria, South Africa, 89 degrees (Johannesburg, 85 degrees), Victoria, Seychelles, 89 degrees, Kampala, Uganda, 88 degrees, Port Louis, Mauritius, 88 degrees, Rabat, Morocco, 88 degrees (Casablanca, 85 degrees), Saint-Denis, Reunion, 88 degrees, Kigali, Rwanda, 87 degrees, Antananarivo, Madagascar, 86 degrees, Nairobi, Kenya, 84 degrees, Mbabane, Eswatini, 83 degrees, Praia, Cabo Verde, 82 degrees, Gitega, Burundi, 82 degrees, São Tomé, São Tomé & Príncipe, 82 degrees, Asmara, Eritrea, 81 degrees, Addis, Ababa, Ethiopia, 80 degrees, and Jamestown, Saint Helena, 74 degrees (**Tables A1-A6**).

3.5. Maximum (Day) and Minimum (Night) Average Annual Temperatures for Capital Cities/Regions in African Countries

The maximum and minimum average annual temperatures show that dozens of capital cities/regions in Africa have very pleasant overall temperatures, with many months of relatively temperate climates. Let us begin by first examining the average maximum average temperatures.

3.6. Maximum Average Annual Temperatures for Capital Cities/Regions in African Countries

According to **Tables A1-A6**, as of December 31, 2023, Khartoum, Sudan, had the highest maximum annual temperature, 98.96 degrees, followed by Niamey, Niger, 98.06 degrees, N'Djamena, Chad, 97.88 degrees, Ouagadougou, Burkina Faso, 96.26 degrees, Bamako, Mali, 94.46 degrees, Juba, South Sudan, 94.46 degrees, Yamoussoukro, Cote d'Ivoire, 92.84 degrees (Abidjan 86.72 degrees), Abuja, Nigeria, 92.3 degrees (Lagos, 89.06 degrees), Banjul, Gambia, 91.58 degrees, Nouakchott, Mauritania, 91.76 degrees, Bissau, Guinea-Bissau, 91.58 degrees, Bangui, Central African Republic, 90.68 degrees, Lomé, Togo, 90.68 degrees, Accra, Ghana, 88.16 degrees, Lusaka, Zambia, 87.8 degrees, Kinshasa, Democratic Republic of Congo, 87.62 degrees, Brazzaville, Republic of Congo, 87.44 degrees, Conakry, Guinea, 86.72 degrees, Malabo, Equatorial Guinea, 86.72 degrees, Mogadishu, Somalia, 86.36 degrees, Dodoma, Tanzania, 84.56 degrees (Dar es Salaam, 86.72 degrees), Libreville, Gabon, 84.56 degrees, Luanda, Angola, 83.84 degrees, Maputo, Mozambique, 83.12 degrees, Windhoek, Namibia, 82.94 degrees, Dakar, Senegal, 82.76 degrees, Cairo, Egypt, 82.04 degrees, Yaoundé, Cameroon, 81.86 degrees, Gaborone, Botswana, 80.96 degrees, Kigali, Rwanda, 80.42 degrees, Tripoli, Libya, 80.06 degrees, Harare, Zimbabwe, 78.8 degrees, Port Louis, Mauritius, 77.9 degrees, Antananarivo, Madagascar, 77.18 degrees, Nairobi, Kenya, 77.72 degrees, Pretoria, South Africa, 75.92 degrees (Johannesburg, 75.92 degrees, same province/region), Algiers, Algeria, 74.66 degrees, Tunis, Tunisia, 76.64 degrees, Addis, Ababa, Ethiopia, 74.48 degrees, Rabat, Morocco, 73.04 degrees (Casablanca, 72.14 degrees), and Porto-Novo, Benin (no data, but Cotonou, 87.44 degrees) (**Tables A1-A6**).

3.7. Minimum Average Annual Temperatures for Capital Cities/Regions in African Countries

As of December 31, 2023, Addis, Ababa, Ethiopia, had the lowest minimum annual temperature, 51.6 degrees, followed by Pretoria, South Africa, 53.42 degrees (Johannesburg, 53.42 degrees, same province/region), Gaborone, Botswana, 53.6 degrees, Rabat, Morocco, 54.5 degrees (Casablanca, 59.18 degrees), Harare, Zimbabwe, 54.68 degrees, Algiers, Algeria, 55.22 degrees, Windhoek, Namibia, 56.66 degrees, Antananarivo, Madagascar, 57.38 degrees, Nairobi, Kenya, 57.56 degrees, Tunis, Tunisia, 59.18 degrees, Tripoli, Libya, 60.44 degrees, Kigali, Rwanda, 61.7 degrees, Cairo, Egypt, 63.32 degrees, Dodoma, Tanzania, 63.86

degrees (Da res Salaam, 68.36 degrees), Yaoundé, Cameroon, 64.04 degrees, Lusaka, Zambia, 64.58 degrees, Maputo, Mozambique, 65.84 degrees, Port Louis, Mauritius, 66.02 degrees, Nouakchott, Mauritania, 68.9 degrees, Bamako, Mali, 69.62 degrees, Banjul, Gambia, 69.62 degrees, Bangui, Central African Republic, 70.07 degrees, Juba, South Sudan, 71.06 degrees, Brazzaville, Republic of Congo, 71.42 degrees, N'Djamena, Chad, 71.42 degrees, Abuja, Nigeria, 71.6 degrees (Lagos, 75.02 degrees), Bissau, Guinea-Bissau, 71.6 degrees, Kinshasa, Democratic Republic of Congo, 71.6 degrees, Yamoussoukro, Cote d'Ivoire, 71.78 degrees (Abidjan, 76.46 degrees), Dakar, Senegal, 71.96 degrees, Ouagadougou, Burkina Faso, 73.04 degrees, Luanda, Angola, 73.22 degrees, Conakry, Guinea, 73.58 degrees, Malabo, Equatorial Guinea, 74.12 degrees, Niamey, Niger, 74.3 degrees, Khartoum, Sudan, 74.66 degrees, Libreville, Gabon, 75.02 degrees, Mogadishu, Somalia, 75.02 degrees, Lomé, Togo, 75.56 degrees, Accra, Ghana, 75.92 degrees, and Porto-Novo, Benin (no data, but Cotonou, 77.54 degrees) (**Tables A1-A6**).

3.8. Annual Number of Sunshine Hours for Capital Cities/Regions in African Countries

Capital cities/regions in all five regions of Africa tend to benefit from abundant sunshine during the year. As of December 31, 2023, the capital city/region in Africa with the highest annual sunshine hours is Khartoum, Sudan, 3577 hours, followed by Gaborone, Botswana, 3,431 hours, Harare, Zimbabwe, 3358 hours, Cairo, Egypt, 3,285, Dodoma, Tanzania, 3249 hours (Dar es Salaam, 3066 hours), Tripoli, Libya, 3249 hours, Windhoek, Namibia, 3176 hours, N'Djamena, Chad, 3139 hours, Niamey, Niger, 3066 hours, Pretoria, South Africa, 3066 hours (Johannesburg 3066 hours, same province/region), Ouagadougou, Burkina Faso, 2993 hours, Bamako, Mali, 2957 hours, Dakar, Senegal, 2957 hours, Lusaka, Zambia, 2920 hours, Tunis, Tunisia, 2920 hours, Algiers, Algeria, 2884 hours, Rabat, Morocco, 2884 hours (Casablanca 3066 hours), Maputo, Mozambique, 2847 hours, Banjul, Gambia, 2811 hours, Addis, Ababa, Ethiopia, 2665 hours, Port Louis, Mauritius, 2628 hours, Antananarivo, Madagascar, 2592 hours, Bissau, Guinea-Bissau, 2592 hours, Abuja, Nigeria, 2482 hours (Lagos, 1643 hours), Accra, Ghana, 2409 hours, Juba, South Sudan, 2409 hours, Nairobi, Kenya, 2336 hours, Lomé, Togo, 2263 hours, Yaoundé, Cameroon, 2190 hours, Yamoussoukro, Cote d'Ivoire, 2190 hours (Abidjan, 2190 hours), Brazzaville, Republic of Congo, 1898 hours, Kinshasa, Democratic Republic of Congo, 1898 hours, Conakry, Guinea, 1862 hours, Kigali, Rwanda, 1825 hours, Luanda, Angola, 1168 hours, and Porto-Novo, Benin (no data, but Cotonou, 2190 hours) (**Tables A1-A6**).

3.9. Number of Annual Rainy Days for Capital Cities/Regions in African Countries

Even though a very high proportion of capital cities/regions in Africa receive abundant sunshine annually, most of them, especially in Middle, Eastern and

Western Africa also receive substantial amounts of rainfall. As of December 31, 2023, the capital city/region in Africa with the highest number of annual rainy days is Port Louis, Mauritius, 178 days, followed by Conakry, Guinea, 162 days, Libreville, Gabon, 146 days, Addis, Ababa, Ethiopia, 142 days, Yaoundé, Cameroon, 133 days, Malabo, Equatorial Guinea, 126 degrees, Bangui, Central African Republic, 116 days, Kigali, Rwanda, 114 days, Juba, South Sudan, 96 days, Kinshasa, Democratic Republic of Congo, 94 days, Brazzaville, Republic of Congo, 90 days, Yamoussoukro, Cote d'Ivoire, 89 days (Abidjan 98 days). Abuja, Nigeria, 80 days (Lagos, 122 days), Nairobi, Kenya, 80 days, Bissau, Guinea-Bissau, 79 days, Antananarivo, Madagascar, 73 days, Lomé, Togo, 71 days, Bamako, Mali, 70 days, Banjul, Gambia, 64 days, Tunis, Tunisia, 64 days, Ouagadougou, Burkina Faso, 62 days, Algiers, Algeria, 62 days, Harare, Zimbabwe, 62 days, Maputo, Mozambique, 60 days, Rabat, Morocco, 54 days (Casablanca, 46 days), Accra, Ghana, 55 days, Pretoria, South Africa, 55 days, Lusaka, Zambia, 49 days, Mogadishu, Somalia, 49 days, N'Djamena, Chad, 48 days, Windhoek, Namibia, 47 days, Niamey, Niger, 46 days, Dodoma, Tanzania, 43 days (Dares Salam, 61 days), Gaborone, Botswana, 43 days, Dakar, Senegal, 32 days, Nouakchott, Mauritania, 24 days, Tripoli, Libya, 22 days, Cairo, Egypt, 17 days, Khartoum, Sudan, 17 days, and Porto-Novo, Benin (no data, but Cotonou, 78 days) (**Tables A1-A6**).

3.10. Annual Number of Precipitation for Capital Cities/Regions in African Countries

The available data on the annual number of precipitations in the capital cities/regions in Africa show that a significant number of them receive significant precipitation. As of December 31, 2023, the capital city/region in Africa with the highest number of annual precipitation is Libreville, Gabon, 2876, followed by Port Louis, Mauritius, 1964, Malabo, Equatorial Guinea, 1909, Brazzaville, Republic of Congo, 1493, Bangui, Central African Republic, 1402, Bissau, Guinea-Bissau, 1391, Antananarivo, Madagascar, 1343, Addis, Ababa, Ethiopia, 1179, Yamoussoukro, Cote d'Ivoire, 1121 (Abidjan 1653), Kigali, Rwanda, 1102, Bamako, Mali, 1048, Juba, South Sudan, 1018, Lomé, Togo, 1033, Abuja, Nigeria, 1022 (Lagos, 1628), Banjul, Gambia, 1004, Ouagadougou, Burkina Faso, 825, Maputo, Nairobi, Kenya, 825, Accra, Ghana, 785, Mozambique, 770, Harare, Zimbabwe, 726, Pretoria, South Africa, 672 (Johannesburg, 672, same province/region), Dodoma, Tanzania, 606 (Dar es Salaam, 847), Lusaka, Zambia, 558, Rabat, Morocco, 522 (Casablanca, 405), Algiers, Algeria, 518, Niamey, Niger, 509, Tunis, Tunisia, 504, N'Djamena, Chad, 496, Dakar, Senegal, 456, Windhoek, Namibia, 438, Tripoli, Libya, 172, Khartoum, Sudan, 142, Nouakchott, Mauritania, 99, Cairo, Egypt, 91, and Porto-Novo, Benin (no data, but Cotonou 1340) (**Tables A1-A6**).

3.11. Annual Average Percent Humidity for Capital Cities/Regions in Africa

The available data on the annual percent humidity for capital cities/regions in

Africa show that a significant number of them have figures considered bearable or pleasant as discussed above. For example, as of December 31, 2023, the capital city/region in Africa with the lowest annual average humidity is Khartoum, Sudan, 29%, followed by Windhoek, Namibia, 34%, N'Djamena, Chad, 41%, Niamey, Niger, 42%, Ouagadougou, Burkina Faso, 48%, Bamako, Mali, 49%, Pretoria, South Africa, 56% (Johannesburg, 56%, same province/region), Tripoli, Libya, 56%, Cairo, Egypt, 59%, Addis, Ababa, Ethiopia, 61%, Lusaka, Zambia, 61%, Dodoma, Tanzania, 62% (Dares Salaam, 70%), Harare, Zimbabwe, 62%, Abuja, Nigeria, 63% (Lagos, 83%), Banjul, Gambia, 66%, Juba, South Sudan, 66%, Nairobi, Kenya, 66%, Bissau, Guinea-Bissau, 69%, Tunis, Tunisia, 70%, Kigali, Rwanda, 72%, Maputo, Mozambique, 72%, Antananarivo, Madagascar, 75%, Algiers, Algeria, 75%, Yaoundé, Cameroon, 76%, Brazzaville, Republic of Congo, 78%, Kinshasa, Democratic Republic of Congo, 78%, Mogadishu, Somalia, 79%, Conakry, Guinea, 79%, Rabat, Morocco, 80% (Casablanca, 81%), Port Louis, Mauritius, 81%, Luanda, Angola, 82%, Lomé, Togo, 84%, Porto-Novo, Benin (no data, but Cotonou, 84%), and Yamoussoukro, Cote d'Ivoire (no data, but Abidjan, 85%) (**Tables A1-A6**).

4. Discussion

The statistics in this study present numerous interrelated findings illustrating that many capital cities/regions across Africa experience temperate climates for significant periods during the year. These geographic locations have two or more of the indicators or characteristics of temperate climates.

Rainfall helps to reduce excessive heat and reduce high temperatures. As **Tables A1-A6** illustrate, of the 39 capital cities/regions with available annual rainfall data, 8 (20.5%) have 100 days or more of annual rainfall, and 27 (69.2%) have 50 days or more of annual rainfall. Of 34 capital cities/regions with available annual precipitation data, 15 (44.1%) have figures of 1000 or more, ranging from 1004 to 2876. These areas across Africa with significant annual rainfall benefit from the rain through agriculture or the growing of crops for their consumption. It is noted that: "The amount of rain a region gets in the tropics directly affects which plant and animal species live there" ("*Tropics*," 2024). By 2023, Africa's total population was estimated at 1.448 billion (Kaba, 2024b: p. 72; also see Kaba, 2020). The African Union, which is now a member of the G20, and gradually increasing its ability to protect and represent the interests of the nations of Africa, should take advantage of the regular rainfall in these capital cities/regions to increase agricultural production and storage of clean fresh water from these rainfalls (Kaba, 2006a, 2014, 2016a, 2024ab; Sackeyfio & Kaba, 2022). Pertaining to West Africa and its abundance of fresh water due to steady annual rainfall as illustrated in this study, it is quoted in Kaba (2024b) that "West African regions where water is plentiful..." (p. 72).

The statistics on the maximum (day) annual temperature for 40 capital cities/regions in Africa show that 17 (42.5%) have very pleasant temperatures

ranging from 73.04 degrees in Rabat, Morocco to 83.12 degrees in Maputo, Mozambique; and 9 (22%) have temperatures in the 70s, ranging from 73.04 degrees in Rabat, Morocco to 78.8 degrees in Harare, Zimbabwe. For the minimum (night) annual temperature, 21 (52.5% out of 40) capital cities/regions have temperatures ranging from 51.6 degrees in Addis Ababa, Ethiopia, to 69.62 degrees each in Bamako, Mali, and Banjul, Gambia; and 10 (25%) had temperatures in the 50s, ranging from 51.6 degrees in Addis Ababa, Ethiopia, to 59.18 degrees in Tunis, Tunisia.

According to [Wu et al. \(2023\)](#): “Over the past 100 years, the global average temperature has risen by 0.3°C - 0.6°C and will be 1.8°C - 4.0°C higher than that of the past century by the end of the twenty-first century. Global warming has accelerated the hydrological cycle and poses a potential threat to the survival and development of terrestrial ecosystems and human beings (pp. 1-2). [Rahimi et al. \(2020\)](#) claim that: “Climate change is happening and affects all aspects of agricultural systems and consequently food security in the future... This is especially true in West Africa (WA), a region which is highly vulnerable to climate change due to low adaptive capacity... the average temperature in this region for the year 2100 is expected to increase by 2°C to 6°C... in the future, most human population in the Sahel and the Western Sahara Desert would be at risk of experiencing heat stress conditions” (p. 666). [Marx et al. \(2021\)](#) claim that: “... the Arabic-speaking desert countries of the Gulf Region in the Middle East and the French-speaking parts of Africa are expected to suffer from heat waves beyond the limit of human survival” (pp. 793-794). According to [Kompas et al. \(2018\)](#): “Since 1850, the Earth’s surface has become successively warmer and especially so over the past three decades. From 1880 to 2012, global average temperature (calculated with a linear trend for combined land and ocean surface temperature) shows a warming of 0.85 [0.65 - 1.06]°C.... Emissions grew more quickly between 2000 and 2010, and carbon dioxide (CO₂) levels have increased by almost 50% since 1990” (p. 1154).

For the humidity data, it is noted that a humidity figure of 60% or less is bearable. However, a humidity figure of over 60% can become unbearable ([Kaba, 2024a: p. 64](#)). For example, of 32 capital cities/regions with available annual humidity data, 9 (28.1%) have figures ranging from 29% to 59 percent. According to [Willett \(2020\)](#), “In the simplest terms, humidity is a measure of how much water there is suspended in the air.” It is reported that:

“Relative humidity [RH] could be 100% on a day when the temperature is at 86°F (30°C) and also on a day with 14°F (−10°C). But the reality is that no matter what the RH is at such a low temperature, it’s doubtful that you’ll be sweating and the air will feel muggy. However, if the temperature is 86°F (30°C) and the RH is at 60%, it will likely feel humid when the dew point sits at 70°F (21°C)... indoor relative humidity (RH) should be kept below 60%—ideally between 30% and 50%” ([Navarro, 2023](#); also see [Ashton, 2023](#); [Oluwole, 2023](#); [Kaba, 2024a: p. 64](#)).

The data for the capital cities/regions show that the people in charge of selecting them in various countries throughout history tend to select higher elevation areas or regions from sea level for their seat of national government. For example, the data show that 16 (27.5%) of the 58 capital cities/regions in Africa have elevation levels of 1000 meters or higher, ranging from 1011 meters (Gaborone, Botswana) to 2405 meters (Addis Ababa, Ethiopia). There are 13 (22.4%) capital cities/regions with elevation levels ranging from 200 meters to less than 800 meters, from 206 meters (Niamey, Niger) to 726 meters (Yaoundé, Cameroon) (**Tables A1-A6**).

The data above illustrating that many capital cities/regions in Africa have relatively high elevation levels is very important because these are the areas across the continent where people in the continent are moving to because they provide more services, employment, or modern amenities. As this study illustrates, as of December 31, 2023, there were 83 million people residing in capital cities/regions in Africa. Another interesting phenomenon that has emerged in the last decade is that significant numbers of people of Black African descent in the United States who are relocating to Africa partially, permanently or visiting just for a short period. Most of these diaspora Africans are choosing to reside in these capital cities/regions. Some of the reasons for relocating from the United States and Canada include to be in societies with Black majorities, re (connect) with their African heritage, exclusion from national leadership positions, escaping persistent racism, more opportunities for marriage, economic opportunities, etc. (*Kaba, 2007a, 2010a, 2011a, 2011b, 2011c, 2012a, 2012b*).

There are only 7 (12.1% out of 58) capital cities/regions in Africa with high average annual temperature of 100 degrees or more: Djibouti City, Djibouti, Khartoum, Sudan, N'djamena, Chad, and Niamey, Niger (each 106 degrees), Bamako Mali and Ouagadougou, Burkina Faso (each 103 degrees), and Juba, South Sudan (102 degrees).

There are 15 (25.9%) capital cities/regions in Africa with temperatures ranging from rarely above 100 degrees (Abuja, Nigeria and Bangui, Central African Republic) to 110 degrees (Djibouti City, Djibouti, N'Djamena, Chad, Khartoum, Sudan, and Niamey, Niger).

There are 10 (17.2%) of the 58 capital cities/regions in Africa where the temperature rarely goes below 70 degrees, ranging from 70 degrees each in Malabo, Equatorial Guinea, Porto-Novo, Benin, and Monrovia, Liberia), to 75 degrees in São Tomé, Sao Tome & Principe.

There are 17 (29.3%) of the 58 capital cities/regions in Africa where the temperature rarely goes below the 20s, 30s, and 40s, from 24 degrees in Maseru, Lesotho (the only one in the 20s), to 47 degrees in Lilongwe, Malawi, including 5 capital cities/regions in Northern Africa: Algeria, Egypt, Libya, Morocco, and Tunisia, with 3 in the 40s and 1 at 35 degrees; the remaining 4 capital cities/regions are in Southern Africa, Mbabane, Eswatini, Gaborone, Botswana, Pretoria, South Africa, and Windhoek, Namibia, all in the 30s (**Tables A1-A6**).

Kaba's (2024a) study on the climate of African countries finds that:

“Of the 40 countries/entities, 22 (55%) have coldest day temperatures in the 30s or lower, ranging from -10.48 degrees (Ranohira weather station, Madagascar in July 2017), to 37.22 degrees (Accra weather station, Ghana in January 2020), representing all five regions of Africa. There are 15 (37.5%) countries in Africa with coldest day temperatures of 32 degrees or less, ranging from -10.48 degrees (Ranohira weather station, Madagascar in July 2017), to 32.18 degrees (Dedougou weather station, Burkina Faso in July 2008), representing all five regions of Africa. For the coldest year data in African nations, 2019 appeared 6 times; 2005 appeared 5 times; and 2010, 2013, and 2015 each appeared 3 times. It is useful to note that the coldest day temperature (for example 32 degrees or less) happened for most of these nations with relatively high elevation areas: Ranohira, Madagascar, 2372 ft; Jimma, Ethiopia, 5640 ft; Bulawayo, Zimbabwe, 4423 ft; Dodoma, Tanzania, 3691 ft; Mecheria, Algeria, 3642 ft; Siwa, Egypt, -49 ft; Gafsa, Tunisia, 968 ft; Pandamatenga, Botswana, 3517 ft; Grootfontein, Namibia, 4724 ft; Bloemfontein, South Africa, 4580 ft; Dédougou, Burkina Faso, 991 ft; and Bilma, Niger, 1168 ft... The figure for Gariat El Sharghia, Libya, is 497 meters/1631 ft” (pp. 66-67).

The annual sunshine hours data, available for 35 capital cities/regions in Africa, show that they are endowed with a lot of sunshine, which many now utilized for solar energy as its use continues to increase across the continent. For example, of the 35 capital cities/regions with available annual sunshine hours data, only 5 (14.3%) are below 2000 hours, ranging from 1168 hours (Luanda, Angola), to 1898 hours each (in Brazzaville, the Republic of Congo and Kinshasa, the Democratic Republic of Congo). There are 10 (28.6%) capital cities/regions with annual sunshine hours of 3000 or more, ranging from 3066 hours each (Niamey, Niger, and Pretoria, South Africa), to 3577 hours (Khartoum, Sudan). For comparative purposes the figures for the following capital cities/regions across the world are as follows: London, England, United Kingdom: 1533 hours, Paris, France, 1862 hours, Berlin, Germany, 1789 hours, Washington, D.C., USA, 2592 hours, Ontario, Canada, 2263 hours, Beijing, China, 2373 hours, and New Delhi, India, 2555 hours (<https://www.worlddata.info/>).

The African Union-United States partnership, which continues to progress, with periods of setbacks (Kaba, 2004, 2006b, 2009a, 2019; M'Cormack-Hale & Kaba, 2015) should work together to properly utilize the various professional expertise (such as in agriculture, industry, commerce, K-12 education, health, and higher education) and wealth of these people of Black African descent (who are among the most educated people in the world) returning to Africa. As the Black population in the United States and Africans in Africa continue to earn more formal education, they continue to realize that each group's problems are the problems of the other (Kaba, 2007b, 2009b, 2010b, 2010c, 2011d, 2011e,

2013a, 2013b, 2015, 2016b, 2017, 2024b; Kaba & Ward, 2009; Mazrui & Kaba, 2016; Kaba & Kaba, 2020).

The African Union and the United States federal government should create a system whereby Black people in the United States relocating to Africa can move their wealth or resources from the United States to Africa without difficulty. Furthermore, the United States federal government should partner with recognized or approved hospitals or medical centers across Africa to provide Medicare services to those Black people aged 65 and over relocating to Africa. The costs of such medical services could be less to the United States federal government.

Finally, by 2020, Christians have become the majority in Africa, and most of the Black people relocating from the United States to Africa are Christians. It is important for the African Union to actively make efforts for interreligious dialogues. For example, in a study examining the numbers of Christians and Muslims in Africa, Kaba (2022) finds that in 2020, of the 1.282 billion people in Africa, Christians accounted for 657.3 million (51.3%), Muslims accounted for 553 million (43.1%), and adherents of Traditional African Religions accounted for 34.5 million (2.7%) (p. 29). Kaba (2022): "... recommended that Christians and Muslims should socialize with each other and attend each other's ceremonies. They should also work together along with the African Union to improve the lives of all the people on the continent" (p. 18; also see Kaba, 2009c).

A Note on the Pleasant Climate in Cape Town, South Africa

It is useful to mention some characteristics of the weather of Cape Town, which is located in the Western Cape region of South Africa, which has one of the best climates in the world. For example, as of March 7, 2024, its population was 434,000. Its annual maximum temperature in the day is 71.96 degrees, and its annual minimum temperature at night is 53.42 degrees. It has 2847 hours of sunshine during the year, and 71 raining days in the year. Its precipitation figure is 562, and annual humidity figure of 76 percent ("The Climate of South Africa," 2024). In the course of the year, the temperature in Cape Town varies from 48 degrees to 76 degrees; and it is rarely below 41 degrees or above 84 degrees. It has an elevation of 82 feet/25 meters ("Climate and Average Weather Year Round in Cape Town", 2024).

5. Conclusion

This paper began by pointing out that a capital city can be located on a higher latitude but could have characteristics of a city on a lower latitude, while a capital city on a lower latitude can have characteristics of a city on a higher latitude. The 58 capital cities/regions in Africa have a total population of 83.4 million people as of December 31, 2023, with Middle Africa accounting for 30.8%; Eastern Africa, 27.4%; Western Africa, 20.8%; Northern Africa, 18.7%; and Southern Africa, 2.2%. Of Africa's total area of 30.6 million sq km, Northern Africa accounted for 26%; Eastern Africa, 23.1%; Middle Africa, 21.8%; Western Africa,

20.3%; and Southern Africa, 8.8%.

All capital cities/regions have at least two indicators or characteristics of temperate climates. For example, capital cities/regions in Africa have relatively high elevation levels. Sixteen (27.6%) of the 58 capital cities/regions in Africa have elevation levels of 1000 meters or higher, and 13 (22.4%) have elevation levels ranging from 200 meters to less than 800 meters.

There are only 7 (12.1%) capital cities/regions in Africa with a high average annual temperature of 100 degrees or more. In 17 (29.3%) of the 58 capital cities/regions in Africa, the temperature rarely goes below the 20s, 30s, and 40s. Of the 36 capital cities/regions in Africa with available annual sunshine hours data, only 5 (13.9%) are below 2000 hours, and 10 (27.8%) with annual sunshine of 3000 hours or more.

The study recommends that the African union lead the way to prepare for the movement of people in Africa and the African diaspora from the United States to capital cities/regions in Africa, as they are among the areas with temperate climates on the continent and modern amenities. The study also recommends that the African Union must work together with the United States to ease the transition process for people in the African diaspora returning to Africa in utilizing their expertise and wealth for Africa's development. Finally, the study also recommends that both the African Union and the United States government work together to promote interreligious dialogue in Africa, especially since Christians are now the majority in Africa and most of the Black people relocating to the continent from the United States are also Christians.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- “Climate and Average Weather Year Round in Cape Town” (2024). Weather Spark.
<https://weatherspark.com/y/82961/Average-Weather-in-Cape-Town-Western-Cape-South-Africa-Year-Round>
- “Climate and Average Weather Year Round in Washington, D.C. United States” (2024, April 22). Weather Spark.
<https://weatherspark.com/y/20957/Average-Weather-in-Washington-D.C.-United-States-Year-Round>
- “Climate and Average Weather Year-Round in Dakar, Senegal” (2024, April 22). Weather Spark.
<https://weatherspark.com/y/31520/Average-Weather-in-Dakar-Senegal-Year-Round>
- “Climate and Average Weather Year-Round in Mexico City Mexico” (2024, April 22). Weather Spark.
<https://weatherspark.com/y/5674/Average-Weather-in-Mexico-City-Mexico-Year-Round>
- “Temperate Climates” (2024). weather-climate.org.uk.

- <https://www.weather-climate.org.uk/13.php>
- “The Climate of South Africa” (2024). Worlddata.info.
<https://www.worlddata.info/africa/south-africa/climate.php>
- “Tropics” (2024). National Geographic.
<https://education.nationalgeographic.org/resource/tropics/>
- Ashton, D. (2023, October 15). *The Most Humid Cities in America and the World*. Housefresh. <https://housefresh.com/the-most-humid-cities-in-the-world/>
- Beck, H., Zimmermann, N., McVicar, T., Vergopolan, N., Berg, A., & Wood, E. F. (2018). Present and Future Köppen-Geiger Climate Classification Maps at 1 km Resolution. *Scientific Data*, 5, Article ID: 180214.
- Cole, R. (2008). The Regionalization of Africa in Undergraduate Geography of Africa Textbooks, 1953 to 2004. *Journal of Geography*, 107, 61-74.
- Collins, J. M. (2011). Temperature Variability over Africa. *Journal of Climate*, 24, 3649-3666.
- Domroes, M. (2003). Climatological Characteristics of the Tropics in China: Climate Classification Schemes between German Scientists and Huang Bingwei. *Journal of Geographical Sciences*, 13, 271-285.
- Kaba, A. J. (2004). Africa-U.S. Partnership in the 21st Century. *Chimera*, 2, 18-25.
- Kaba, A. J. (2006a). Population Increase, Environment, Food Access and Development in Africa: The Role of the African Union. *Journal of African Policy Studies*, 12, 42-68.
- Kaba, A. J. (2006b). Kenya-U.S. Relations: The Urgent Need to Manage Kenya’s Migrant and HIV-AIDS Brain Drain. *Journal of Pan African Studies*, 1, 79-86.
- Kaba, A. J. (2007a). The Two West Africas: the Two Historical Phases of the West African Brain Drain. *Journal of Pan African Studies*, 1, 77-92.
- Kaba, A. J. (2007b). The Black World and the Dual Brain Drain: A Focus on African Americans. *Journal of African American Studies*, 11, 16-23.
- Kaba, A. J. (2009a). Africa’s Development in the Era of Barack Obama: The Role of the African Union. *Journal of Pan African Studies*, 2, 101-116.
- Kaba, A. J. (2009b). Demographics and Profile: The Most Cited Black Scholars in the Social Sciences, Arts and Humanities. *Journal of Pan African Studies*, 3, 153-207.
- Kaba, A. J. (2009c). The Numerical Distribution of Muslims in Africa. *American Journal of Islamic Social Sciences*, 26, 1-23.
- Kaba, A. J. (2010a). Inheritance, Race and the Four Major Factors for the Unity between African Americans and European Americans: Land/Territory, Blood/Genes, Religion and Language. *African Renaissance*, 7, 93-106.
- Kaba, A. J. (2010b). Educational Attainment, Population Increase and the Progress of African Americans. *Journal of Pan African Studies*, 3, 106-127.
- Kaba, A. J. (2010c). Michelle Obama and the Black Female Diaspora: The Most Influential Black Woman in History? *African Renaissance*, 7, 41-59.
- Kaba, A. J. (2011a). The Family and Political Unity between Blacks and Jews in the United States. *International Journal of Humanities and Social Science*, 1, 167-177.
- Kaba, A. J. (2011b). Race, Conquest and Revenge: Why Do Black People Resist Racial Revenge? *International Journal of Humanities and Social Science*, 1, 92-106.
- Kaba, A. J. (2011c). Inter-Ethnic/Interracial Romantic Relationships in the United States: Factors Responsible for the Low Rates of Marriages Between Blacks and Whites. *Sociology Mind*, 1, 121-129.

- Kaba, A. J. (2011d). African Americans in the National Basketball Association (NBA), 2005-2006: Demography and Earnings. *International Journal of Social and Management Sciences*, 4, 1-25.
- Kaba, A. J. (2011e). Black American Females as Geniuses. *Journal of African American Studies*, 15, 120-124.
- Kaba, A. J. (2012a). Black Americans and Interracial Marriage: A Focus on Black Women. *Sociology Mind*, 2, 407-427.
- Kaba, A. J. (2012b). The Exclusion of Black Women from National Leadership Positions in the United States: Taxation with Limited Representation. *Sociology Mind*, 2, 133-140.
- Kaba, A. J. (2013a). Profile of Contributors to the American Political Science Review, 2010. *Journal of Politics and Law*, 6, 54-82.
- Kaba, A. J. (2013b). Black Americans, Gains in Science and Engineering Degrees, and Gender. *Sociology Mind*, 3, 67-82.
- Kaba, A. J. (2014). The Paradoxes of Africa's Development: African Union's Contributions to Africa's Recent Achievements, 2005-2014. *Journal of African Foreign Affairs*, 1, 55-72.
- Kaba, A. J. (2015). Contributors to the American Sociological Review, 2010. *Sociology Mind*, 5, 114-146.
- Kaba, A. J. (2016a). *Africa: Development Challenges and Possibilities*. Pan-African University Press.
- Kaba, A. J. (2016b). Conceptualizing Tolerance as Recognition: Black American Endowed and Distinguished Professors of Education in US Colleges and Universities. *Sociology Mind*, 6, 1-31. <https://doi.org/10.4236/sm.2016.61001>
- Kaba, A. J. (2017). Explaining the High Cost of Higher Education to Black Americans: A Focus on Black American Women. *Sociology Mind*, 7, 171-196. <https://doi.org/10.4236/sm.2017.74012>
- Kaba, A. J. (2019). United States Immigration Policies in the Trump Era. *Sociology Mind*, 9, 316-349.
- Kaba, A. J. (2020). Explaining Africa's Rapid Population Growth, 1950 to 2020: Trends, Factors, Implications, and Recommendations. *Sociology Mind*, 10, 226-268. <https://doi.org/10.4236/sm.2020.104015>
- Kaba, A. J. (2022). The Numbers and Percentages of Christians and Muslims in Africa. *International Journal of African Catholicism (IJAC)*, 12, 18-40.
- Kaba, A. J. (2024a). A Survey of the Geographic Area, Altitude, Coastline, and Climate of African Countries and Regions: Implications for Africa's Development. *Journal of Sustainable Development*, 17, 57-80.
- Kaba, A. J. (2024b). West Africa's Development, the West African Diaspora, and Preparation for Future Pandemics: The Need for an ECOWAS University System. *Sociology Mind*, 14, 69-94.
- Kaba, A. J., & Nkweti Kaba, A. (2020). COVID-19 in African Countries versus Other World Regions: A Review. *African Journal of Reproductive Health*, 24, 125-141.
- Kaba, A. J., & Ward, D. E. (2009). African Americans and U.S. Politics: The Gradual Progress of Black Women in Political Representation. *The Review of Black Political Economy*, 36, 29-50.
- Kompas, T., Pham, H., & Che, T. N. (2018). The Effects of Climate Change on GDP by Country and the Global Economic Gains from Complying with the Paris Climate Ac-

- cord. *Earth's Future*, 6, 1153-1173. <https://doi.org/10.1029/2018EF000922>
- M'Cormack-Hale, F. A. O., & Kaba, A. J. (2015). The Obama Administration and U.S.-Africa Relations. *Western Journal of Black Studies*, 39, 238-255.
- Marx, W., Haunschild, R., & Bornmann, L. (2021). Heat Waves: A Hot Topic in Climate Change Research. *Theoretical and Applied Climatology*, 146, 781-800.
- Mazrui, A. A., & Kaba, A. J. (2016). *The African Intelligentsia: Domestic Decline and Global Ascent*. Africa World Press.
- Mohammed, F. O., Mohammad, A. O., Ibrahim, H. S., & Hasan, R. A. (2021). Future Scenario of Global Climate Map Change According to the Köppen-Geiger Climate Classification. *Baghdad Science Journal*, 18, 1030-1037.
- Navarro, G. (2023, November 23). *What Humidity Level Is Uncomfortable?* House-fresh.com. <https://housefresh.com/what-humidity-level-is-uncomfortable/>
- Oluwole, V. (2023, June 8). *The Most Humid Cities in Africa: Where Sweating Becomes an Art Form*. Business Insider. <https://africa.businessinsider.com/local/lifestyle/the-most-humid-cities-in-africa-where-sweating-becomes-an-art-form/btdbsn4>
- Peel, M. C., Finlayson, B. L., & McMahon, T. A. (2007). Updated World Map of the Köppen-Geiger Climate Classification. *Hydrology and Earth System Sciences*, 11, 1633-1644. <https://doi.org/10.5194/hess-11-1633-2007>
- Pratolongo, P., Leonardi, N., Kirby, J. R., & Plater, A. (2019). Chapter 3. Temperate Coastal Wetlands: Morphology, Sediment Processes, and Plant Communities. In G. M. E. Perillo, *et al.* (Eds.), *Coastal Wetlands: An Integrated Ecosystem Approach* (2nd ed., pp. 105-152). Elsevier. <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/temperate-climate>
- Rahimi, J., Mutua, J. Y., Notenbaert, A. M. O., Dieng, D., & Butterbach-Bahl, K. (2020). Will Dairy Cattle Production in West Africa Be Challenged by Heat Stress in the Future? *Climatic Change*, 161, 665-685.
- Sackeyfio, N., & Kaba, A. J. (2022). Gendering Environment and Climate Change in the Economic Community of West African States & the East African Community: Why Representation Matters. *The Review of Black Political Economy*, 49, 203-222.
- Willett, K. (2020, December 1). *What Is Humidity?* Carbon Brief. <https://www.carbonbrief.org/guest-post-investigating-climate-changes-humidity-paradox/>
- Wu, L., Bai, X., Tian, Y., Li, Y., Luo, G., Wang, J., & Chen, F. (2023). Temperature Evolution of Cooling Zones on Global Land Surface since the 1900s. *Atmosphere*, 14, Article No. 1156.

Appendixes

Table A1. Population, elevation (sea level), low and high temperature during the year, temperature rarely below and above, average annual temperature maximum (day) and minimum (night), annual sunshine hours, annual number of rainy days, precipitation, and humidity of capital cities/regions in Africa, 2023.

Country/ Region	Capital City/ Region Name	Population	Elev. Meters	During the Year Temp. Varies				Ave. Annual Temp.		Annual Sun- shine Hours	Annual Rainy Days Number	Precipitation Number	Humidity %
				Low	High	Rarely Below	Rarely Above	Max (Day)	Min. (Night)				
Burundi	Gitega	23,000	1712	49	78	45	82	..	..	..	..	..	..
Comoros	Moroni	54,000	27.13	69	88	68	90	..	..	..	..	..	..
Djibouti	Djibouti City	475,000	6.1	74	106	71	110	..	..	..	..	..	..
Eritrea	Asmara	963,000	2334	48	77	45	81	..	..	..	..	..	..
Ethiopia	Addis Ababa	2,739,551	2405	48	75	42	80	74.48	51.26	2665	142	1179	61
Kenya	Nairobi	4,397,073	1684	54	81	50	84	77.72	57.56	2336	80	825	66
Madagascar	Antananarivo	1,275,207	1274	50	80	46	86	77.18	57.38	2592	73	1343	75
Malawi	Lilongwe	989,000	1056	52	86	47	91	..	..	..	..	..	..
Mauritius	Port Louis	143,574	3	67	85	63	88	77.9	66.02	2628	178	1964	81
Mayotte	Mamoudzou	57,000	22.7	71	87	68	89	..	..	..	..	..	..
Mozambique	Maputo	1,080,277	70.1	61	84	56	91	83.12	65.84	2847	60	770	72
Reunion	Saint-Denis	147,000	45.11	65	85	62	88	..	..	..	..	..	..
Rwanda	Kigali	859,332	1542	61	82	58	87	80.42	61.7	1825	114	1102	72
Seychelles	Victoria	26,000	60.05	76	88	74	89	..	..	..	..	..	..
Somalia	Mogadishu	2,388,000	14.02	75	89	74	91	86.36	75.02	..	49	..	79
South Sudan	Juba	230,000	517.9	71	102	68	107	94.46	71.06	2409	96	1018	66
Tanzania	Dodoma	2,083,588	1125	58	87	55	92	84.56	63.86	3249	43	606	62
Uganda	Kampala	1,507,000	1223	62	82	60	88	..	..	..	..	..	..
Zambia	Lusaka	1,747,000	1277	46	87	42	92	87.8	64.58	2920	49	558	61
Zimbabwe	Harare	1,698,122	1494	47	82	42	89	78.8	54.68	3358	62	726	62
Angola	Luanda	2,571,861	73.2	67	87	64	90	83.84	73.22	1168	..	..	82
Cameroon	Yaoundé	2,765,600	726	66	87	62	91	81.86	64.04	2190	133	..	76
Central African Rep.	Bangui	889,000	351.13	65	94	59	100	90.68	70.7	..	116	1402	..
Chad	N'Djamena	1,092,000	299	59	106	53	110	97.88	71.42	3139	48	496	41
Congo (D.R.)	Kinshasa	14,970,000	281	67	90	64	94	87.62	71.6	1898	94	..	78
Congo, Rep.	Brazzaville	2,308,000	284.1	67	90	64	94	87.44	71.42	1898	90	1493	78

Continued

Equatorial Guinea	Malabo	316,000	40	73	88	70	90	86.72	74.12	..	126	1909	..
Gabon	Libreville	703,904	7.9	73	87	71	90	84.56	75.02	..	146	2876	..
Sao Tome & Principe	São Tomé	57,000	7.9	73	84	75	82	..	..	..	..	..	..
Algeria	Algiers	2,712,944	186	42	86	35	92	74.66	55.22	2884	62	518	75
Egypt	Cairo	9,539,673	22.9	50	96	46	102	82.04	63.32	3285	17	91	59
Libya	Tripoli	1,126,000	21.03	49	92	44	101	80.06	60.44	3249	22	172	56
Morocco	Rabat	573,895	46.03	47	80	41	88	73.04	54.5	2884	54	522	80
Sudan	Khartoum	639,598	381	64	106	57	110	98.96	74.66	3577	17	142	29
Tunisia	Tunis	1,056,247	22.9	46	94	40	102	76.64	59.18	2920	64	504	70
Western Sahara	Laâyoune/ El Aaiún	196,000	67.97	54	88	50	97	..	..	..	..	..	..
Botswana	Gaborone	246,000	1011	41	89	34	97	80.96	53.6	3431	43	..	..
Eswatini	Mbabane	61,000	1209	43	74	37	83	..	..	..	..	..	..
Lesotho	Maseru	331,000	1552	30	81	24	89	..	..	..	..	..	..
Namibia	Windhoek	429,974	1656	46	89	39	94	82.94	56.66	3176	47	438	34
South Africa	Pretoria	741,651	1332	42	83	36	89	75.92	53.42	3066	55	672	56
Benin	Porto-Novo	264,000	20.12	75	90	70	92	..	..	..	..	..	..
Burkina Faso	Ouagadougou	2,415,266	299	64	103	59	107	96.26	73.04	2993	62	825	48
Cabo Verde	Praia	130,000	18	69	81	67	82	..	..	..	..	..	..
Cote d'Ivoire	Yamoussoukro	279,977	214	66	94	58	98	92.84	71.78	2190	89	1121	..
Gambia	Banjul	31,000	4.9	64	95	60	102	91.58	69.62	2811	64	1004	66
Ghana	Accra	1,594,419	32.9	74	91	73	93	88.16	75.92	2409	55	785	..
Guinea	Conakry	1,659,785	13.11	75	87	72	89	86.72	73.58	1862	162	..	79
Guinea-Bissau	Bissau	387,909	13.11	66	96	62	101	91.58	71.6	2592	79	1391	69
Liberia	Monrovia	1,011,000	32	74	88	70	91	..	..	..	..	..	..
Mali	Bamako	1,810,366	338	64	103	58	106	94.46	69.62	2957	70	1048	49
Mauritania	Nouakchott	958,399	10.1	60	96	53	105	91.76	68.9	..	24	99	..
Niger	Niamey	1,026,848	206	63	106	58	110	98.06	74.3	3066	46	507	42
Nigeria	Abuja	2,750,000	476.1	60	93	54	100	92.3	71.6	2482	80	1022	63
Senegal	Dakar	1,146,053	11.9	65	88	61	92	82.76	71.96	2957	32	456	..
Sierra Leone	Freetown	1,056,000	49.1	74	86	69	89	..	..	..	..	..	..
Togo	Lomé	840,000	6.1	74	90	69	92	90.68	75.56	2263	71	1033	84
Saint Helena	Jamestown	657	426	63	73	62	74	..	..	..	..	..	..
Africa		83,375,750											

Source: See methodology section.

Table A2. Population, elevation (sea level), low and high temperature during the year, temperature rarely below and above, average annual temperature maximum (day) and minimum (night), annual sunshine hours, annual number of rainy days, precipitation, and humidity of capital cities/regions in eastern Africa, 2023.

Country/ Region	Capital City/ Region Name	Population	Elev. Meters	During the Year Temp. Varies				Ave. Annual Temp.		Annual Sunshine Hours	Annual Rainy Days Number	Precipitation Number	Humidity %
				Low	High	Rarely Below	Rarely Above	Max (Day)	Min. (Night)				
Burundi	Gitega	23,000	1712	49	78	45	82	..	..	..	..	..	..
Comoros	Moroni	54,000	27.13	69	88	68	90	..	..	..	..	..	..
Djibouti	Djibouti City	475,000	6.1	74	106	71	110	..	..	..	..	..	..
Eritrea	Asmara	963,000	2334	48	77	45	81	..	..	..	..	..	..
Ethiopia	Addis Ababa	2,739,551	2405	48	75	42	80	74.48	50.9	2628	143	1208	61
Kenya	Nairobi	4,397,073	1684	54	81	50	84	77.72	57.56	2336	80	825	66
Madagascar	Antananarivo	1,275,207	1274	50	80	46	86	77.18	57.38	2592	73	1343	75
Malawi	Lilongwe	989,000	1056	52	86	47	91	..	..	..	..	..	..
Mauritius	Port Louis	143,574	3	67	85	63	88	80.6	68.54	2555	168	1818	81
Mayotte (2010)	Mamoudzou	57,000	22.7	71	87	68	89	..	..	..	..	..	..
Mozambique	Maputo	1,080,277	70.1	61	84	56	91	83.12	65.84	2847	60	770	72
Reunion (2006)	Saint-Denis	147,000	45.11	65	85	62	88	..	..	..	..	..	..
Rwanda	Kigali	859,332	1542	61	82	58	87	80.96	60.98	2008	128	1022	72
Seychelles	Victoria	26,000	60.05	76	88	74	89	..	..	..	..	..	..
Somalia	Mogadishu	2,388,000	14.02	75	89	74	91	86.36	75.02	3066	49	..	79
South Sudan	Juba	230,000	517.9	71	102	68	107	94.46	71.06	2446	100	1004	66
Tanzania	Dodoma	2,083,588	1125	58	87	55	92	84.74	63.68	3285	42	555	..
Uganda	Kampala	1,507,000	1223	62	82	60	88	..	..	..	..	..	..
Zambia	Lusaka	1,747,000	1277	46	87	42	92	87.8	64.58	2920	49	558	61
Zimbabwe	Harare	1,698,122	1494	47	82	42	89	78.8	54.68	3358	62	726	62
Total		22,882,724											

Source: see methodology section.

Table A3. Population, elevation (sea level), low and high temperature during the year, temperature rarely below and above, average annual temperature maximum (day) and minimum (night), annual sunshine hours, annual number of rainy days, precipitation, and humidity of capital cities/regions in middle Africa, 2023.

Country/ Region	Capital City/ Region Name	Population	Elev. Meters	During the Year Temp. Varies				Ave. Annual Temp		Annual Sunshine Hours	Annual Rainy Days Number	Precipitation Number	Humidity %
						Rarely Below	Rarely Above	Max (Day)	Min. (Night)				
				Low	High								
Angola	Luanda	2,571,861	73.2	67	87	64	90	83.84	73.22	1168	..	..	82
Cameroon	Yaoundé	2,765,600	726	66	87	62	91	81.86	64.04	2190	133	..	76
Central African Rep.	Bangui	889,000	351.13	65	94	59	100	90.14	70.34	..	112	1398	..
Chad	N'Djamena	1,092,000	299	59	106	53	110	96.08	68.9	3103	44	518	41
Congo (D.R.)	Kinshasa	14,970,000	281	67	90	64	94	87.62	71.6	1898	94	..	78
Congo, Rep.	Brazzaville	2,308,000	284.1	67	90	64	94	87.62	71.6	1898	94	1737	78
Equatorial Guinea	Malabo	316,000	40	73	88	70	90	86.36	73.94	..	..	1902	..
Gabon	Libreville	703,904	7.9	73	87	71	90	84.56	75.02	..	146	2876	..
Sao Tome & Principe	São Tomé	57,000	7.9	73	84	75	82	..	..	..	..	..	..
Total		25,673,365											

Source: see methodology section.

Table A4. Population, elevation (sea level), low and high temperature during the year, temperature rarely below and above, average annual temperature maximum (day) and minimum (night), annual sunshine hours, annual number of rainy days, precipitation, and humidity of capital cities/regions in northern Africa, 2023.

Country/ Region	Capital City/ Region Name	Population	Elev. Meters	During the Year Temp. Varies				Ave. Annual Temp		Annual Sunshine Hours	Annual Rainy Days Number	Precipitation Number	Humidity %
						Rarely Below	Rarely Above	Max (Day)	Min. (Night)				
				Low	High								
Algeria	Algiers	2,712,944	186	42	86	35	92	74.4	54.86	2884	61	504	75
Egypt	Cairo	9,539,673	22.9	50	96	46	102	83.66	63.32	3285	17	91	59
Libya	Tripoli	1,126,000	21.03	49	92	44	101	80.6	59.54	3249	22	172	56
Morocco	Rabat	573,895	46.03	47	80	41	88	73.94	55.22	2957	53	515	80
Sudan	Khartoum	639,598	381	64	106	57	110	99.5	74.84	3614	17	120	29
Tunisia	Tunis	1,056,247	22.9	46	94	40	102	76.64	59.18	2957	65	507	70
Western Sahara	Laâyoune/ El Aaiún	196,000	67.97	54	88	50	97	..	..	..	..	..	..
Total		15,648,357											

Source: see methodology section.

Table A5. Population, elevation (sea level), low and high temperature during the year, temperature rarely below and above, average annual temperature maximum (day) and minimum (night), annual sunshine hours, annual number of rainy days, precipitation, and humidity of capital cities/regions in southern Africa, 2023.

Country/ Region	Capital City/ Region Name	Population	Elev. Meters	During the Year Temp. Varies		Rarely Below	Rarely Above	Ave. Annual Temp		Annual Sunshine Hours	Annual Rainy Days Number	Precipitation Number	Humidity %
				Low	High			Max (Day)	Min. (Night)				
Botswana	Gaborone	246,000	1011	41	89	34	97	80.96	53.6	3431	43	..	..
Eswatini	Mbabane	61,000	1209	43	74	37	83	..	..	..	..	..	..
Lesotho	Maseru	331,000	1552	30	81	24	89	..	..	..	..	..	..
Namibia	Windhoek	429,974	1656	46	89	39	94	83.12	54.5	3212	47	380	34
South Africa	Pretoria	741,651	1332	42	83	36	89	75.92	53.42	3066	55	672	56
Total		1,809,625											

Source: see methodology section.

Table A6. Population, elevation (sea level), low and high temperature during the year, temperature rarely below and above, average annual temperature maximum (day) and minimum (night), annual sunshine hours, annual number of rainy days, precipitation, and humidity of capital cities/regions in western Africa, 2023.

Country/ Region	Capital City/ Region Name	Populatio n	Elev. Meters	During the Year Temp. Varies		Rarely Below	Rarely Above	Ave. Annual Temp.		Annual Sunshine Hours	Annual Rainy Days Number	Precipitation Number	Humidity %
				Low	High			Max (Day)	Min. (Night)				
Benin	Porto-Novo/ Cotonou	264,000	20.12	75	90	70	92	..	..	..	..	..	..
Burkina Faso	Ouagadougou	2,415,266	299	64	103	59	107	96.08	73.04	2993	64	799	48
Cabo Verde	Praia	130,000	18	69	81	67	82	..	..	..	..	..	..
Cote d'Ivoire	Yamoussoukro	279,977	214	66	94	58	98	92.84	71.78	2190	89	1121	..
Gambia	Banjul	31,000	4.9	64	95	60	102	..	..	..	..	..	..
Ghana	Accra	1,594,419	32.9	74	91	73	93	88.34	75.74	2409	59	803	81
Guinea	Conakry	1,659,785	13.11	75	87	72	89	86.72	73.76	1862	148	..	79
Guinea-Bissau	Bissau	387,909	13.11	66	96	62	101	91.58	71.6	2592	79	1391	69
Liberia	Monrovia	1,011,000	32	74	88	70	91	..	..	..	..	..	..
Mali	Bamako	1,810,366	338	64	103	58	106	94.46	69.62	2957	70	1048	49
Mauritania	Nouakchott	958,399	10.1	60	96	53	105	81.76	68.9	..	24	99	..
Niger	Niamey	1,026,848	206	63	106	58	110	97.88	73.94	3103	43	518	42

Continued

Nigeria	Abuja	2,750,000	476.1	60	93	54	100	93.02	72.32	2665	77	..	67
Senegal	Dakar	1,146,053	11.9	65	88	61	92	84.38	71.42	2920	31	467	..
Sierra Leone	Freetown	1,056,000	49.1	74	86	69	89	..	..	..	..	..	..
Togo	Lomé	840,000	6.1	74	90	69	92	90.68	75.56	2263	72	1037	84
Saint Helena	Jamestown	657	426	63	73	62	74	..	..	..	..	..	..
Total		17,361,679											

Source: see methodology section.

Geographic Breakdowns of the Five Regions of Africa (n = 58)

Eastern Africa (n = 20): Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Reunion, Rwanda, Seychelles, Somalia, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.

Middle Africa (n = 9): Angola, Cameroon, Central African Republic, Chad, Republic of the Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, and Sao Tome & Principe.

Northern Africa (n = 7): Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, and Western Sahara.

Southern Africa (n = 5): Botswana, Lesotho, Namibia, South Africa, and Swaziland.

Western Africa (n = 17): Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo, and Saint Helena.

Source: "Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings" Retrieved on January 29, 2019 from: <https://unstats.un.org/unsd/methodology/m49/>.