Met Office

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AFRICA: Monthly Climate Outlook
May to February

Issued: August 2023

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Overview

Africa Current Status and Outlook – Temperature

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Global Outlook – Temperature

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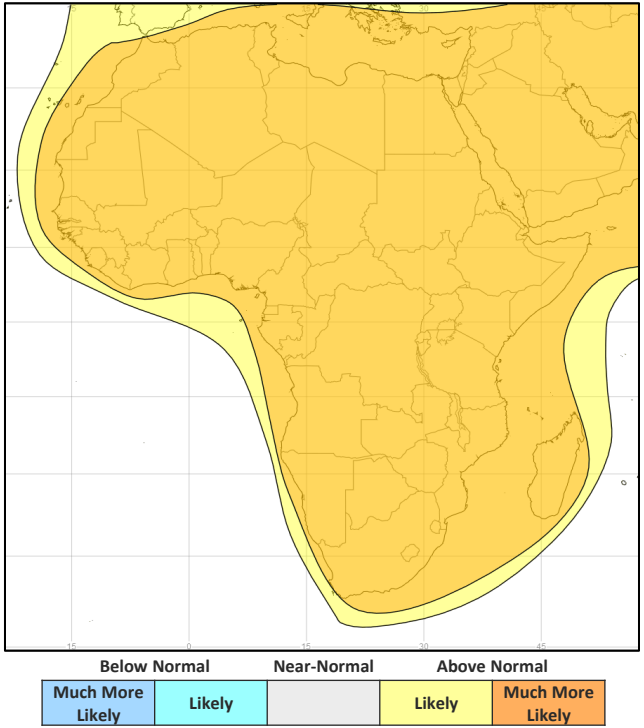
Africa Current Status and Outlook - Temperature

Current Status: Over the last three months, many parts of Central and Western Africa have been cool or cold. The main exceptions Sierra Leone and DRC which were warm or hot.

In Eastern Africa, Sudan was cold in May, near-normal in June and hot in July. Most of southern Africa was hot. Madagascar has remained cold.

Outlook: Consistent with a warming climate, it is much more likely to be warmer than normal across most of the continent.

3-Month Outlook September to November - Temperature



Africa Current Status and Outlook - Rainfall

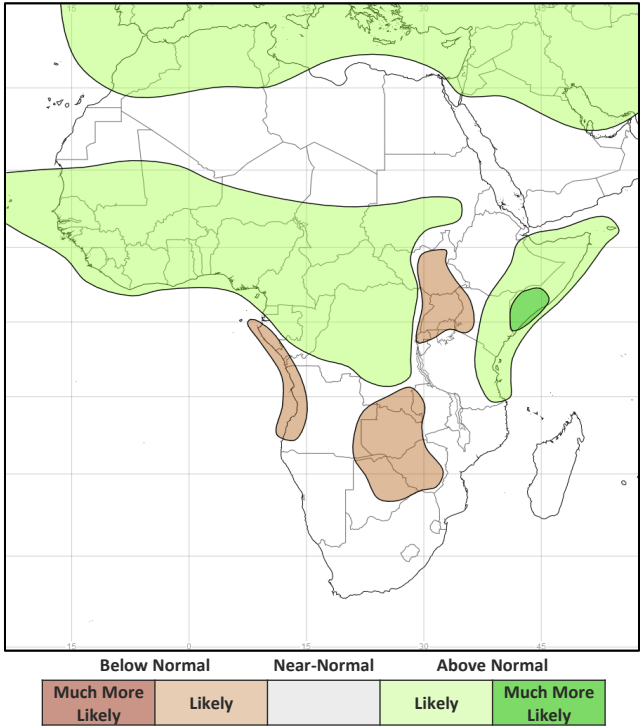
Current Status: Over the past three months, rainfall has been near-normal or dry across most of West and Central Africa - it was wet across parts of the Sahel in May and June, returning to near-normal in July. Many parts of Eastern Africa had near-normal or dry conditions in May and July, and wet or very wet conditions in June. Many parts of Southern Africa were wet or very wet in May, with more mixed conditions thereafter - this is the dry season, so observed rainfall totals were small.

Outlook: Over the next three months, the West African Monsoon will move south. Many areas of west and central Africa are likely to be wetter than normal.

Eastern parts of South Sudan, Rwanda, Uganda and the Kenyan Highlands are likely to be drier than normal over the next three months. In contrast, it is likely to be wetter than normal across Somalia, central and eastern Kenya, coastal regions of Tanzania and western South Sudan. Seasonal forecasts currently suggest a positive IOD will develop over the next couple of months, and this will lead to an increased chance of a wetter than normal "Short Rains" season over East Africa, peaking in October and November.

It is likely to be drier than normal in the next three month across southern DRC, Zambia and Zimbabwe.

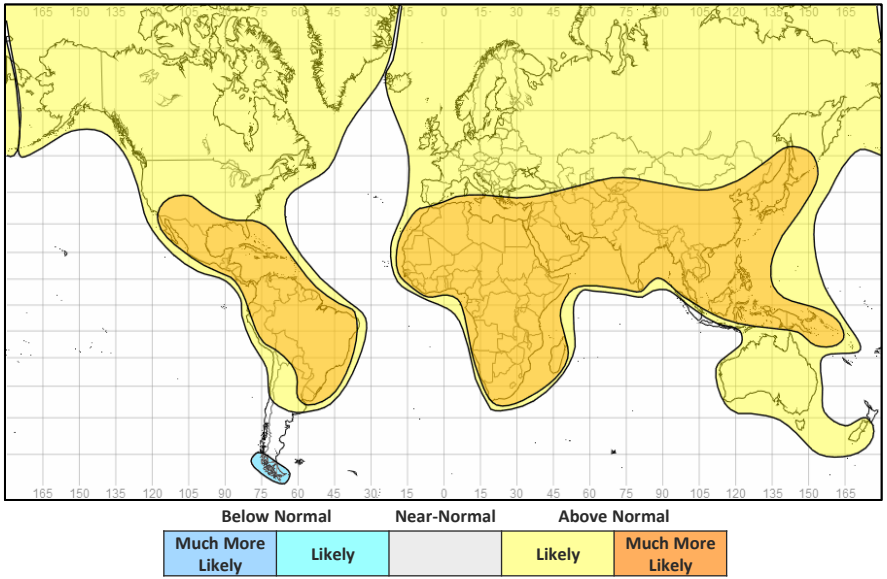
3-Month Outlook September to November - Rainfall



Global Outlook - Temperature

Outlook: With the backdrop of a warming climate and the developing El Niño event, most land areas are likely to be warmer than normal with very limited exceptions.

3-Month Outlook September to November - Temperature



Global Outlook - Rainfall

Outlook:

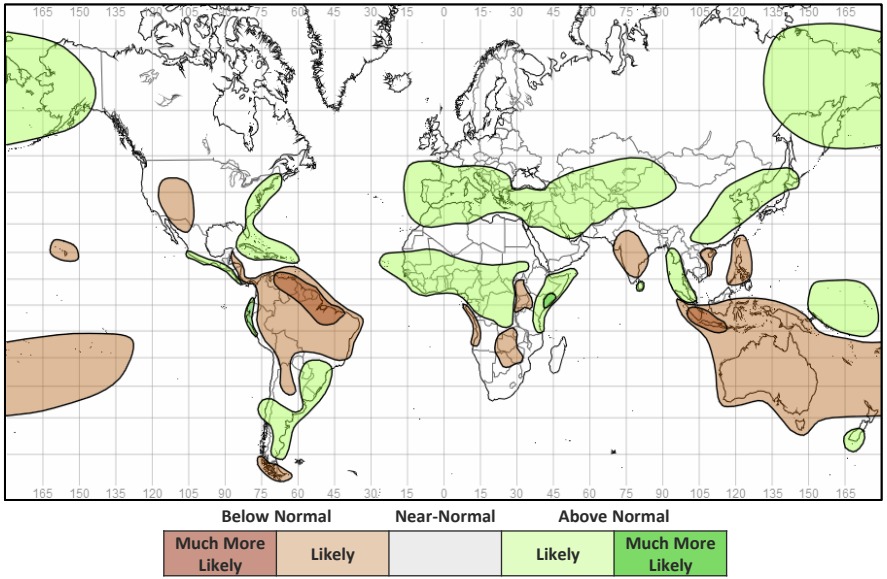
El Niño-Southern Oscillation (ENSO) – Sea surface temperatures across the equatorial Pacific are above average, in the Niño 3.4 region they are 1.3°C above average. The atmospheric response has been slower though is now consistent with El Niño conditions, and NOAA have declared El Niño to be underway.

This moderate El Niño is expected to persist into the northern hemisphere winter. The latest information from most of the seasonal prediction models now suggests a strong or very strong event peaking this Northern Hemisphere winter. However, there is a spread in model outputs at this range. A strong El Niño does not necessarily equate to large impacts in any given location.

El Niño impacts regional weather patterns around the world, leading to some regions experiencing wetter than normal conditions and other regions drier than normal conditions. During El Niño, temperatures around the globe are likely or much more likely to be higher than normal, and this is reflected in the current outlooks.

Indian Ocean Dipole (IOD) – The Indian Ocean Dipole is currently neutral. Recent warming of the western side of the basin in the past few weeks has increased the index to +0.8°C above normal – seasonal forecasts currently suggest this will persist and a positive IOD will develop over the next couple of months.

3-Month Outlook September to November - Rainfall



Current Status

Current Status maps

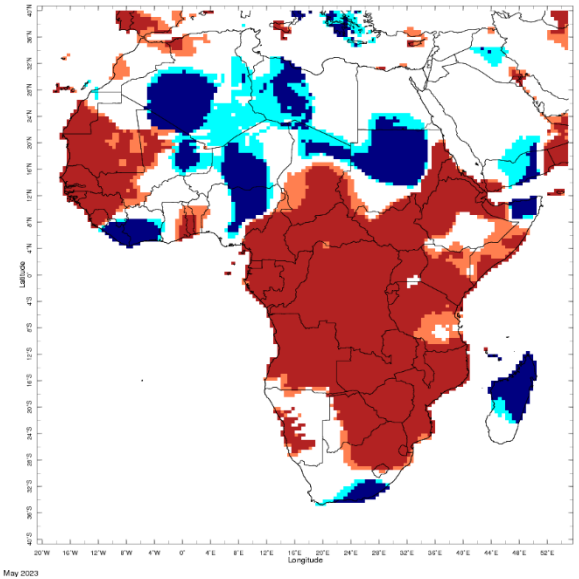
Western Africa

Central Africa

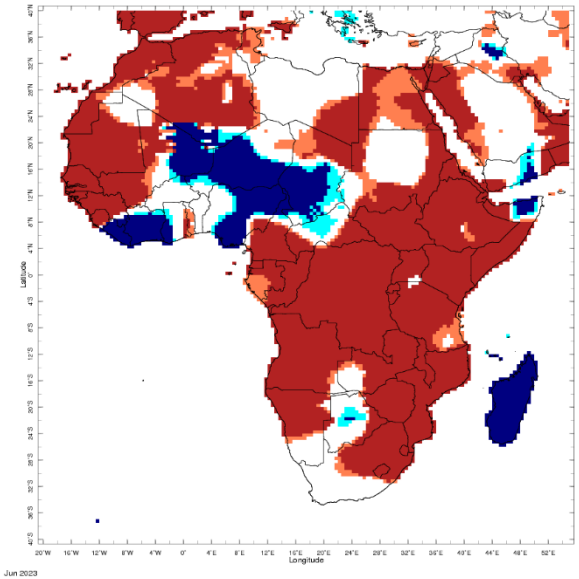
Eastern Africa

Southern Africa

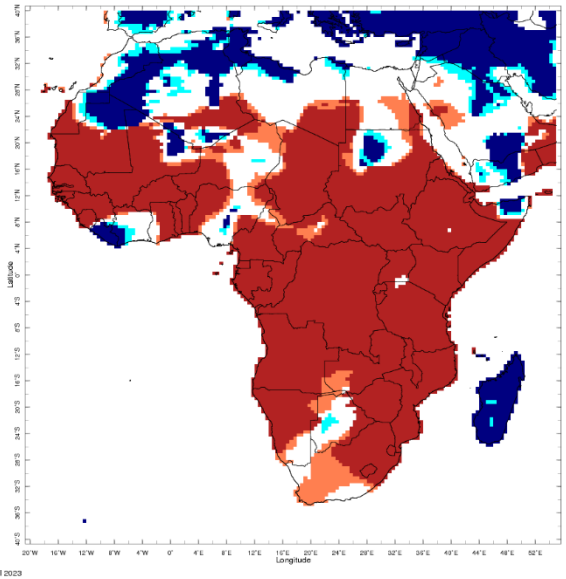
Current Status – Temperature percentiles



May



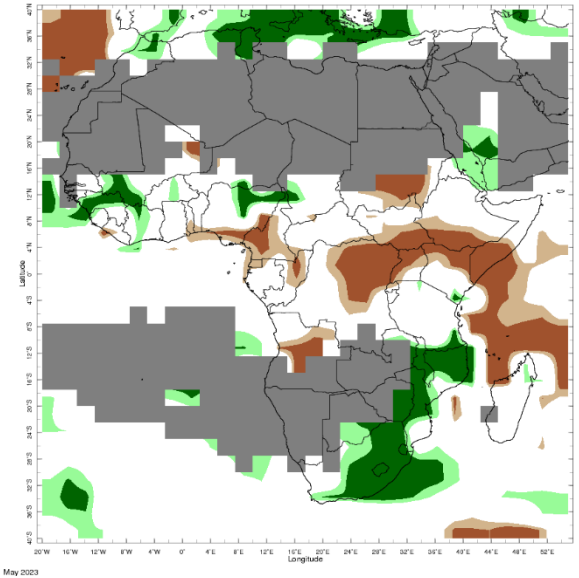
June



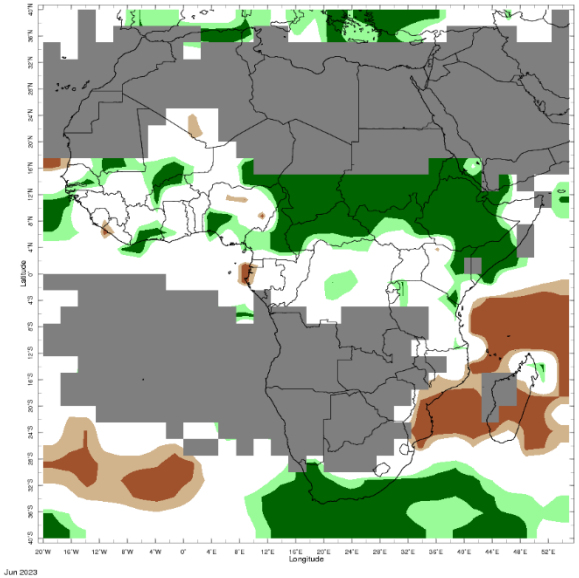
July

Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions shaded in light and dark blue indicate values below the 20th (Cool) and 10th (Cold) percentile, with respect to the 1981-2010 climatology. The data used in this map are from the NOAA Climate Prediction Center.

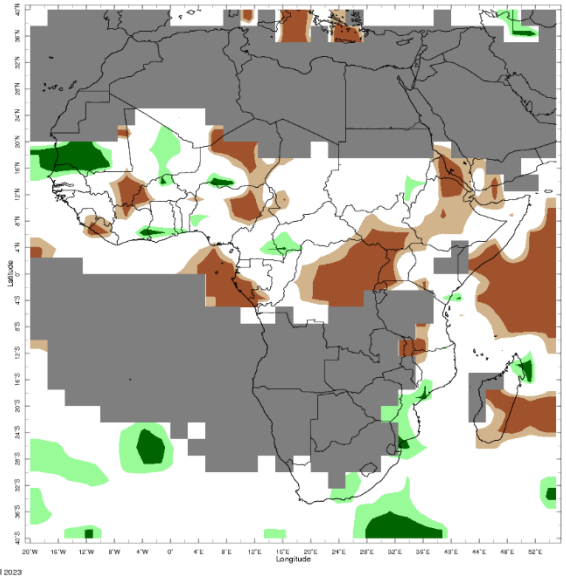
Current Status – Precipitation percentiles



May



June



July

Notes: The percentiles shown in the map indicate a ranking of rainfall, with the 0th percentile being the driest and the 100th percentile being the wettest in the 1981-2010 climatology. Green and dark green shading represent values above the 80th (Wet) and 90th (Very Wet) percentile, respectively; regions shaded in light and dark brown indicate rainfall below the 20th (Dry) and 10th (Very Dry) percentile, with respect to the 1981-2010 climatology. Grey areas on the map mask out regions that receive less than 10 mm/month of rainfall on normal in the 1981-2010 climatology for the month. The data used in this map are from the NOAA Climate Prediction Center.

Current Status – Western Africa

	Current Status: Temperature			Current Status: Rainfall		
	May	June	July	May	June	July
Sierra Leone	Hot	Hot	Hot	Normal	Normal	Normal
Liberia	Cold	Cold	Cold	Normal	Normal	Dry
Mali	Mixed (2)	Mixed (2)	Hot	Normal*	Normal (3)	Normal (5)
Ghana	Warm	Normal	Hot	Normal	Normal	Normal
Nigeria	Cool	Cold	Normal (4)	Normal (1)	Normal (3)	Normal (6)
Cameroon	Hot	Hot	Hot	Dry	Wet	Normal

Notes:

The table gives an assessment of whether temperature and rainfall across each country have been above normal, normal or below normal over the past three months, using data from the NOAA Climate Prediction Center and the IRI Map Room: http://iridl.ldeo.columbia.edu/maproom/.

* Region usually experiences less than 10mm/month rainfall during the month (dry season).

Additional Information:

(1) Note: Dry in the far south or southeast and wet in the far north
(2) Note: Cold in the east, warm or hot in the southwest
(3) Note: Wet in the south
(4) Note: Hot in the west
(5) Note: Wet in the north, very dry in the south
(6) Note: Very dry in the east

Current Status – Central Africa

	Current Status: Temperature		
	May	June	July
Niger	Cool	Cold	Normal (4)
Chad	Mixed (1)	Mixed (2)	Hot
DRC	Hot	Hot (3)	Hot

	Current Status: Rainfall		
	May	June	July
Niger	Normal*	Very Wet (2)	Dry
Chad	Normal*	Very Wet	Normal
DRC	Dry	Normal	Very Dry

Notes:

The table gives an assessment of whether temperature and rainfall across each country have been above normal, normal or below normal over the past three months, using data from the NOAA Climate Prediction Center and the IRI Map Room: http://iridl.ldeo.columbia.edu/maproom/.

* Region usually experiences less than 10mm/month rainfall during the month (dry season).

Additional Information:

(1) Note: Cool or cold in the north, hot in the south
(2) Note: Normal in the west
(3) Note: Cold in the south, hot in the north
(4) Note: Hot in the west

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	May	June	July	May	June	July
Sudan	Cold	Normal (2)	Normal (2)	Dry	Very Wet	Normal
South Sudan	Hot	Hot	Hot	Dry	Very Wet (1)	Dry
Uganda	Hot	Hot	Hot	Dry	Normal	Dry
Rwanda	Hot	Hot	Hot	Dry	Normal	Very Dry

Notes:

The table gives an assessment of whether temperature and rainfall across each country have been above normal, normal or below normal over the past three months, using data from the NOAA Climate Prediction Center and the IRI Map Room: http://iridl.ldeo.columbia.edu/maproom/.

* Region usually experiences less than 10mm/month rainfall during the month (dry season).

Additional Information:

(1) Note: Normal in the south
(2) Note: Hot in the south and east

Current Status – Eastern Africa (2)

	Current Status: Temperature		
	May	June	July
Tanzania	Warm	Hot	Hot
Ethiopia	Warm	Hot	Hot
Kenya	Hot	Hot	Hot
Somalia	Warm	Hot (3)	Hot (3)

	Current Status: Rainfall		
	May	June	July
Tanzania	Normal	Normal	Normal
Ethiopia	Dry	Very Wet	Dry
Kenya	Dry	Very Wet (2)	Normal
Somalia	Dry	Wet (1)	Normal (4)

Notes:

The table gives an assessment of whether temperature and rainfall across each country have been above normal, normal or below normal over the past three months, using data from the NOAA Climate Prediction Center and the IRI Map Room: http://iridl.ldeo.columbia.edu/maproom/.

* Region usually experiences less than 10mm/month rainfall during the month (dry season).

Additional Information:

(1) Note: Very Wet in the south and normal in the north
(2) Note: Normal in the Highlands.
(3) Note: Cold in the far north
(4) Note: Very Dry in the south

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	May	June	July	May	June	July
South Africa	Mixed (1)	Mixed (1)	Warm	Wet	Normal (2)	Normal
Zambia	Hot	Hot	Hot	Wet	Normal*	Normal*
Zimbabwe	Hot	Hot	Hot	Wet	Normal*	Normal*
Mozambique	Hot	Hot	Hot	Very Wet	Very Dry	Wet
Malawi	Hot	Hot	Hot	Very Wet	Normal*	Normal*
Madagascar	Cold	Cold	Cold	Normal	Very Dry	Very Dry (3)

Notes:

The table gives an assessment of whether temperature and rainfall across each country have been above normal, normal or below normal over the past three months, using data from the NOAA Climate Prediction Center and the IRI Map Room: http://iridl.ldeo.columbia.edu/maproom/.

* Region usually experiences less than 10mm/month rainfall during the month (dry season).

Additional Information:

(1) Note: Hot in northeast, cold in the far south in May, normal elsewhere
(2) Note: Very wet in the south
(3) Note: Wet in the far northeast

Outlooks

Notes for use

Western Africa

Central Africa

Eastern Africa

Southern Africa

Outlooks: Notes for use

Outlooks for months 4 to 6:

As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range.

Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Climatological odds:

A forecast is only provided in the outlooks where there is information in the model data about likely outcomes. Therefore, where the likelihoods for above, near and below normal conditions are evenly balanced the phrase 'climatological odds' will be used. This means the outcome could fall anywhere within the possible climatological range. Near-normal conditions should not necessarily be assumed, and users should update with shorter-term forecasts when available.

Outlook: September to February – Western Africa (1)

		Forecast summary		
		September	September to November	December to February
Sierra Leone	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	**Likely to be wetter than normal**	Climatological odds
Liberia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	**Likely to be wetter than normal**	Climatological odds
Mali	*Temperature*	**Likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be wetter than normal**	Climatological odds
Ghana	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be wetter than normal**	Climatological odds

Outlooks for months 4 to 6: As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range. Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Outlook: September to February – Western Africa (2)

		Forecast summary		
		September	September to November	December to February
Nigeria	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be wetter than normal**	Likely to be wetter than normal
Cameroon	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be wetter than normal**	Likely to be wetter than normal

Outlooks for months 4 to 6: As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range. Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Outlook: September to February – Central Africa

		Forecast summary		
		September	September to November	December to February
Niger	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal in the south; Climatological odds in the north	Climatological odds
Chad	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal in the south; Climatological odds in the north	Climatological odds
Democratic Republic of Congo	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal ; Likely to be drier than normal in the far south	Likely to be wetter than normal

Outlooks for months 4 to 6: As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range. Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Outlook: September to February – Eastern Africa (1)

		Forecast summary		
		September	September to November	December to February
Sudan	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal in the south; Climatological odds in the north	Climatological odds
South Sudan	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be wetter than normal in the west; Likely to be drier than normal in the east	Climatological odds
Uganda	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Rwanda	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds

Outlooks for months 4 to 6: As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range. Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Outlook: September to February – Eastern Africa (2)

		Forecast summary		
		September	September to November	December to February
Tanzania	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be drier than normal** in the west; **Likely to be wetter than normal** along the coast; Climatological odds elsewhere	**Likely to be wetter than normal** along the Coastal Plain; Climatological odds elsewhere	Likely to be wetter than normal
Ethiopia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be drier than normal**	**Likely to be wetter than normal** in the southeast; Climatological odds elsewhere	Climatological odds
Kenya	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be drier than normal** in the Highlands, **Likely to be wetter than normal** along the Coastal Plain; Climatological odds elsewhere	**Likely to be drier than normal** in the Highlands, **Likely to be wetter than normal** along the Coastal Plain; Climatological odds elsewhere	Likely to be wetter than normal
Somalia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be drier than normal**; **Much more likely to be drier than normal** in the south	Likely to be wetter than normal

Outlook: September to February – Southern Africa (1)

		Forecast summary		
		September	September to November	December to February
South Africa	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds	Likely to be drier than normal
Zambia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal in the west; Climatological odds in the east	Climatological odds
Zimbabwe	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal	Climatological odds
Mozambique	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds

Outlooks for months 4 to 6: As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range. Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Outlook: September to February – Southern Africa (1)

		Forecast summary		
		September	September to November	December to February
Malawi	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Madagascar	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds

Outlooks for months 4 to 6: As forecast uncertainty generally increases with longer range **the 4-6-month outlook is less reliable than the 1-3 month outlook**. Outlook information will only be provided when the model data signals likely outcomes. Additionally, the longer range outlook utilises fewer models because not all seasonal models are available for the extended range. Information provided in this presentation should be used to raise early awareness of potential hazards only and should be updated with the 3-month outlook when available.

Annex 1 – Supplemental Information

For further information

WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble (LC-LRFMME)
https://www.wmolc.org/seasonPmmeUI/plot_PMME

International Research Institute for Climate and Society (IRI)
http://iridl.ldeo.columbia.edu/maproom/

NOAA El Niño technical info
https://www.ncei.noaa.gov/access/monitoring/enso/

Met Office
https://www.metoffice.gov.uk/services/government/international-development

For further information

Climate Outlook Fora (https://public.wmo.int/en/our-mandate/climate/regional-climate-outlook-products), including:

- Greater Horn of Africa Climate Outlook Forum (GHACOF): GHACOF 65 Statement (August 2023)
- PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne (PRESASS): http://acmad.net/rcc/presassS.php (April 2022)
- Southern African Regional Climate Outlook Forum (SARCOF): http://csc.sadc.int/en/news-and-events/338-the-twenty-sixth-southern-africa-regional-climate-outlook-forum-sarcof-26 (August 2022)
- PRÉvisions climatiques Saisonnières en Afrique, pays du Golfe de Guinée (PRESAGG): https://agrhymet.cilss.int/doss/tocharg/2023/02/COMMUNIQUE-FINAL_PRESAGG_2023_VF_Engl.pdf (February 2023)
- South-West Indian Ocean Climate Outlook Forum (SWIOCOF) - https://www.commissionoceanindien.org/wp-content/uploads/2022/10/SWIOCOF11_Statement-EN-final.pdf (September 2022)

Technical notes

The WMO lead centre for long-range forecast multi-model ensemble (LC-LRFMME) produce a probabilistic multi-model mean forecast product in which the multi-model mean is based on uncalibrated model output with a model weighting system that accounts for errors in both the forecast probability and ensemble mean. The method used by LC-LRFMME separately computes a probabilistic forecast and calculates tercile probabilities with respect to climatology for each individual model, before creating the weighted multi-model mean. In seasonal prediction, shifts in the tercile probabilities are always closely associated with the shifts in the probability of extremes, and we can use the probability of terciles to provide information on the likelihood of above- or below- normal conditions. The thresholds used in the forecast summaries are defined below.

Seasonal forecasts rely on the aspects of the global weather and climate system that are more predictable, such as tropical sea-surface temperatures or the El Niño–Southern Oscillation (ENSO). However, whilst such forecasts may be able to show what is more or less likely to occur, they acknowledge that other outcomes are possible.

In addition, forecast uncertainty generally increases with longer range so the 6-month outlook is less reliable. It is also based on less information, because not all models are available to this range. Therefore the information presented here should be used to raise early awareness of potential hazards, and should be updated with the 3-month outlook when available.

In the report and tables precipitation is referred to as rainfall but in fact encompasses any form of water, liquid or solid, falling from the sky. Temperatures are the (2 metre) near-surface temperature.

Description	Definition
Much more likely to be below normal	When probability of lower tercile > 70%
More likely to be below normal	When probability of lower tercile is 40-70%
Likely to be near-normal	When probability of middle tercile is 40-70%
Much more likely to be near-normal	When probability of middle tercile > 70%
Likely to be above normal	When probability of upper tercile is 40-70%
Much more likely to be above normal	When probability of upper tercile > 70%
Climatological odds	When probabilities for all categories are roughly 33%

Global Producing Centres (GPC) forecasts used by WMO LC-LRFMME:

- GPC CPTEC (INPE),
- GPC ECMWF,
- GPC Exeter (Met Office),
- GPC Melbourne (BOM),
- GPC Montreal (CMC),
- GPC Moscow (Hydromet Centre of Russia),
- GPC Offenbach (DWD),
- GPC Pretoria (SAWS),
- GPC Seoul (KMA),
- GPC Tokyo (JMA),
- GPC Toulouse (Meteo France),
- GPC Washington (NCEP)

Enquiries

Email: internationaldevelopment@metoffice.gov.uk

Web: https://www.metoffice.gov.uk/services/government/international-development