

AFRICA: Monthly Climate Outlook

July to April

Issued: October 2023

[Overview](#)

[Current Status](#)

[Outlooks](#)

[Annex 1 – Supplemental Information](#)

Overview

[Africa Current Status and Outlook – Temperature](#)

[Africa Current Status and Outlook – Rainfall](#)

[Global Outlook – Temperature](#)

[Global Outlook – Rainfall](#)

Africa Current Status and Outlook - Temperature

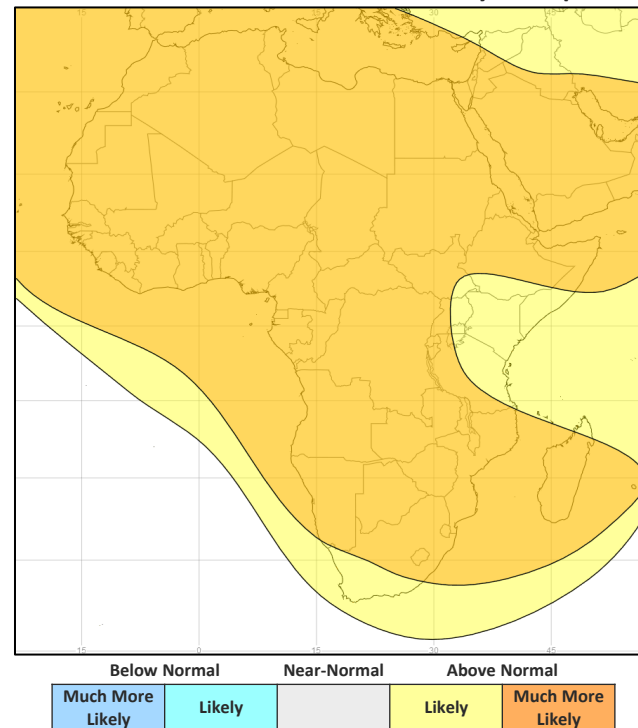
Current Status:

Over the last three months, temperatures were hotter than normal in West Africa. The exception being Liberia which was colder than normal in July and August as well as Ghana and Nigeria which were colder than normal in August. Central and East Africa were mostly warm or hot over the last three months, though a few areas in East Africa were cool in September. Most parts of Southern Africa were hot in July but in August and September temperatures were cool or cold.

Outlook:

Consistent with a warming climate, it is likely or much more likely to be warmer than normal across most of the continent over the next three months.

3-Month Outlook November to January - Temperature



Africa Current Status and Outlook - Rainfall

Current Status:

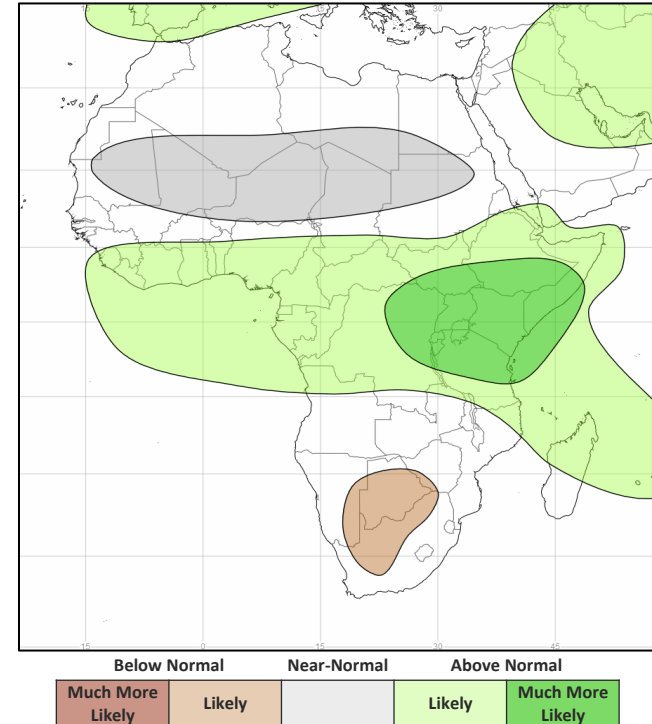
Over the past three months, in West Africa rainfall was mostly near-normal though Cameroon and Nigeria were dry or very dry in August and September. DRC was very dry over the last three months while Chad and Niger were wet in September. Ahead of the Short Rains season in October-December, most parts of East Africa had near-normal rainfall or were dry between July and September. Rainfall was mostly near-normal in Southern Africa over the last three months, this time of year is the dry season for much of the region.

Outlook:

Over the next three months, consistent with both the current El Niño event and a positive Indian Ocean Dipole (IOD), it is likely or much more likely to be wetter than normal in East Africa. It is also likely to be wetter than normal in much of Central Africa and the counties adjacent to the Gulf of Guinea.

In southern Africa, it is likely to be drier than normal in parts of South Africa and Botswana.

3-Month Outlook November to January - Rainfall

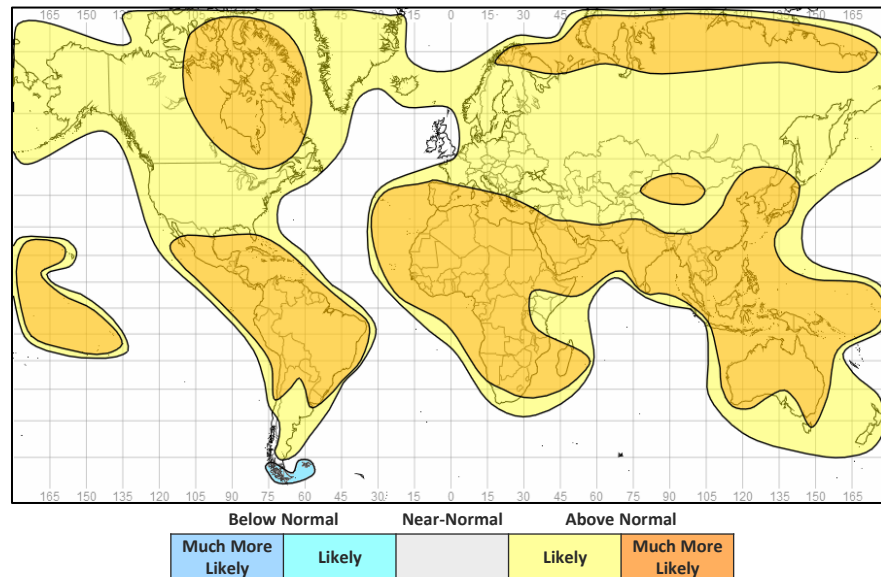


Global Outlook - Temperature

Outlook:

With the backdrop of a warming climate and the current El Niño event, most land areas are likely or much more likely to be warmer than normal with limited exceptions.

3-Month Outlook November to January - Temperature



Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – Sea surface temperatures (SSTs) across the equatorial Pacific remain indicative on an ongoing El Niño event. In the Niño 3.4 region SSTs are currently 1.4°C above normal and the atmospheric response is now consistent with El Niño conditions. The current El Niño is moderate in strength.

Seasonal prediction models indicate a moderate or strong El Niño is highly likely to continue through to the Northern Hemisphere spring (80% chance during March-May 2024).

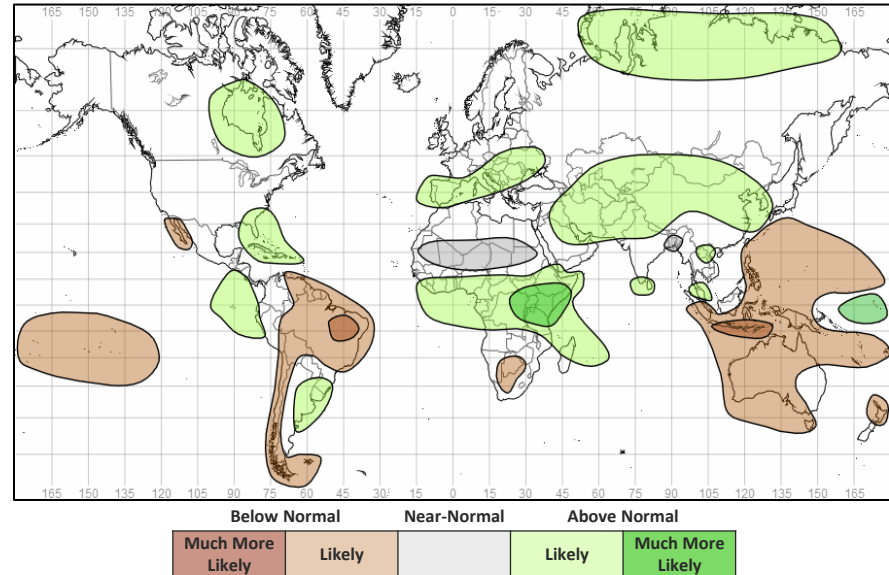
El Niño impacts regional weather patterns around the world, leading to some regions experiencing wetter than normal conditions and other regions drier than normal conditions. During El Niño, temperatures around the globe are likely or much more likely to be higher than normal, and this is reflected in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

Indian Ocean Dipole (IOD) – The Indian Ocean Dipole is currently positive. Continued warming in the western Indian Ocean has increased the index to +1.85C above normal.

Seasonal forecasts currently suggest that this event will persist until the end of year before returning to neutral conditions early in 2024.

This will reinforce the influence of El Niño, further increasing the likelihood of drought across Southeast Asia (especially Indonesia) and Australia, with above normal rainfall across East Africa, increasing the risk of floods.

3-Month Outlook November to January - Rainfall



Current Status

[Current Status maps](#)

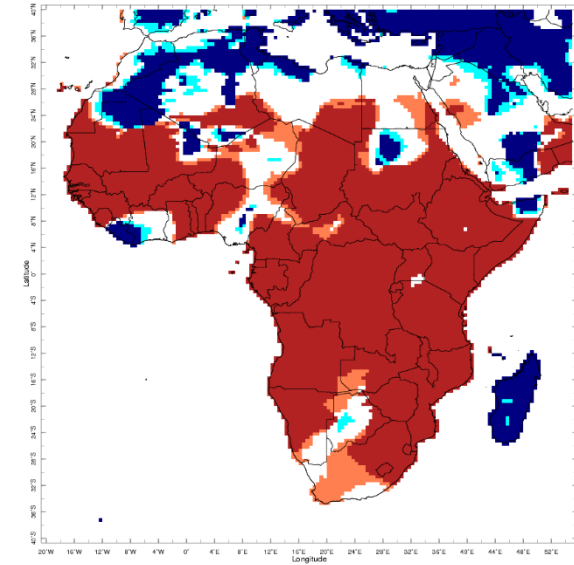
[Western Africa](#)

[Central Africa](#)

[Eastern Africa](#)

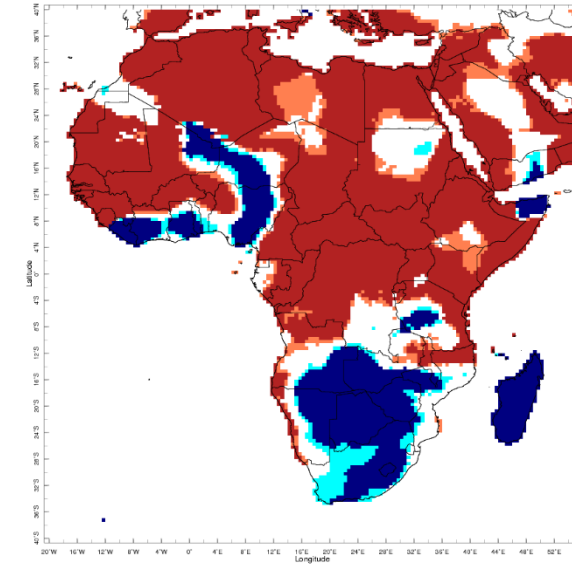
[Southern Africa](#)

Current Status – Temperature percentiles



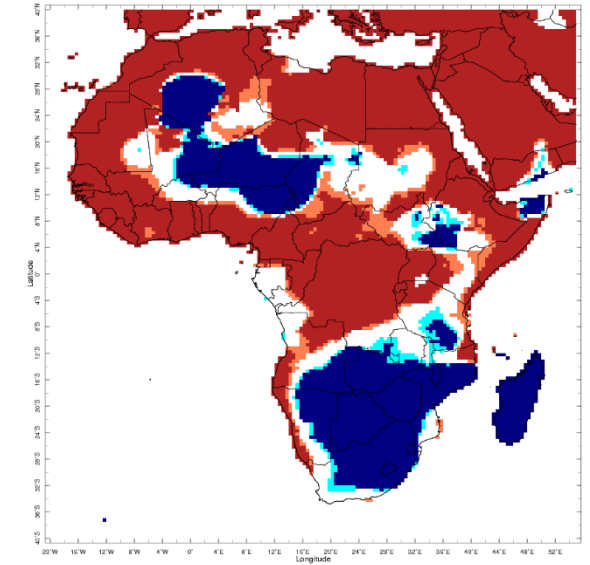
Jul 2023

July



Aug 2023

August



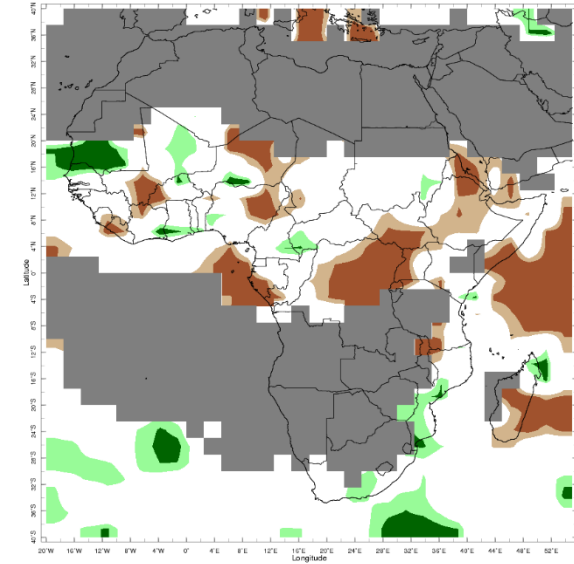
Sep 2023

September



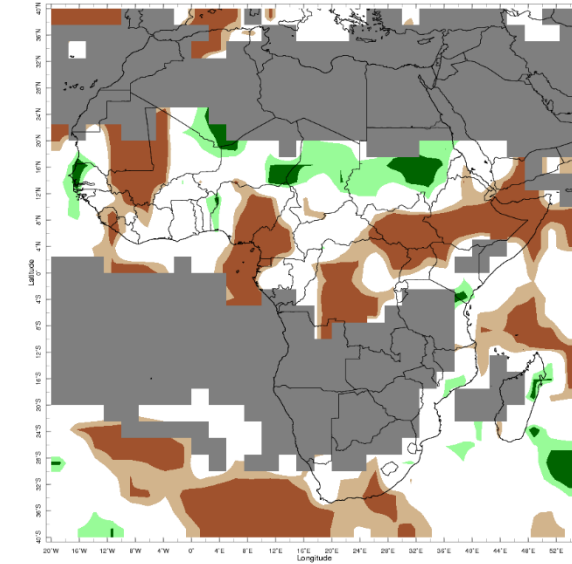
Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions 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



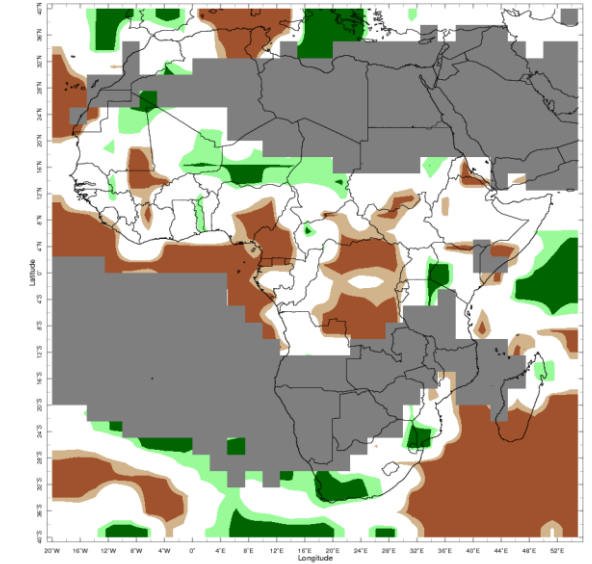
Jul 2023

July



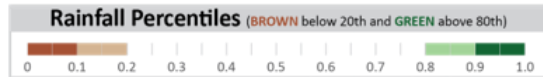
Aug 2023

August



Sep 2023

September



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

	July	August	September
Sierra Leone	Hot	Hot	Hot
Liberia	Cold	Cold	Hot
Mali	Hot	Hot	Mixed (5)
Ghana	Hot	Cold	Hot
Nigeria	Normal (1)	Cold	Mixed (5)
Cameroon	Hot	Warm	Hot

Current Status: Rainfall

July	August	September
Normal	Dry	Normal
Dry	Normal	Normal
Normal (2)	Very Dry (4)	Mixed (6)
Normal	Normal	Normal
Normal (3)	Very Dry	Dry
Normal	Very Dry	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:** Hot in the west
- (2) **Note:** Wet in the north, very dry in the south
- (3) **Note:** Very dry in the east
- (4) **Note:** Normal in the east
- (5) **Note:** Cold in northeast, hot in southwest
- (6) **Note:** Dry in the southwest, wet in the northeast

Current Status – Central Africa

Current Status: Temperature

	July	August	September
Niger	Normal (2)	Mixed (3)	Cold
Chad	Hot	Hot	Mixed
DRC	Hot	Hot (1)	Hot

Current Status: Rainfall

	July	August	September
	Dry	Normal	Wet
	Normal	Wet	Wet
	Very Dry	Very Dry	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:** Cold in the south, hot in the north
- (2) Note:** Hot in the west
- (3) Note:** Cold in central regions, hot elsewhere

Current Status – Eastern Africa (1)

	Current Status: Temperature		
	July	August	September
Sudan	Normal (1)	Mixed (2)	Normal
South Sudan	Hot	Hot	Mixed
Uganda	Hot	Hot	Hot
Rwanda	Hot	Warm	Hot

	Current Status: Rainfall		
	July	August	September
Sudan	Normal	Wet	Normal
South Sudan	Dry	Very Dry	Dry
Uganda	Dry	Very Dry	Normal
Rwanda	Very Dry	Normal	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: Hot in the south and east

(2) Note: Cold in the north, hot in the south

Current Status – Eastern Africa (2)

	Current Status: Temperature		
	July	August	September
Tanzania	Hot	Mixed (3)	Mixed (3)
Ethiopia	Hot	Hot	Mixed (4)
Kenya	Hot	Warm	Warm
Somalia	Hot (1)	Warm	Hot (1)

	Current Status: Rainfall		
	July	August	September
Tanzania	Normal	Normal*	Normal*
Ethiopia	Dry	Very Dry	Normal
Kenya	Normal	Mixed (4)	Normal
Somalia	Normal (2)	Very Dry	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:** Cold in the far north
- (2) **Note:** Very dry in the south
- (3) **Note:** Hot in coastal regions, cold in the west, normal elsewhere
- (4) **Note:** Very dry in the northwest, wet in the southeast, normal elsewhere
- (5) **Note:** Hot in northeast, cold in southwest

Current Status – Southern Africa

Current Status: Temperature

	July	August	September
South Africa	Warm	Cold	Cold
Zambia	Hot	Cold (2)	Cold
Zimbabwe	Hot	Cold	Cold
Mozambique	Hot	Mixed	Cold
Malawi	Hot	Normal	Cool
Madagascar	Cold	Cold	Cold

Current Status: Rainfall

	July	August	September
	Normal	Dry	Wet
	Normal*	Normal*	Normal*
	Normal*	Normal*	Normal*
	Wet	Normal*	Normal
	Normal*	Normal*	Normal*
	Very Dry (1)	Normal (3)	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:** Wet in the far northeast
- (2) Note:** Normal in the east
- (3) Note:** Wet in the east
- (4) Note:** Very dry in the south

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: November to April – Western Africa (1)

		Forecast summary		
		November	November to January	February to April
Sierra Leone	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	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	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Climatological odds
Mali	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds
Ghana	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more 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: November to April – Western Africa (2)

		Forecast summary		
		November	November to January	February to April
Nigeria	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Climatological odds
Cameroon	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more 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: November to April – Central Africa

		Forecast summary		
		November	November to January	February to April
Niger	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds
Chad	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds
Democratic Republic of Congo	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal in the west; Much more likely to be wetter than normal in the east	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: November to April – Eastern Africa (1)

		Forecast summary		
		November	November to January	February to April
Sudan	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds
South Sudan	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	Likely to be wetter than normal
Uganda	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Much more likely to be wetter than normal	Likely to be wetter than normal
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 wetter than normal	Much more 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: November to April – Eastern Africa (2)

		Forecast summary		
		November	November to January	February to April
Tanzania	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Much more likely to be wetter than normal in the north; Likely to be wetter than normal in the south	Likely to be wetter than normal
Ethiopia	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal in the north; Much more likely to be wetter than normal in the south	Likely to be wetter than normal
Kenya	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Much more likely to be wetter than normal	Much more likely to be wetter than normal	Likely to be wetter than normal
Somalia	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Much more likely to be wetter than normal	Likely to be wetter than normal in the north; Much more likely to be wetter than normal in the 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: November to April – Southern Africa (1)

		Forecast summary		
		November	November to January	February to April
South Africa	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal	Likely to be drier than normal
Zambia	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal
Zimbabwe	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal
Mozambique	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier 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: November to April – Southern Africa (1)

		Forecast summary		
		November	November to January	February to April
Malawi	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal
Madagascar	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal north; Climatological odds in the south	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): <https://www.sadc.int/sites/default/files/2023-09/SARCOF-27%20STATEMENT.pdf> (September 2023)
- PRÉvisions climatiques Saisonnières en Afrique, pays du Golfe de Guinée (PRESAGG): https://agrhytmet.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 CPTC (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>