

# AFRICA: Monthly Climate Outlook February to November

**Issued: May 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

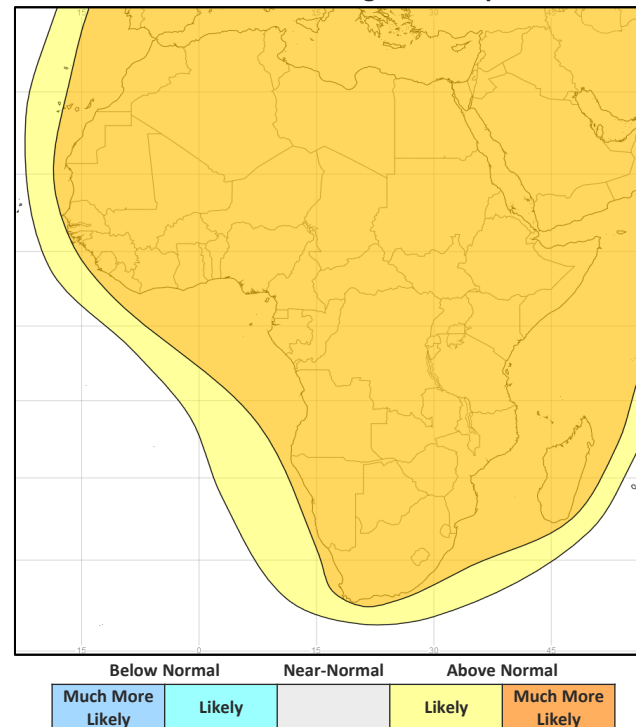
## Current Status:

In February and March, Liberia and Ghana in were cold. In March and April, cold conditions became more widespread across West Africa and extended to South Sudan and parts of Central Africa. Madagascar has been cold over the last three months. Most other areas were warm or hot over the last three months.

## Outlook:

Over the next three months, it is much more likely to be warmer than normal across all areas in Sub-Saharan Africa.

## 3-Month Outlook June to August - Temperature



# Africa Current Status and Outlook - Rainfall

## Current Status:

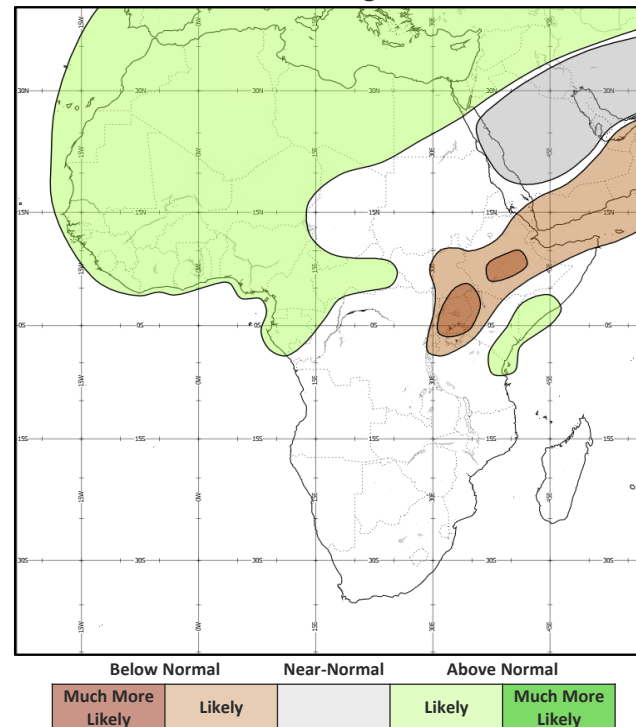
Over the last three months, rainfall has been near-normal across most of West Africa. Rainfall across East Africa has been largely near-normal, although wetter than normal conditions were experienced in some areas in March and April. Some very wet conditions were observed at times in South Africa, Zimbabwe and Mozambique, particularly in February, though South Africa and Zimbabwe were dry in April. Southern parts of South Sudan and Uganda also experienced very wet conditions in April.

## Outlook:

Over the next three months, parts of East Africa extending from Somalia southwest through Ethiopia, South Sudan and into northwest Kenya, Uganda and Rwanda are likely or much more likely to be drier than normal. Conversely, southern Somalia, as well as northern Tanzania and southeast Kenya are likely to be wetter than normal

It is likely to be wetter than normal across North and West Africa – though this in the context of June-August being a very dry time of year for this region.

## 3-Month Outlook June to August - Rainfall

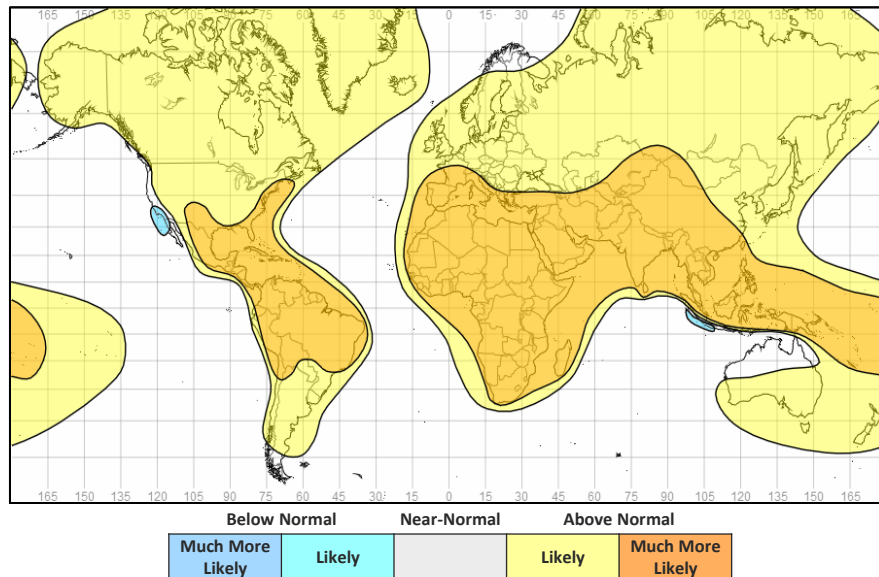


# Global Outlook - Temperature

## Outlook:

With the backdrop of a warming climate and the emerging El Niño, most land areas are likely to be warmer than normal with limited exceptions. These exceptions include northern Australia, small parts of southwest Indonesia and western Mexico/southwest USA where it is likely to be colder than normal.

## 3-Month Outlook June to August - Temperature



# Global Outlook - Rainfall

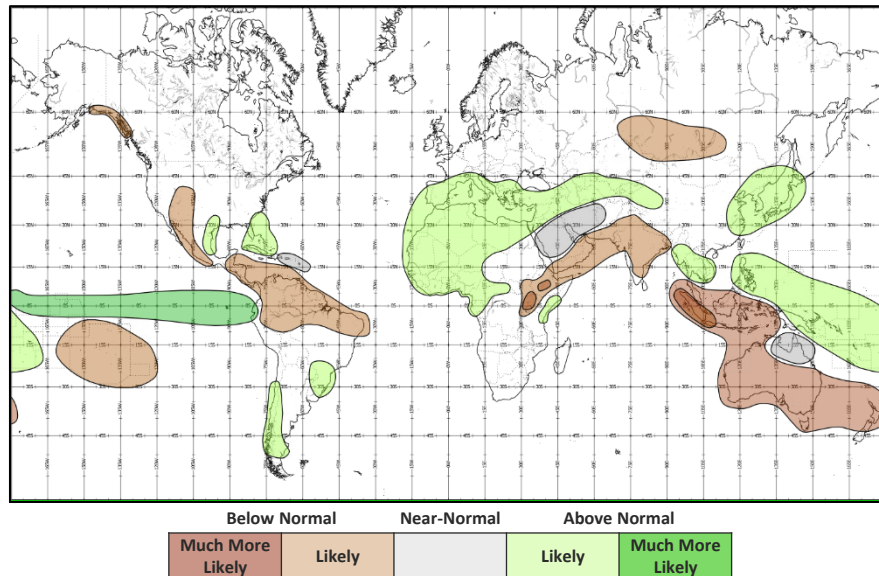
**Outlook: El Niño-Southern Oscillation (ENSO)** – Sea surface temperatures (SSTs) in the tropical Pacific Ocean continue to rise and are approaching El Niño thresholds, even exceeding these thresholds in eastern parts of the basin. The atmosphere, however, remains in an ENSO-neutral state. Through the coming months, SSTs are likely to continue to rise and the transition to an El Niño event is expected in the next two months, with a greater than 90% chance of it then persisting into the Northern Hemisphere winter.

ENSO impacts regional weather patterns around the world, leading to some regions experiencing wetter than normal conditions and other regions drier than normal conditions.

Should El Niño fully develop, then the chance of heatwaves, drought and wildfire increases across parts of southern and southeast Asia and Australia, and wetter than normal conditions may be experienced across parts of East Africa, central Asia and the Middle East.

**Indian Ocean Dipole (IOD)** – The Indian Ocean Dipole is currently neutral and is not influencing regional conditions. All forecasts currently suggest development of a positive IOD phase during the Northern Hemisphere summer, however forecast accuracy at this time of year is low and will improve over coming months.

## 3-Month Outlook June to August - Rainfall



# Current Status

[Current Status maps](#)

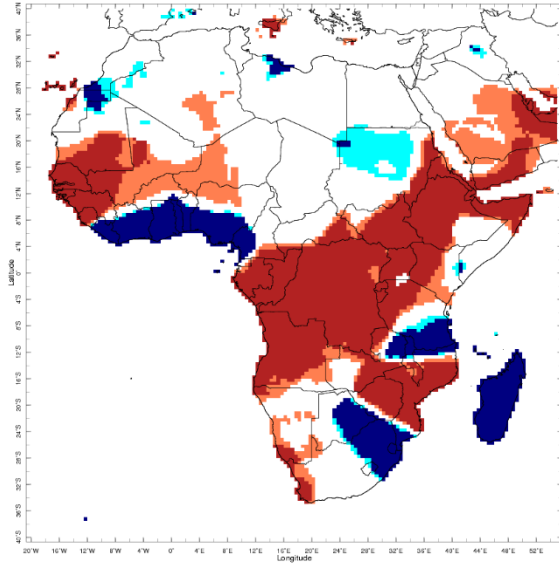
[Western Africa](#)

[Central Africa](#)

[Eastern Africa](#)

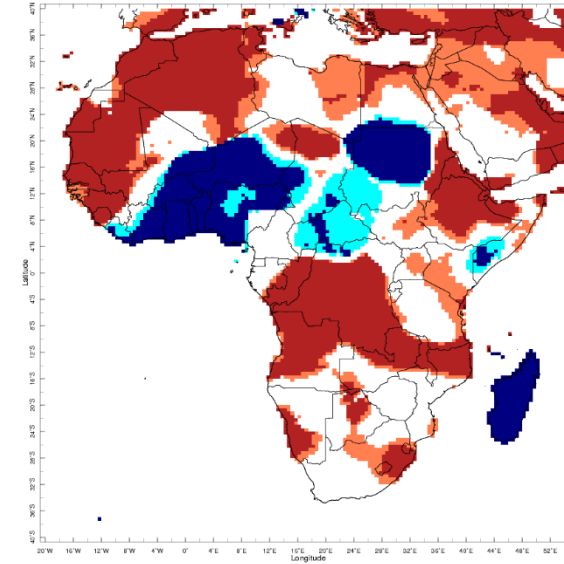
[Southern Africa](#)

# Current Status – Temperature percentiles



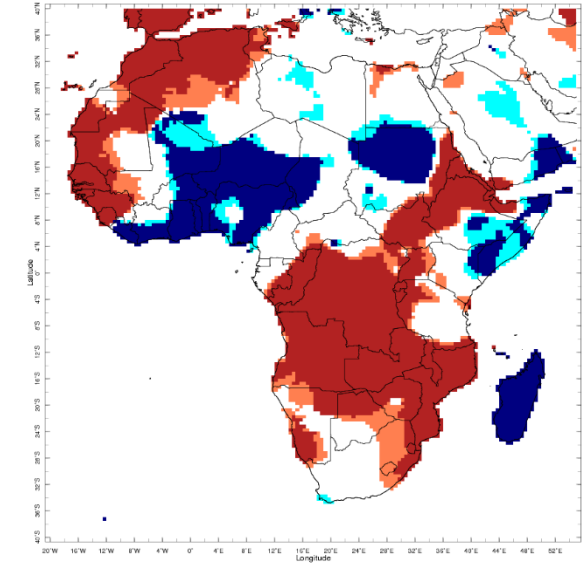
Feb 2023

February



Mar 2023

March



Apr 2023

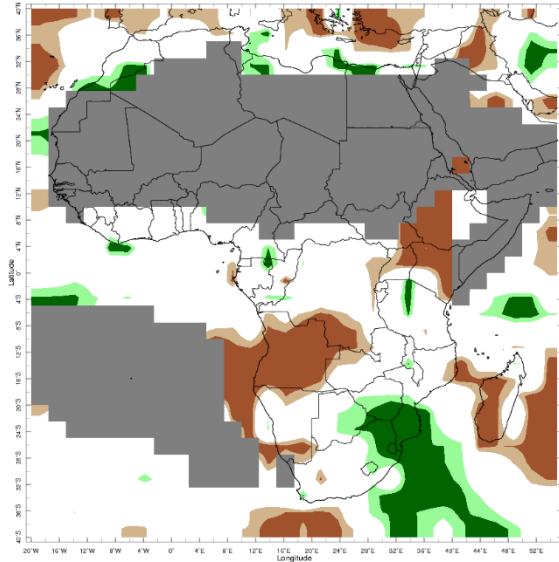
April



**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.

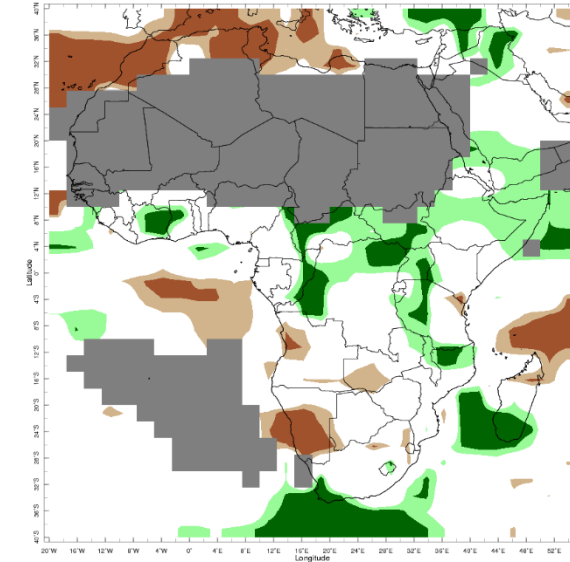


# Current Status – Precipitation percentiles



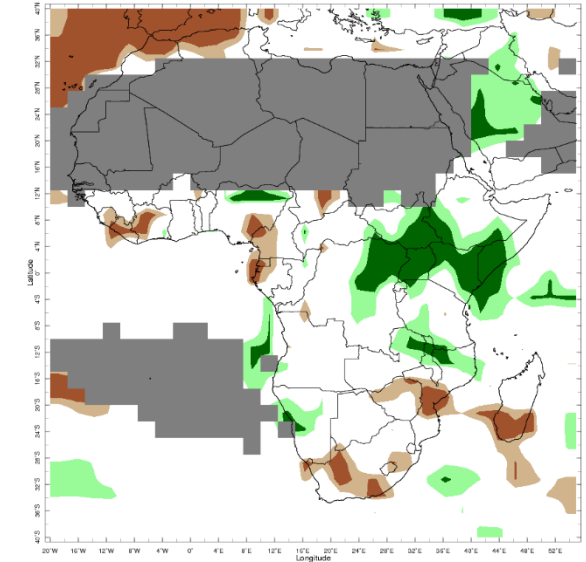
Feb 2023

February



Mar 2023

March



Apr 2023

April



**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

	February	March	April
Sierra Leone	Hot	Hot	Hot
Liberia	Cold	Cool	Cold
Mali	Warm	Mixed (2)	Normal (5)
Ghana	Cold	Cold	Cold
Nigeria	Mixed (1)	Cold	Cold
Cameroon	Mixed (2)	Normal	Normal

Current Status: Rainfall

	February	March	April
	Normal	Normal	Dry
	Normal	Normal	Dry
	Normal*	Normal*	Normal*
	Normal	Normal (3)	Normal
	Normal	Normal	Normal (4)
	Normal	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:** Cold in the south, warm in the north
- (2) Note:** Cold in the east, hot in the southwest and northwest, normal elsewhere
- (3) Note:** Very wet in the west
- (4) Note:** Dry in the far southeast and wet in the far north
- (5) Note:** Normal in the north, cold elsewhere

## Current Status – Central Africa

	Current Status: Temperature		
	February	March	April
Niger	Warm	Cold	Cold
Chad	Normal	Mixed (2)	Normal (5)
DRC	Hot	Hot	April

	Current Status: Rainfall		
	February	March	April
Niger	Normal*	Normal*	Normal*
Chad	Normal*	Normal*	Normal*
DRC	Normal (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:** Dry or very dry in the south
- (2) **Note:** Cool in the south and hot in the north.
- (3) **Note:** Wet or very wet in the north.
- (4) **Note:** Very wet in the east
- (5) **Note:** Cold in the west

## Current Status – Eastern Africa (1)

Current Status: Temperature

	February	March	April
Sudan	Mixed (1)	Cold	Cold
South Sudan	Hot	Normal	Hot
Uganda	Hot	Warm	Hot
Rwanda	Hot	Normal	Hot

Current Status: Rainfall

	February	March	April
	Normal*	Normal*	Normal*
	Normal*	Wet	Normal (2)
	Dry	Wet	Very Wet
	Normal	Normal	Wet

### 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 in the northwest, hot in the southeast
- (2) **Note:** Very wet in the southeast

## Current Status – Eastern Africa (2)

	Current Status: Temperature		
	February	March	April
Tanzania	Mixed (1)	Normal	Normal
Ethiopia	Hot	Hot	Mixed (1)
Kenya	Hot	Warm	Normal
Somalia	Normal (2)	Mixed (1)	Cold

	Current Status: Rainfall		
	February	March	April
Tanzania	Normal	Normal	Normal
Ethiopia	Very Dry	Wet	Normal (3)
Kenya	Very Dry	Normal	Very Wet
Somalia	Normal*	Wet	Wet (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:** Cold in the southeast, warm or hot in the northwest
- (2) **Note:** Hot in the north
- (3) **Note:** Wet in the south
- (4) **Note:** Very Wet in the south and normal in the north

# Current Status – Southern Africa

## Current Status: Temperature

	February	March	April
South Africa	Mixed (1)	Normal	Normal
Zambia	Mixed (2)	Normal (5)	Hot
Zimbabwe	Hot	Normal	Hot
Mozambique	Hot	Normal (5)	Hot
Malawi	Hot	Hot	Hot
Madagascar	Cold	Cold	Cold

## Current Status: Rainfall

	February	March	April
	Normal (3)	Normal	Dry
	Normal	Normal	Normal (6)
	Very Wet	Normal	Dry
	Normal (4)	Normal (3)	Mixed (7)
	Normal	Wet	Wet
	Very Dry	Normal (4)	Normal (8)

### 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 northeast hot in the far southwest, normal elsewhere
- (2) Note:** Cold in the northeast, otherwise ranging from normal to hot
- (3) Note:** Very wet in the northeast
- (4) Note:** Very wet in the south
- (5) Note:** Hot in the north
- (6) Note:** Very Wet in the north
- (7) Note:** Wet in the far northwest, dry in central regions and normal elsewhere
- (8) Note:** 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: June to November – Western Africa (1)

		Forecast summary		
		June	June to August	September to November
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	Likely to be wetter than normal
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	Likely to be wetter than normal
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 wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal
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	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: June to November – Western Africa (2)

		Forecast summary		
		June	June to August	September to November
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	Likely to be wetter than normal
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	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: June to November – Central Africa

		Forecast summary		
		June	June to August	September to November
Niger	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	Likely to be near-normal
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 wetter than normal	Likely to be wetter than normal	Likely to be near-normal
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	Climatological odds	Climatological odds	Likely to be near-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: June to November – Eastern Africa (1)

		Forecast summary		
		June	June to August	September to November
Sudan	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	Climatological odds	Climatological odds
South Sudan	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 drier than normal	Likely to be drier than normal	Climatological odds
Uganda	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 drier than normal	Likely to be drier than normal	Likely to be drier than normal
Rwanda	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 drier than normal	Likely to be drier than normal	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: June to November – Eastern Africa (2)

		Forecast summary		
		June	June to August	September to November
Tanzania	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Likely to be near-normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-normal
Ethiopia	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Likely to be near-normal
	Rainfall	<b>Much more likely to be drier than normal</b>	<b>Likely to be drier than normal</b>	Likely to be near-normal
Kenya	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Likely to be near-normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-normal
Somalia	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Likely to be colder than normal
	Rainfall	<b>Likely to be drier than normal</b>	Climatological odds	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: June to November – Southern Africa (1)

		Forecast summary		
		June	June to August	September to November
South Africa	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Zambia	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Zimbabwe	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Mozambique	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Much more 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: June to November – Southern Africa (1)

		Forecast summary		
		June	June to August	September to November
Malawi	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Madagascar	Temperature	<b>Much more likely to be warmer than normal</b>	<b>Much more likely to be warmer than normal</b>	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	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.

# 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](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>

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 64 Statement](#) (May 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://agrhytmet.cilss.int/doss/tocharg/2023/02/COMMUNIQUE-FINAL\\_PRESAGG\\_2023\\_VF\\_Engl.pdf](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](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](mailto:internationaldevelopment@metoffice.gov.uk)

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