AFRICA: Monthly Climate Outlook March to December

Issued: June 2023

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Overview

Africa Current Status and Outlook – Temperature

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Africa Current Status and Outlook - Temperature

Current Status:

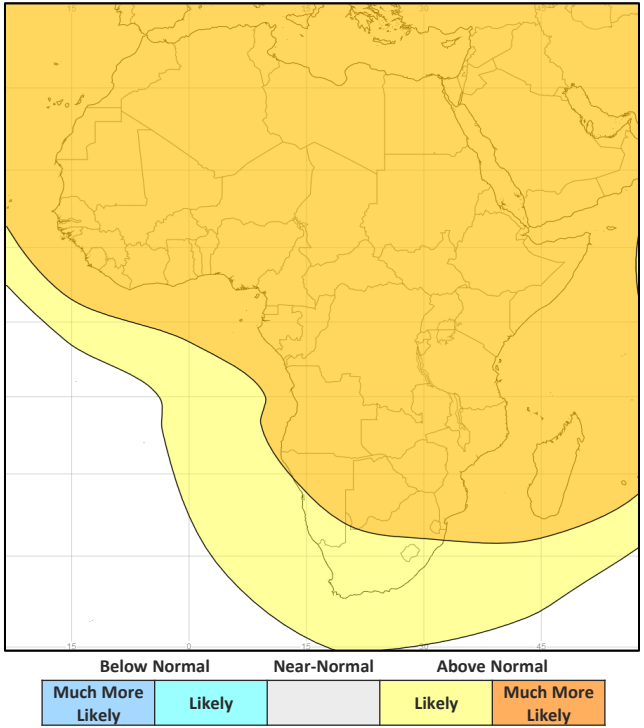
Over the last three months, many parts of Central and Western Africa have been cool or cold. The main exceptions in this region were Sierra Leone and the DRC which were warm or hot.

In Eastern Africa, Sudan has been cold during March to May. Elsewhere, after mixed conditions in March and April, most of Eastern Africa was warm or hot in May. Most of Southern Africa was hot in April and May although Madagascar has remained cold.

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 July to September - Temperature



Africa Current Status and Outlook - Rainfall

Current Status:

Over the last three months, rainfall has been near-normal across most of West and Central Africa. Many parts of Eastern Africa were wet or very wet in March in April before becoming dry in May.

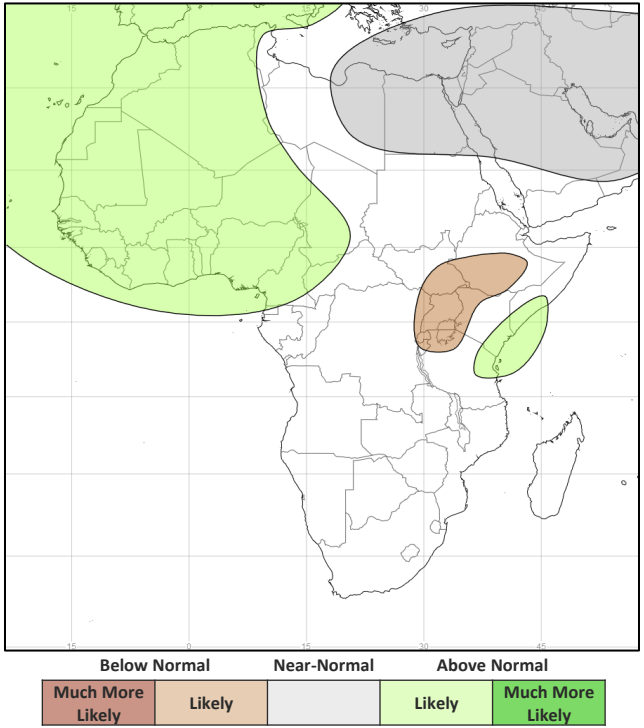
During March and April, rainfall in Southern Africa varied widely. In May, except for in Madagascar, all areas were wet or very wet.

Outlook:

Over the next three months, the West African Monsoon is likely to be wetter than normal across much of West Africa, though not for the northernmost extent of the monsoon in the central and eastern Sahel.

Across Eastern Africa, it is likely to be drier than normal in Uganda, parts of South Sudan and Ethiopia. It is likely to be wetter than normal in coastal parts of Somalia, Kenya and Tanzania.

3-Month Outlook July to September - Rainfall

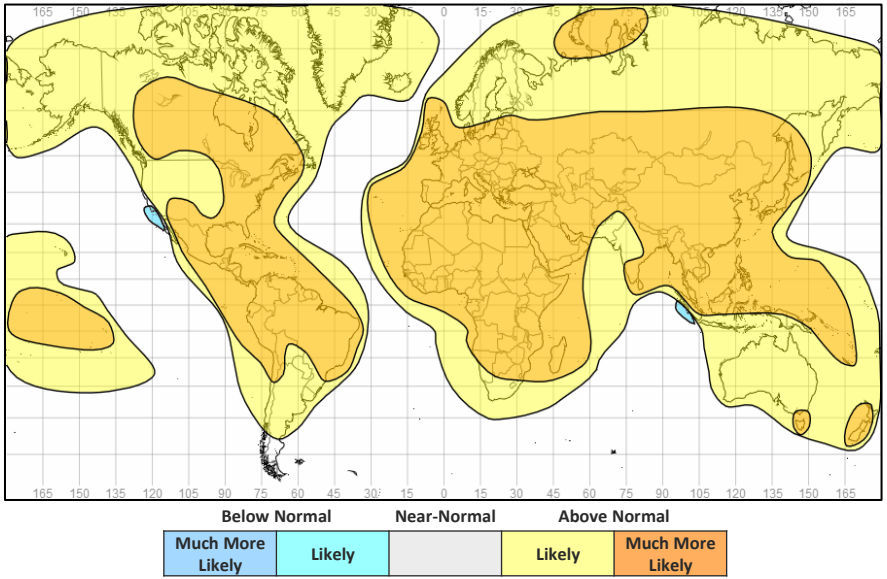


Global Outlook - Temperature

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 July to September - Temperature



Global Outlook - Rainfall

Outlook: El Niño-Southern Oscillation (ENSO) – Sea surface temperatures across the equatorial Pacific are above average across the east-central and eastern Pacific Ocean. The atmospheric response has been slower but is now consistent with weak El Niño conditions and NOAA have declared El Niño to be underway.

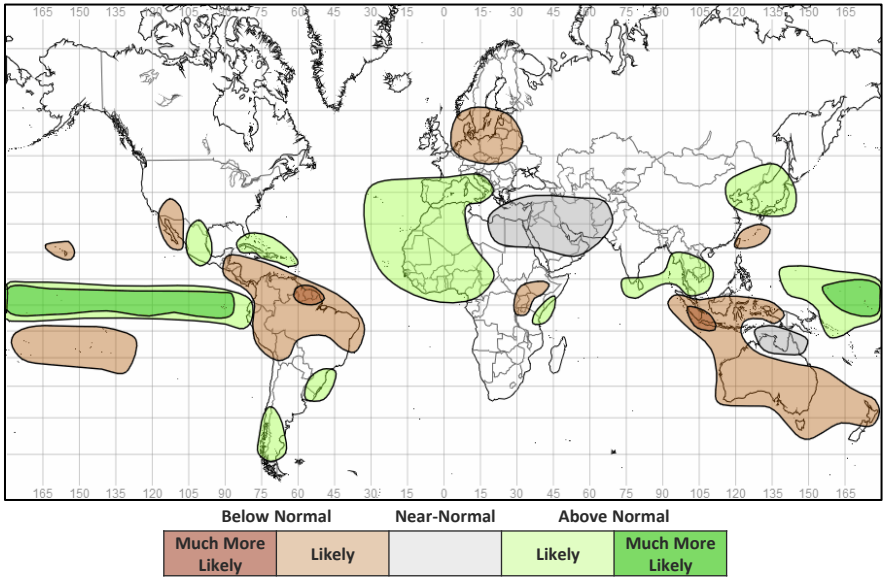
These El Niño conditions are expected to gradually strengthen into the Northern Hemisphere winter, with a moderate chance (~50%) of a strong El Niño.

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

With the development of El Niño, 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. Should this occur, this would help reinforce the influence of El Niño over southeast Asia and Australia. This would also be a factor in a potential above normal "Short Rains" season over East Africa (which peaks in October and November).

3-Month Outlook July to September - Rainfall



Current Status

Current Status maps

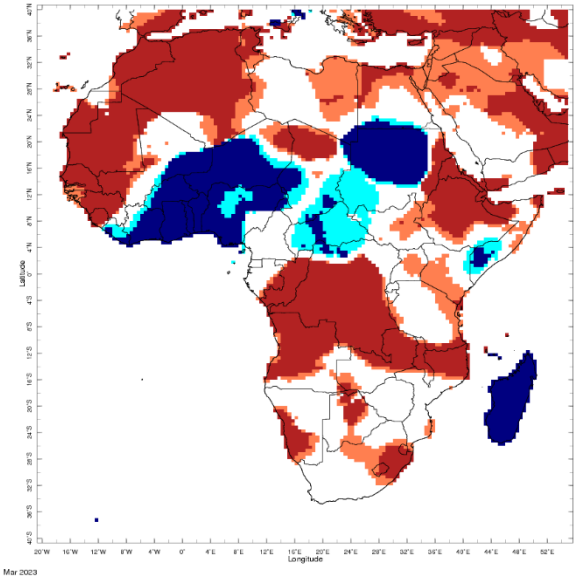
Western Africa

Central Africa

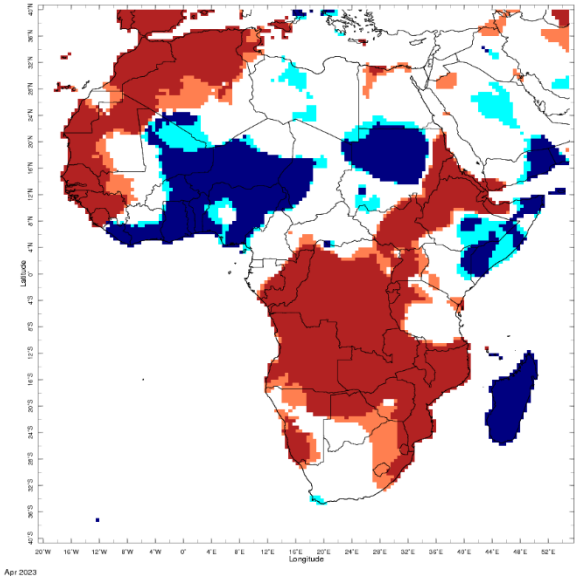
Eastern Africa

Southern Africa

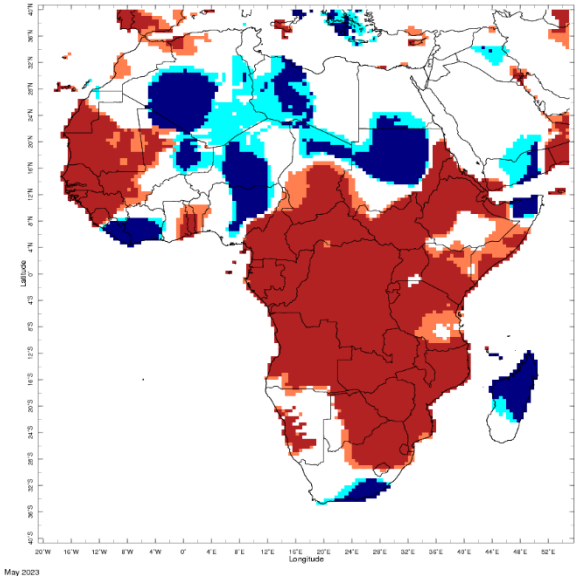
Current Status – Temperature percentiles



March



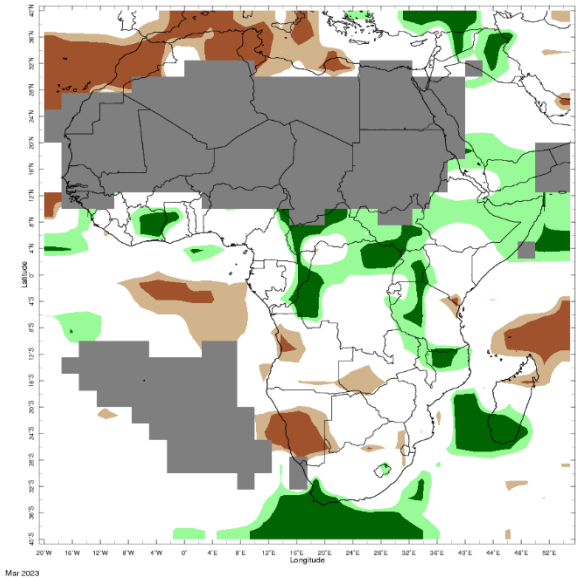
April



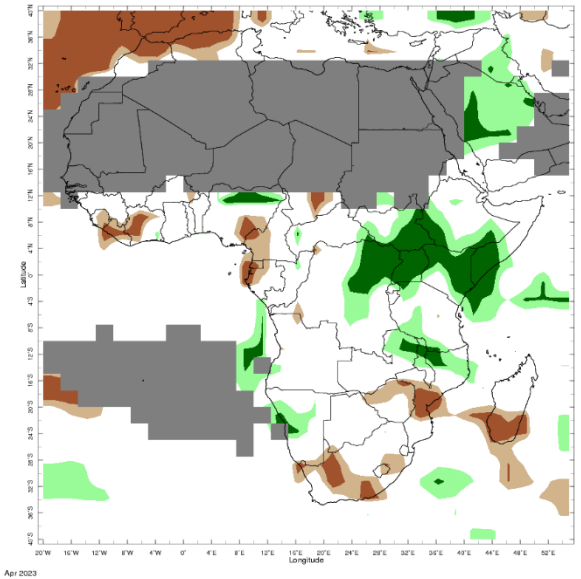
May

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.

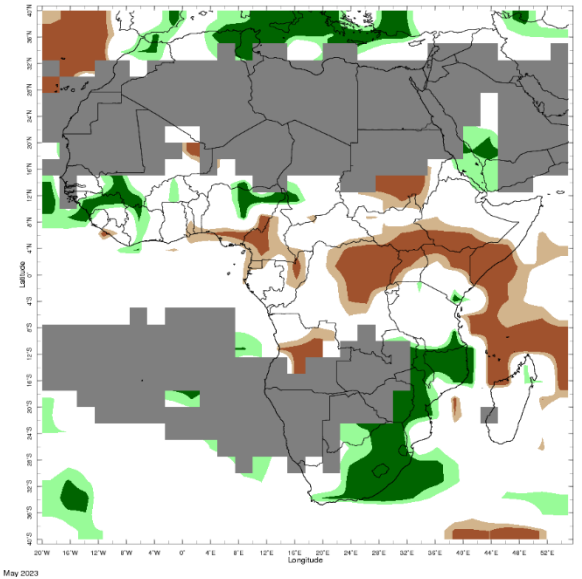
Current Status – Precipitation percentiles



March



April



May

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		
	March	April	May	March	April	May
Sierra Leone	Hot	Hot	Hot	Normal	Normal	Normal
Liberia	Cool	Cold	Cold	Normal	Dry	Normal
Mali	Mixed (1)	Mixed (4)	Mixed (4)	Normal*	Normal*	Normal*
Ghana	Cold	Cold	Warm	Normal (2)	Normal	Normal
Nigeria	Cold	Cold	Cool	Normal	Normal (3)	Normal (3)
Cameroon	Normal	Normal	Hot	Normal	Dry	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 west, hot in the southeast, normal elsewhere
(2) Note: Very wet in the west
(3) Note: Dry in the far south or southeast and wet in the far north
(4) Note: Cold in the east, warm or wot in the southwest

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Niger	Cold	Cold	Cool	Normal*	Normal*	Normal*
Chad	Mixed (1)	Normal (4)	Mixed (5)	Normal*	Normal*	Normal*
DRC	Hot	Warm	Hot	Normal (2)	Normal (3)	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 in the south and hot in the north.
(2) **Note:** Wet or very wet in the north.
(3) **Note:** Very wet in the east
(4) **Note:** Cold in the west
(5) **Note:** Cool or cold in the north, hot in the south

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Sudan	Cold	Cold	Cold	Normal*	Normal*	Dry
South Sudan	Normal	Warm	Hot	Wet	Normal (1)	Dry
Uganda	Warm	Normal	Hot	Wet	Very Wet	Dry
Rwanda	Normal	Normal	Hot	Normal	Wet	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: Very wet in the southeast

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Tanzania	Normal	Normal	Warm	Normal	Normal	Normal
Ethiopia	Hot	Mixed (1)	Warm	Wet	Normal (2)	Dry
Kenya	Warm	Normal	Hot	Normal	Very Wet	Dry
Somalia	Mixed (1)	Cold	Warm	Wet	Wet (3)	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 southeast, warm or hot in the northwest
(2) Note: Wet in the south
(3) Note: Very wet in the south and normal in the north

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
South Africa	Normal	Normal	Mixed (7)	Normal	Dry	Wet
Zambia	Normal (3)	Hot	Hot	Normal	Normal (4)	Wet
Zimbabwe	Normal	Hot	Hot	Normal	Dry	Wet
Mozambique	Normal (3)	Hot	Hot	Normal (1)	Mixed (5)	Very Wet
Malawi	Hot	Hot	Hot	Wet	Wet	Very Wet
Madagascar	Cold	Cold	Cold	Normal (2)	Normal (6)	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: Very wet in the northeast
(2) Note: Very wet in the south
(3) Note: Hot in the north
(4) Note: Very wet in the north
(5) Note: Wet in the far northwest, dry in central regions and normal elsewhere
(6) Note: Dry in the south
(7) Note: Hot in the northeast, cold in the far south, normal elsewhere

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: July to December – Western Africa (1)

		Forecast summary		
		July	July to September	October to December
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*	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

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Outlook: July to December – Western Africa (2)

		Forecast summary		
		July	July to September	October to December
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

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Outlook: July to December – Central Africa

		Forecast summary		
		July	July to September	October to December
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 wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal
Chad	*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 wetter than 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	Likely to be wetter than normal	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: July to December – Eastern Africa (1)

		Forecast summary		
		July	July to September	October to December
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	Likely to be wetter than normal
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	Climatological odds	**Likely to be drier than normal**	Likely to be wetter than normal
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**	Likely to be wetter 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	Climatological odds	**Likely to be drier 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: July to December – Eastern Africa (2)

		Forecast summary		
		July	July to September	October to December
Tanzania	*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** in the northeast; **Likely to be drier than normal** in the northwest; 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**	Much more likely to be warmer than normal
	Rainfall	Climatological odds	**Likely to be drier than normal** in the south; Climatological odds in the north	Likely to be wetter than normal
Kenya	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Climatological odds
	Rainfall	Climatological odds	**Likely to be drier than normal** in the west; **Likely to be wetter than normal** in the east	Likely to be wetter than normal
Somalia	*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 in the north, Climatological odds in the south
	Rainfall	Climatological odds	**Likely to be wetter than normal** in the south; Climatological odds elsewhere	Likely to be wetter than normal

Outlook: July to December – Southern Africa (1)

		Forecast summary		
		July	July to September	October to December
South Africa	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Zambia	*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	Climatological odds	Climatological odds
Zimbabwe	*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	Climatological odds	Climatological odds
Mozambique	*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

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: July to December – Southern Africa (1)

		Forecast summary		
		July	July to September	October to December
Malawi	*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
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	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

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://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