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AFRICA: Monthly Climate Outlook March to December

Issued: June 2024

Overview

Africa Current Status and Outlook – Temperature

Africa Current Status and Outlook – Rainfall

Global Outlook – Temperature

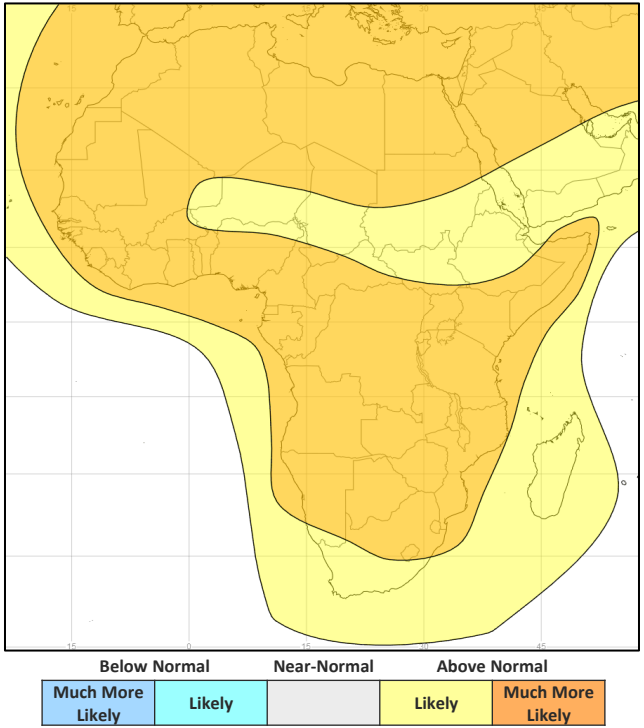
Global Outlook – Rainfall

Africa Current Status and Outlook - Temperature

Current Status: It has been predominately warm or hot over the past three months except for parts of Mali and Niger where conditions have been cool or cold. Parts of the DRC, Angola, Sudan and Ethiopia have also had cool or cold conditions at times.

Outlook: It is much more likely to be warmer than normal across the continent.

3-Month Outlook July to September - Temperature



Africa Current Status and Outlook - Rainfall

Current Status: Central parts of Africa have often been dry or very dry over the past three months. East Africa has seen wet conditions at times, especially in April, with March and May having normal rainfall.

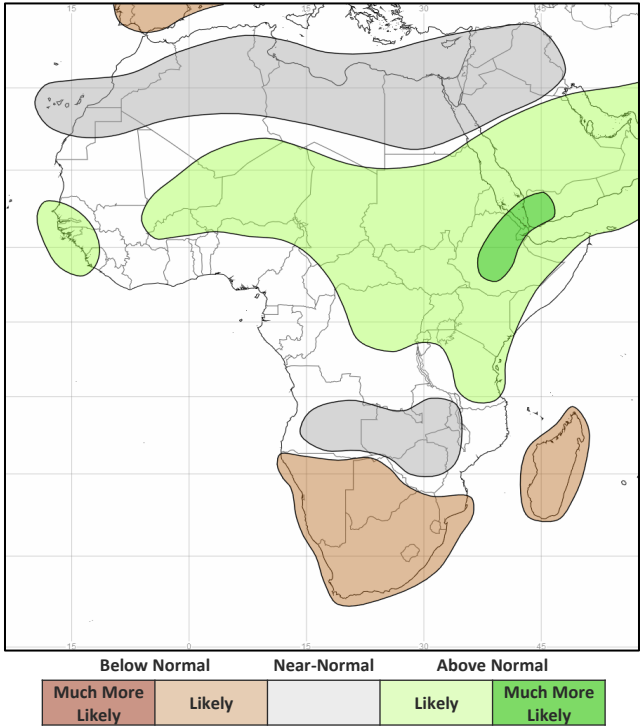
Meanwhile, conditions have been more mixed across southern Africa; April was wet in many places, whilst March and May had relatively normal rainfall overall.

Outlook: Whilst the 'Long Rains' season officially ended in May, it is likely to be wetter than normal across large parts of East Africa for the coming three months. Northern parts of the region, such as Sudan and parts of Ethiopia, in addition to the Sahel tend to receive a peak in rainfall July-September, so the outlook suggests an enhanced rainy season in these areas.

Further west, an active West African Monsoon season looks likely, with wetter than normal conditions signalled for Sierra Leone, Niger, northern Nigeria and eastern Mali. There is an enhanced risk of flash flood events.

Parts of Southern Africa, for example South Africa and Madagascar, are likely to be drier than normal, although July-September is the dry season for this region.

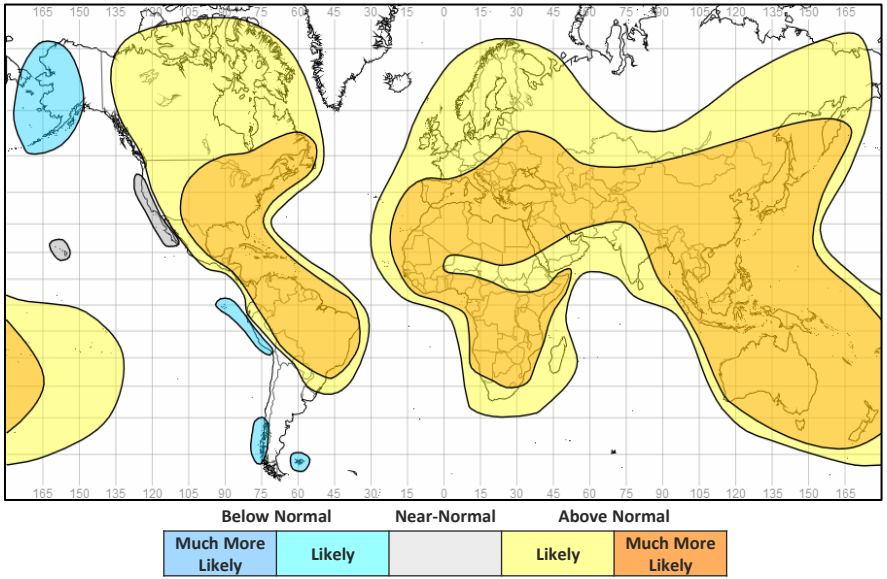
3-Month Outlook July to September - Rainfall



Global Outlook - Temperature

Outlook: Consistent with a warming climate, warmer than normal conditions are very likely across large parts of the globe. There are limited exceptions, most notably western parts of both North and South America where near normal or colder than normal conditions are more likely.

3-Month Outlook July to September - Temperature



Global Outlook - Rainfall

Outlook:

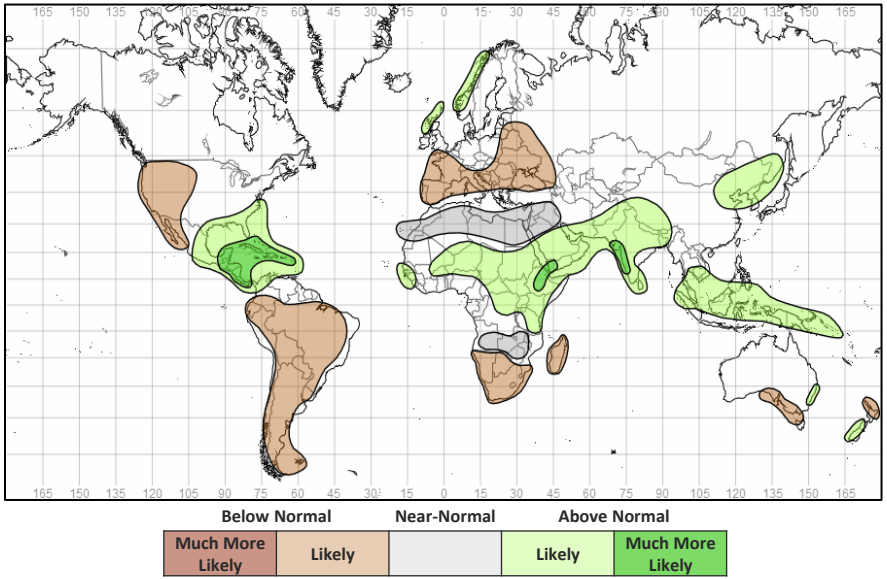
El Niño-Southern Oscillation (ENSO) – Both oceanic and atmospheric indicators are consistent with ENSO-neutral conditions. ENSO-neutral is expected to prevail over the next couple of months. There is an increasing likelihood of La Niña developing at longer forecast lead times (mid to late 2024).

According to NOAA's Climate Prediction Center (CPC), La Niña is likely (65% probability) to develop in the period July-September, becoming highly likely (85% probability) for November-January. However, other forecasts have lower probabilities suggesting there is uncertainty amongst the predictions. As such, predictability of weather patterns across many parts of the globe is likely to be lower than this time last year when an El Niño event was underway.

Indian Ocean Diploe (IOD) – The Indian Ocean Dipole (IOD) is currently neutral. Predictability of the IOD is low at this time of year but starts to improve through the northern hemisphere summer. Most long-range forecast models are predicting the IOD to remain neutral over the coming months.

It is worth noting that global sea surface temperatures (SSTs) have been the warmest on record for each month over the past year. The global pattern of warmth is likely affecting the typical historical global pattern of sea surface temperatures associated with ENSO and IOD. As the current global ocean conditions have not been observed before, historical comparisons based on past ENSO or IOD events may not be reliable.

3-Month Outlook July to September - Rainfall



Current Status

Current Status maps

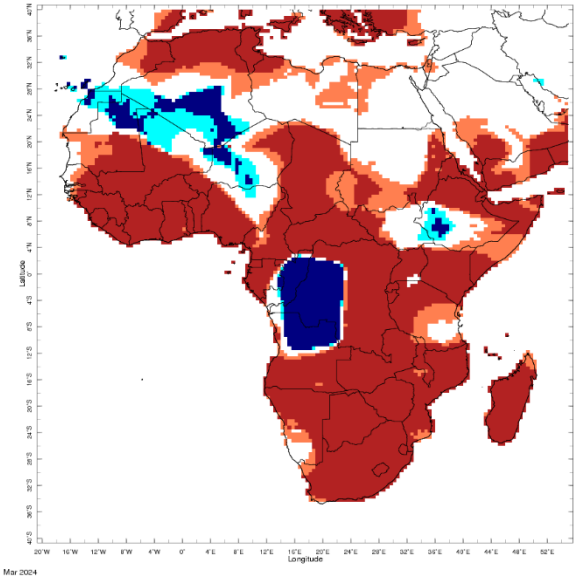
Western Africa

Central Africa

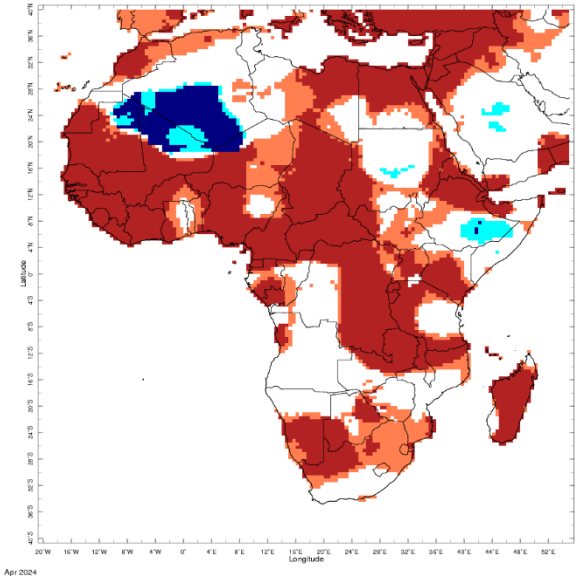
Eastern Africa

Southern Africa

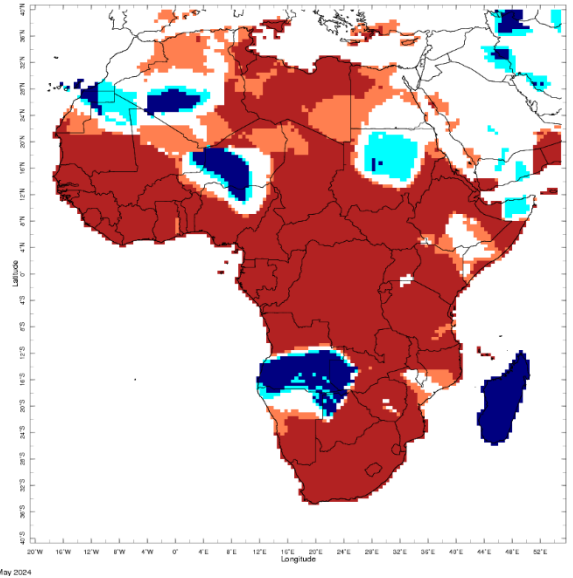
Current Status – Temperature percentiles



March



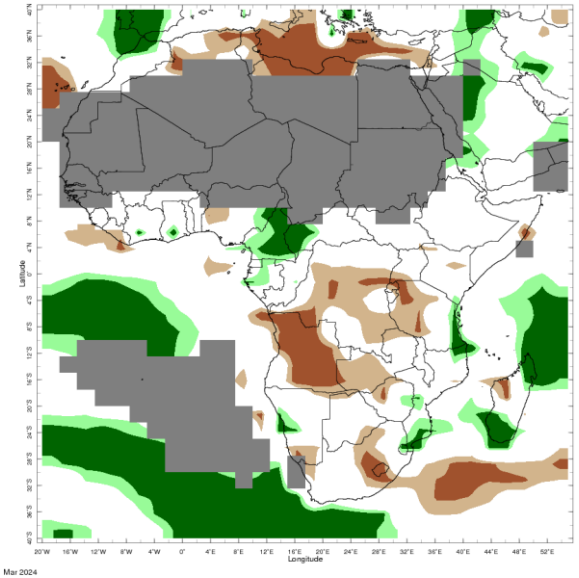
April



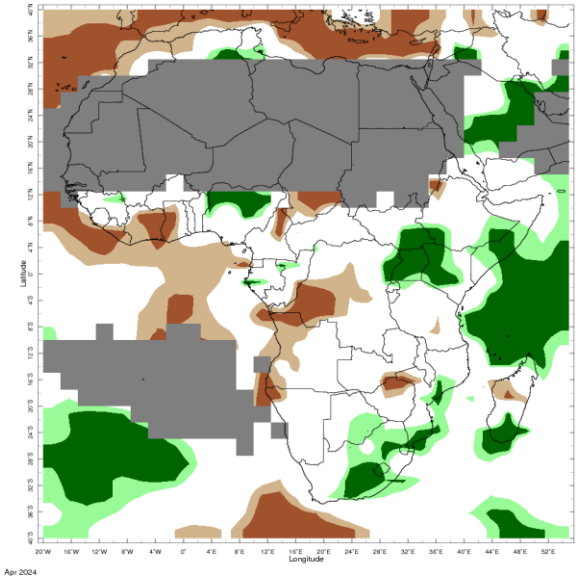
May

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.

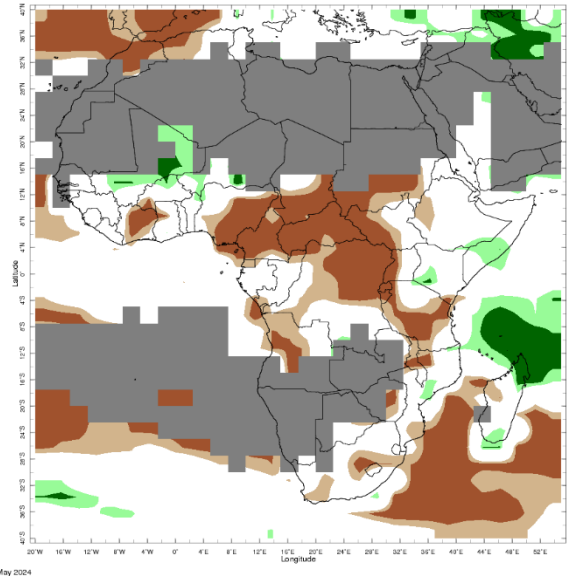
Current Status – Precipitation percentiles



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	Hot	Hot	Hot	Normal	Dry	Normal
Mali	Mixed (1)	Mixed (1)	Hot	Normal*	Normal*	Wet
Ghana	Hot	Warm	Hot	Normal	Dry	Normal
Nigeria	Mixed (1)	Warm	Mixed (1)	Normal	Normal (2)	Very Dry
Cameroon	Hot	Hot	Hot	Very Wet	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: Hot in the southwest, cool in the northeast
(2) Note: Very Wet in the north

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Niger	Mixed	Mixed (2)	Mixed	Normal*	Normal*	Normal*
Chad	Hot	Hot	Hot	Normal*	Normal*	Very Dry
DRC	Mixed (1)	Mixed (1)	Hot	Dry	Mixed	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 (March) or Normal (April) in the west, hot in the east
(2) Note: Warm or hot in most regions but cold in the northwest

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Sudan	Normal (1)	Normal	Mixed (2)	Normal*	Normal*	Very Dry
South Sudan	Normal	Warm	Hot	Normal	Normal (3)	Very Dry
Uganda	Hot	Warm	Hot	Normal	Very Wet	Normal (4)
Rwanda	Hot	Hot	Hot	Dry	Wet	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:** Warm in the south
(2) **Note:** Hot in the south, cool in the north
(3) **Note:** Very Wet in the southeast
(4) **Note:** Very Dry in the west

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Tanzania	Warm	Mixed (2)	Hot	Normal (4)	Normal	Dry
Ethiopia	Mixed (1)	Mixed (3)	Mixed (3)	Normal	Normal (5)	Normal
Kenya	Hot	Hot	Hot	Normal	Very Wet	Normal
Somalia	Warm	Normal	Mixed	Normal	Normal (5)	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:** Hot in the north and east, cool in the west and south
(2) **Note:** Hot in the west, normal in the east
(3) **Note:** Hot in the north, normal or cool elsewhere
(4) **Note:** Wet along the Coastal Plain, dry in the west.
(5) **Note:** Wet or very wet in the south

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
South Africa	Hot	Warm	Hot	Normal (1)	Wet	Normal
Zambia	Hot	Hot	Hot	Dry	Normal	Normal*
Zimbabwe	Hot	Normal	Hot	Normal	Normal	Normal*
Mozambique	Hot	Normal	Hot	Normal (2)	Normal (2)	Normal
Malawi	Hot	Hot	Hot	Normal	Normal	Dry
Madagascar	Hot	Hot	Cold	Mixed	Mixed	Normal (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: Dry in central regions
(2) Note: Wet in the south
(3) Note: Very Wet in the northeast

Outlooks

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**	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**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	Climatological odds	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	Climatological odds	**Likely to be wetter than normal** in the south and east, climatological odds in the north and west	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	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 – Western Africa (2)

		Forecast summary		
		July	July to September	October to December
Nigeria	*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 wetter than normal in the far north, climatological odds elsewhere	Climatological odds
Cameroon	*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: July to December – Central Africa

		Forecast summary		
		July	July to September	October to December
Niger	*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	Likely to be wetter than normal	Climatological odds
Chad	*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	Likely to be wetter than normal	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	Likely to be wetter than normal in the north, climatological odds in the south	Likely to be wetter than normal in the 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.

Outlook: July to December – Eastern Africa (1)

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

		Forecast summary		
		July	July to September	October to December
Tanzania	*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 in the north, climatological odds in the south	Likely to be wetter than normal, but climatological odds in the west	Likely to be drier than normal
Ethiopia	*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	Climatological odds
Kenya	*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 drier 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 wetter than normal in the north and west, climatological odds elsewhere	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: 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	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Zambia	*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 near-normal	Likely to be near-normal	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	Likely to be near-normal	Likely to be near-normal	Climatological odds
Mozambique	*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 near-normal	Likely to be drier than normal in the far south, Climatological odds elsewhere	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**	Likely to be warmer than normal
	Rainfall	Climatological odds	**Likely to be near-normal**	Climatological odds
Madagascar	*Temperature*	**Likely to be warmer than normal**	**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.

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 forums:

- Greater Horn of Africa Climate Outlook Forum (GHACOF) (May 2024)
- PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne (PRESASS) (April 2024)
- Southern African Regional Climate Outlook Forum (SARCOF) (September 2023)
- PRÉvisions climatiques Saisonnières en Afrique, pays du Golfe de Guinée (PRESAGG) (March 2024)
- South-West Indian Ocean Climate Outlook Forum (SWIOCOF) (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