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AFRICA: Monthly Climate Outlook October to July

Issued: January 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

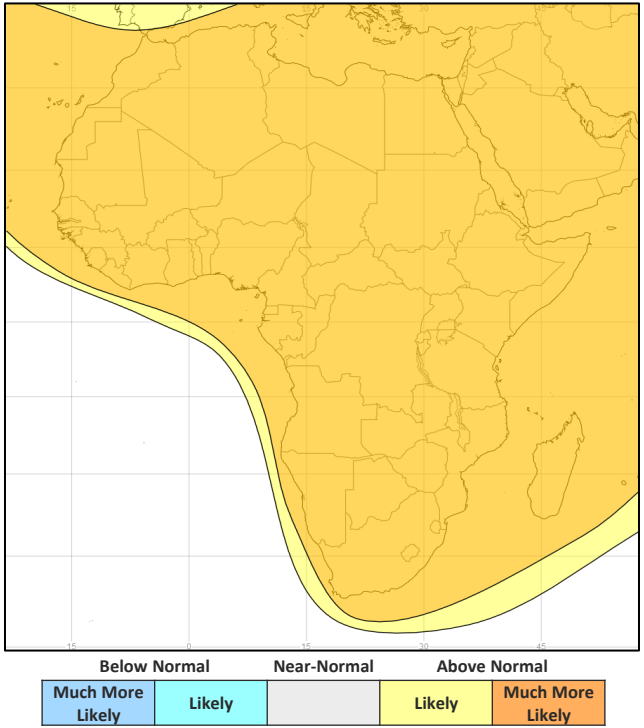
Current Status:

Most of western Africa was hot over the last three months, the exception being some parts of the Sahel in October which were cold. Central and eastern Africa were also mainly hot over the last three months, the exception being parts of Tanzania and Ethiopia which were cool or cold in October and December. In southern Africa, many parts were cool or cold in October and November, and hot in December.

Outlook:

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

3-Month Outlook February to April - Temperature



Africa Current Status and Outlook - Rainfall

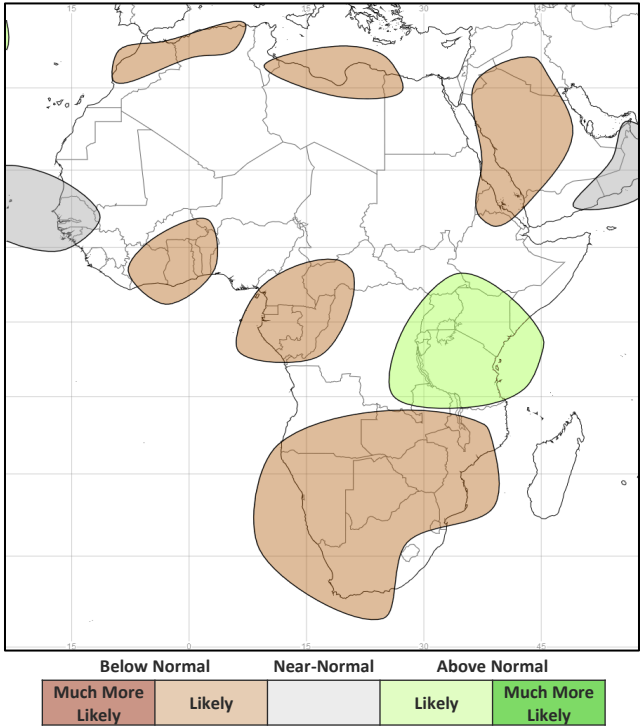
Current Status:
In western Africa rainfall has been mostly near-normal. The exceptions were Nigeria and Cameroon in October and then Liberia in December which were drier than normal. Ghana and Nigeria were wet or very wet in November. In central Africa rainfall has been mostly near-normal, though more mixed across DRC.

The Short Rains season in East Africa brought wetter than normal conditions to many areas, most notably in November when most parts were very wet. In southern Africa during October, Zambia, Zimbabwe and Mozambique were wet or very wet. In November South Africa, Zambia, Zimbabwe and parts of Mozambique were dry or very dry. December was dry in Zambia, Malawi and Madagascar while parts of South Africa and Mozambique were wet.

Outlook:
Over the next three months, consistent with both the current El Niño event and a positive Indian Ocean Dipole (IOD), it is likely be wetter than normal in East Africa and parts of the DRC.

In much of southern Africa as well as parts of western Africa, it is likely to be drier than normal.

3-Month Outlook February to April - Rainfall

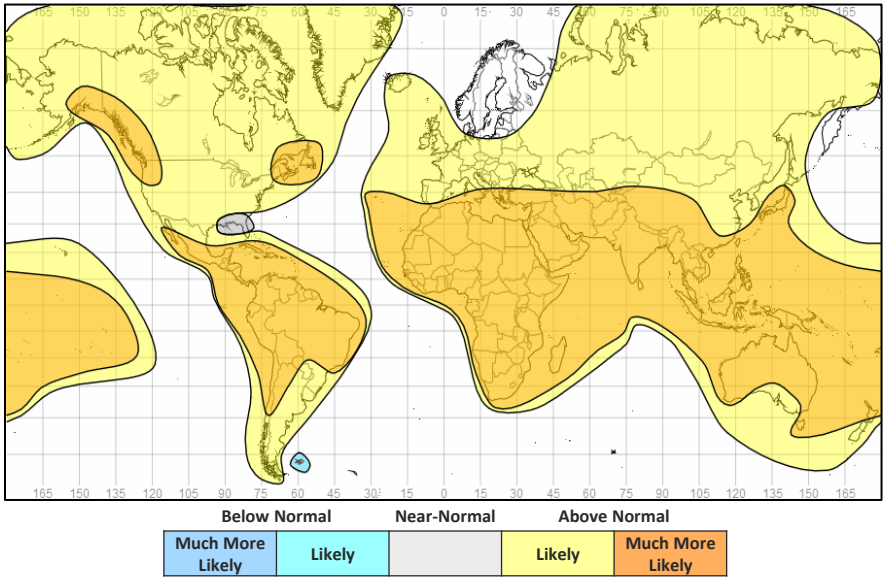


Global Outlook - Temperature

Outlook:

With the backdrop of a warming climate and the current El Niño event, nearly all land areas are likely or much more likely to be warmer than normal during February to April. The main exception is for the Falkland Islands which are likely to be colder than normal.

3-Month Outlook February to April - Temperature



Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – Sea surface temperatures (SSTs) across the equatorial Pacific remain indicative of an ongoing El Niño event. The current El Niño is moderate in strength.

The current El Niño event is highly likely to continue for the remainder of the Northern Hemisphere winter. A transition to ENSO Neutral is then likely (~70% chance) between April and June.

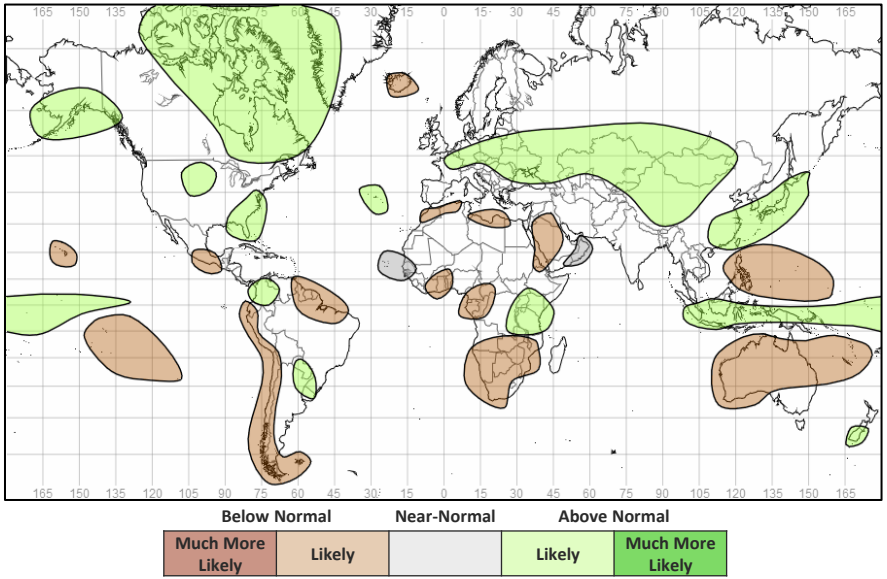
El Niño impacts regional weather patterns around the world, leading to some regions experiencing wetter than normal conditions and other regions drier than normal conditions. Its influence tends to be most dominant across the tropics. During El Niño, temperatures around the globe are likely or much more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

Indian Ocean Dipole (IOD) – The positive Indian Ocean Dipole event remains active but is steadily weakening.

Seasonal prediction systems currently suggest that this event will return to neutral conditions within the next two months (during February and March).

This will reinforce the influence of El Niño across some regions. For many parts of East Africa above normal rainfall is likely, increasing the risk of floods. Conversely, across southern Africa and Australia below normal rainfall is likely, increasing the threat of drought.

3-Month Outlook February to April - Rainfall



Current Status

Current Status maps

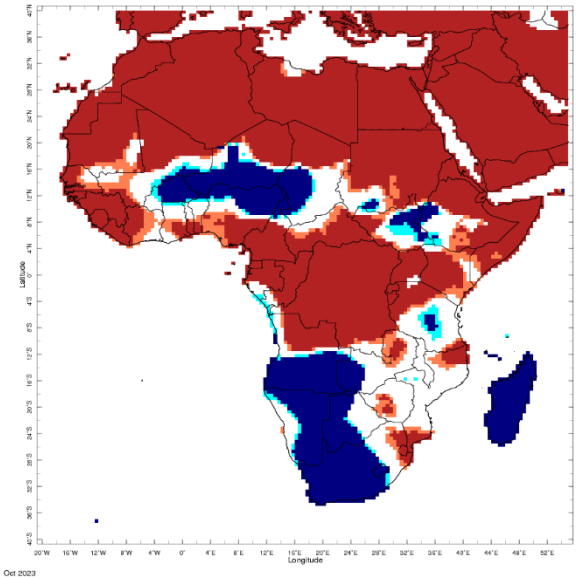
Western Africa

Central Africa

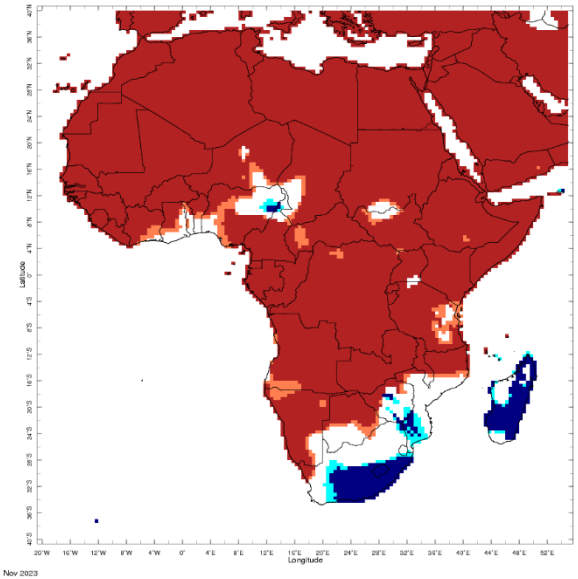
Eastern Africa

Southern Africa

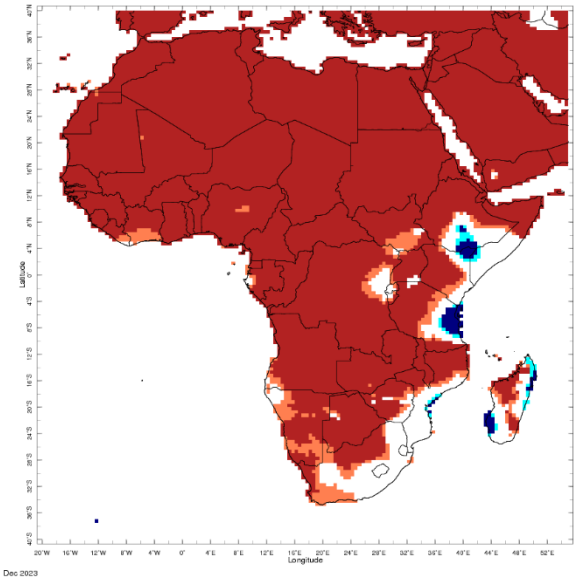
Current Status – Temperature percentiles



October



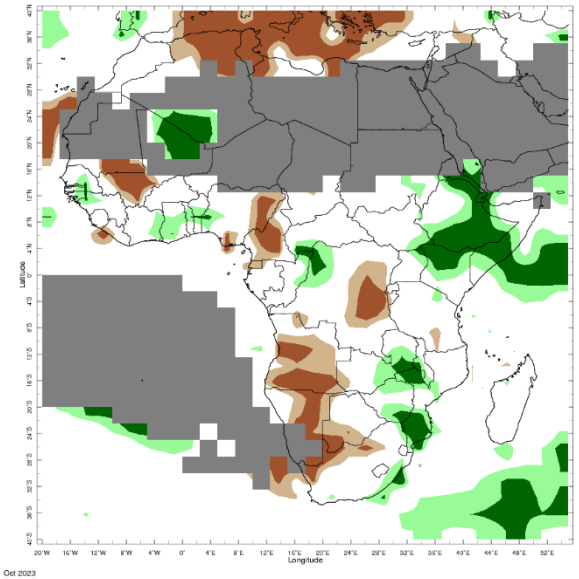
November



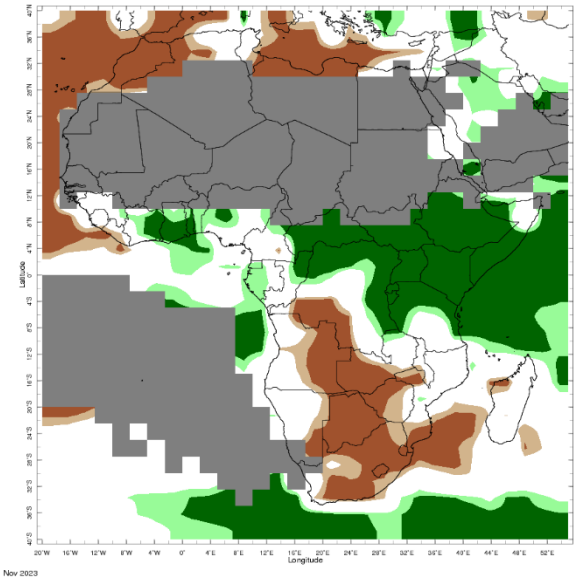
December

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.

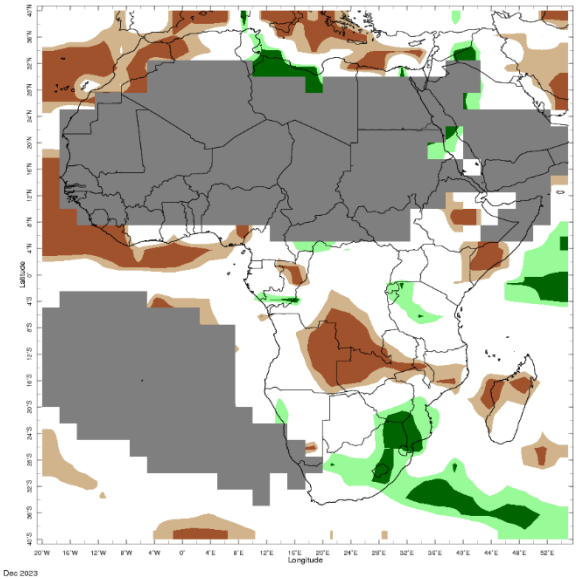
Current Status – Precipitation percentiles



October



November



December

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		
	October	November	December	October	November	December
Sierra Leone	Hot	Hot	Hot	Normal	Normal	Normal*
Liberia	Hot	Hot	Hot	Normal	Normal	Very Dry
Mali	Hot	Hot	Hot	Mixed (1)	Normal*	Normal*
Ghana	Warm	Hot	Hot	Normal	Very Wet	Normal
Nigeria	Warm	Mixed (2)	Hot	Dry	Wet	Normal
Cameroon	Hot	Hot	Hot	Very Dry	Normal	Normal

Notes:

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

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

Additional Information:

(1) Note: Dry in the southwest, wet in the northeast
(2) Note: Hot in the southwest, normal in the northeast

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
Niger	Mixed (1)	Hot	Hot	Normal*	Normal*	Normal*
Chad	Mixed (1)	Hot	Hot	Normal*	Normal*	Normal*
DRC	Hot	Hot	Hot	Mixed (2)	Mixed (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: Cold in the south, hot in the north
(2) Note: Dry in the east, wet in the northwest and normal elsewhere
(3) Note: Very wet in the north and east, very dry in south and west
(4) Note: Very dry in far south

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
Sudan	Hot	Hot	Hot	Normal	Normal*	Normal*
South Sudan	Normal	Hot	Hot	Normal	Very Wet	Normal*
Uganda	Hot	Hot	Hot	Normal	Very Wet	Normal
Rwanda	Hot	Hot	Warm	Normal	Very Wet	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:

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
Tanzania	Normal	Hot	Hot (4)	Normal	Normal (3)	Normal (7)
Ethiopia	Mixed (1)	Hot	Hot (5)	Very Wet (2)	Very Wet	Normal
Kenya	Warm	Hot	Hot	Wet	Very Wet	Normal
Somalia	Hot	Hot	Hot (6)	Wet	Very Wet	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: Hot in northeast, cold in southwest
(2) Note: Normal in the northwest
(3) Note: Very wet in the north and west
(4) Note: Cold in the far east
(5) Note: Cold in the southeast
(6) Note: Normal in the south
(7) Note: Wet in the northwest
(8) Note: Very dry in the far south

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
South Africa	Cold	Cold (2)	Warm (5)	Normal (1)	Very Dry	Wet (7)
Zambia	Cool	Hot	Hot	Wet	Dry	Dry
Zimbabwe	Warm	Normal	Hot	Wet	Very Dry	Normal (8)
Mozambique	Normal	Mixed (3)	Hot (6)	Very Wet (2)	Normal (4)	Mixed (9)
Malawi	Normal	Hot	Hot	Normal	Normal	Dry
Madagascar	Cold	Cold	Mixed	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: Wet in coastal regions of the south and east
(2) Note: Normal in the north
(3) Note: Cold in the south, hot in the north, normal elsewhere
(4) Note: Very dry in the far south
(5) Note: Normal in the east
(6) Note: Normal in the south
(7) Note: Normal in the southwest
(8) Note: Wet in the southeast
(9) Note: Dry in the north, wet or very wet in the south

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: February to July – Western Africa (1)

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

		Forecast summary		
		February	February to April	May to July
Nigeria	*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 wetter than normal	Climatological odds
Cameroon	*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 drier than normal	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: February to July – Central Africa

		Forecast summary		
		February	February to April	May to July
Niger	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Likely to be drier 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	Likely to be near-normal	Likely to be near-normal	Much more likely to be drier than normal
Democratic Republic of Congo	*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

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: February to July – Eastern Africa (1)

		Forecast summary		
		February	February to April	May to July
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*	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	Much more likely to be wetter than normal	Likely to be wetter than normal
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	Climatological odds
Rwanda	*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	Much more 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: February to July – Eastern Africa (2)

		Forecast summary		
		February	February to April	May to July
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	Likely to be wetter than normal	Climatological odds
Ethiopia	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	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	Much more likely to be wetter than normal	Likely to be wetter than normal
Somalia	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-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: February to July – Southern Africa (1)

		Forecast summary		
		February	February to April	May to July
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	Likely to be near-normal
Zambia	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Likely to be drier than normal
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	Climatological odds	Much more likely to be drier than normal	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	Likely to be drier than normal	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: February to July – Southern Africa (1)

		Forecast summary		
		February	February to April	May to July
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	Likely to be drier than normal	Likely to be drier than normal
Madagascar	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds

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

Annex 1 – Supplemental Information

For further information

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

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

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

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

For further information

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

- Greater Horn of Africa Climate Outlook Forum (GHACOF): GHACOF 65 Statement (August 2023)
- PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne (PRESASS): http://acmad.net/rcc/presassS.php (April 2022)
- Southern African Regional Climate Outlook Forum (SARCOF): 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://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