AFRICA: Monthly Climate Outlook November to August

Issued: February 2023

Overview
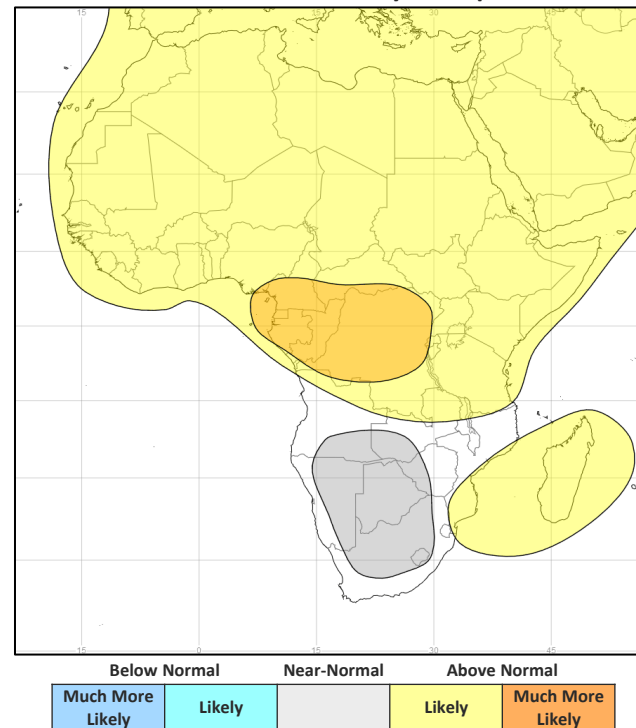
Africa Current Status and Outlook - Temperature

Current Status:

Over the last three months much of West Africa has been warm or hot. Temperatures have been near-normal in Central Africa though DRC was cold in the west and hot in the east during November. In Southern Africa Madagascar was cold during November whilst Malawi and Madagascar were hot.

Outlook:

Over the next three months, many parts of the continent are likely to be warmer than normal, apart from parts of southern Africa where climatological odds are present.

3-Month Outlook March to May - Temperature

	Below Normal		Near-Normal	Above Normal	
	Much More Likely	**Likely**		**Likely**	**Much More Likely**

# Africa Current Status and Outlook - Rainfall

Current Status:

Over the last three months**,** rainfall across most of West Africa has been near-normal. Conditions have been mixed in Central Africa with DRC very wet in November. Rainfall across East Africa has been largely near-normal, although dry conditions were observed in Ethiopia during January. In southern Africa it was very wet at times in South Africa, Zimbabwe and Mozambique, particularly during November and December.

Outlook:

The East African Long Rains season runs from March until May across most of the region. The season is likely to be drier than normal, with most long-range forecasting models in agreement on this, across Kenya, Somalia, Uganda, northern Tanzania and Rwanda. The potential for another poor or failed rainy season increases the likelihood of further severe humanitarian impacts in this region. It is likely to be wetter than normal across southern Africa, with an increased likelihood of flood events more widespread and severe than usual.

It is likely to be wetter than normal in a region stretching from DRC across CAR, Nigeria, Cameroon, eastern Chad, South Sudan and into parts of Sudan and westernmost Ethiopia. Further west, drier than normal conditions are likely across Sierra Leone and Liberia.

3-Month Outlook March to May - Rainfall

| Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely
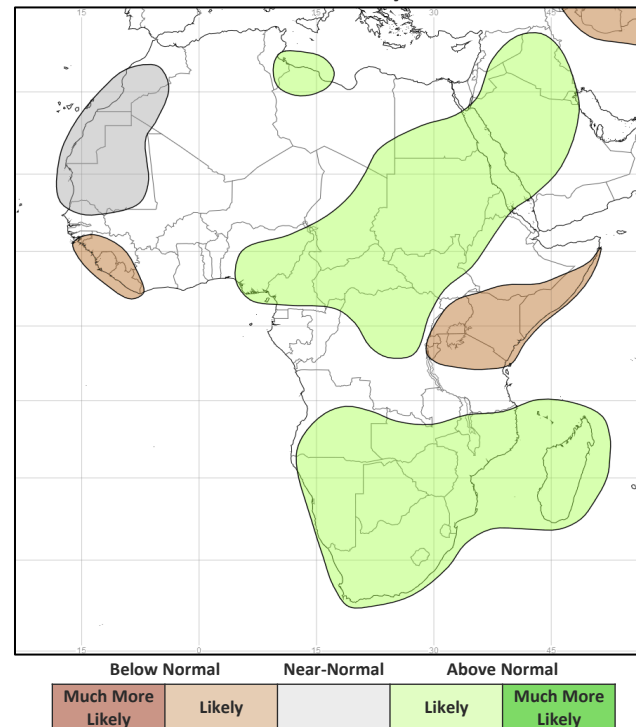
Global Outlook - Temperature

Outlook:

The influence of La Niña is likely to reduce further over the next three months, as the El Niño Southern Oscillation (ENSO) is expected to become neutral during the northern hemisphere spring.

Many regions are likely to be warmer than normal, consistent with a changing climate. However, there are exceptions, mostly as a legacy of the waning La Niña; these include northern South America, mainland Southeast Asia and parts of Canada where near normal or colder than normal conditions are likely.

Globally, La Niña acts to cool temperatures and can often suppress rising temperatures due to climate change. Looking further into 2023, early predictions highlight an increased likelihood of El Niño conditions taking hold in the August to October period (60% likelihood in NOAA forecast). While forecasts looking this far ahead are inherently uncertain, particularly when issued at this time of year, there is a consistent message emerging from many international modelling centres.

3-Month Outlook March to May - Temperature

|	Below Normal		Near-Normal	Above Normal	
	Much More Likely	Likely		Likely	Much More Likely
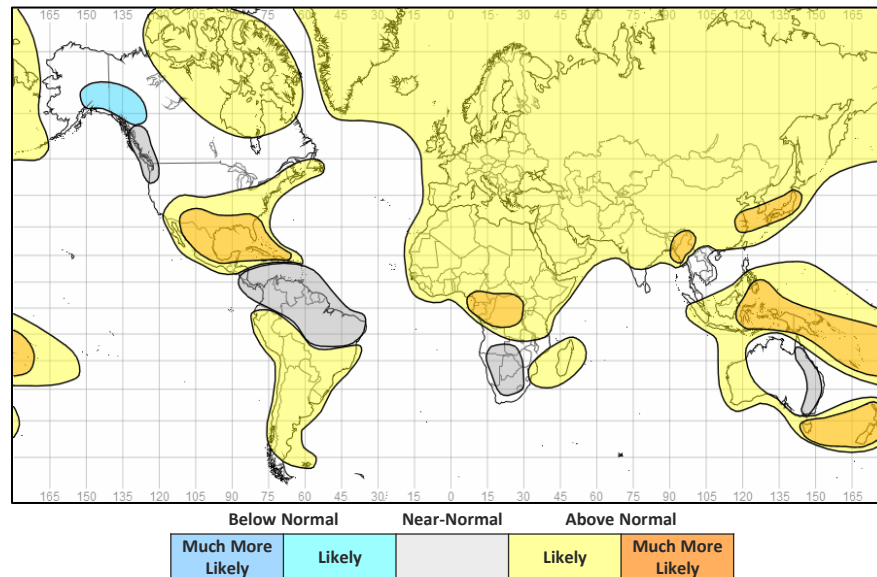
Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – Whilst oceanic indicators, including sea surface temperatures (SSTs), are moving towards ENSO-neutral conditions, the atmosphere has been slower to respond, and the current La Niña event continues to influence global weather and climate. However, this effect is likely to be short-lived, as the current multi-year event is expected to soon end, likely within the next month.

ENSO-neutral conditions are expected to prevail during the northern-hemisphere spring and early summer (90% likelihood for March-May), with increasing chances of El Niño at longer forecast lead times (60% likelihood for August-October) However, due to the spring prediction barrier, uncertainty is higher, and this can typically be associated with lower forecast accuracy.

With ENSO-neutral conditions expected to begin within the next couple of months and persist through the Northern Hemisphere spring and early summer, forecast predictability on seasonal timescales is expected to be lower than in recent years when ENSO has been active.

Indian Ocean Dipole (IOD) – The Indian Ocean Dipole is neutral and therefore won't provide any predictive value for this period.

3-Month Outlook March to May - Rainfall

Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely
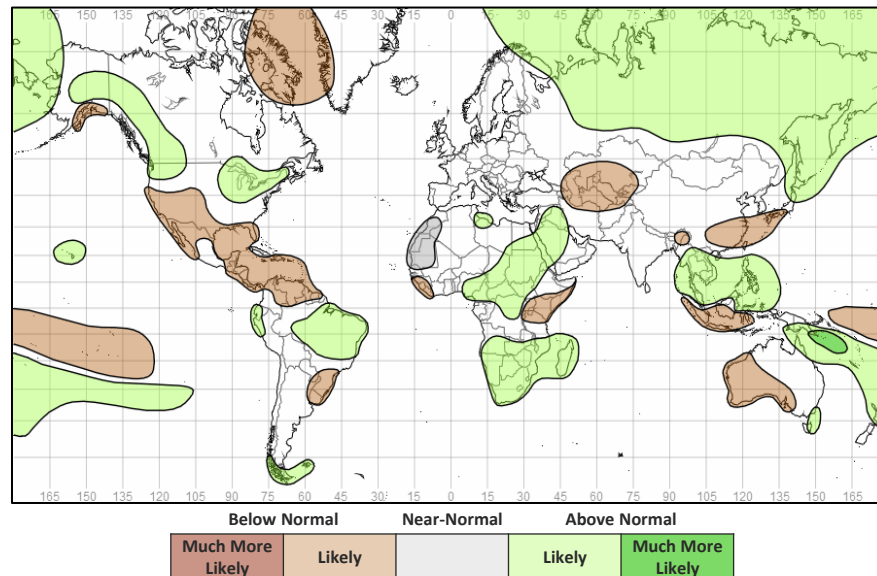
Current Status

Current Status – Temperature percentiles
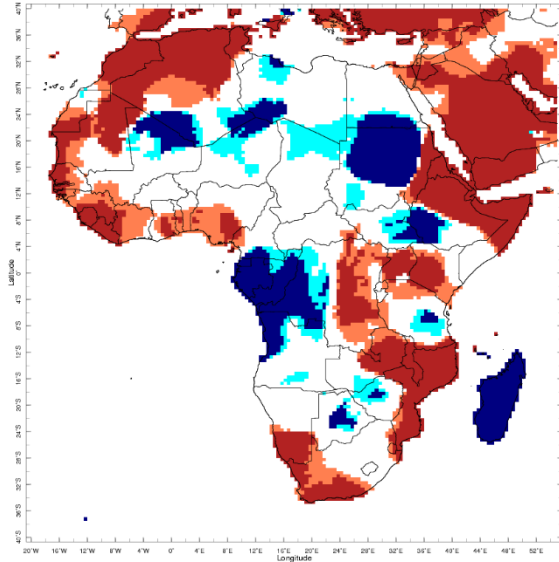
November
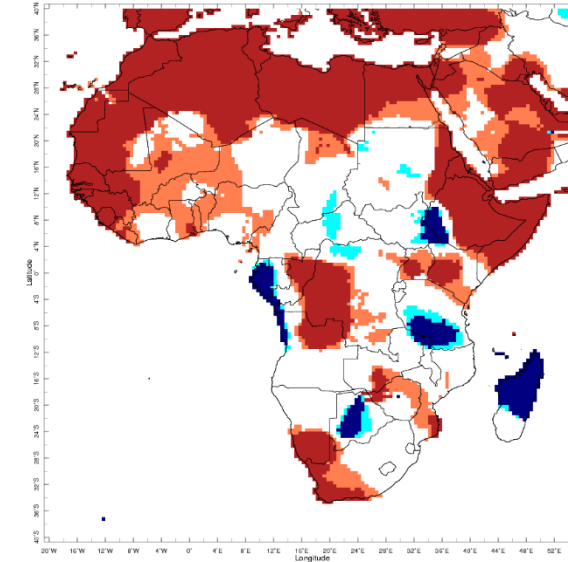
December

January

Temperature Percentiles (BLUE below 20th and RED above 80th)

| 0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
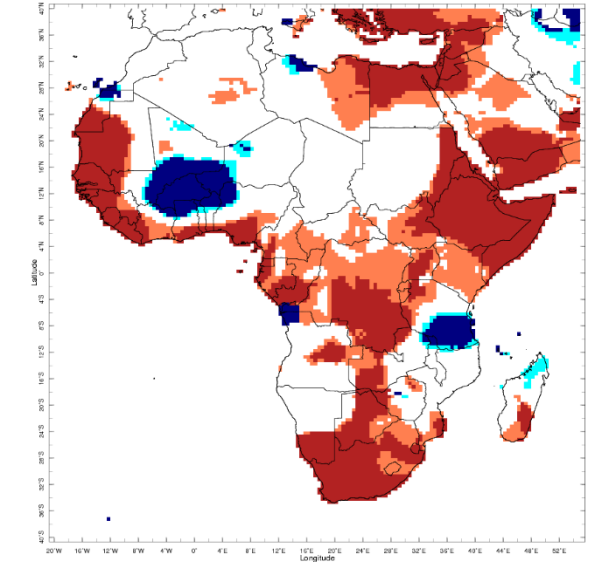
Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions 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

| November | December | January |

Rainfall Percentiles (BROWN below 20th and GREEN above 80th)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
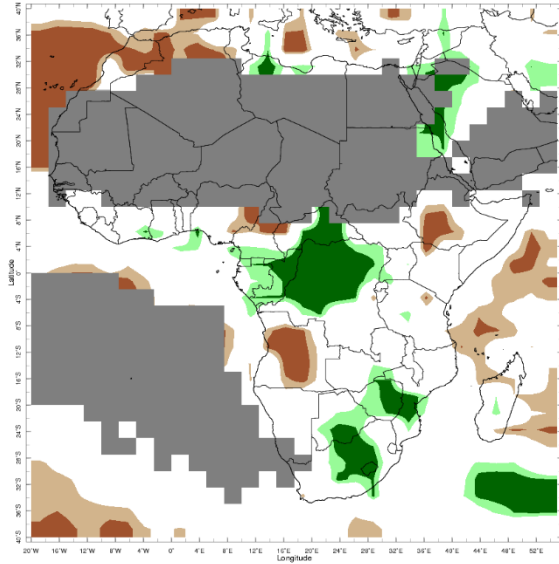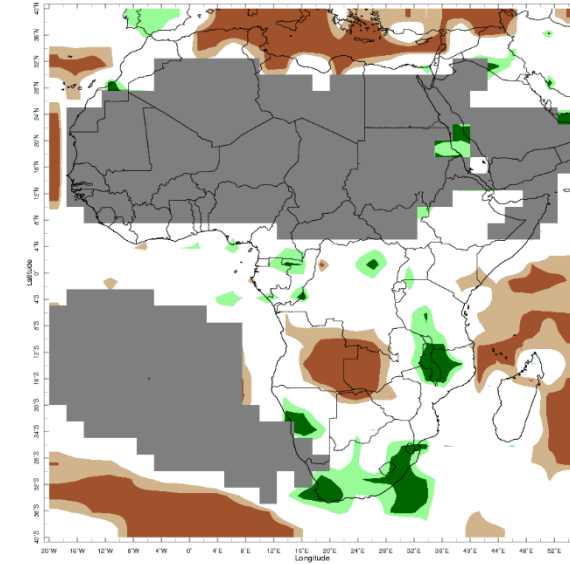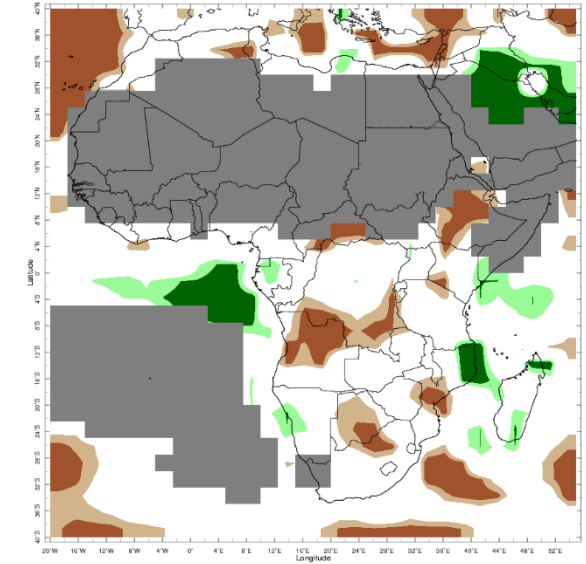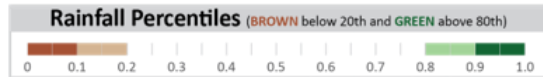
Notes: The percentiles shown in the map indicate a ranking of rainfall, with the 0th percentile being the driest and the 100th percentile being the wettest in the 1981-2010 climatology. Green and dark green shading represent values above the 80th (Wet) and 90th (Very Wet) percentile, respectively; regions 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		
	November	**December**	**January**		**November**	**December**	**January**
Sierra Leone	Hot	Hot	Hot		Normal	Normal	Normal*
Liberia	Hot	Warm	Hot		Normal	Normal	Normal
Mali	Mixed (1)	Warm	Mixed (2)		Normal*	Normal*	Normal*
Ghana	Warm	Warm	Mixed (3)		Normal	Normal	Normal
Nigeria	Warm	Warm	Mixed (3)		Normal	Normal	Normal
Cameroon	Normal	Normal	Warm		Normal	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: Warm or hot in the southwest, cool in the north.
(2) Note: Cold in the south, normal in the north.
(3) Note: Cold in the north, warm in the south, normal elsewhere

Current Status: Temperature

	November	December	January
Niger	Normal	Normal	Normal
Chad	Normal	Normal	Normal
DRC	Mixed (1)	Normal (2)	Warm

Current Status: Rainfall

	November	December	January
Niger	Normal*	Normal*	Normal*
Chad	Normal*	Normal*	Normal*
DRC	Very Wet	Normal	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: Cold in the west, Hot in the east
(2) Note: Hot in the west
(3) Note: Dry in the south

Current Status – Eastern Africa (1)

	Current Status: Temperature		
	November	**December**	**January**
Sudan	Cold	Normal	Normal
South Sudan	Normal	Normal	Warm
Uganda	Hot	Warm	Warm
Rwanda	Warm	Normal	Warm

	Current Status: Rainfall		
	November	**December**	**January**
	Normal*	Normal*	Normal*
	Normal	Normal	Normal*
	Normal	Normal	Normal
	Normal	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:

Current Status – Eastern Africa (2)

	Current Status: Temperature		
	November	**December**	**January**
Tanzania	Mixed (1)	Mixed (1)	Mixed (1)
Ethiopia	Mixed (2)	Mixed (2)	**Hot**
Kenya	**Hot**	**Warm**	**Warm**
Somalia	Mixed (3)	**Hot**	**Hot**

	Current Status: Rainfall		
	November	**December**	**January**
	Normal	Normal	Normal
	Normal	Normal	**Very Dry**
	Normal	Normal	Normal
	Normal	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: Cold in the southeast, warm or hot in the northwest
(2) Note: Hot in northeast, cold in southwest
(3) Note: Normal in the far south, hot elsewhere

Current Status – Southern Africa

Current Status: Temperature				Current Status: Rainfall		
	November	December	January	November	December	January
South Africa	Mixed (1)	Mixed (1)	**Hot**	Mixed (3)	**Wet**	Normal
Zambia	Mixed (2)	Normal (5)	Normal (5)	Normal	Mixed (7)	Normal
Zimbabwe	Normal	**Warm**	Normal	**Wet**	Normal	Normal
Mozambique	**Hot**	Normal (6)	Normal (6)	Mixed (4)	Normal	Mixed (8)
Malawi	**Hot**	Normal	Normal	Normal	**Very Wet**	Normal
Madagascar	**Cold**	**Cold**	Normal	Normal	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: Hot in the southwest and far northeast, normal elsewhere
(2) Note: Hot in the northeast, normal in the southwest
(3) Note: Wet or very wet in central areas, normal elsewhere
(4) Note: Wet in the south, normal in the north
(5) Note: Hot in the southwest
(6) Note: Warm in the far south
(7) Note: Very Dry in the west; wet in the east
(8) Note: Very Wet in the northeast, Dry in central regions, normal elsewhere

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: March to August – Western Africa (1)

		Forecast summary		
		March	March to May	June to August
Sierra Leone	*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
Liberia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal	Climatological odds
Mali	*Temperature*	Likely to be near-normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Ghana	*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	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: March to August – Western Africa (2)

		Forecast summary		
		March	March to May	June to August
Nigeria	*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	Likely to be wetter than normal
Cameroon	*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

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.

Outlooks

Outlook: March to August – Central Africa

		Forecast summary		
		March	March to May	June to August
Niger	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be wetter than normal	Climatological odds	Likely to be wetter than normal
Chad	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal in the southeast; Climatological odds in the northwest	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	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	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: March to August – Eastern Africa (1)

		Forecast summary		
		March	March to May	June to August
Sudan	*Temperature*	Likely to be warmer than normal	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
South Sudan	*Temperature*	Much more likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal	Climatological odds
Uganda	*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 drier than normal
Rwanda	*Temperature*	Much more 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.

Outlook: March to August – Eastern Africa (2)

		Forecast summary		
		March	March to May	June to August
Tanzania	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal in the north; Climatological odds in the south	Climatological odds
Ethiopia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal in the far west; Likely to be drier than normal in the far south; Climatological odds elsewhere	Climatological odds
Kenya	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal	Likely to be drier than normal
Somalia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal	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: March to August – Southern Africa (1)

		Forecast summary		
		March	March to May	June to August
South Africa	*Temperature*	Likely to be near-normal	Likely to be near-normal	Climatological odds
	Rainfall	Climatological odds	Likely to be wetter than normal	Climatological odds
Zambia	*Temperature*	Likely to be warmer than normal	Likely to be near-normal in the south; Likely to be warmer than normal in the north	Climatological odds
	Rainfall	Climatological odds	Climatological odds in the north; Likely to be wetter than normal in the south	Climatological odds
Zimbabwe	*Temperature*	Likely to be near-normal	Likely to be near-normal	Climatological odds
	Rainfall	Climatological odds	Likely to be wetter than normal	Climatological odds
Mozambique	*Temperature*	Likely to be warmer than normal	Climatological odds, but Likely to be warmer than normal in the far south	Likely to be warmer than normal
	Rainfall	Climatological odds	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: March to August – Southern Africa (1)

		Forecast summary		
		March	March to May	June to August
Malawi	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal	Climatological odds
Madagascar	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be 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.

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 62 Statement (August 2022 – Google Drive)
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): http://acmad.net/rcc/presagg.php (February 2022)
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

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