AFRICA: Monthly Climate Outlook
August to May

Issued: November 2022

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

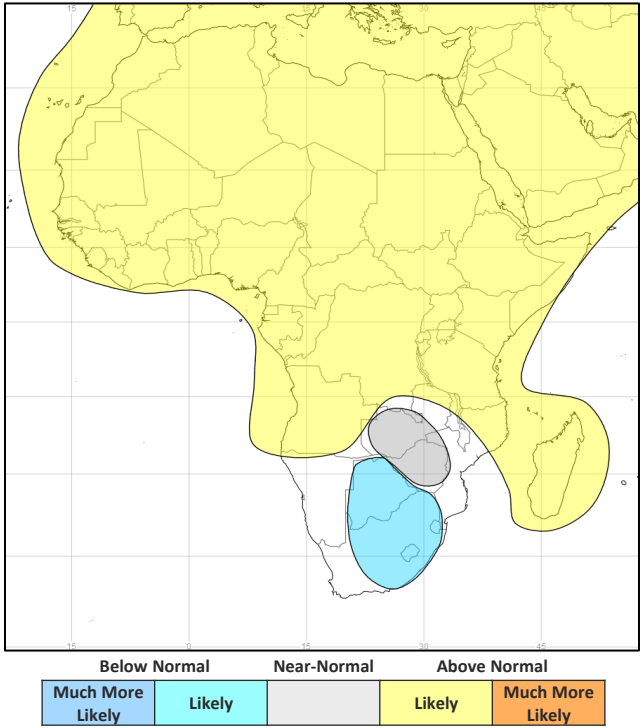
Current Status:

Over the last three months much of West has been hot. In central, eastern and much of Southern Africa, temperatures were generally normal or hot. Exceptions to this included parts of Madagascar, which were cold and parts of Namibia and Angola which were cold in September.

Outlook:

For many parts of the continent temperatures are likely to be warmer than normal. However, across much of southern Africa near-normal to colder than normal temperatures are likely.

3-Month Outlook December to February - Temperature



Africa Current Status and Outlook - Rainfall

Current Status:

The West Africa Monsoon has been active with above normal rainfall for many areas over the last three months, including in its northern extension into the Sahel during August and September.

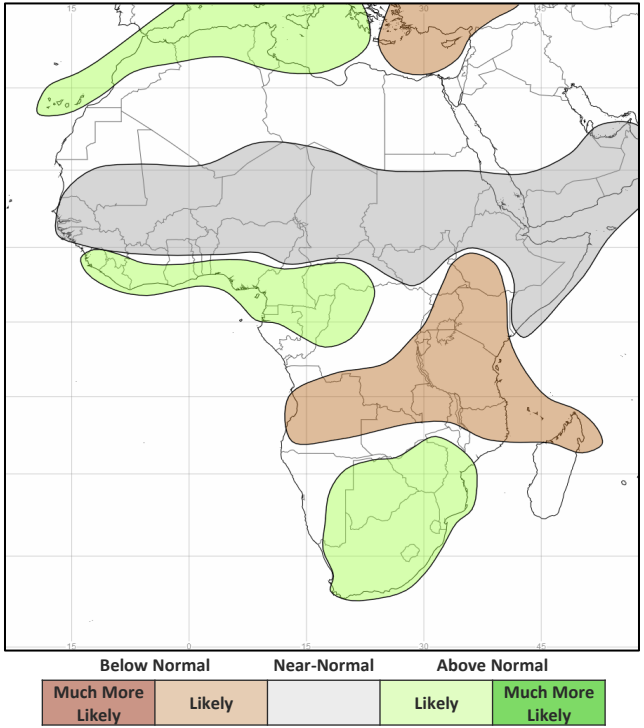
Parts of Eastern and Southern Africa have been very dry in October, despite this being the time of year when rainy seasons typically start.

Outlook:

Consistent with previous outlooks, drier than normal conditions are most likely across much of East Africa for the remainder of the short rains season through November and December. This is now the fifth consecutive poor or failed rainy season, further exacerbating the already severe humanitarian emergency in the region. It is also likely to be drier than normal in areas further south stretching from Angola in the west to northern Madagascar in the east.

Meanwhile, consistent with La Niña, many countries in southern Africa are likely to be wetter than normal, along with countries bordering the Gulf Of Guinea from Sierra Leone across to Cameroon.

3-Month Outlook December to February - Rainfall



Global Outlook - Temperature

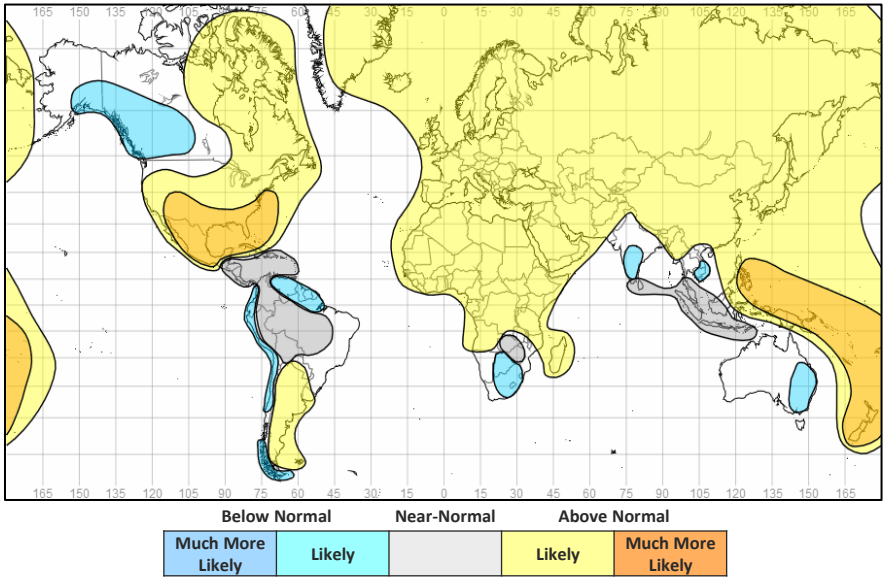
Outlook:

The ongoing La Niña will be the dominant driver of conditions through this period, albeit within the context of background warming trend.

Many regions are likely to be warmer than normal over the next three months. However, there are exceptions as a result of La Niña,including northern South America, Australia, mainland Southeast Asia, southern Africa and parts of India where colder than normal conditions are likely.

Northern hemisphere winter temperatures are likely, or much more likely to be warmer than normal for North America and most of Europe. The exception is western Canada and Alaska where colder than normal conditions are likely. Despite an overall mild winter in Europe, impacts from cold weather are more likely than in recent years, with early season cold snaps more likely.

3-Month Outlook December to February - Temperature



Global Outlook - Rainfall

Outlook:

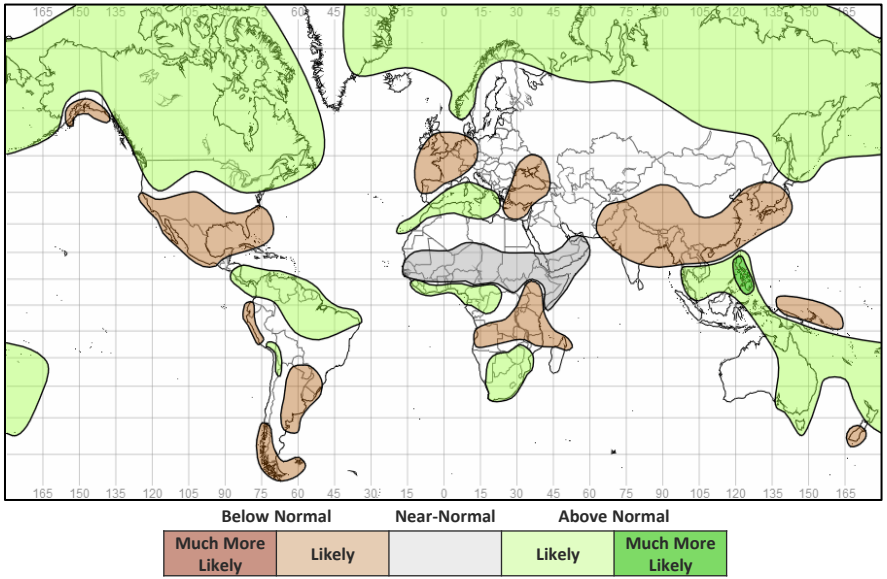
El Niño-Southern Oscillation (ENSO) –La Niña event continues in the tropical Pacific Ocean with oceanic and atmospheric indicators consistent with an ongoing event. The established and ongoing La Niña is major driver of global weather patterns and increases confidence in predictions on seasonal timescales, particularly in the tropics.

Whilst La Niña is present and likely to last through the northern hemisphere winter, there is some uncertainty with respect to its longevity; NOAA suggest 76% chance of La Niña during the northern hemisphere winter (December-February) 2022-23, with a transition to ENSO-neutral (the most likely outcome) during February-April 2023 (57% chance).

La Niña will remain the most dominant driver of global weather patterns over the next few months at least, especially for tropical regions. With a couple of notable exceptions (e.g. East Africa) La Niña, very broadly speaking, tends to increase the likelihood of wetter than normal conditions across many land areas of the tropics. More information on typical impacts can be found here https://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/el-nino-la-nina/enso-impacts

Indian Ocean Dipole (IOD) – Consistent with the seasonal cycle, the current negative IOD event is starting to break down and a return to neutral conditions is expected during December as the southern hemisphere monsoons commence. Some influence of the current negative IOD will be maintained, possibly until mid-December. A negative IOD increases the likelihood of wet conditions across Southeast Asia and much of Australia, and dry conditions across East Africa.

3-Month Outlook December to February - Rainfall



Current Status

Current Status maps

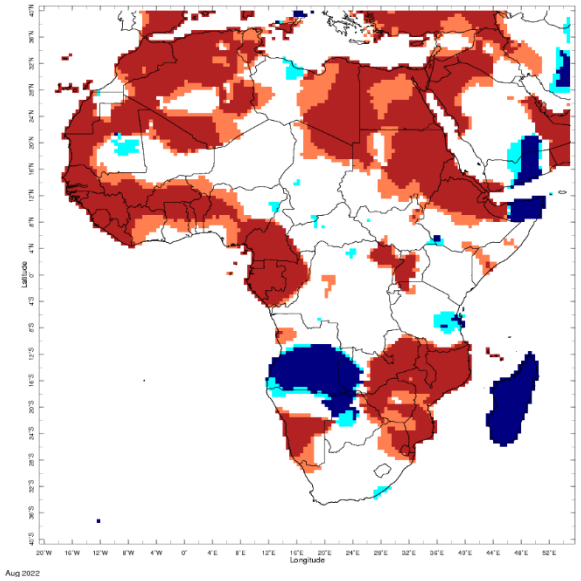
Western Africa

Central Africa

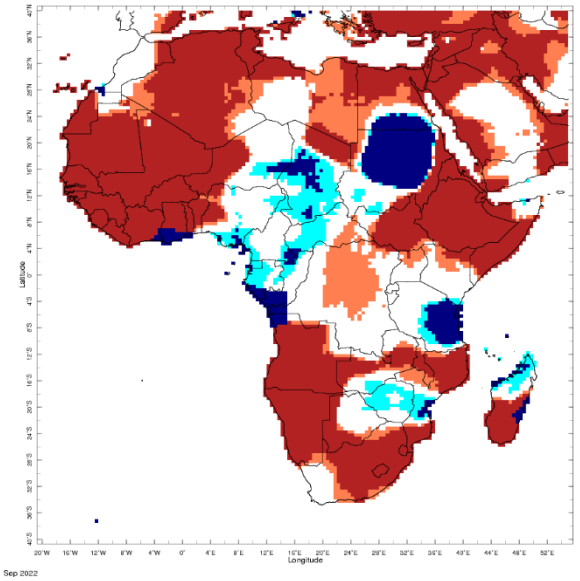
Eastern Africa

Southern Africa

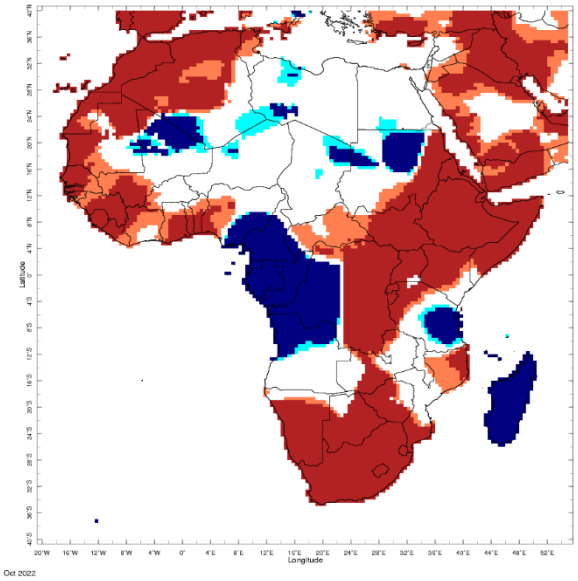
Current Status – Temperature percentiles



August



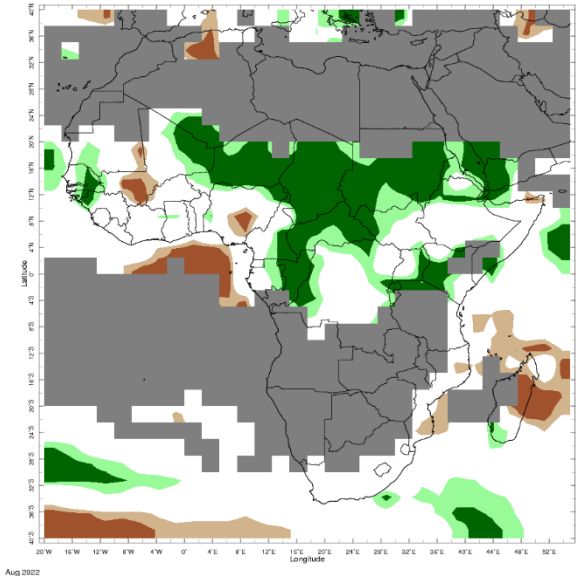
September



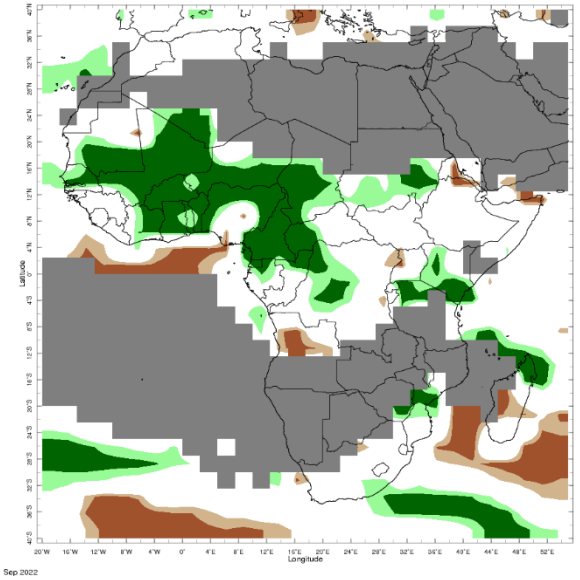
October

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.

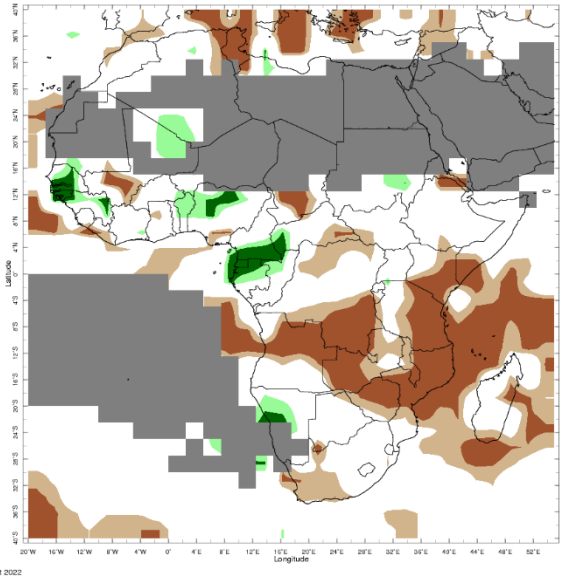
Current Status – Precipitation percentiles



August



September



October

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		
	August	September	October	August	September	October
Sierra Leone	Hot	Hot	Hot	Normal	Normal	Normal
Liberia	Hot	Hot	Hot	Normal	Normal	Dry
Mali	Hot	Hot	Mixed (7)	Mixed (3)	Very Wet	Mixed (3)
Ghana	Warm	Mixed (1)	Hot	Normal	Wet	Normal
Nigeria	Warm	Mixed (2)	Mixed (8)	Mixed (4)	Mixed (4)	Mixed (6)
Cameroon	Hot	Normal	Cold	Mixed (5)	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:

(1) Note: Cold in the far south, hot elsewhere
(2) Note: Hot in the west, normal elsewhere
(3) Note: Wet in the northeast, dry in the southwest
(4) Note: Very wet in far north, partially dry in south/southeast, normal elsewhere
(5) Note: Normal west, wet or very wet east
(6) Note: Wet in the northwest, dry near the coast, normal elsewhere
(7) Note: Hot in the southwest, cool in the north.
(8) Note: Warm in the west, cold in the southeast

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	August	September	October	August	September	October
Niger	Normal	Mixed (1)	Normal	Very Wet	Very Wet	Normal
Chad	Normal	Cold	Normal	Very Wet	Mixed (2)	Dry
DRC	Normal	Warm	Mixed (3)	Normal	Normal	Mixed (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: Warm in the south. Normal in the north.
(2) Note: Very wet in the south, normal elsewhere
(3) Note: Cold in the west, Hot in the east
(4) Note: Very Dry in the south; normal elsewhere

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	August	September	October	August	September	October
Sudan	Hot	Cold	Mixed (2)	Mixed (1)	Mixed (1)	Normal
South Sudan	Normal	Hot	Hot	Wet	Normal	Normal
Uganda	Hot	Normal	Hot	Wet	Normal	Normal
Rwanda	Normal	Normal	Hot	Wet	Wet	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: Normal* in the north, wet/very wet in the south.
(2) Note: Cold in the north/ northwest; Hot in the east / southeast

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	August	September	October	August	September	October
Tanzania	Normal	Cold	Mixed (4)	Normal	Normal	Very Dry (5)
Ethiopia	Mixed (1)	Hot	Hot	Mixed (2)	Normal	Normal
Kenya	Normal	Normal	Hot	Wet	Wet	Very Dry (5)
Somalia	Normal	Mixed (3)	Hot	Mixed (6)	Normal	Normal (7)

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 north, normal elsewhere
(2) Note: Wet in north, normal elsewhere
(3) Note: Normal in the east, hot elsewhere
(4) Note: Cold in the southeast; Hot in the northwest
(5) Note: Normal around Lake Victoria
(6) Note: old in the northeast and hot in the northwest, normal elsewhere
(7) Note: Very Dry in the south

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	August	September	October	August	September	October
South Africa	Normal	Hot	Hot	Normal	Normal	Normal (4)
Zambia	Hot	Hot	Normal	Normal*	Normal*	Very Dry
Zimbabwe	Hot	Cold	Hot	Normal*	Normal*	Very Dry
Mozambique	Hot	Mixed (1)	Mixed (1)	Normal	Normal*	Very Dry
Malawi	Hot	Hot	Normal	Normal*	Normal*	Very Dry
Madagascar	Cold	Mixed (2)	Cold	Dry	Mixed (3)	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, more variable elsewhere.
(2) Note: Hot in south, cold in the north
(3) Note: Wet in the far north, normal to dry elsewhere.
(4) Note: Dry 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: December to May – Western Africa (1)

		Forecast summary		
		December	December to February	March to May
Sierra Leone	*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	Climatological odds
Liberia	*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	Climatological odds
Mali	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds
Ghana	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-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.

Outlook: December to May – Western Africa (2)

		Forecast summary		
		December	December to February	March to May
Nigeria	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be wetter than normal in the south; Likely to be near-normal in the north	Climatological odds
Cameroon	*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 south; Likely to be near-normal in the north	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: December to May – Central Africa

		Forecast summary		
		December	December to February	March to May
Niger	*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 near-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 near-normal	Likely to be near-normal	Climatological odds
Democratic Republic of Congo	*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 in the northwest; Likely to be drier than normal in the southeast; Climatological odds elsewhere	Likely to be wetter than normal in the northwest; Likely to be drier than normal in the southeast; 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: December to May – Eastern Africa (1)

		Forecast summary		
		December	December to February	March to May
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 near-normal	Climatological odds
South Sudan	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal in the far southeast; Likely to be near-normal elsewhere	Climatological odds
Uganda	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Rwanda	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	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: December to May – Eastern Africa (2)

		Forecast summary		
		December	December to February	March to May
Tanzania	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Ethiopia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal in the southwest; Likely to be near-normal elsewhere	Climatological odds
Kenya	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Somalia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	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: December to May – Southern Africa (1)

		Forecast summary		
		December	December to February	March to May
South Africa	*Temperature*	Likely to be colder than normal	Climatological odds in the southwest; Likely to be colder than normal elsewhere	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal
Zambia	*Temperature*	Climatological odds	Likely to be near-normal	Climatological odds
	Rainfall	Climatological odds	Likely to be drier than normal in the north; Climatological odds elsewhere	Climatological odds
Zimbabwe	*Temperature*	Likely to be colder than normal	Likely to be near-normal	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Climatological odds
Mozambique	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal in the north; Likely to be near-normal in the southwest; Climatological odds elsewhere	Climatological odds
	Rainfall	Likely to be drier than normal in the north; Likely to be wetter than normal in the south	Likely to be drier than normal in the north; Likely to be wetter than normal 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: December to May – Southern Africa (1)

		Forecast summary		
		December	December to February	March to May
Malawi	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier 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 drier than normal in the north; 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.

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/sst

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) - http://www.acmad.net/new/NEWSITEACMAD/wp-content/uploads/2021/10/SWIOCOF-10_Statement-EN.pdf (October 2021)

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