AFRICA: Monthly Climate Outlook
June to March

Issued: September 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

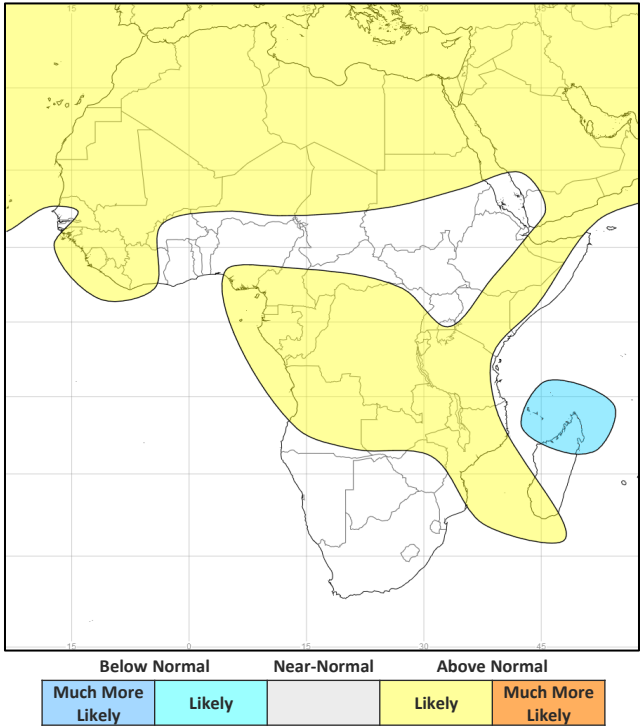
Current Status:

Over the last three months much of West Africa has been hot, along with most of East Africa in July and August. Northeast Somalia has been colder than normal. There have been mixed conditions across Southern Africa with cold conditions in Madagascar during the last three months, and in parts of Namibia and Angola during June and August.

Outlook:

For the next three months, above normal temperatures are likely in much of west, central and inland eastern Africa. Northern Madagascar is likely to experience below normal temperatures.

3-Month Outlook October to December - Temperature



Africa Current Status and Outlook - Rainfall

Current Status:
During June and July, many parts of east Africa continued to experience below normal rainfall. However, above normal rainfall was experienced in parts of Uganda, Kenya and Somalia in August.

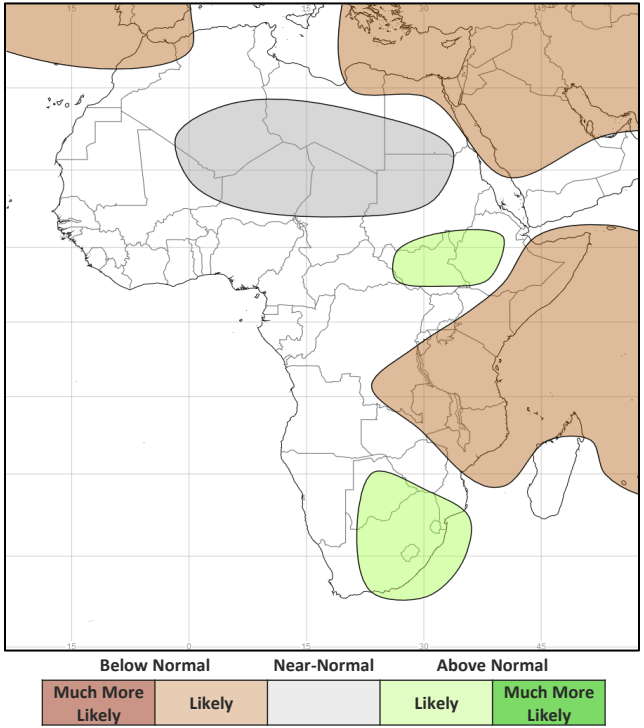
On 30 May 2022, the Food and Agriculture Agency of the United Nations (FAO) released a joint statement from meteorological agencies, including the UK Met Office, and humanitarian partners – "*The latest long-lead seasonal forecasts, supported by a broad consensus from meteorological experts, indicate that there is now a concrete risk that the* ***October-December (OND) rainy season could also fail.***" The full statement can be seen here.

A more active West Africa Monsoon has resulted in wet or very wet conditions in west Africa in the last three months, and parts of the Sahel during July and August. After a wet June, rainfall has been mixed for countries adjacent to the Gulf of Guinea.

Outlook:
Over the next three months, below normal rainfall is likely for much of East Africa during the Short Rains season. Forecasts for concurrent La Niña and negative Indian Ocean Dipole, along with high-level agreement from long-range models support this outlook. This would be the fifth consecutive poor or failed rainy season, further exacerbating the already severe humanitarian emergency in the region.

Towards the end of the rainy season, it is likely to be wetter than normal for South Sudan and western Ethiopia. Parts of Southern Africa are also likely to see wetter than normal conditions in the next three months.

3-Month Outlook October to December - Rainfall



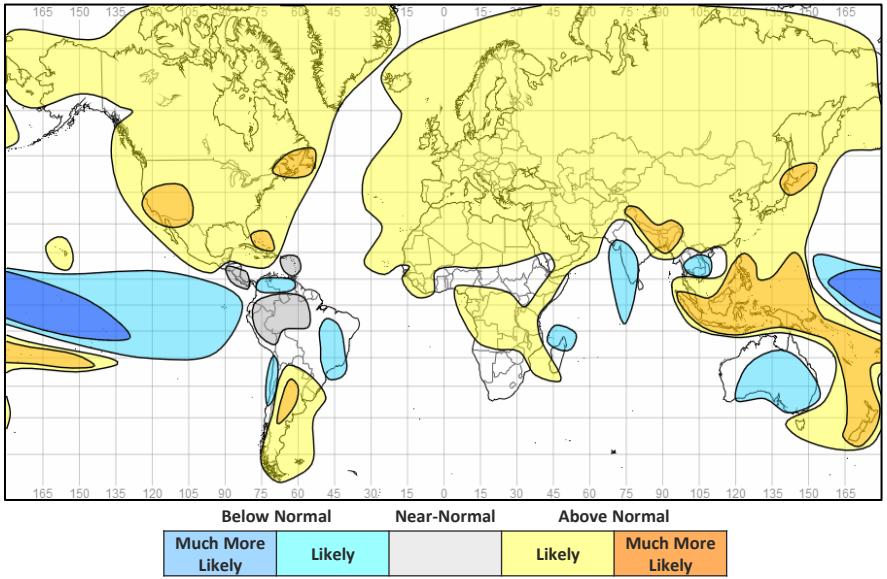
Global Outlook - Temperature

Outlook:

The ongoing La Niña has strengthened over the last month and is likely to persist into the northern hemisphere winter. Aside from the background global warming trend, La Niña is likely to be the largest driver of temperatures over the next three months. The negative Indian Ocean Dipole (IOD) will have more limited influence but will reinforce the effects of La Niña on temperatures around the Indian Ocean and western Pacific.

For many areas above normal temperatures are likely. However, consistent with La Niña and the IOD, northern South America, parts of Australia, mainland Southeast Asia and southwest India are likely to experience near- to below normal temperatures.

3-Month Outlook October to December - Temperature



Global Outlook - Rainfall

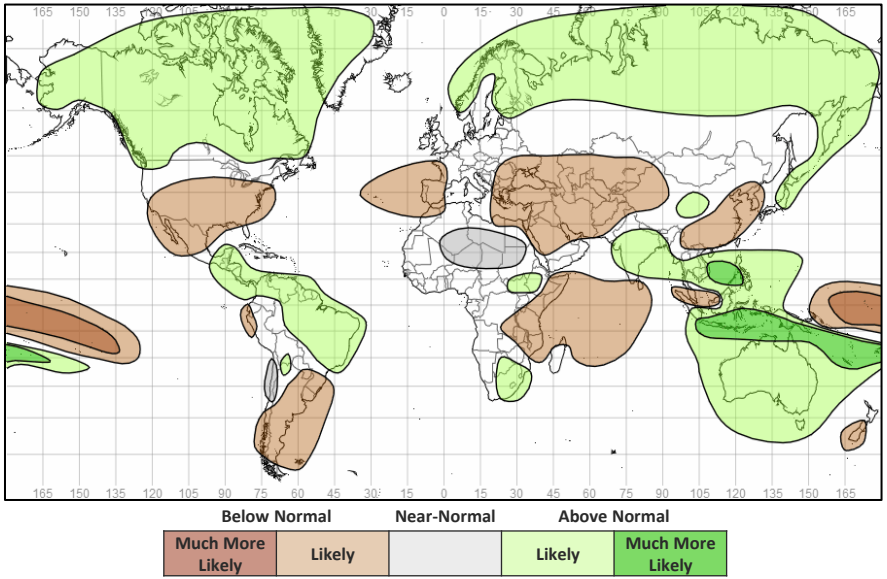
Outlook:
El Niño-Southern Oscillation (ENSO) – The current La Niña event continues in the tropical Pacific Ocean with oceanic and atmospheric indicators showing it has strengthened over the last month.

The latest ENSO outlook issued by NOAA (26th September) states that La Niña is active, with a 91% chance of it persisting through the northern hemisphere autumn and 54% it will last through the northern hemisphere winter.

La Niña will remain the most dominant driver of global weather patterns over the next few months at least, more 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) – The IOD index is negative and is expected to remain so for at least the next three months before returning to neutral around the turn of the year. When concurrent with a La Niña, a negative IOD can increase the effects of a La Niña, enhancing wetter than normal conditions in parts of Australia and Asia, and drier than normal conditions in East Africa - of particular concern given the current drought conditions in the Horn of Africa.

3-Month Outlook October to December - Rainfall



Current Status

Current Status maps

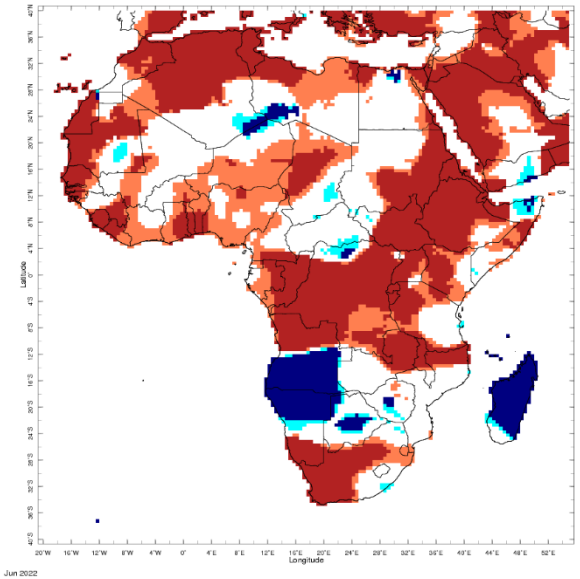
Western Africa

Central Africa

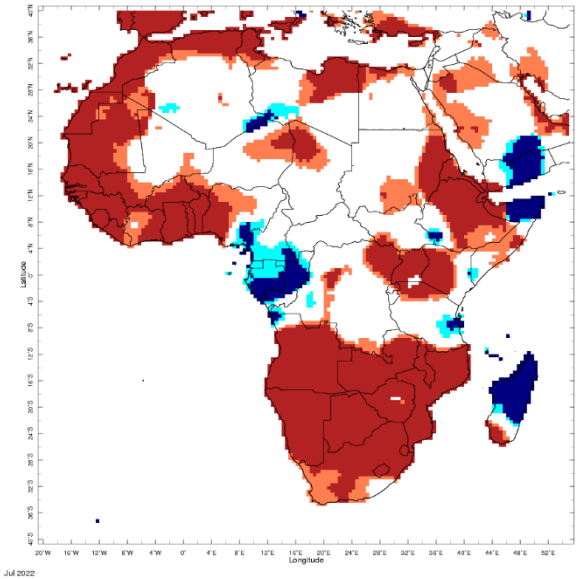
Eastern Africa

Southern Africa

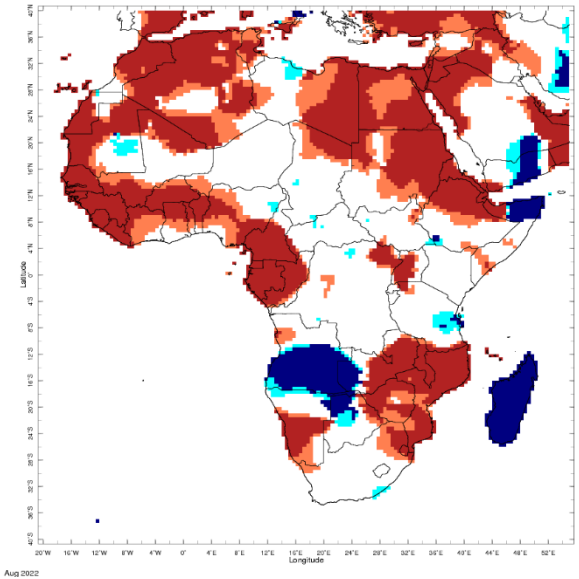
Current Status – Temperature percentiles



June



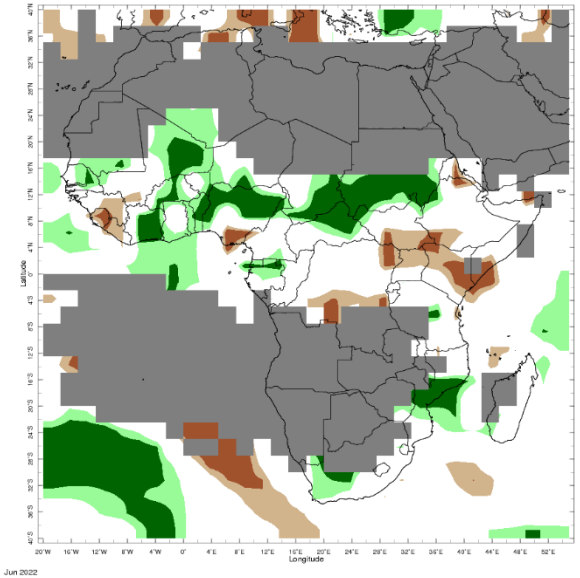
July



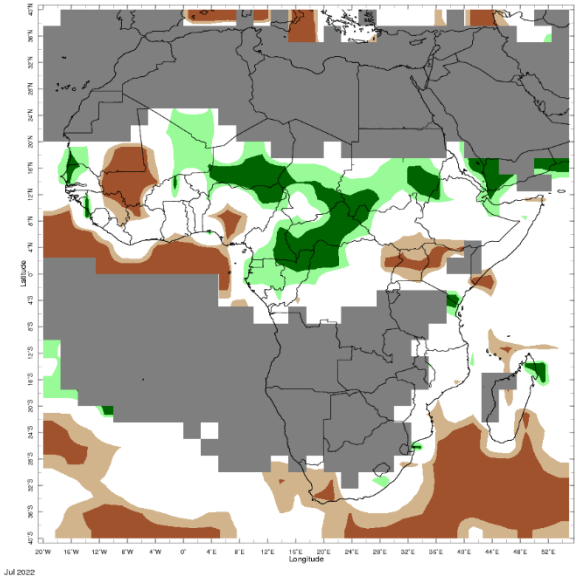
August

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.

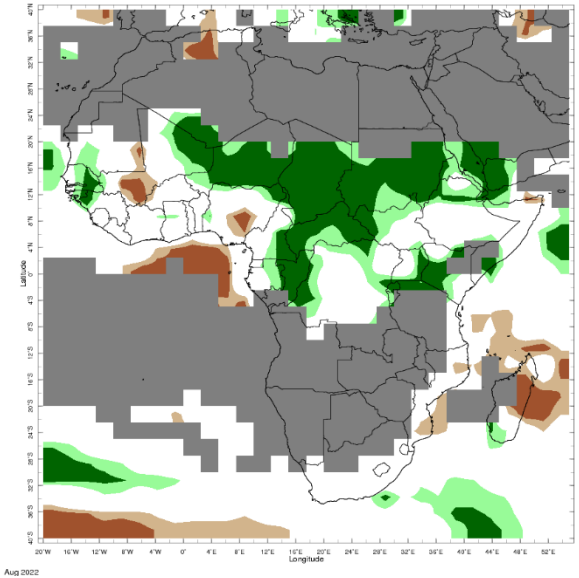
Current Status – Precipitation percentiles



June



July



August

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		
	June	July	August	June	July	August
Sierra Leone	Hot	Hot	Hot	Very Dry	Normal	Normal
Liberia	Warm	Hot	Hot	Dry	Normal	Normal
Mali	Normal	Normal (1)	Hot	Mixed (2)	Mixed (4)	Mixed (4)
Ghana	Warm	Hot	Warm	Normal	Normal	Normal
Nigeria	Warm	Mixed (1)	Warm	Mixed (3)	Mixed (4)	Mixed (5)
Cameroon	Normal	Normal	Hot	Normal	Wet	Mixed (6)

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 west, normal elsewhere.
(2) Note: Very wet in north, normal in south.
(3) Note: Very wet in north, very dry in parts of the south.
(4) Note: Wet in the northeast, dry in the southwest.
(5) Note: Very wet in far north, normal elsewhere.
(6) Note: Normal west, wet or very wet east.

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Niger	Mixed (1)	Mixed (1)	Normal	Normal*	Wet	Very Wet
Chad	Warm	Normal (2)	Normal	Normal* (3)	Normal* (3)	Very Wet
DRC	Hot	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: Warm in the south. Normal in the north.
(2) Note: Hot in the far northwest. Normal elsewhere
(3) Note: Very wet in the south.

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Sudan	Mixed (1)	Mixed (1)	Hot	Mixed (2)	Mixed (2)	Mixed (2)
South Sudan	Hot	Normal	Normal	Mixed (3)	Normal	Wet
Uganda	Hot	Hot	Hot	Dry	Dry	Wet
Rwanda	Hot	Hot	Normal	Normal	Dry	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: Hot in the east. Normal in the west.
(2) Note: Normal* in the north, very wet in the south.
(3) Note: Normal* in the north, dry in the south.

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Tanzania	Mixed (1)	Normal	Normal	Normal	Normal	Normal
Ethiopia	Hot	Hot	Mixed (3)	Normal	Normal	Mixed (4)
Kenya	Warm	Hot	Normal	Dry	Dry	Wet
Somalia	Mixed (2)	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: Normal in the southeast. Hot elsewhere.
(2) Note: Large variations across the country.
(3) Note: Hot in north, normal elsewhere.
(4) Note: Wet in north, normal elsewhere.

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
South Africa	Mixed (1)	Hot	Normal	Normal	Normal	Normal
Zambia	Mixed (2)	Hot	Hot	Normal*	Normal*	Normal*
Zimbabwe	Normal	Hot	Hot	Normal*	Normal*	Normal*
Mozambique	Normal	Cold	Hot	Wet	Normal	Normal
Malawi	Hot	Hot	Hot	Normal*	Normal*	Normal*
Madagascar	Cold	Cold	Cold	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: Hot in the west, more variable elsewhere.
(2) Note: Hot in east, normal in west

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: October to March – Western Africa (1)

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

		Forecast summary		
		October	October to December	January to March
Nigeria	*Temperature*	Likely to be colder than normal	Climatological odds	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Cameroon	*Temperature*	Climatological odds	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: October to March – Central Africa

		Forecast summary		
		October	October to December	January to March
Niger	*Temperature*	Climatological odds	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 near-normal
Chad	*Temperature*	Climatological odds	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 near-normal
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 drier than normal	Likely to be drier than normal southeast, elsewhere 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: October to March – Eastern Africa (1)

		Forecast summary		
		October	October to December	January to March
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	Likely to be near-normal
South Sudan	*Temperature*	Likely to be colder than normal	Climatological odds	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Climatological odds
Uganda	*Temperature*	Likely to be colder than normal	Climatological odds	Climatological odds
	Rainfall	Likely to be wetter than normal	Climatological odds	Climatological odds
Rwanda	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	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: October to March – Eastern Africa (2)

		Forecast summary		
		October	October to December	January to March
Tanzania	*Temperature*	Likely to be near-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
Ethiopia	*Temperature*	Likely to be colder than normal in the west; Likely to be warmer than normal in the east	Likely to be colder than normal in the west; Likely to be warmer than normal in the east	Climatological odds
	Rainfall	Likely to be wetter than normal in the west; Climatological odds in the east	Likely to be wetter than normal in the west; Climatological odds in the east	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 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: October to March – Southern Africa (1)

		Forecast summary		
		October	October to December	January to March
South Africa	*Temperature*	Climatological odds	Climatological odds	Climatological odds
	Rainfall	Climatological odds	Climatological odds in the west; **Likely to be wetter than normal** in the east	Likely to be wetter than normal
Zambia	*Temperature*	**Likely to be warmer than normal**	**Likely to be warmer than normal**	Climatological odds
	Rainfall	**Likely to be drier than normal**	Climatological odds in the west; **Likely to be drier than normal** in the east	Climatological odds
Zimbabwe	*Temperature*	**Likely to be warmer than normal**	Climatological odds	Climatological odds
	Rainfall	**Likely to be drier than normal**	Climatological odds	Climatological odds
Mozambique	*Temperature*	Climatological odds	**Likely to be warmer than normal**	Climatological odds
	Rainfall	**Likely to be drier than normal**	**Likely to be drier than normal** in the north; **Likely to be wetter than normal** in the far south	Likely to be drier than normal in the north; Climatological odds elsewhere

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: October to March – Southern Africa (1)

		Forecast summary		
		October	October to December	January to March
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 in the south; Likely to be colder than normal in the north	Likely to be warmer than normal in the south; Likely to be colder than normal in the north	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal in the north; Climatological odds in the south	Likely to be drier than normal in the north; Climatological odds in the south

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.ncdc.noaa.gov/teleconnections/enso/indicators/sst.php

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