AFRICA: Monthly Climate Outlook
April to January

Issued:July 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

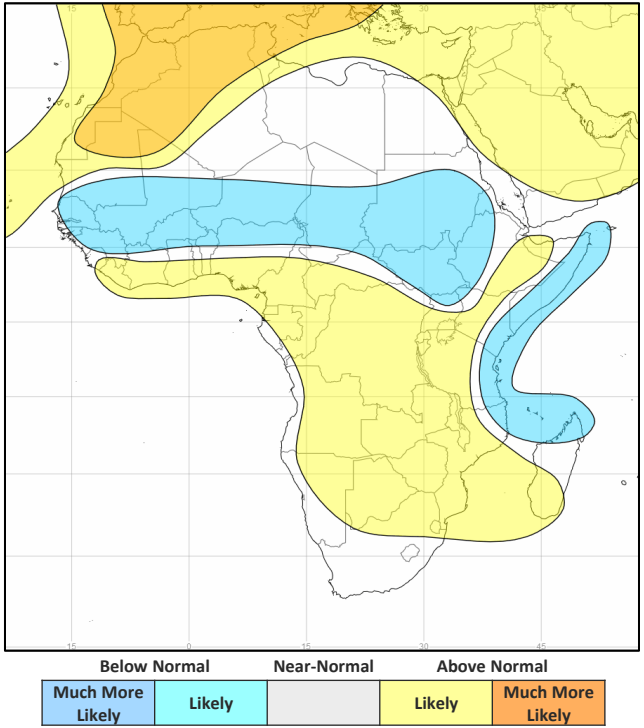
Current Status:

Most of sub-Saharan Africa has experienced normal to hot conditions over the past three months. The main exception to this is in southern Africa, where, away from Malawi which has been consistently hot, conditions have often been cool or cold, especially in Madagascar which has seen three cold months in a row.

Outlook:

For the next three months, above normal temperatures are likely across much of Central and Southern Africa, and below normal temperatures likely widely over the Sahel., coastal regions of eastern Africa, and northern Madagascar.

3-Month Outlook August to October - Temperature



Africa Current Status and Outlook - Rainfall

Current Status:

During April to June, many parts of east Africa continued to experience below normal rainfall. 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.

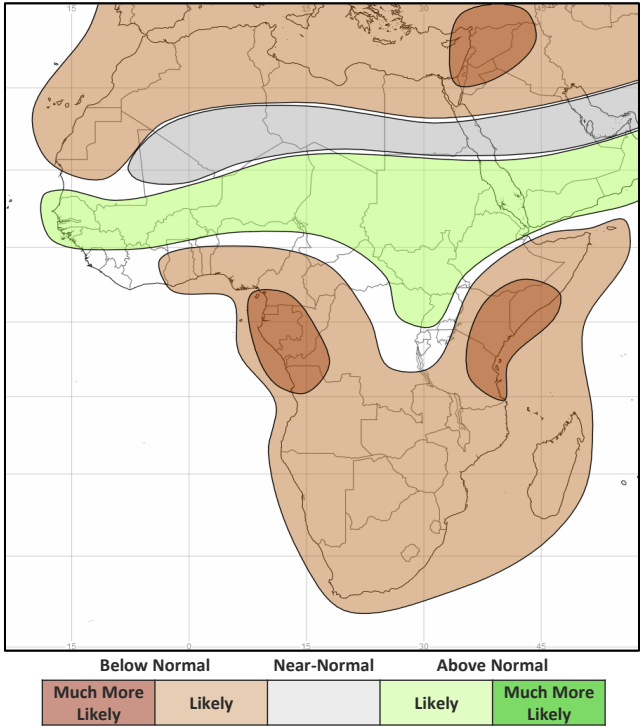
Conversely, in June, a more active than normal west African monsoon has resulted in wet or very wet conditions in parts of western Africa, such as north Mali and north Nigeria. Southern Africa was wetter than normal in many regions during April, however, in May Malawi and Madagascar experienced dry conditions.

Outlook:

Over the next three months, below normal rainfall is likely or much more likely in many areas of East Africa, extending into 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. Most of southern and western Africa is also likely to be drier than normal.

Across the Sahel, above normal rainfall is likely, associated with the more active West African monsoon; South Sudan and northern DRC are also likely to be wetter than normal.

3-Month Outlook August to October - Rainfall



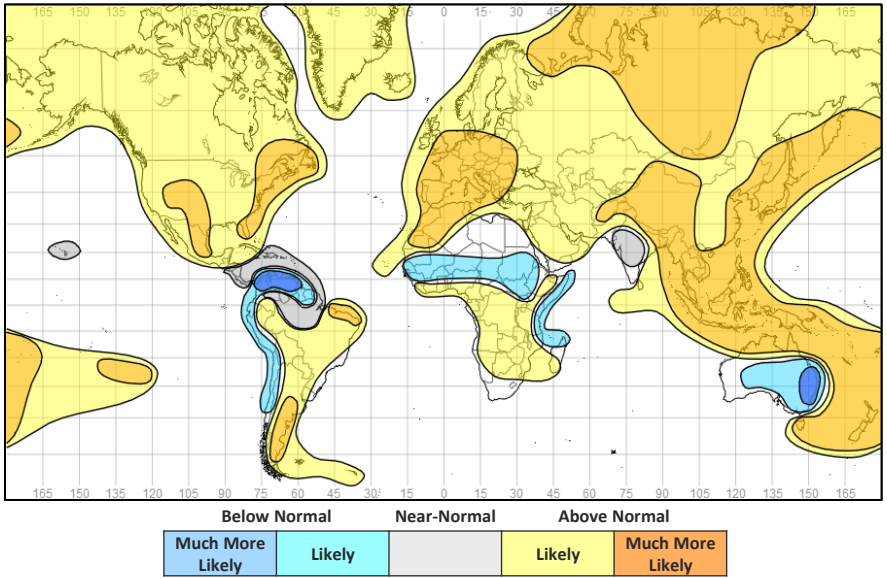
Global Outlook - Temperature

Outlook:

La Niña is likely to persist into the Northern hemisphere autumn. More details can be found in the precipitation section.

Consistent with background global warming, many parts of the globe are likely to be warmer than normal in the next three months. However, consistent with La Niña, parts of Australia, northern and western South America, the Indian sub-continent, the Sahel region in Africa and parts of southern Africa are likely to be colder than normal.

3-Month Outlook August to October - Temperature



Global Outlook - Rainfall

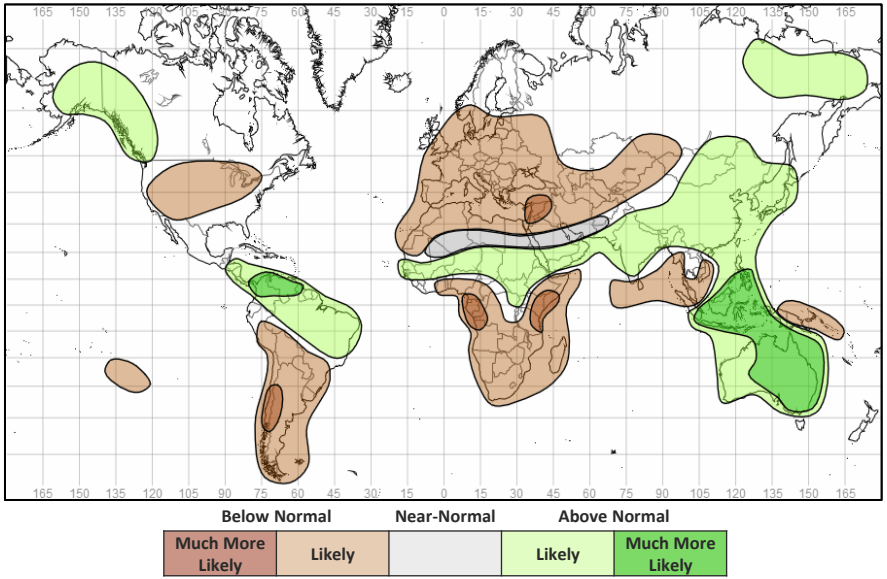
Outlook:
El Niño-Southern Oscillation (ENSO) – The 2021-22 La Niña event continues in the tropical Pacific Ocean. Both oceanic and atmospheric indicators have changed little over the past month.

The latest ENSO outlook issued by NOAA (27th June) states that although La Niña is likely to continue, the odds decrease into the late Northern Hemisphere summer (60% chance in July-September 2022) before slightly increasing during the Northern Hemisphere autumn and early winter 2022 (62-66% chance).

Therefore, it seems likely that La Niña will remain a 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 has been close to or exceeded negative IOD thresholds for the past 6 weeks. It is highly likely that the technical definition for a negative IOD year will be met soon. When concurrent with a La Nina, a negative IOD can increase the effects of a La Nina, increasing the likelihood of 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 August to October - Rainfall



Current Status

Current Status maps

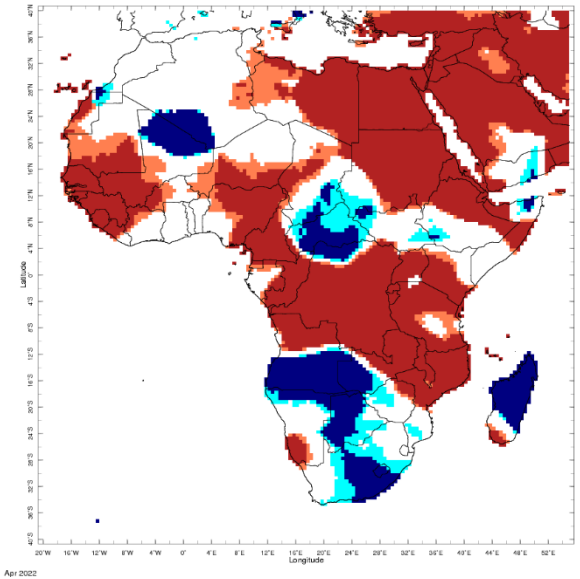
Western Africa

Central Africa

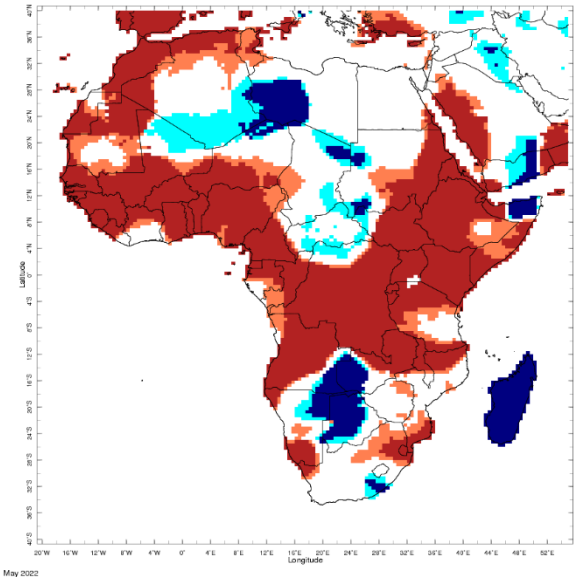
Eastern Africa

Southern Africa

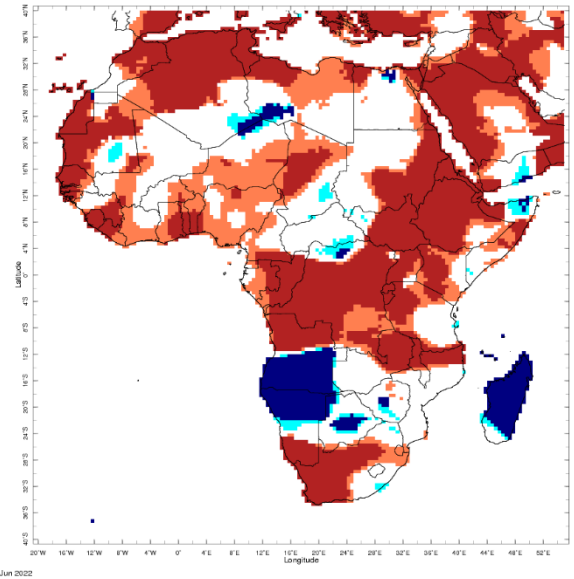
Current Status – Temperature percentiles



April



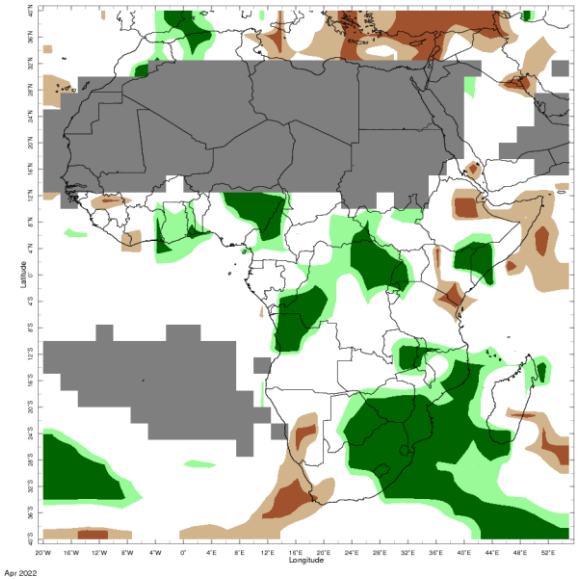
May



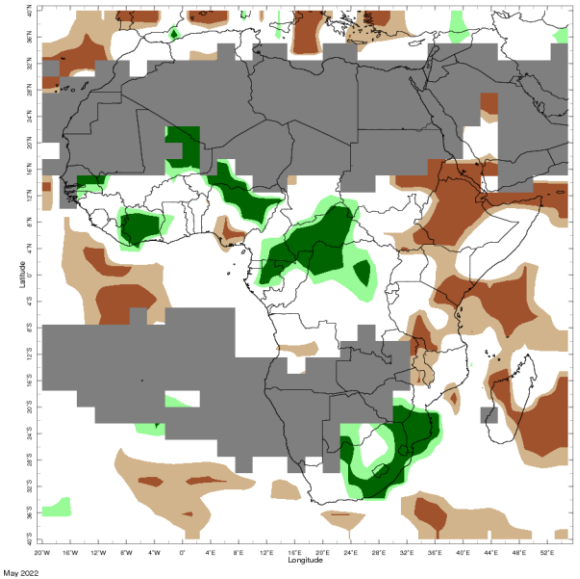
June

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.

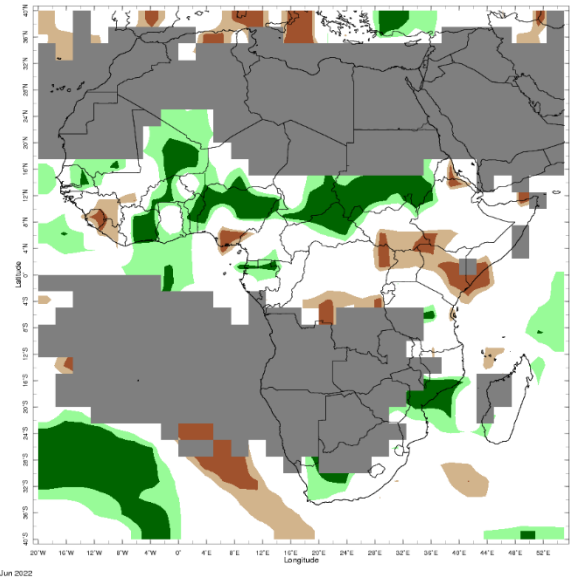
Current Status – Precipitation percentiles



April



May



June

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		
	April	May	June	April	May	June
Sierra Leone	Hot	Hot	Hot	Normal	Normal	Very Dry
Liberia	Hot	Mixed (2)	Warm	Normal	Normal	Dry
Mali	Mixed (1)	Mixed (3)	Normal	Normal*	Normal	Mixed (7)
Ghana	Normal	Hot	Warm	Wet	Normal	Normal
Nigeria	Hot	Hot	Warm	Normal (4)	Normal (5)	Mixed (8)
Cameroon	Hot	Hot	Normal	Wet	Normal (6)	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: Cool in far north, hot elsewhere
(2) Note: Hot in the west, normal elsewhere
(3) Note: Hot in the south, cold in the north
(4) Note: Wet or very wet in some central areas
(5) Note: Very wet in the northeast
(6) Note: Wet in the far southeast
(7) Note: Very wet in north, normal in south
(8) Note: Very wet in north, very dry in parts of the south.

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	April	May	June	April	May	June
Niger	Mixed (1)	Mixed (1)	Mixed (5)	Normal*	Normal*	Normal*
Chad	Mixed (2)	Mixed (2)	Warm	Normal*	Normal*	Normal* (6)
DRC	Hot	Hot	Hot	Mixed (3)	Mixed (4)	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 southwest, normal elsewhere
(2) Note: Cool/cold In the southeast; normal or warm elsewhere.
(3) Note: Wet or very wet in central and northern areas, normal elsewhere
(4) Note: Wet in the far northeast
(5) Note: Warm in the south. Normal in the north.
(6) Note: Very wet in south.

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	April	May	June	April	May	June
Sudan	Mixed (1)	Mixed (2)	Mixed (3)	Normal*	Normal*	Mixed (4)
South Sudan	Normal	Mixed (2)	Hot	Normal	Normal*	Mixed (5)
Uganda	Hot	Hot	Hot	Wet	Normal*	Dry
Rwanda	Hot	Hot	Hot	Wet	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: Cool in the southwest, hot elsewhere
(2) Note: Cool in the west, hot elsewhere
(3) Note: Hot in the east. Normal in the west.
(4) Note: Normal* in the north, very wet in the south.
(4) Note: Normal* in the north, dry in the south.

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	April	May	June	April	May	June
Tanzania	Hot	Mixed (3)	Mixed (3)	Normal	Mixed (6)	Normal
Ethiopia	Mixed (1)	Hot	Hot	Normal	Dry	Normal
Kenya	Hot	Hot	Warm	Mixed (5)	Dry	Dry
Somalia	Normal (2)	Mixed (4)	Mixed (8)	Mixed (6)	Normal (7)	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, cold in the far southwest, normal elsewhere
(2) Note: Hot in the far north
(3) Note: Normal in the southeast. Hot elsewhere
(4) Note: Hot in the west, very cold in the east
(5) Note: Very wet in the northeast and dry in the southeast; Normal elsewhere
(6) Note: Very wet in the south; dry in the north; Normal elsewhere
(7) Note: Dry in the far north
(8) Note: Large variations across the country.

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	April	May	June	April	May	June
South Africa	Cool	Mixed (3)	Mixed (7)	Mixed (5)	Mixed (5)	Normal
Zambia	Mixed (1)	Mixed (4)	Mixed (8)	Mixed (6)	Normal	Normal*
Zimbabwe	Cool	Normal	Normal	Very Wet	Wet	Normal*
Mozambique	Mixed (2)	Mixed (2)	Normal	Very Wet	Wet	Wet
Malawi	Hot	Hot	Hot	Wet	Dry	Normal*
Madagascar	Cold	Cold	Cold	Normal	Dry	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 east, cold in the west
(2) Note: Hot in the northeast, normal elsewhere
(3) Note: Cold in the far southeast, hot in the northeast, normal elsewhere
(4) Note: Very cold southwest, hot northeast
(5) Note: Very dry to normal in the west, very wet in the east.
(6) Note: Very wet in the far north
(7) Note: Hot in the west, more variable elsewhere.
(8) 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: August to January – Western Africa (1)

		Forecast summary		
		August	August to October	November to January
Sierra Leone	*Temperature*	Likely to be warmer than normal	Climatological odds	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	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	Climatological odds	Climatological odds
Mali	*Temperature*	**Much more likely to be warmer than normal** in the extreme north; to Likely to be colder than normal in the south	Likely to be colder than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal in the south; Likely to be near-normal in the north	Likely to be wetter than normal in the south; Likely to be near-normal in the north	Climatological odds
Ghana	*Temperature*	Climatological odds	Mainly Likely to be warmer than normal; Likely to be colder than normal in the far north	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal	Likely to be drier than normal

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

Outlook: August to January – Western Africa (2)

		Forecast summary		
		August	August to October	November to January
Nigeria	*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	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal in the south; Likely to be wetter than normal in the north	Mainly Likely to be drier than normal; Likely to be wetter than normal in the extreme north	Likely to be drier than normal
Cameroon	*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

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: August to January – Central Africa

		Forecast summary		
		August	August to October	November to January
Niger	*Temperature*	Likely to be warmer than normal in the north; Likely to be colder than normal in the south	Likely to be colder than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be near-normal
Chad	*Temperature*	Likely to be warmer than normal in the north; Likely to be colder than normal in the south	Likely to be colder than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than 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 in the west; Climatological odds elsewhere	Likely to be drier than normal in the south and west; Climatological odds elsewhere	Likely to be drier than normal

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

Outlook: August to January – Eastern Africa (1)

		Forecast summary		
		August	August to October	November to January
Sudan	*Temperature*	Likely to be colder than normal	Likely to be colder than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be near-normal
South Sudan	*Temperature*	Climatological odds	Likely to be colder than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be drier than normal
Uganda	*Temperature*	Climatological odds	Likely to be warmer than normal in the south; Likely to be colder than normal in the north	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds	Likely to be drier than normal
Rwanda	*Temperature*	Climatological odds	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal

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Outlook: August to January – Eastern Africa (2)

		Forecast summary		
		August	August to October	November to January
Tanzania	*Temperature*	Likely to be warmer than normal	Mainly Likely to be warmer than normal; Likely to be colder than normal in the coastal regions	Likely to be warmer than normal
	Rainfall	Likely to be near-normal; Likely to be drier than normal in the coastal regions	Mainly Likely to be drier than normal; **Much more likely to be drier than normal** in the coastal regions	Likely to be drier than normal
Ethiopia	*Temperature*	Likely to be colder than normal	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	Likely to be wetter than normal in the west; Likely to be drier than normal in the east	Likely to be drier than normal
Kenya	*Temperature*	Likely to be warmer than normal	Mainly Likely to be warmer than normal; Likely to be colder than normal in the coastal regions	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal; Likely to be drier than normal in the coastal regions	Mainly Likely to be drier than normal; **Much more likely to be drier than normal** in the coastal regions	Likely to be drier than normal
Somalia	*Temperature*	Climatological odds	Likely to be colder than normal	Climatological odds
	Rainfall	Climatological odds	Likely to be drier than normal	Likely to be drier than normal

Outlook: August to January – Southern Africa (1)

		Forecast summary		
		August	August to October	November to January
South Africa	*Temperature*	Climatological odds	Climatological odds	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Likely to be wetter than normal
Zambia	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Climatological odds
Zimbabwe	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Likely to be wetter than normal
Mozambique	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Likely to be drier than normal	Likely to be drier than normal

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

Outlook: August to January – Southern Africa (1)

		Forecast summary		
		August	August to October	November to January
Malawi	*Temperature*	Climatological odds	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
Madagascar	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal in the south; Likely to be colder than normal in the north	Climatological odds
	Rainfall	Climatological odds	Likely to be drier than normal	Likely to be drier than normal

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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 61 Statement (May 2022)
PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne (PRESASS): BULLETIN PRESASS 10 2022.pdf (April 2022)
Southern African Regional Climate Outlook Forum (SARCOF): http://csc.sadc.int/en/news-and-events/326-climate-outlook-forum-2021-sarcof-25 (August 2021)
PRÉvisions climatiques Saisonnières en Afrique, pays du Golfe de Guinée (PRESAGG): CENTRE AFRICAIN POUR LES APPLICATIONS DE LA METEOROLOGIE AU DEVELOPPEMENT (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)

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