AFRICA: Monthly Climate Outlook
July to April

Issued: October 2021

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

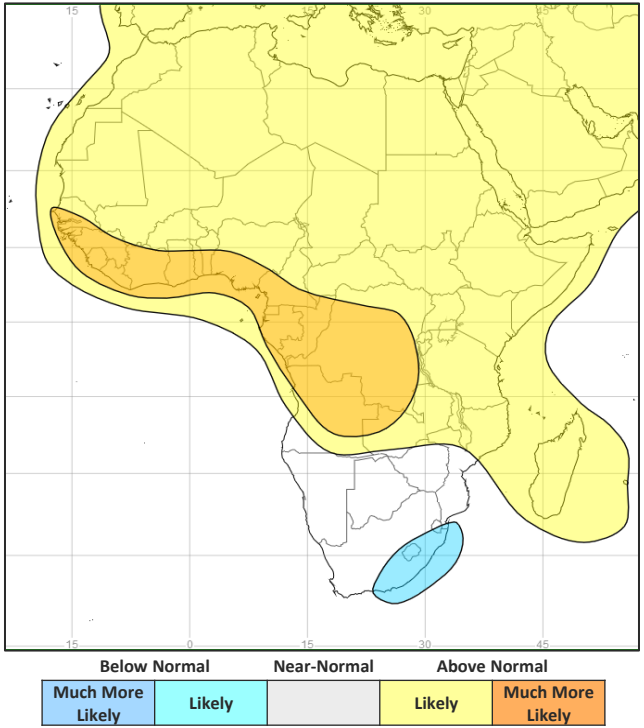
Current Status:

Most of the continent has experienced warm or hot conditions over the past three months, apart from the far south, and especially Madagascar which has been cold.

Outlook:

For the next three months, much of the continent is likely to be warmer than normal, the exception to this being the far south. Across parts of South Africa, colder than normal conditions are likely.

3-Month Outlook November to January - Temperature



Africa Current Status and Outlook - Rainfall

Current Status:

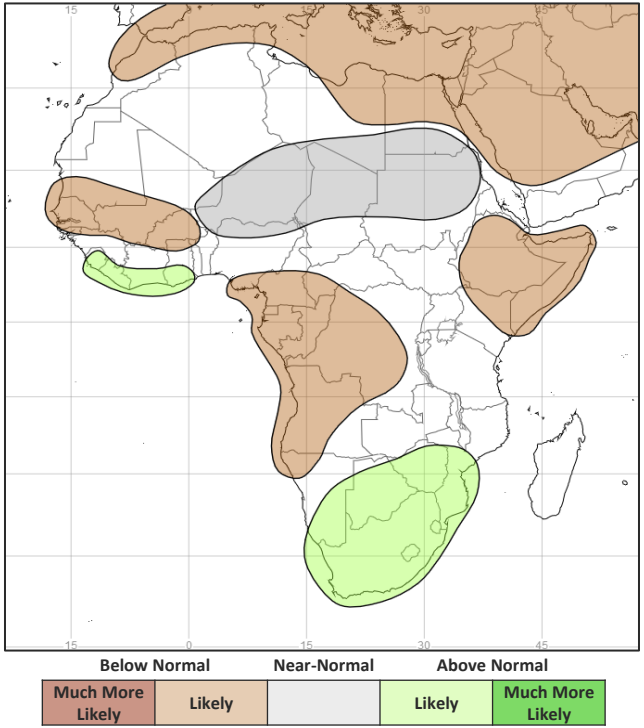
Over the last three months, wet or very wet conditions have been observed across parts of West Africa, in association with a wetter than normal West African Monsoon. Central Africa was near-normal compared to July where very wet conditions were observed across Niger and Chad. In parts of East Africa, a drier than normal August has been followed by a wetter than normal September.

Outlook:

Over the next three months, consistent with the La Niña event, wetter than normal conditions are likely across large parts of southern Africa, especially South Africa, Botswana and Zimbabwe. It is also likely to be wetter than normal across coastal parts of the Gulf of Guinea, especially Sierra Leone and Liberia.

Meanwhile, drier than normal conditions overall likely for parts of East Africa, mainly Ethiopia, Somalia and northern Kenya. Drier than normal conditions are also likely across tropical regions of West Africa, including large parts of the DRC, Angola and Cameroon.

3-Month Outlook November to January - Rainfall



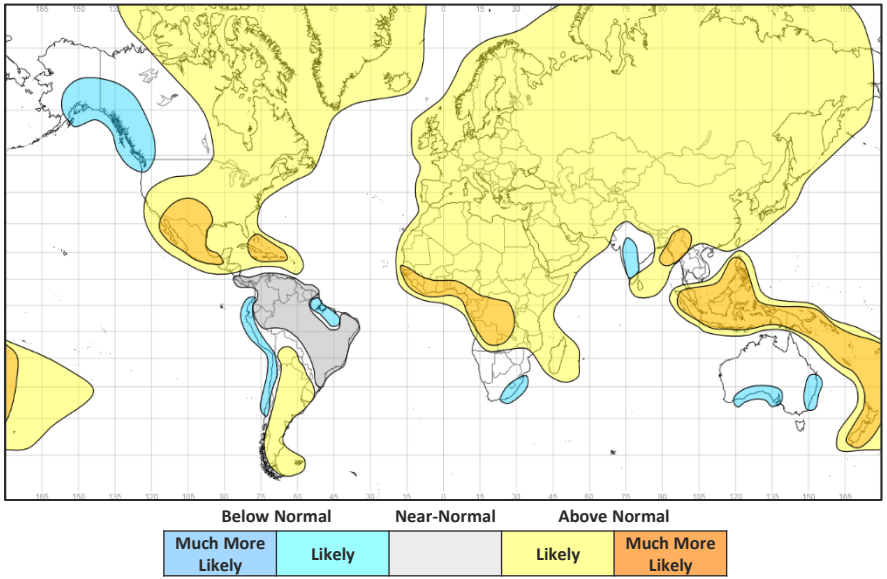
Global Outlook - Temperature

Outlook:

The current La Niña event, which is likely to persist into the spring, will strongly influence global temperature variations in the coming months. Many parts of the globe are likely to see warmer than normal conditions through the next three months.

However, consistent with the effects of La Niña, parts of Australia, southern Africa, the northern half of South America, parts of Canada and northern USA are more likely to be colder than normal.

3-Month Outlook November to January - Temperature



Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO): Sea surface temperature patterns in the Pacific Ocean indicate a weak La Niña event is now occurring, with linked changes in atmospheric patterns also observed. These conditions are likely to continue into early 2022.

Many tropical land areas are likely to experience above-normal rainfall in November to January, especially Indonesia / Malaysia and northern / eastern Australia.

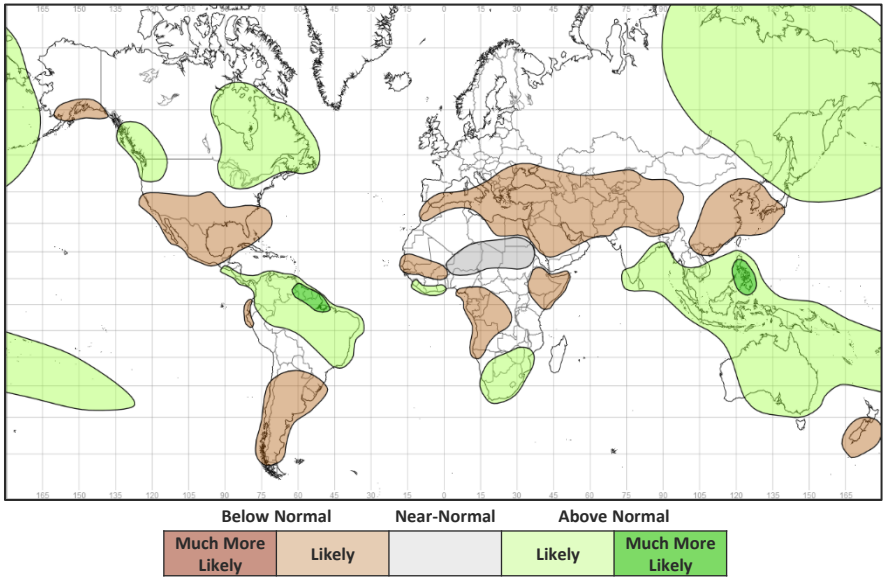
Seasonal forecast models are not consistently predicting typical La Nina seasonal anomalies beyond early 2022 and this is reflected in the 3-6 month outlook for many regions; the next Climate Outlooks issued in November will provide an update.

More information on typical impacts can be found here

Indian Ocean Dipole (IOD) – A weak negative Indian Ocean Dipole (IOD) event is occurring in the Indian Ocean. This is expected to weaken rapidly in November, quickly limiting its effect on global weather patterns.

Until the IOD completely fades, the remaining negative signal increases the chance of wetter than normal conditions across Malaysia, Indonesia and much of southern and eastern Australia. Meanwhile, East Africa and southern parts of the Arabian Peninsula have an increased chance of drier than normal conditions.

3-Month Outlook November to January - Rainfall



Current Status

Current Status maps

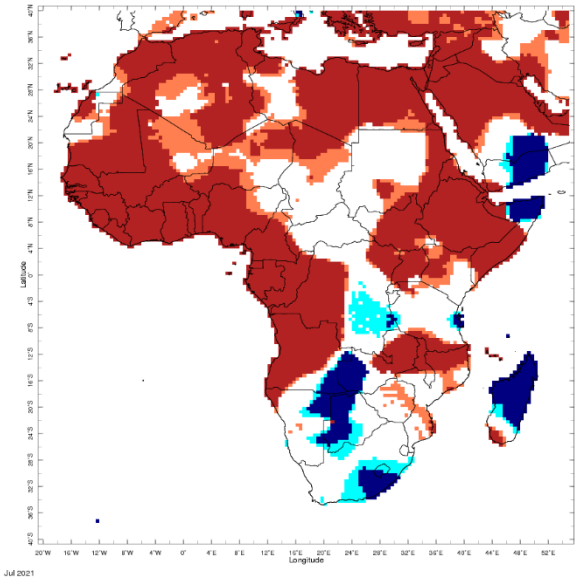
Western Africa

Central Africa

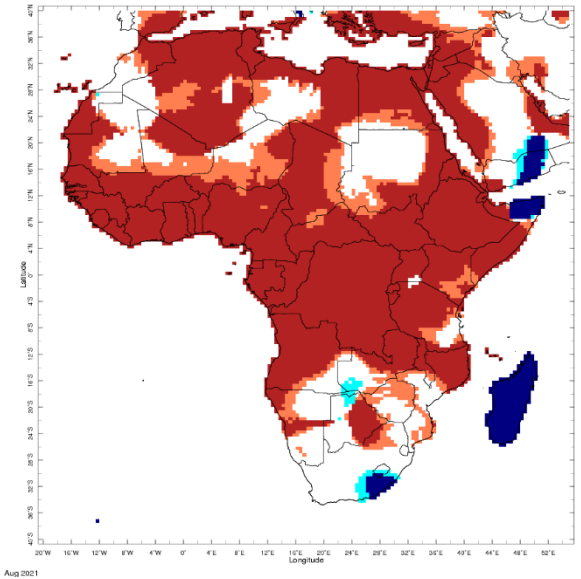
Eastern Africa

Southern Africa

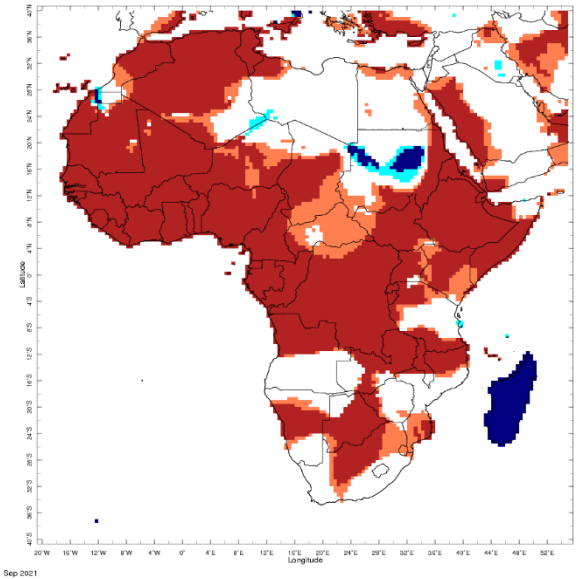
Current Status – Temperature percentiles



July



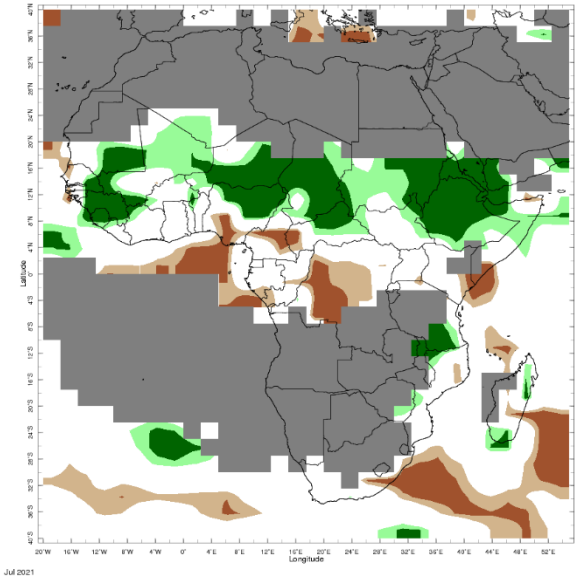
August



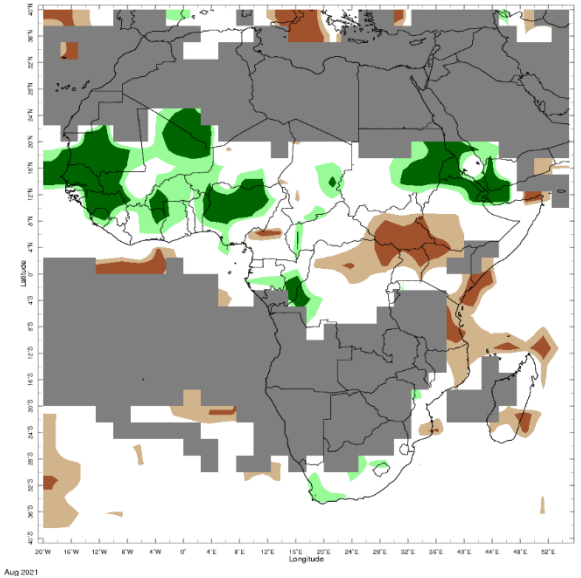
September

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.

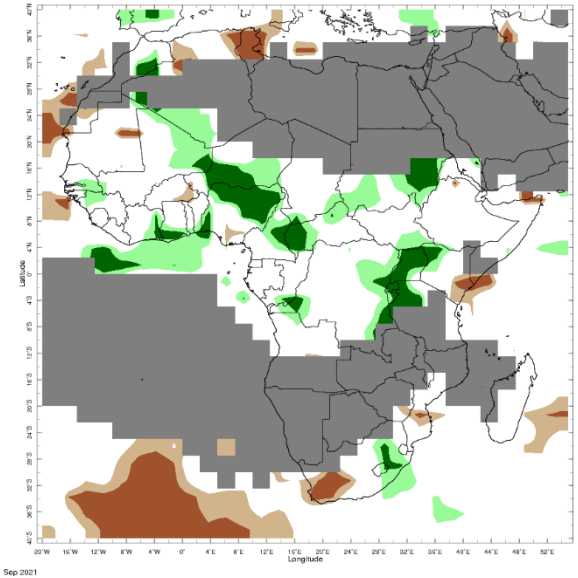
Current Status – Precipitation percentiles



July



August



September

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		
	July	August	September	July	August	September
Sierra Leone	Hot	Hot	Hot	Very Wet	Wet	Normal
Liberia	Hot	Hot	Hot	Normal	Normal	Normal
Mali	Hot	Hot	Hot	Wet	Wet	Normal
Ghana	Hot	Hot	Hot	Normal	Wet	Mixed (2)
Nigeria	Hot	Hot	Hot	Mixed (1)	Very Wet	Mixed (3)
Cameroon	Hot	Hot	Hot	Dry	Normal	Mixed (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:** Very Wet in the north; Dry in the south
(2) **Note**: Very Wet in the south; Normal elsewhere
(3) **Note:** Very Wet in the northeast; Normal in the southwest

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	July	August	September	July	August	September
Niger	Warm	Warm	Hot	Very Wet	Normal	Wet
Chad	Mixed (1)	Hot	Hot	Very Wet	Normal	Normal
DRC	Mixed (2)	Hot	Hot	Dry	Normal	Normal

Notes:

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

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

Additional Information:

(1) Note: Hot in the north and normal in the south
(2) Note: Hot in the west and the far northeast; normal elsewhere

Current Status – Eastern Africa (1)

	Current Status: Temperature			Current Status: Rainfall		
	July	August	September	July	August	September
Sudan	Normal	Mixed (1)	Normal	Wet	Mixed (2)	Very Wet
South Sudan	Hot	Hot	Hot	Normal	Dry	Normal
Uganda	Hot	Hot	Hot	Normal	Dry	Very Wet
Rwanda	Hot	Hot	Hot	Normal	Normal	Very 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 far east, normal elsewhere.
(2) Note: Very wet in the far east, normal elsewhere.

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	July	August	September	July	August	September
Tanzania	Normal	Hot	Normal	Wet	Dry	Mixed (4)
Ethiopia	Hot	Hot	Hot	Very Wet	Mixed (3)	Normal
Kenya	Normal (1)	Hot	Hot	Normal	Dry	Normal
Somalia	Hot (2)	Hot	Hot	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 north
(2) Note: Cold in far northeast
(3) Note: Ranging from Very Wet in the far north, to Very Dry in the extreme south.
(4) Note: Very Wet around Lake Victoria; Normal elsewhere

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	July	August	September	July	August	September
South Africa	Cool	Normal	Mixed (2)	Normal	Normal	Mixed (3)
Zambia	Mixed (1)	Mixed (1)	Hot	Normal*	Normal*	Normal*
Zimbabwe	Normal	Warm	Normal	Normal*	Normal*	Normal*
Mozambique	Normal	Mixed (2)	Mixed (2)	Normal	Mixed (3)	Normal
Malawi	Hot	Hot	Hot	Normal*	Normal*	Normal*
Madagascar	Cold	Cold	Cold	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 northeast, but Cold in the southwest
(2) Note: Hot in the north, normal in the south
(3) Note: Dry in the far north, normal elsewhere
(4) Note: Wet in the northeast; Dry in the southwest; 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: November to April– Western Africa (1)

		Forecast summary		
		November	November to January	February to April
Sierra Leone	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Climatological odds
	Rainfall	Climatological odds	**Likely to be wetter than normal**	Climatological odds
Liberia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Climatological odds
	Rainfall	Climatological odds	**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 drier than normal** in the south; Climatological odds elsewhere	Climatological odds
Ghana	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Climatological odds
	Rainfall	**Likely to be near-normal**	**Likely to be wetter than normal** in the south; 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: November to April– Western Africa (2)

		Forecast summary		
		November	November to January	February to April
Nigeria	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal in the north; **Much more likely to be warmer than normal** in the south	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal in the far southeast; Likely to be near-normal in the far north; Climatological odds elsewhere	Climatological odds
Cameroon	*Temperature*	**Much more likely to be warmer than normal**	**Much more 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: November to April– Central Africa

		Forecast summary		
		November	November to January	February to April
Niger	*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
Chad	*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
Democratic Republic of Congo	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal in central and western areas; 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: November to April– Eastern Africa (1)

		Forecast summary		
		November	November to January	February to April
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 near-normal	Climatological odds
South Sudan	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Uganda	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Rwanda	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds

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Outlook: November to April– Eastern Africa (2)

		Forecast summary		
		November	November to January	February to April
Tanzania	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Ethiopia	*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
Kenya	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Likely to be drier than normal in the north; Climatological odds elsewhere	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: November to April– Southern Africa (1)

		Forecast summary		
		November	November to January	February to April
South Africa	*Temperature*	Climatological odds	Likely to be colder than normal in the southeast; Climatological odds elsewhere	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Climatological odds
Zambia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Zimbabwe	*Temperature*	Likely to be warmer than normal	Climatological odds	Climatological odds
	Rainfall	Climatological odds	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; Climatological odds in the south	Climatological odds
	Rainfall	Climatological odds	Likely to be wetter than normal in the south; Climatological odds 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: November to April– Southern Africa (1)

		Forecast summary		
		November	November to January	February to April
Malawi	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Madagascar	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Climatological odds	Climatological odds

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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): https://www.icpac.net/events/ghacof-59-climate-services-for-resilience/ (August 2021)
PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne (PRESASS): http://acmad.net/rcc/presassS.php (April 2021)
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): http://acmad.net/rcc/presagg.php (February 2021)
South-West Indian Ocean Climate Outlook Forum (SWIOCOF) - https://www.commissionoceanindien.org/wp-content/uploads/2020/09/SWIOCOF-9_Statement.pdf (Sept 2020)

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 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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