AFRICA: Monthly Climate Outlook
June to March

Issued: September 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

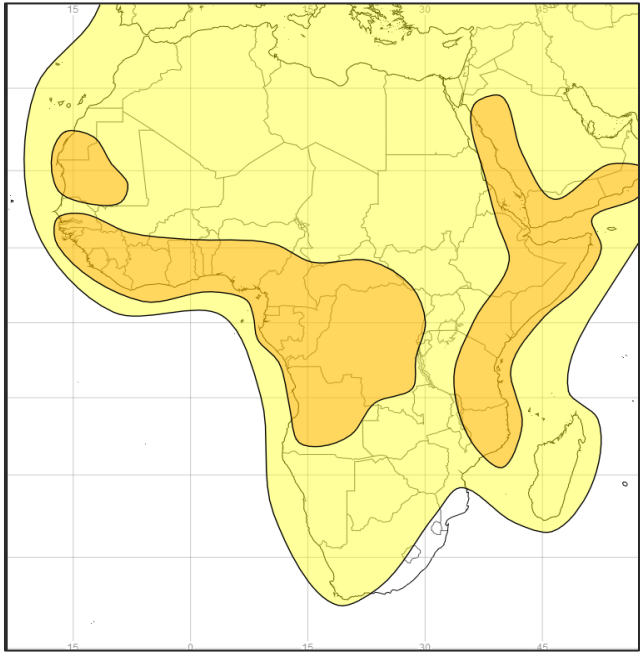
Current Status:

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

Outlook:

For the next three months a continuation of above normal conditions is likely, particularly in tropical and eastern Africa where warm conditions are much more likely. This includes Madagascar which is likely to be warm as the Indian Ocean Dipole returns to a neutral state.

3-Month Outlook October to December - Temperature



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

Africa Current Status and Outlook - Rainfall

Current Status:

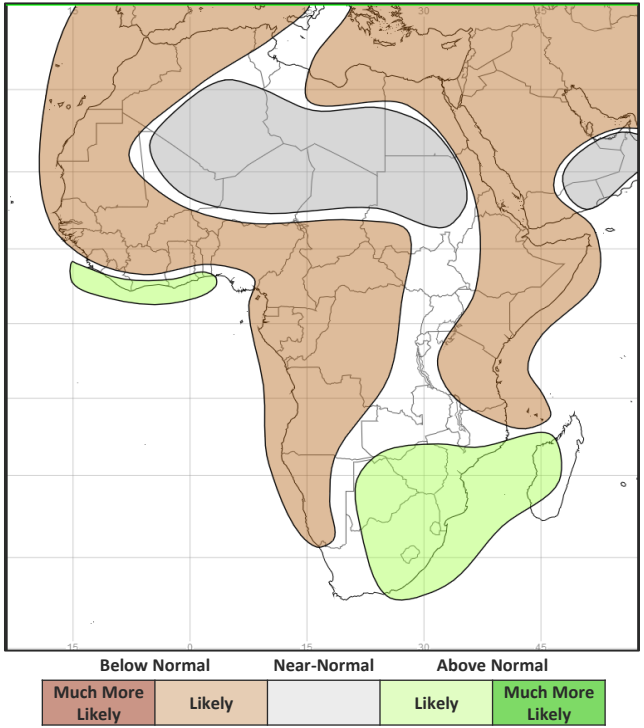
Most of East Africa experienced normal or dry conditions during June and August. In July and August, the West Africa Monsoon was more active than normal; many parts of West Africa experienced Wet or Very Wet conditions. Central Africa was mainly near-normal, except for July where Very Wet conditions were observed across Niger and Chad.

Outlook:

For the next three months, below normal rainfall is likely across northwest and western Africa, apart from countries bordering the Gulf of Guinea, including Sierra Leone, Liberia, and Ghana where above normal rainfall is likely in coastal regions.

Due to the negative Indian Ocean Dipole (IOD), below normal rainfall is also likely across eastern Africa, especially during October and November, with the outlook less certain for December as the as the IOD returns to normal. Above normal rainfall is likely across southeast Africa, including Madagascar, this in part due to increased tropical cyclone activity which is forecast to occur in the Mozambique Channel this season (during in the three-month period).

3-Month Outlook October to December - Rainfall

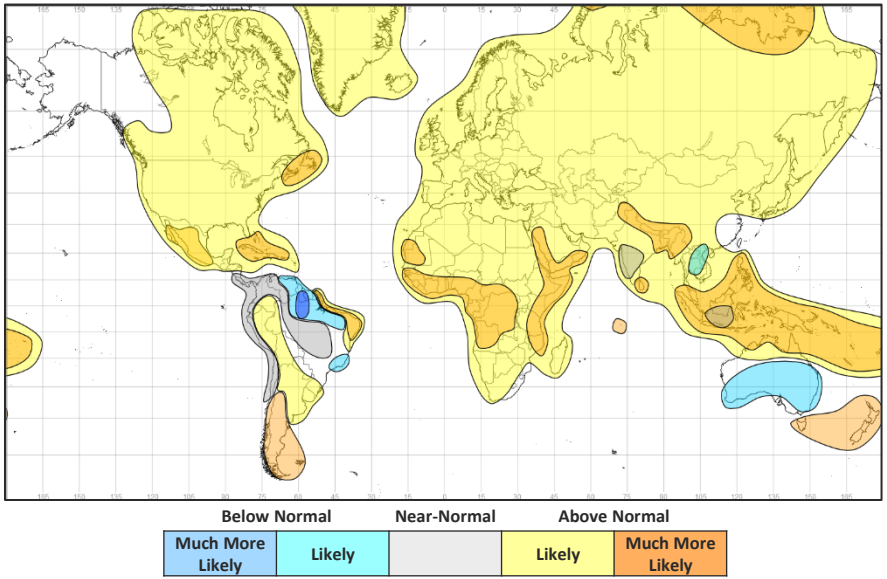


Global Outlook - Temperature

Outlook:

Over the next three months, many regions are likely to be warmer than normal, consistent with the warming observed over the past decade. There are some notable exceptions to this with below normal temperatures likely across parts of northern South America (away from the immediate coast where warm sea surface temperatures will keep temperatures above normal), southern Australia, and parts of Indochina.

3-Month Outlook October to December - Temperature



Global Outlook - Rainfall

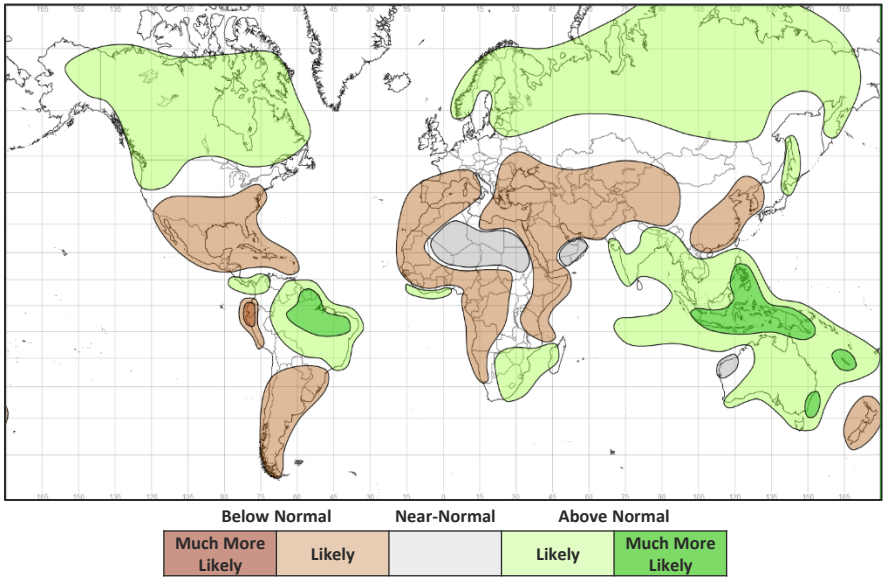
Indian Ocean Dipole (IOD) - Indian Ocean Dipole (IOD) - A negative IOD event is established and is expected to persist for the next few months returning to neutral by December. During a negative phase, waters in the eastern Indian Ocean (near Indonesia) are warmer than normal, and the western Indian Ocean (near Africa) are cooler than normal. This typically results in wetter than normal conditions for Indonesia and SE Australia, and drier than normal conditions for Horn of Africa / East Africa.

El Niño-Southern Oscillation (ENSO) - Although ENSO neutral conditions are currently observed in the Pacific Ocean, the NOAA Climate Prediction Center / NECP forecast a 70-80% chance of La Nina emerging in the 2021-22 Northern Hemisphere winter and have issued a La Nina Watch alert. This weak La Nina episode is expected to persist into early 2022 and follows a La Nina event during the winter and spring of 2020-21. Although no two La Nina episodes are the same, this consecutive event may bring compounding impacts in some regions. La Niña typically results in enhanced rainfall across tropical land areas, especially Indonesia/Malaysia and northern/eastern Australia.

Over the next three months, large parts of southern Asia, Australasia, northern parts of South America, along with southern parts of Africa are likely to be wetter than normal.
Meanwhile, much of West, Central and East Africa, Central Asia and the Middle East are likely to be drier than normal.

Tropical Cyclone activity and their likely tracks may also be affected by the La Nina episode. Typically, during a La Nina, the North Atlantic Hurricane Season (June – November, currently above-average with 19 named storms) is slightly more active, Pacific cyclones are more likely to run due west towards the Philippines and Indochina rather than curve north towards eastern China, and there is also a signal for greater than usual tropical cyclone activity in the Mozambique Channel (season Nov – Apr)

3-Month Outlook October to December - Rainfall



Current Status

Current Status maps

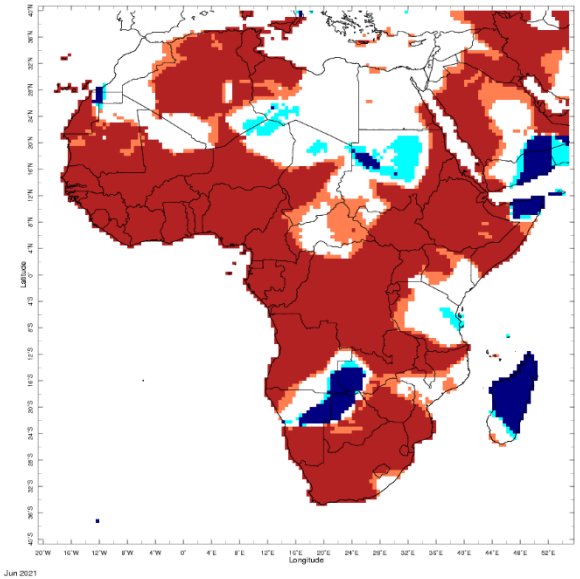
Western Africa

Central Africa

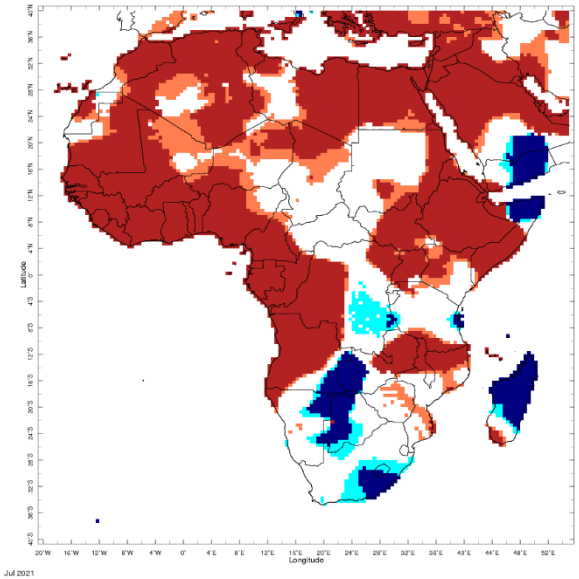
Eastern Africa

Southern Africa

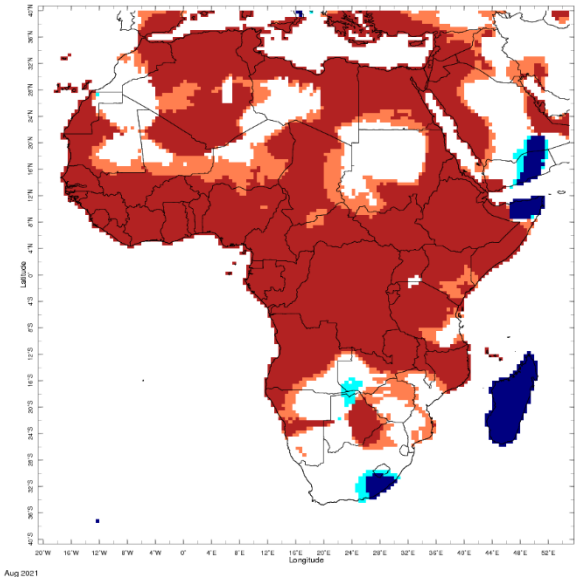
Current Status – Temperature percentiles



June



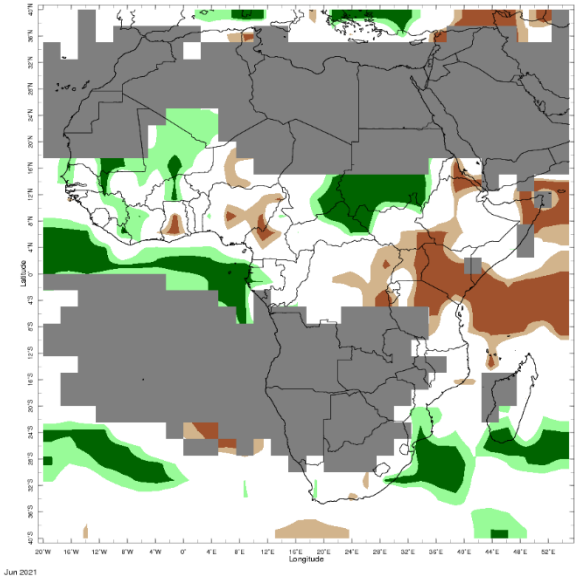
July



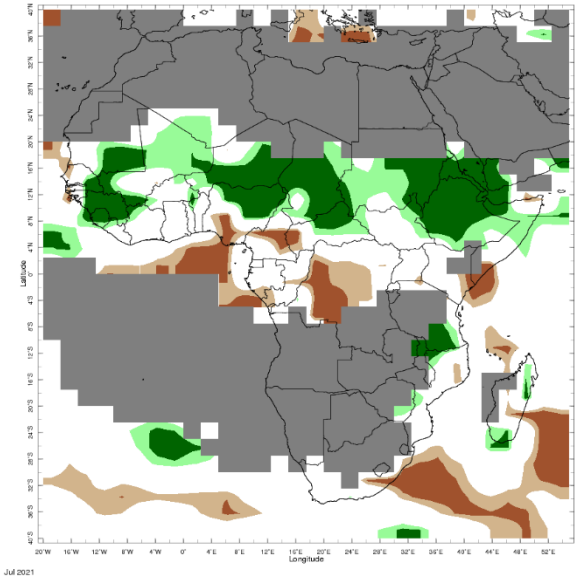
August

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.

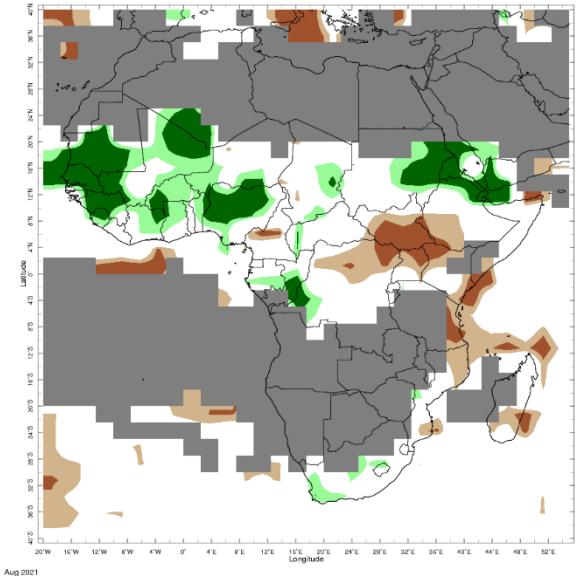
Current Status – Precipitation percentiles



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	Normal	Very Wet	Wet
Liberia	Hot	Hot	Hot	Normal	Normal	Normal
Mali	Hot	Hot	Hot	Wet	Wet	Wet
Ghana	Hot	Hot	Hot	Dry	Normal	Wet
Nigeria	Hot	Hot	Hot	Normal	Mixed (1)	Very Wet
Cameroon	Hot	Hot	Hot	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: Very Wet in the north; Dry in the south

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Niger	Warm	Warm	Warm	Normal	Very Wet	Normal
Chad	Warm	Mixed (1)	Hot	Normal	Very Wet	Normal
DRC	Hot	Mixed (2)	Hot	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 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		
	June	July	August
Sudan	Normal	Normal	Mixed (1)
South Sudan	Hot	Hot	Hot
Uganda	Hot	Hot	Hot
Rwanda	Hot	Hot	Hot

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

Current Status – Eastern Africa (2)

	Current Status: Temperature		
	June	July	August
Tanzania	Normal	Normal	Hot
Ethiopia	Hot	Hot	Hot
Kenya	Normal	Normal (1)	Hot
Somalia	Warm	Hot (2)	Hot

Current Status: Rainfall		
June	July	August
Normal	Wet	Dry*
Normal	Very Wet	Mixed (3)
Very Dry	Normal	Dry
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.

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
South Africa	Hot	Cool	Normal	Normal	Normal	Normal
Zambia	Mixed (1)	Mixed (1)	Mixed (1)	Normal*	Normal*	Normal*
Zimbabwe	Hot	Normal	Warm	Normal*	Normal*	Normal*
Mozambique	Warm	Normal	Mixed (3)	Normal	Normal	Mixed (4)
Malawi	Hot	Hot	Hot	Normal*	Normal*	Normal*
Madagascar	Cold	Cold	Cold	Normal (2)	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: Very Wet in the far south.
(3) Note: Hot in the north, normal in the south
(4) Note: Dry in the far north, 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: October to March – Western Africa (1)

		Forecast summary		
		October	October to December	January to March
Sierra Leone	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be drier than normal**	**Likely to be drier than normal**	Climatological odds
Liberia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be drier than normal**	**Likely to be drier than normal**	Climatological odds
Mali	*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 south. **Likely to be near-normal** in the north.	**Likely to be drier than normal** in south. **Likely to be near-normal** in the north.	Climatological odds
Ghana	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	**Likely to be wetter than normal** on the coast. **Likely to be drier than normal** 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: October to March – Western Africa (2)

		Forecast summary		
		October	October to December	January to March
Nigeria	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be drier than normal**	**Likely to be drier than normal**	Climatological odds
Cameroon	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be 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 – 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 drier than normal in the south. Likely to be near-normal in the north.	Likely to be drier than normal in the south. Likely to be near-normal in the north.	Likely to be near-normal
Democratic Republic of Congo	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal in the far west. Climatological odds elsewhere.	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: October to March – Eastern Africa (1)

		Forecast summary		
		October	October to December	January to March
Sudan	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be near-normal	Likely to be near-normal
South Sudan	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal in the west Likely to be wetter than normal in the southeast.	Climatological odds	Climatological odds
Uganda	*Temperature*	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds	Climatological odds
Rwanda	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds	Climatological odds

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

Outlook: October to March – Eastern Africa (2)

		Forecast summary		
		October	October to December	January to March
Tanzania	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal** in the east. Likely to be warmer than normal in west.	Likely to be warmer than normal
	Rainfall	**Much more likely to be drier than normal** in the far east, Climatological odds elsewhere	Likely to be drier than normal	Likely to be wetter than normal
Ethiopia	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal** in the east. Likely to be warmer than normal in the west.	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal in the east, Climatological odds elsewhere	Likely to be drier than normal	Climatological odds
Kenya	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal in the west. Likely to be drier than normal in the east.	Likely to be drier than normal	Climatological odds
Somalia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Likely to be near-normal

Outlook: October to March – Southern Africa (1)

		Forecast summary		
		October	October to December	January to March
South Africa	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal	Climatological odds
Zambia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal	Climatological odds
Zimbabwe	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Likely to be wetter than normal	Likely to be drier than normal
Mozambique	*Temperature*	Likely to be warmer than normal	Mainly Likely to be warmer than normal. **Much more likely to be warmer than normal** in the north.	Climatological odds
	Rainfall	Climatological odds	Likely to be wetter than normal	Likely to be wetter 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: 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	Climatological odds	Climatological odds	Climatological odds
Madagascar	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal in west. 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.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)

Enquiries

Email: internationaldevelopment@metoffice.gov.uk

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