AFRICA: Monthly Climate Outlook December to September

Issued: March 2021

Overview

Africa Current Status and Outlook – Temperature

Africa Current Status and Outlook – Rainfall

Global Outlook – Temperature

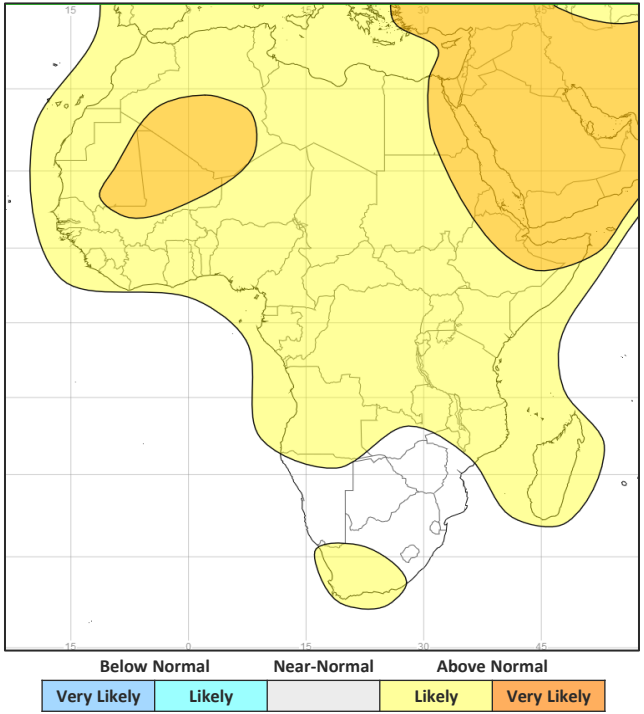
Global Outlook – Rainfall

Africa Current Status and Outlook - Temperature

Current Status:
Large parts of Africa have been warmer than normal. The main exception to this is in the far south, and in particular Madagascar, where cool to cold conditions have been experienced.

Outlook:
For the next three months, conditions are widely likely to be warmer than normal apart from the south where in some areas climatological odds are likely.

3-Month Outlook April to June - Temperature



Africa Current Status and Outlook - Rainfall

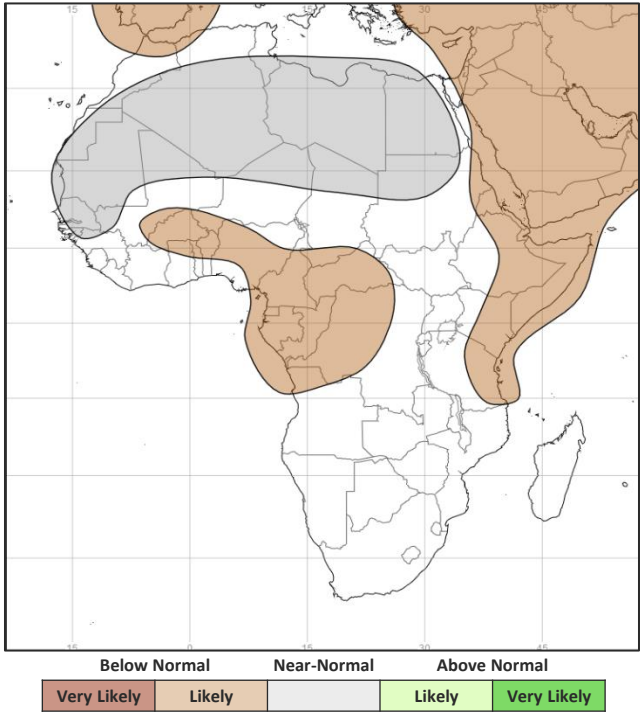
Current Status:

Many parts of central and southern Africa have seen above normal rainfall over the past 3 months, exacerbated by tropical cyclone activity moving inland across mainland Africa from the Mozambique Channel. Conversely, Madagascar has generally seen below normal rainfall. Following above normal rainfall across some areas of the Gulf of Guinea coastline, rainfall in February has generally been near normal.

Outlook:

For the next three months as the seasonal rains advance northwards it is likely to be drier than normal in east Africa, especially near the coast. Across south east Africa indications are less clear, especially as the South West Indian Ocean cyclone season tails off and draws to a close during May. Parts of west Africa are likely to be drier than normal due to indications that the West African Monsoon may be less active than normal over the next three months.

3-Month Outlook April to June - Rainfall



Global Outlook - Temperature

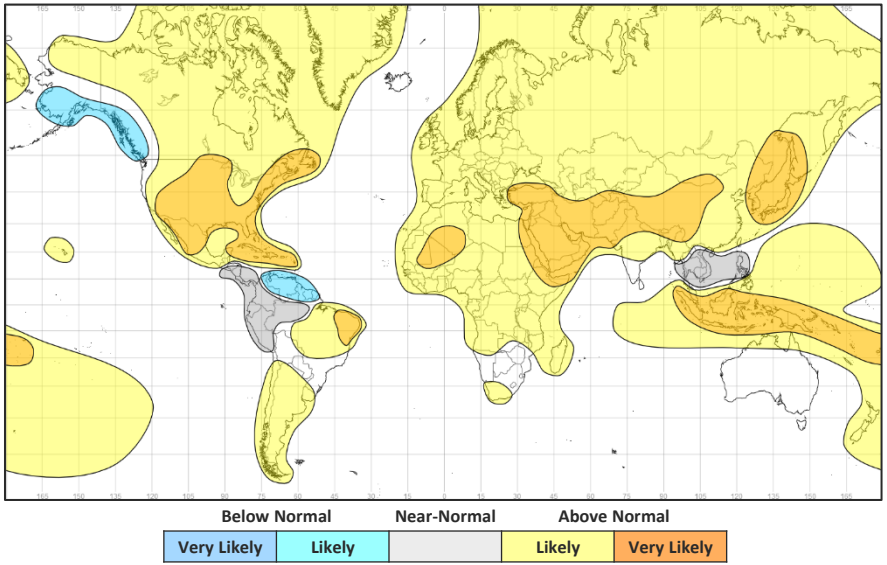
Outlook:

With the current El Niño–Southern Oscillation (ENSO) prediction indicating the possibility of change to neutral conditions over the next three months, La Niña is having less of a cooling influence on the forecast. In the context of climate change, this means that most of the the world's land area is likely to see above normal temperatures.

For the next three months, temperatures are very likely to be warmer than normal across most of the US and Caribbean, the Middle East extending east across Central Asia towards Japan, as well as Malaysia/Indonesia and adjacent countries.

Notable exceptions to this are northern parts of South America, which is accompanied by wetter than normal conditions (see slide 6). The Pacific coast of Canada and Alaska is also likely to be cooler than normal.

3-Month Outlook April to June - Temperature



Global Outlook - Rainfall

Outlook:

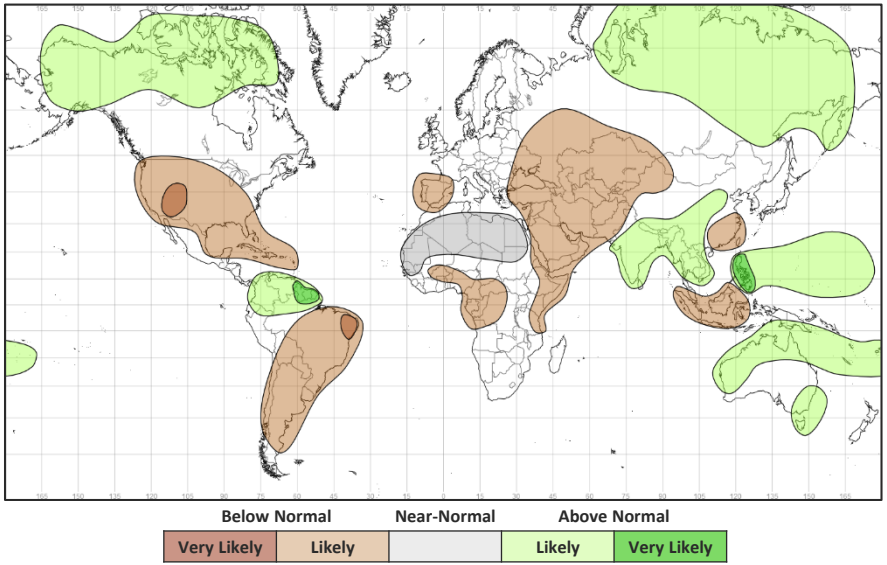
Whilst La Niña conditions are predicted to decline, La Niña will still have an influence on rainfall patterns through some of this period (though it is more weakly represented in the total 3-month outlook period).

The La Nina associated suppression of rainfall over the tropical Pacific Ocean can also lead to increases in rainfall across the tropical land areas; this below normal and above normal rainfall pattern is predicted for Indonesia and South East Asia respectively over the next three months.

For the next three months, conditions are likely to be drier than normal for large parts of the Americas, the main exception being northern South America where due to a northward displaced Intertropical Convergence Zone, conditions are likely to very likely to be wetter than normal on the Atlantic facing coasts and adjacent countries.

For the next three months as the seasonal rains advance northwards it is likely to be drier than normal in east Africa, especially near the coast. Parts of west Africa are also likely to be drier than normal due to indications that the West African Monsoon may be less active than normal over the next three months. Conditions are also likely to be drier than normal across most of the Middle East and into Central Asia.

3-Month Outlook April to June - Rainfall



Current Status

Current Status maps

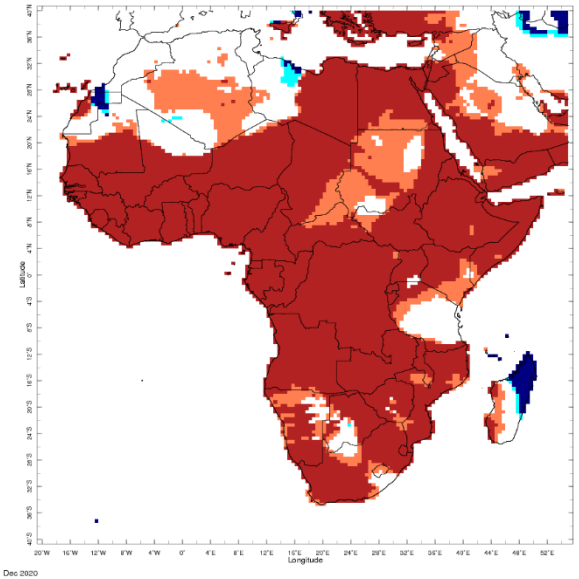
Western Africa

Central Africa

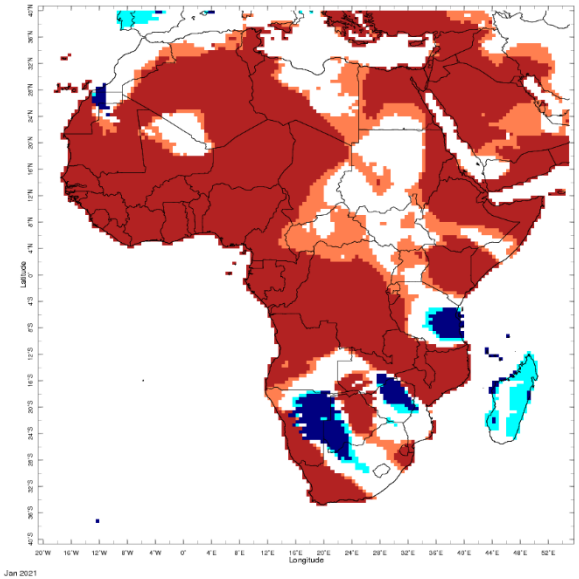
Eastern Africa

Southern Africa

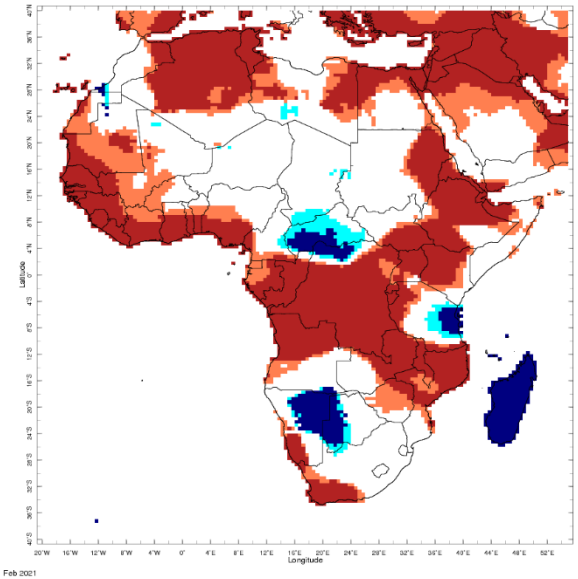
Current Status – Temperature percentiles



December



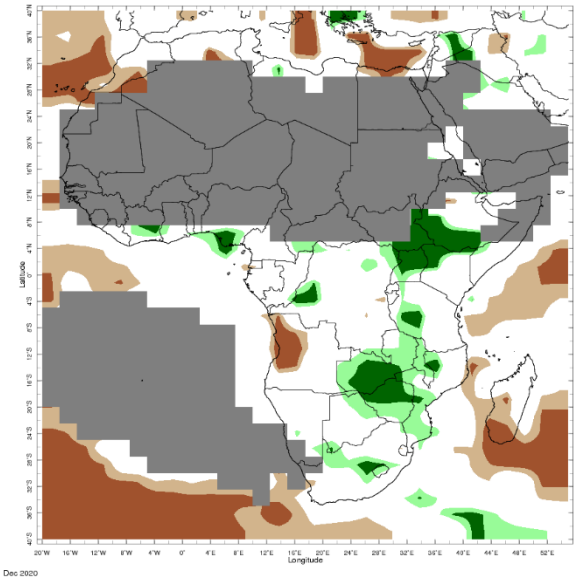
January



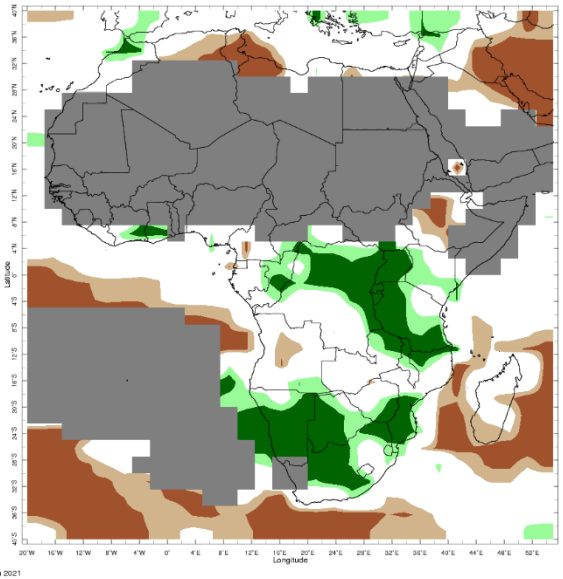
February

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.

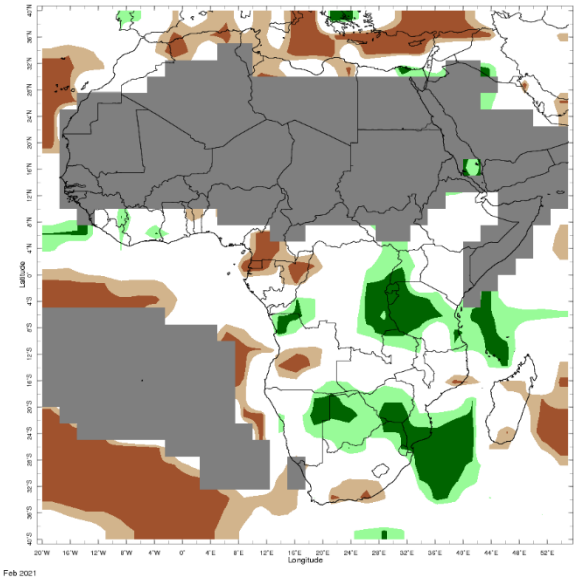
Current Status – Precipitation percentiles



December



January



February

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		
	December	January	February	December	January	February
Sierra Leone	Hot	Hot	Hot	Normal	Normal	Normal
Liberia	Hot	Hot	Hot	Mixed	Normal	Normal
Mali	Hot	Hot	Warm	Normal*	Normal*	Normal*
Ghana	Hot	Hot	Hot	Normal	Very Wet^^	Normal
Nigeria	Hot	Hot	Normal	Mixed^	Normal	Normal*
Cameroon	Hot	Hot	Normal	Normal	Normal	Very 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:

^Note: Hot in the south of Nigeria in December, normal elsewhere
^^Note: Very Wet in the south

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	December	January	February	December	January	February
Niger	Hot	Hot	Normal	Normal*	Normal*	Normal*
Chad	Hot	Hot	Normal	Normal*	Normal*	Normal*
DRC	Hot	Hot	Hot	Normal	Mixed^	Mixed^^

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:

^Note: Very wet in the north, normal in the south
^^Note: Very wet in the far east, normal elsewhere

Current Status – Eastern Africa (1)

	Current Status: Temperature		
	December	January	February
Sudan	Hot	Normal^	Mixed^^^
South Sudan	Hot	Normal	Mixed^^^^
Uganda	Hot	Warm	Hot
Rwanda	Hot	Warm	Hot

Current Status: Rainfall		
December	January	February
Normal*	Normal*	Normal*
Wet	Mixed^^	Normal*
Very Wet	Very Wet	Wet
Normal	Very Wet	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:
^**Note**: Hot in parts of the east
^^**Note**: Very Wet in the far south. Largely dry elsewhere
^^^**Note**: Hot in the far east, normal elsewhere
^^^^**Note**: Hot in the south, normal in the north.

Current Status – Eastern Africa (2)

	Current Status: Temperature		
	December	January	February
Tanzania	Normal	Mixed^	Mixed^
Ethiopia	Hot	Hot	Hot
Kenya	Hot	Hot	Hot
Somalia	Hot	Hot	Warm

Current Status: Rainfall		
December	January	February
Mixed	Very Wet	Wet
Mixed	Dry	Normal
Normal	Wet	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:

^Note: Hot in the far west, cold in parts of the east, normal elsewhere

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	December	January	February	December	January	February
South Africa	Hot	Mixed^^	Mixed^^	Normal	Very Wet	Normal
Zambia	Hot	Hot	Mixed%	Wet	Normal^^^^	Normal
Zimbabwe	Hot	Mixed	Warm	Very Wet	Very Wet	Wet
Mozambique	Hot	Hot	Mixed&	Mixed^^^	Mixed#	Mixed@
Malawi	Hot	Hot	Hot	Wet	Wet	Normal
Madagascar	Mixed^	Cool	Very Cold	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:

^Note: Cold in the north and Hot in the west
^^Note: Hot in the southwest
^^^Note: Some areas Wet, mainly Normal.
^^^^Note: Very wet in the far northeast.
#Note: Very wet in the south and far north, normal elsewhere
%Note: Hot in the east, normal in the west
&Note: Hot in the north, normal in the south
@Note: Very wet in the far south, 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: April to September – Western Africa (1)

		Forecast summary		
		April	April to June	July to September
Sierra Leone	*Temperature*	Likely to be near-normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Climatological odds – see note	Likely to be drier than normal
Liberia	*Temperature*	Likely to be near-normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Climatological odds – see note	Likely to be drier than normal
Mali	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Much more likely to be warmer than normal in the north, but Climatological odds – see note in the south
	Rainfall	Likely to be near-normal	Climatological odds – see note	Climatological odds – see note
Ghana	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Climatological odds – see note	Likely to be drier than normal

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Outlook: April to September – Western Africa (2)

		Forecast summary		
		April	April to June	July to September
Nigeria	*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 drier than normal	Likely to be wetter than normal
Cameroon	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Likely to be drier than normal	Likely to be drier than normal

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Outlook: April to September – Central Africa

		Forecast summary		
		April	April to June	July to September
Niger	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal in the north, but Climatological odds – see note in the south
	Rainfall	Likely to be near-normal	Climatological odds – see note in the south, likely to be near-normal in the north	Likely to be wetter than normal
Chad	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal in the north, but Climatological odds – see note in the south
	Rainfall	Likely to be near-normal	Climatological odds – see note in the south, likely to be near-normal in the north	Likely to be wetter than normal
Democratic Republic of Congo	*Temperature*	Likely to be warmer than normal in the north, but Climatological odds – see note in the south	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Likely to be drier than normal in the west, Climatological odds – see note in the east	Likely to be drier than normal in the west, and Climatological odds – see note in the east

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: April to September – Eastern Africa (1)

		Forecast summary		
		April	April to June	July to September
Sudan	*Temperature*	Likely to be warmer than normal	Mainly likely to be warmer than normal, except in far east where much more likely to be warmer than normal	Likely to be warmer than normal in the north, but Climatological odds – see note in the south
	Rainfall	Likely to be near-normal	Likely to be near-normal in the north, Climatological odds – see note in the south	Likely to be wetter than normal
South Sudan	*Temperature*	Climatological odds – see note	Likely to be warmer than normal	Climatological odds – see note
	Rainfall	Climatological odds – see note , but likely to be wetter than normal in the south	Climatological odds – see note	Likely to be wetter than normal
Uganda	*Temperature*	Likely to be colder than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Climatological odds – see note	Likely to be near-normal
Rwanda	*Temperature*	Climatological odds – see note	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds – see note	Climatological odds – see note

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Outlook: April to September – Eastern Africa (2)

		Forecast summary		
		April	April to June	July to September
Tanzania	*Temperature*	Likely to be colder than normal in the north, but likely to be warmer than normal in the south	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal in the north, Climatological odds – see note in the south	Likely to be drier than normal in the far east, otherwise Climatological odds – see note	Likely to be drier than normal in the far east, otherwise Climatological odds – see note
Ethiopia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal in the south/west, and much more likely to be warmer than normal in the north/east	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal in the north, Climatological odds – see note in the south	Likely to be drier than normal in the east, otherwise Climatological odds – see note	Likely to be wetter than normal in the west, likely to be drier than normal in the east

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: April to September – Eastern Africa (3)

		Forecast summary		
		April	April to June	July to September
Kenya	*Temperature*	Climatological odds – see note	**Likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be drier than normal** in the east, otherwise Climatological odds – see note	Likely to be drier than normal
Somalia	*Temperature*	**Likely to be warmer than normal**	**Likely to be warmer than normal** in the south, and **much more likely to be warmer than normal** in the north	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	**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: April to September – Southern Africa (1)

		Forecast summary		
		April	April to June	July to September
South Africa	*Temperature*	Climatological odds – see note	Likely to be warmer than normal in the south, but Climatological odds – see note in the north	Climatological odds – see note
	Rainfall	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
Zambia	*Temperature*	Climatological odds – see note	Likely to be warmer than normal	Climatological odds – see note
	Rainfall	Climatological odds – see note	Climatological odds – see note	Likely to be near-normal
Zimbabwe	*Temperature*	Likely to be colder than normal	Climatological odds – see note	Climatological odds – see note
	Rainfall	Climatological odds – see note	Climatological odds – see note	Likely to be near-normal
Mozambique	*Temperature*	Likely to be warmer than normal in the north, but likely to be colder than normal in the south	Likely to be warmer than normal in the north, but Climatological odds – see note in the south	Climatological odds – see note
	Rainfall	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note

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Outlook: April to September – Southern Africa (1)

		Forecast summary		
		April	April to June	July to September
Malawi	*Temperature*	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
	Rainfall	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
Madagascar	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note

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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/ghacof-57/
PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne (PRESASS): English - https://urlz.fr/cuFo ; French - https://urlz.fr/cuFm
Southern African Regional Climate Outlook Forum (SARCOF): http://csc.sadc.int/en/news-and-events/310-announcement-sarcof-24
PRÉvisions climatiques Saisonnières en Afrique, pays du Golfe de Guinée (PRESAGG): http://acmad.net/rcc/atelier/bulletin_PRESAGG07_eng.pdf
South-West Indian Ocean Climate Outlook Forum (SWICOF) - https://www.commissionoceanindien.org/wp-content/uploads/2020/09/SWIOCOF-9_Statement.pdf

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 near-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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