AFRICA: Monthly Climate Outlook October to July

Issued: January 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

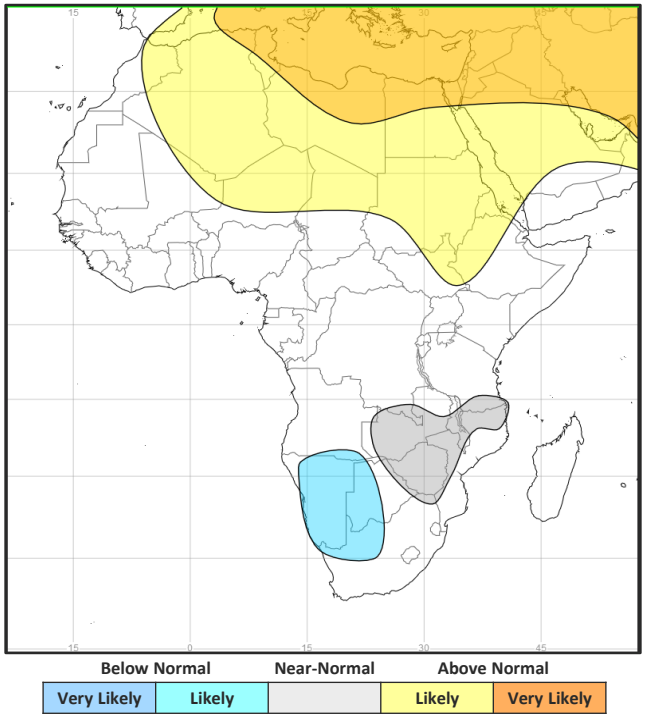
Current Status:

Large parts of the continent have been warmer than normal. There have been exceptions, these being countries bordering the Sahara, as well as parts of the DRC, Zimbabwe and Tanzania. Madagascar has also seen temperatures below normal since October

Outlook:

Away from the northeastern third of the continent, there is little to no model signal for temperatures for the next three months. For the northeastern third, above normal temperatures are likely, and very likely for the coastal areas of Libya, Egypt and Tunisia. Parts of South Africa and Namibia are likely to see temperatures below normal.

3-Month Outlook February to April - Temperature



Africa Current Status and Outlook - Rainfall

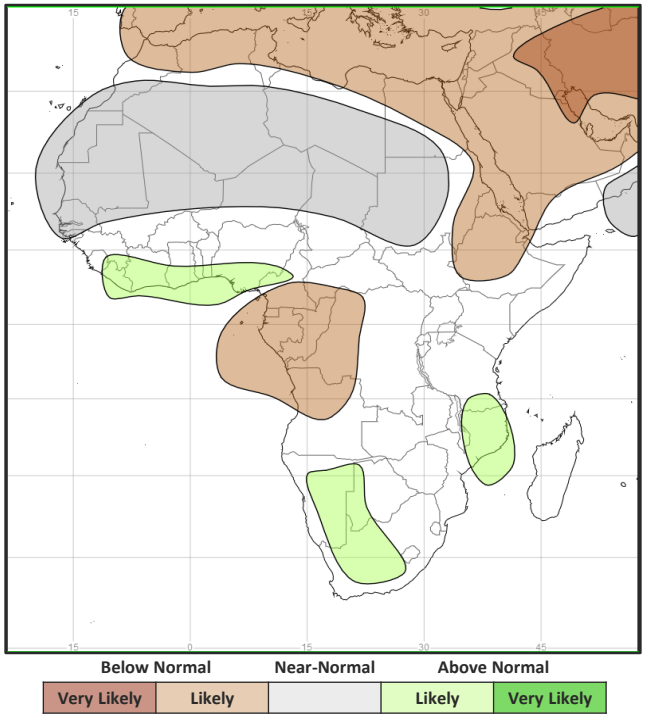
Current Status:

Much of the continent has seen rainfall close to average since October. Exceptions to this included parts of western Africa in October, then central and eastern Africa in November, with a focus on Tanzania, Rwanda, Uganda and the DRC, and finally parts Tanzania, Mozambique, Zambia and Zimbabwe in December.

Outlook:

For much of the continent, climatological odds are indicated for the next 6 months. However, for the next three months, above normal rainfall is likely for countries bordering the Gulf of Guinea, parts of South Africa and Namibia, as well as northern Mozambique. Below normal rainfall is likely for Ethiopia, Eritrea and parts of the congo basin.

3-Month Outlook February to April - Rainfall

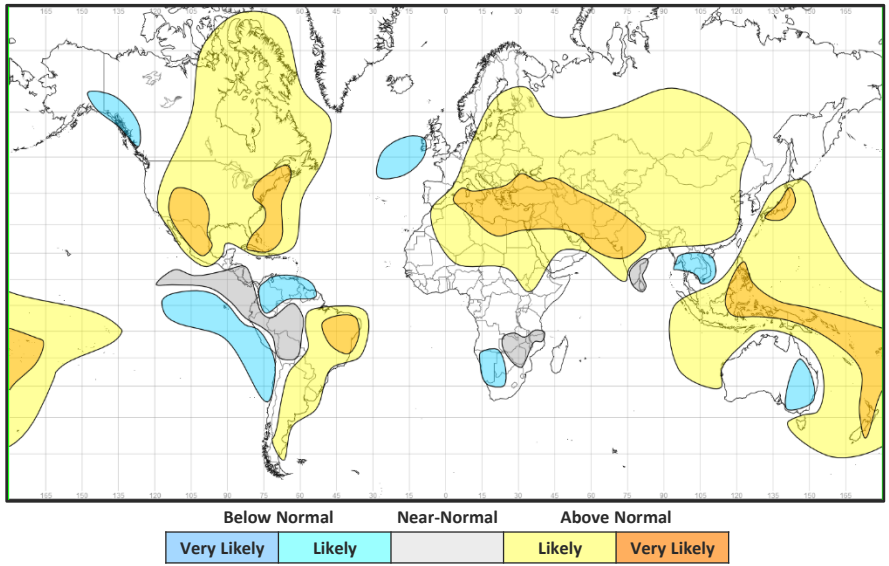


Global Outlook - Temperature

Outlook:

La Niña tends to have an overall cooling effect across the world. However, many regions are likely to be warmer than normal over the next three months, consistent with the warming observed over the past decade. There are some notable exceptions to this, with an increased likelihood of colder than normal conditions across tropical regions of South America and small parts of southeastern Africa and southeast Asia. Parts of Australia, particularly the east, are likely to see temperatures below normal.

3-Month Outlook February to April - Temperature



Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – La Niña conditions are now well established across the tropical Pacific, with SST anomalies, trade wind strength, atmospheric pressure pattern and cloudiness all consistent with this. The event has likely recently peaked and a gradual shift towards more neutral conditions should take place during the first half of next year. However, over the next few months there is ~95% chance of La Niña continuing.

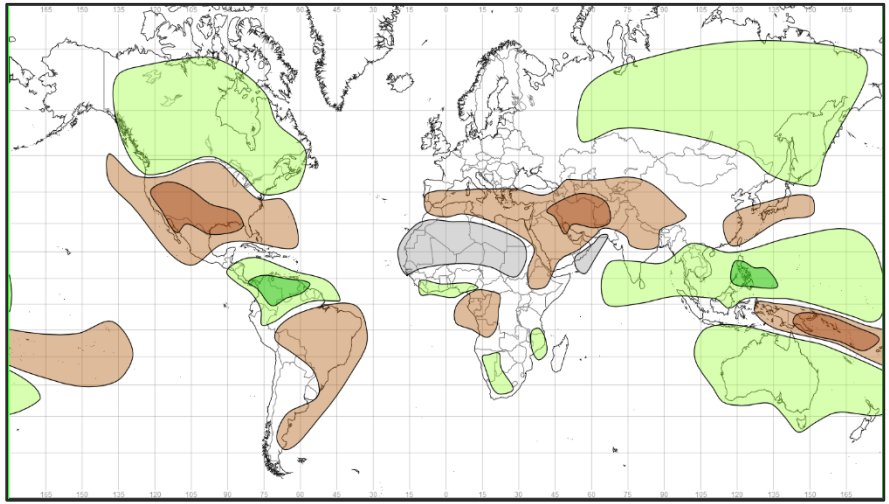
The latest NOAA Climate Prediction Centre / NCEP statement (PDF) states that:
"La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March), with a potential transition to ENSO-neutral during the spring 2021 (55% chance during April-June)."

Very generally, the suppression of rainfall over the tropical Pacific Ocean, that La Niña is associated with, leads to increases in rainfall across the tropical land areas.

Large parts of southern Asia, Australasia, along with the south of India, Central America, northern parts of South America, along with southern parts of the Caribbean are likely to be wetter than normal. Much of Australia is also likely to be wetter.

Meanwhile, much of the Middle East, Mexico, southern USA, Ethiopia and parts of the Congo basin are likely to be drier than normal.

3-Month Outlook February to April - Rainfall



Current Status

Current Status maps

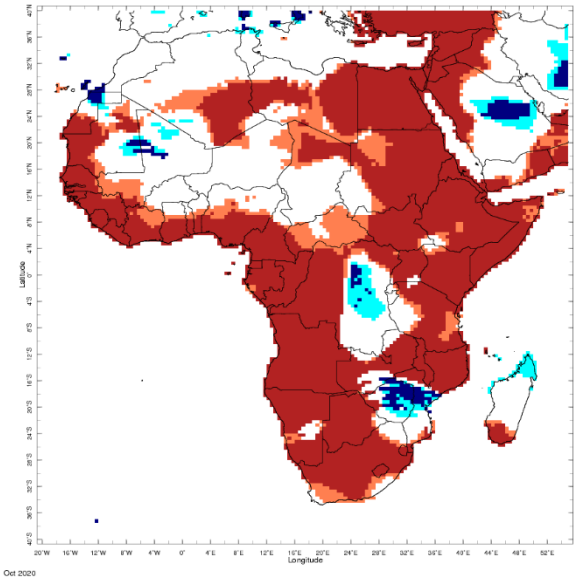
Western Africa

Central Africa

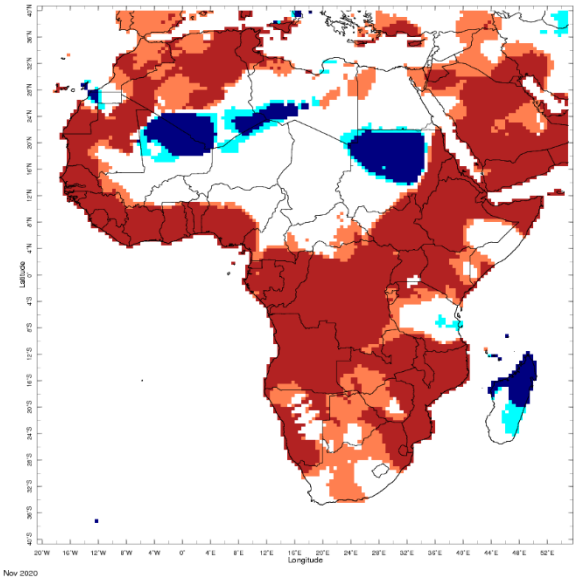
Eastern Africa

Southern Africa

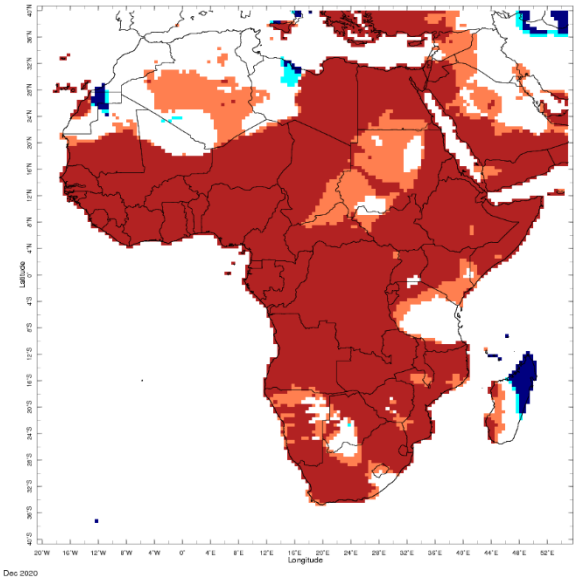
Current Status – Temperature percentiles



October



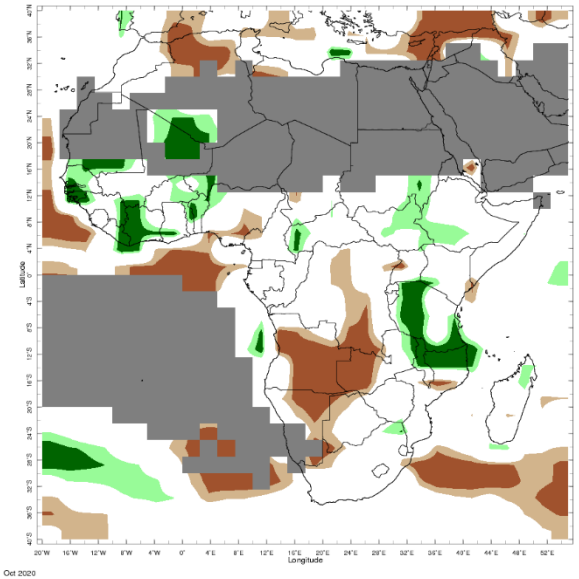
November



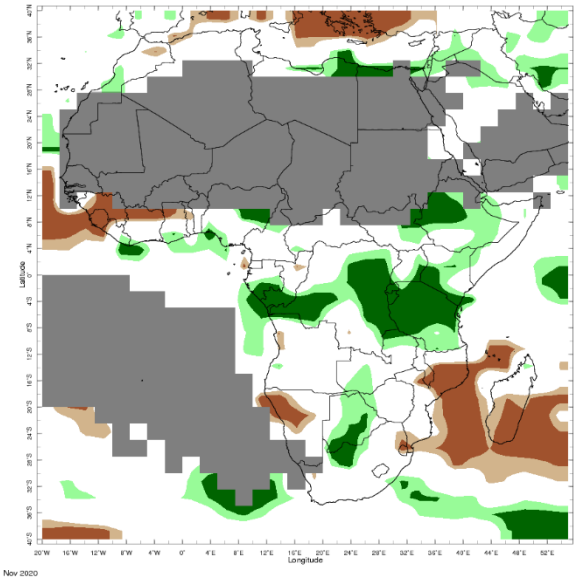
December

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.

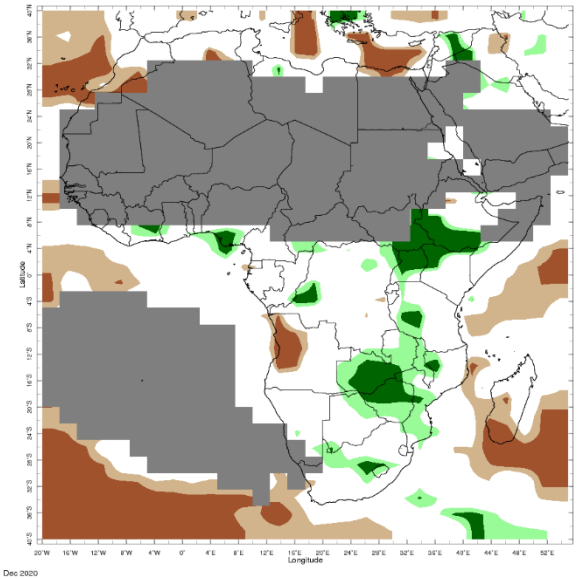
Current Status – Precipitation percentiles



October



November



December

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		
	October	November	December	October	November	December
Sierra Leone	Hot	Hot	Hot	Normal	Very Dry	Normal
Liberia	Hot	Hot	Hot	Normal	Normal	Mixed
Mali	Normal^	Normal^	Hot	Normal	Normal*	Normal
Ghana	Hot	Hot	Hot	Wet	Normal	Normal
Nigeria	Hot	Hot	Hot	Normal	Normal	Mixed^^
Cameroon	Hot	Normal	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:

^Note: Warm in southern Mali during October and November
^^Note: Hot in the south of Nigeria in December, normal elsewhere

Current Status – Central Africa

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
Niger	Normal	Normal	Hot	Normal*	Normal*	Normal
Chad	Normal	Normal	Hot	Normal*	Normal*	Normal
DRC	Mixed^	Hot	Hot	Normal	Wet	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: Strong west/east differences in DRC; Hot in west and Cold in east.

Current Status – Eastern Africa (1)

	Current Status: Temperature		
	October	November	December
Sudan	Hot	Cold^	Hot
South Sudan	Hot	Hot	Hot
Uganda	Hot	Hot	Hot
Rwanda	Normal	Hot	Hot

Current Status: Rainfall		
October	November	December
Normal*^^	Normal*	Normal
Normal	Normal*	Wet
Normal	Normal	Very Wet
Normal	Very Wet	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: Temperatures in southern parts of Sudan were near normal in November
^^Note: Northern Sudan usually experiences less than 10mm/month rainfall in October, however in the southeast of Sudan conditions were wet.

Current Status – Eastern Africa (2)

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
Tanzania	Hot	Normal	Normal	Wet	Very Wet	Mixed
Ethiopia	Hot	Hot	Hot	Normal	Wet	Mixed
Kenya	Hot	Hot	Hot	Normal	Wet	Normal
Somalia	Hot	Normal^	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:

^Note: Hot in the north of Somalia in November

Current Status – Southern Africa

	Current Status: Temperature			Current Status: Rainfall		
	October	November	December	October	November	December
South Africa	Hot	Warm	Hot	Normal	Normal	Normal
Zambia	Hot	Hot	Hot	Normal	Normal	Wet
Zimbabwe	Cool	Warm	Hot	Normal	Normal	Very Wet
Mozambique	Mixed^	Hot	Hot	Normal^^^	Normal	Mixed^^^^
Malawi	Hot	Hot	Hot	Normal	Normal	Wet
Madagascar	Normal	Cold	Mixed^^	Normal	Dry	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 north and Cool in the south.
^^Note: Cold in the north and Hot in the west
^^^Note: In the north, Dry in October
^^^^Note: Some areas Wet, mainly Normal.

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: February to July – Western Africa (1)

		Forecast summary		
		February	February to April	May to July
Sierra Leone	*Temperature*	**Likely to be warmer than normal**	**Likely to be warmer than normal** in the south, **likely to be near-normal** in the north	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	**Likely to be wetter than normal**	Likely to be wetter than normal
Liberia	*Temperature*	Climatological odds – see note	Climatological odds – see note	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	**Likely to be wetter than normal**	Climatological odds – see note
Mali	*Temperature*	**Likely to be warmer than normal** in the north, Climatological odds – see note elsewhere	**Likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be near-normal**	**Likely to be near-normal**	Climatological odds – see note
Ghana	*Temperature*	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
	Rainfall	**Likely to be drier than normal**	**Likely to be drier than normal** in the north, **likely to be wetter than normal** in the coastal region, Climatological odds – see note elsewhere	Climatological odds – see note

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Outlook: February to July – Western Africa (2)

		Forecast summary		
		February	February to April	May to July
Nigeria	*Temperature*	Climatological odds – see note, except in coastal regions where **likely to be warmer than normal**	Climatological odds – see note	Likely to be warmer than normal
	Rainfall	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
Cameroon	*Temperature*	**Likely to be warmer than normal in the south,** Climatological odds – see note elsewhere	**Likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be near-normal** in the north, **likely to be drier than normal** in the south	Climatological odds – see note	Climatological odds – see note

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Outlook: February to July – Central Africa

		Forecast summary		
		February	February to April	May to July
Niger	*Temperature*	Climatological odds – see note	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds – see note
Chad	*Temperature*	Climatological odds – see note	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal in the north, Climatological odds – see note elsewhere	Climatological odds – see note
Democratic Republic of Congo	*Temperature*	Likely to be near-normal	Likely to be warmer than normal, apart from in the southern border regions, where likely to be near-normal	Likely to be warmer than normal
	Rainfall	Likely to be warmer than normal	Likely to be drier than normal in the west, Climatological odds – see note elsewhere	Climatological odds – see note

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: February to July – Eastern Africa (1)

		Forecast summary		
		February	February to April	May to July
Sudan	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Climatological odds – see note
South Sudan	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal, except in the southern border region where likely to be drier than normal	Climatological odds – see note	Likely to be wetter than normal
Uganda	*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	Climatological odds – see note	Climatological odds – see note
Rwanda	*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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Outlook: February to July – Eastern Africa (2)

		Forecast summary		
		February	February to April	May to July
Tanzania	*Temperature*	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
	Rainfall	**Likely to be wetter than normal** in coastal and southern regions, Climatological odds – see note elsewhere	**Likely to be wetter than normal** in the south, Climatological odds – see note elsewhere	Climatological odds – see note
Ethiopia	*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** in central and northern regions, Climatological odds – see note elsewhere	Climatological odds – see note
Kenya	*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
Somalia	*Temperature*	**Likely to be colder than normal** in the north, Climatological odds – see note elsewhere	**Likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Likely to be near-normal**	Climatological odds – see note	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: February to July – Southern Africa (1)

		Forecast summary		
		February	February to April	May to July
South Africa	*Temperature*	Climatological odds – see note	Climatological odds – see note	Climatological odds – see note
	Rainfall	Climatological odds – see note	**Likely to be wetter than normal** in some areas, Climatological odds – see note elsewhere	Climatological odds – see note
Zambia	*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
Zimbabwe	*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
Mozambique	*Temperature*	Climatological odds – see note	**Likely to be warmer than normal** in coastal regions, Climatological odds – see note elsewhere	Likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal** in the north, Climatological odds – see note elsewhere	**Likely to be wetter than normal** in the northern border region, Climatological odds – see note elsewhere	Climatological odds – see note

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: February to July – Southern Africa (1)

		Forecast summary		
		February	February to April	May to July
Malawi	*Temperature*	Likely to be colder than normal	Likely to be near-normal	Climatological odds – see note
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	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

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

Outlooks for March to May - Additional information:

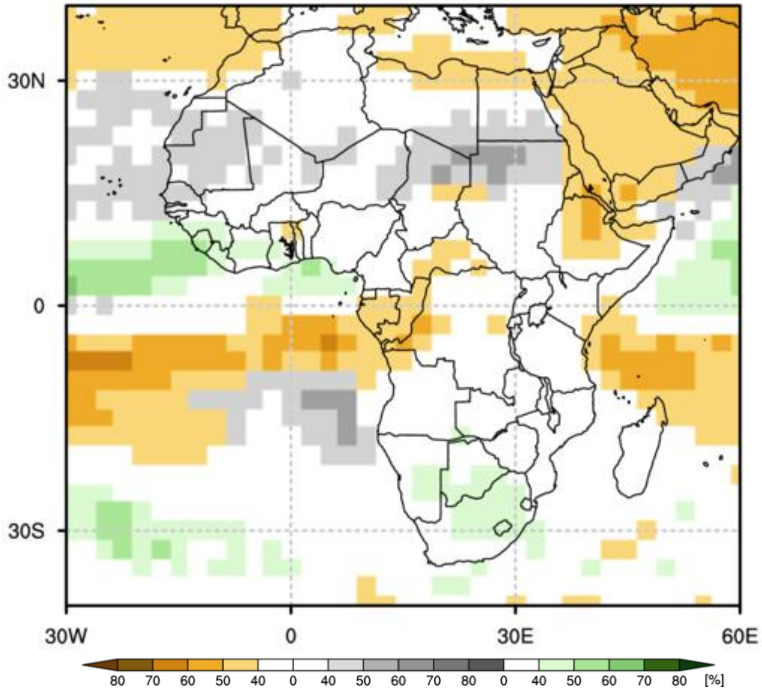
Forecast uncertainty generally increases with longer range meaning that the 4-6-month outlook is less reliable than the 1-3 month outlook. In addition, the longer-range outlook utilises fewer models because not all seasonal models are available for the extended range.

The latest output from the WMO Long Range Forecast Multi Model Ensemble (right) for March to May, shows that the models are predicting similar likelihoods for above normal, near-normal and below-normal outcomes, with very few areas showing more than 50% likely.

The latest NOAA Climate Prediction Centre / NCEP statement (PDF) states that:
"La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January March), with a potential transition to ENSO neutral during the spring 2021 (55% chance during April June)."

East Africa Impacts March-May:
In East Africa, the 'Long Rains' occurs in March-April-May (MAM) and are predominantly controlled by the seasonal migration of the Intertropical Convergence Zone (ITCZ), rather than the influence of La Niña or the Indian Ocean Dipole (IOD). The ITCZ tracks the position of maximum solar irradiance across the continent and is accompanied by a band of rainfall. However, as La Niña events have often been linked to drier Short Rains during OND, if this is then followed by a drier or delayed Long Rains in MAM, there is the potential for widespread drought.

Southern Africa impacts March-May:
La Niña conditions increase the likelihood of weather systems tracking across southern Africa in April, bringing wetter than normal conditions.



WMO LFR-MME Forecast for precipitation March-May 2021, issued Jan 2020

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/ghacof56/
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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