

# Global: Monthly Climate Outlook December to September

**Issued: March 2023**

[Overview](#)

[Current Status](#)

[Outlooks](#)

[Annex 1 – Supplemental Information](#)

# Overview

[MENA, Caribbean and British Overseas Territories Current Status and Outlook – Temperature](#)

[MENA, Caribbean and British Overseas Territories Current Status and Outlook – Rainfall](#)

[Global Seasonal Outlook – Temperature](#)

[Global Seasonal Outlook – Rainfall](#)

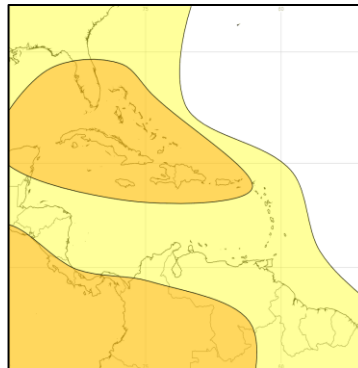
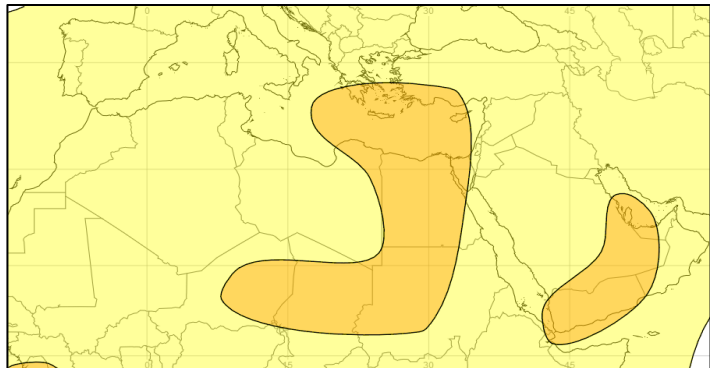
# MENA, Caribbean and British Overseas Territories Current Status and Outlook - Temperature

## Current Status:

It has been hotter than normal across much of the MENA region during December and January, before returning to near-normal temperatures in February. The Caribbean Region was warm or hot over the last three months.

## Outlook:

Over the next three months, it is likely, or much more likely, to be warmer than normal across MENA, the Caribbean and British Overseas Territories.



## 3-Month Outlook April to June - Temperature



Left: Middle East and North Africa

Right: Caribbean region

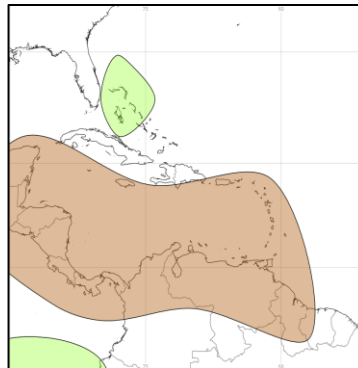
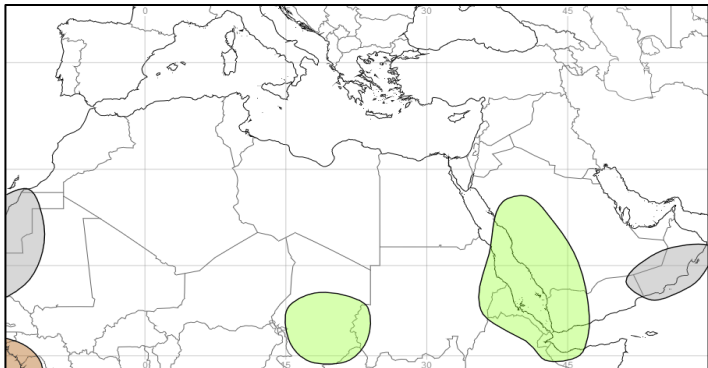
# MENA, Caribbean and British Overseas Territories Current Status and Outlook - Rainfall

## Current Status:

Near-normal to dry conditions have been experienced across the MENA and Caribbean regions for much of the past three months. There are a few exceptions, including Iraq and the Lesser Antilles which were wet in January. Parts of Morocco, Libya and Egypt were also wet in February.

## Outlook:

Over the next three months, it is likely to be wetter than normal in Yemen and Eritrea. It is likely to be drier than normal in much of the Caribbean Lesser Antilles Region



## 3-Month Outlook April to June - Rainfall

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

Left: Middle East and North Africa

Right: Caribbean region

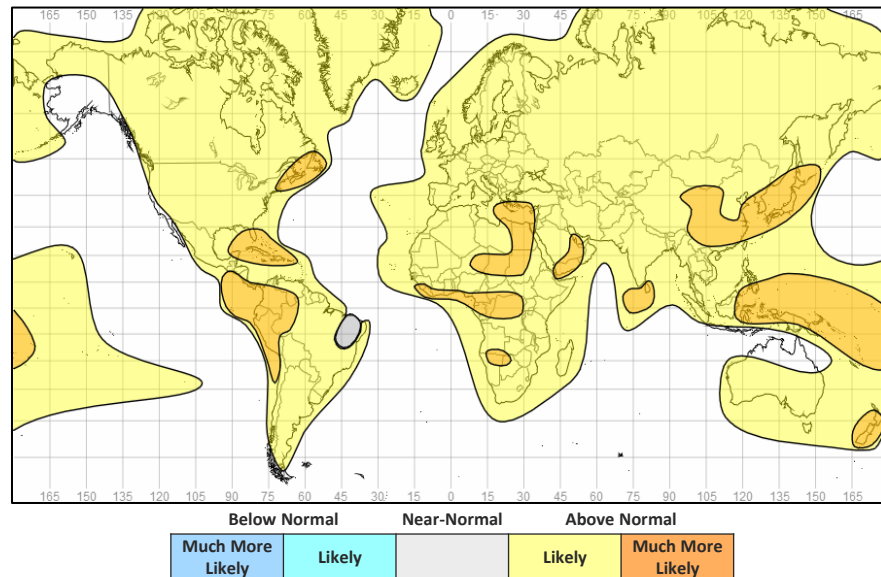
# Global Outlook - Temperature

## Outlook:

The recent La Niña has now ended with El Niño-Southern Oscillation (ENSO) neutral conditions likely to continue through to the early Northern Hemisphere summer.

Over the next three months, with the backdrop of a warming climate and the loss of the cooling influence of La Niña, most land areas are likely to be warmer than normal. Exceptions to this include northeast Brazil where temperatures are likely to be near-normal.

## 3-Month Outlook April to June - Temperature



# Global Outlook - Rainfall

## Outlook:

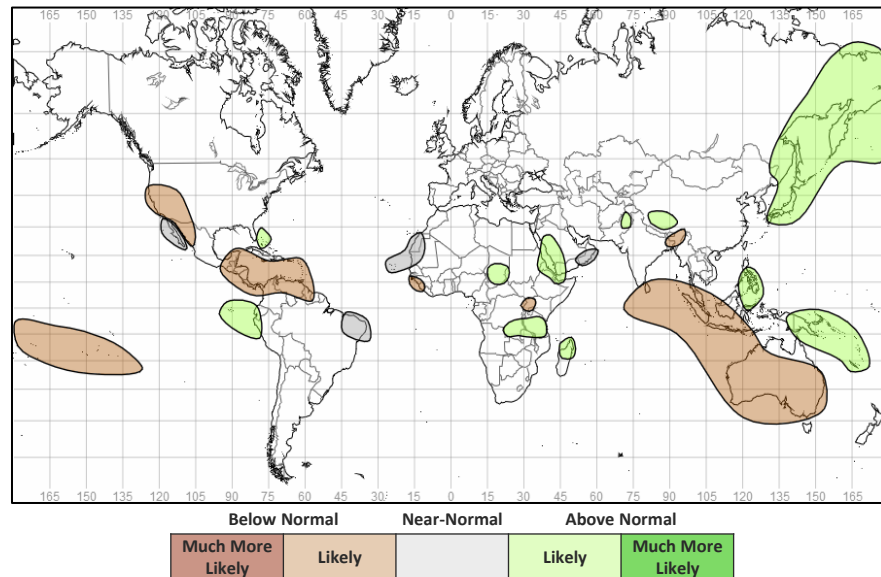
**El Niño-Southern Oscillation (ENSO)** – The recent La Niña in the tropical Pacific Ocean has now ended with atmospheric and sea surface temperature conditions indicative of El Niño-Southern Oscillation (ENSO) neutral conditions. ENSO is most likely to remain in a neutral phase, at least through the Northern Hemisphere spring.

With ENSO-neutral conditions likely to continue through the Northern Hemisphere spring and early summer, predictability on seasonal timescales is expected to be lower than in recent years when ENSO has been active.

At longer lead times (Northern Hemisphere summer onwards) there is an increased likelihood of El Niño developing (60% for August-October). However, due to the spring predictability barrier, uncertainty in ENSO prediction is higher at this time of year, and this can typically be associated with lower forecast accuracy.

**Indian Ocean Dipole (IOD)** – The Indian Ocean Dipole is currently neutral and therefore won't provide any predictive value for this period. There is a chance that a positive IOD phase will develop during the Northern Hemisphere summer. However, like ENSO forecasts made at this time of year, forecast accuracy is also low for IOD predictions.

## 3-Month Outlook April to June - Rainfall



# Current Status

[Current Status maps](#)

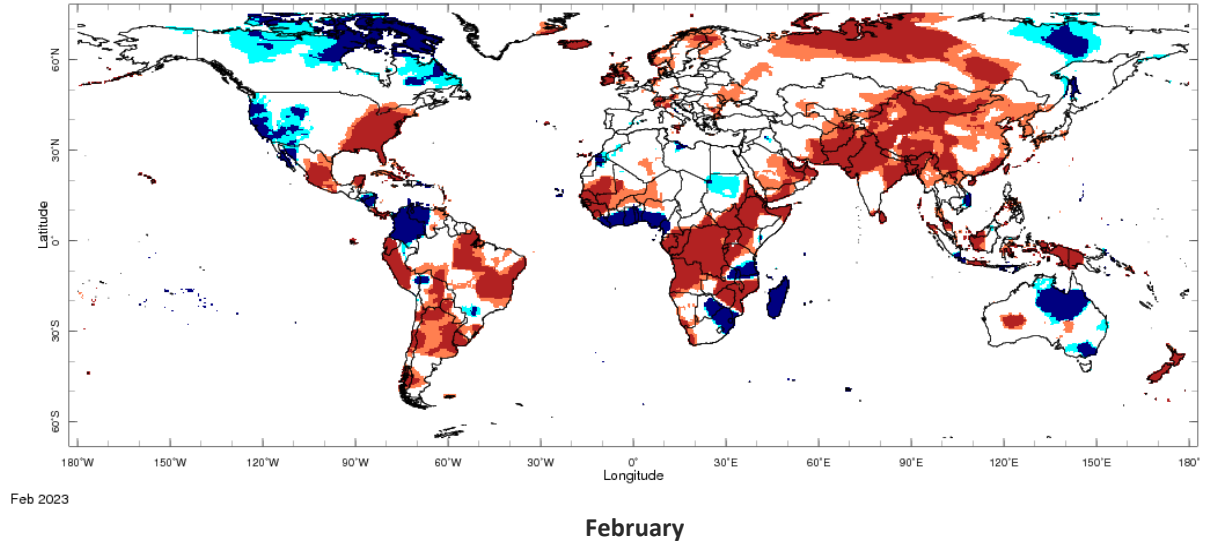
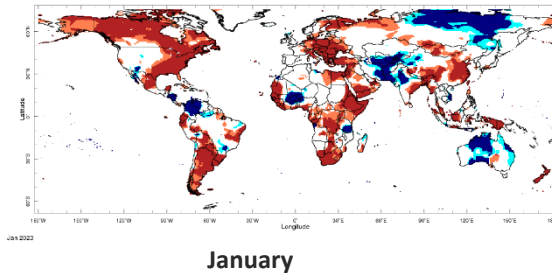
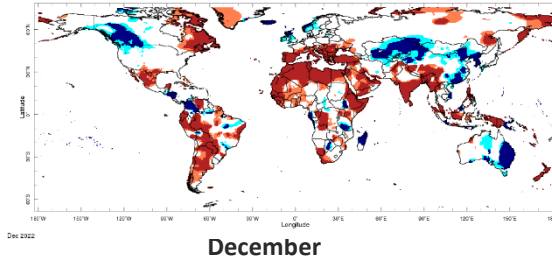
[MENA – Middle East](#)

[MENA – North Africa](#)

[Caribbean](#)

[British Overseas Territories](#)

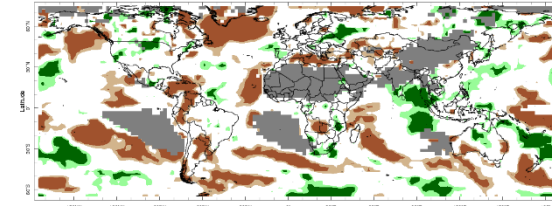
# Current Status – Temperature percentiles



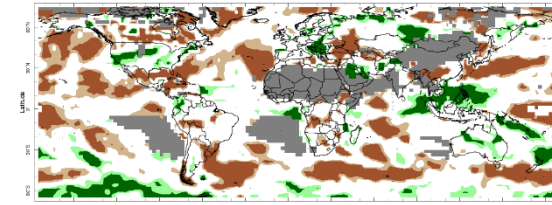
**Notes:** The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions 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.



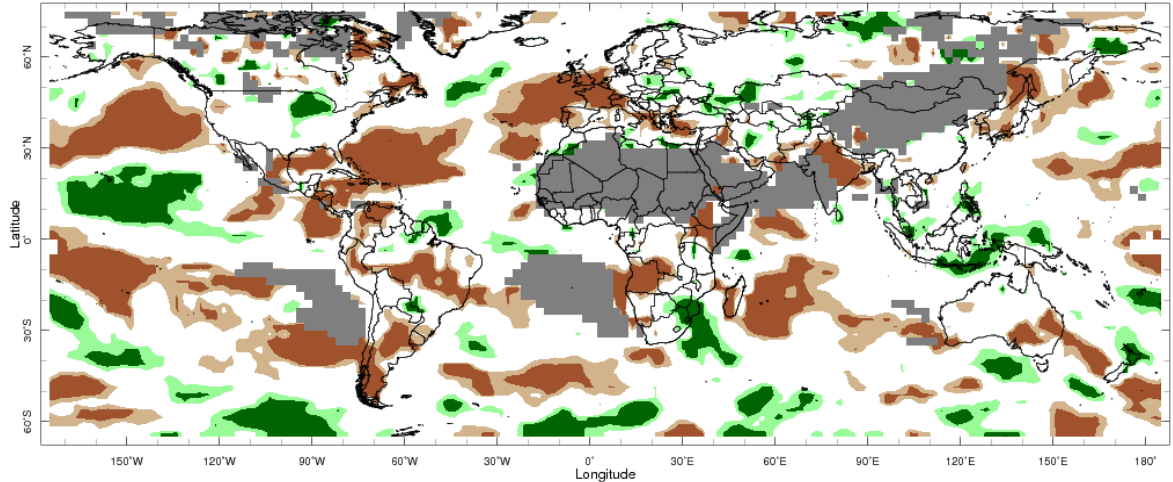
# Current Status – Precipitation percentiles



Dec 2022

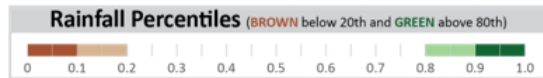


Jan 2023



Feb 2023

Jan 2023



**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 – MENA – Middle East

## Current Status: Temperature

	December	January	February
Turkey	Hot	Hot	Normal
Palestine	Hot	Hot	Normal
Lebanon	Hot	Hot	Normal
Jordan	Hot	Hot	Normal
Syria	Hot	Hot	Normal
Iraq	Warm	Normal	Normal
Yemen	Hot	Hot	Hot

## Current Status: Rainfall

	December	January	February
	Dry	Very Dry	Mixed (1)
	Very Dry	Very Dry	Normal
	Very Dry	Very Dry	Normal
	Very Dry	Very Dry	Normal
	Normal	Dry	Normal
	Normal	Wet	Very 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: Very dry in the southwest, normal elsewhere

# Current Status – MENA – North Africa

## Current Status: Temperature

	December	January	February
Mauritania	Hot	Hot	Mixed (1)
Morocco	Hot	Normal	Normal
Algeria	Hot	Normal	Normal
Tunisia	Hot	Normal	Normal
Libya	Hot	Normal	Normal
Egypt	Hot	Hot	Normal
Eritrea	Hot	Hot	Hot

## Current Status: Rainfall

	December	January	February
	Normal*	Normal*	Normal*
	Normal	Normal	Mixed (2)
	Very Dry	Normal	Normal
	Very Dry	Normal	Normal
	Very Dry	Normal	Mixed (3)
	Normal	Normal	Mixed (3)
	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 south, mostly normal elsewhere but cold far in the northwest

**(2) Note:** Very wet in the south, normal elsewhere

**(3) Note:** Wet in parts of the north, normal\* elsewhere

## Current Status – Caribbean

### Current Status: Temperature

	December	January	February
Caribbean Region	Warm	Normal	Hot
Haiti	Normal	Normal	Normal
Guyana	Normal	Normal	Normal

### Current Status: Rainfall

	December	January	February
Caribbean Region	Dry	Mixed (1)	Very Dry
Haiti	Very Dry	Very Dry	Very Dry
Guyana	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:** Most of the region dry/very dry but very wet across the Lesser Antilles

## Current Status – British Overseas Territories

	Current Status: Temperature			Current Status: Rainfall		
	December	January	February	December	January	February
Southern Europe	Hot	Mixed (2)	Normal	Mixed (1)	Normal (3)	Dry
Central Indian Ocean	Cold	Warm	Normal	Dry	Normal	Dry
Central Pacific	Cold	Cold	Cold	Very Dry	Normal	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:

**(1) Note:** Wet in Gibraltar and very dry in Cyprus

**(2) Note:** Normal in Gibraltar, hot in Cyprus

**(3) Note:** Very dry in Cyprus

# Outlooks

Outlooks – Notes for use

MENA – Middle East

MENA – North Africa

Caribbean

British Overseas Territories

# 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: March to August – MENA – Middle East (1)

		Forecast summary		
		April	April to June	July to September
Turkey	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Palestine	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-normal
Lebanon	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-normal
Jordan	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-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: March to August – MENA – Middle East (2)

		Forecast summary		
		April	April to June	July to September
Syria	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-normal
Iraq	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be near-normal
Yemen	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be near-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: March to August – MENA – North Africa(1)

		Forecast summary		
		April	April to June	July to September
Mauritania	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Climatological odds	Likely to be wetter than normal
Morocco	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	Climatological odds	Climatological odds
Algeria	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Climatological odds	Likely to be wetter than normal
Tunisia	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	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: March to August – MENA – North Africa(2)

		Forecast summary		
		April	April to June	July to September
Libya	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Climatological odds	Climatological odds
Egypt	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be near-normal	Climatological odds	Likely to be near-normal
Eritrea	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	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: March to August – Caribbean

		Forecast summary		
		April	April to June	July to September
Caribbean Region	Temperature	Likely to be near-normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Likely to be drier than normal
Haiti	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal
Guyana	Temperature	Likely to be near-normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Likely to be drier than normal

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

# Outlook: March to August – British Overseas Territories

		Forecast summary		
		April	April to June	July to September
Southern Europe	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Central Indian Ocean	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal
Central Pacific	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 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.

# Annex 1 – Supplemental Information

## For further information

WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble (LC-LRFMME)

<https://www.wmolc.org/>

International Research Institute for Climate and Society (IRI)

<http://iridl.ldeo.columbia.edu/maproom/>

NOAA El Niño technical info

<https://www.ncei.noaa.gov/access/monitoring/enso/>

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>)

# 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 CPTC (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

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