Global: Monthly Climate Outlook September to June

Issued: December 2022

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

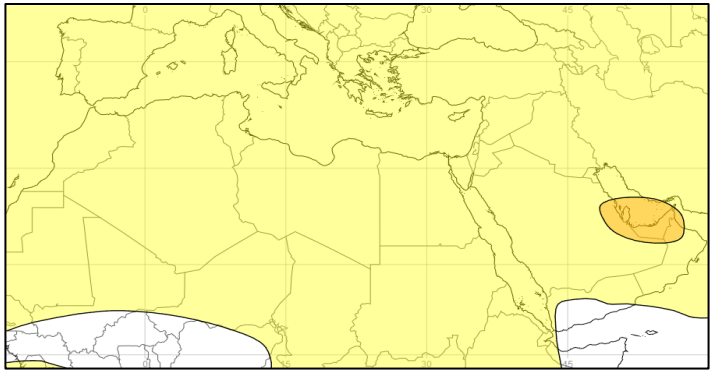
MENA, Caribbean and British Overseas Territories Current Status and Outlook - Temperature

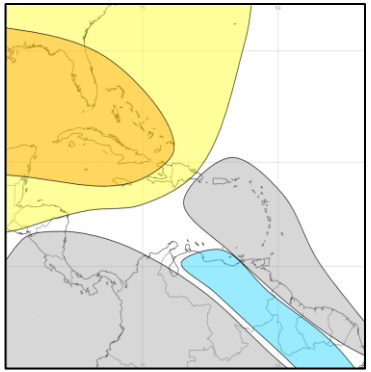
Current Status:

Over the last three months, the MENA region has generally seen above normal temperatures. The main exception is Libya and Egypt which have seen more mixed temperatures. Across the Caribbean temperatures were also mixed. For the overseas territories, Southern Europe was hot, Central Pacific cold and Central Indian Ocean varying between normal and cold.

Outlook:

For the next three months, warmer than normal conditions are likely across whole MENA region. In the Caribbean region, near-normal temperatures are likely for the Lesser Antilles with above normal likely or much more likely for the Greater Antilles. Guyana is likely to be colder than normal.





3-Month Outlook January to March - Temperature

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

Left: Middle East and North Africa
Right: Caribbean region

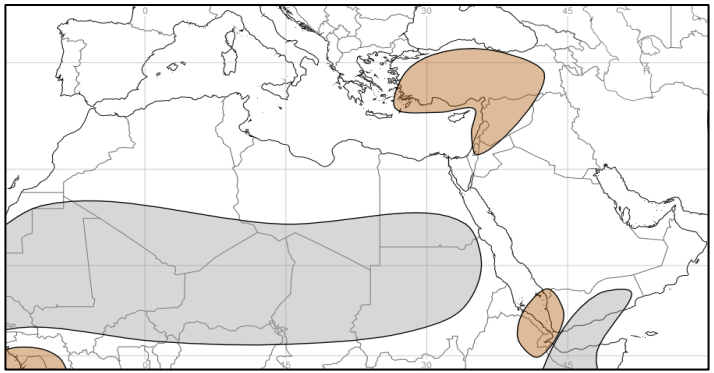
MENA, Caribbean and British Overseas Territories Current Status and Outlook - Rainfall

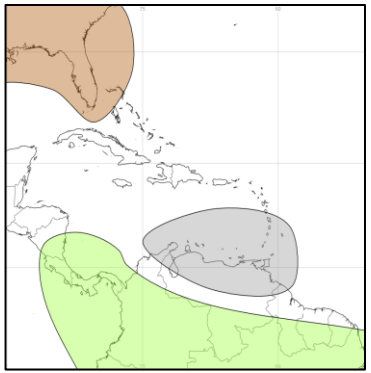
Current Status:

Over the last three months, rainfall was mainly near-normal. Exceptions to this included Palestine, Lebanon and Syria which were dry in October and Jordon which was wet in November. North Africa was mostly near-normal, though Algeria and Morocco were dry in November and Tunisia was very dry in October. Over the last three months, rainfall has been near-normal over the Caribbean except for Haiti which was dry in November and Guyana which was wet in November.

Outlook:

Over the next three months, it is likely to be drier than normal in Turkey, Syria and Lebanon. Below normal rainfall is likely in western Yemen, though the country typically sees very little for much of this period. In the Caribbean, near-normal rainfall is likely for parts of the southeast while Guyana is likely to experience above normal rainfall.





3-Month Outlook January to March - 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:

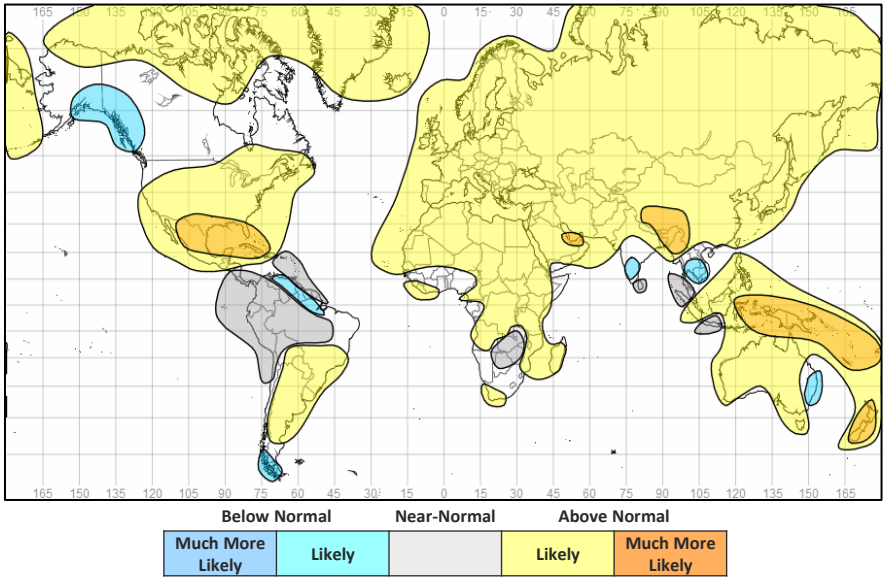
The ongoing La Niña will be the dominant driver of conditions through this period, albeit within the context of background warming trend.

Over the next three months, many regions are likely to be warmer than normal. However, there are exceptions as a result of La Niña, these include northern South America, eastern Australia, mainland Southeast Asia, parts of southern Africa and southern India where near-normal or colder than normal conditions are more likely.

Northern hemisphere winter temperatures are likely to be warmer than normal across Eurasia. Warmer than normal is likely or much more likely for much of North America with the main exception being Southwest Canada where it is likely to be colder than normal. Despite it being likely to be warmer than normal overall in Europe for the next three months, impacts from cold weather remain likely and it is likely to be colder than normal early in this period.

Globally, La Nina acts to cool temperatures and can often suppress rising temperatures due to climate change. With a return to neutral conditions in 2023, it is likely that temperatures will be more extreme in the coming year.

3-Month Outlook January to March - Temperature



Global Outlook - Rainfall

Outlook:

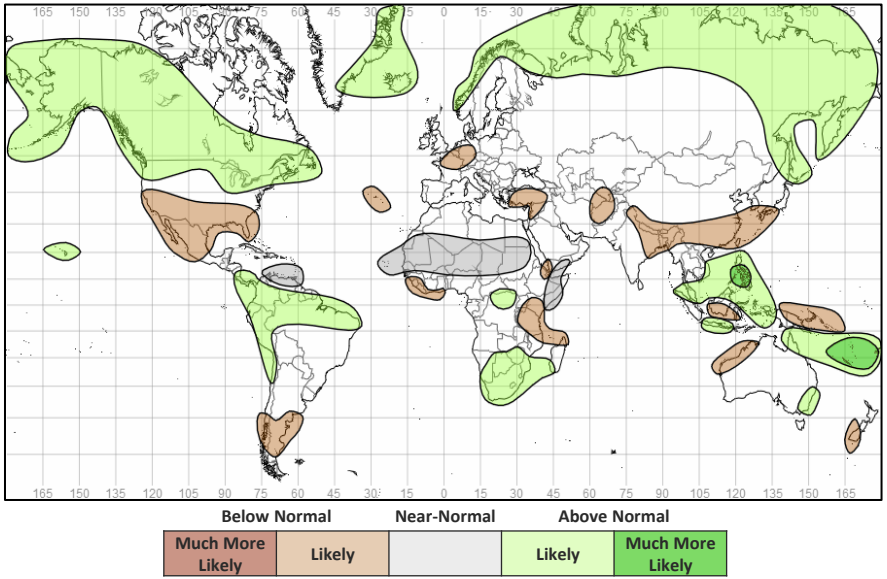
El Niño-Southern Oscillation (ENSO) – The current La Niña event continues in the tropical Pacific Ocean with oceanic and atmospheric indicators consistent with an ongoing event. As La Niña is established and it is such a major driver of global weather patterns, this increases confidence in predictions on seasonal timescales, particularly in the tropics.

Whilst La Niña is present and likely to continue into early 2023 there are some uncertainties regarding its longevity. NOAA suggest a 71% chance of a return to ENSO-neutral during February to April 2023.

This means La Niña will remain the most dominant driver of global weather patterns in early 2023, especially for tropical regions. La Niña, very broadly speaking, tends to increase the likelihood of wetter than normal conditions across many land areas of the tropics with a couple of notable exceptions (e.g. East Africa). More information on typical impacts can be found here https://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/el-nino-la-nina/enso-impacts

Indian Ocean Dipole (IOD) – The Indian Ocean Dipole has returned to neutral conditions and is therefore not expected to be a driver of rainfall patterns around the Indian Ocean basin during this period.

3-Month Outlook January to March - Rainfall



Current Status

Current Status maps

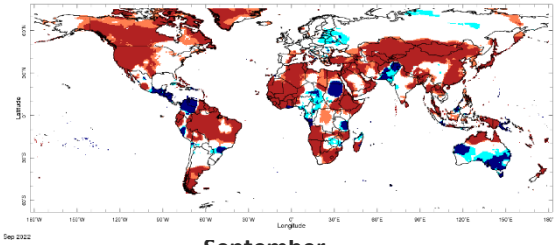
MENA – Middle East

MENA – North Africa

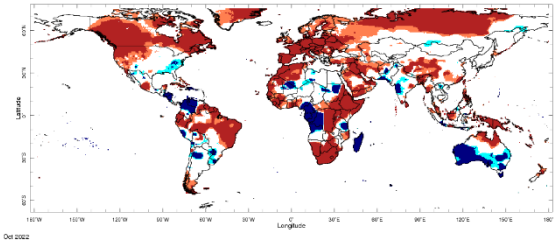
Caribbean

British Overseas Territories

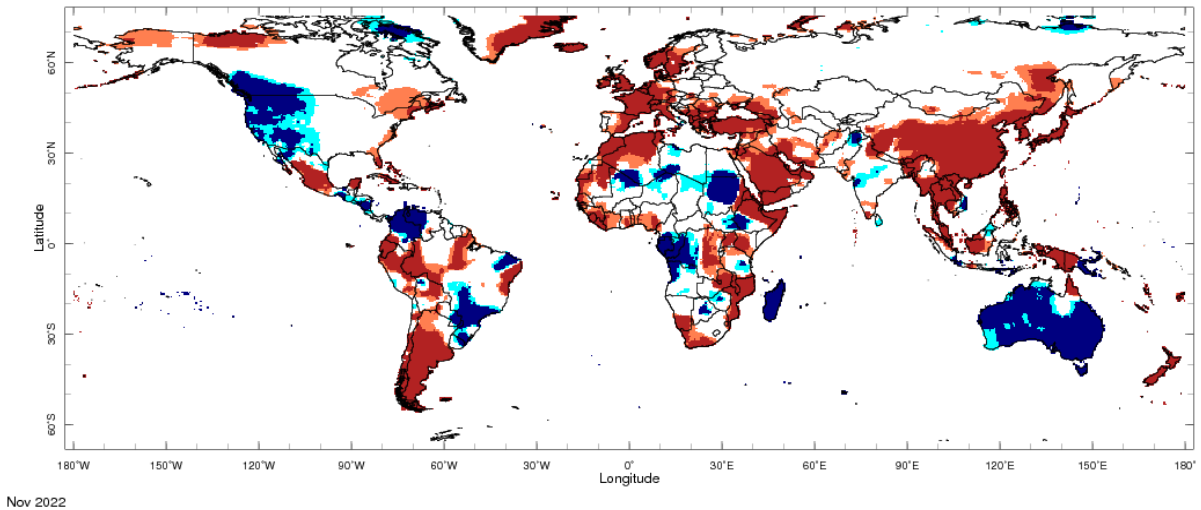
Current Status – Temperature percentiles



September



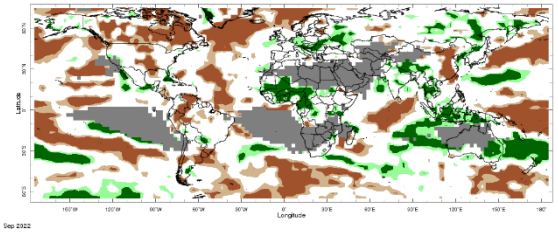
October



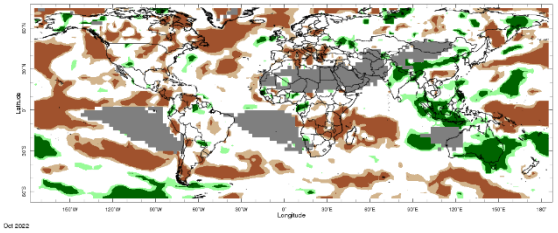
November

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.

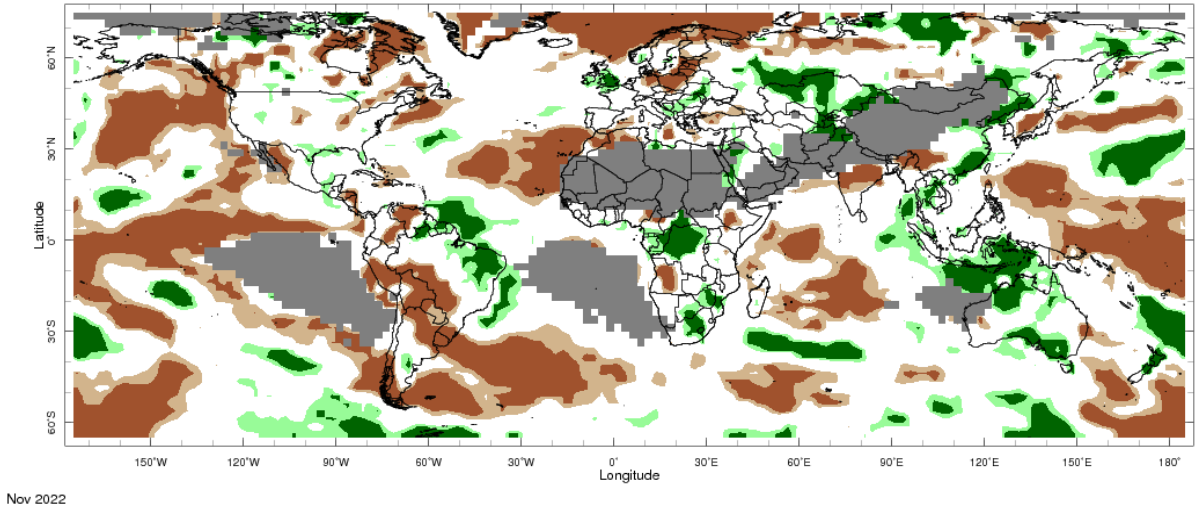
Current Status – Precipitation percentiles



September



October



Nov 2022

October

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			Current Status: Rainfall		
	September	October	November	September	October	November
Turkey	Hot	Warm	Hot	Normal	Normal	Normal
Palestine	Hot	Hot	Warm	Normal*	Dry	Normal
Lebanon	Hot	Hot	Warm	Normal*	Dry	Normal
Jordan	Hot	Warm	Hot	Normal*	Normal*	Wet
Syria	Hot	Normal	Warm	Normal*	Dry	Normal
Iraq	Hot	Hot	Warm	Normal*	Normal	Normal
Yemen	Normal	Hot	Hot	Normal*	Normal*	Normal*

Notes:

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

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

Additional Information:

Current Status – MENA – North Africa

	Current Status: Temperature			Current Status: Rainfall		
	September	October	November	September	October	November
Mauritania	Hot	Mixed (3)	Warm	Mixed (4)	Normal*	Normal*
Morocco	Normal	Hot	Hot	Normal*	Normal	Dry
Algeria	Hot	Hot	Mixed (5)	Normal*	Normal	Dry
Tunisia	Hot	Hot	Hot	Normal*	Very Dry	Normal
Libya	Mixed (1)	Normal	Mixed (6)	Normal*	Normal*	Mixed (7)
Egypt	Mixed (2)	Normal	Mixed (6)	Normal*	Normal*	Normal*
Eritrea	Hot	Hot	Hot	Dry	Normal*	Normal*

Notes:

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

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

Additional Information:

(1) Note: Large variations across the country.
(2) Note: Hot in the north, cold in the south.
(3) Note: Hot in north and west.
(4) Note: Very wet in the south, normal elsewhere.
(5) Note: Cold in far south, hot elsewhere
(6) Note: Cold in far south, mainly normal elsewhere
(7) Note: Wet in parts of the north, else normal*

Current Status – Caribbean

	Current Status: Temperature			Current Status: Rainfall		
	September	October	November	September	October	November
Caribbean Region	Mixed (1)	Hot	Mixed (1)	Mixed (2)	Normal	Normal
Haiti	Normal	Cold	Normal	Normal	Normal	Dry
Guyana	Hot	Hot	Normal	Normal	Normal	Wet

Notes:

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

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

Additional Information:

(1) Note: Large variations across the region
(2) Note: Mostly normal/dry, but very wet in the north.

Current Status – British Overseas Territories

	Current Status: Temperature			Current Status: Rainfall		
	September	October	November	September	October	November
Southern Europe	Hot	Hot	Hot	Normal*	Dry	Normal
Central Indian Ocean	Normal	Cold	Normal	Dry	Dry	Normal
Central Pacific	Cold	Cold	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:

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: January to June – MENA – Middle East (1)

		Forecast summary		
		January	January to March	April to June
Turkey	*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	Climatological odds
Palestine	*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	Climatological odds
Lebanon	*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	Climatological odds
Jordan	*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	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: January to June – MENA – Middle East (2)

		Forecast summary		
		January	January to March	April to June
Syria	*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	Climatological odds
Iraq	*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	Climatological odds
Yemen	*Temperature*	Climatological odds	Climatological odds in the southwest; Likely to be warmer than normal elsewhere	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal in the west; Likely to be drier than normal in the 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: January to June – MENA – North Africa(1)

		Forecast summary		
		January	January to March	April to June
Mauritania	*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
Morocco	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Algeria	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Tunisia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	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: January to June – MENA – North Africa(2)

		Forecast summary		
		January	January to March	April to June
Libya	*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 but Climatological odds far north	Climatological odds	Climatological odds
Egypt	*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
Eritrea	*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

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: January to June – Caribbean

		Forecast summary		
		January	January to March	April to June
Caribbean Region	*Temperature*	**Much more likely to be warmer than normal** in the northwest; **Likely to be near-normal** in the southeast	**Much more likely to be warmer than normal** in the northwest; **Likely to be near-normal** in the southeast	Likely to be warmer than normal in the northwest; Likely to be near-normal in the southeast
	Rainfall	Climatological odds	Climatological odds	Likely to be drier than normal
Haiti	*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
Guyana	*Temperature*	**Likely to be colder than normal**	**Likely to be colder than normal**	Likely to be near-normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be wetter 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: January to June – British Overseas Territories

		Forecast summary		
		January	January to March	April to June
Southern Europe	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Central Indian Ocean	*Temperature*	Likely to be near-normal	Likely to be near-normal	Likely to be near-normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Central Pacific	*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	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/

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 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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