Global: Monthly Climate Outlook
June to March

Issued: September 2021

Overview

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

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

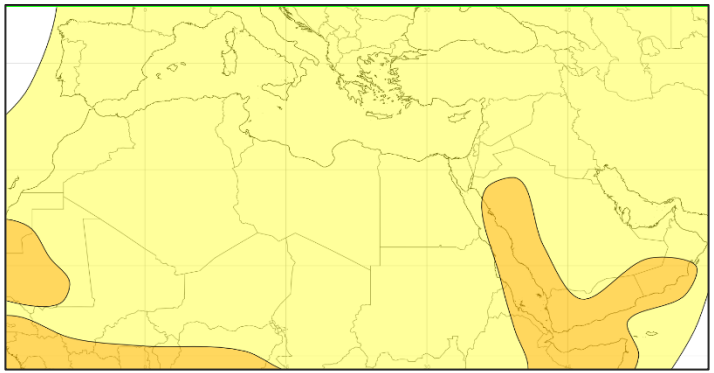
Global Seasonal Outlook – Temperature

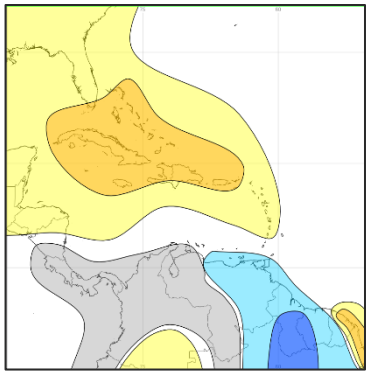
Global Seasonal Outlook – Rainfall

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

Current Status:
Over the last three months, all regions have been normal to hot, however, Yemen, and the Pacific oceanic territories were cold at times.

Outlook:
Above normal temperatures are likely across the MENA region, and much more likely across the Caribbean and Central Indian Ocean.





3-Month Outlook October to December - Temperature

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

Left: Middle East and North Africa
Right: Caribbean region

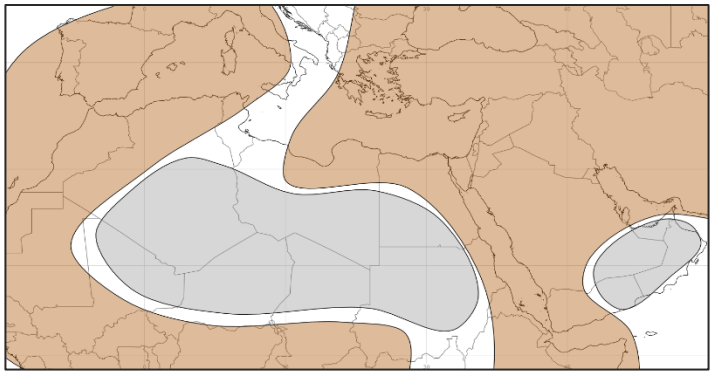
MENA, Caribbean and British Overseas Territories Current Status and Outlook - Rainfall

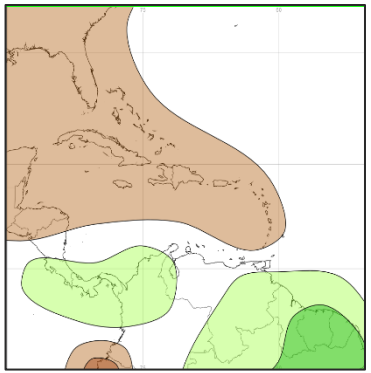
Current Status:

Over the last three months, the dry season continued across the Middle East and southern Europe with little rainfall observed other than in the Western Highlands of Yemen, where it has been wet. Parts of Mauritania and Eritrea where the northern extent of the West Africa Monsoon has generated areas of very wet conditions. The rest of North Africa has been mainly dry. Haiti and Guyana have also seen wet conditions through August, Haiti in particular with rainfall exacerbated by the passages of Tropical Cyclones Fred and Grace in quick succession.

Outlook:
Below normal rainfall is likely across large parts of the region, with the exception of Guyana where above normal rainfall is likely.

Tropical Cyclone outlook: Information can be found here.





3-Month Outlook October to December - Rainfall

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

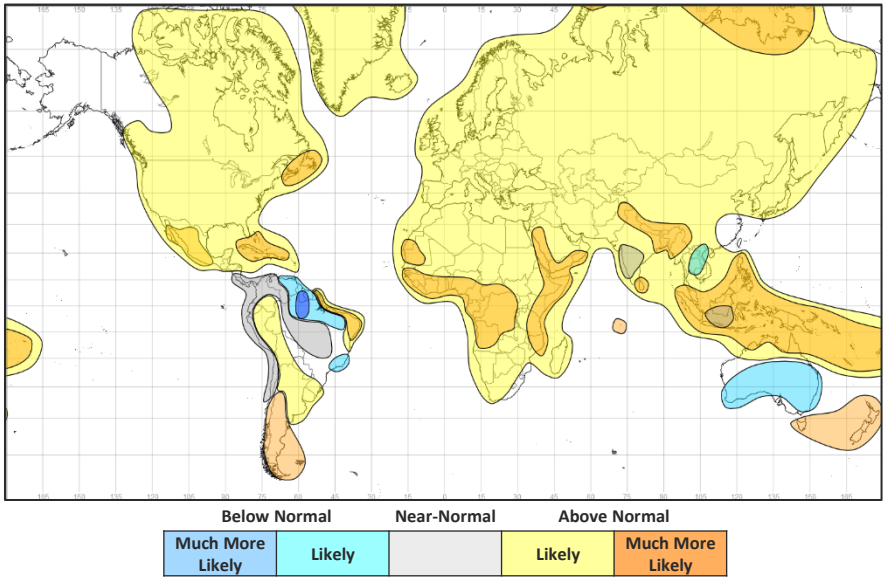
Left: Middle East and North Africa
Right: Caribbean region

Global Outlook - Temperature

Outlook:

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

3-Month Outlook October to December - Temperature



Global Outlook - Rainfall

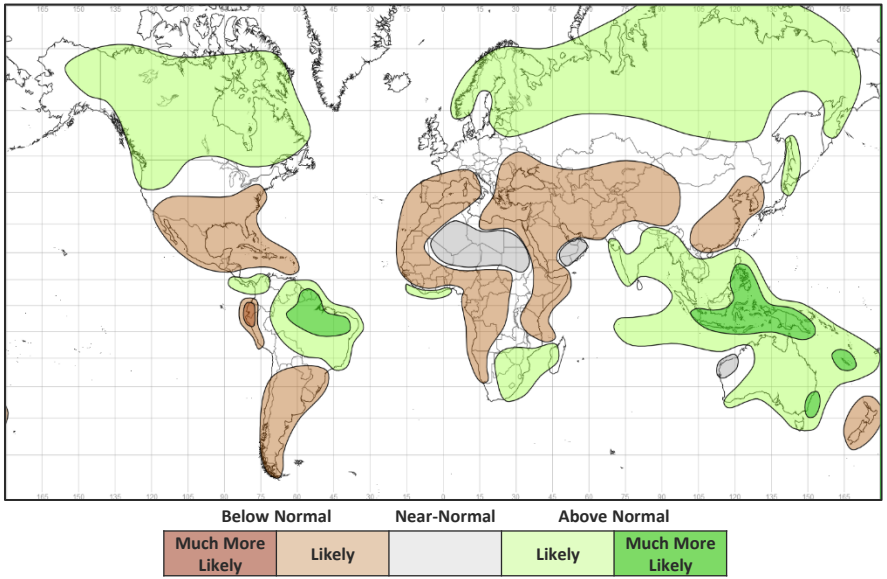
Indian Ocean Dipole (IOD) - Indian Ocean Dipole (IOD) - A negative IOD event is established and is expected to persist for the next few months returning to neutral by December. During a negative phase, waters in the eastern Indian Ocean (near Indonesia) are warmer than normal, and the western Indian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

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

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

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

3-Month Outlook October to December - Rainfall



Current Status

Current Status maps

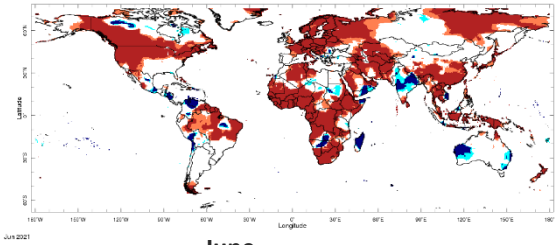
MENA – Middle East

MENA – North Africa

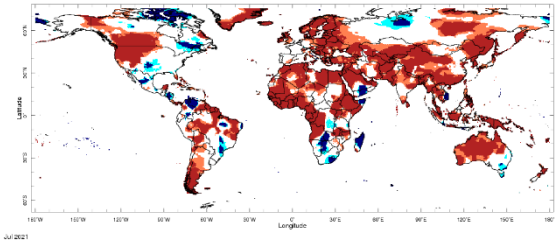
Caribbean

British Overseas Territories

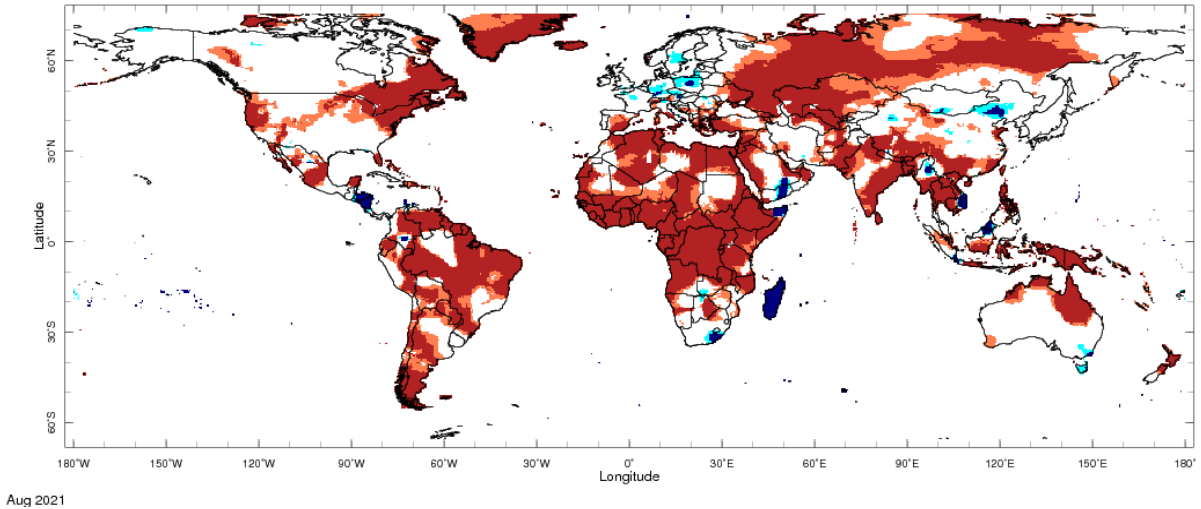
Current Status – Temperature percentiles



June



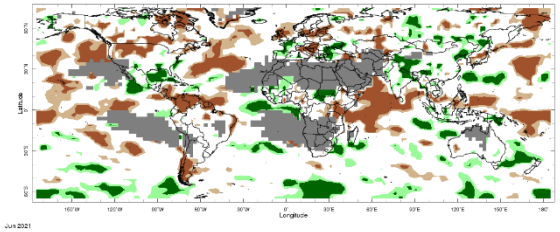
July



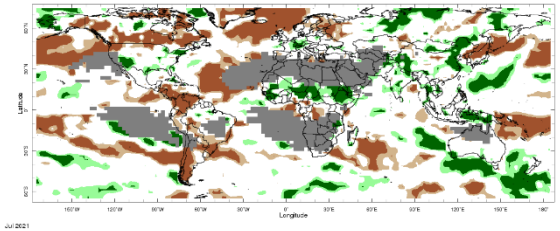
August

Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions shaded in light and dark blue indicate values below the 20th (Cool) and 10th (Cold) percentile, with respect to the 1981-2010 climatology. The data used in this map are from the NOAA Climate Prediction Center.

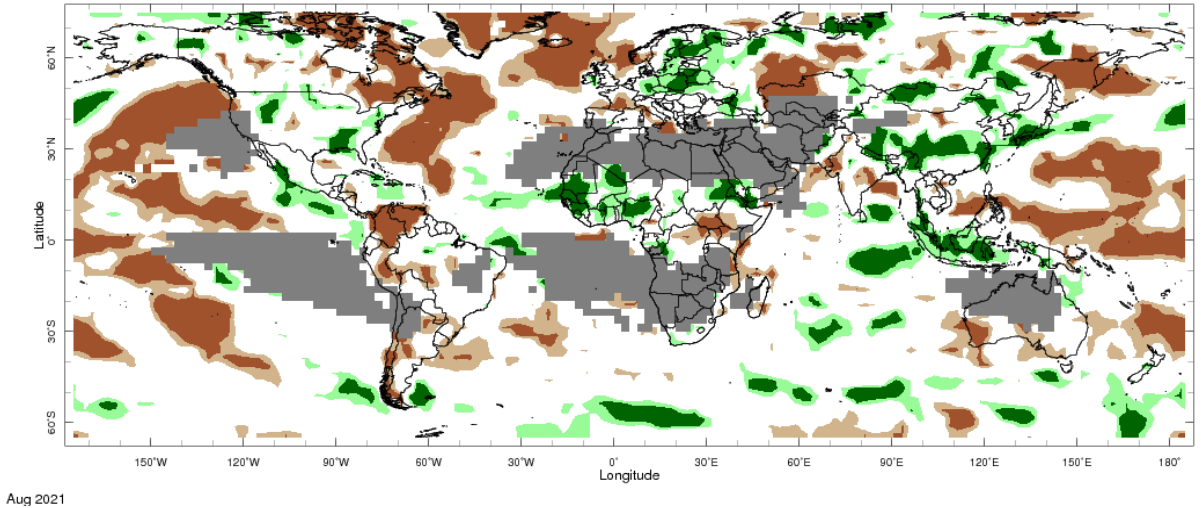
Current Status – Precipitation percentiles



June



July



August

Notes: The percentiles shown in the map indicate a ranking of rainfall, with the 0th percentile being the driest and the 100th percentile being the wettest in the 1981-2010 climatology. Green and dark green shading represent values above the 80th (Wet) and 90th (Very Wet) percentile, respectively; regions shaded in light and dark brown indicate rainfall below the 20th (Dry) and 10th (Very Dry) percentile, with respect to the 1981-2010 climatology. Grey areas on the map mask out regions that receive less than 10 mm/month of rainfall on normal in the 1981-2010 climatology for the month. The data used in this map are from the NOAA Climate Prediction Center.

Current Status – MENA – Middle East

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Turkey	Normal	Hot	Mixed (4)	Mixed (2)	Normal	Normal*
Palestine	Normal	Hot	Hot	Normal*	Normal*	Normal*
Lebanon	Normal	Hot	Hot	Normal*	Normal*	Normal*
Jordan	Normal	Hot	Hot	Normal*	Normal*	Normal*
Syria	Normal	Hot	Warm	Very Dry*	Normal*	Normal*
Iraq	Hot	Hot	Normal	Normal*	Normal*	Normal*
Yemen	Cool	Mixed (1)	Cool	Normal*	Normal (3)	Normal (3)

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: Cool or cold in the east, hot in the far southwest, otherwise normal
(2) Note: Very Wet in the west, to Very Dry in the east.
(3) Note: Wet in the west.
(4) Note: Hot in the west

Current Status – MENA – North Africa

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Mauritania	Hot	Hot	Mixed (4)	Normal*	Normal*	Very Wet
Morocco	Normal	Hot	Mixed (5)	Dry*	Normal*	Normal*
Algeria	Hot	Hot	Hot	Mixed (2)*	Normal*	Normal*
Tunisia	Hot	Hot	Hot	Dry*	Normal*	Normal*
Libya	Mixed (1)	Mixed (3)	Mixed (6)	Very Dry*	Normal*	Normal*
Egypt	Normal	Hot	Hot	Very Dry*	Normal*	Normal*
Eritrea	Hot	Hot	Hot	Dry*	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:

(1) Note: Mixed in the west, Normal in the east.
(2) Note: Wet in the north, to Very Dry in the south
(3) Note: Hot in the east; normal elsewhere
(4) Note: Hot in the west, normal elsewhere.
(5) Note: Hot in the north-east, normal elsewhere.
(6) Note: Hot in the north and east, normal elsewhere.

Current Status – Caribbean

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Caribbean Region	Normal	Hot	Normal	Normal (1)	Normal	Mixed (3)
Haiti	Warm	Warm	Normal	Normal	Dry	Wet
Guyana	Hot	Hot	Mixed (2)	Dry	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:** Very Wet Cuba and parts of Lesser Antilles. Otherwise, Normal or Dry – Normal overall.
(**2) Note:** Hot in the north, normal in the south.
(**3) Note:** Locally Wet

Current Status – British Overseas Territories

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Southern Europe	Hot	Hot	Hot	Normal	Normal*	Dry*
Central Indian Ocean	Hot	Cold	Normal	Very Dry	Normal	Normal
Central Pacific	Cold	Cold	Cold	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:

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: October to March – MENA – Middle East (1)

		Forecast summary		
		October	October to December	January to March
Turkey	*Temperature*	Climatological odds	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*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Lebanon	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Jordan	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier 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: October to March – MENA – Middle East (2)

		Forecast summary		
		October	October to December	January to March
Syria	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	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	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Yemen	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal	Climatological odds
	Rainfall	Climatological odds	Likely to be drier than normal in east. Likely to be near-normal in west	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: October to March – MENA – North Africa(1)

		Forecast summary		
		October	October to December	January to March
Mauritania	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal** in west. Likely to be warmer than normal elsewhere	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Climatological odds
Morocco	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Algeria	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal in north. Likely to be near-normal in south.	Likely to be drier than normal in north. Likely to be near-normal in south.	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	Likely to be drier than normal in north. Climatological odds in south.	Climatological odds

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

Outlook: October to March – MENA – North Africa(2)

		Forecast summary		
		October	October to December	January to March
Libya	*Temperature*	Climatological odds	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be drier than normal in north. Likely to be near-normal in south.	Climatological odds
Egypt	*Temperature*	Climatological odds	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be drier than normal in north and east. Likely to be near-normal in south and west.	Likely to be near-normal
Eritrea	*Temperature*	Much more 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.

Outlook: October to March – Caribbean

		Forecast summary		
		October	October to December	January to March
Caribbean Region	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Likely to be drier than normal
Haiti	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Guyana	*Temperature*	Likely to be near-normal	Likely to be colder than normal	Likely to be near-normal
	Rainfall	Likely to be wetter than normal	**Much more likely to be wetter than normal** in south. Likely to be wetter than normal elsewhere.	Likely to be wetter than normal

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

Outlook: October to March – British Overseas Territories

		Forecast summary		
		October	October to December	January to March
Southern Europe	*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
Central Indian Ocean	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
Central Pacific	*Temperature*	Likely to be warmer than normal	Climatological odds	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	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

Tropical Storm Outlook for the North Atlantic Ocean basin

Tropical storm seasonal forecast for the October to March period:

There is typically a steep decline in North Atlantic tropical cyclone activity throughout October and November with the season “officially” ending on 30th November although activity can (and has done) continue beyond this time. Genesis in the tropical Atlantic becomes much less likely, with cyclones more likely to develop in the Caribbean Sea or Gulf of Mexico. Whilst activity up until now has been above average in terms of named storms, and slightly above average in terms of Accumulated Cyclone Energy (ACE), forecast models are now calling to near- to slightly below- average activity. However, with an increasing chance of La Niña developing during the Autumn, this favours a prolonged season, and when coupled with the National Hurricane Centre’s increased detection capability near to slightly above-average activity seems most likely.

More information, and the full forecast can be found at https://www.metoffice.gov.uk/research/weather/tropical-cyclones/seasonal/northatlantic2021

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.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)

Technical notes

The WMO lead centre for long-range forecast multi-model ensemble (LC-LRFMME) produce a probabilistic multi-model mean forecast product in which the multi-model mean is based on uncalibrated model output with a model weighting system that accounts for errors in both the forecast probability and ensemble mean. The method used by LC-LRFMME separately computes a probabilistic forecast and calculates tercile probabilities with respect to climatology for each individual model, before creating the weighted multi-model mean. In seasonal prediction, shifts in the tercile probabilities are always closely associated with the shifts in the probability of extremes, and we can use the probability of terciles to provide information on the likelihood of above- or below- normal conditions. The thresholds used in the forecast summaries are defined below.

Seasonal forecasts rely on the aspects of the global weather and climate system that are more predictable, such as tropical sea-surface temperatures or the El Niño–Southern Oscillation (ENSO). However, whilst such forecasts may be able to show what is more or less likely to occur, they acknowledge that other outcomes are possible.

In addition, forecast uncertainty generally increases with longer range so the 6-month outlook is less reliable. It is also based on less information, because not all models are available to this range. Therefore the information presented here should be used to raise early awareness of potential hazards, and should be updated with the 3-month outlook when available.

In the report and tables precipitation is referred to as rainfall but in fact encompasses any form of water, liquid or solid, falling from the sky. Temperatures are the (2 metre) near-surface temperature.

Description	Definition
Much more likely to be below normal	When probability of lower tercile > 70%
More likely to be below normal	When probability of lower tercile is 40-70%
Likely to be normal	When probability of middle tercile is 40-70%
Much more likely to be near-normal	When probability of middle tercile > 70%
Likely to be above normal	When probability of upper tercile is 40-70%
Much more likely to be above normal	When probability of upper tercile > 70%
Climatological odds	When probabilities for all categories are roughly 33%

Global Producing Centres (GPC) forecasts used by WMO LC-LRFMME:

- GPC CPTEC (INPE),
- GPC ECMWF,
- GPC Exeter (Met Office),
- GPC Melbourne (BOM),
- GPC Montreal (CMC),
- GPC Moscow (Hydromet Centre of Russia),
- GPC Offenbach (DWD),
- GPC Pretoria (SAWS),
- GPC Seoul (KMA),
- GPC Tokyo (JMA),
- GPC Toulouse (Meteo France),
- GPC Washington (NCEP)

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