



# **Global:** Monthly Climate Outlook September to June

**Issued: December 2020** 

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<u>Annex 1 – Supplemental Information</u>





# Overview

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

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

<u>Global Seasonal Outlook – Temperature</u>

<u>Global Seasonal Outlook – Rainfall</u>

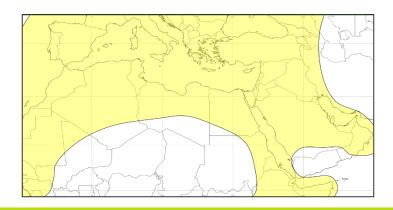


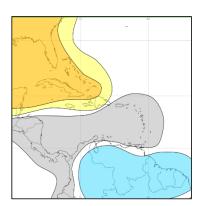


# MENA, Caribbean and British Overseas Territories Current Status and Outlook - Temperature

Current Status: Mainly, conditions have been warmer than normal across the areas of interest during the past three months. However, temperatures were near normal across southern Europe and northern Africa during October.

**Outlook:** For the next three months, apart from Iran, warmer than normal conditions are likely across North Africa, the Middle East and northern Caribbean. Near normal temperatures are likely in the central and southern Caribbean, including the Windward Islands. Colder than normal conditions are likely across Venezuela and Guyana.





### 3-Month Outlook January to March - Temperature

<b>Below Normal</b>		Near-Normal	More Normal	
Very Likely	Likely		Likely	Very Likely

Left: Middle East and North Africa

Right: Caribbean region



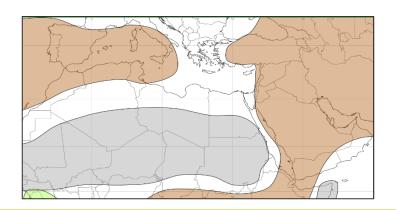


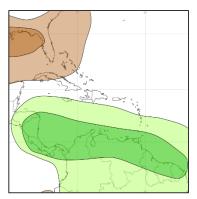
# MENA, Caribbean and British Overseas Territories Current Status and Outlook - Rainfall

Current Status: Following a drier than normal September, large parts of the Caribbean were wetter than normal in October and November. During September to November, near normal to drier than normal conditions were observed across much of North Africa and the Middle East. However, during November, parts of the Middle East were wetter than normal.

**Outlook:** Near normal or drier than normal conditions are likely across large parts of North Africa and the Middle East for the next three months. Drier than normal conditions are likely across northern parts of the Caribbean (from Cuba northwards). For Central America and the Windward Islands, wetter than normal conditions are likely or very likely. Across the rest of the Caribbean predictions are more finely balanced and indistinguishable from climatological odds.

Tropical Cyclone outlook: Information can be found here.





## 3-Month Outlook January to March - Rainfall

Below Normal		Near-Normal	l More Normal	
Very Likely	Likely		Likely	Very Likely

Left: Middle East and North Africa

Right: Caribbean region



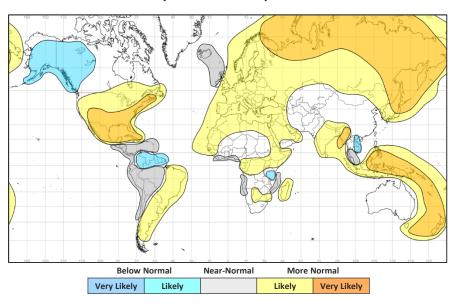


# Global Outlook - Temperature

#### Outlook:

La Niña tends to have an overall cooling effect across the world. However, many regions are likely to be warmer than normal, 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 eastern Africa and southeast Asia.

## 3-Month Outlook January to March - Temperature







## Global Outlook - Rainfall

#### Outlook:

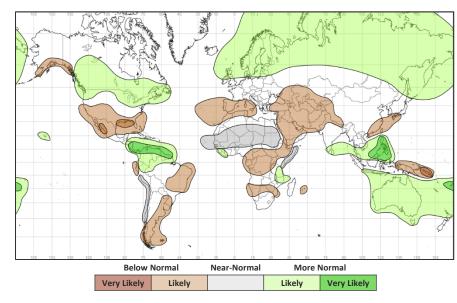
**El Niño-Southern Oscillation (ENSO)** – La Niña conditions are now well established across the tropical Pacific, with SST anomalies, trade wind strength, atmospheric pressure pattern and cloudiness all consistent with this. The event is probably close to its peak and a gradual shift towards more neutral conditions should take place during the first half of next year.

The latest <u>NOAA Climate Prediction Centre / NCEP statement</u> (PDF) states that: "La Niña is likely to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March), with a potential transition during the spring 2021 (~50% chance of Neutral during April-June)."

For the next three months, large parts of southern Asia, Australasia, Central America, northern parts of South America, along with southern parts of the Caribbean are likely to be wetter than normal.

Meanwhile, large swathes of Africa and the Middle East are likely to be drier than normal.

## 3-Month Outlook January to March - Rainfall







# **Current Status**

**Current Status maps** 

MENA – Middle East

MENA – North Africa

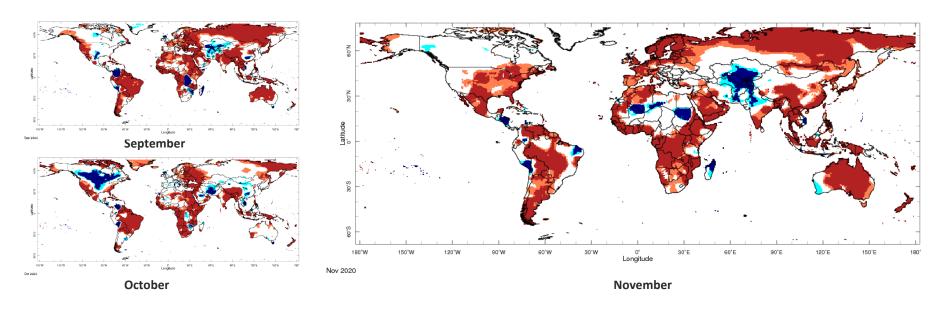
Caribbean

**British Overseas Territories** 





# Current Status – Temperature percentiles



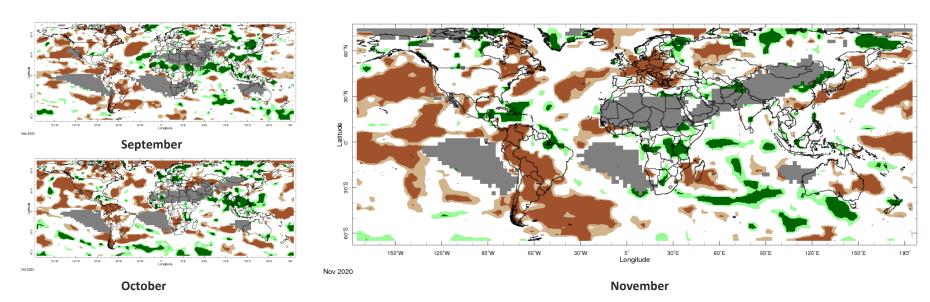


**Notes:** The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values More the 80th (Warm) and 90th (Hot) percentile, respectively; regions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





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 More 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

	Currer	Current Status: Temperature			
	September	September October November			
Turkey	Normal	Hot	Normal		
Palestine	Hot	Hot	Normal		
Lebanon	Hot	Hot	Normal		
Jordan	Hot	Hot	Warm		
Syria	Hot	Hot	Normal		
Iraq	Normal^	Normal	Warm		
Yemen	Normal	Hot	Hot		

Current Status: Rainfall					
September October November					
Dry	Mixed^^^				
Normal	Dry	Wet			
Normal	Dry	Wet			
Normal	Dry	Wet			
Normal	Normal	Wet			
Normal^^	Normal	Normal			
Normal	Normal	Normal*			

#### Notes:

The table gives an assessment of whether temperature and rainfall across each country have been More 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/.

### **Additional Information:**

**^Note:** Temperatures highly variable across the country during September.

**^^Note:** Wet in the northwest during September

**^^^Note:** Very Dry in western parts of the country with rainfall near normal in the east.

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





## Current Status – MENA – North Africa

	Current Status: Temperature					
	September	September October November				
Mauritania	Warm	Normal^	Hot			
Morocco	Hot	Normal	Warm			
Algeria	Warm	Hot^^	Hot			
Tunisia	Normal	Normal	Hot			
Libya	Warm	Hot	Normal			
Egypt	Hot	Hot	Normal			
Eritrea	Hot	Hot	Hot			

Current Status: Rainfall					
September	October	November			
Very Wet	Normal	Normal*			
Normal*	Normal	Normal			
Normal*	Dry	Normal			
Wet	Normal	Normal			
Normal*	Normal*	Normal*			
Normal*	Normal*	Very Wet*^^^			
Very Wet	Normal*	Normal*			

#### Notes:

The table gives an assessment of whether temperature and rainfall across each country have been More 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 the south.

**^^Note:** Temperatures normal along the coast.

**^^^Note:** Very Wet in the far north of the country, with rainfall near normal elsewhere.





## Current Status - Caribbean

	Current Status: Temperature			
	September October November			
Caribbean Region	Hot	Hot	Hot	
Haiti	Hot	Hot	Cool	
Guyana	Hot	Hot	Warm	

Current Status: Rainfall					
September October November					
Dry	Normal				
Normal	Normal	Very Wet			
Dry	Normal				

#### Notes:

The table gives an assessment of whether temperature and rainfall across each country have been More 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 – British Overseas Territories

	Current Status: Temperature			
	September October November			
Southern Europe	Hot	Hot^	Warm	
Central Indian Ocean	Normal	Normal	Warm	
Central Pacific	Normal	Normal	Cold	

Cur	Current Status: Rainfall						
September October November							
Normal	Very Wet^	Normal					
Dry	Dry	Wet					
Dry	Dry	Normal					

#### Notes:

The table gives an assessment of whether temperature and rainfall across each country have been More 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 and rainfall highly variable across the region in October, hottest and wettest in the south-east.





# Outlooks

<u>Outlooks – Notes for use</u>

MENA – Middle East

MENA – North Africa

<u>Caribbean</u>

**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 More, 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 – <u>see note</u>
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 – <u>see note</u>
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 – <u>see note</u>
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	Likely to be drier than normal	Climatological odds – <u>see note</u>

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.

**Global: September to June** 





# 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 – <u>see note</u>		
Iraq	Temperature	Likely to be near-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 – <u>see note</u>		
Yemen	Temperature	Likely to be colder than normal	Likely to be warmer than normal	Likely to be warmer than normal		
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Climatological odds – <u>see note</u>		





# 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	Climatological odds – <u>see note</u>	Climatological odds – <u>see note</u>
Morocco	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 – <u>see note</u>
Algeria	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be drier than normal, although likely to be near-normal in the south	Climatological odds – <u>see note</u>
Tunisia	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 – <u>see note</u>





# 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	Likely to be near-normal	Climatological odds – <u>see note</u>
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	Likely to be near-normal	Climatological odds – <u>see note</u>
Eritrea	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds – <u>see note</u>
	Rainfall	Likely to be near-normal	Climatological odds – <u>see note</u>	Climatological odds – <u>see note</u>





# Outlook: January to June – Caribbean

		Forecast summary		
		January	January to March	April to June
Caribbean	Temperature	Likely to be near-normal	Likely to be near-normal	Likely to be near-normal
Region	Rainfall	Climatological odds – <u>see note</u>	Likely to be wetter than normal across the Windward Islands. Climatological odds – see note elsewhere	Climatological odds – <u>see note</u>
Haiti	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds – <u>see note</u>
	Rainfall	Climatological odds – <u>see note</u>	Climatological odds – <u>see note</u>	Likely to be drier than normal
Guyana	Temperature	Likely to be near-normal	Likely to be colder than normal	Climatological odds – <u>see note</u>
	Rainfall	Likely to be wetter than normal	Much more likely to be wetter than normal	Likely to be wetter than normal





## 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	Likely to be drier than normal	Likely to be drier than normal	Climatological odds – <u>see note</u>
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 – <u>see note</u>	Likely to be drier than normal	Climatological odds – <u>see note</u>
Central Pacific	Temperature	Climatological odds – <u>see note</u>	Climatological odds – <u>see note</u>	Climatological odds – <u>see note</u>
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds – <u>see note</u>





# Annex 1 – Supplemental Information





# Tropical Storm Outlook for the North Atlantic Ocean basin

Tropical storm seasonal forecast for the January to June period:

Near- to slightly above average activity is the most probable outcome, with storms perhaps preferentially affecting the Gulf of Mexico where there are currently above average SSTs.

More information, and the full forecast can be found at <a href="https://www.metoffice.gov.uk/research/weather/tropical-cyclones/seasonal/northatlantic2020">https://www.metoffice.gov.uk/research/weather/tropical-cyclones/seasonal/northatlantic2020</a>





## 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) <a href="http://iridl.ldeo.columbia.edu/maproom/">http://iridl.ldeo.columbia.edu/maproom/</a>

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 probabilistic multi-model 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 More- 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 More near-normal	When probability of upper tercile is 40-70%
Much more likely to be More 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)





# Enquiries

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