

# Asia: Monthly Climate Outlook March to December

**Issued: June 2021**

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# Overview

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# Asia Current Status and Outlook - Temperature

## Current Status:

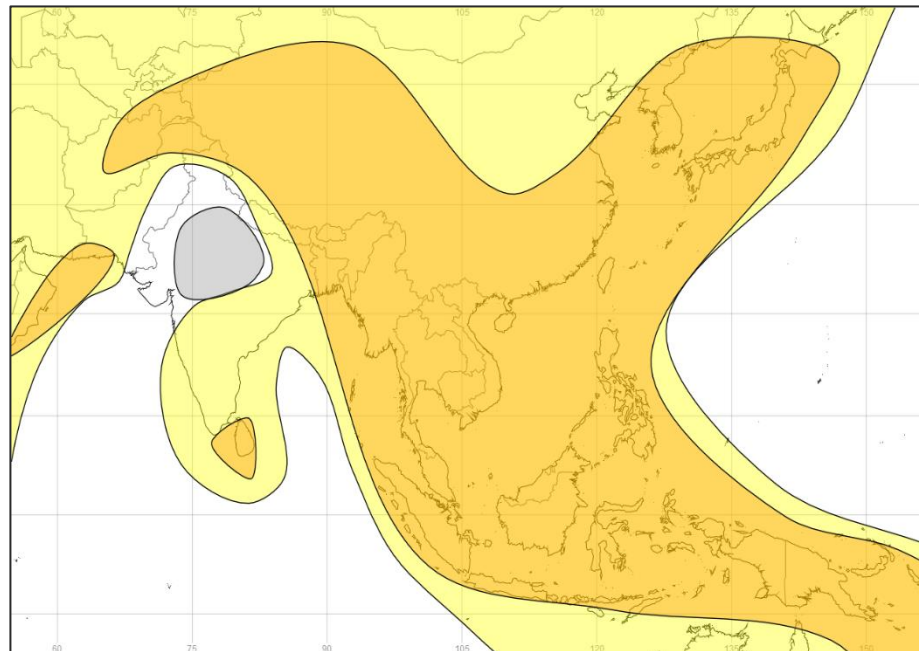
Over the last three months above normal temperatures have been observed across many parts of Asia. During May there were some notable exceptions with much of India, Vietnam and Mongolia seeing below normal temperatures.

## Outlook:

Most of the area is likely or much more likely to be warmer than normal through the next three months. Forest fires, as well as impacts on health from prolonged heat are more likely during warmer than likely temperatures.

The main exception to a warmer outlook is across parts of India where near-normal temperatures are most likely.

## 3-Month Outlook July to September - Temperature



# Asia Current Status and Outlook - Rainfall

## Current Status:

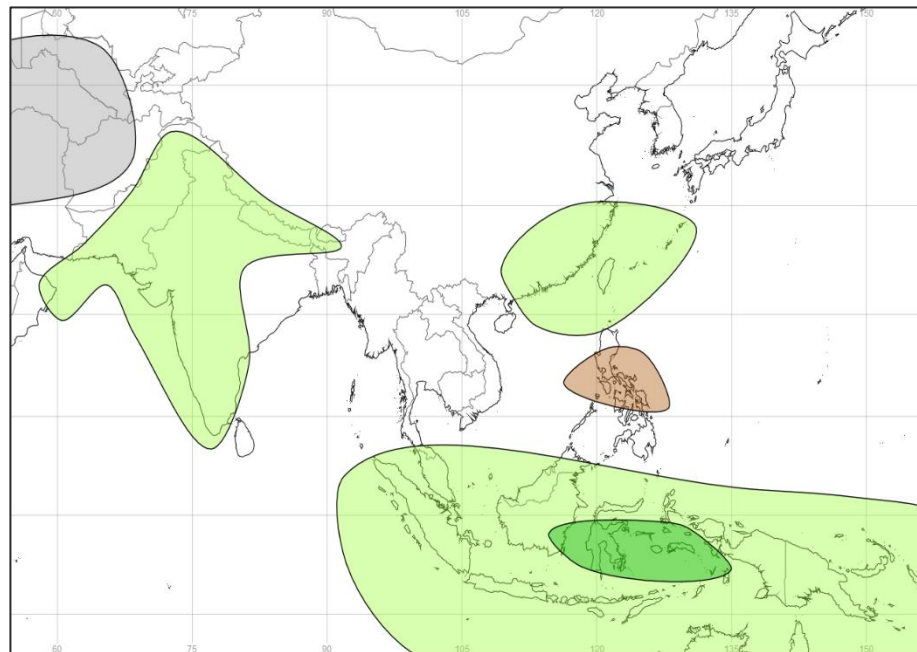
During May above normal rainfall was recorded across Nepal, Afghanistan, Bangladesh, China, Indonesia, southern Philippines, much of India and parts of Pakistan. Below normal rainfall was observed during May in Kyrgyzstan, parts of Vietnam, the north of Philippines and far southeast of China.

## Outlook:

Wetter than normal conditions are likely or very likely across much of Indonesia and Malaysia. Further north, it is likely to be drier than normal across parts of the Philippines. Wetter than normal conditions are also likely for parts of southeast China and Taiwan.

For the summer monsoon, across the Indian sub-continent predictions remain finely balanced with mixed signals from longer range forecast systems. Overall, wetter than average conditions are more likely for many parts of Pakistan, India and Nepal.

## 3-Month Outlook July to September - Rainfall



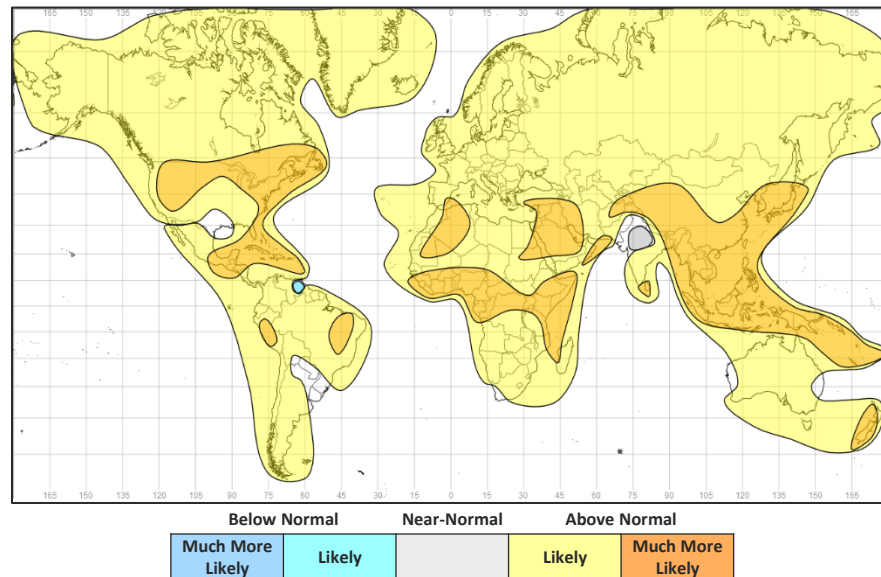
# Global Outlook - Temperature

## Outlook:

The El Niño–Southern Oscillation (ENSO) remains neutral and is most likely to remain so for at least the next three months. Later this year, there is small chance of La Niña redeveloping. However, predictions made at this time of year have lower skill than at other times and therefore the confidence in the evolution of ENSO over the coming months is low. With ENSO in its neutral phase, predictability will be relatively low.

Despite a neutral ENSO state some consistent signals are apparent. Many parts of the globe are likely to see warmer than normal conditions through the next three months with only a few limited exceptions; for example, parts of India and northern South America. Many tropical regions are very likely to see above normal temperatures, this is also the case for many parts of North America.

## 3-Month Outlook July to September - Temperature



# Global Outlook - Rainfall

## Outlook:

As described in the temperature section, ENSO is now neutral which reduces predictability compared to when it is in an active phase. However, there are still some common themes from seasonal predictions systems.

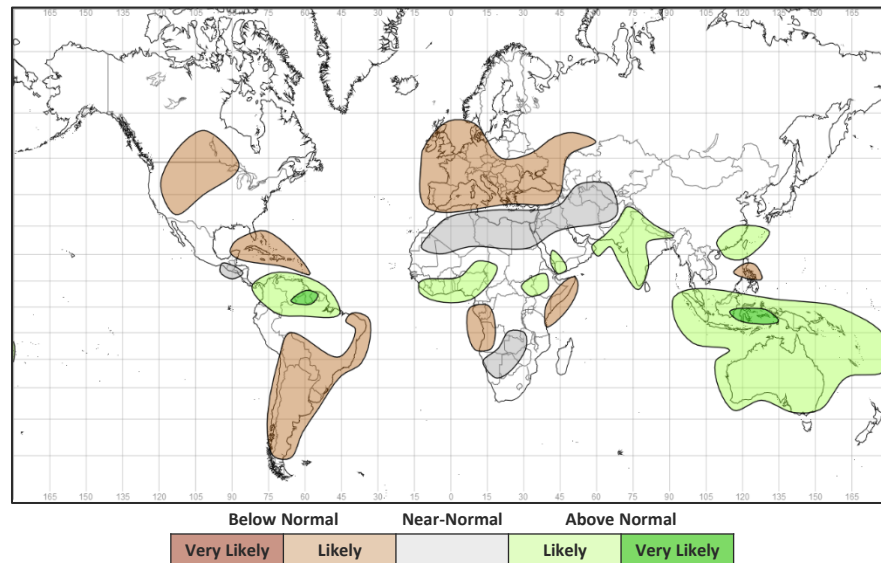
The Indian Ocean Dipole (IOD) is still neutral but the pattern of sea surface temperatures in the Indian Ocean are indicative of a negative phase developing. This is reflected in most of the climate prediction systems, which are suggesting a negative IOD emerging over the next two months. Over the next three months, this results in above normal rainfall being likely across parts of Southeast Asia and Australia; conversely parts of East Africa are likely to be drier than normal, though these areas of East Africa normally see little rainfall during this period.

The South Asian Monsoon (SAM) is underway with the northward shift of rains close to climatology in terms of timings. Predictions for the SAM remain finely balanced with mixed signals from longer range forecast systems. Overall, wetter than normal conditions are more likely for many parts of Pakistan, India and Nepal.

Parts of West Africa are likely to experience above normal rainfall associated with an active West Africa Monsoon season. In northern South America a southward shifted and active Intertropical Convergence Zone (ITCZ) makes above normal rainfall likely or very likely across much region with some o areas already being wetter than normal over recent weeks and months.

Many parts of southern South America, North America and Europe, as well as the Caribbean are likely to see below normal rainfall. This is also true for parts of the Philippines.

## 3-Month Outlook July to September - Rainfall



# Current Status

[Current Status maps](#)

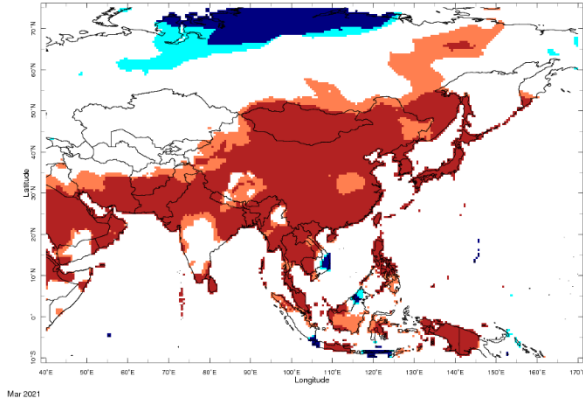
[Central Asia](#)

[Southern Asia](#)

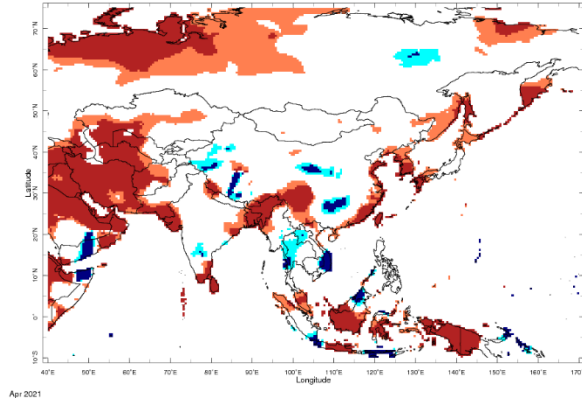
[Southeast Asian Peninsula](#)

[Southeastern Asia / Indonesia](#)

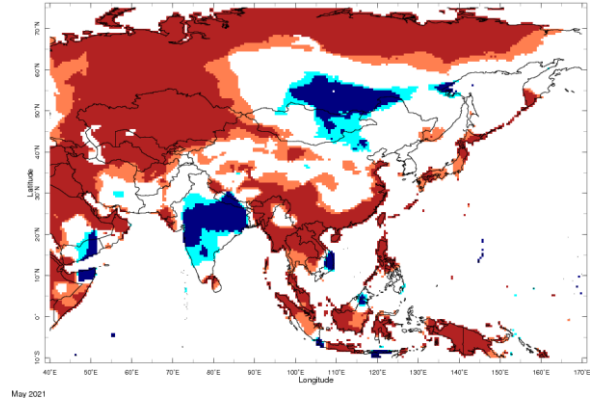
# Current Status – Temperature percentiles



March



April



May

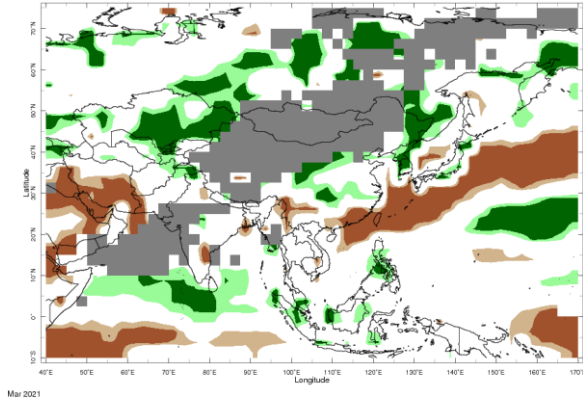
Temperature Percentiles (BLUE below 20th and RED above 80th)



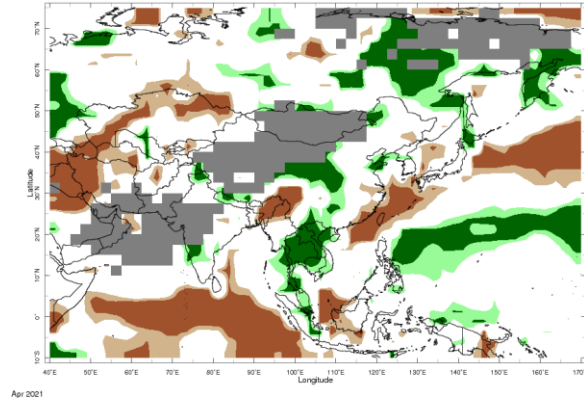
**Notes:** The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions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



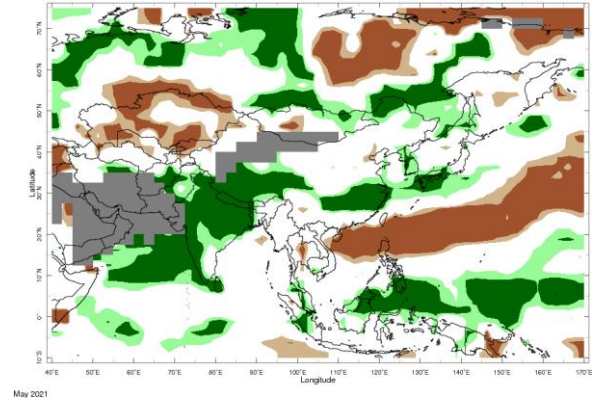
# Current Status – Precipitation percentiles



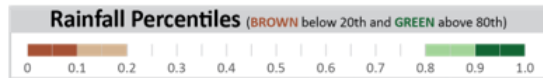
March



April



May



**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 – Central Asia

Current Status: Temperature

	March	April	May
Afghanistan	Hot (1)	Hot (1)	Warm
Tajikistan	Normal	Normal	Warm
Kyrgyzstan	Normal	Normal	Hot

Current Status: Rainfall

	March	April	May
	Normal	Normal	Mixed (2)
	Wet	Normal	Normal
	Normal	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:** Near normal for parts of the north and east, but overall hot  
**(2) Note:** Normal\* in the south, very wet in parts of the northeast

## Current Status – Southern Asia

Current Status: Temperature

	March	April	May
Pakistan	Hot	Normal (1)	Normal
India	Hot	Normal (1)	Cold
Nepal	Hot	Normal	Cold
Bangladesh	Hot	Hot	Hot

Current Status: Rainfall

	March	April	May
	Normal	Normal	Mixed (2)
	Normal	Normal	Very Wet
	Normal	Wet	Very Wet
	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 coastal regions

**(2) Note:** Normal\* in the south, wet in the north

# Current Status – Southeast Asian Peninsula

## Current Status: Temperature

	March	April	May
China	Hot	Normal (3)	Normal (3)
Myanmar	Hot	Normal	Hot
Vietnam	Mixed (1)	Mixed (1)	Mixed (1)

## Current Status: Rainfall

	March	April	May
	Mixed (2)	Mixed (2)	Mixed (2)
	Mixed	Normal (4)	Normal
	Normal	Wet	Normal

### Notes:

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

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

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

### Additional Information:

- (1) **Note:** Hot in the north, cold in the south
- (2) **Note:** Large variations across the country
- (3) **Note:** Hot along the east coast and across Tibet
- (4) **Note:** Dry in the north.

## Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature			Current Status: Rainfall		
	March	April	May	March	April	May
Indonesia	Mixed (1)	Mixed (1)	Mixed (1)	Mixed (2)	Normal	Mixed (2)
Papua New Guinea	Hot	Hot	Hot	Normal	Dry	Dry

### Notes:

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

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

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

### Additional Information:

**(1) Note:** Large variations across the country

**(2) Note:** Highly variable, all areas normal or wet/very wet

# Outlooks

Outlooks – Notes for use

Central Asia

Southern Asia

Southeast Asian Peninsula

Southeastern Asia / Indonesia

# 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: July to December – Central Asia

		Forecast summary		
		July	July to September	October to December
Afghanistan	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Likely to be near-normal
Tajikistan	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Likely to be drier than normal
Kyrgyzstan	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	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.



# Outlook: July to December – Southern Asia

		Forecast summary		
		July	July to September	October to December
Pakistan	Temperature	Climatological odds	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal in the far north; Climatological odds elsewhere	Likely to be wetter than normal	Climatological odds
India	Temperature	Likely to be near-normal	Likely to be near-normal in the north; Likely to be warmer than normal in the south	Climatological odds
	Rainfall	Likely to be wetter than normal in south and far north, otherwise Climatological odds	Mainly Likely to be wetter than normal, Climatological odds in parts of east	Climatological odds
Nepal	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Climatological odds
Bangladesh	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

**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: July to December – SE Asian Peninsula

		Forecast summary		
		July	July to September	October to December
China	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
Myanmar	Temperature	Much more 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
Vietnam	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 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: July to December – SE Asia / Indonesia

		Forecast summary		
		July	July to September	October to December
Indonesia	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 wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal
Papua New Guinea	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	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.

# 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.ncdc.noaa.gov/teleconnections/enso/indicators/sst.php>

Met Office

<https://www.metoffice.gov.uk/services/government/international-development>

The South Asian Climate Outlook Forum (SASCOF) [http://www.imdpune.gov.in/Clim\\_RCC\\_LRF/Index.html](http://www.imdpune.gov.in/Clim_RCC_LRF/Index.html)

Latest Output (Apr 2021) - <http://rcc.imdpune.gov.in/SASCOF17/concensus.html>

# 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 near-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 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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