

# Asia: Monthly Climate Outlook July to April

**Issued: October 2022**

[Overview](#)

[Current Status](#)

[Outlooks](#)

[Annex 1 – Supplemental Information](#)

# Overview

[Asia Current Status and Outlook – Temperature](#)

[Asia Current Status and Outlook – Rainfall](#)

[Global Outlook – Temperature](#)

[Global Outlook – Rainfall](#)

# Asia Current Status and Outlook - Temperature

## Current Status:

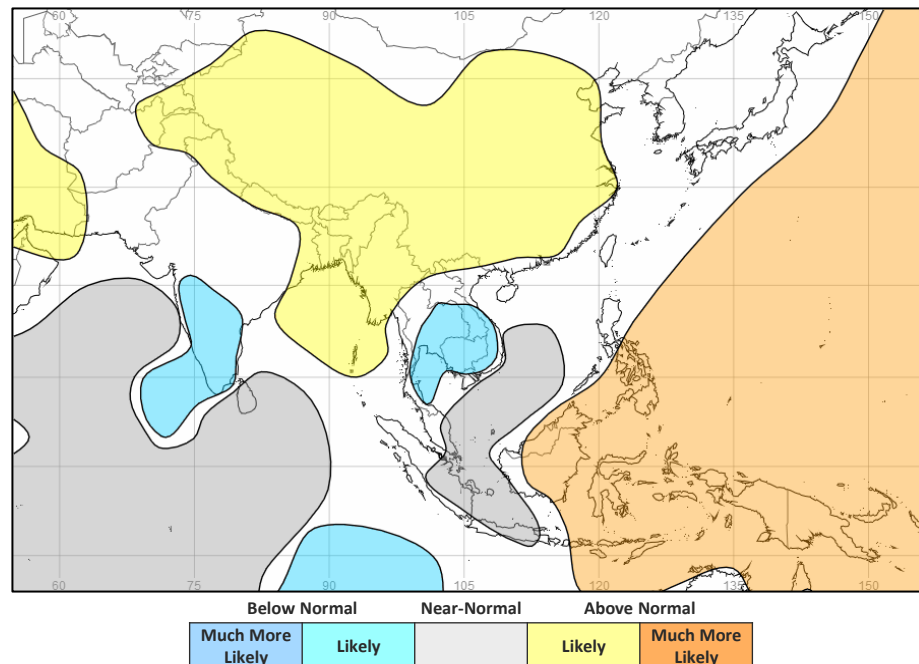
Most of the region has experienced warm to hot conditions over the last three months. Significant exceptions to this include most of Pakistan, as well as parts of Afghanistan, where it has been colder than normal. Parts of India and Southeast Asia (notably Vietnam and northern Borneo) were cold in July and August.

## Outlook:

La Niña continues to influence temperature patterns across the region. Over the next three months, much of eastern Indonesia, all of Papua New Guinea and southern parts of the Philippines are likely to be hotter than normal, as well as much of central Asia, Bangladesh, Nepal, Myanmar and most of China.

It is likely to be colder than normal in the southwest of India, as well as parts of Southeast Asia, including Vietnam.

## 3-Month Outlook November to January - Temperature



# Asia Current Status and Outlook - Rainfall

## Current Status:

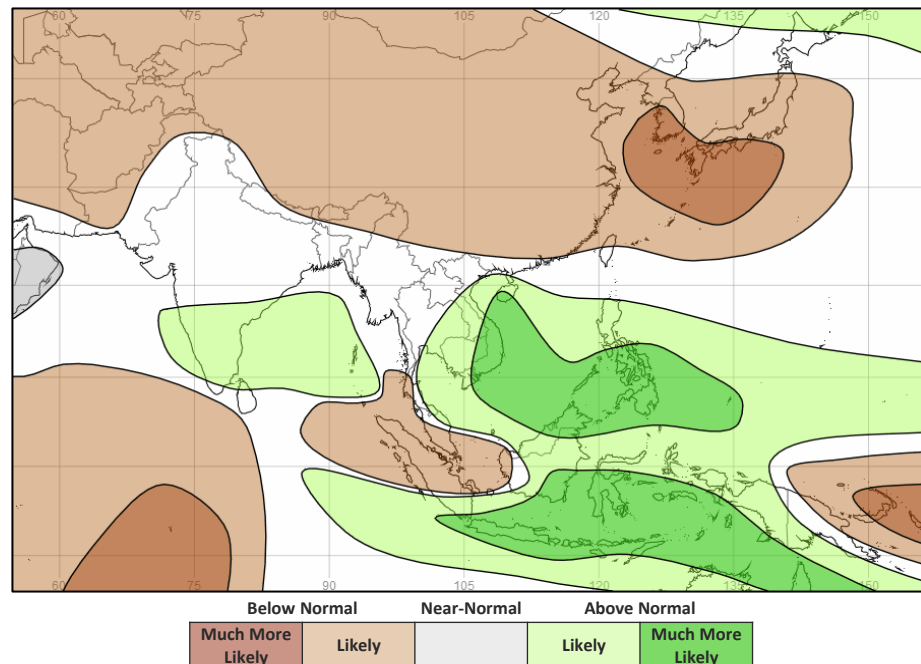
As a result of a more active Asian Monsoon season, Pakistan as well as parts of India have been wet or very wet during July and August. Likewise, many parts of Southeast Asia have been wet or very wet through the last three months.

Conditions have been mixed in China for the last three months with southeastern areas dry or very dry during August and September.

## Outlook:

Over the next three months, above normal rainfall is likely or much more likely across many parts of Southeast Asia, particularly Indonesia, as a result of La Niña and the negative Indian Ocean Dipole. Late season monsoon rains over India are likely to be wetter than normal, before the full retreat of the monsoon. Drier than normal conditions are likely for Central Asia and much of China and Japan.

## 3-Month Outlook November to January - Rainfall



# Global Outlook - Temperature

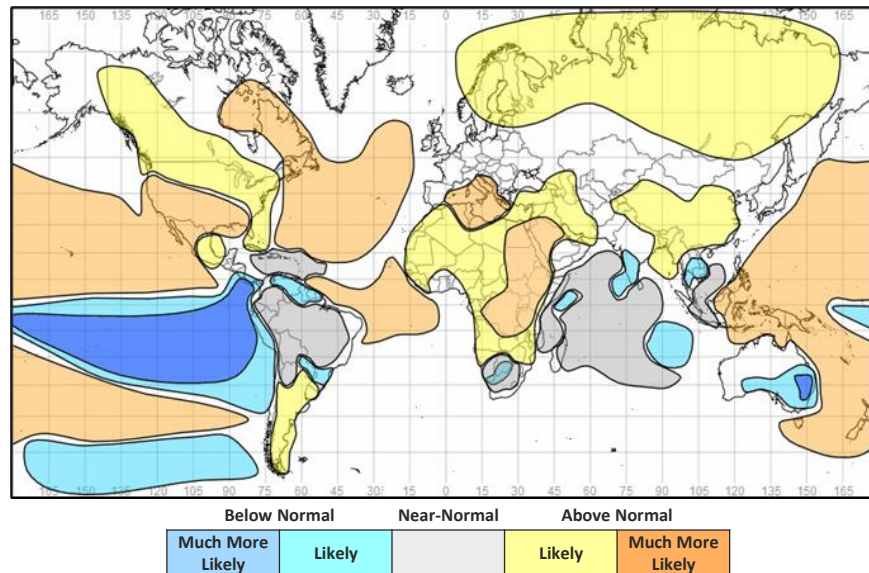
## Outlook:

The ongoing La Niña will be the dominant driver of conditions over the next three months and is likely to persist through the Northern Hemisphere winter, albeit within the context of background warming trend. A negative Indian Ocean Dipole will probably have more limited influence but will help to reinforce the effects of La Niña on temperatures around the Indian Ocean and western Pacific.

For many areas above average temperatures are most likely. However, there are exceptions as a result of La Niña and the negative IOD, including northern South America, Australia, mainland Southeast Asia and southwest India where near- or below normal temperatures are more likely.

Northern Hemisphere winter temperatures are likely, or much more likely to be above normal for North America and northern parts of Europe.

## 3-Month Outlook November to January - Temperature



# Global Outlook - Rainfall

## Outlook:

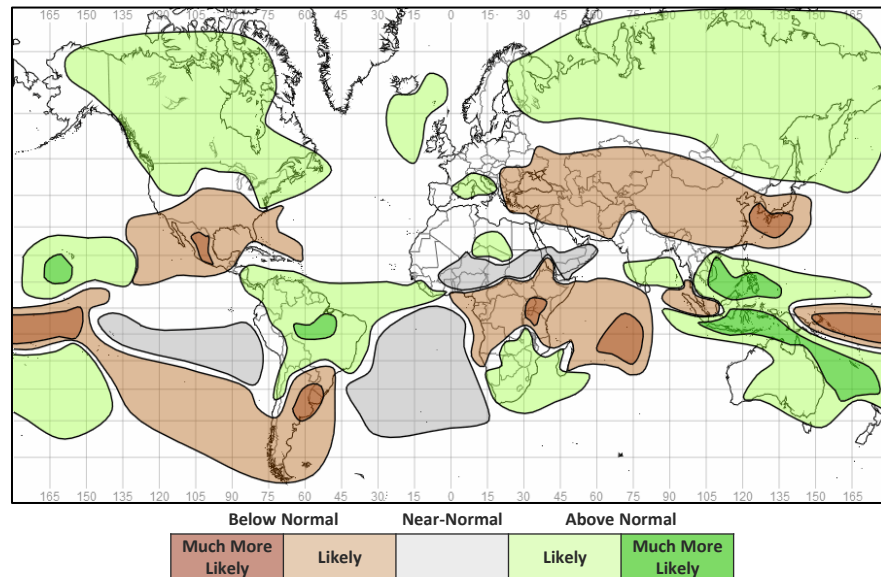
**El Niño-Southern Oscillation (ENSO)** – The current La Niña event continues in the tropical Pacific Ocean with oceanic and atmospheric indicators showing it has strengthened further over the last month.

Whilst La Niña is present and likely to last through the Northern Hemisphere winter, there is some uncertainty with respect to its longevity; The latest [ENSO outlook](#) issued by NOAA states that there is a 75% chance of La Niña persisting during the Northern Hemisphere winter (December-February) 2022-23, with a 54% chance for a change to ENSO-neutral in February-April 2023.

La Niña will remain the most dominant driver of global weather patterns over the next few months at least, more especially for tropical regions. With a couple of notable exceptions (e.g. East Africa) La Niña, very broadly speaking, tends to increase the likelihood of wetter than normal conditions across many land areas of the tropics. 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 IOD index is negative and is expected to remain so for at least the next two months before returning to neutral around the turn of the year. When concurrent with a La Niña, a negative IOD can enhance wetter than normal conditions in parts of Australia and Asia, and drier than normal conditions in East Africa.

## 3-Month Outlook November to January - Rainfall



# Current Status

[Current Status maps](#)

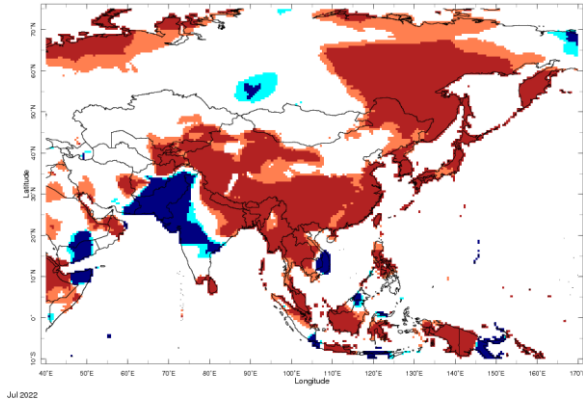
[Central Asia](#)

[Southern Asia](#)

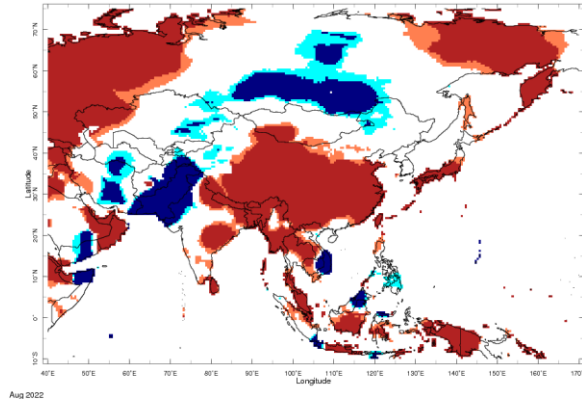
[Southeast Asian Peninsula](#)

[Southeastern Asia / Indonesia](#)

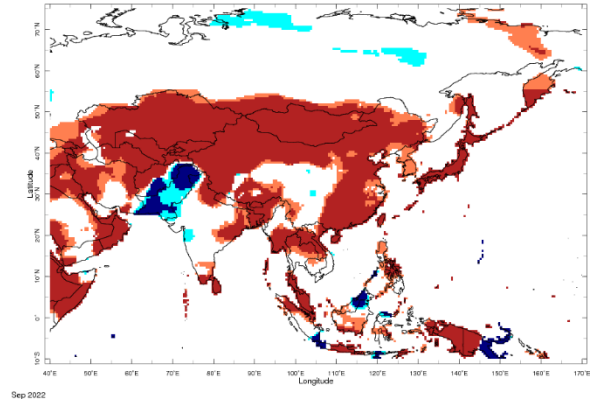
# Current Status – Temperature percentiles



July



August



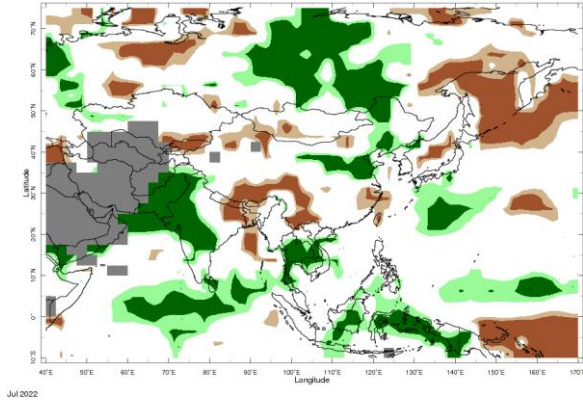
September



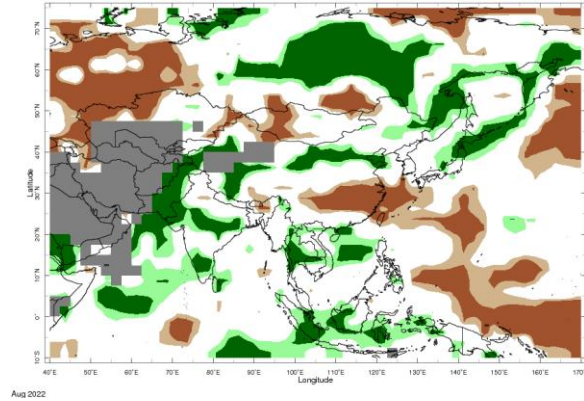
**Notes:** The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions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



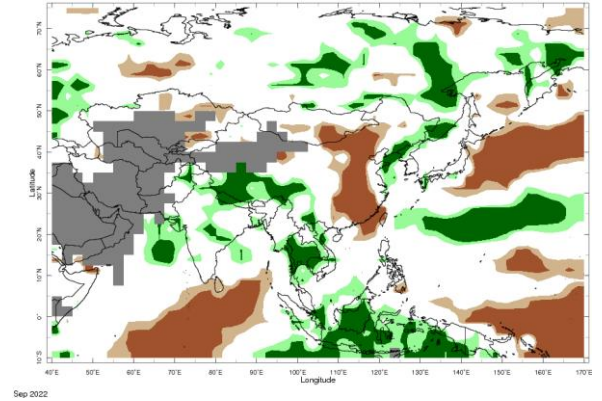
# Current Status – Precipitation percentiles



July



August



September



**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

	July	August	September
Afghanistan	Mixed (1)	Mixed (1)	Mixed (2)
Tajikistan	Hot	Normal	Hot
Kyrgyzstan	Hot	Normal	Hot

### Current Status: Rainfall

	July	August	September
	Normal*	Normal* (3)	Normal
	Normal*	Normal* (3)	Normal
	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:** Cold in the east, variable elsewhere
- (2) Note:** Hot in the west, cold in the east
- (3) Note:** Very wet in the far east

## Current Status – Southern Asia

Current Status: Temperature

	July	August	September
Pakistan	Cold	Cold	Cold
India	Mixed (1)	Mixed (1)	Mixed (1)
Nepal	Hot	Hot	Hot
Bangladesh	Hot	Hot	Hot
Sri Lanka	Hot	Hot	Hot

Current Status: Rainfall

	July	August	September
	Very Wet	Very Wet	Normal
	Mixed (2)	Mixed (3)	Mixed (3)
	Dry	Normal	Very Wet
	Dry	Normal	Wet
	Very Wet	Wet	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:** Cold in the northwest, hot in the northeast, variable elsewhere
- (2) **Note:** Wet in parts of the northwest, dry in the northeast
- (3) **Note:** Wet for parts of the north, as well as parts of central India

# Current Status – Southeast Asian Peninsula

## Current Status: Temperature

	July	August	September
China	Hot	Hot	Hot
Myanmar	Hot	Hot	Hot
Vietnam	Mixed (1)	Mixed (1)	Mixed (1)

## Current Status: Rainfall

	July	August	September
	Mixed (2)	Mixed (3)	Mixed (3)
	Normal	Normal	Normal
	Wet	Wet	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 variation, from normal/cold in the south, to hot in the extreme north.
- (2) Note:** Normal overall, although very wet in parts of the far south, and far north-east.
- (3) Note:** Large variations, very dry in parts of the east

## Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature			Current Status: Rainfall		
	July	August	September	July	August	September
Indonesia	Hot	Hot	Hot	Mixed (1)	Wet	Wet
Papua New Guinea	Hot	Hot	Hot	Wet	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 country

# 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: November to April – Central Asia

		Forecast summary		
		November	November to January	February to April
Afghanistan	Temperature	Climatological odds	Climatological odds	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Tajikistan	Temperature	Likely to be warmer than normal	Climatological odds	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds
Kyrgyzstan	Temperature	Likely to be warmer than normal	Climatological odds	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: November to April – Southern Asia (1)

		Forecast summary		
		November	November to January	February to April
Pakistan	Temperature	Likely to be warmer than normal in the far north; climatological odds elsewhere	Likely to be warmer than normal in the far north; climatological odds elsewhere	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal in the west; climatological odds elsewhere	Likely to be drier than normal in the west; climatological odds elsewhere	Climatological odds
India	Temperature	Likely to be warmer than normal in the far north; Likely to be colder than normal in the southwest; Climatological odds elsewhere	Likely to be warmer than normal in the far north; Likely to be colder than normal in the southwest; Climatological odds elsewhere	Likely to be warmer than normal in the far north; Likely to be colder than normal in the southwest; Climatological odds elsewhere
	Rainfall	Mainly Climatological odds, but Likely to be wetter than normal in the south	Mainly Climatological odds, but Likely to be wetter than normal in the south	Mainly Climatological odds, but Likely to be wetter than normal in the south
Nepal	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: November to April – Southern Asia (2)

		Forecast summary		
		November	November to January	February to April
Bangladesh	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
Sri Lanka	Temperature	Likely to be near-normal	Likely to be near-normal	Climatological odds
	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: November to April – SE Asian Peninsula

		Forecast summary		
		November	November to January	February to April
China	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	Likely to be drier than normal
Myanmar	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
Vietnam	Temperature	Likely to be colder than normal	Likely to be colder than normal	Climatological odds
	Rainfall	Likely to be wetter than normal	Much more likely to be wetter than normal	Likely to be wetter than normal

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

# Outlook: November to April – SE Asia / Indonesia

		Forecast summary		
		November	November to January	February to April
Indonesia	Temperature	Much more likely to be warmer than normal in the east; Likely to be near-normal in the west	Much more likely to be warmer than normal in the east; Likely to be near-normal in the west	Climatological odds in the east; Likely to be near-normal in the west
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Much more likely to be wetter than normal
Papua New Guinea	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Much more 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>

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](http://www.imdpune.gov.in/Clim_RCC_LRF)

Latest Output (September 2022) - [http://rcc.imdpune.gov.in/SASCOF/sascof23/Concept\\_Note\\_SASCOF23\\_26-29-Sep\\_2022.pdf](http://rcc.imdpune.gov.in/SASCOF/sascof23/Concept_Note_SASCOF23_26-29-Sep_2022.pdf)

# 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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