

# Asia: Monthly Climate Outlook September to June

**Issued: December 2023**

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# Overview

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# Asia Current Status and Outlook - Temperature

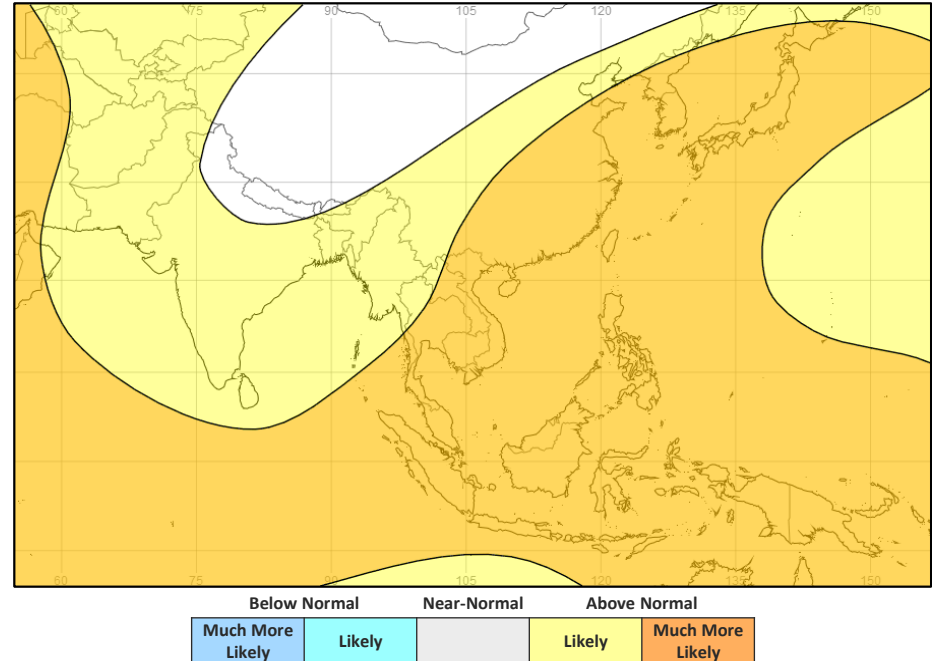
## Current Status:

Over the last three months, the majority of the region has been warm or hot. Exceptions to this were the south of Vietnam, which was cool, and parts of India which were near-normal or cool at times.

## Outlook:

With the backdrop of a warming climate and the current El Niño event, most land areas are likely or much more likely to be warmer than normal, over the next three months. Exceptions to this are Nepal and parts of India and China, which will be near-normal. Warmer conditions increase the risk of heatwaves and related impacts for many parts.

## 3-Month Outlook January to March - Temperature



# Asia Current Status and Outlook - Rainfall

## Current Status:

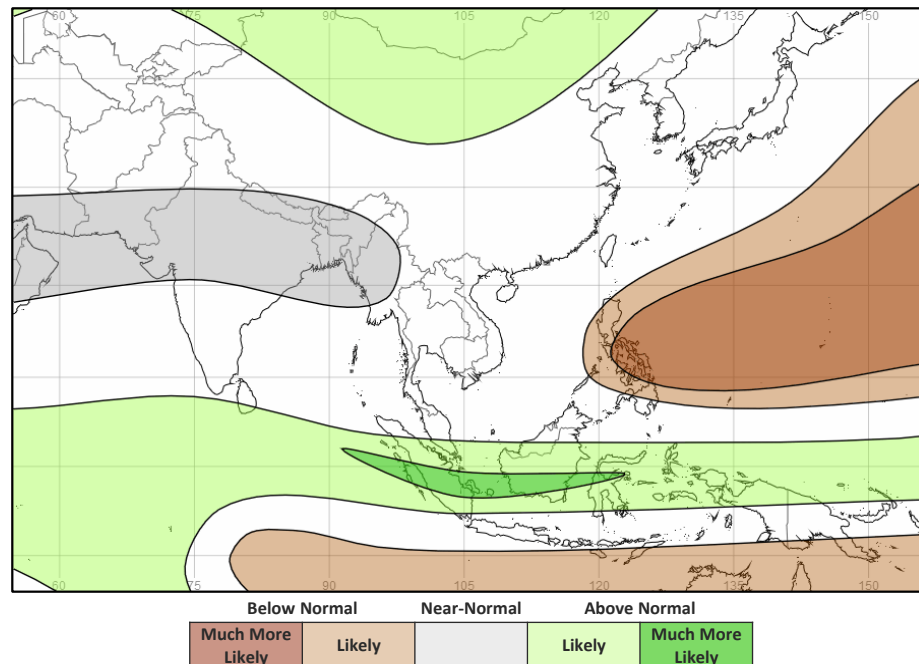
In Central Asia rainfall has been mostly normal over the last three months with September being typically a dry season.

Many parts of South and Southeast Asia were wet over the last three months. An exception to this was India, which was very dry in parts during October. Indonesia was mainly dry during the last three months. Papua New Guinea was wet in October and very dry in November.

## Outlook:

Over the next three months, it is likely or much more likely to be wetter than normal across much of Indonesia. The Philippines are likely or much more likely to be drier than normal.

## 3-Month Outlook January to March - Rainfall

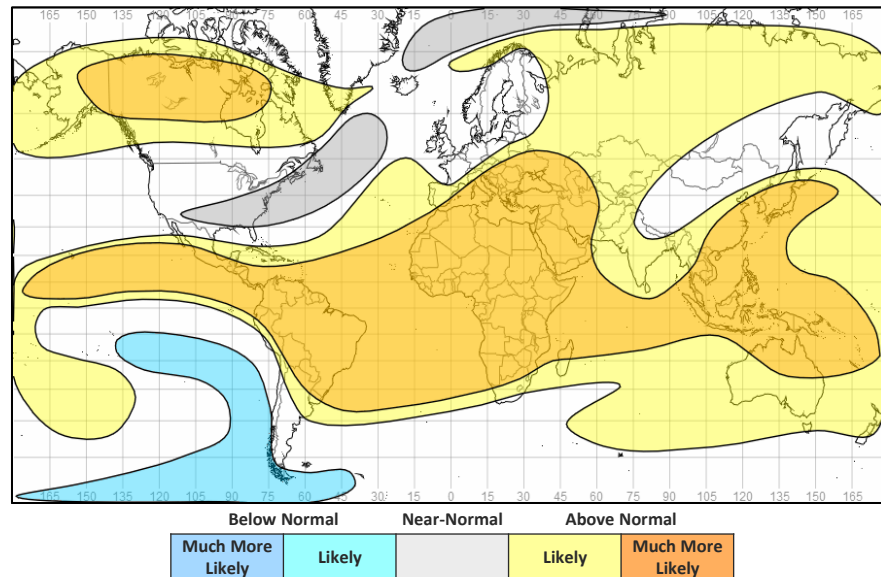


# Global Outlook - Temperature

## Outlook:

With the backdrop of a warming climate and the current El Niño event, most land areas are likely or much more likely to be warmer than normal over the next few months. Exceptions to this include the southern tip of South America, which is likely to be colder than normal, and parts of North America which are likely to be near-normal.

## 3-Month Outlook January to March - Temperature



# Global Outlook - Rainfall

## Outlook:

**El Niño-Southern Oscillation (ENSO)** – Sea surface temperatures (SSTs) across the equatorial Pacific remain indicative of an ongoing El Niño event. The current El Niño is moderate in strength.

Seasonal prediction models indicate this El Niño event is likely to continue the Northern Hemisphere winter with a transition to ENSO Neutral becoming more likely during April-June 2024 (60% chance).

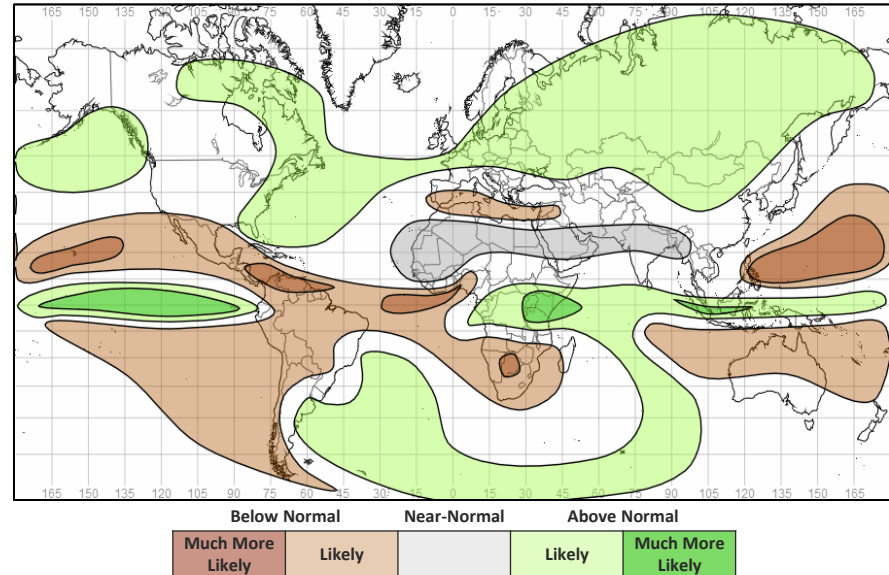
El Niño impacts regional weather patterns around the world, leading to some regions experiencing wetter than normal conditions and other regions drier than normal conditions. During El Niño, temperatures around the globe are likely or much more likely to be higher than normal, and this is reflected in the current outlooks.

**Indian Ocean Dipole (IOD)** – The positive Indian Ocean Dipole event remains active but is steadily weakening.

Seasonal prediction systems currently suggest that this event will return to neutral conditions early in 2024

This will reinforce the influence of El Niño, further increasing the likelihood of drought across Southeast Asia (especially Indonesia) and Australia, with above normal rainfall across East Africa, increasing the risk of floods.

## 3-Month Outlook January to March - Rainfall



# Current Status

[Current Status maps](#)

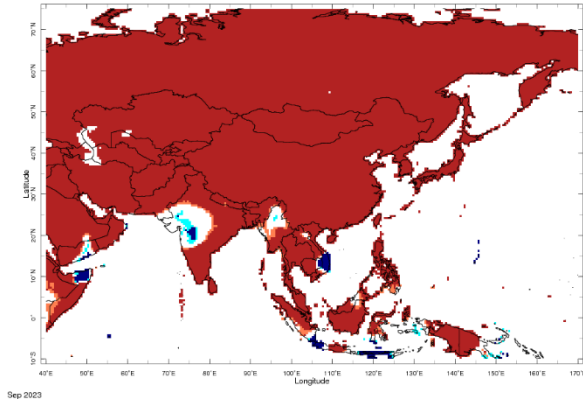
[Central Asia](#)

[Southern Asia](#)

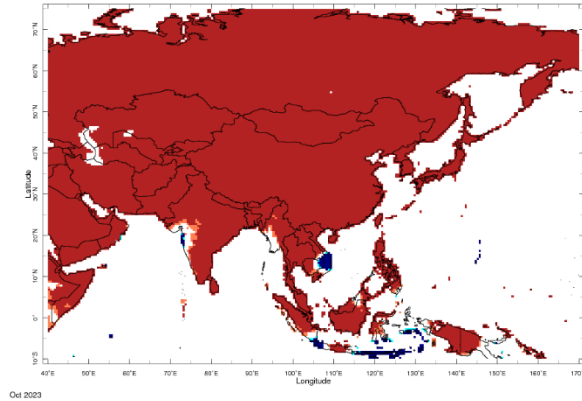
[Southeast Asian Peninsula](#)

[Southeastern Asia / Indonesia](#)

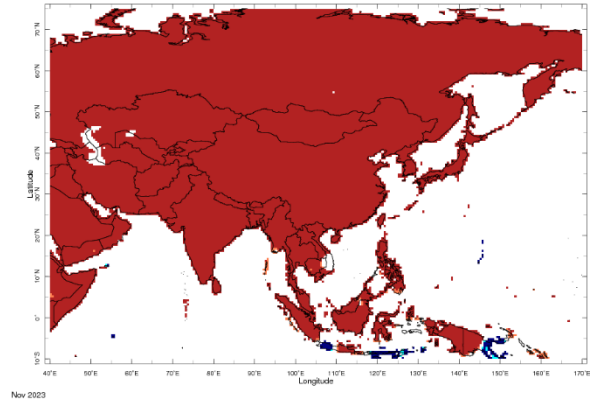
# Current Status – Temperature percentiles



September



October



November

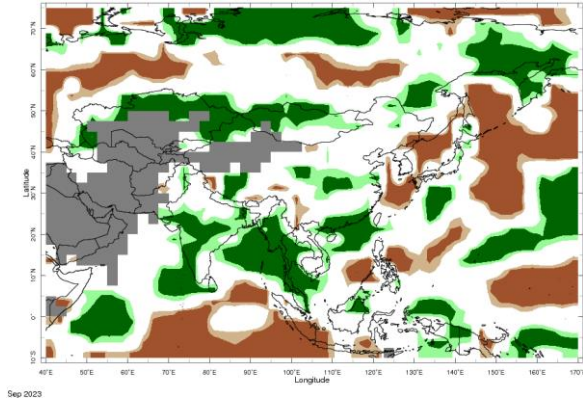
Temperature Percentiles (BLUE below 20th and RED above 80th)



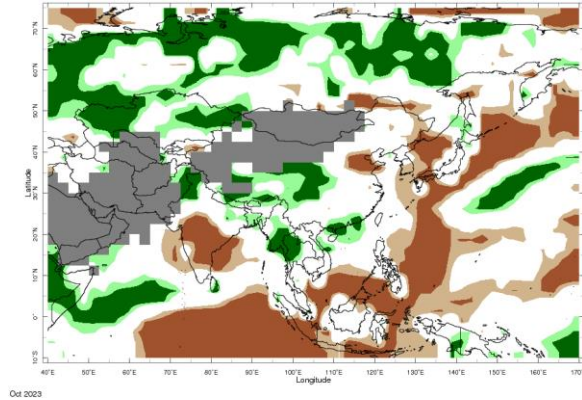
**Notes:** The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions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



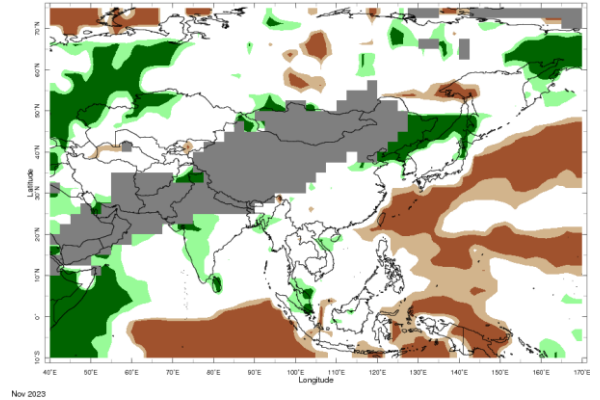
# Current Status – Precipitation percentiles



September



October



November



**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		
	September	October	November
Afghanistan	Hot	Hot	Hot
Tajikistan	Hot	Hot	Hot
Kyrgyzstan	Hot	Hot	Hot

	Current Status: Rainfall		
	September	October	November
	Normal*	Normal	Normal
	Normal*	Normal	Normal
	Normal	Normal	Normal

### Notes:

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

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

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

### Additional Information:

# Current Status – Southern Asia

	Current Status: Temperature		
	September	October	November
Pakistan	Hot	Hot	Hot
India	Mixed (1)	Hot (3)	Hot
Nepal	Hot	Hot	Hot
Bangladesh	Hot	Hot	Hot
Sri Lanka	Hot	Warm	Hot

	Current Status: Rainfall		
	September	October	November
	Normal	Very Wet	Wet
	Wet	Mixed (2)	Mixed (4)
	Wet	Wet	Normal*
	Wet	Wet	Wet
	Wet	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:** Mainly hot but cool in the west
- (2) **Note:** Very Dry in central and southern regions, wet or very wet in the north
- (3) **Note:** Normal in some western areas
- (4) **Note:** Wet in the west, normal in the east

# Current Status – Southeast Asian Peninsula

	Current Status: Temperature			Current Status: Rainfall		
	September	October	November	September	October	November
China	Hot	Hot	Hot	Mixed	Mixed	Normal (3)
Myanmar	Hot	Hot	Hot	Very Wet	Very Wet (3)	Normal
Vietnam	Mixed (1)	Mixed (1)	Hot (2)	Wet	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 south, Hot in the north
- (2) Note:** Normal in the south.
- (3) Note:** Very Wet in the northeast

# Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature			Current Status: Rainfall		
	September	October	November	September	October	November
Indonesia	Mixed (2)	Mixed (2)	Mixed (2)	Normal (3)	Dry	Mixed (4)
Papua New Guinea	Mixed (1)	Normal	Mixed (1)	Mixed (5)	Wet	Very 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:** Hot in the west, Normal/cold in the east
- (2) Note:** Most areas hot but cold in parts of the south
- (3) Note:** Very dry for South Sumatra and West Java
- (4) Note:** Dry/very dry in many regions, but near normal in Borneo, western java and parts of Sumatra.
- (5) Note:** Very wet in the far northeast, dry in the east.

# 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: January to June – Central Asia

		Forecast summary		
		January	January to March	April to June
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 wetter than normal	Climatological odds	Likely to be wetter than normal
Tajikistan	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be wetter than normal
Kyrgyzstan	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be 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: January to June – Southern Asia (2)

		Forecast summary		
		January	January to March	April to June
Bangladesh	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	Likely to be near-normal
Sri Lanka	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Likely to be 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: January to June – Southern Asia (1)

		Forecast summary		
		January	January to March	April to June
Pakistan	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	Likely to be near-normal
India	Temperature	Climatological odds	Climatological odds in the far north; Likely to be warmer than normal elsewhere	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds	Likely to be near-normal
Nepal	Temperature	Climatological odds	Climatological odds	Climatological odds
	Rainfall	Likely to be near-normal	Likely to be near-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: January to June – SE Asian Peninsula

		Forecast summary		
		January	January to March	April to June
China	Temperature	Likely to be warmer than normal	Climatological odds in the west and north; Likely to be warmer than normal or Much more likely to be warmer than normal elsewhere	Likely to be warmer than normal
	Rainfall	Climatological odds	Climatological odds	Climatological odds
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	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

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

# Outlook: January to June – SE Asia / Indonesia

		Forecast summary		
		January	January to March	April to June
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 near-normal
Papua New Guinea	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	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.

# Annex 1 – Supplemental Information

## For further information

WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble (LC-LRFMME)

<https://www.wmolc.org/>

International Research Institute for Climate and Society (IRI)

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

NOAA El Niño technical info

<https://www.ncei.noaa.gov/access/monitoring/enso/>

Met Office

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

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 (September 2023) - [https://rcc.imdpune.gov.in/SASCOF/sascof26/SASCOF26\\_outlook\\_statement\\_Oct\\_Dec\\_2023.pdf](https://rcc.imdpune.gov.in/SASCOF/sascof26/SASCOF26_outlook_statement_Oct_Dec_2023.pdf)

# Enquiries

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# 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)