

Asia: Monthly Climate Outlook March to December

Issued: June 2024

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Overview

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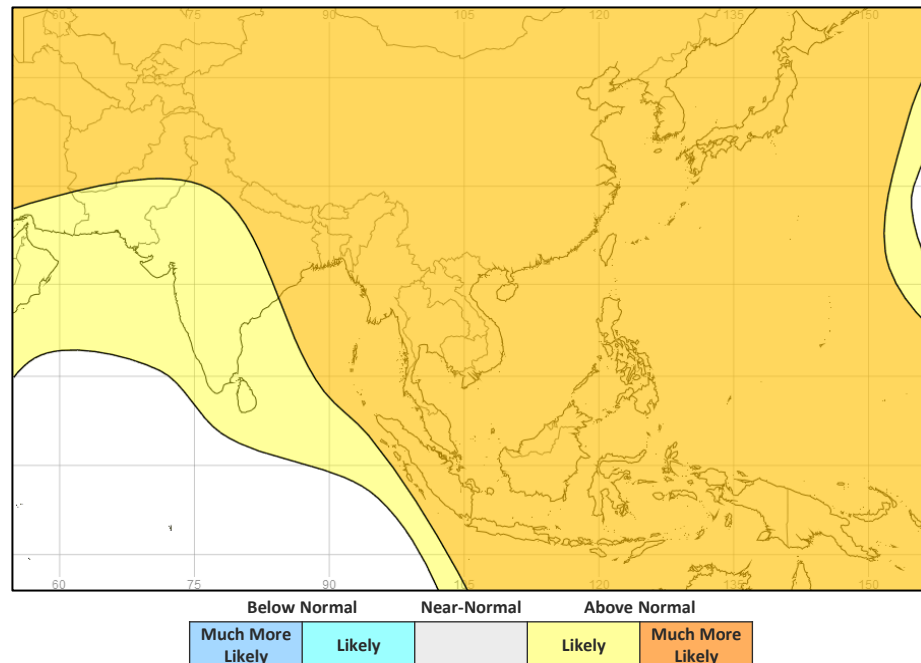
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Asia Current Status and Outlook - Temperature

Current Status: Over the past three months, Southeast Asia has been warm or hot. Further west conditions have been more mixed, notably for Central Asia. Parts of Afghanistan and Pakistan were cool or cold in April but hot in May.

Outlook: It is likely or much more likely to be warmer than normal over the coming three months.

3-Month Outlook July to September - Temperature



Asia Current Status and Outlook - Rainfall

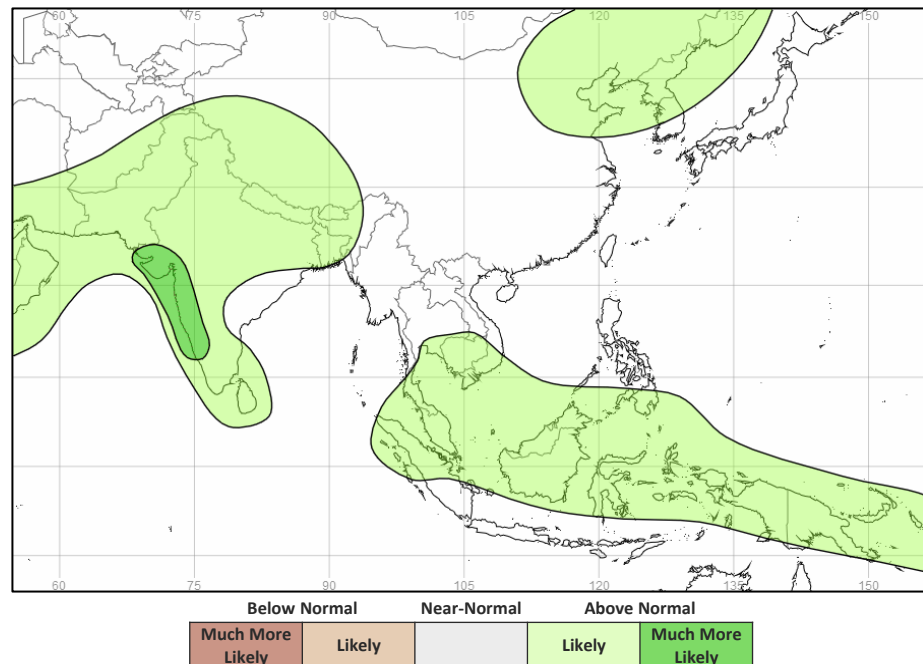
Current Status: Normal amounts of rainfall were observed across the continent in March. In April, China, Afghanistan and Pakistan were wet or very wet whilst Southeast Asia was dry or very dry. During May, many countries had normal or wet conditions.

Outlook: Wetter than normal conditions are likely across Pakistan, Nepal, many parts of India and eastern Afghanistan. Some western parts of India are much more likely to be wetter than normal July to September, coinciding with the South Asian Monsoon.

Wetter than normal conditions are also likely across Vietnam, Cambodia, and Indonesia. This increases the risk of flash flood events.

For northeastern areas of China, as well as Korea, wetter than normal conditions are more likely. Forecasts are limited over Central Asia where many parts typically see very little rainfall through this period.

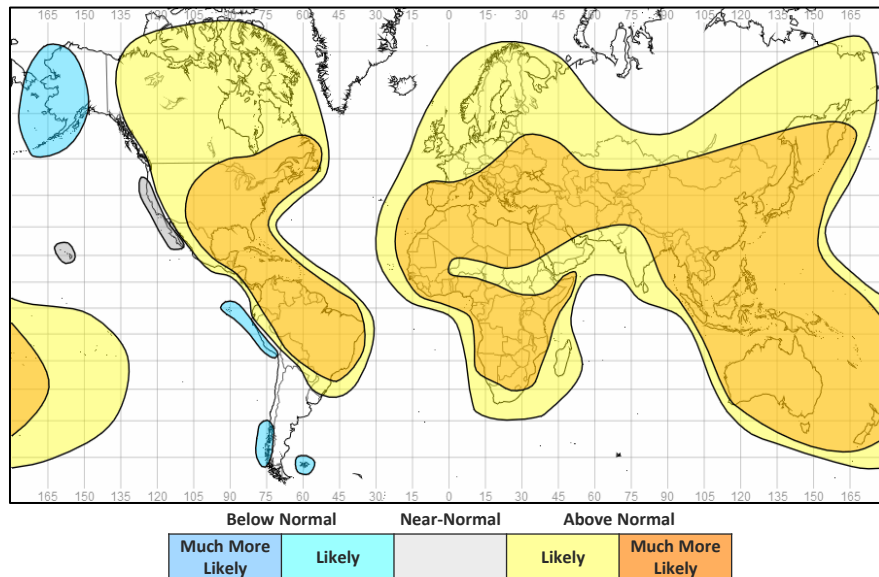
3-Month Outlook July to September - Rainfall



Global Outlook - Temperature

Outlook: Consistent with a warming climate, warmer than normal conditions are very likely across large parts of the globe. There are limited exceptions, most notably western parts of both North and South America where near normal or colder than normal conditions are more likely.

3-Month Outlook July to September - Temperature



Global Outlook - Rainfall

Outlook:

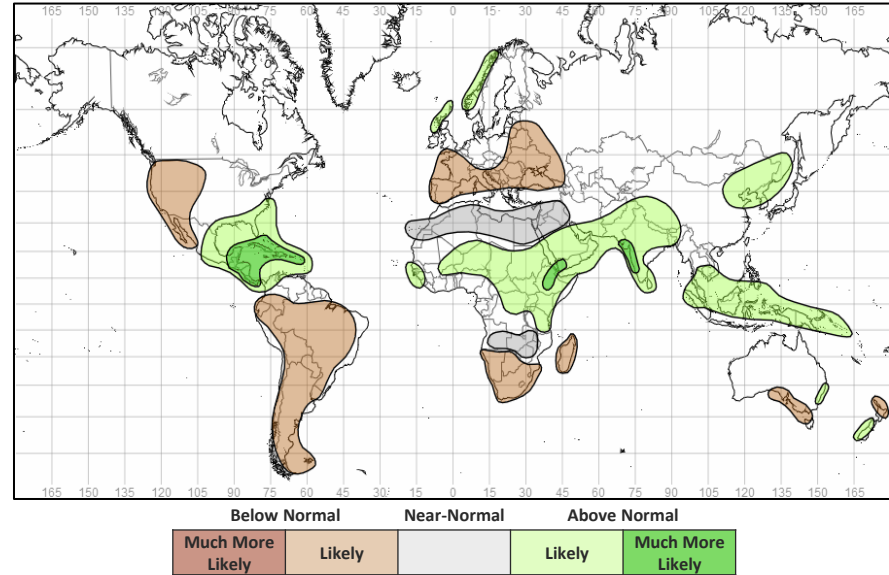
El Niño-Southern Oscillation (ENSO) – Both oceanic and atmospheric indicators are consistent with ENSO-neutral conditions. ENSO-neutral is expected to prevail over the next couple of months. There is an increasing likelihood of La Niña developing at longer forecast lead times (mid to late 2024).

According to NOAA’s Climate Prediction Center (CPC), La Niña is likely (65% probability) to develop in the period July-September, becoming highly likely (85% probability) for November-January. However, other forecasts have lower probabilities suggesting there is uncertainty amongst the predictions. As such, predictability of weather patterns across many parts of the globe is likely to be lower than this time last year when an El Niño event was underway.

Indian Ocean Dipole (IOD) – The Indian Ocean Dipole (IOD) is currently neutral. Predictability of the IOD is low at this time of year but starts to improve through the northern hemisphere summer. Most long-range forecast models are predicting the IOD to remain neutral over the coming months.

It is worth noting that global sea surface temperatures (SSTs) have been the warmest on record for each month over the past year. The global pattern of warmth is likely affecting the typical historical global pattern of sea surface temperatures associated with ENSO and IOD. As the current global ocean conditions have not been observed before, historical comparisons based on past ENSO or IOD events may not be reliable.

3-Month Outlook July to September - Rainfall



Current Status

[Current Status maps](#)

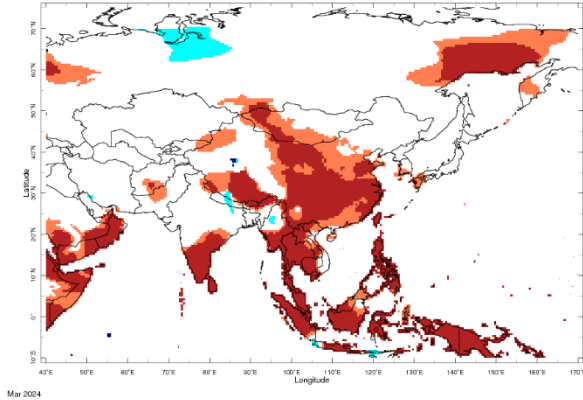
[Central Asia](#)

[Southern Asia](#)

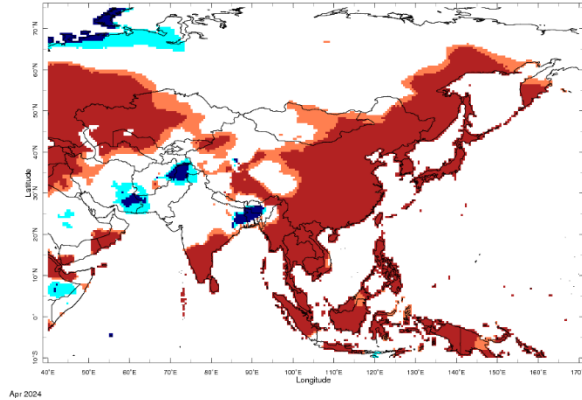
[Southeast Asian Peninsula](#)

[Southeastern Asia / Indonesia](#)

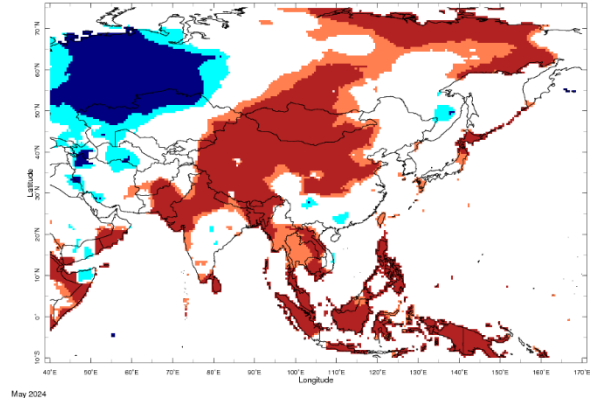
Current Status – Temperature percentiles



March



April

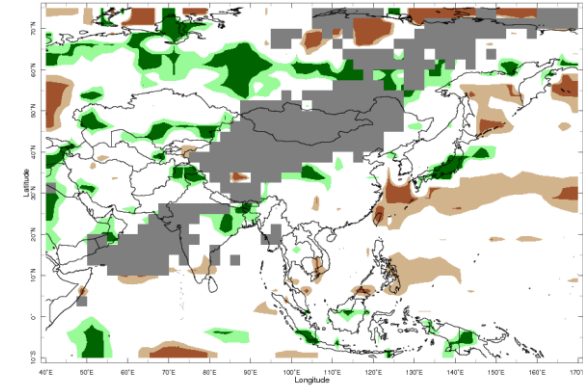


May

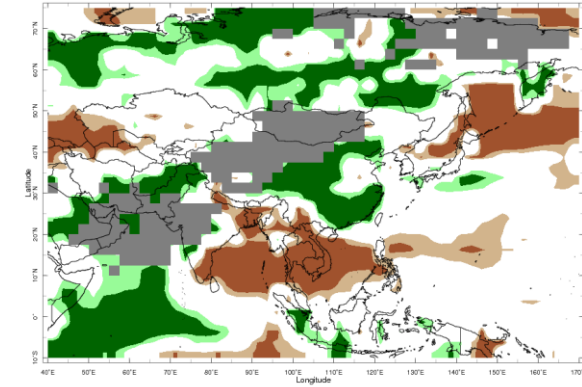


Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions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

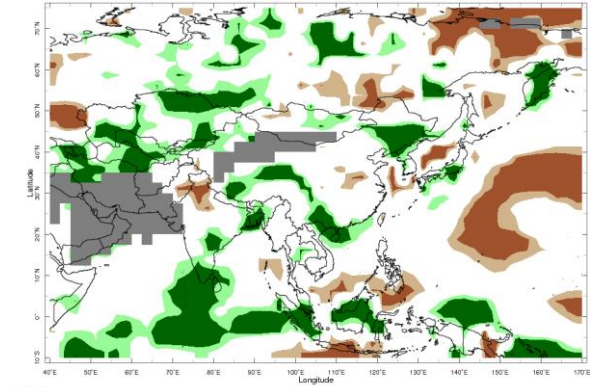
Current Status – Precipitation percentiles



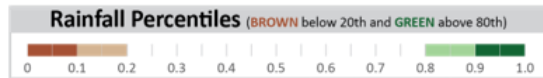
Mar 2024



Apr 2024



May 2024



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	Normal	Normal	Normal (1)
Tajikistan	Normal	Normal	Normal
Kyrgyzstan	Normal	Normal	Normal

Current Status: Rainfall

	March	April	May
	Normal	Very Wet	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:

(1) Note: Hot in the southeast

Current Status – Southern Asia

Current Status: Temperature

	March	April	May
Pakistan	Normal	Normal (2)	Normal (3)
India	Normal (1)	Normal (1)	Normal (4)
Nepal	Normal	Normal	Hot
Bangladesh	Normal	Cold	Hot
Sri Lanka	Hot	Hot	Hot

Current Status: Rainfall

March	April	May
Normal (5)	Very Wet	Normal
Normal (5)	Normal (6)	Normal (6)
Normal	Dry	Wet
Wet	Very Dry	Very Wet
Normal	Dry	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:** Hot in the south
- (2) Note:** Cold in the north
- (3) Note:** Hot in the south
- (4) Note:** Hot in the northwest
- (5) Note:** Wet or very wet in the northeast
- (6) Note:** Very Dry (April) and Very Wet (May) in the south and east

Current Status – Southeast Asian Peninsula

Current Status: Temperature

	March	April	May
China	Mixed	Mixed (2)	Mixed (3)
Myanmar	Normal (1)	Hot	Warm
Vietnam	Normal	Hot	Normal

Current Status: Rainfall

	March	April	May
	Normal	Very Wet	Mixed (4)
	Normal	Dry	Normal
	Normal	Very Dry	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 south
- (2) **Note:** Hot in the east, normal in the west
- (3) **Note:** Hot in the north and west, normal in the south and east
- (4) **Note:** Very wet in the southwest and northeast, normal elsewhere

Current Status – Southeastern Asia / Indonesia

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

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 Dry in the east
- (2) **Note:** Very wet in Sumatra and Borneo, very dry across Java, normal elsewhere

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	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 in the south and east, climatological odds elsewhere	Climatological odds
Tajikistan	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 near-normal	Climatological odds	Climatological odds
Kyrgyzstan	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	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 – Southern Asia (1)

		Forecast summary		
		July	July to September	October to December
Pakistan	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
India	Temperature	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be wetter than normal in the north and west, climatological odds elsewhere	Likely to be wetter than normal but Much more likely to be wetter than normal in the west	Likely to be wetter than normal
Nepal	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Climatological odds
	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.

Outlook: July to December – Southern Asia (2)

		Forecast summary		
		July	July to September	October to December
Bangladesh	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
Sri Lanka	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 wetter than normal	Likely to be wetter 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: July to December – SE Asian Peninsula

		Forecast summary		
		July	July to September	October to December
China	Temperature	Likely to be warmer than normal	Much more likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be wetter than normal in the north, climatological odds elsewhere	Likely to be wetter than normal in Tibet and the northeast, climatological odds elsewhere	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	Likely to be wetter than normal	Climatological odds	Climatological odds
Vietnam	Temperature	Much more likely to be warmer than normal	Much more likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be wetter than normal	Climatological odds in the north, likely to be wetter than normal in the south	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	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 wetter than normal in the north, climatological odds in the south	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	Likely to be warmer than normal
	Rainfall	Likely to be near-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/seasonPmmeUI/plot_PMME

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) [Microsoft PowerPoint - SDMC Dr Pai-SASCOF.pptx \(saarc-sdmc.org\)](#)

Latest Output (April 2024) - [SASCOF 2024.pdf \(tropmet.res.in\)](#)

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)

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