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# **Asia:** Monthly Climate Outlook
# May to February

## Issued: August 2024

# Overview

Asia Current Status and Outlook – Temperature

Asia Current Status and Outlook – Rainfall

Global Outlook – Temperature

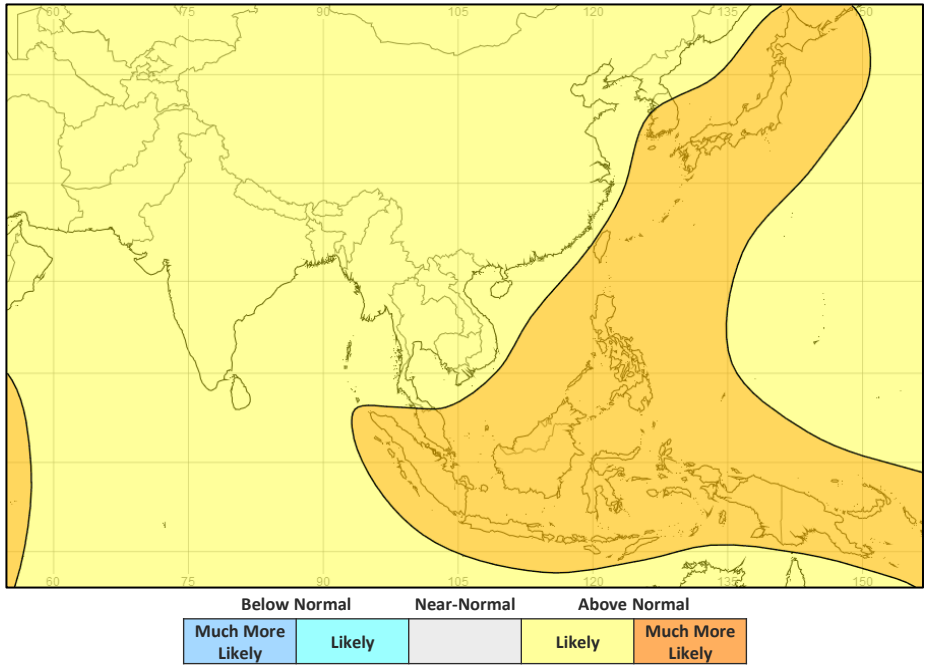
Global Outlook – Rainfall

# Asia Current Status and Outlook - Temperature

**Current Status:** Warm or hot conditions have dominated over the past three months, although parts of India and China have been nearer normal or cool at times.

**Outlook:** Warmer than normal conditions are very likely across most of the continent, increasing the risk of heatwaves and related impacts.

**3-Month Outlook September to November - Temperature**



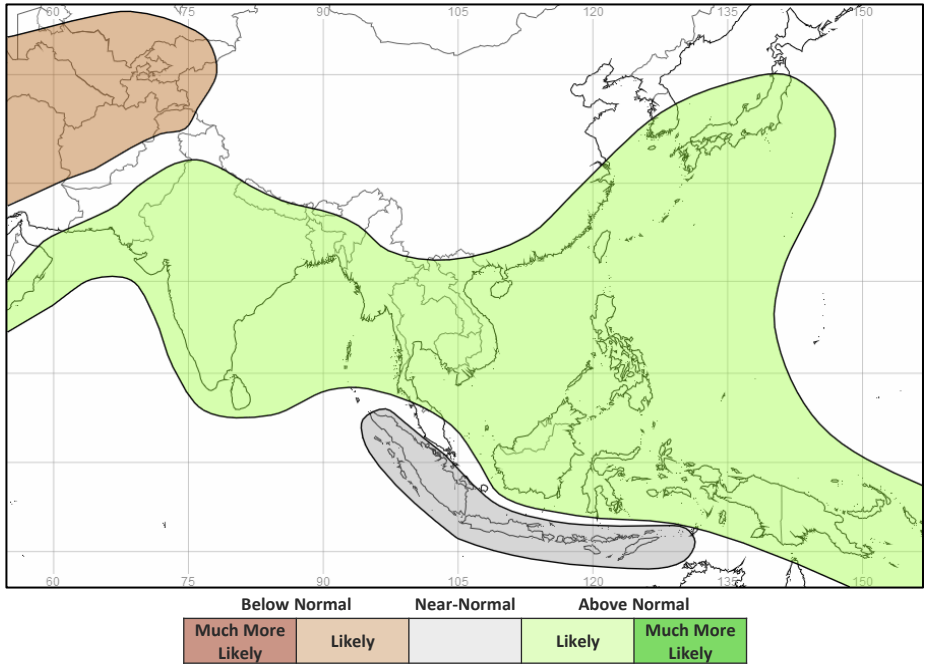
# Asia Current Status and Outlook - Rainfall

**Current Status:** Wet conditions were observed at times across parts of the Indian sub-continent, some regions of China and northern parts of Indonesia. Elsewhere, rainfall was mostly near normal.

**Outlook:** Both the South and East Asian monsoons are more likely to be active than not as they retreat south over the coming season. This leads to an increased likelihood of wetter than normal conditions across the bulk of the Indian sub-continent, mainland Southeast Asia and southern and eastern China. Rainfall is likely to be near normal across southern parts of Indonesia, including Java and Sumatra. Meanwhile, drier than normal conditions are most likely across parts of Central Asia.

**Tropical cyclones** – Tropical cyclones can form throughout the year across the Western Pacific basin, although activity does tend to peak between May and October. Near average activity is signalled, however, there are signals that storm track may be displaced slightly further west compared to normal, with more storms affecting regions surrounding the South China Sea. For the Bay of Bengal, activity tends to peak in October and November. Near normal levels of activity are most likely.

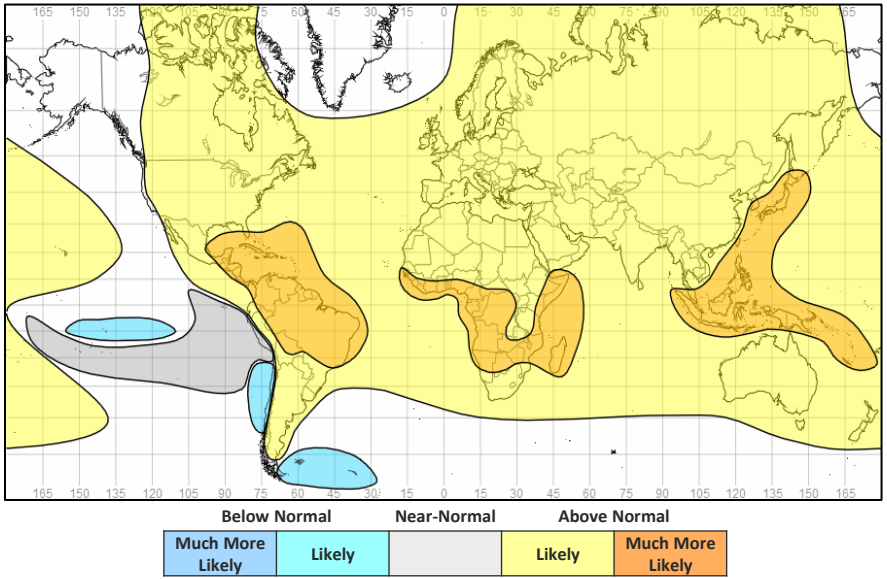
**3-Month Outlook September to November - Rainfall**



# 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 South America and the Central Pacific where near normal or colder than normal conditions are more likely – this linked to cooler sea surface temperatures in the Pacific.

**3-Month Outlook September to November - Temperature**



# Global Outlook - Rainfall

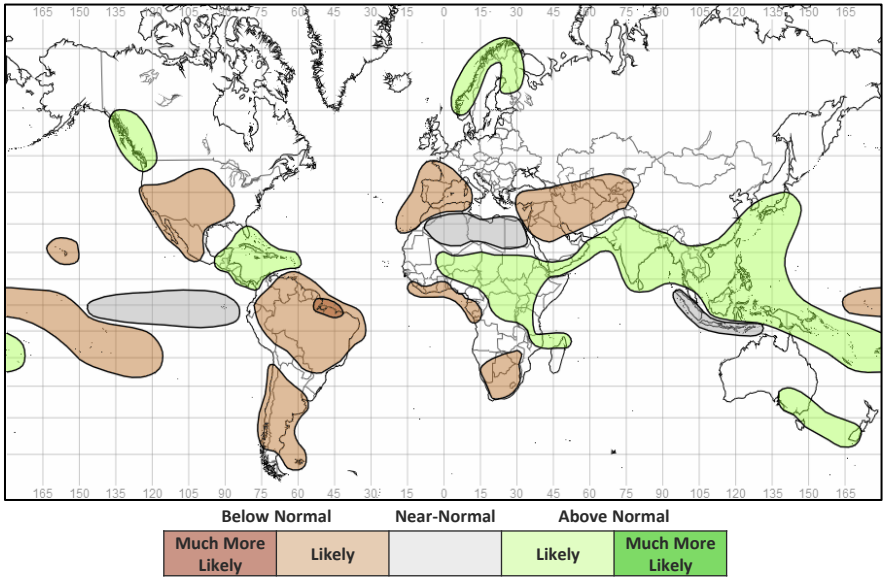
**Outlook:**

**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 a chance of La Niña developing at longer forecast lead times (mid-to late-autumn), though still with some uncertainty. Latest model predictions continue to either delay and/or reduce the likelihood of a La Niña event developing.

According to CPC, the chance of La Niña developing in the period September-November is around 66%, rising to 74% in the early winter (November-January). However, other centres (such as BoM) have predictions which are much more finely balanced between ENSO-neutral and La Niña. Clearly, there is some uncertainty with predictions. Most likely is that ENSO-neutral conditions will persist for the next couple of months, with any transition to La Niña taking place from October onwards (45-65% likelihood). 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 Diploe (IOD)** – The Indian Ocean Dipole (IOD) is currently neutral. Predictability of the IOD remains low with a wide range of outcomes in the coming months. In the short term, the IOD is most likely to remain neutral over the next month. However, later in the period, the chance of a negative IOD developing is slightly higher than either neutral or positive IOD development.

**3-Month Outlook September to November - Rainfall**



# Current Status

Current Status maps

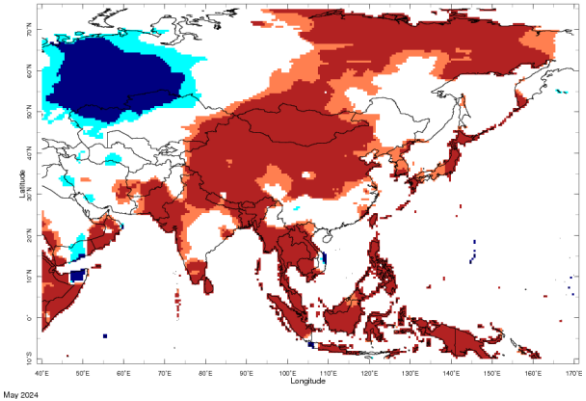
Central Asia

Southern Asia

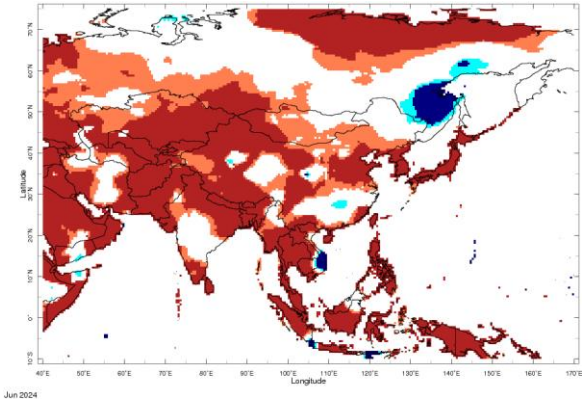
Southeast Asian Peninsula

Southeastern Asia / Indonesia

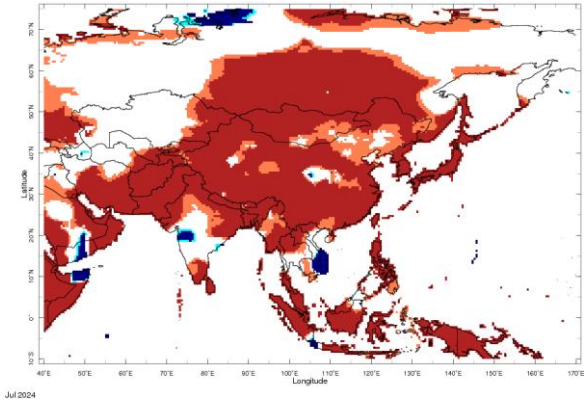
# Current Status – Temperature percentiles




**May**



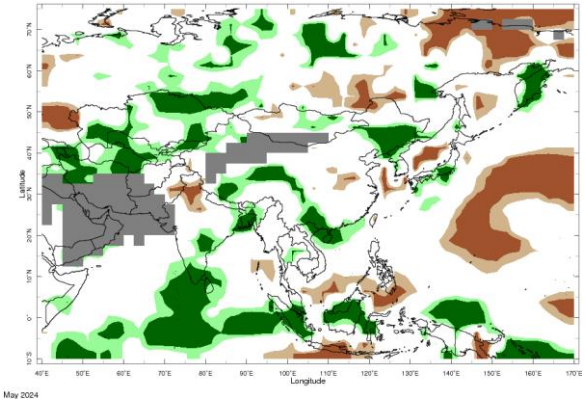

**June**



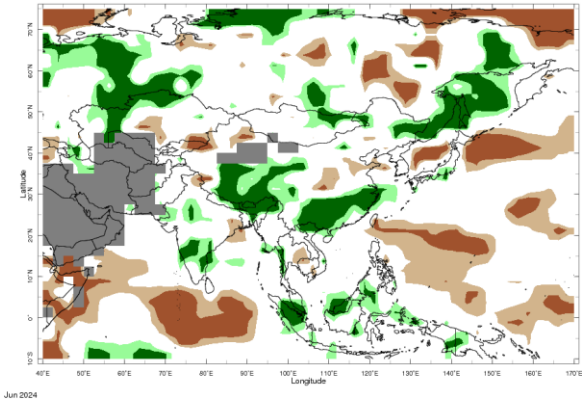

**July**


**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.

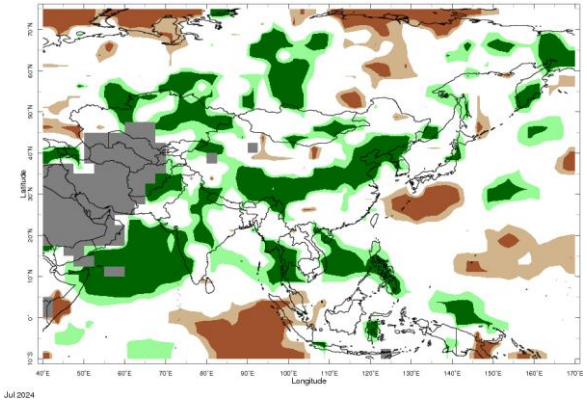
# Current Status – Precipitation percentiles




**May**




**June**




**July**


**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 | | | Current Status: Rainfall | | |
|---|---|---|---|---|---|---|
| | May | June | July | May | June | July |
| Afghanistan | Normal (1) | Hot | Hot | Normal | Normal* | Wet |
| Tajikistan | Normal | Hot | Hot | Normal | Normal | Normal |
| Kyrgyzstan | Normal | Hot | Hot | Very Wet | 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 southeast

# Current Status – Southern Asia

| | Current Status: Temperature | | | Current Status: Rainfall | | |
|---|---|---|---|---|---|---|
| | May | June | July | May | June | July |
| Pakistan | Normal (1) | Hot | Hot | Normal | Normal | Very Wet |
| India | Normal (2) | Hot (4) | Hot (4) | Normal (3) | Normal (5) | Normal (5) |
| Nepal | Hot | Hot | Hot | Wet | Wet | Wet |
| Bangladesh | Hot | Hot | Hot | Very Wet | Wet | Normal |
| Sri Lanka | Hot | Hot | Hot | Very 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:** Hot in the south
(2) **Note:** Hot in the northwest
(3) **Note:** Very wet (May) in the south and east
(4) **Note:** Normal or cool in central regions.
(5) **Note:** Wet or very wet in some western and southern regions and the northeast

# Current Status – Southeast Asian Peninsula

| | Current Status: Temperature | | | Current Status: Rainfall | | |
|---|---|---|---|---|---|---|
| | May | June | July | May | June | July |
| China | Mixed (1) | Mixed (1) | Hot | Mixed (2) | Mixed (2) | Normal (6) |
| Myanmar | Hot | Hot | Hot | Normal | Mixed (4) | Mixed (4) |
| Vietnam | Normal | Mixed (3) | Mixed (3) | Normal | Normal (5) | 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 north and west, normal in the south and east
(2) **Note:** Very wet in the south and northeast, normal elsewhere
(3) **Note:** Cold in the south, normal or hot elsewhere
(4) **Note:** Very wet in the south and far north, normal elsewhere
(5) **Note:** Very wet in the north
(6) **Note:** Very wet in central and northeastern regions

# Current Status – Southeastern Asia / Indonesia

| | Current Status: Temperature | | | Current Status: Rainfall | | |
|---|---|---|---|---|---|---|
| | May | June | July | May | June | July |
| Indonesia | Hot | Hot | Hot | Mixed (2) | Mixed (2) | Normal (3) |
| Papua New Guinea | Hot | Hot | Hot | Normal (1) | Normal | Normal (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 in May, normal elsewhere
(3) **Note:** Dry or very dry in Sumatra

# Outlooks

# 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: September to February – Central Asia

| | | Forecast summary | | |
|---|---|---|---|---|
| | | September | September to November | December to February |
| **Afghanistan** | *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 |
| **Tajikistan** | *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 |
| **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: September to February – Southern Asia (1)

| | | Forecast summary | | |
|---|---|---|---|---|
| | | September | September to November | December to February |
| **Pakistan** | *Temperature* | Likely to be near-normal | Likely to be warmer than normal | Climatological odds |
| | *Rainfall* | Likely to be wetter than normal | Likely to be drier than normal in the north, Likely to be wetter than normal in the south | 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 | Likely to be wetter than normal | Climatological odds |
| **Nepal** | *Temperature* | Much more likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | *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: September to February – Southern Asia (2)

| | | Forecast summary | | |
|---|---|---|---|---|
| | | September | September to November | December to February |
| **Bangladesh** | *Temperature* | Much more likely to be warmer than normal | Likely to be warmer than normal | Likely to be warmer than normal |
| | *Rainfall* | Climatological odds | Likely to be wetter than normal | Climatological odds |
| **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: September to February – SE Asian Peninsula

| | | Forecast summary | | |
|---|---|---|---|---|
| | | September | September to November | December to February |
| **China** | *Temperature* | Likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | *Rainfall* | Likely to be wetter than normal in the south and east, otherwise Climatological odds | Likely to be wetter than normal in the southeast, otherwise Climatological odds | Climatological odds |
| **Myanmar** | *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 |
| **Vietnam** | *Temperature* | Much more likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | *Rainfall* | Climatological odds | 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: September to February – SE Asia / Indonesia

| | | Forecast summary | | |
|---|---|---|---|---|
| | | September | September to November | December to February |
| **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 in the north, Climatological odds in the south | Likely to be wetter than normal but Likely to be near-normal across Java and Sumatra | 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 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.ncei.noaa.gov/access/monitoring/enso/

Met Office
https://www.metoffice.gov.uk/services/government/international-development

Climate Outlook Fora (WMO Factsheet), including:

- South Asian Climate Outlook Forum (SASCOF): SASCOF-28 Outlook
- ASEAN Climate Outlook Forum (ASEANCOF): ASEANCOF-22 Bulletin

# 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 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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