Asia: Monthly Climate Outlook January to October

Issued: April 2024

Overview

Asia Current Status and Outlook – Temperature

Asia Current Status and Outlook – Rainfall

Global Outlook – Temperature

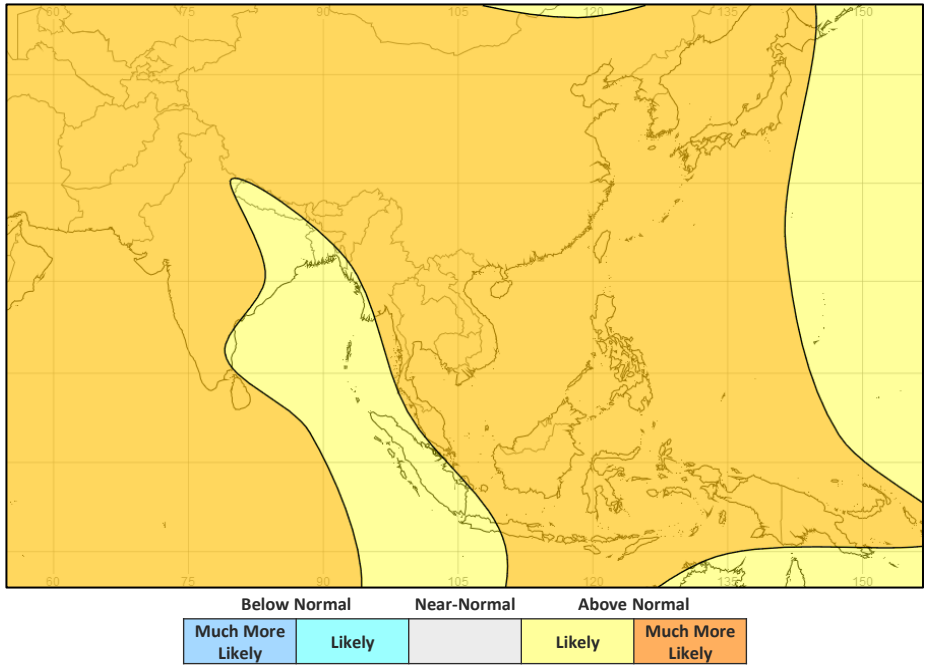
Global Outlook – Rainfall

Asia Current Status and Outlook - Temperature

Current Status:
Temperatures were widely above normal in January, with some exceptions, such as northeast China which was near-normal. During February, although many southern areas remained hot, temperatures were more mixed elsewhere. The majority of India and Pakistan were cool or cold. Afghanistan, Tajikistan and Kyrgyzstan were warm. China was normal but cold in some northern and western areas. By March although many southern areas of the region remained hot, and northern areas became cold.

Outlook:
It is likely or much more likely to be hotter than normal across most parts of Asia. This may increase the risk of heatwaves and related impacts in these areas.

3-Month Outlook May to July - Temperature



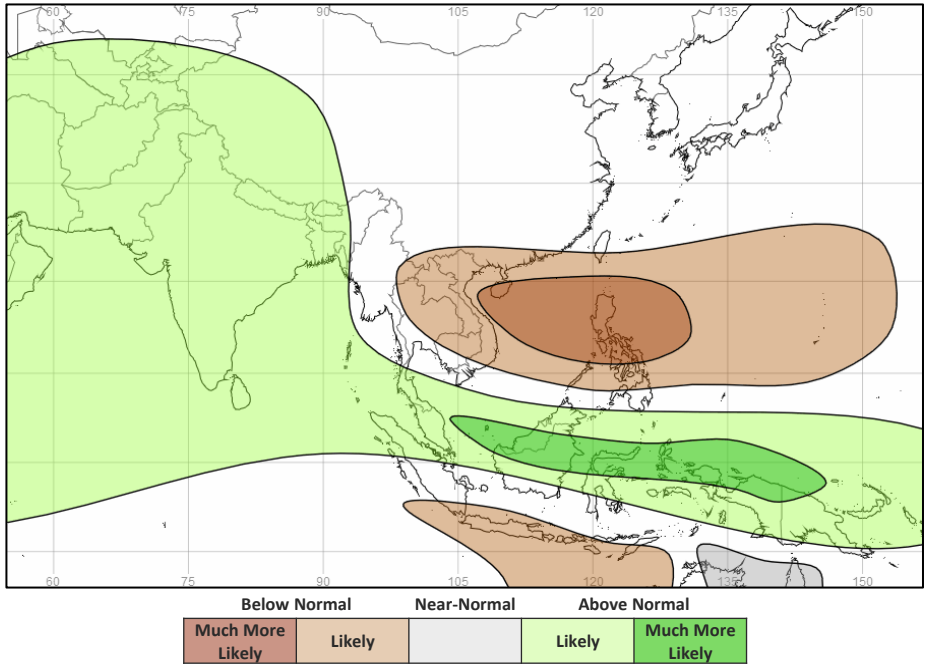
Asia Current Status and Outlook - Rainfall

Current Status:
In Central Asia rainfall has been near-normal over the last three months except for parts of Afghanistan and Tajikistan which were wet. Parts of South Asia were wet at times over the last three months, mainly in March. Over southeast Asia, Indonesia and Papua New Guinea conditions have been more mixed with many areas drier than normal in February but wetter in January and March.

Outlook:
Over the next three months, it is likely to be wetter than normal across Central Asia and South Asia, which coincides with the beginning of the South Asia Monsoon.

Conditions for Southeast Asia are expected to be mixed. It is much more likely to be wetter than normal for parts of Indonesia and Papua New Guinea, whereas southern parts of Indonesia and Vietnam are likely to be drier than normal. It is much more likely to be drier than normal for the Philippines.

3-Month Outlook May to July - Rainfall

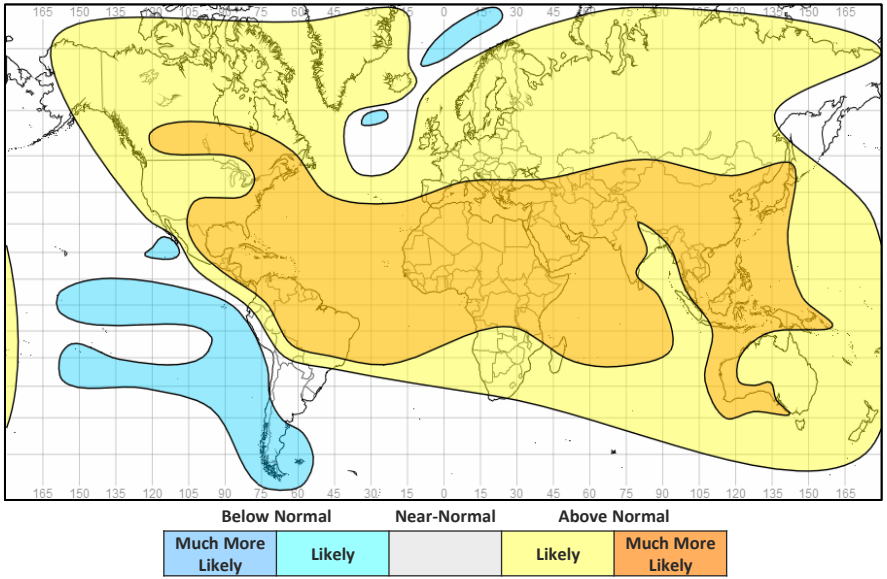


Global Outlook - Temperature

Outlook:

Consistent with a warming climate, over the next three months almost all land areas are likely to see above normal temperatures. However, the cooling in parts of the South Pacific associated with the expected development of La Niña conditions will have an increasing impact in surrounding areas, especially southern South America.

3-Month Outlook May to July - Temperature



Global Outlook - Rainfall

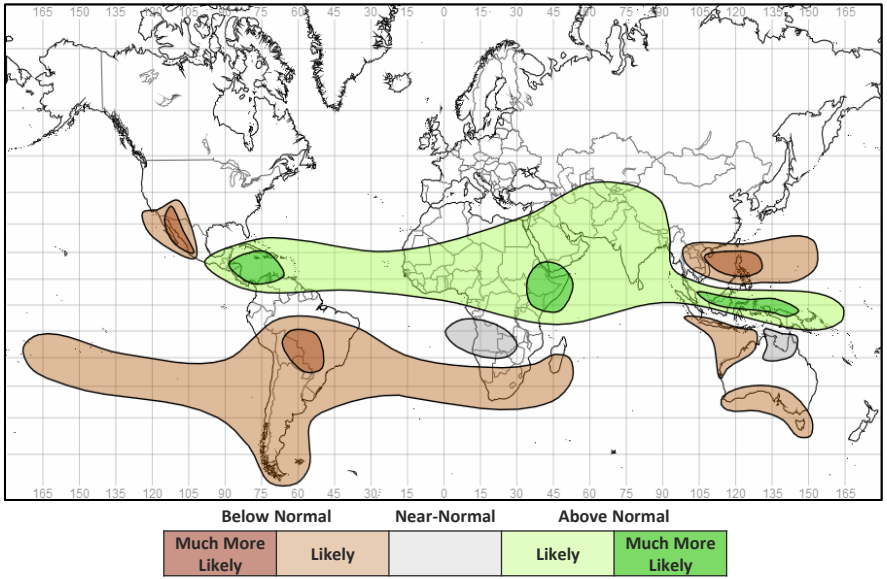
Outlook:

El Niño-Southern Oscillation (ENSO) - Although now declining, sea surface temperatures (SSTs) across the equatorial Pacific remain indicative on an ongoing El Niño event. Now past its peak, the current El Niño event is likely to weaken further with a transition to ENSO-neutral very likely (85%) in April-June. There continues to be a likely (60%) transition to La Niña in June-August. The reducing sea surface temperatures (SSTs) in parts of the Pacific mean that areas such as South America are likely to be drier than normal.

The impact of El Niño on some regional weather patterns around the world remains, leading to some regions experiencing wetter than normal conditions and other regions drier than normal conditions. Its influence tends to be most dominant across the tropics, reflected in areas which experience monsoon rains in the Northern Hemisphere being likely to be wetter than normal over the next three months.

Indian Ocean Dipole (IOD) – Record warm temperatures in the north-west Indian Ocean and atmospheric indicators in the east are consistent with a developing positive IOD. Models suggest positive IOD conditions in May, though it should be noted that at this time confidence in IOD forecasts beyond the Southern Hemisphere autumn is low.

3-Month Outlook May to July - Rainfall



Current Status

Current Status maps

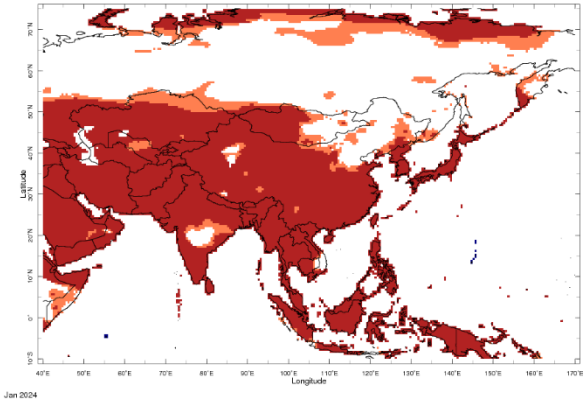
Central Asia

Southern Asia

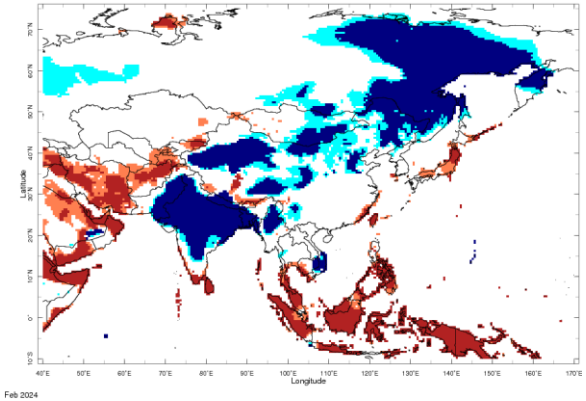
Southeast Asian Peninsula

Southeastern Asia / Indonesia

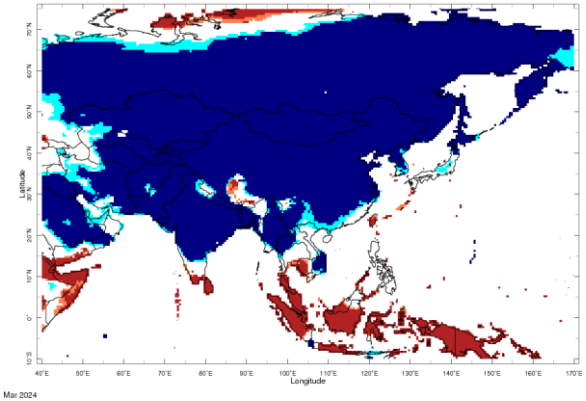
Current Status – Temperature percentiles



January



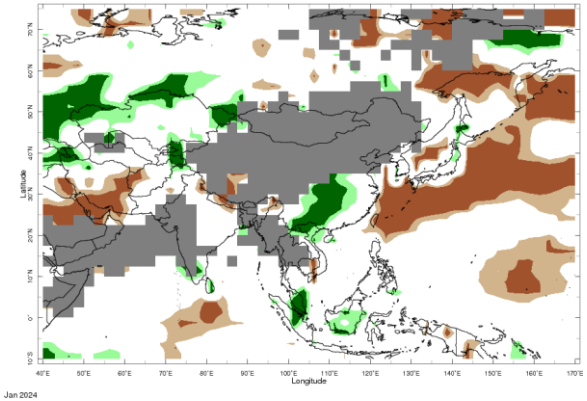
February



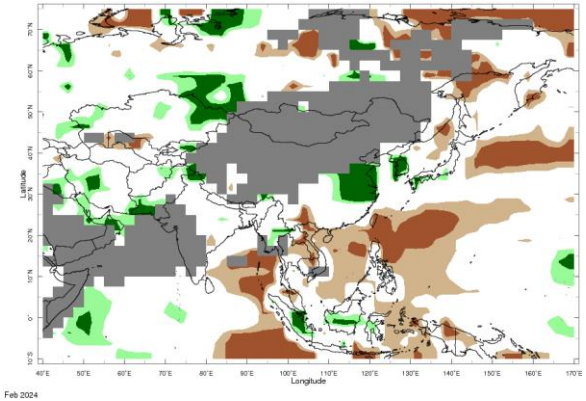
March

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.

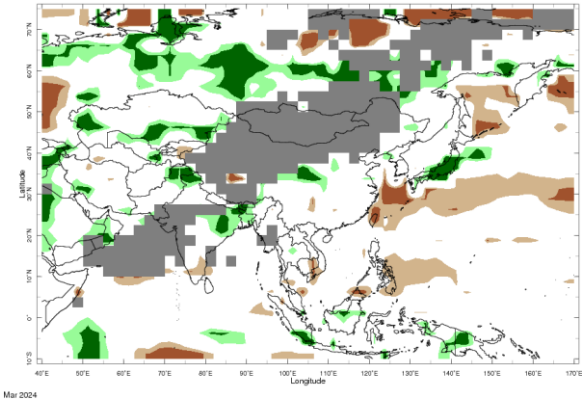
Current Status – Precipitation percentiles



January



February



March

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		
	January	February	March	January	February	March
Afghanistan	Hot	Warm	Cold	Normal (1)	Normal	Normal
Tajikistan	Hot	Warm	Cold	Very Wet	Normal	Normal
Kyrgyzstan	Hot	Warm	Cold	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: Very dry in the west and wet in the far northeast

Current Status – Southern Asia

	Current Status: Temperature			Current Status: Rainfall		
	January	February	March	January	February	March
Pakistan	Hot	Cold	Cold	Normal	Normal (3)	Normal (4)
India	Hot (1)	Cold (2)	Cold (2)	Normal	Normal	Normal (4)
Nepal	Hot	Cold	Cold	Dry	Normal	Normal
Bangladesh	Hot	Cold	Cold	Normal	Normal	Wet
Sri Lanka	Hot	Hot	Hot	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: Normal in some central parts
(2) Note: Hot in the far south
(3) Note: Wet or very wet in the south
(4) Note: Wet in the north and east

Current Status – Southeast Asian Peninsula

	Current Status: Temperature			Current Status: Rainfall		
	January	February	March	January	February	March
China	Hot (1)	Normal (5)	Cold	Normal (3)	Normal (3)	Normal
Myanmar	Hot	Normal (5)	Mixed (5)	Normal*	Normal	Normal
Vietnam	Hot (2)	Normal (6)	Normal (6)	Normal (4)	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: Normal in the far northeast
(2) Note: Normal in some central parts
(3) Note: Wet or very wet in parts of the east and southeast
(4) Note: Very wet in the north
(5) Note: Cold in some northern areas
(6) Note: Cold in the south

Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature		
	January	February	March
Indonesia	Hot	Hot	Hot
Papua New Guinea	Hot	Hot	Hot

	Current Status: Rainfall		
	January	February	March
Indonesia	Mixed (1)	Mixed (1)	Mixed (1)
Papua New Guinea	Normal	Dry	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: Normal in many regions, wet in parts of Sumatra and Borneo, dry in the east in February

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: May to October – Central Asia

		Forecast summary		
		May	May to July	August to October
Afghanistan	*Temperature*	Likely to be warmer than normal	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	Likely to be drier than normal
Tajikistan	*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	Likely to be near-normal
Kyrgyzstan	*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	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: May to October – Southern Asia (1)

		Forecast summary		
		May	May to July	August to October
Pakistan	*Temperature*	Likely to be colder 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
India	*Temperature*	Climatological odds	Likely to be warmer than normal	Likely to be near-normal
	Rainfall	Likely to be near-normal	Likely to be wetter than normal	Much more likely to be wetter than normal
Nepal	*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 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: May to October – Southern Asia (2)

		Forecast summary		
		May	May to July	August to October
Bangladesh	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be wetter than normal	Likely to be wetter than normal
Sri Lanka	*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	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: May to October – SE Asian Peninsula

		Forecast summary		
		May	May to July	August to October
China	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Much more likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal in the south; Likely to be near-normal in the north	Likely to be near-normal
Myanmar	*Temperature*	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 drier than normal	Climatological odds	Likely to be wetter than normal
Vietnam	*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 drier 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: May to October – SE Asia / Indonesia

		Forecast summary		
		May	May to July	August to October
Indonesia	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Much more likely to be warmer than normal
	Rainfall	Likely to be drier than normal in the south; Likely to be near-normal in the north	Likely to be drier than normal in the south; Likely to be near-normal in the north	Likely to be drier than normal in the south; Likely to be near-normal in the north
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	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.

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
Latest Output (September 2023) - https://rcc.imdpune.gov.in/sascof.php

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)

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