Asia: Monthly Climate Outlook November to August

Issued: February 2024

Overview

Asia Current Status and Outlook – Temperature

Asia Current Status and Outlook – Rainfall

Global Outlook – Temperature

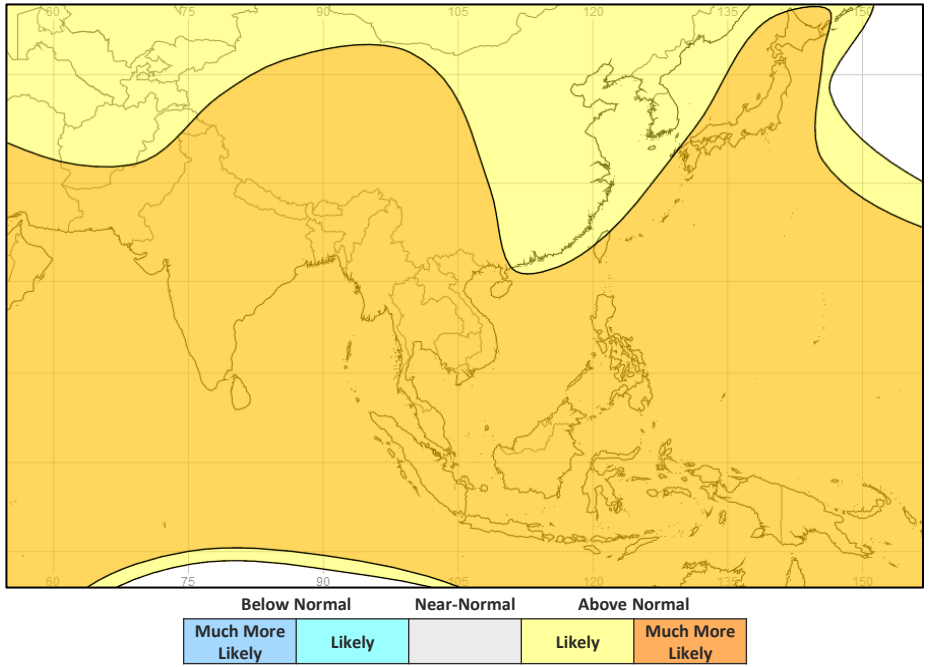
Global Outlook – Rainfall

Asia Current Status and Outlook - Temperature

Current Status:
Over the last three months, the majority of the region has been warm or hot. Exceptions to this includes parts of Indonesia, Papua New Guinea, southern Vietnam, some parts of India and northeast China which were near-normal or cold at times.

Outlook:
With the backdrop of a warming climate and the current El Niño event, all land areas are likely or much more likely to be warmer than normal over the next three months. Warmer conditions increase the risk of heatwaves and related impacts for many parts.

3-Month Outlook March to May - Temperature



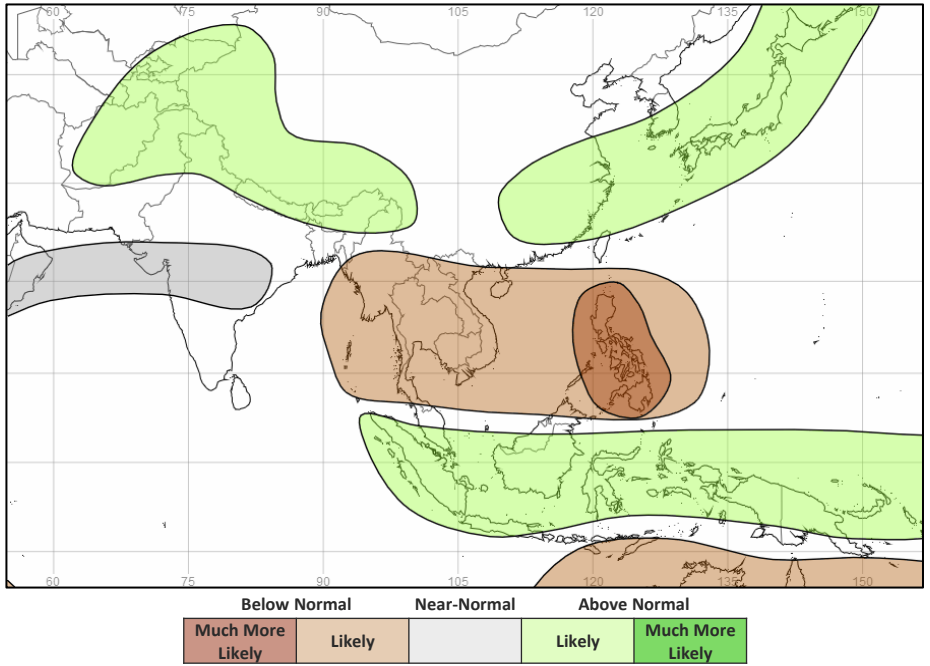
Asia Current Status and Outlook - Rainfall

Current Status:
In Central Asia rainfall has been near-normal over the last three months except for Afghanistan and Tajikistan which were dry in December and wet in January.

Many parts of South Asia were wet at times over the last three months. Over southeast Asia, Indonesia and Papua New Guinea conditions have been more mixed though many areas were drier than normal in November and December and wetter than normal in January.

Outlook:
Over the next three months, it is likely to be wetter than normal across much of Indonesia and Papua New Guinea and parts of China and western Asia. Myanmar and Vietnam are likely to be drier than normal and the Philippines much more likely to be drier than normal.

3-Month Outlook March to May - Rainfall

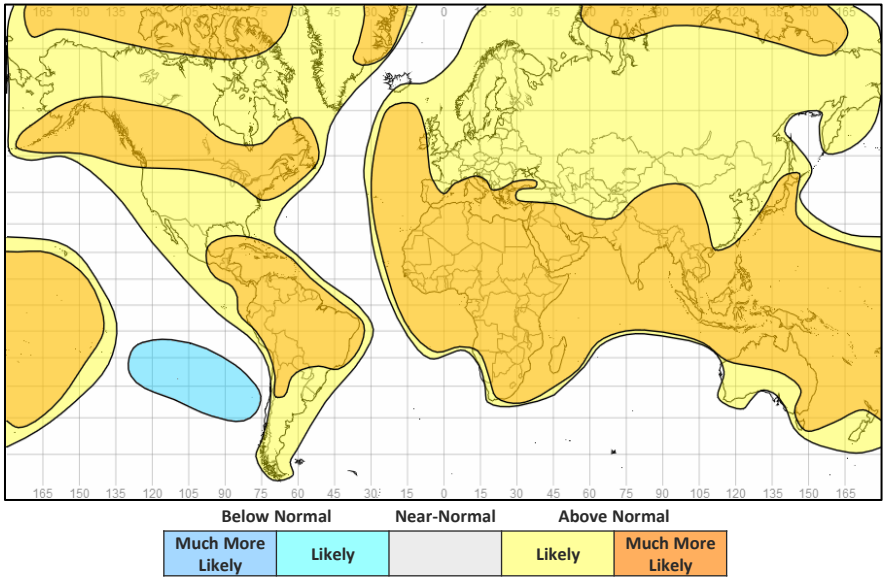


Global Outlook - Temperature

Outlook:

With the backdrop of a warming climate and the current ongoing (although weakening) El Niño event, nearly all land areas are likely or much more likely to be warmer than normal during March to May. The main exception to this being the southeast Pacific region, the result of colder than normal sea surface temperatures in this area due to El Niño.

3-Month Outlook March to May - Temperature



Global Outlook - Rainfall

Outlook:

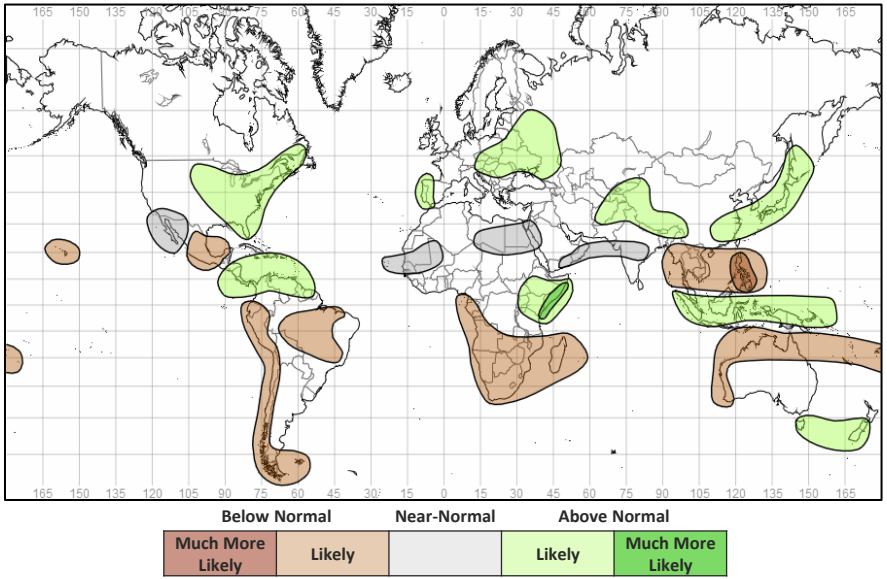
El Niño-Southern Oscillation (ENSO) – Sea surface temperatures (SSTs) across the equatorial Pacific remain indicative on an ongoing El Niño event.

Now past its peak, the current El Niño event is likely to weaken further with a transition ENSO-neutral likely by April-June 2024 (79% chance). There are also increasing odds of La Niña developing in June-August 2024 (55% 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. Its influence tends to be most dominant across the tropics. Although weakening, El Niño will continue to impact global weather patterns over the next few months.

Indian Ocean Dipole (IOD) – The recent positive Indian Ocean Dipole has now come to an end, with conditions expected to remain near-neutral for the next few months.

3-Month Outlook March to May - Rainfall



Current Status

Current Status maps

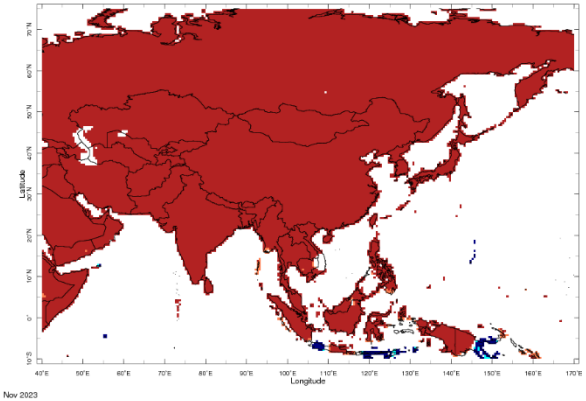
Central Asia

Southern Asia

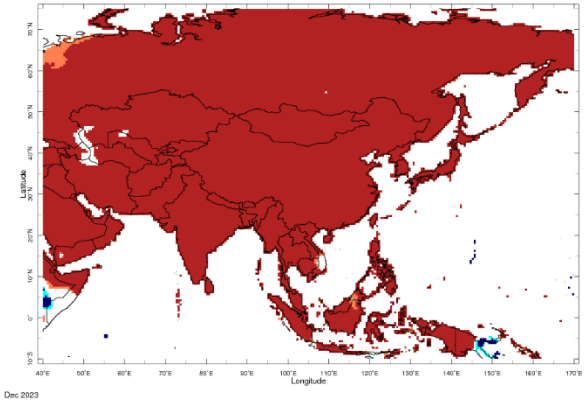
Southeast Asian Peninsula

Southeastern Asia / Indonesia

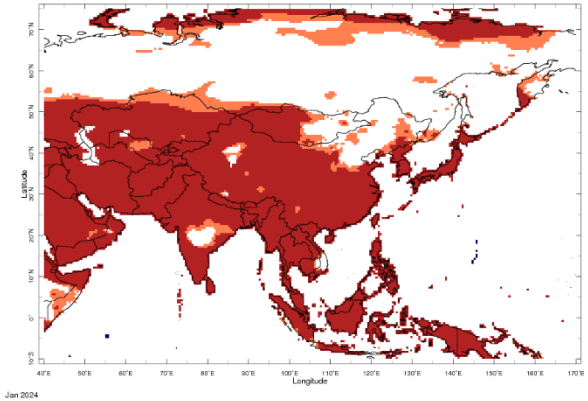
Current Status – Temperature percentiles



November



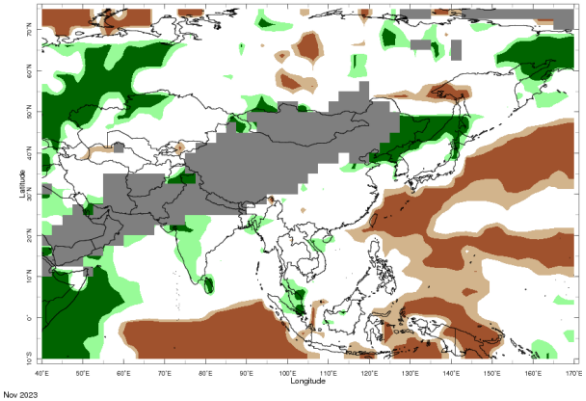
December



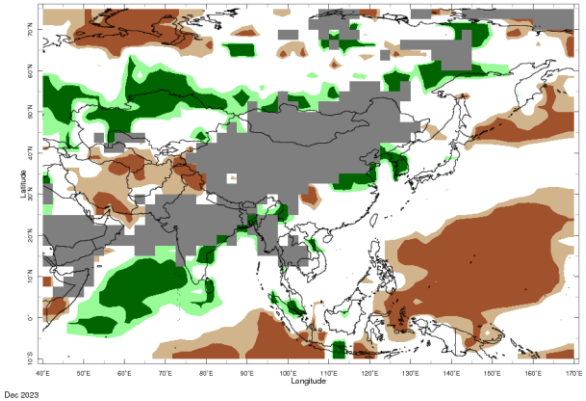
January

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.

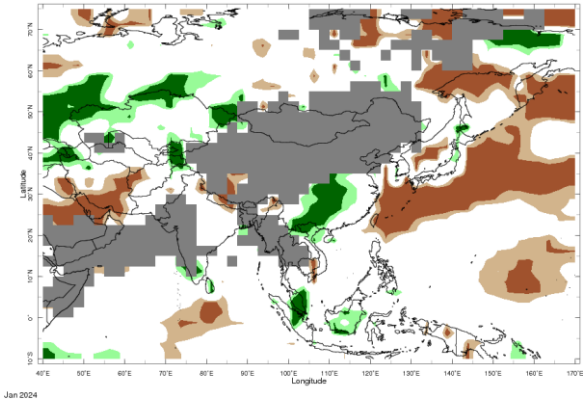
Current Status – Precipitation percentiles



November



December



January

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		
	November	December	January	November	December	January
Afghanistan	Hot	Hot	Hot	Normal	Dry	Normal (1)
Tajikistan	Hot	Hot	Hot	Normal	Dry	Very Wet
Kyrgyzstan	Hot	Hot	Hot	Normal	Normal	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: Very dry in the west and wet in the far northeast

Current Status – Southern Asia

	Current Status: Temperature			Current Status: Rainfall		
	November	December	January	November	December	January
Pakistan	Hot	Hot	Hot	Wet	Dry	Normal
India	Hot	Hot	Hot (3)	Mixed (1)	Mixed (2)	Normal
Nepal	Hot	Hot	Hot	Normal*	Normal*	Dry
Bangladesh	Hot	Hot	Hot	Wet	Wet	Normal
Sri Lanka	Hot	Hot	Hot	Very Wet	Very 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: Wet in the west, normal in the east
(2) Note: Wet in parts of the south and east, dry in the far northwest
(3) Note: Normal in some central parts

Current Status – Southeast Asian Peninsula

	Current Status: Temperature			Current Status: Rainfall		
	November	December	January	November	December	January
China	Hot	Hot	Hot (4)	Normal (2)	Normal (3)	Normal (6)
Myanmar	Hot	Hot	Hot	Normal	Normal*	Normal*
Vietnam	Hot (1)	Hot	Hot (5)	Normal	Normal	Normal (7)

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 south.
(2) Note: Very wet in the northeast
(3) Note: Wet or very wet in parts of the east
(4) Note: Normal in the far northeast
(5) Note: Normal in some central parts
(6) Note: Wet or very wet in parts of the southeast
(7) Note: Very Wet in the north

Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature			Current Status: Rainfall		
	November	December	January	November	December	January
Indonesia	Mixed (2)	Hot	Hot	Mixed (3)	Mixed (3)	Mixed (4)
Papua New Guinea	Mixed (1)	Mixed (1)	Hot	Very Dry	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 west, normal/cold in the east
(2) Note: Most areas hot but cold in parts of the south
(3) Note: Dry/very dry in many regions, normal in Borneo, wet or very wet in northern Sumatra, as well as East Java in December
(4) Note: Normal in many regions, wet in parts of Sumatra and Borneo

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: March to August – Central Asia

		Forecast summary		
		March	March to May	June to August
Afghanistan	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal** in the south; Likely to be warmer than normal elsewhere	Much more likely to be warmer than normal
	Rainfall	Likely to be wetter than normal in the north; Climatological odds in south	Likely to be wetter than normal	Likely to be near-normal
Tajikistan	*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 near-normal
Kyrgyzstan	*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 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: March to August – Southern Asia (1)

		Forecast summary		
		March	March to May	June to August
Pakistan	*Temperature*	**Much more likely to be warmer than normal** in the south; **Likely to be warmer than normal** elsewhere	**Much more likely to be warmer than normal** in the south; **Likely to be warmer than normal** elsewhere	Much more likely to be warmer than normal
	Rainfall	**Likely to be wetter than normal**	**Likely to be wetter than normal** in north; Climatological odds elsewhere	Likely to be wetter than normal
India	*Temperature*	**Likely to be warmer than normal** in the north; **Much more likely to be warmer than normal** in the south	**Much more likely to be warmer than normal**	Much more likely to be warmer than normal in the west; Likely to be warmer than normal, elsewhere
	Rainfall	**Likely to be wetter than normal** in the north; **Likely to be near-normal** in the south	**Likely to be wetter than normal** in the far north; **Likely to be near-normal** in central parts; Climatological odds elsewhere	Likely to be wetter than normal
Nepal	*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

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: March to August – Southern Asia (2)

		Forecast summary		
		March	March to May	June to August
Bangladesh	*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	Climatological odds	Likely to be wetter than normal
Sri Lanka	*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	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: March to August – SE Asian Peninsula

		Forecast summary		
		March	March to May	June to August
China	*Temperature*	**Much more likely to be warmer than normal** in the far west; **Likely to be warmer than normal** elsewhere	**Much more likely to be warmer than normal** in the far west; **Likely to be warmer than normal** elsewhere	Likely to be warmer than normal in the northeast; Much more likely to be warmer than normal elsewhere
	Rainfall	**Likely to be wetter than normal** in the far west; Climatological odds elsewhere	**Likely to be wetter than normal** in the west and southeast; Climatological odds elsewhere	Likely to be wetter than normal in the east; Climatological odds in the west
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 near-normal**	**Likely to be drier than normal**	Likely to be drier 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 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: March to August – SE Asia / Indonesia

		Forecast summary		
		March	March to May	June to August
Indonesia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal in the west; Much more likely to be warmer than normal elsewhere
	Rainfall	**Likely to be drier than normal** in the far south; **Likely to be wetter than normal** elsewhere	**Likely to be drier than normal** in the far south; **Likely to be wetter than normal** elsewhere	Likely to be wetter than normal in the north; Likely to be near-normal in the south.
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**	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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