Asia: Monthly Climate Outlook June to March

Issued: September 2024

Overview

Asia Current Status and Outlook - Temperature

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

Outlook: Warmer than normal conditions are very likely across most of the continent. The main exceptions are central India and parts of mainland Southeast Asia where near-normal is most likely. Whilst this outlook suggests a reduced risk of prolonged cold outbreaks into winter across northern parts of the region, cold spells and related impacts remain possible.

3-Month Outlook October to December - Temperature

Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely
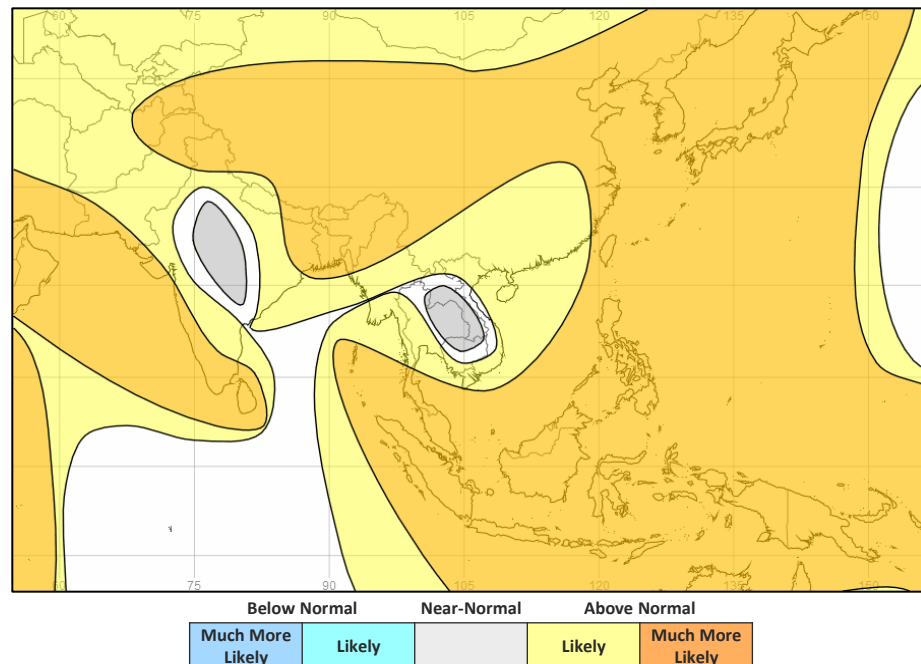
Asia Current Status and Outlook - Rainfall

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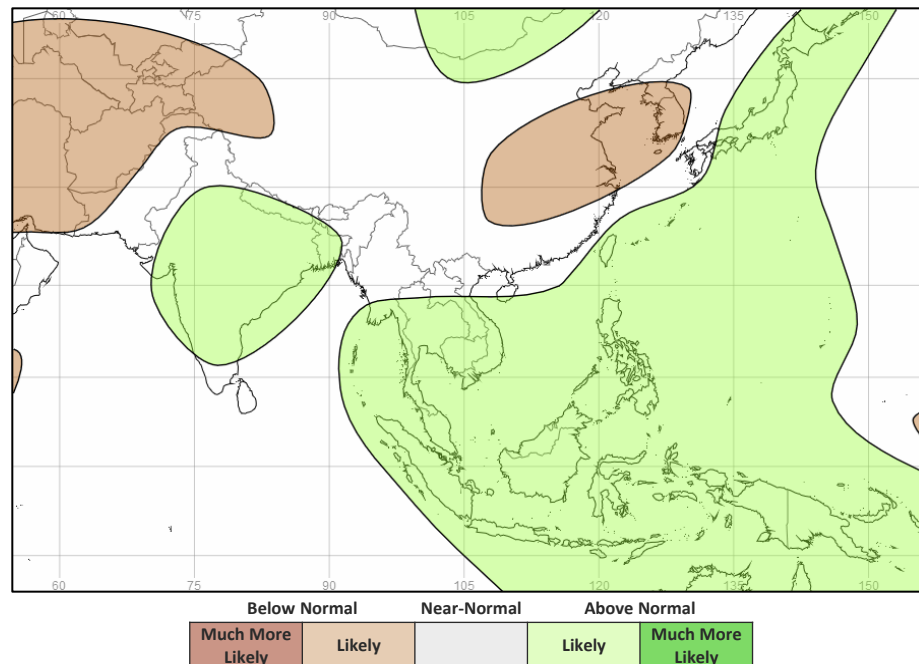
Outlook: Both the South and East Asian monsoons are more likely to be active than not as they retreat south over the coming season. This leads to an increased likelihood of wetter than normal conditions across the bulk of the Indian sub-continent, mainland and maritime Southeast Asia and southern and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

Tropical cyclones – Tropical cyclones can form throughout the year in the Northwest Pacific basin though activity tends to peak between May and October. Across the basin, near average activity is signalled over the coming months. However, there are signals that prevailing tracks may be displaced slightly further west compared to normal, with a greater risk of cyclones affecting the Philippines and regions surrounding the South China Sea.

Across the Southwest Pacific basin, tropical cyclones can form between September and June, but the peak of activity tends to be from November to April. Slightly below normal cyclone activity is signalled for the upcoming season.

Skilful prediction of activity levels across the North Indian Ocean (including the Bay of Bengal and Arabian Sea) tends to be more limited. Whilst cyclones can form anytime from April to December, activity tends to increase again during October to December.

3-Month Outlook October to December - Rainfall

Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely

Climate Outlook
Asia: June to March

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Global Outlook - Temperature

Outlook: Consistent with a warming climate, warmer than normal conditions are likely across the vast majority of land areas. There are limited exceptions, most notably some Pacific coastal districts in the Americas where near normal or colder than normal conditions are more likely – this linked to cooler sea surface temperatures associated with the developing La Niña. The main other exceptions are for central India and parts of mainland Southeast Asia which is linked to likely wetter than normal conditions in these areas.

**3-Month Outlook October to December - Temperature**

Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely
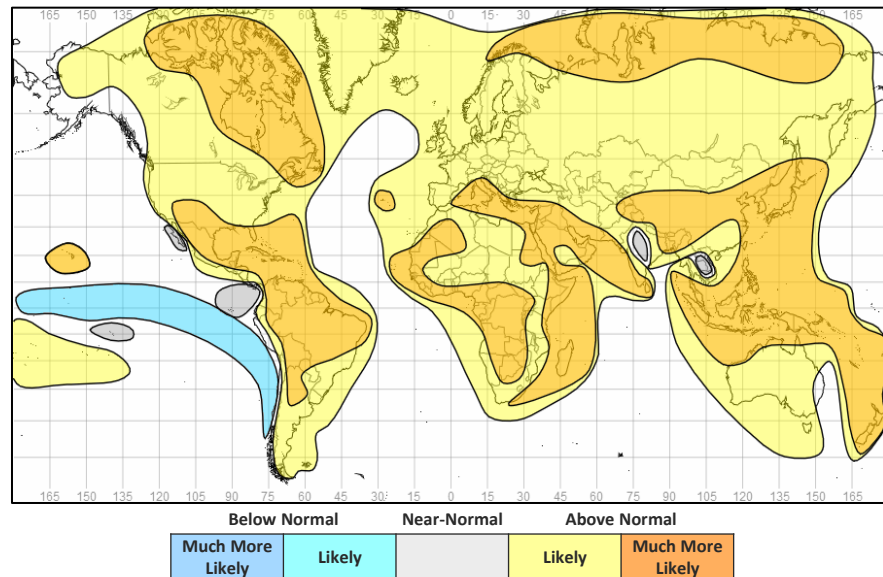
Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – ENSO is currently neutral. Equatorial sea surface temperatures across the central and eastern Pacific are around or below average. It looks likely (~70% chance) that La Niña will emerge over the next couple of months and then persist into the northern hemisphere winter. Skilful prediction of ENSO tends to be high at this time of year and the majority of forecasts favour a weak to moderate La Niña. A transition to La Niña would improve the predictability of global weather patterns on seasonal timescales, particularly in the tropics, though its influence may not be as strong as some La Niña events over recent years. This can be seen in current output from seasonal predictions systems which represent some of the typical influences of La Niña on rainfall patterns, particularly in the tropics, though the signal not as strong as would be the case if a La Niña was already underway.

Indian Ocean Diploe (IOD) – The IOD is currently neutral. Sea surface temperatures across much of the Indian Ocean basin are above average. The IOD is most likely to remain neutral over the next few months but with a negative phase of the IOD more likely than positive. However, skilful prediction of the IOD at this time of year tends to be limited beyond a couple of months ahead.

3-Month Outlook October to December - Rainfall

	Below Normal		Near-Normal	Above Normal	
	Much More Likely	**Likely**		**Likely**	**Much More Likely**
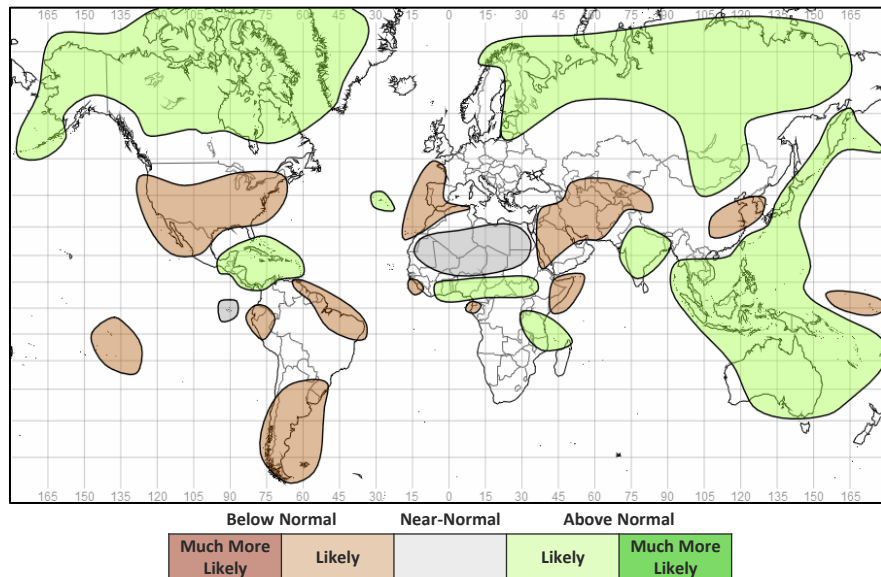
Current Status

Current Status – Temperature percentiles

June

July

August

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

0   0.1   0.2   0.3   0.4   0.5   0.6   0.7   0.8   0.9   1.0
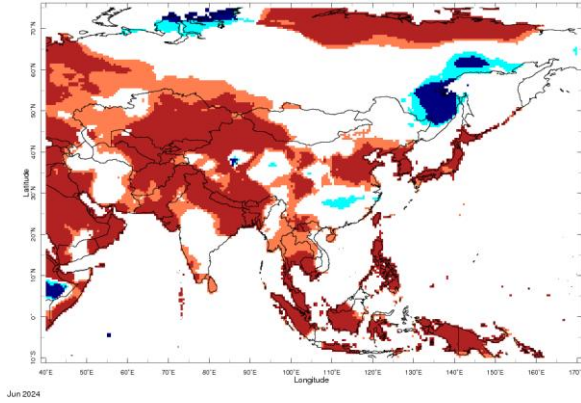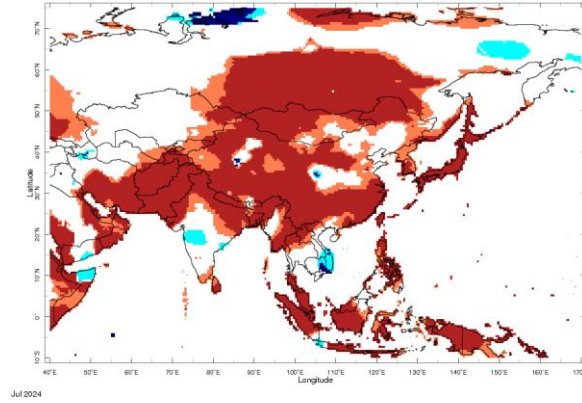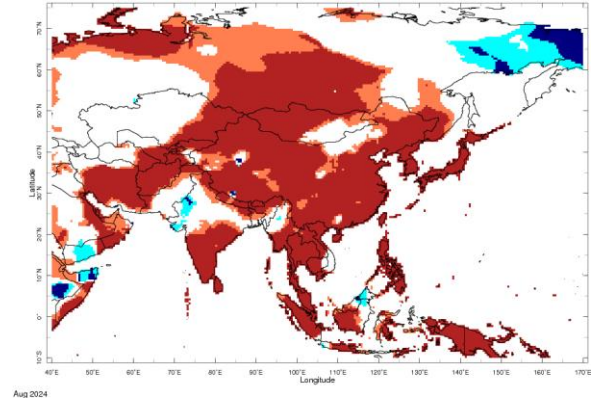
Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions 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

June

July

August

Rainfall Percentiles (BROWN below 20th and GREEN above 80th)

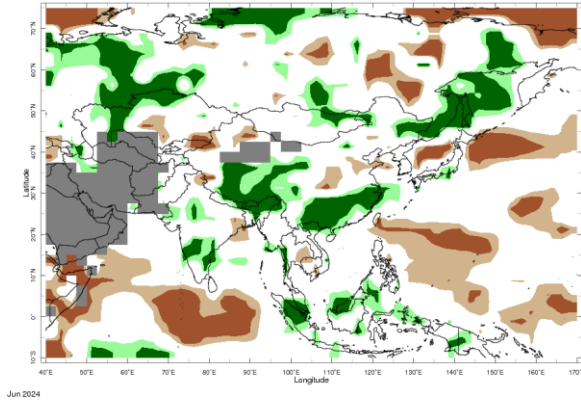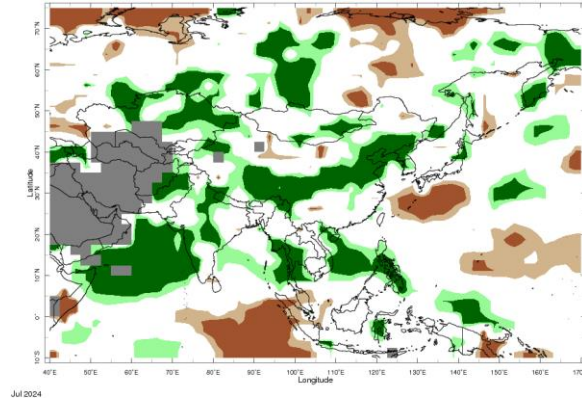| 0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
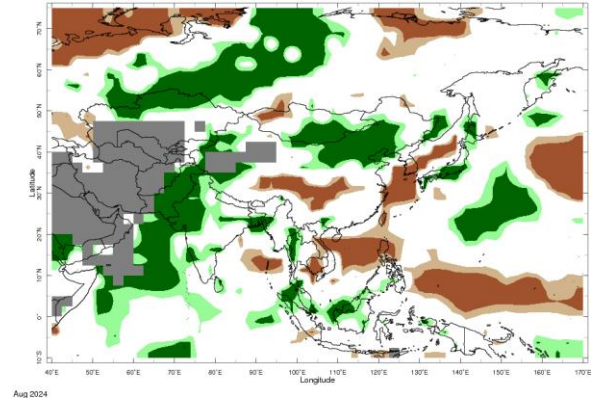
Notes: The percentiles shown in the map indicate a ranking of rainfall, with the 0th percentile being the driest and the 100th percentile being the wettest in the 1981-2010 climatology. Green and dark green shading represent values above the 80th (Wet) and 90th (Very Wet) percentile, respectively; regions 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		
	June	July	August		June	July	August
Afghanistan	Hot	Hot	Hot		Normal*	Normal* (1)	Normal* (1)
Tajikistan	Hot	Hot	Hot		Normal	Normal	Normal
Kyrgyzstan	Hot	Hot	Hot		Dry	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 wet in parts of the far east.

Current Status – Southern Asia

	Current Status: Temperature			Current Status: Rainfall		
	June	July	August	June	July	August
Pakistan	Hot	Hot	Normal	Normal	Very Wet	Very Wet
India	Hot (1)	Hot (1)	Mixed (3)	Normal (2)	Normal (2)	Mixed (4)
Nepal	Hot	Hot	Hot	Wet	Wet	Normal
Bangladesh	Hot	Hot	Warm	Wet	Normal	Very Wet
Sri Lanka	Hot	Hot	Hot	Normal	Normal	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 or cool in central regions.
(2) Note: Wet or very wet in some western and southern regions and the northeast
(3) Note: Hot in south and far north and northeast, else normal
(4) Note: Very wet in the west as well as parts of the south and east

Current Status – Southeast Asian Peneninsula

Met Office

	Current Status: Temperature				Current Status: Rainfall		
	June	July	August		June	July	August
China	Mixed (1)	Hot	Hot	China	Mixed (2)	Normal (6)	Mixed (8)
Myanmar	Warm	Hot	Hot	Myanmar	Mixed (4)	Mixed (4)	Mixed (4)
Vietnam	Mixed (3)	Mixed (3)	Mixed (7)	Vietnam	Normal (5)	Wet	Mixed (9)

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
(7) Note: Hot in the north, normal in the south
(8) Note: Very wet in some northern and western areas, very dry in some central parts, else normal
(9) Note: Very wet in parts of the far north, very dry in some central areas, else normal

Current Status – Southeastern Asia / Indonesia

Current Status: Temperature				Current Status: Rainfall		
	June	July	August	June	July	August
Indonesia	Hot	Hot	Hot	Mixed (2)	Normal (3)	Normal (4)
Papua New Guinea	Hot	Hot	Hot	Normal	Normal (1)	Normal
Timor-Leste	Hot	Warm	Hot	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: 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
(4) Note: Wet or very wet over northern 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: October to March – Central Asia

		Forecast summary		
		October	October to December	January to March
Afghanistan	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal northeast, Likely to be warmer than normal southwest	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Climatological odds
Tajikistan	*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 drier than normal	Likely to be drier than normal	Climatological odds
Kyrgyzstan	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	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: October to March – Southern Asia (1)

		Forecast summary		
		October	October to December	January to March
Pakistan	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal** north and far south, else Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Climatological odds	Climatological odds
India	*Temperature*	Likely to be warmer than normal	Likely to be near-normal in central areas, else 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
Nepal	*Temperature*	**Much more likely to be warmer than normal**	Likely to be warmer than normal west, **Much more likely to be warmer than normal** east	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: October to March – Southern Asia (2)

		Forecast summary		
		October	October to December	January to March
Bangladesh	*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	Climatological odds
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	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: October to March – SE Asian Peninsula

Forecast summary			
		October	October to December	January to March
China	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Mixed, Likely to be drier than normal in parts of east	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 south, Climatological odds north	Likely to be wetter than normal south, Climatological odds north	Climatological odds
Vietnam	*Temperature*	Likely to be warmer than normal north, Much more likely to be warmer than normal south	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 south, Climatological odds north	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: October to March – SE Asia / Indonesia

		Forecast summary		
		October	October to December	January to March
Indonesia	*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
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
Timor-Leste	*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 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/

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)

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