Asia: Monthly Climate Outlook November to August

Issued: February 2023

# Overview

Asia Current Status and Outlook - Temperature

Current Status:

Across most of Asia conditions have either been warm or hot, although near normal across large parts of the Indian sub-continent and western Asia. During December much of Central Asia was cold along with northern and eastern parts of China. In January, northwest India, much of Pakistan and Afghanistan were cold.

Outlook:

Over the next three months, it is likely to be warmer than normal across many parts of the continent and much more likely to be warmer than normal in eastern parts of Indonesia.

3-Month Outlook March to May - Temperature

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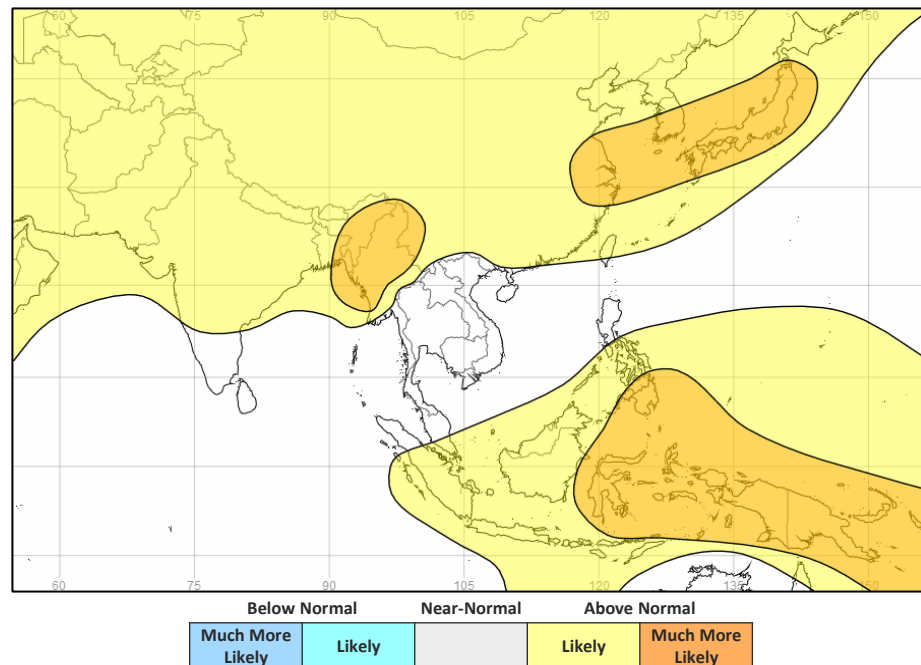
# Asia Current Status and Outlook - Rainfall

Current Status:

Over the last three months, there have been large regional variations. Southern Asia has been wet or very wet at times, whilst Central Asia has experienced near normal rainfall or dry conditions. The exception was that in November, large parts of Central Asia were wet. In January, some parts of Pakistan and Afghanistan were also wet.

Outlook:

Over the next three months, it is likely to be drier than normal in southern Japan, southeast China northern Myanmar and the far northeast of India. Also, drier than normal conditions are likely across many parts of Central Asia, including northern parts of Afghanistan. Wetter than normal conditions are likely for the Philippines, the far northeast of Indonesia and much of mainland Southeast Asia.

The majority of Indonesia is likely to be drier than normal, with an increased risk of heatwaves and wildfires.

3-Month Outlook March to May - Rainfall

| Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely
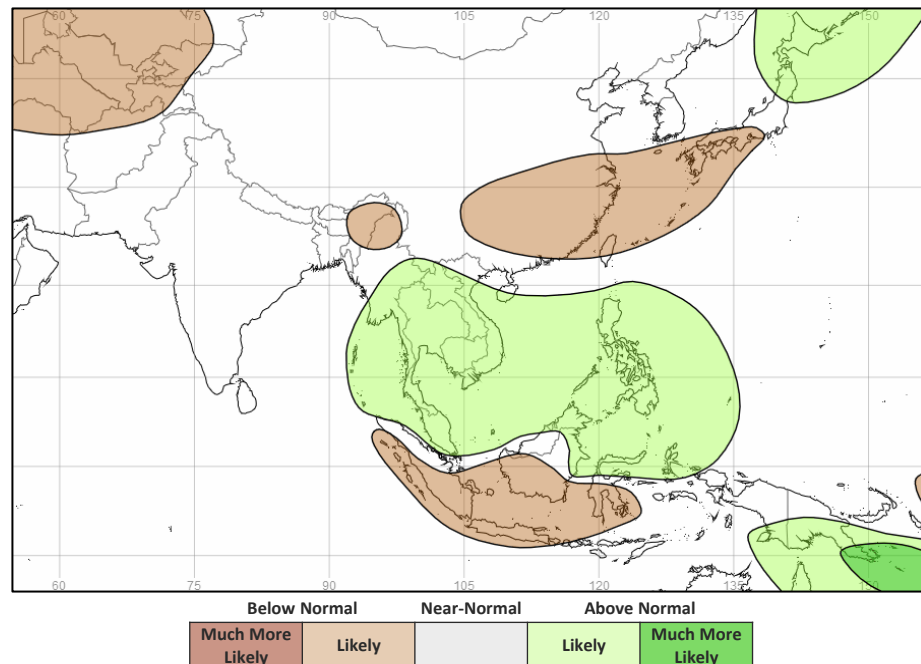
Global Outlook - Temperature

Outlook:

The influence of La Niña is likely to reduce further over the next three months, as the El Niño Southern Oscillation (ENSO) is expected to become neutral during the northern hemisphere spring.

Many regions are likely to be warmer than normal, consistent with a changing climate. However, there are exceptions, mostly as a legacy of the waning La Niña; these include northern South America, mainland Southeast Asia and parts of Canada where near normal or colder than normal conditions are likely.

Globally, La Niña acts to cool temperatures and can often suppress rising temperatures due to climate change. Looking further into 2023, early predictions highlight an increased likelihood of El Niño conditions taking hold in the August to October period (60% likelihood in NOAA forecast). While forecasts looking this far ahead are inherently uncertain, particularly when issued at this time of year, there is a consistent message emerging from many international modelling centres.

3-Month Outlook March to May - Temperature

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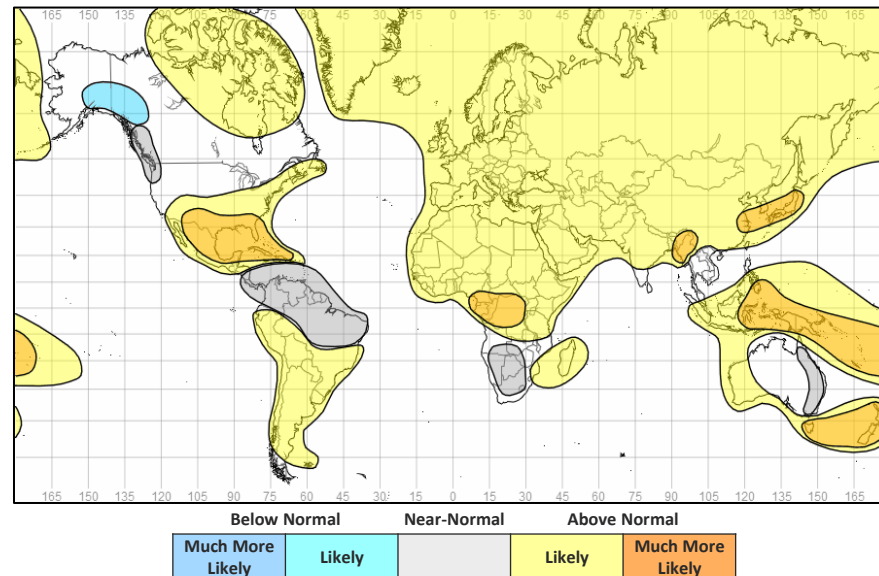
Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – Whilst oceanic indicators, including sea surface temperatures (SSTs), are moving towards ENSO-neutral conditions, the atmosphere has been slower to respond, and the current La Niña event continues to influence global weather and climate. However, this effect is likely to be short-lived, as the current multi-year event is expected to soon end, likely within the next month.

ENSO-neutral conditions are expected to prevail during the northern-hemisphere spring and early summer (90% likelihood for March-May), with increasing chances of El Niño at longer forecast lead times (60% likelihood for August-October) However, due to the spring prediction barrier, uncertainty is higher, and this can typically be associated with lower forecast accuracy.

With ENSO-neutral conditions expected to begin within the next couple of months and persist through the Northern Hemisphere spring and early summer, forecast predictability on seasonal timescales is expected to be lower than in recent years when ENSO has been active.

Indian Ocean Dipole (IOD) – The Indian Ocean Dipole is neutral and therefore won't provide any predictive value for this period.

3-Month Outlook March to May - Rainfall

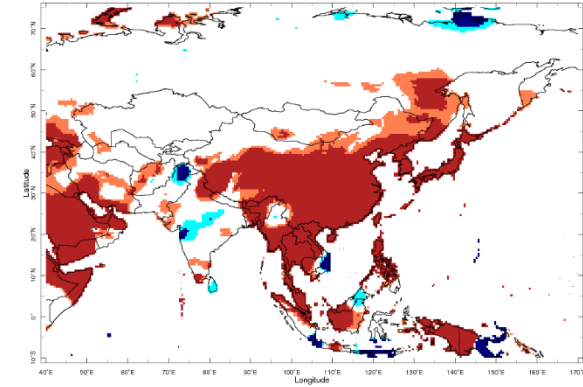| Below Normal		Near-Normal	Above Normal	
Much More Likely	Likely		Likely	Much More Likely
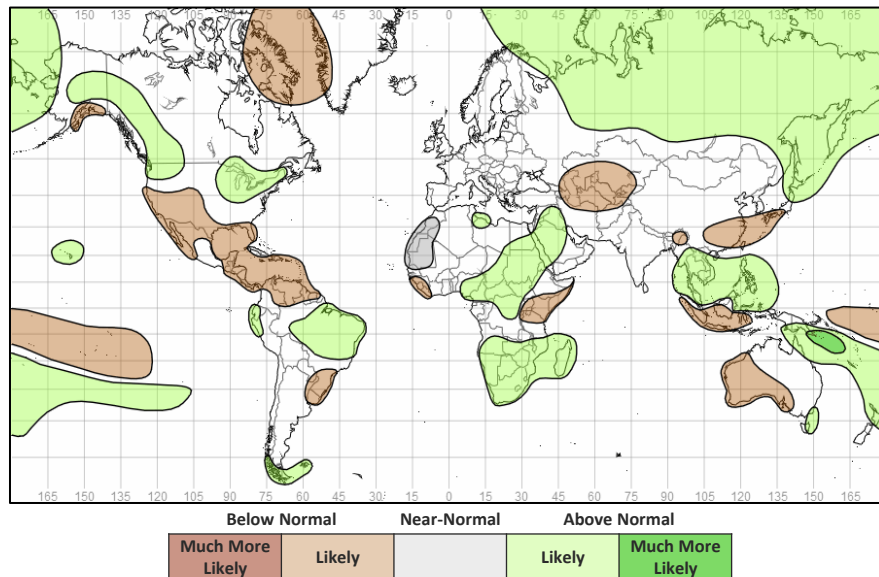
Current Status

Current Status maps

Central Asia

Southern Asia

Southeast Asian Peninsula
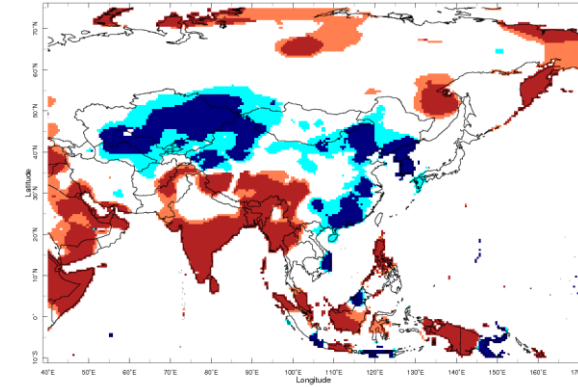
Southeastern Asia / Indonesia

Current Status – Temperature percentiles

November

December

January

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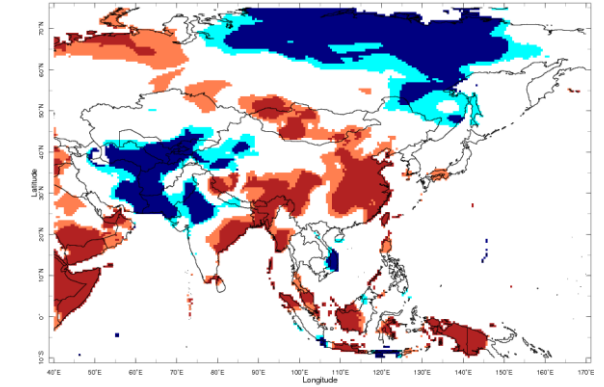
Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions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

November

December

January

Rainfall Percentiles (BROWN below 20th and GREEN above 80th)
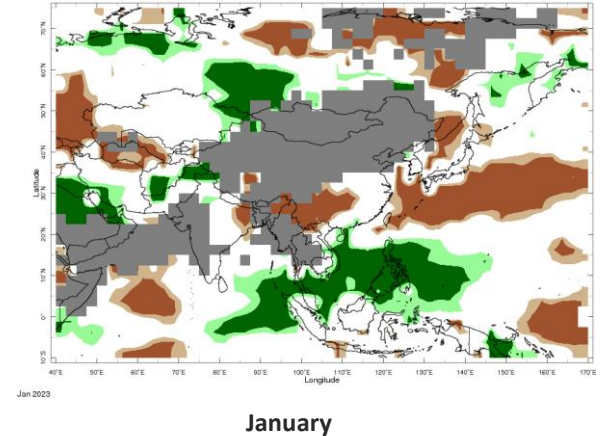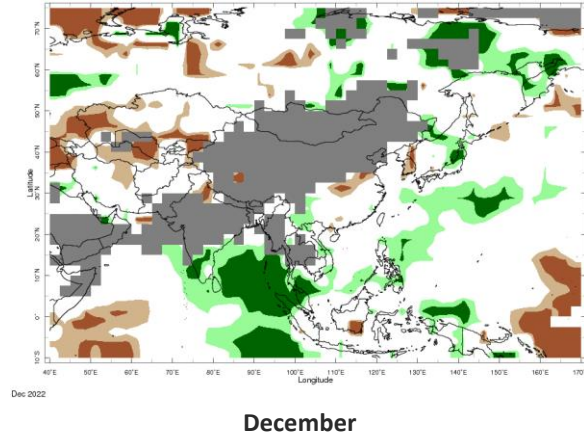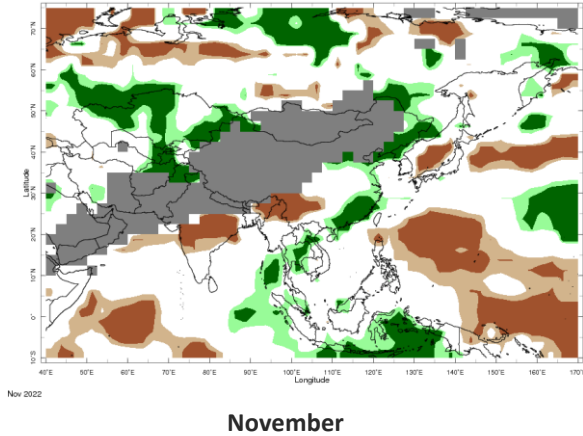
| 0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |

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		
	November	**December**	**January**		**November**	**December**	**January**
Afghanistan	Mixed (1)	Normal	Cold		Mixed (2)	Normal	Wet
Tajikistan	Normal	Normal	Cold		Very Wet	Normal	Normal
Kyrgyzstan	Normal	Cool	Cold		Wet	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: Warm in the west, normal in the east
(2) Note: Very wet in the north, normal* elsewhere

Current Status – Southern Asia

Current Status: Temperature				Current Status: Rainfall		
	November	December	January	November	December	January
Pakistan	Mixed (1)	Warm	Cool	Mixed (3)	Normal	Mixed (3)
India	Mixed (2)	Mixed (4)	Mixed (5)	Mixed (2)	Mixed (2)	Normal
Nepal	Normal	Normal	Normal	Normal*	Normal*	Normal*
Bangladesh	Hot	Hot	Hot	Normal	Normal*	Normal*
Sri Lanka	Cool	Hot	Normal	Normal	Wet	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:** Cold in the far north, warm in the far southeast, normal elsewhere
(2) **Note:** Large variations
(3) **Note:** Very wet in the far north, normal elsewhere*
(4) **Note:** Hot in central and southern regions; normal elsewhere
(5) **Note:** Cold in northwest, hot in the east and northeast, normal elsewhere

Current Status – Southeast Asian Peninsula

Current Status: Temperature			
	November	December	January
China	Hot	Mixed (3)	Mixed (5)
Myanmar	Hot	Hot	Warm
Vietnam	Mixed (1)	Cool	Mixed (6)

Current Status: Rainfall			
	November	December	January
China	Mixed (2)	Normal	Mixed (4)
Myanmar	Normal	Normal*	Normal*
Vietnam	Normal	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: Large variation; hot in the north, mainly cold in the south
(2) Note: Large variations; dry in the far south, wet in the far east
(3) Note: Cool/Cold in north and east; Hot in the southwest and normal elsewhere
(4) Note: Very Dry in central and western regions, normal elsewhere
(5) Note: Warm/Hot in central and eastern areas, cool in the northwest, normal elsewhere
(6) Note: Normal in the north, cold in the south

Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature				Current Status: Rainfall		
	November	December	January		November	December	January
Indonesia	Mixed (1)	Mixed (1)	Mixed (1)		Wet	Normal	Normal
Papua New Guinea	Mixed (2)	Mixed (2)	Hot		Dry	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: Large variations across the country
(2) Note: Hot in the west, cold in the east

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	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 in the north; Climatological odds elsewhere	Climatological odds
Tajikistan	*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
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: March to August – Southern Asia (1)

		Forecast summary		
		March	March to May	June to August
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	Climatological odds	Climatological odds
India	*Temperature*	Climatological odds in the far south and **Much more likely to be warmer than normal** in the far northeast; Likely to be warmer than normal elsewhere	Climatological odds in the far south and **Much more likely to be warmer than normal** in the far northeast; Likely to be warmer than normal elsewhere	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be drier than normal in the far northeast; otherwise, Climatological odds	Climatological odds
Nepal	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	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: March to August – Southern Asia (2)

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

		Forecast summary		
		March	March to May	June to August
China	*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 in central and eastern regions; otherwise Climatological odds	Likely to be drier than normal in south; otherwise, Climatological odds	Climatological odds
Myanmar	*Temperature*	Much more likely to be warmer than normal in the north; Climatological odds in the south	Much more likely to be warmer than normal in the north; Climatological odds in the south	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be drier than normal in the north; Likely to be wetter than normal in central and southern regions	Climatological odds
Vietnam	*Temperature*	Climatological odds	Climatological odds	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: March to August – SE Asia / Indonesia

		Forecast summary		
		March	March to May	June to August
Indonesia	*Temperature*	Likely to be near-normal	Likely to be warmer than normal	Climatological odds
	Rainfall	Likely to be drier than normal, but likely to be wetter than normal in the far northeast	Likely to be drier than normal, but likely to be wetter than normal in the far northeast	Likely to be drier than normal
Papua New Guinea	*Temperature*	Likely to be warmer than normal	Much more likely to be warmer than normal	Likely to be warmer than normal
	Rainfall	Climatological odds	Likely to be wetter than normal in the south; Climatological odds in the 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.

Outlooks

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 2022) - http://sahfhydromet.rimes.int/wp-content/uploads/2022/10/Enhanced-SCOS-SASCOF-23-JJAS.pdf

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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