Asia: Monthly Climate Outlook January to October

Issued: April 2021

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:

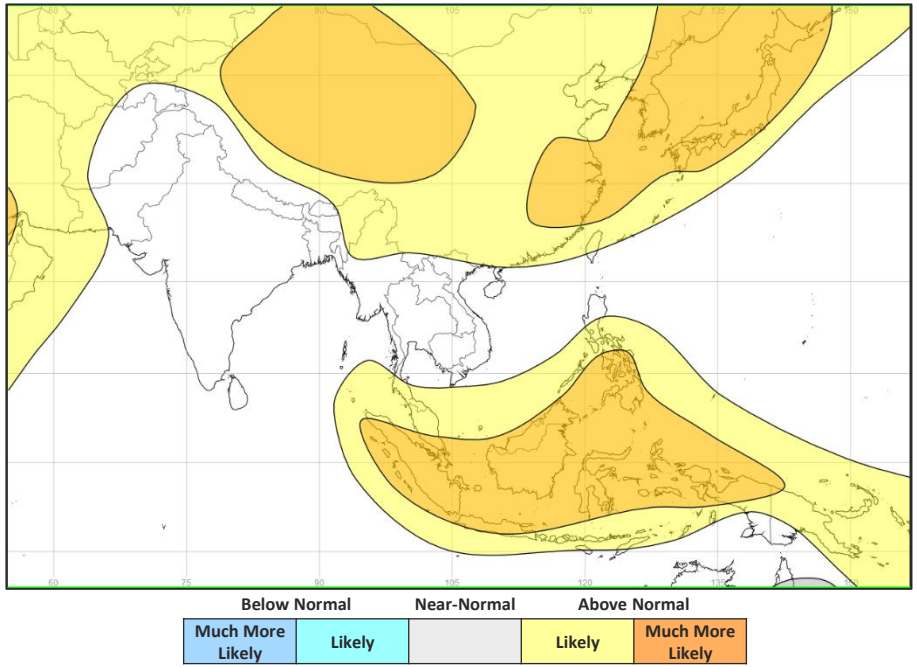
Most of Asia has been warm or hot through this over the last three months. The exception has been parts of India, where temperatures had been more mixed, as well as parts of central Asia, where temperatures have fluctuated around normal through the last three months. Temperatures across Indonesia have also been mixed.

Outlook:

Most of the area is likely to be warmer than normal through the next three months, with much of China, Japan and parts of Indonesia and Malaysia much more likely to be warmer than normal. Forest fires, as well as impacts on health from prolonged heat are more likely during warmer than likely temperatures.

The exception is likely to be India, most of Pakistan and Afghanistan, as well as parts of southeast Asia. Here temperatures are likely to be near-normal, potentially a function of timing and intensity of the Monsoon.

3-Month Outlook May to July - Temperature



Asia Current Status and Outlook - Rainfall

Current Status:

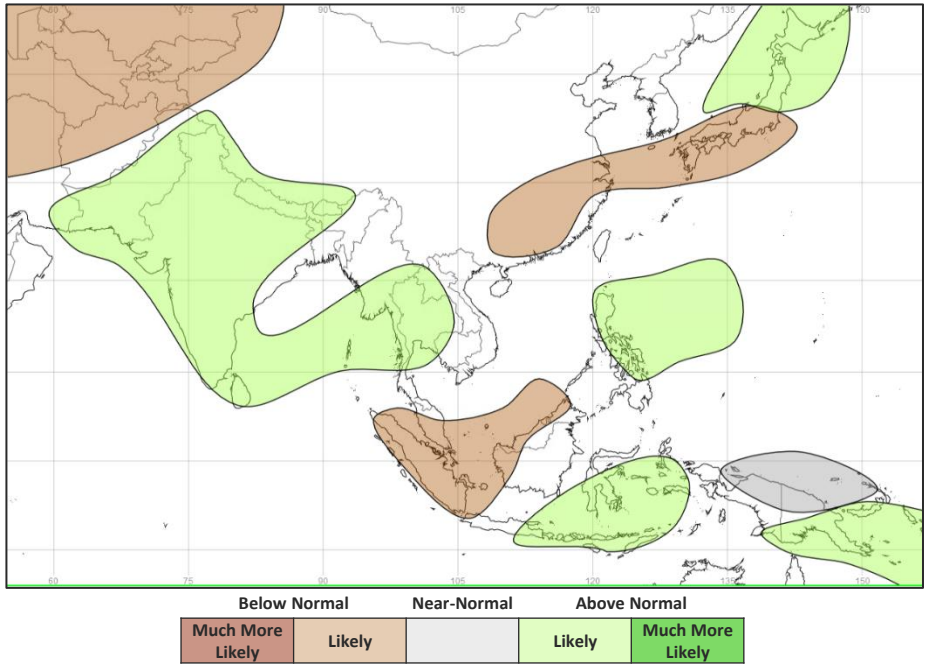
After an initially wet start to the year for parts of Indonesia and the Philippines, precipitation across the continent has been near- to below normal. Parts of the Philippines have continued to experience wetter than normal conditions, whilst rainfall was near- to above normal for parts of central Asia, particularly Tajikistan.

Outlook:

It is likely to be drier than normal in Afghanistan, Kyrgyzstan and Tajikistan along with Malaysia, parts of Indonesia and parts of eastern China in the next three months.

The exceptions to this are the Indian subcontinent and parts of southeast Asia where Monsoon rains may well either arrive early or be more intense than normal. The Philippines, particularly the east of the country, is also likely to be wetter than normal, this perhaps indicative of increased tropical cyclone activity.

3-Month Outlook May to July - Rainfall



Global Outlook - Temperature

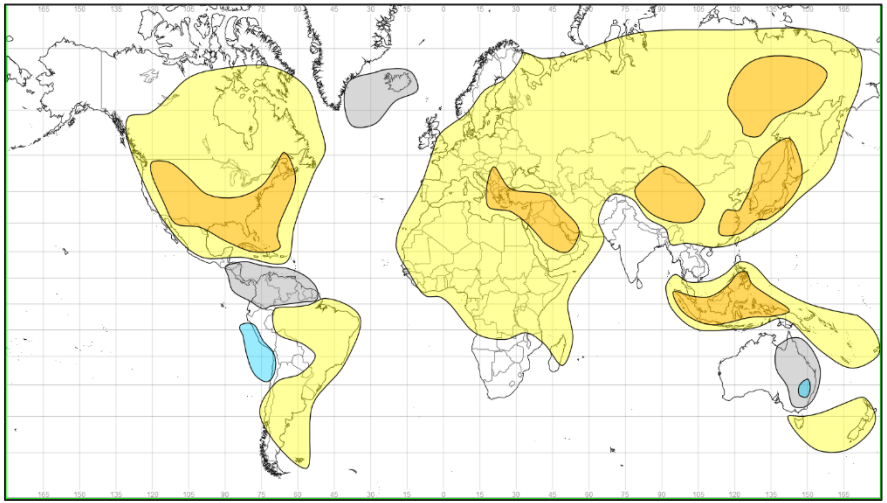
Outlook:

With the high likelihood of the El Niño–Southern Oscillation reverting to neutral in the next month or so, its influence is less significant over the next three months. This is reflected in signals from longer range forecast systems which offer mixed, and at times conflicting, forecasts for this period.

However, some consistent signals are apparent. Many parts of the globe are likely to see warmer than normal conditions through the next three months. Parts of the southern USA, much of the Caribbean, Middle East, China and Indonesia are much more likely to be warmer than normal.

Eastern Australia, as well as some western areas of South America are likely to be cooler than normal, with the residual influence from La Niña

3-Month Outlook May to July - Temperature



Global Outlook - Rainfall

Outlook:

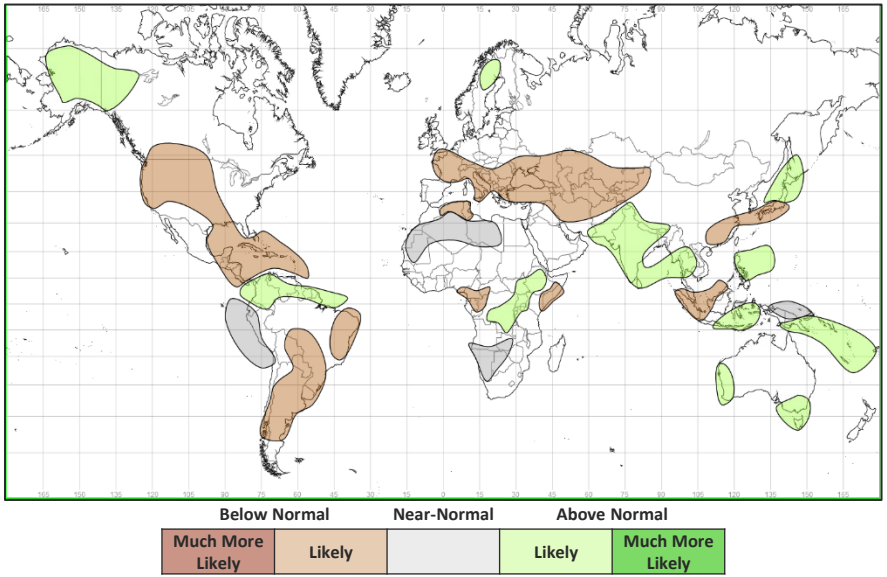
As described in the temperature section, the recent La Niña is in decline; residual La Nina influences are mainly related to reduced rainfall in the tropical Pacific.

Over the next three months, the seasonal northward shift of rains will see the onset of the South Asian Monsoon (SAM). Wetter than normal conditions for much of the Indian subcontinent, Sri Lanka, as well as parts of southeast Asia are likely over the next three months. This may reflect either an early onset of the SAM, or a more intense SAM as compared to normal. The Philippines, particularly the east, is likely to be wetter than normal, perhaps indicative of enhanced tropical storm activity.

Elsewhere, it is likely to be wetter than normal for parts of central and eastern Africa This is also the case in northern parts of South America, where a northward displaced Intertropical Convergence Zone means conditions are likely to be wetter than normal across areas which have already seen impacts from flooding over the last few months.

Much of the rest of South America, as well as the contiguous USA, Caribbean, central and eastern Europe and the Middle East are likely to be drier than normal. This is also true for eastern China, southern Japan and parts of western Indonesia and Malaysia.

3-Month Outlook May to July - Rainfall



Current Status

Current Status maps

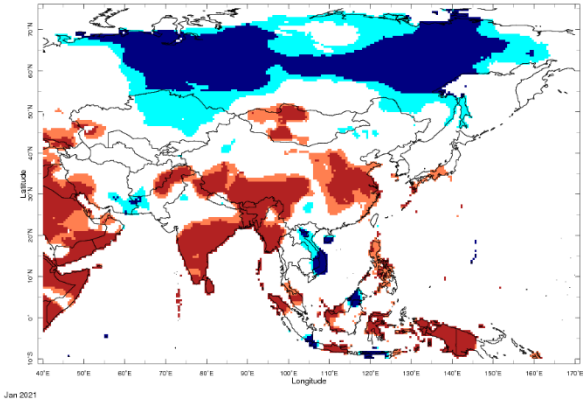
Central Asia

Southern Asia

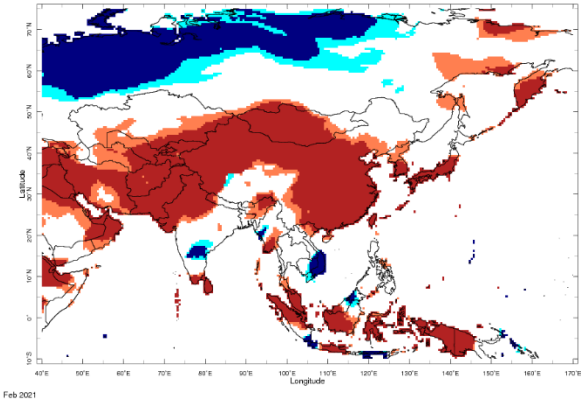
Southeast Asian Peninsula

Southeastern Asia / Indonesia

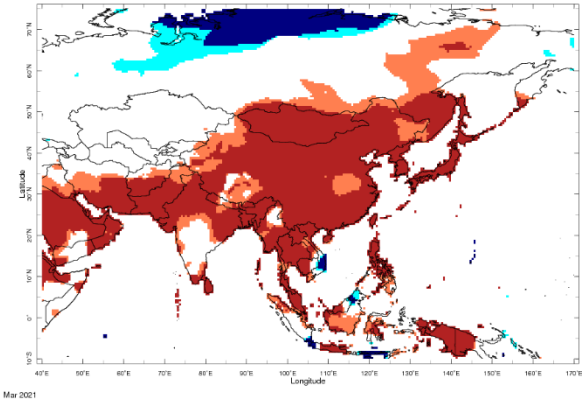
Current Status – Temperature percentiles



January



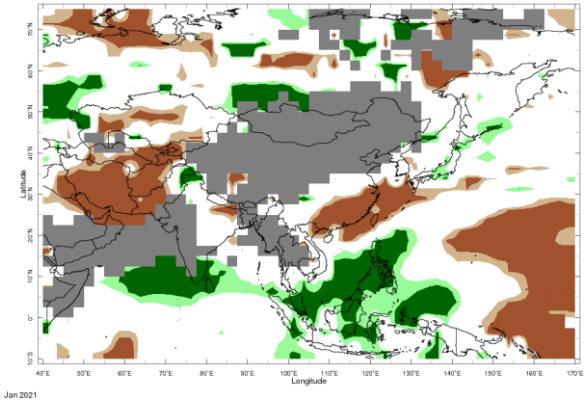
February



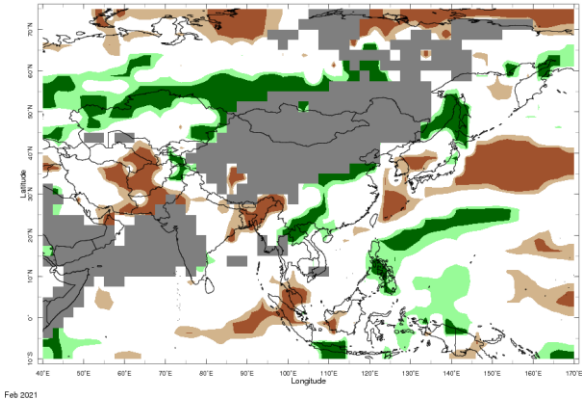
March

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.

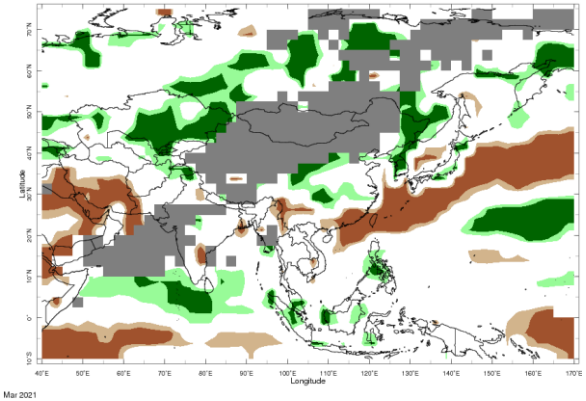
Current Status – Precipitation percentiles



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	Normal	Hot	Hot (1)	Very Dry	Dry	Normal
Tajikistan	Normal	Hot	Normal	Very Dry	Very Wet	Wet
Kyrgyzstan	Normal	Hot	Normal	Very 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: Near normal for parts of the north and east, but overall hot

Current Status – Southern Asia

	Current Status: Temperature			Current Status: Rainfall		
	January	February	March	January	February	March
Pakistan	Mixed	Hot	Hot	Mixed (1)	Mixed (4)	Normal
India	Hot	Mixed (3)	Hot	Mixed (2)	Normal	Normal
Nepal	Normal	Normal	Hot	Normal	Normal	Normal
Bangladesh	Hot	Normal	Hot	Normal*	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: Very Wet in parts of the north, Very Dry in parts of the south.
(2) Note: Very Wet in the far south
(3) Note: Hot in the northeast, mostly Normal elsewhere, apart from very cold in central-southern regions.
(4) Note: Very Dry in the south, but Very Wet in the north.

Current Status – Southeast Asian Peninsula

	Current Status: Temperature			Current Status: Rainfall		
	January	February	March	January	February	March
China	Mixed	Hot	Hot	Very Dry (2)	Normal	Mixed (3)
Myanmar	Hot	Mixed	Hot	Normal	Normal	Mixed
Vietnam	Cool	Cold	Mixed (1)	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: Hot in the north, cold in the south
(2) Note: In the south and southeast. Normal elsewhere
(3) Note: Large variations across the country

Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature			Current Status: Rainfall		
	January	February	March	January	February	March
Indonesia	Mixed	Hot	Mixed (1)	Mixed (2)	Mixed	Mixed (2)
Papua New Guinea	Hot	Hot	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: Large variations across the country
(2) Note: Highly variable, all areas normal or wet/very wet

Outlooks

Outlooks – Notes for use

Central Asia

Southern Asia

Southeast Asian Peninsula

Southeastern Asia / Indonesia

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	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	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	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	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	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	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: May to October – Southern Asia

		Forecast summary		
		May	May to July	August to October
Pakistan	*Temperature*	Climatological odds	Climatological odds	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be near-normal
India	*Temperature*	Climatological odds	Climatological odds	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal in the south, likely to be near-normal elsewhere
Nepal	*Temperature*	Climatological odds	Climatological odds	Climatological odds
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal
Bangladesh	*Temperature*	Climatological odds	Climatological odds	Likely to be wetter 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: 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**	Likely to be warmer than normal
	Rainfall	Climatological odds, though likely to be drier than normal in the southeast/east	Climatological odds, though likely to be drier than normal in the southeast/east	Climatological odds
Myanmar	*Temperature*	Climatological odds	Climatological odds	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal in the far south, climatological odds elsewhere	Likely to be wetter than normal in the far south, climatological odds elsewhere	Climatological odds
Vietnam	*Temperature*	Climatological odds	Climatological odds	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: May to October – SE Asia / Indonesia

		Forecast summary		
		May	May to July	August to October
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	Mixed, with large variations across the country	Mixed, with large variations across the country	Likely to be wetter than normal
Papua New Guinea	*Temperature*	**Likely to be warmer than normal**	**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.

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.ncdc.noaa.gov/teleconnections/enso/indicators/sst.php

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 (Apr 2021) - http://rcc.imdpune.gov.in/SASCOF17/concensus.html

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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