Asia: Monthly Climate Outlook
July to April

Issued: October 2020

Overview

Asia Current Status and Outlook – Temperature

Asia Current Status and Outlook – Rainfall

Global Outlook – Temperature

Global Outlook – Rainfall

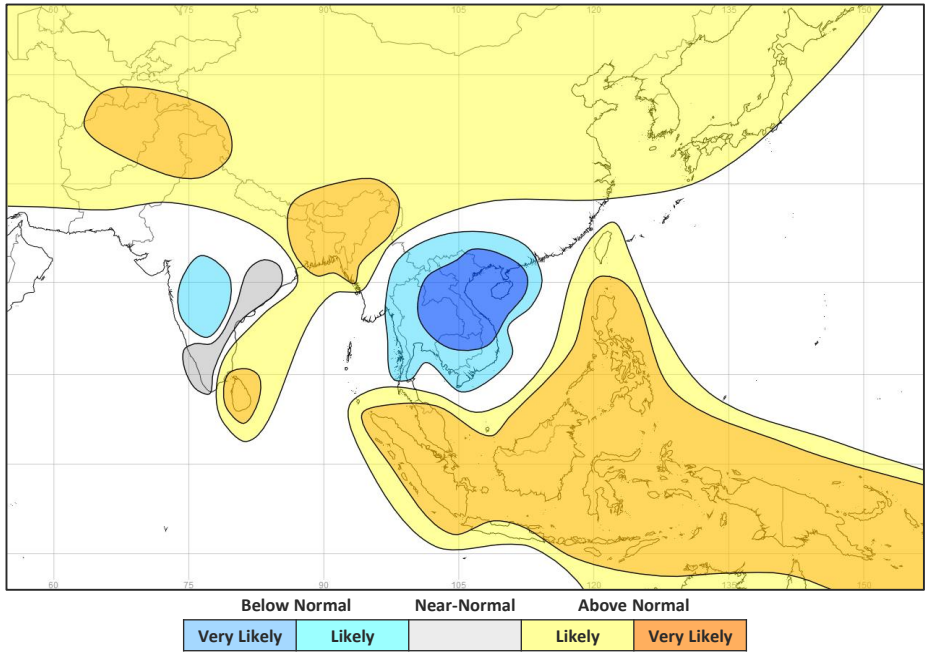
Asia Current Status and Outlook - Temperature

Current Status: Temperatures across southern Asia, in particular the regions affected by the south Asian monsoons and Malaysia/Indonesia, have been widely warmer than normal during the past few months. Central Asia has generally been closer to normal, although colder than normal conditions did develop across Kazakhstan, Iran, parts of Afghanistan, and other adjacent countries to the north during September. Widely warmer than normal conditions developed across Russia and the Arctic during the past 3 months.

Outlook: In the next three months, the mature La Niña brings warmer than normal sea surface temperatures in towards the Philippines and New Guinea Island resulting in warmer than normal conditions being very likely across the Philippines, Malaysia and Indonesia.

Warmer than normal conditions are likely widely elsewhere. The main exception to this is the Indochinese peninsula, where below normal temperatures are likely, and in places very likely through the next 3-6 months.

3-Month Outlook November to January - Temperature

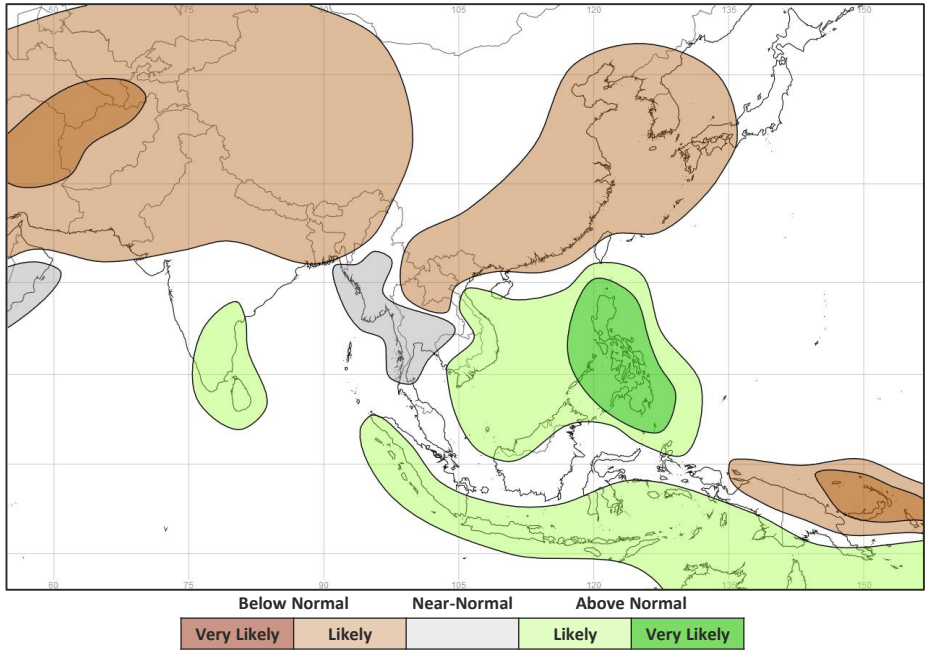


Asia Current Status and Outlook - Rainfall

Current Status: Wetter than normal conditions have been experienced across large parts of southern Asia over the last couple of months, after many parts experienced a drier than normal month in July. Elsewhere conditions were much more mixed through across the continent.

Outlook: La Nia will have the major influence on rainfall patterns through the next 3-6 months, with wetter than normal conditions very likely over the Philippines, and likely over large parts of Indonesia and the far east of south-east Asia. Drier than normal conditions are likely across a large swathe of Central Asia.

3-Month Outlook November to January - Rainfall

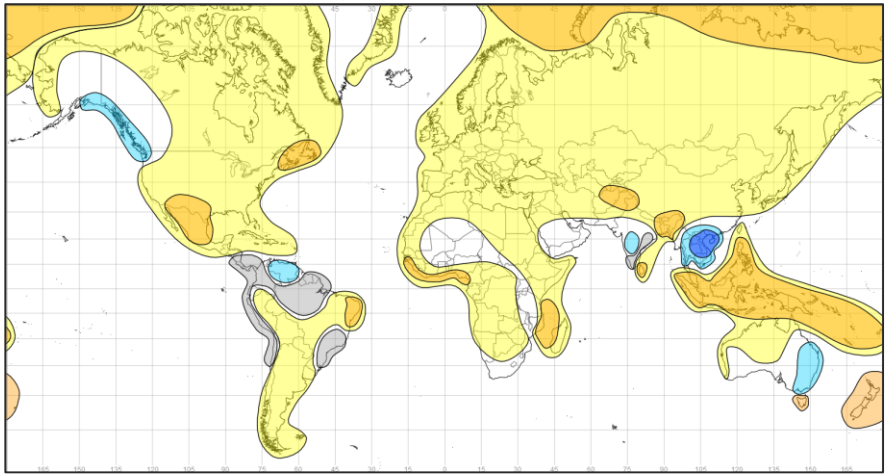


Global Outlook - Temperature

Outlook: For the next three months, **t**he majority of the globe is likely to experience warmer than normal conditions, which is supported by the generally warming climate over the past decade (the anomalies forecast are with respect to the 1981-2010 climate).

The most significant deviations from this are in areas where La Niña has a strong influence – for example colder than normal conditions are very likely across south-east Asia, whereas warmer than normal conditions are very likely across Indonesia and Malaysia, where Sea Surface Temperatures (SSTs) are above normal. Warmer than normal conditions are very likely over large parts of the Arctic, where sea ice and snow cover are currently at record minimum levels.

3-Month Outlook November to January - Temperature



Below Normal		Near-Normal	Above Normal	
Very Likely	Likely		Likely	Very Likely

Global Outlook - Rainfall

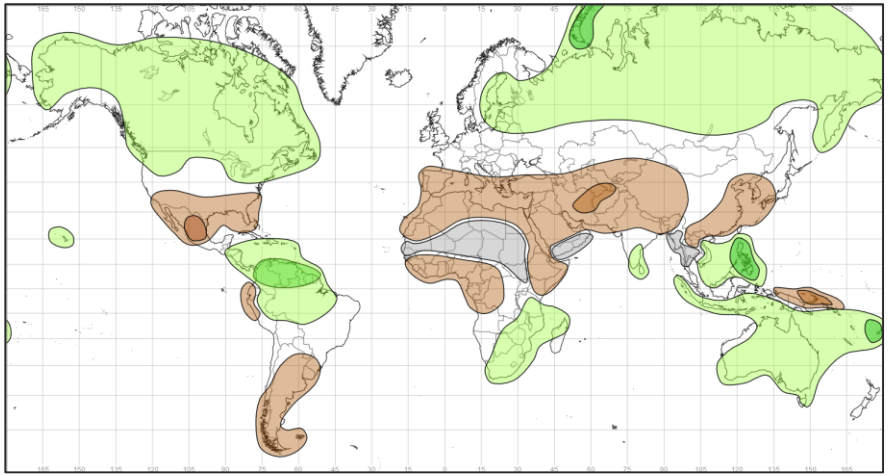
Outlook: As with temperature, the rainfall patterns over the next 3-6 months are expected to be influenced by the ongoing mature La Niña event in the tropical Pacific. Confidence is highest in these rainfall patterns across the tropics, but the impacts of La Niña will be far reaching, and in general the expected rainfall anomalies are in line with what is normally expected in a La Niña year.

Rainfall is very likely to be above normal over the Philippines and north-west Pacific tropical cyclone activity likely higher across the Philippine and South China Seas compared to areas further north. Above normal rainfall is also very likely in parts of southern Africa, the southern Caribbean Sea, the north of South America, large parts of northern North America, northern Asia, parts of Scandinavia, parts of Indonesia, and Australia.

However, below normal rainfall is very likely over parts of Mexico, and in parts of south-west Asia. More broadly, below normal rainfall is likely across northern and eastern Africa, large parts of southern North America, southern South America, southern Europe and southern Asia.

Forecasts for the Indian Ocean Dipole (IOD) show lower likelihood that it will become negative as the La Niña continues to dominate. However, if the IOD does become negative, the effects on rainfall patterns are likely to be similar to those caused by La Niña, particularly in countries surrounding the Indian Ocean Basin.

3-Month Outlook November to January - Rainfall



Below Normal		Near-Normal	Above Normal	
Very Likely	Likely		Likely	Very Likely

Current Status

Current Status maps

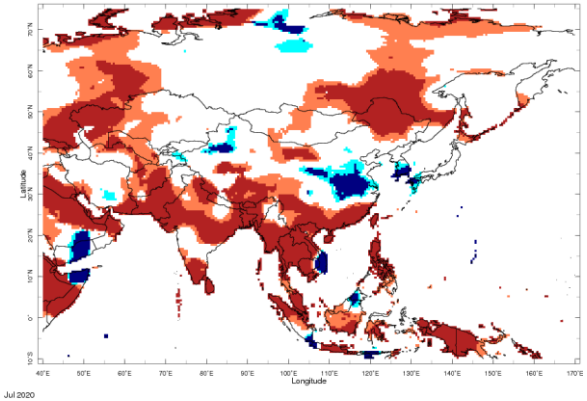
Central Asia

Southern Asia

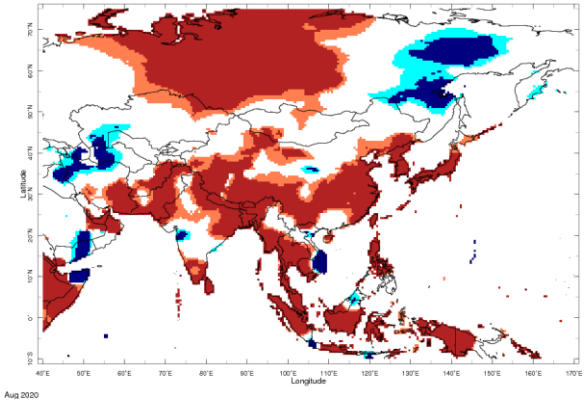
Southeast Asian Peninsula

Southeastern Asia / Indonesia

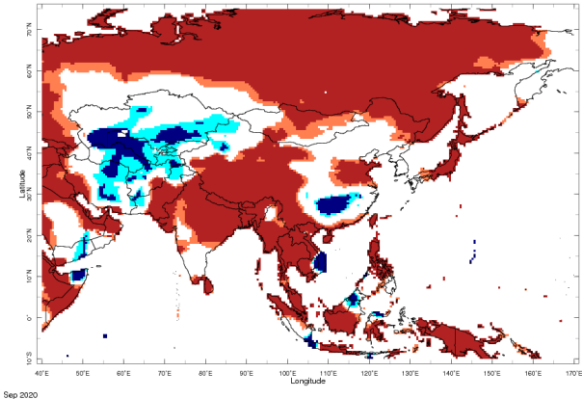
Current Status – Temperature percentiles



July



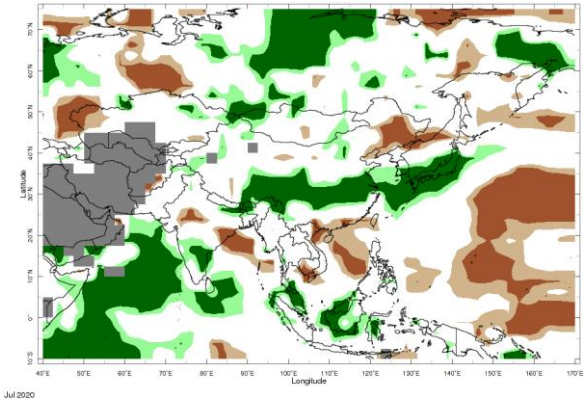
August



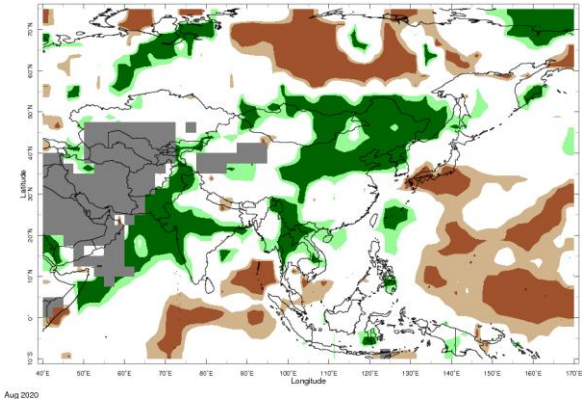
September

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.

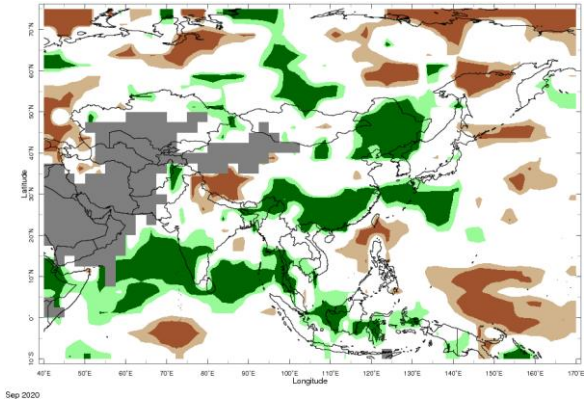
Current Status – Precipitation percentiles



July



August



September

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		
	July	August	September	July	August	September
Afghanistan	Hot	Warm	Normal^	Normal*	Normal*	Normal*
Tajikistan	Normal	Normal	Cool	Normal	Normal*	Normal*
Kyrgyzstan	Normal	Normal	Cool	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:

^Note: Temperatures much more variable across country in September with some cool / cold areas in the north and hot areas in the east of the country.

Current Status – Southern Asia

	Current Status: Temperature		
	July	August	September
Pakistan	Warm	Hot	Hot
India	Warm	Warm	Warm
Nepal	Warm	Hot	Hot
Bangladesh	Hot	Hot	Hot

	Current Status: Rainfall		
	July	August	September
Pakistan	Normal	Very Wet	Normal
India	Normal	Wet	Normal
Nepal	Normal	Normal	Normal
Bangladesh	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:

Current Status – Southeast Asian Peninsula

	Current Status: Temperature		
	July	August	September
China	Normal	Warm	Warm
Myanmar	Hot	Warm	Hot
Vietnam	Mixed^	Cool	Mixed^

	Current Status: Rainfall		
	July	August	September
China	Normal	Wet	Normal
Myanmar	Normal	Normal	Wet
Vietnam	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:

^Note: In July and September, cold in Central Vietnam, hot elsewhere.

Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature		
	July	August	September
Indonesia	Warm	Hot	Hot
Papua New Guinea	Hot	Warm	Hot

	Current Status: Rainfall		
	July	August	September
Indonesia	Wet	Normal	Wet
Papua New Guinea	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:

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: November to April – Central Asia

		Forecast summary		
		November	November to January	February to April
Afghanistan	*Temperature*	Climatological odds - see note	Likely to be warmer than normal, but **much more likely to be warmer than normal** in the north-east.	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal, but **much more likely to be drier than normal** in the west	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	Climatological odds - see note

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Outlook: November to April – Southern Asia

		Forecast summary		
		November	November to January	February to April
Pakistan	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal, but **much more likely to be warmer than normal** in the north.	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be drier than normal	Climatological odds - see note
India	*Temperature*	Likely to be warmer than normal	Likely to be near-normal	Likely to be warmer than normal
	Rainfall	Likely to be near-normal in the north, likely to be wetter than normal in the south	Likely to be drier than normal in the north, likely to be wetter than normal in the south	Climatological odds - see note
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 drier than normal	Climatological odds - see note
Bangladesh	*Temperature*	Likely to be warmer than normal	**Much more likely to be warmer than normal**	Climatological odds - see note
	Rainfall	Climatological odds - see note	Likely to be drier than normal	Climatological odds - see note

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: November to April – SE Asian Peninsula

		Forecast summary		
		November	November to January	February to April
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	Likely to be drier than normal	Climatological odds - see note
Myanmar	*Temperature*	Likely to be colder than normal	Likely to be warmer than normal in the north, and likely to be colder than normal in the south	Likely to be warmer than normal
	Rainfall	Likely to be near-normal	Likely to be near-normal	Likely to be wetter than normal
Vietnam	*Temperature*	Likely to be colder than normal	Much more likely to be colder than normal	Likely to be colder than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter than normal	Likely to be wetter than normal

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Outlook: November to April – SE Asia / Indonesia

		Forecast summary		
		November	November to January	February to April
Indonesia	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Much more likely to be wetter than normal**	**Likely to be wetter than normal**	Likely to be drier than normal
Papua New Guinea	*Temperature*	**Much more likely to be warmer than normal**	**Much more likely to be warmer than normal**	Likely to be warmer than normal
	Rainfall	**Much more likely to be wetter than normal**	**Likely to be drier than normal** in the north, **likely to be wetter than normal** in the far south, climatological odds - see note elsewhere.	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.

Annex 1 – Supplemental Information

Regional Climate Outlook Forums (RCOF)

Climate Outlook Forums (https://public.wmo.int/en/our-mandate/climate/regional-climate-outlook-products):

The South Asian Climate Outlook Forum (SASCOF)

Latest Output - http://rcc.imdpune.gov.in/SASCOF16/concensus.html

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

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 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 near-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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