Asia: Monthly Climate Outlook November to August

Issued: February 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

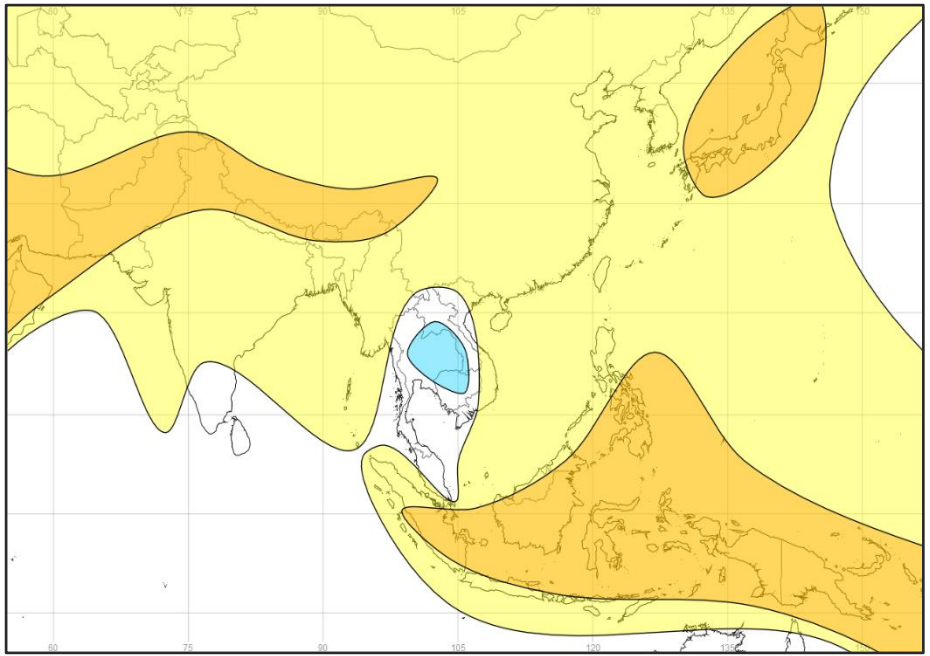
Current Status:

Central Asia has been near normal or colder than normal over the past three months. Parts of southeast Asia, primarily Vietnam, Laos, Cambodia and Thailand, have been colder than normal. Many other areas have seen temperatures above normal.

Outlook:

Warmer than normal conditions are likely or very likely across much of the continent for the next three months. The main exception to this is for parts of the Indochinese Peninsula where colder than normal temperatures are likely.

3-Month Outlook March to May - Temperature

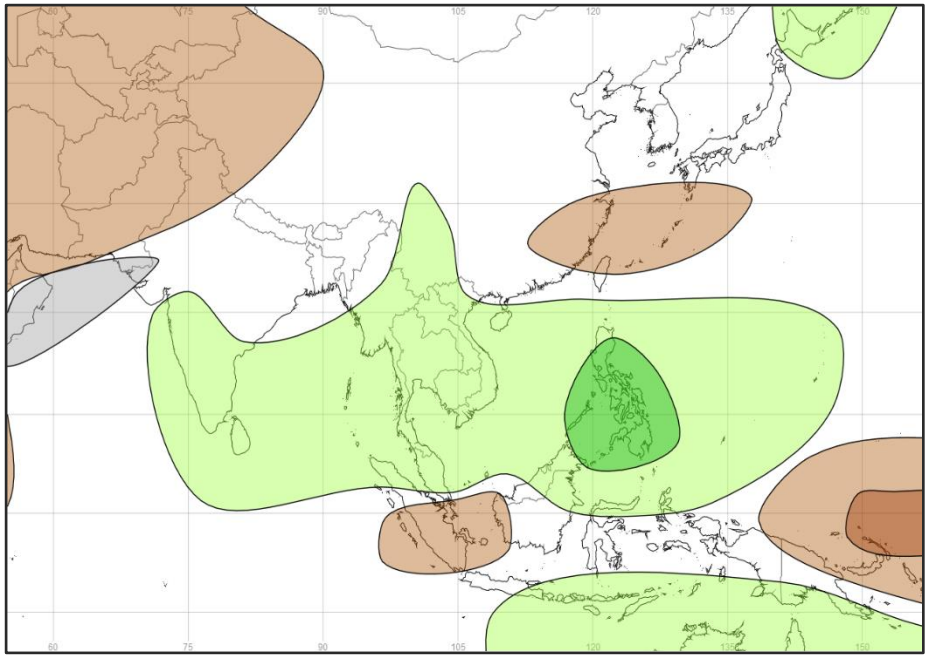


Asia Current Status and Outlook - Rainfall

Current Status:
Many parts of the Indonesia, the Philippines, southern India and Sri Lanka have seen above normal rainfall, particularly during January. However, after above normal precipitation in November, many parts of Central Asia have been drier than normal. Southeast China has also been drier than normal.

Outlook:
For the next three months, wetter than normal conditions are likely across southern India, Sri Lanka, much of the Indochinese Peninsula as well as parts of the Indonesia. Wetter than normal conditions are much more likely for the Philippines. In Central Asia, southeast China and some western parts of Indonesia it is likely to be drier than normal

3-Month Outlook March to May - Rainfall



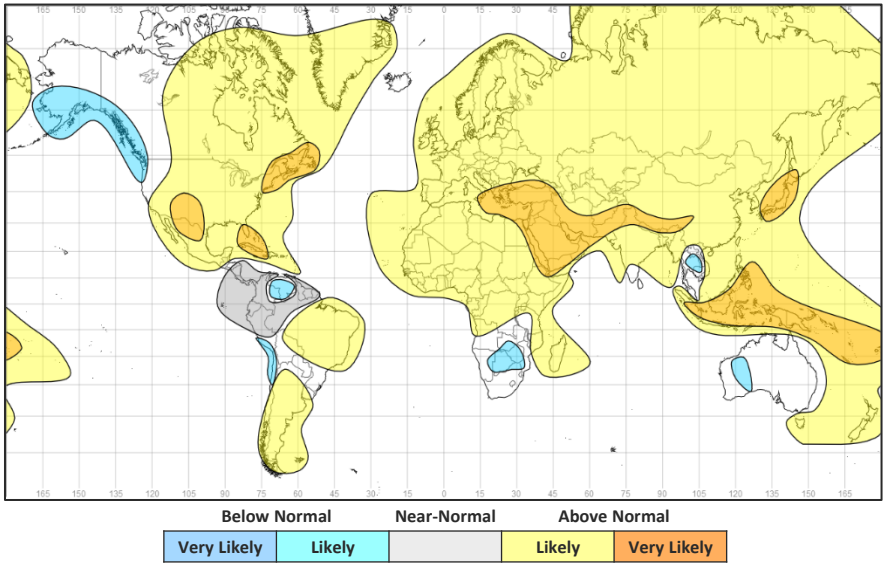
Global Outlook - Temperature

Outlook:

La Niña (see *'Global Outlook – Rainfall'* slide for more information) tends to have an overall cooling effect across the world, notably below normal temperatures likely for parts of southern Africa, a small part of Southeast Asia, parts of northern and western South America as well as northwest North America.

Despite La Nina cooling, many regions are still likely to be warmer than normal over the next three months and this consistent with the warming observed over the past decade. However, the above normal temperature signal is less strong as it was at this time last year (when ENSO was in a neutral state).

3-Month Outlook March to May - Temperature



Global Outlook - Rainfall

Outlook:

El Niño-Southern Oscillation (ENSO) – La Niña conditions remain well established across the tropical Pacific, with sea-surface temperature anomalies, trade wind strength, atmospheric pressure pattern and cloudiness all consistent with this. The event has likely recently peaked and a gradual shift into neutral conditions is likely, with the latest NOAA Climate Prediction Centre / NCEP statement (PDF) stating that:
"There is a ~60% chance of a transition from La Niña to ENSO-Neutral during the Northern Hemisphere spring 2021 (April-June)."

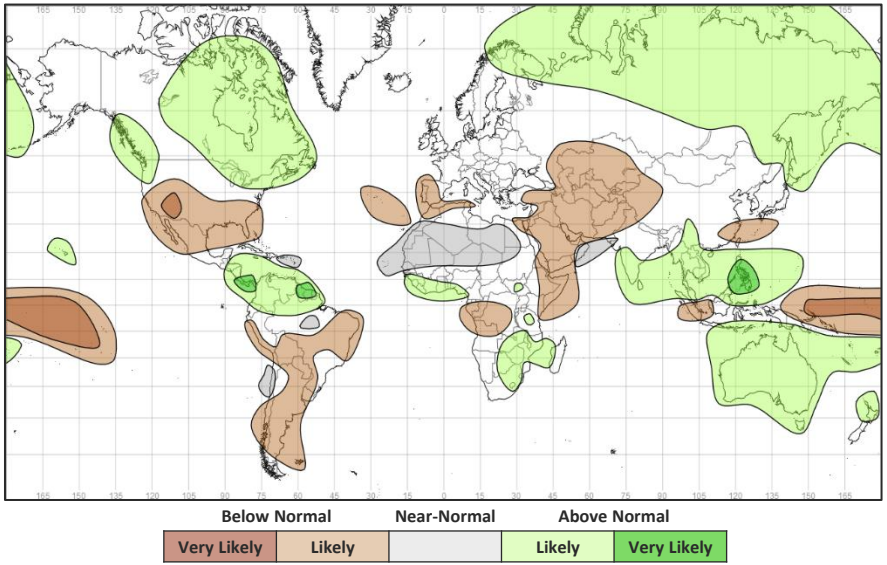
Despite this trend La Niña will continue to be a dominant driver of rainfall patterns, especially in the tropics, for a large proportion of this forecast period.

Very generally, the suppression of rainfall over the tropical Pacific Ocean, that La Niña is associated with, leads to increases in rainfall across the tropical land areas.

Over the next three months, large parts of southern Asia, Australasia, southern and western Africa as well as northern South America are likely to be wetter than normal.

Meanwhile, much of the Middle East, Central Asia, the Horn of Africa, parts of the Congo basin, southern North America and a central and southern swathe of South America are likely to be drier than normal.

3-Month Outlook March to May - Rainfall



Current Status

Current Status maps

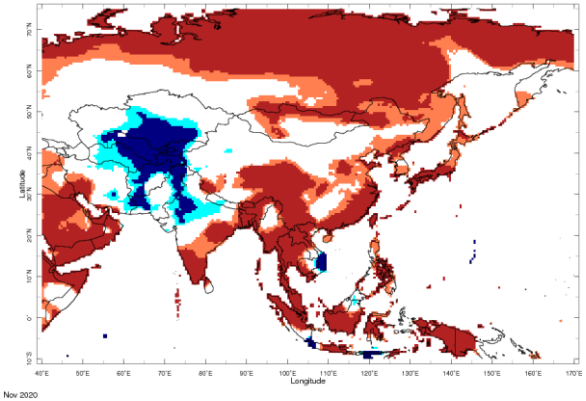
Central Asia

Southern Asia

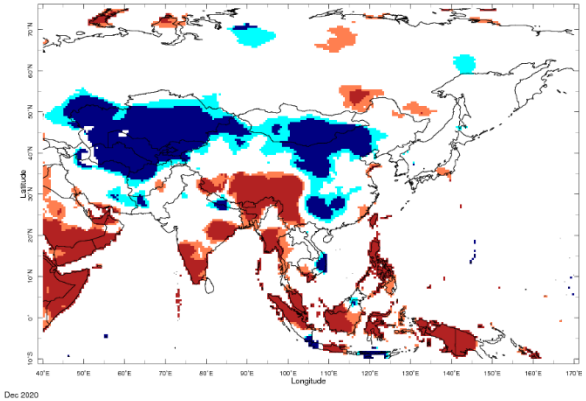
Southeast Asian Peninsula

Southeastern Asia / Indonesia

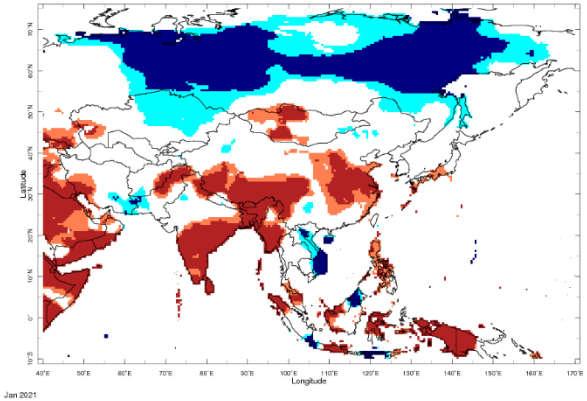
Current Status – Temperature percentiles



November



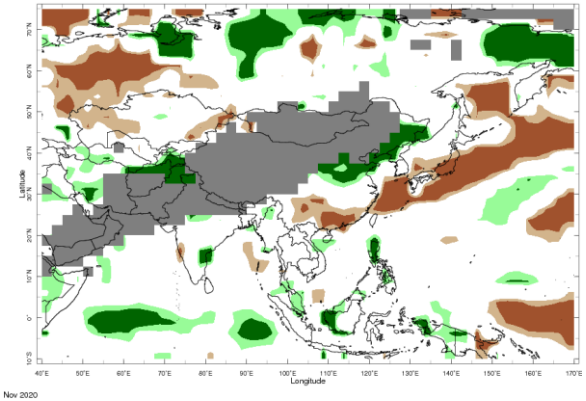
December



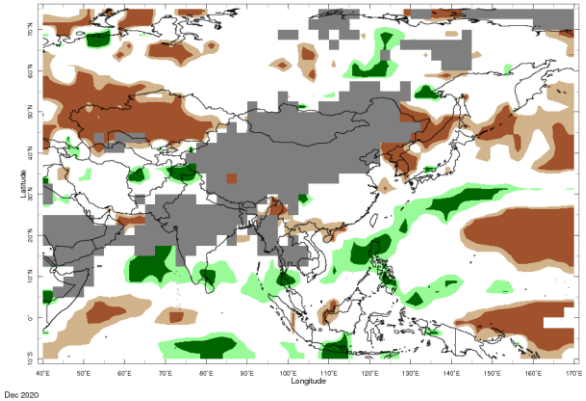
January

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.

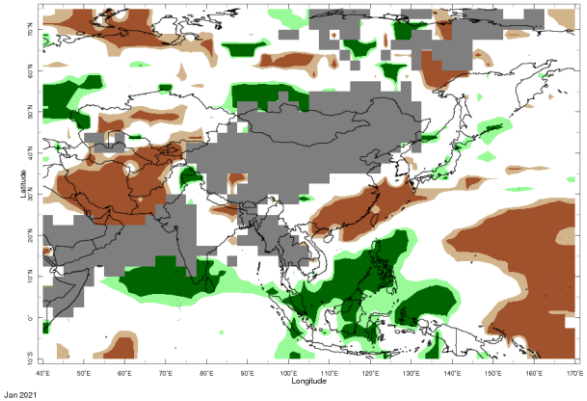
Current Status – Precipitation percentiles



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	Cold	Cold	Normal	Normal*^	Normal	Very Dry
Tajikistan	Cold	Cold	Normal	Normal	Normal	Very Dry
Kyrgyzstan	Cold	Cold	Normal	Normal	Normal	Very Dry

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: Northern Afghanistan was very wet in November. Little rainfall observed across the rest of the country.

Current Status – Southern Asia

	Current Status: Temperature			Current Status: Rainfall		
	November	December	January	November	December	January
Pakistan	Cool	Normal	Mixed	Normal*^^	Normal	Mixed^^^
India	Mixed^^	Mixed^	Hot	Normal	Normal	Mixed^^^^
Nepal	Normal	Mixed	Normal	Normal*	Normal	Normal
Bangladesh	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:

^Note: Mainly normal in east of country, hot elsewhere in October. For November, the northwest was Cool, east and south Hot and elsewhere near normal. In December, Hot in the East and South, normal elsewhere

^^Note: Northern Pakistan was very wet in November. Little rainfall observed across the rest of the country.

^^^Note: Very Wet in parts of the north, Very Dry in parts of the south.

^^^^Note: Very Wet in the far south

Current Status – Southeast Asian Peninsula

	Current Status: Temperature			Current Status: Rainfall		
	November	December	January	November	December	January
China	Mixed^	Cool^^	Mixed	Mixed^^^	Normal	Very Dry^^^^
Myanmar	Hot	Warm	Hot	Normal	Normal	Normal*
Vietnam	Cold	Cool	Cool	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:

^Note: Most of southern and parts of eastern China were hot during Nov, whilst the rest of the country was normal to cool.
^^Note: Hot conditions continued across southern parts of China, whilst a large area of cold developed across many northern areas.
^^^Note: Northern China as Very Wet in November and southern China was Dry
^^^^Note: In the south and southeast. Normal elsewhere

Current Status – Southeastern Asia / Indonesia

	Current Status: Temperature			Current Status: Rainfall		
	November	December	January	November	December	January
Indonesia	Hot^	Hot^	Mixed	Normal	Normal	Mixed^^^
Papua New Guinea	Hot	Hot	Hot	Mixed^^	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:

^Note: whilst most of the country was hot, Java and islands to the east were cold.
^^Note: marked west (wet), east (dry) pattern for November
^^^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: 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**	Likely to be warmer than normal
	Rainfall	Likely to be drier than normal	Likely to be drier than normal	Climatological odds – see note
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: March to August – Southern Asia

		Forecast summary		
		March	March to May	June to August
Pakistan	*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	Likely to be near normal
India	*Temperature*	Likely to be warmer than normal	Likely to be warmer than normal	Climatological odds – see note
	Rainfall	Likely to be near-normal but likely to be drier than normal in the far north and likely to be wetter than normal in the far south	Likely to be wetter than normal in the south, likely to be drier than normal in the far north, otherwise Climatological odds – see note	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 drier than normal	Likely to be drier than normal in the west, likely to be wetter than normal in the east	Likely to be wetter than normal
Bangladesh	*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	Climatological odds – see note	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: 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	Climatological odds – see note but likely to be drier than normal in parts of south and southeast	Climatological odds – see note but likely to be drier than normal in parts of south and southeast	Climatological odds – see note
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 in the far south, likely to be drier than normal in the far north, otherwise Climatological odds – see note	Likely to be wetter than normal	Climatological odds – see note
Vietnam	*Temperature*	Climatological odds – see note in the south, likely to be warmer than normal in the north	Climatological odds – see note	Likely to be warmer than normal
	Rainfall	Likely to be wetter than normal	Likely to be wetter 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: March to August – SE Asia / Indonesia

		Forecast summary		
		March	March to May	June to August
Indonesia	*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 in the north, otherwise Climatological odds – see note	Likely to be drier than normal in the west, likely to be wetter than normal in the north and south	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 drier than 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	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 2020) - http://rcc.imdpune.gov.in/SASCOF16/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 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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