

Asia: Monthly Climate Outlook

August to May

Issued: November 2022

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Overview

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Asia Current Status and Outlook - Temperature

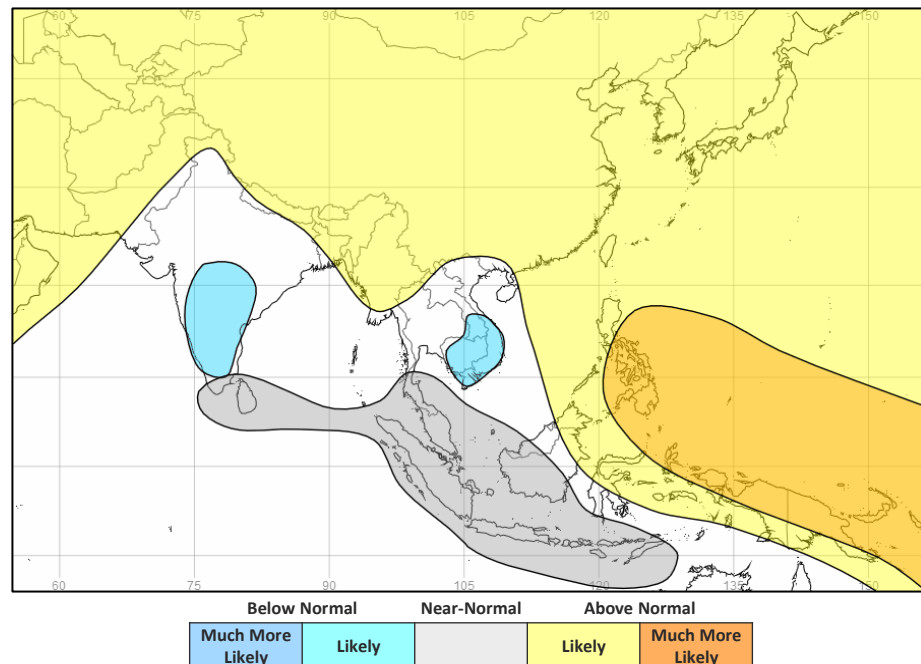
Current Status:

Most of the region has experienced warm to hot conditions over the last three months. Significant exceptions to this include most of Pakistan, as well as parts of Afghanistan, where colder than normal conditions have persisted. Parts of India and Southeast Asia (notably parts of Vietnam and northern Borneo) were colder than normal.

Outlook:

Over the next three months, many parts of the continent are likely to be warmer than normal, especially for eastern parts of Indonesia and the Philippines. There are a few exceptions - colder than normal conditions are likely over mainland Southeast Asia (parts of Laos, Cambodia and Vietnam) as well as southern India.

3-Month Outlook December to February - Temperature



Asia Current Status and Outlook - Rainfall

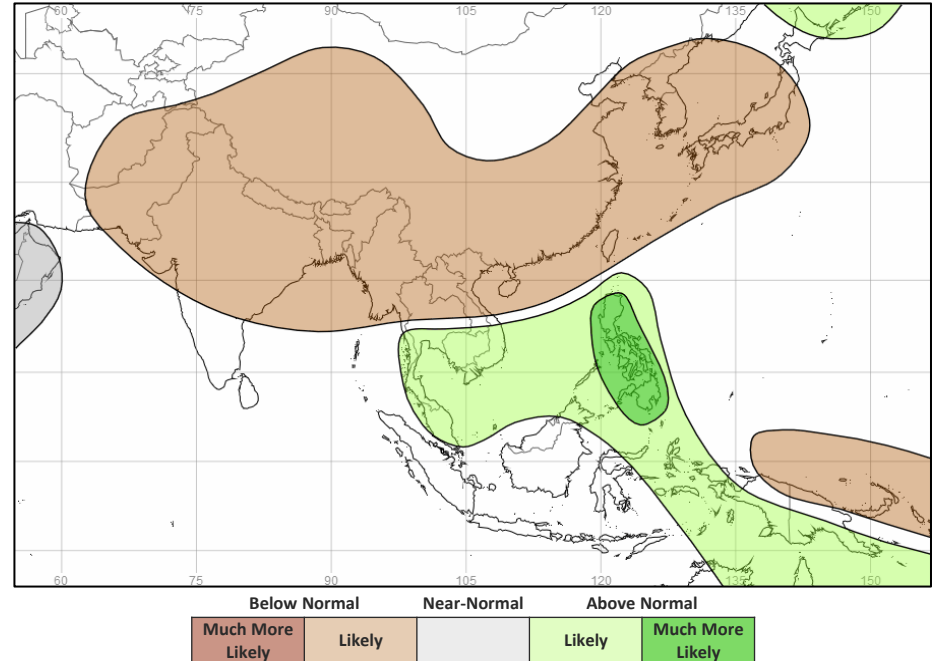
Current Status:

Pakistan was very wet in August, and parts of India and Southeast Asia have been wet or very wet during the last three months. Conditions have been mixed over China for the last three months with southeastern areas dry or very dry during August and September. Central Asia experienced a normal summer - climatologically these areas experience very little rainfall at this time of year.

Outlook:

Drier than normal conditions are likely across large parts of Central and East Asia, including much of China, Korean Peninsula and the northern half of the Indian subcontinent. Much of Southeast Asia is likely to be wetter than normal, including parts of Vietnam, northern Malaysia, eastern Indonesia and the Philippines.

3-Month Outlook December to February - Rainfall



Global Outlook - Temperature

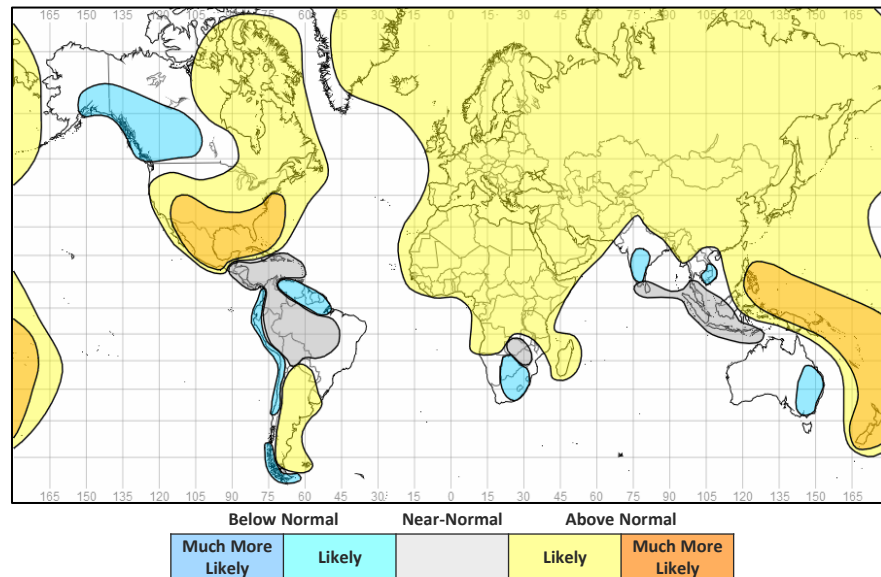
Outlook:

The ongoing La Niña will be the dominant driver of conditions through this period, albeit within the context of background warming trend.

Many regions are likely to be warmer than normal over the next three months. However, there are exceptions as a result of La Niña, including northern South America, Australia, mainland Southeast Asia, southern Africa and parts of India where colder than normal conditions are likely.

Northern hemisphere winter temperatures are likely, or much more likely to be warmer than normal for North America and most of Europe. The exception is western Canada and Alaska where colder than normal conditions are likely. Despite an overall mild winter in Europe, impacts from cold weather are more likely than in recent years, with early season cold snaps more likely.

3-Month Outlook December to February - Temperature



Global Outlook - Rainfall

Outlook:

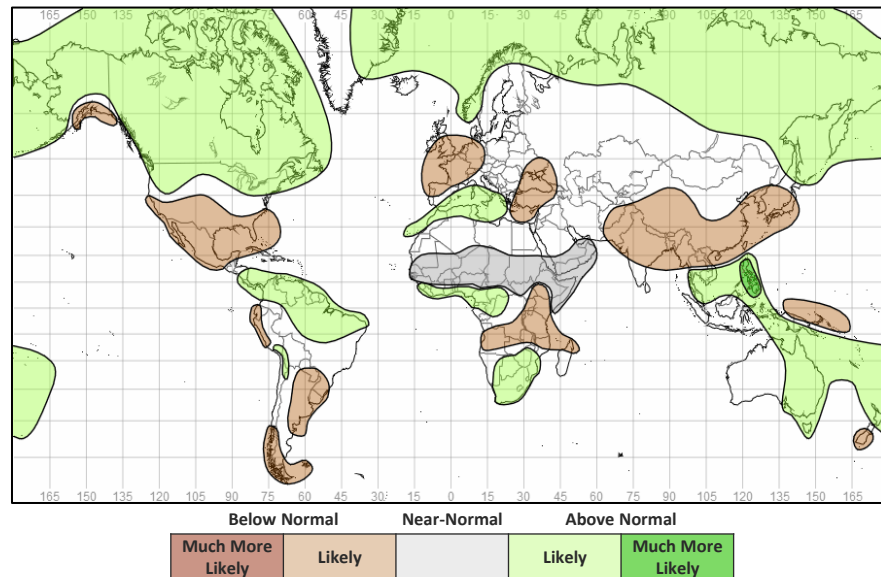
El Niño-Southern Oscillation (ENSO) – La Niña event continues in the tropical Pacific Ocean with oceanic and atmospheric indicators consistent with an ongoing event. The established and ongoing La Niña is major driver of global weather patterns and increases confidence in predictions on seasonal timescales, particularly in the tropics.

Whilst La Niña is present and likely to last through the northern hemisphere winter, there is some uncertainty with respect to its longevity; NOAA suggest 76% chance of La Niña during the northern hemisphere winter (December-February) 2022-23, with a transition to ENSO-neutral (the most likely outcome) during February-April 2023 (57% chance).

La Niña will remain the most dominant driver of global weather patterns over the next few months at least, especially for tropical regions. With a couple of notable exceptions (e.g. East Africa) La Niña, very broadly speaking, tends to increase the likelihood of wetter than normal conditions across many land areas of the tropics. More information on typical impacts can be found here <https://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/el-nino-la-nina/enso-impacts>

Indian Ocean Dipole (IOD) – Consistent with the seasonal cycle, the current negative IOD event is starting to break down and a return to neutral conditions is expected during December as the southern hemisphere monsoons commence. Some influence of the current negative IOD will be maintained, possibly until mid-December. A negative IOD increases the likelihood of wet conditions across Southeast Asia and much of Australia, and dry conditions across East Africa.

3-Month Outlook December to February - Rainfall



Current Status

[Current Status maps](#)

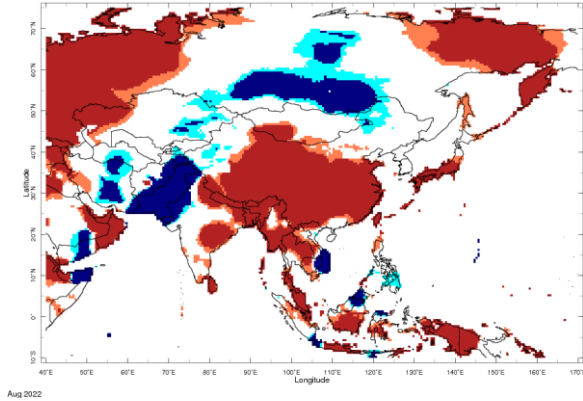
[Central Asia](#)

[Southern Asia](#)

[Southeast Asian Peninsula](#)

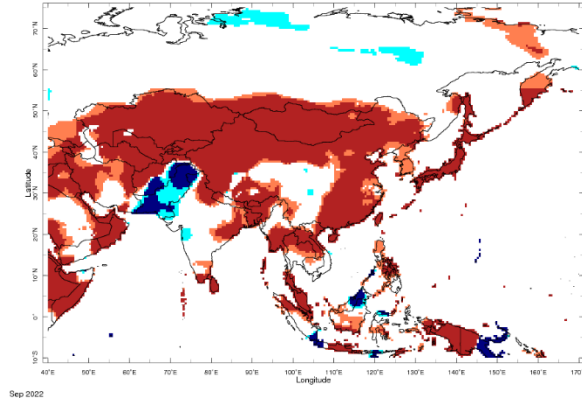
[Southeastern Asia / Indonesia](#)

Current Status – Temperature percentiles



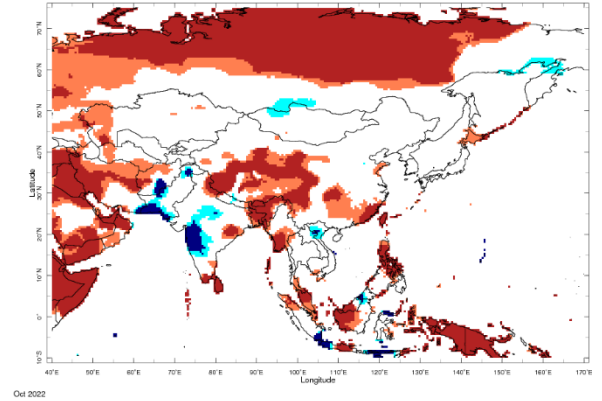
Aug 2022

August



Sep 2022

September



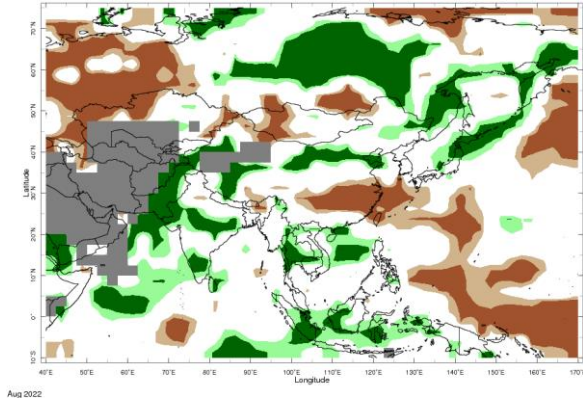
Oct 2022

October



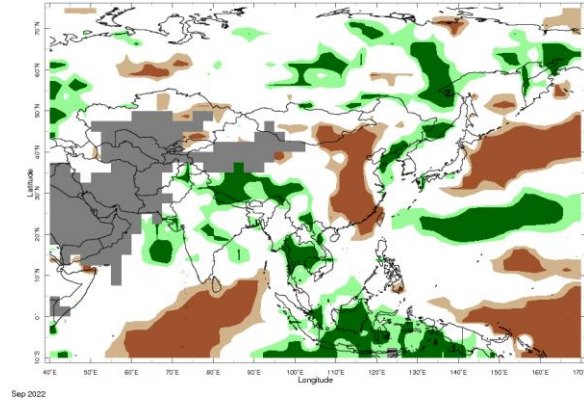
Notes: The percentiles shown in the map indicate a ranking of temperature, with the 0th percentile being the coolest and the 100th percentile being the warmest in the 1981-2010 climatology. Orange and red shading represent values above the 80th (Warm) and 90th (Hot) percentile, respectively; regions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



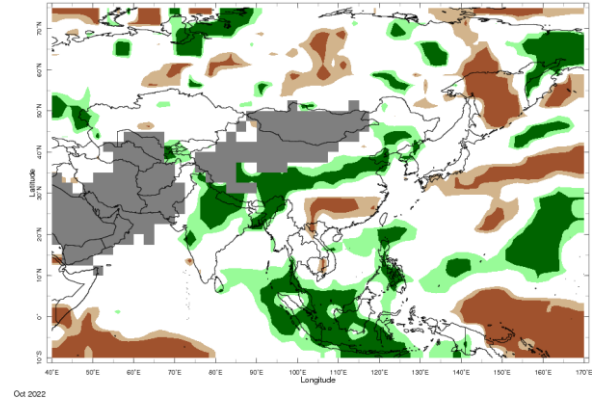
Aug 2022

August



Sep 2022

September



Oct 2022

October



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

| | August | September | October |
|-------------|-----------|-----------|-----------|
| Afghanistan | Mixed (1) | Mixed (2) | Mixed (2) |
| Tajikistan | Mixed (4) | Hot | Normal |
| Kyrgyzstan | Normal | Hot | Normal |

Current Status: Rainfall

| | August | September | October |
|-------------|-------------|-----------|-----------|
| Afghanistan | Normal* (3) | Normal | Normal |
| Tajikistan | Normal* (3) | Normal | Wet |
| Kyrgyzstan | Normal | Normal | Mixed (5) |

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 east, variable elsewhere
- (2) **Note:** Hot in the west, cold in the east
- (3) **Note:** Very wet in far east
- (4) **Note:** Cold in the far east, normal elsewhere
- (5) **Note:** Wet in the far west, normal elsewhere

Current Status – Southern Asia

Current Status: Temperature

| | August | September | October |
|------------|-----------|-----------|-----------|
| Pakistan | Cold | Cold | Normal |
| India | Mixed (1) | Mixed (1) | Mixed (1) |
| Nepal | Hot | Hot | Normal |
| Bangladesh | Hot | Hot | Hot |
| Sri Lanka | Hot | Hot | Hot |

Current Status: Rainfall

| | August | September | October |
|--|----------|-----------|-----------|
| | Very Wet | Normal | Normal |
| | Wet | Mixed (2) | Mixed (2) |
| | Normal | Very Wet | Very Wet |
| | Normal | Wet | Very Wet |
| | Wet | Dry | 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:** Wet/Very Wet for parts of the north, as well as parts of central India

Current Status – Southeast Asian Peninsula

Current Status: Temperature

| | August | September | October |
|---------|-----------|-----------|------------|
| China | Hot | Hot | Normal (4) |
| Myanmar | Hot | Hot | Hot |
| Vietnam | Mixed (1) | Mixed (1) | Normal |

Current Status: Rainfall

| | August | September | October |
|--|-----------|-----------|-----------|
| | Mixed (2) | Mixed (2) | Mixed (3) |
| | Normal | Normal | Normal |
| | Wet | 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:** Large variation, from normal/cold in south, to hot in extreme north.
- (2) Note:** Large variations, very dry in parts of the east
- (3) Note:** Dry in the south, wet in the north and west, normal elsewhere
- (4) Note:** Hot in the south and west

Current Status – Southeastern Asia / Indonesia

| | Current Status: Temperature | | | Current Status: Rainfall | | |
|------------------|-----------------------------|-----------|-----------|--------------------------|-----------|----------|
| | August | September | October | August | September | October |
| Indonesia | Hot | Hot | Mixed (1) | Wet | Wet | Very Wet |
| Papua New Guinea | Hot | Mixed (2) | Hot | 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: Large variations across the country

(2) Note: Cold in the east, hot elsewhere

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: December to May – Central Asia

| | | Forecast summary | | |
|-------------|-------------|---------------------------------|---------------------------------|---------------------|
| | | December | December to February | March to May |
| Afghanistan | Temperature | Likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | Rainfall | Likely to be drier than normal | Likely to be drier than normal | Climatological odds |
| Tajikistan | Temperature | Likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | Rainfall | Climatological odds | Climatological odds | Climatological odds |
| Kyrgyzstan | Temperature | Likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | 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: December to May – Southern Asia (1)

| | | Forecast summary | | |
|----------|-------------|---|---|---------------------|
| | | December | December to February | March to May |
| Pakistan | Temperature | Likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | Rainfall | Likely to be drier than normal | Likely to be drier than normal | Climatological odds |
| India | Temperature | Climatological odds | Likely to be colder than normal in the south; Climatological odds elsewhere | Climatological odds |
| | Rainfall | Likely to be drier than normal in the north; Likely to be near-normal in the south | Climatological odds in the far southwest; Likely to be drier than normal elsewhere | Climatological odds |
| Nepal | Temperature | Likely to be warmer than normal | Likely to be warmer than normal | Climatological odds |
| | 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: December to May – Southern Asia (2)

| | | Forecast summary | | |
|------------|-------------|---------------------------------|---------------------------------|---------------------------------|
| | | December | December to February | March to May |
| 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 | Likely to be drier than normal | Climatological odds |
| Sri Lanka | Temperature | Likely to be near-normal | Likely to be near-normal | Climatological odds |
| | 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: December to May – SE Asian Peninsula

| | | Forecast summary | | |
|---------|-------------|--|--|---------------------------------|
| | | December | December to February | March to May |
| 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 |
| Myanmar | 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 |
| Vietnam | Temperature | Likely to be colder than normal | Likely to be colder than normal in the south; Climatological odds in the north | Climatological odds |
| | 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 | 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: December to May – SE Asia / Indonesia

| | | Forecast summary | | |
|------------------|-------------|--|--|---------------------------------|
| | | December | December to February | March to May |
| Indonesia | Temperature | Likely to be near-normal | Likely to be near-normal | Climatological odds |
| | Rainfall | Climatological odds | Climatological odds | 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 | Climatological odds | Likely to be wetter than normal in the north; Likely to be drier than normal in the south | 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.

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/sst>

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 CPTC (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)

Enquiries

Email: internationaldevelopment@metoffice.gov.uk

Web: <https://www.metoffice.gov.uk/services/government/international-development>