

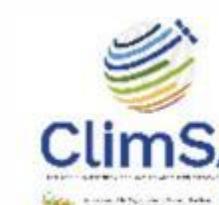
17th SESSION PACIFIC ISLANDS CLIMATE OUTLOOK FORUM (PICOF-17)

22-23 October, 2025

Port Vila, Vanuatu



COSPPac
Climate and Oceans Support Program in the Pacific



ClimSA
Secretariat of the Pacific Regional Environment Programme



SPREP
Secretariat of the Pacific Regional Environment Programme



Australian Government
Bureau of Meteorology

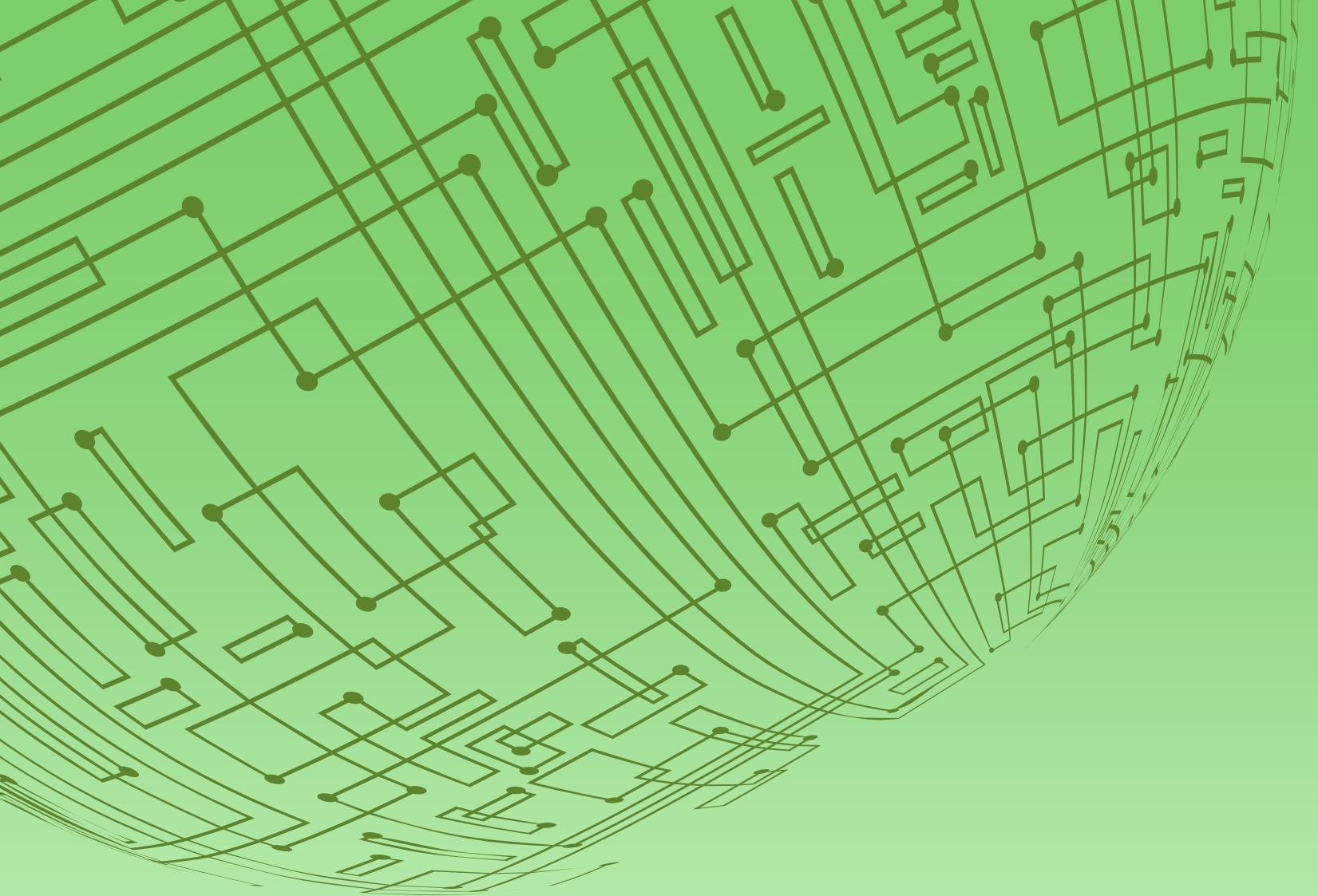


CSIRO



NIWA
Tahoro Nukurangi





Atmosphere: PICOF outlook and RCC Node for LRF individual model/MME guidance and skill comparison

Elise Chandler, Bureau of Meteorology

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WMO Lead Centre for LRF MME

Source: <https://www.wmoldc.org/>

Sitemap



- WMO LC MME official outlooks for PICOF
- WMO LC MME based on 13 GPC LRF models
- Model skill varies significantly from model to model depending on a range of factors

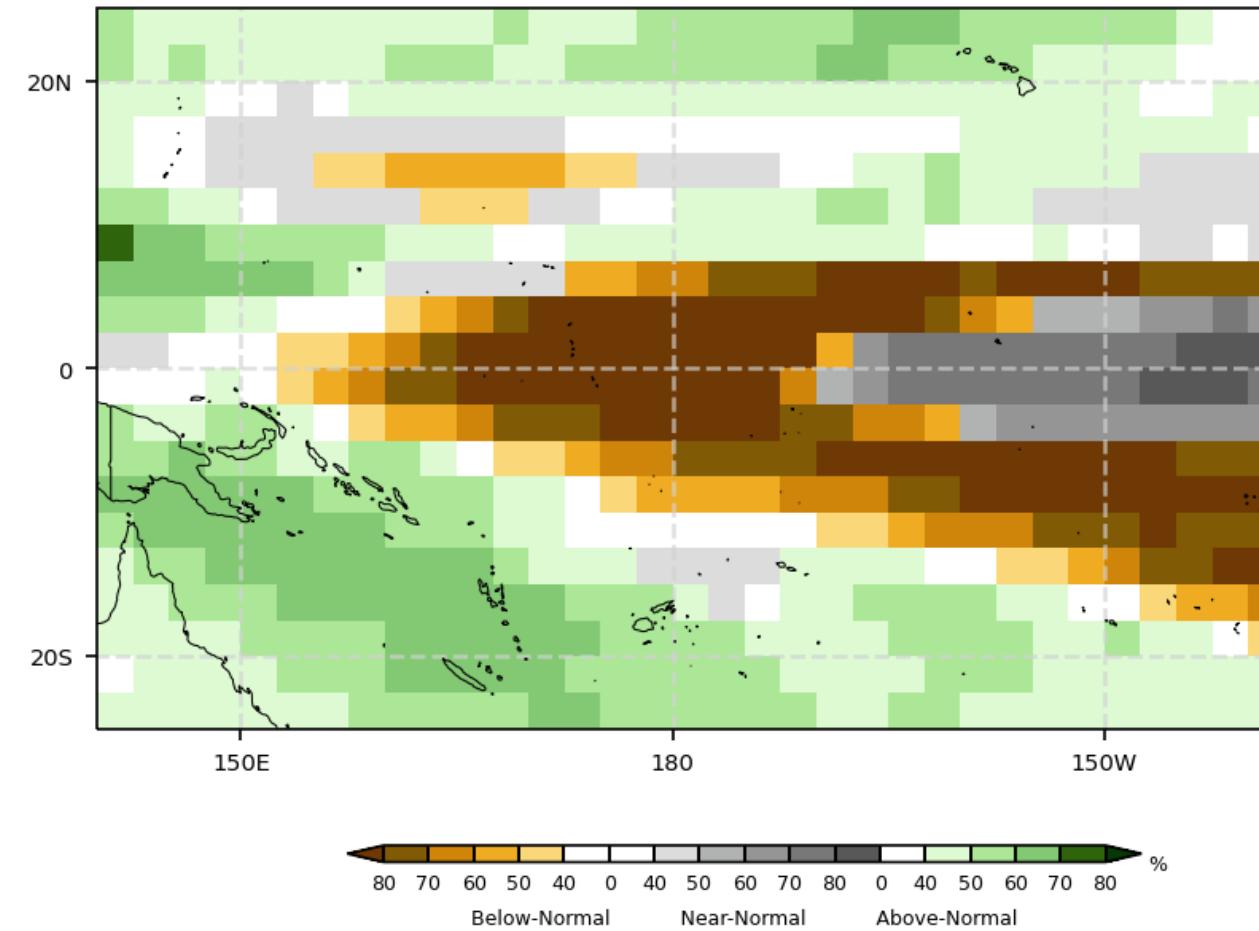
Precipitation forecast: November 2025 – January 2026

Probabilistic Multi-Model Ensemble Forecast

CMCC,CPTEC,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Seoul,Tokyo,Toulouse,Washington

Precipitation : NDJ2025

(issued on Oct2025)

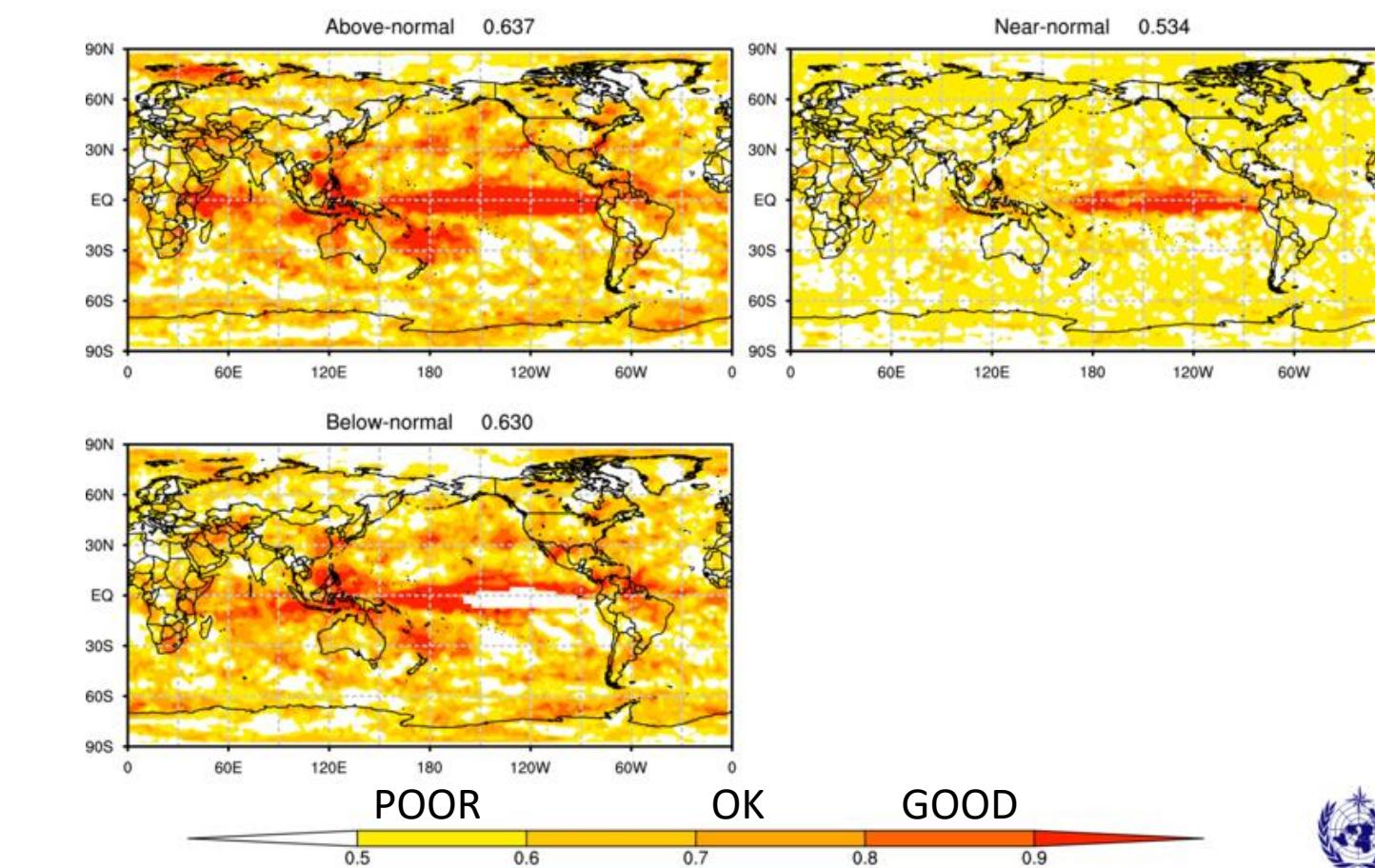


Relative Operating Characteristic(ROC) map

Beijing,CMCC,CPTEC,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Pretoria,Seoul,Tokyo,Toulouse,Washington

Precipitation : NDJ

(Calculation Time : 1993 - 2009)



- The rainfall outlook is being driven by a La Niña-like pattern through the Pacific, with a contribution from the current negative Indian Ocean Dipole event.
- Above normal rainfall is favoured for **Nauru, Gilbert and Phoenix Islands (Kiribati), southern FSM and RMI, Tuvalu, Tokelau, northern Cook Islands, and northern French Polynesia**. Near normal rainfall is favoured for most of the Line Islands (Kiribati). Below normal rainfall is forecast for **Palau, PNG, Solomon Islands, Vanuatu, New Caledonia, Fiji, most of Tonga, Niue, Samoa, southern Cook Islands and southern French Polynesia**.
- Hindcast skill is good for Nauru, Kiribati, Tuvalu, Tokelau, central and northern Cook Islands, northern French Polynesia, PNG (excluding New Guinea), New Caledonia, Vanuatu, Fiji, and Tonga. Skill is considered acceptable for Niue, Samoa, Solomon Islands, Palau, FSM and RMI, and poor for the southern Cook Islands, and southern French Polynesia.

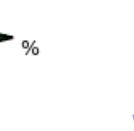
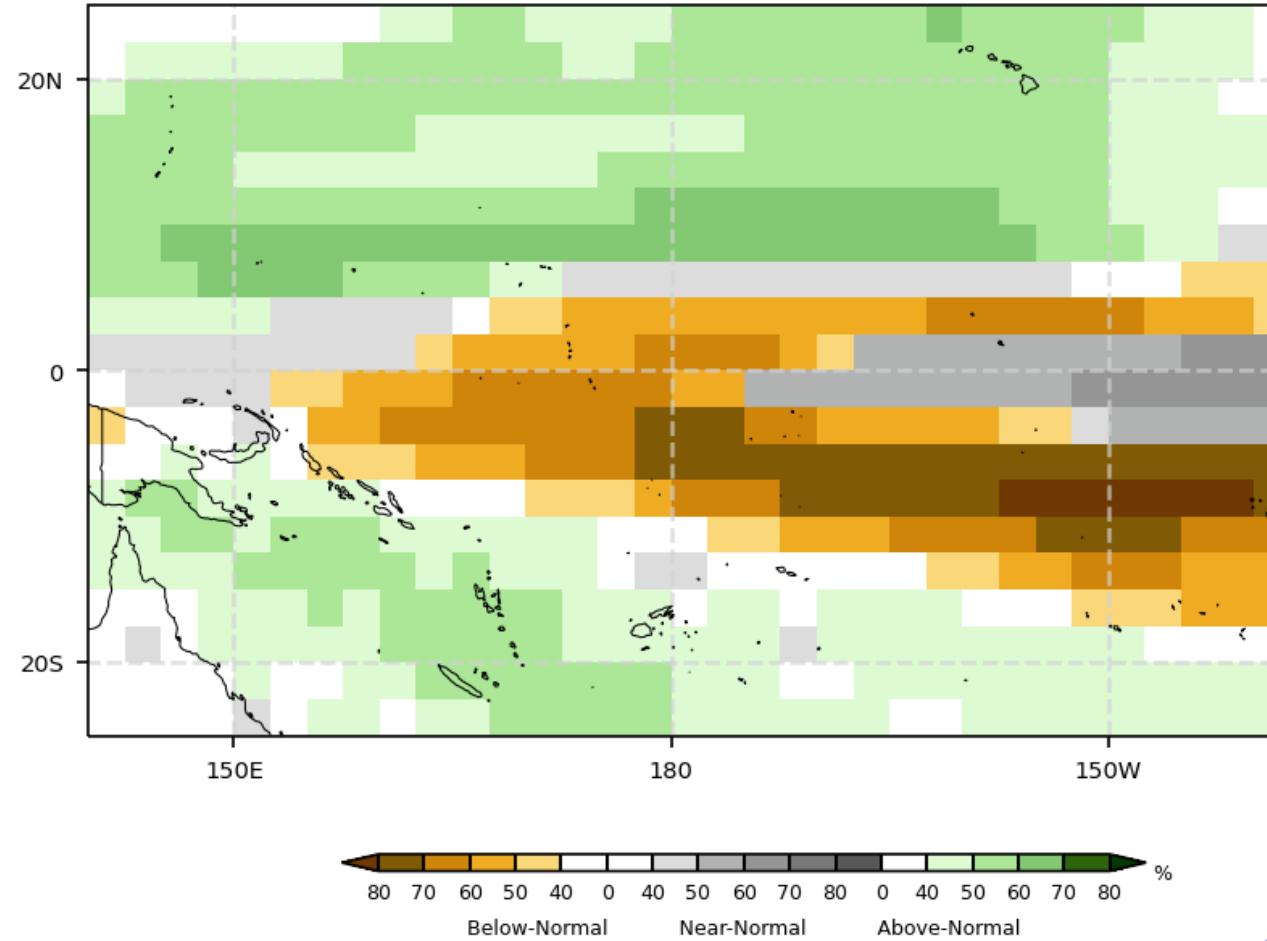
Precipitation forecast: February – April 2026

Probabilistic Multi-Model Ensemble Forecast

Montreal, Seoul, Tokyo, Washington

Precipitation : FMA2026

(issued on Oct2025)

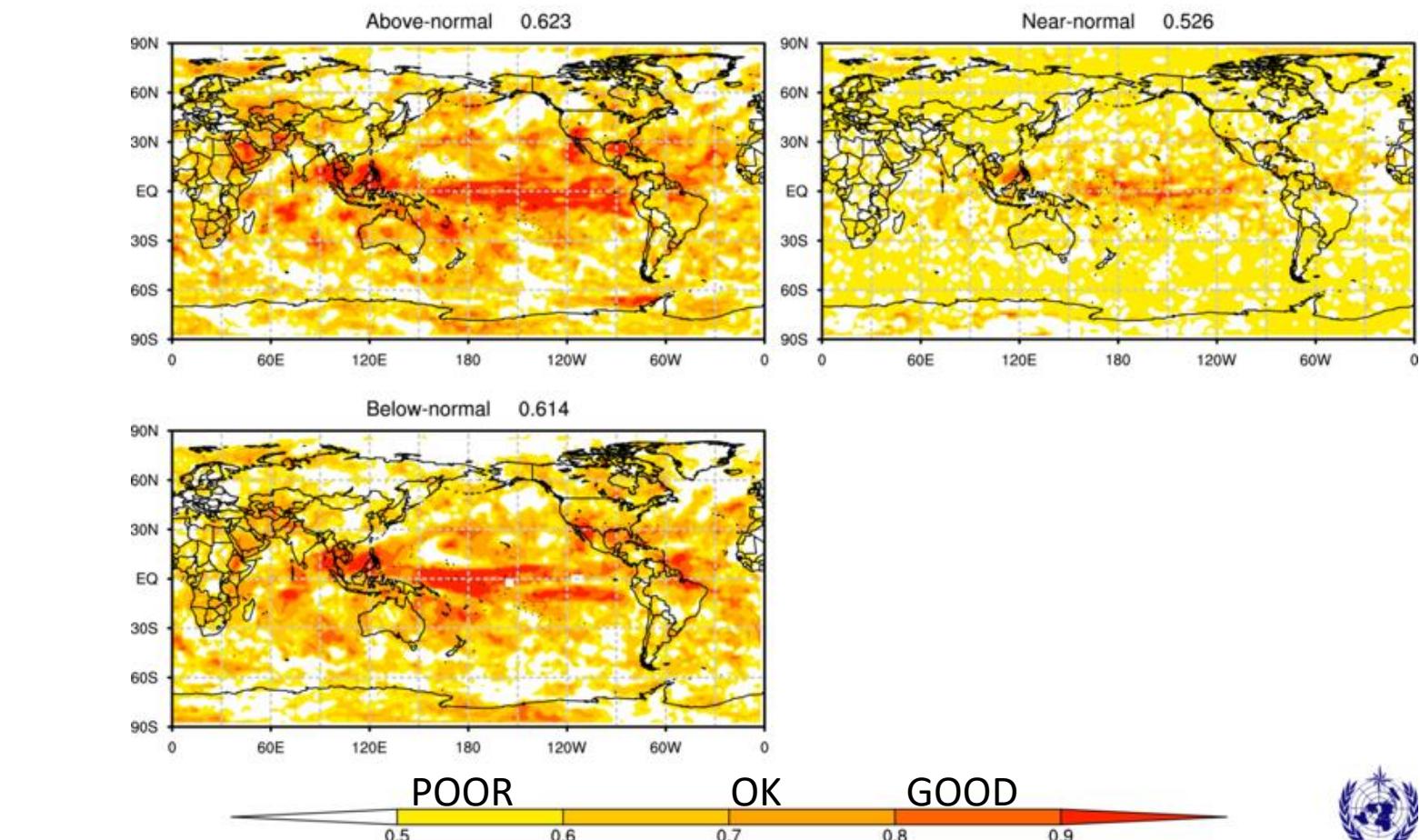


Relative Operating Characteristic(ROC) map

Beijing, CMCC, CPTEC, ECMWF, Exeter, Melbourne, Montreal, Moscow, Offenbach, Seoul, Tokyo, Toulouse, Washington

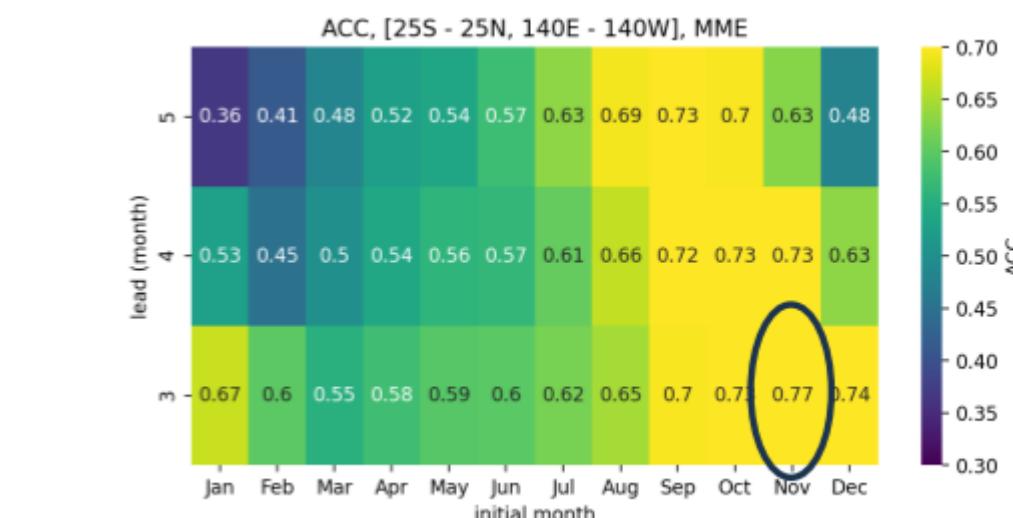
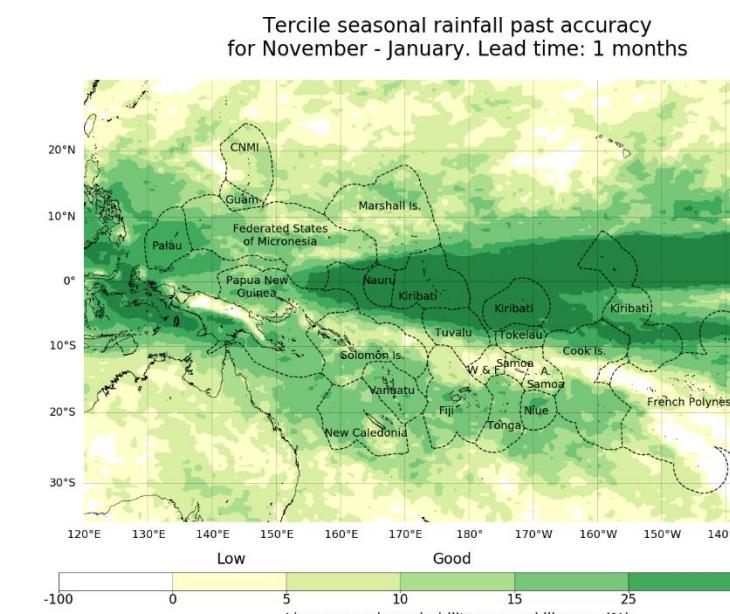
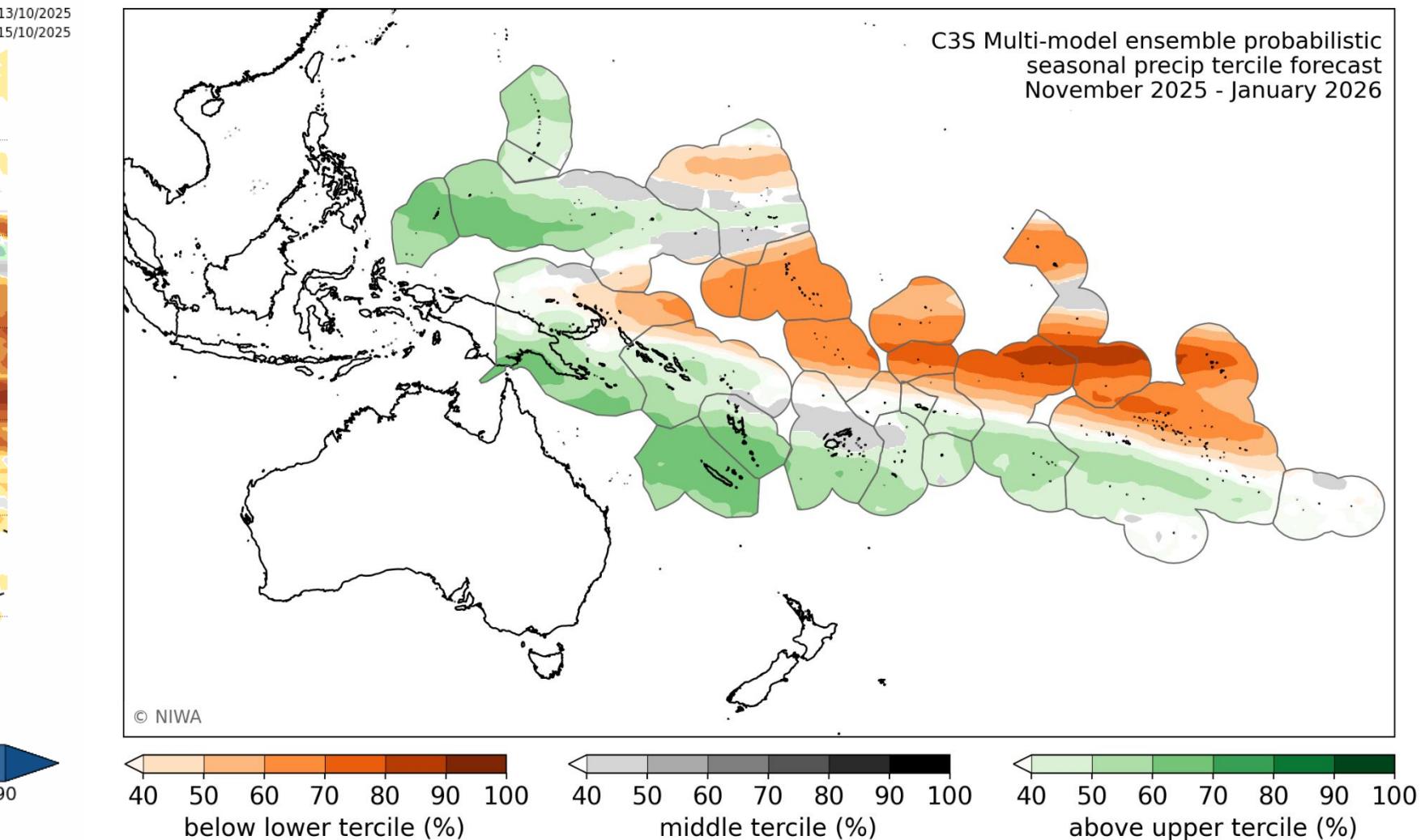
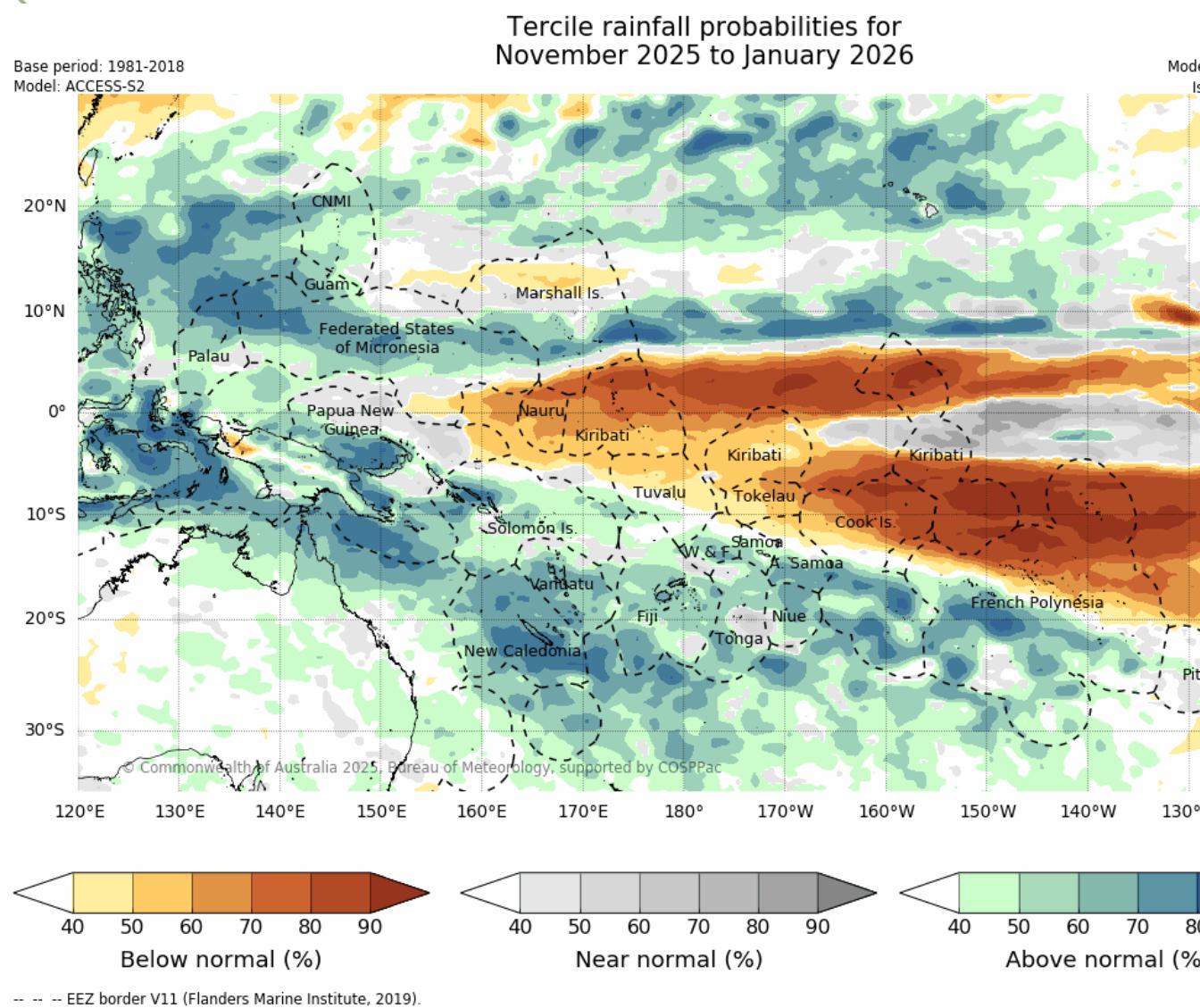
Precipitation : FMA

(Calculation Time : 1993 - 2009)



- Tercile rainfall outlook for February – April 2026 continues with the same pattern as the previous outlook. The strength of the probabilities are generally reduced for as would be expected with a longer lead time forecast.
- Below normal rainfall is forecast over **Nauru, Kiribati, Tuvalu, Tokelau, northern Cook Islands, and northern French Polynesia**. Above normal rainfall is forecast for **Palau, most FSM and RMI islands, southern half of PNG, central and southern Solomon Islands, Vanuatu, New Caledonia, Fiji, southern half of Tonga, and the southern Cook Islands**. Near normal rainfall is predicted for part of the Line Islands (Kiribati), elsewhere there is no clear guidance.
- Hindcast skill is good for Nauru, Kiribati, Tuvalu, Tokelau, northern Cook Islands, New Caledonia and Vanuatu. Skill is acceptable for PNG, Solomon Islands, Fiji, Samoa, Tonga, Niue, southern Cook Islands, French Polynesia, Palau, southern FSM and southern RMI. Skill is considered poor over central and northern FSM and RMI.

Node lead precipitation forecasts: November 2025 – January 2026

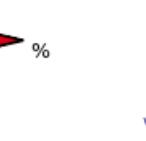
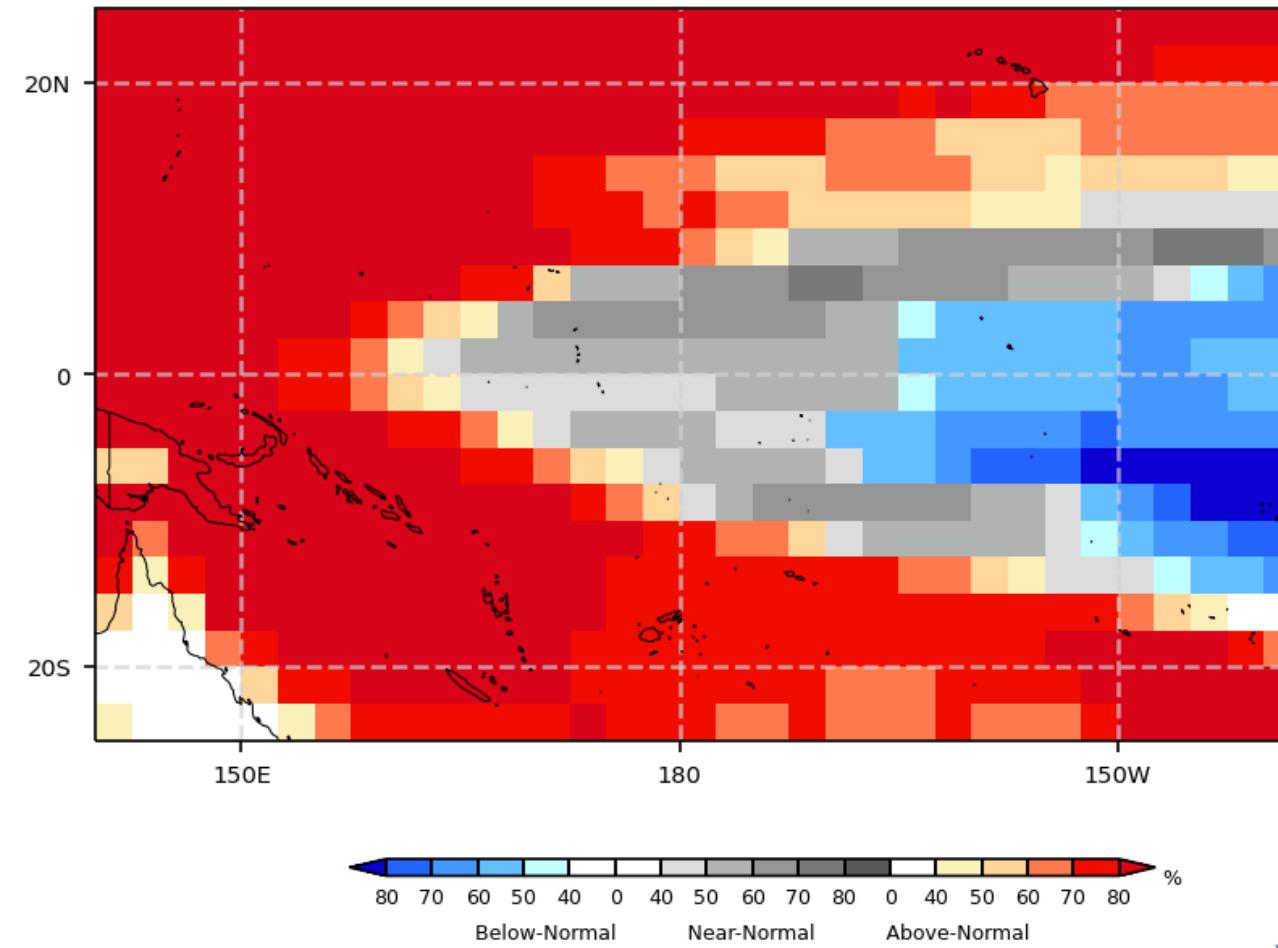


Air Temperature: November 2025 – January 2026

Probabilistic Multi-Model Ensemble Forecast

CMCC, Montreal, Seoul, Tokyo, Washington

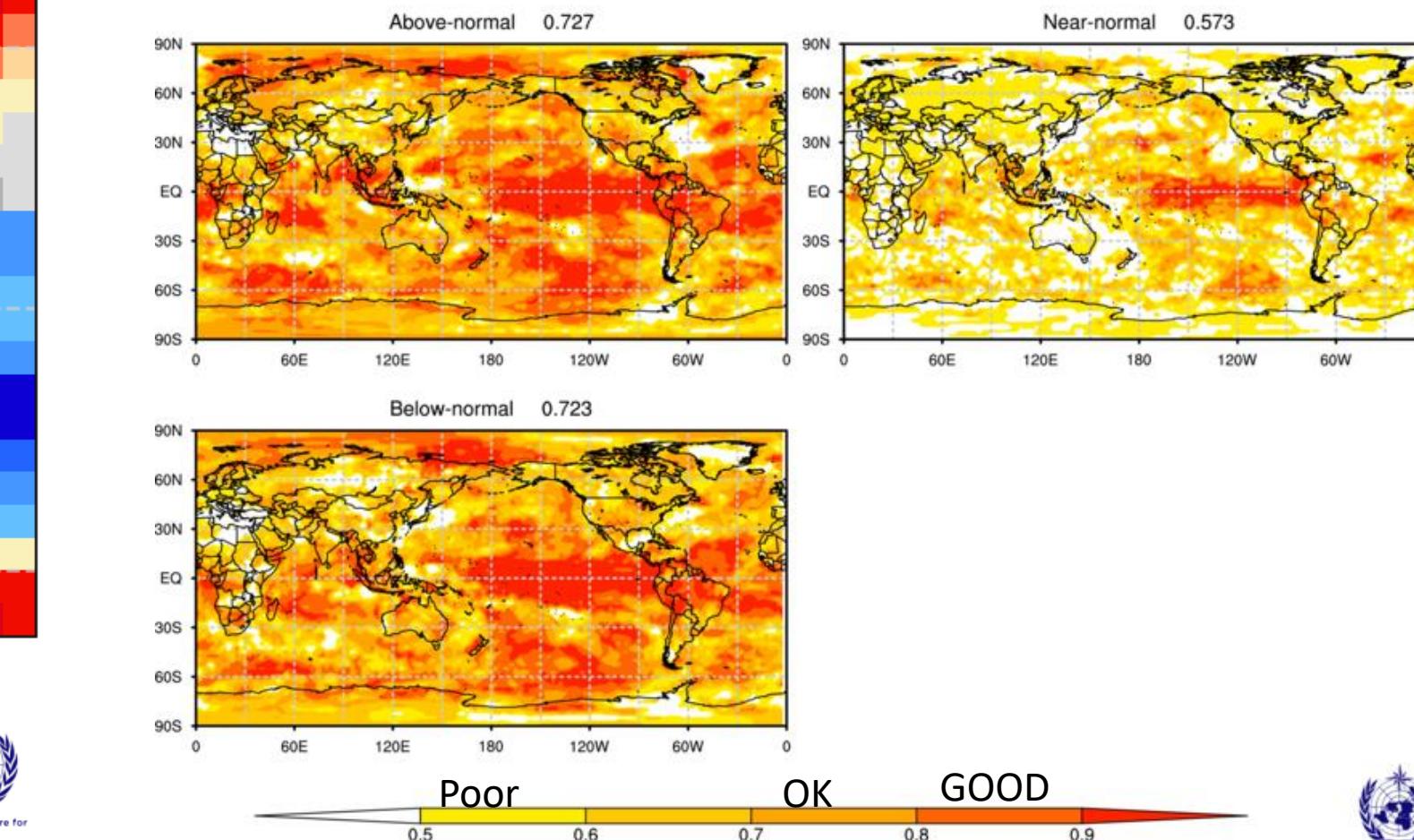
2m Temperature : NDJ2025



Relative Operating Characteristic(ROC) map

Beijing, CMCC, CPTEC, ECMWF, Exeter, Melbourne, Montreal, Moscow, Offenbach, Pretoria, Seoul, Tokyo, Toulouse, Washington

2m Temperature : NDJ



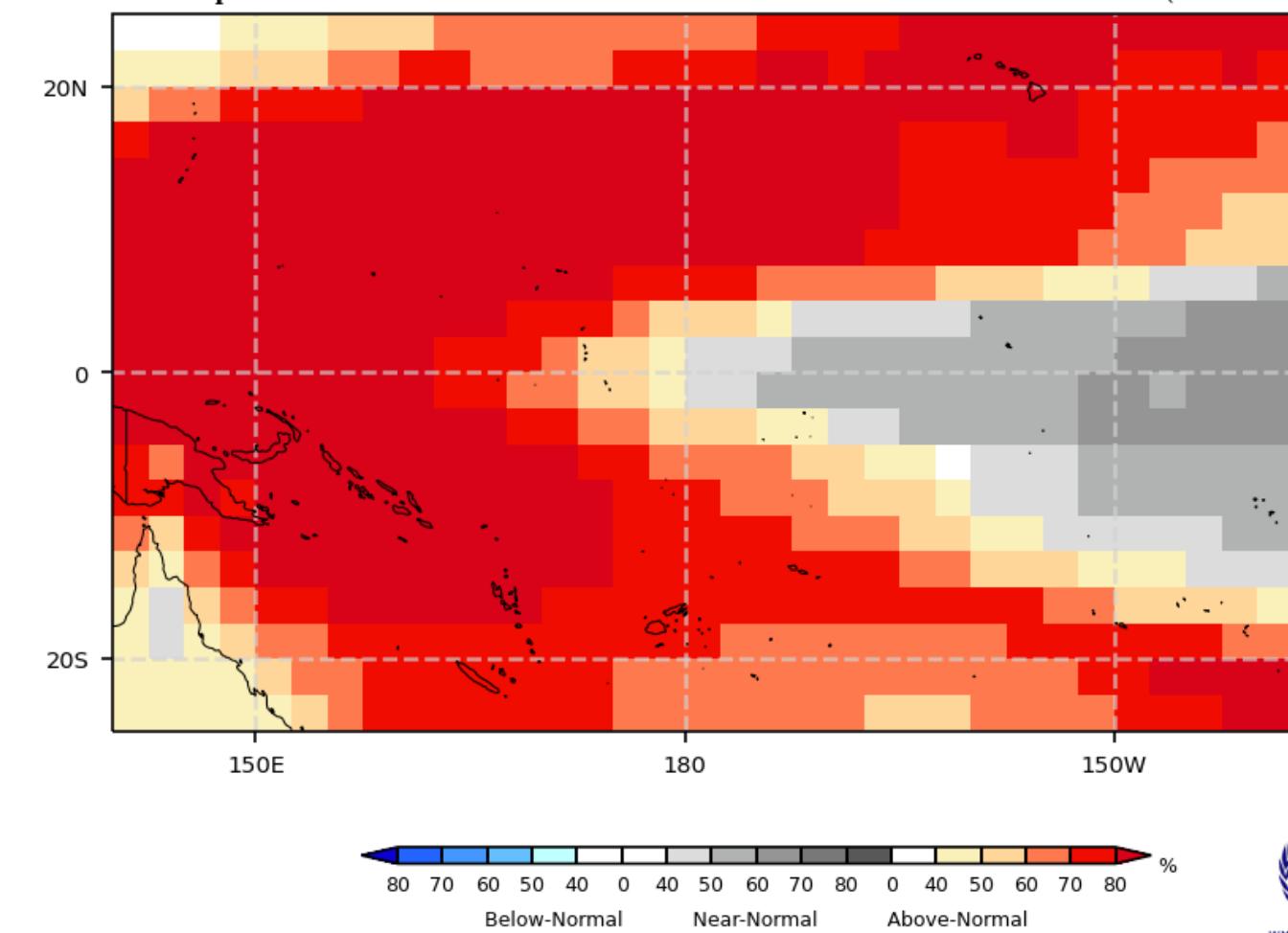
- Tercile air temperature outlook for November 2025 – January 2026 has a similar pattern boomerang pattern as the underlying sea surface temperatures.
- Near normal air temperatures are forecast for Nauru, Gilbert and Phoenix Islands (Kiribati), Tokelau, and most of Tuvalu. Below normal air temperatures are forecast for [Line Islands \(Kiribati\)](#), [northern Cook Islands](#), and [northern French Polynesia](#). Above normal temperatures are forecast for [Palau](#), [most FSM and RMI islands](#), [PNG](#), [Solomon Islands](#), [Vanuatu](#), [New Caledonia](#), [Fiji](#), [Tonga](#), [Niue](#), [Samoa](#), [the southern Cook Islands](#), and [southern French Polynesia](#).
- Hindcast skill is good over New Caledonia, Vanuatu, Nauru, Kiribati, Tuvalu, Tokelau, central and northern Cook Islands, northern half of French Polynesia. Skill is considered acceptable over most of FSM and RMI, PNG, Solomon Islands, southern Tonga, Niue, and the southern Cook Islands. Hindcast skill is considered poor over Palau, Fiji, Samoa, and southern parts of French Polynesia.

Air Temperature: February – April 2026

Probabilistic Multi-Model Ensemble Forecast

Montreal, Seoul, Tokyo, Washington

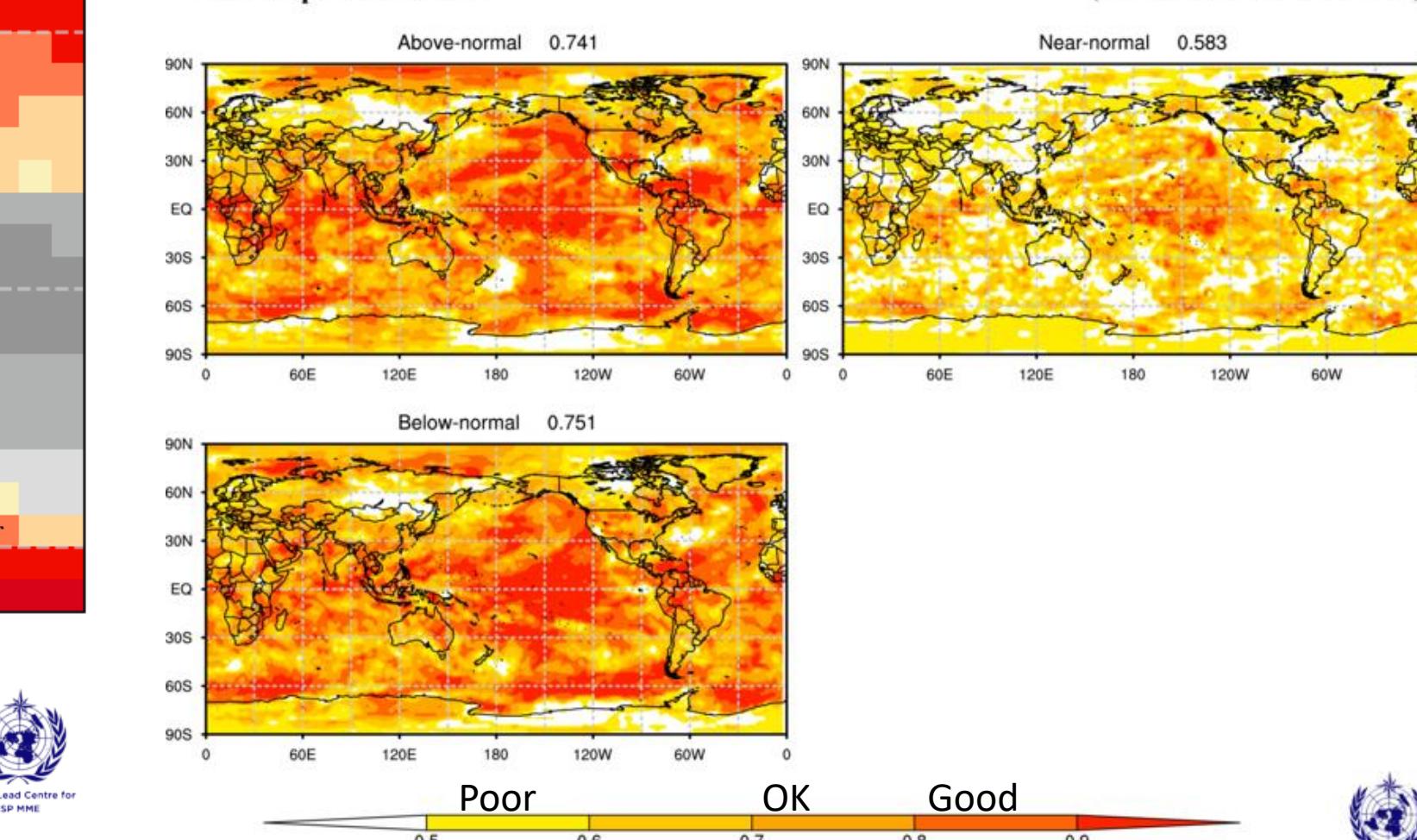
2m Temperature : FMA2026



Relative Operating Characteristic(ROC) map

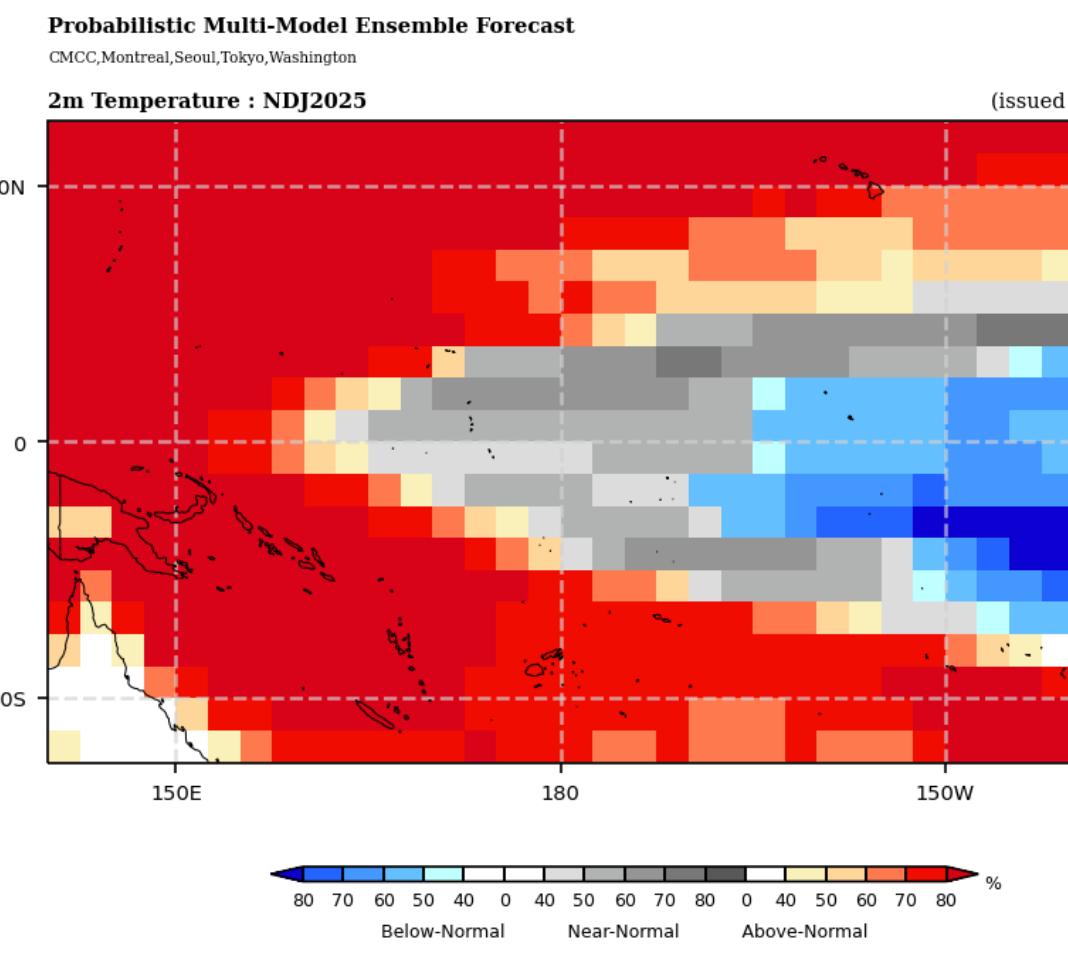
Beijing, CMCC, CPTEC, ECMWF, Exeter, Melbourne, Montreal, Moscow, Offenbach, Seoul, Tokyo, Toulouse, Washington

2m Temperature : FMA

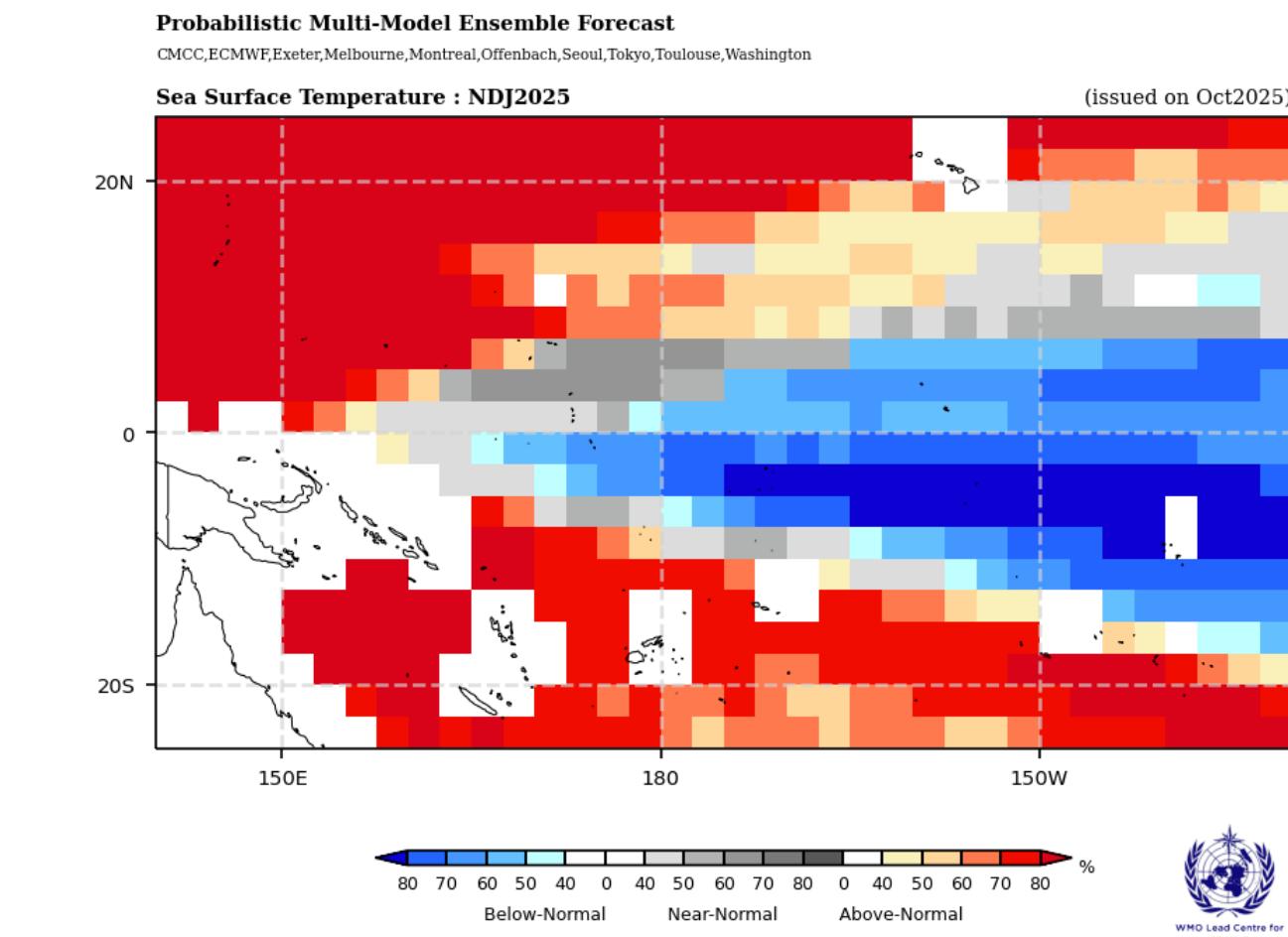


- Tercile air temperature outlook for February – April 2026 has a similar pattern to the previous season with the exception of the eroded cool anomalies being forecast along the equator in the central Pacific.
- Near normal air temperatures are forecast for Phoenix and Line Islands (Kiribati), northern Cook Islands, and central and northern French Polynesia. Above normal temperatures are forecast for **Palau, FSM, RMI, Gilbert Islands (Kiribati), PNG, Solomon Islands, Tuvalu, Tokelau, Vanuatu, New Caledonia, Fiji, Tonga, Niue, Samoa, the southern Cook Islands, and southern French Polynesia**.
- Hindcast skill is considered good over Palau, most of FSM, Tuvalu and Tokelau. Skill is considered acceptable over most of RMI, PNG, Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga, Niue, Samoa, Cook Islands, and French Polynesia.

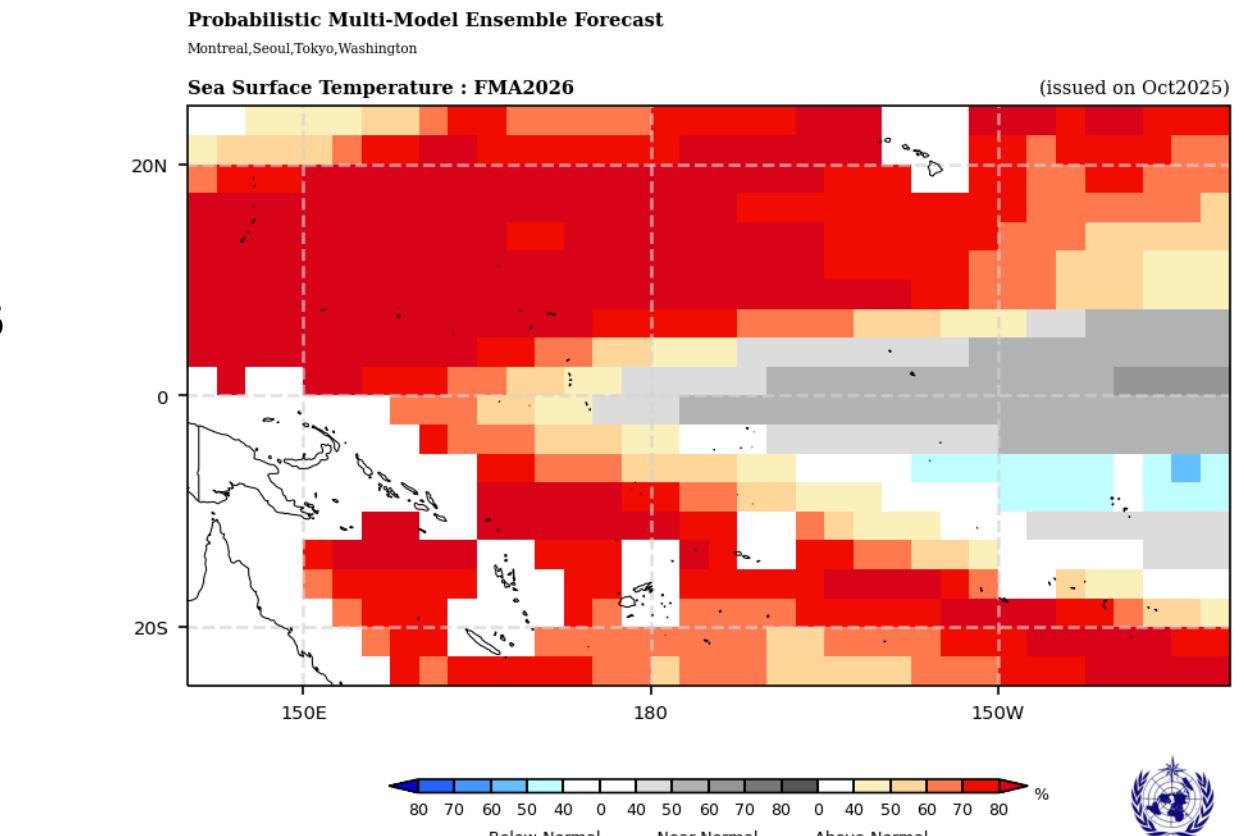
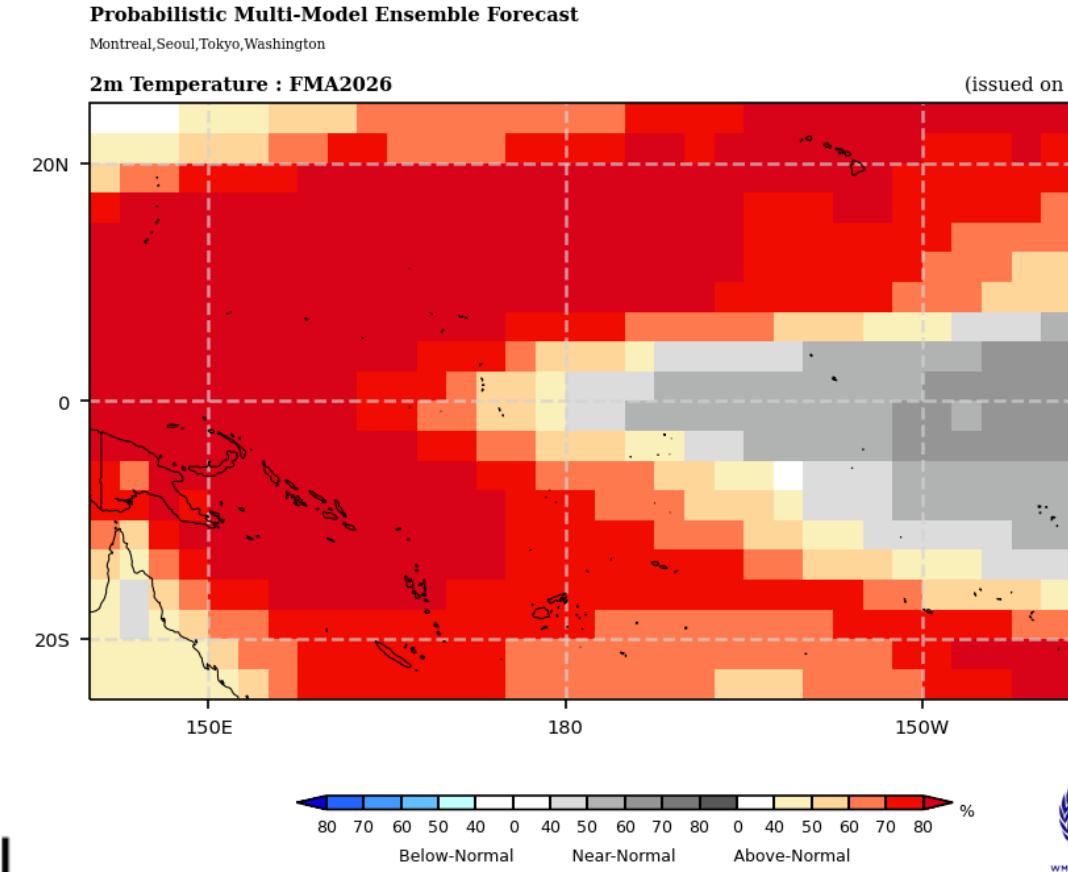
Air Temperature and Sea Surface Temperature



November 2025 –
January 2026



February – April 2026



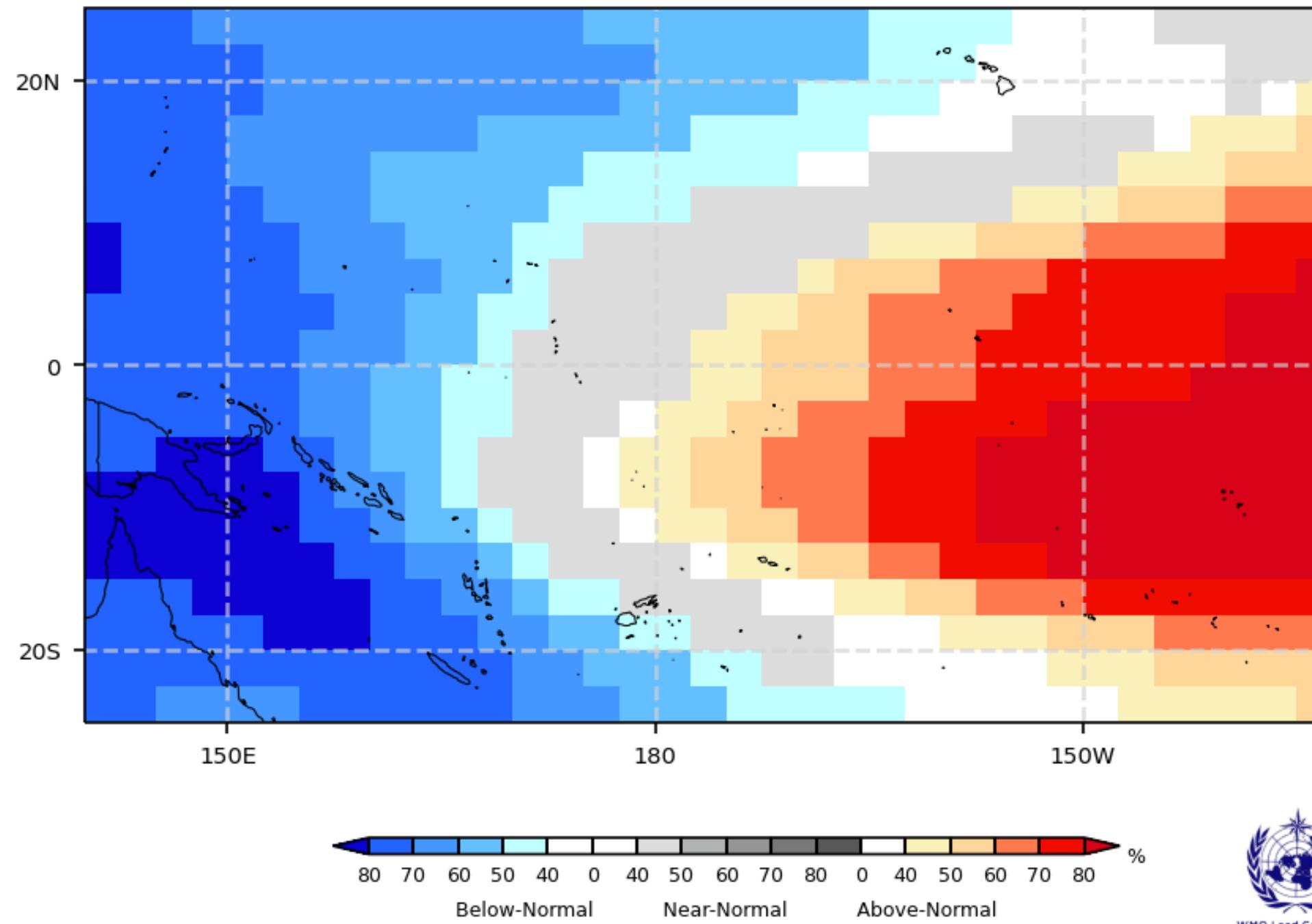
Forecast Mean Sea Level Pressure: November 2025 – January 2026

Probabilistic Multi-Model Ensemble Forecast

CMCC,CPTEC,ECMWF,Exeter,Melbourne,Montreal,Moscow,Offenbach,Seoul,Tokyo,Toulouse,Washington

Mean Sea Level Pressure : NDJ2025

(issued on Oct2025)



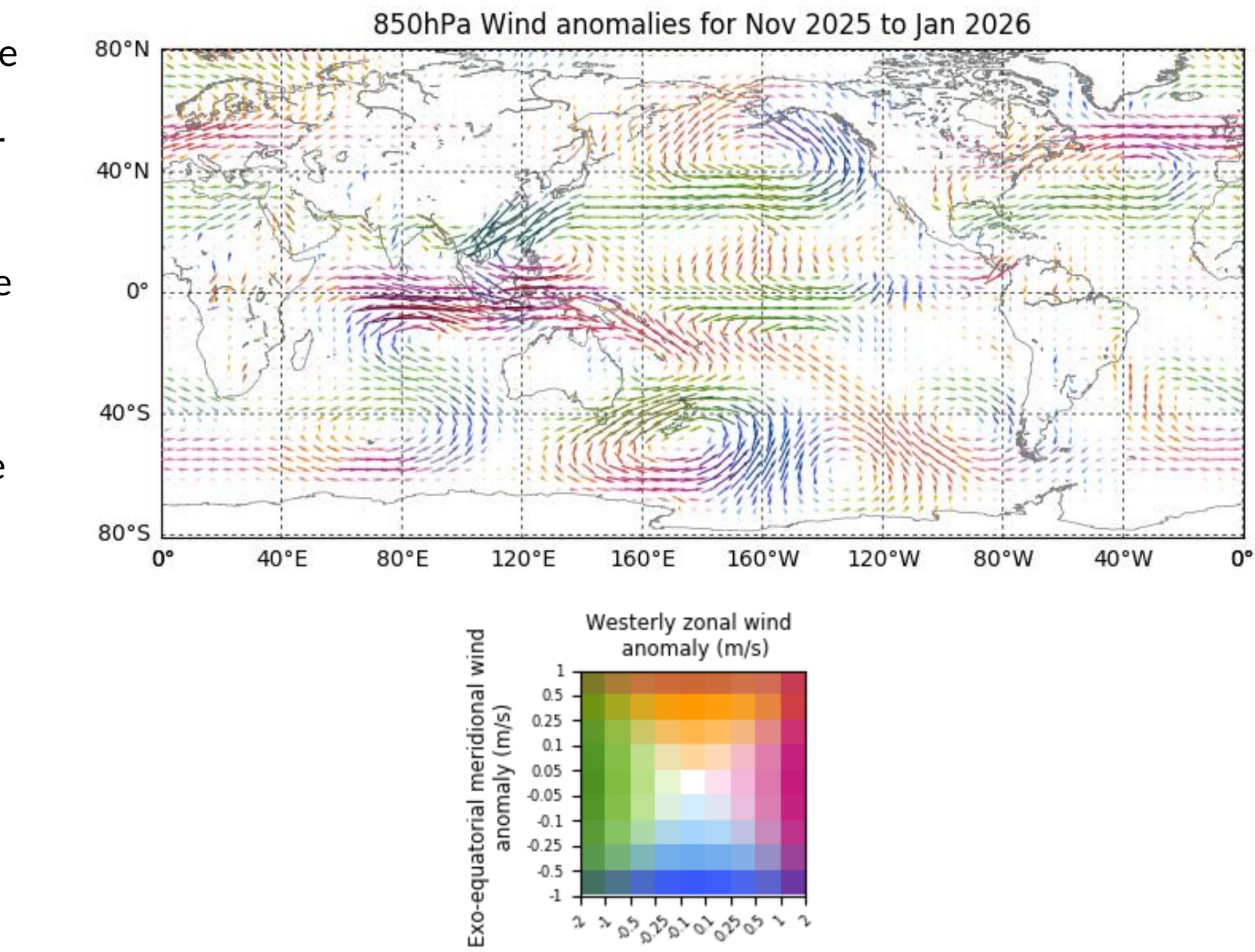
- Above normal (red) mean sea level pressure (MSLP) anomalies (higher pressure; stable weather) are favoured over the Cook Islands, French Polynesia and the Line Islands (Kiribati).
- Below normal (lower pressure; blue) MSLP is favoured over the far western Pacific during this time, associated with converging winds and increased cloudiness.

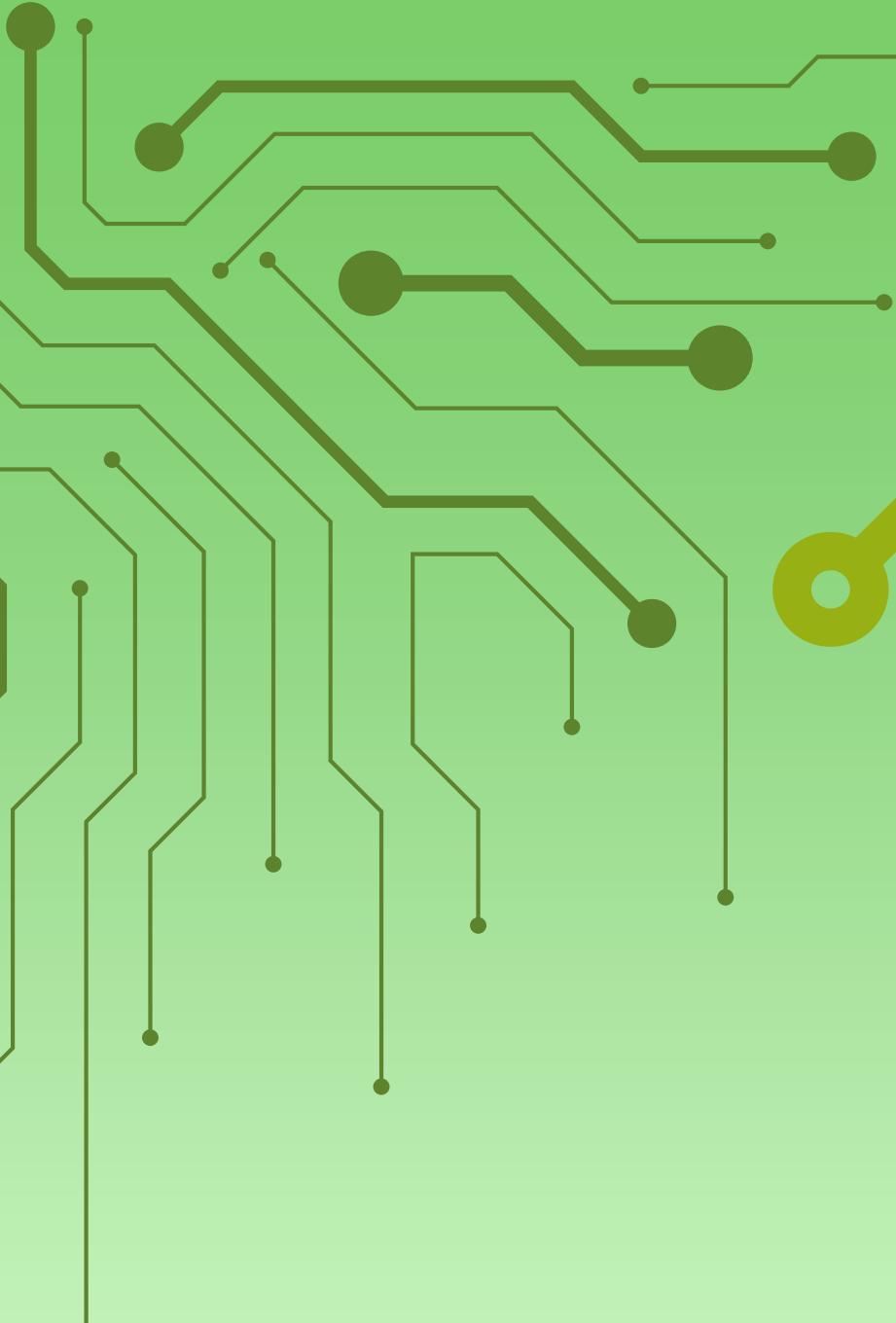


Forecast wind anomalies: November 2025 – January 2026

Source: ACCESS-S2

- The **trade winds** are forecast to be stronger along the equator - green arrows.
- The **southeast trade winds** are forecast to be weaker than usual – brown arrows. The forecast is for tropical moisture to flow away from the tropics which is common during La Niña events. The reverse is typically experienced during El Niño.
- Impact on the MJO:
 - ❖ The current negative IOD event is likely to enhance MJO activity over the Indian ocean and Maritime Continent.
 - ❖ The winds are forecast to flow towards regions of low MSLP.
 - ❖ The La Niña-like Pacific typically slows down the eastward propagation and shifts the MJO path south-eastwards into the SPCZ.



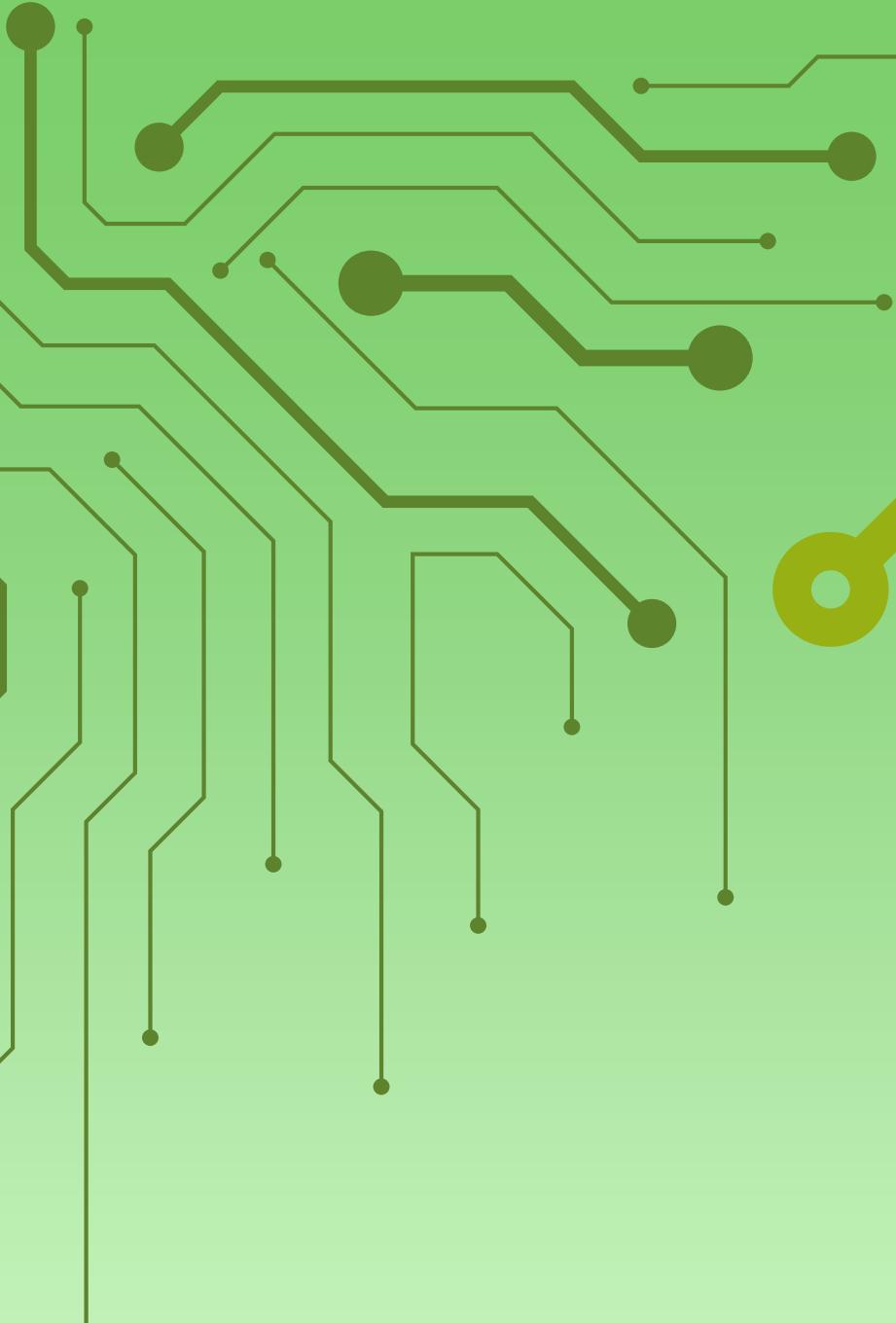


Summary

Add key points which will be included in the PICOF outcomes statement



- Predictions of air temperature and rainfall for the coming November 2025 to January 2026 and February to April 2026 seasons are typical of La Niña-like patterns when compared to observations of the same periods across past events.
- The rainfall outlook over November 2025 to January 2026 favours below normal rainfall between Nauru and the Phoenix Islands (Kiribati), extending southwards between Tuvalu and northern French Polynesia, and a small region over the central Federated States of Micronesia and the Republic of the Marshall Islands. Above normal rainfall is forecast over Palau, Papua New Guinea and then in a band south-eastwards to southern French Polynesia. Confidence in this outlook highest along the equator and in the far western Pacific, although there is acceptable skill for most of the off-equatorial Pacific region.
- The La Niña-like rainfall outlook pattern continues over February to April 2026, albeit with reduced confidence due to the longer lead time of the forecast period. Below normal rainfall is forecast to persist over Nauru eastwards to northern French Polynesia, with above normal rainfall forecast over Palau and eastwards to the Republic of the Marshall Islands, as well as in a broad band from Papua New Guinea south-eastwards to the southern Cook Islands.
- Above normal air temperatures are favoured across the Pacific for November 2025 to January 2026 for all countries excluding a small band along the equator from Nauru eastwards to the Phoenix Islands (Kiribati) where near normal air temperatures are predicted, and for the Line Islands (Kiribati) south-eastwards over the northern Cook Islands and northern French Polynesia where below normal air temperatures are favoured.



Summary

Add key points which will be included in the PICOF outcomes statement



- This air temperature pattern strongly aligns with the west-east sea surface temperature gradient pattern across the Pacific for the same season, indicating a reinforcing pattern between the ocean and atmosphere.
- The air temperature outlook for February to April 2026 is a similar pattern as for the previous season, with the exception for near normal air temperatures are forecast in the central equatorial Pacific, aligning with the seasonal breakdown of a La Niña-like pattern.
- There is excellent agreement between the Pacific Regional Climate Centre node for long range forecasting lead models and the WMO lead centre multi-model ensemble over the coming six months. Good agreement between high quality models is common during phases of El Niño and La Niña.
- The forecasts for both the mean sea level pressure and wind patterns for the coming season indicate the atmosphere is reflecting a La Niña-like pattern and aligns well with forecasted rainfall and air temperature patterns.



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THANK YOU!

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