

Monthly Pacific Climate and Ocean Bulletin

August 2025



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Photo Credit: Molly Powers (SPC) Samoa Tide Gauge



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- The El Niño Southern Oscillation (ENSO) remains neutral while a negative Ocean Dipole remain neutral.
- The Madden Julian Oscillation (MJO) is currently weak. Some international models forecast the MJO is likely to briefly strengthen in the Western Pacific before weakening as it moves to the Western Hemisphere and Africa.
- In August, the Intertropical Convergence Zone (ITCZ) was active and south of its normal position over the western Pacific over FSM and RMI. The South Pacific Convergence zone was active and shift south of its normal position over New Caledonia, Vanuatu, Fiji and southern Tonga.
- Sea surface temperatures (SSTs) for August 2025 were near normal to above normal in the central and western Pacific.
- The four-week Coral Bleaching Outlook to October 13 shows 'Alert Level 1' for PNG and FSM.
- For September to November 2025, the models agree that above normal rainfall is likely or very likely over Palau, western FSM, western FSM, and a band stretching southeastwards over PNG, southern Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga, Niue, southern Cook Islands, and southern French Polynesia. Below normal rainfall is likely or very likely from northern FSM to northern RMI, and in a band stretching eastwards from northeast PNG, southeast FSM, Nauru to Kiribati (Gilbert, Phoenix, and southern Line Islands), Tuvalu, Tokelau, northern Cook Is., northern French Polynesia, and Pitcairn Islands.
- The weekly tropical cyclone forecasts from the ACCESS-S model shows significantly increased risks for Palau, FSM, Guam, CNMI, RMI, Philippines, south China sea region, and Japan for the 30 September to 06 October.



EL NIÑO–SOUTHERN OSCILLATION

A negative Indian Dipole event underway

Click link to access [Climate Driver Update issued on 16 September 2025](#)

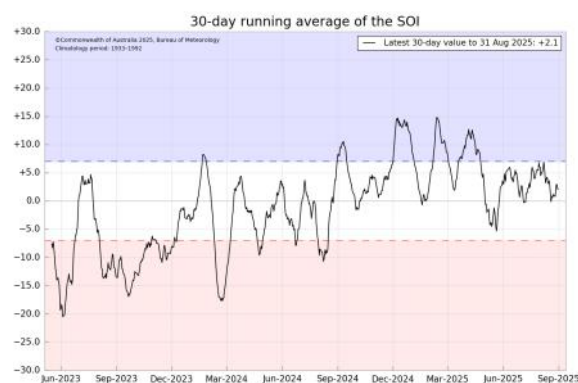
The El Niño–Southern Oscillation (ENSO) remains neutral. The latest Niño 3.4 value for the week ending 14 September is -0.62°C . Neutral ENSO values for Niño 3.4 index are between -0.8°C and $+0.8^{\circ}\text{C}$. While sub-surface waters in the tropical Pacific have shown signs of cooling in recent weeks, atmospheric indicators remain mostly neutral. The Bureau's model predicts some further cooling of the tropical Pacific is likely, potentially reaching La Niña levels briefly during spring, and returning to neutral in summer. Similarly, international models indicate some further cooling is likely, also reaching La Niña levels during spring, with all but one returning to neutral by the end of summer.

Since July 2024, sea surface temperatures (SSTs) in the Australian region have been the warmest or second warmest on record for each respective month. Similarly, global SSTs remain substantially above average, with August 2025 the third warmest on record. Global Sea Surface Temperature remain substantially above average, with August 2025 the third warmest on record.

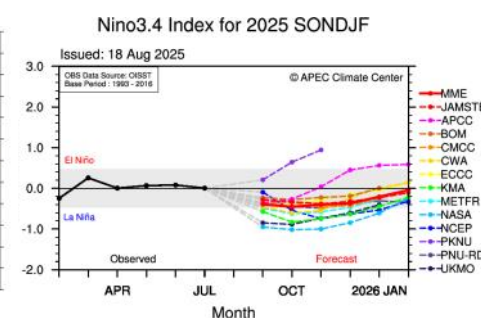
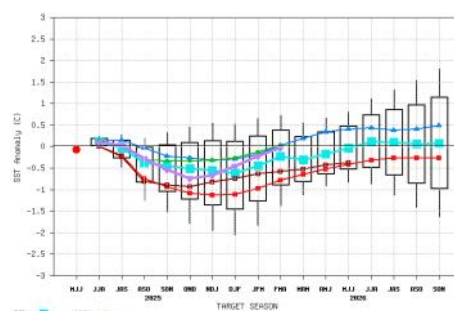
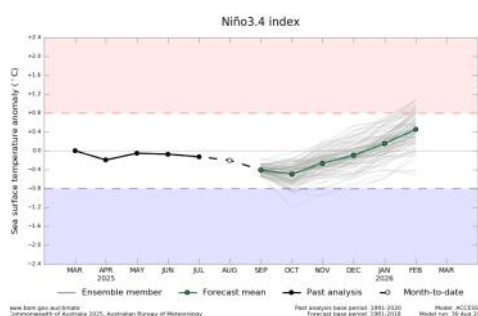
The Indian Ocean Dipole (IOD) index has now met the negative IOD threshold (less than or equal to -0.4°C) for 8 consecutive weeks, sufficient to be classified as a negative IOD event. The latest IOD index value for the week ending 14 September 2025 is -1.17°C .

The Southern Annular Mode (SAM) index is negative as at 13 September, with the SAM index likely to remain negative over the next week, returning to neutral the following week.

The 30 day average of the Southern Oscillation Index (SOI) for the period ending 16 August was $+3.6$.



International Model Outlooks



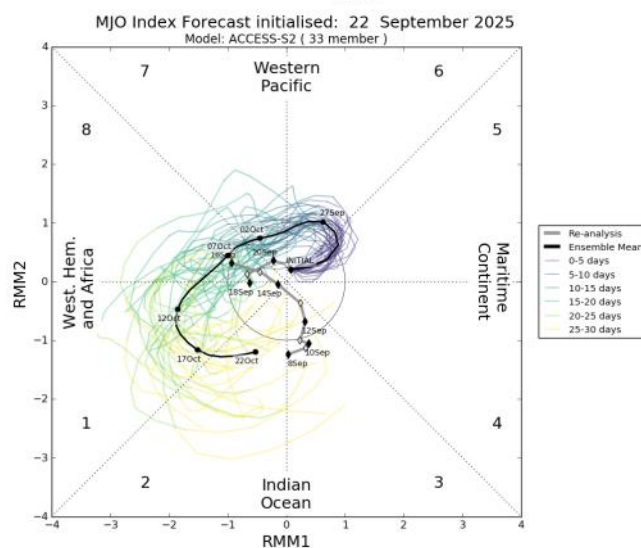
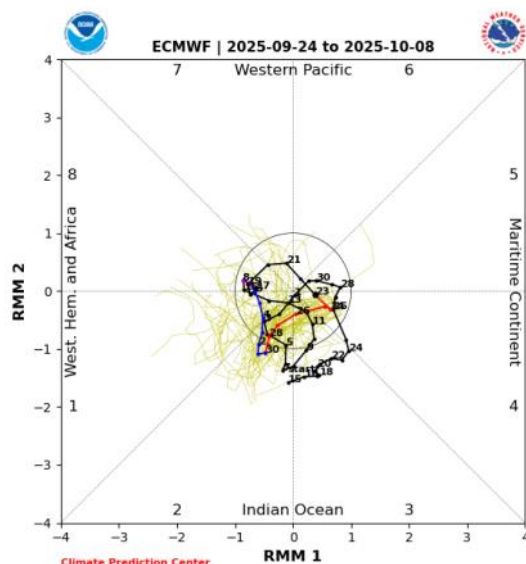
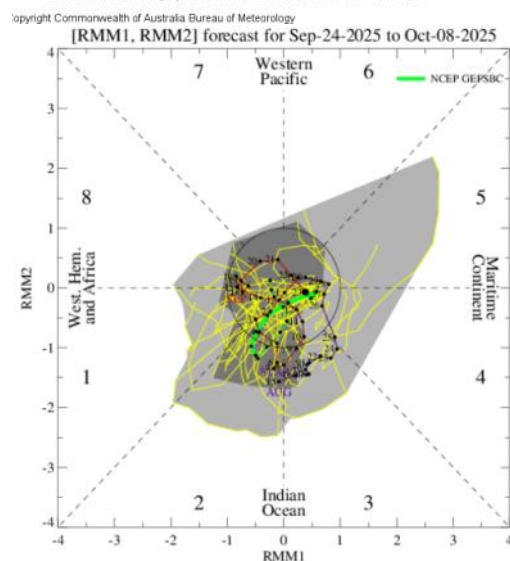
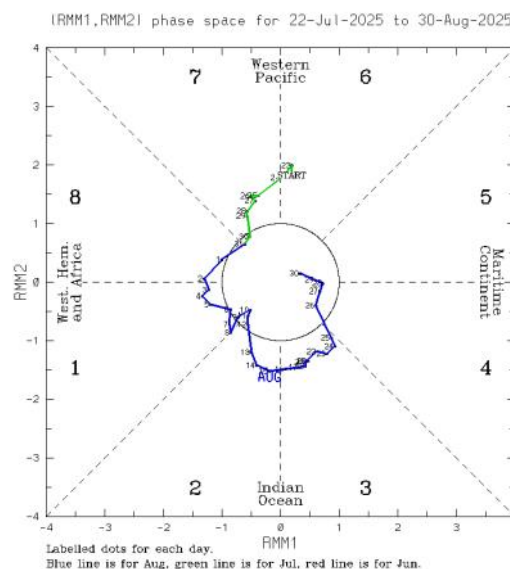
MADDEN–JULIAN OSCILLATION

Click link to access [Tropical monitoring and outlook](#) [Issued on Tuesday 16 September 2025]

The Madden-Julian Oscillation (MJO) was active over the first, second and part of third week of August over the Western Hemisphere and Africa region.

The Madden-Julian Oscillation (MJO) is currently weak or indiscernible. A small number of forecasts from surveyed models suggest the MJO is likely to briefly strengthen in the Western Pacific before weakening as it moves to the Western Hemisphere and Africa. Most forecasts indicate the MJO will remain weak or indiscernible for the coming fortnight.

This is an abbreviated version of the Tropical monitoring and outlook. Click on the *Tropical Update* for more information .



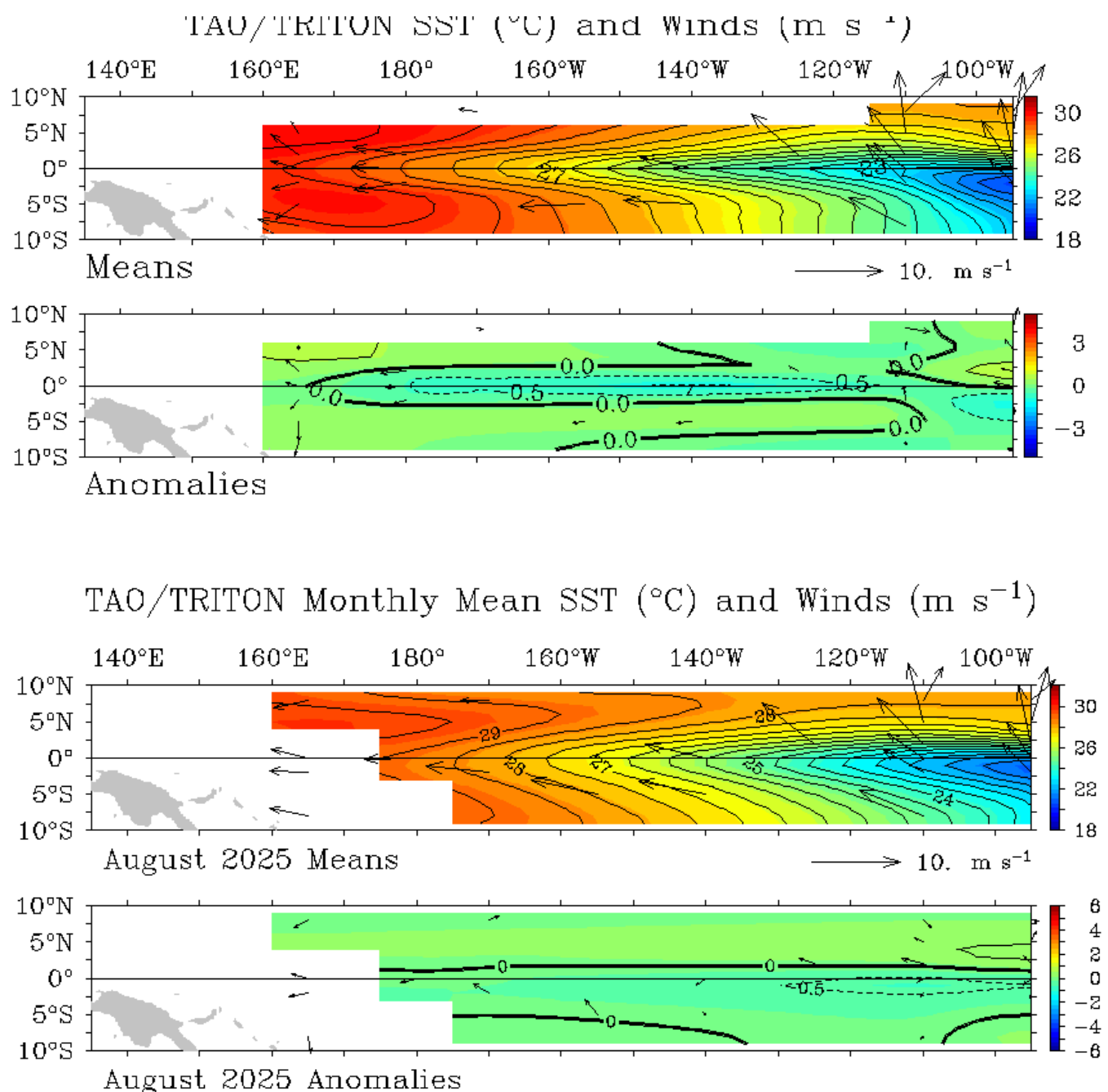
WIND



Click link to access [Wind plots link](#)

During August, the trade winds were generally average over the equatorial Pacific. For the five days ending 23 September 2025, the trade winds were average over the equatorial Pacific.

During El Niño events there is a sustained weakening, or even reversal, of the trade winds across much of the tropical Pacific, while during La Niña, there is a sustained strengthening of the trade winds.



CLOUD AND RAINFALL

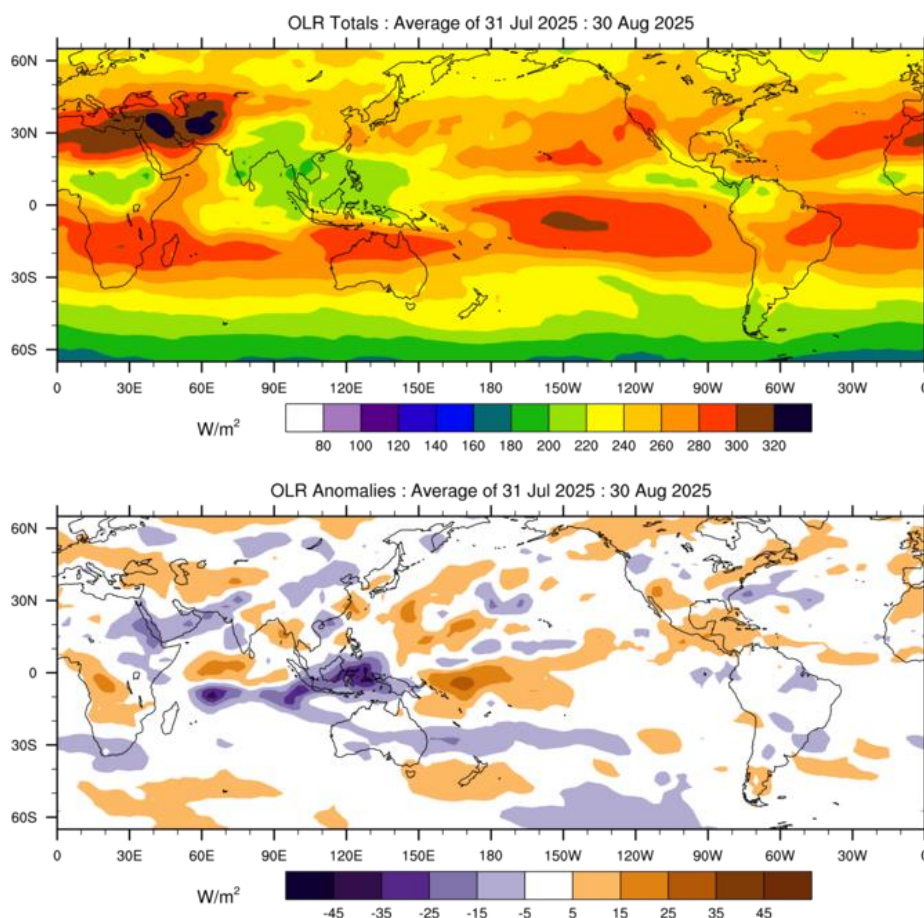
Click link to access [OLR](#)



The August 30-day OLR anomaly map shows a region of negative OLR (increased convection) over the western Pacific over Palau, and PNG. The Intertropical Convergence Zone (ITCZ) was south of its normal position over the western Pacific while further to the north over northern FSM and northern RMI. Areas of anomalously high OLR (decreased convection) were evident in a band stretched eastwards over Solomon Islands, northern Vanuatu, Kiribati (Phoenix, and Line Is.), Tuvalu, Tokelau, northern American Samoa, and northern Cook Islands. Decreased convection were also evident over FSM, and RMI in the north Pacific. The South Pacific Convergence zone was active and shift south of its normal position over New Caledonia, Vanuatu, Fiji and southern Tonga.

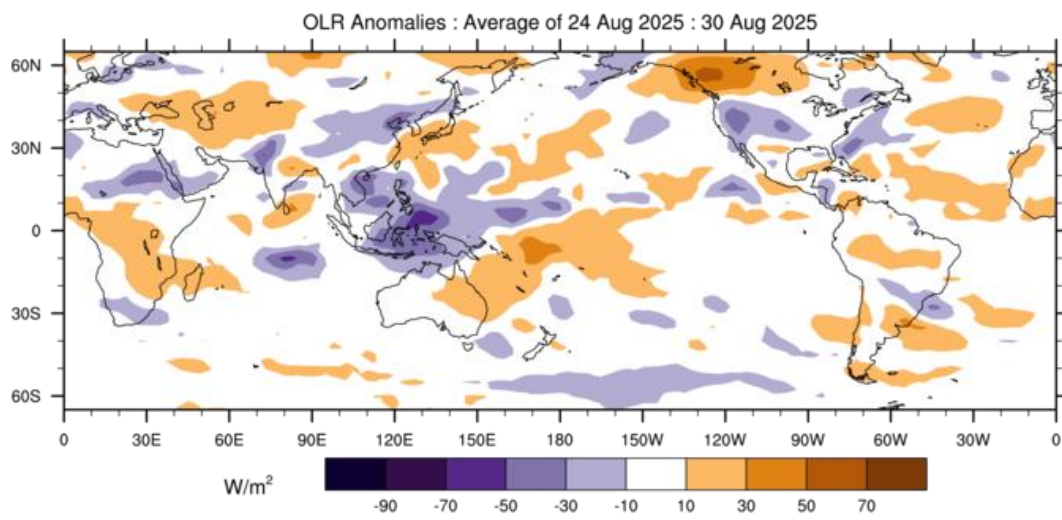
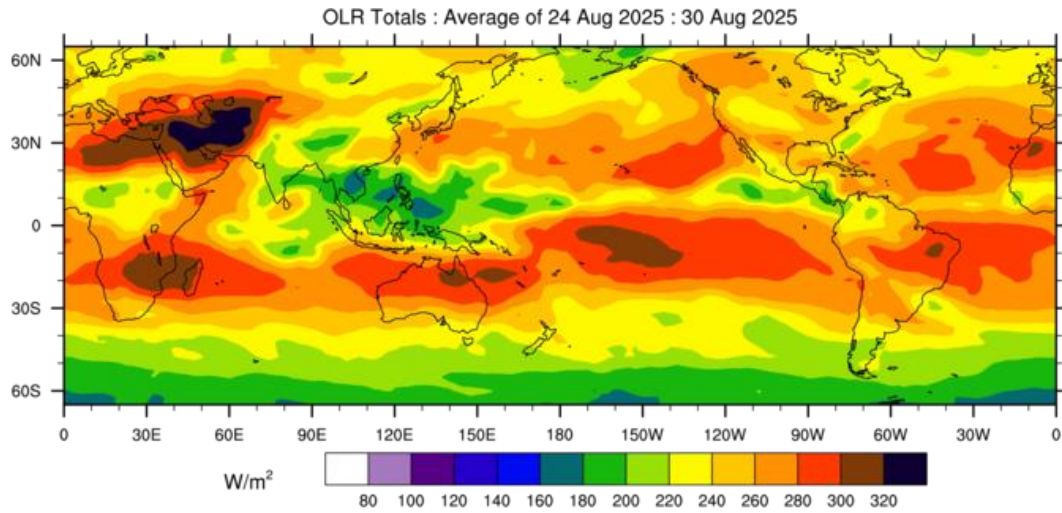
Note: Global maps of OLR below highlight regions experiencing increased or decreased cloudiness. The top panel is the total OLR in Watts per square metre (W/m^2) and the bottom panel is the anomaly (current minus the 1979-1998 climate average), in W/m^2 . In the bottom panel, negative values (blue shading) represent above normal cloudiness while positive values (brown shading) represent below normal cloudiness.

OLR Total and Anomalies, 30 Day OLR

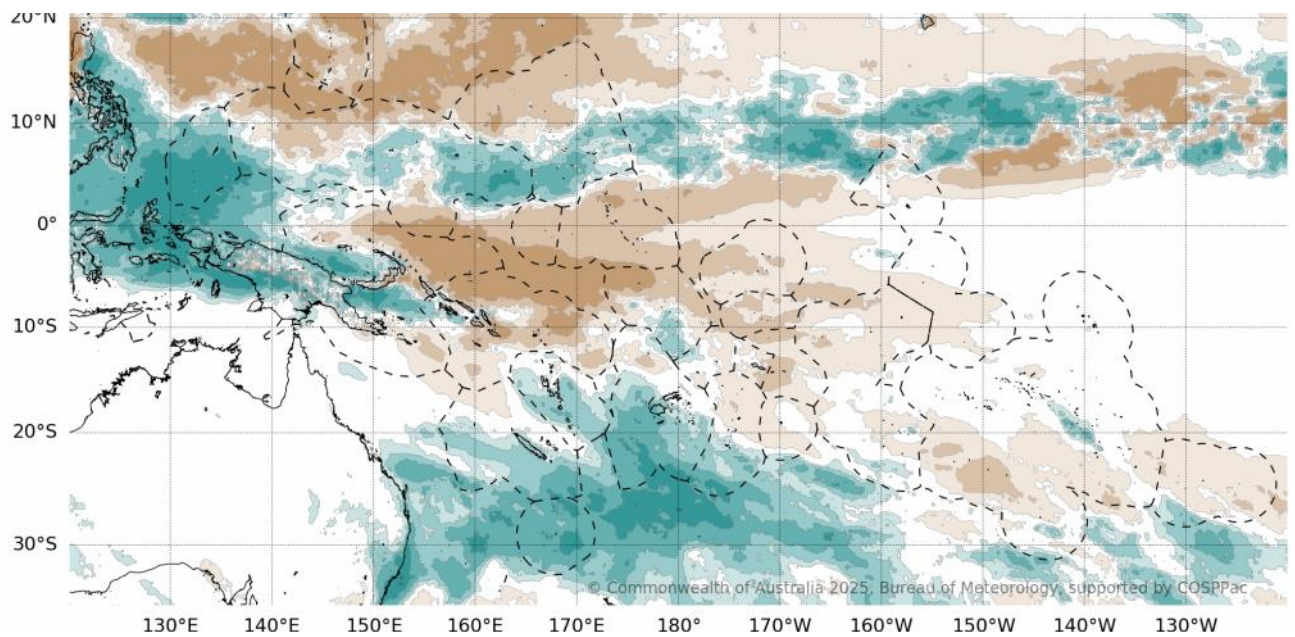


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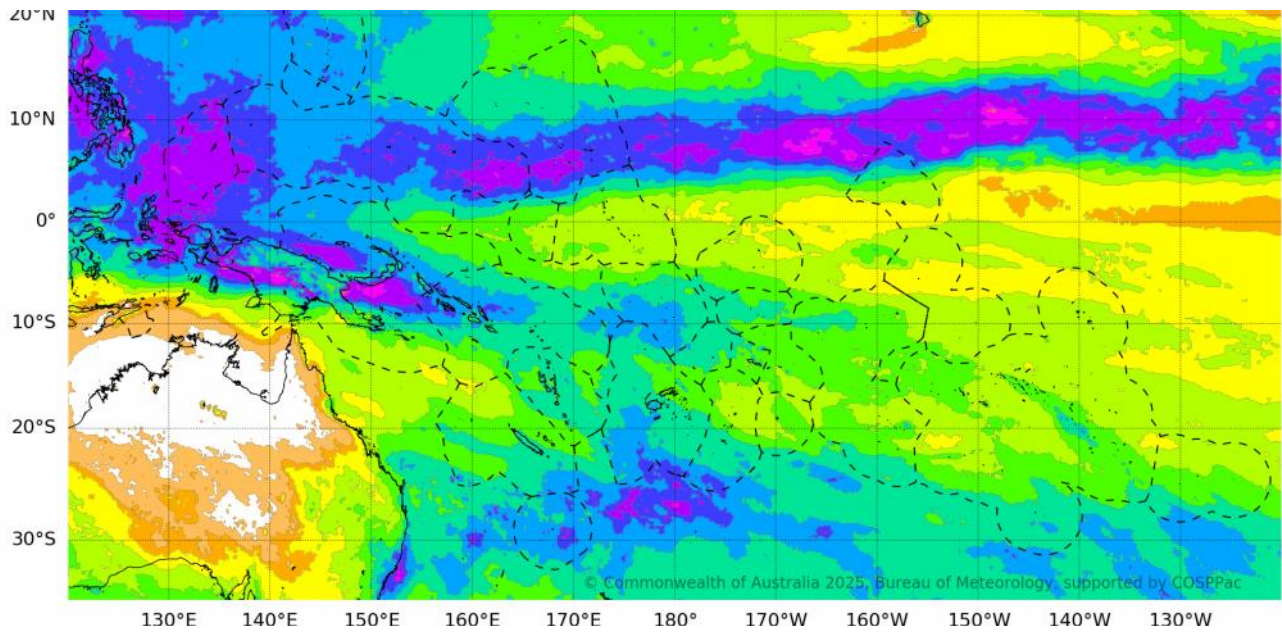
OLR Total and Anomalies, 7 Day OLR



(C) Copyright Commonwealth of Australia 2025. Bureau of Meteorology



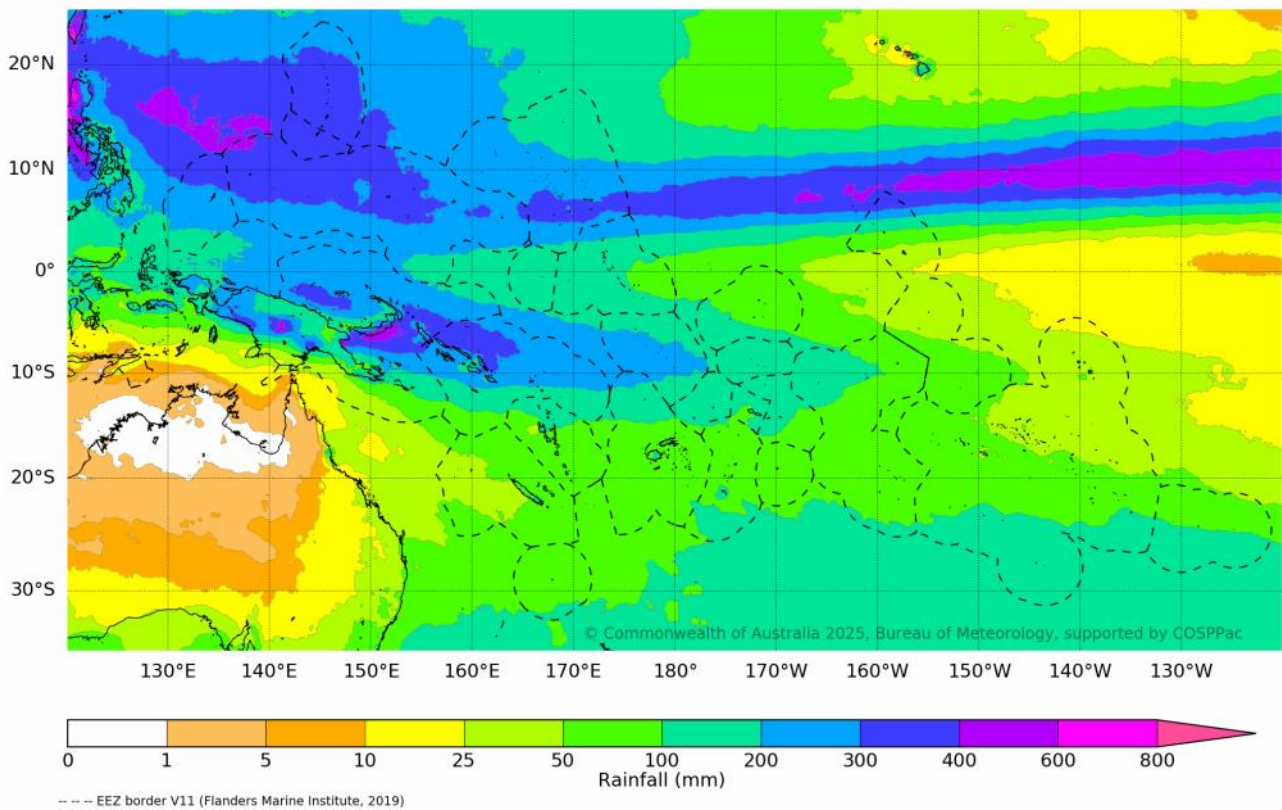
30-Day Rainfall Accumulated



Base period: 1981-2021
Data source: MSWEP

Monthly rainfall climatology for August

Issued: 15/06/2025



Global and Pacific ACCESS-S outlook and Pacific Climate Monitoring - ACCESS-S precipitation:

<http://access-s.clide.cloud/>

OCEAN CONDITIONS

SEA SURFACE TEMPERATURE



Click link to access [Pacific Community COSPPac Ocean Portal](#)

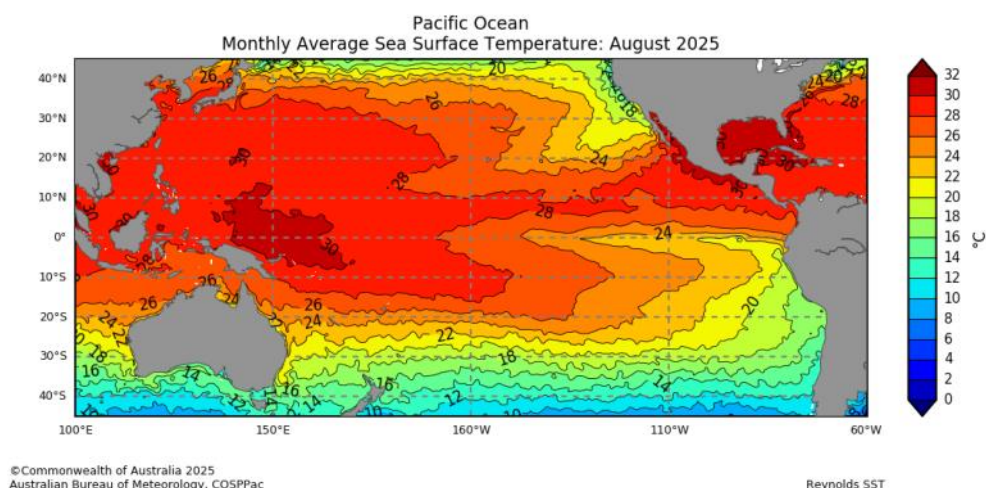
Sea surface temperatures (SSTs) for August 2025 were near normal to above normal in the central and western Pacific.

From 6 to 30 August, a cool subsurface temperature anomaly of 0.5°C was observed in the far eastern tropical Pacific near the South American coast. This anomaly extended from the surface down to 175 meters, with a maximum cooling of 3°C between 25 and 100 meters depth. In contrast, the far western Pacific featured a warm subsurface anomaly of 0.5°C extending down to 300 meters, peaking at 2°C between 100 and 150 meters depth.

Near-normal SSTs were observed over countries including Kiribati, Marshall Islands, Niue, Tokelau, Tonga, southern Cook Islands, northern French Polynesia and southern French Polynesia; in addition, patches of near-normal SSTs were also observed in Fiji, New Caledonia, FSM, and Samoa. All other areas, including the remaining parts of the aforementioned countries, experienced above-average SSTs.

A band of Highest-on-record in August SSTs were recorded over PNG, Solomon Islands, Cook Islands and French Polynesia, together with patches over American Samoa, Vanuatu and New Caledonia. The SSTs in decile 10 (very much above average) observed over PNG extended eastwards to the Solomon Islands, New Caledonia, Vanuatu, Fiji, Tuvalu, Samoa, Tokelau, American Samoa, the Cook Islands, and French Polynesia. In addition, countries to the north that also observed decile 10 include FSM, Nauru and the southern Line Islands, with a few patches over Palau. Above-average (8-9) deciles were observed over most of Palau, the remaining parts of the FSM, parts of the RMI, Nauru, Tuvalu, Tokelau, the southern Phoenix Islands, most parts of the Cook Islands, and Fiji, with patches observed in Tonga and Niue. Average SSTs (4-7) observed over most of RMI, Kiribati (Gilbert Islands, most of Phoenix Islands and Line Islands), Tonga, Niue and the southern Cook Islands and French Polynesia. Below-average (2-3 decile) values were observed in patches over parts of the south French Polynesia, the Cook Islands, and Niue.

Mean Sea Surface Temperature

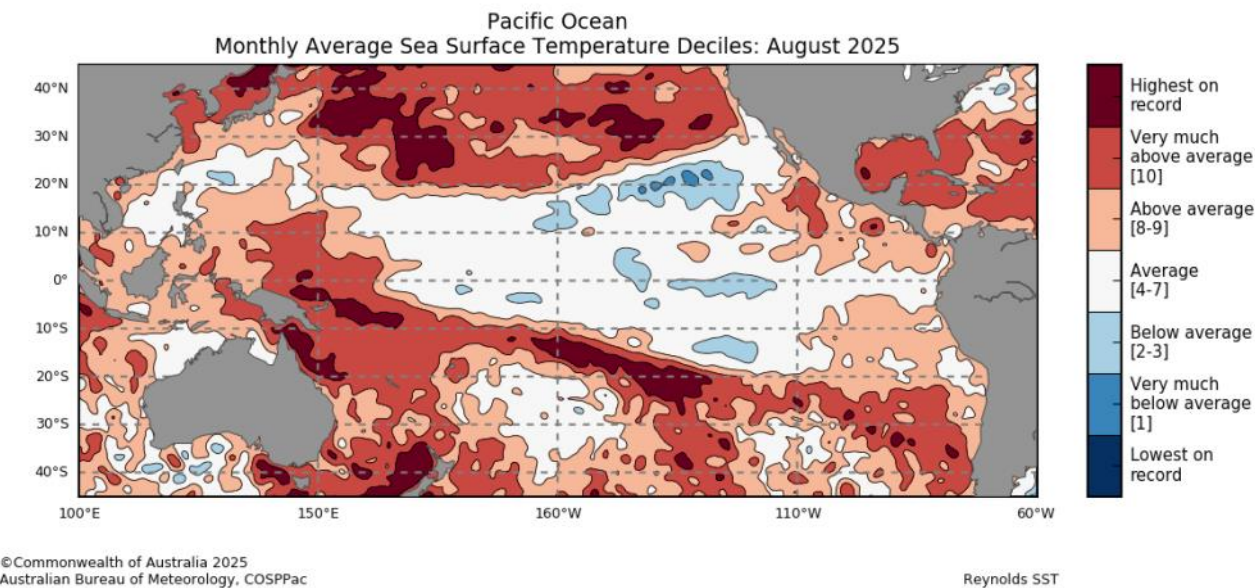
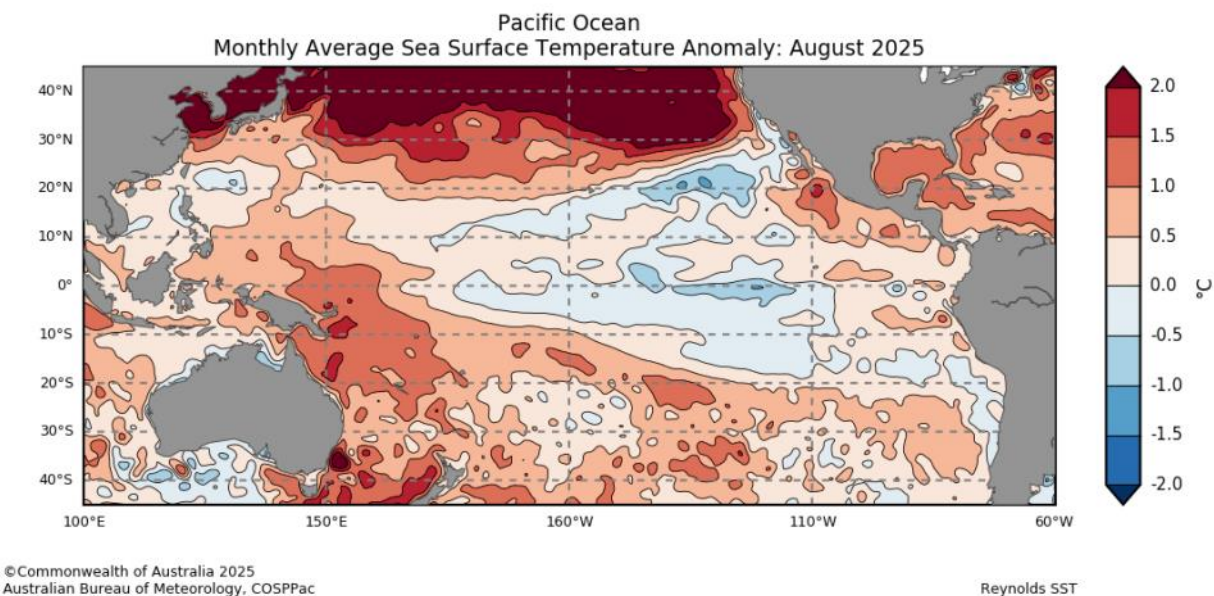


OCEAN CONDITIONS

Click link to access [SEA SURFACE TEMPERATURE](#)



Anomalous Sea Surface Temperature



OCEAN CONDITIONS

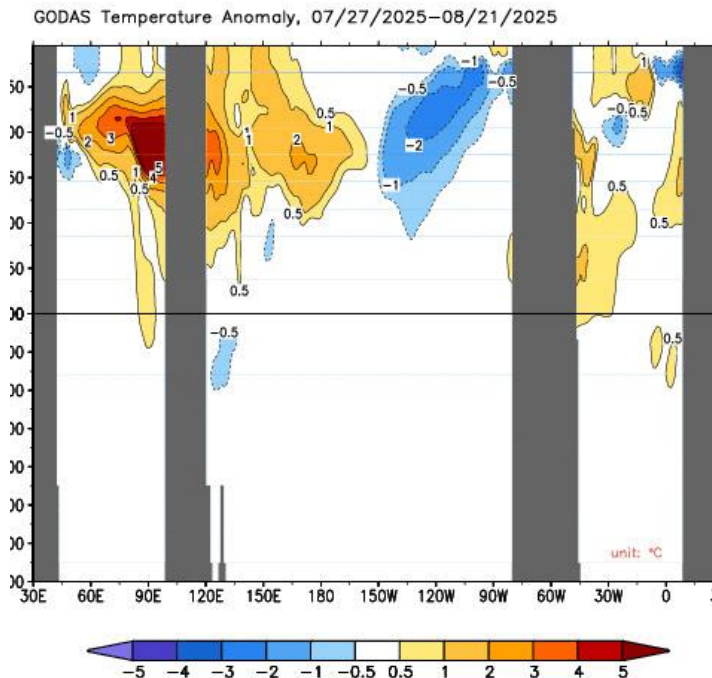
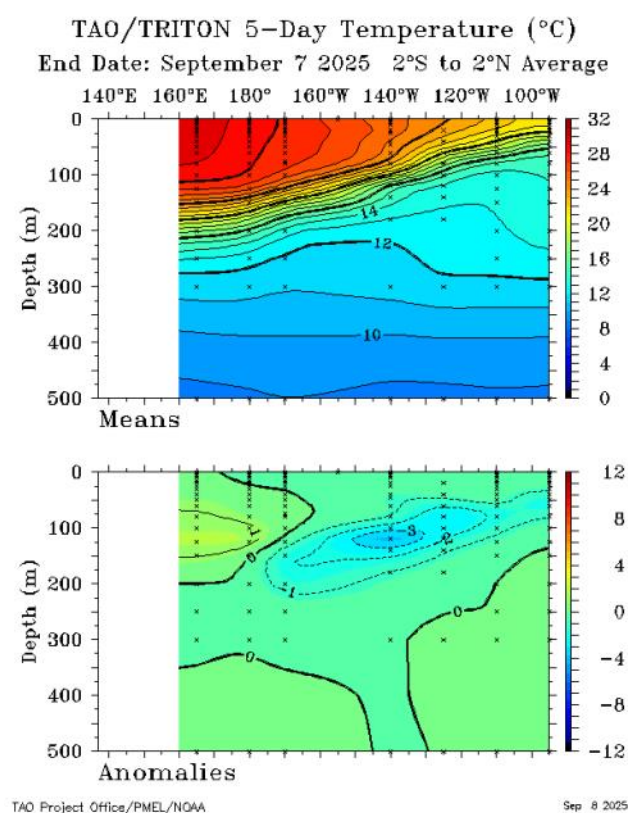
SUB SURFACE



The August subsurface anomalies shows a cool subsurface temperature anomaly of 0.5°C was observed in the far eastern tropical Pacific near the South American coast. This anomaly extended from the surface down to 175 meters, with a maximum cooling of 3°C between 25 and 100 meters depth. In contrast, the far western Pacific featured a warm subsurface anomaly of 0.5°C extending down to 300 meters, peaking at 2°C between 100 and 150 meters depth.

Weekly Temperatures Mean and Anomalies

Monthly Temperatures Anomalies



Bureau of Meteorology Sea Temperature Analysis:
<http://www.bom.gov.au/marine/sst.shtml>

TAO/TRITON Data Display: <http://www.pmel.noaa.gov/tao/jsdisplay/>

OCEAN CONDITIONS

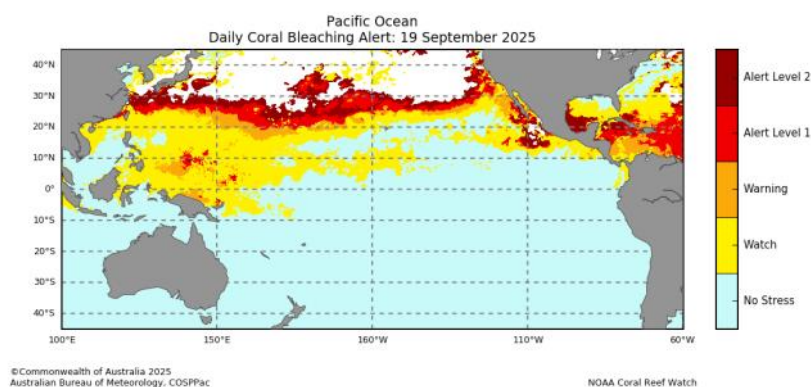
CORAL BLEACHING



The daily Coral Bleaching Alert status for September shows patches of 'Alert Level 2 and 1' over the Federated States of Micronesia (FSM) and northern Papua New Guinea (PNG). There is a 'Warning' for the remaining parts of FSM and northern PNG, and most of the Marshall Islands (RMI), along with some patches in Kiribati, Nauru, and Tuvalu. For the rest of the countries, the status is 'Watch' or 'No Stress.' The four-week Coral Bleaching Outlook extending to October 13 shows 'Alert Level 1' for PNG and FSM, with 'Warning' covering most of FSM and northern PNG, and a patch of 'Warning' over Palau and RMI. The remaining countries are under 'Watch' or 'No Stress.'

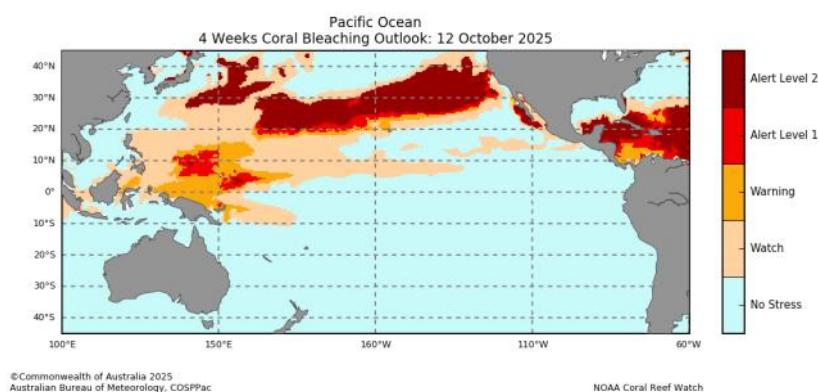
Daily Coral Bleaching Alert

(Source: [Pacific Community COSPPac Ocean Portal Coral Bleaching](#))



4 Weeks Coral Bleaching Outlook

(Source: [Pacific Community COSPPac Ocean Portal](#))



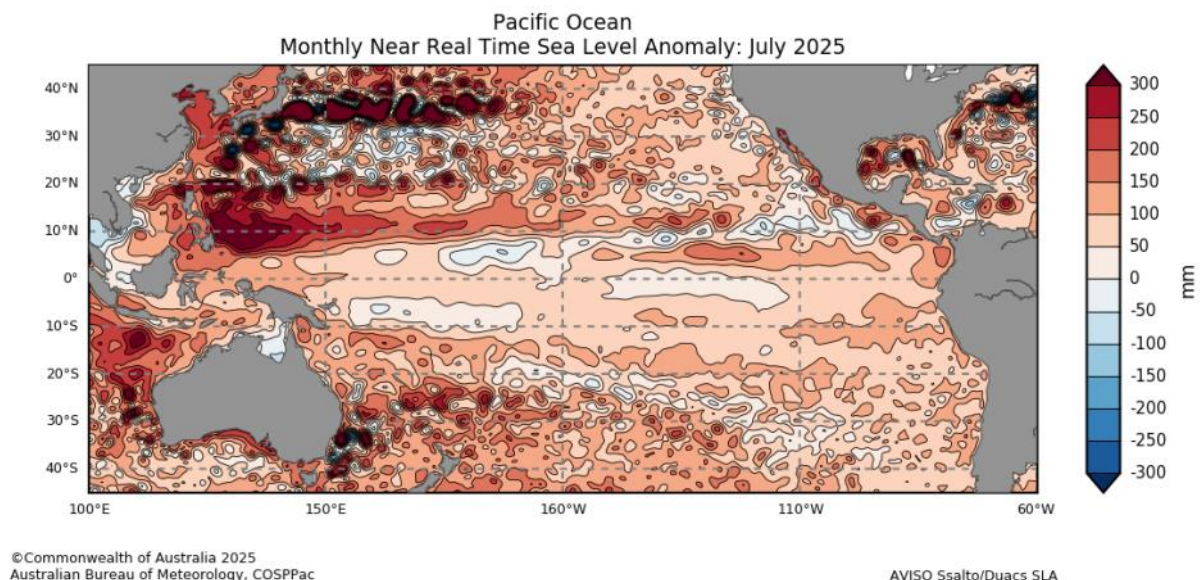
OCEAN CONDITIONS

OCEAN SURFACE CURRENTS AND SEA LEVEL

Sea levels observed in August were generally above normal across most countries in the Pacific. However, patches of near-normal sea levels were also recorded in the Solomon Islands, Tuvalu, Tonga, Niue, the southern Cook Islands, French Polynesia, and the Marshall Islands. Positive sea level anomalies exceeding +200 mm were observed in Palau and the Federated States of Micronesia (FSM), with patches recorded over southern Fiji, southern Tonga, and south French Polynesia. Countries which experienced sea levels up to +200mm included the Solomon Islands, PNG, Vanuatu, New Caledonia, Samoa, American Samoa, Cook Islands, Marshall Islands, and Kiribati; up to 100m, including Nauru.

Monthly Sea Level Anomalies

Source: [Pacific Community COSPPac Ocean Portal](#)

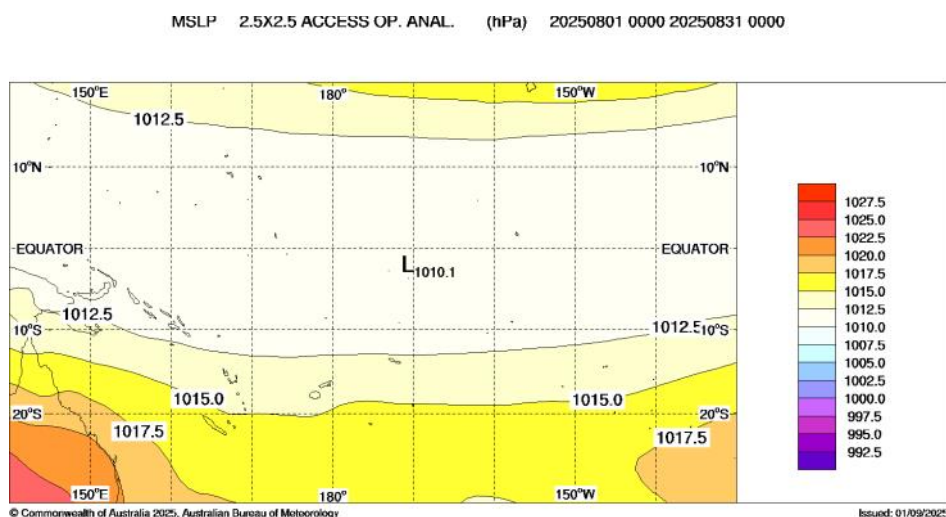


MEAN SEA LEVEL PRESSURE

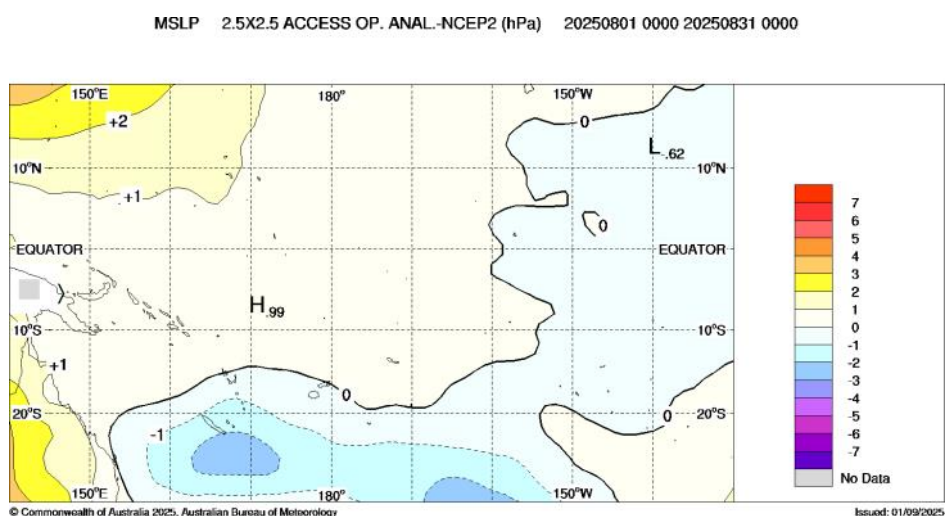
The August sea level pressure (MSLP) anomaly map displays negative anomalies of 1 hPa or greater over New Caledonia, southern Vanuatu, and southern Fiji. Positive anomalies of 1 hPa or greater were present over northern FSM, Guam, CNMI and western RMI.

Areas of above (below) average MSLP usually coincide with areas of suppressed (enhanced) convection and rain throughout the month.

Mean



Anomalous



Bureau of Meteorology South Pacific Circulation Patterns: <http://www.bom.gov.au/cgi-bin/climate/cmb.cgi?variable=mslp&area=spac&map=anomaly&time=latest>

SEASONAL RAINFALL OUTLOOK

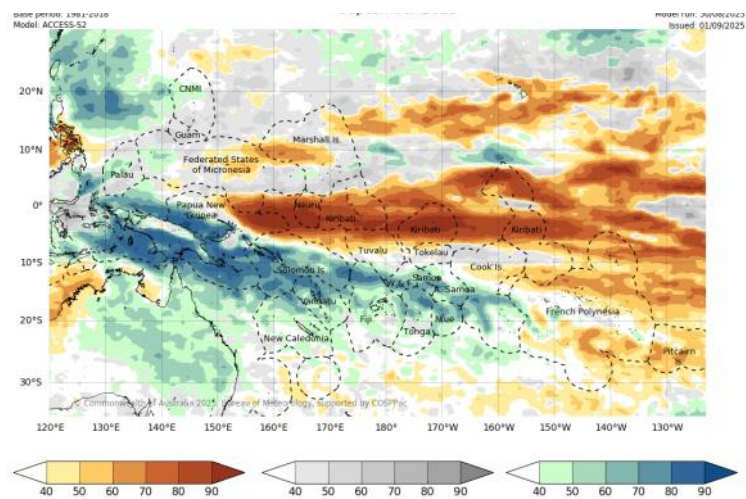
September—November 2025



The ACCESS-S model forecast for September 2025, shows above normal rainfall is likely or very likely for northern CNMI, central Palau, and western FSM (Yap State) in the northern Pacific. Above normal rainfall is likely or very likely in a band stretching southeast from PNG, over Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga, Wallis and Futuna, Samoa, American Samoa, Niue, and southern Cook Islands. Patches of above normal rainfall is likely or very likely for western and central French Polynesia. Below normal rainfall is likely or very likely in central FSM, central RMI, and from a band stretching eastwards from northeastern PNG, southern FSM, Nauru to Kiribati (Gilbert, Phoenix, and most of Line Is.) in the north Pacific. Another area of below normal rainfall is likely or very likely for Tuvalu, Tokelau, northern Cook Is., northern French Polynesia, and Pitcairn Islands in the south Pacific.

The ACCESS-S three-month rainfall outlook (September to November 2025) is very similar to the September outlook, but the drier than normal covers the northern RMI, Tuvalu, Tokelau, and northern Cook Islands. The above normal rainfall outlook is also very similar to the September Outlook but the region extend over Guam, most of CNMI Is., Palau, and extend southeastwards over PNG to central French Polynesia.

Monthly ACCESS-S Maps



The Copernicus multi-model outlook for September to November 2025 is very similar to the ACCESS-S outlook. However, the above normal rainfall region shift south and only extend over Palu, most of PNG, southern Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga, Niue, and southern Cook Islands. The drier than normal region extend further from northern RMI to CNMI.

The APEC Climate Centre multi-model outlook (September to November 2025) is similar to the copernicus Multi-model outlook

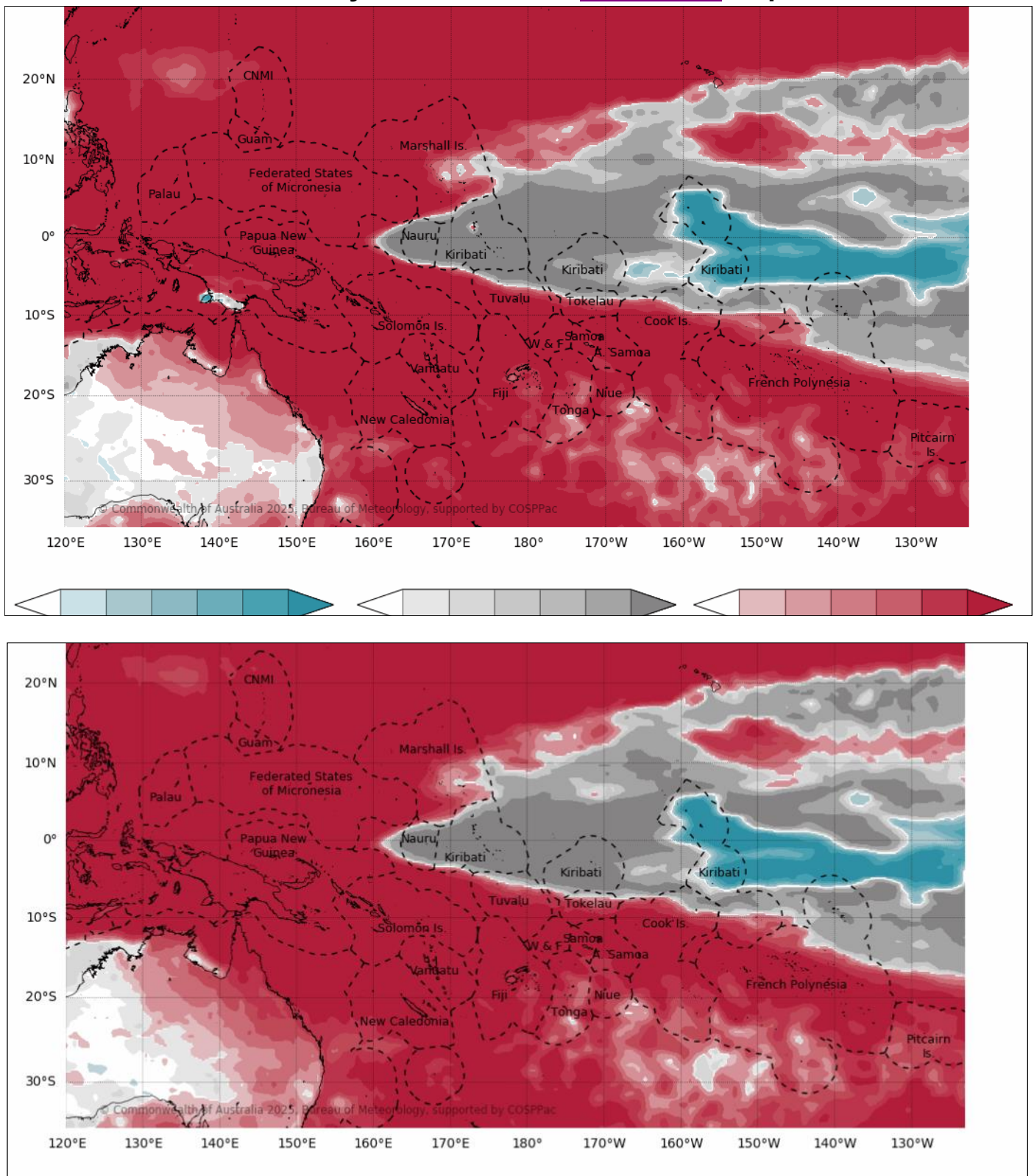
For September to November 2025, the models agree that above normal rainfall is likely or very likely over Palau, western FSM, western FSM, and a band stretching southeastwards over PNG, southern Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga, Niue, southern Cook Islands, and southern French Polynesia. Below normal rainfall is likely or very likely from northern FSM to northern RMI, and in a band stretching eastwards from northeast PNG, southeast FSM, Nauru to Kiribati (Gilbert, Phoenix, and southern Line Islands), Tuvalu, Tokelau, northern Cook Is., northern French Polynesia, and Pitcairn Islands.

SEASONAL TEMPERATURE OUTLOOK

September—November 2025



Monthly Tmax and Tmin [ACCESS-S](#) Maps

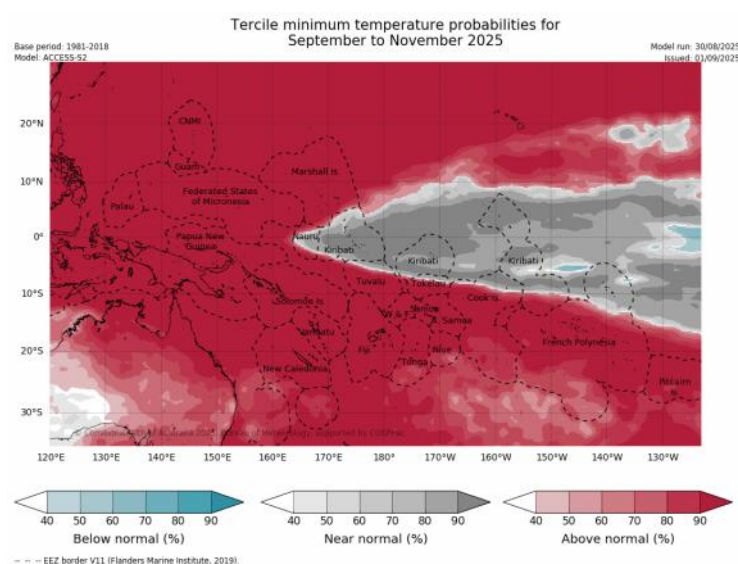
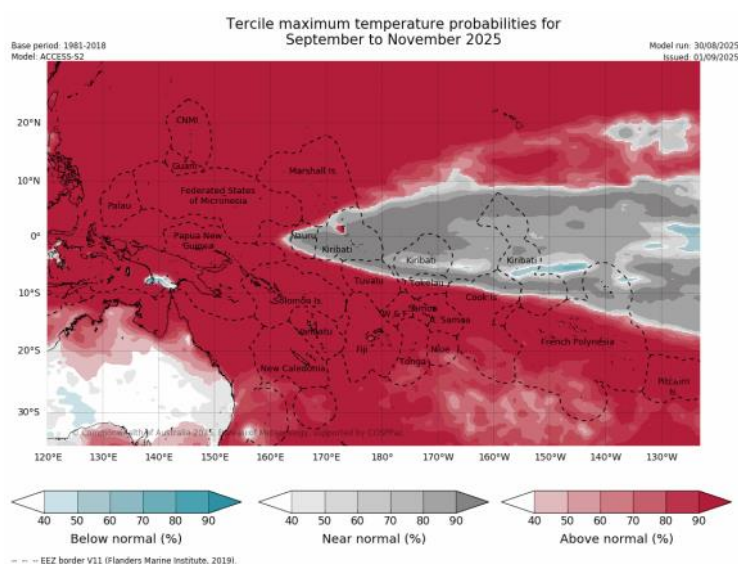
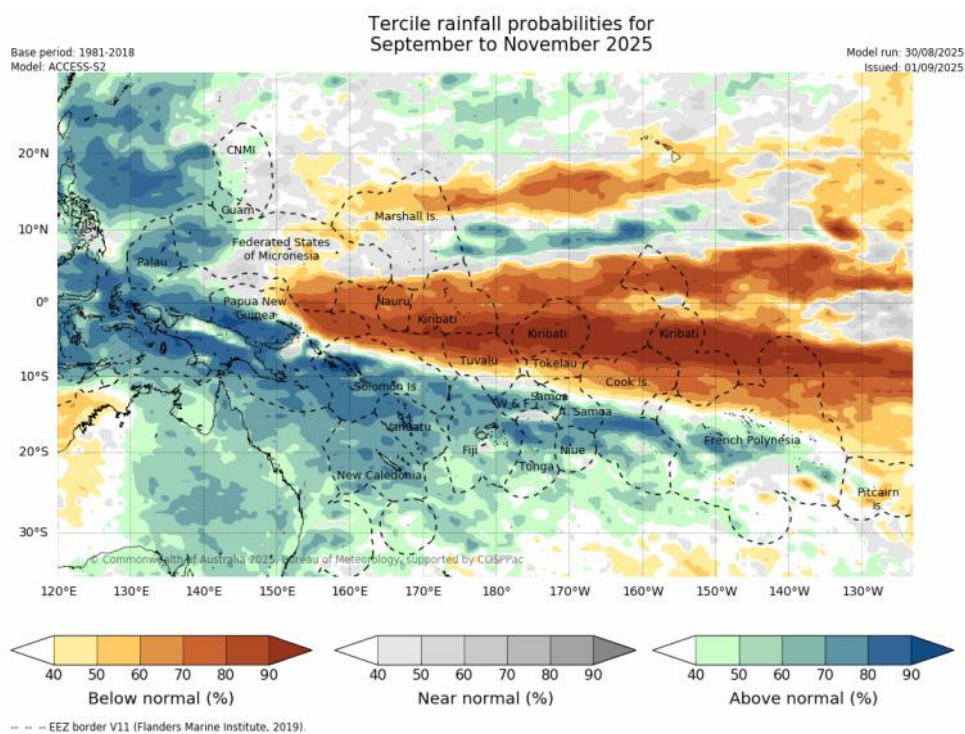


SEASONAL RAINFALL OUTLOOK

September—November 2025



Seasonal ACCESS-S maps



'About ACCESS-S <http://access-s.climatecloud/>

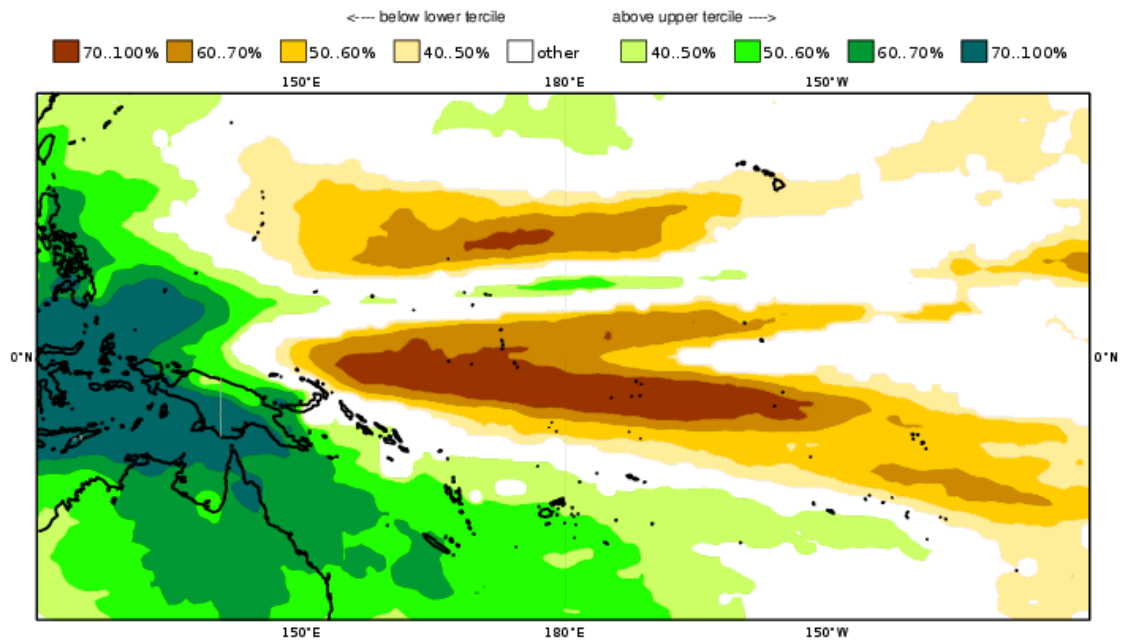
SEASONAL RAINFALL OUTLOOK

September—November 2025



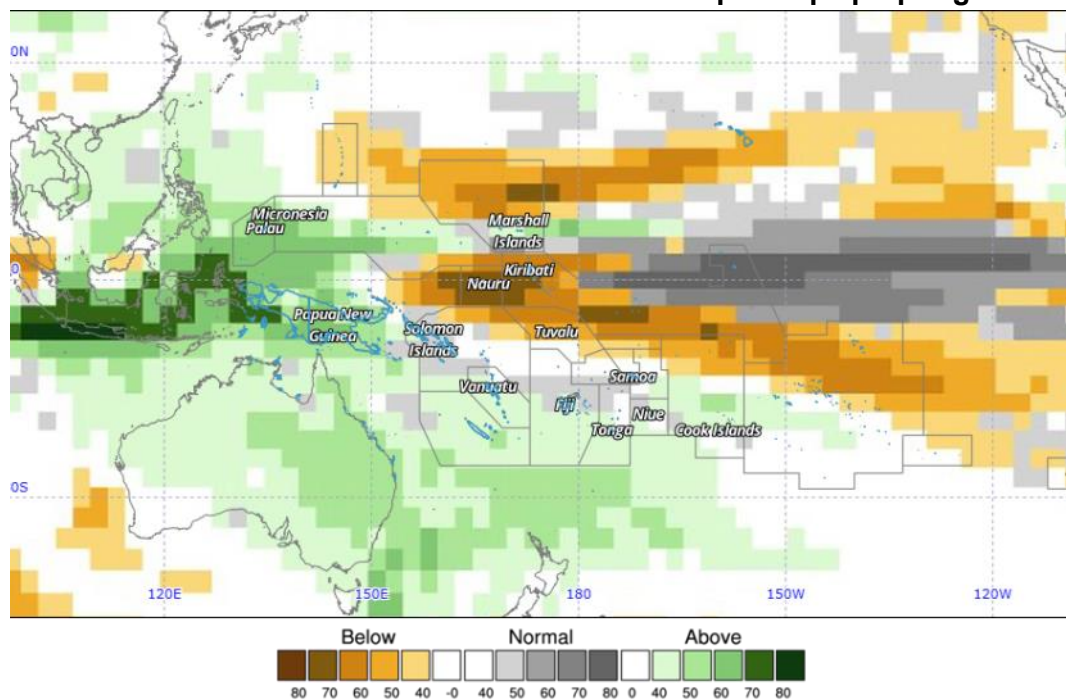
Copernicus (C3S multi-system)-Rainfall
 Prob(most likely category of precipitation)
 Nominal forecast start: 01/08/25
 Unweighted mean

SUN 2025



Copernicus Rainfall: <https://climate.copernicus.eu/charts/>

APEC Climate Information Toolkit for the Pacific: <http://clikp.sprep.org/>



Year: 2025, Season: SON, Lead Month: 3, Method: GAUS
 Model: APCC, BOM, CMCC, CWA, ECCS, NASA, NCEP, PNU
 Generated using CLIK® (2025-9-3)

© APEC Climate Center

TROPICAL CYCLONE

2024/2025 Season



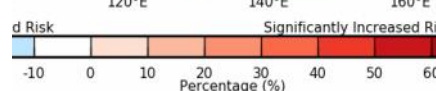
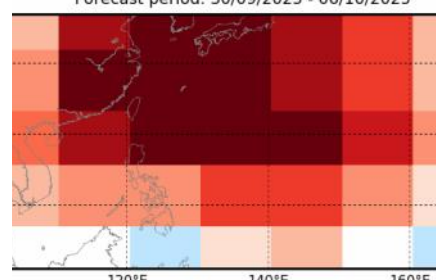
The northwest Pacific (WNP) tropical cyclone season is year-round, with most cyclones occurring between May and December. The 2024/25 Southwest Pacific tropical cyclone (TC) season has been remarkably inactive. There have been 11 disturbances overall, and five named storms to date (Alfred, Pita, Rae, Seru, Tam). Lower than normal TC activity in the central Pacific tends to be associated with La Niña conditions. Therefore, the 2024/25 TC season is consistent with this pattern.

In the WNP, the genesis and track of TCs show a relationship with the ENSO cycle: activity typically shifts eastward during El Niño and westward during La Niña. The outlooks currently favour a near-average TC season for the Western and Central North Pacific basins. In the southwest Pacific, the 2025-26 tropical cyclone season starts on 01st November 2025.

It's important to remember that history shows that tropical cyclones can happen outside the normal cyclone season, and it does not take a severe cyclone to produce severe impacts. Coastal and river flooding rainfall can occur with a distant, weak, or former cyclone, especially if the system is slow-moving. Communities should remain vigilant, and follow forecast information provided by their National Meteorological and Hydrological Service (NMHS).

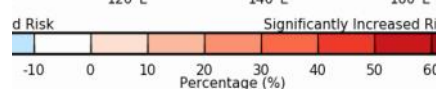
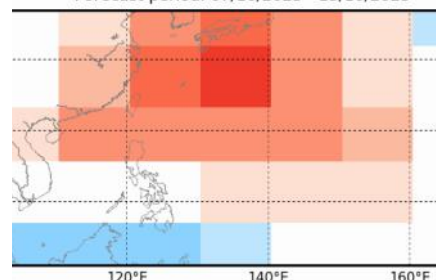
The weekly tropical cyclone forecasts from the ACCESS-S model shows significantly increased risks for Palau, FSM, Guam, CNMI, RMI, Philippines, south China sea region, and Japan for the 30 September to 06 October. There is reduced risk during the period 07 October to 13 October.

ACCESS-S Weekly Forecasts –Northwest Pacific
a from normal chance of Tropical Cyclone's in the Nor
Forecast period: 30/09/2025 - 06/10/2025



robability in overlapping 15 x 20 degree boxes
125, Australian Bureau of Meteorology Model: ACCESS_S2 Model Run: 1

a from normal chance of Tropical Cyclone's in the Nor
Forecast period: 07/10/2025 - 13/10/2025



robability in overlapping 15 x 20 degree boxes
125, Australian Bureau of Meteorology Model: ACCESS_S2 Model Run: 1

ACCESS-S Weekly Forecasts –Southwest Pacific

OUT OF SEASON

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are for November to April

OUT OF SEASON

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are for November to April

Individual Model Links

UKMO Global long-range model probability maps: <http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob>

ECMWF Rain (Public charts) - Long range forecast: <http://www.ecmwf.int/en/forecasts/charts/seasonal/rain-public-charts-long-range-forecast>

POAMA Pacific Seasonal Prediction Portal: <http://poama.bom.gov.au/experimental/pasap/index.shtml>

APEC Climate Center (APCC): <http://www.apcc21.org/eng/service/6mon/>

OTHER INFORMATION

Southern Oscillation Index

The Southern Oscillation Index, or SOI, gives an indication of the development and intensity of El Niño and La Niña events across the Pacific Basin. The SOI is calculated using the difference in air pressure between Tahiti and Darwin. Sustained negative values of the SOI below -7 often indicate El Niño episodes. These negative values are usually accompanied by sustained warming of the central and/or eastern tropical Pacific Ocean, and a decrease in the strength of the Pacific Trade Winds. Sustained positive values of the SOI greater than $+7$ are typical of La Niña episodes. They are associated with stronger Pacific Trade Winds and sustained cooling of the central and eastern tropical Pacific Ocean. In contrast, ocean temperatures to the north of Australia usually become warmer than normal.

Multivariate ENSO Index (MEI)

The Climate Diagnostics Center Multivariate ENSO Index (MEI) is derived from a number of parameters typically associated with El Niño and La Niña. Sustained negative values indicate La Niña, and sustained positive values indicate El Niño.

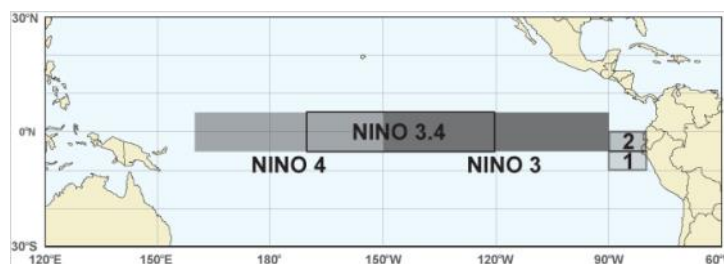
20 degrees Celsius Isotherm Depth

The 20°C Isotherm Depth is the depth at which the water temperature is 20°C. This measurement is important, as the 20°C isotherm usually occurs close to the thermocline, the region of most rapid change of temperature with depth, or the division between the mixed surface layer and deep ocean. A 20°C isotherm that is deeper than normal (positive anomaly) implies a greater heat content in the upper ocean, while a shallower 20°C isotherm (negative anomaly) implies a lower-than-normal heat content in the upper ocean.

Regions

SST measurements may refer to the NINO1, 2, 1+2, 3, 3.4 or 4 regions. These descriptions simply refer to the spatially averaged SST for the region described. The NINO regions (shown in the figure below) cover the following areas:

Region	Latitude	Longitude
NINO1	5-10°S	80-90°W
NINO2	0-5°S	80-90°W
NINO3	5°N to 5°S	150-90°W
NINO3.4	5°N to 5°S	120-170°W
NINO4	5°N to 5°S	160°E to 150°W



NOTE: NINO1+2 is the combined areas 1 and 2