ENSO Update – OCOF 229

14 October 2026

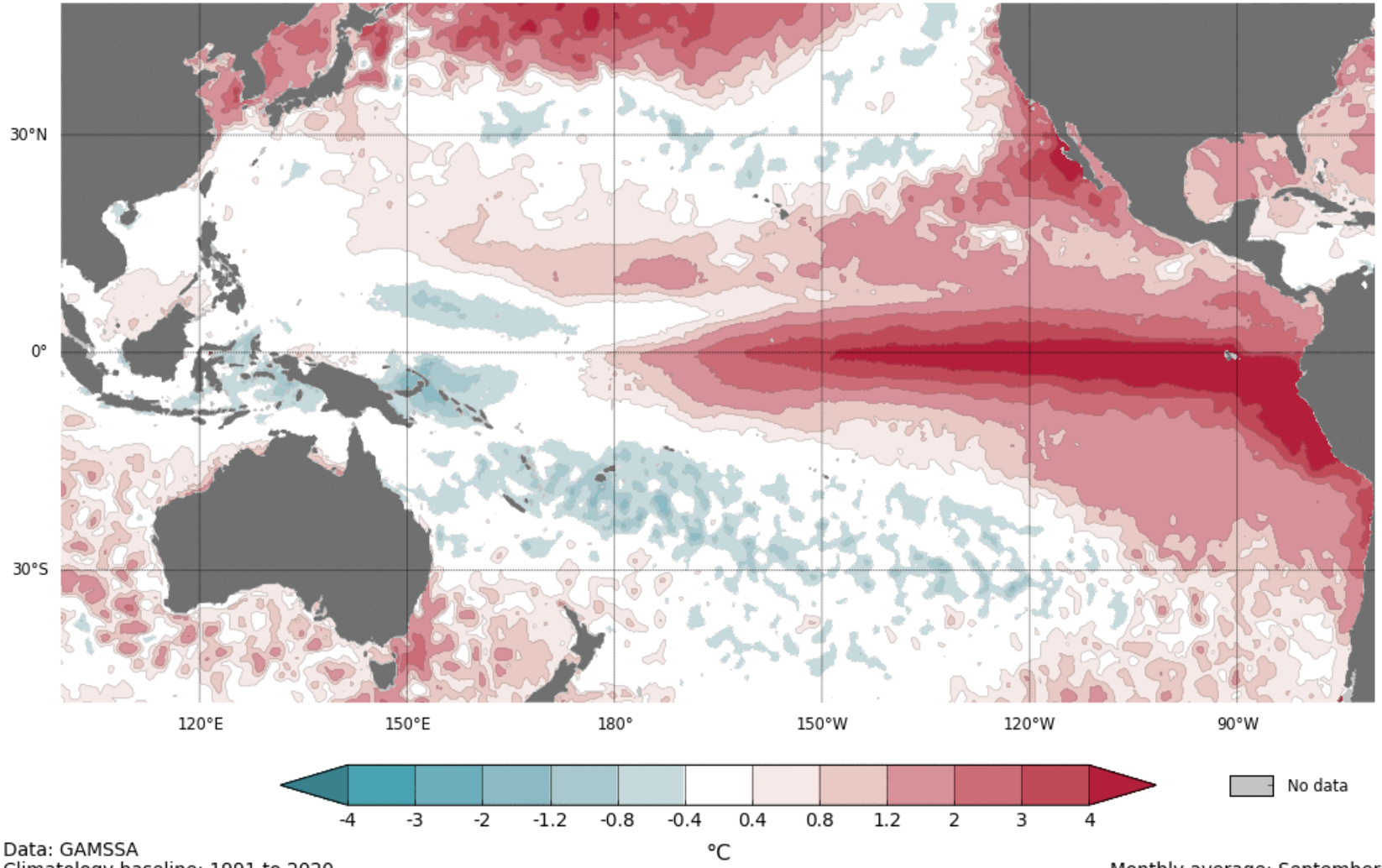


ENSO Update

- El Niño is near-record levels. Both oceanic and atmospheric indices reflect values consistent with a strong El Niño, with further intensification forecast during the rest of austral spring (northern hemisphere autumn).
- A strong El Niño is also evident in the atmosphere, with weakened or reversed trade winds in the western to central tropical Pacific, enhanced cloudiness across the central to eastern tropical Pacific and reduced cloud cover over the Maritime Continent predominant during September.
- All models, including the bureau's, forecast the tropical Pacific to continue warming likely peaking late in austral spring/summer (northern hemisphere autumn/winter), and persisting into autumn (northern hemisphere spring) 2027.
- Relative-Niño 3.4 values are forecast to reach levels above the warmest observed since reliable records began in 1950, with the majority of models indicating a peak value above +3.0 °C.
- The Indian Ocean Dipole (IOD) is currently neutral.
- This is the third consecutive week that the index has exceeded the positive IOD threshold (+0.4 °C). Sustained values above this threshold are required before an event is considered established.
- A positive IOD is likely to develop during the southern hemisphere spring and persist into summer, although model guidance indicates some uncertainty in the strength and duration of the event.

September 2026 SSTs

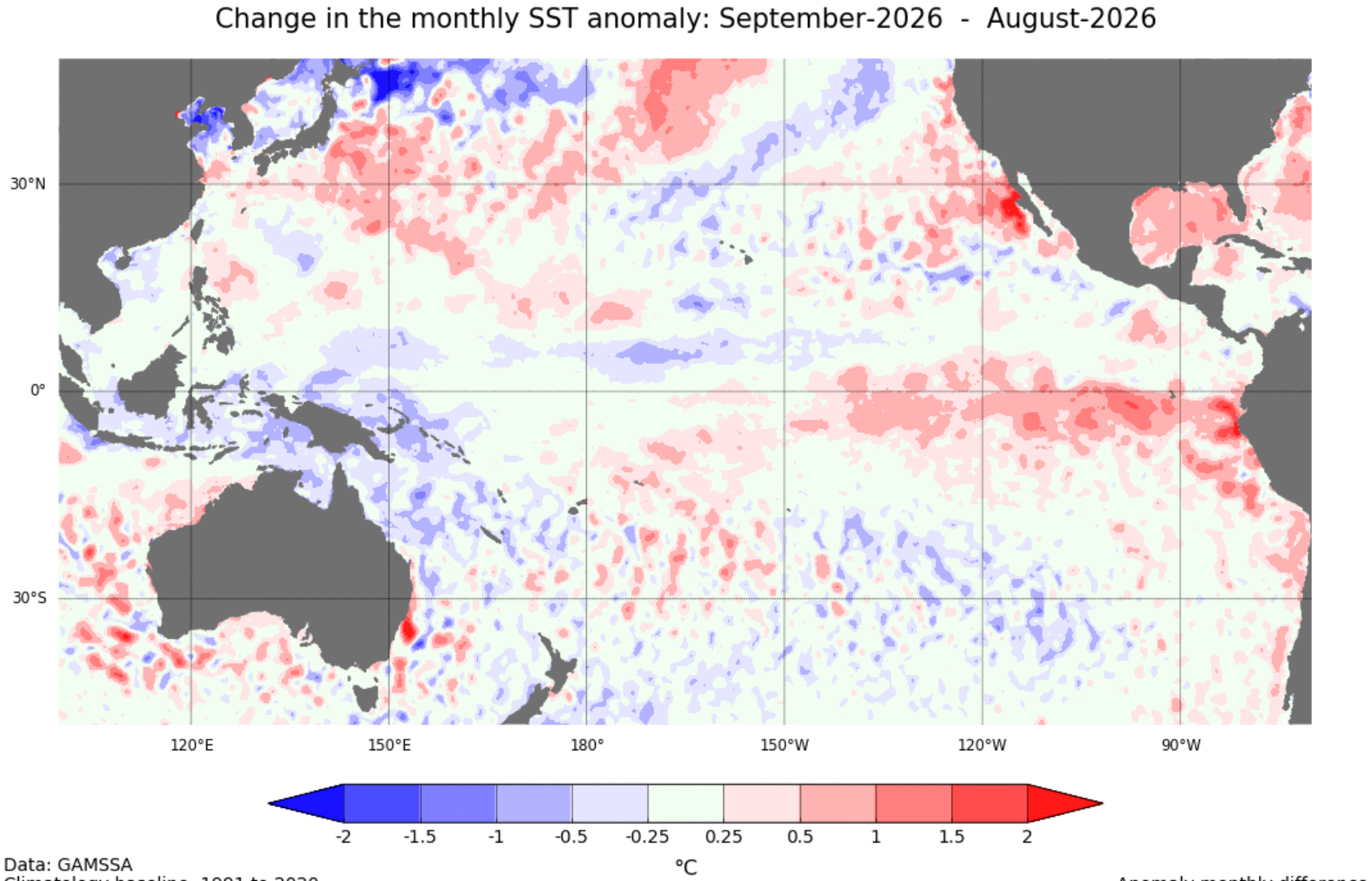
Sea surface temperature anomaly: 01/09/2026 to 30/09/2026



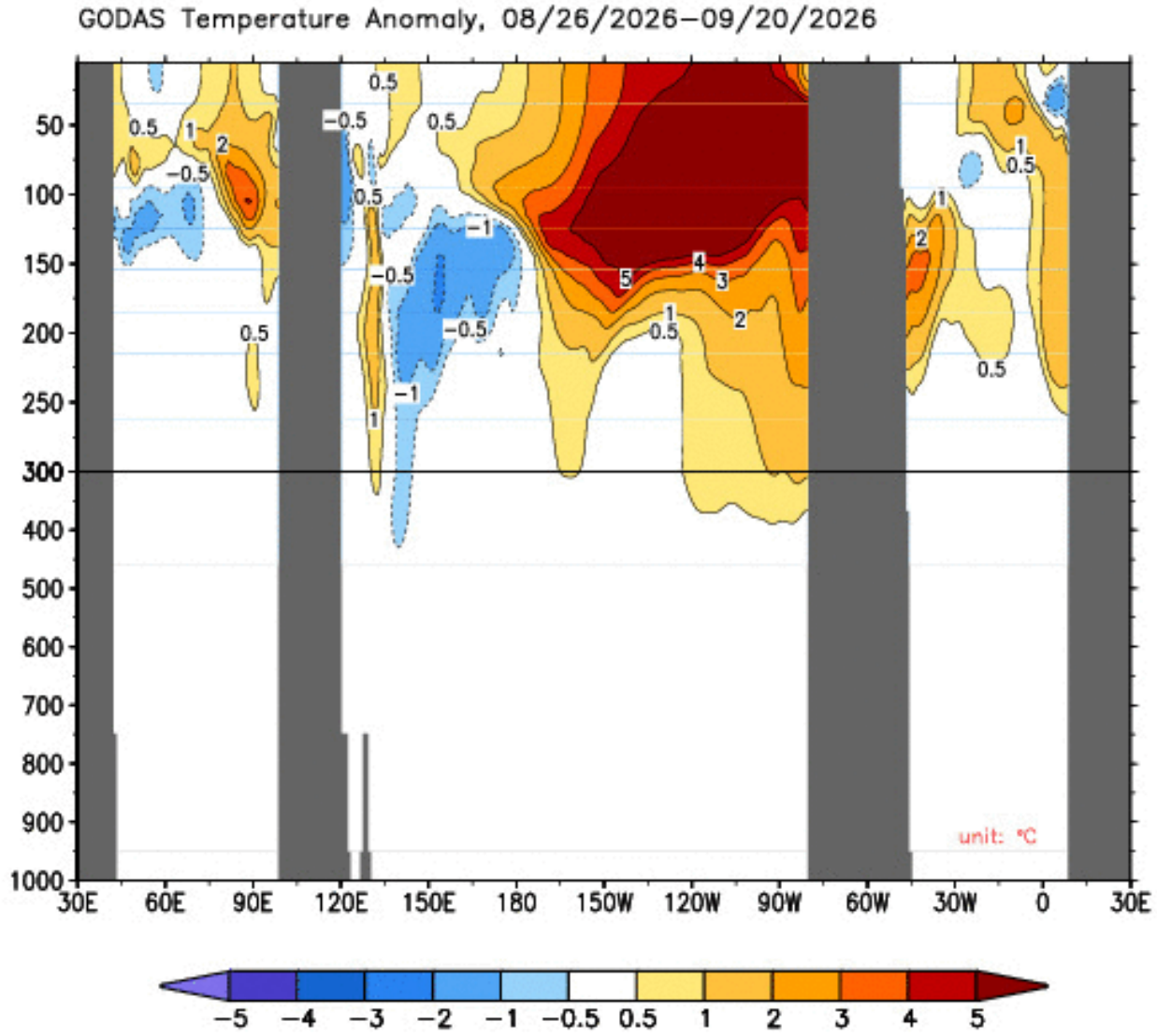
Data: GAMSSA
Climatology baseline: 1991 to 2020
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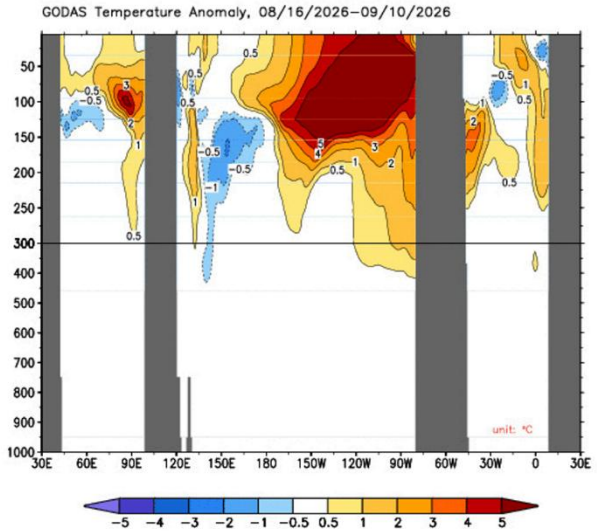
Monthly average: September 2026
http://www.bom.gov.au/climate
Created: 06/10/2026

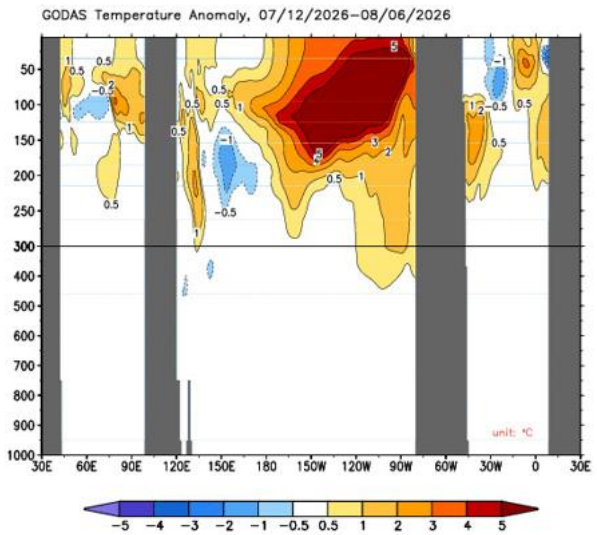
September – August SSTs



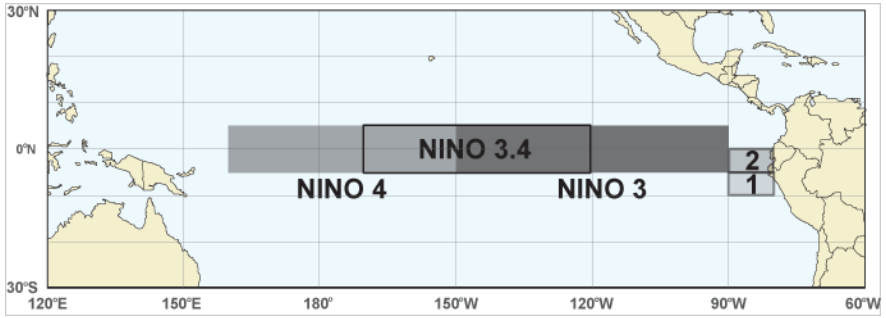
Equatorial Pacific Sub-surface Profile

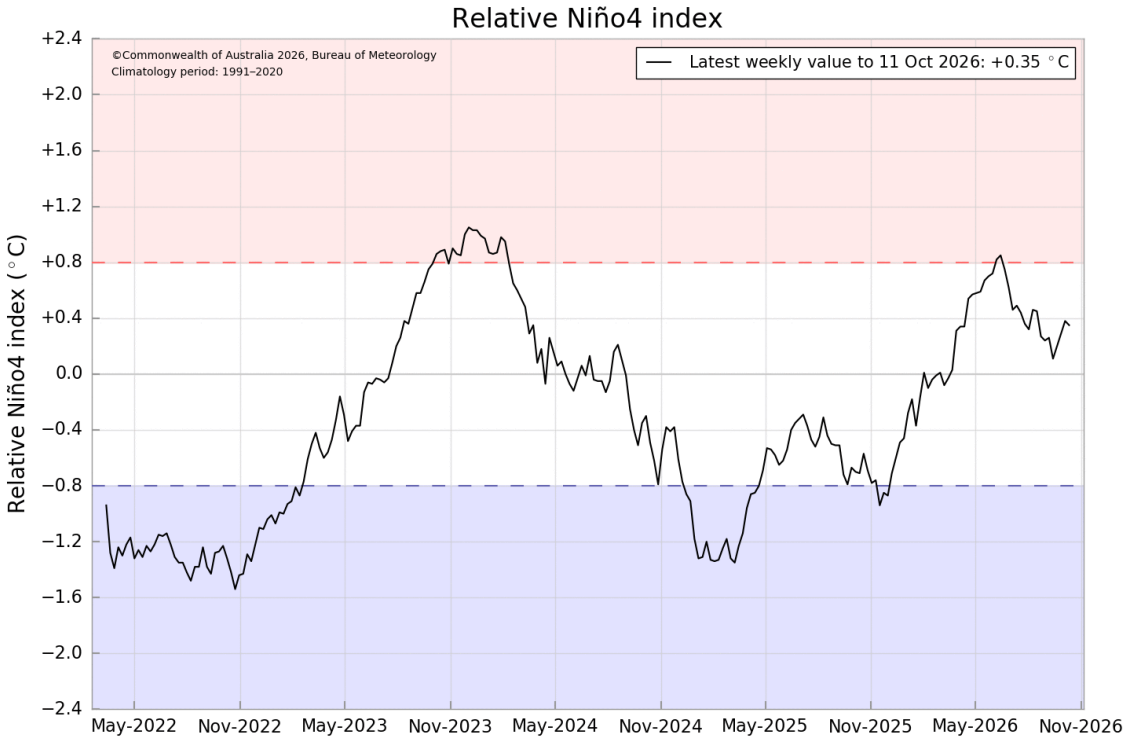


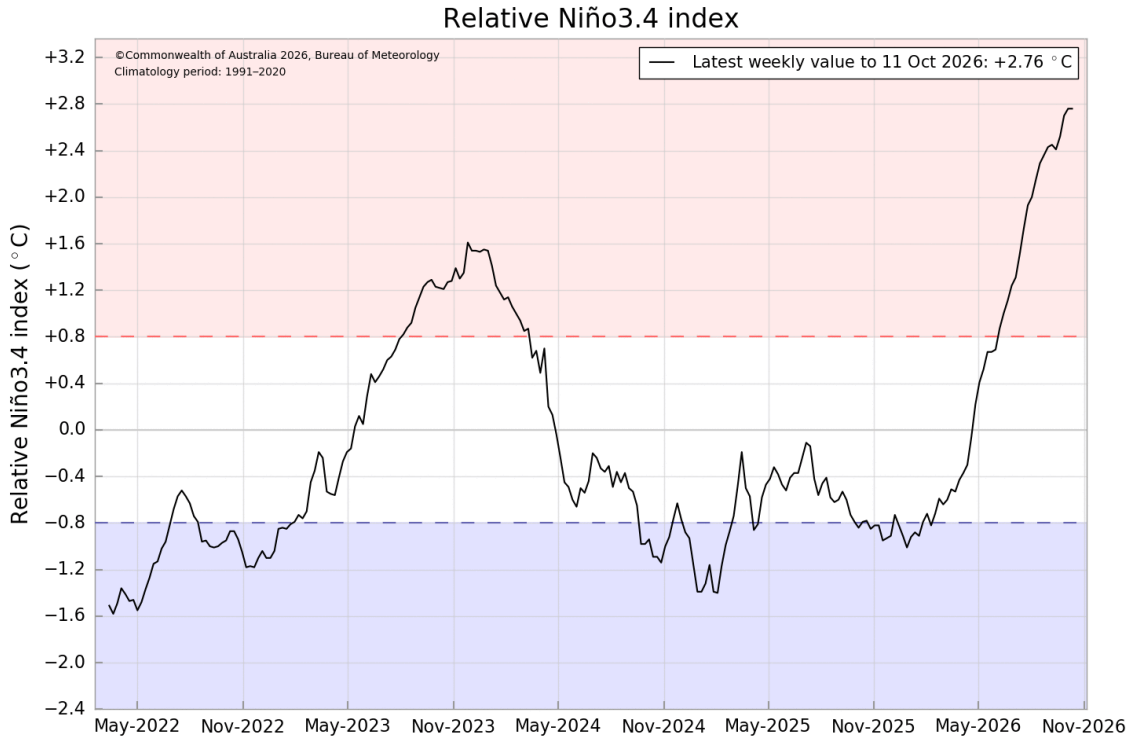




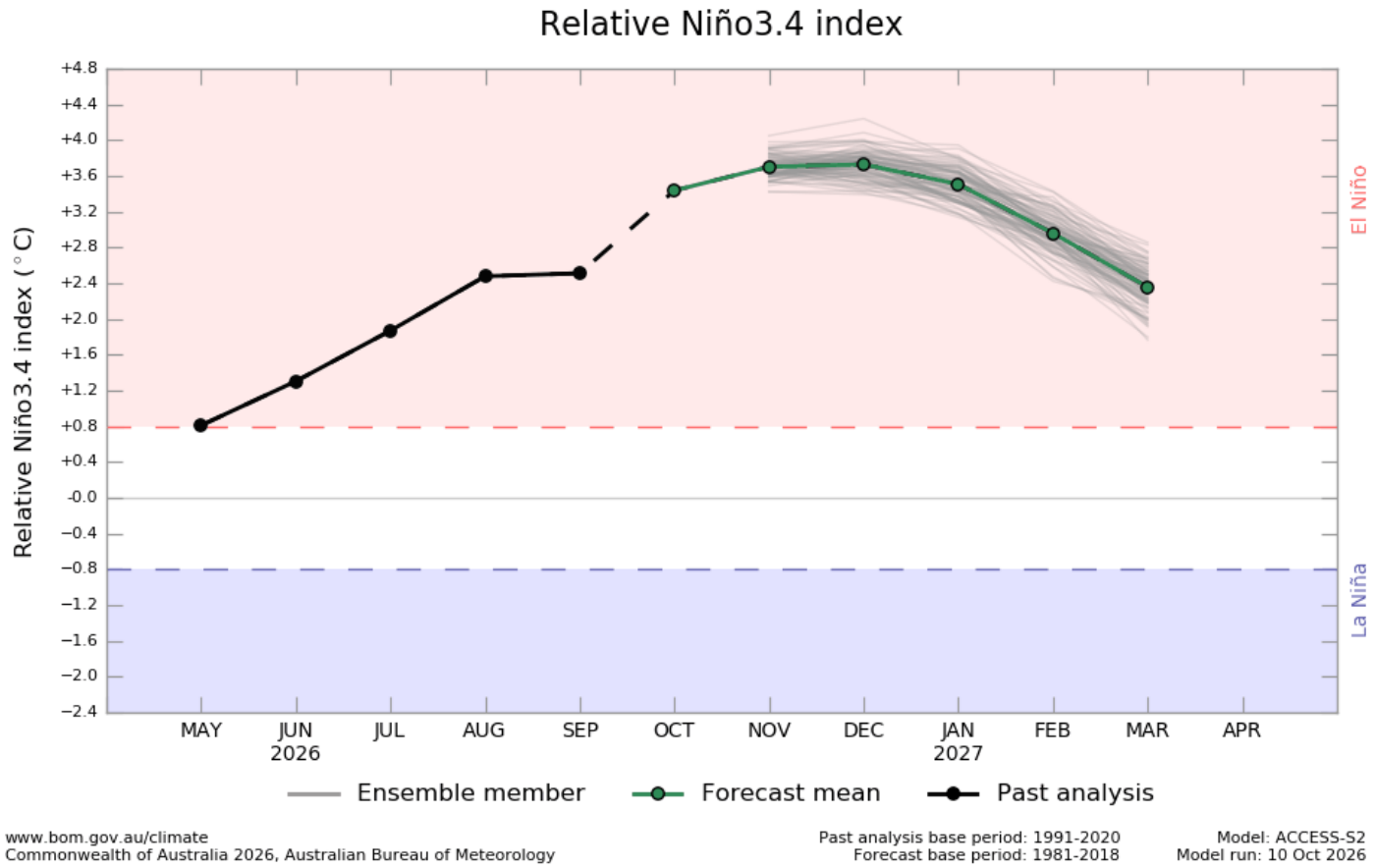
Observed Relative NINO Indices



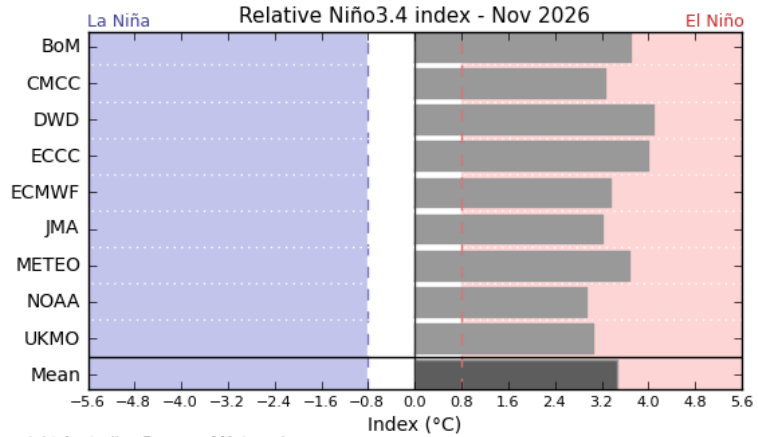




Relative ENSO Outlook

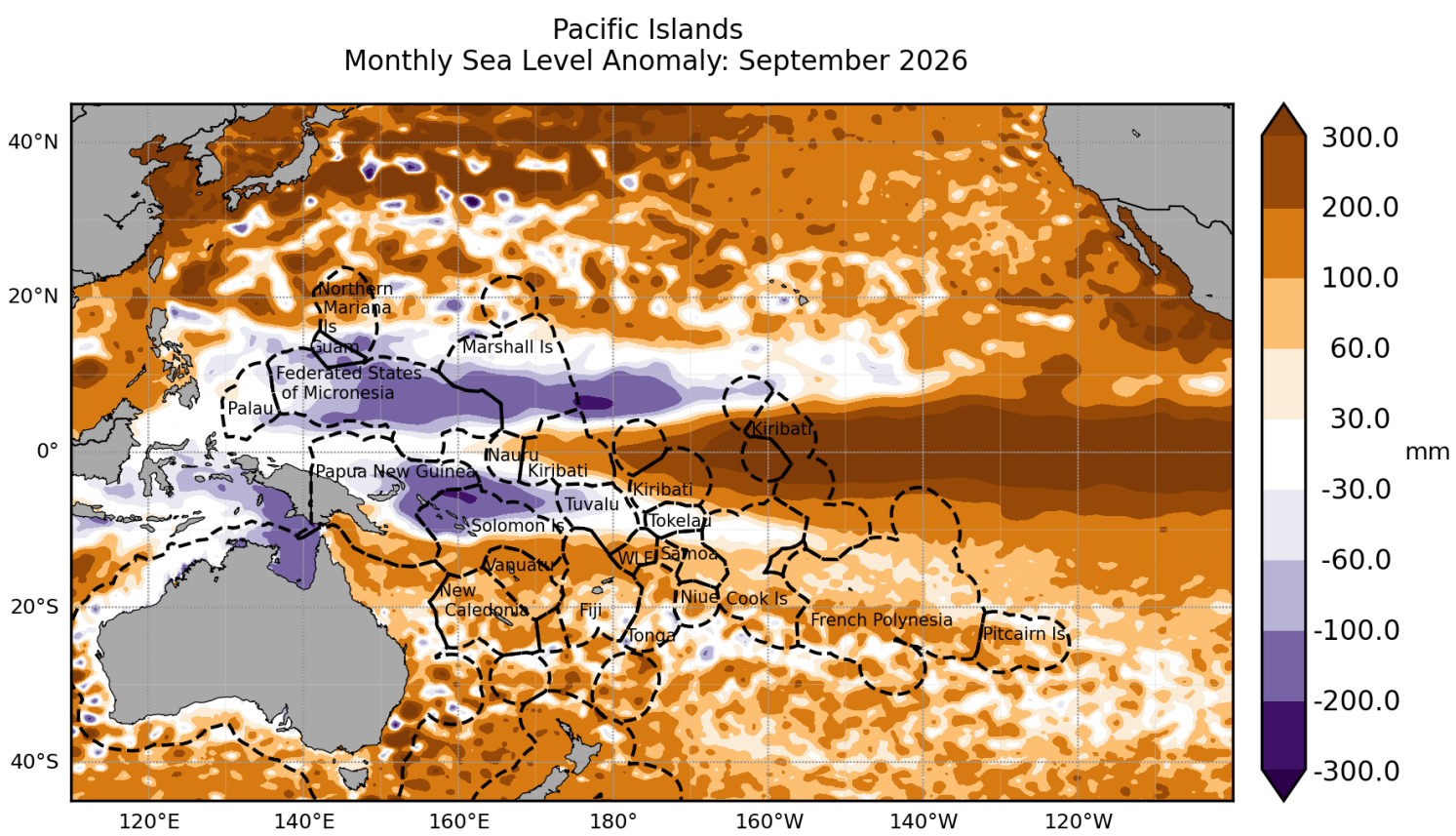


- El Niño is near-record levels.
- All models forecast the tropical Pacific will continue warming through the austral spring, likely peaking late in austral spring or summer (autumn/winter in the NH), and persisting into autumn (NH spring) 2027.
- Relative-Niño 3.4 values are forecast to reach levels above the warmest observed reliable records in 1950, with a potential peak value above +3.0 °C.



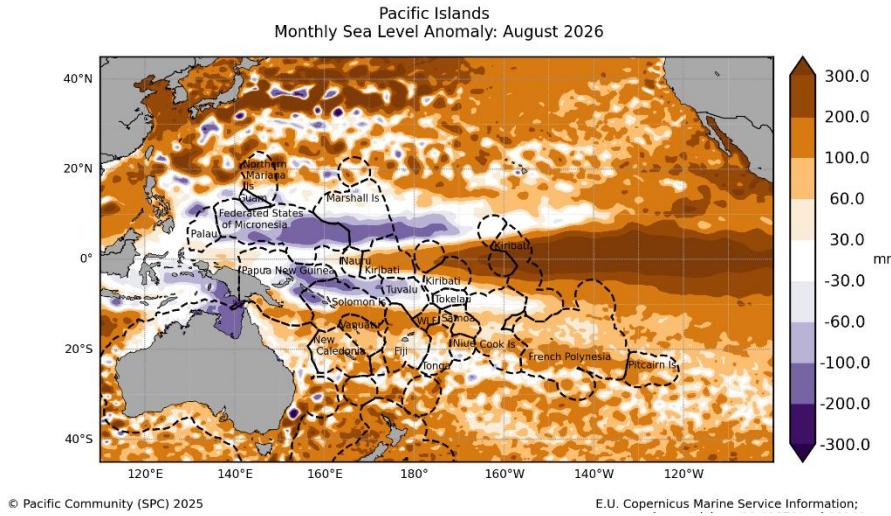
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September 2026 Sea Level Anomaly



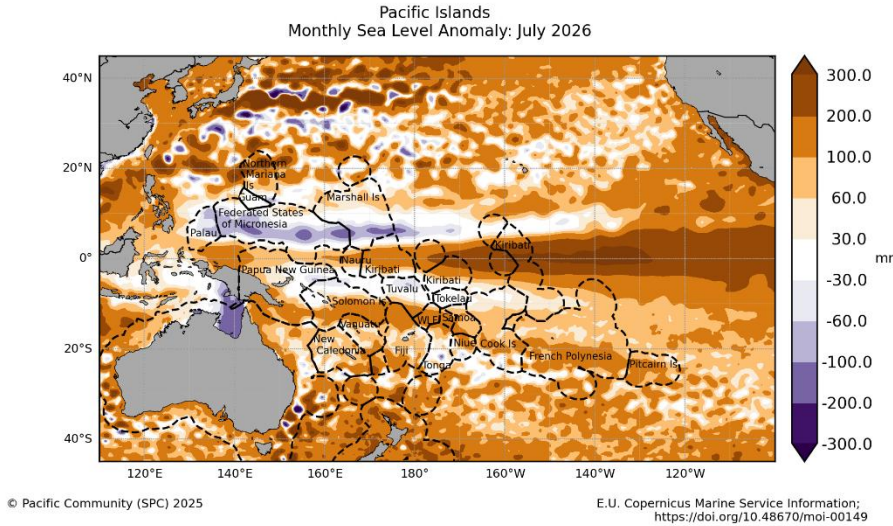
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E.U. Copernicus Marine Service Information;
https://doi.org/10.48670/moi-00149



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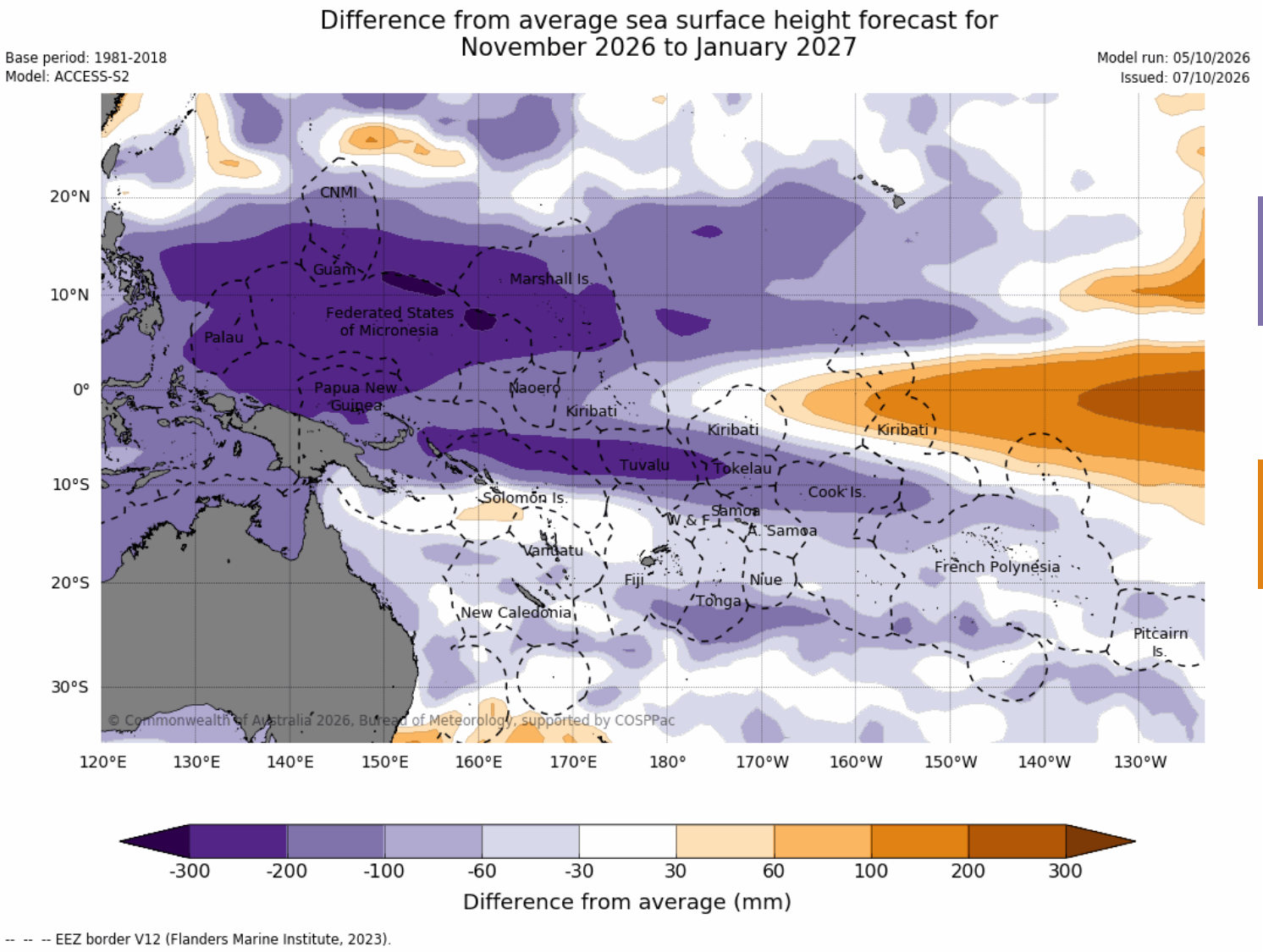
E.U. Copernicus Marine Service Information;



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https://doi.org/10.48670/moi-00149

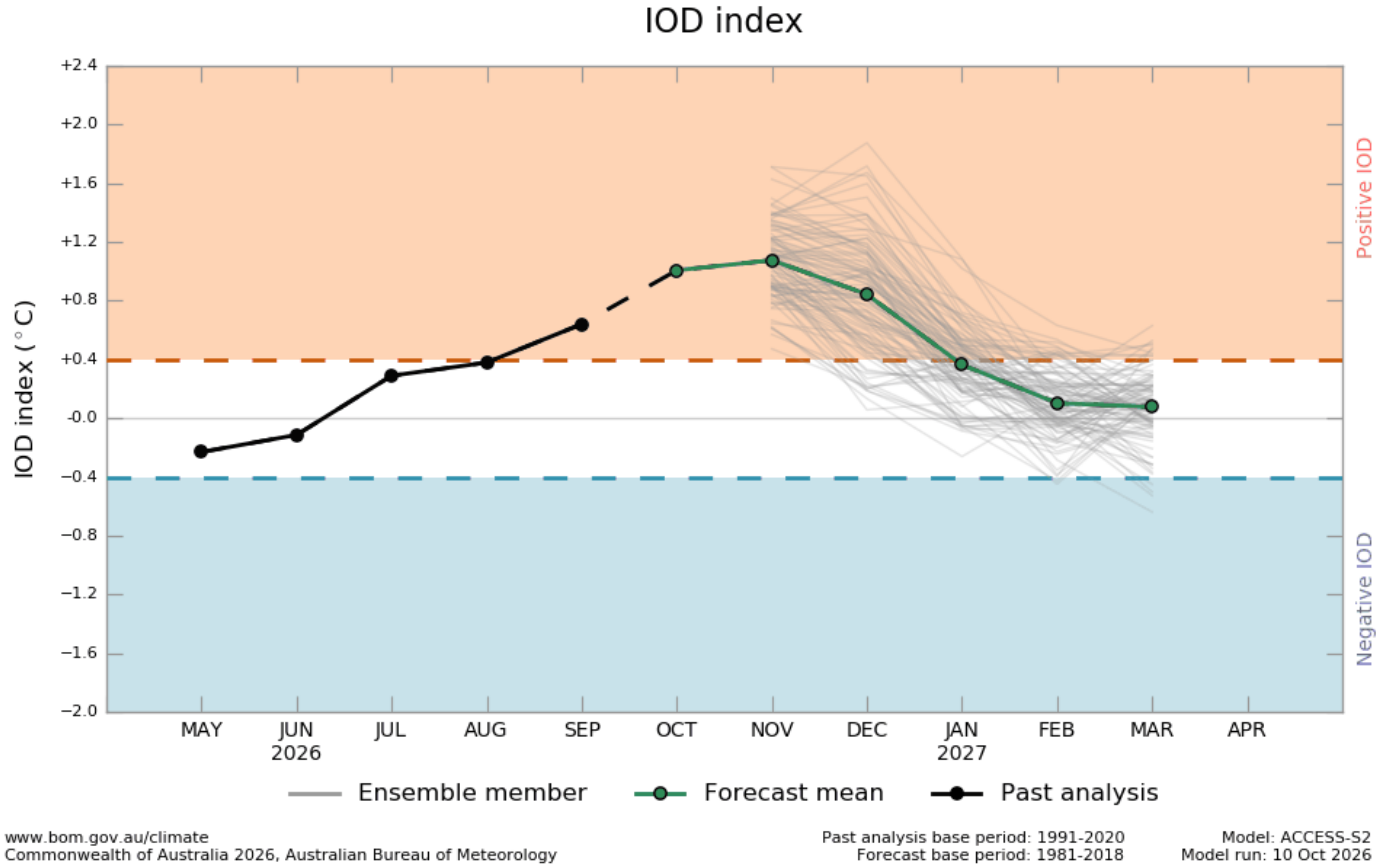
Seasonal Outlook: Sea Surface Height Anomaly



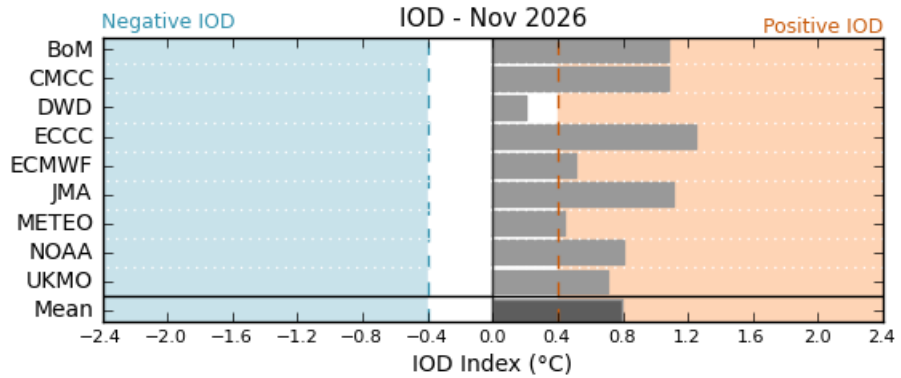
Decrease in average SSH

Increase in average SSH

Indian Ocean Dipole (IOD)



- The Indian Ocean Dipole (IOD) is currently neutral although this is the third consecutive week that the index has exceeded the positive IOD threshold (+0.4 °C).
- A positive IOD is likely to develop during the southern hemisphere spring and persist into summer, although model guidance indicates some uncertainty in the strength and duration of the event.

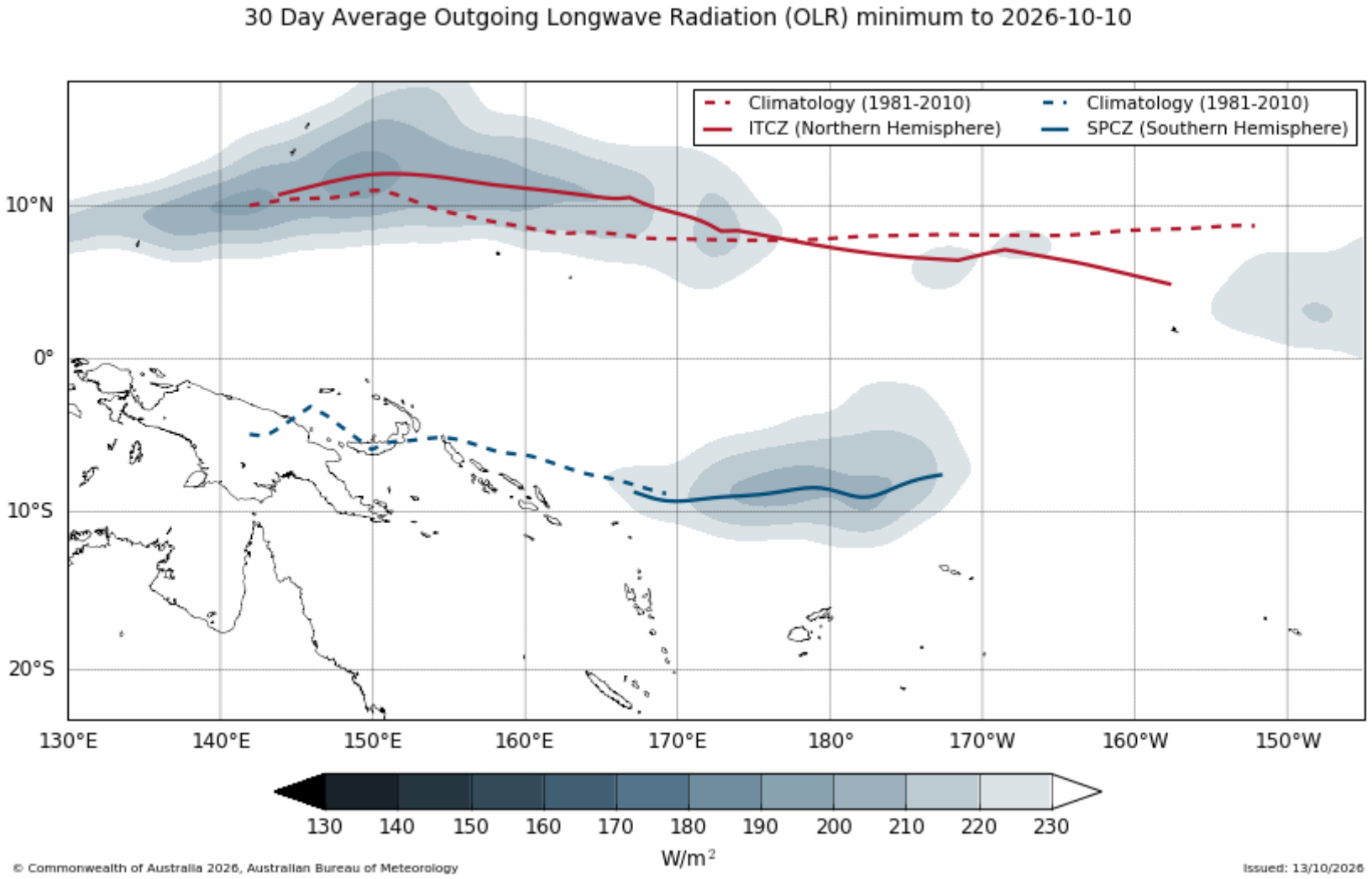


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Atmosphere Outlook



ITCZ and SPCZ



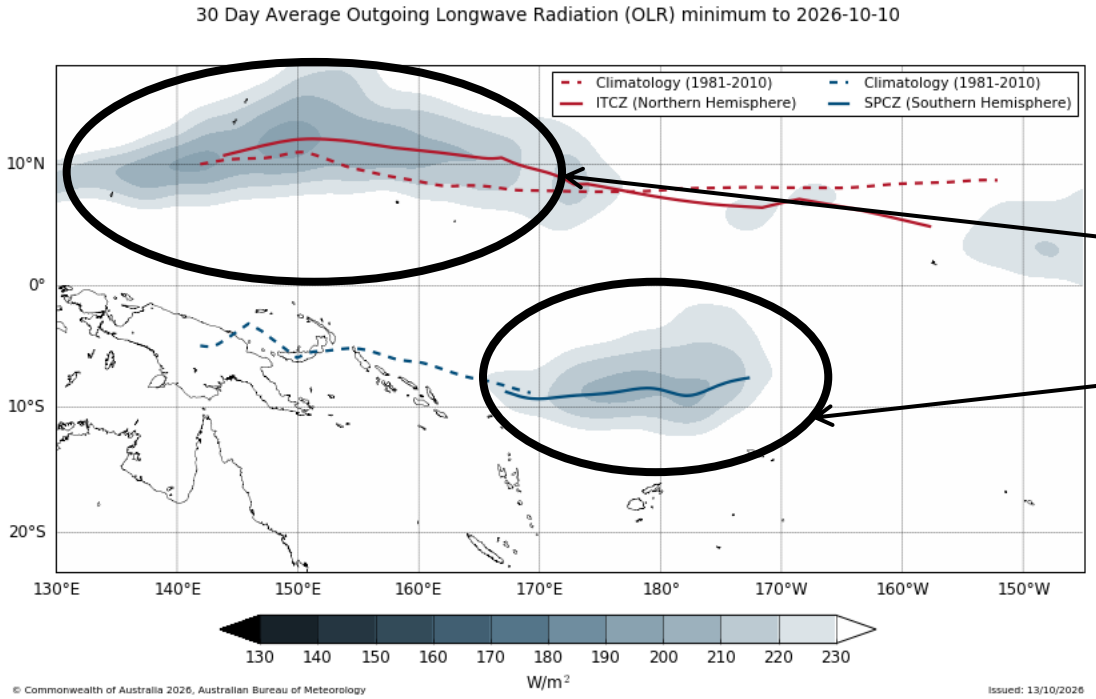
More clouds

Less clouds

The ITCZ and SPCZ tracks clouds cover in the Pacific region using long-wave outgoing radiation.

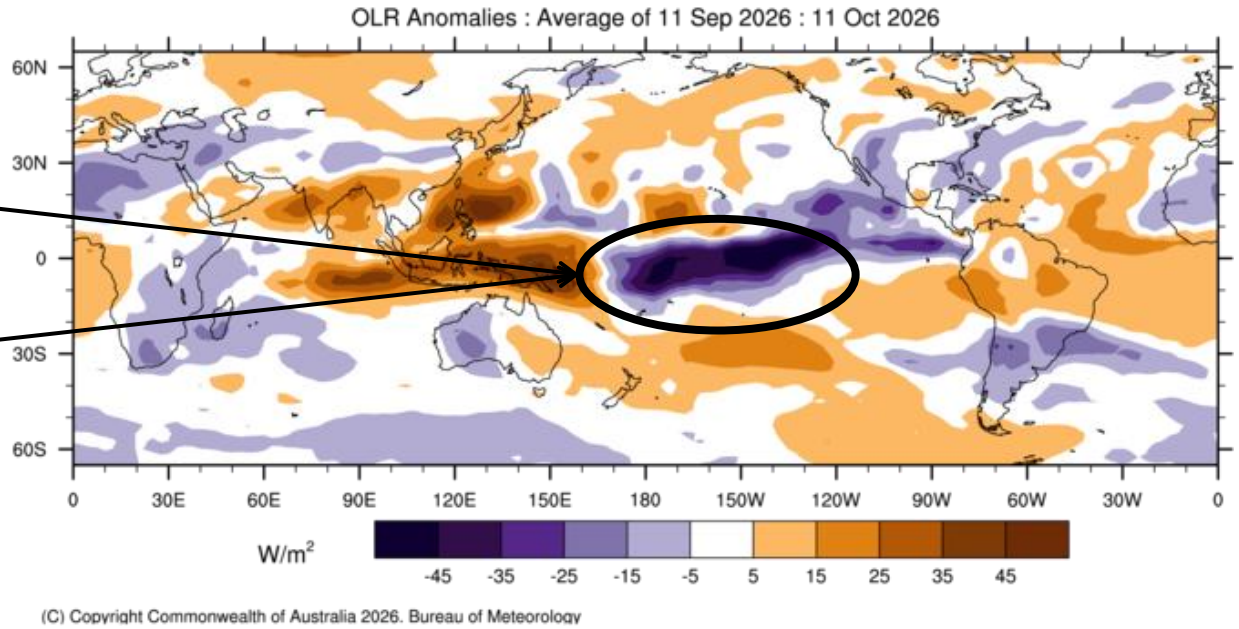
The map is very sensitive to tropical disturbances such as tropical lows, cyclones, hurricanes and typhoons.

ITCZ and SPCZ



More clouds

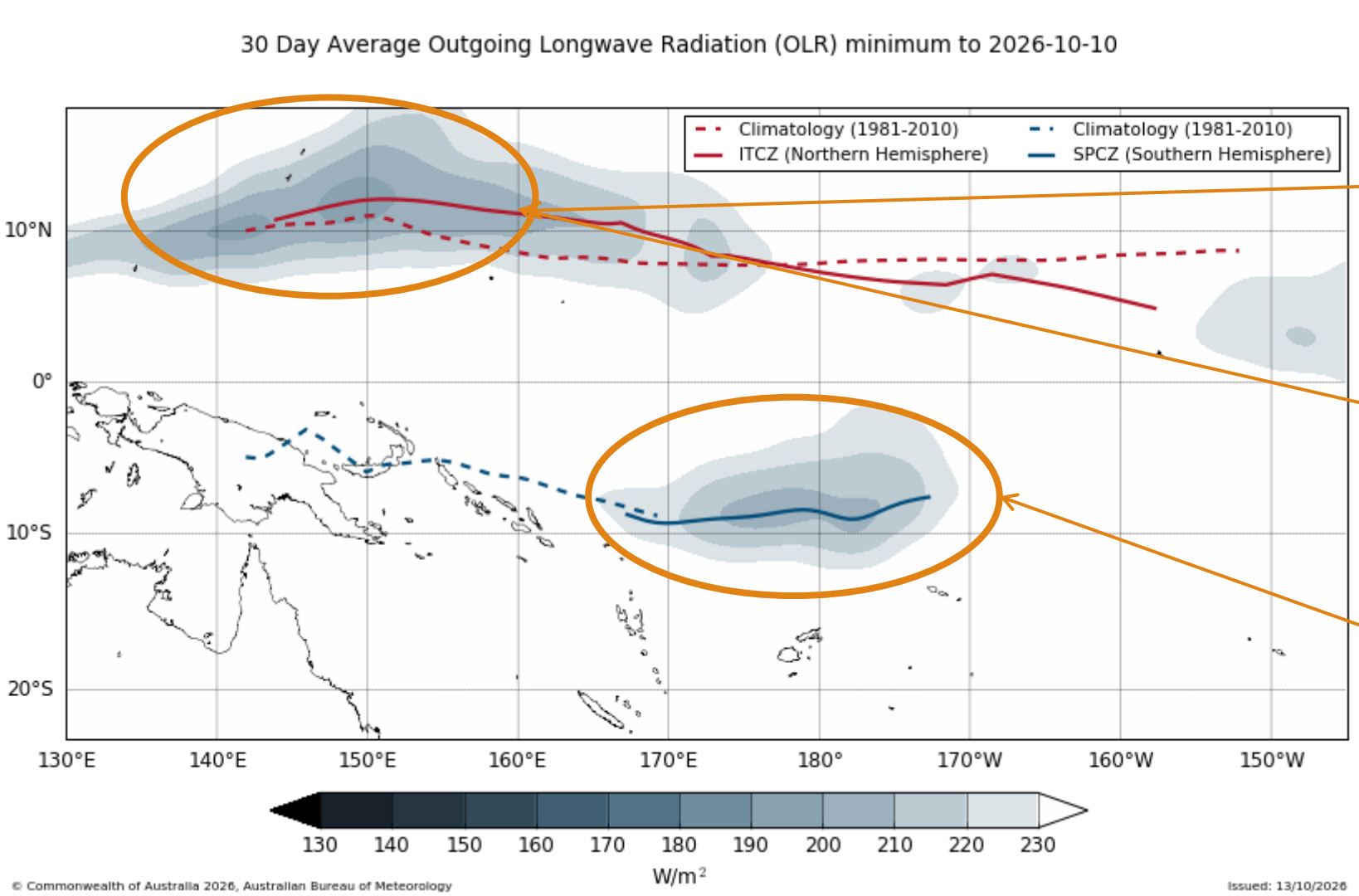
Less clouds

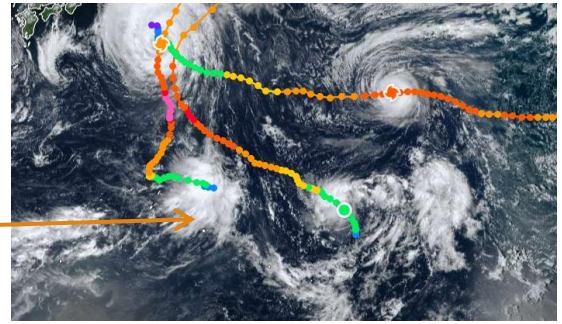


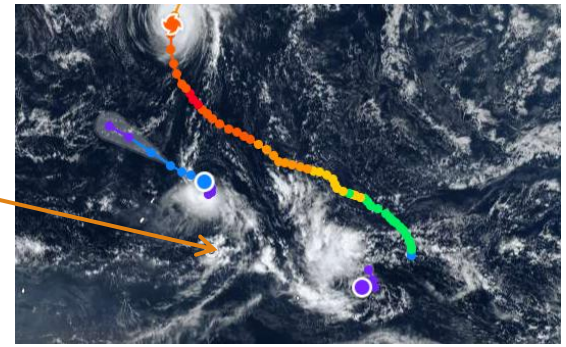
More clouds

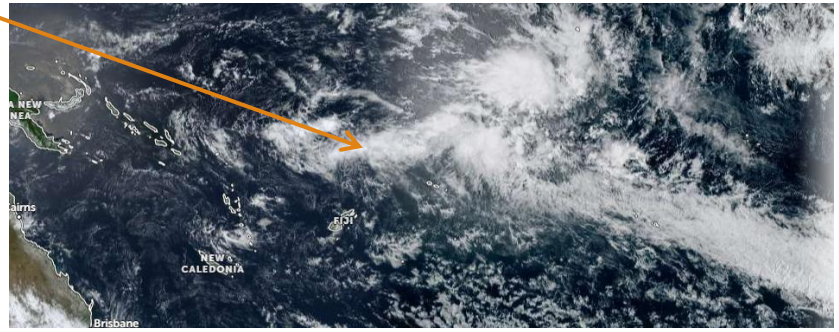
Less clouds

ITCZ and SPCZ





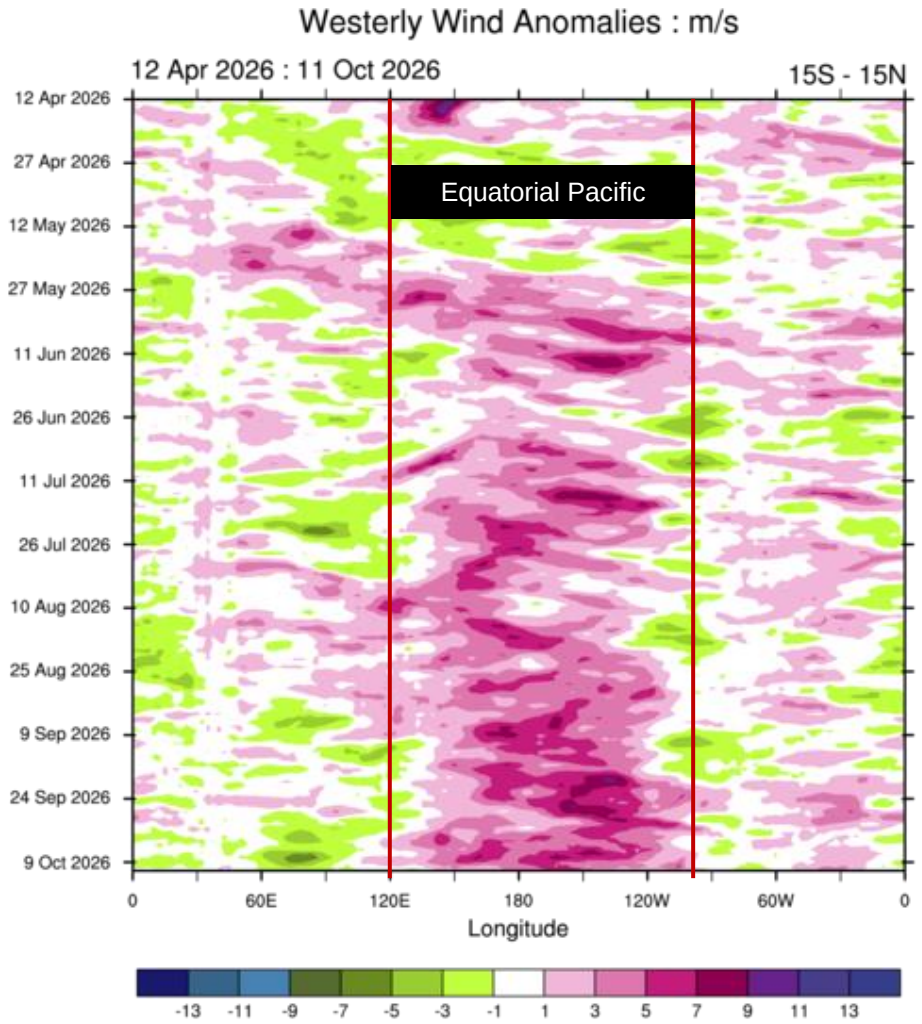




More clouds

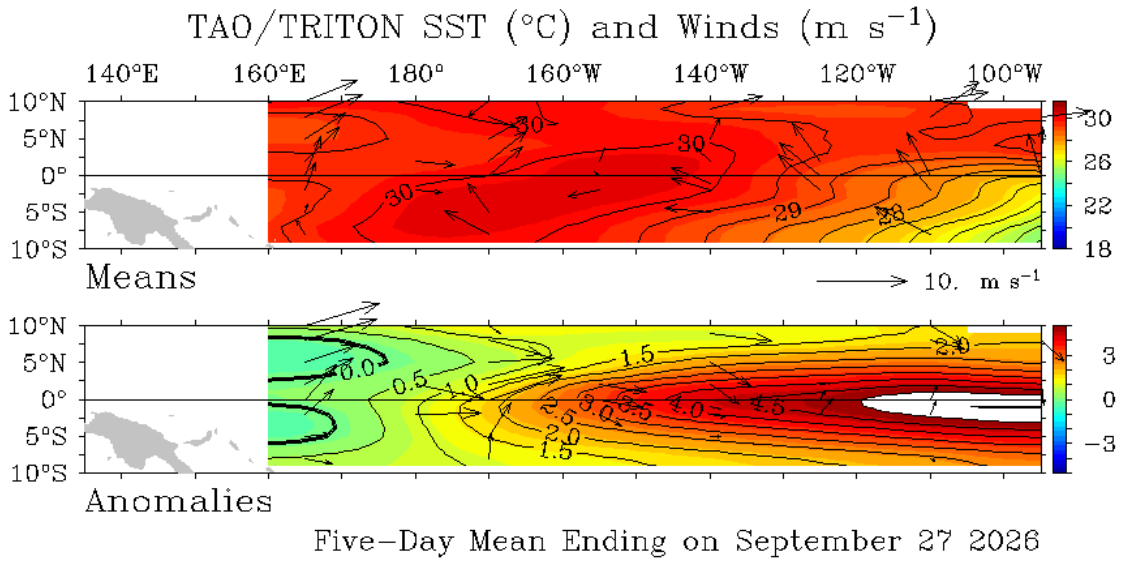
Less clouds

Wind Anomalies



Easterly (stronger trade)

Westerly (weaker trade)



Weaker trade winds (pink) allow for the development of more clouds and potential for rain.

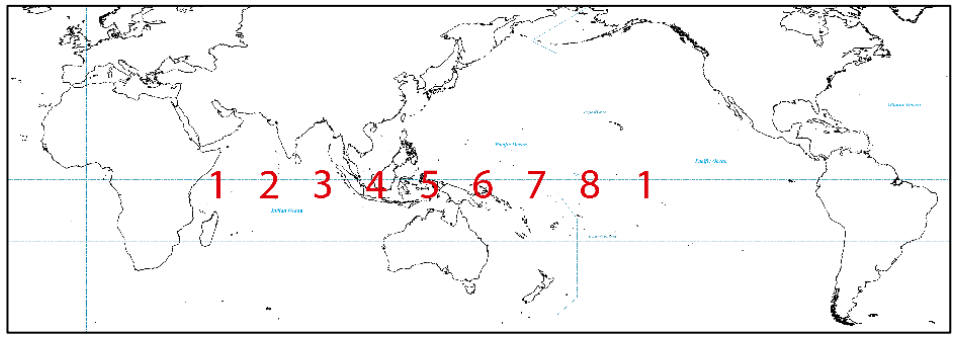
Stronger trade winds (green) hinders cloud development and the potential for rain.

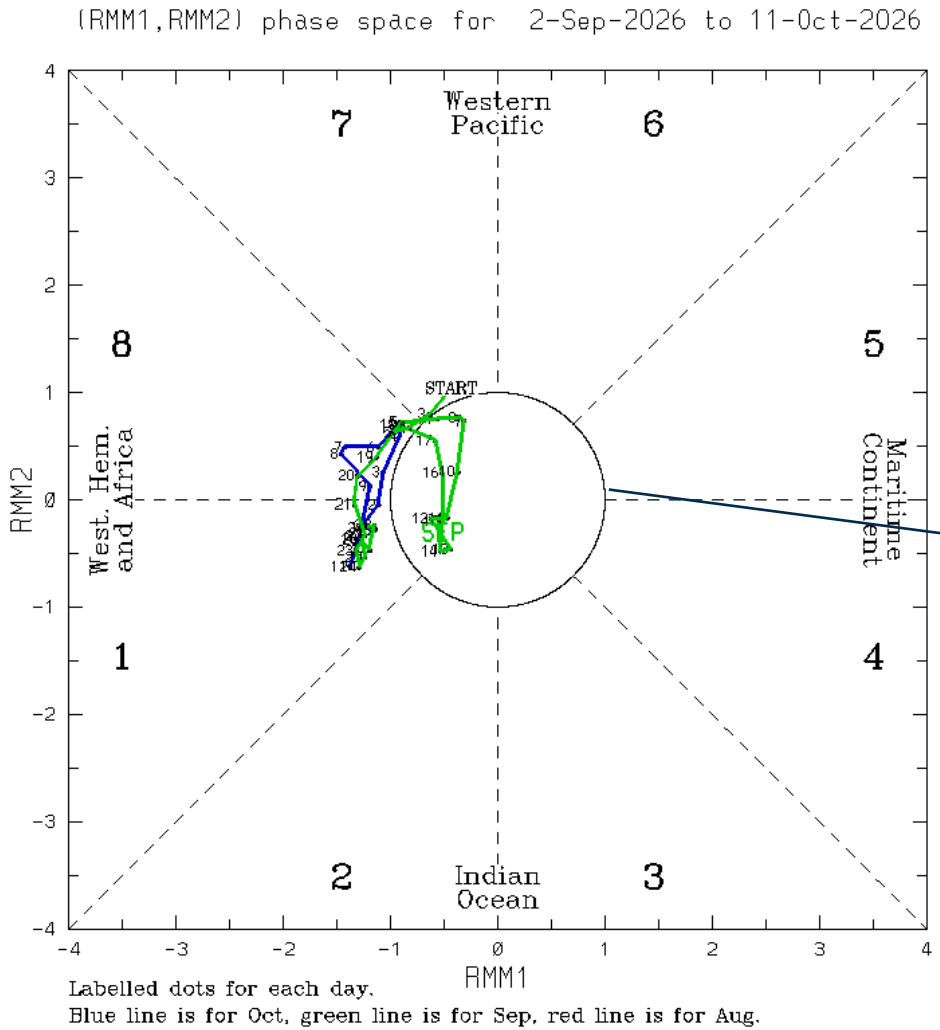
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Madden – Julian Oscillation

The **MJO** is weak in **Phase 8** West Hemisphere and Africa.

Preliminary forecast has return to **Phase 3** Indian Ocean late October.

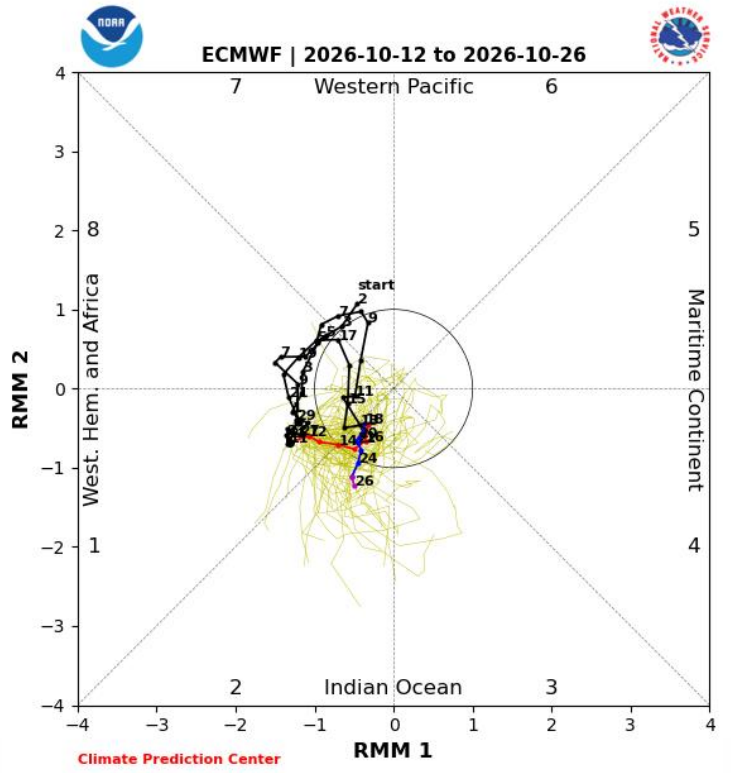


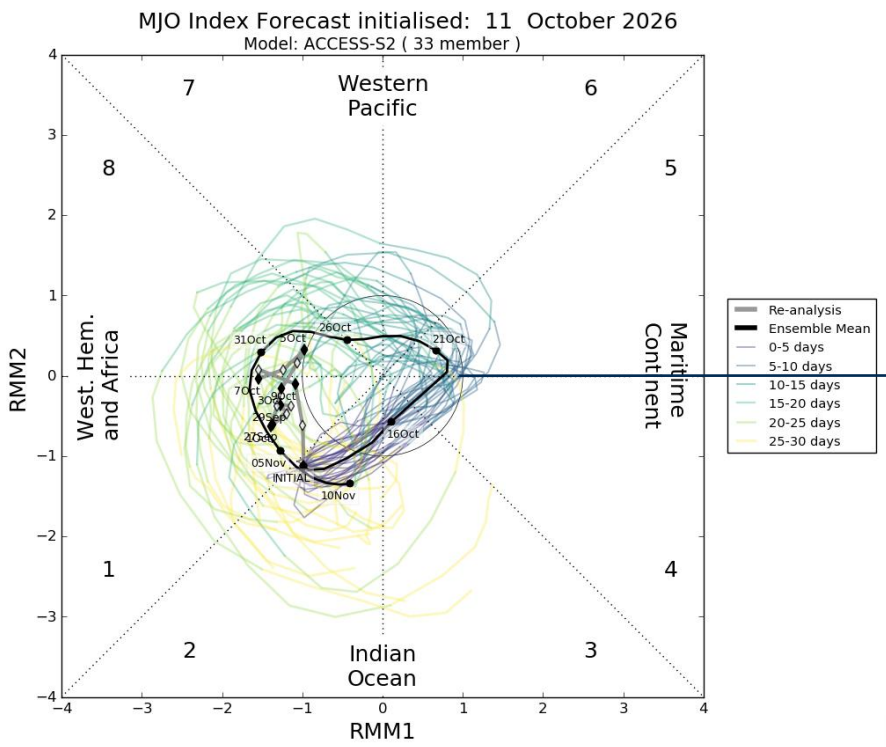


Unit circle: If inside the unit circle the MJO signal is weak

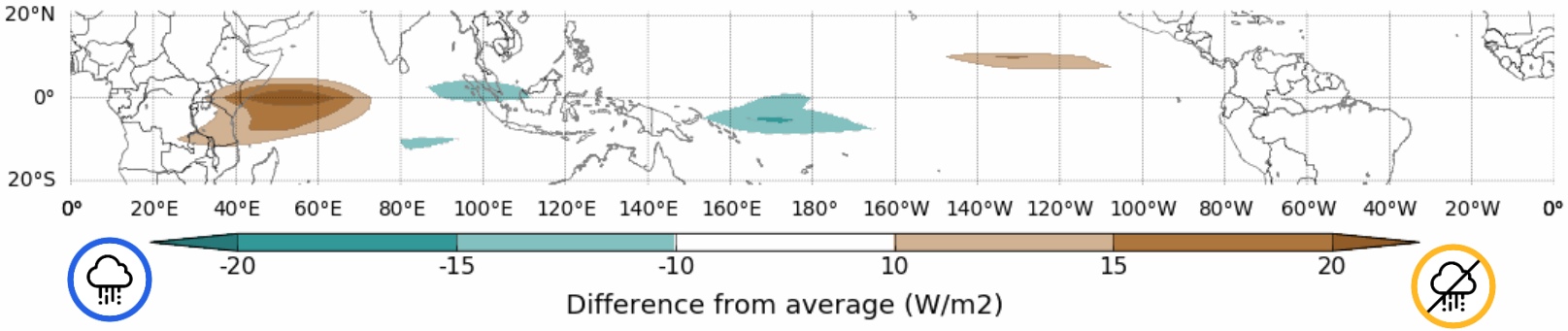
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Madden – Julian Oscillation





Unit circle:
If inside the unit circle the MJO signal is weak.

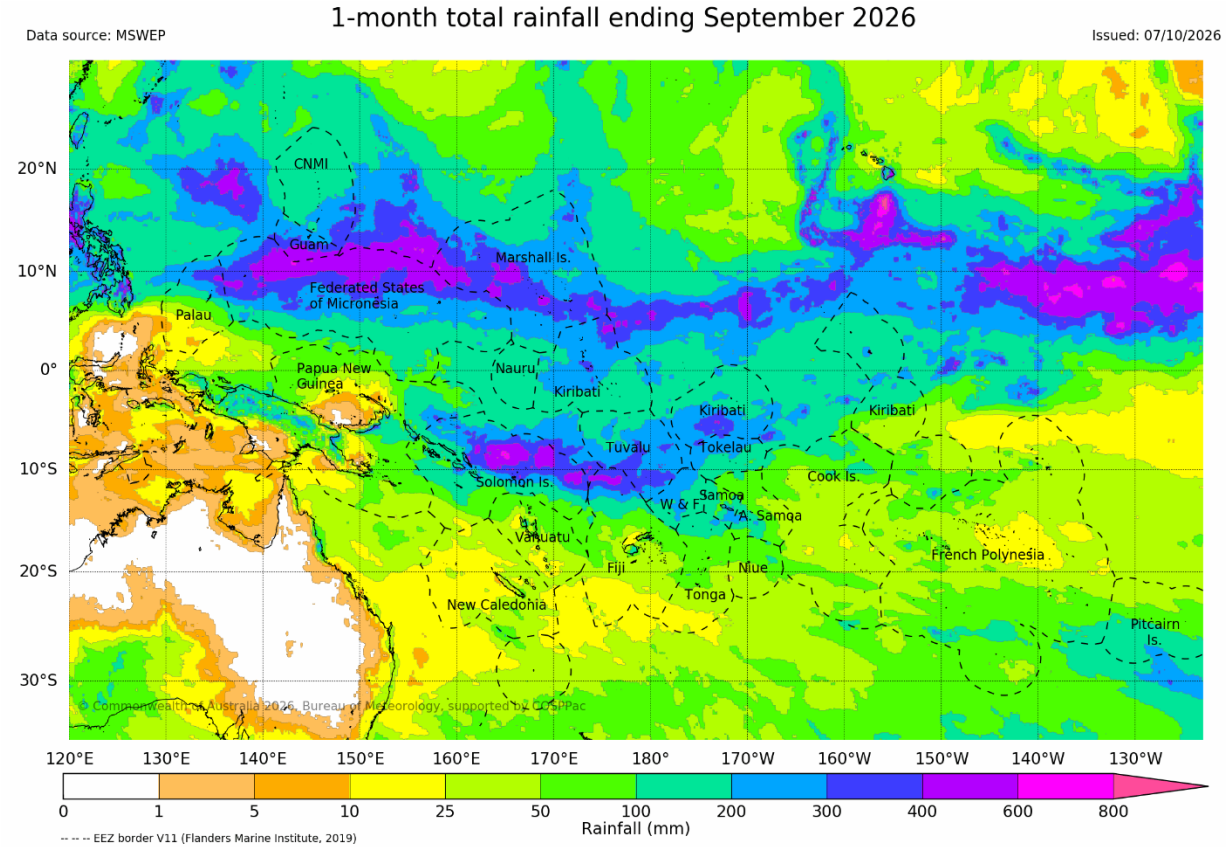


Brown shows areas of decreased clouds and convection

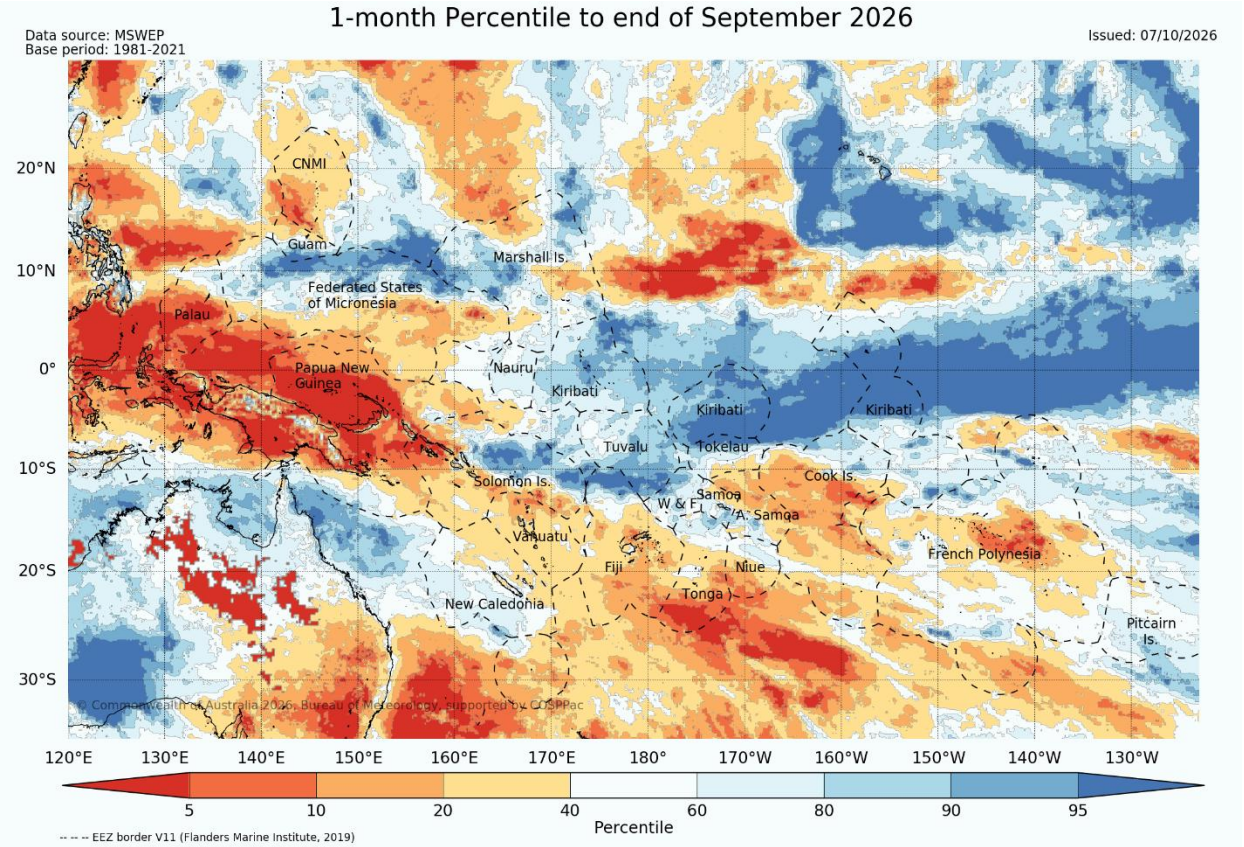
Green shows areas of increased clouds and convection.

Observed Rainfall – September 2026

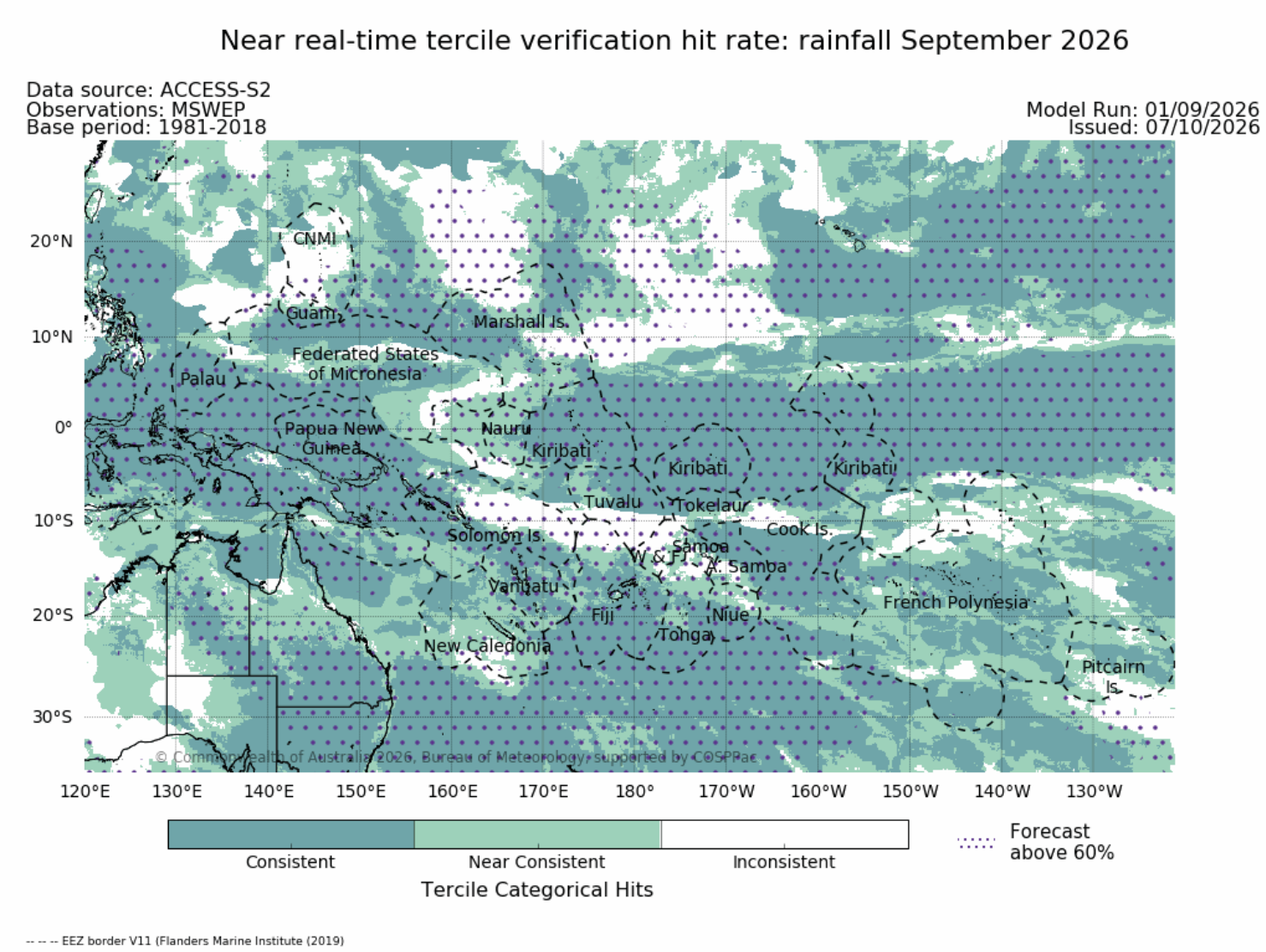
Observed



Percentile



Outlook Verification – September 2026

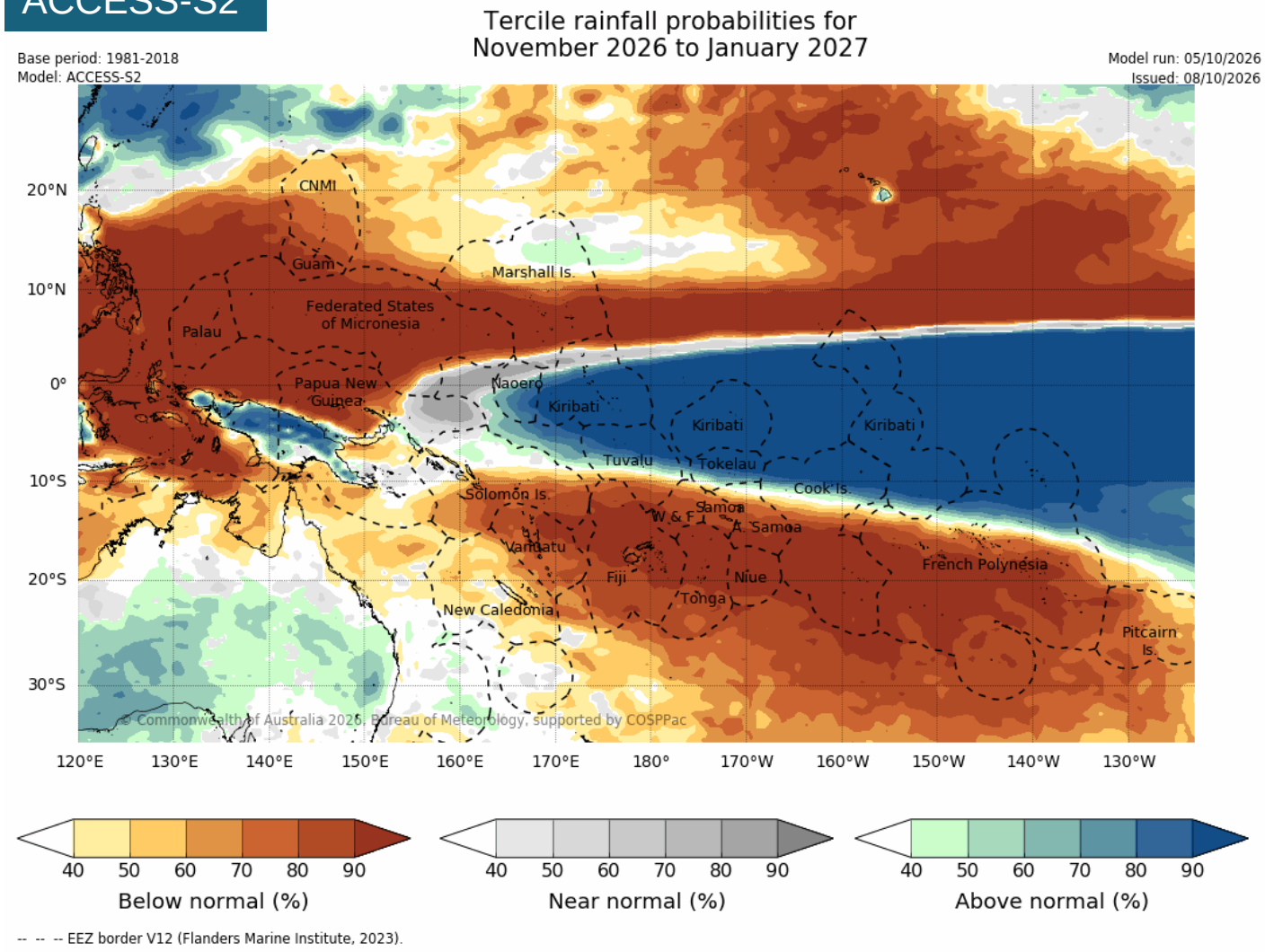


Verification map is based on the ACCESS-S outlook. The greener the area the outlook picked the correct tercile category.

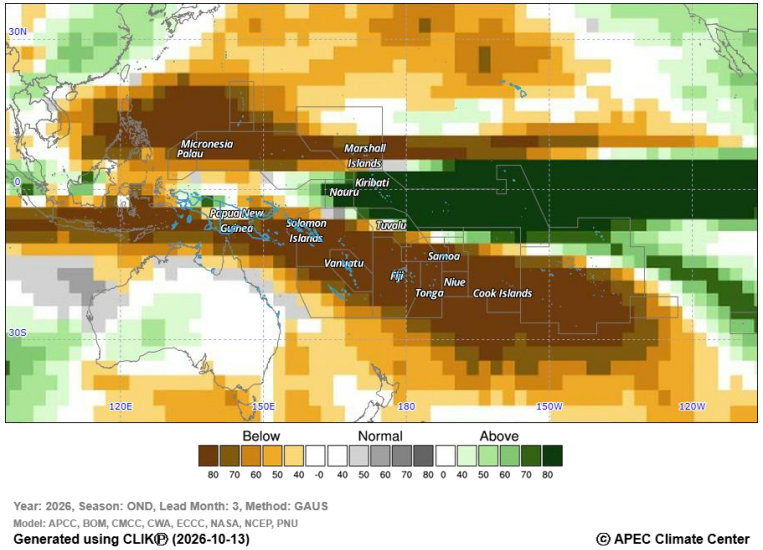
Dots identify were there was a strong outlook above 60%.

Model Rainfall Predictions (ONDJ)

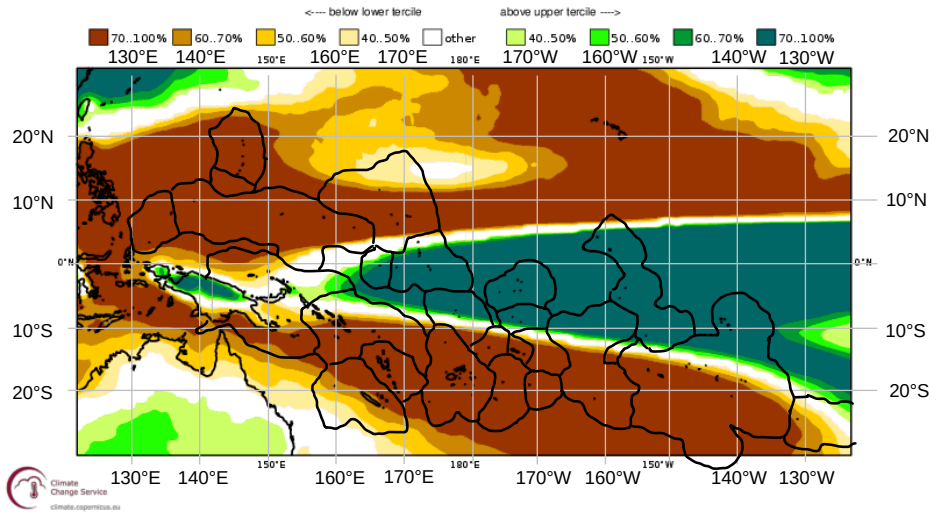
ACCESS-S2



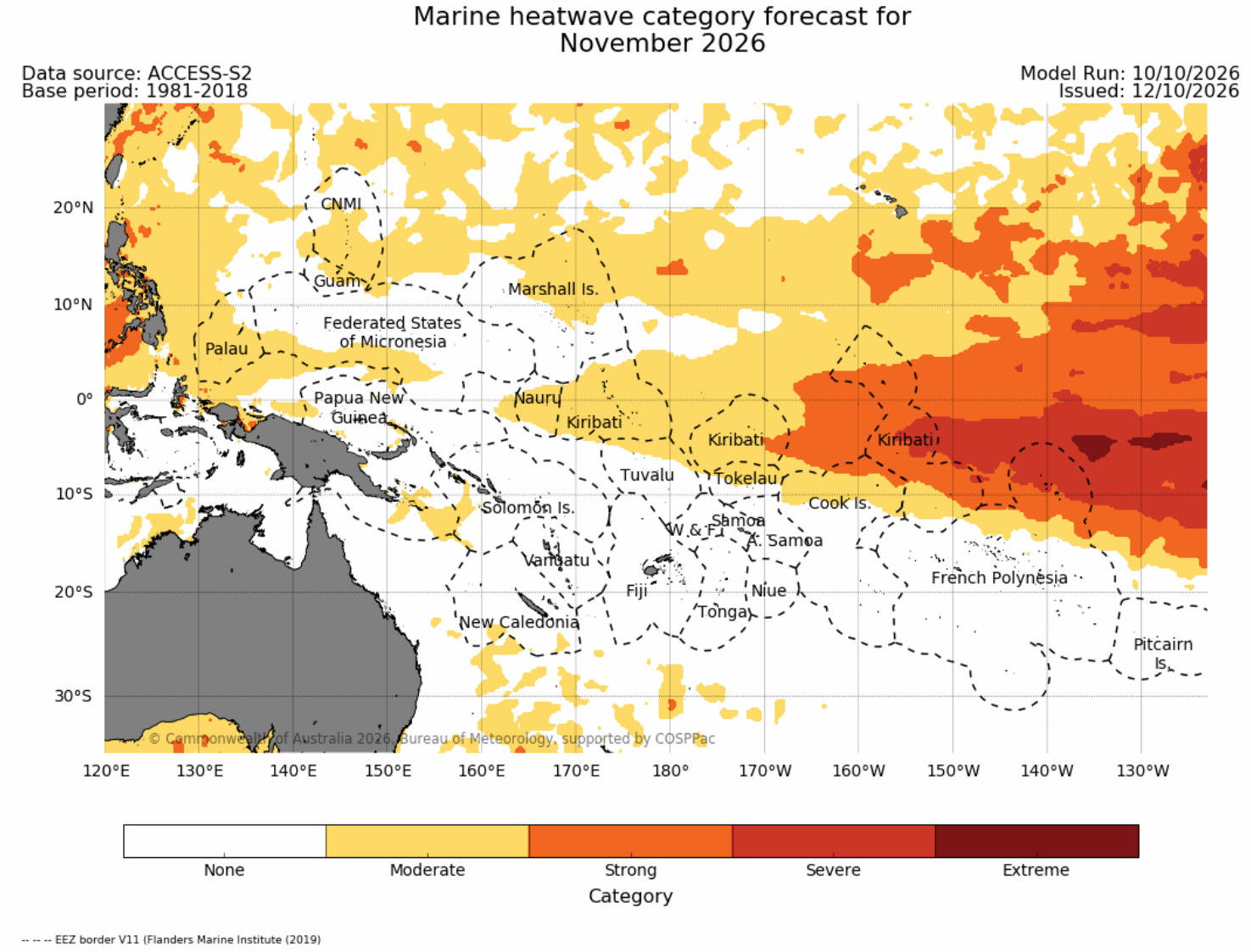
CLIKP



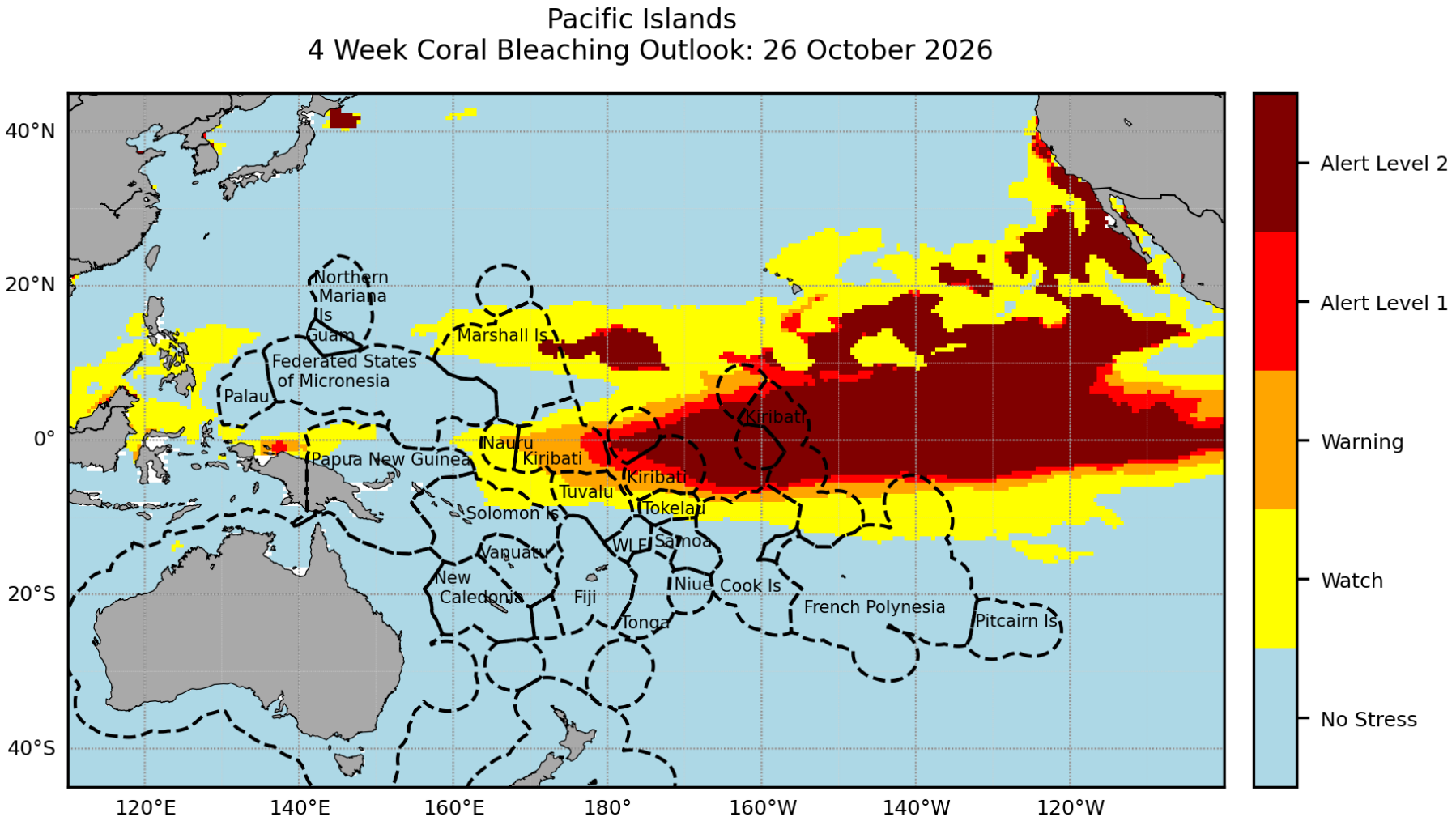
C3S



Marine Heatwaves



Coral Bleaching

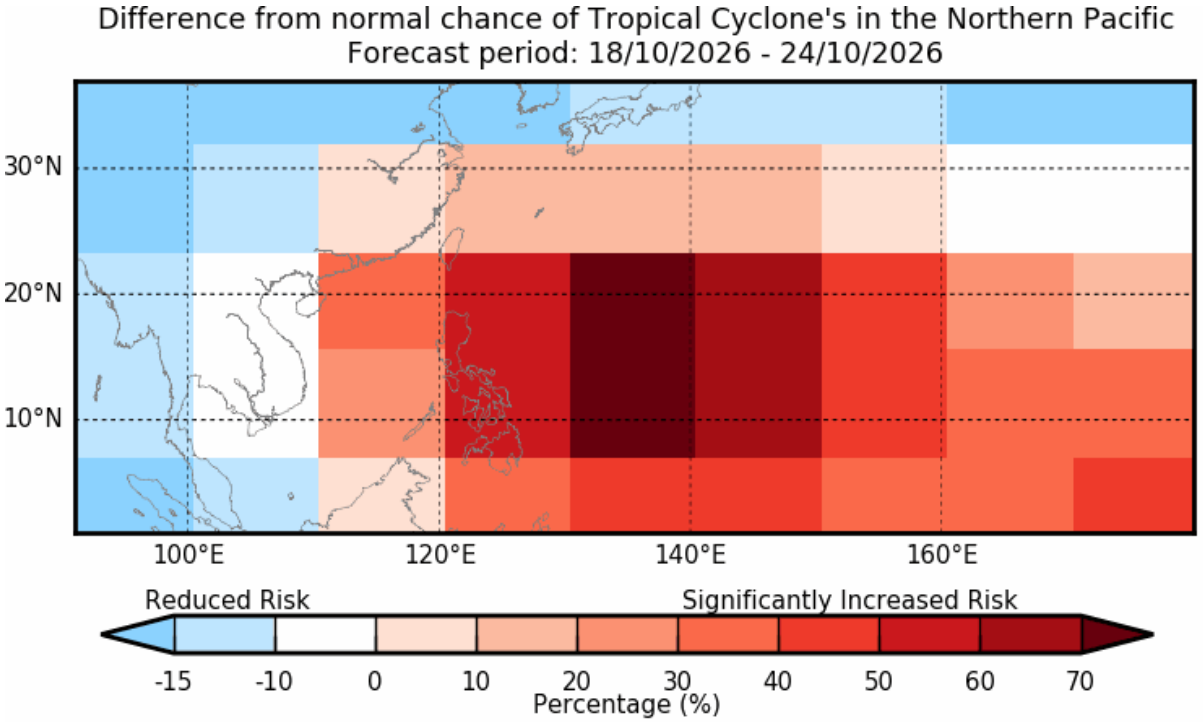


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NOAA

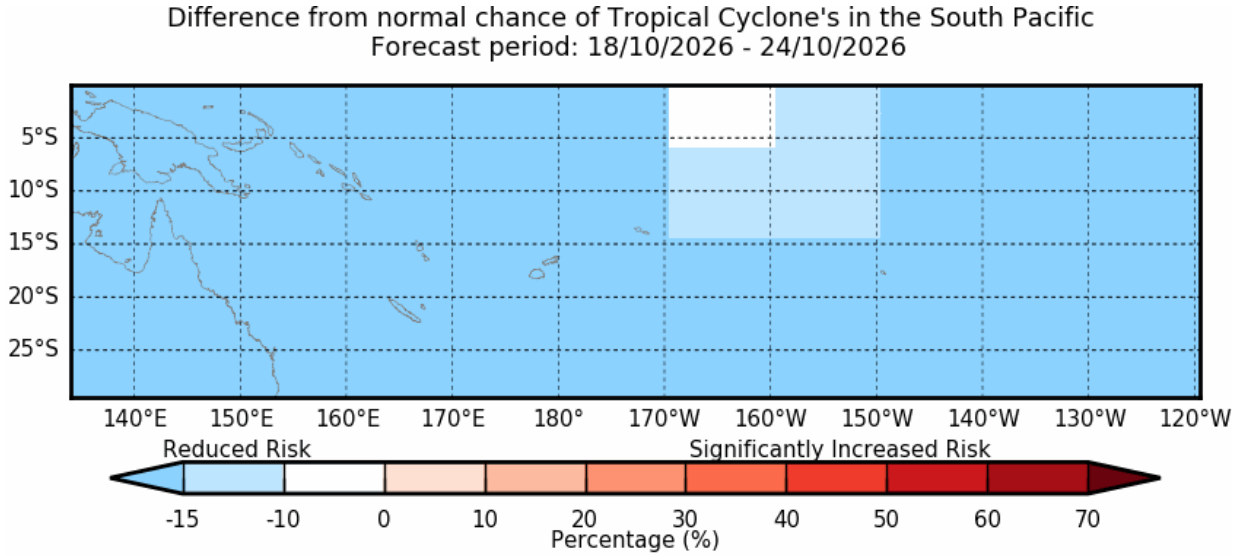
TC Outlooks – Two Weeks

North Pacific



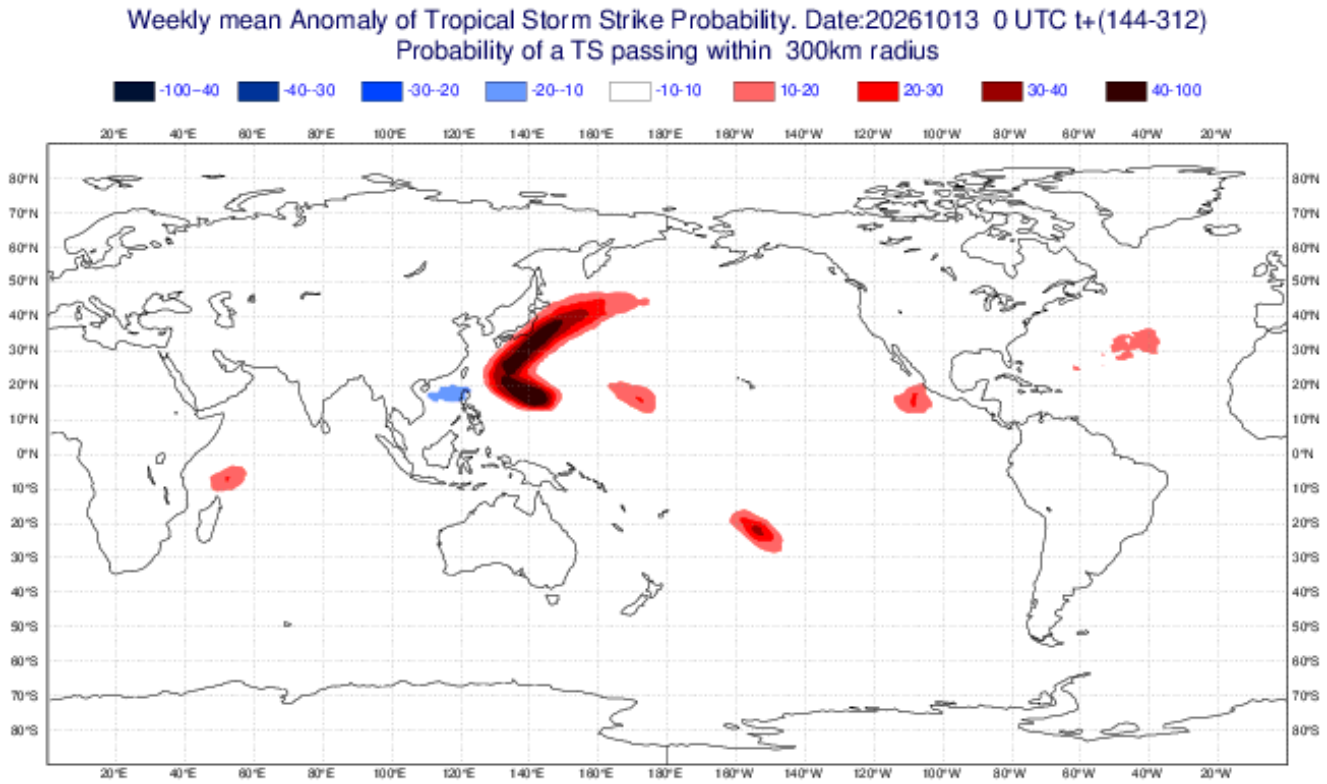
Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
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Model: ACCESS_S2 Model Run: 10/10/2026 Issued: 12/10/2026

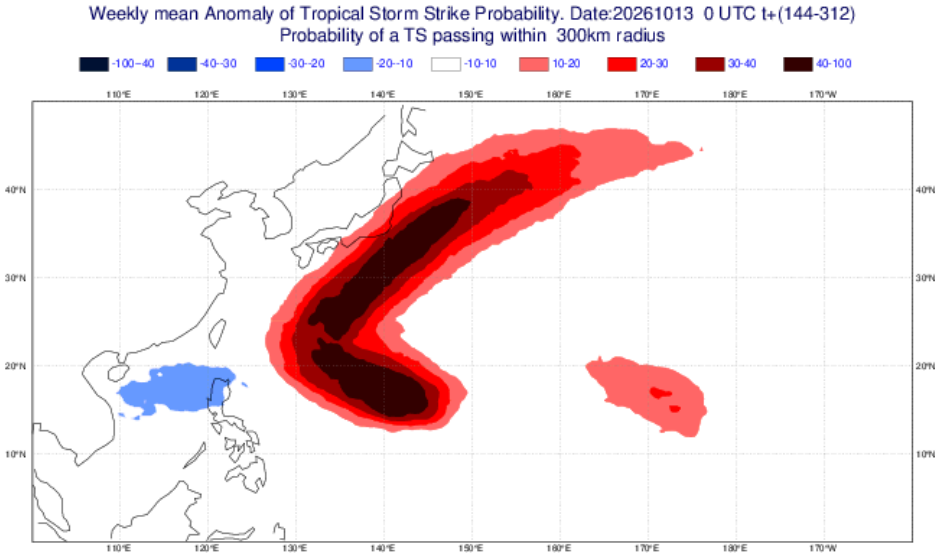
South Pacific

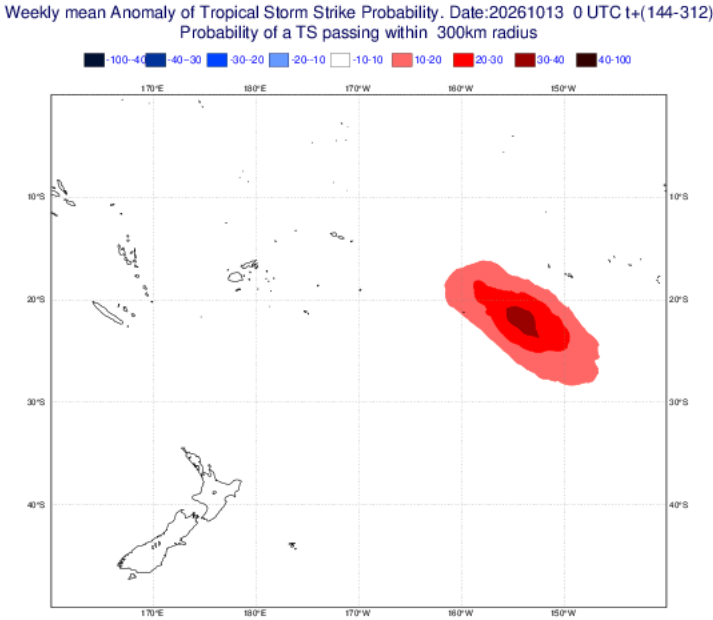


Calibrated Model anomaly probability in overlapping 15 x 20 degree boxes
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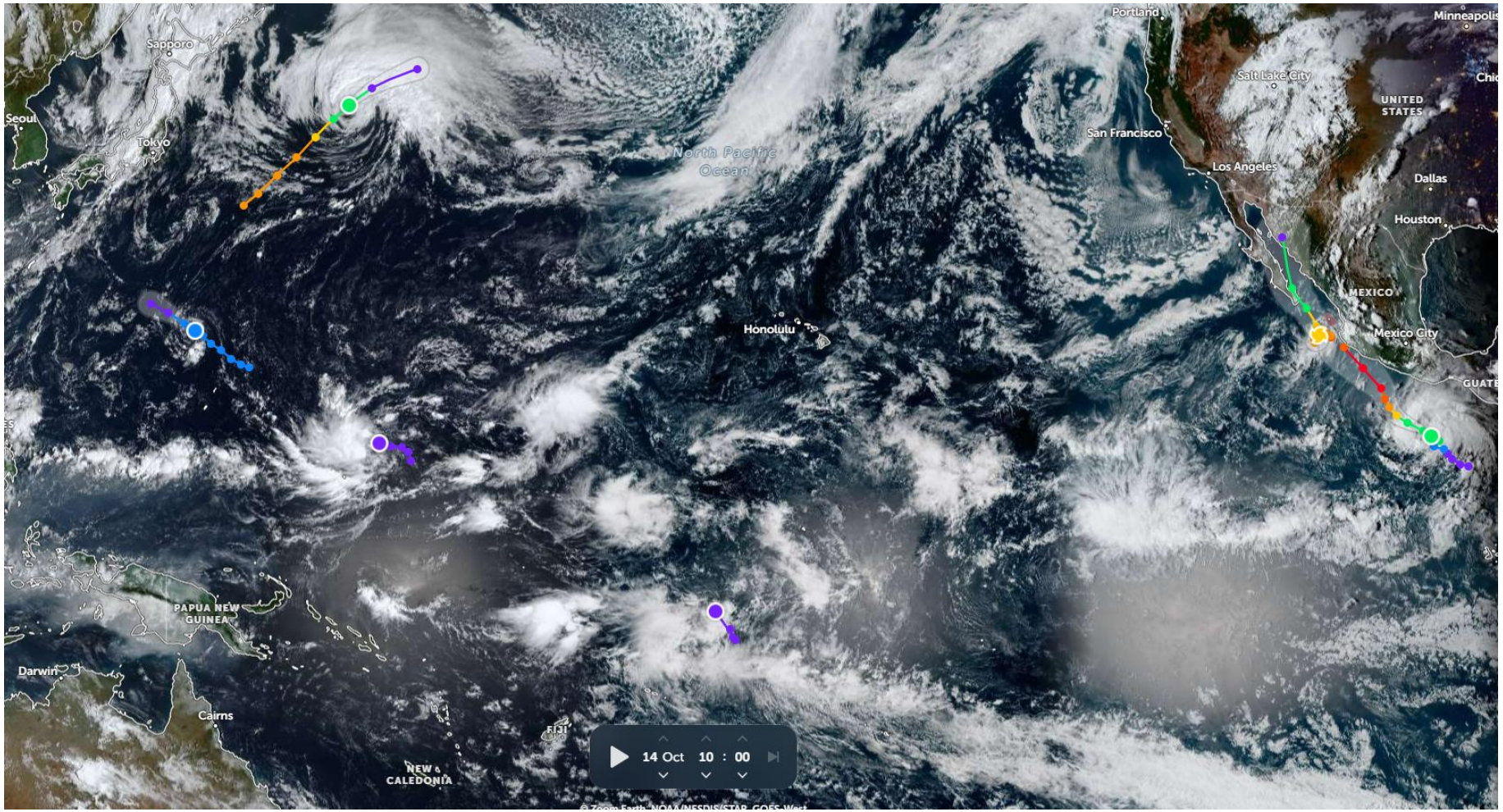
Weekly ECMWF TC Forecast

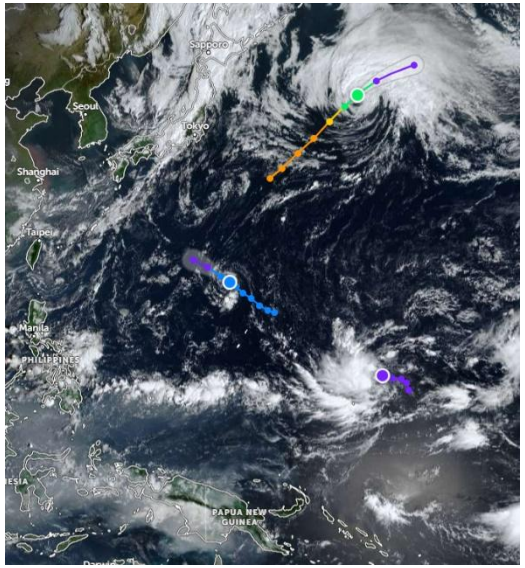


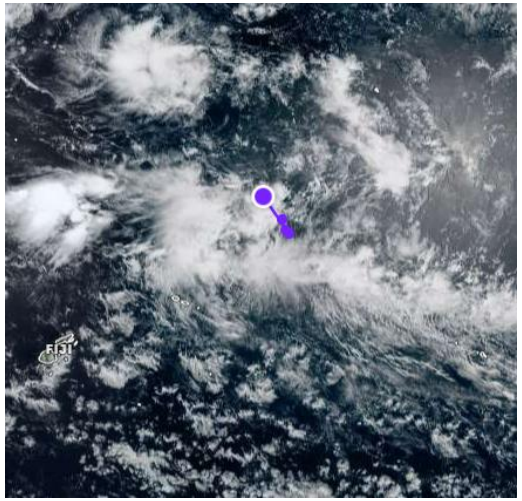




Satellite Imagery







Thank you

pacificclimateservices@bom.gov.au

