Central Pacific Hazards Outlooks – Large Scale Forcing

Date of issue: 2025-10-08

Week-1, Valid: 09 – 15 October 2025

Outline:

Monthly ENSO Update

State of the Global Ocean (past 1 month and 3 months)

State of ENSO and global temperature and precipitation response

Weekly SST anomalies and tendencies

State of MJO -- Velocity potential

State of MJO -- Wheeler-Hendon Index Forecast

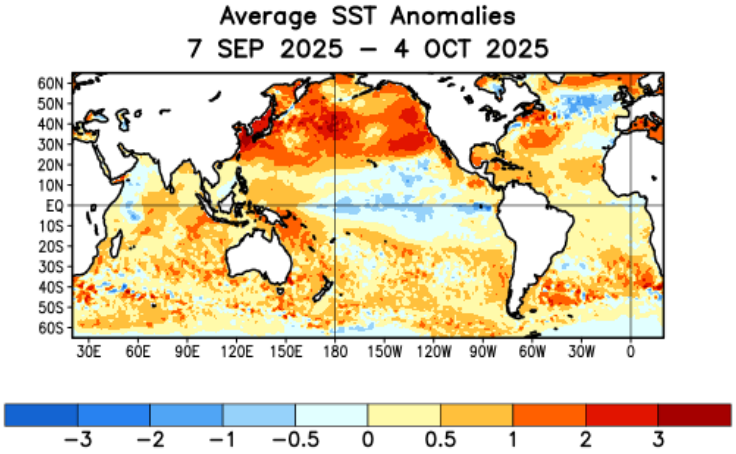
State of MJO – Evolution of MJO-related OLR anomalies

MJO-related Precipitation Composites

Current State of the Global Ocean (Last Four Weeks)

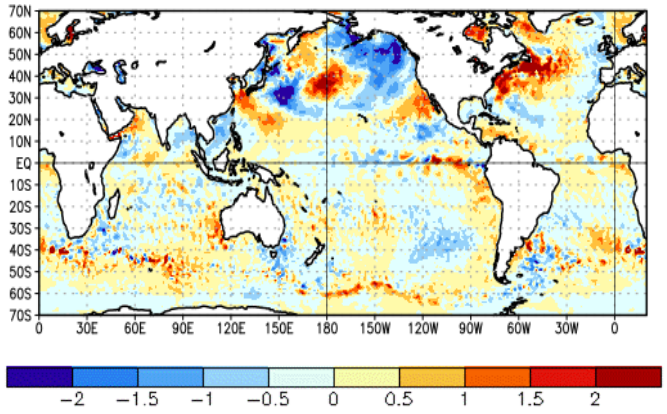
Over the last four weeks, sea surface temperature were near-to-below average in the western Indian Ocean but were above average in the central and eastern Indian Ocean.

https://origin.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.ppt



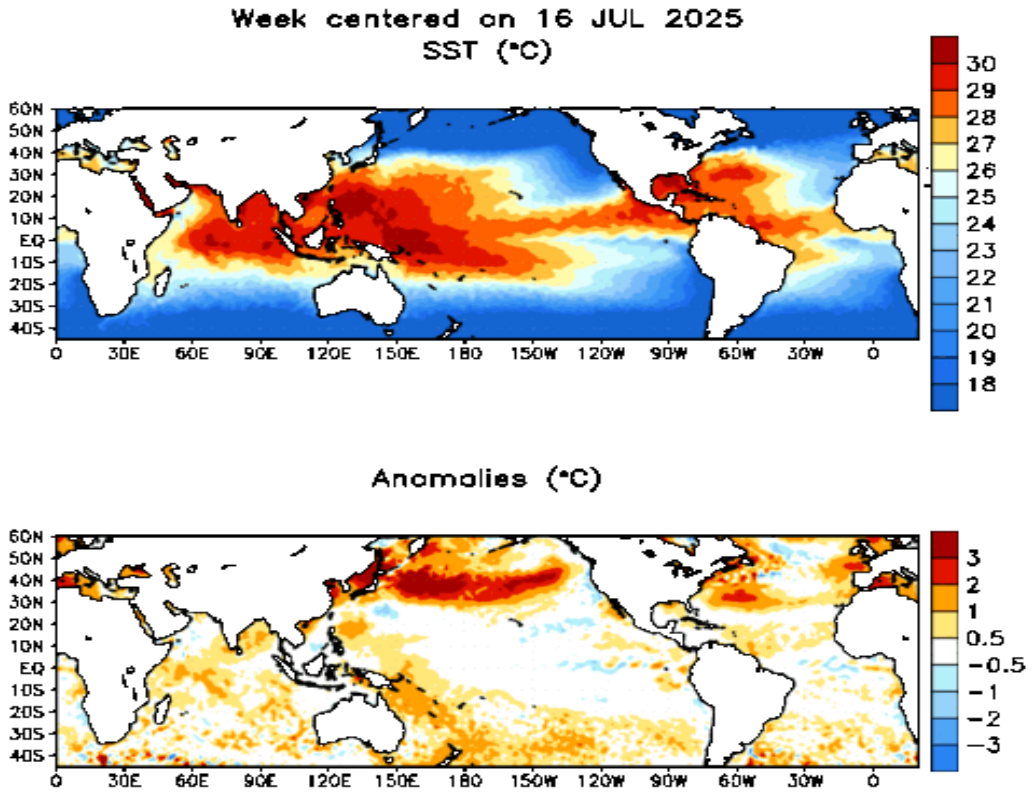
In the past month, sea surface temperatures were near-to-below average in the far eastern Atlantic and, eastern and central Pacific, while they remained above average in the western Pacific and western Atlantic.

Over the past four weeks, sea surface temperature (SST) anomalies tendency is negative in the eastern and western equatorial Indian Ocean and warmer in the central Indian Ocean.



During the last four weeks, mix of positive and negative SST anomaly changes were evident from the central to eastern equatorial Pacific Ocean.

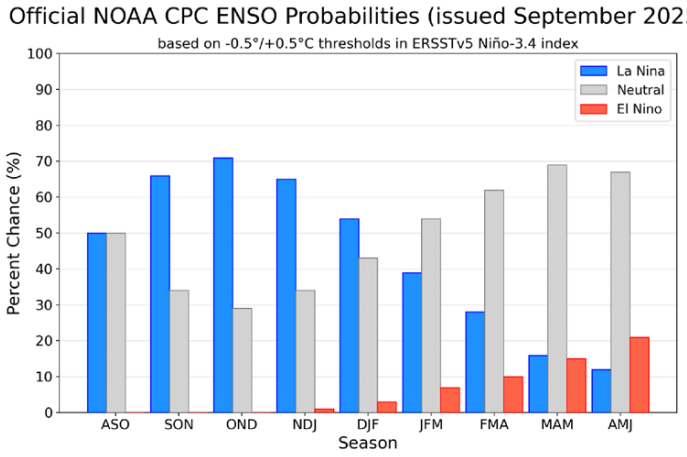
State of the Global Ocean (Last 12 weeks)



Maximum sea surface temperatures higher than 30ºC continued in the equtorial western Pacific, in the Gulf of America and of the coast of central America in Pacific Ocean but weakened and shifted eastward in Indian Ocean. Anomalies continued or evolved to be cooler than average in the central and eastern equatorial Pacific and eastern Indian Ocean, and warmer than average in the western equatorial Pacific and eastern Indian Ocean.

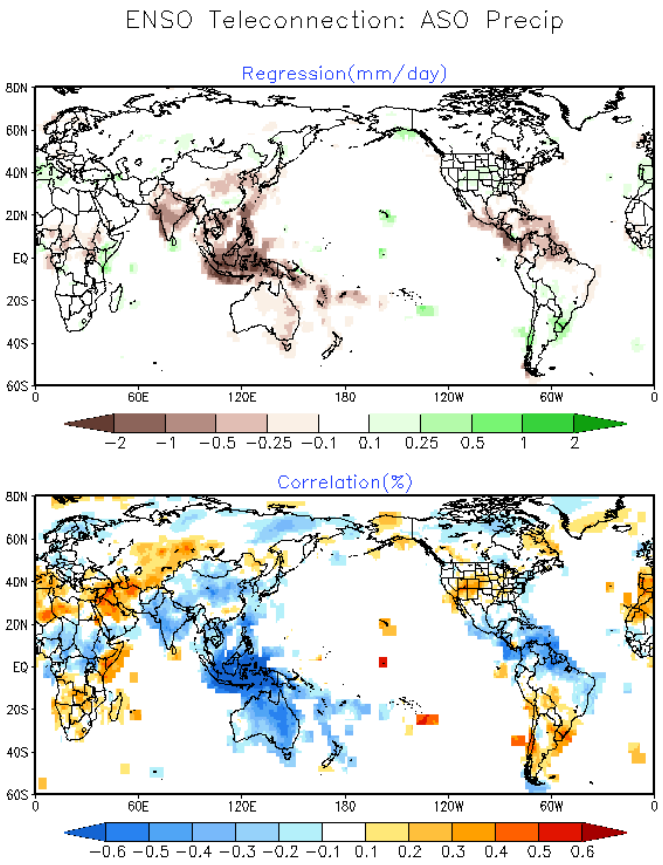
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/gsstanim.shtml

State of the ENSO



Season	La Niña	Neutral	El Niño
JAS	50	50	0
ASO	66	34	0
SON	71	29	0
OND	65	34	1
NDJ	54	43	3
DJF	39	54	7
JFM	28	62	10
FMA	16	69	15
MAM	12	67	21

https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-cpc_plume



https://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/regressions/geplr.shtml

- **ENSO Alert System Status: [La Niña Watch]**

- **A transition from ENSO-neutral to La Niña is likely in the next couple of months, with a 71% chance of La Niña during October - December 2025. Thereafter, La Niña is favored but chances decrease to 54% in December 2025 - February 2026.** (Updated 11 September 2025)

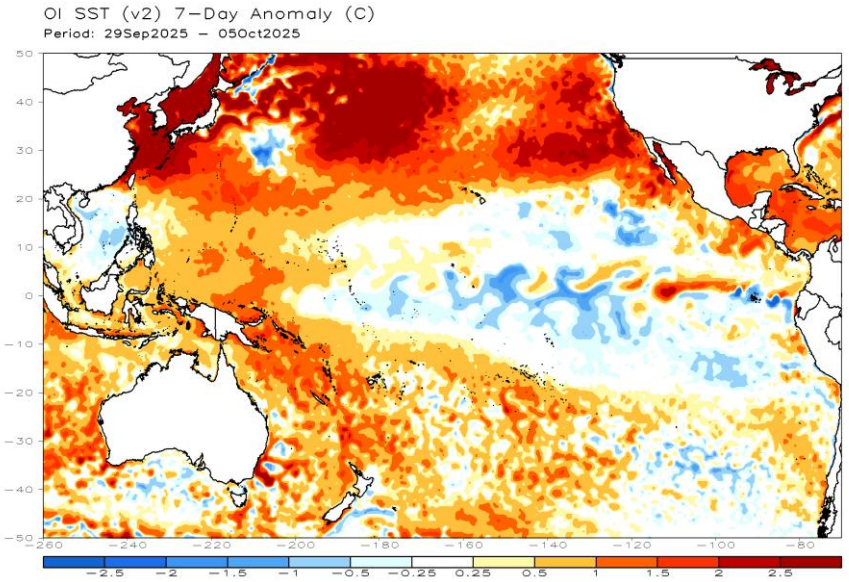
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml

State of the ENSO

Current (difference from climatology)

- Sea surface temperatures (SSTs) remain slightly below-average across the central equatorial Pacific, while warmer-than-average SSTs persist off the coast of Central America.

- Positive SST anomalies prevail across the Maritime Continent and much of the western Pacific in both hemispheres. SSTs were warmer-than-average across the northern and southern tropical oceans

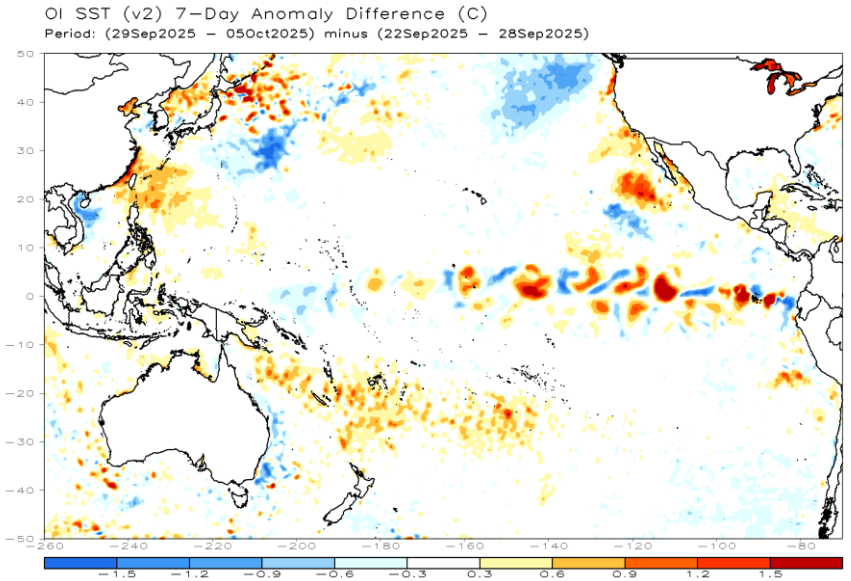


pac_anom.gif

Tendency from previous week

- The eastern and central equatorial Pacific displays a mix of warming and cooling tendencies.

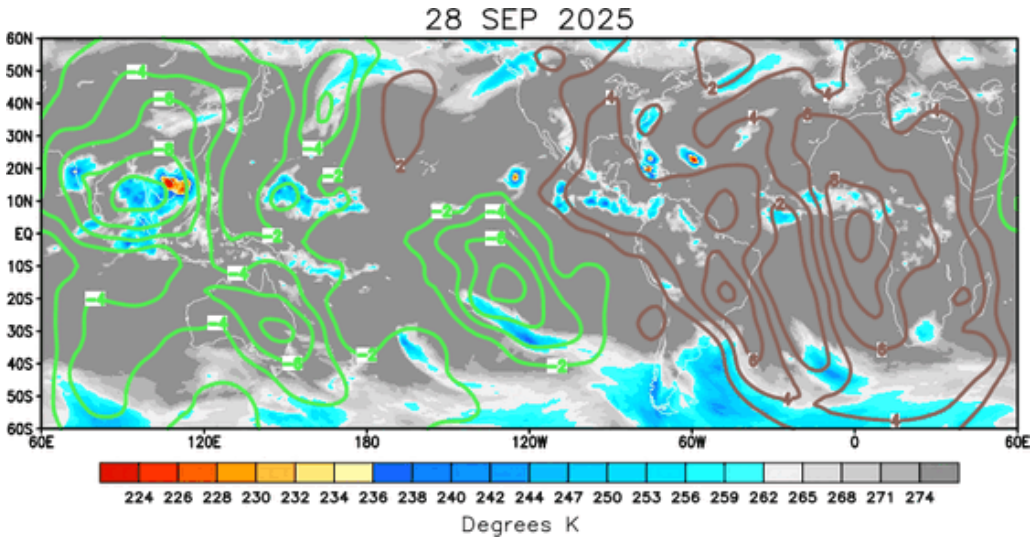
- In the western equatorial Pacific, sea surface temperatures (SSTs) slightly cooler as compared to the previous week.



https://www.cpc.ncep.noaa.gov/products/international/oisst/oisst_7day_pac_diff.gif

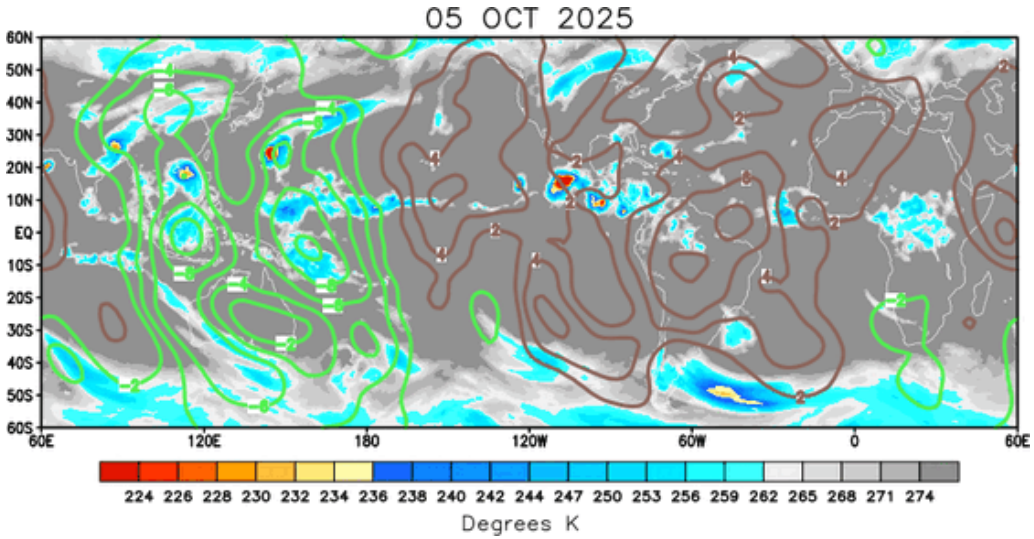
200 hPa Velocity Potential Anomaly

Previous



https://www.cpc.ncep.noaa.gov/products/precip/CWlink/vpotgifs/am_ir_monthly_60E_8.gif

Recent



https://www.cpc.ncep.noaa.gov/products/precip/CWlink/vpotgifs/am_ir_monthly_60E_1.gif

Click the link below for daily details:

https://www.cpc.ncep.noaa.gov/products/precip/CWlink/ir_anim_monthly.shtml

- The spatial structure looks mostly like a weak **wave-1 pattern** (one dominant divergent center over the W. Pacific balanced by broad convergence over Africa–Indian Ocean).
- Compared to last week, the convective envelope indicated by green contours (upper-level divergence) **has little to no shift** eastward over the eastern Indian Ocean/Maritime Continent, while **suppression (brown convergence)** has broadened from Africa across the **western–central Indian Ocean**.

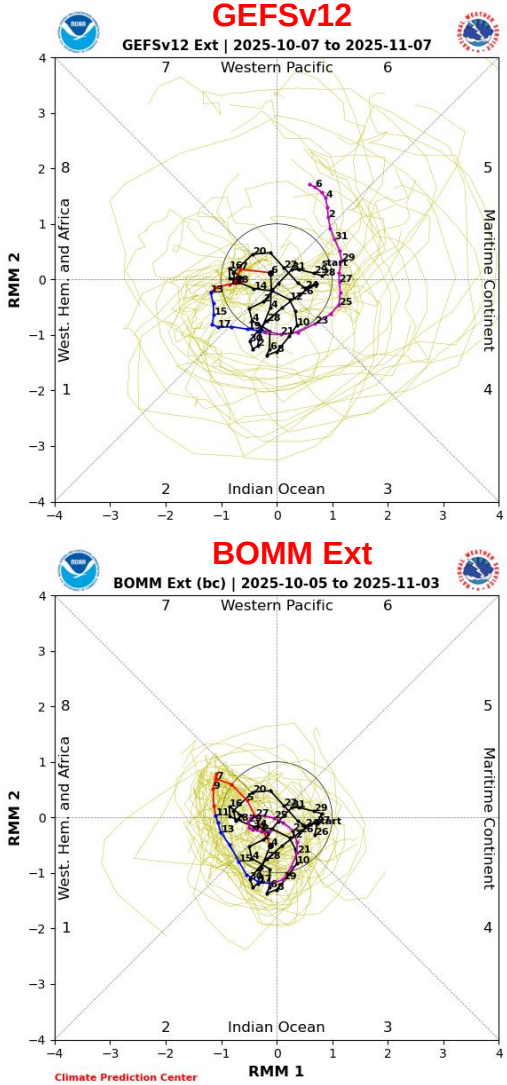
A detailed MJO discussion can be found here

Green contours indicates areas of upper-level divergence and convection or precipitation at surface.

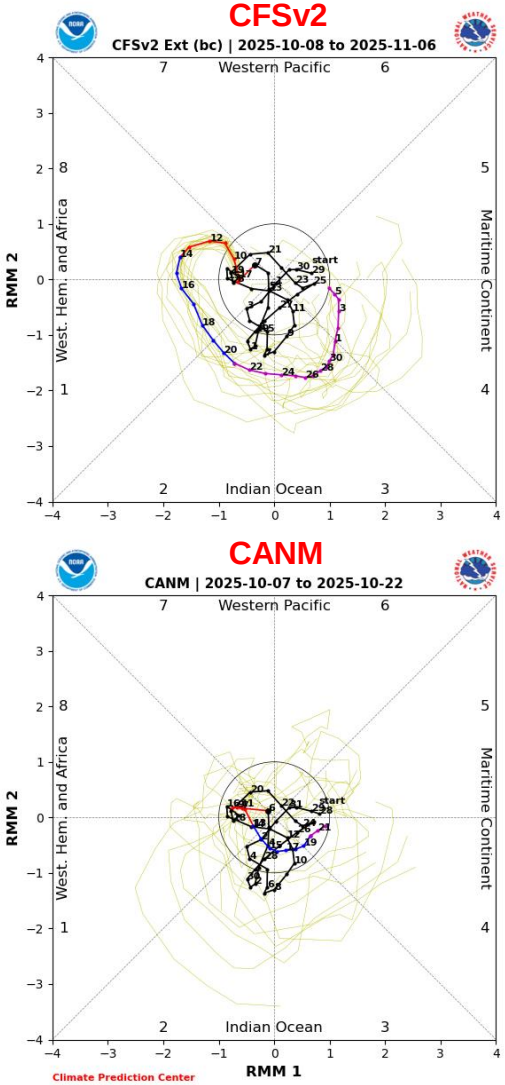
Brown contours indicate areas of upper-level convergence or subsidence and suppressed precipitation at surface.

Wheeler-Hendon Index - Forecasts

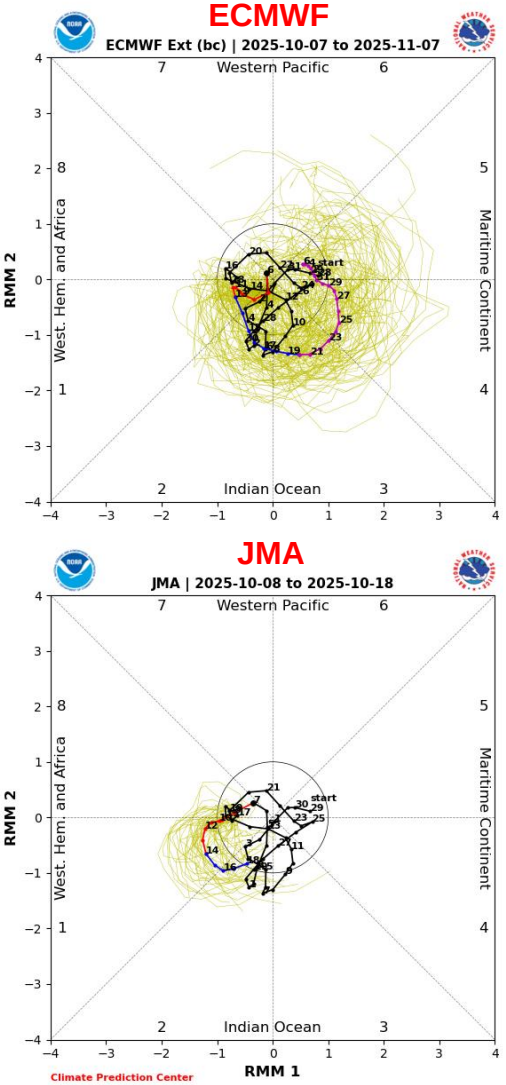
GEFSv12



CFSv2



ECMWF



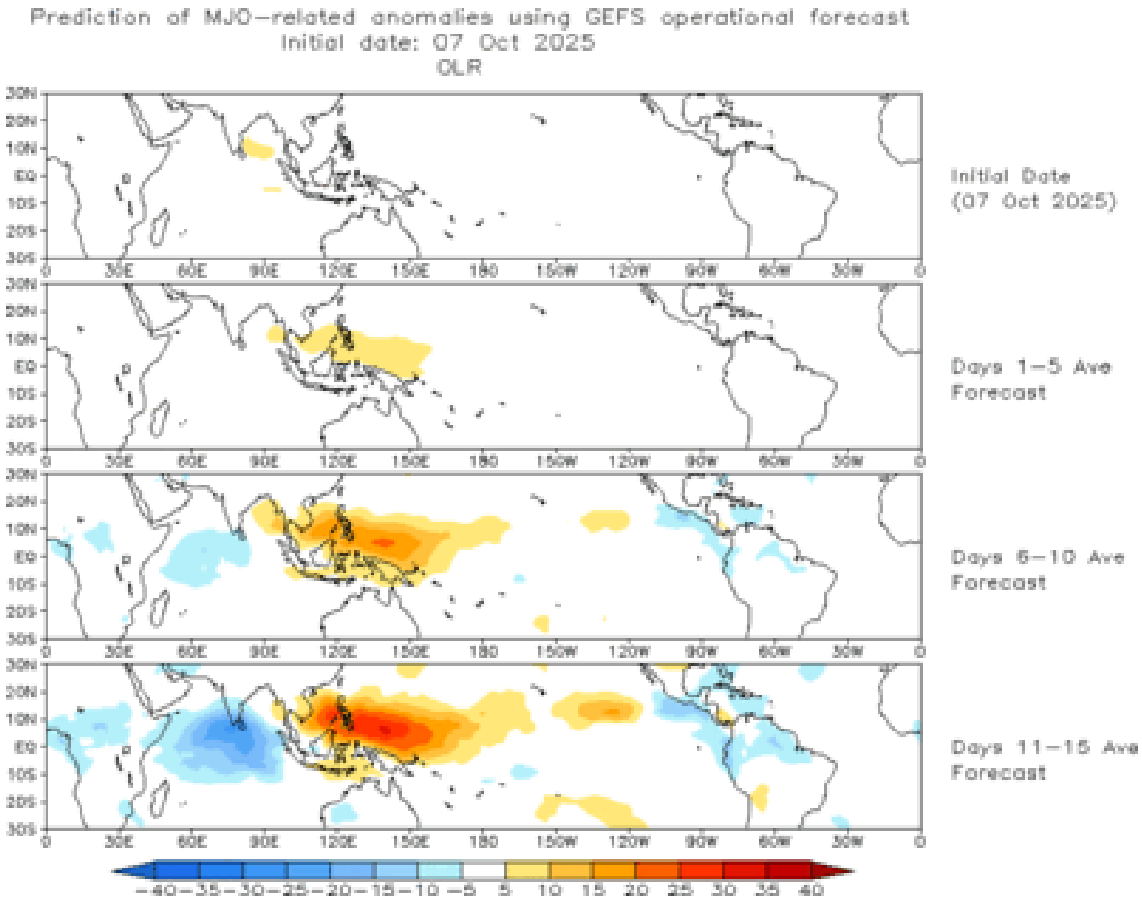
BOMM Ext

CANM

JMA

Recent RMM observations indicate that the MJO is currently weak and disorganized. However, forecasts suggest it may strengthen in weeks 2 to 3, with the RMM index likely shifting from phase 1 to phase 3 over the coming weeks.

Evolution of MJO-related OLR Anomalies - Forecasts



The GEFS OLR anomaly forecast indicates a strengthening of suppressed convection over the Maritime Continent, while enhanced convection is steadily developing over Africa and the western Indian Ocean—suggesting the potential initiation of MJO activity by the end of Week 2.

Blue shade indicate areas of enhanced convection
Red shade indicate areas of suppressed convection.

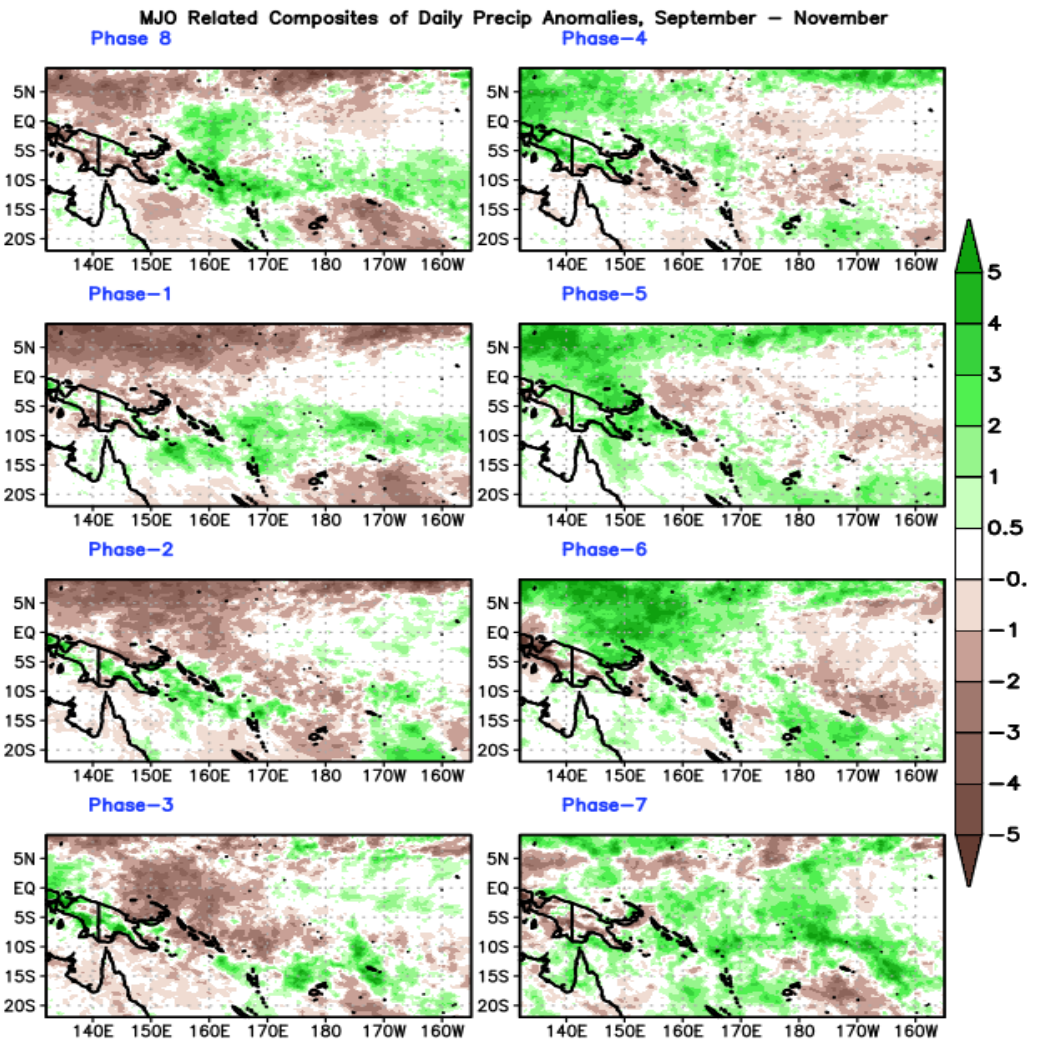
MJO Composites for Sep - Nov

Northern regions of Papua New Guinea: Wet conditions are associated with strong MJO in Phases 4-6.

Solomon Islands: Wet conditions are climatologically observed when strong MJO occurs in Phases 7-8. On the other hand, drier conditions dominate when the MJO is in Phase 3-4.

Fiji and Vanuatu: Wet conditions are favored when the MJO is strong in Phases 3-7; Dry when strong MJO is in Phases 1, 2.

Kiribati: Wet conditions are associated with strong MJO in Phases 8.



https://ftp.cpc.ncep.noaa.gov/International/PREPARE_Pacific/subseasonal/gefs_raw/comp.png