

Global Tropics Hazards And Benefits Outlook

12/21/2021

Thomas Collow

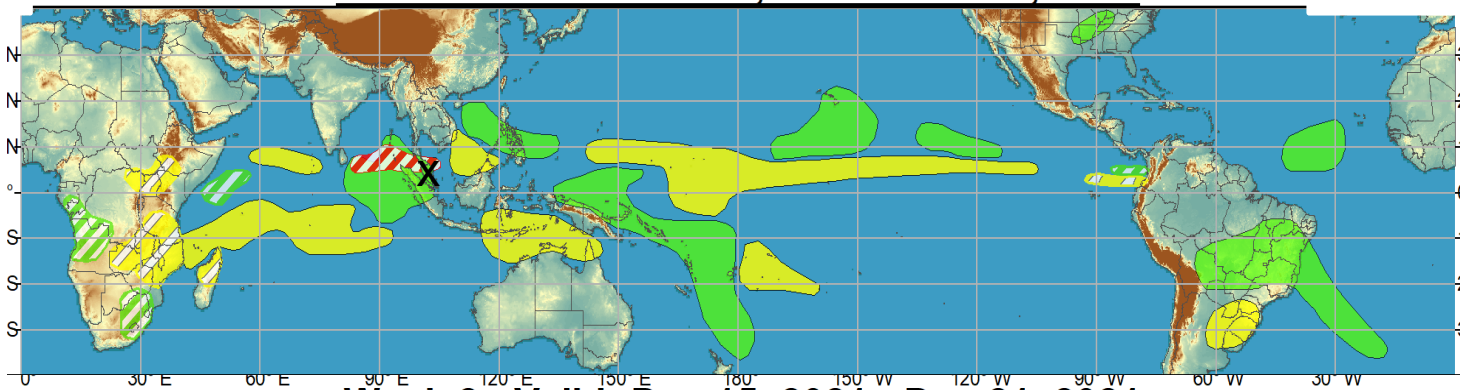
Outline

1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

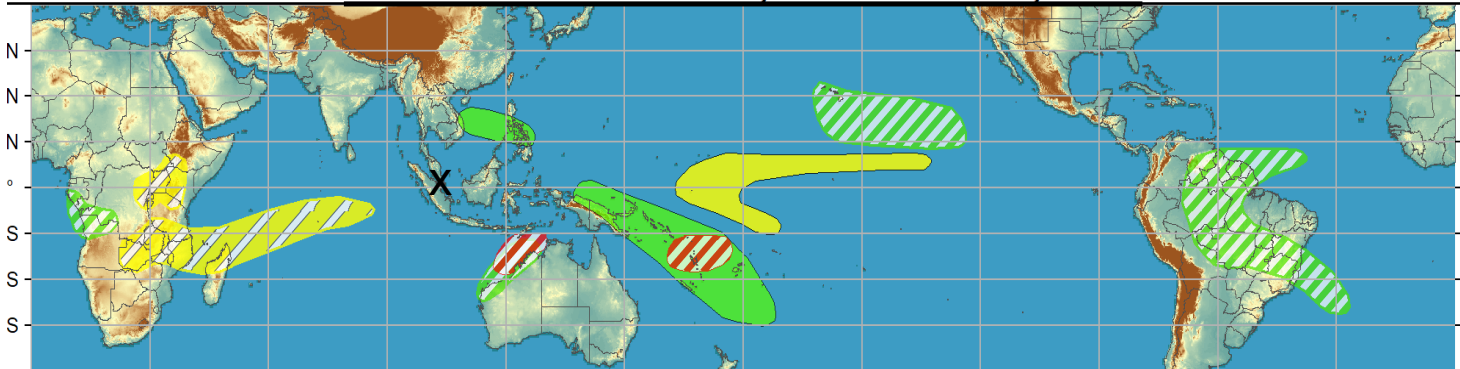
Outlook Review

X = TD29W
(Short lived system
Near Central Malaysia)

Week 1 - Valid: Dec 15, 2021 - Dec 21, 2021

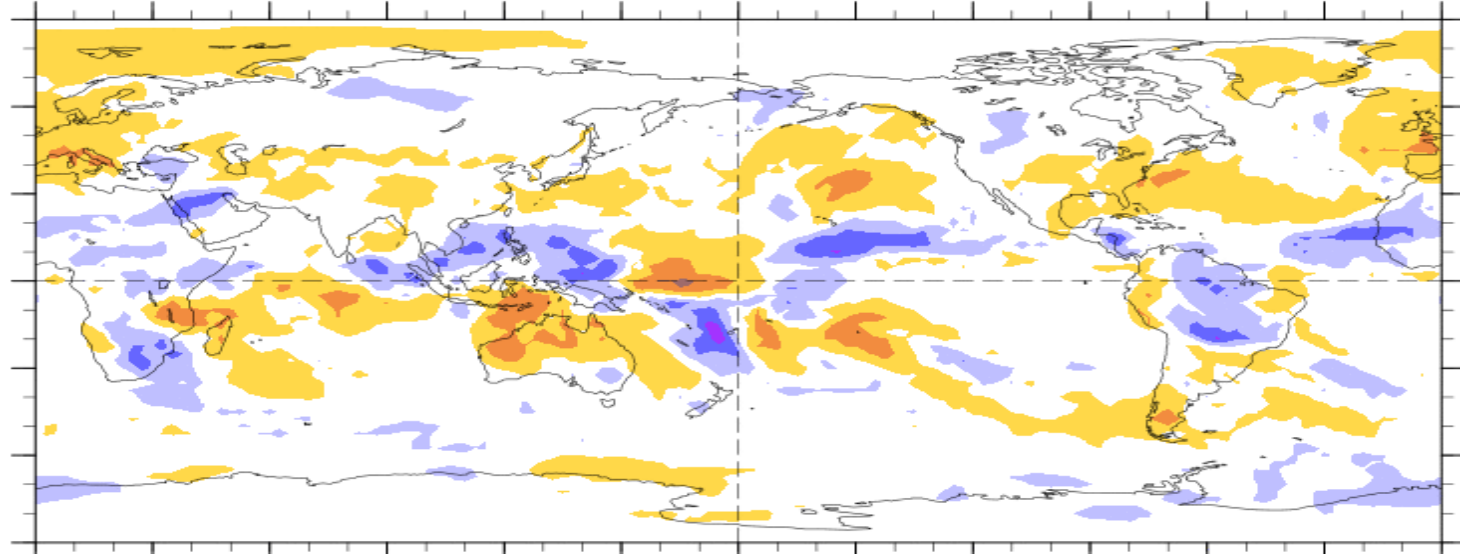


Week 2 - Valid: Dec 15, 2021 - Dec 21, 2021



7-Day Average OLR Anomaly

2021/12/13 - 2021/12/19



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (December 9, 2021 Update)

next update on 13th of Jan.!

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña is favored to continue through the Northern Hemisphere winter 2021-22 (~95% chance) and transition to ENSO-neutral during the spring 2022 (~60% chance during April-June).

MJO and other subseasonal tropical variability:

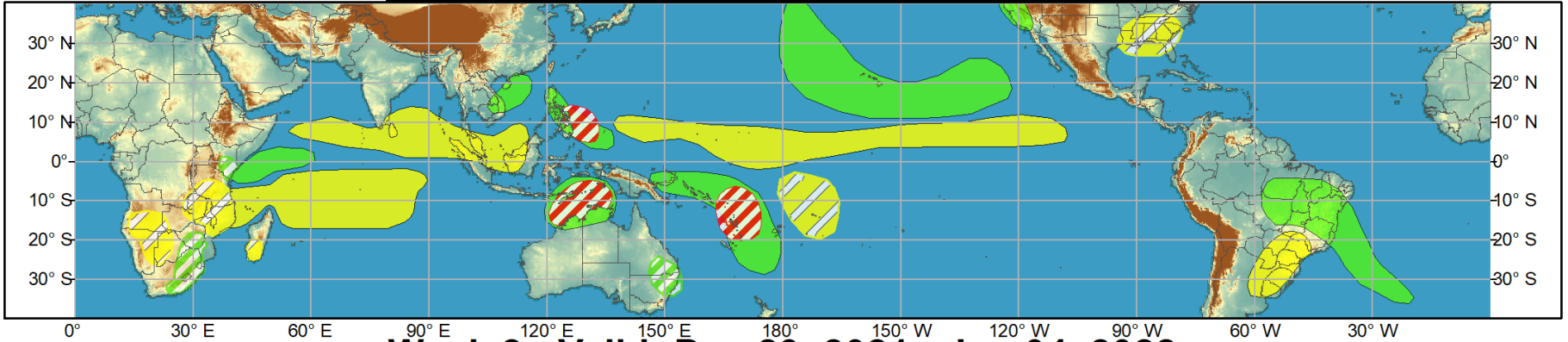
- The MJO remains active, and is located over the Western Pacific (RMM phase 7), but its amplitude has decreased relative to last week
- The MJO is forecast to destructively interfere with Rossby wave activity and the low frequency La Niña base state, which is likely to continue to hinder its eastward propagation.
- The GEFS and ECMWF ensembles indicate the MJO remaining nearly stationary across the West Pacific, with large ensemble spread regarding its amplitude.



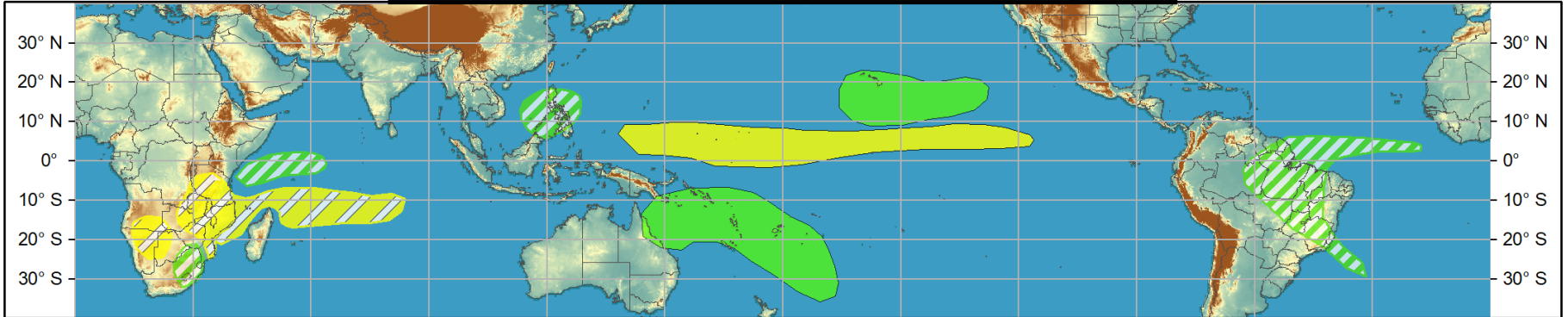
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Dec 22, 2021 - Dec 28, 2021



Week 2 - Valid: Dec 29, 2021 - Jan 04, 2022



Confidence
High Moderate

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
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Produced: 12/21/2021
Forecaster: Collow

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IR Satellite & 200-hpa Velocity Potential Anomalies

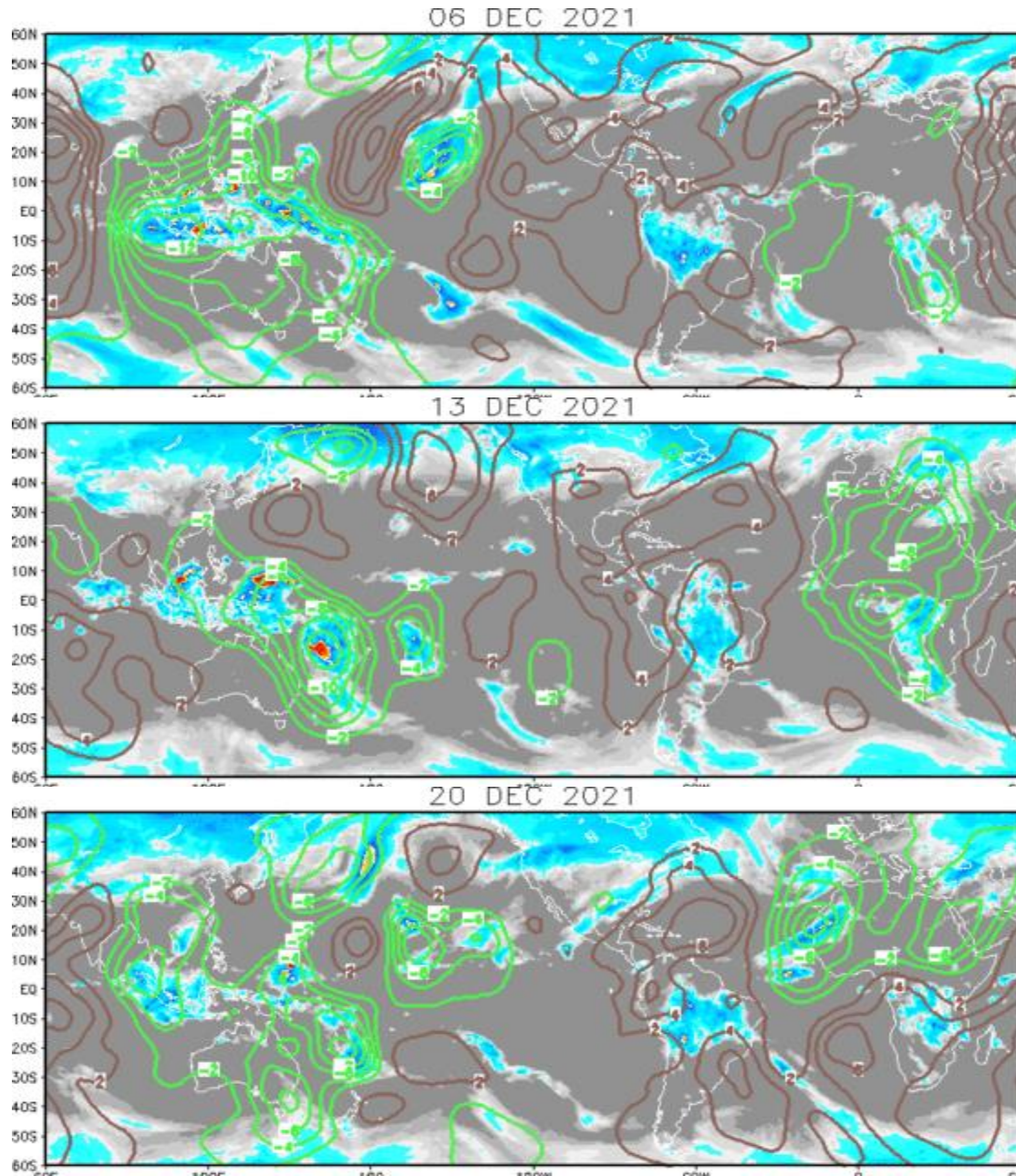
Green: Enhanced Divergence

Brown: Enhanced Convergence

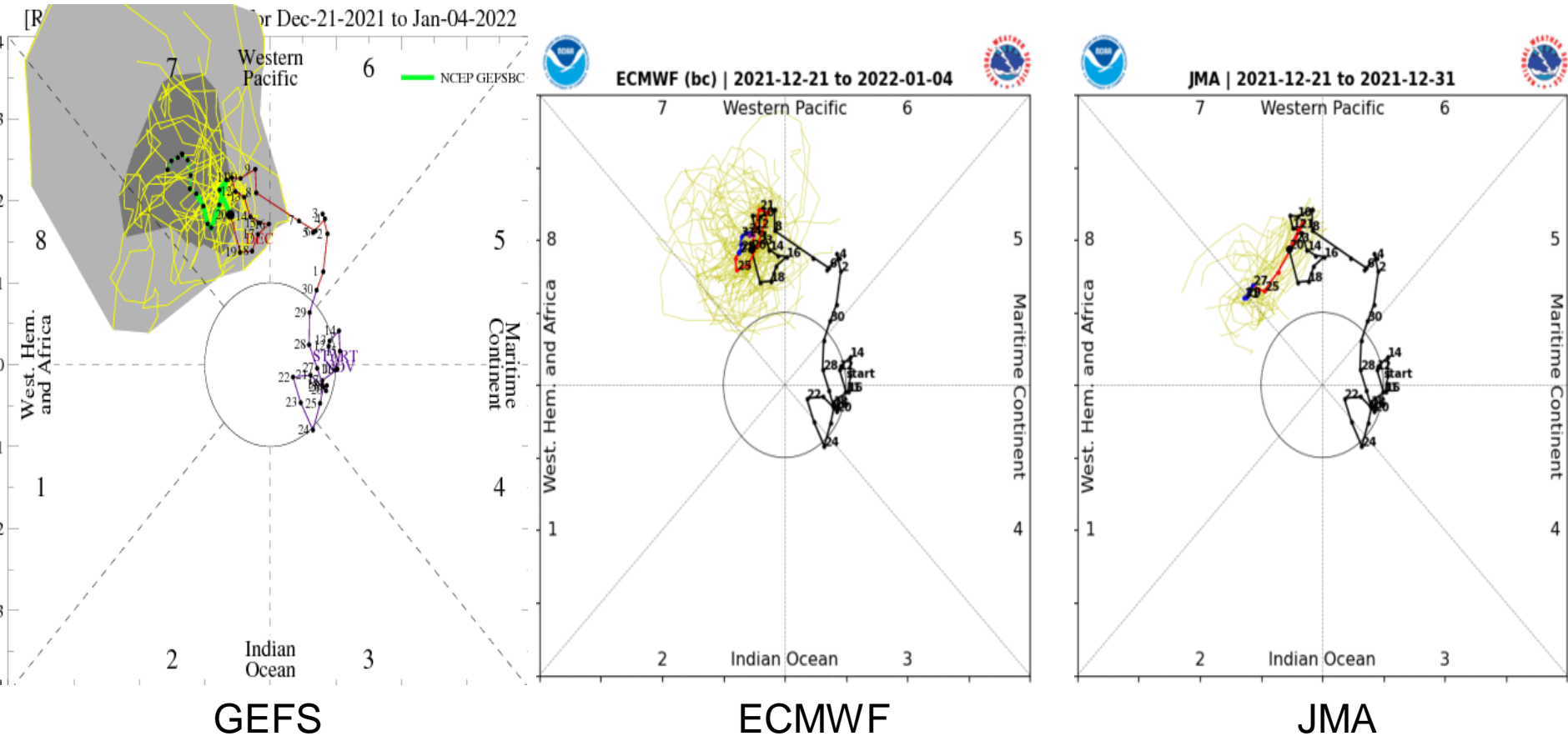
Enhanced convection expands across the Maritime Continent and West Pacific including over the South Pacific Convergence Zone.

Wave-2 pattern emerges with continued enhanced convection over the southwest Pacific, with enhanced convection also expanding over Africa in the wake of the MJO and increased upper level divergence.

Velocity potential pattern remains persistent, with increased convection developing across the Central Pacific and Hawaii.



MJO Observation/Forecast

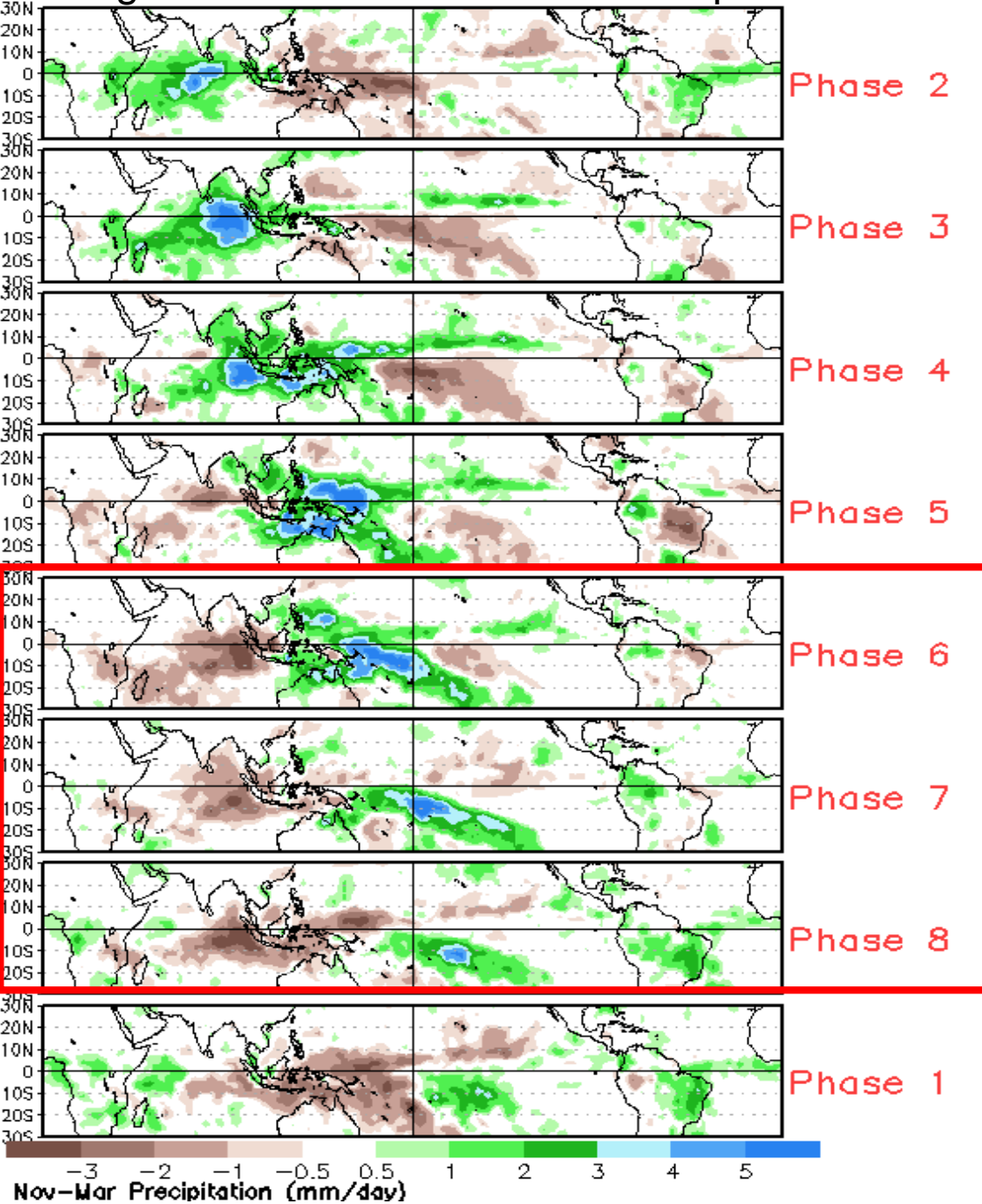


GEFS and ECMWF ensembles depict a meandering MJO signal in RMM phase 7 during the next 2 weeks.

JMA indicates slightly more eastward propagation toward the Central Pacific compared to the GEFS and ECMWF.

Uncertainty is high due to large ensemble spread.

Average Conditions when the MJO is present

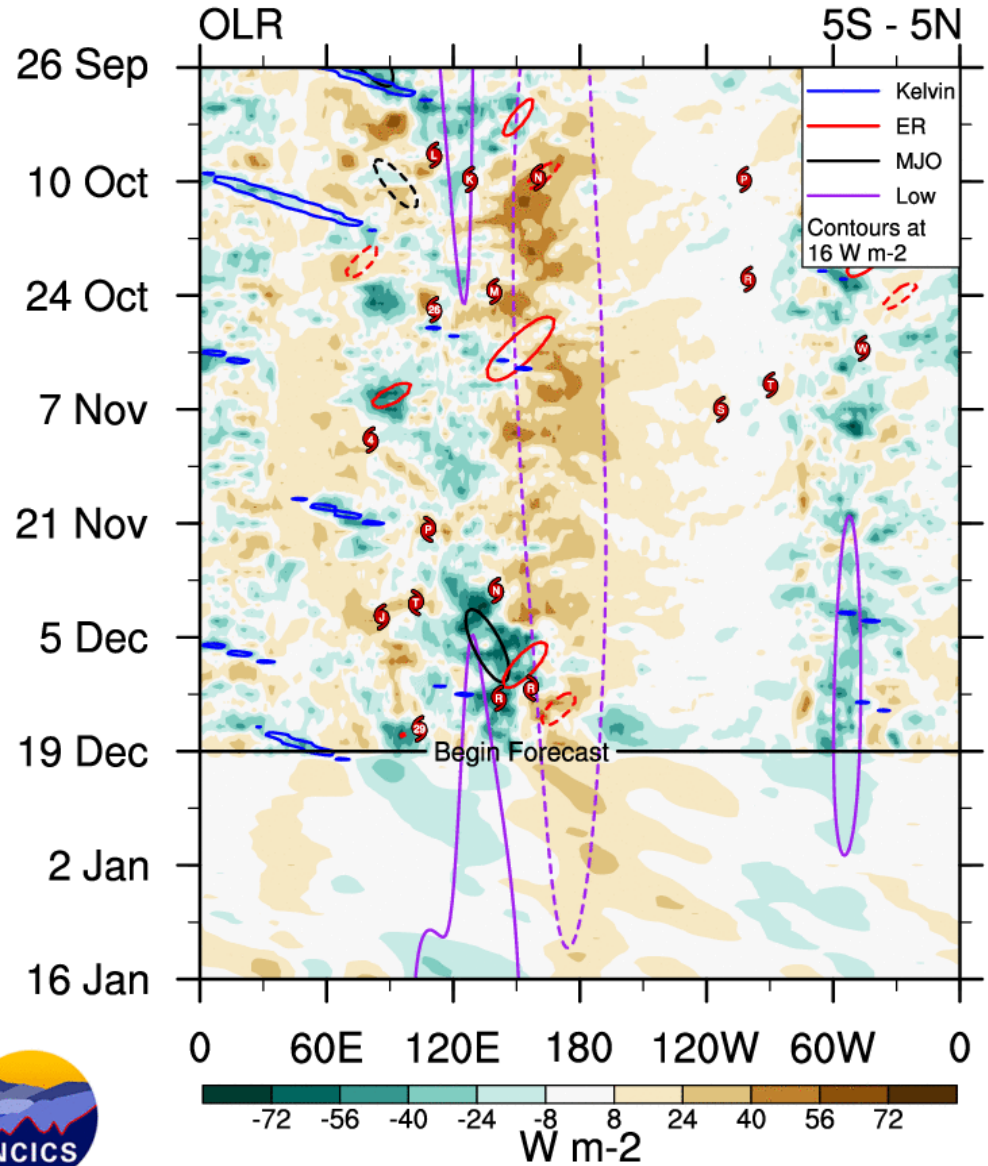


CAVEAT: These panels are representative of robust MJO events.

MJO activity is coming through the filtering over the West Pacific in the OLR field.

Enhanced **Rossby wave** activity is destructively interfering with the MJO signal.

Low frequency contours near the Date Line denote the established low frequency La Nina base state.



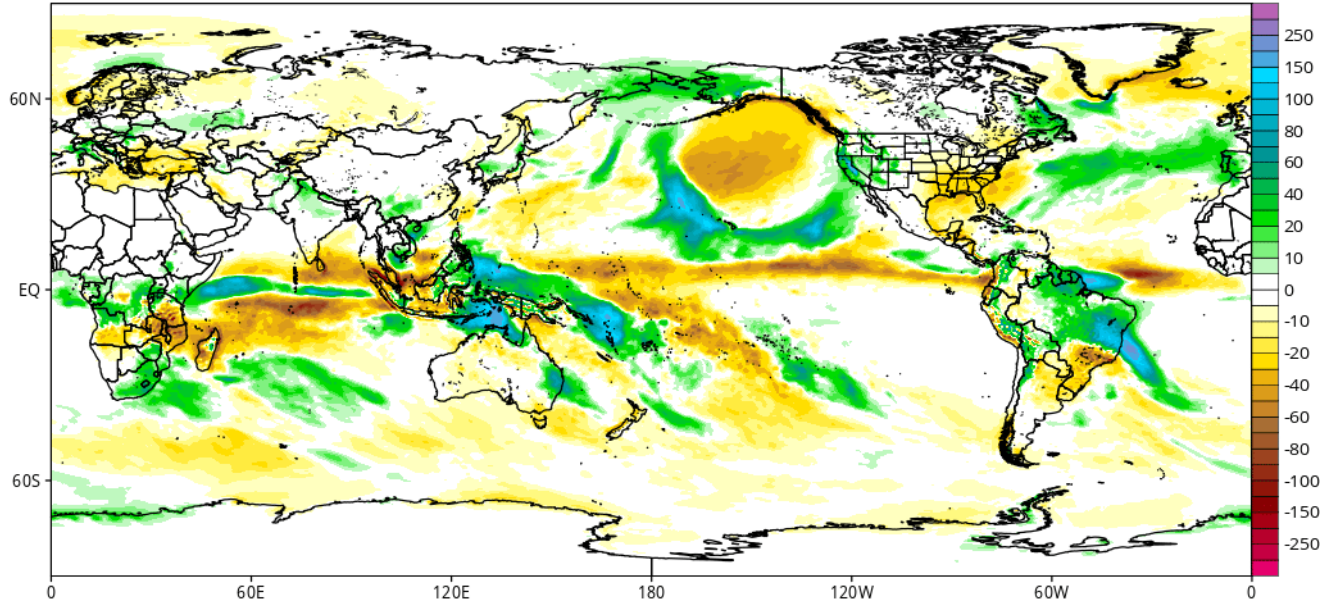
Mon 2021-12-20 1633 UTC

Carl Schreck
carl_schreck@ncsu.edu

GEFS Accumulated Precip. Anomaly (mm) from 12z22Dec2021 to 12z29Dec2021 (Days 2-8)

Init: 12z Dec 21 2021 Forecast Hour: [192] valid at 12z Wed, Dec 29 2021

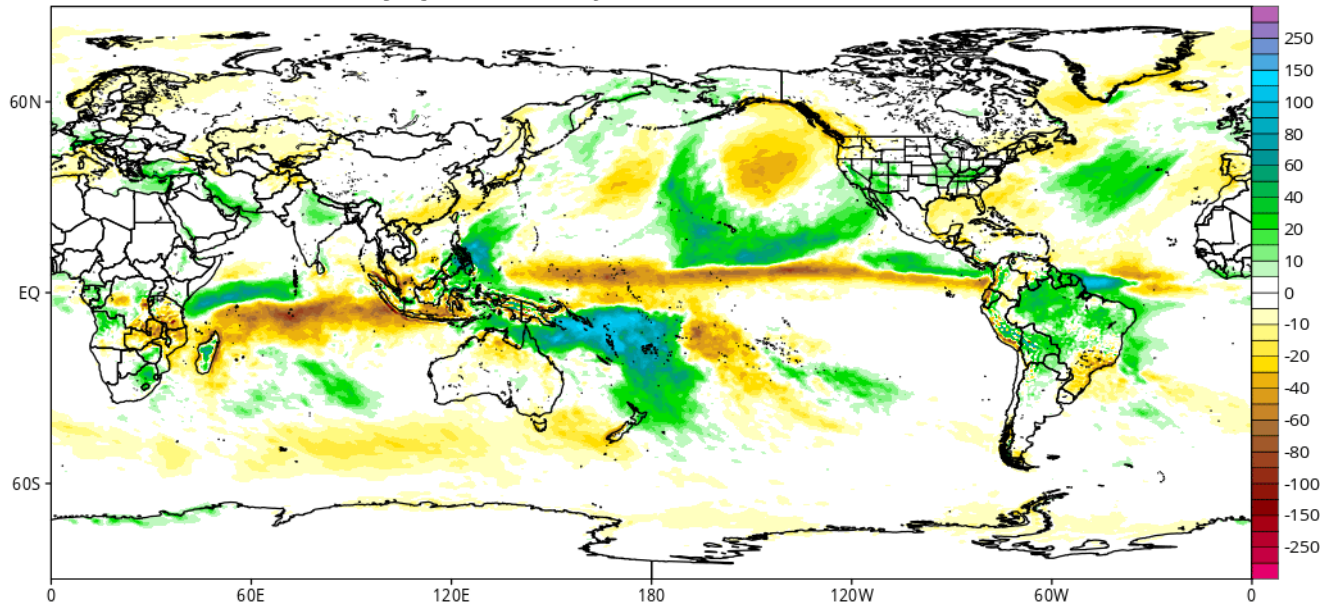
TROPICALTIDBITS.COM



GEFS Accumulated Precip. Anomaly (mm) from 12z29Dec2021 to 12z05Jan2022 (Days 9-15)

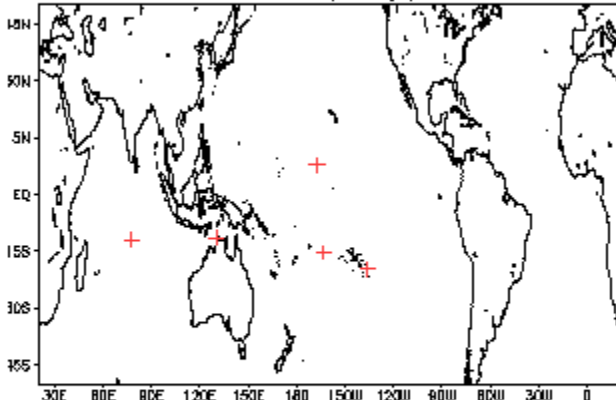
Init: 12z Dec 21 2021 Forecast Hour: [360] valid at 12z Wed, Jan 05 2022

TROPICALTIDBITS.COM

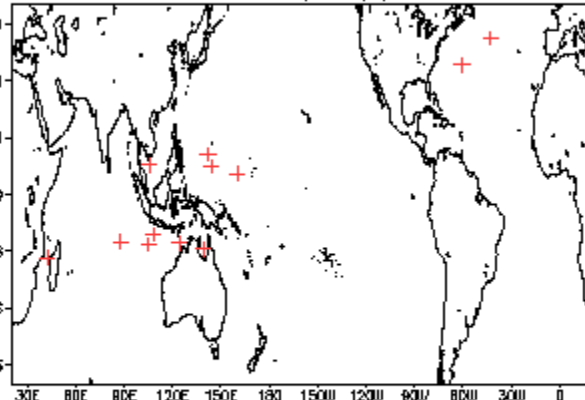


December Tropical Storm Formation by MJO phase

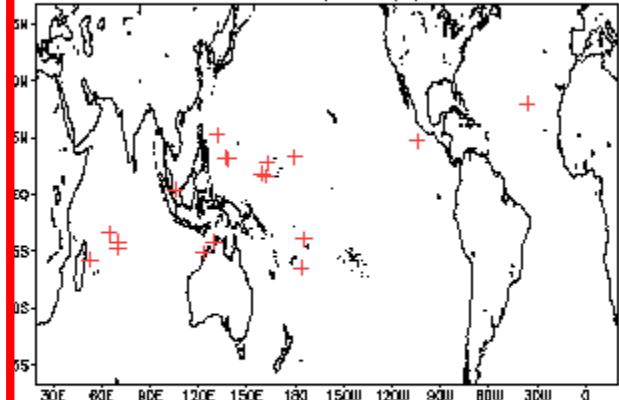
Phase 1 (48 days) 7 storms



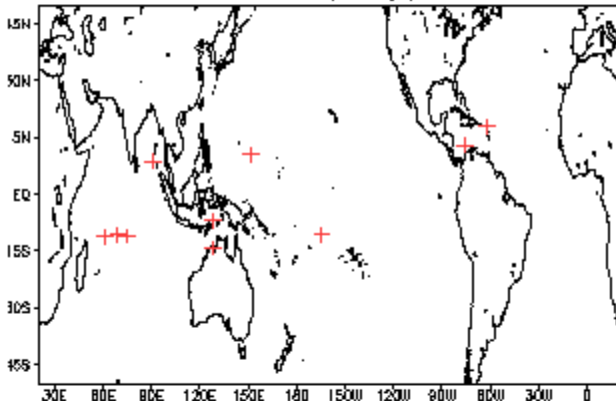
Phase 4 (72 days) 13 storms



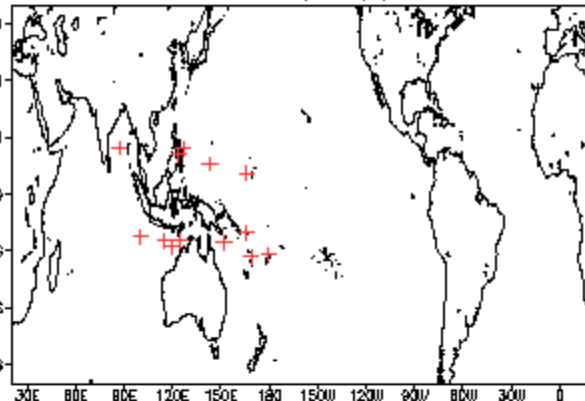
Phase 7 (103 days) 19 storms



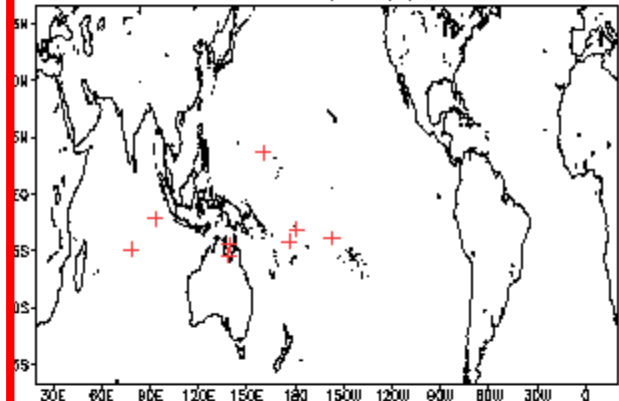
Phase 2 (67 days) 11 storms



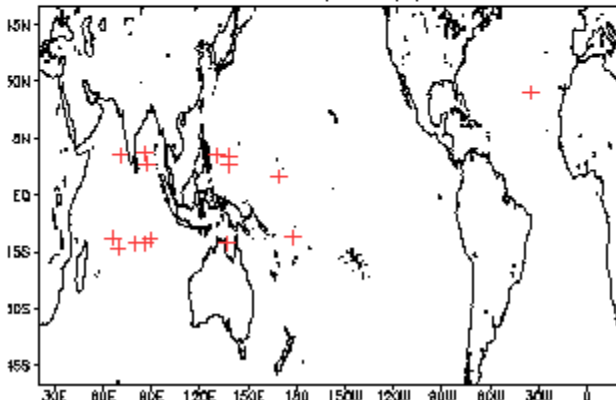
Phase 5 (73 days) 14 storms



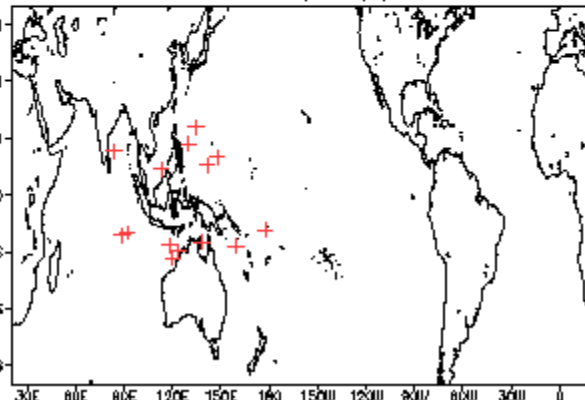
Phase 8 (76 days) 9 storms



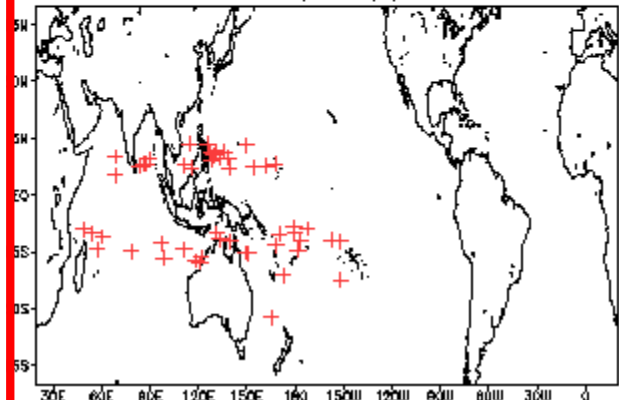
Phase 3 (101 days) 16 storms



Phase 6 (69 days) 15 storms

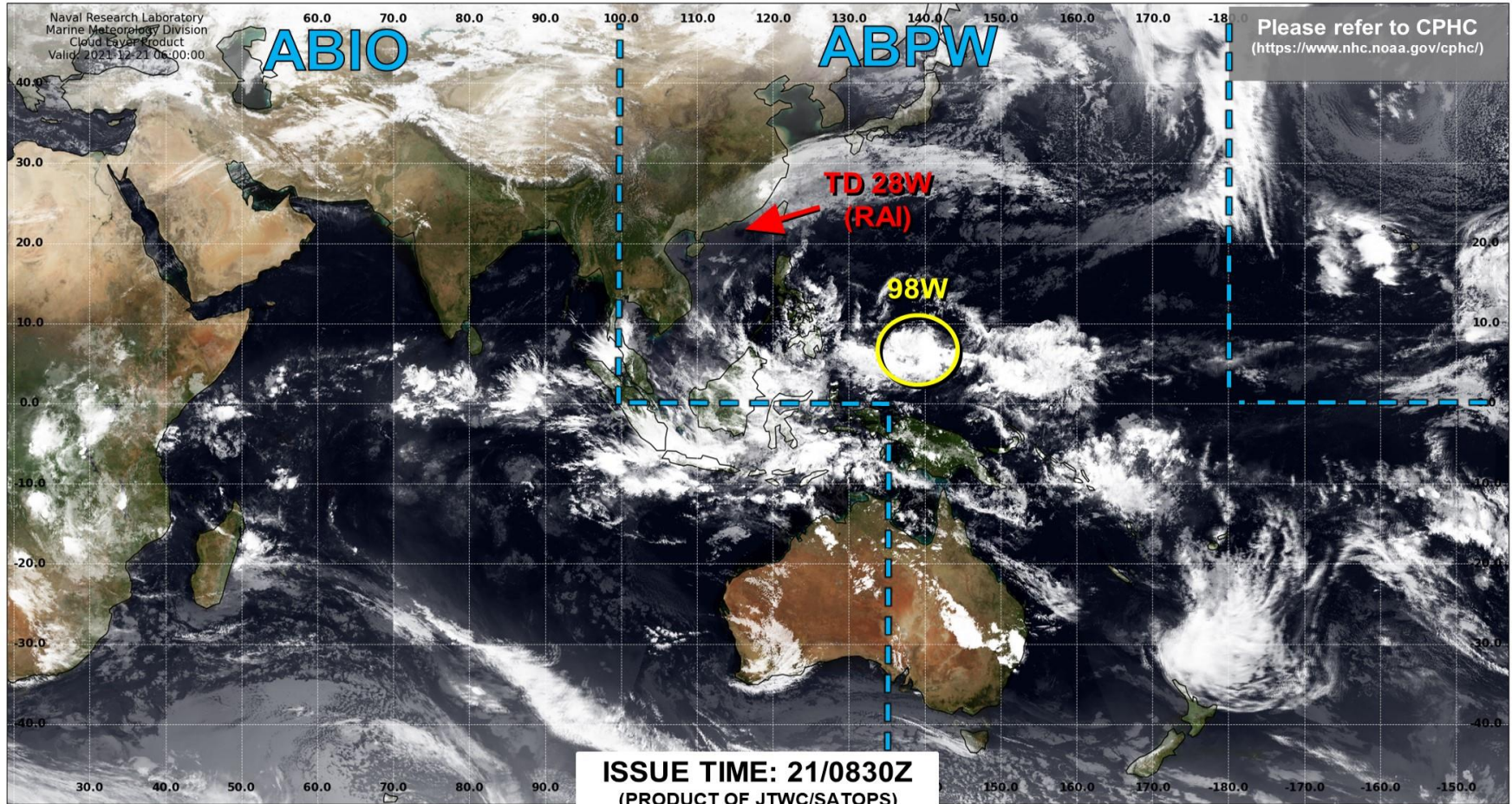


Null (416 days) 52 storms





JOINT TYPHOON WARNING CENTER



LOW TC development unlikely within 24 hours



MEDIUM TC development likely, but expected to occur beyond 24 hours



HIGH TC development likely within 24 hours (Reference TCFA)



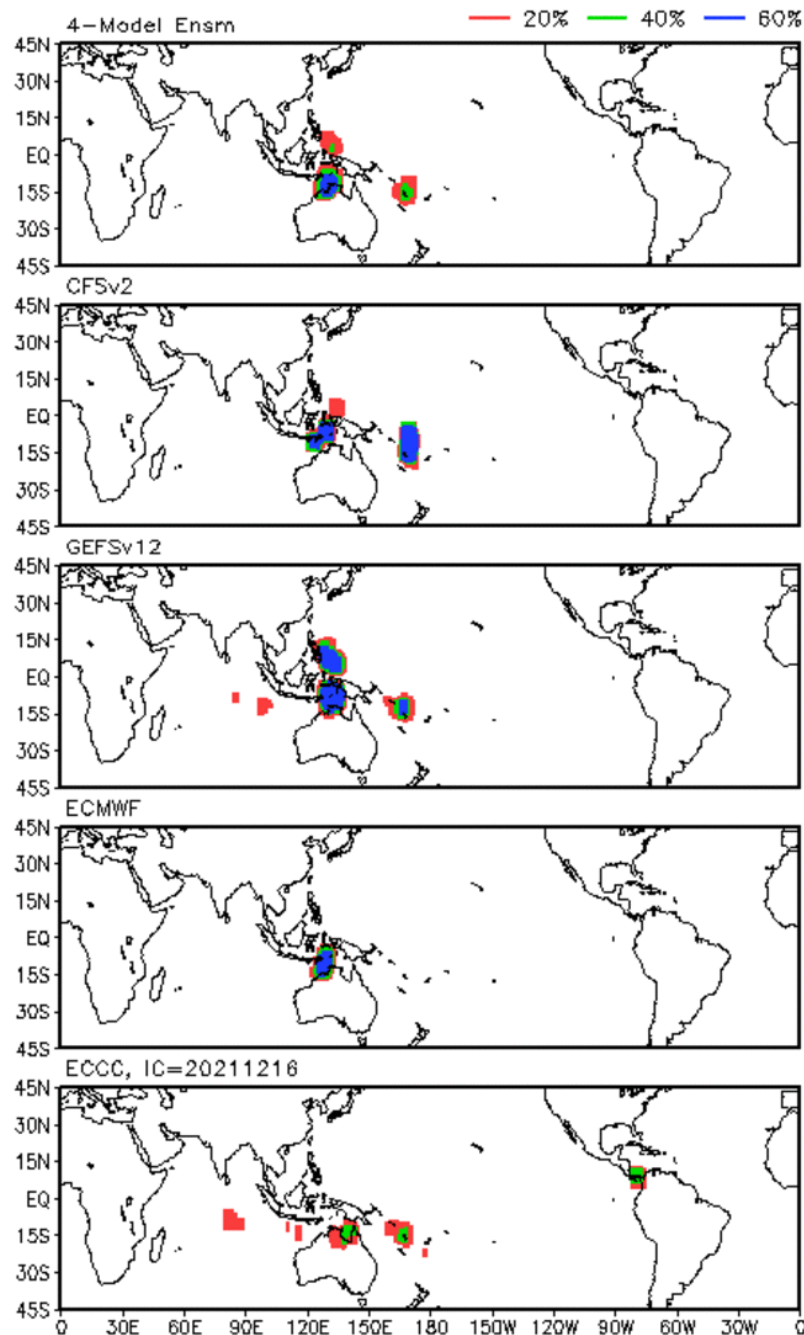
SUB TROPICAL Monitoring for potential transition to TC. Invest label color denotes tropical transition probability



Tropical Cyclone (Reference Warning)

Storm Track Probabilities, IC=20211220

Week 1: 1222 - 1228



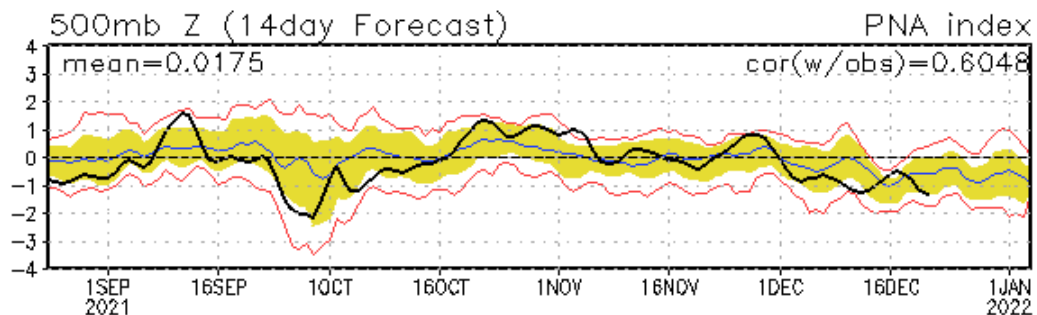
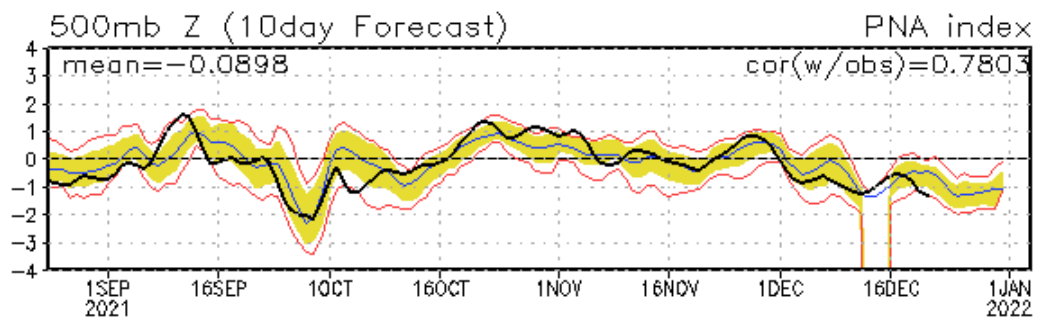
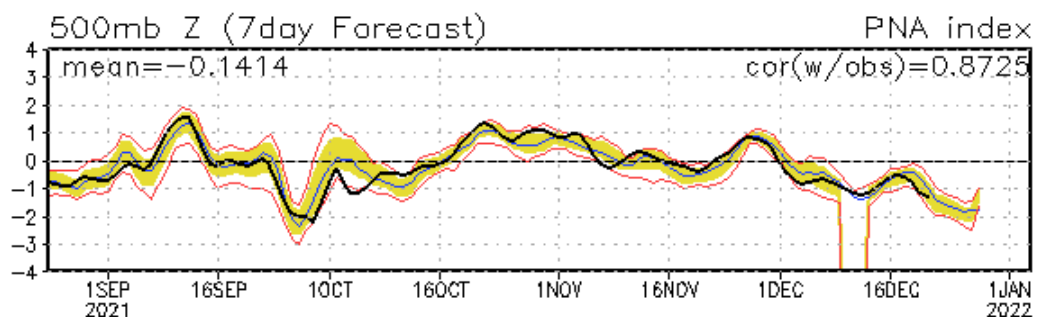
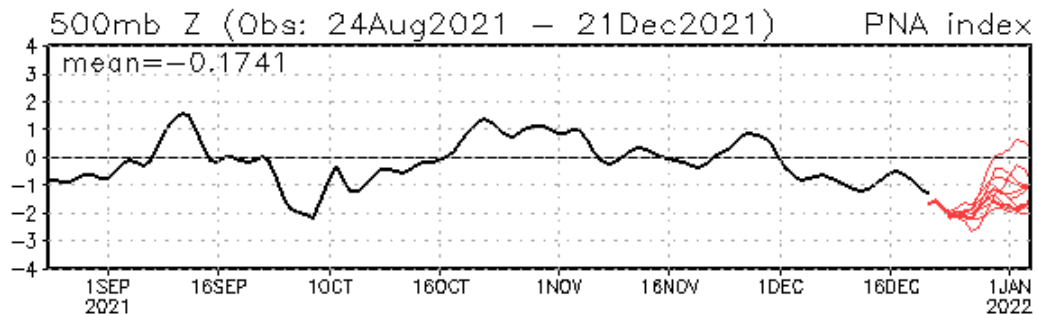
Tropical cyclone (TC) development indicated across the Timor Sea, with related impacts along the northern coast of Australia possible late in week-1.

Elevated potential for development exists near the Vanuatu Island Chain.

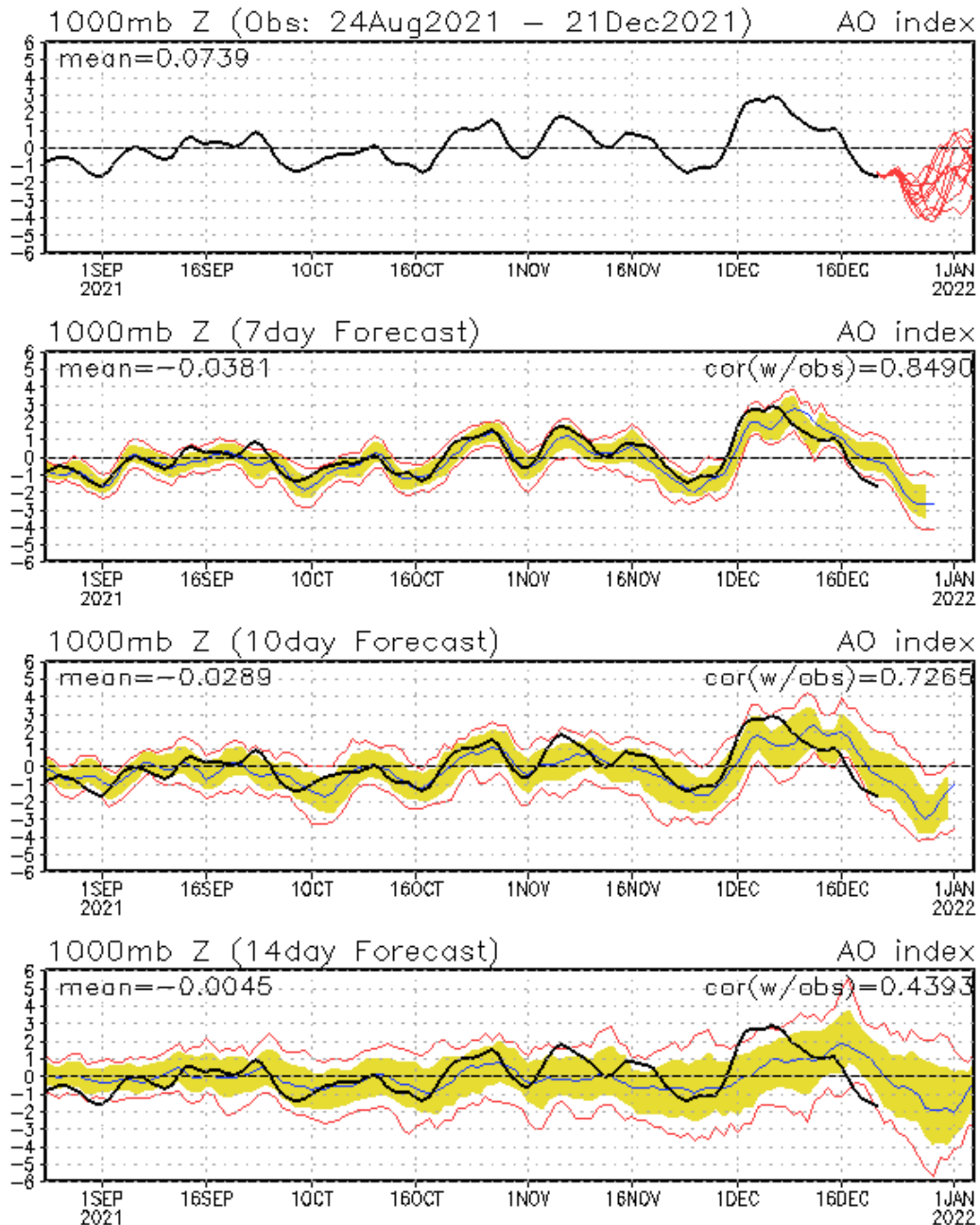
Invest 98W may further develop into a TC as tracks closer to the Philippines later in week-1.

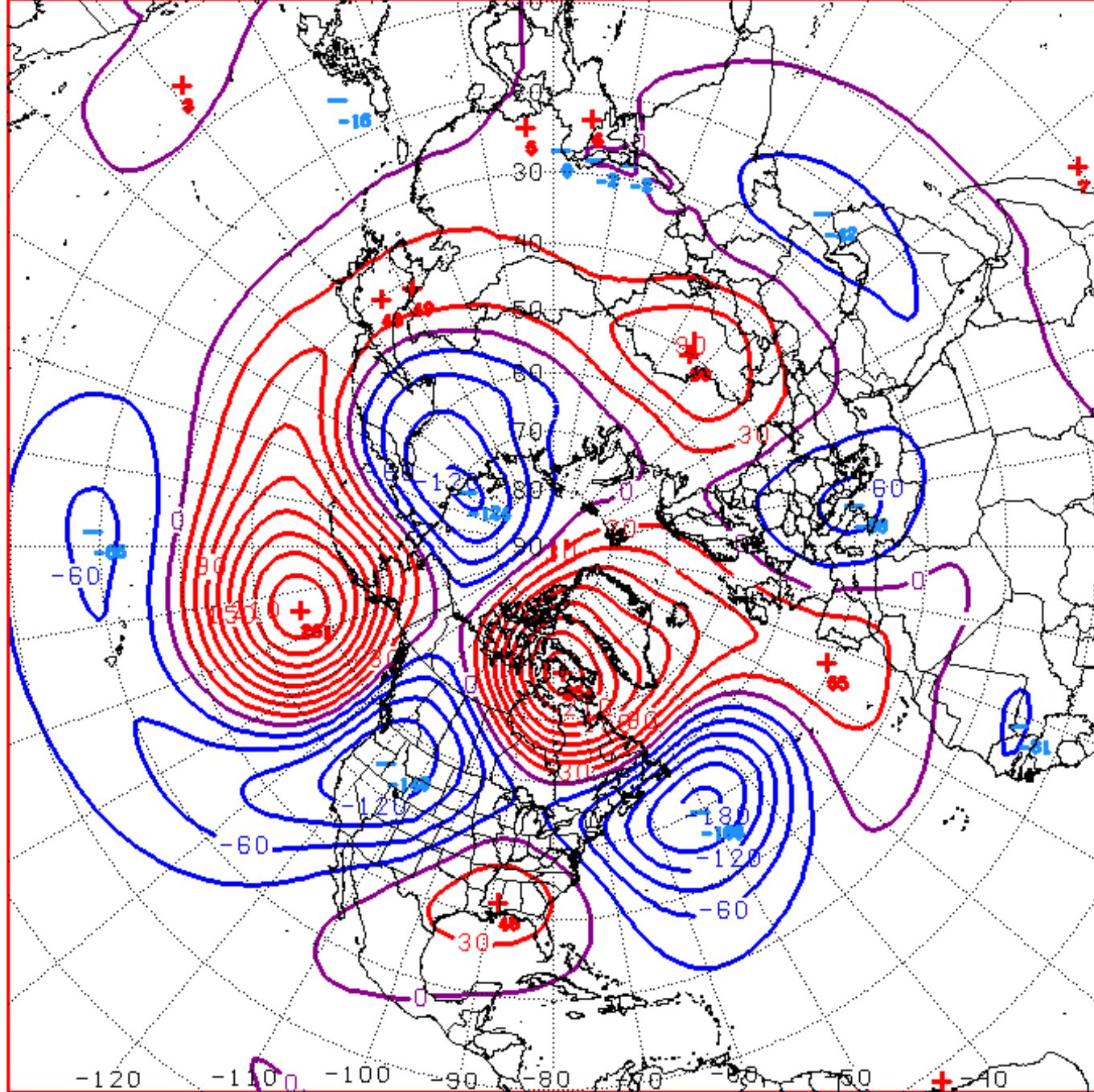
Connections to U.S. Impacts

PNA: Observed & ENSM forecasts



AO: Observed & ENSM forecasts





D+11 500 MB ANOMALIES FROM ALZ ENSM
 CPC MAP MADE DEC 21 2021 1356 UTC CNTD JAN 01 2022

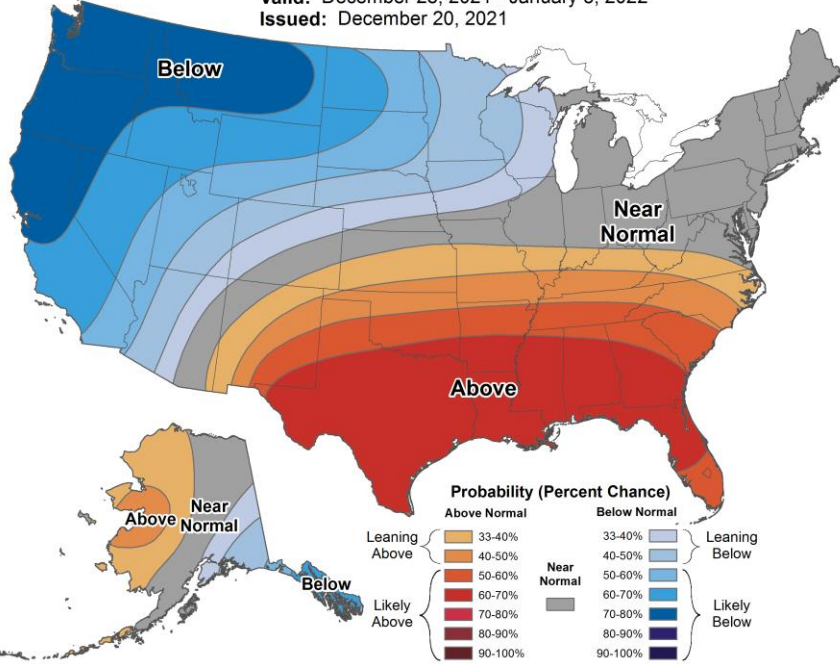
Week 2 – Temperature and Precipitation



8-14 Day Temperature Outlook



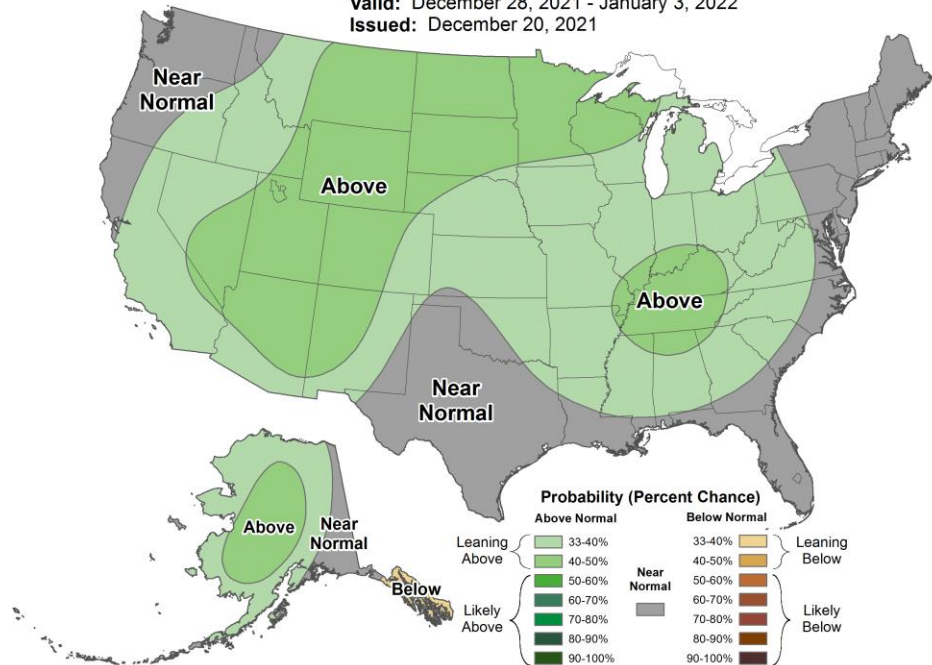
Valid: December 28, 2021 - January 3, 2022
 Issued: December 20, 2021



8-14 Day Precipitation Outlook



Valid: December 28, 2021 - January 3, 2022
 Issued: December 20, 2021



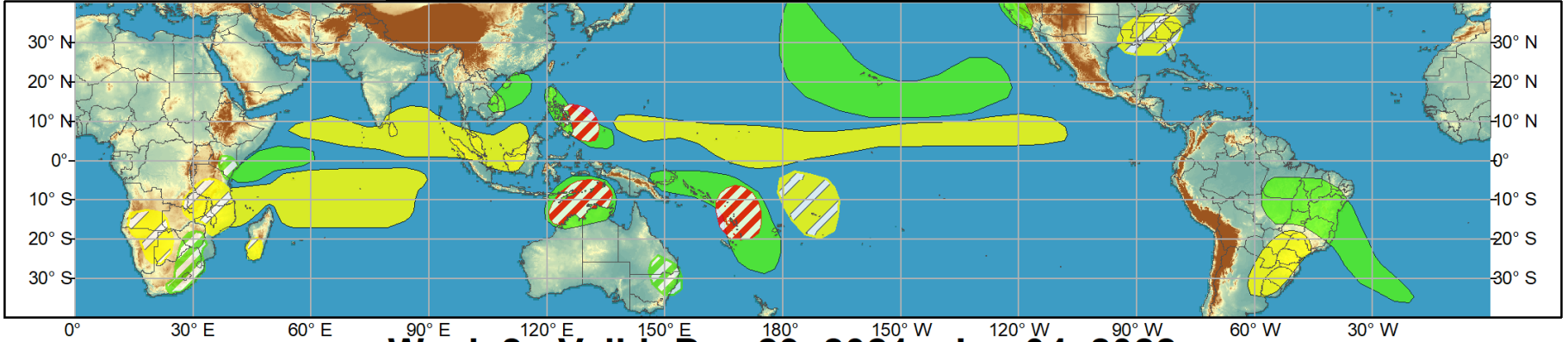
Since we are in an amplified, stable pattern today's outlooks are likely to be similar.



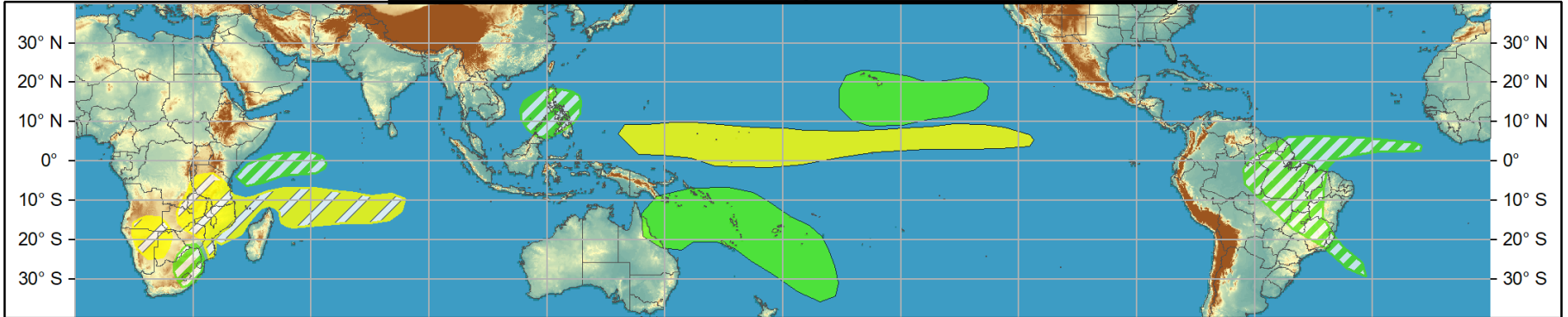
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