

Global Tropics Hazards And Benefits Outlook

12/17/2019

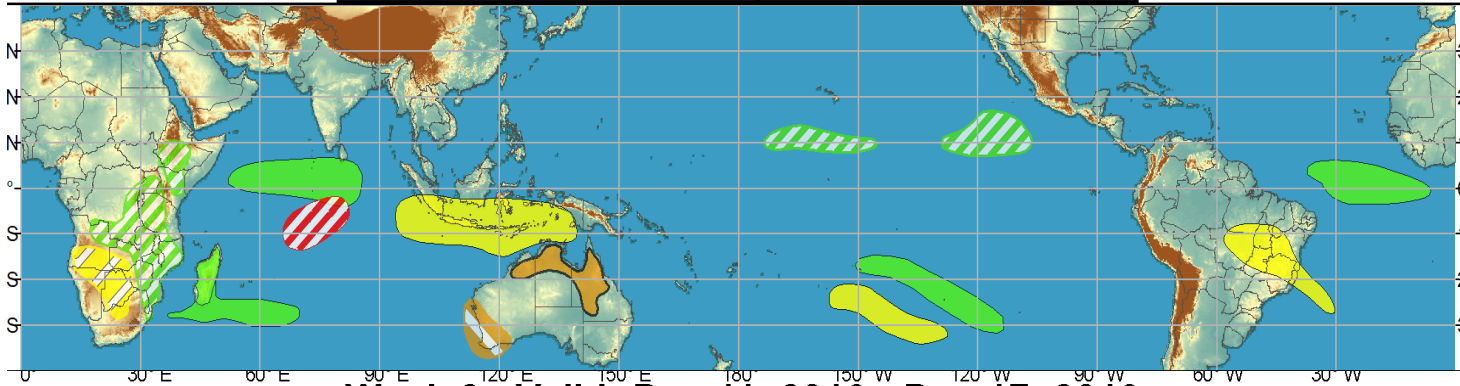
Nick Novella

Outline

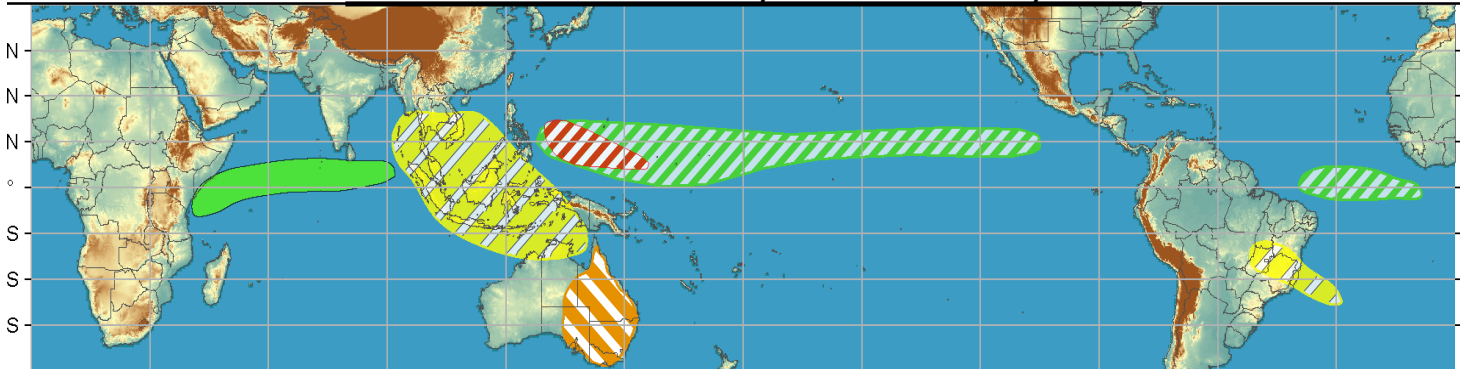
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Outlook Review

Week 1 - Valid: Dec 11, 2019 - Dec 17, 2019

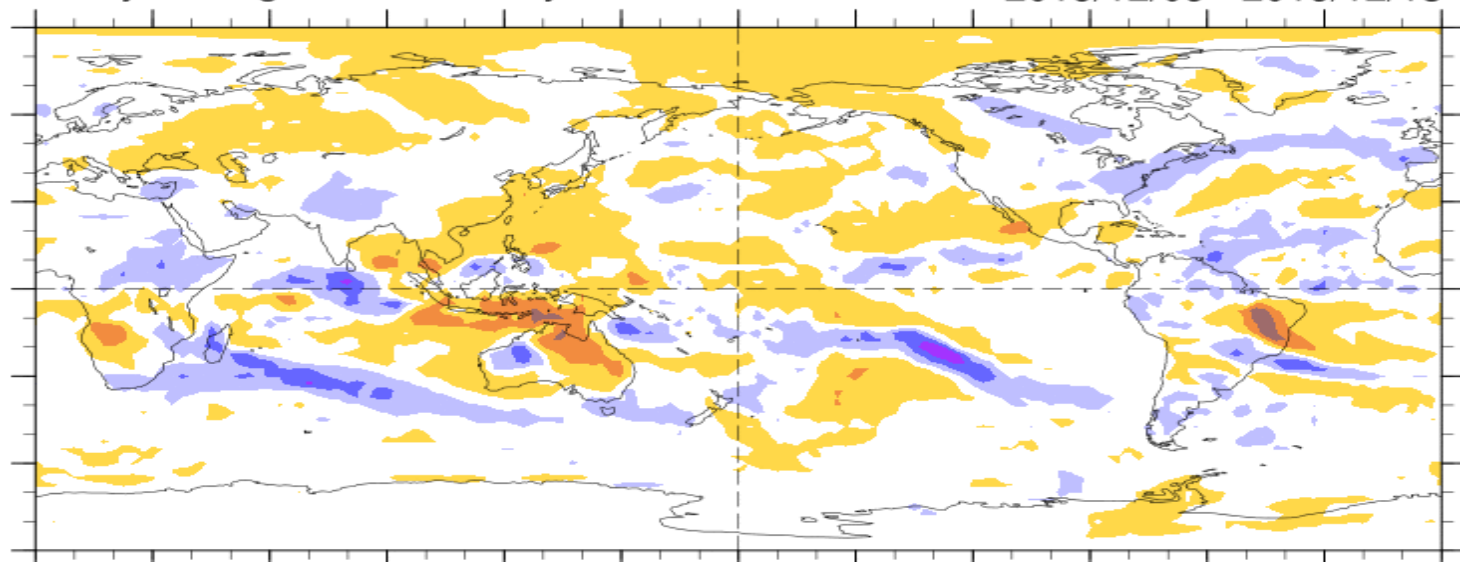


Week 2 - Valid: Dec 11, 2019 - Dec 17, 2019



7-Day Average OLR Anomaly

2019/12/09 - 2019/12/15



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (Dec 12, 2019 Update)

- ENSO Alert System Status: Not Active
- ENSO-neutral is favored during Northern Hemisphere winter 2019-20 (~70% chance) continuing through spring 2020 (65% chance).

MJO and other subseasonal tropical variability:

- The MJO continues to become weak and disorganized, with the enhanced phase was centered over the Indian Ocean. Competing modes of variability over this region. Destructive interference with positive IOD (Indian Ocean Dipole)
- Dynamical models are in fair agreement with a continued weakening MJO signal during Week-1, followed by a low amplitude reemergence with eastward propagation in the Western Pacific during Week-2.

Extratropics:

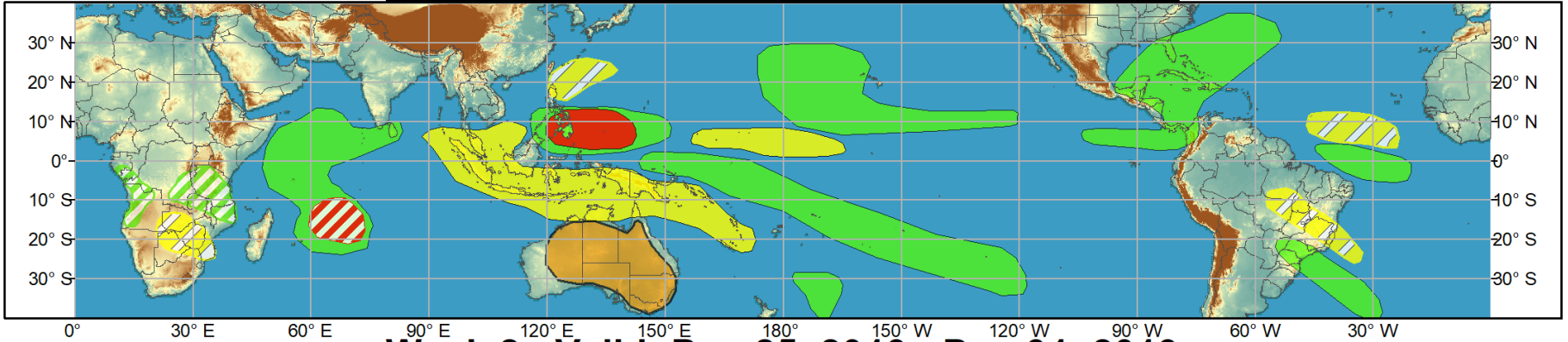
- If MJO strongly reemerges into Phases 5/6, (7/8) during Week-2, this would historically favor anomalously warmer (colder) temperatures across the central and eastern CONUS.



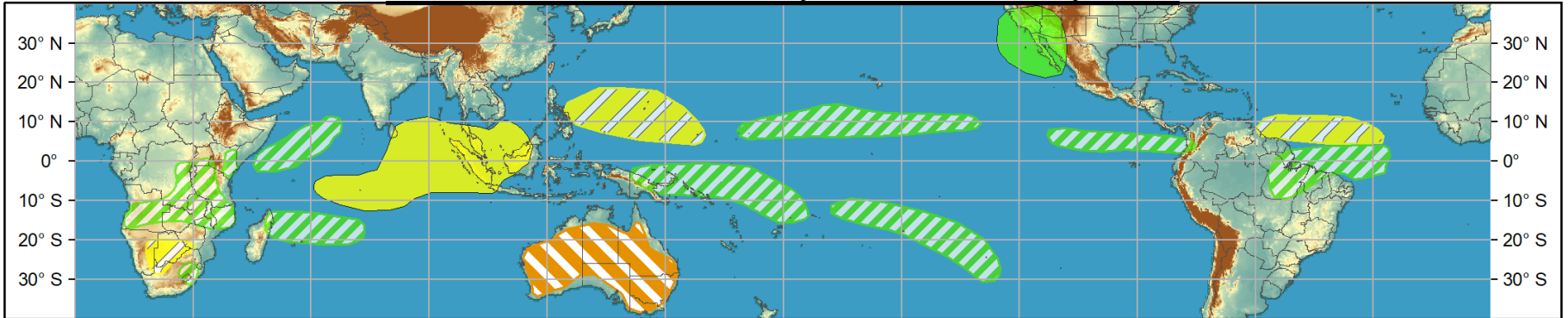
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Week 1 - Valid: Dec 18, 2019 - Dec 24, 2019



Week 2 - Valid: Dec 25, 2019 - Dec 31, 2019



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: 12/17/2019
Forecaster: Novella

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IR Satellite & 200-hpa Velocity Potential Anomalies

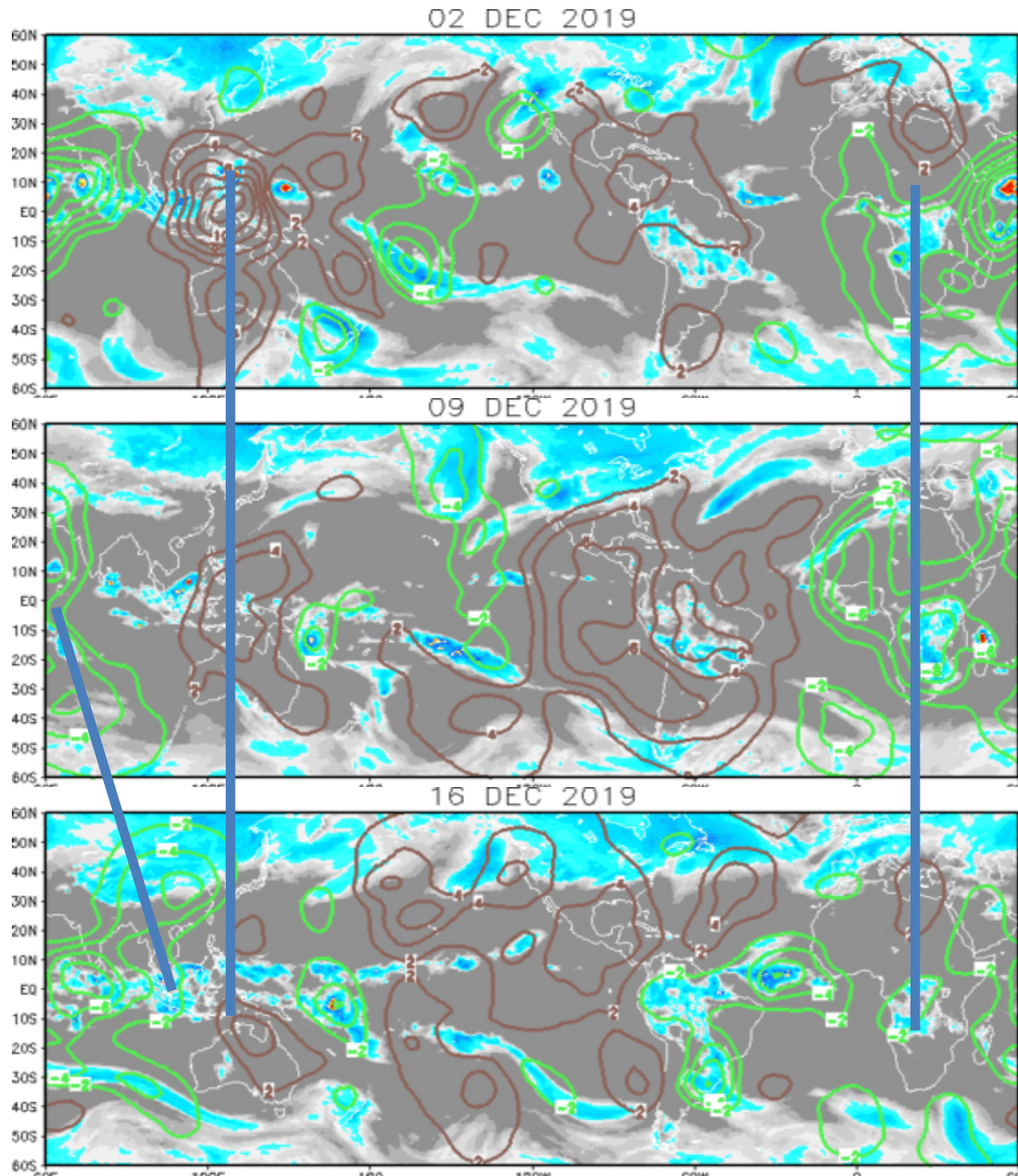
Green: Enhanced Divergence

Brown: Enhanced Convergence

Enhanced divergence centered over Africa/ western IO;
Enhanced convergence centered over MT constructively interfering with IOD footprint.

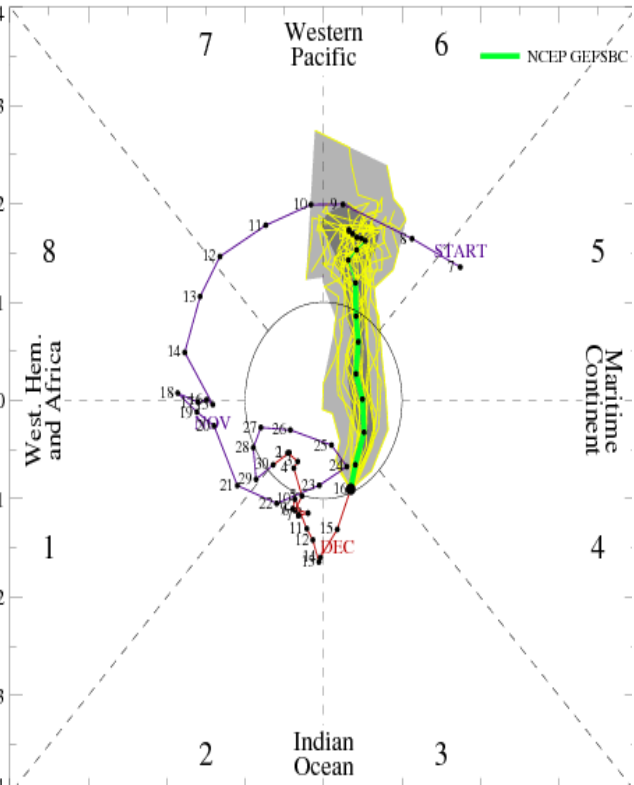
Enhanced Convergence over MT begins to weaken

Enhanced envelop weakens over Africa, shifts further east over eastern IO / MT consistent with destructive interference with IOD.



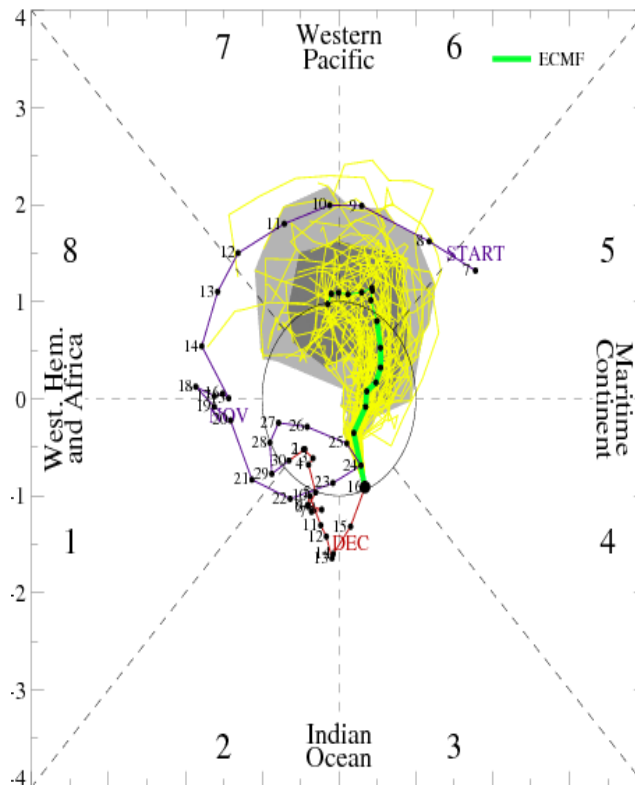
MJO Observation/Forecast

[RMM1, RMM2] forecast for Dec-17-2019 to Dec-31-2019



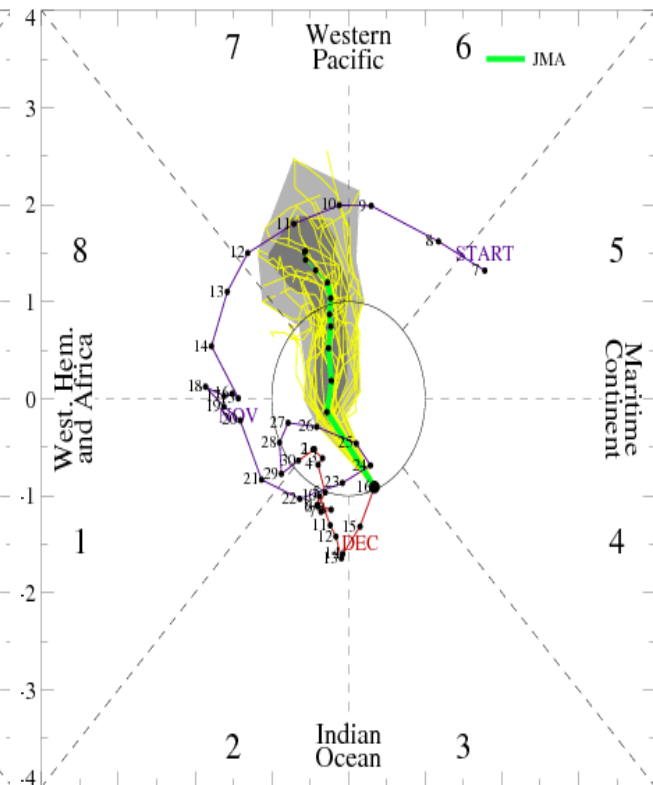
GEFS

MJO Index Forecast for 17Dec2019-31Dec2019



ECMWF

MJO Index Forecast for 17Dec2019-25Dec2019

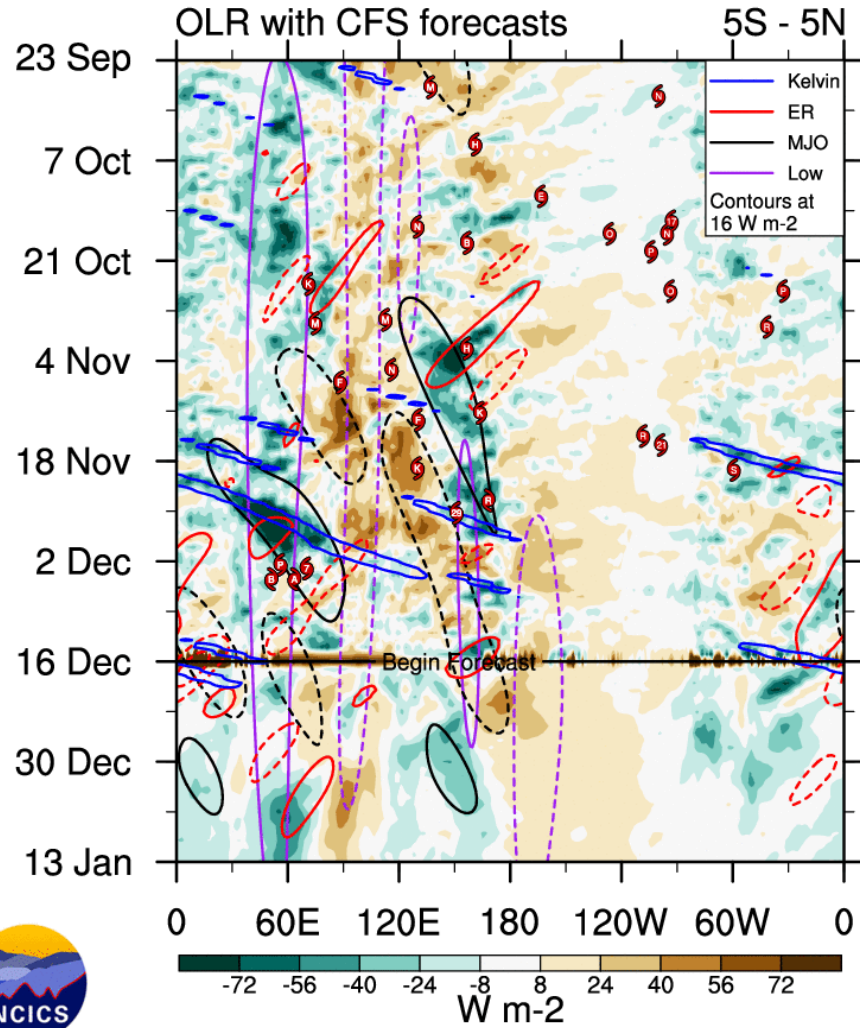
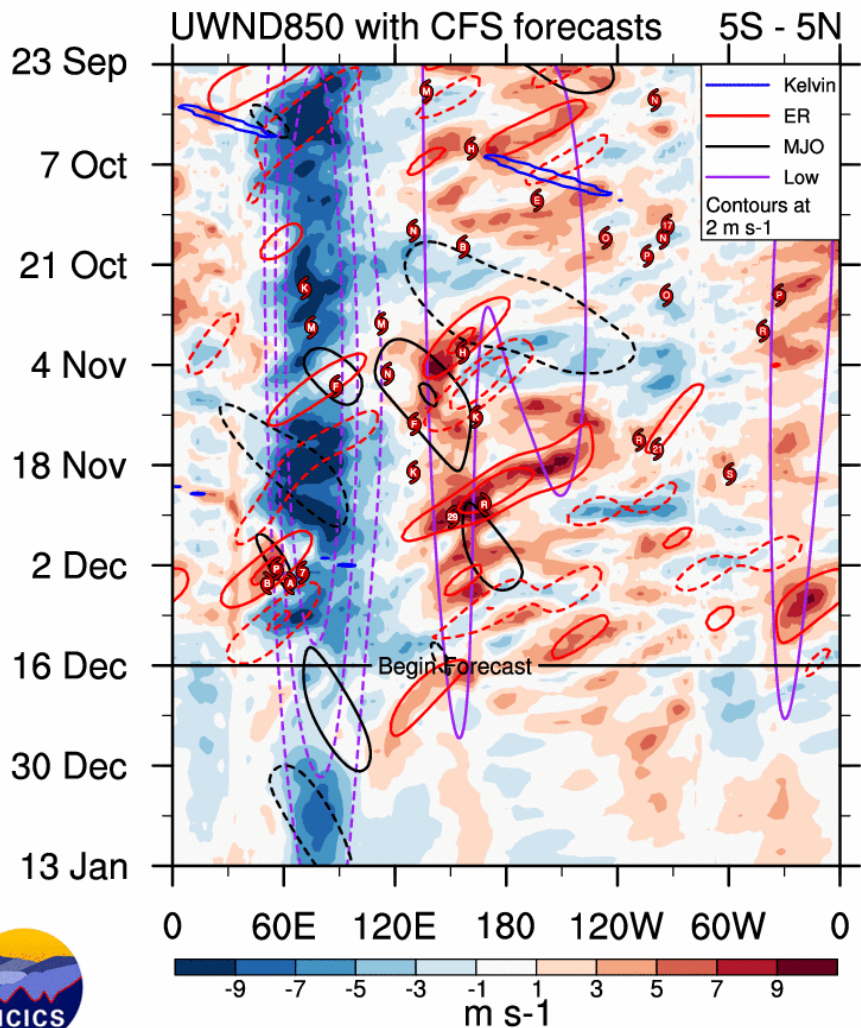


JMA

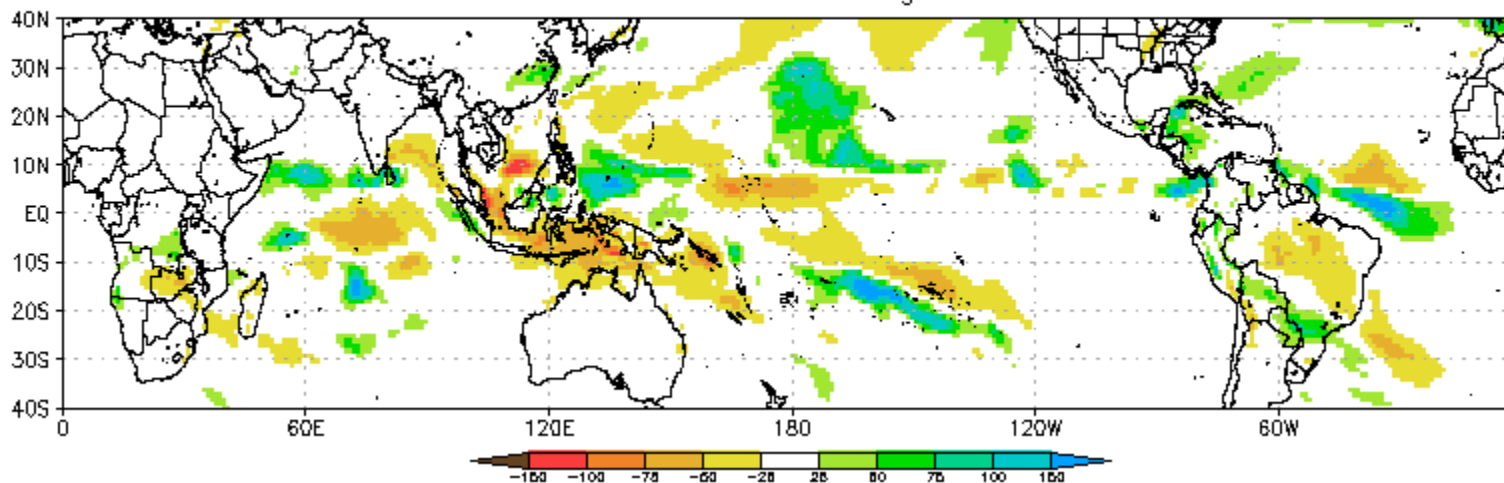
RMM based analyses of model forecasts are in fair agreement relative to weakening MJO mainly during Week-1, with some disparity regarding reemergence phase, strength and eastward propagation during Week-2.

Note ECMF maintains several ensemble members strengthening MJO by phases 5/6 by late December. CFS remains an outlier.

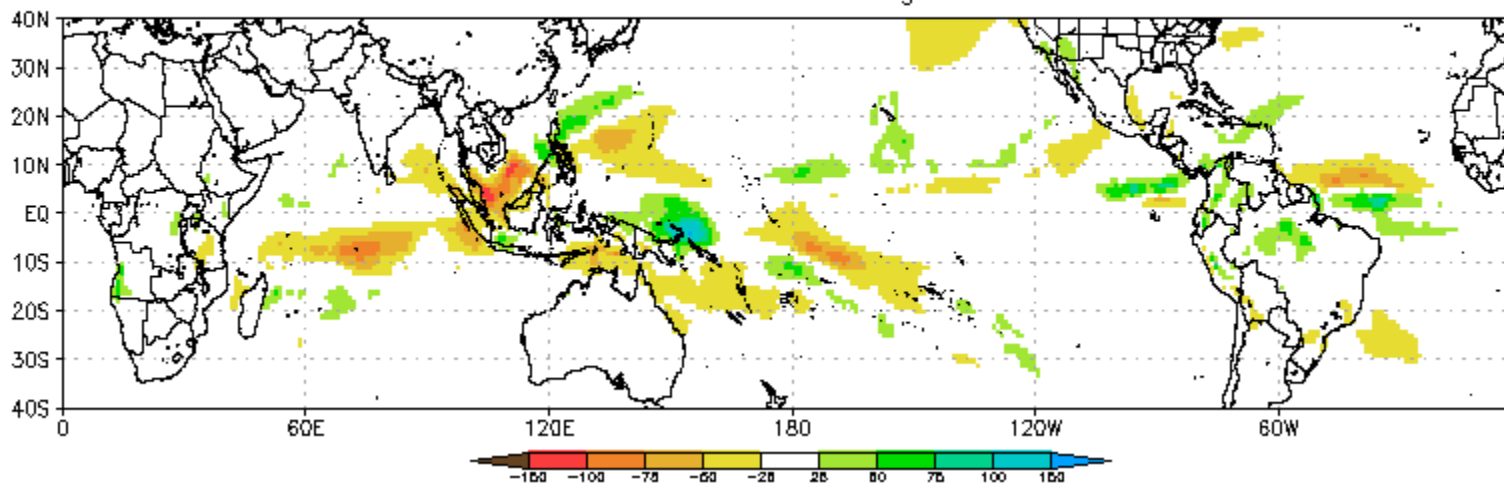
- MJO
- equatorial Rossby wave
- Low frequency signal (IOD)
- Kelvin wave



CFS Precipitation Anomalies (mm) Issued 16Dec2019
Week-1 Forecast Ending 24Dec2019

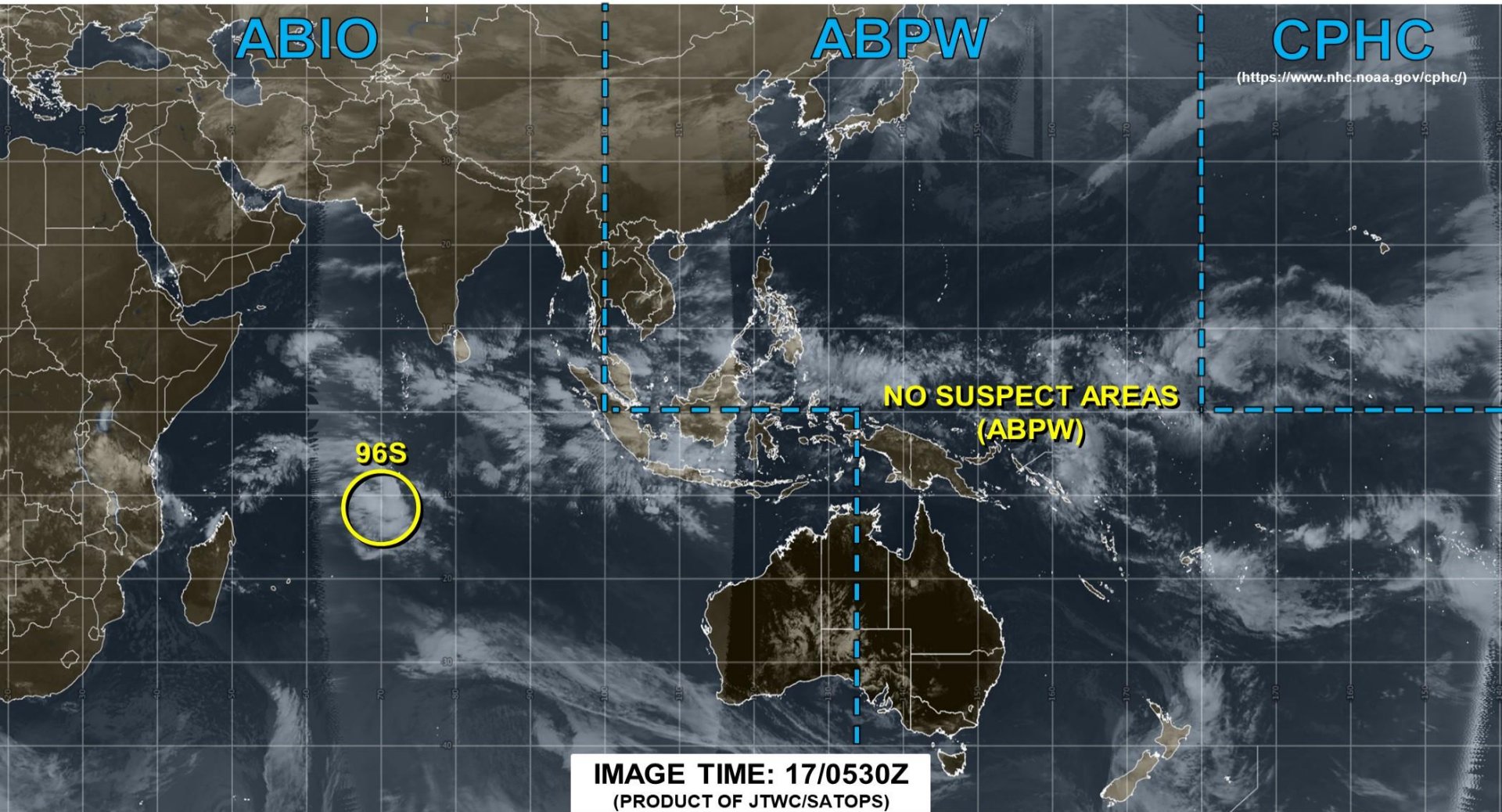


CFS Precipitation Anomalies (mm) Issued 16Dec2019
Week-2 Forecast Ending 31Dec2019





JOINT TYPHOON WARNING CENTER



LOW TC development unlikely within 24 hours

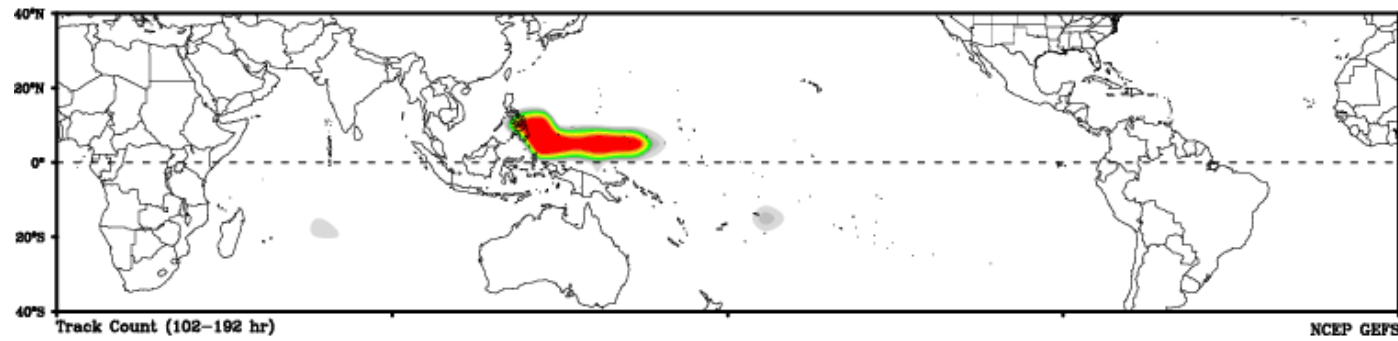
MEDIUM TC development likely, but expected to occur beyond 24 hours

HIGH TC development likely within 24 hours (Reference TCFA)

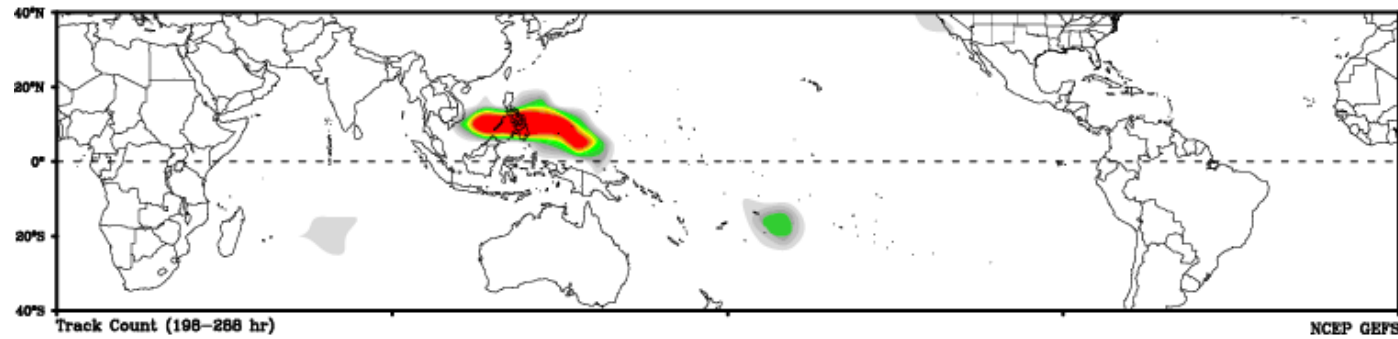
SUB TROPICAL Monitoring for potential transition to TC. Invest color denotes tropical transition probability



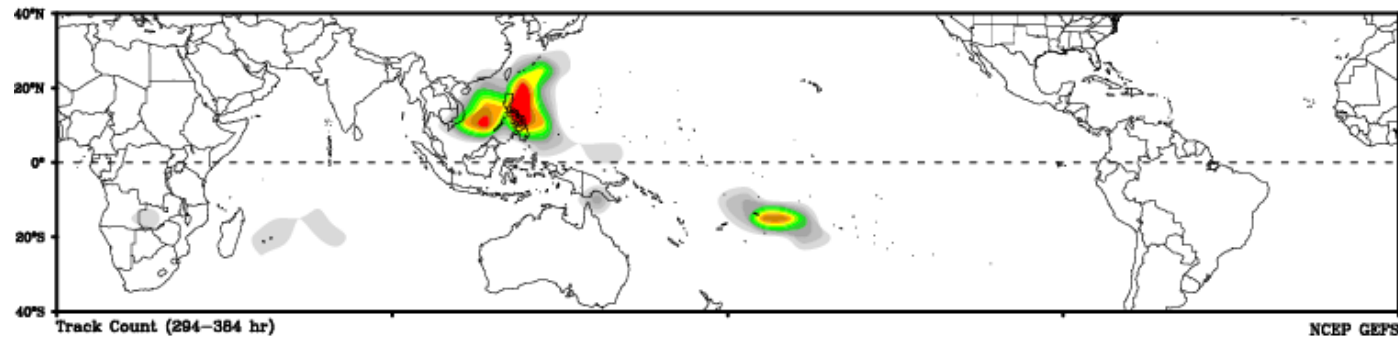
Days 1-4



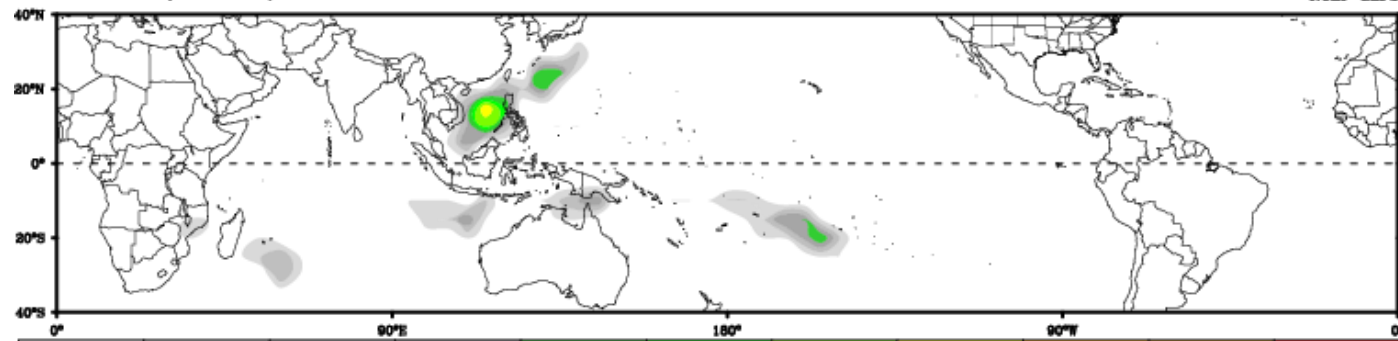
Day 5-8



Day 9-12

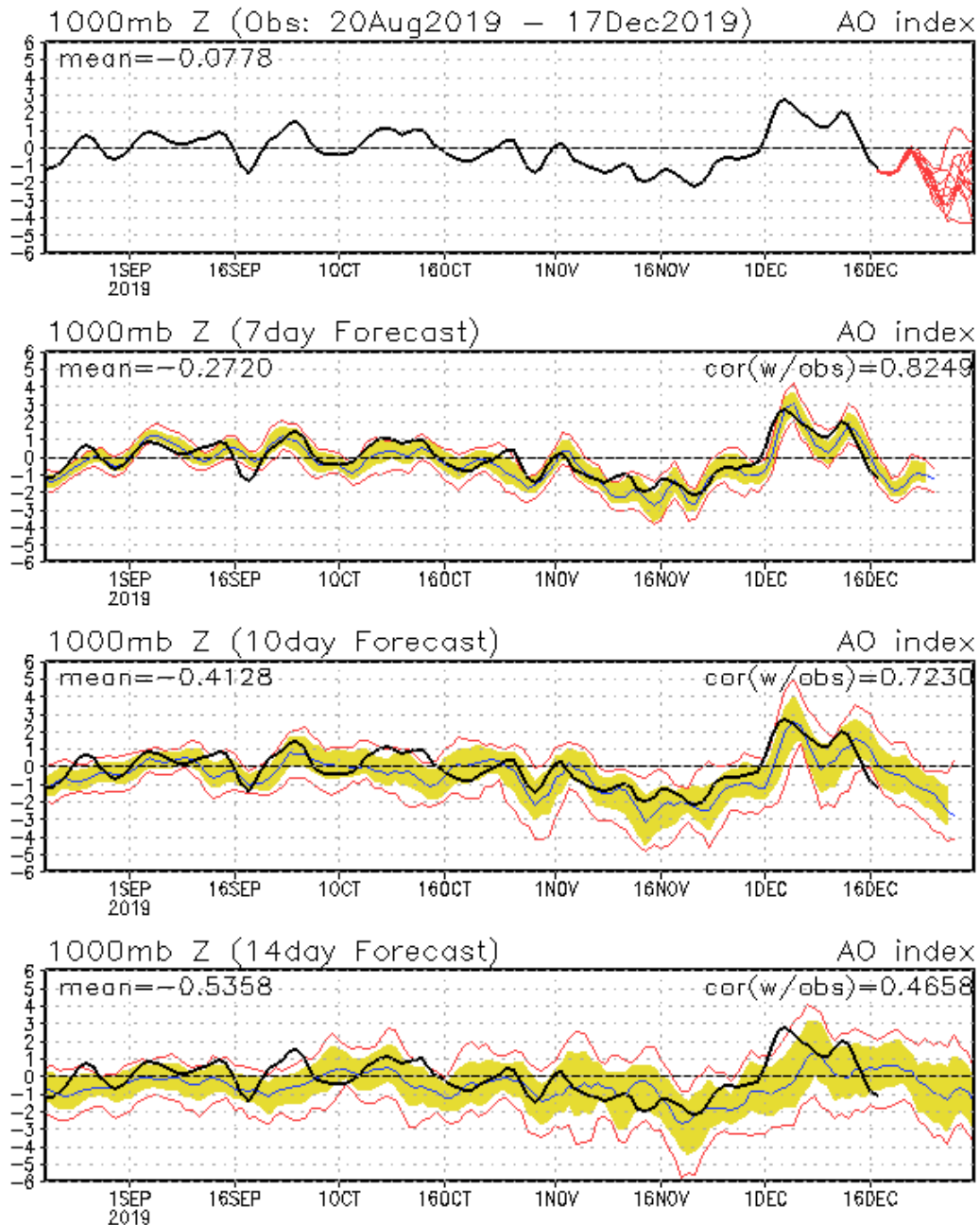


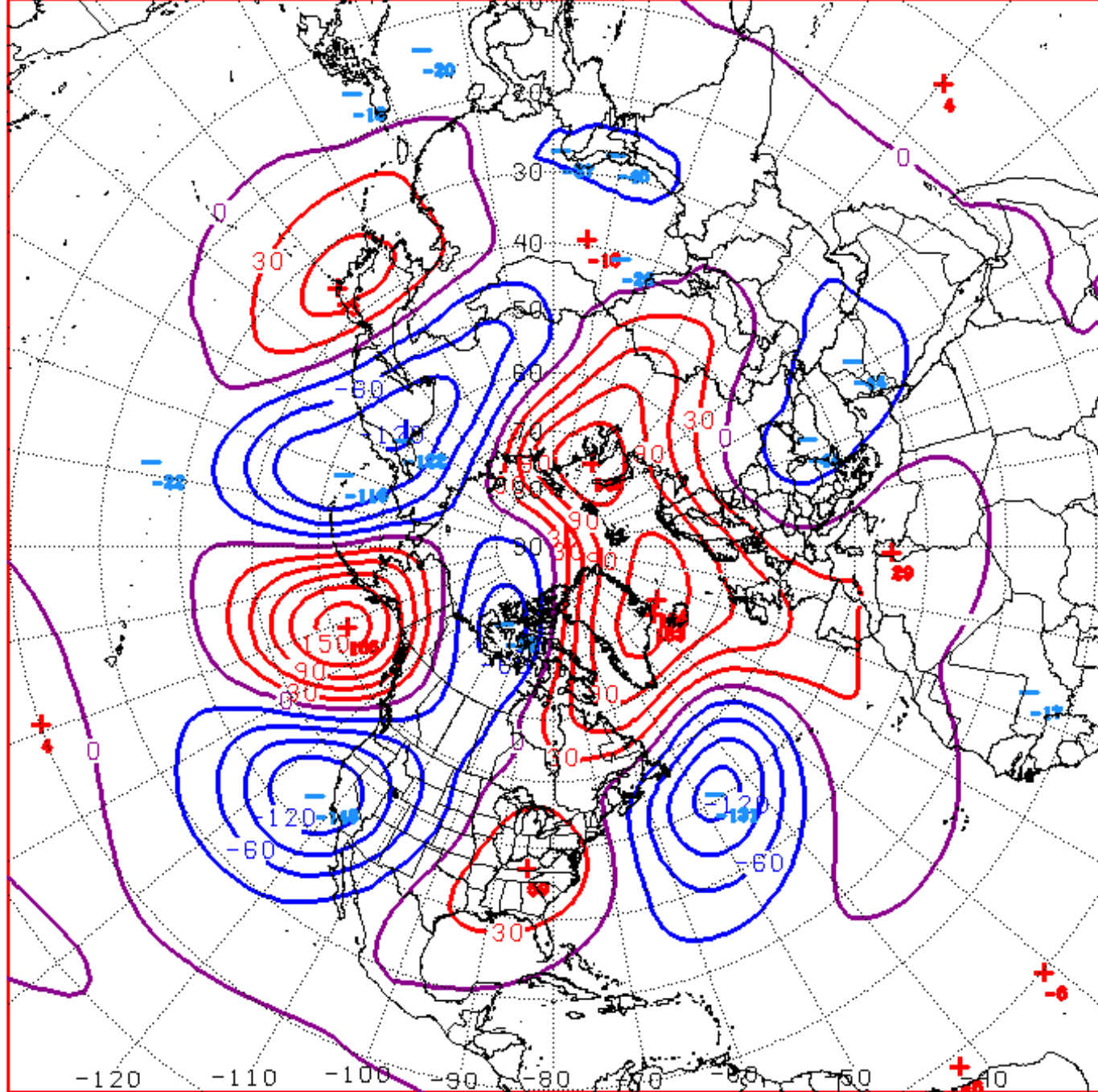
Day 13-15



Connections to U.S. Impacts

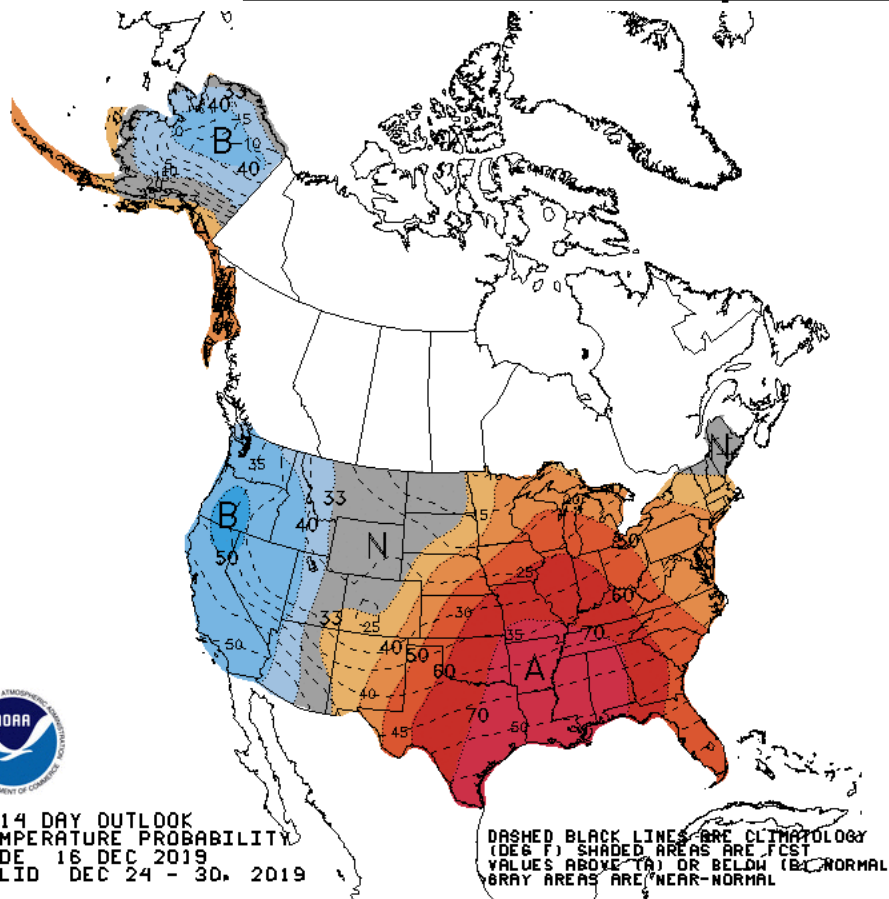
AO: Observed & ENSM forecasts



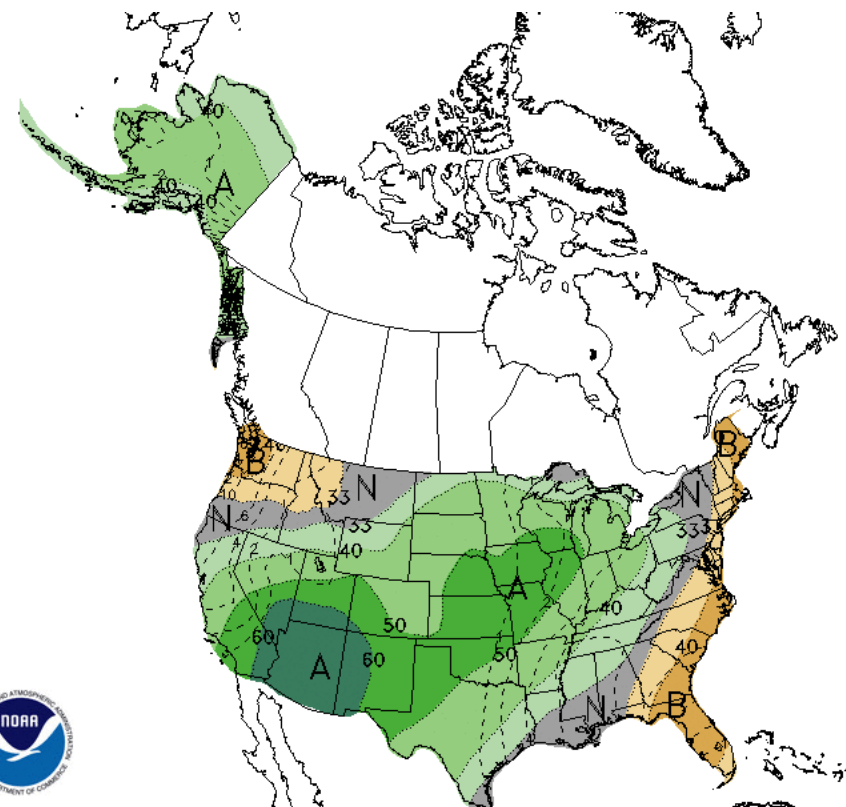
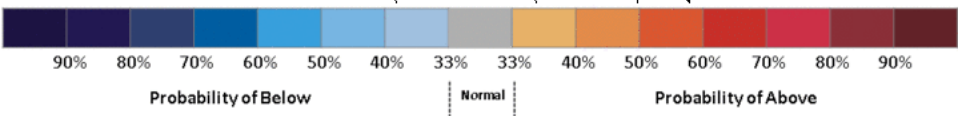


D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE DEC 17 2019 1315 UTC CNTD DEC 28 2019

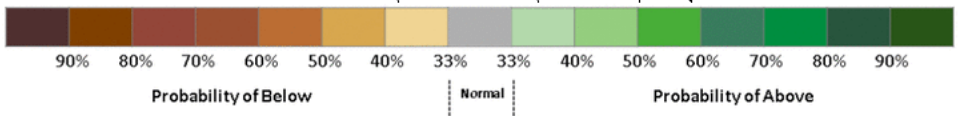
Week 2 – Temperature and Precipitation



8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 16 DEC 2019
VALID DEC 24 - 30, 2019



8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 16 DEC 2019
VALID DEC 24 - 30, 2019

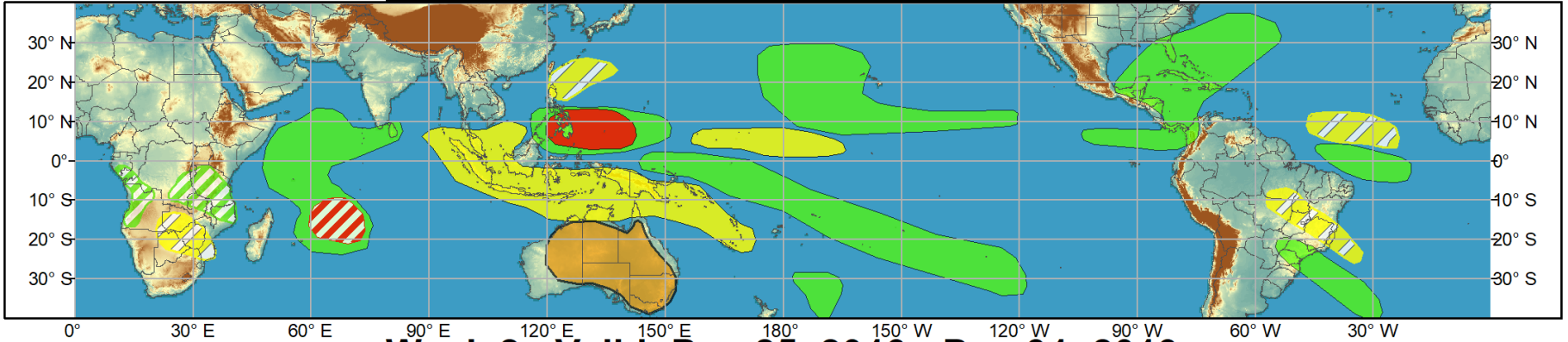




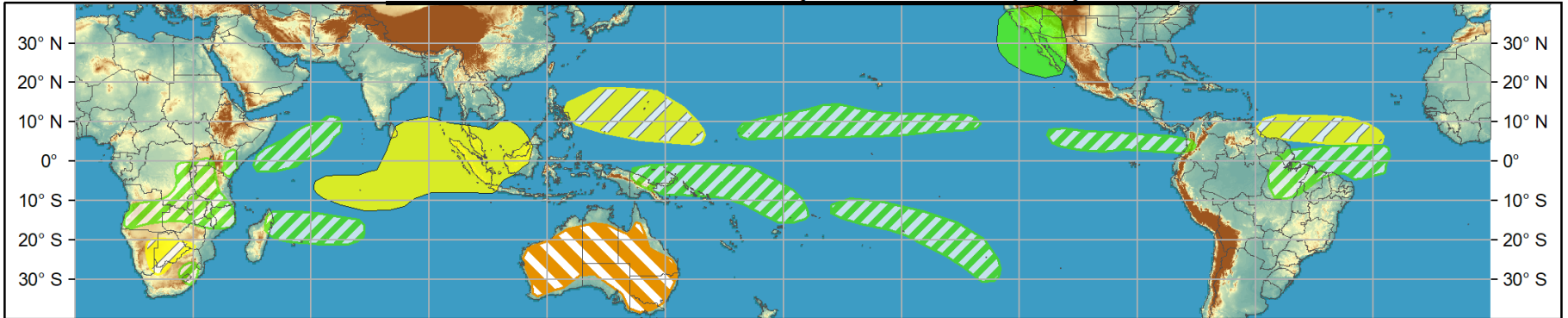
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