

# Global Tropics Hazards And Benefits Outlook

11/12/2019

Kyle MacRitchie

## Outline

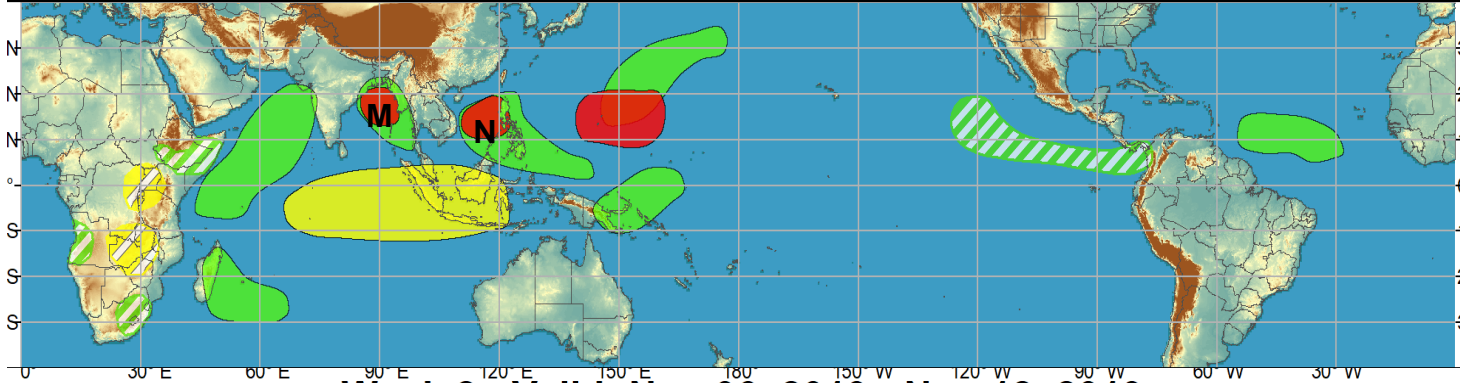
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

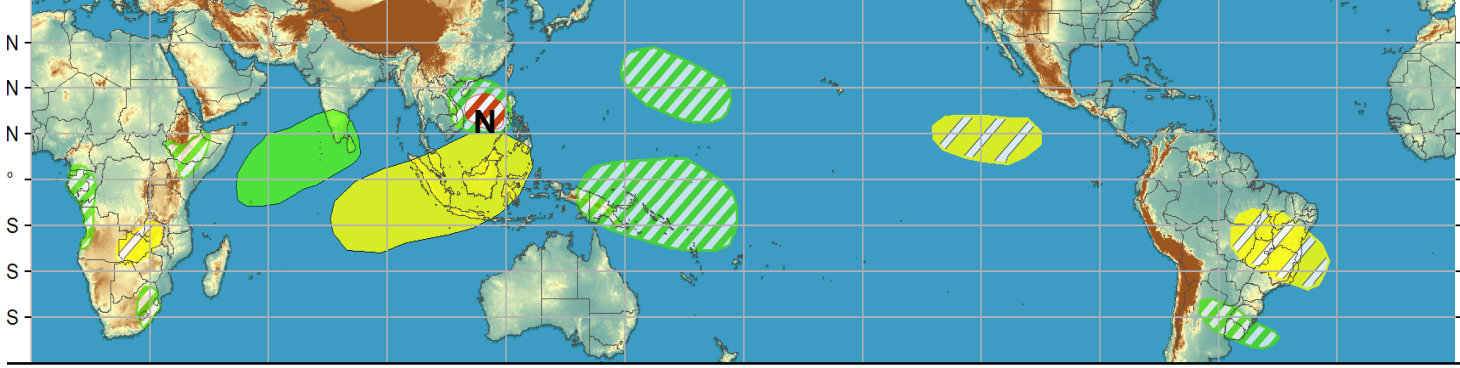
**Pacific:**  
Nakri (11/6-11/10)

**Indian Ocean:**  
MatmoReformed  
(11/6-11/10)

**Week 1 - Valid: Nov 06, 2019 - Nov 12, 2019**

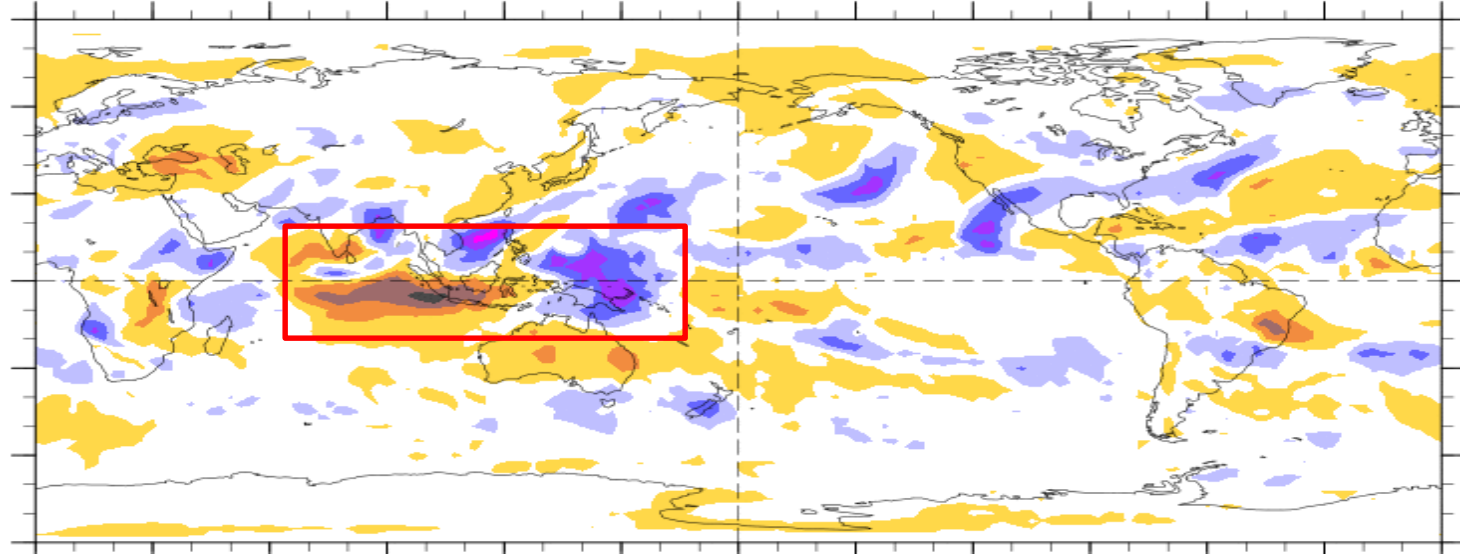


**Week 2 - Valid: Nov 06, 2019 - Nov 12, 2019**



7-Day Average OLR Anomaly

2019/11/04 - 2019/11/10



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

**ENSO: (October 10, 2019 Update → next update Thursday, Nov. 14)**

- ENSO Alert System Status: Not Active
- ENSO-neutral is favored during the Northern Hemisphere fall 2019 (85% chance), continuing through spring 2020 (55-60% chance).

**MJO and other subseasonal tropical variability:**

- The MJO is in RMM Phase 7 over the West Pacific.
- The MJO is expected to propagate over the Americas, Atlantic, and Africa during the next two weeks.
  - Nearly all CFS and GFS ensemble members agree on this; roughly half the ECMWF members weaken the MJO before it gets back to Phases 1/2.
- The MJO moved quickly through Phase 6, but model guidance suggests it will slow to more typical speeds now.
- The Indian Ocean Dipole remains strongly positive.

**Extratropics:**

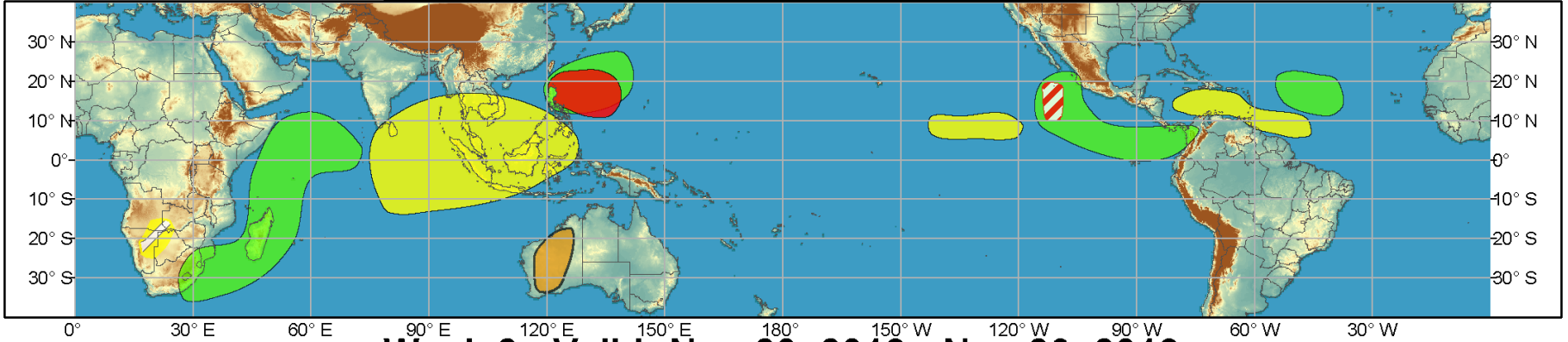
- Tropical teleconnections to North America appear unlikely during the next two weeks.



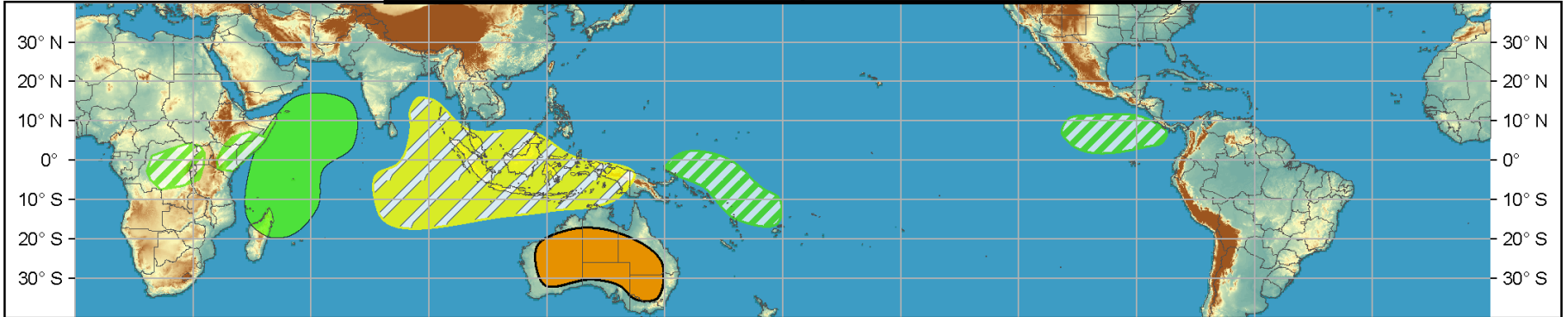
# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Nov 13, 2019 - Nov 19, 2019

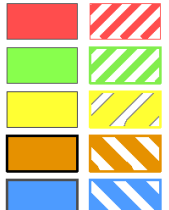


## Week 2 - Valid: Nov 20, 2019 - Nov 26, 2019



**Confidence**  
High Moderate

- Tropical Cyclone Formation**
- Above-average rainfall**
- Below-average rainfall**
- Above-normal temperatures**
- Below-normal temperatures**



- Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Weekly total rainfall in the upper third of the historical range.
- Weekly total rainfall in the lower third of the historical range.
- 7-day mean temperatures in the upper third of the historical range.
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Produced: 11/12/2019

Forecaster: MacRitchie

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.





# IR Satellite & 200-hpa Velocity Potential Anomalies

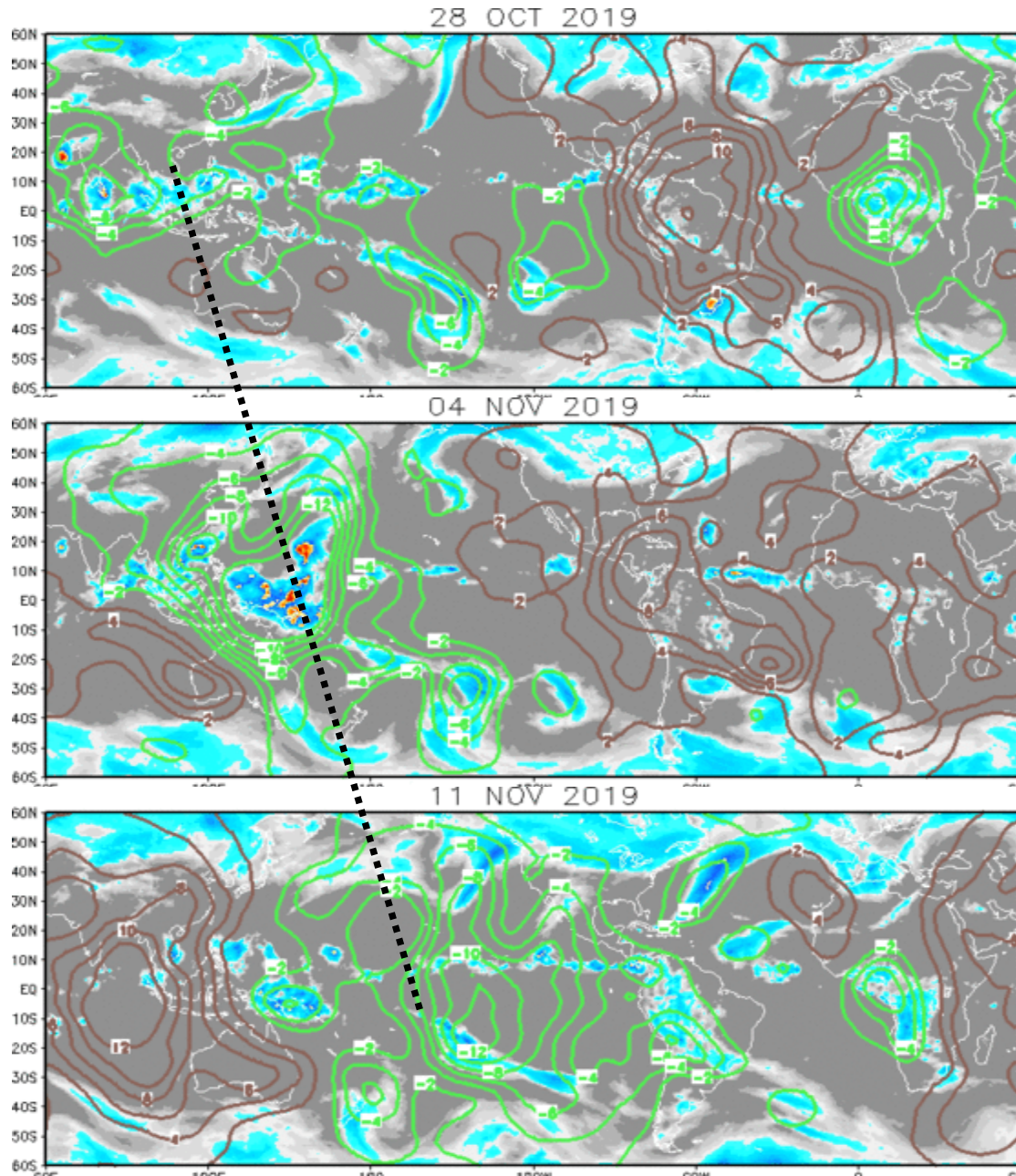
Green: Enhanced Divergence

Brown: Enhanced Convergence

Suppressed convection over the Americas. Enhanced convection over the Indian Ocean.

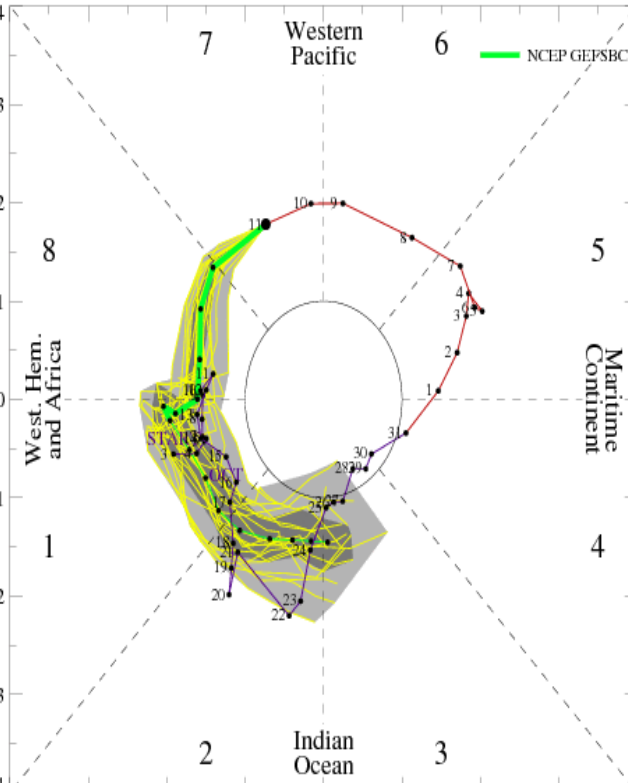
Large increase in convection over the Maritime Continent.

Wave-1 pattern; canonical MJO signal.



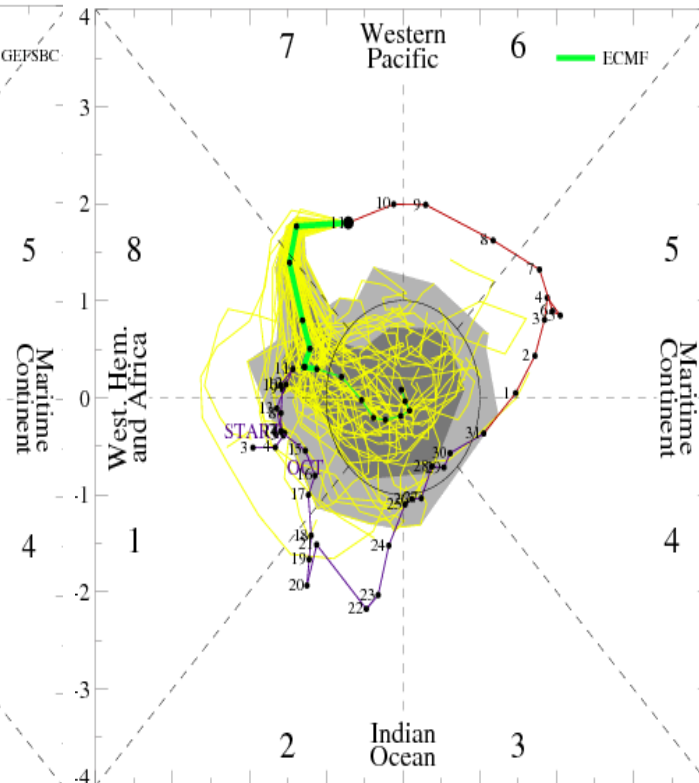
# MJO Observation/Forecast

[RMM1, RMM2] forecast for Nov-12-2019 to Nov-26-2019



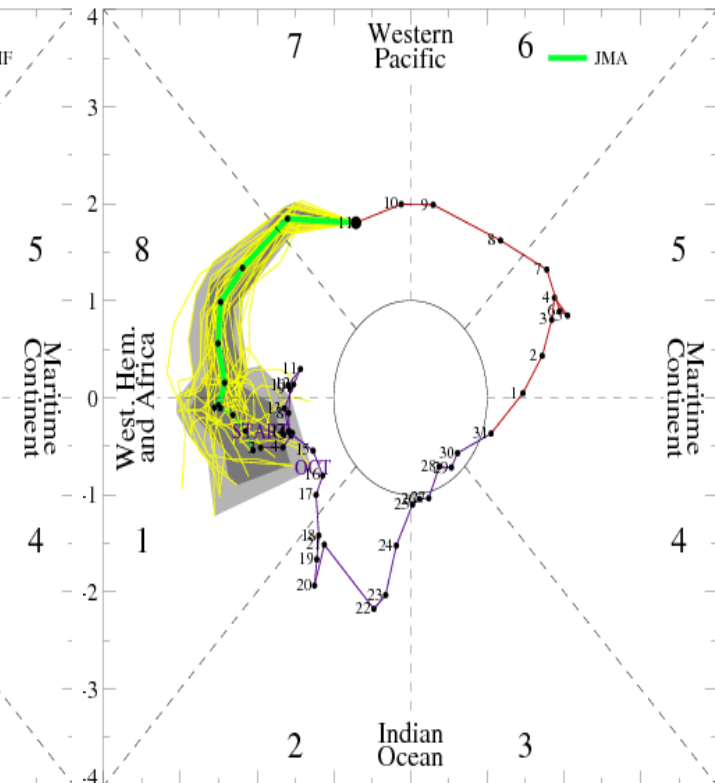
GEFS

MJO Index Forecast for 12Nov2019-26Nov2019



ECMWF

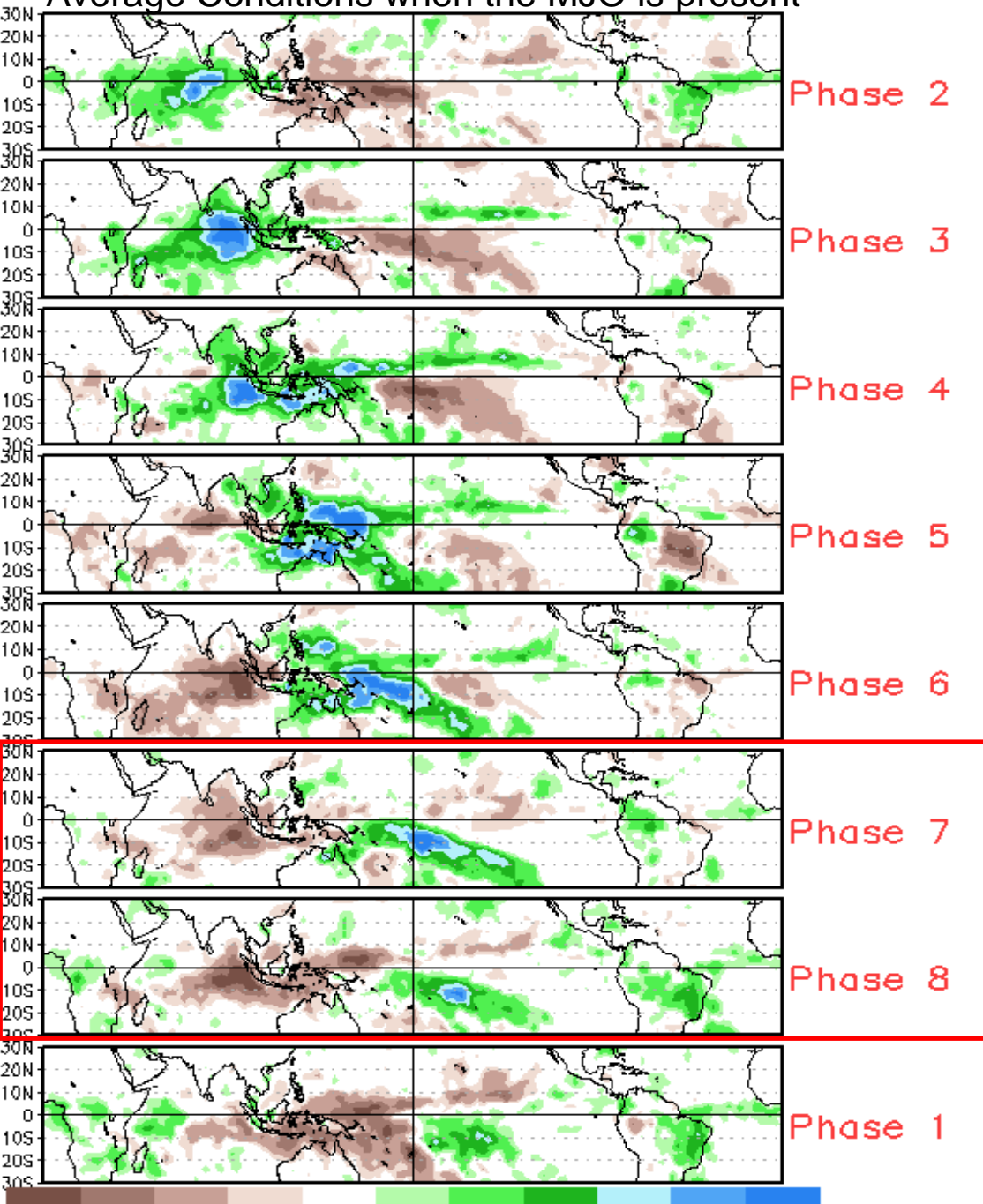
MJO Index Forecast for 12Nov2019-20Nov2019



JMA

- Dynamical models agree on the MJO propagating eastward through Phase 8.
- Models diverge after Phase 8
  - ECMWF ensemble mean weakens MJO. Some ensemble members persist MJO.
  - Most of GEFS and JMA persist MJO.
  - Does +IOD interference cause the MJO to appear stronger than it should?

# Average Conditions when the MJO is present



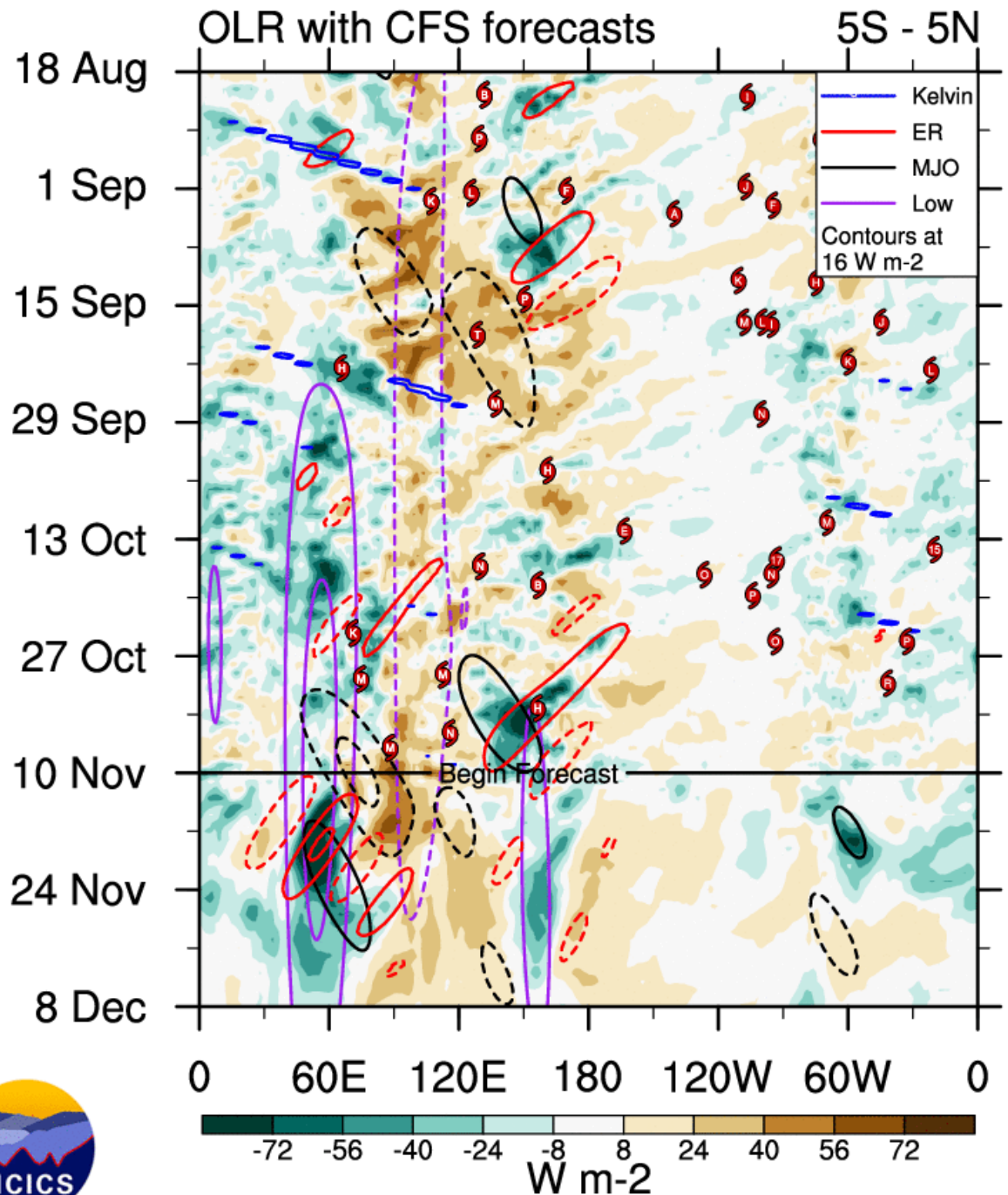
CAVEAT: These panels are representative of robust MJO events.



**Low frequency** (+IOD) leads to enhanced convection over the western IO and suppressed convection over eastern IO.

**Rossby** wave activity is weak now.

**MJO** activity is forecast to continue throughout the two week period.

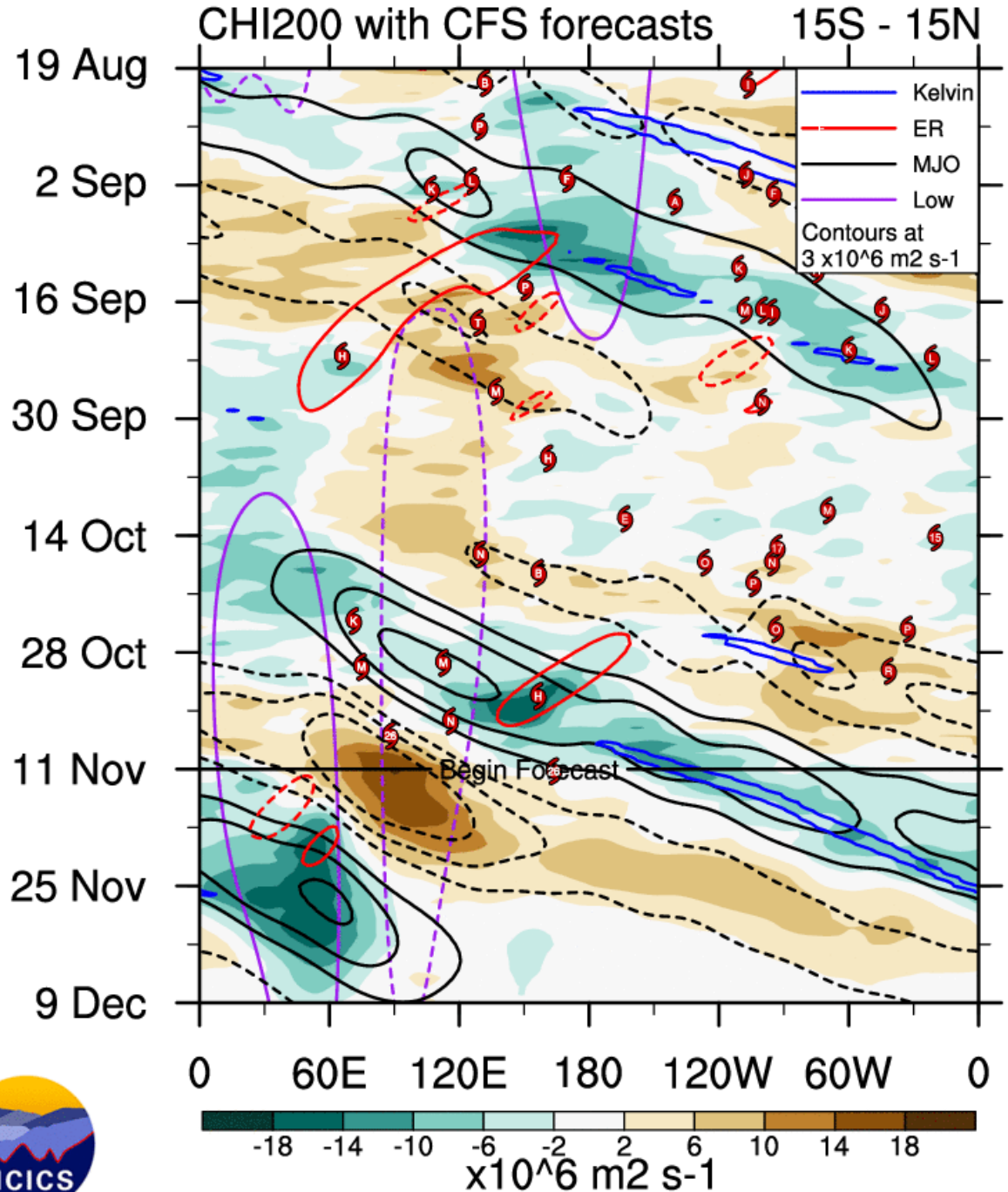




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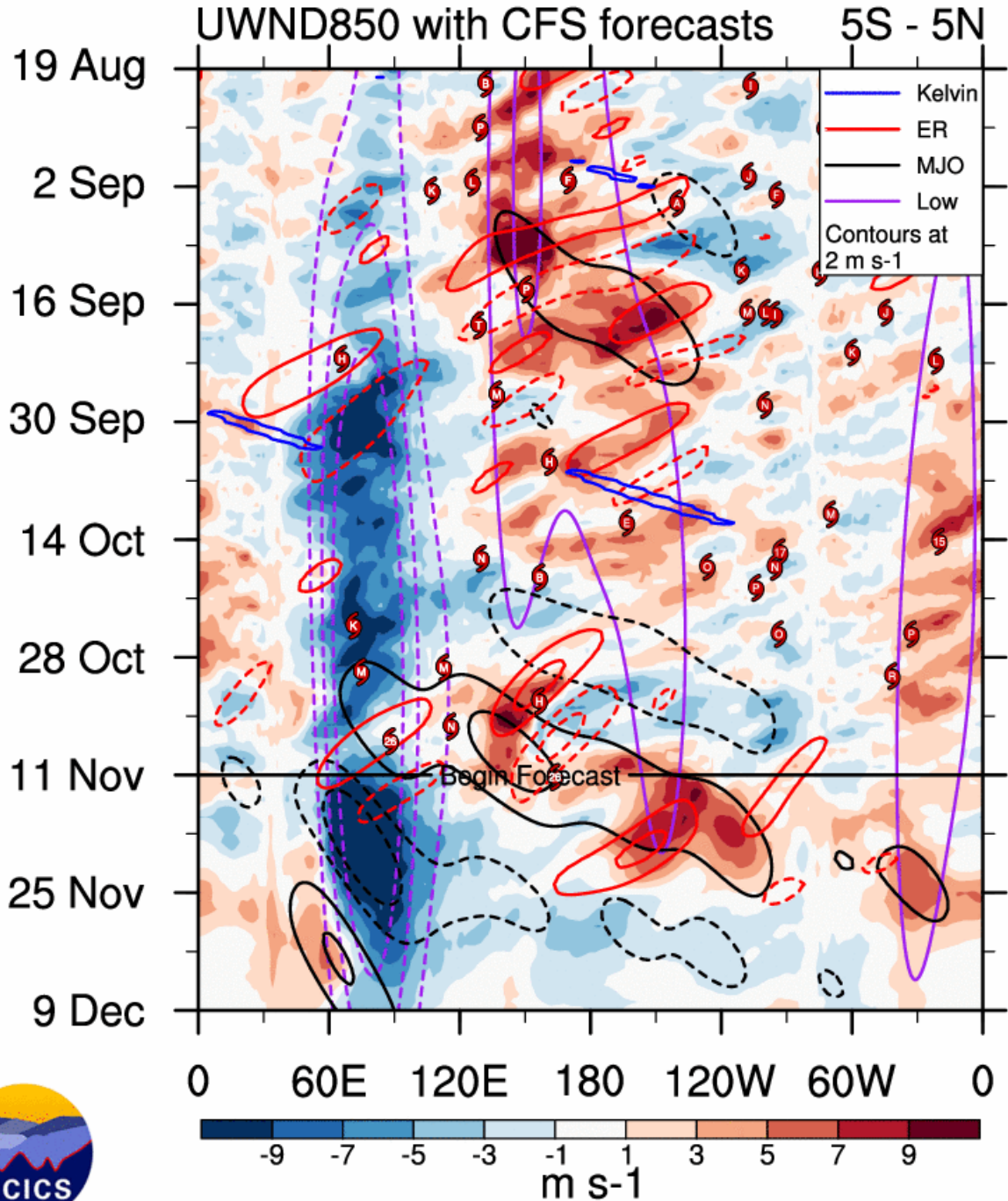
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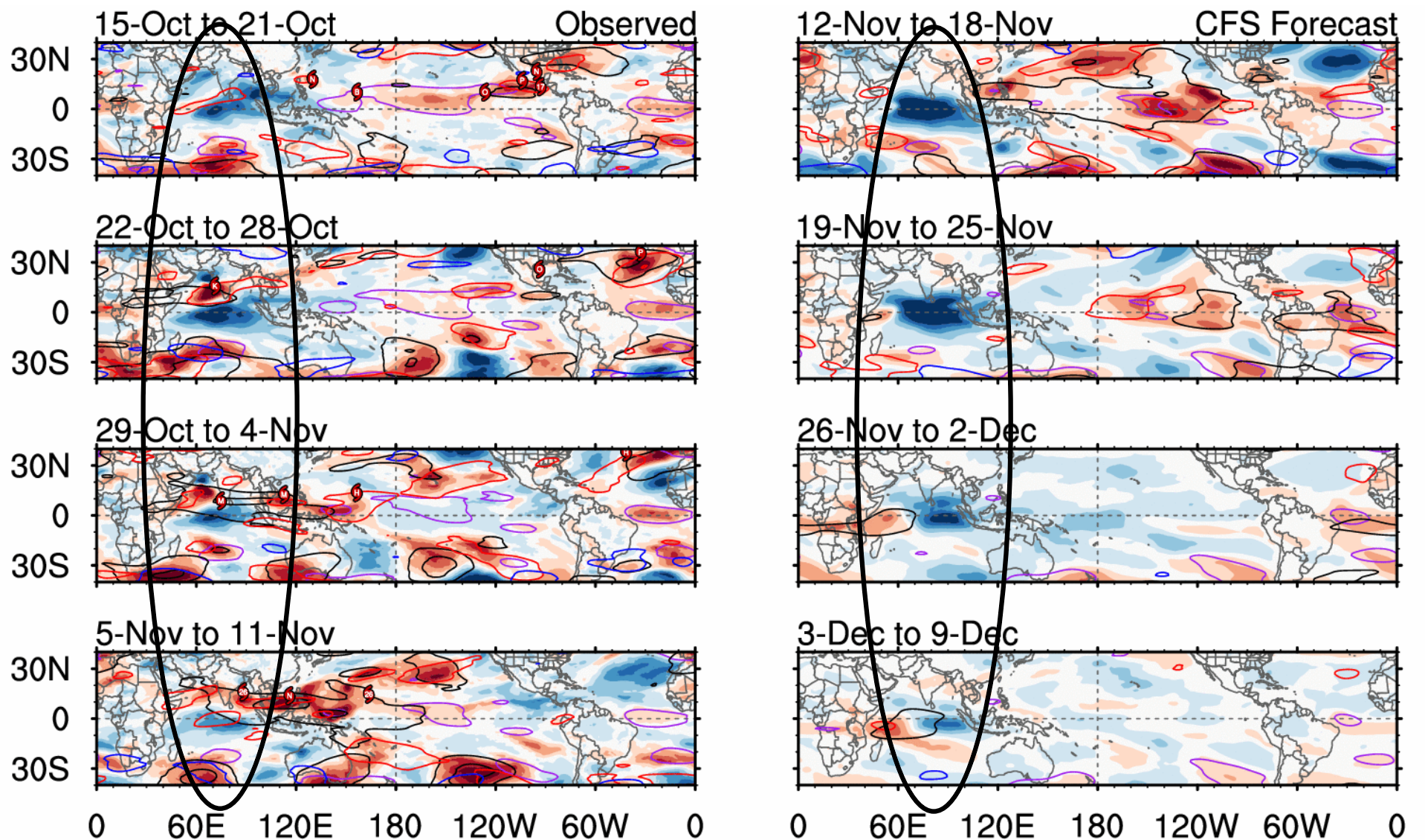
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# 7-day UWND850 with CFS forecasts

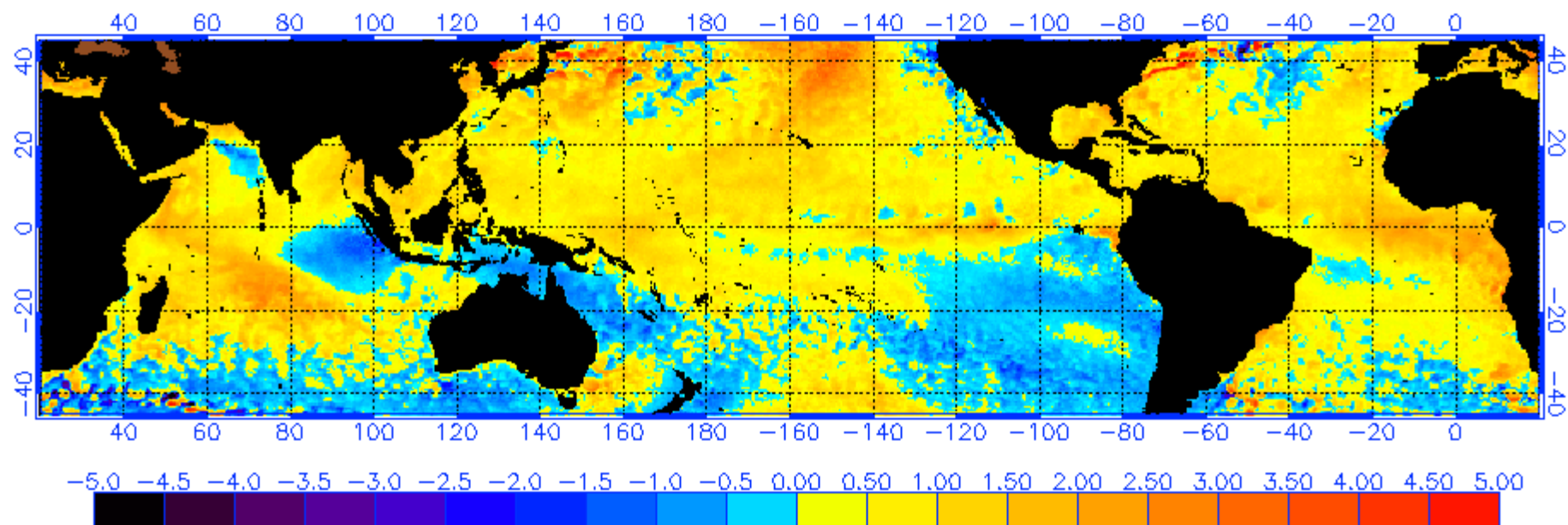


m s-1

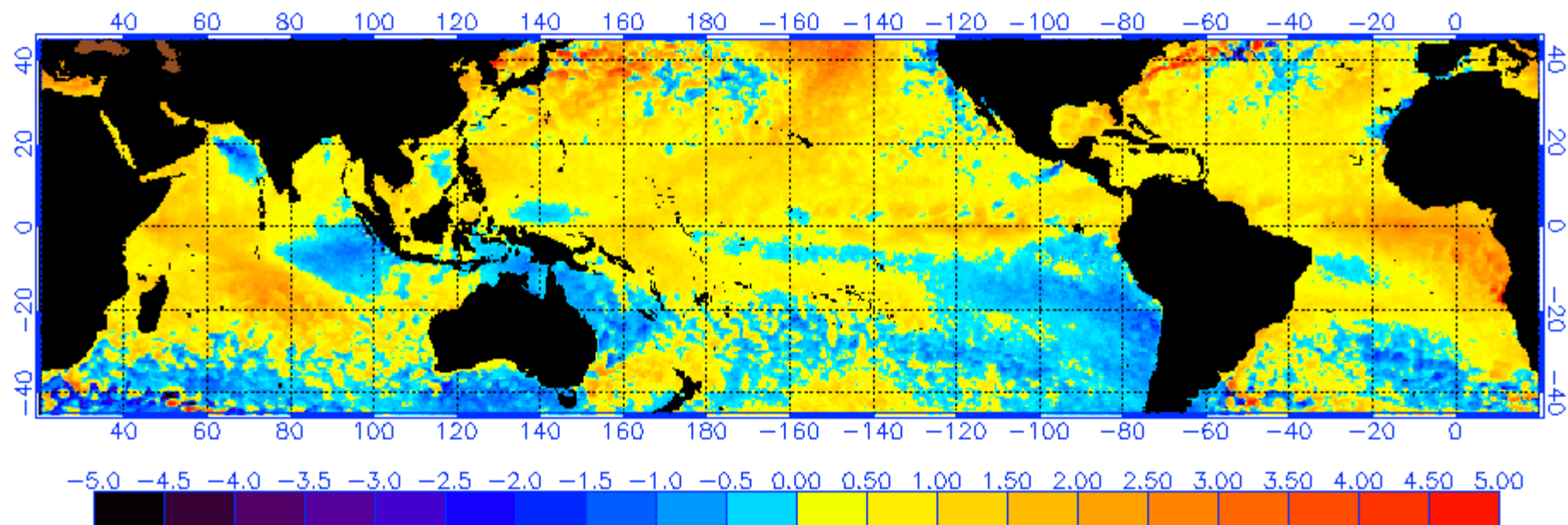
— MJO      — Kelvin x2  
 — Low      — ER

Contours at 2, 6 m s-1

NOAA/NESDIS SST Anomaly (degrees C), 11/4/2019

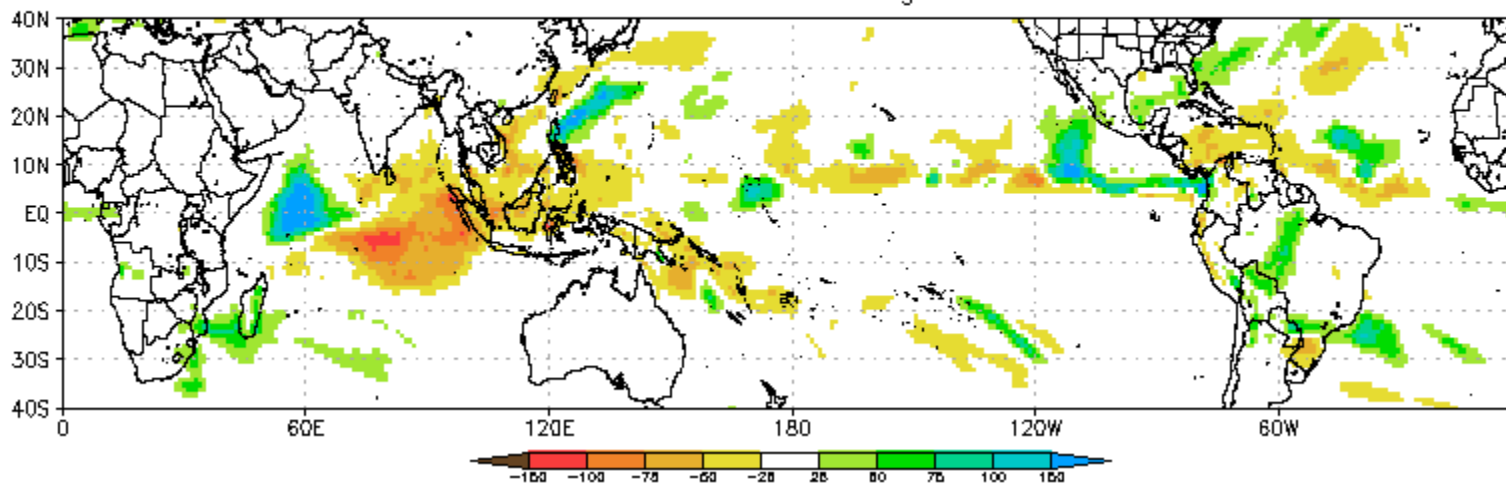


NOAA/NESDIS SST Anomaly (degrees C), 11/11/2019

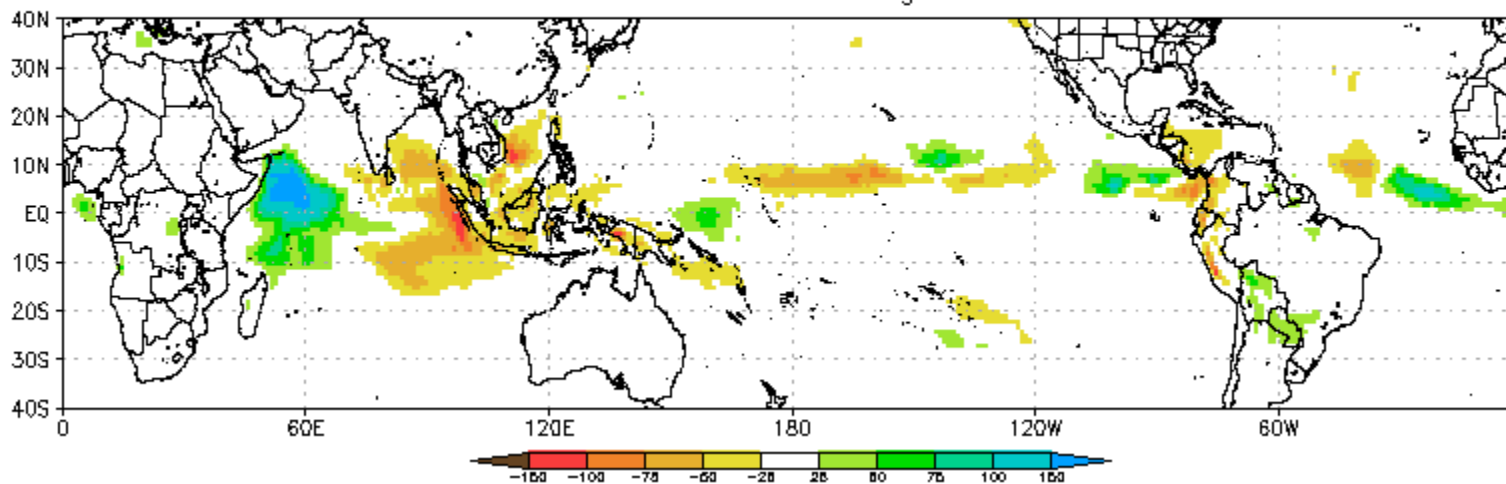




CFS Precipitation Anomalies (mm) Issued 11Nov2019  
Week-1 Forecast Ending 19Nov2019

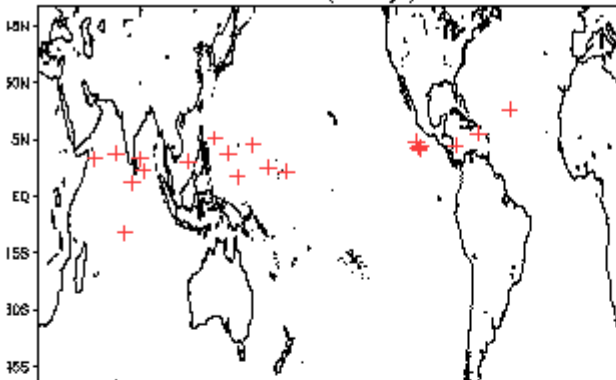


CFS Precipitation Anomalies (mm) Issued 11Nov2019  
Week-2 Forecast Ending 26Nov2019

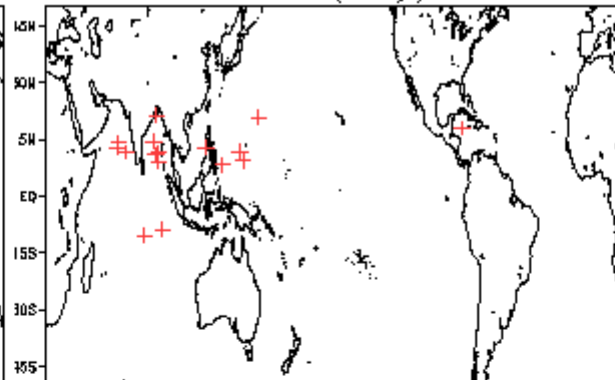


# November Tropical Storm Formation by MJO phase

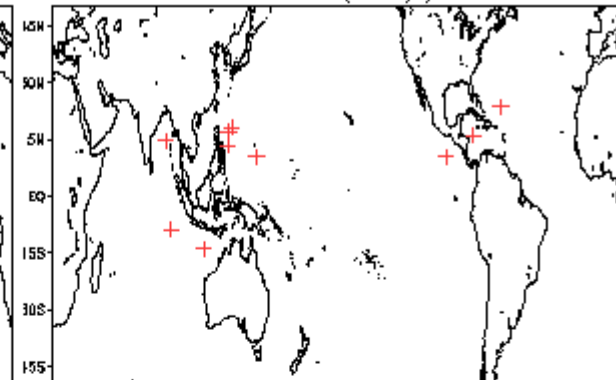
Phase 1 (65 days) 21 storms



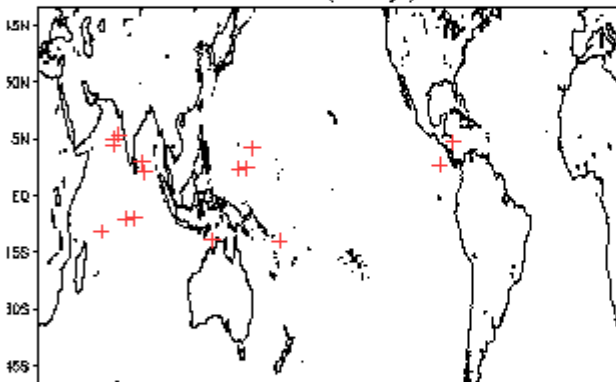
Phase 4 (77 days) 17 storms



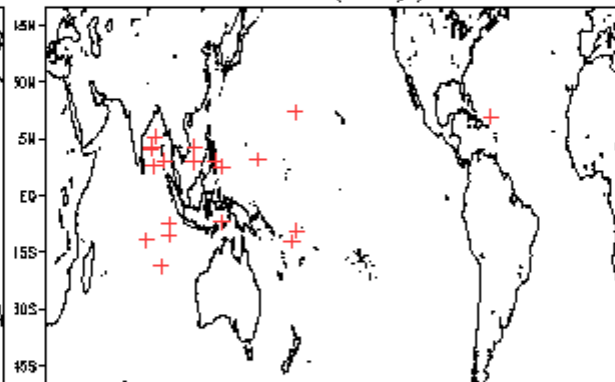
Phase 7 (88 days) 11 storms



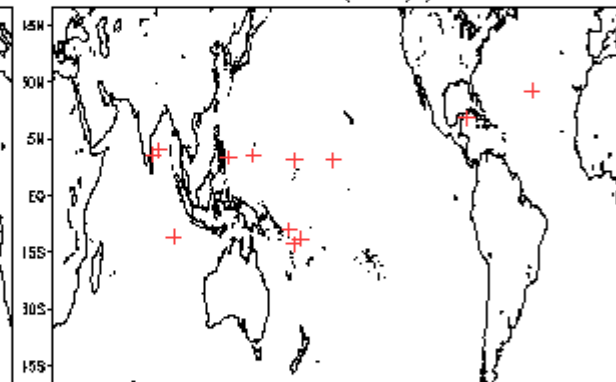
Phase 2 (88 days) 16 storms



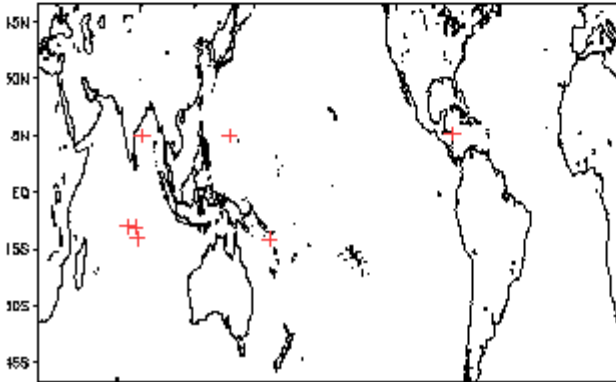
Phase 5 (72 days) 20 storms



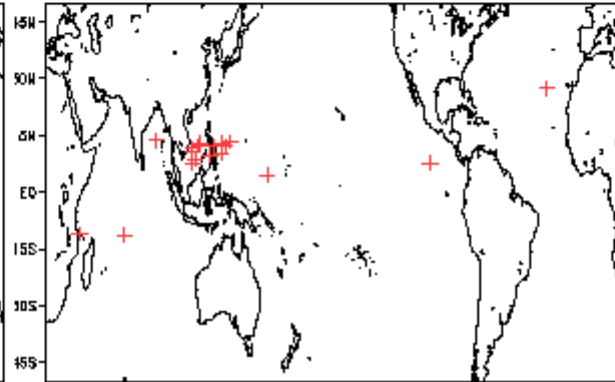
Phase 8 (60 days) 14 storms



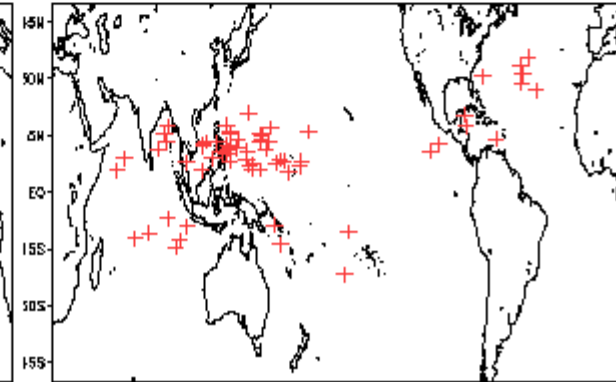
Phase 3 (89 days) 8 storms



Phase 6 (91 days) 19 storms










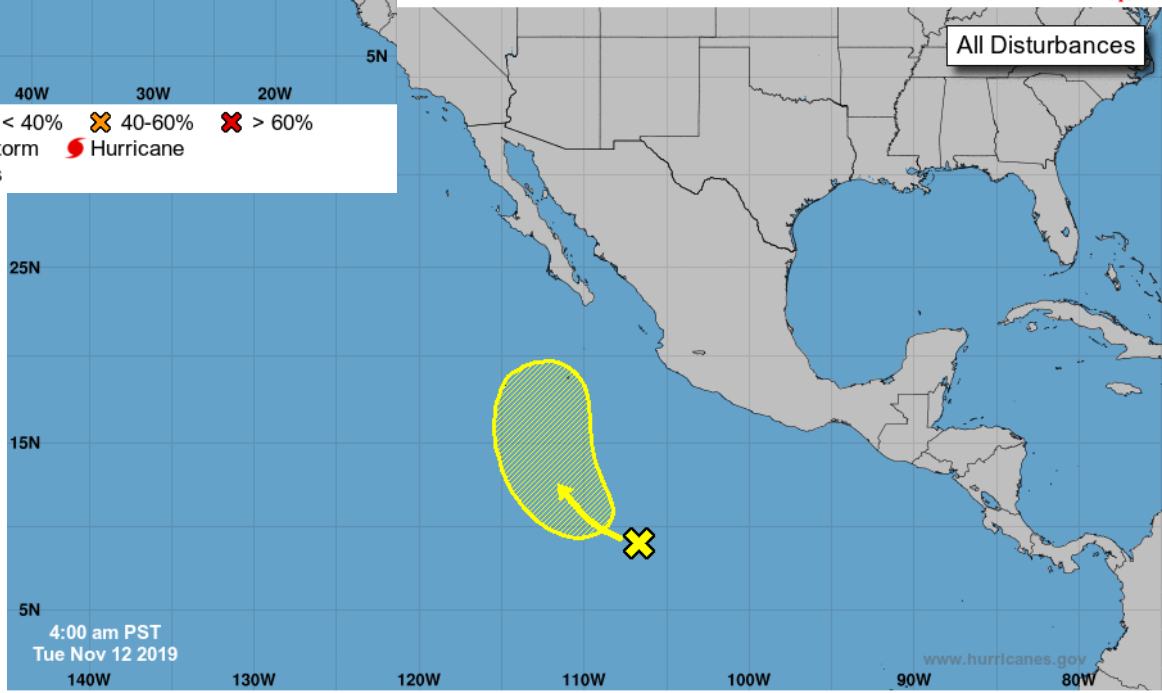
Null (380 days) 68 storms







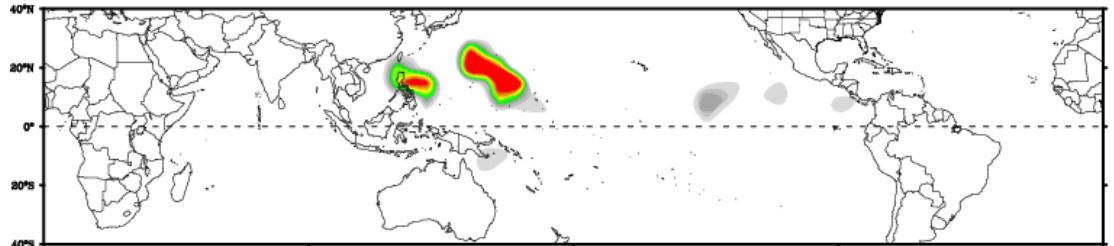
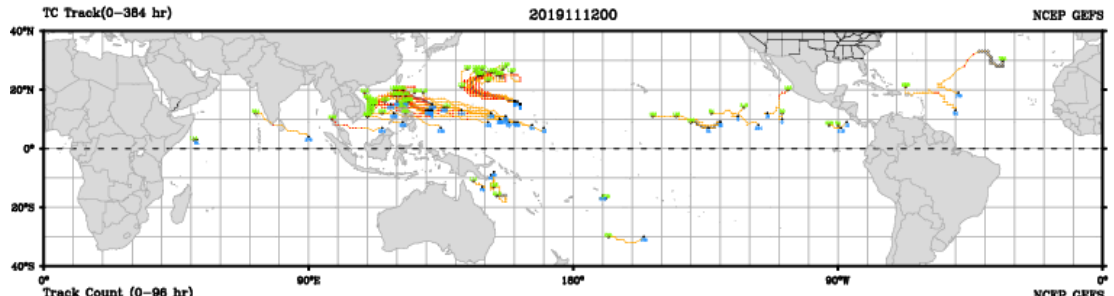
7:00 am EST  
Tue Nov 12 2019

Current Disturbances and Five-Day Cyclone Formation Chance:  < 40%  40-60%  > 60%  
Tropical or Sub-Tropical Cyclone:  Depression  Storm  Hurricane  
 Post-Tropical Cyclone or Remnants

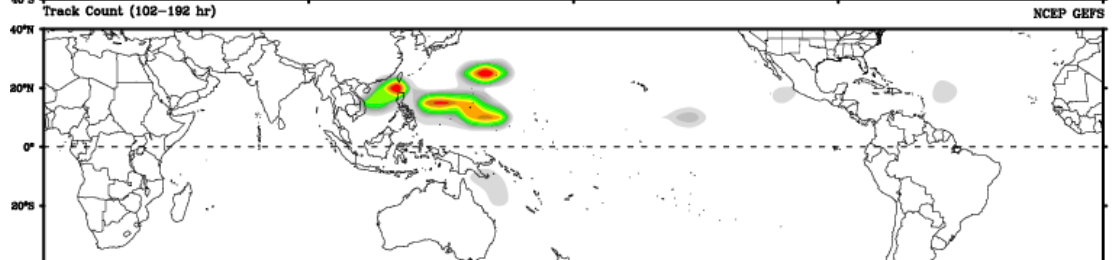


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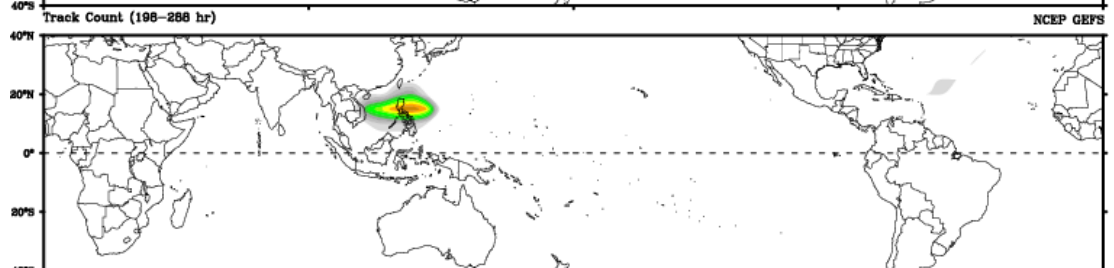
Days 1-4



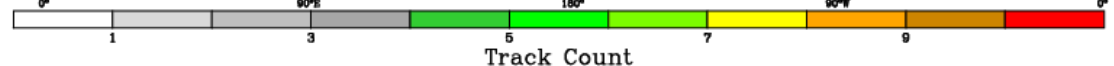
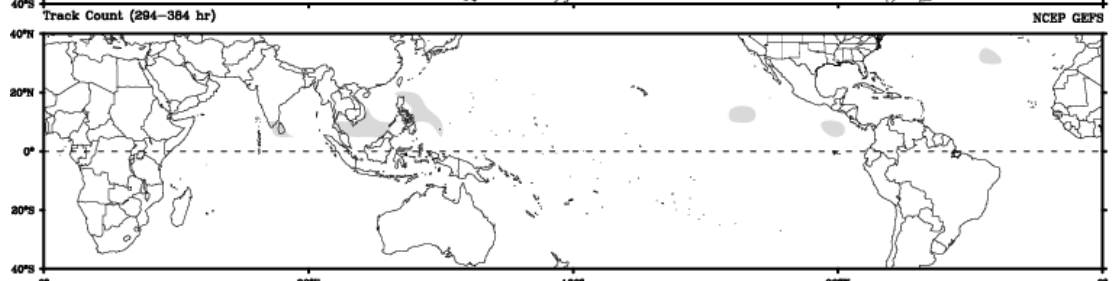
Day 5-8



Day 9-12

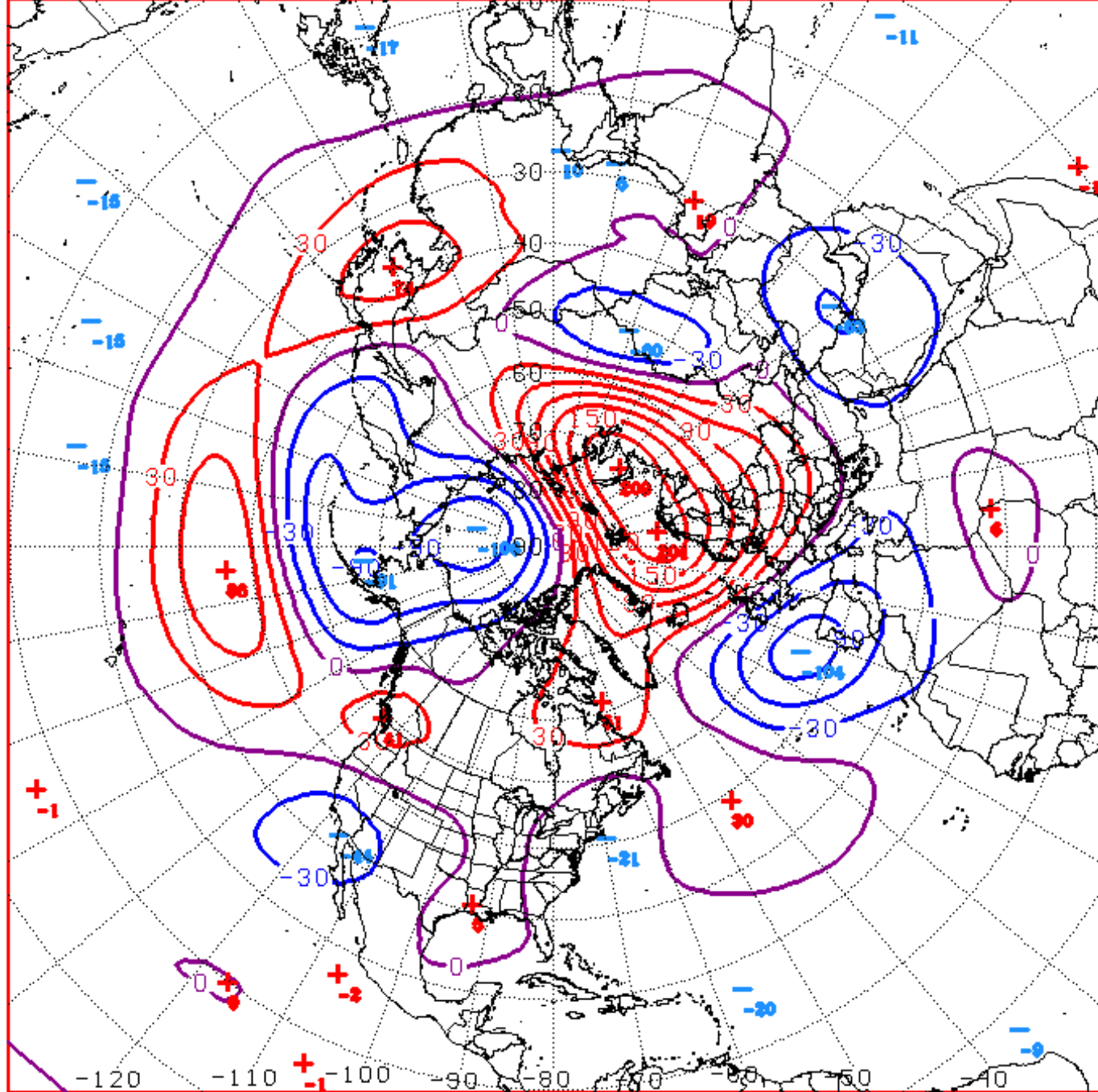


Day 13-15



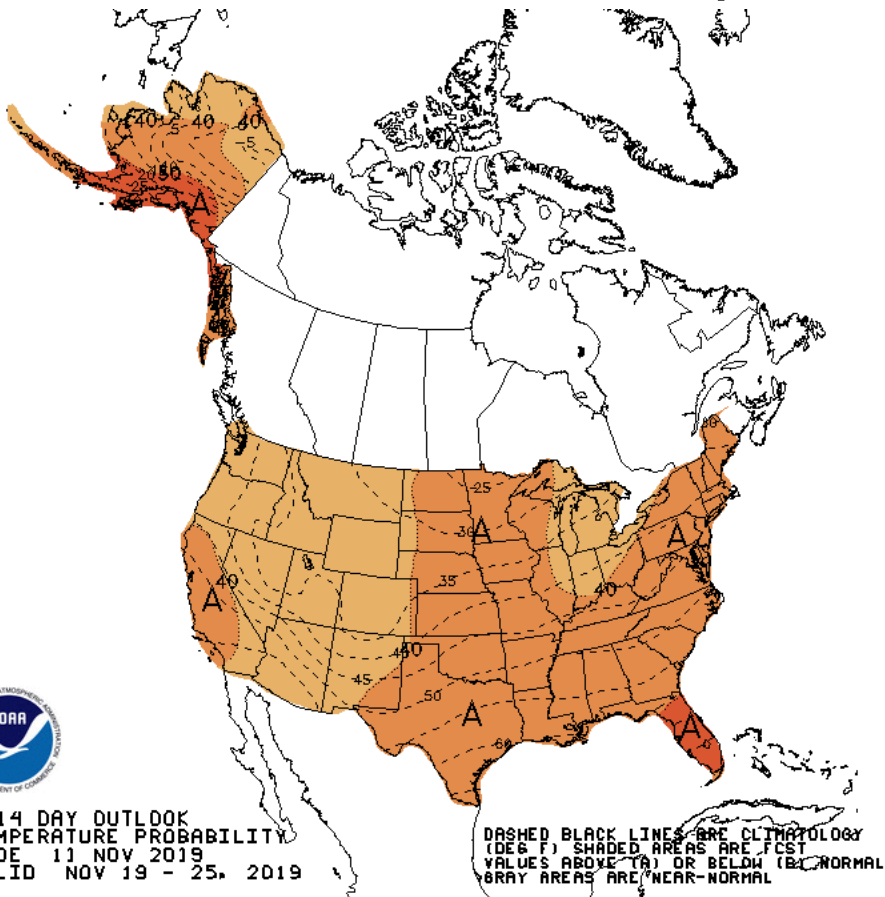


# Connections to U.S. Impacts

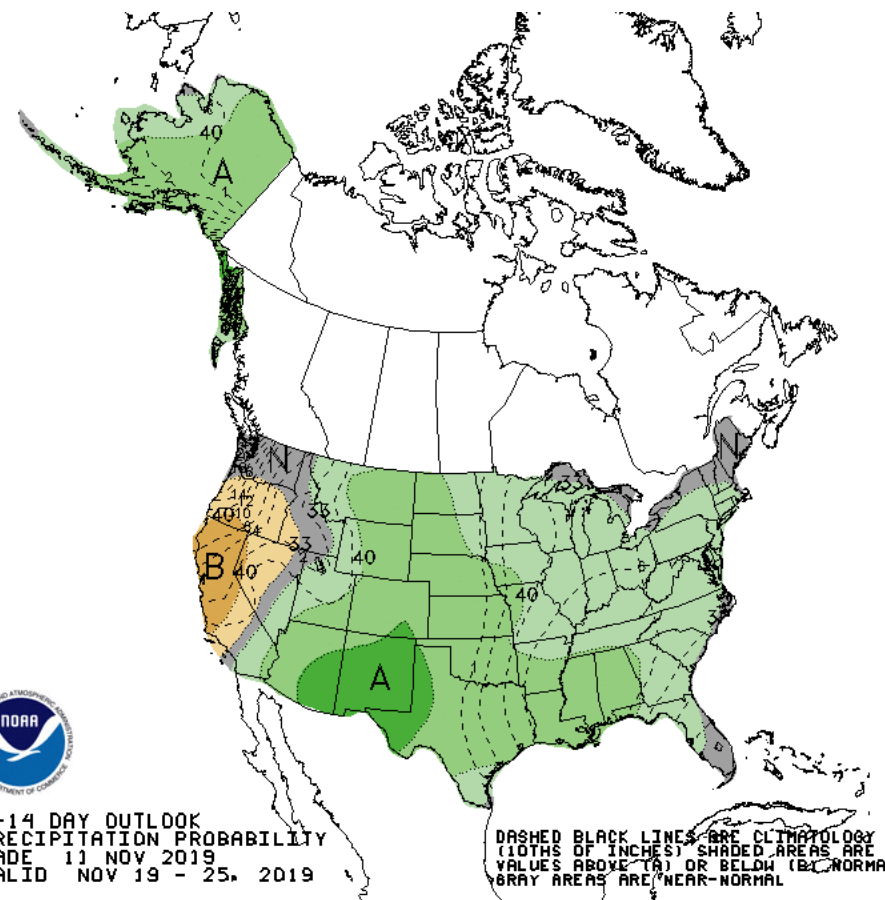
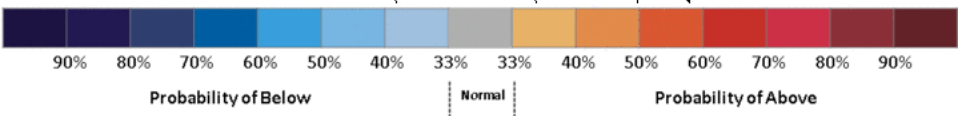


D+11 500 MB ANOMALIES FROM ALZ ENSM  
 CPC MAP MADE NOV 12 2019 1318 UTC CNTD NOV 23 2019

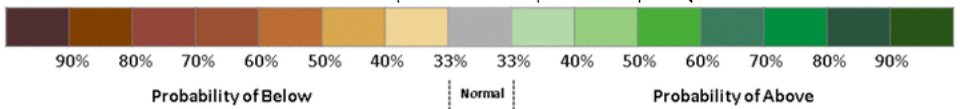
# Week 2 – Temperature and Precipitation



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 11 NOV 2019  
VALID NOV 19 - 25, 2019



8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 11 NOV 2019  
VALID NOV 19 - 25, 2019

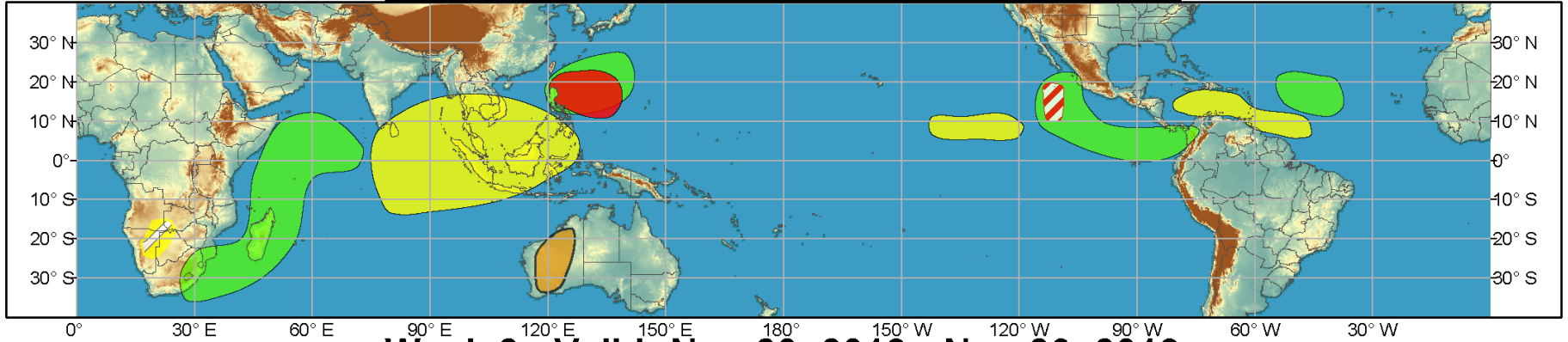




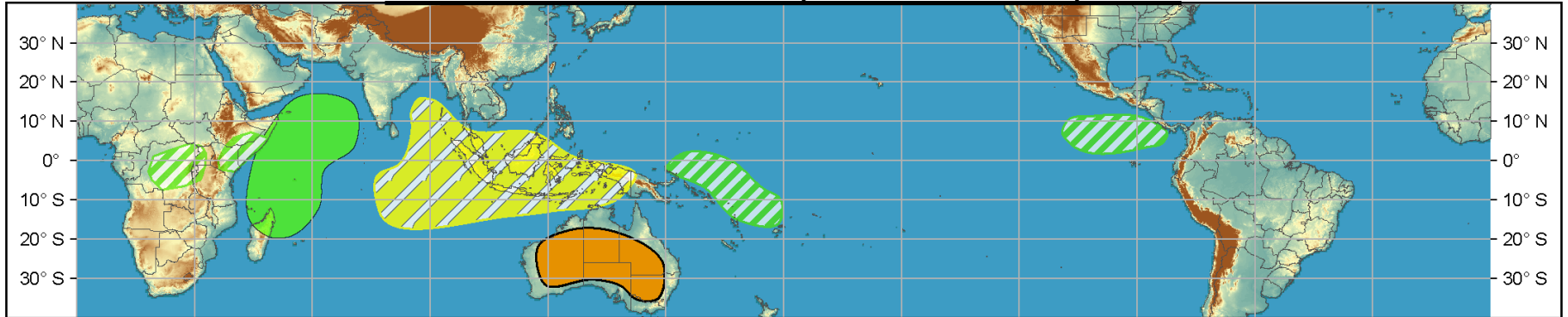
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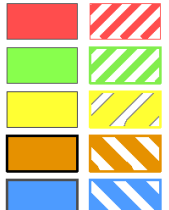


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