

Global Tropics Hazards And Benefits Outlook

11/5/2019

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

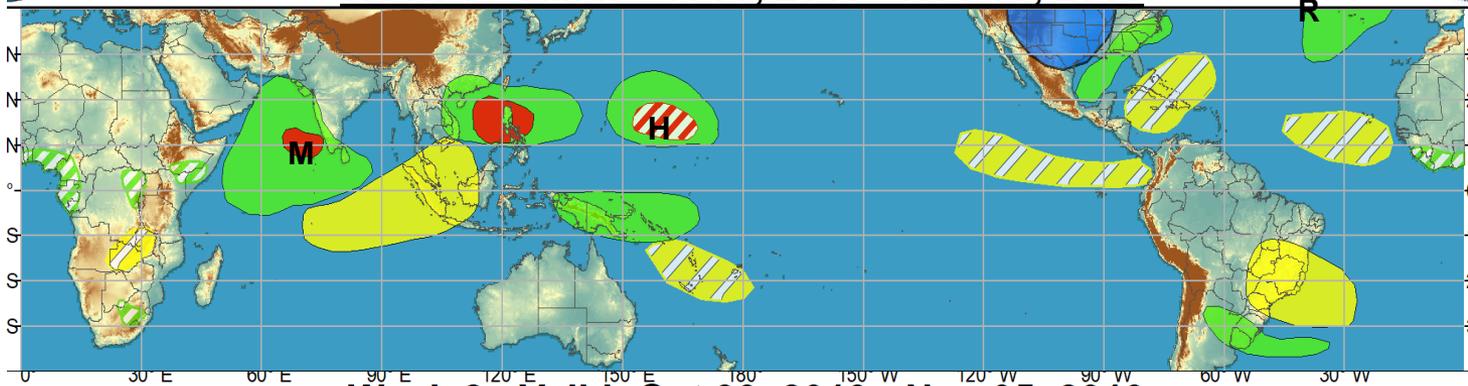
Outlook Review

Atlantic:
Rebekah (10/30-11/1)

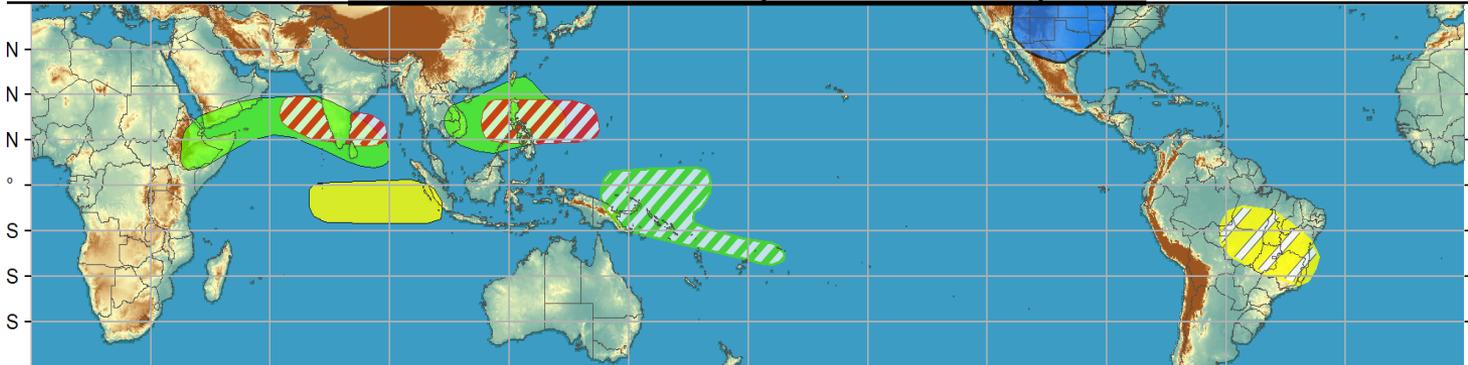
Pacific:
Halong (11/2-now)

Indian Ocean:
Maha (10/30-now)

Week 1 - Valid: Oct 30, 2019 - Nov 05, 2019

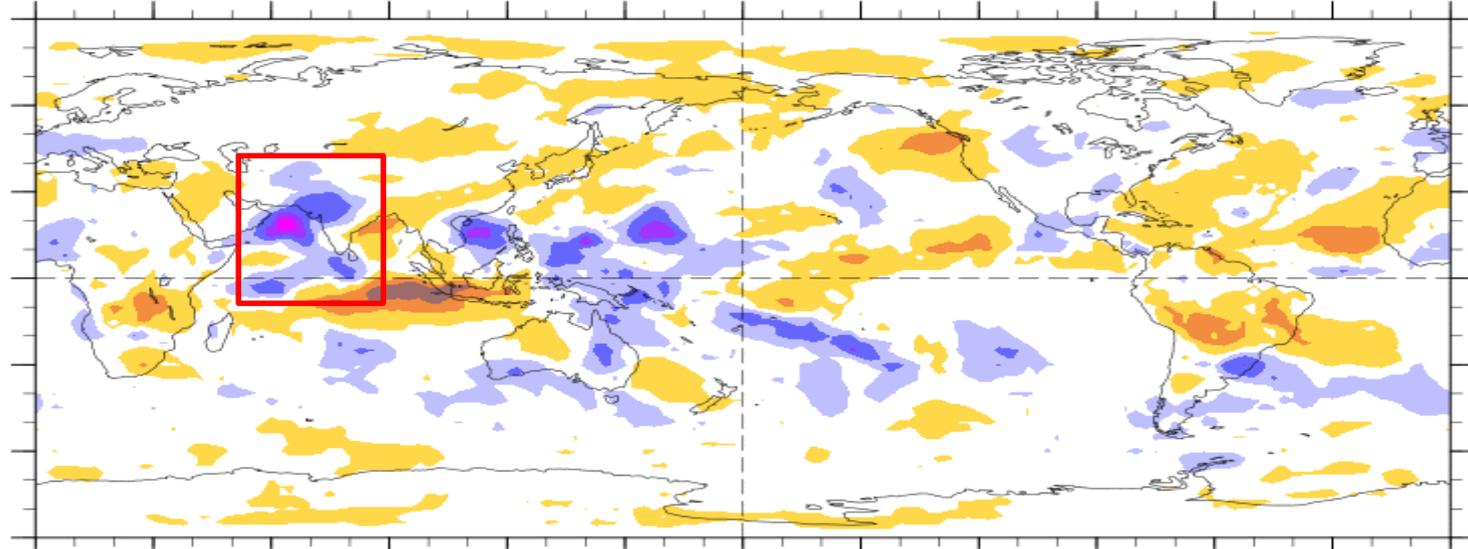


Week 2 - Valid: Oct 30, 2019 - Nov 05, 2019



7-Day Average OLR Anomaly

2019/10/28 - 2019/11/03



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 5 over the Maritime Continent.
- The MJO is expected to propagate eastward into Phases 6 and 7 during the next two weeks.
- An equatorial Rossby wave will combine with the MJO to enhance the likelihood of TC formation in the Indian Ocean and western Pacific.
- The Indian Ocean Dipole remains strongly positive.

Extratropics:

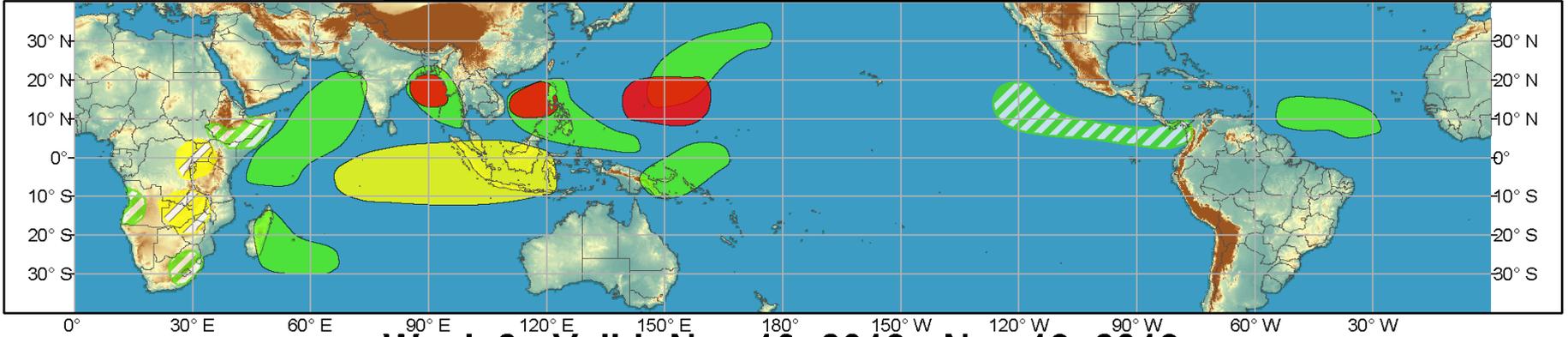
- Tropical teleconnections to North America appear unlikely during the next two weeks.



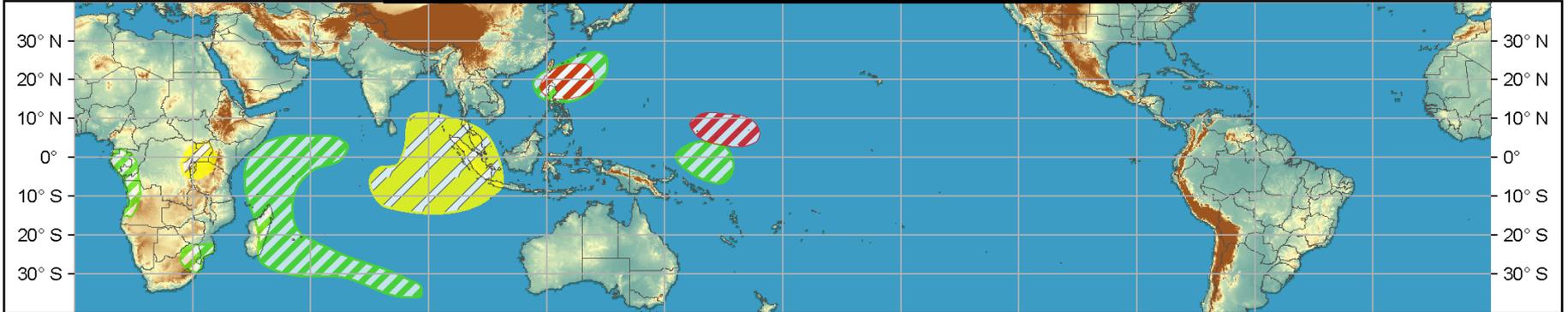
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



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



Week 2 - Valid: Nov 13, 2019 - Nov 19, 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.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

Produced: 11/05/2019
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

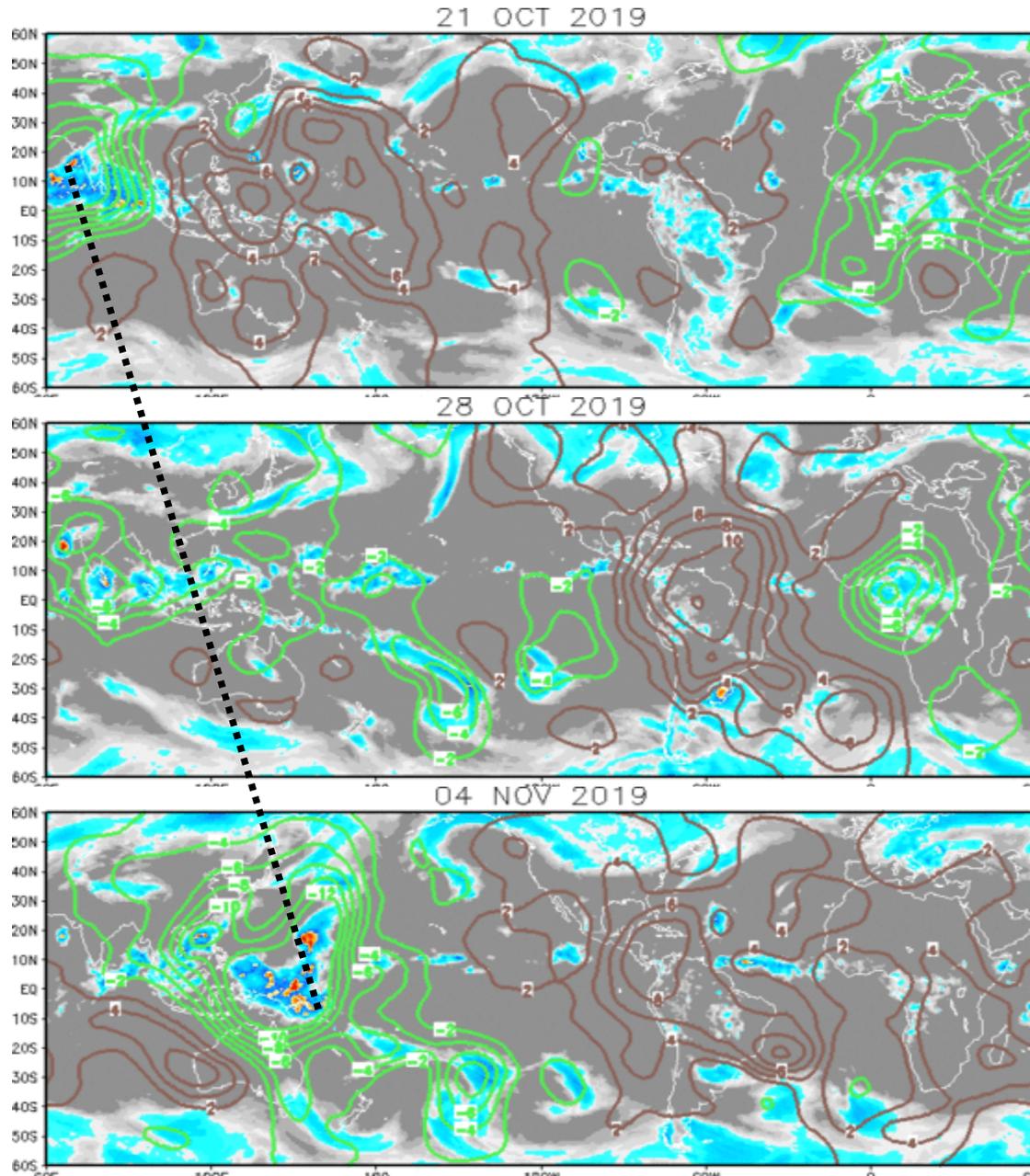
Green: Enhanced Divergence

Brown: Enhanced Convergence

Suppressed convection over the eastern Indian Ocean and Maritime Continent

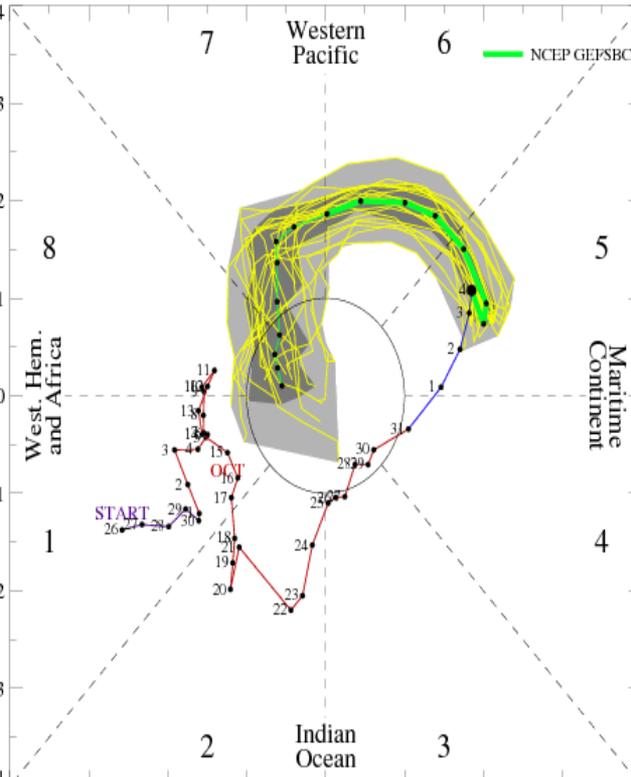
Large increase in convection over the Indian Ocean

Continued convection over the Indian Ocean, suppressed convection has shifted eastward



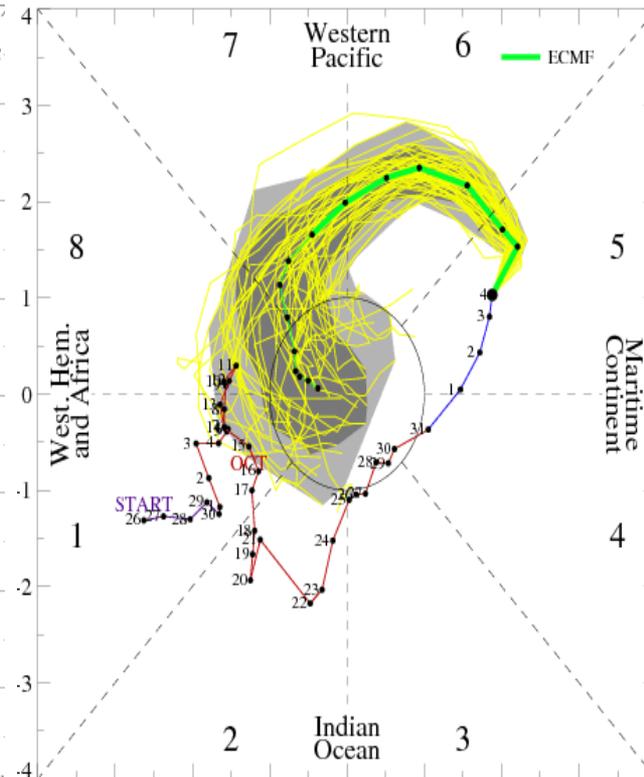
MJO Observation/Forecast

[RMM1, RMM2] forecast for Nov-05-2019 to Nov-19-2019



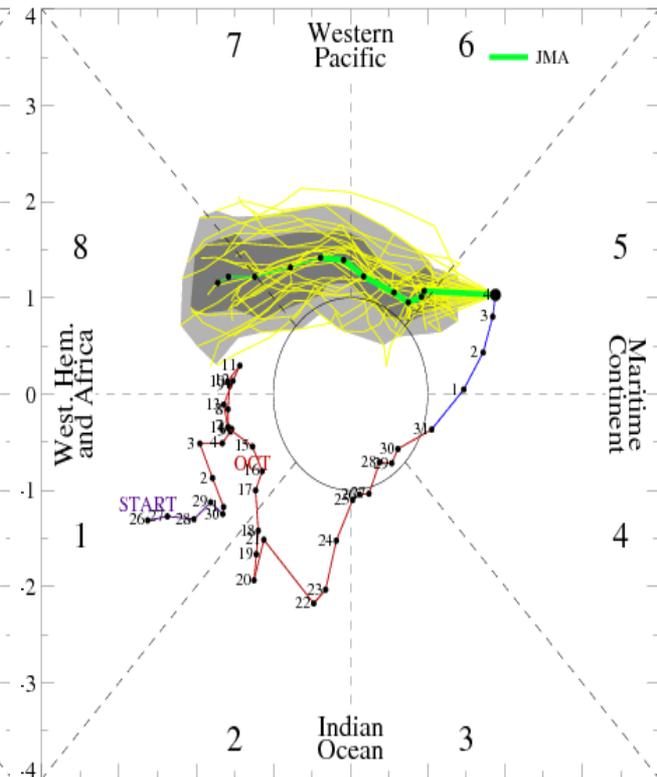
GEFS

MJO Index Forecast for 05Nov2019-19Nov2019



ECMWF

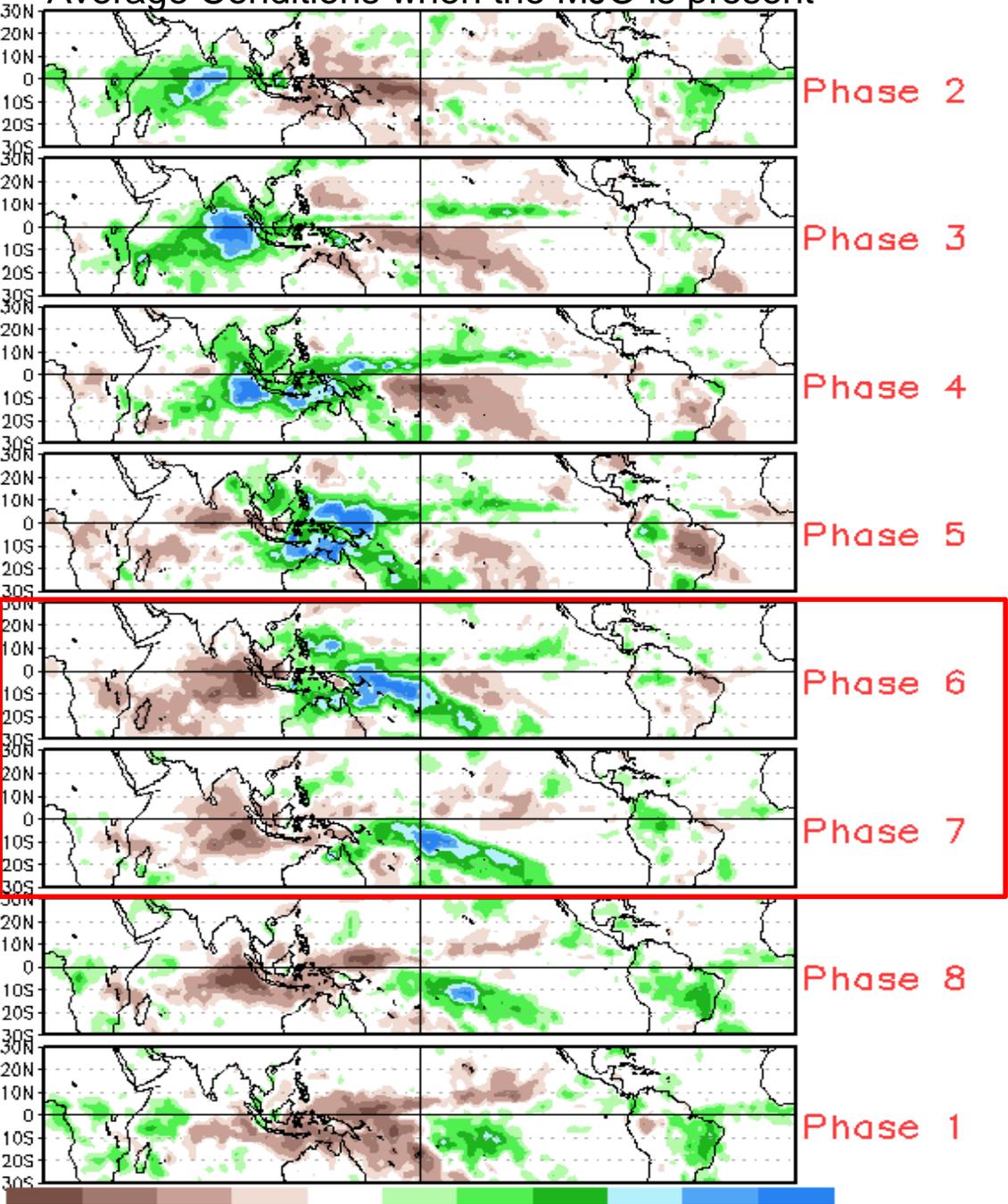
MJO Index Forecast for 05Nov2019-13Nov2019



JMA

- Dynamical models agree on the MJO propagating eastward over the Western Pacific. There are hints that it might weaken during Week-2.

Average Conditions when the MJO is present



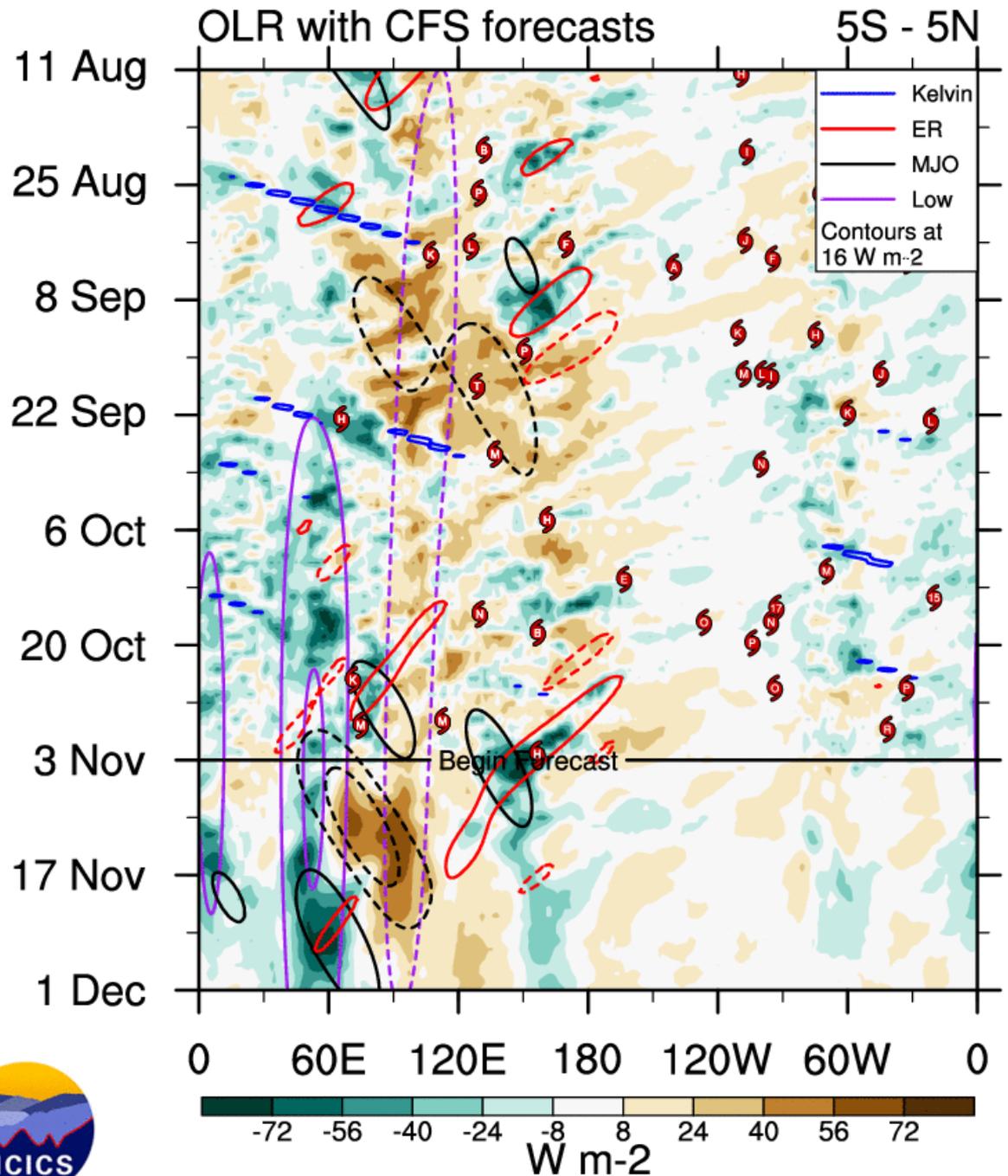
Positive phase of IOD likely to offset enhanced rainfall over Maritime Continent

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 over the Maritime Continent is forecast to enhance rainfall and TC genesis probabilities.

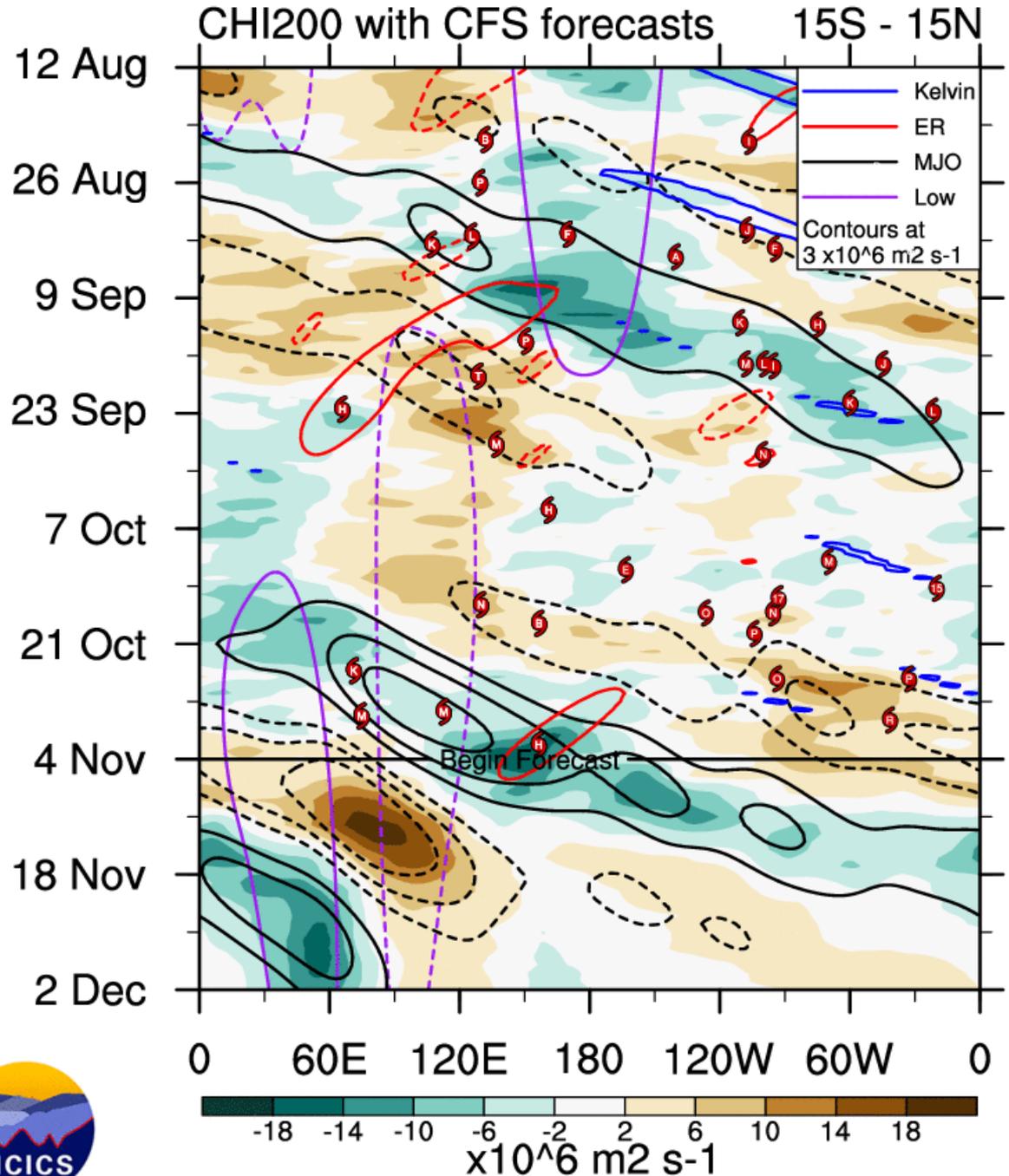
MJO activity is forecast to continue throughout the two week period.

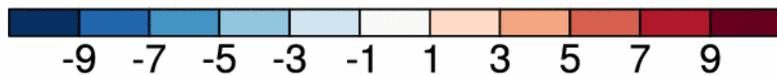
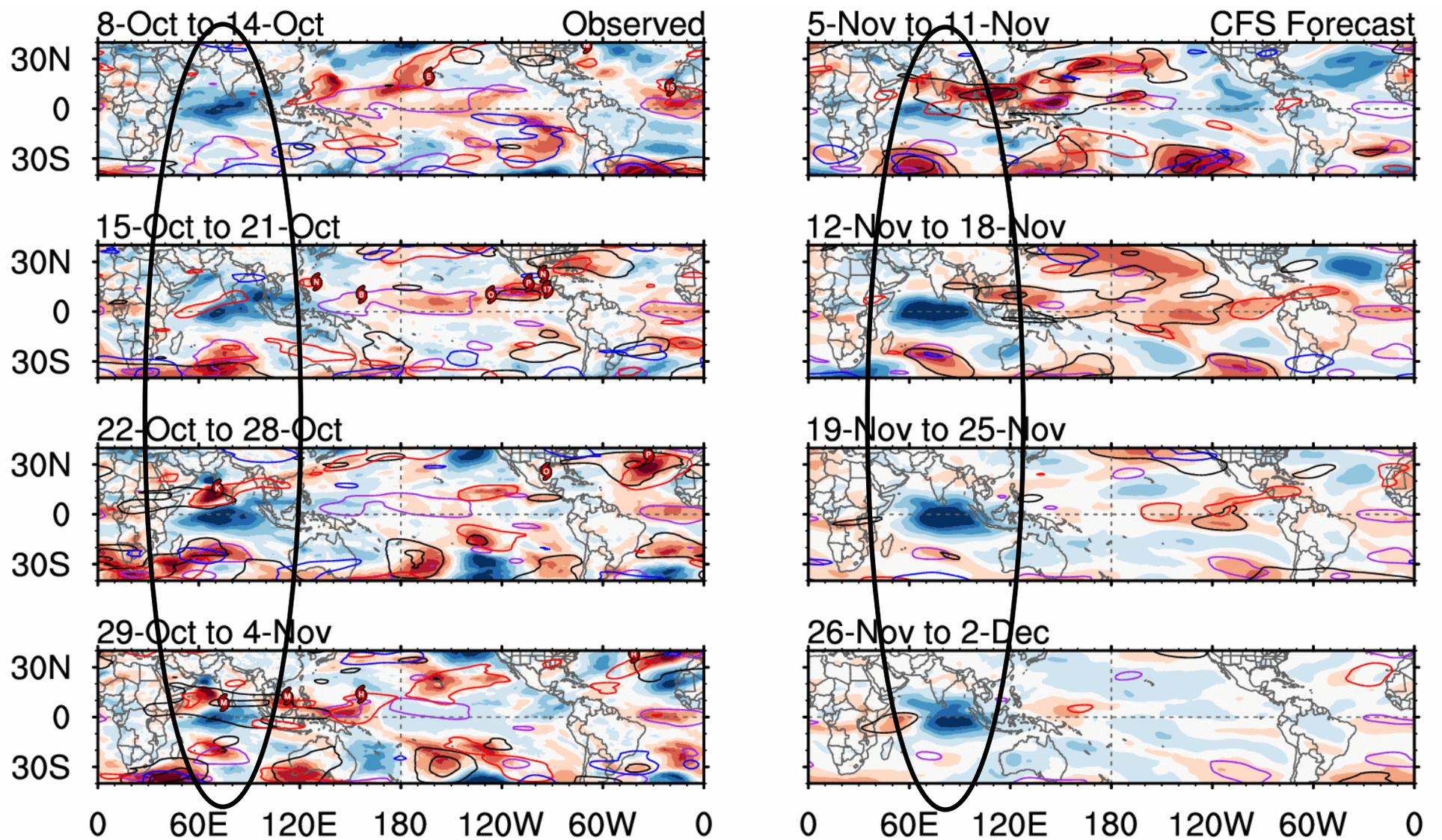


Low frequency (+IOD) leads to enhanced convection over the western IO and suppressed convection over eastern IO.

Rossby wave activity over the Maritime Continent is forecast to enhance rainfall and TC genesis probabilities.

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





m s-1

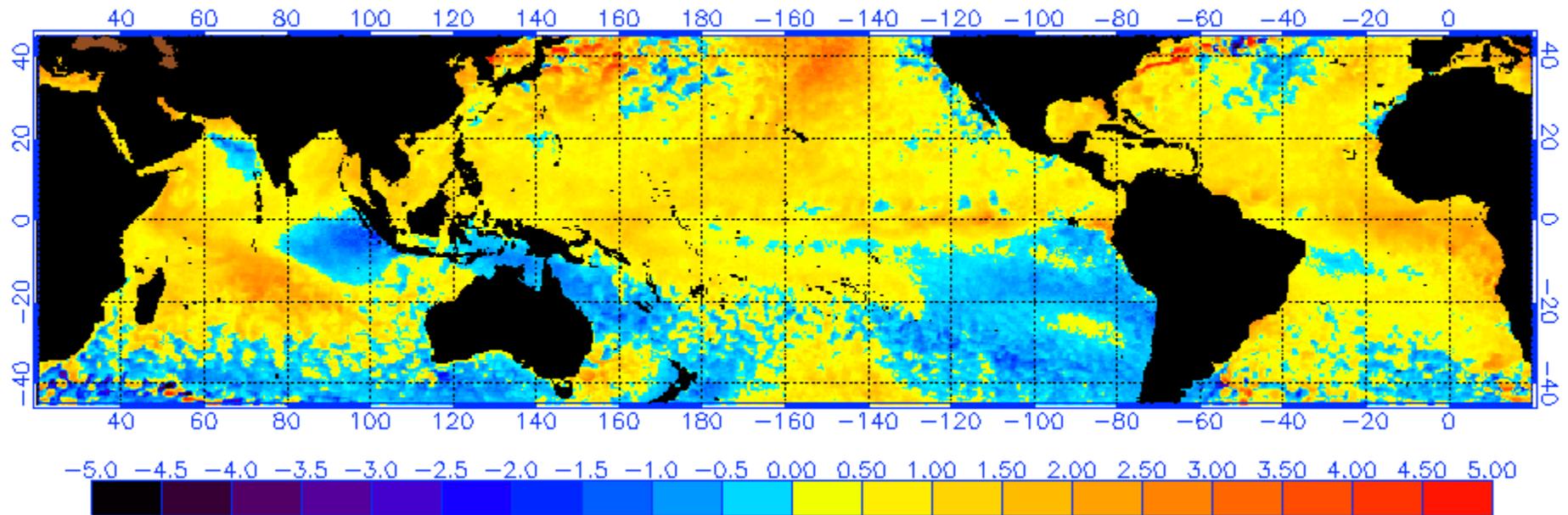
— MJO — Kelvin x2
— Low — ER

Contours at 2, 6 m s-1

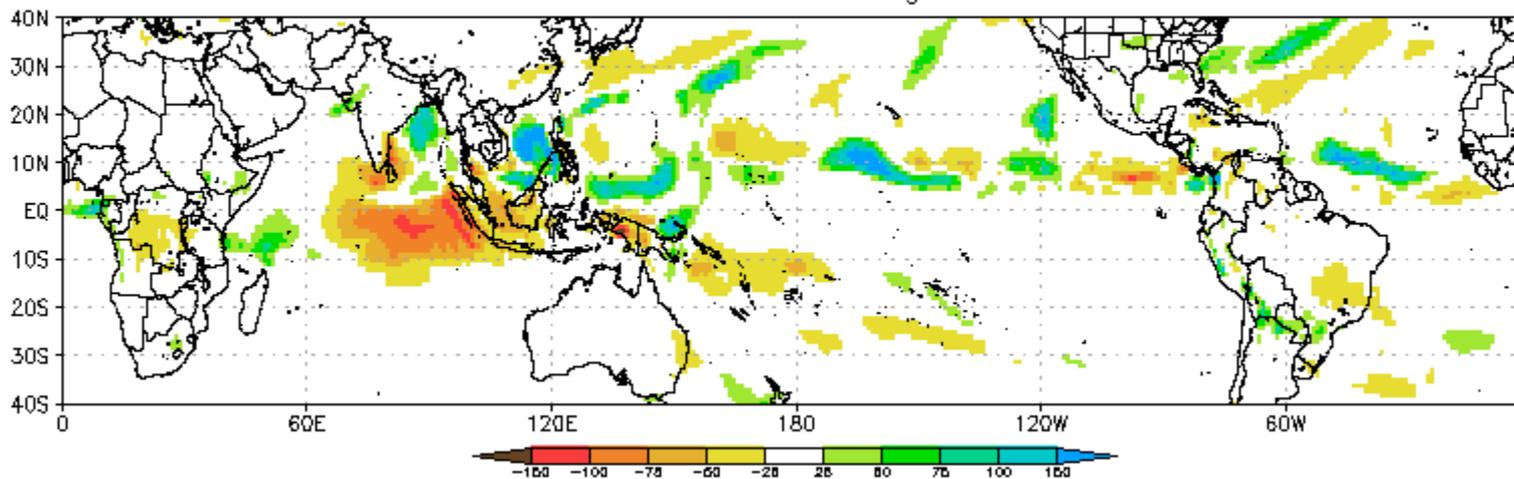
7-day UWND850 with CFS forecasts



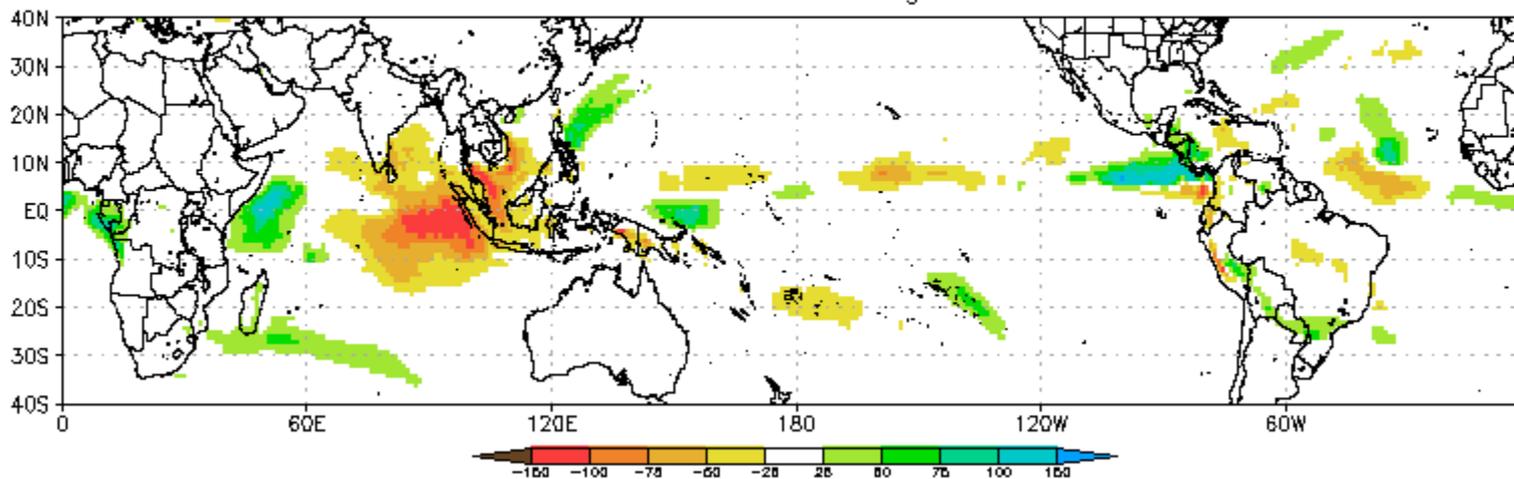
NOAA/NESDIS SST Anomaly (degrees C), 11/4/2019



CFS Precipitation Anomalies (mm) Issued 04Nov2019
Week-1 Forecast Ending 12Nov2019



CFS Precipitation Anomalies (mm) Issued 04Nov2019
Week-2 Forecast Ending 19Nov2019





Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



7:00 am EST
Tue Nov 5 2019

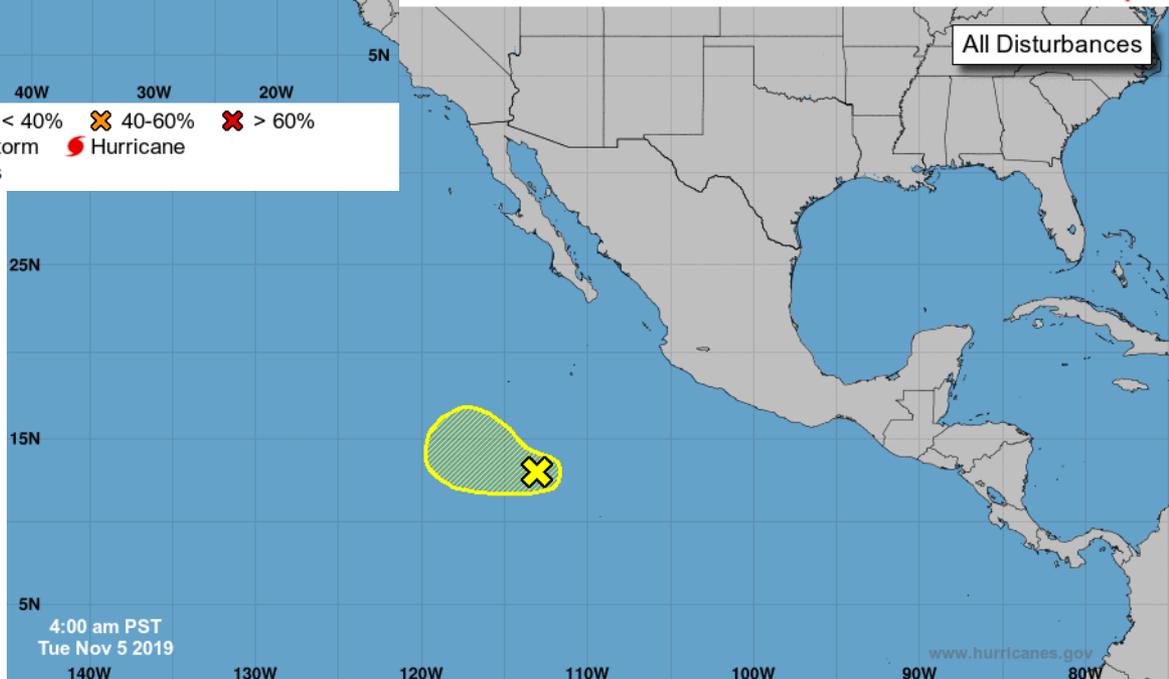
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida

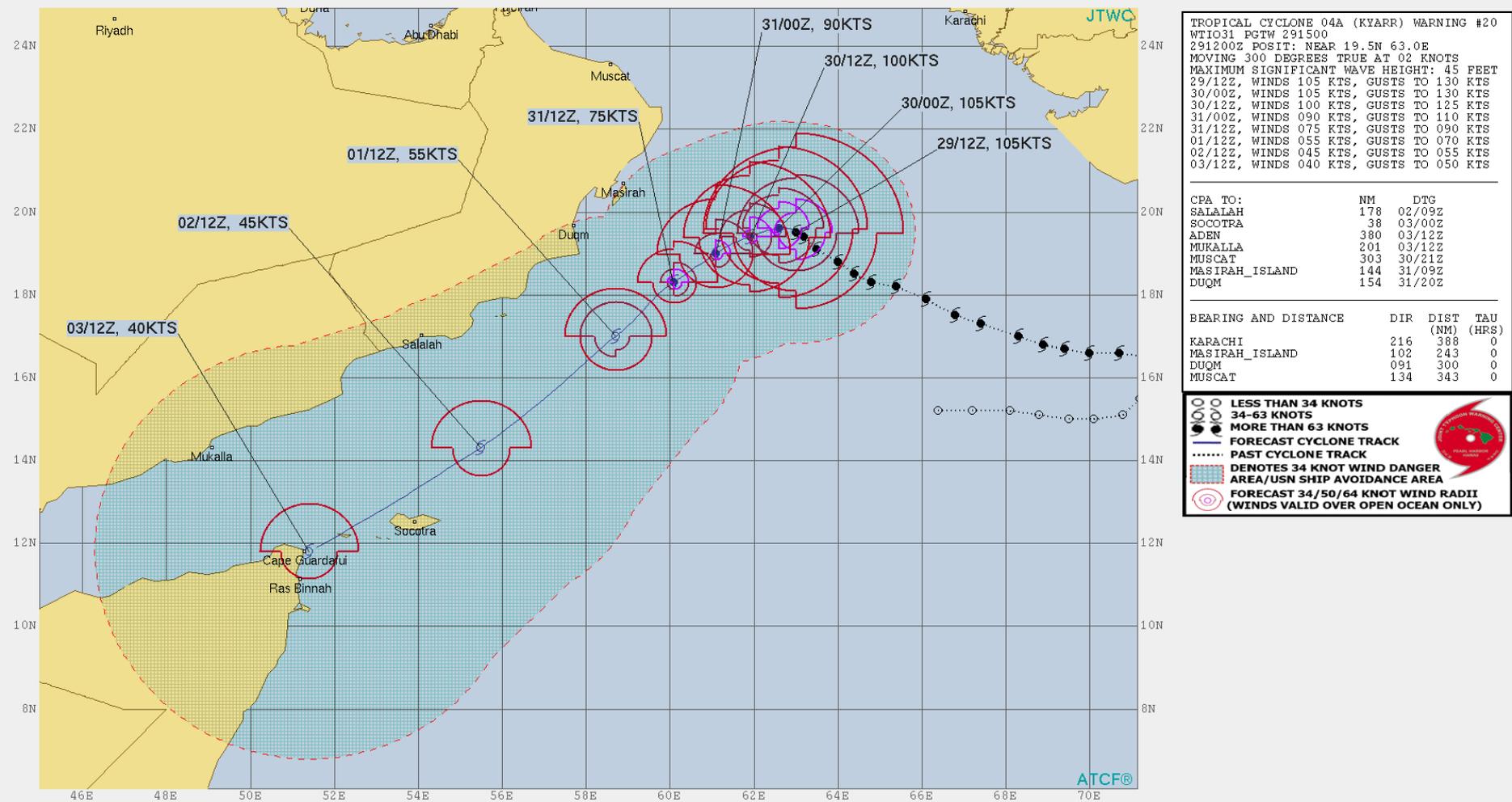


4:00 am PST
Tue Nov 5 2019

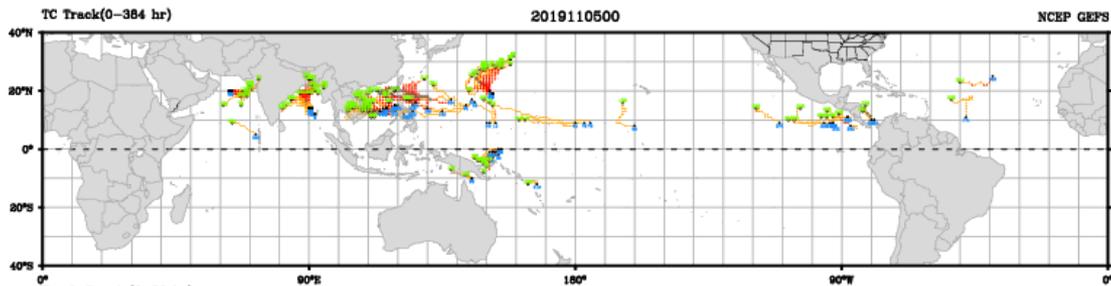
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

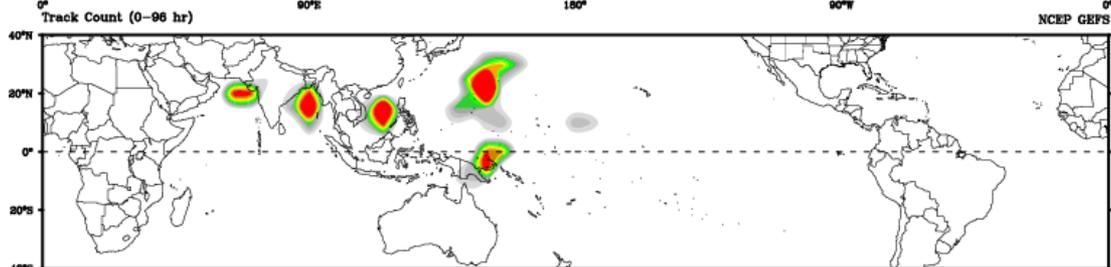
Post-Tropical Cyclone or Remnants



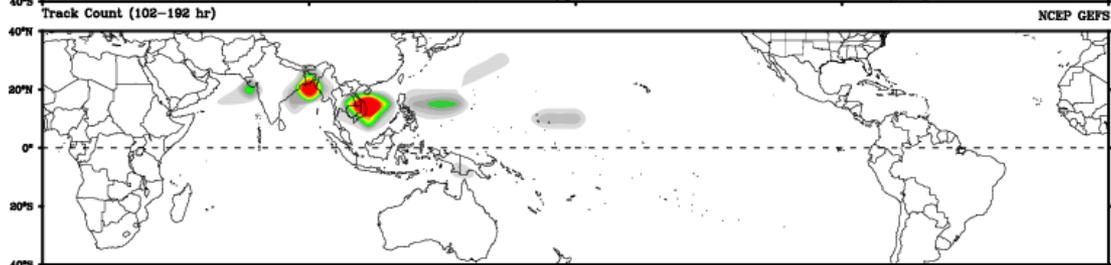
2nd strongest tropical cyclone in 12 years for Arabian Sea



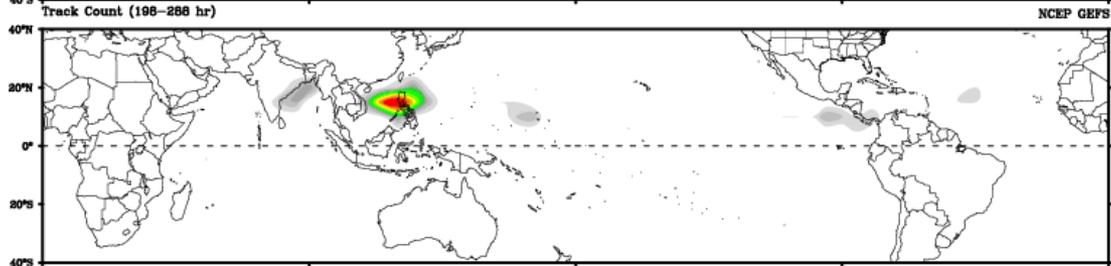
Days 1-4



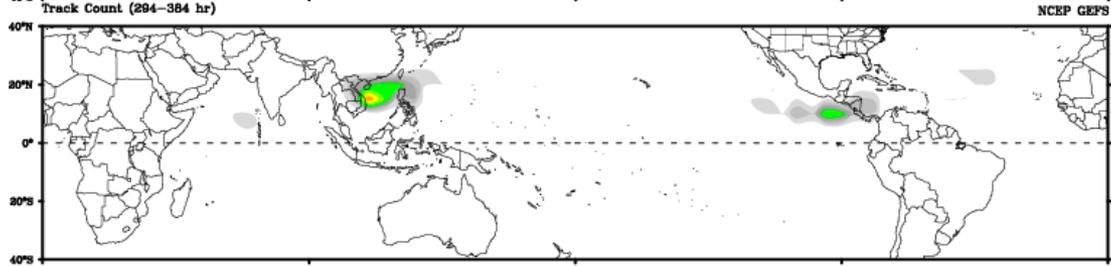
Day 5-8



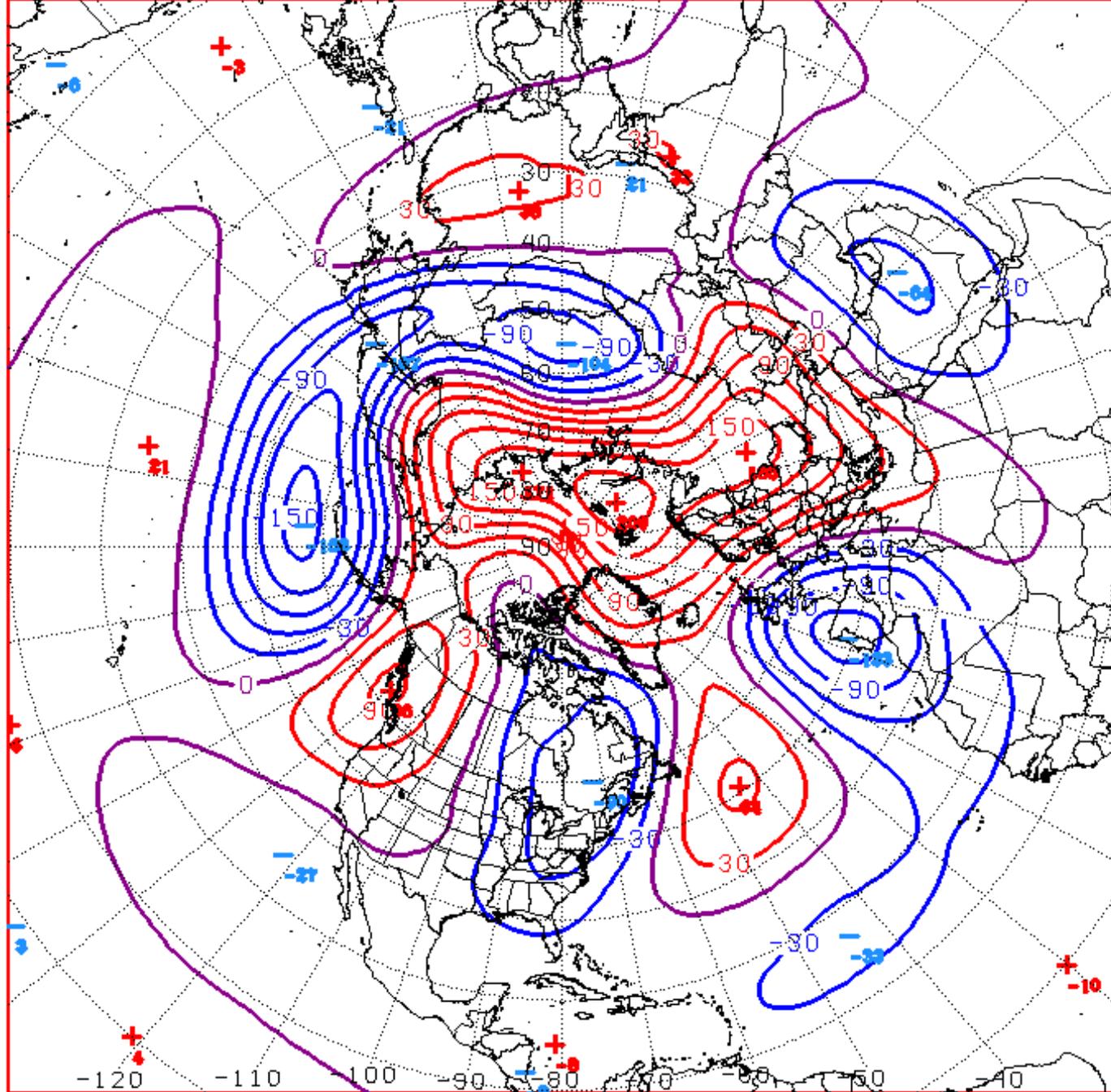
Day 9-12



Day 13-15

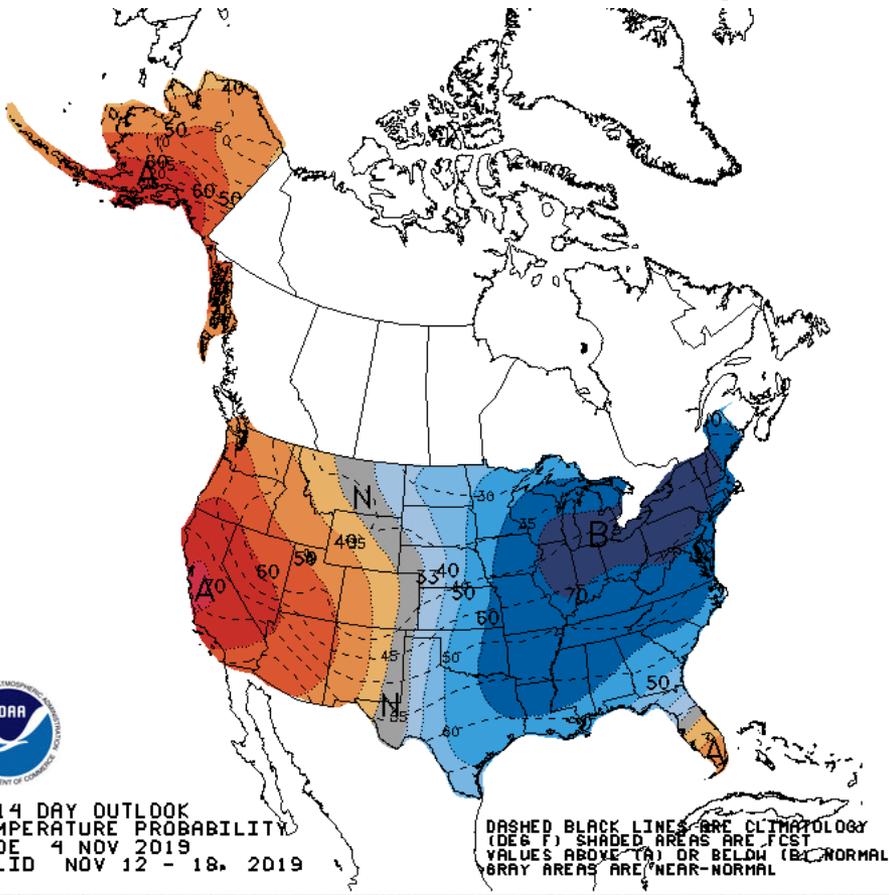


Connections to U.S. Impacts



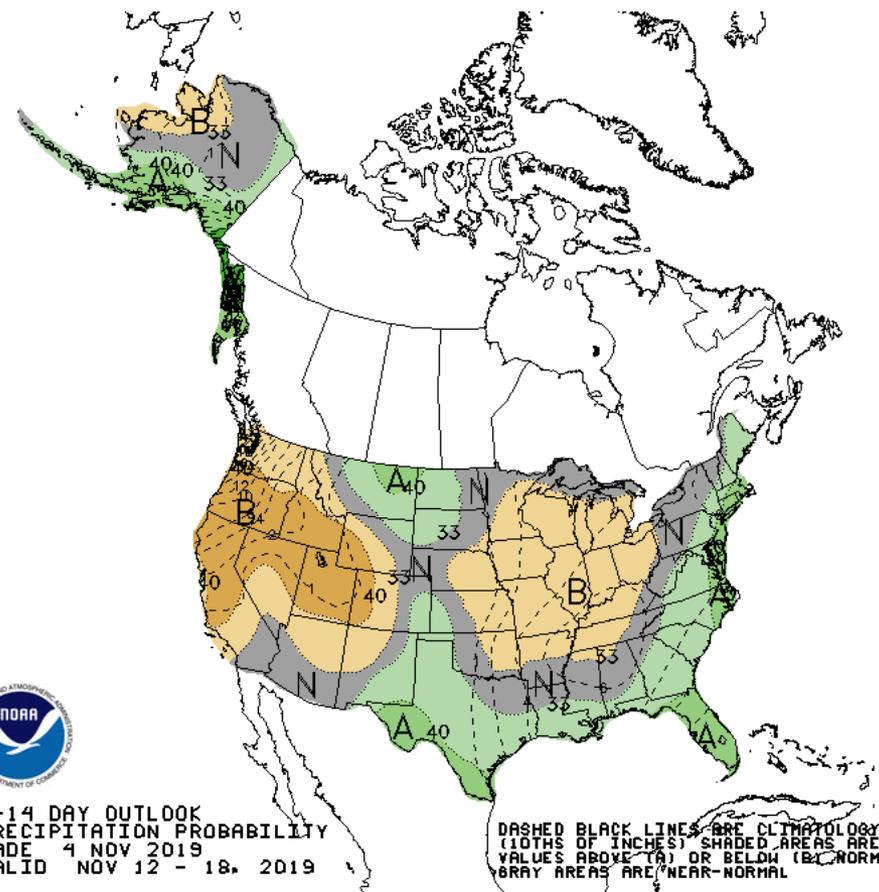
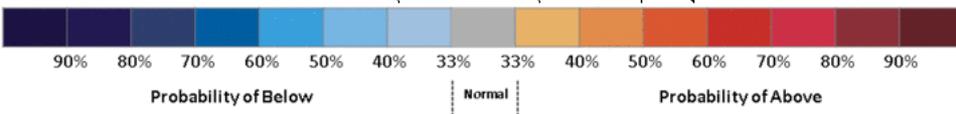
D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE NOV 05 2019 1315 UTC CNTD NOV 16 2019

Week 2 – Temperature and Precipitation



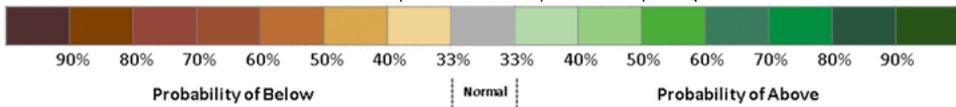
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 4 NOV 2019
VALID NOV 12 - 18, 2019

DASHED BLACK LINES ARE CLIMATOLOGY (DEG F). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.



8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 4 NOV 2019
VALID NOV 12 - 18, 2019

DASHED BLACK LINES ARE CLIMATOLOGY (TENTHS OF INCHES). SHADED AREAS ARE FCST VALUES ABOVE (A) OR BELOW (B) NORMAL. GRAY AREAS ARE NEAR-NORMAL.

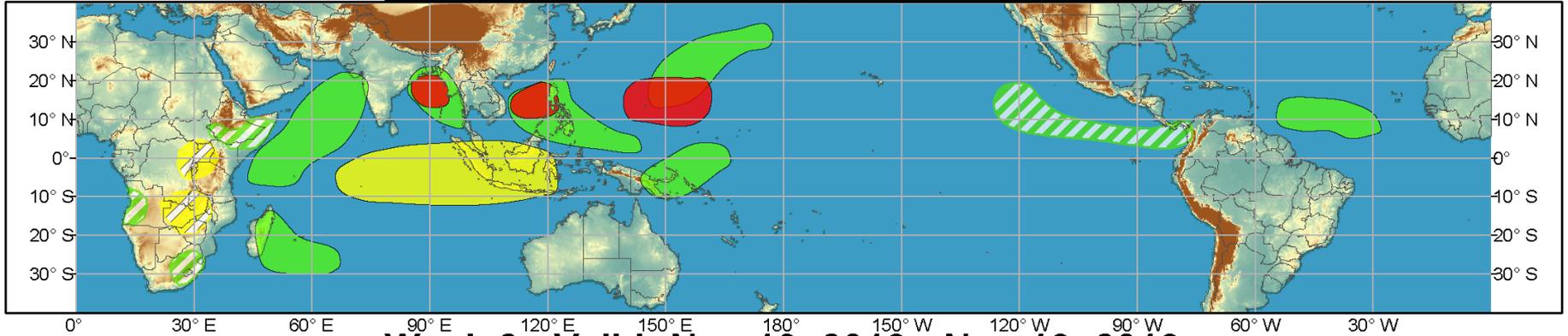




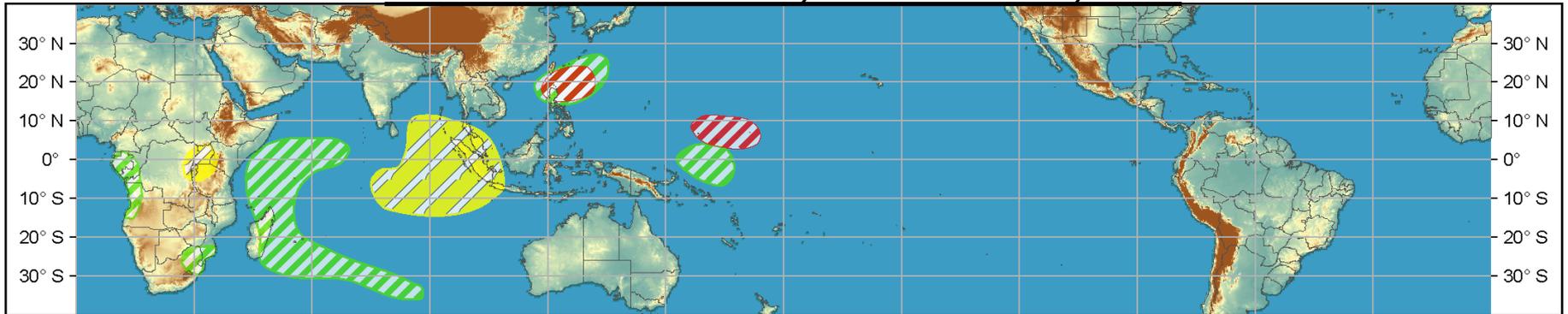
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



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



Week 2 - Valid: Nov 13, 2019 - Nov 19, 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. |
| Below-normal temperatures | | 7-day mean temperatures in the lower third of the historical range. |

Produced: 11/05/2019

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.

