Weeks 2-3 Global Tropics Hazards Outlook

4/16/2024

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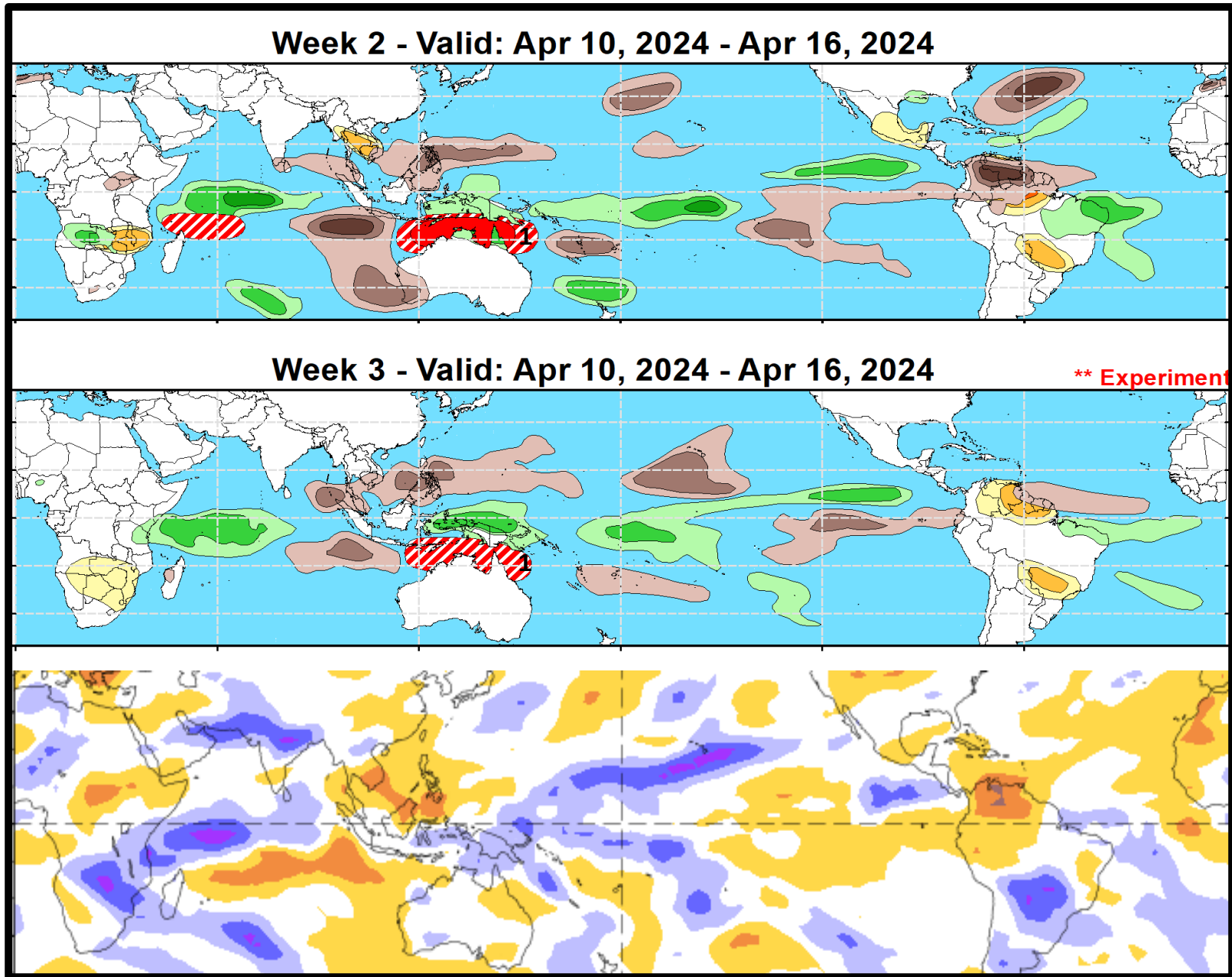
NWS / NCEP / Climate Prediction Center

Outlook Review: TC development & anomalous precipitation during the past week

- 1: TC Paul, 4/10



Synopsis of Climate Modes:

ENSO: (Mar 14, 2024 Update) ***next update on Thursday, Apr 11th***

- ENSO Alert System Status: El Niño Advisory / La Niña Watch

- A transition from El Niño to ENSO-neutral is likely by April-June 2024 (83% chance), with odds of La Niña developing by June-August (62% chance).

MJO and other subseasonal tropical variability:

- The MJO has continued to weaken as global tropical circulation has become less organized. The Tropical Pacific also appears to be moving away from El Nino conditions, with SST anomalies declining in all Nino regions and a widespread decline in upper ocean heat content.

- While ensemble solutions generally show continued eastward propagation of the MJO into the western Pacific, RMM forecasts generally favor much weaker and less coherent intraseasonal activity during the next few weeks.

- The global tropics have been rather quiet lately with respect to Tropical Cyclone (TC) activity. This is climatologically the least active time of year, and with a weak MJO providing little support, TC genesis is not very likely during the coming forecast period.

GTH Outlook:

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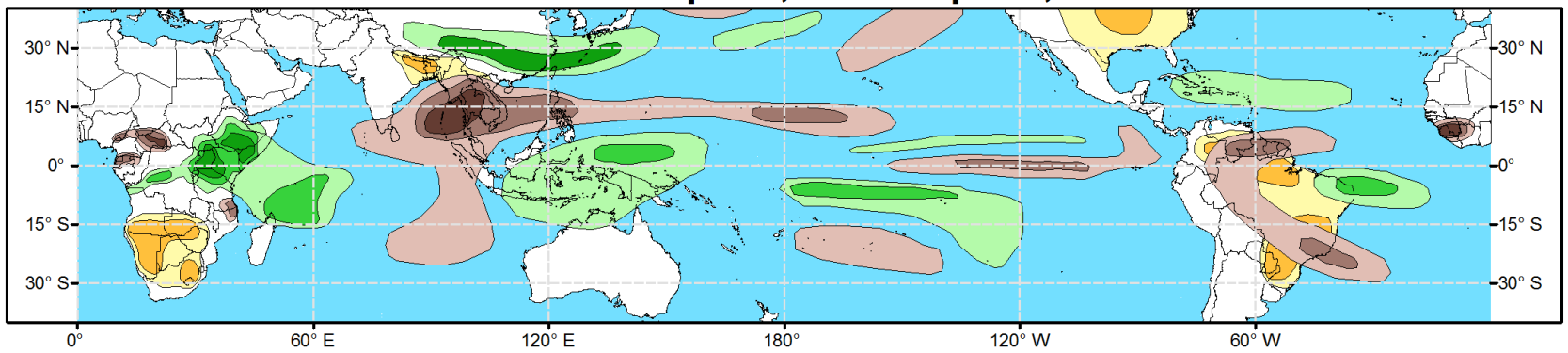
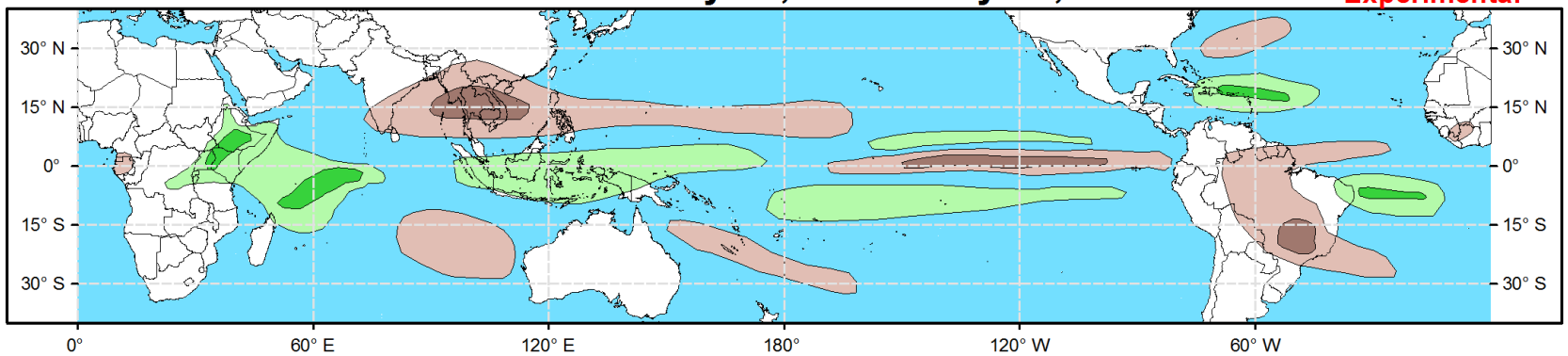
Week 2 - Valid: Apr 24, 2024 - Apr 30, 2024



Week 3 - Valid: May 01, 2024 - May 07, 2024

** Experimental **



Tropical Cyclone (TC) Formation Probability

>20% >40% >60%

Tropical Depression (TD) or greater strength

Above-Average Rainfall Probability

>50% >65% >80%

Weekly total rainfall in the Upper third of the historical range

Below-Average Rainfall Probability

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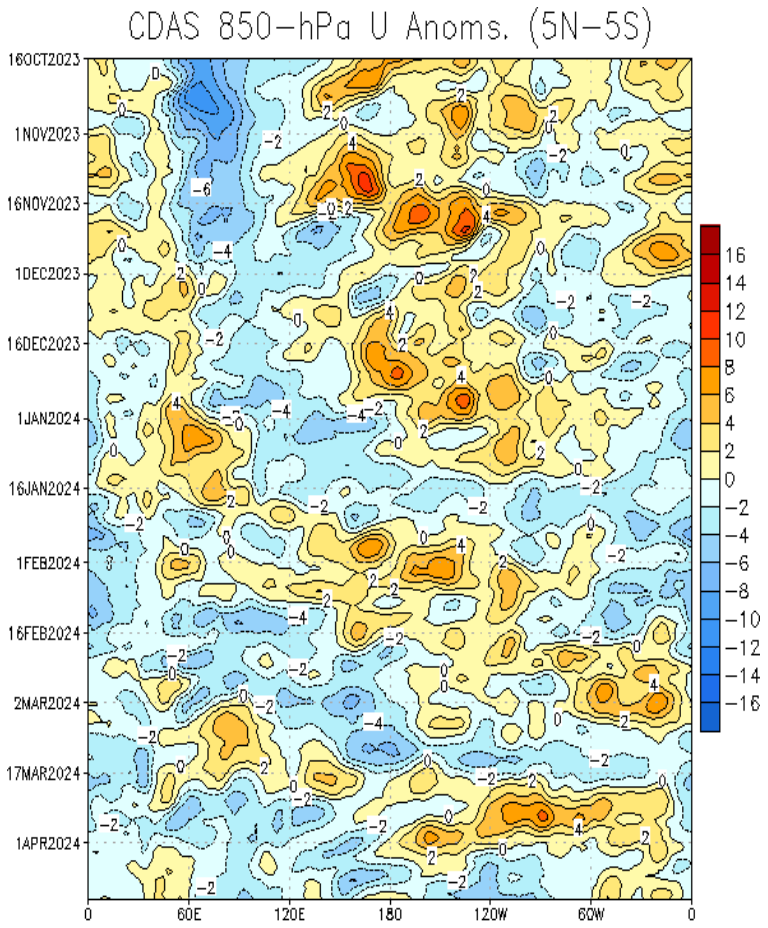
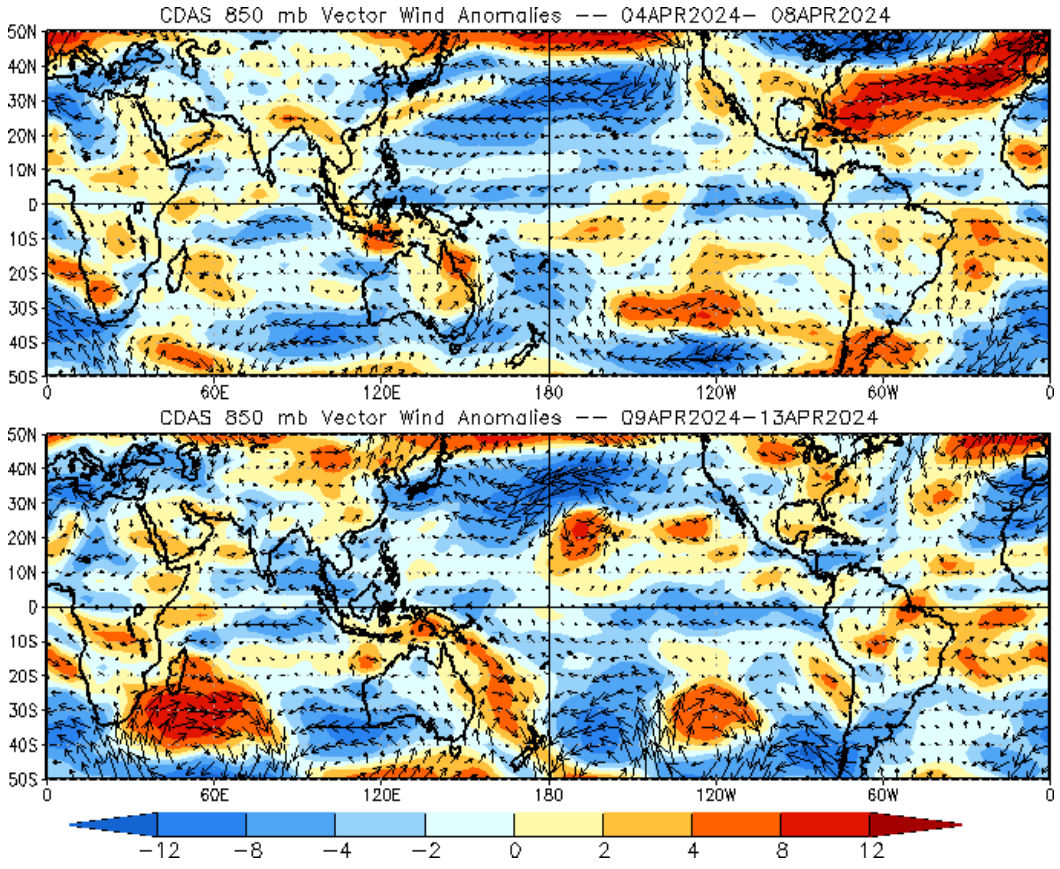
850-hPa Wind Anomalies

Shading denotes the zonal wind anomaly. Blue shades: Anomalous easterlies. Red shades: Anomalous westerlies.





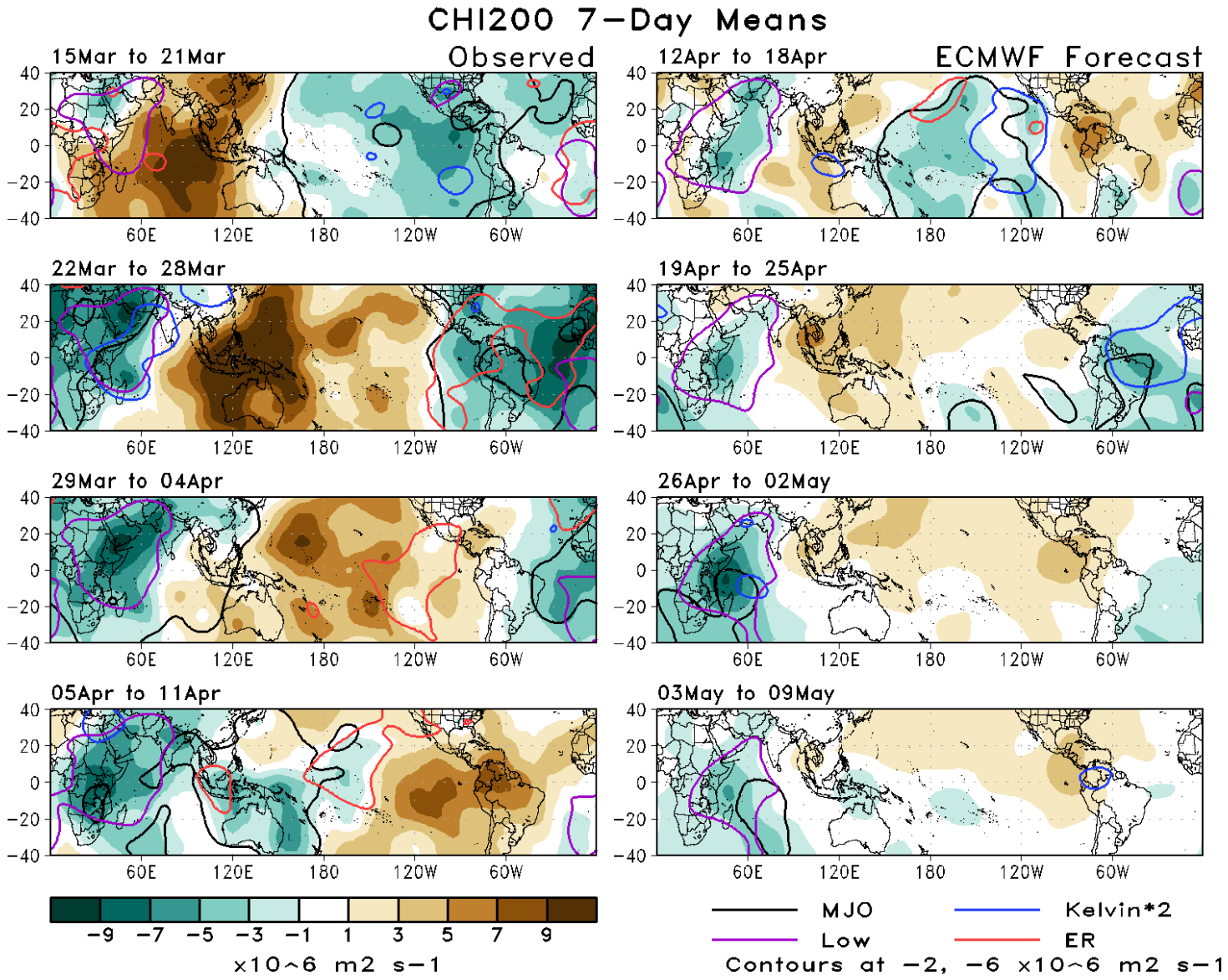
- Enhanced trade winds have been becoming stronger and more widespread over the last few weeks, both over the Tropical Pacific and Indian Oceans.

- When strong trade winds blow along the Equator they trigger upwelling due to Ekman transport, cooling surface waters. This is an important mechanism in the onset and maintenance of La Nina conditions.

200-hPa Velocity Potential Anomaly Maps:

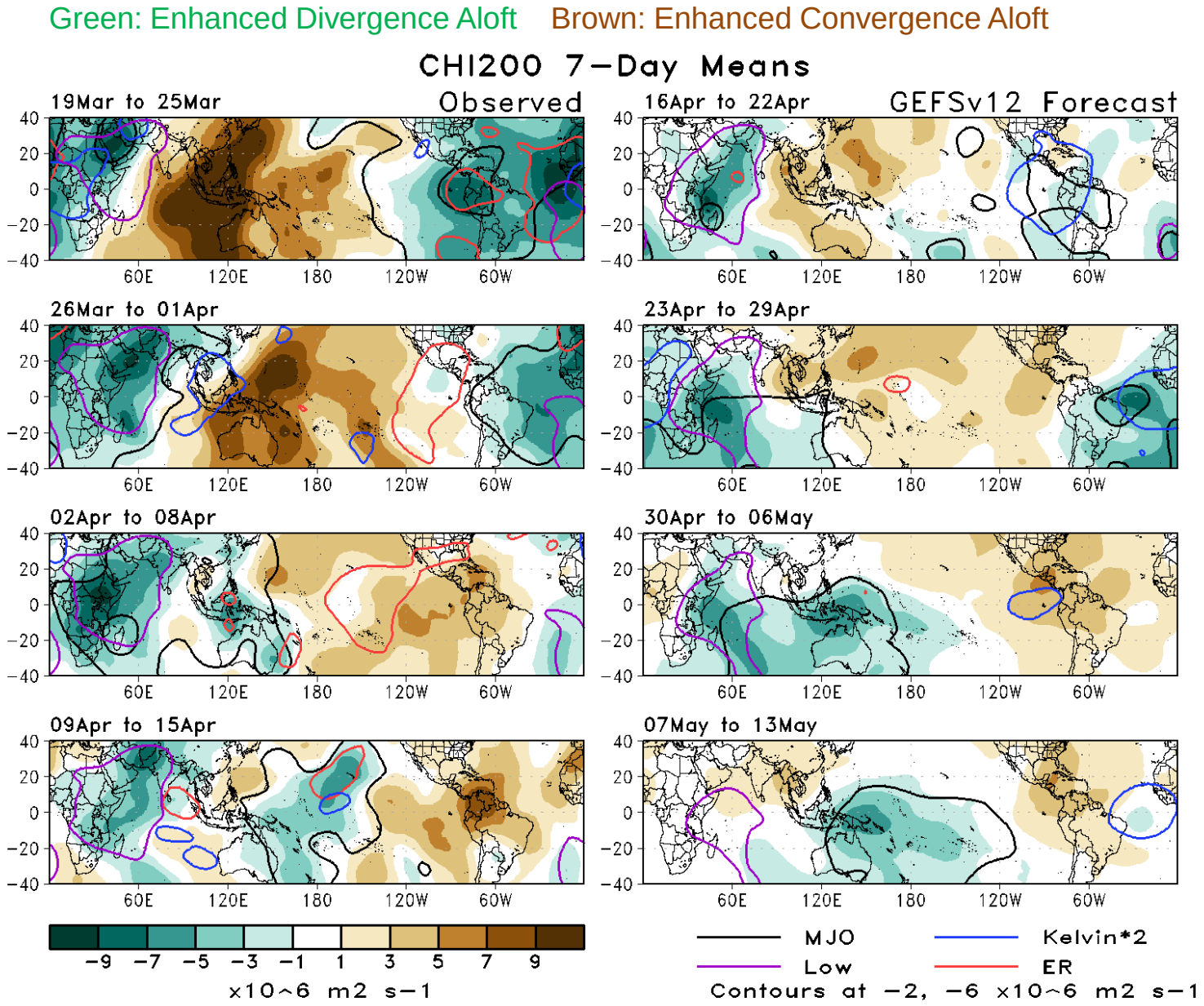
- The ECMWF depicts a slow progression of the MJO signal and generally weak VP anomalies away from the enhanced zone over the western Indian Ocean.

Green: Enhanced Divergence Aloft Brown: Enhanced Convergence Aloft



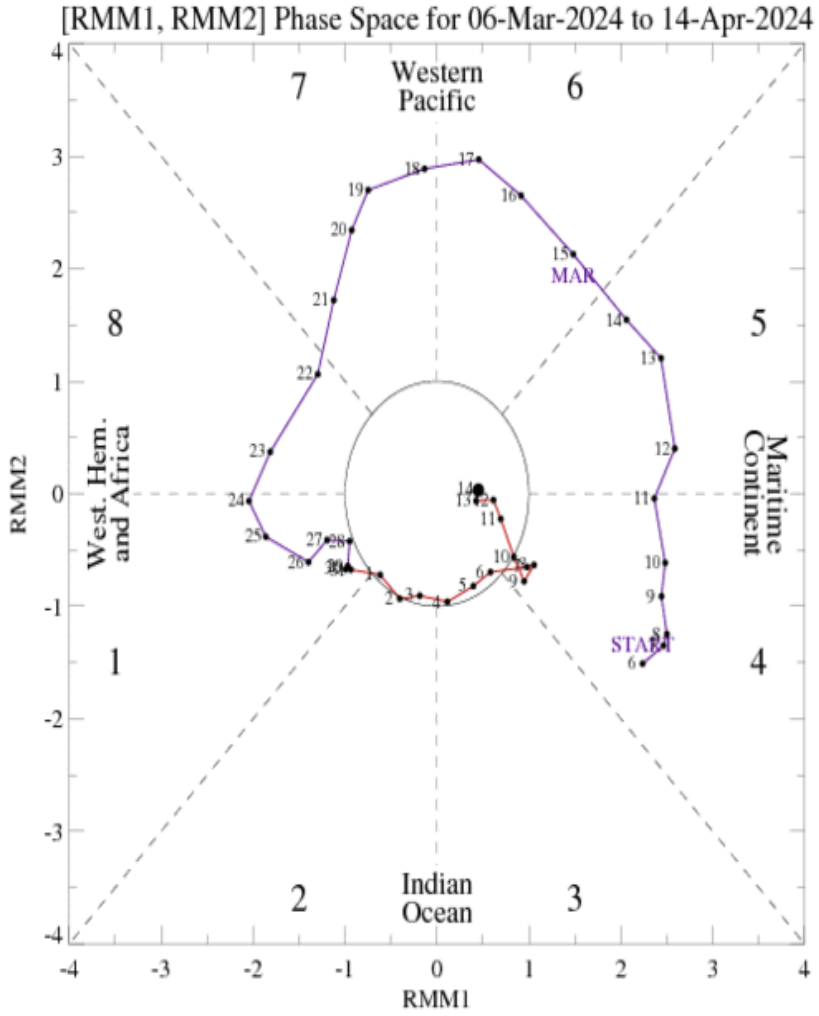
200-hPa Velocity Potential Anomaly Maps:

- The GEFS favors a slightly stronger MJO signal and more noticeable eastward propagation of the enhanced convective envelope, moving into the West Pacific by week-4.



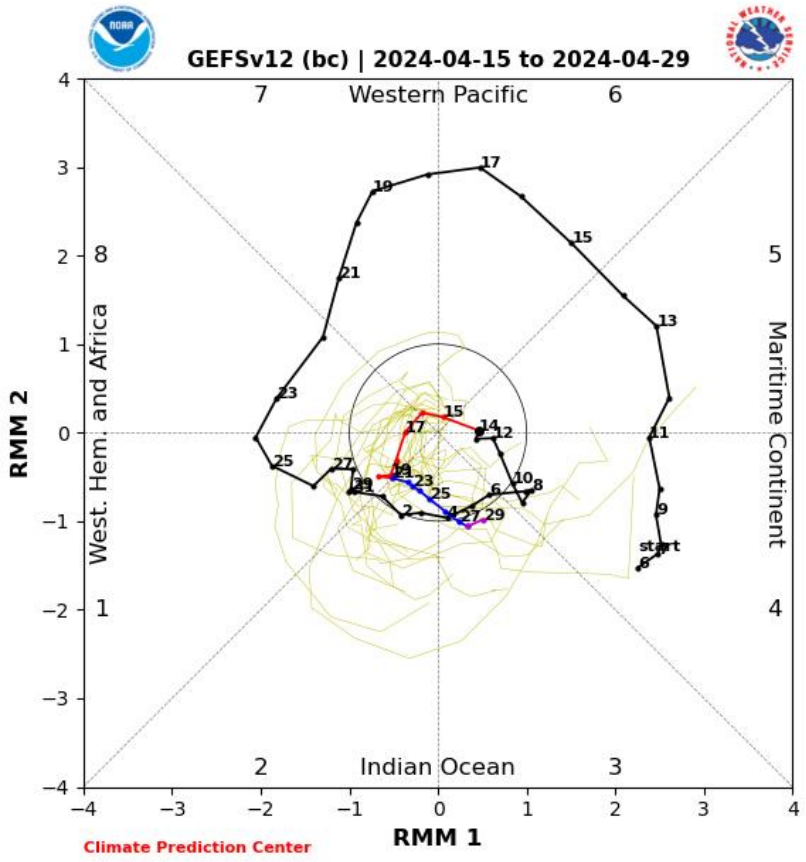
MJO Index: Recent Evolution

- Since late March, the RMM-based MJO index has considerably slowed down and weakened, with the RMM index moving near the edge of the unit circle as the MJO traversed the Indian Ocean.
- Over the last week eastward propagation of the RMM signal continued, but the amplitude has continued to drop, possibly the result of extensive interference to the MJO from emerging low frequency variability.

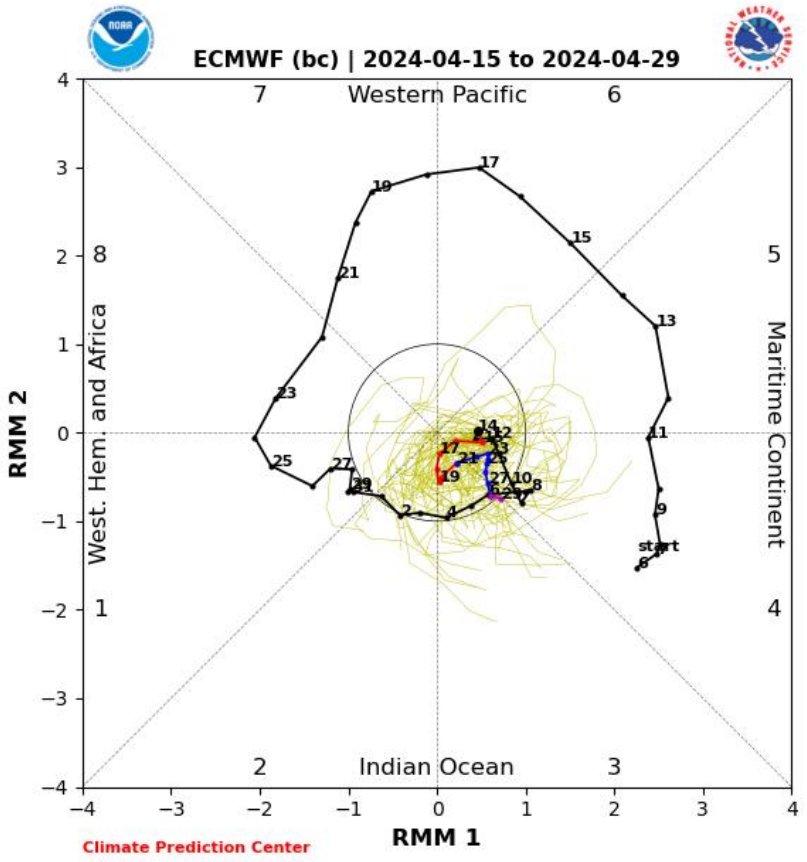


For more information on the RMM index and how to interpret its forecast please see:
https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/CPC_MJOinformation.pdf

MJO Index: Forecast Evolution



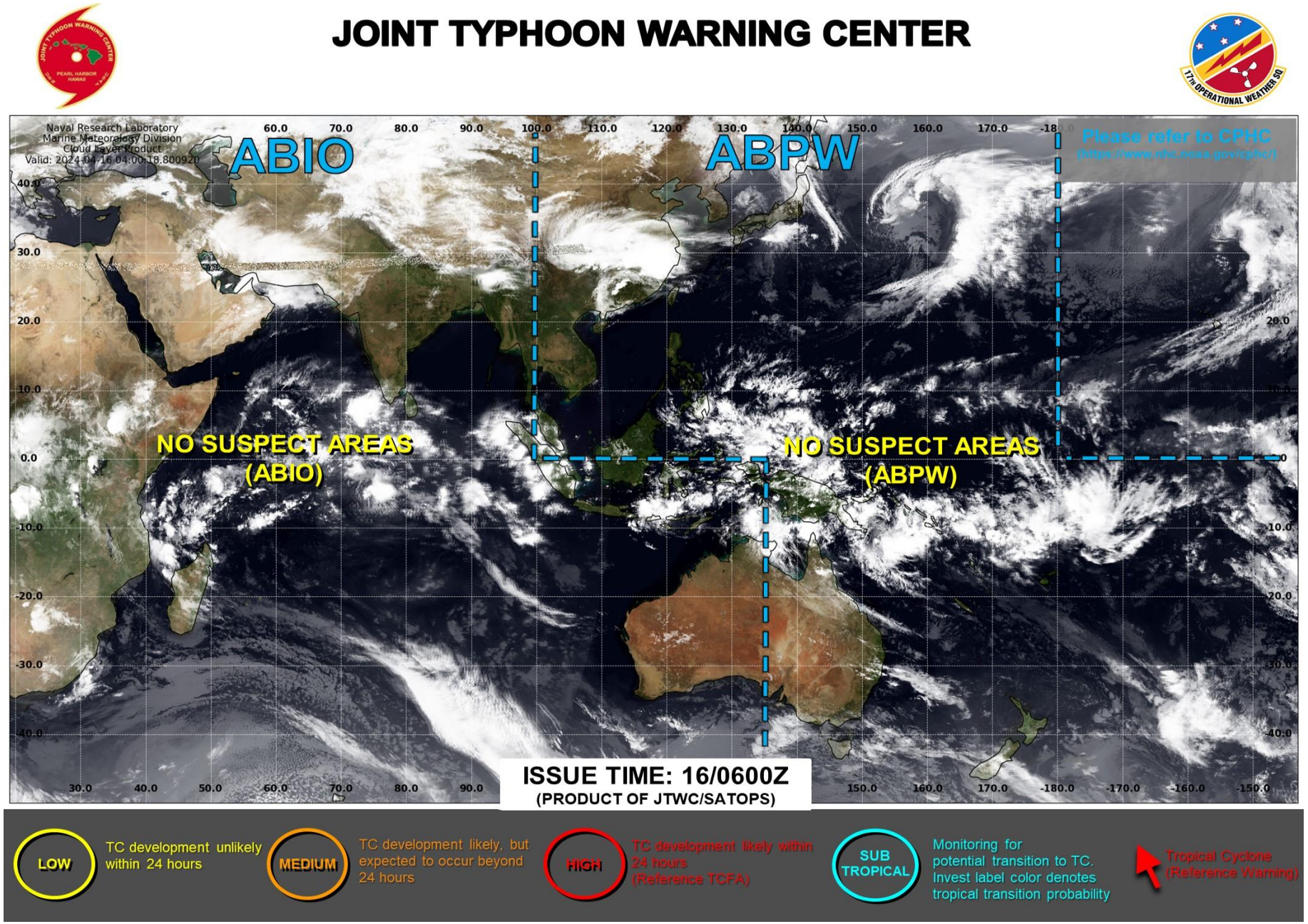
GEFS Forecast



ECMWF Forecast

- A weakened MJO is generally favored in the RMM forecasts, though most models continue to depict eastward propagation despite a weak amplitude.
- The emerging low-frequency feature over the western Indian Ocean appears to be interfering with the MJO, as have several Rossby waves in recent times, apparently reducing the MJO's impact on the global tropics.

Tropical Cyclone Monitoring/Forecast: JTWC



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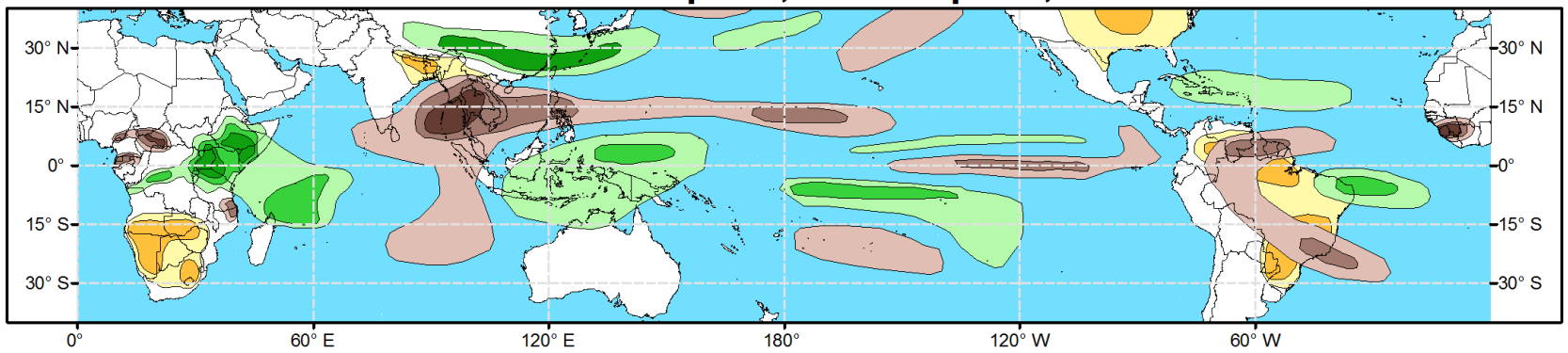

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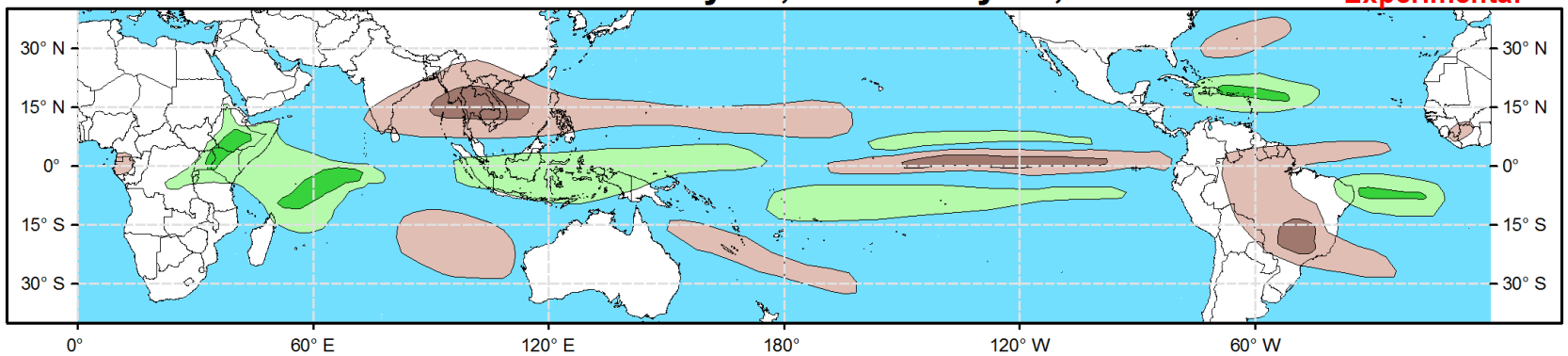

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