

Global Tropics Hazards And Benefits Outlook

5/3/2022

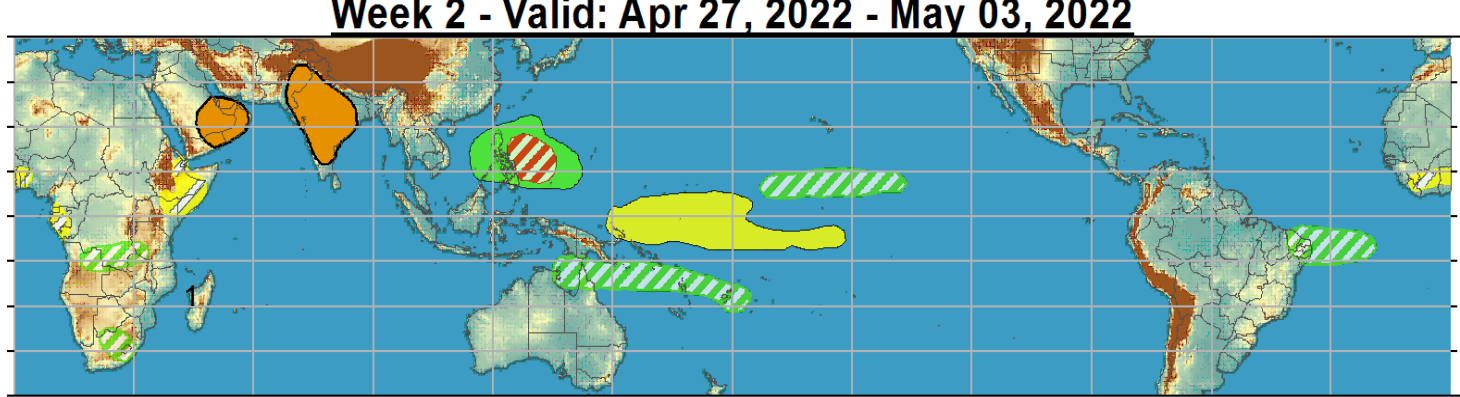
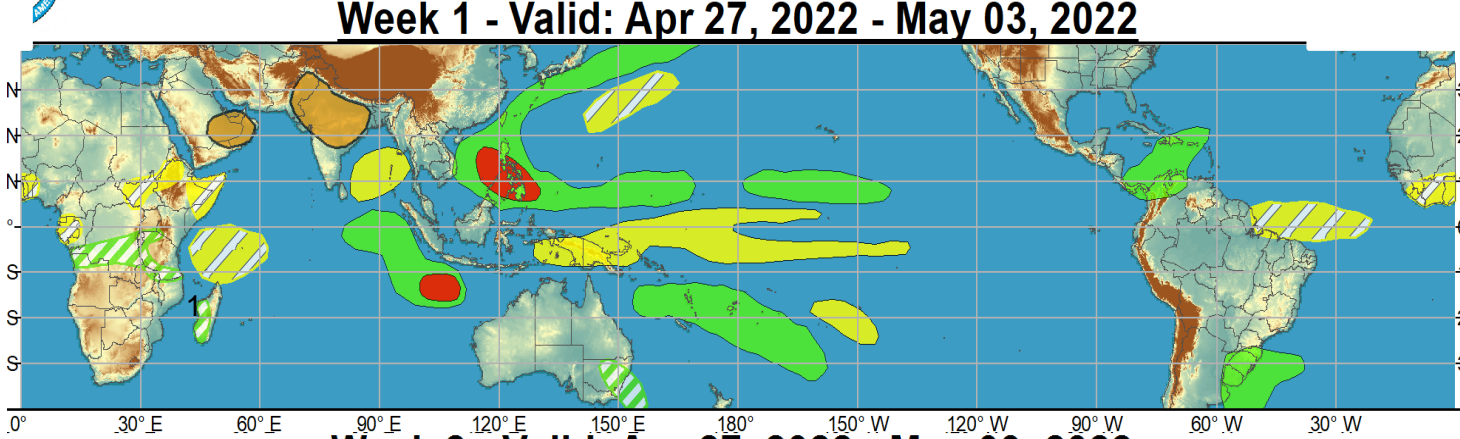
Nick Novella

Outline

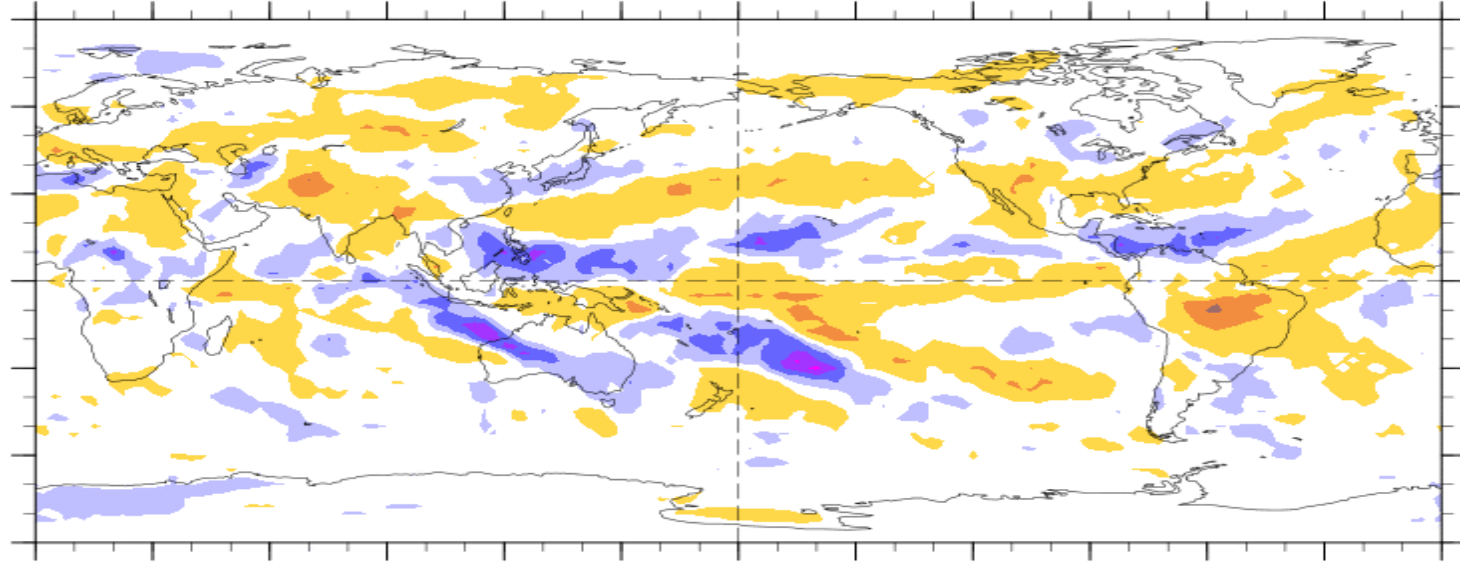
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Outlook Review

To TCs formed
since 4/27



7-Day Average OLR Anomaly 2022/04/25 - 2022/05/01



Green shading
More clouds/rain

Brown shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (April 14, 2022 Update)

ENSO Alert System Status: [La Niña Advisory](#)

- La Niña is favored to continue through the Northern Hemisphere summer (59% chance during June-August 2022), with a 50-55% chance through the fall.

MJO and other subseasonal tropical variability:

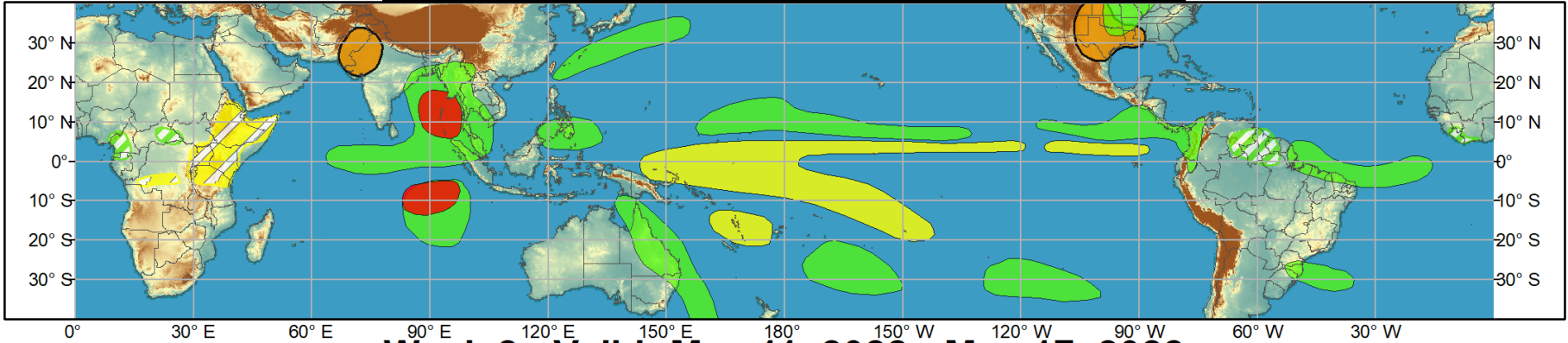
- During the past week, the MJO has remained incoherent as reflected in the RMM index and upper-level anomaly fields.
- Dynamical model RMM forecasts suggest the possible reemergence of the MJO over Africa and the Indian Ocean during week-1, with several ensemble members favoring a fast eastward propagation of the intraseasonal signal into the Maritime Continent and western Pacific by mid-May. However, this evolution is likely tied to Kelvin and Rossby wave activity favored in the global tropics during the next two weeks.
- High confidence exists for tropical cyclone (TC) formation in the Indian Ocean during week-1, with increasing chances for development in the eastern Pacific by mid-May and into the week-3 period.



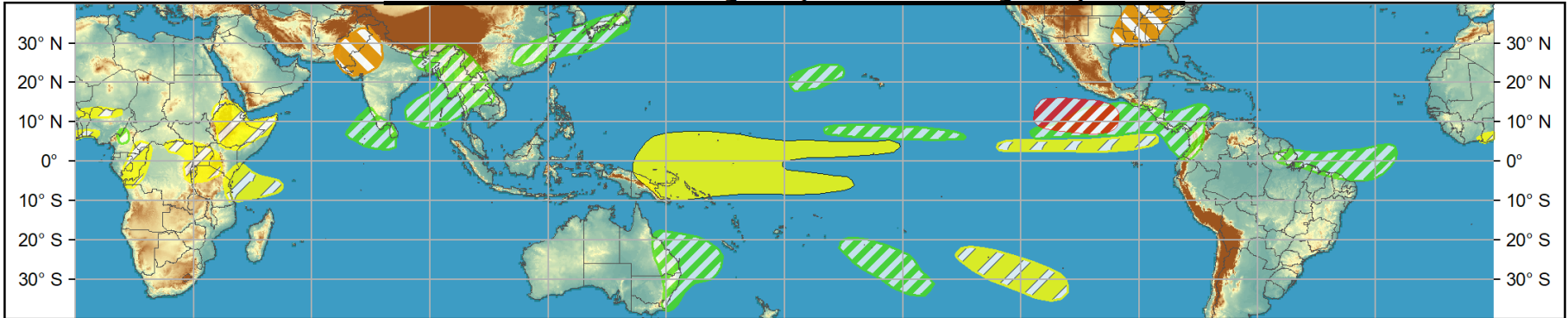
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Week 1 - Valid: May 04, 2022 - May 10, 2022



Week 2 - Valid: May 11, 2022 - May 17, 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.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

Produced: 05/03/2022

Forecaster: Novella

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

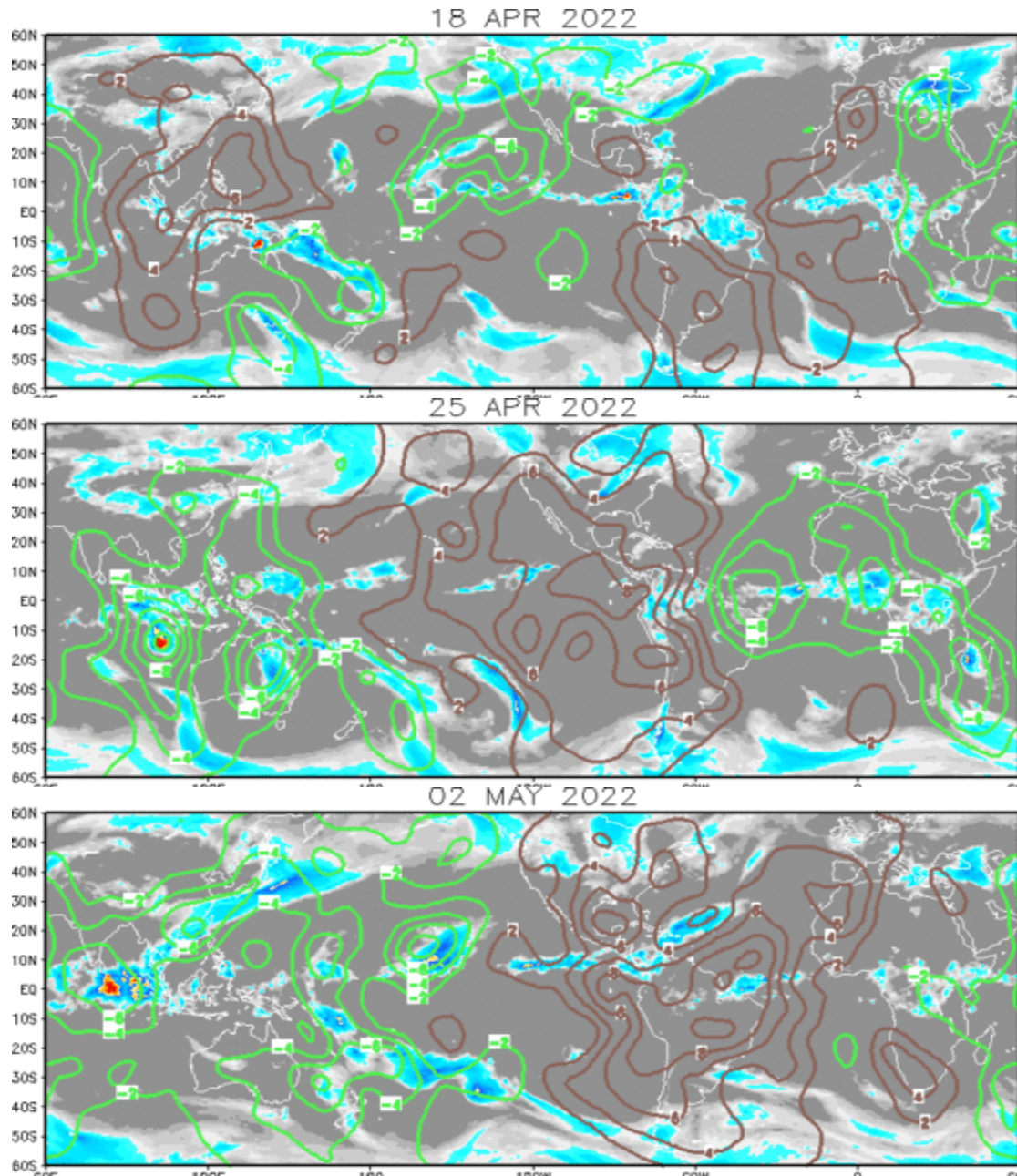
Green: Enhanced Divergence

Brown: Enhanced Convergence

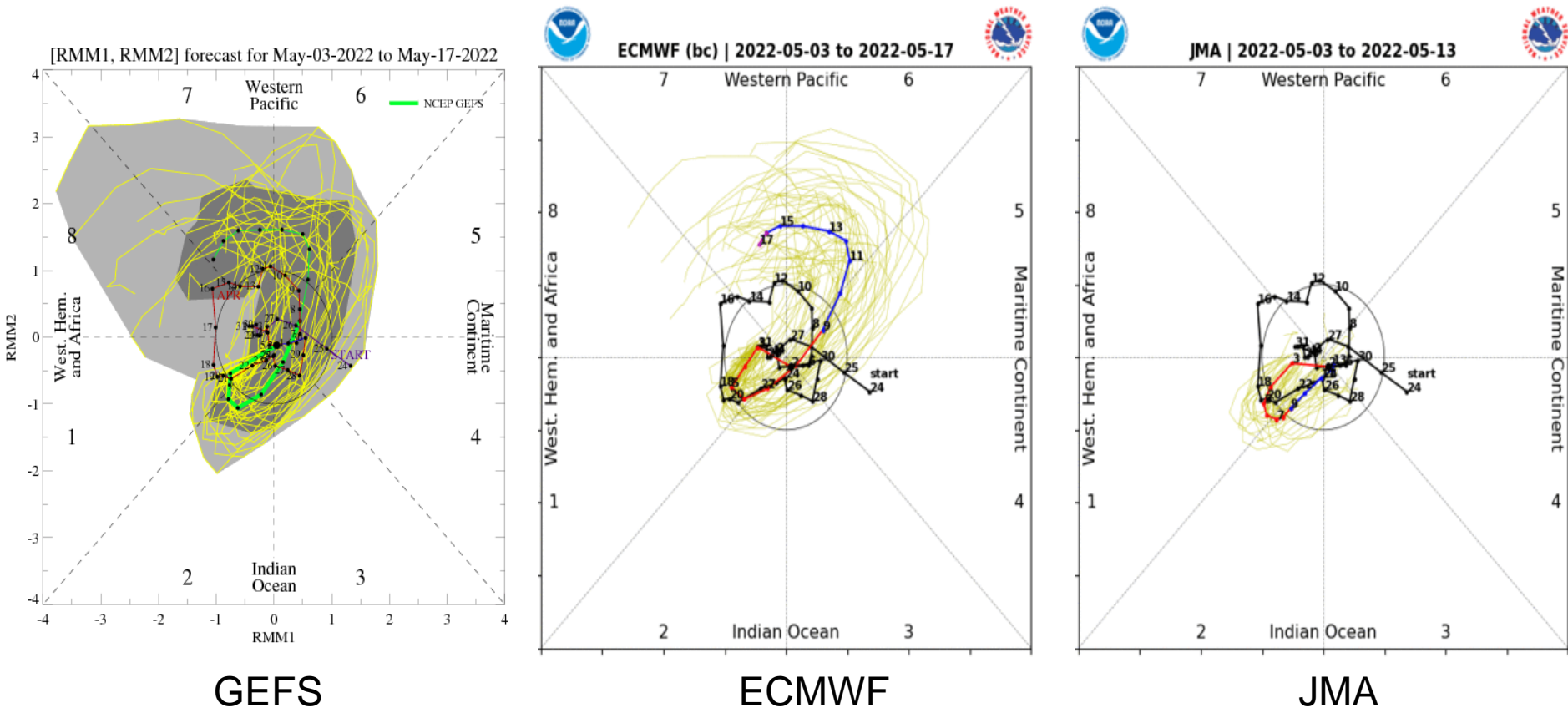
Wave-2 pattern emerges and suppressed/enhanced convection over the Indian Ocean/Maritime Continent begins eastward propagation.

A more coherent pattern emerges later in April, but exhibits two enhanced centers of action over Africa and near the Maritime Continent.

Some eastward propagation of anomalous divergence envelope, though deep convection has shifted westward in the Indian Ocean.

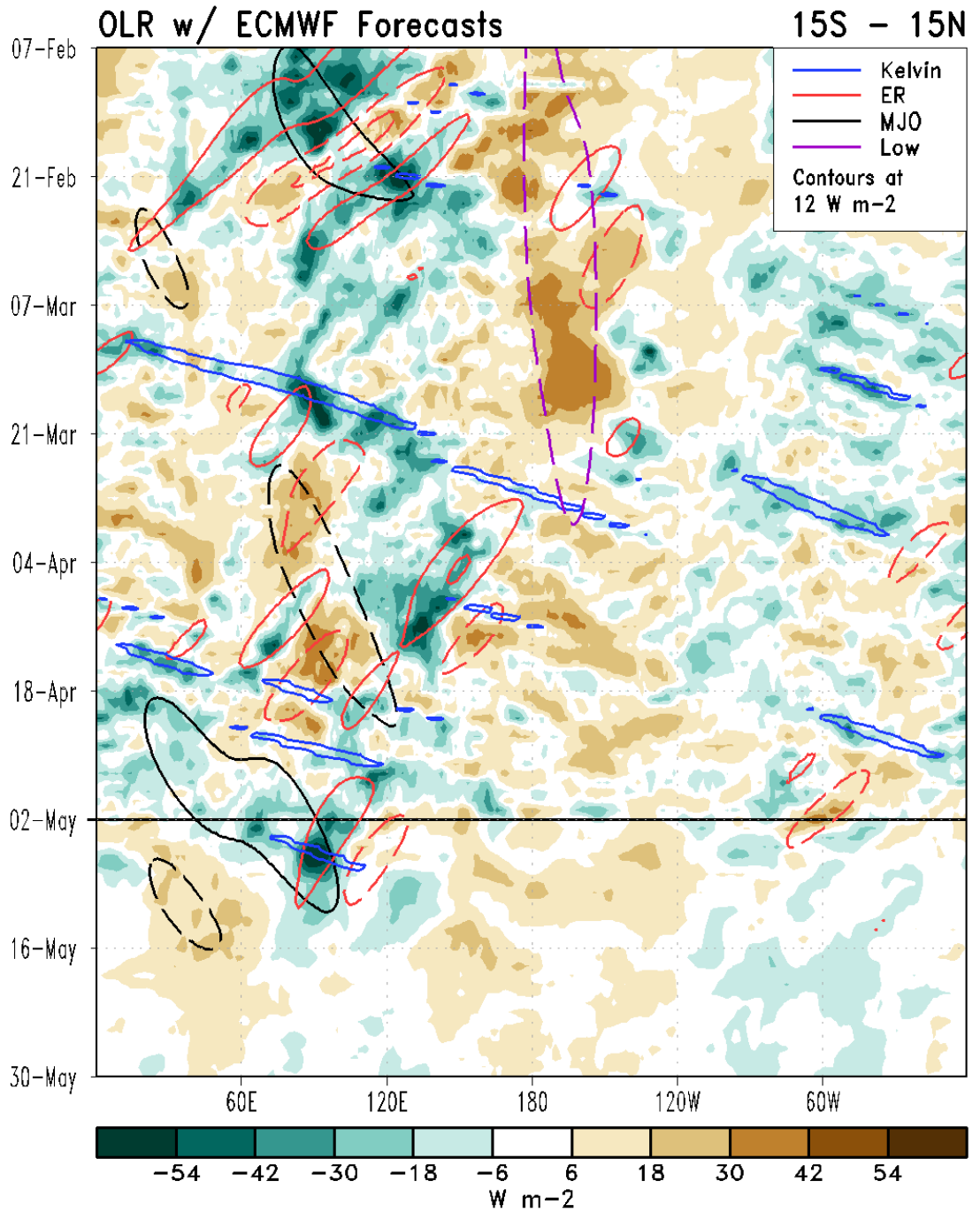


MJO Observation/Forecast



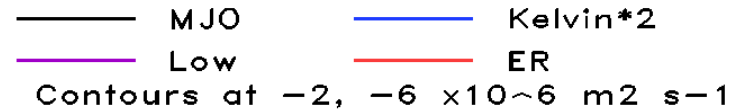
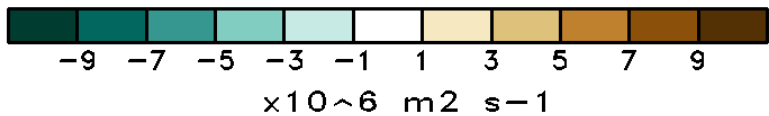
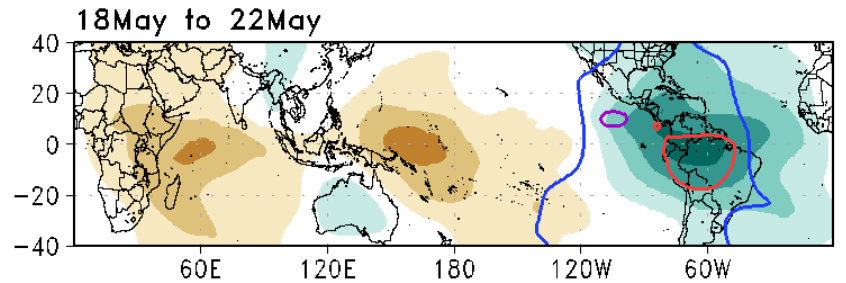
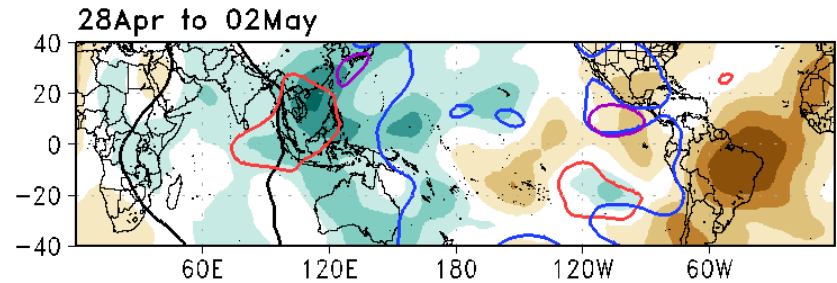
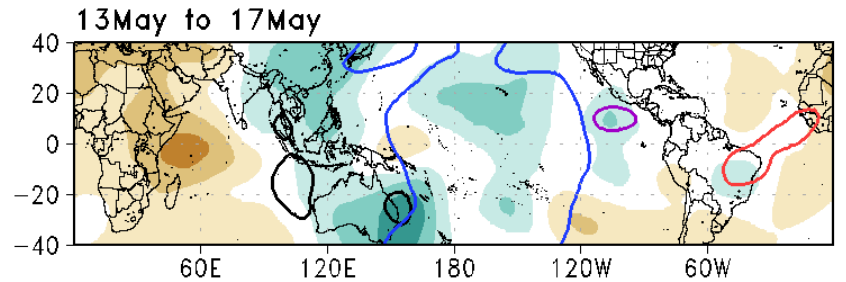
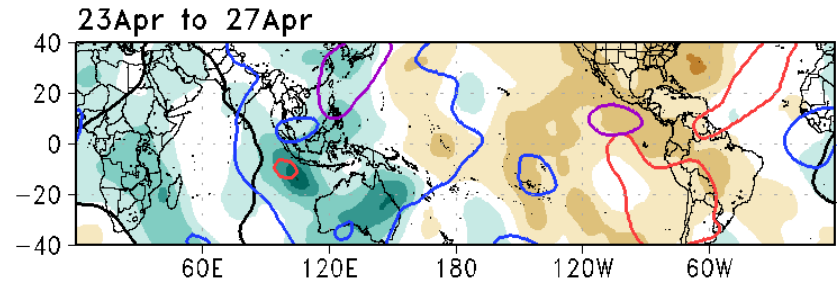
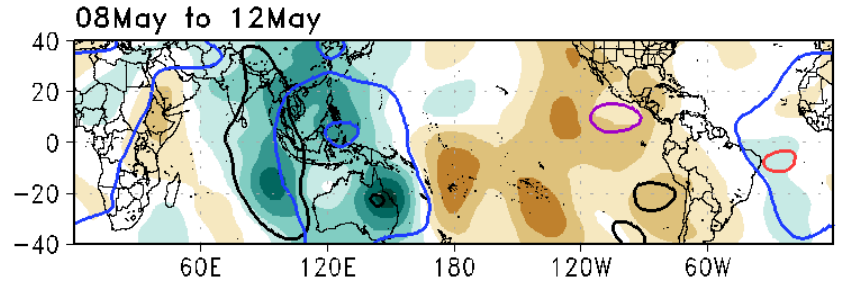
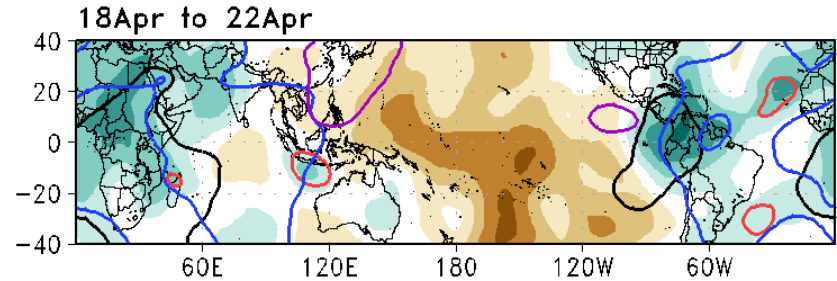
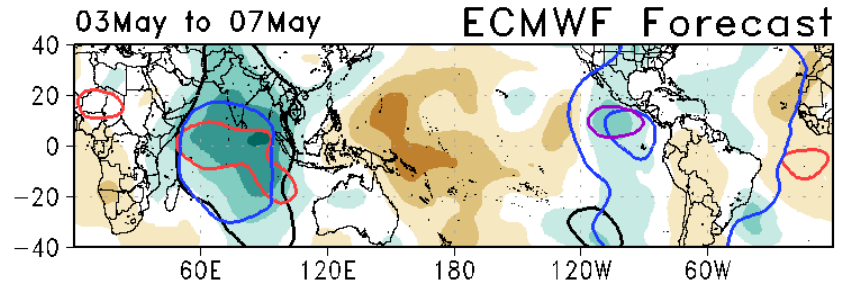
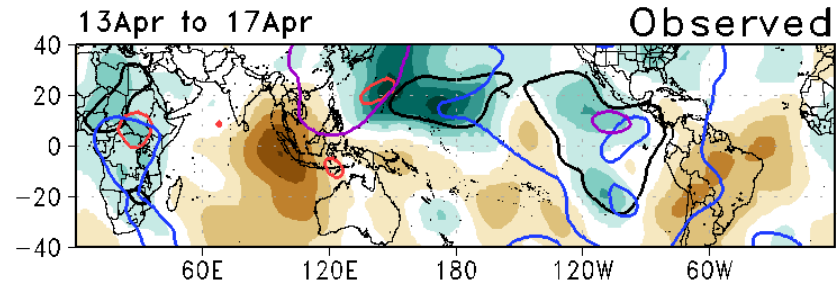
There is generally good agreement among the GEFS, ECWMMF, and JMA ensemble means depicting a westward shift and strengthening signal, followed by fast eastward propagation into the western Pacific by the end of week-2 (JMA ends on day 11).

This behavior is suggestive of Rossby wave activity projecting onto the index, and a subsequent phase speed falling more in-line with a convectively coupled Kelvin wave than a canonical MJO later in the period.

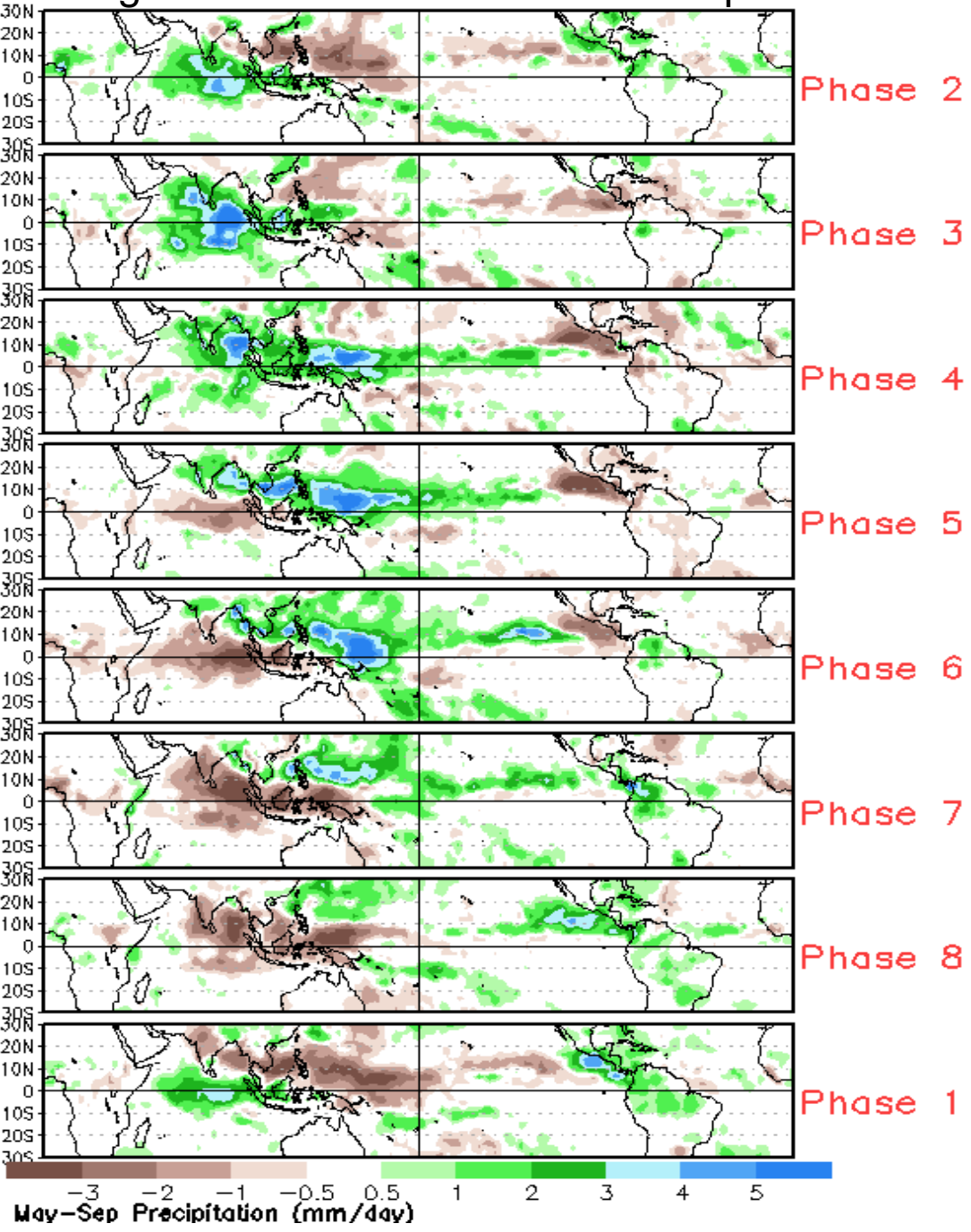


MJO, Rossby Wave and **Kelvin wave** coming through the filtering and resulting in the enhancement of convection across the Indian Ocean in the forecasts.

CHI200 5-Day Means



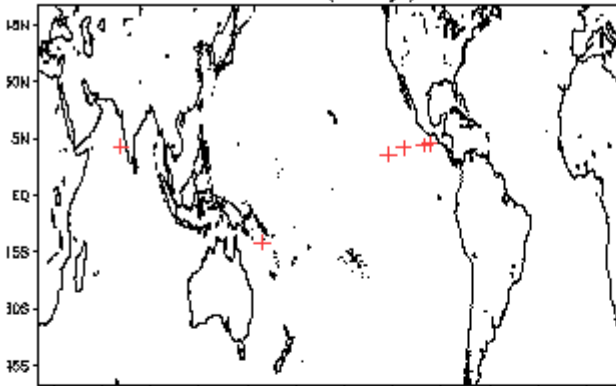
Average Conditions when the MJO is present



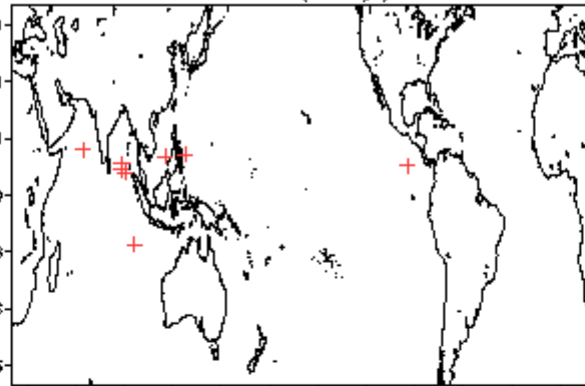
CAVEAT: These panels are representative of robust MJO events.

May Tropical Storm Formation by MJO phase

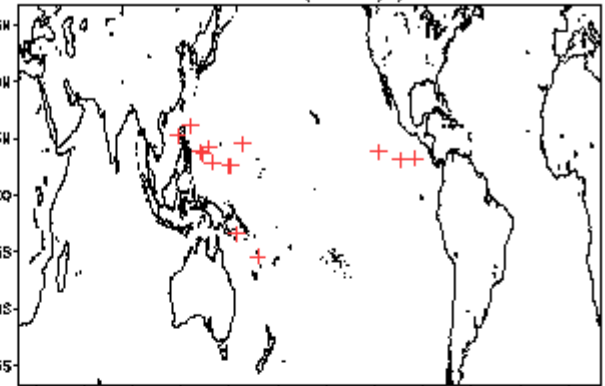
Phase 1 (85 days) 7 storms



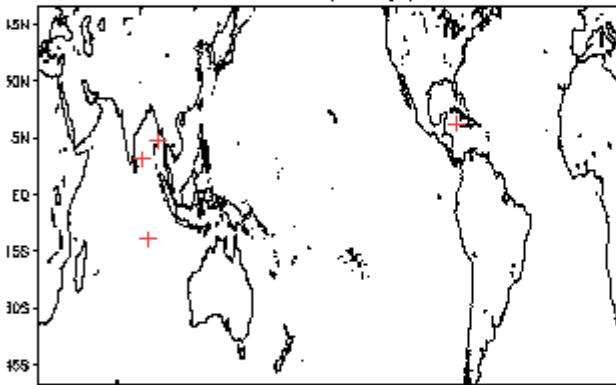
Phase 4 (85 days) 9 storms



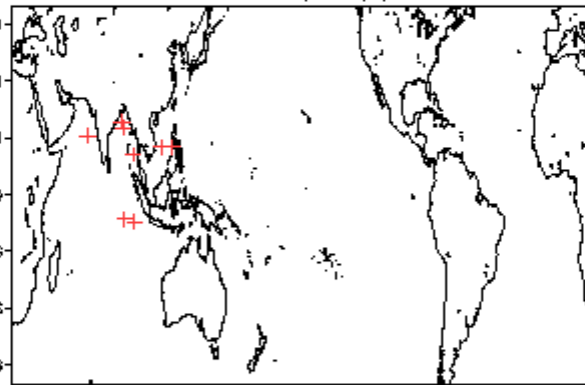
Phase 7 (111 days) 15 storms



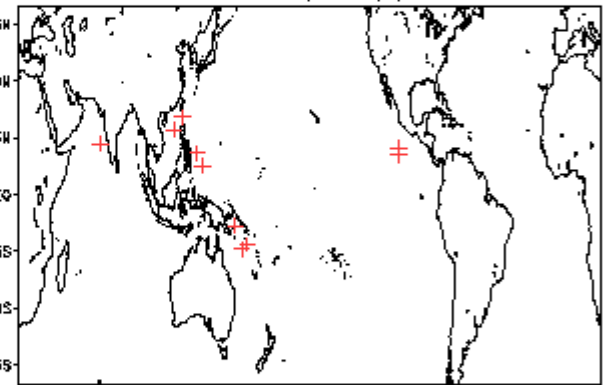
Phase 2 (76 days) 5 storms



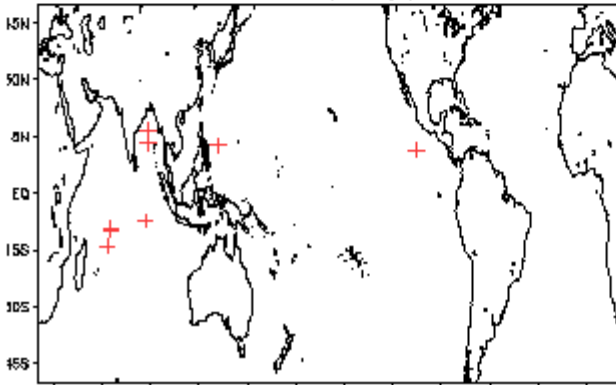
Phase 5 (66 days) 9 storms



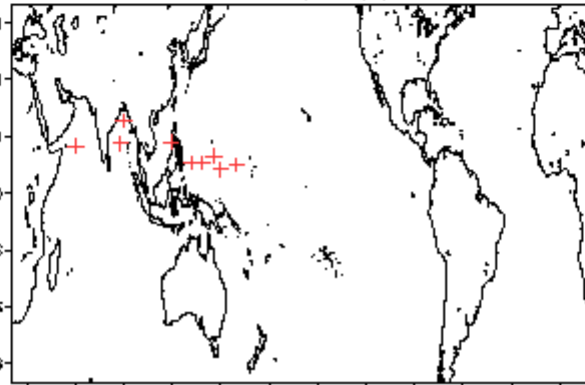
Phase 8 (111 days) 11 storms



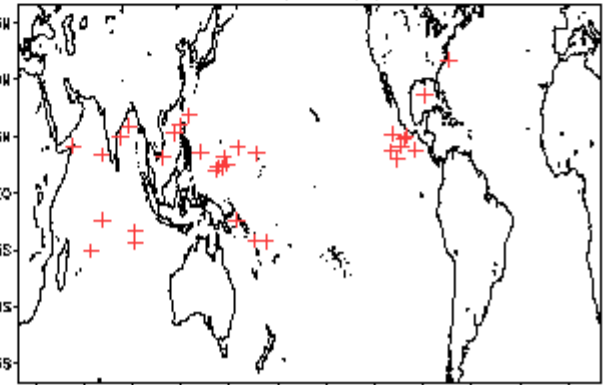
Phase 3 (73 days) 9 storms



Phase 6 (87 days) 10 storms

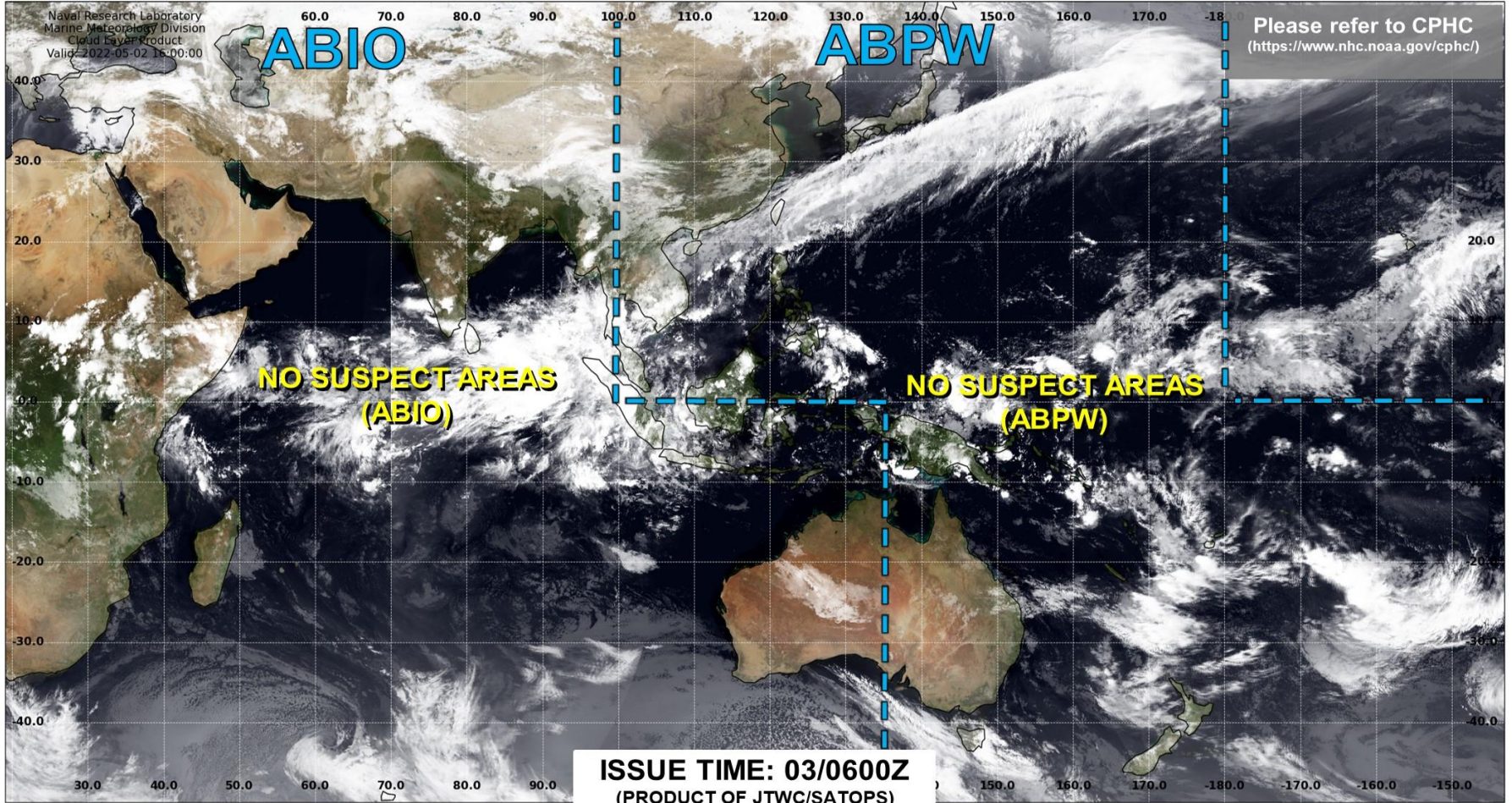


Null (349 days) 33 storms





JOINT TYPHOON WARNING CENTER



TC development unlikely within 24 hours



TC development likely, but expected to occur beyond 24 hours



TC development likely within 24 hours (Reference TCFA)

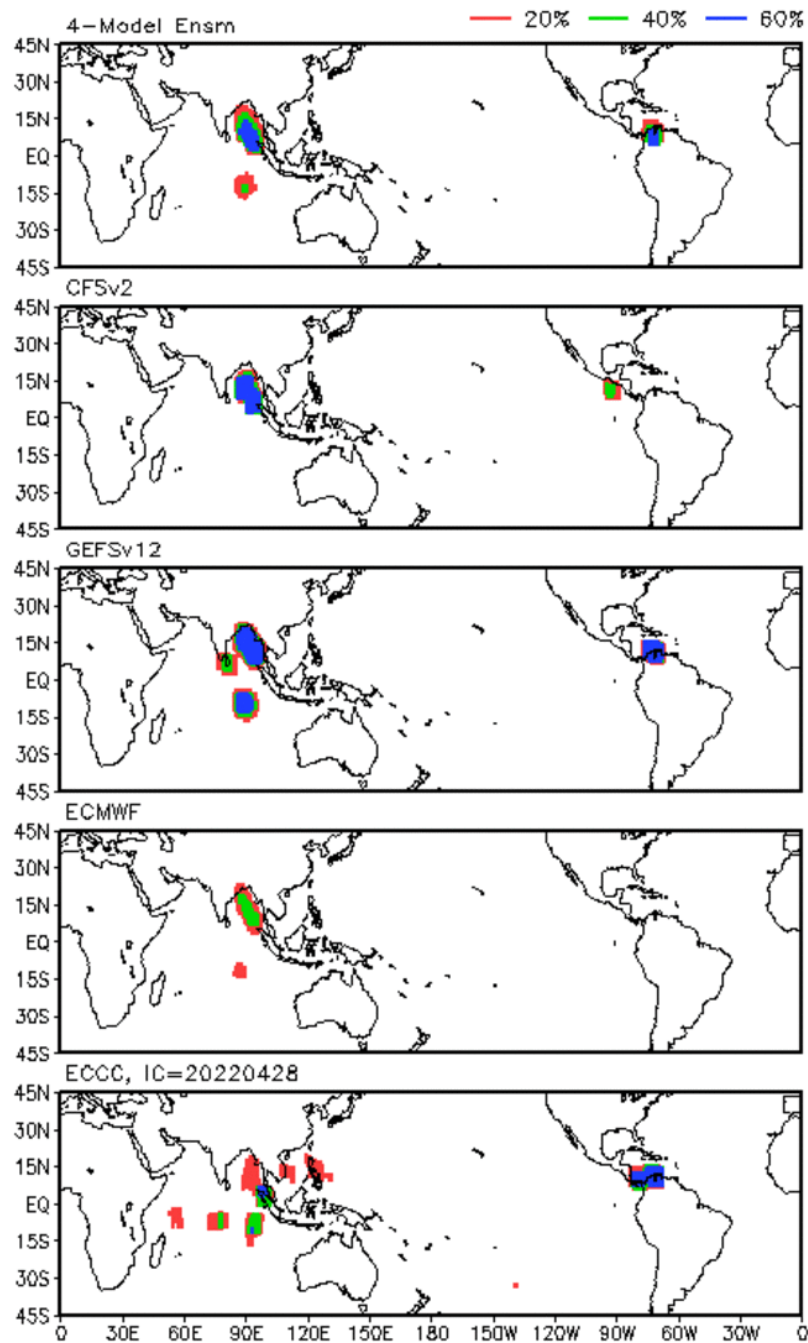


Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

 Tropical Cyclone (Reference Warning)

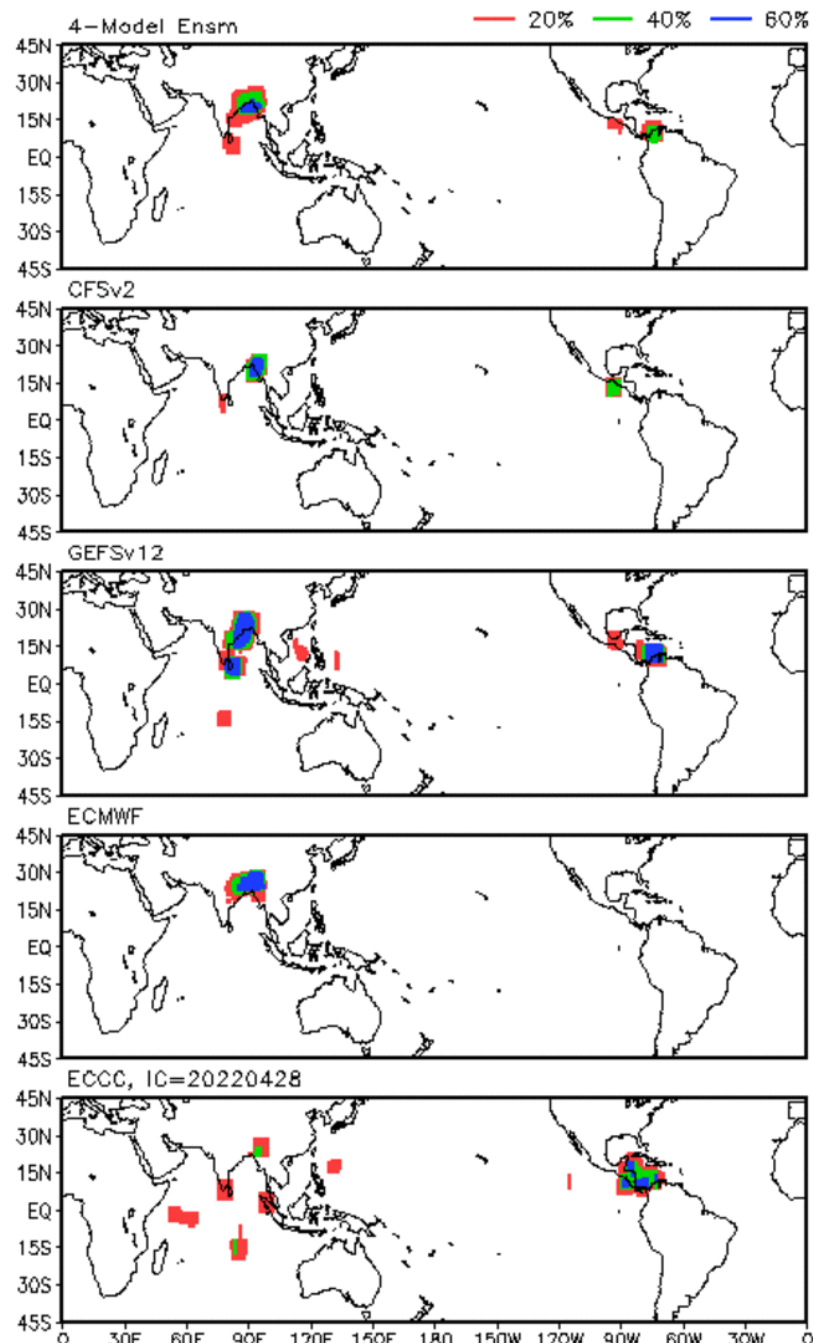
Storm Track Probabilities, IC=20220502

Week 1: 0504 - 0510



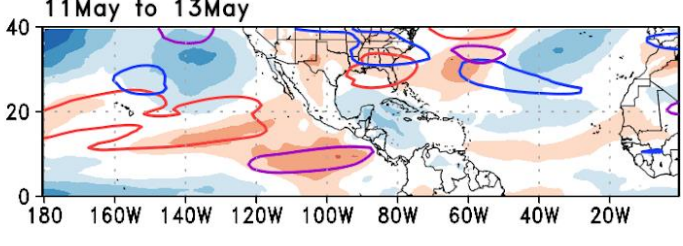
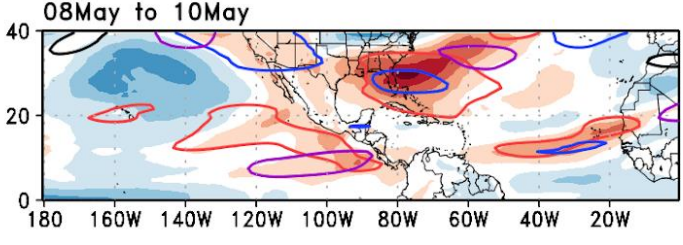
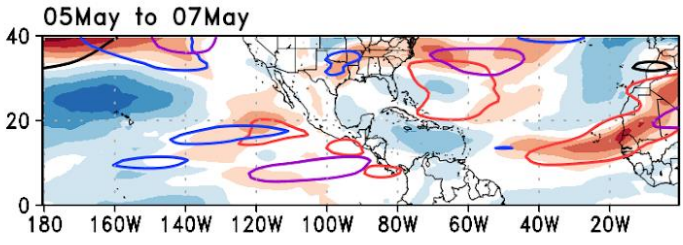
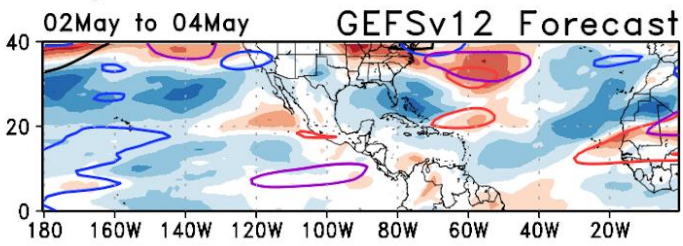
Storm Track Probabilities, IC=20220502

Week 2: 0511 - 0517



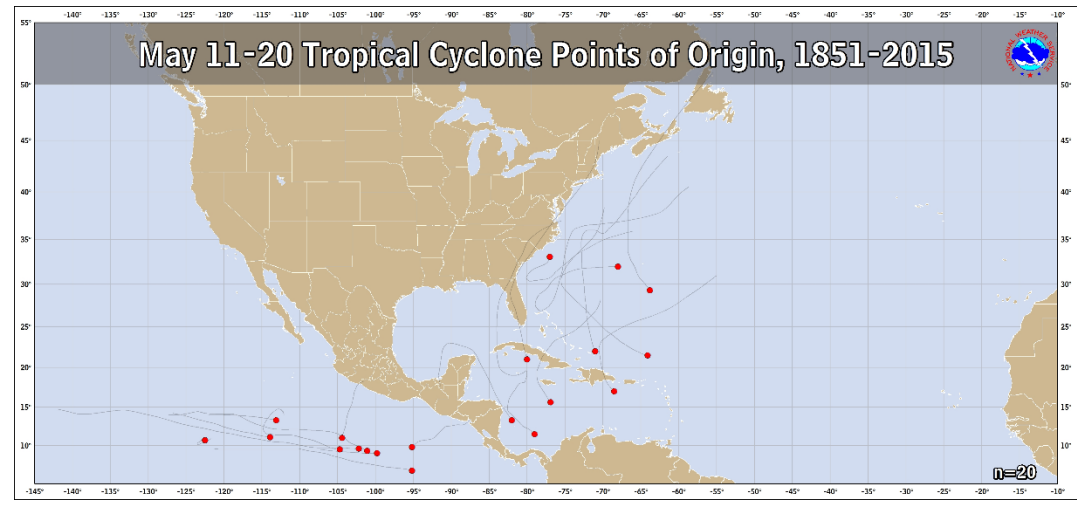
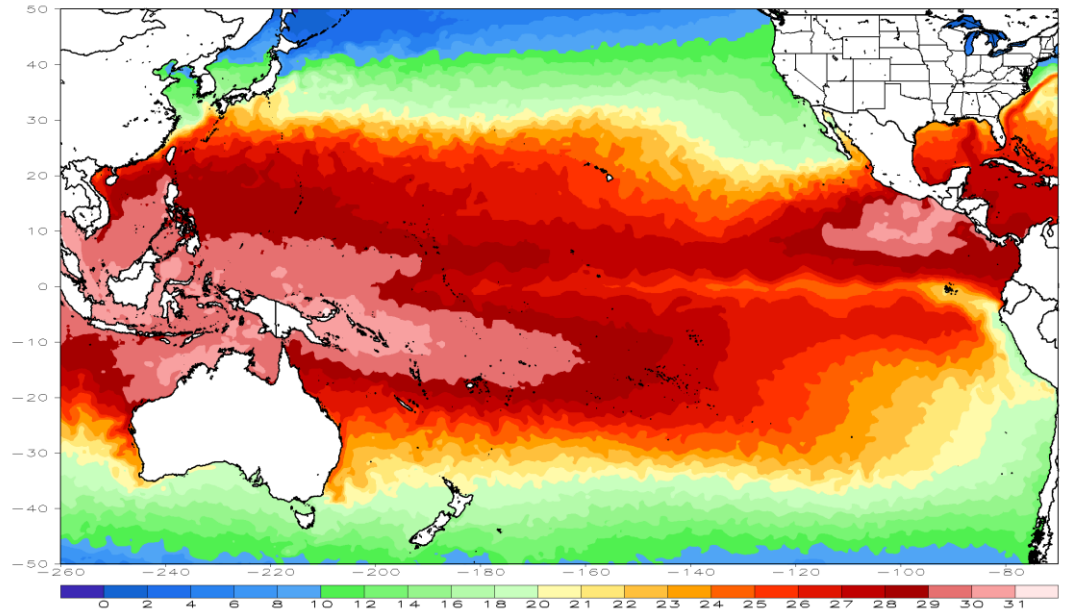
3-Day Means

GEFSv12 Forecast



— MJO — Kelvin*2
 — Low — ER
 Contours at 2, 6 m s⁻¹

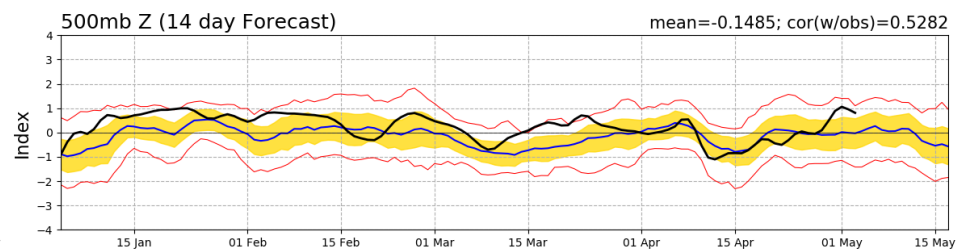
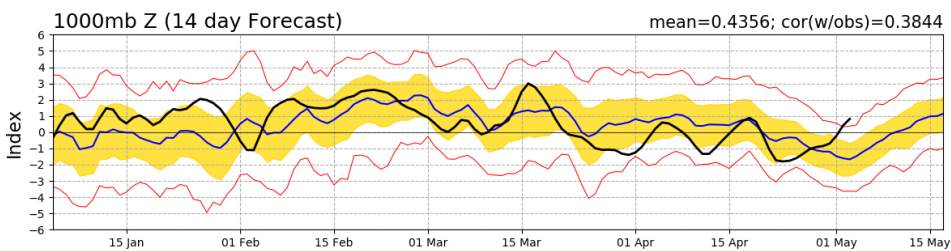
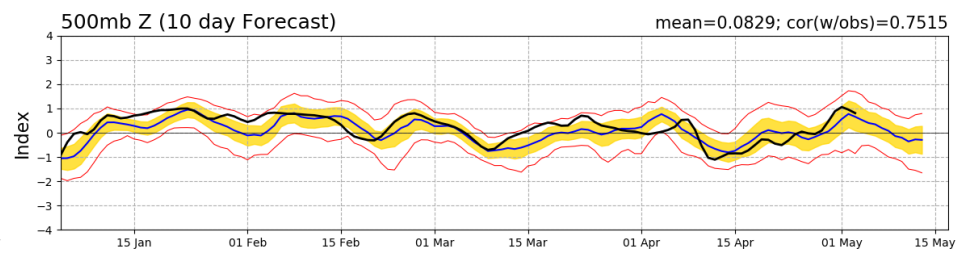
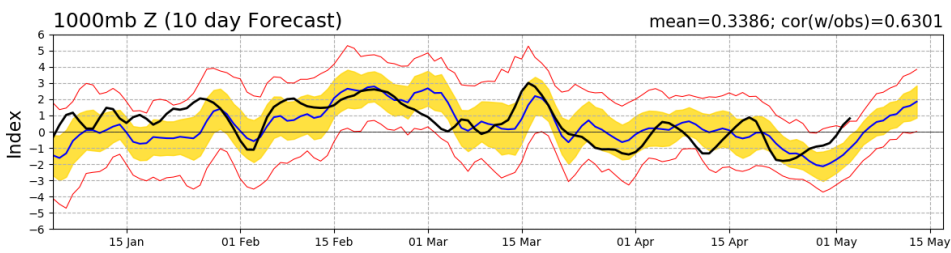
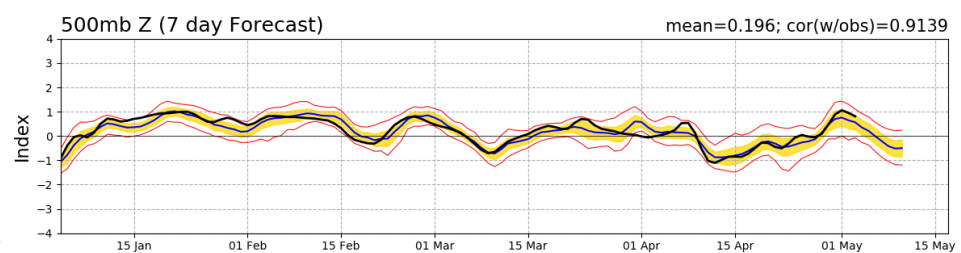
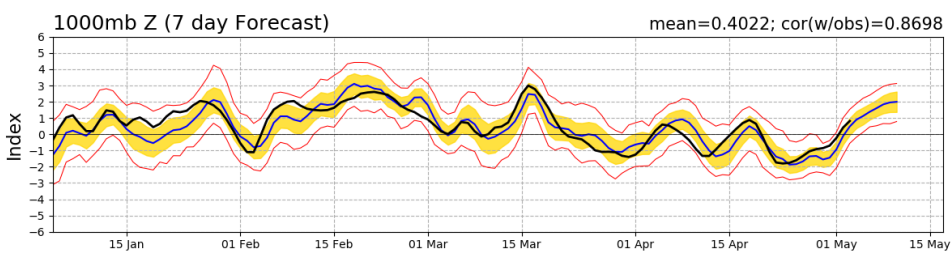
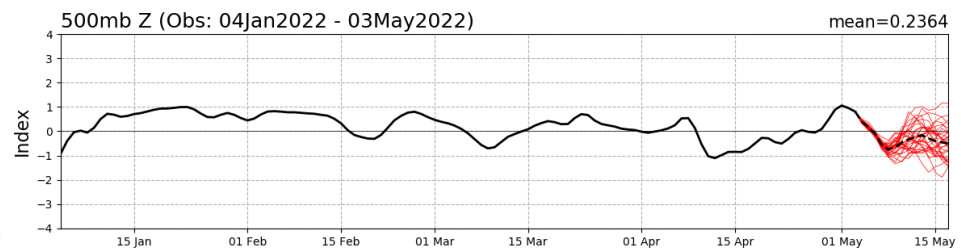
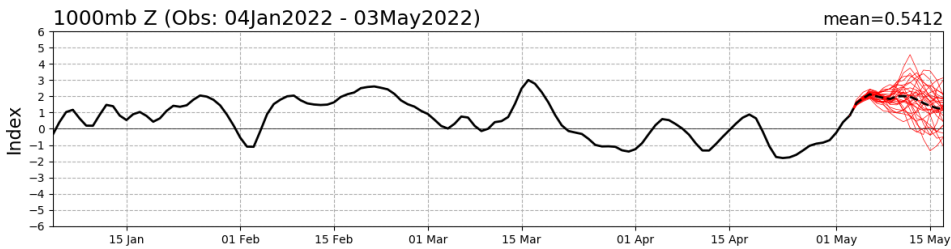
OI SST (v2) 7-Day Average (C)
 Period: 25Apr2022 - 01May2022

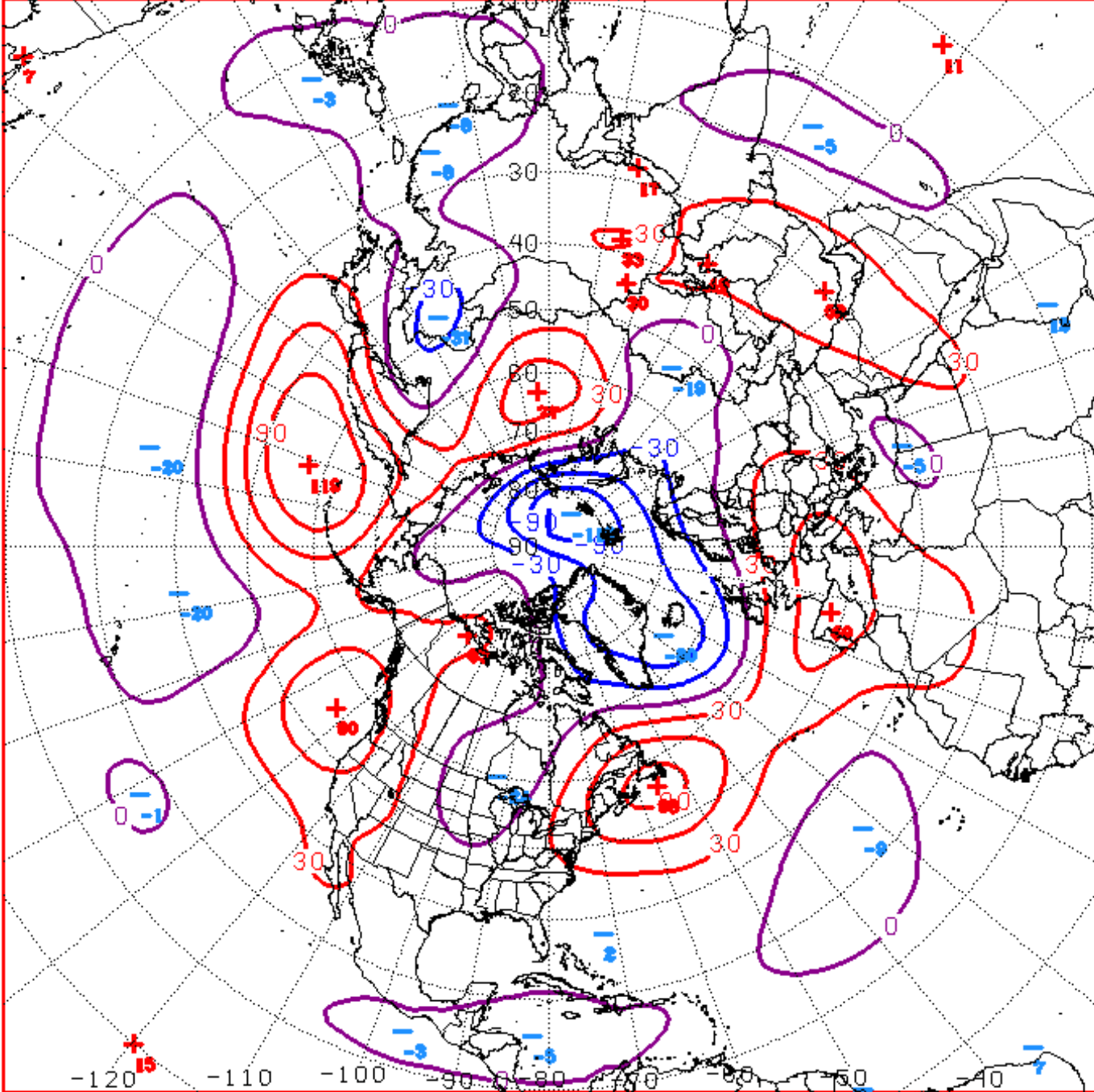


Connections to U.S. Impacts

AO Index: Observed & GEFS Forecasts

PNA Index: Observed & GEFS Forecasts





D+11 500 MB ANOMALIES FROM ALZ ENSM
 CPC MAP MADE MAY 03 2022 1352 UTC CNTD MAY 14 2022

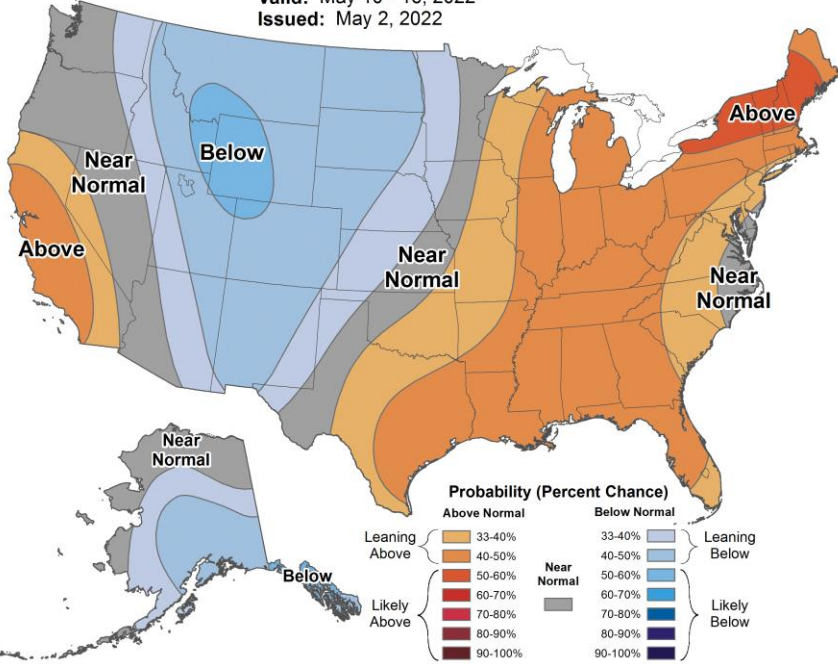
Week 2 – Temperature and Precipitation



8-14 Day Temperature Outlook



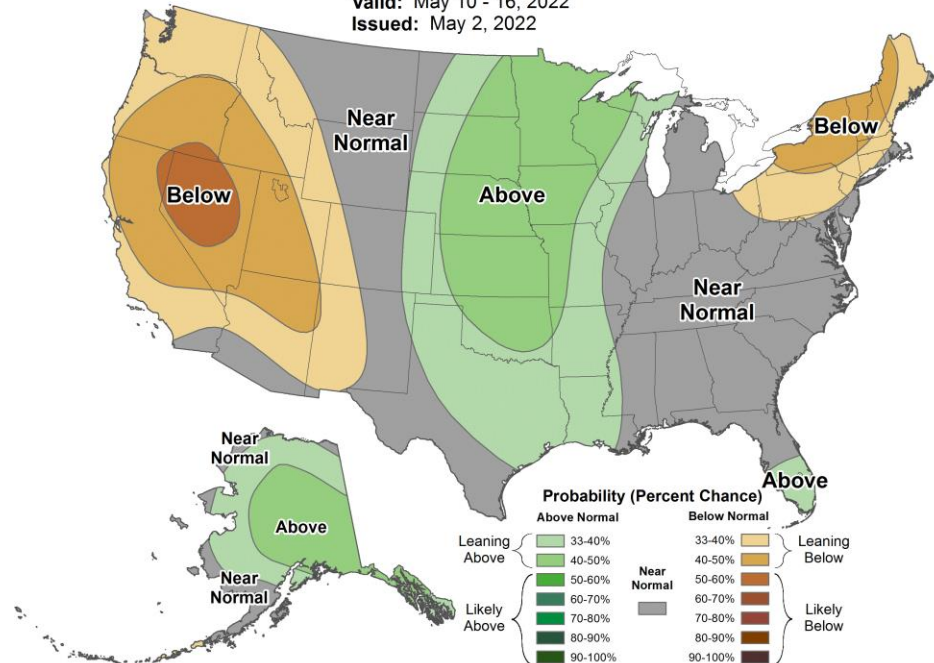
Valid: May 10 - 16, 2022
 Issued: May 2, 2022



8-14 Day Precipitation Outlook



Valid: May 10 - 16, 2022
 Issued: May 2, 2022

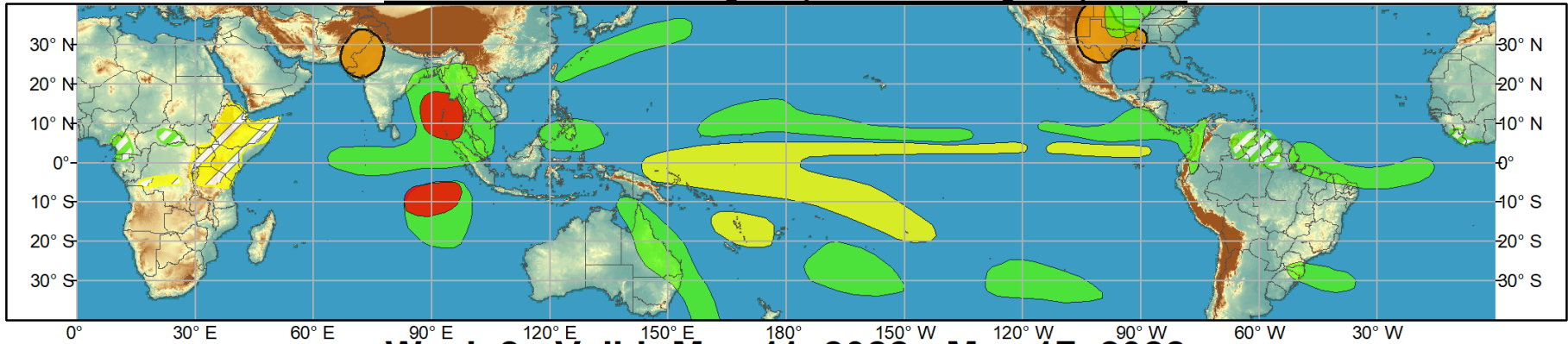




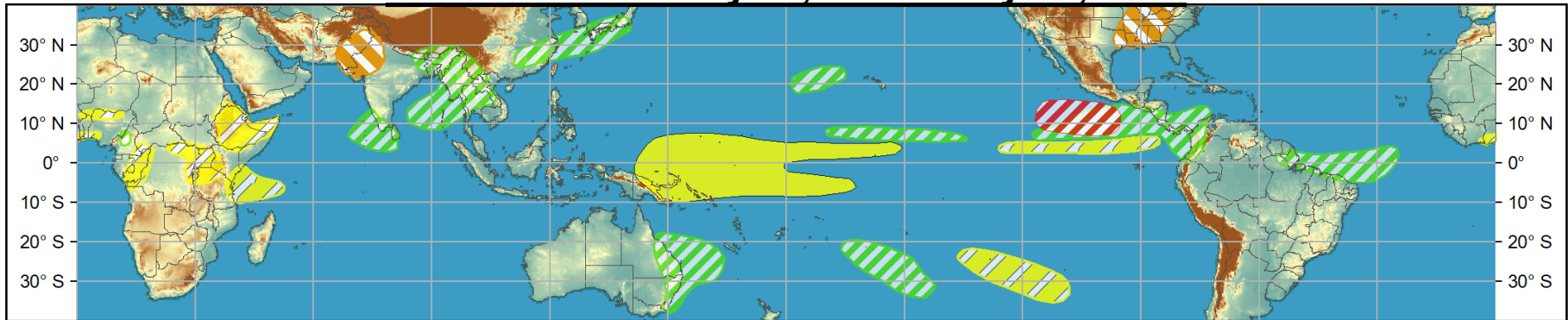
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Week 2 - Valid: May 11, 2022 - May 17, 2022



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.

Below-normal temperatures



7-day mean temperatures in the lower third of the historical range.

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