

Global Tropics Hazards And Benefits Outlook

3/15/2022

Nick Novella

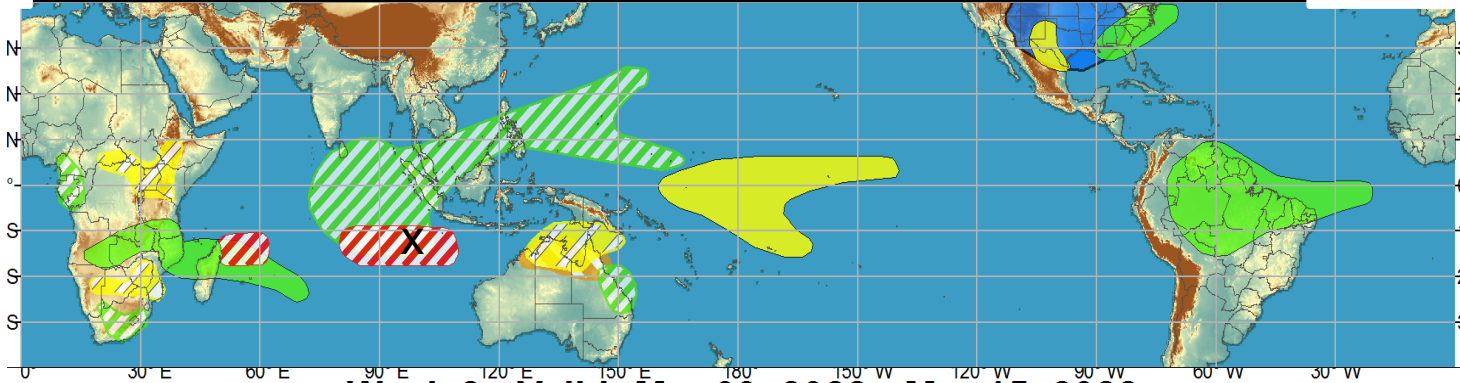
Outline

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

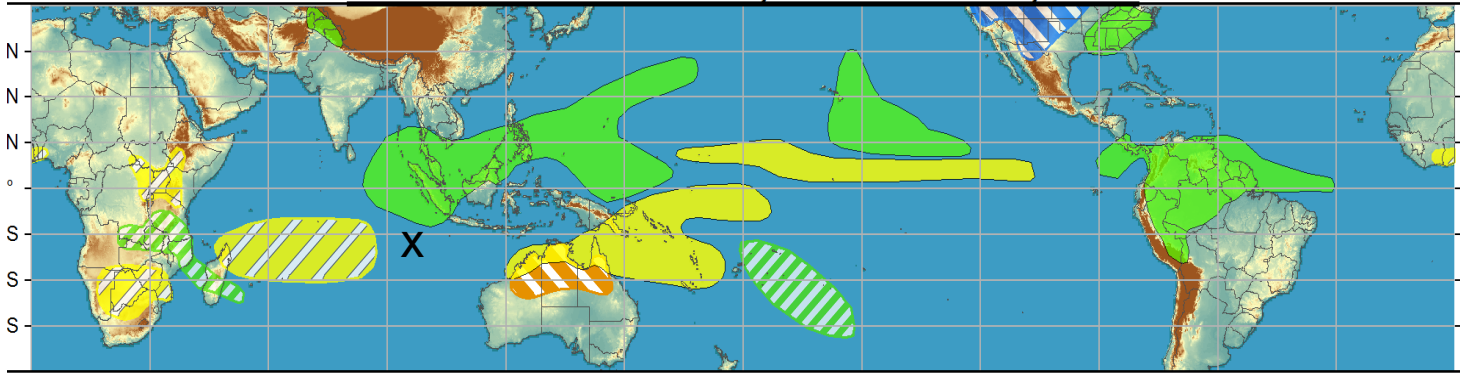
Outlook Review

X= Tropical Cyclone
Billy (3/13)

Week 1 - Valid: Mar 09, 2022 - Mar 15, 2022

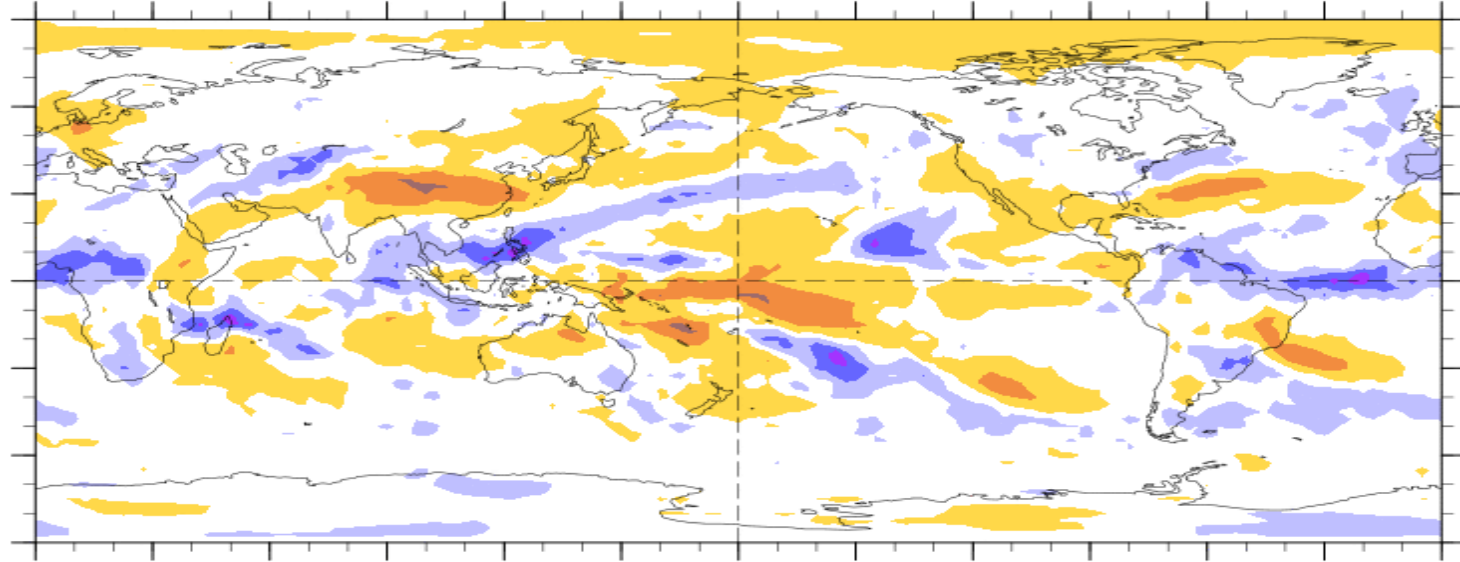


Week 2 - Valid: Mar 09, 2022 - Mar 15, 2022



7-Day Average OLR Anomaly

2022/03/07 - 2022/03/13



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (March 10, 2022 Update)

next update on Thursday, April 14th

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña is favored to continue into the Northern Hemisphere Summer (53% chance during June-August 2022), with a 40-50% chance of La Niña or ENSO-neutral thereafter

MJO and other subseasonal tropical variability:

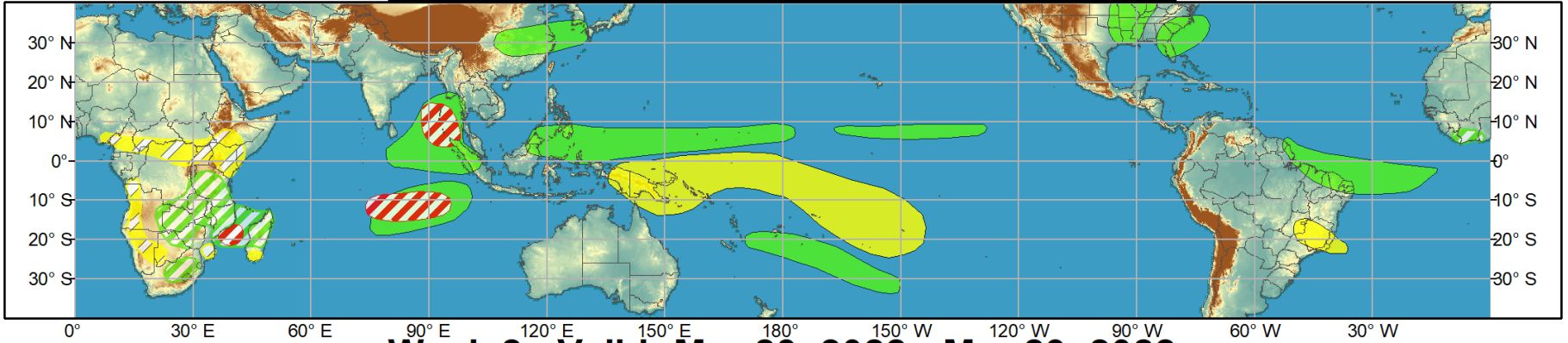
- The MJO has strengthened with the enhanced phase entering the Indian Ocean during the last week.
- There is good model agreement among the dynamical models for the continued eastward propagation of the MJO across the Indian Ocean (week-1) and into the Maritime Continent (week-2), with several ensemble members suggesting the possible development of a high amplitude event.
- The enhanced phase of the MJO, as well as predicted Rossby and Kelvin Wave activity, is expected to contribute to TC formation mainly over the Indian Ocean during the next two weeks
- Potential extratropical impacts include increased chances for above-normal temperatures across eastern North America later in March.



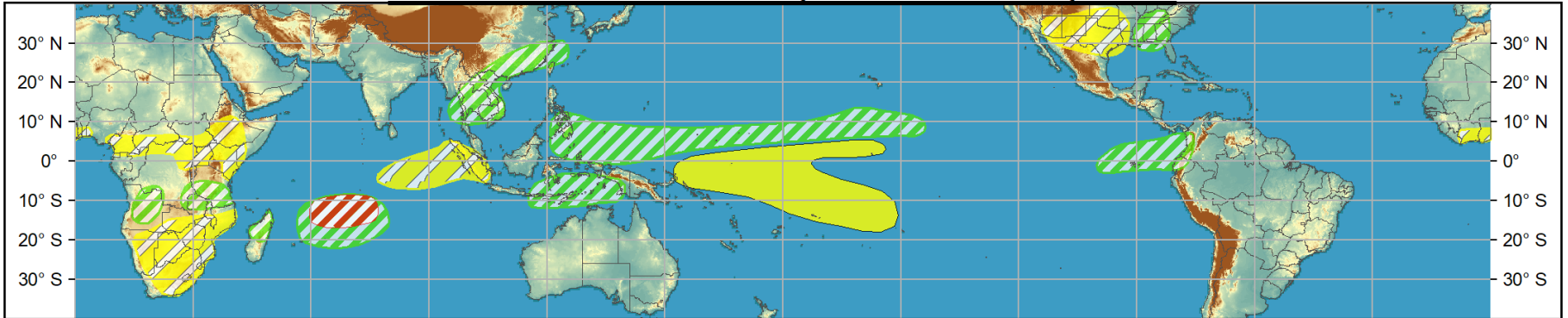
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Week 1 - Valid: Mar 16, 2022 - Mar 22, 2022

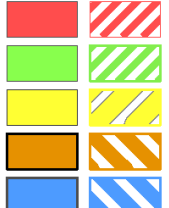


Week 2 - Valid: Mar 23, 2022 - Mar 29, 2022



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

Produced: 03/15/2022
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

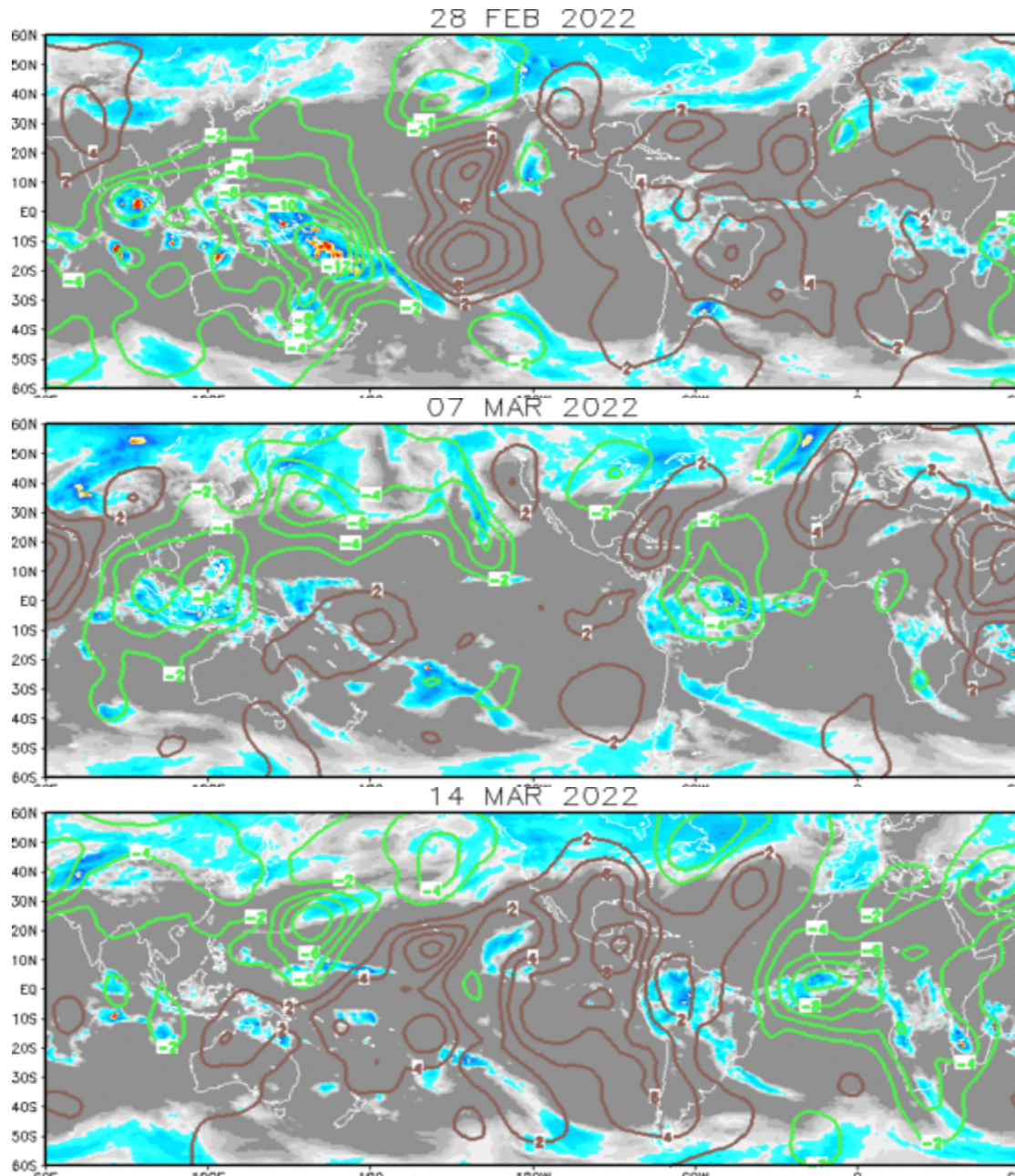
Green: Enhanced Divergence

Brown: Enhanced Convergence

After stalling over phase 3, eastward propagation of MJO the became more apparent by the end of February.

MJO become incoherent due to destructive interference with La Nina. Kelvin wave apparent over northern South America.

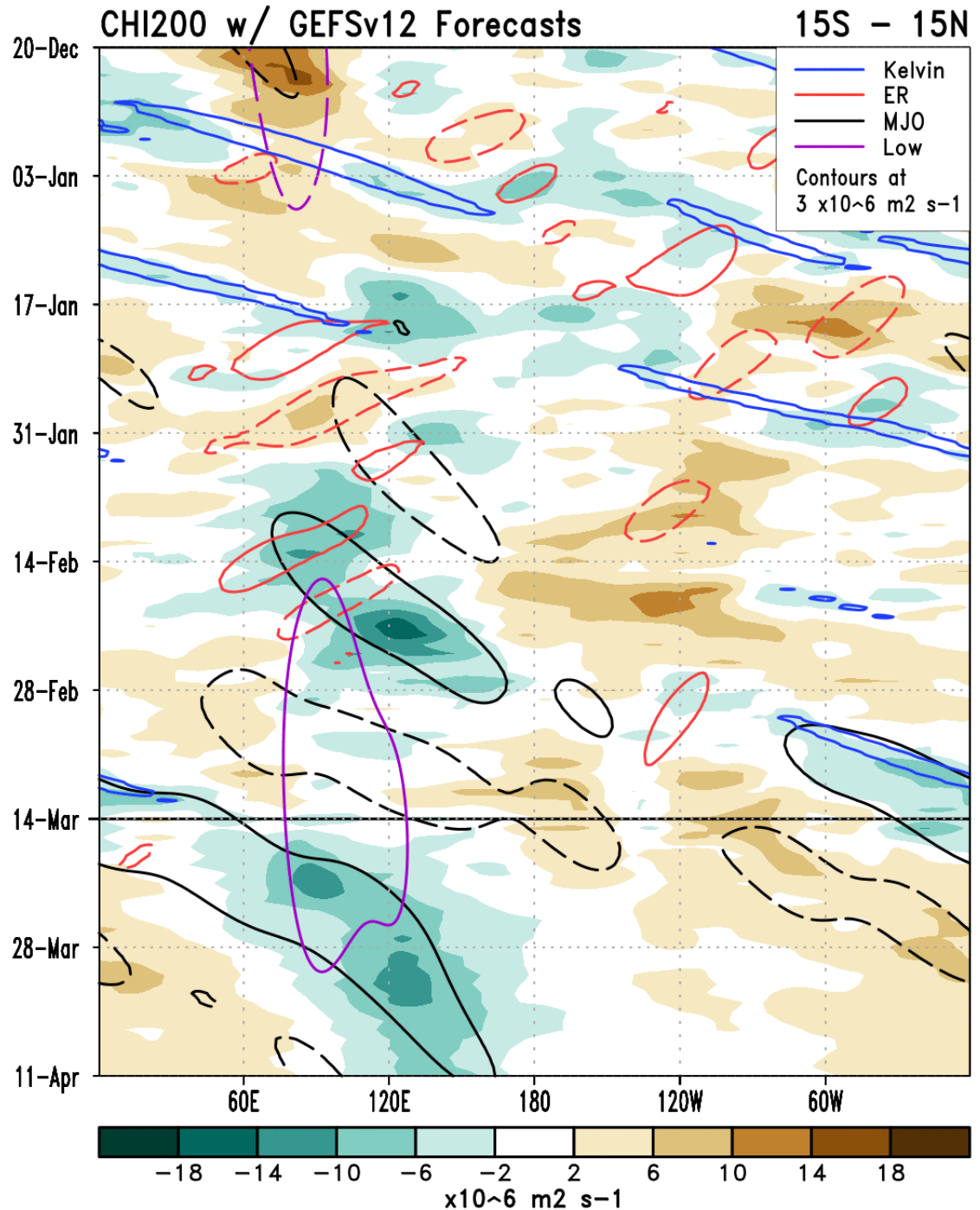
As the Kelvin wave shifted eastward over Africa, its phasing helped renew the MJO, leading to a more coherent upper-level pattern. Rossby wave is seen developing over western Pacific.



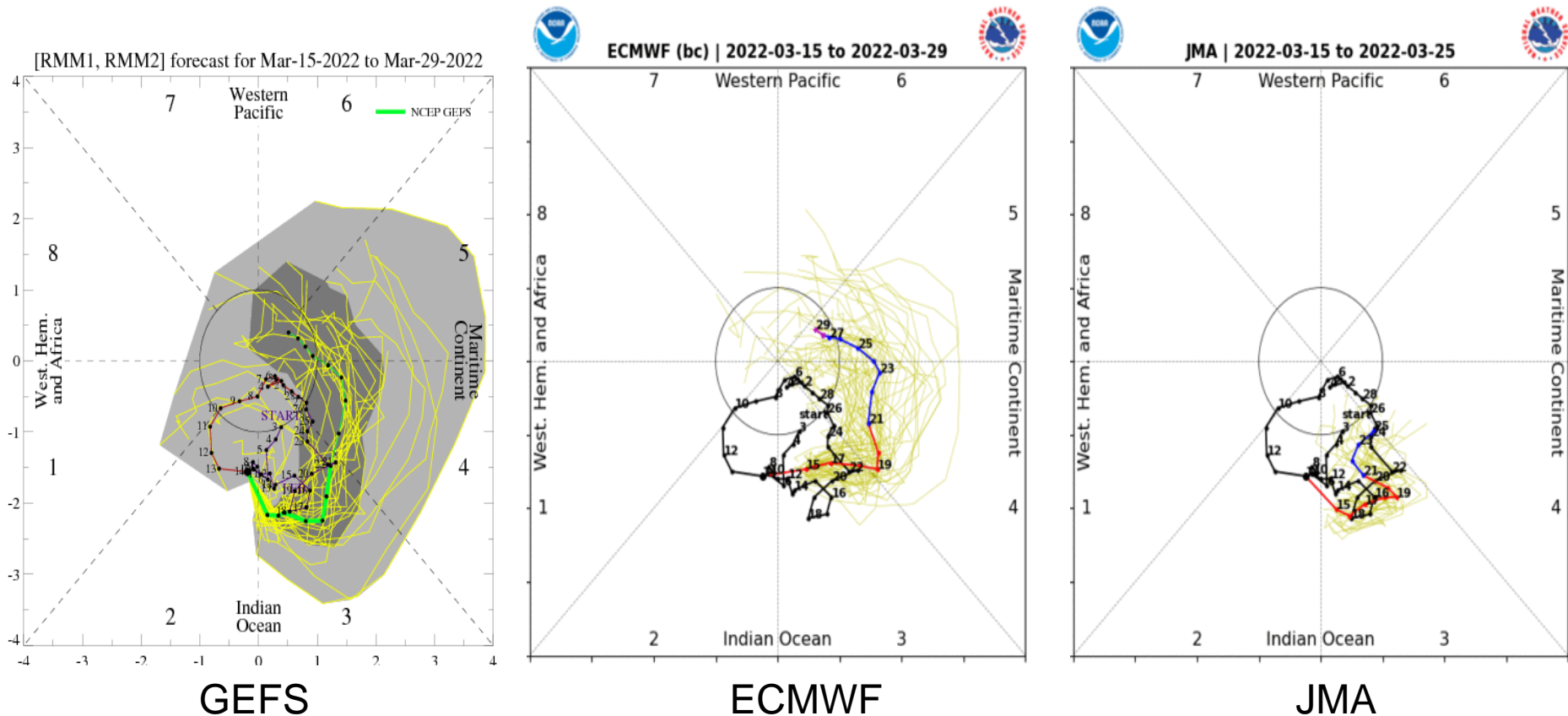
MJO activity is coming through the filtering over the Indian Ocean, similar to the previous event during mid-February.

A convectively coupled **Kelvin wave** is seen crossing the Prime Meridian in the obs field.

Low frequency contours depict low frequency variability, where the MJO looks to constructively interfere with La Nina.



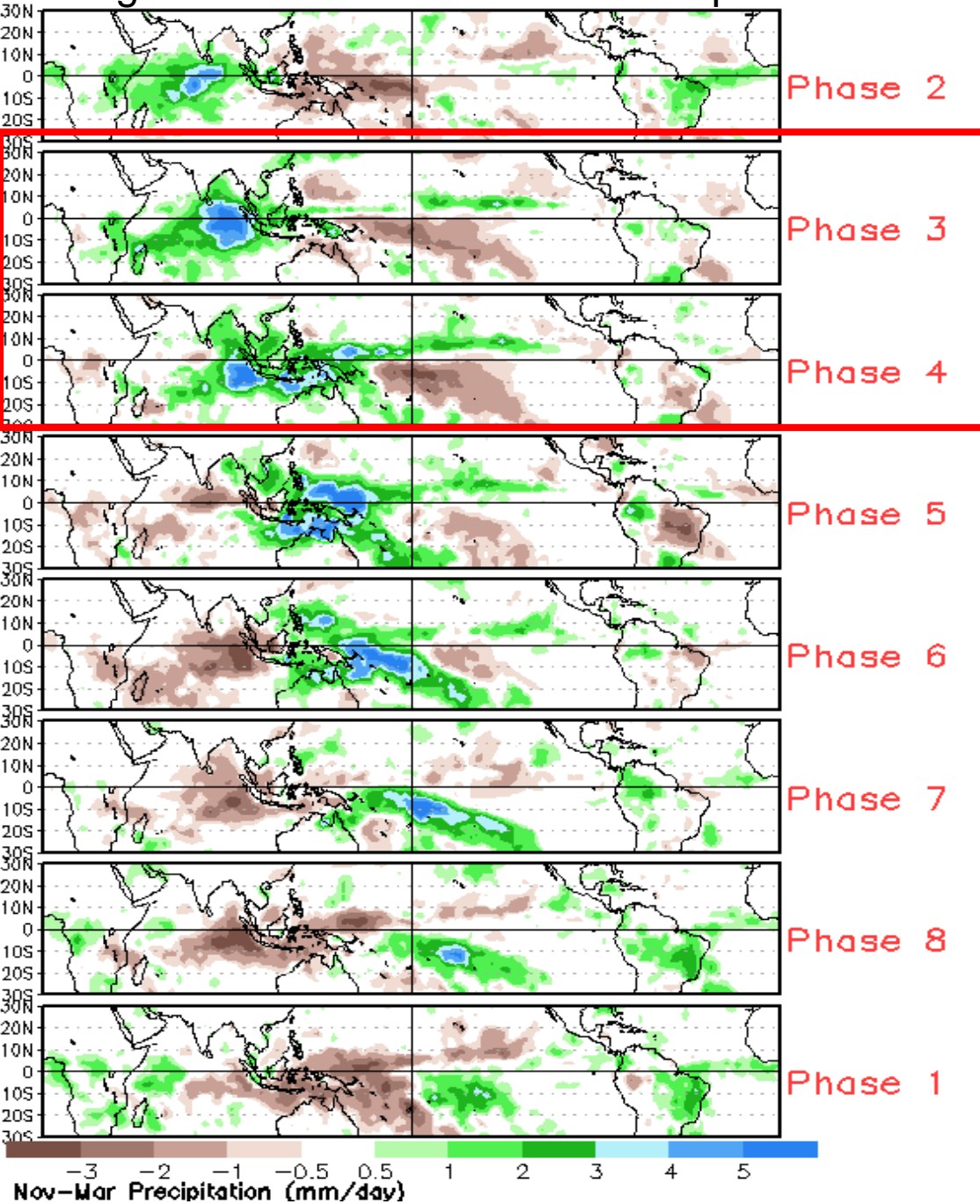
MJO Observation/Forecast



Following an increase in amplitude in phase 2 during the last week, models favor continued eastward propagation of the MJO across the Indian Ocean (Maritime Continent) during week-1 (week-2). Of note, several members of the GEFS and ECMWF showing a potentially high amplitude event.

ECWFM is more on the fast end relative to other models, but phase speed appears to fall more in-line with MJO than Kelvin wave activity in RMM space .

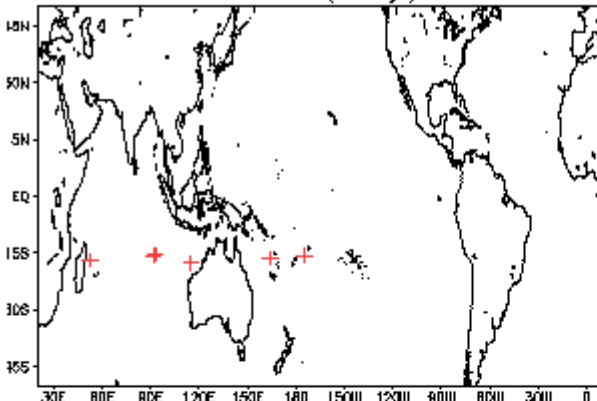
Average Conditions when the MJO is present



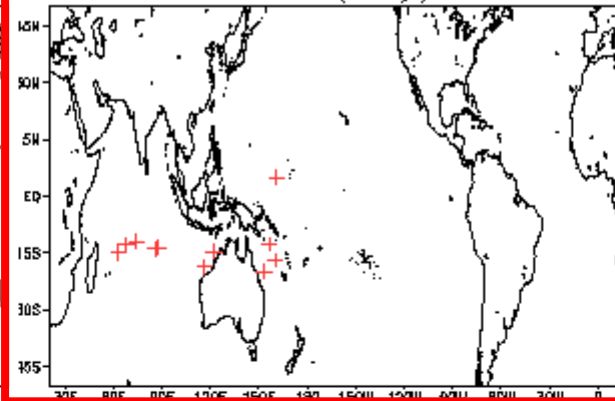
CAVEAT: These panels are representative of robust MJO events.

March Tropical Storm Formation by MJO phase

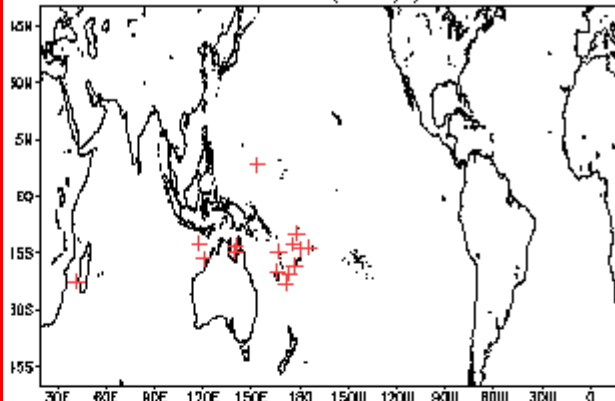
Phase 1 (98 days) 7 storms



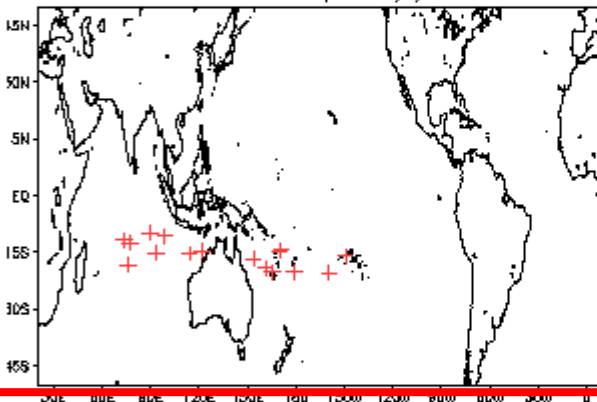
Phase 4 (72 days) 12 storms



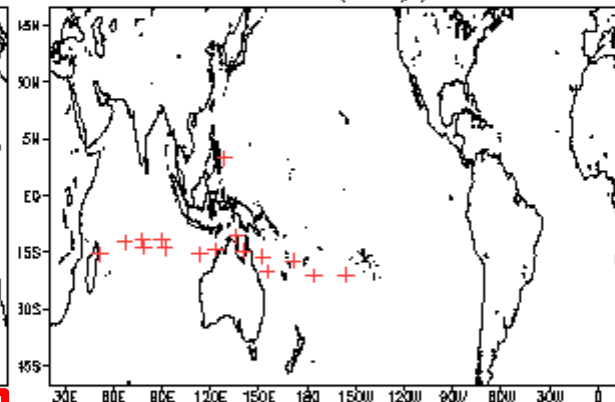
Phase 7 (81 days) 16 storms



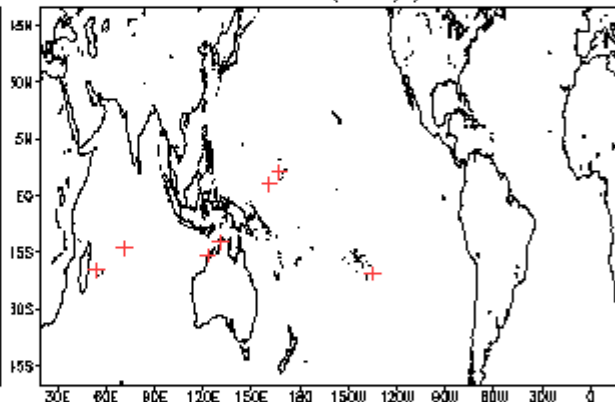
Phase 2 (111 days) 17 storms



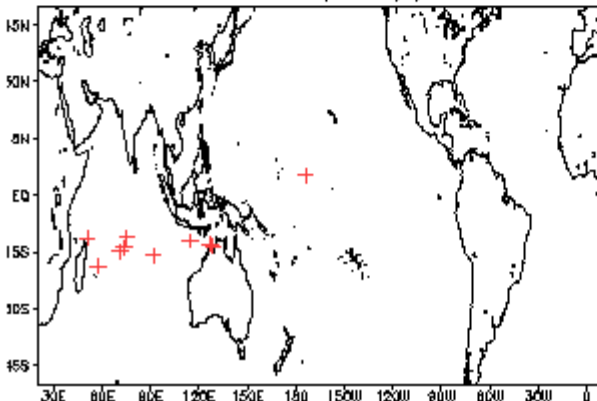
Phase 5 (77 days) 17 storms



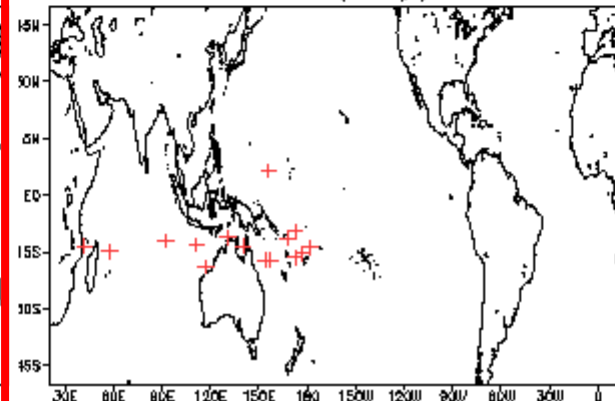
Phase 8 (92 days) 8 storms



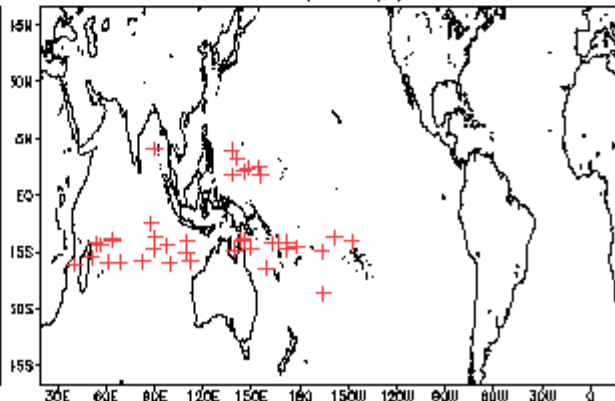
Phase 3 (108 days) 11 storms



Phase 6 (78 days) 16 storms

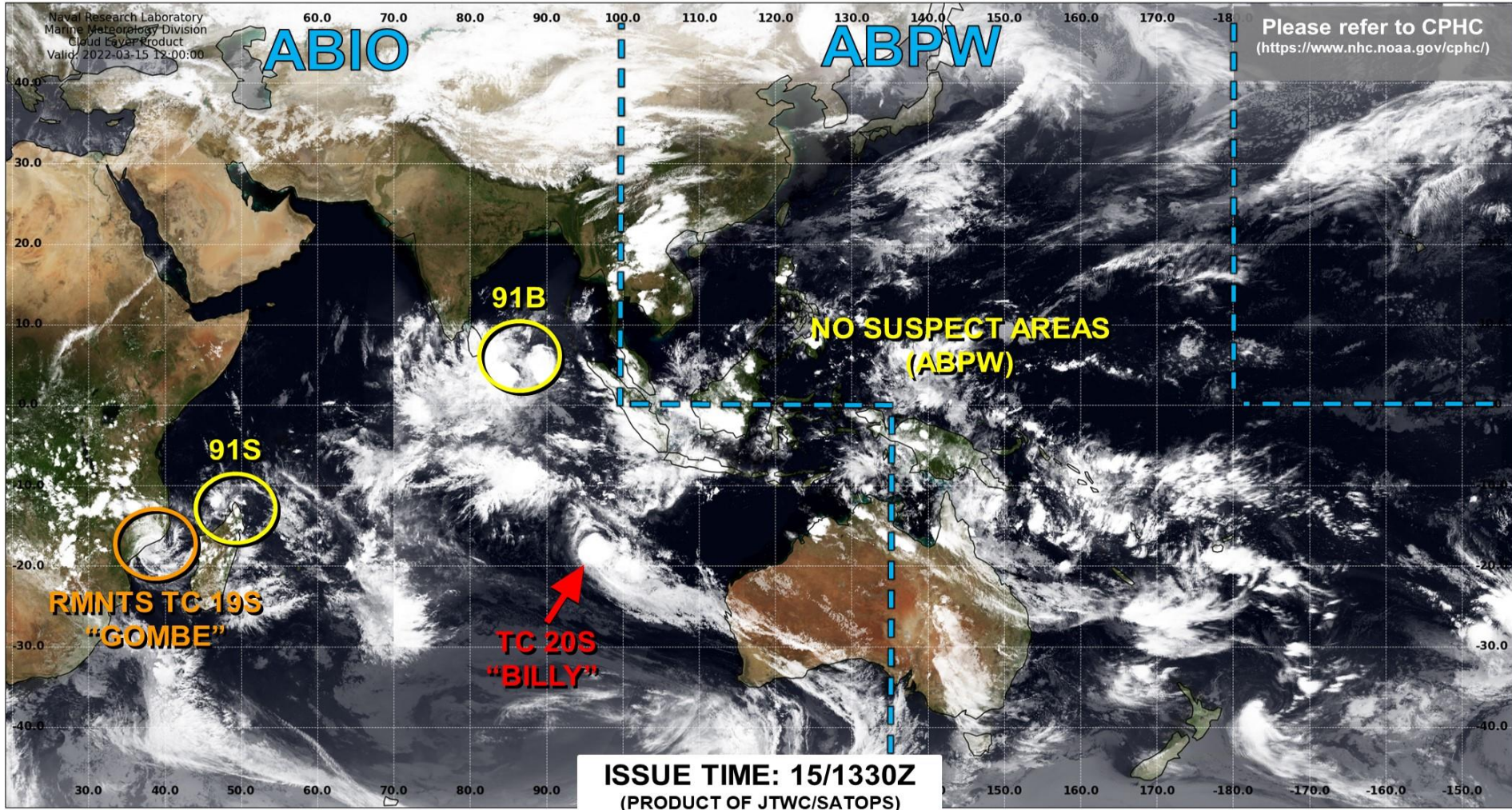


Null (322 days) 40 storms





JOINT TYPHOON WARNING CENTER



LOW

TC development unlikely within 24 hours

MEDIUM

TC development likely, but expected to occur beyond 24 hours

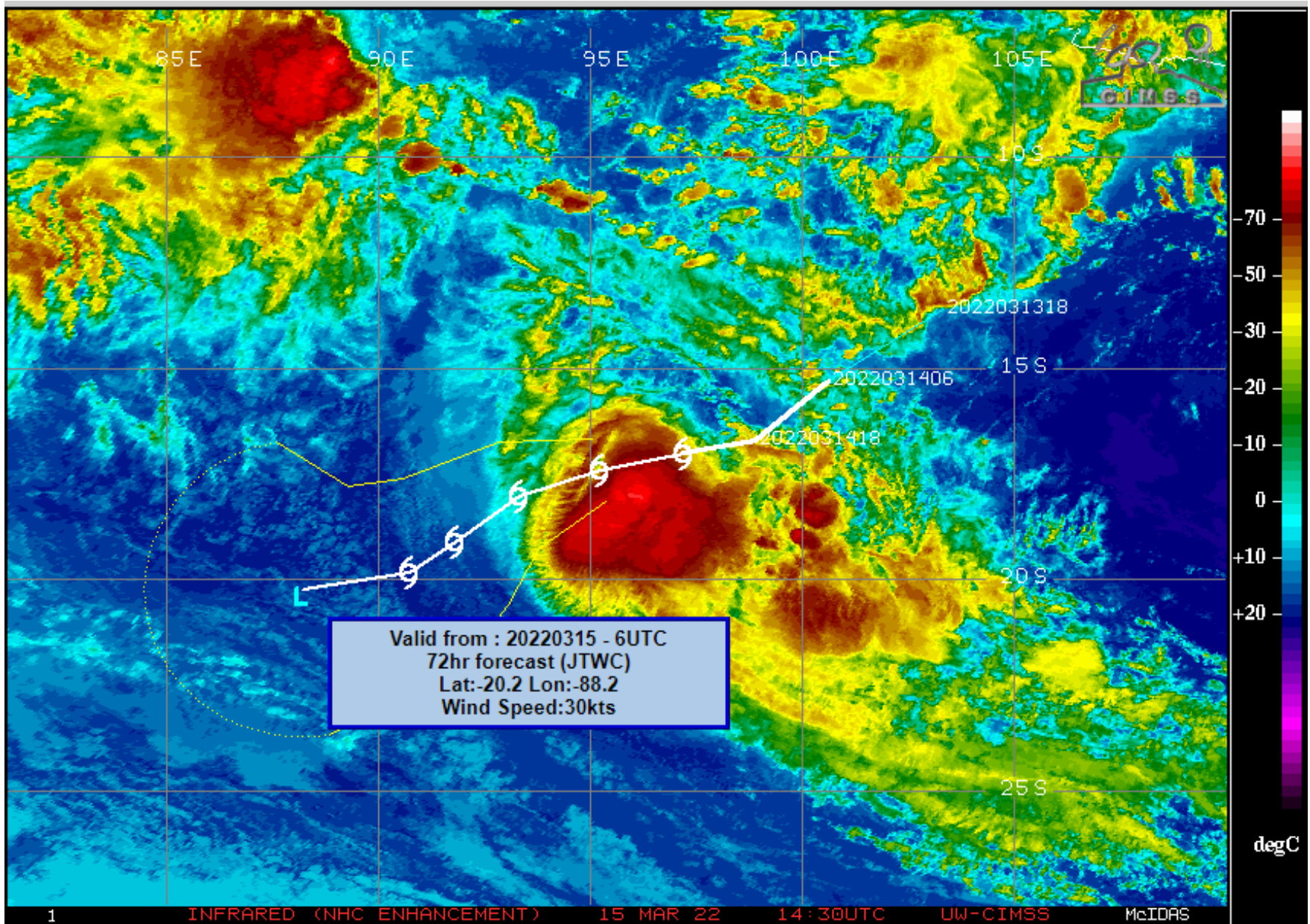
HIGH

TC development likely within 24 hours (Reference TCFA)

SUB TROPICAL

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

Tropical Cyclone (Reference Warning)



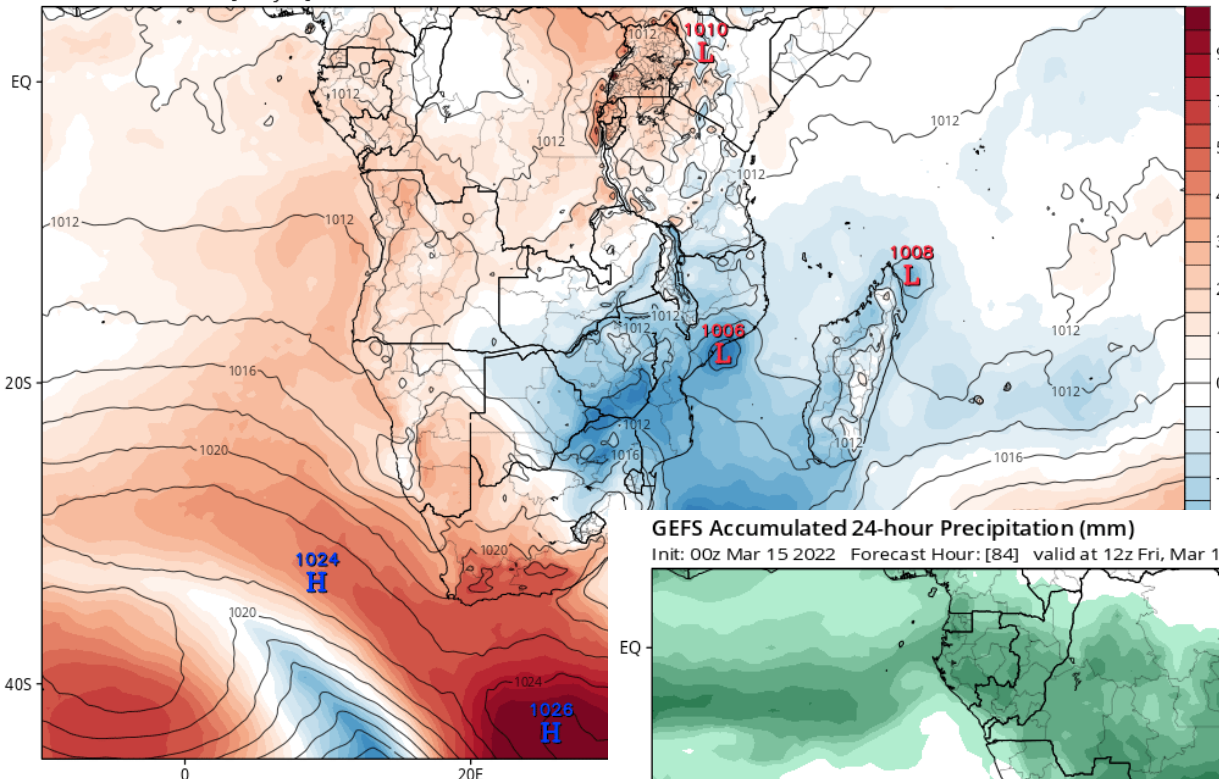
1	INFRARED (NHC ENHANCEMENT)	15 MAR 22	14:30UTC	UW-CIMSS	McIDAS
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	LN/Name		- Invest Area
	Tropical Depr		- Tropical Depression
	Tropical Strm		- Tropical Storm
	Category 1		- Hurricane/Typhoon
	Category 2		
	Category 3		
	Category 4		
	Category 5		

ECMWF MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

Init: 06z Mar 15 2022 [Analysis] valid at 06z Tue, Mar 15 2022

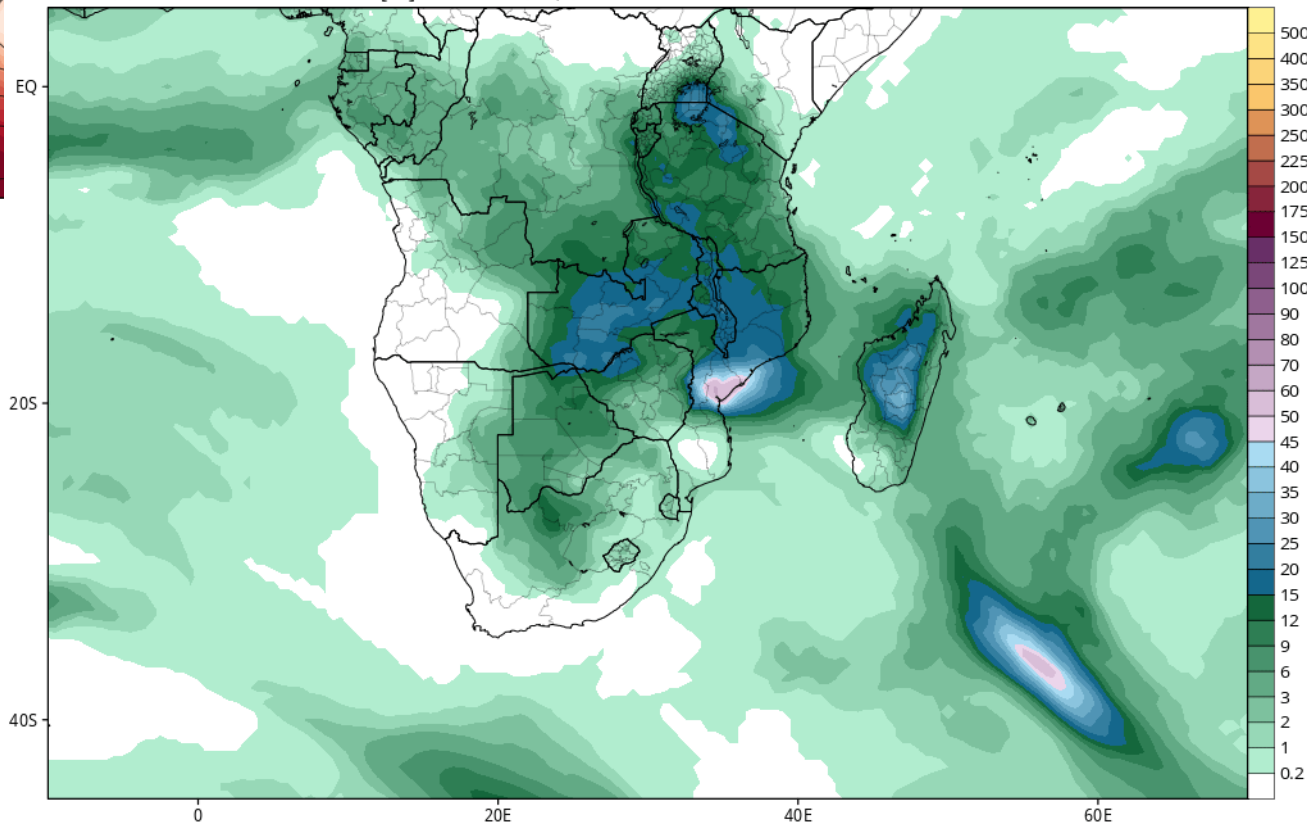
TROPICALTIDBITS.COM



GEFS Accumulated 24-hour Precipitation (mm)

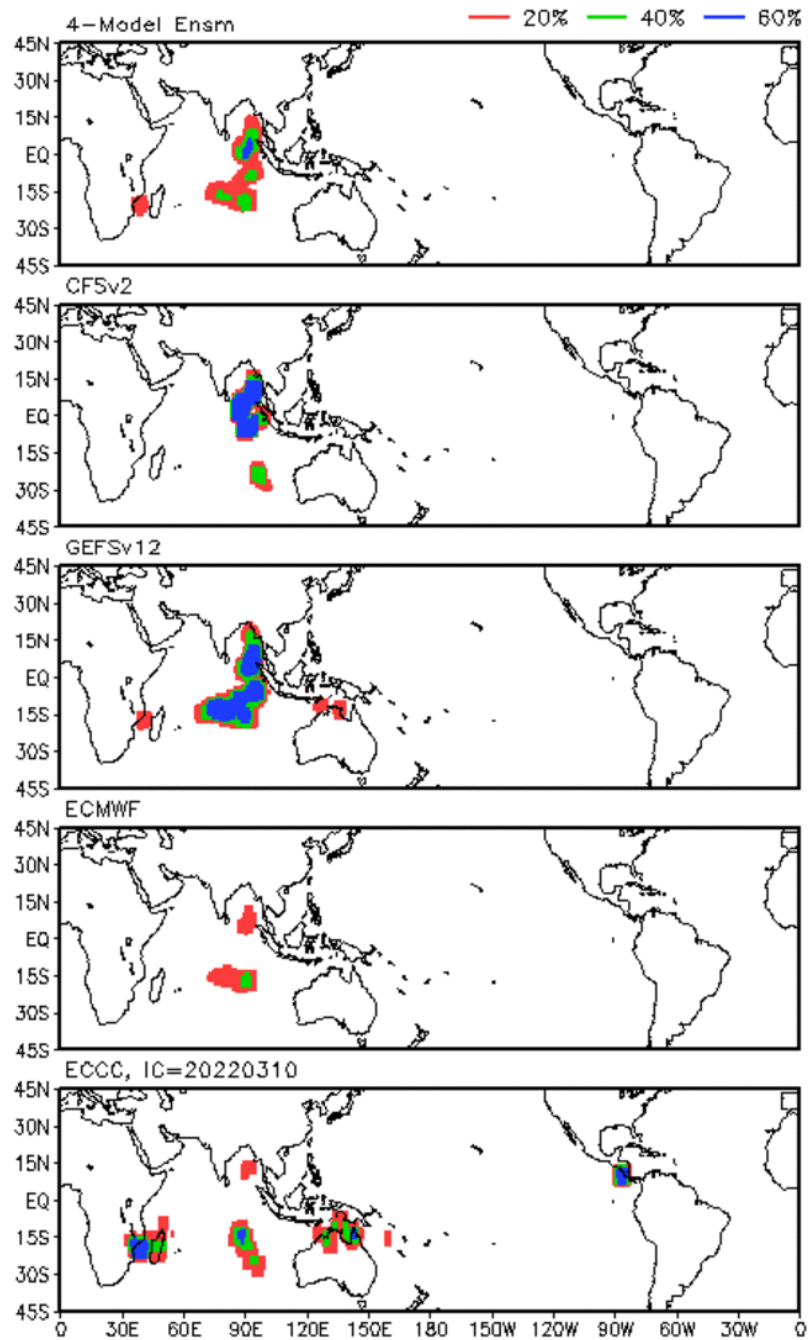
Init: 00z Mar 15 2022 Forecast Hour: [84] valid at 12z Fri, Mar 18 2022

TROPICALTIDBITS.COM



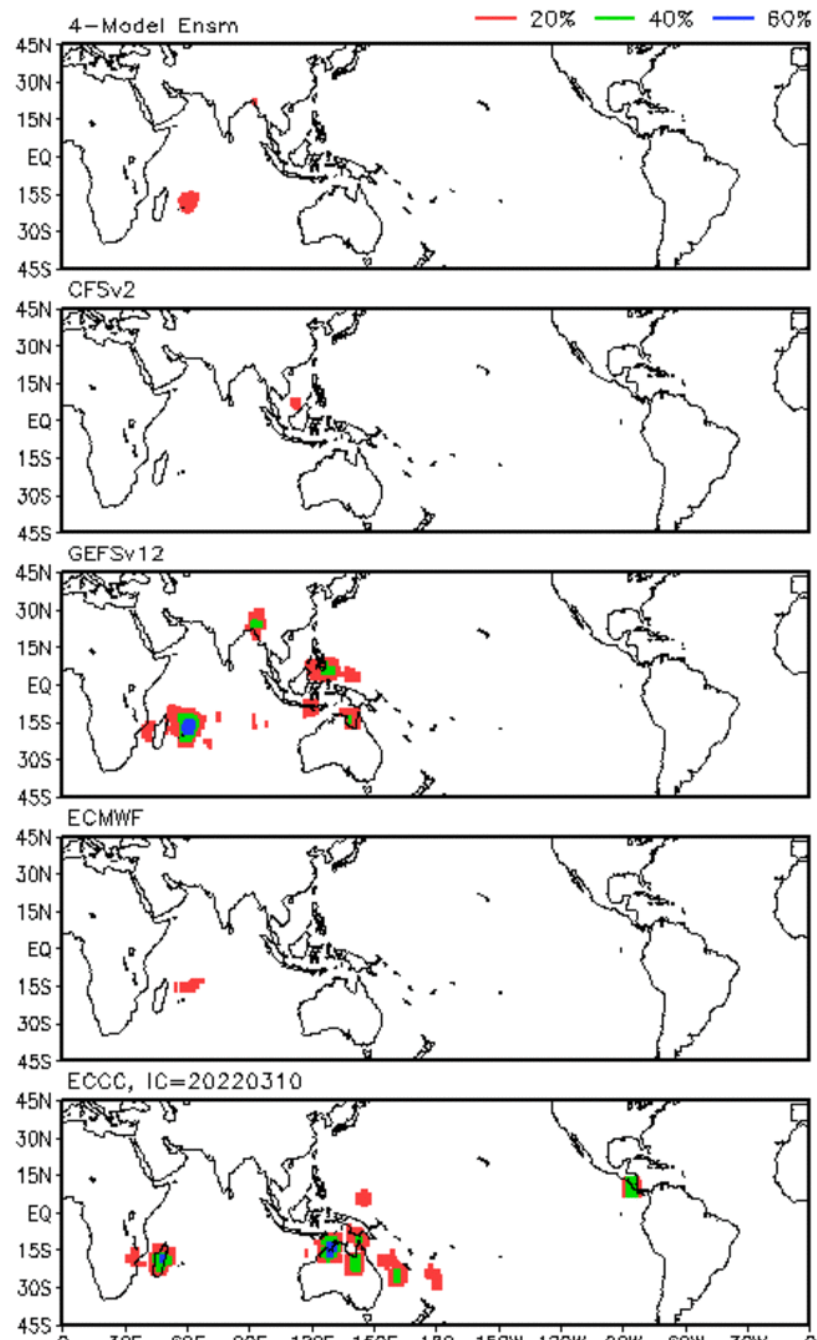
Storm Track Probabilities, IC=20220314

Week 1: 0316 - 0322



Storm Track Probabilities, IC=20220314

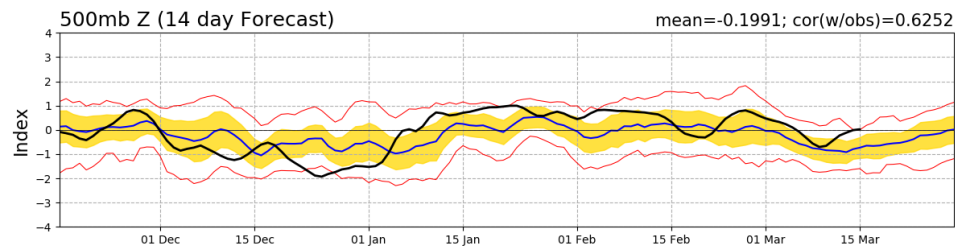
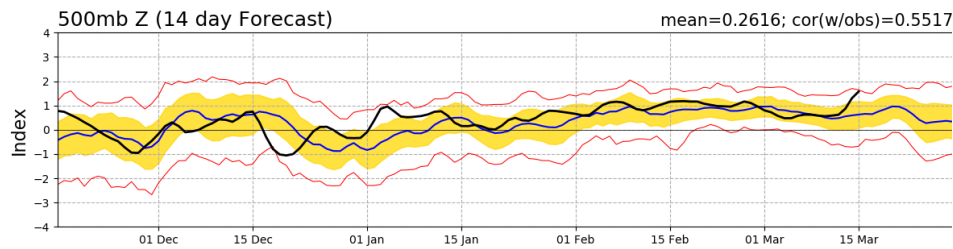
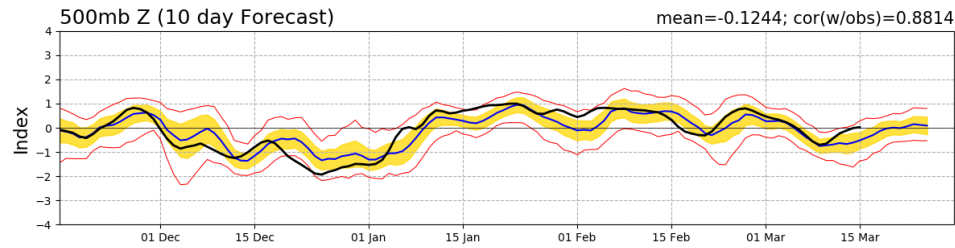
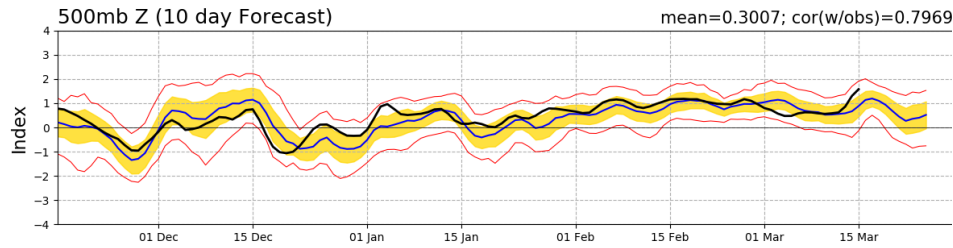
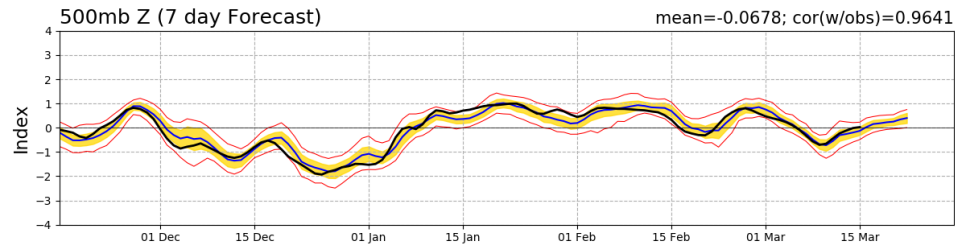
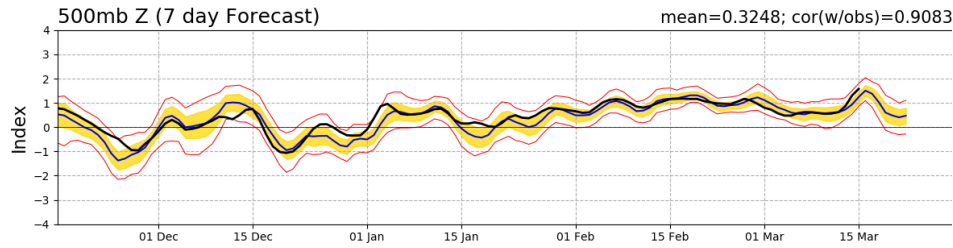
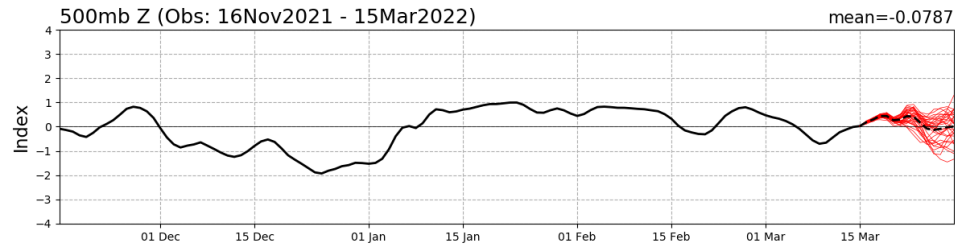
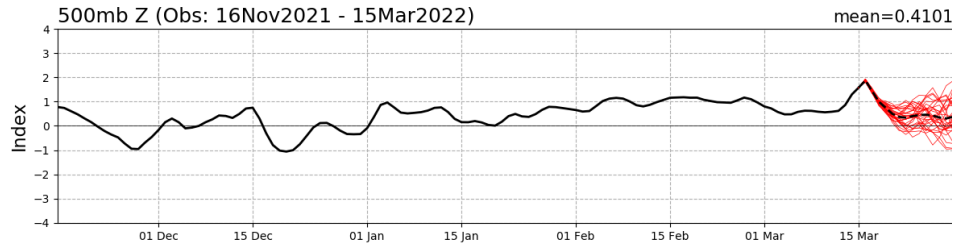
Week 2: 0323 - 0329



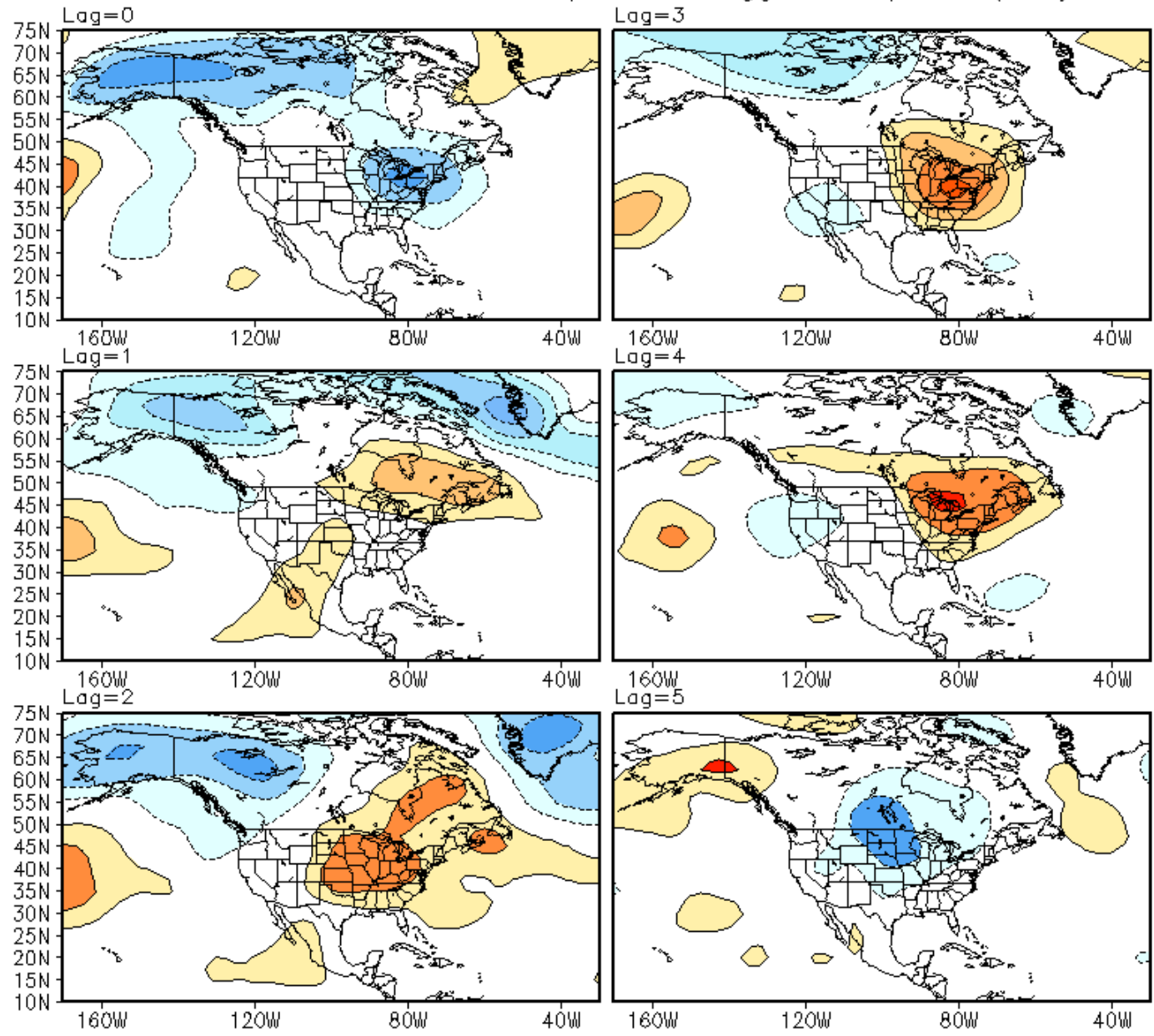
Connections to U.S. Impacts

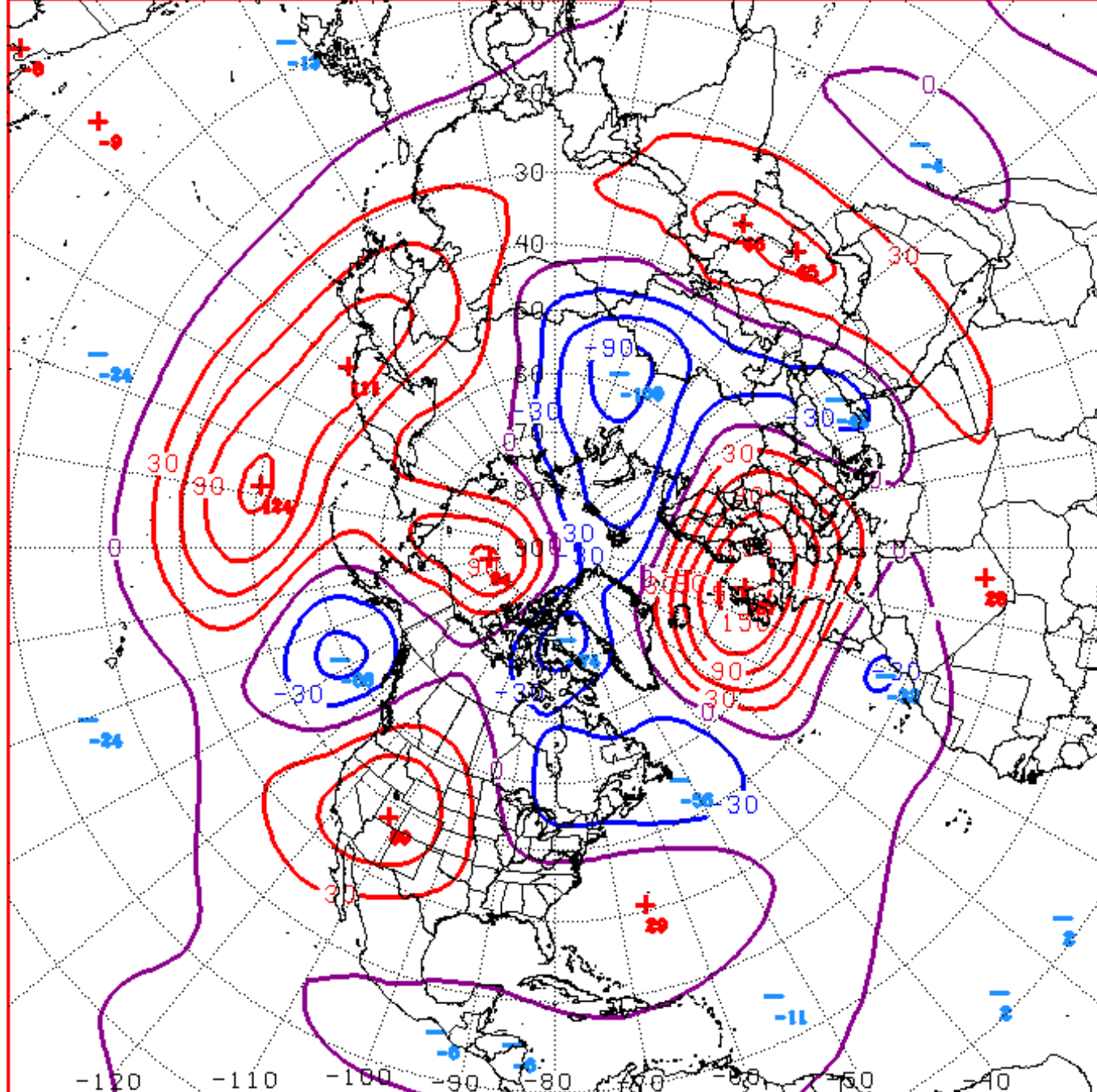
NAO Index: Observed & GEFS Forecasts

PNA Index: Observed & GEFS Forecasts



RMM Phase 3 850-hPa Temperature Lagged Composite (fma)





D+11 500 MB ANOMALIES FROM ALZ ENSM
 CPC MAP MADE MAR 15 2022 1355 UTC CNTD MAR 26 2022

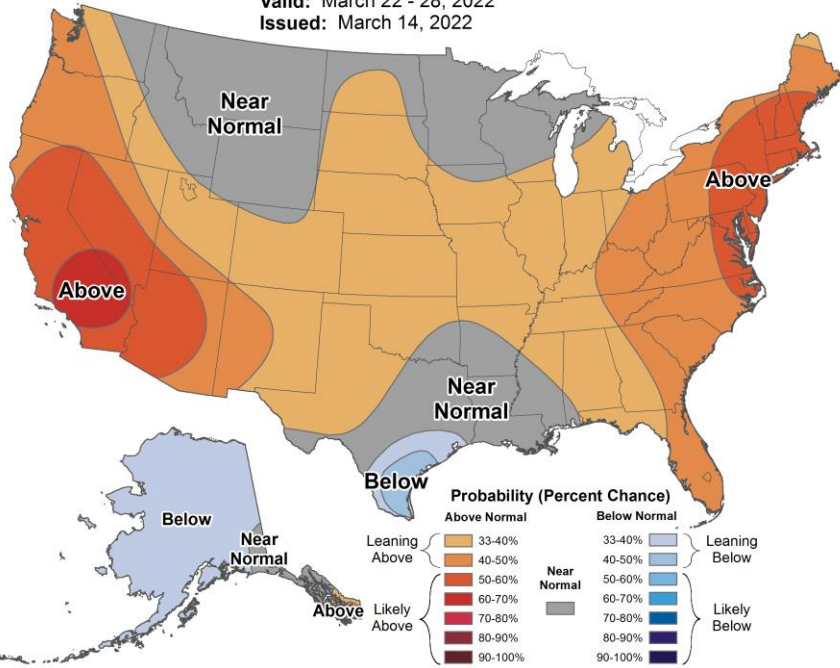
Week 2 – Temperature and Precipitation



8-14 Day Temperature Outlook



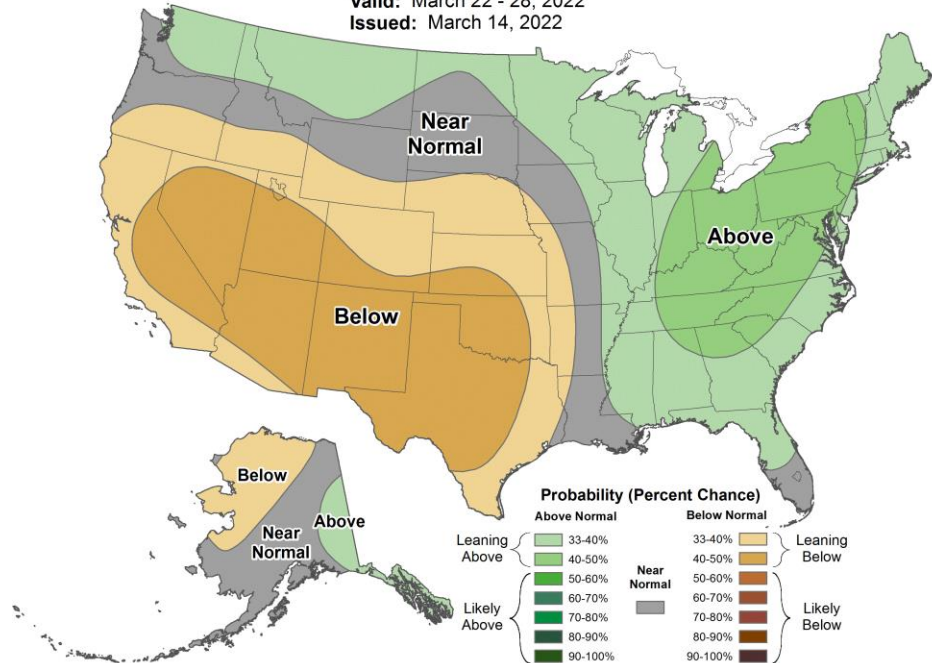
Valid: March 22 - 28, 2022
 Issued: March 14, 2022



8-14 Day Precipitation Outlook



Valid: March 22 - 28, 2022
 Issued: March 14, 2022

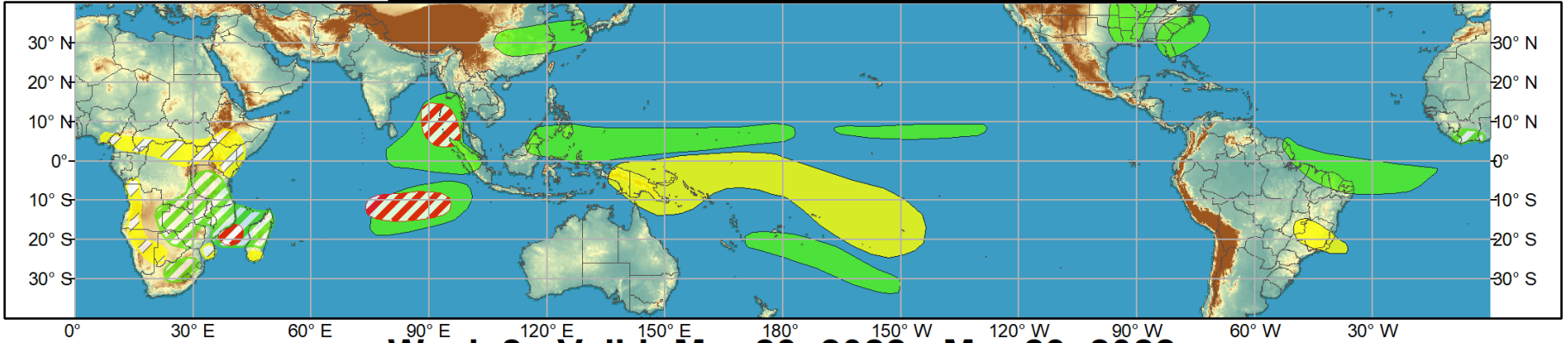




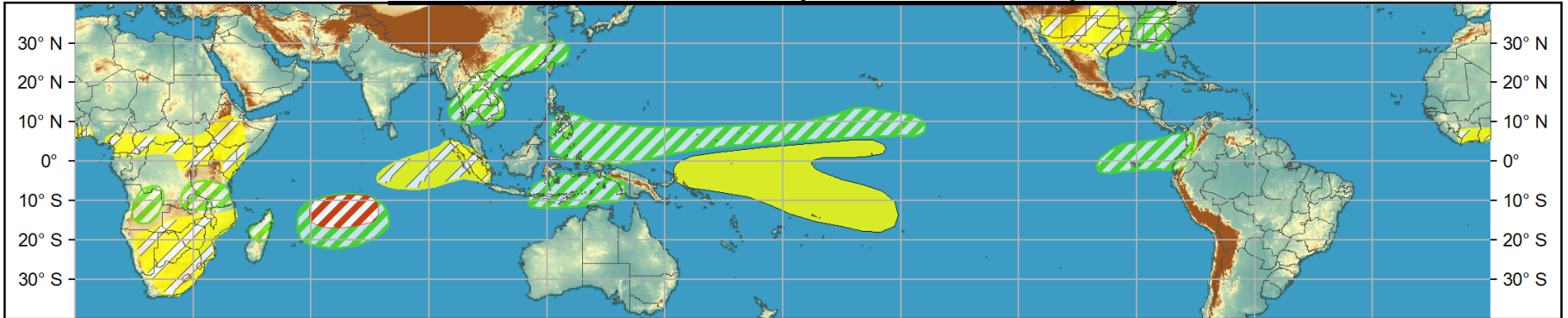
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Confidence

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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