

Global Tropics Hazards And Benefits Outlook

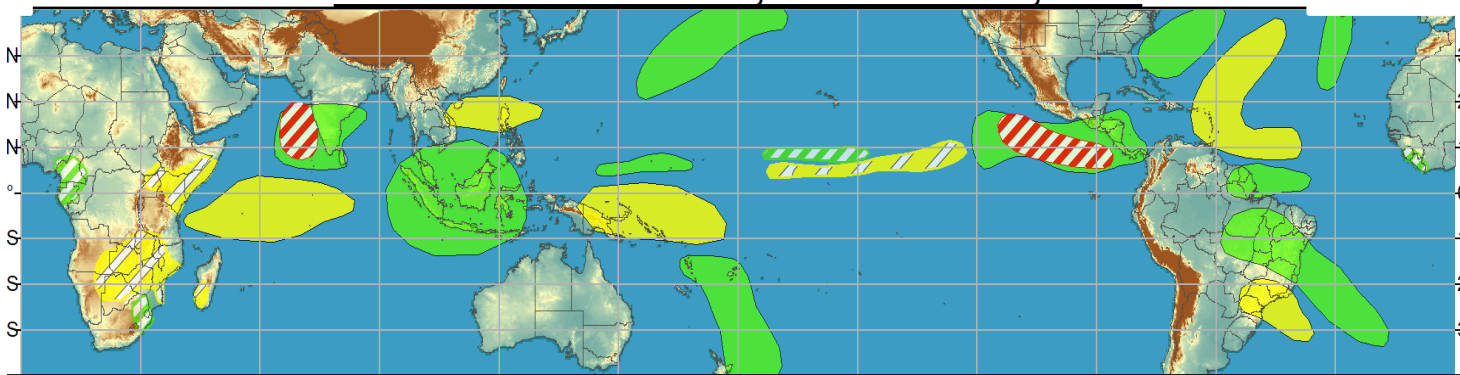
11/9/2021

Nick Novella

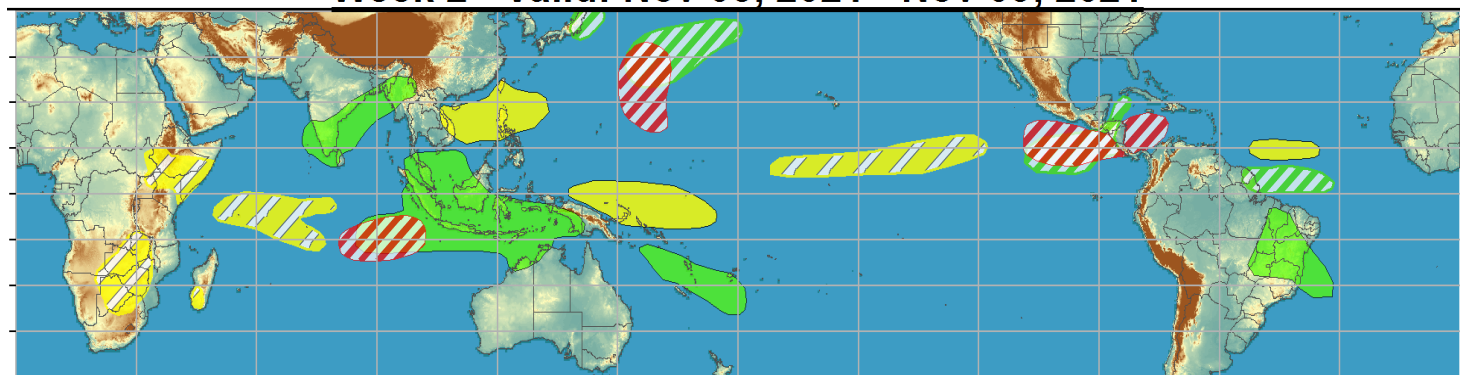
Outline

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

Week 1 - Valid: Nov 03, 2021 - Nov 09, 2021

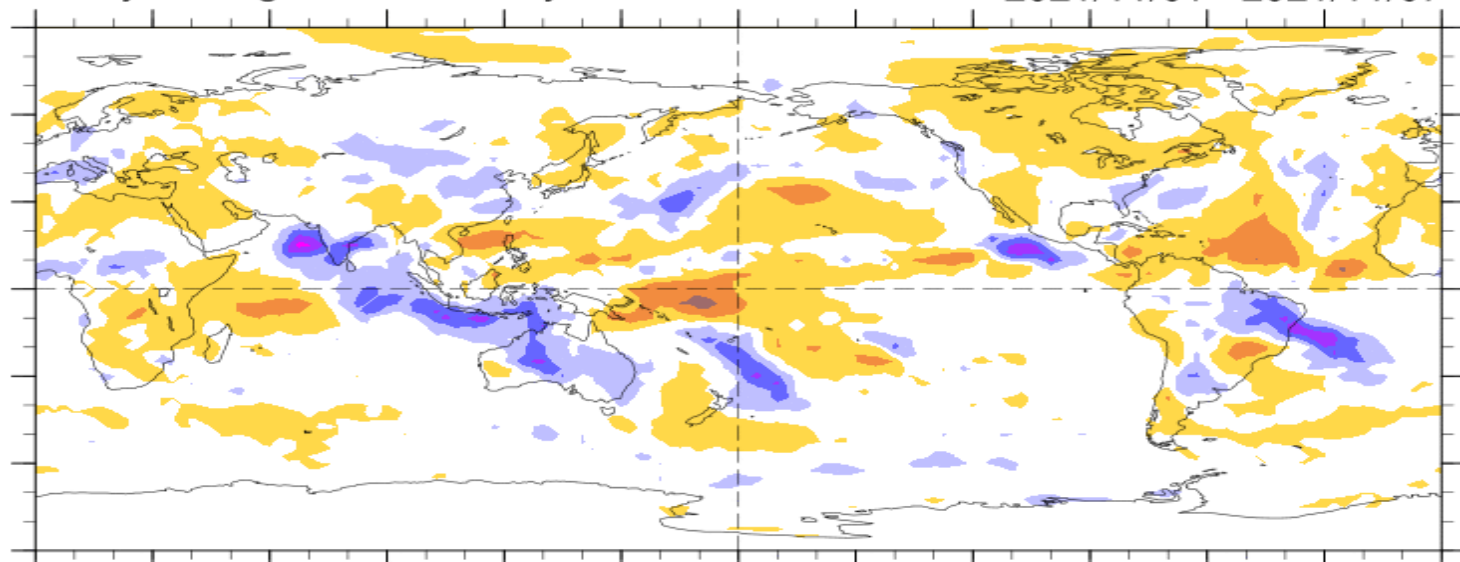


Week 2 - Valid: Nov 03, 2021 - Nov 09, 2021



7-Day Average OLR Anomaly

2021/11/01 - 2021/11/07



Outlook Review

TCs formed since
11/3:

Sandra (11/7)
Terry (11/4)

Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (October 14, 2021 Update)

next update on 11th of Nov.!

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña conditions have developed and are expected to continue with an 87% chance of La Niña in December 2021- February 2022.

MJO and other subseasonal tropical variability:

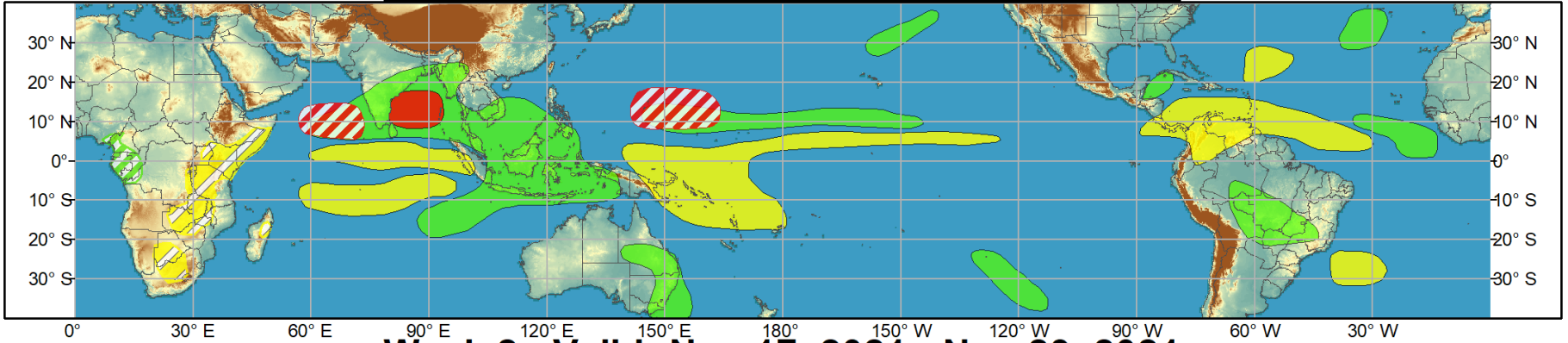
- The MJO signal remains weak as reflected in the RMM index, which has continued to show a low amplitude intraseasonal signal since mid-October.
- During the past week, much of the signal in RMM space appears to be driven by Kelvin and Rossby wave activity over parts of the Indian Ocean and the Maritime Continent, which looks to contribute to tropical cyclone formation over the eastern Hemisphere. Conversely, there are decreased chances for TC activity in the Western Hemisphere during the next two weeks.
- Dynamical models favor eastward propagation of the MJO over the Maritime Continent but maintain low amplitude during the outlook period.



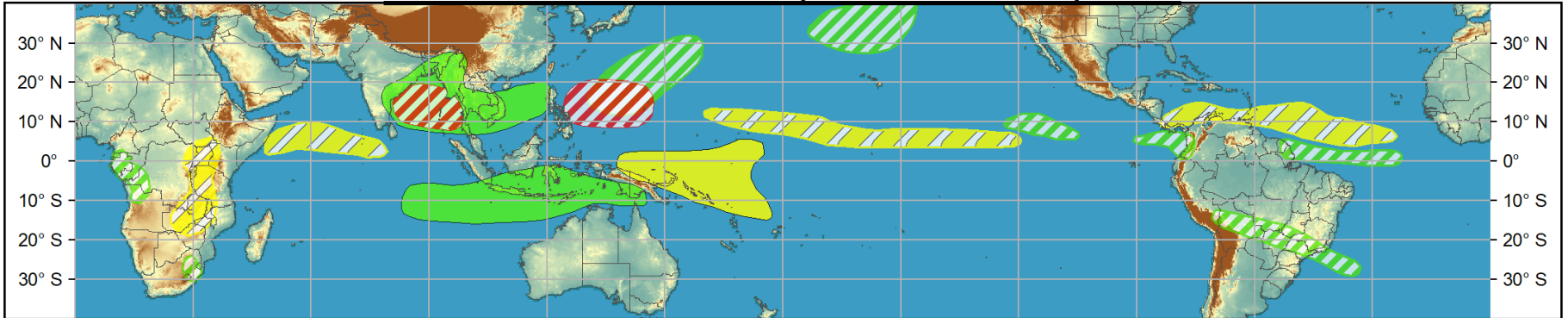
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Nov 10, 2021 - Nov 16, 2021



Week 2 - Valid: Nov 17, 2021 - Nov 23, 2021



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: 11/09/2021

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

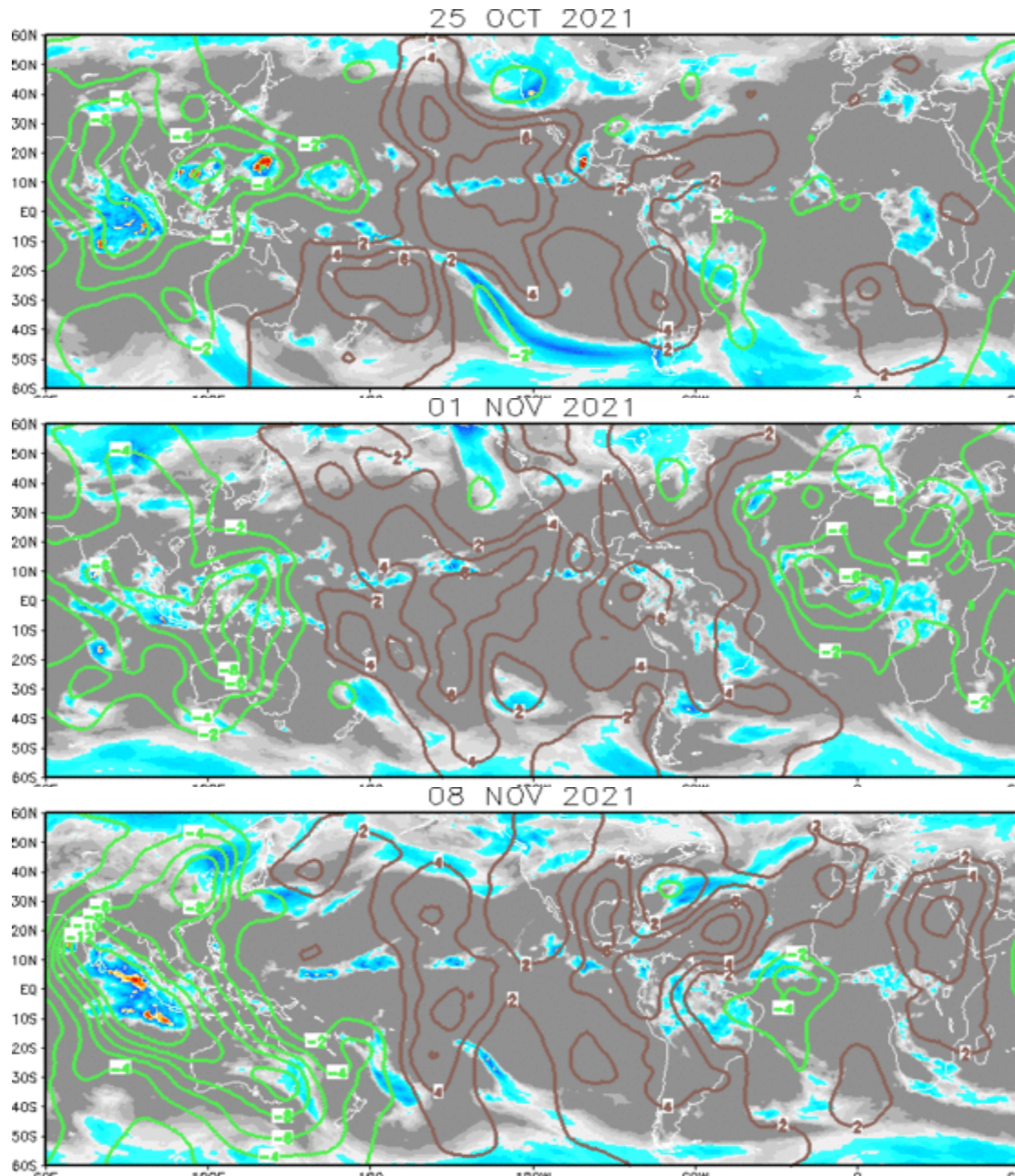
Green: Enhanced Divergence

Brown: Enhanced Convergence

A larger-scale signal developed over the eastern Indian Ocean.

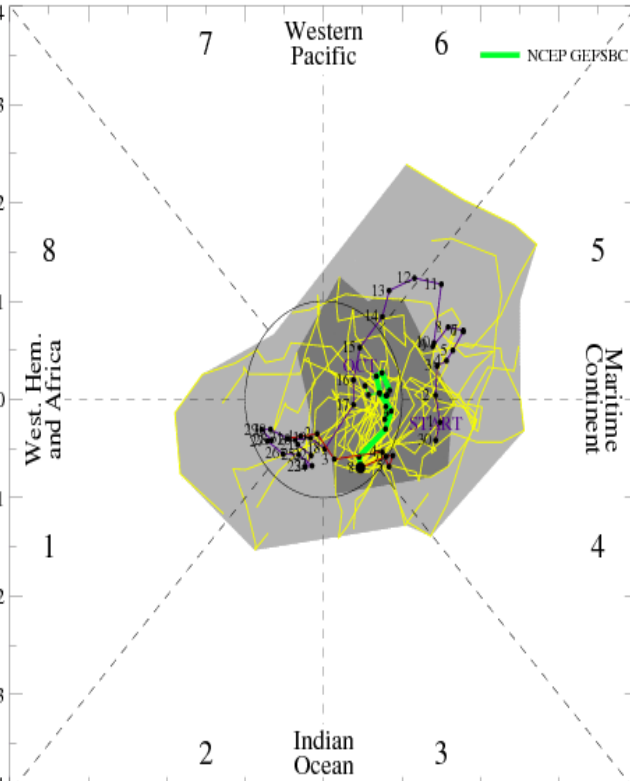
Kelvin Wave indicated across the Eastern Atlantic and Africa. Suppressed conditions prevail over the Western Hemisphere

Kelvin Wave and Rossby wave activity contributing to enhanced upper-level divergence and convection over the Indian Ocean and Maritime Continent.

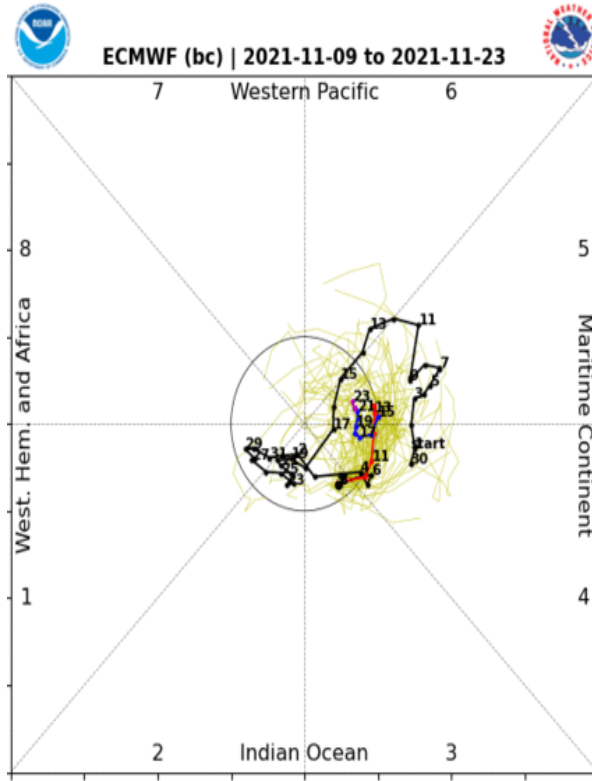


MJO Observation/Forecast

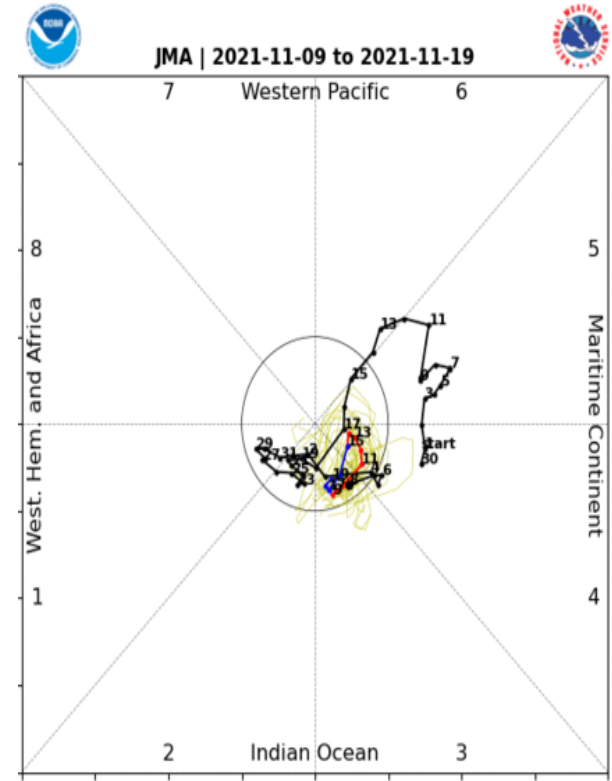
[RMM1, RMM2] forecast for Nov-09-2021 to Nov-23-2021



GEFS



ECMWF

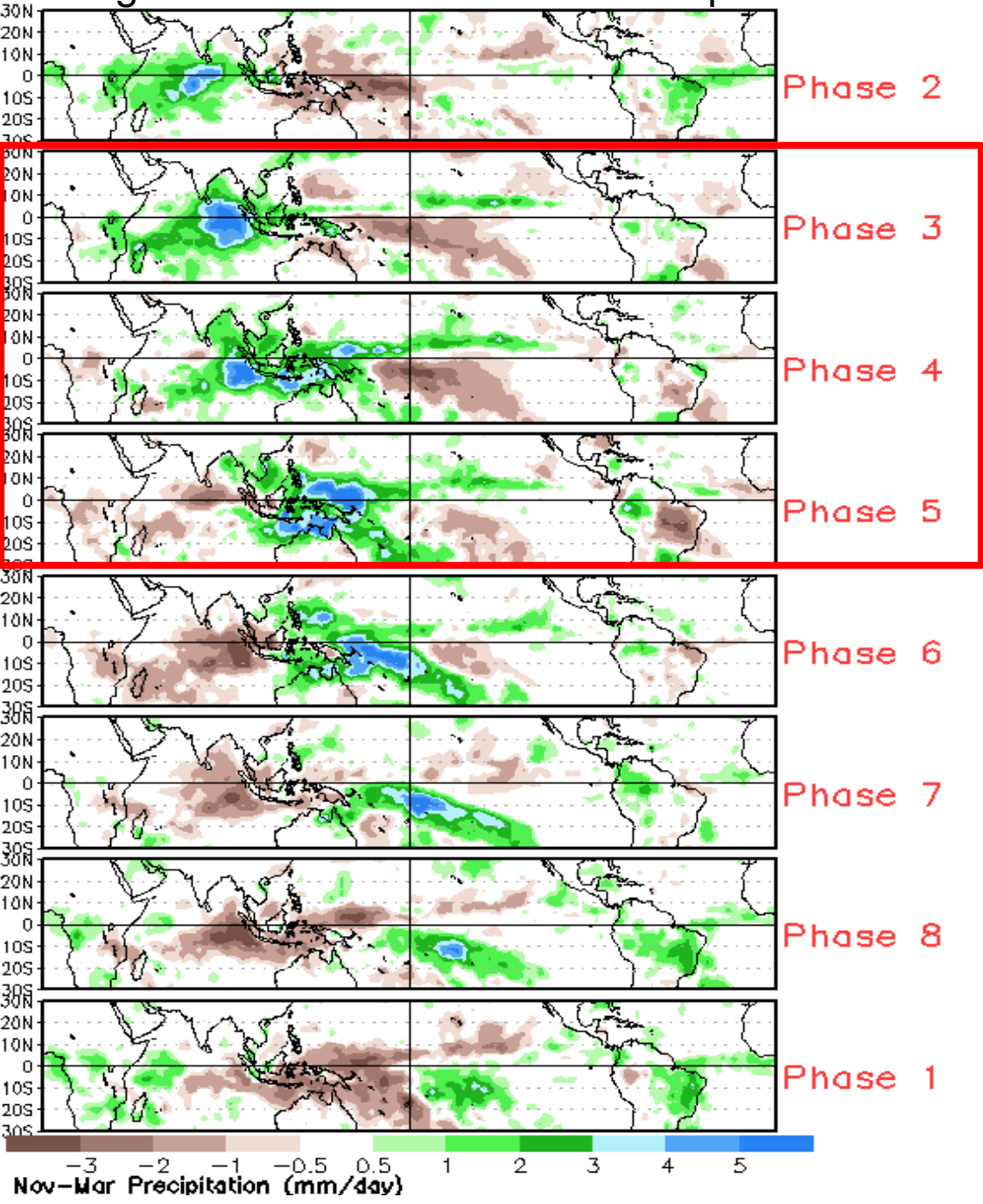


JMA

Dynamical models show a renewed eastward propagation of the MJO signal within the RMM-unit circle, with possible amplification across the Maritime Continent and Western Pacific over the next 2 weeks.

There is a fairly large spread among the ensemble members. The ECMWF ensemble is the most robust in terms of amplification.

Average Conditions when the MJO is present

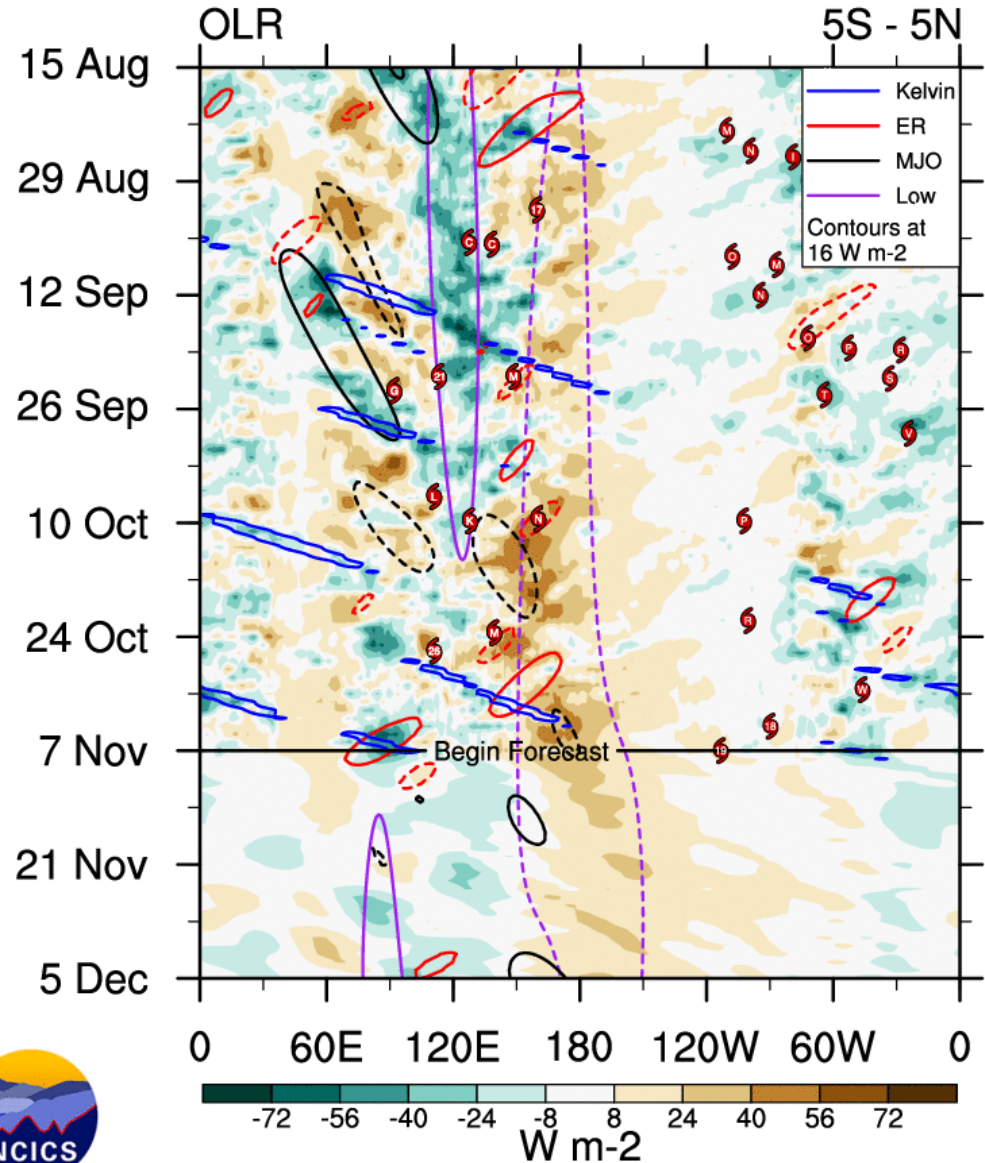


CAVEAT: These panels are representative of robust MJO events.

MJO signal is has been weak or non-existent for much of October.

Kelvin wave activity is seen crossing Africa and the Indian Ocean to interact with **Rossby wave** activity near 90W at present.

Low frequency contours depict persistent La Niña conditions.

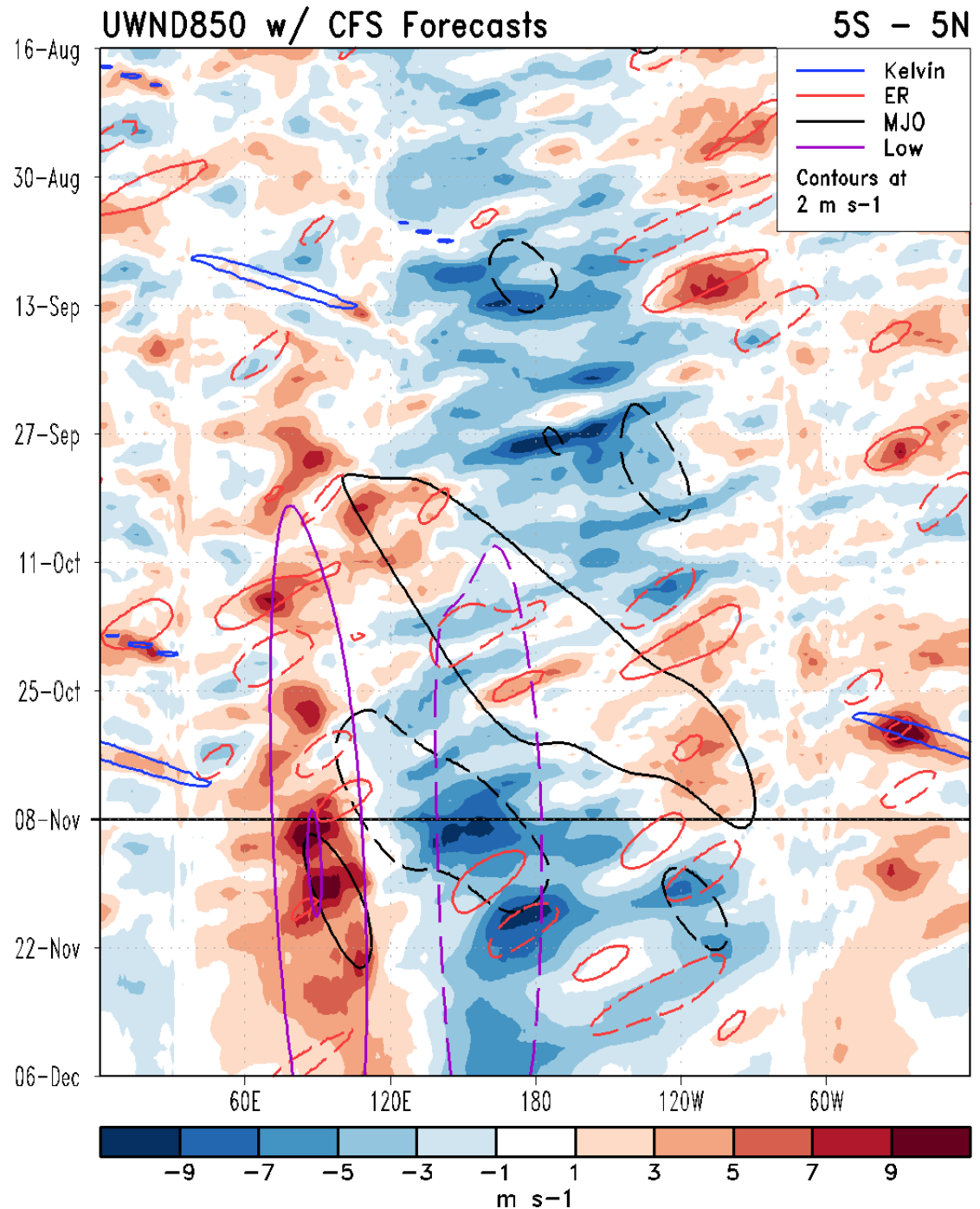


ncics.org/mjo

Mon 2021-11-08 1613 UTC

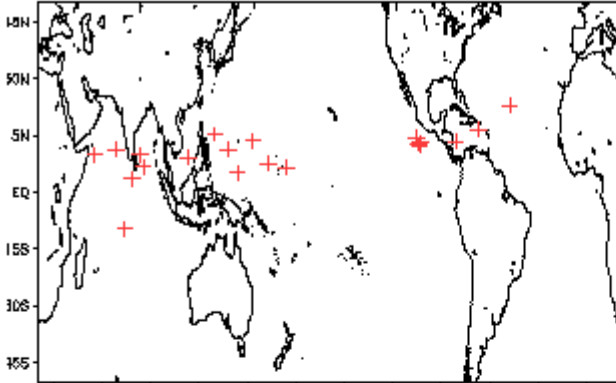
Carl Schreck
carl_schreck@ncsu.edu

Following a period where an eastward propagating feature disrupted the **low frequency** footprint during mid-October, there is little indication of this occurring again soon in the extended range guidance, with the La Nina circulation favored to become better established during the next several weeks.

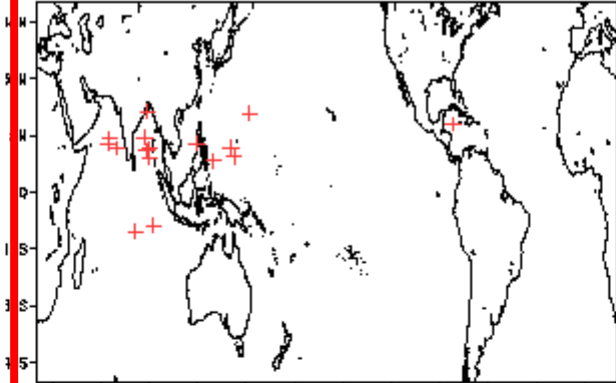


November Tropical Storm Formation by MJO phase

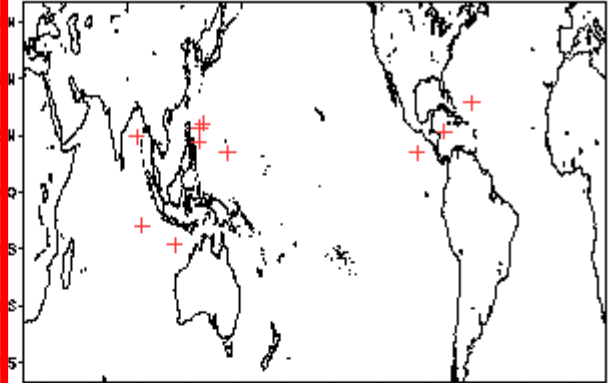
Phase 1 (65 days) 21 storms



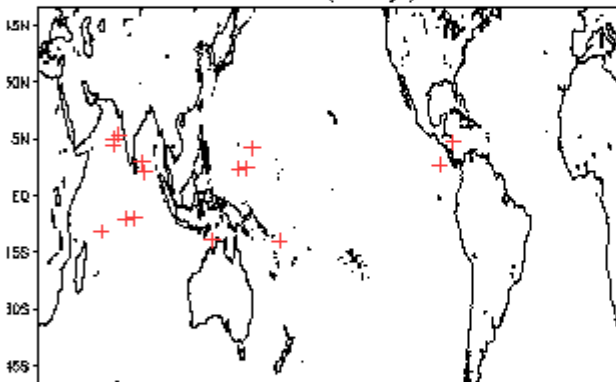
Phase 4 (77 days) 17 storms



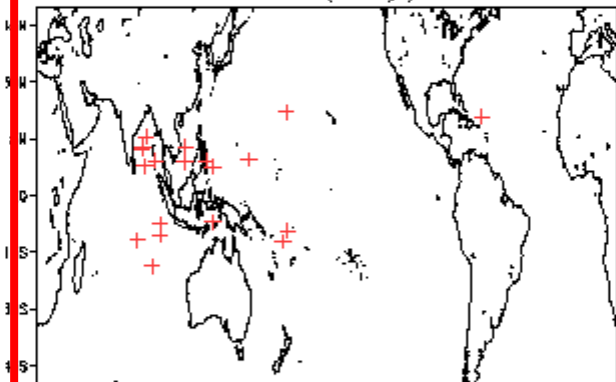
Phase 7 (88 days) 11 storms



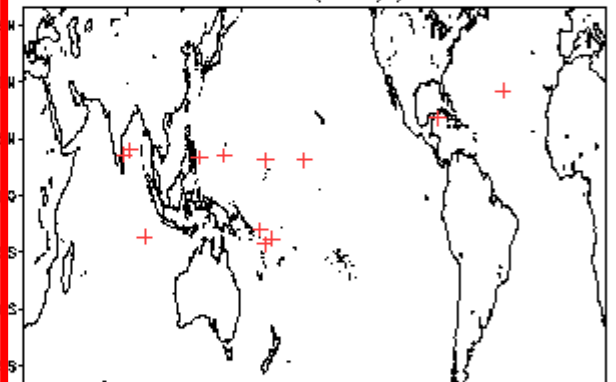
Phase 2 (88 days) 16 storms



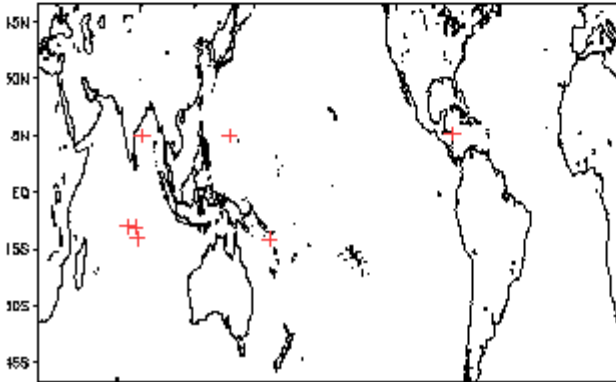
Phase 5 (72 days) 20 storms



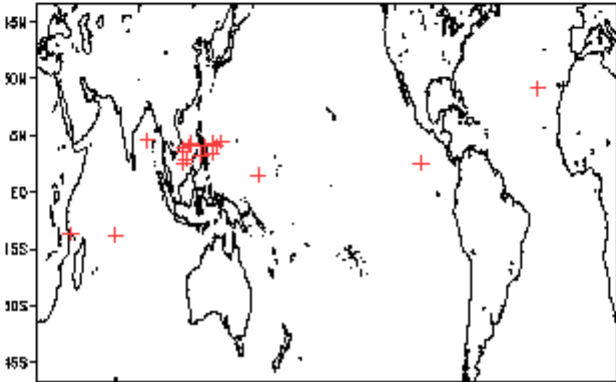
Phase 8 (60 days) 14 storms



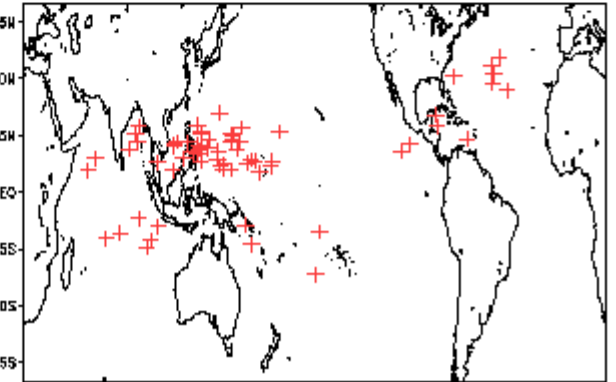
Phase 3 (89 days) 8 storms



Phase 6 (91 days) 19 storms



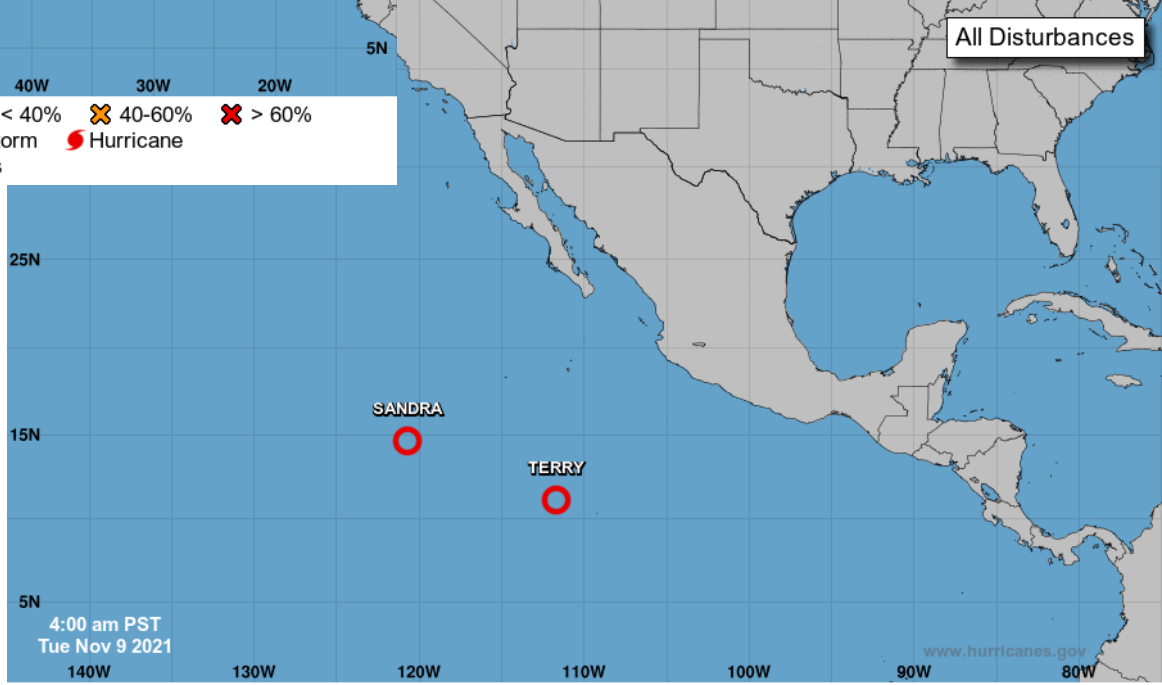
Null (380 days) 68 storms





7:00 am EST
Tue Nov 9 2021

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



4:00 am PST
Tue Nov 9 2021

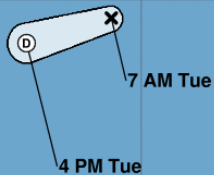
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%
Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane
 Post-Tropical Cyclone or Remnants



Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



15N



125W

120W

Tropical Depression Sandra
 Tuesday November 09, 2021
 7 AM PST Advisory 9
 NWS National Hurricane Center

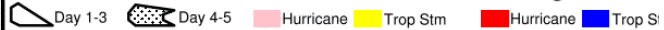
Current information: x
 Center location 14.6 N 120.7 W
 Maximum sustained wind 30 mph
 Movement W at 13 mph

For
 ● Tr
 S 39

Potential track area:

Watches:

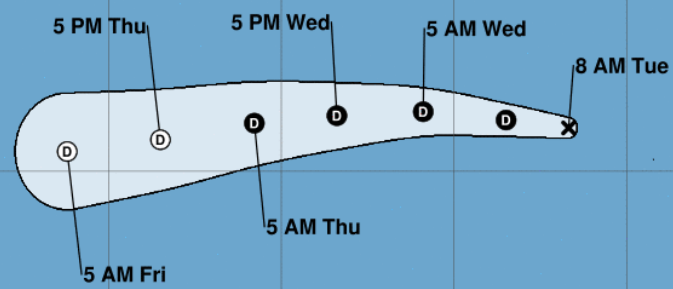
Warnings:



Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



15N



10N

130W

125W

120W

115W

110W

Tropical Depression Terry
 Tuesday November 09, 2021
 8 AM MST Advisory 21
 NWS National Hurricane Center

Current information: x
 Center location 11.1 N 111.7 W
 Maximum sustained wind 35 mph
 Movement W at 14 mph

Forecast positions:
 ● Tropical Cyclone ○ Post/Potential TC
 Sustained winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110 mph

Potential track area:

Watches:

Warnings:

Current wind extent:



Storm Track Density Distribution, IC=20211108

Week 1 Forecast: 1110-1116

TRACK DENSITY

FILTERED

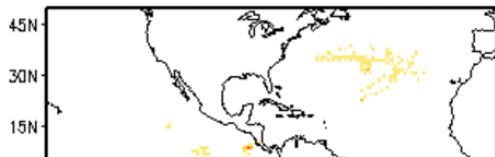
CFS

CFS, ENP=0.0 ATL=0.0



GEFS

GEFS, ENP=0.1 ATL=0.0



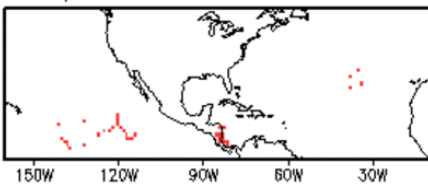
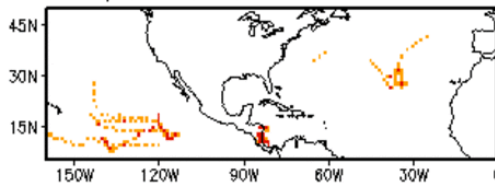
ECMWF

ECMWF, ENP=0.1 ATL=0.2



ECCC, IC=20211104

ECCC, ENP=0.8 ATL=1.0



Storm Track Density Distribution, IC=20211108

Week 2 Forecast: 1117-1123

TRACK DENSITY

FILTERED

CFS

CFS, ENP=0.0 ATL=0.0



GEFS

GEFS, ENP=0.2 ATL=0.1



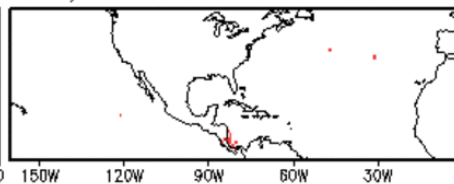
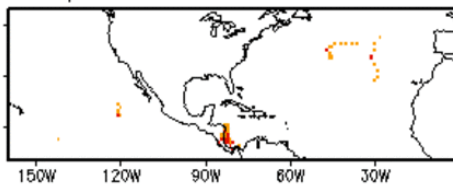
ECMWF

ECMWF, ENP=0.2 ATL=0.2



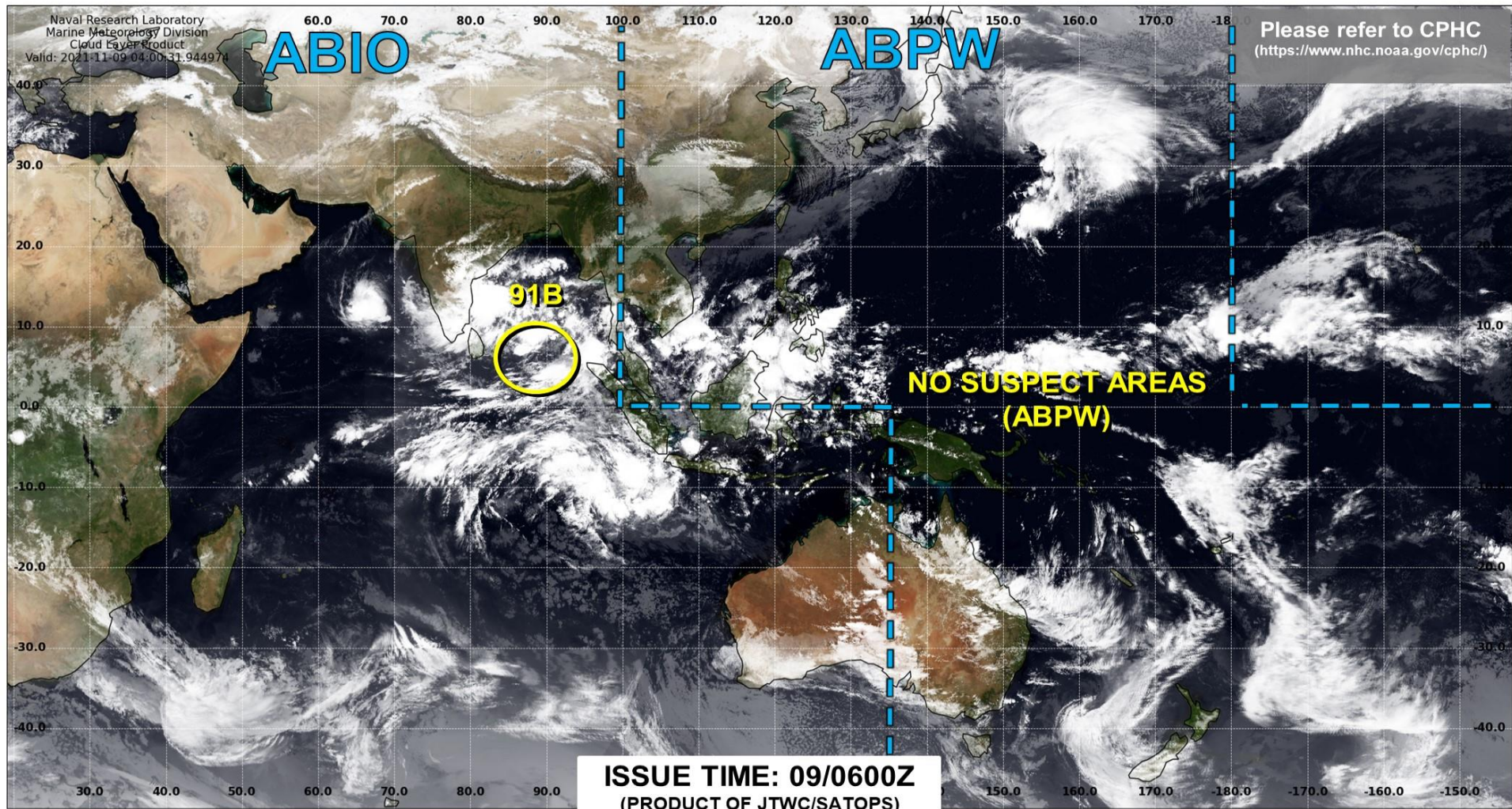
ECCC, IC=20211104

ECCC, ENP=0.3 ATL=0.9





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

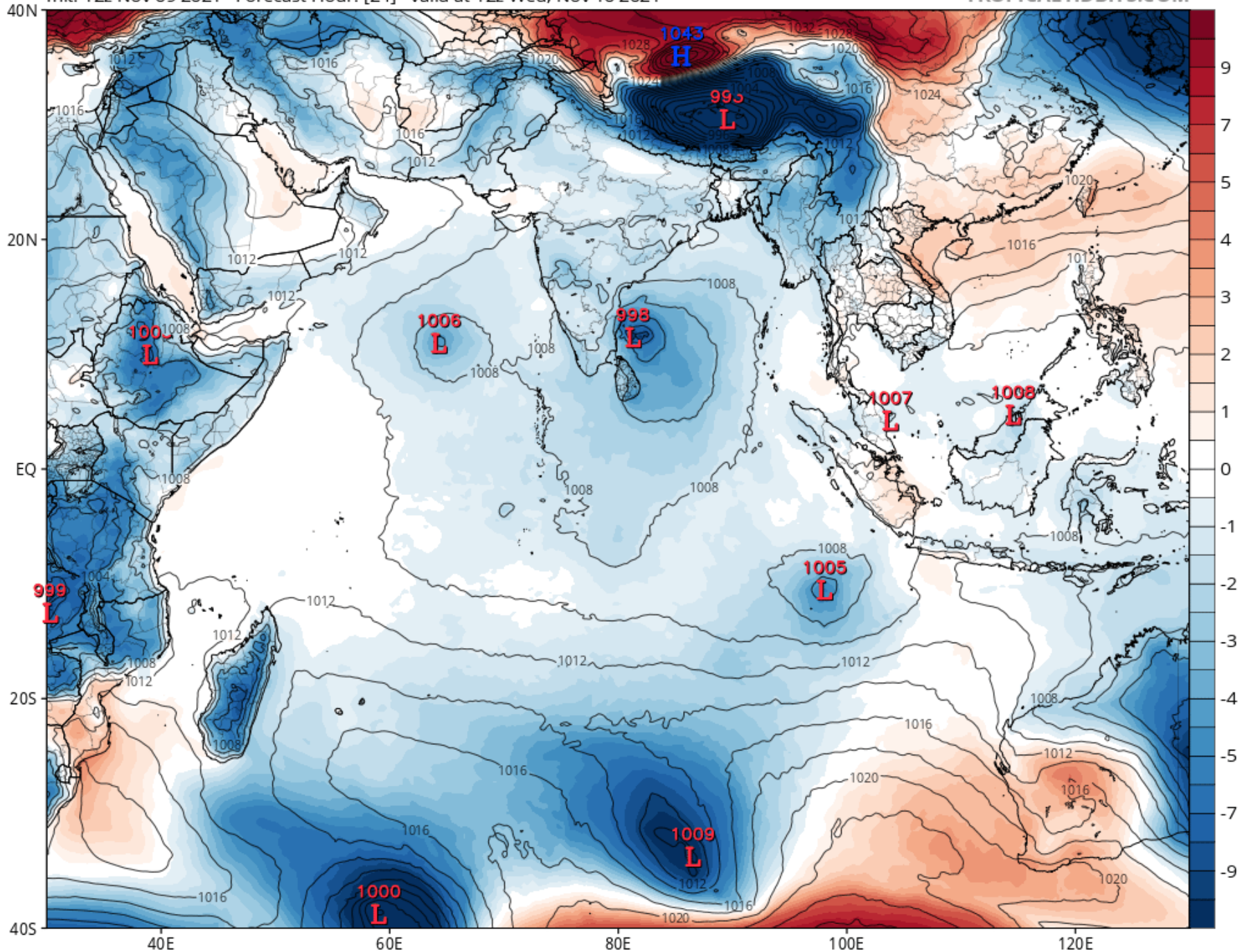
Monitoring for potential transition to TC. Invest label color denotes tropical transition probability

Tropical Cyclone (Reference Warning)

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

Init: 12z Nov 09 2021 Forecast Hour: [24] valid at 12z Wed, Nov 10 2021

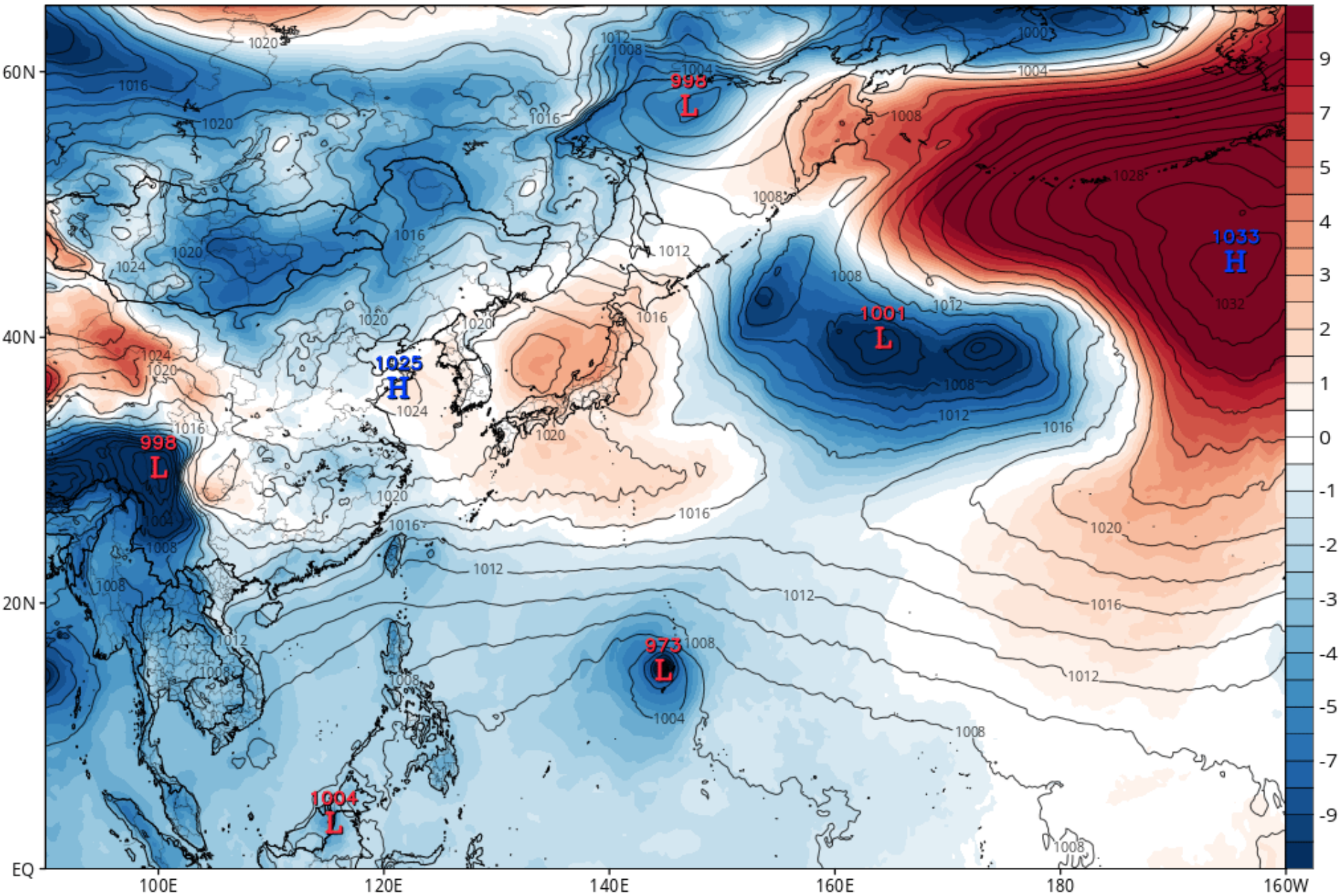
TROPICALTIDBITS.COM



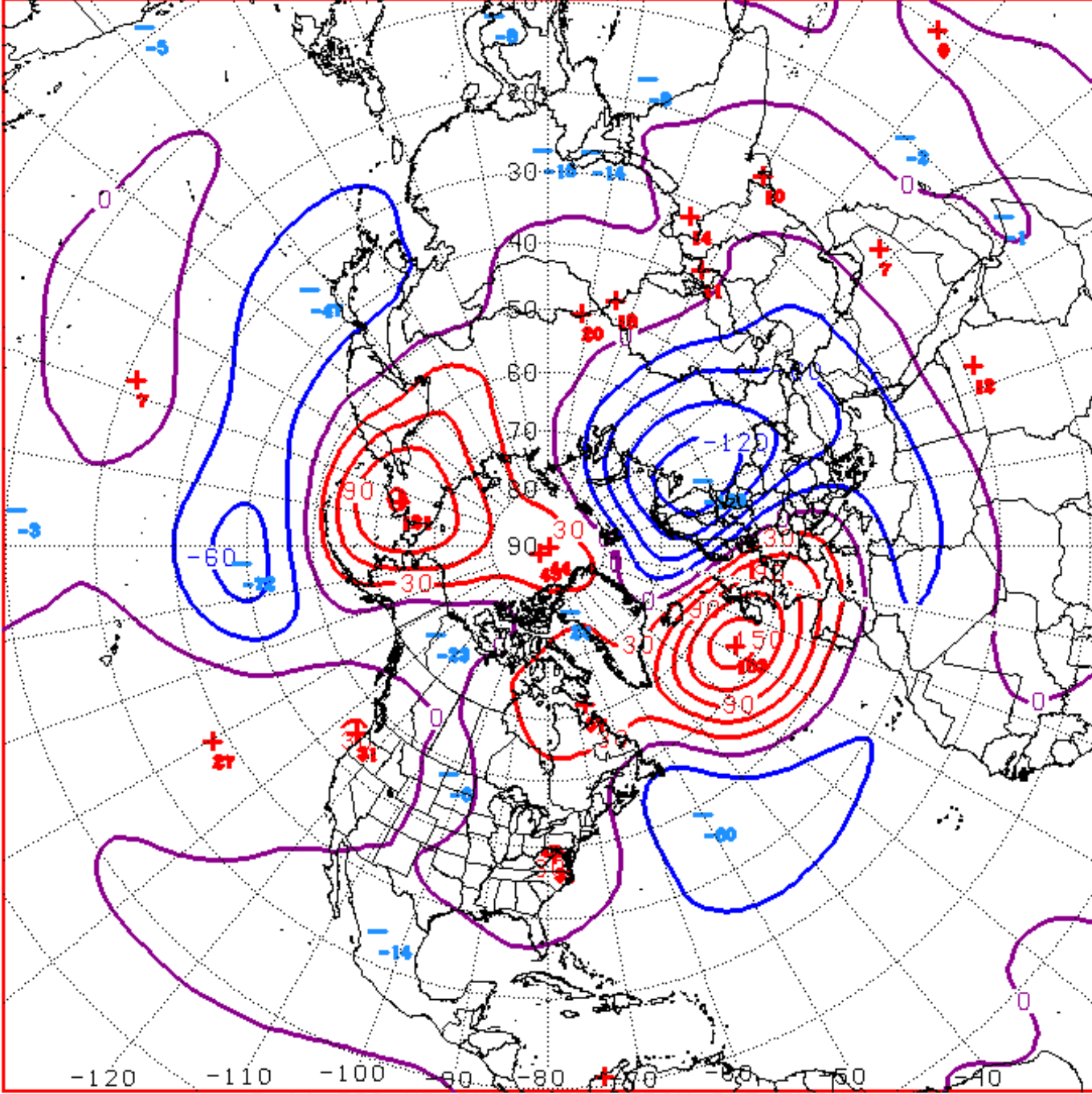
GFS MSLP and Anomaly (hPa) (based on CFSR 1981-2010 Climatology)

Init: 12z Nov 09 2021 Forecast Hour: [162] valid at 06z Tue, Nov 16 2021

TROPICALTIDBITS.COM



Connections to U.S. Impacts



D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE NOV 09 2021 1402 UTC CNTD NOV 20 2021

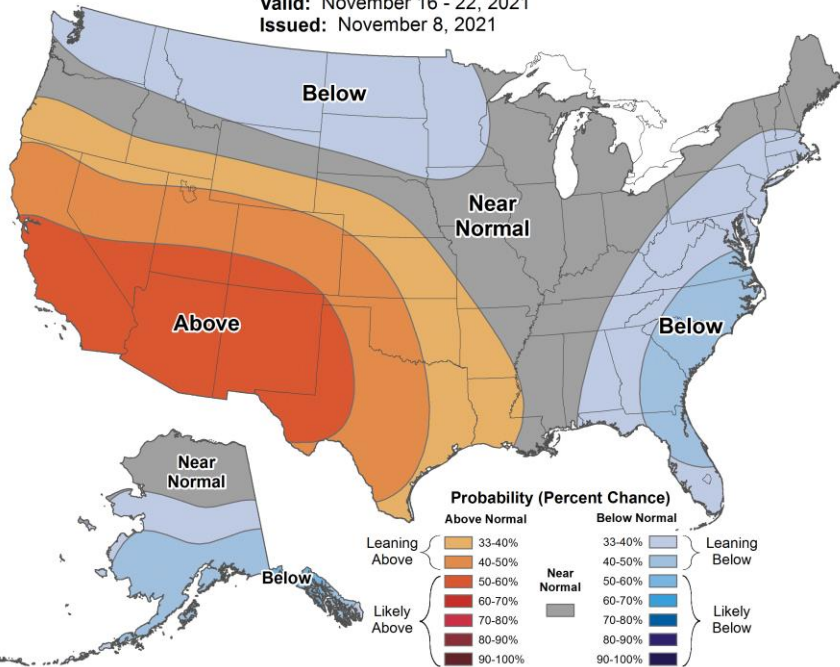
Week 2 – Temperature and Precipitation



8-14 Day Temperature Outlook



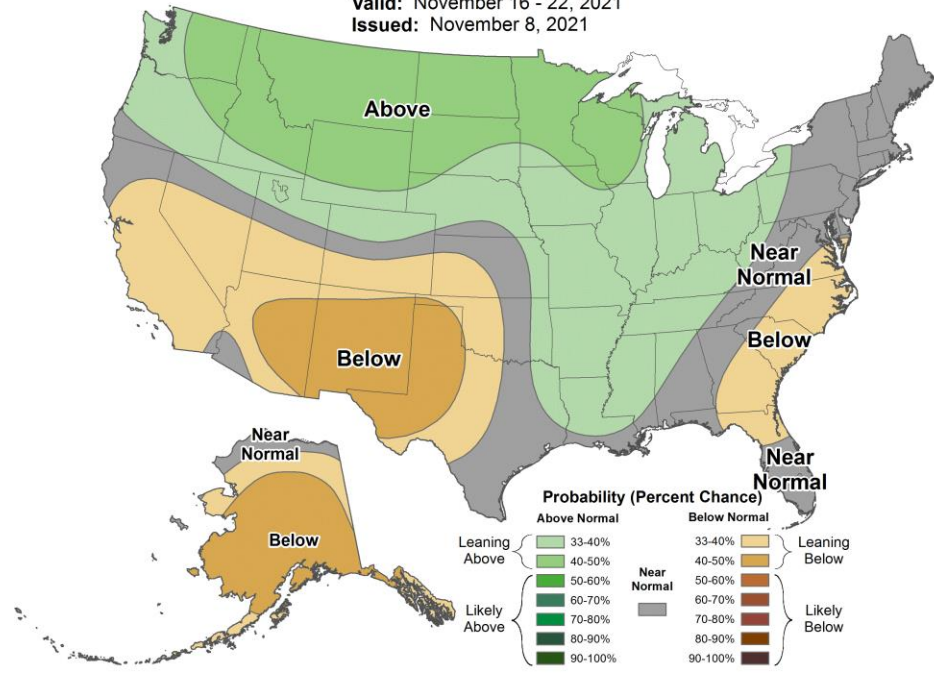
Valid: November 16 - 22, 2021
 Issued: November 8, 2021



8-14 Day Precipitation Outlook



Valid: November 16 - 22, 2021
 Issued: November 8, 2021

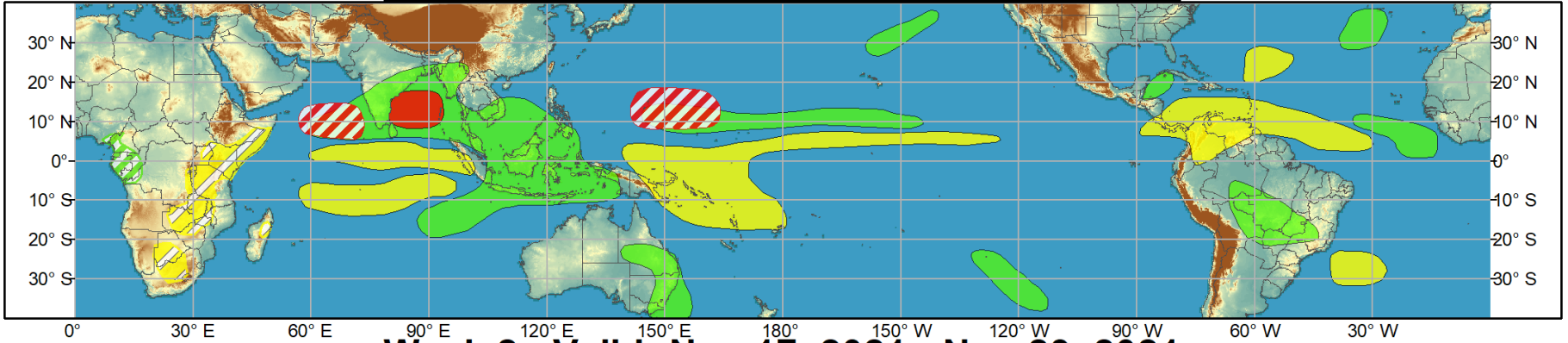




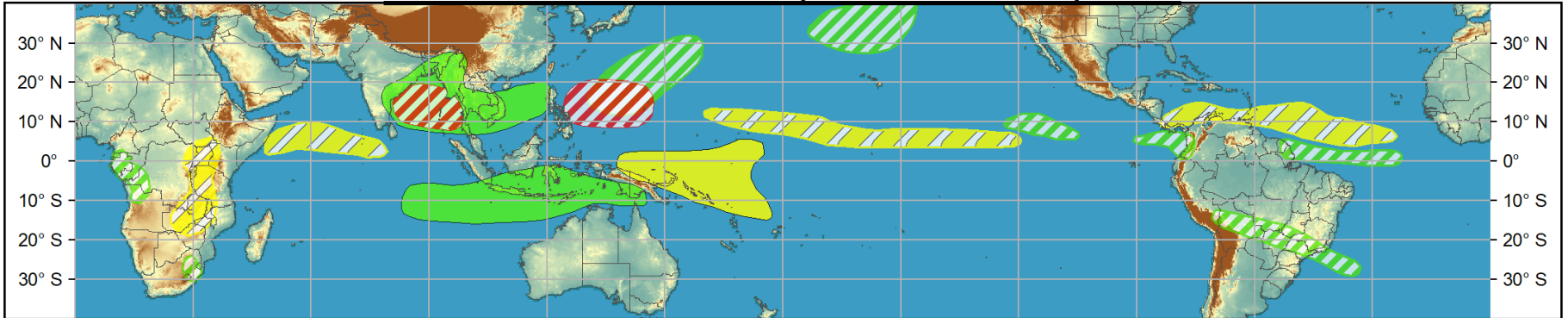
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Week 1 - Valid: Nov 10, 2021 - Nov 16, 2021



Week 2 - Valid: Nov 17, 2021 - Nov 23, 2021



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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