

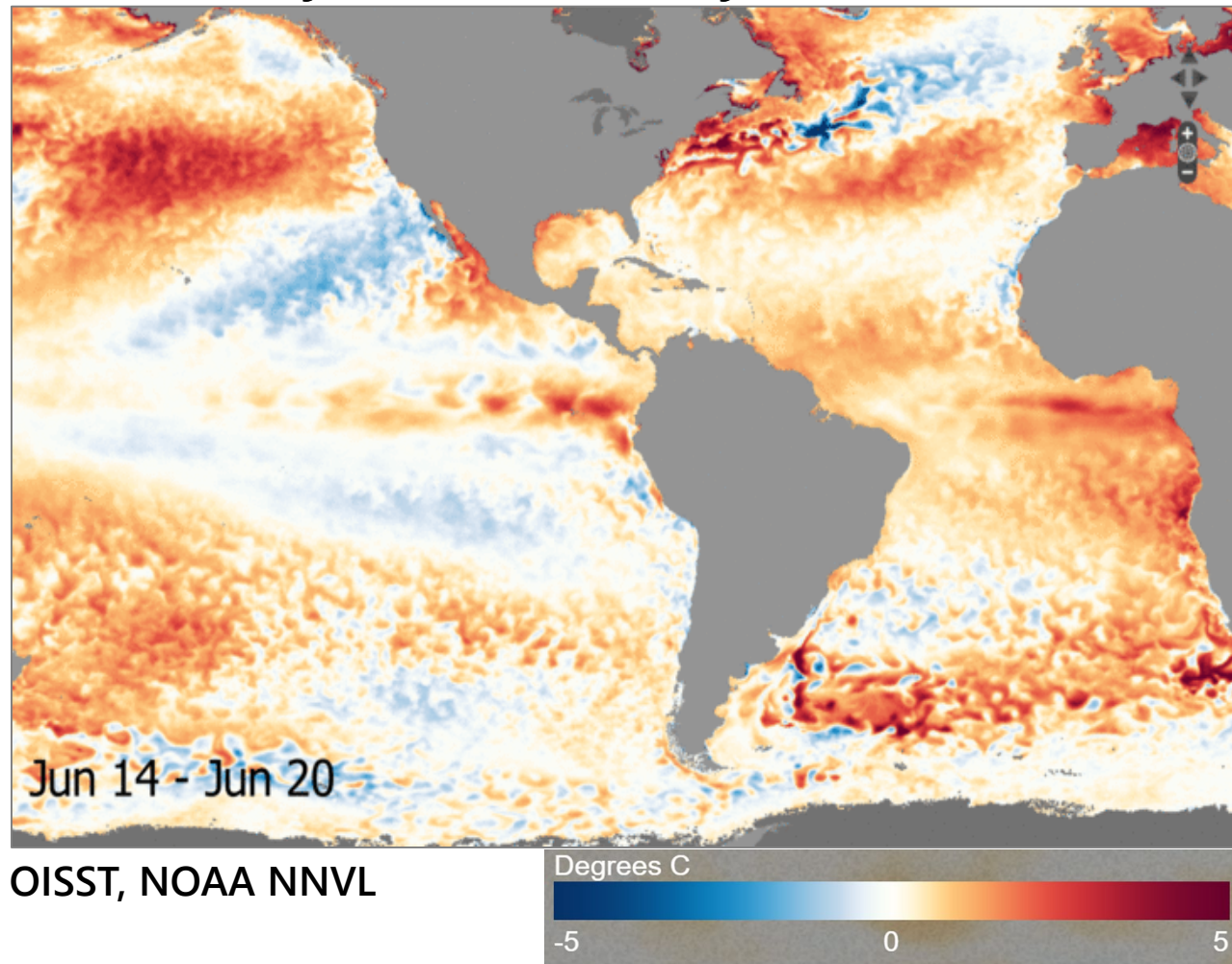


# Monthly Regional Focus Group Session

Wednesday 21 July 2021

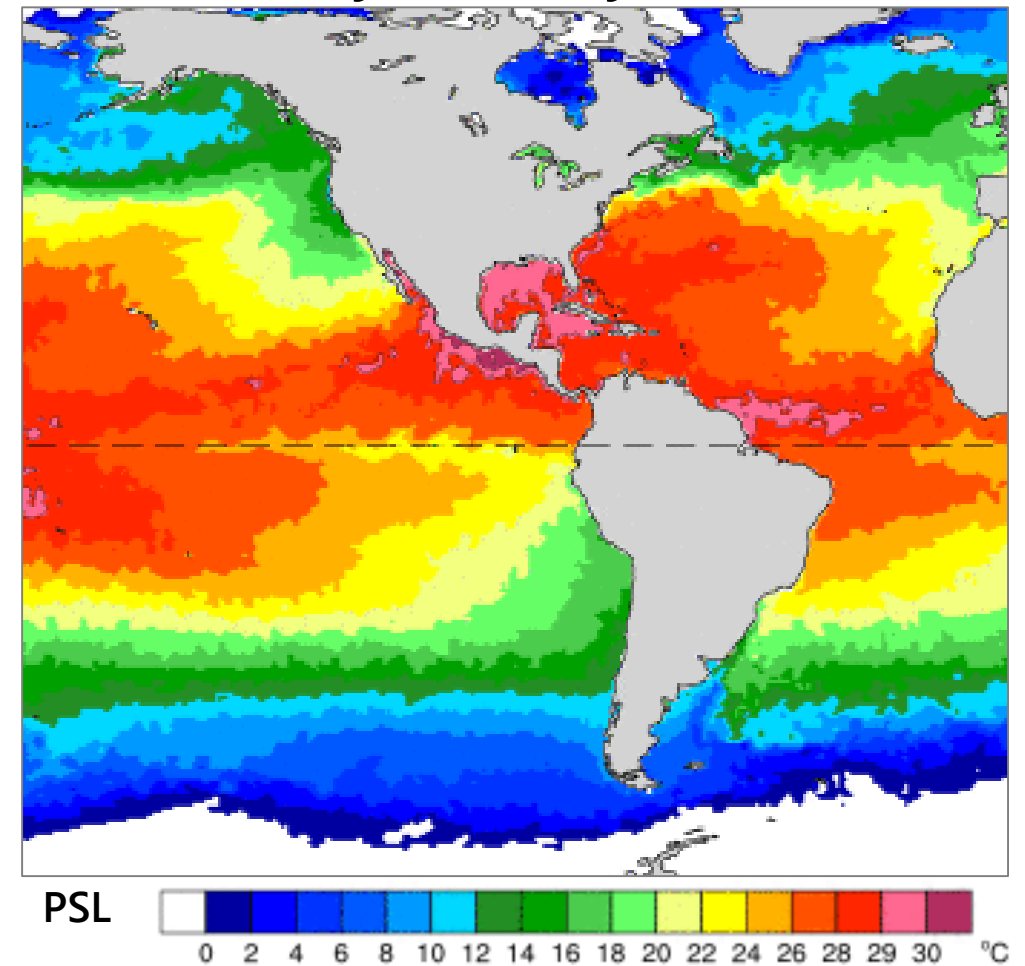
# Sea Surface Temperatures

## Anomaly Evolution May 16 – June 19



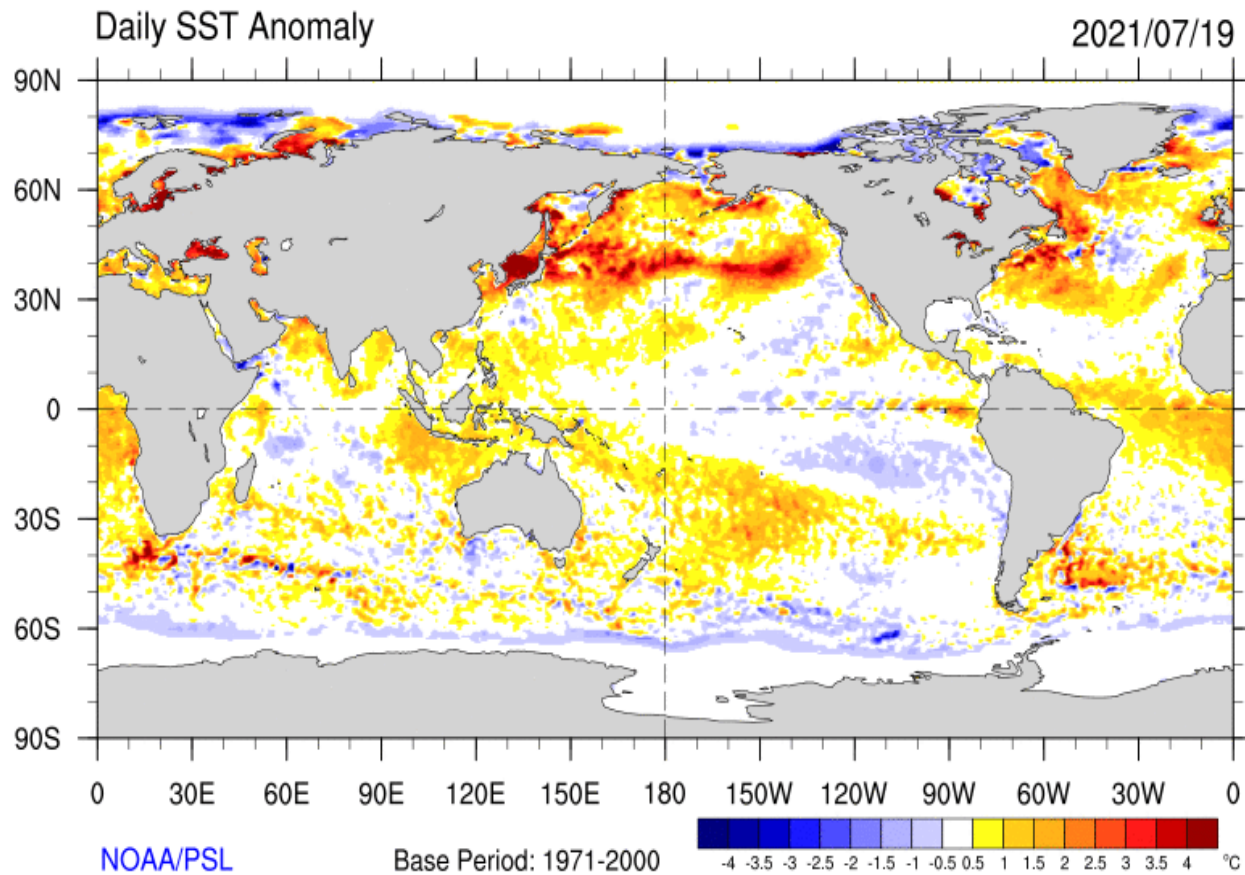
<https://www.nnvl.noaa.gov/view/globaldata.html#SSTA>

## Daily SST July 21

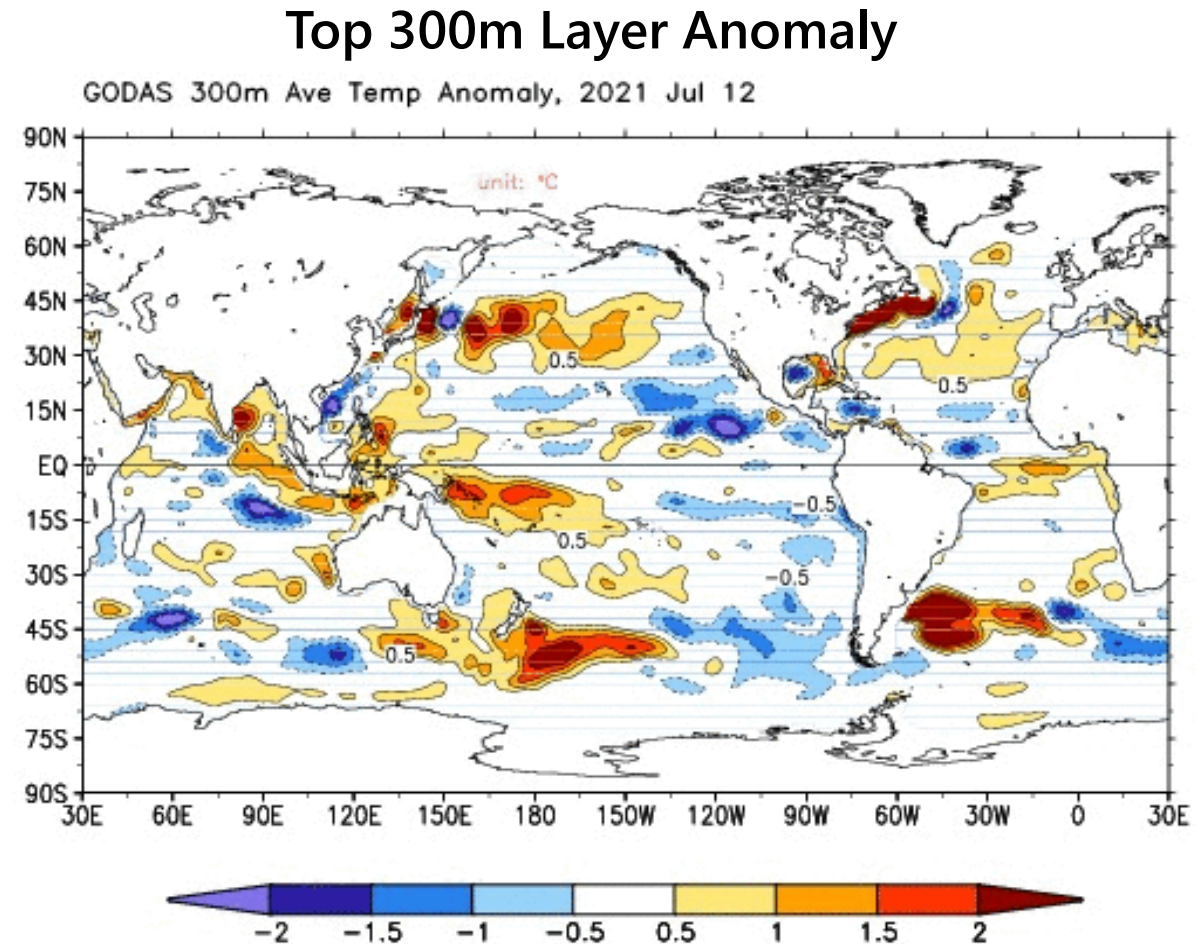


# Are the anomalies deep?

Deep anomalies tend to last longer, becoming useful for subseasonal forecasting.



Source: <https://psl.noaa.gov/map/clim/sst.shtml>



Source: CPC GODAS, <https://www.cpc.ncep.noaa.gov/products/GODAS/>



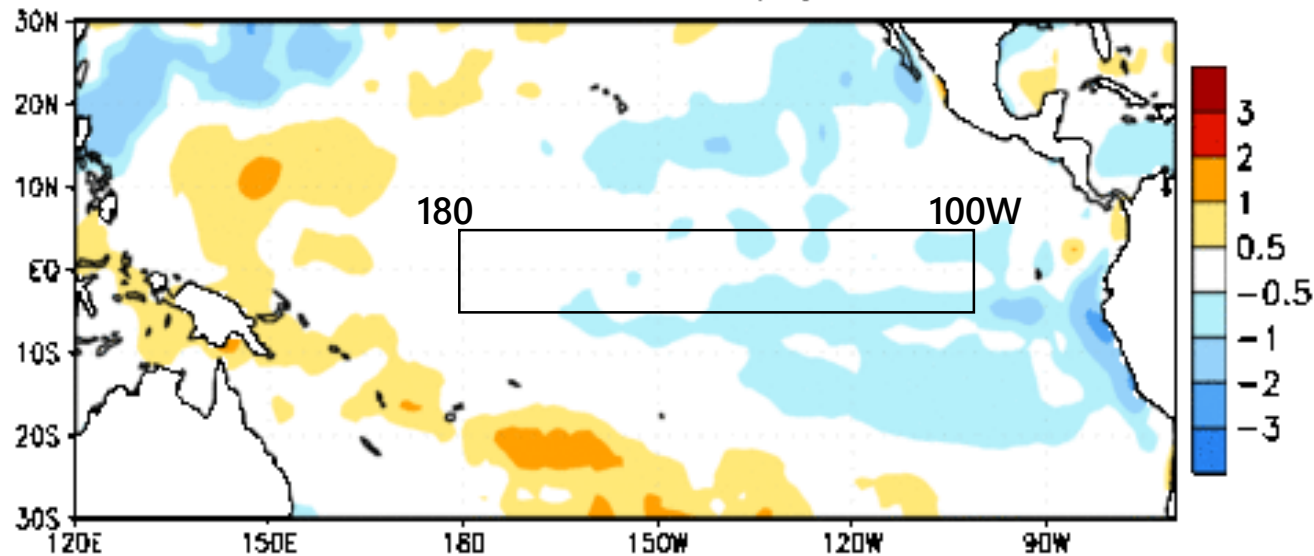
# ENSO: Neutral

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

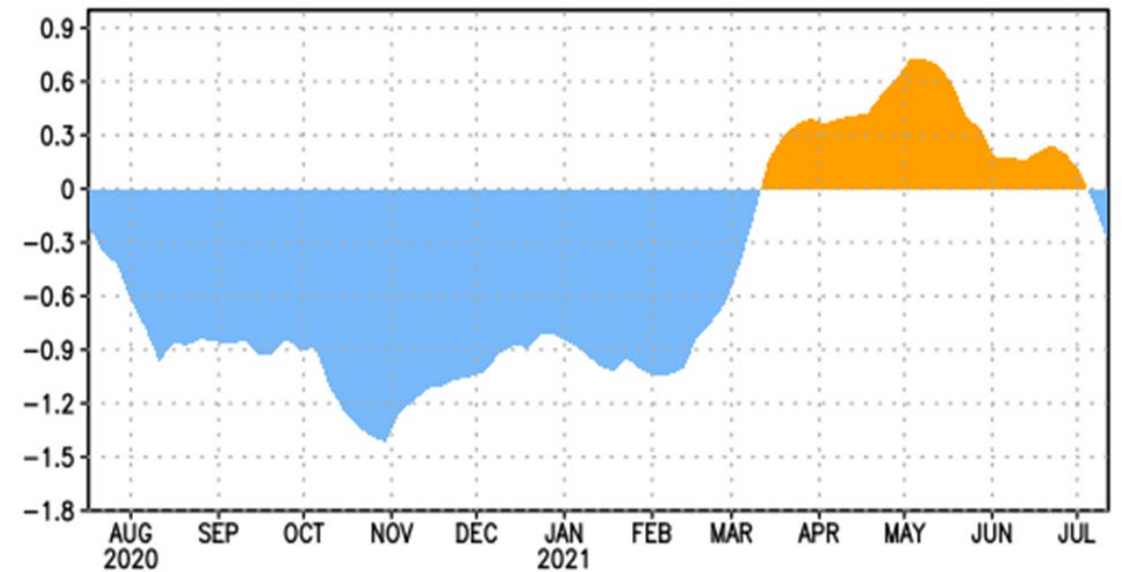
ENSO-neutral conditions are present.\*

Equatorial sea surface temperatures (SSTs) are near average across most of the Pacific Ocean.

Week centered on 28 APR 2021  
SST Anomalies (°C)



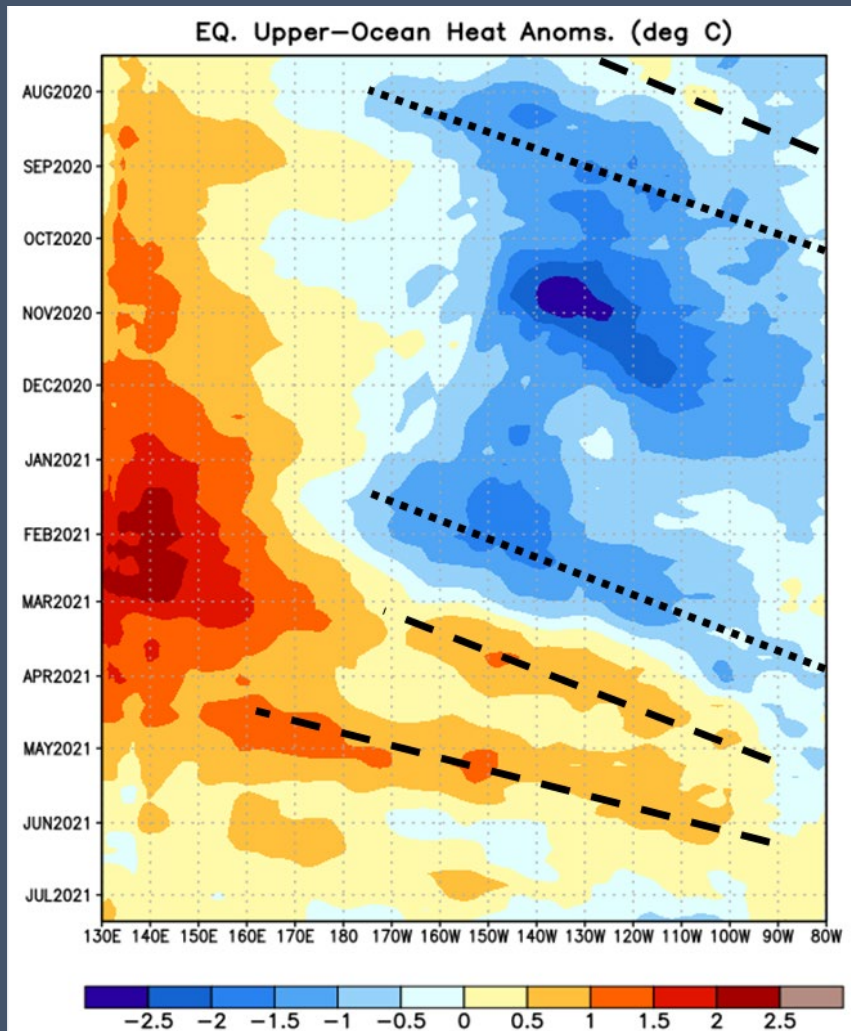
EQ. Upper-Ocean Heat Anoms. (deg C) for 180–100W



Source: CPC

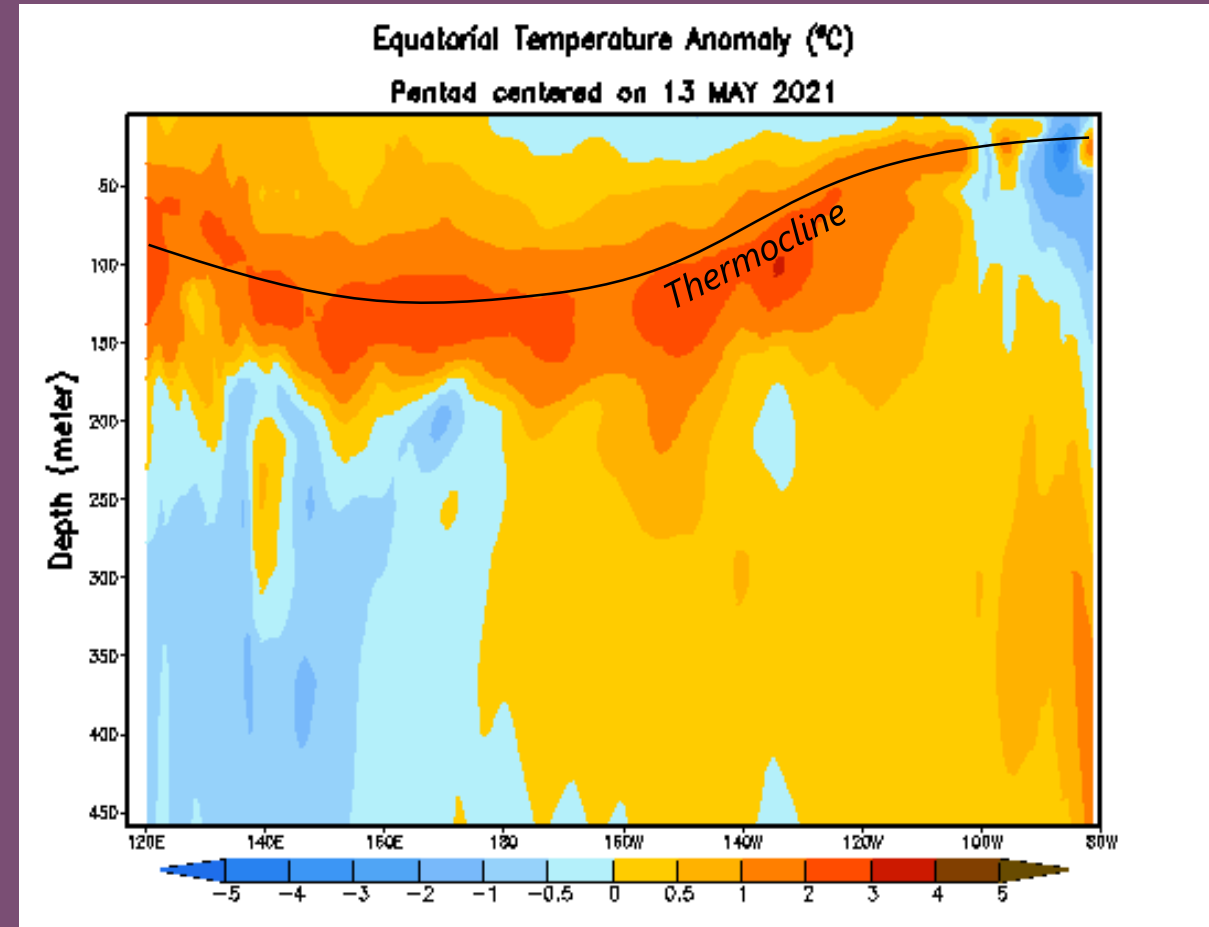
# ENSO: Oceanic Kelvin Waves

## Hovmöller: Heat Content



Source:  
CPC

## Equatorial Pacific Temp. Anomaly



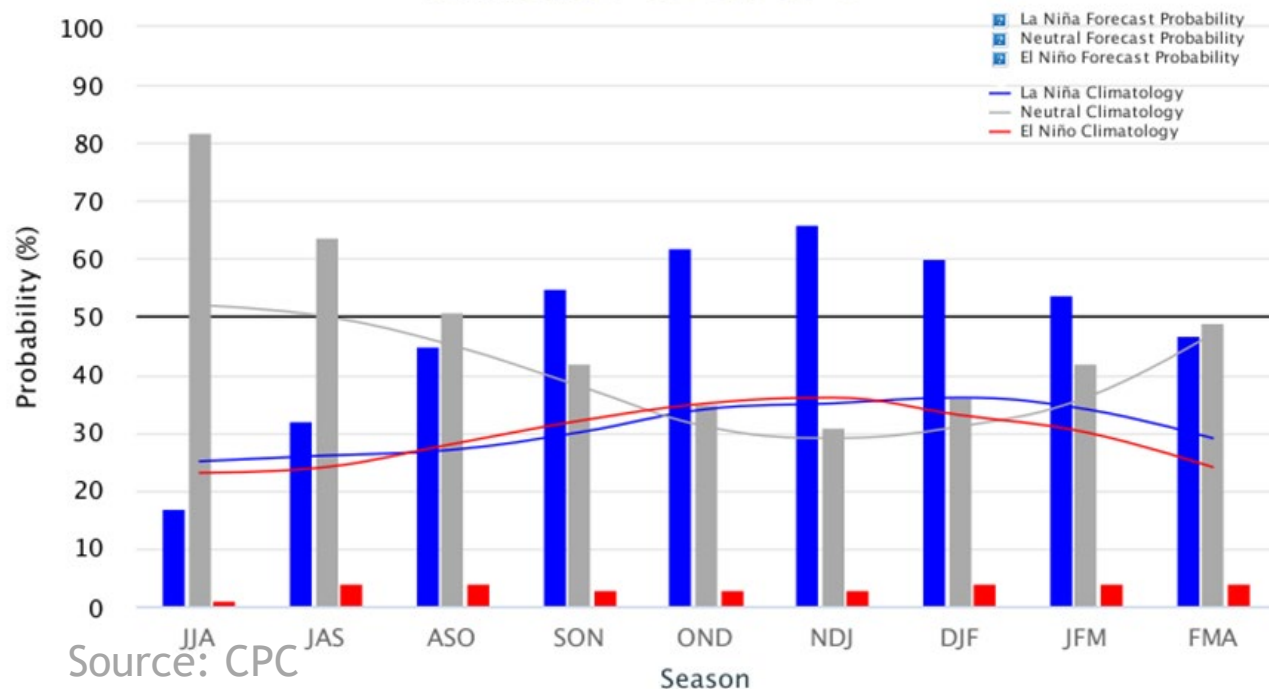
# ENSO Outlook

ENSO-neutral is favored through the N. Hem. summer and into the fall (51% chance for Aug-Oct), with La Niña potentially emerging in Sept-Nov and lasting through the 2021-22 winter (66% chance during Nov-Jan).\*

## CPC/IRI Probabilistic Forecast

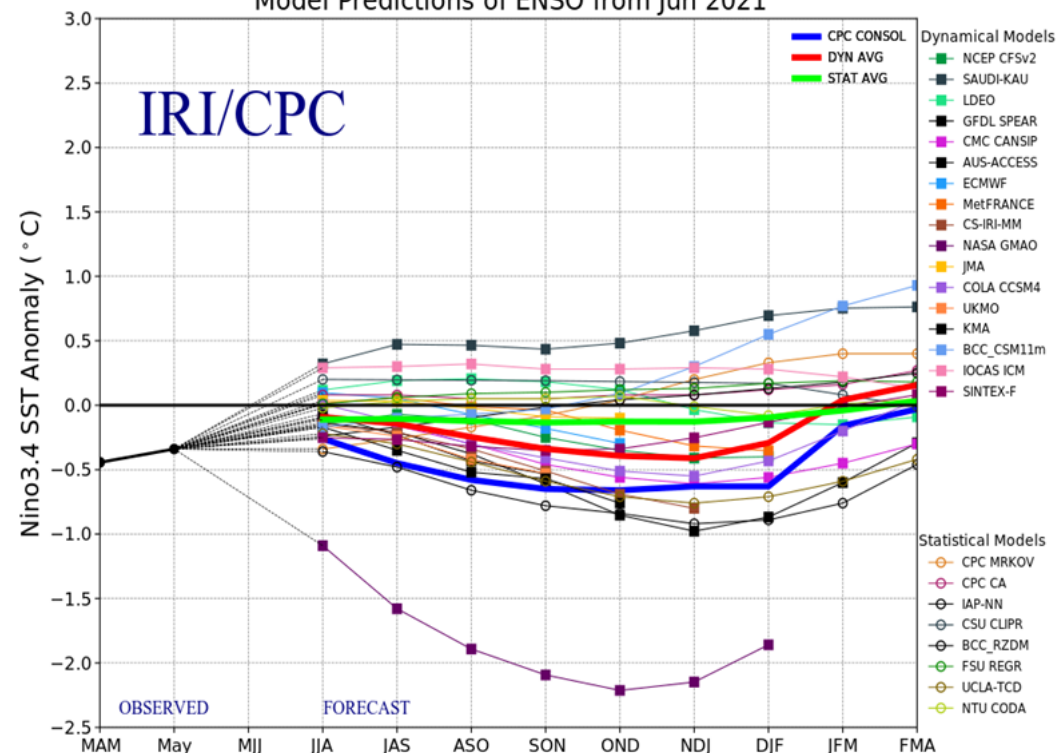
Early-July 2021 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO:  $-0.5^{\circ}\text{C}$  to  $0.5^{\circ}\text{C}$



## IRI/CPC Dynamic Models

Model Predictions of ENSO from Jun 2021

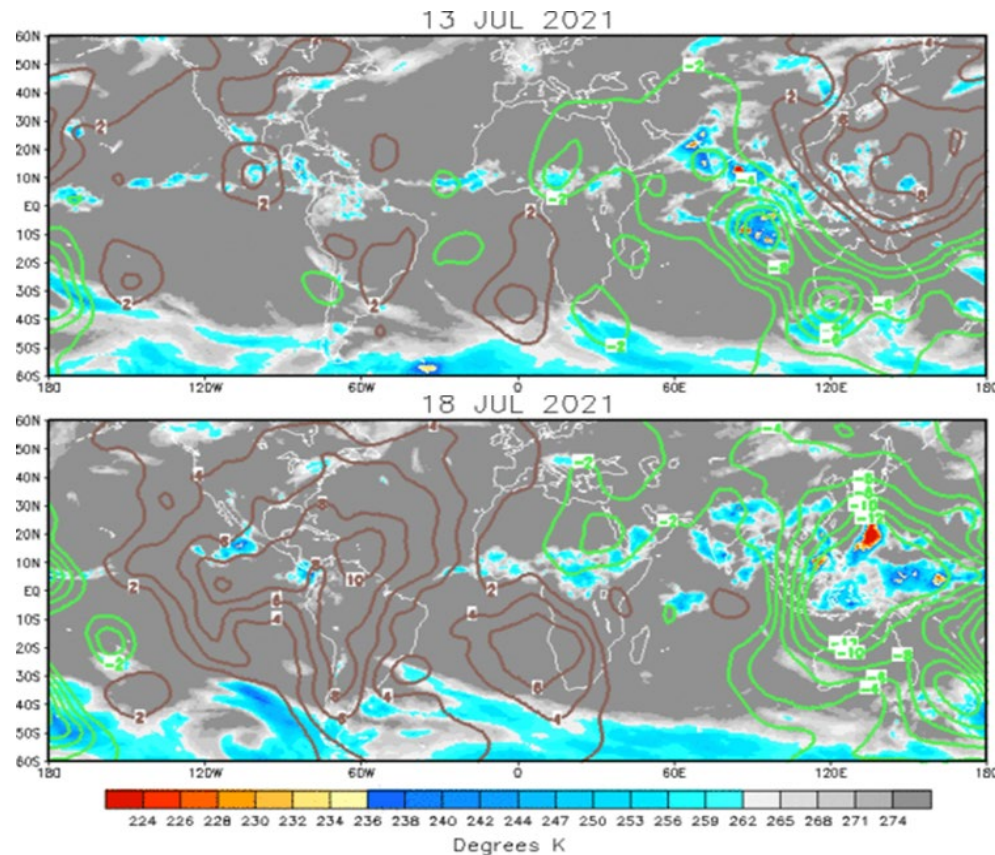




# Madden-Julian Oscillation (MJO)

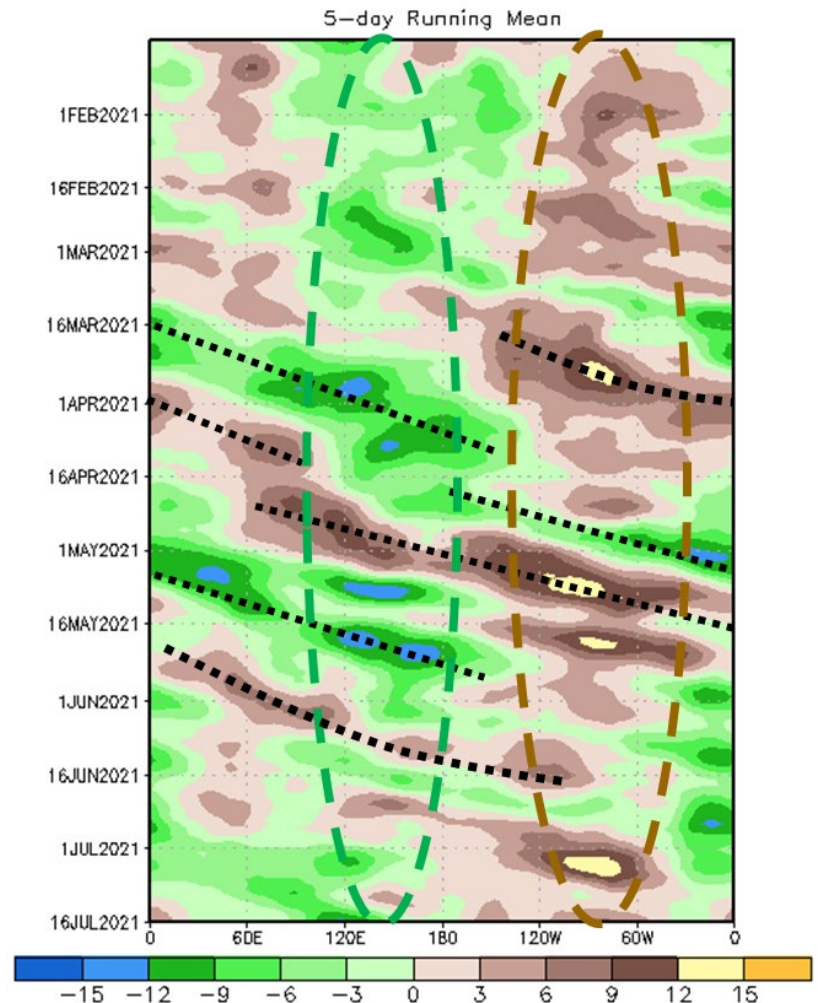
Now: Wave-1 of the MJO is organizing:

- Upper divergent (wet) over the Western Pacific
- Upper convergent (dry) over the Americas



Source: CPC

200-hPa Velocity Potential Anomaly: 5N-5S

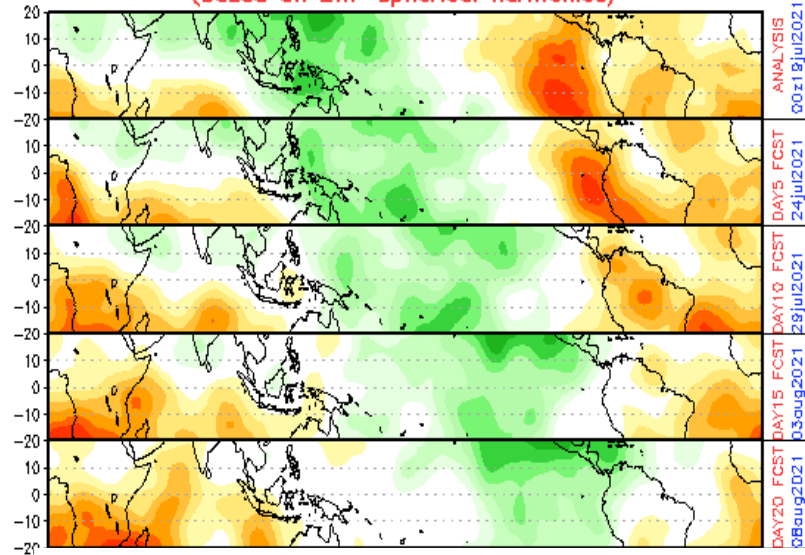


 Favors rain storms  Favors limited rainfall

# MJO Forecasts

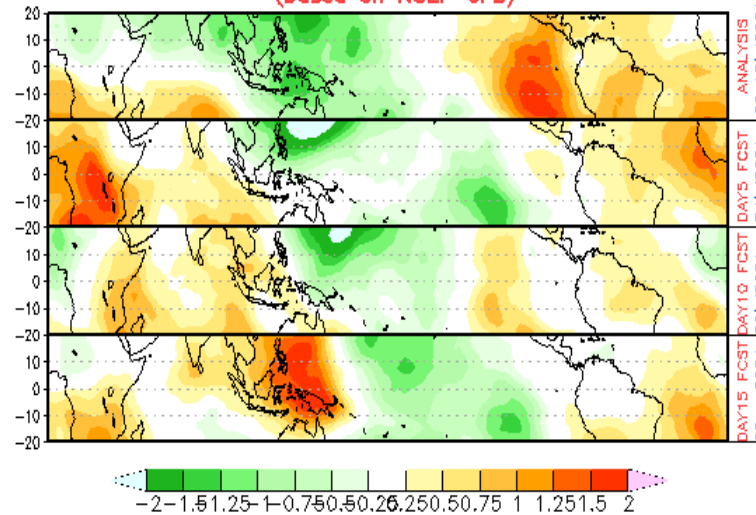
## EWP

CHI 200 hPa 40-DAY forecast (00z19jul2021–28aug2021)  
(based on EWP spherical harmonics)



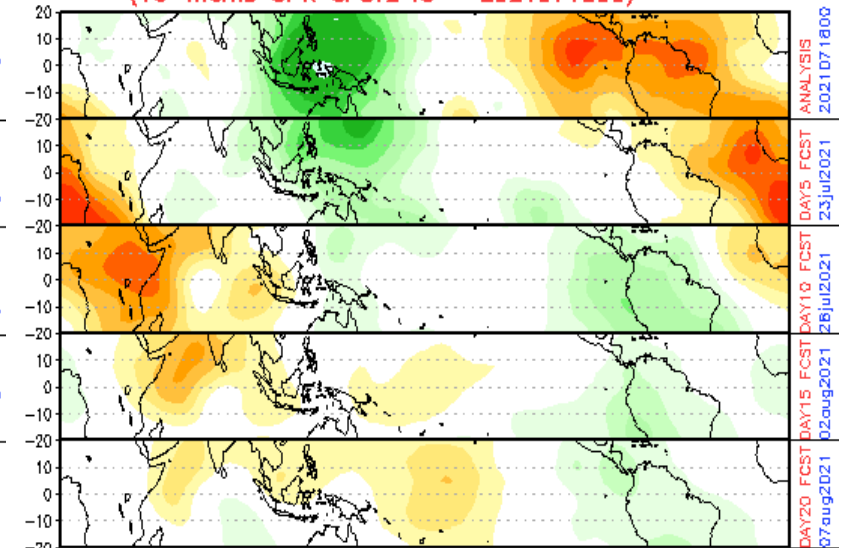
## GFS

CHI 200 hPa 15-DAY forecast (00z19jul2021–03aug2021)  
(based on NCEP GFS)



## CFS

CHI 200 hPa 40-DAY forecast (00z18jul2021–27aug2021)  
(16-memb OPR CFSv2 IC = 2021071800)

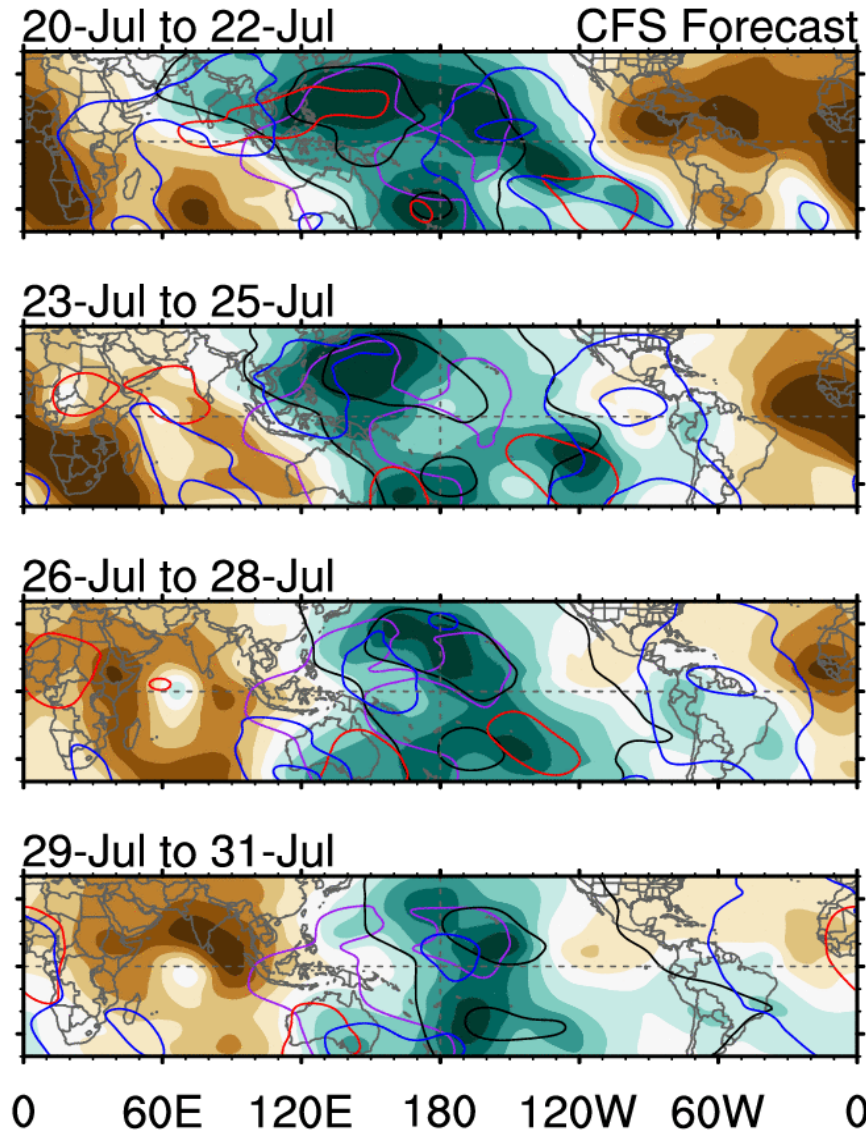


Upper convergent (dry): Peaking now since Mid-July, ending next week

Upper divergent (wet): ~ end of the month through first half of August



# Tropospheric Equatorial Waves



- MJO Pulse in the Western Pacific is triggering Kelvin Waves
- A [Kelvin](#) wave crossing the Americas between July 23-28
- Enhancement of convection in Costa Rica and Nicaragua Thursday-Saturday.



-9 -7 -5 -3 -1 1 3 5 7 9  $\times 10^6 \text{ m}^2 \text{ s}^{-1}$

7-day CHI200 with CFS forecasts

Wed 2020-09-16 1018 UTC

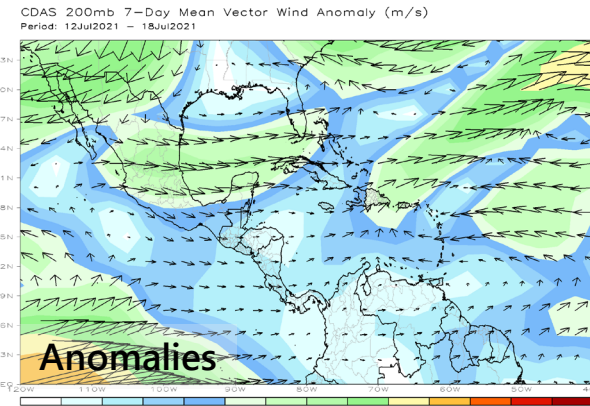
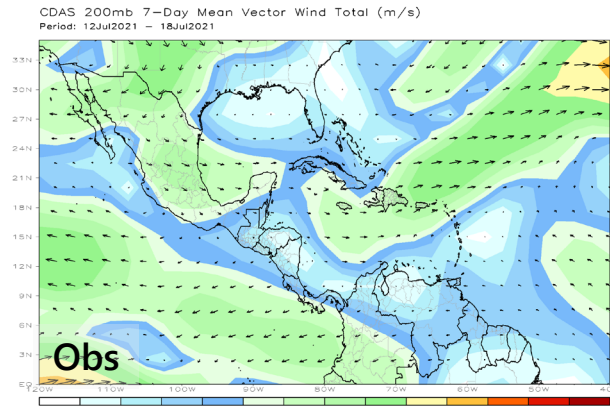
— MJO — Kelvin x2  
— Low — ER

Contours at -2, -6  $\times 10^6 \text{ m}^2 \text{ s}^{-1}$

Carl Schreck  
carl\_schreck@ncsu.edu

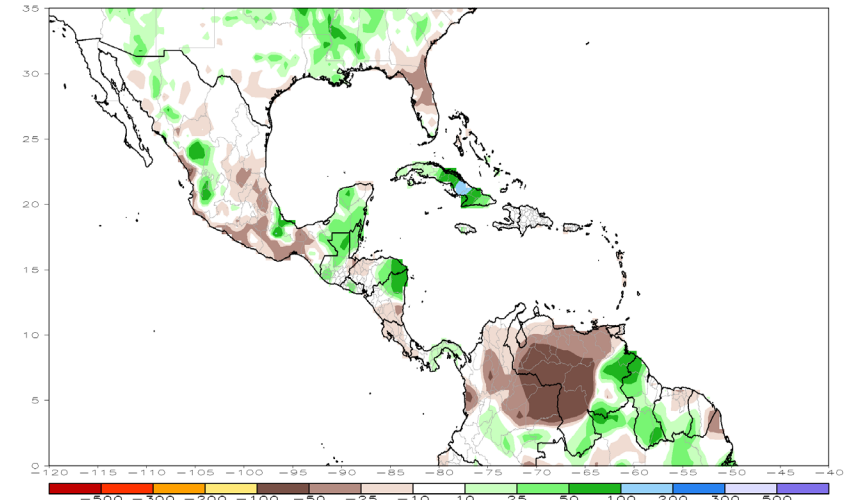
# Last Week's Circulation and Rainfall – Tropical Americas

200  
hPa

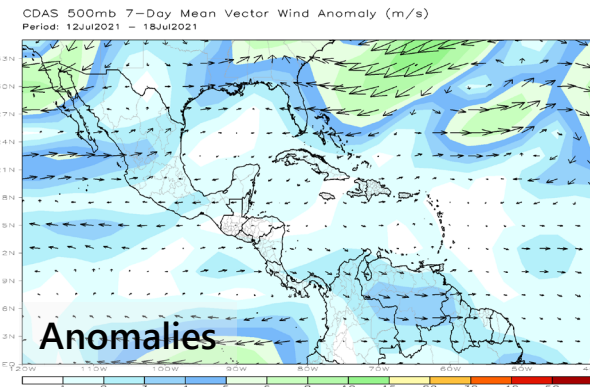
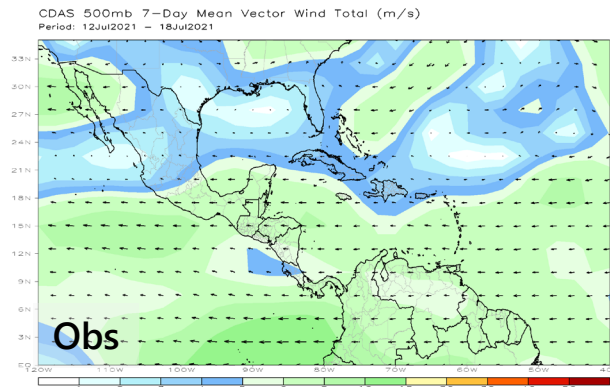


Rainfall

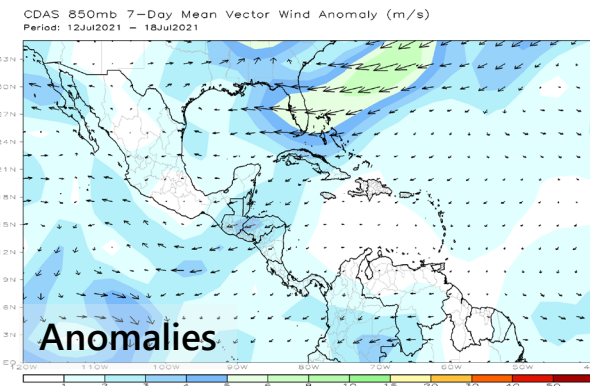
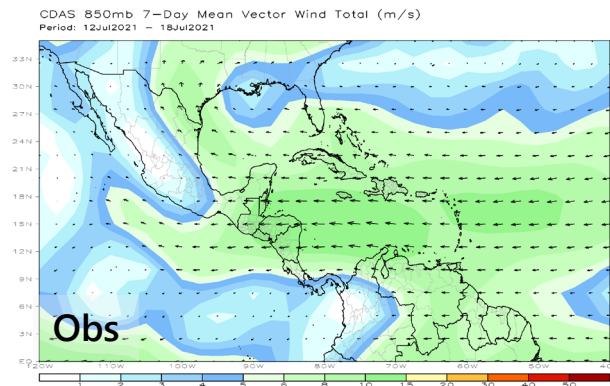
CPC Unified Gauge 7-Day Total Rainfall Anomaly (mm)  
Period: 13Jul2021 – 19Jul2021



500  
hPa

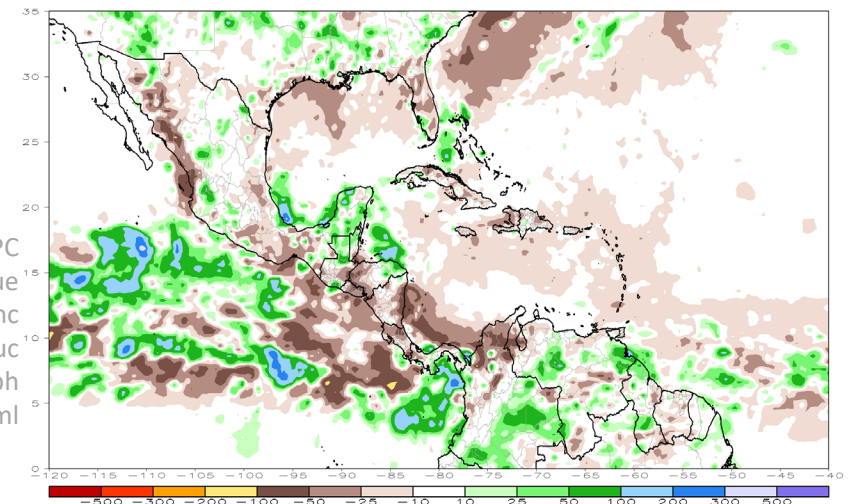


850  
hPa



CMORPH: CPC  
Morphing Technique  
[https://www.cpc.ncep.noaa.gov/products/janowiak/cmorph\\_description.html](https://www.cpc.ncep.noaa.gov/products/janowiak/cmorph_description.html)

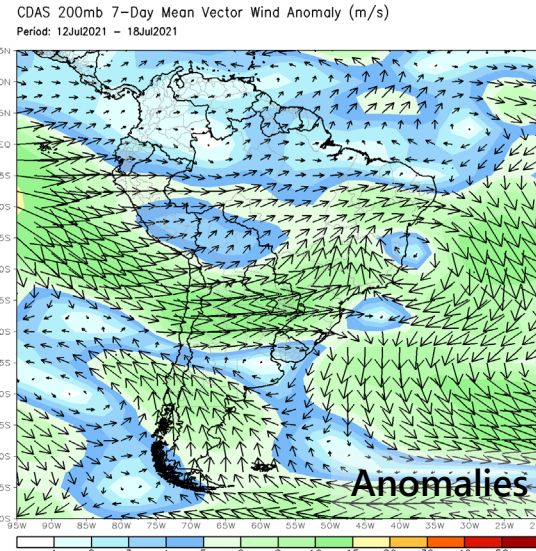
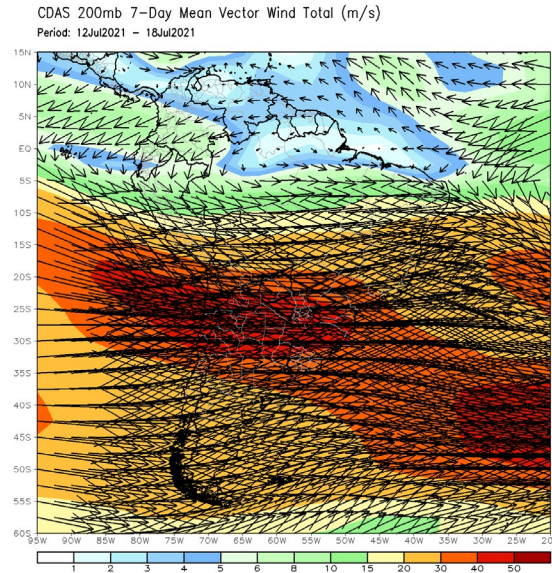
CMORPH 7-Day Total Rainfall Anomaly (mm)  
Period: 13Jul2021 – 19Jul2021



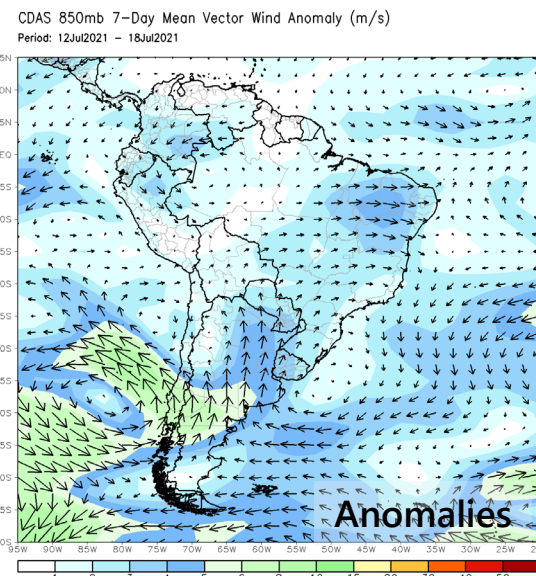
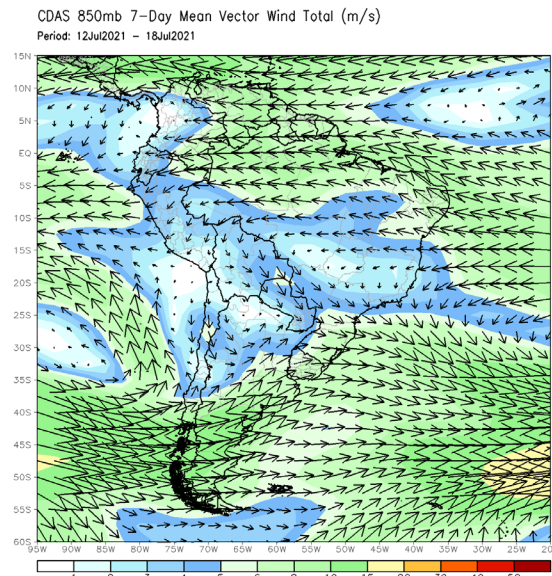


# Last Week's Circulation and Rainfall – South America

200  
hPa

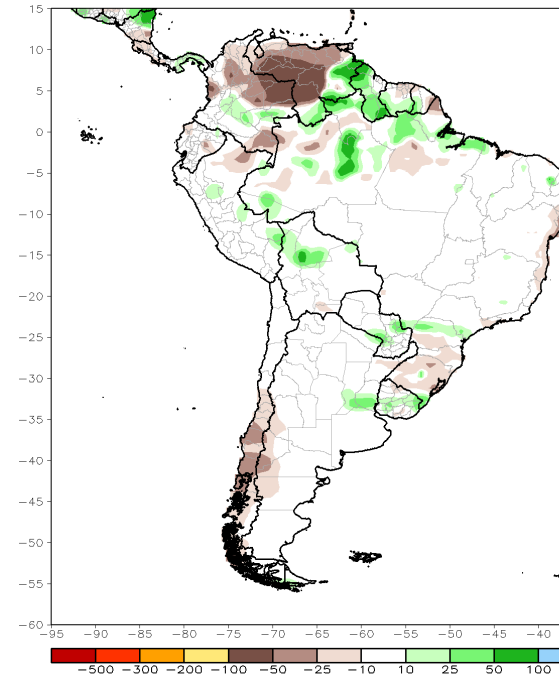


850  
hPa

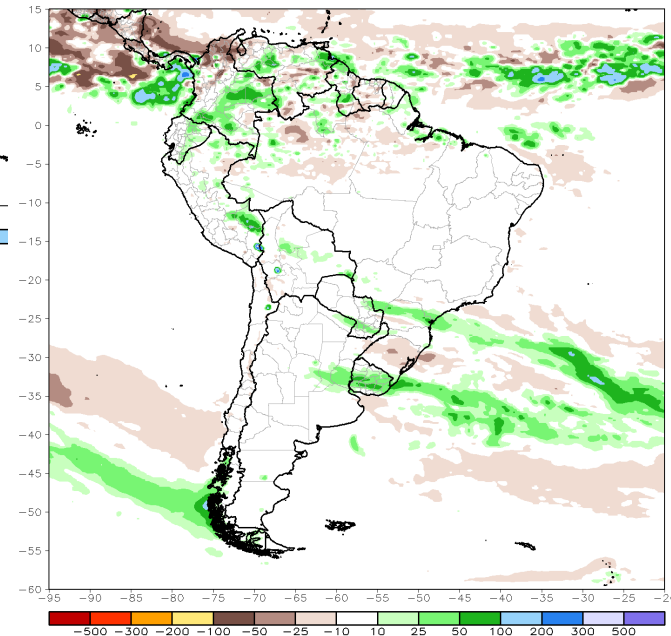


## Rainfall

CPC Unified Gauge 7-Day Total Rainfall Anomaly (mm)  
Period: 13Jul2021 – 19Jul2021



CMORPH 7-Day Total Rainfall Anomaly (mm)  
Period: 13Jul2021 – 19Jul2021



CMORPH: CPC Morphing Technique  
[https://www.cpc.ncep.noaa.gov/products/janowiak/cmorph\\_description.html](https://www.cpc.ncep.noaa.gov/products/janowiak/cmorph_description.html)





**¡Gracias!**

**Thank you!**