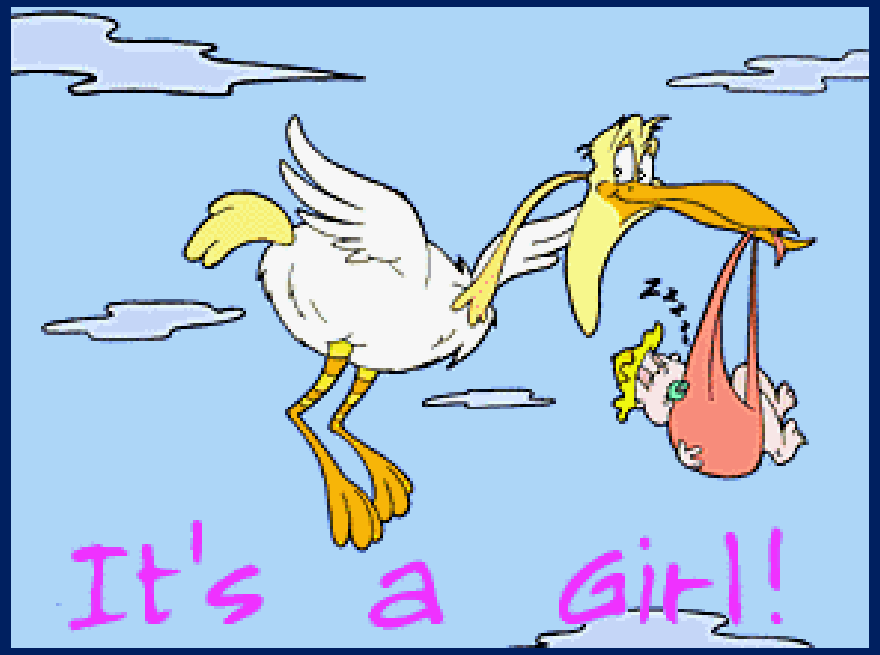
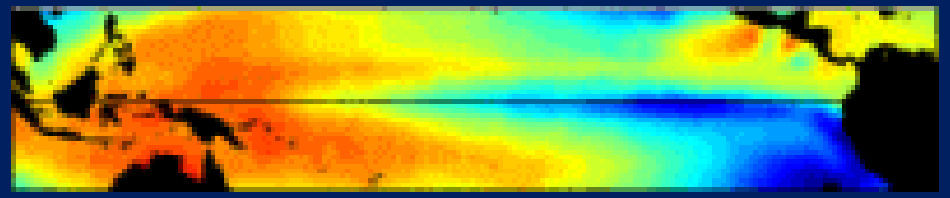
Perspectiva Climática, 2016-2017.
19 de Agosto 2016. CEMEDE-UNA, Nicoya

M.Sc. Irina Katchan

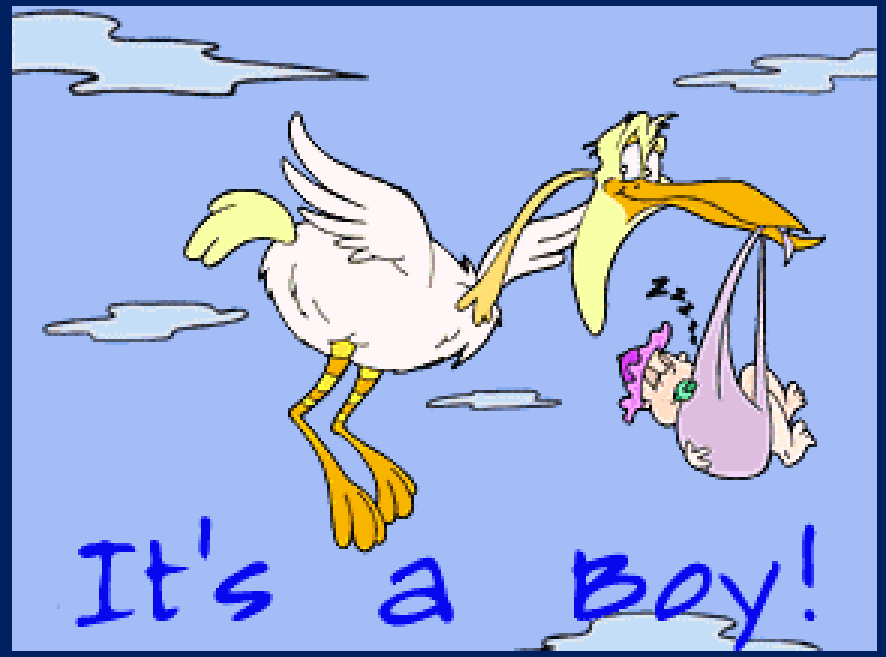
ENOS

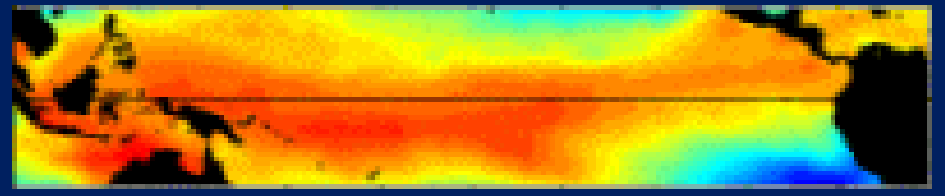
La Niña



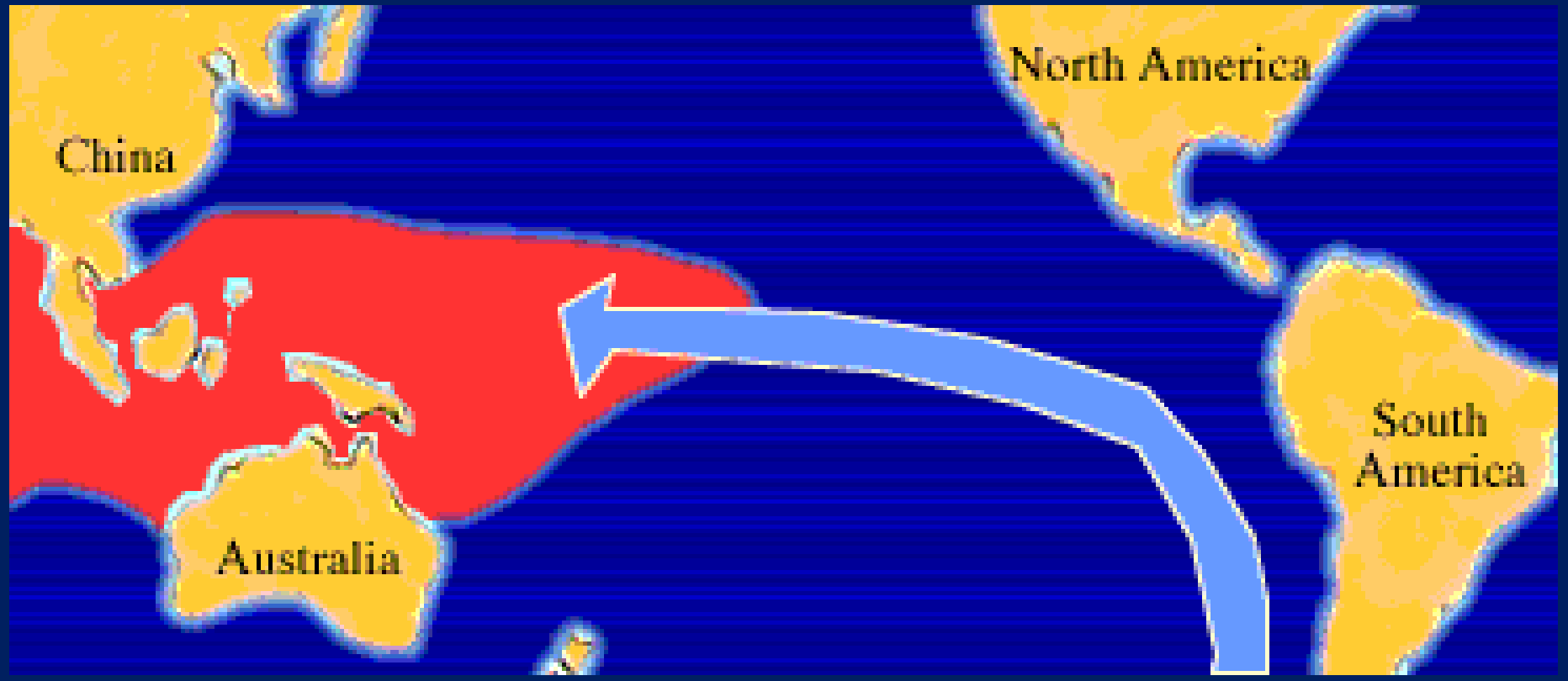


El Niño



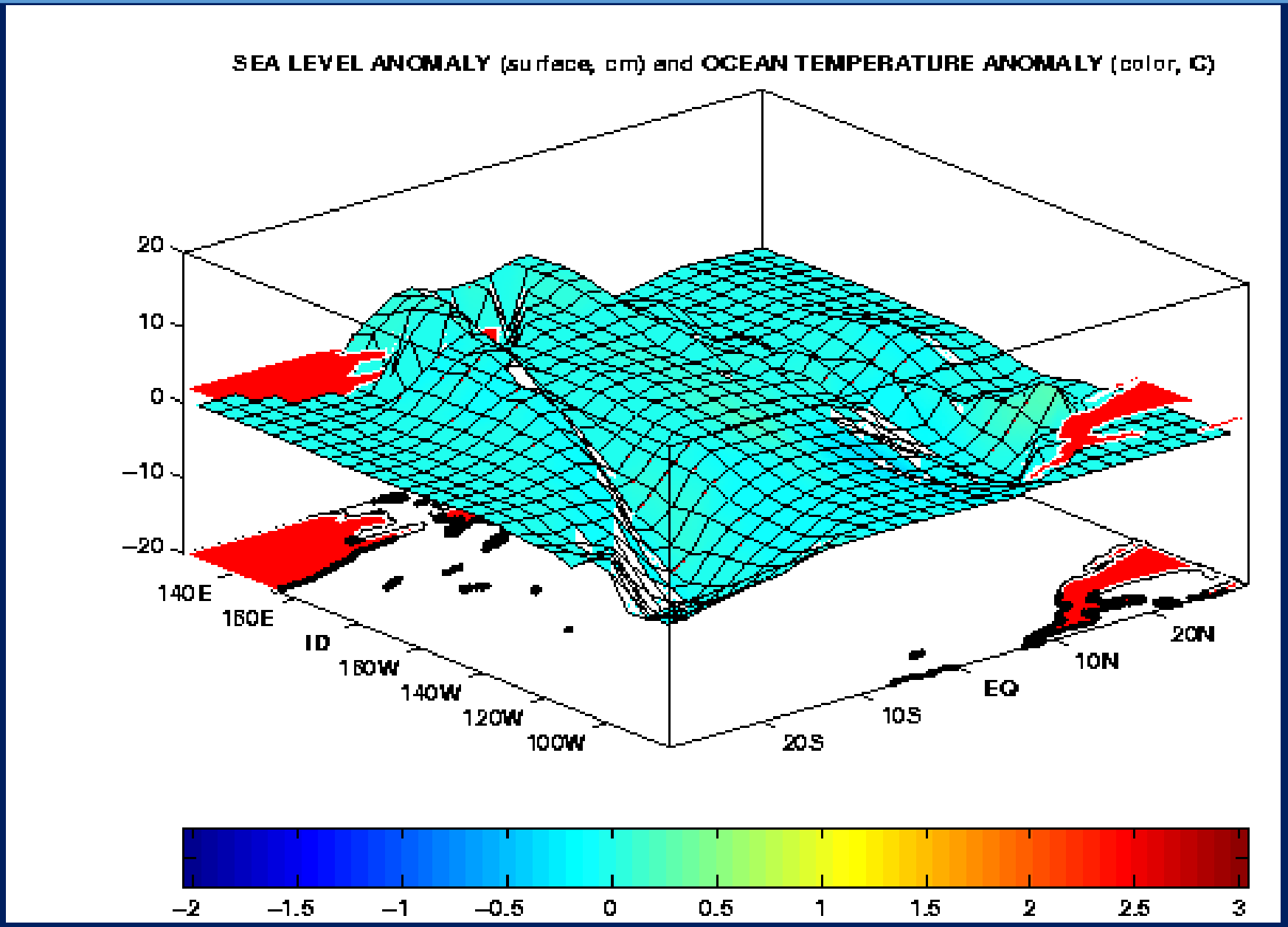


ENOS

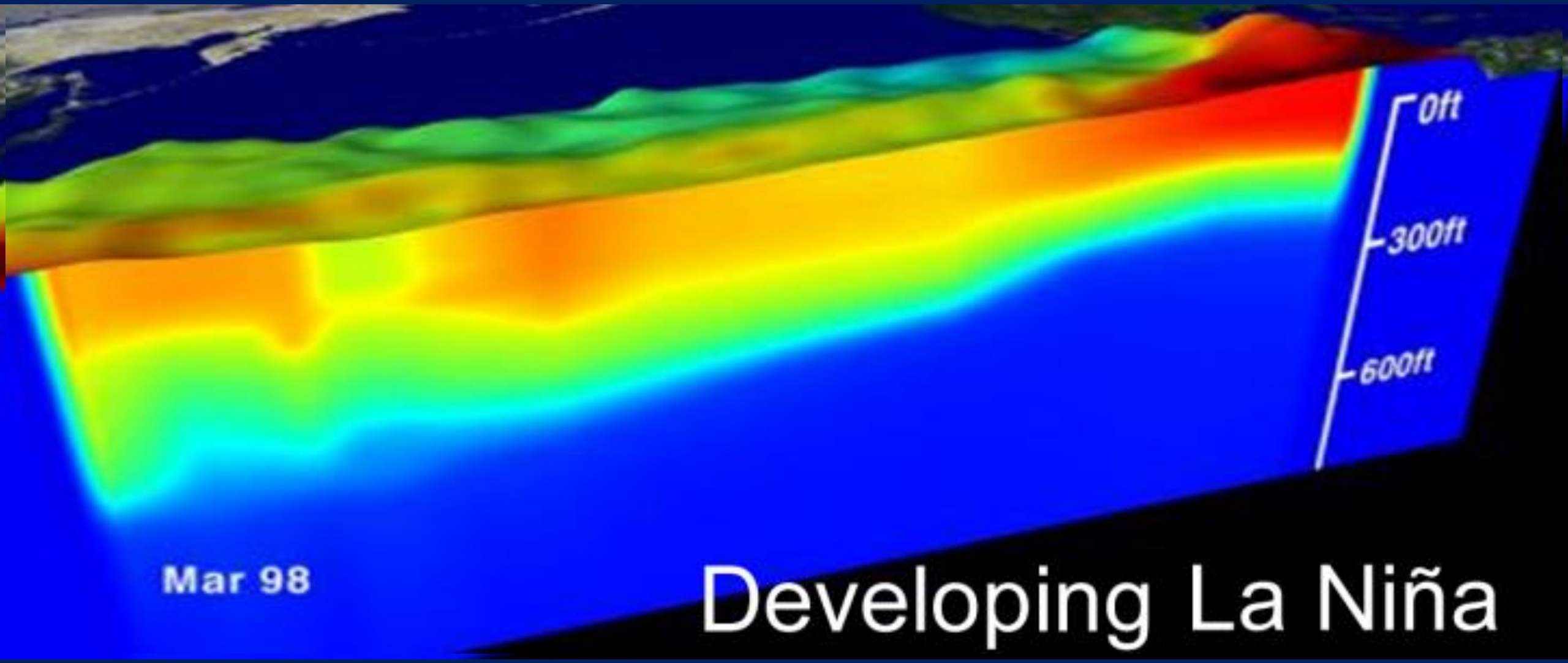


En condiciones NORMALES el Pacífico occidental siempre es más caliente que la parte central y oriental. Durante El Niño el calor se distribuye en todo el océano.

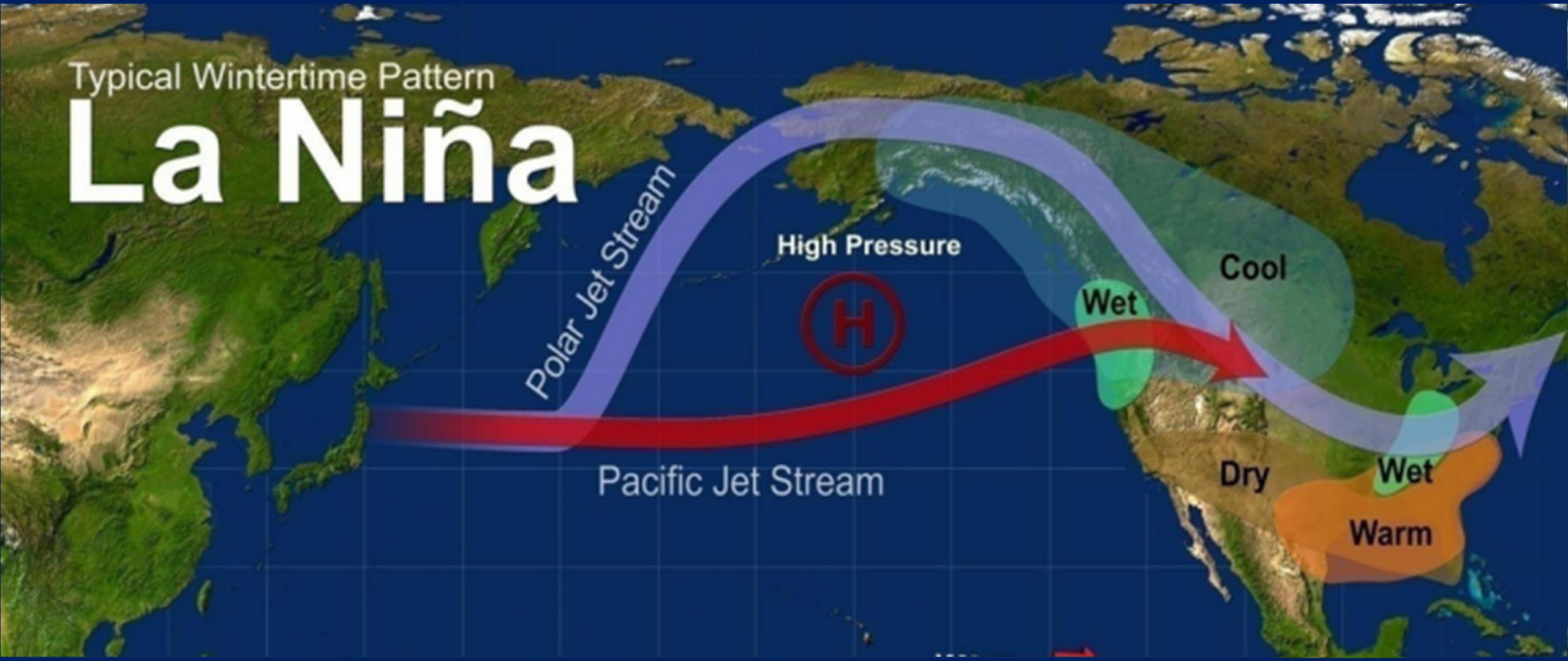
ENOS


SEA LEVEL ANOMALY (surface, cm) and OCEAN TEMPERATURE ANOMALY (color, C)
20
10
0
−10
−20
140E
160E
ID
160W
140W
120W
100W
20S
10S
EQ
10N
20N
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3

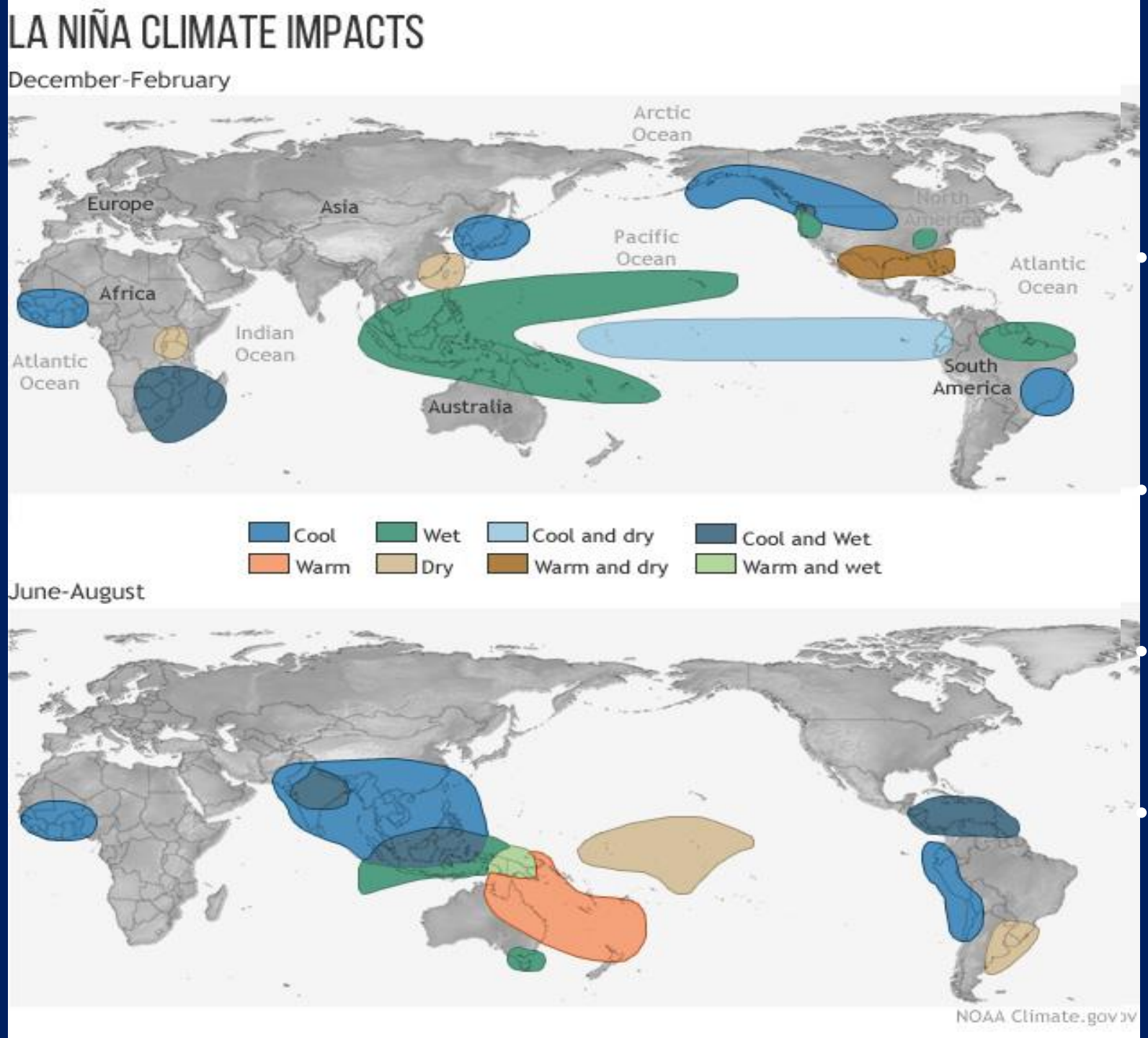
ENOS



ENOS


Typical Wintertime Pattern
La Niña
Polar Jet Stream
High Pressure
H
Cool
Wet
Pacific Jet Stream
Dry
Wet
Warm

ENOS



- Los eventos de El Niño y La Niña tienden a desarrollarse durante el período Abr-Jun y se
- Tienden a alcanzar su máxima intensidad durante Diciembre-Febrero
- Típicamente persisten durante 9-12 meses, aunque a veces llegan a durar hasta 2 años
- Normalmente se repita cada 2 a 7 años

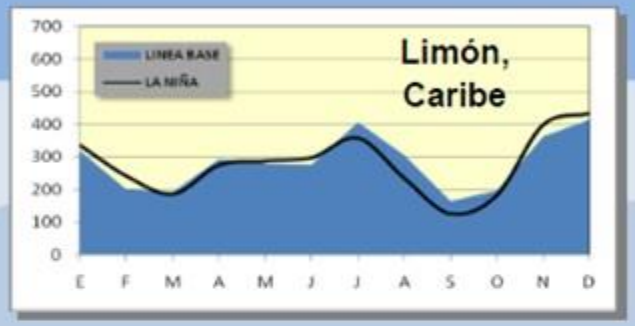
ENOS

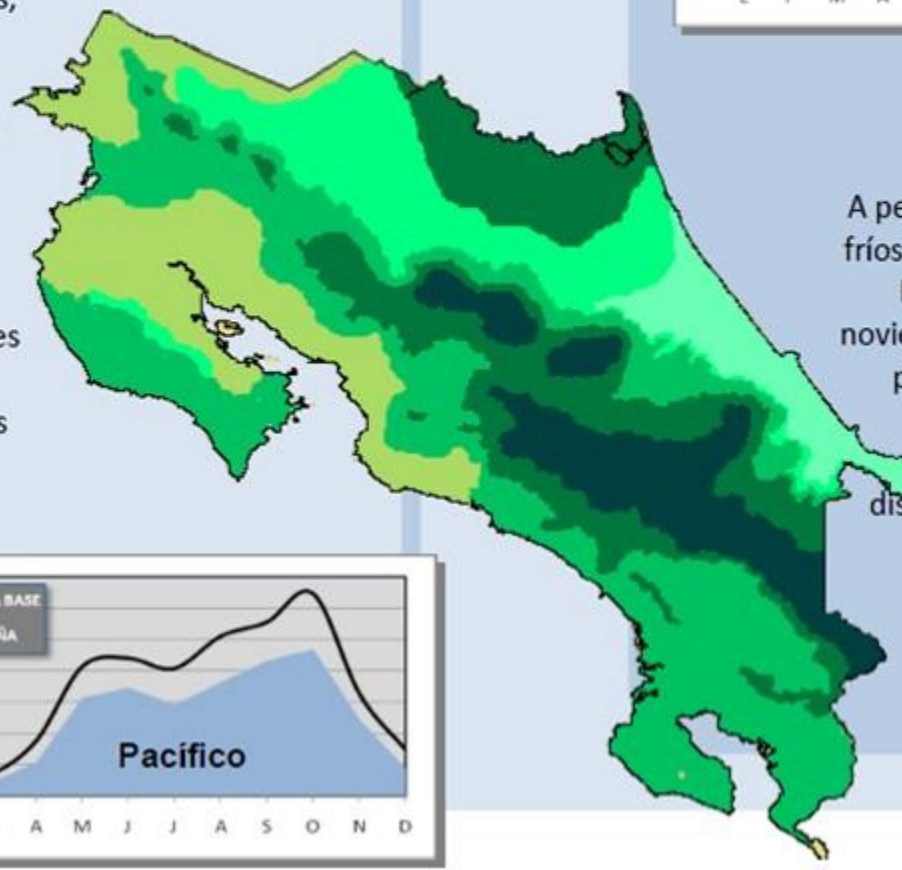
La Niña

La Niña

PACIFICO

Normalmente se pueden presentar condiciones lluviosas, sobre todo en el segundo período de la época lluviosa, debido a una mayor frecuencia de temporales asociados a eventos ciclónicos en el mar Caribe. Según Retana et al (2001), el 80% de años la Niña han coincidido con inundaciones en el Pacífico Norte de Costa Rica. También se ven afectadas las zonas normales de inundación.



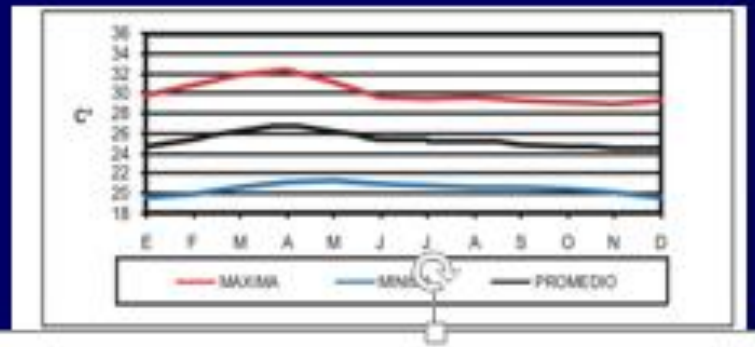


CARIBE

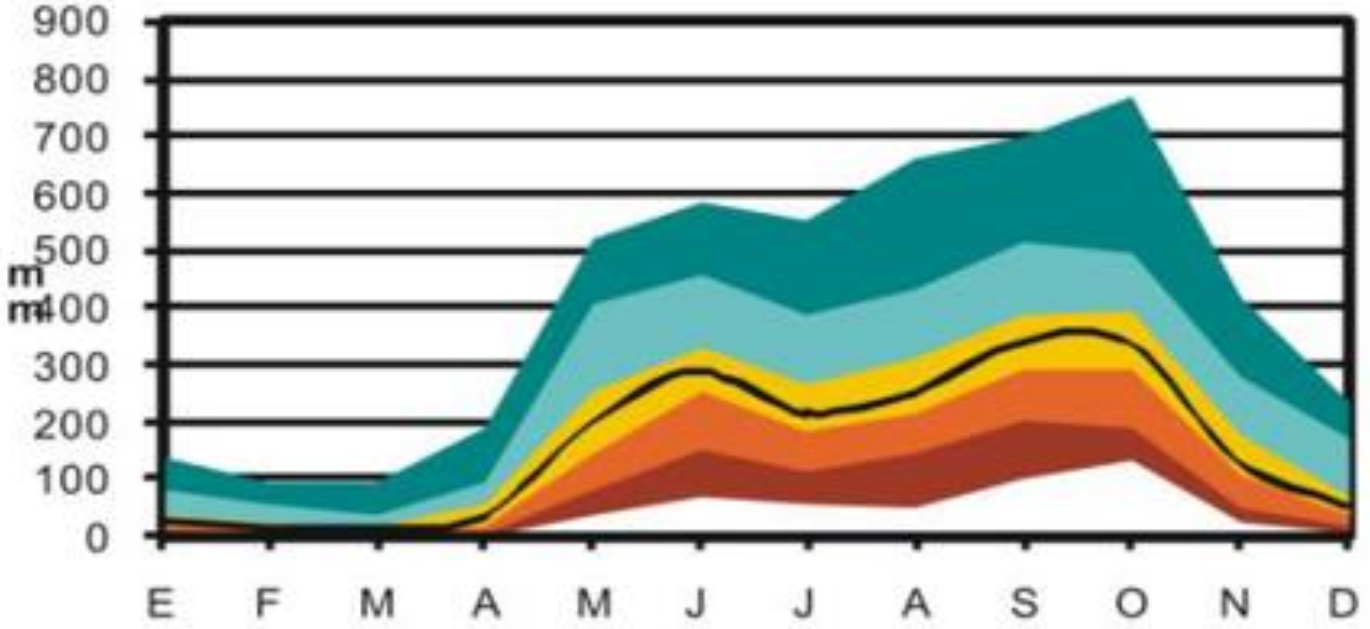
A pesar que el número de frentes fríos aumenta durante eventos La Niña (principalmente durante noviembre), el promedio anual de precipitación presenta valores normales o inferiores al promedio. Se observa una disminución de la lluvia durante los meses de julio, agosto y setiembre.

ENOS

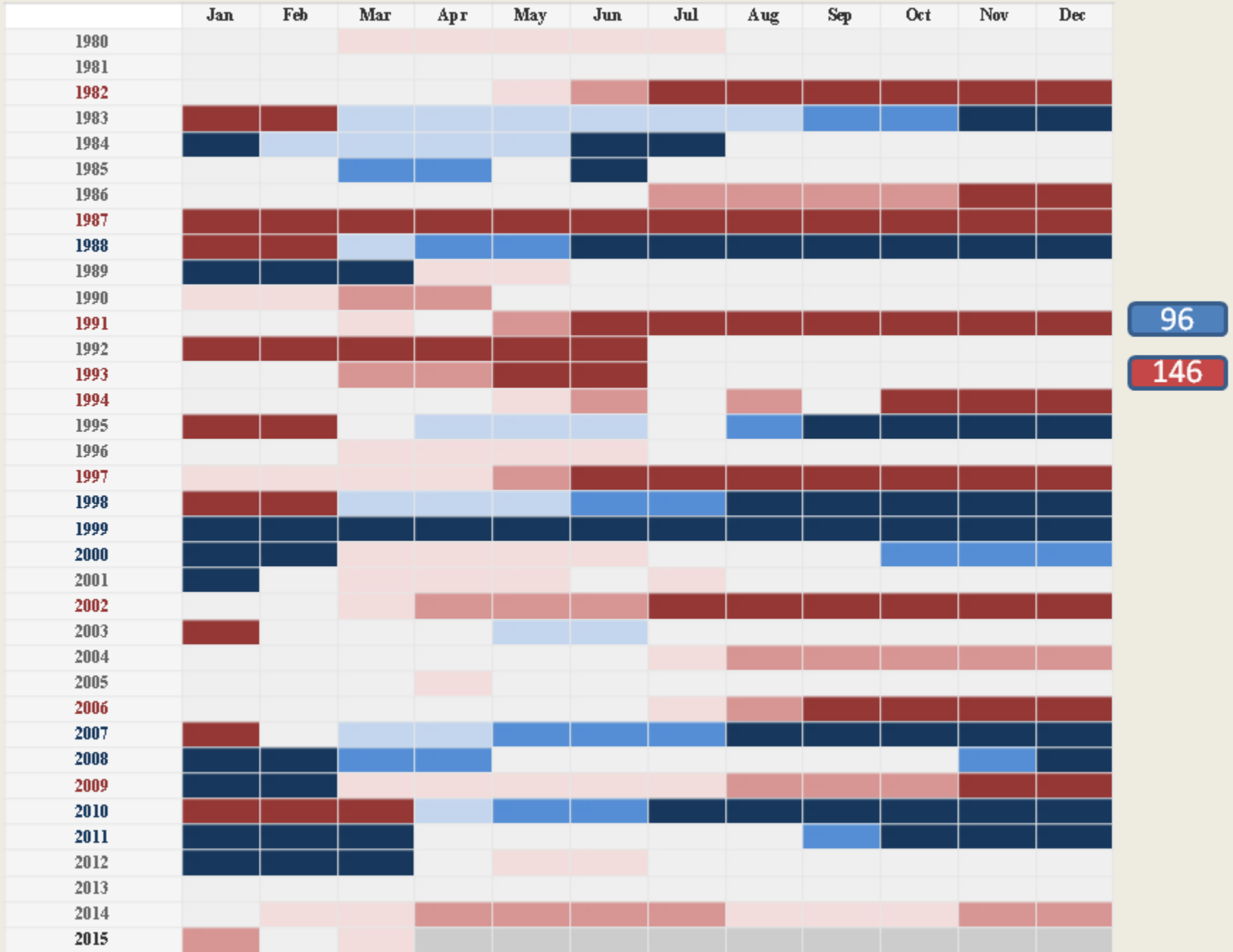
Comportamiento de ENOS en el Pacífico Norte

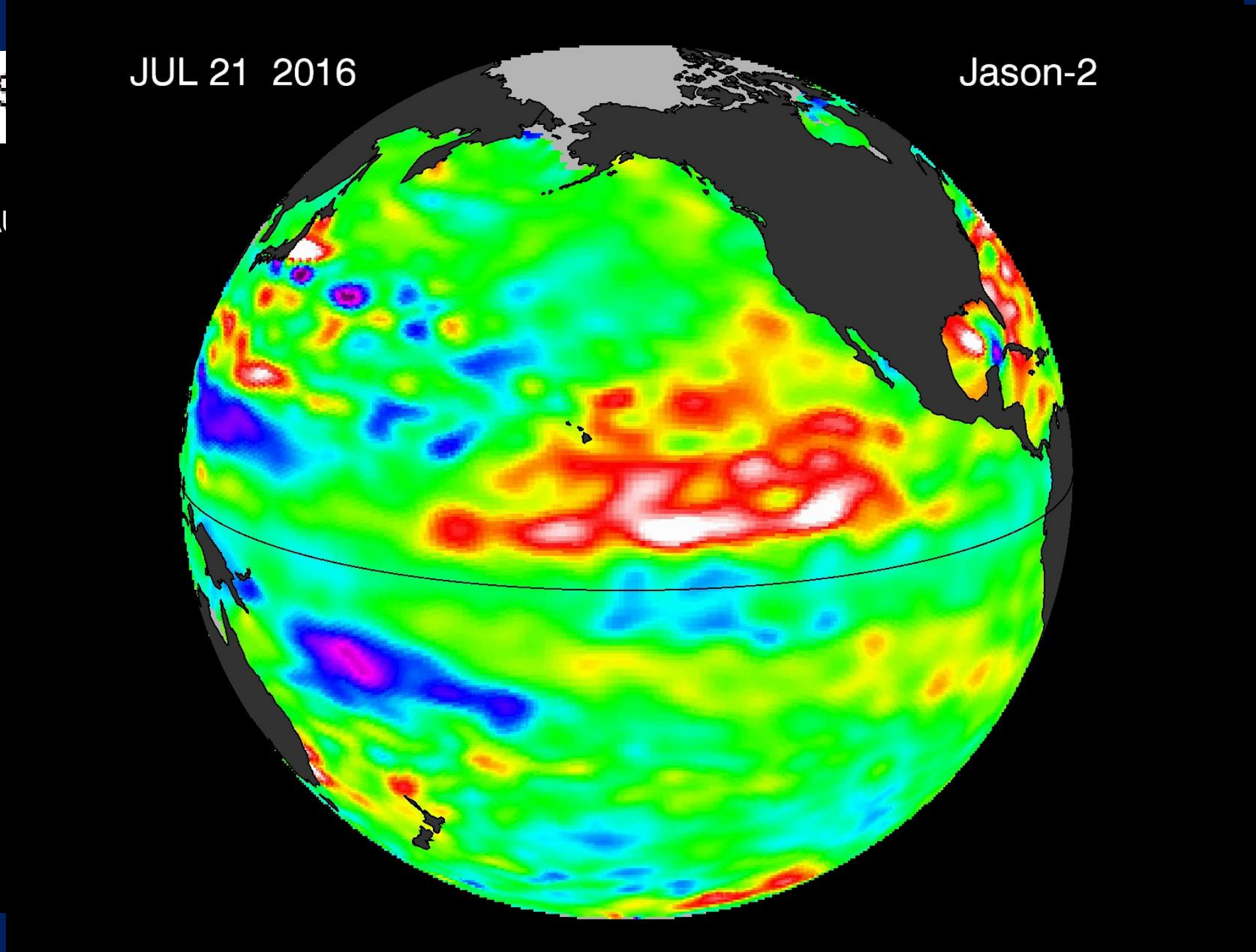


9.1°C
Amplitud
de temperatura

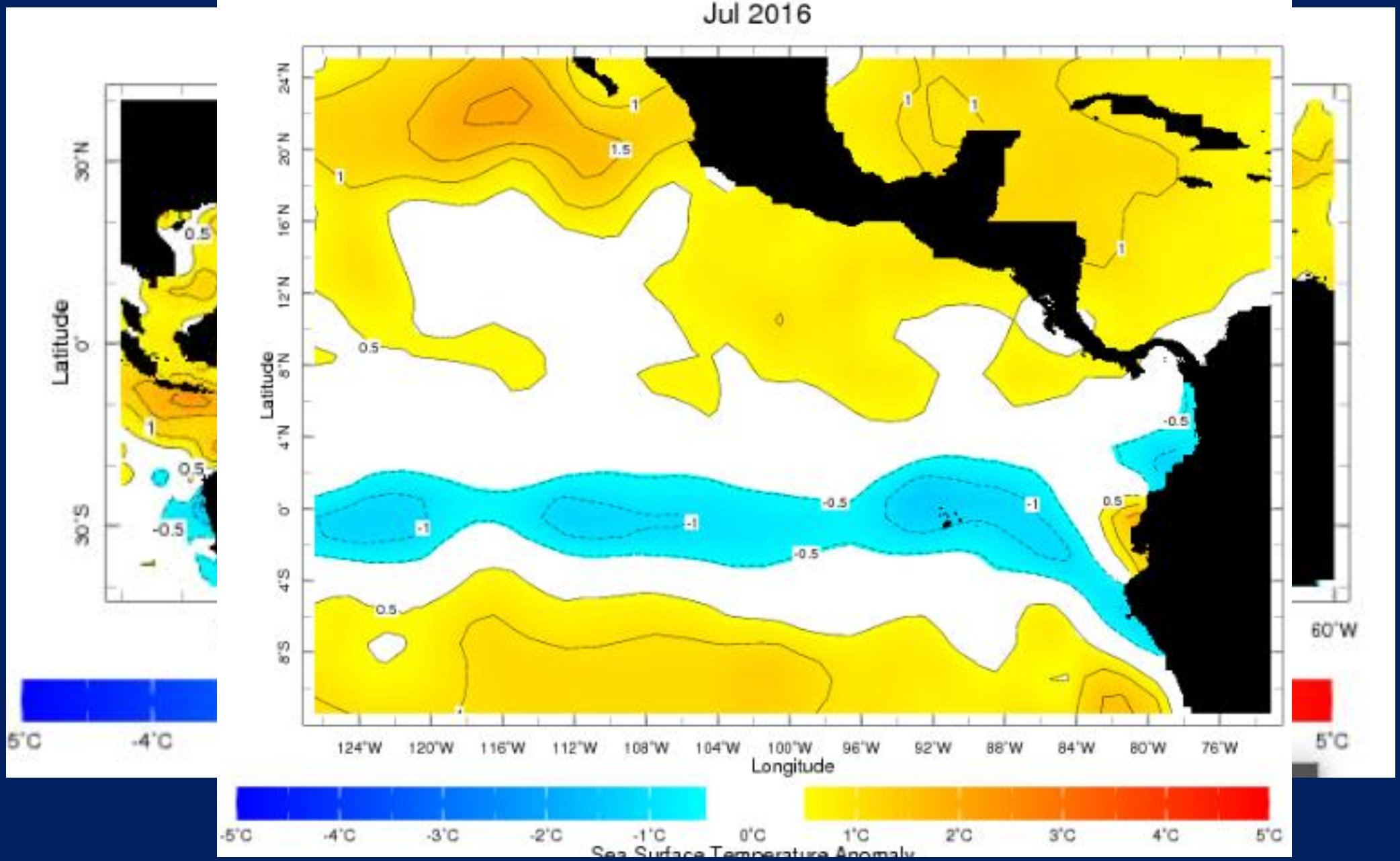


Episodios fríos y cálidos de ENOS

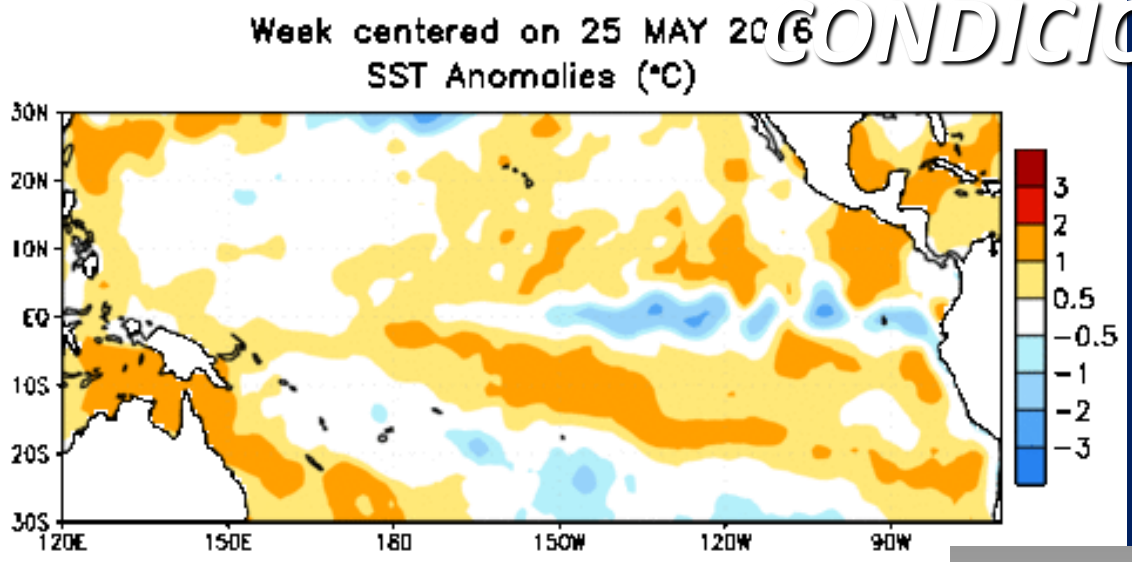


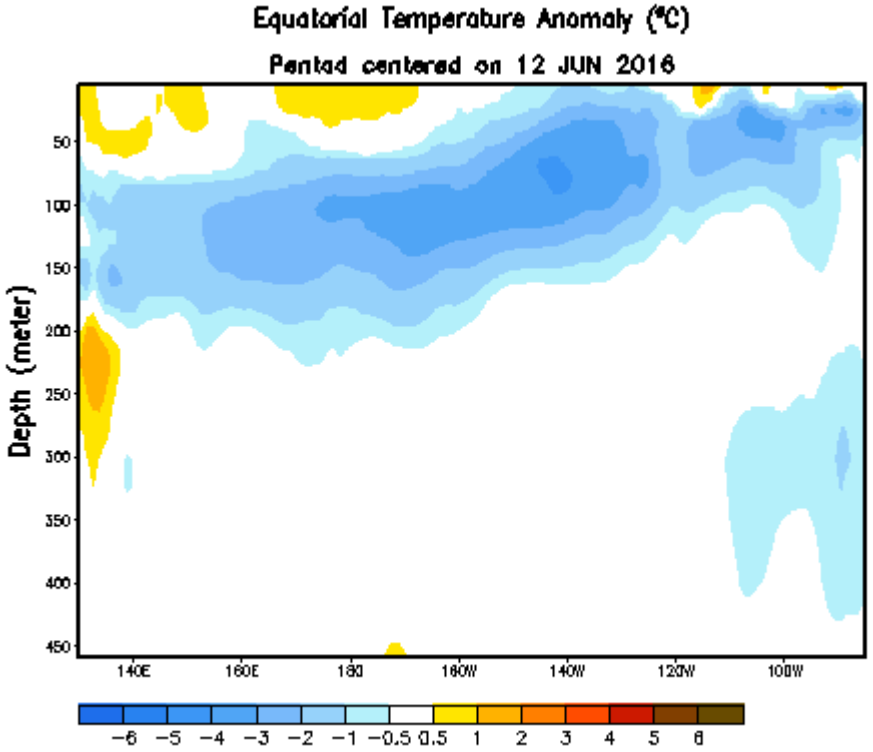

JUL 21 2016
Jason-2

CONDICIONES DE SST EN JULIO 2016



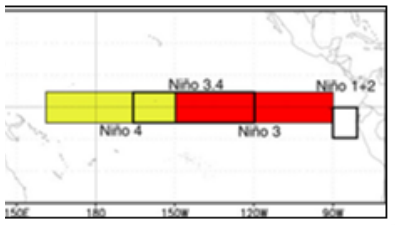
CONDICIONES DEL OCEANO EN JULIO 2016





The latest weekly SST
ures are:

Niño 4	-0.1°C
Niño 3.4	-0.6°C
Niño 3	-0.7°C
Niño 1+2	0.1°C



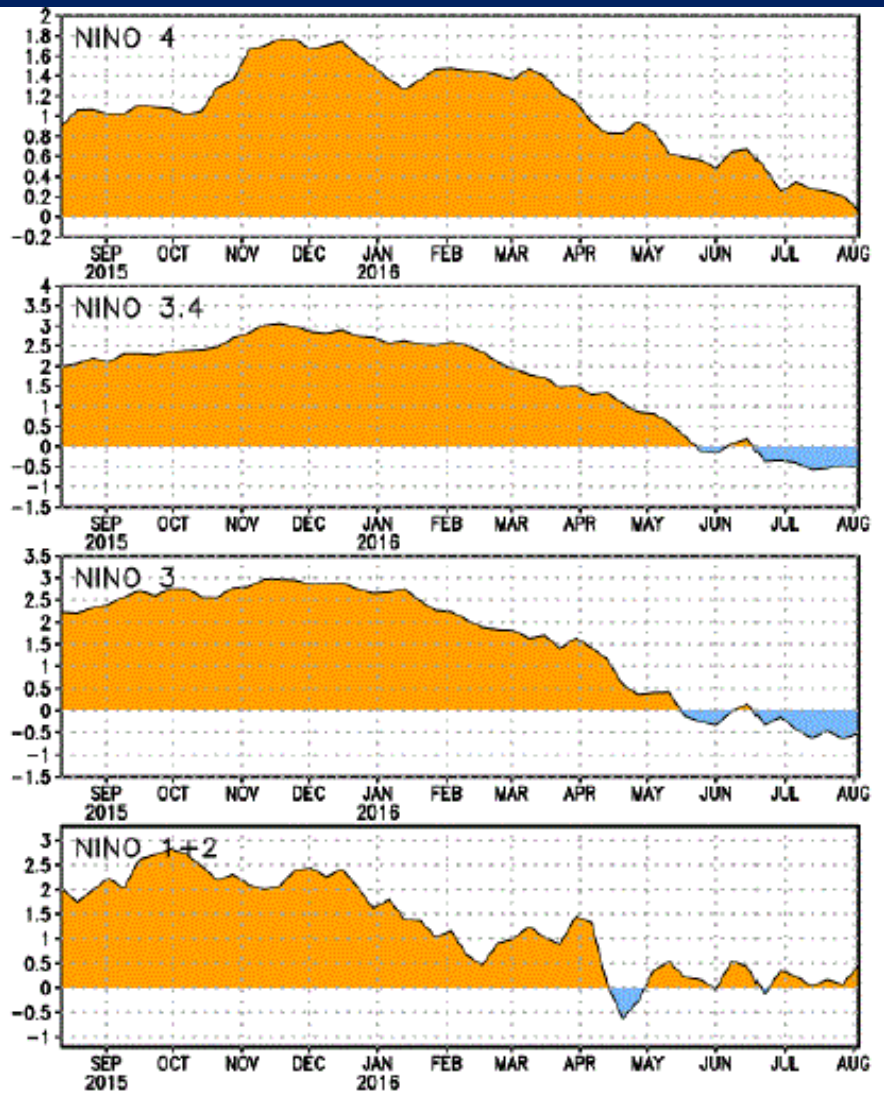
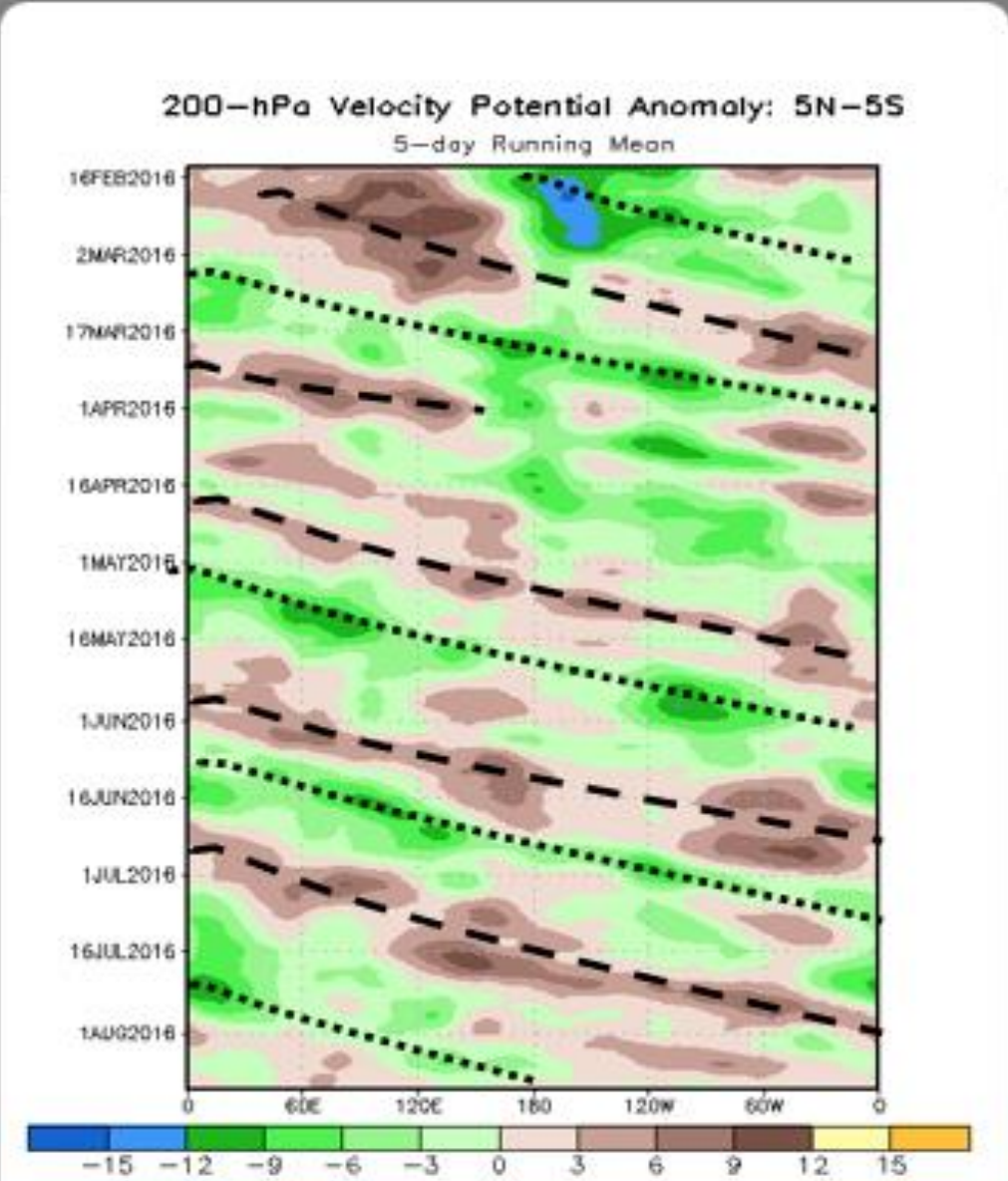


Figura 2. Series de Tiempo de las anomalías (en °C) de temperaturas de la superficie del océano (SST) en un área promediada en las regiones de El Niño [Niño-1+2 (0°-10°S, 90°W-80°W), Niño 3 (5°N- 5°S, 150°W- 90°W), Niño-3.4 (5°N-5°S, 170°W-120°W), Niño-4 (5°N-5°S, 150°W-160°E)]. Las anomalías de SST son variaciones de los promedios semanales del período base de 1981-2010.

Upper-level (200-hPa) Velocity Potential Anomalies

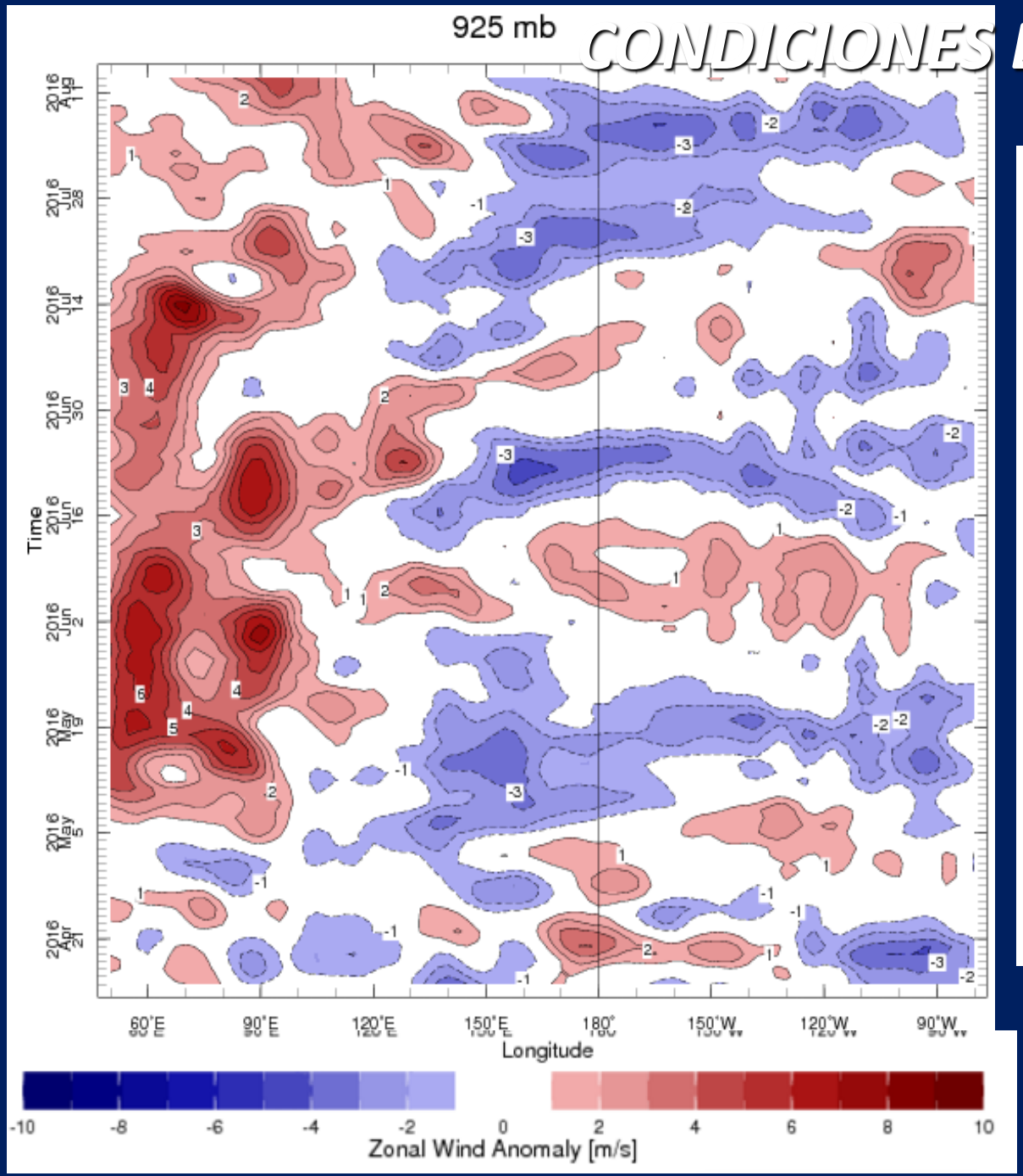
Sub-seasonal or Madden-Julian Oscillation (MJO) activity has dominated the velocity potential anomalies since February 2016.

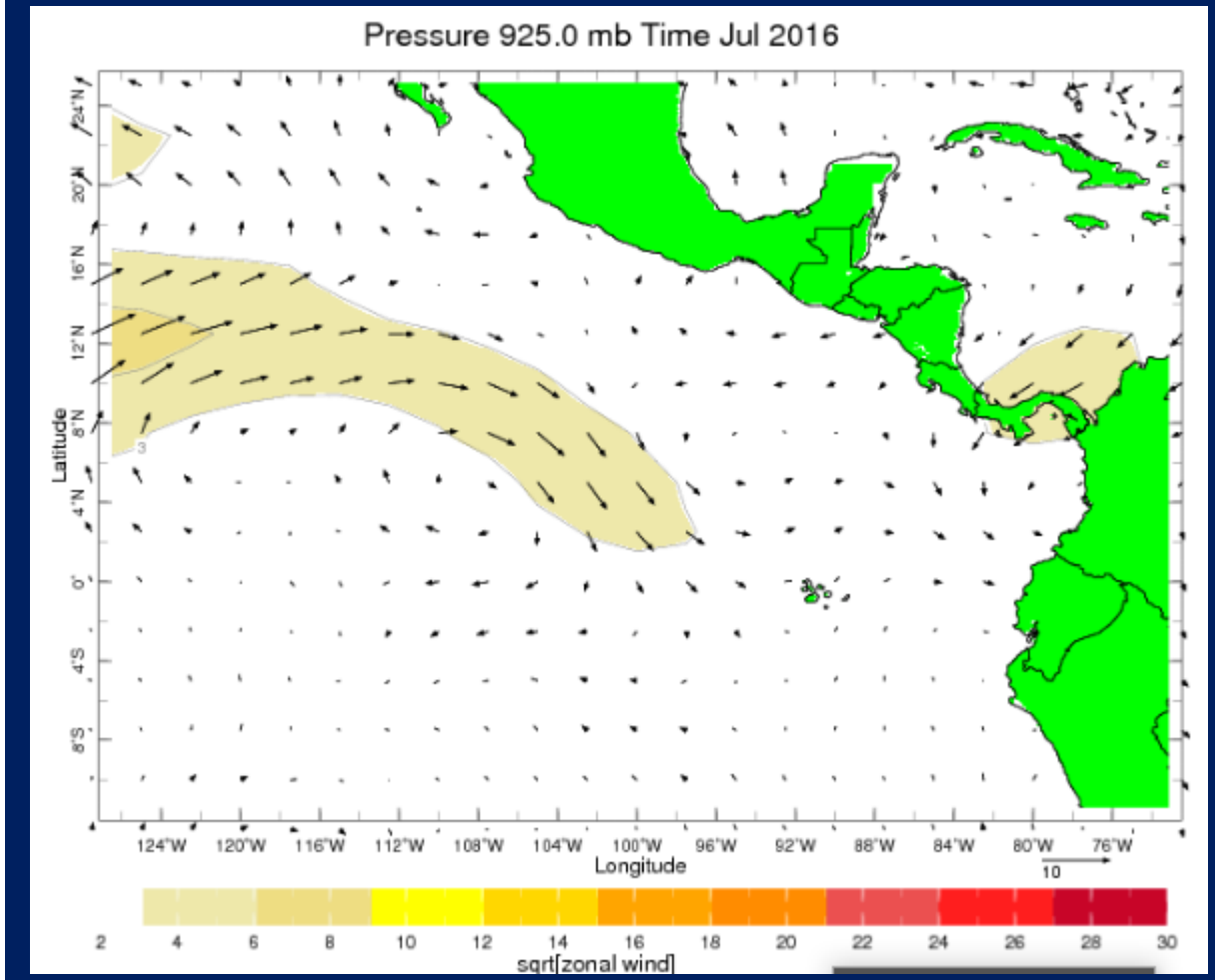
Eastward propagation of regions of upper-level divergence (green shading) and convergence (brown shading) are particularly evident during February-March and from mid April through the present.



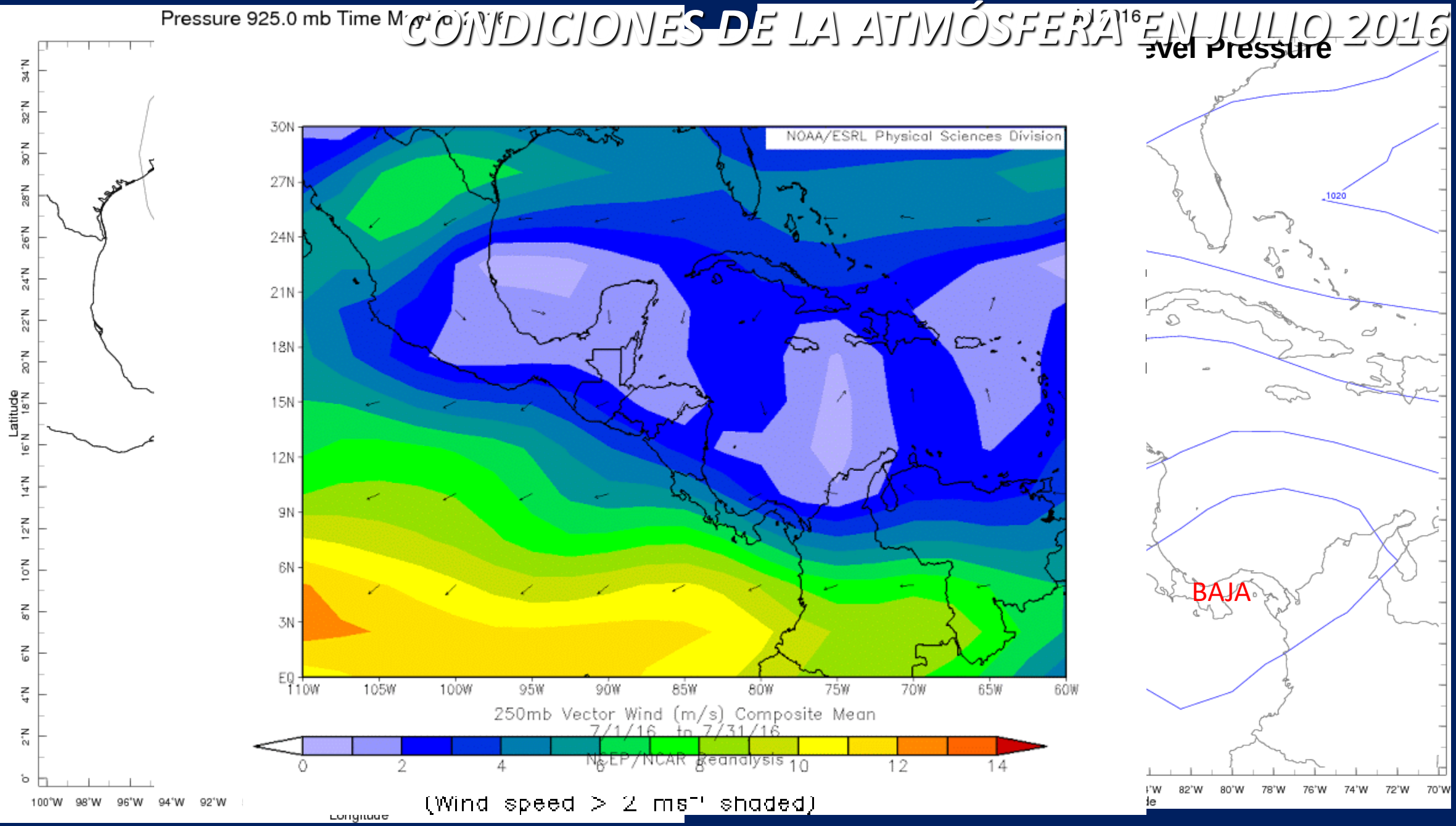
Unfavorable for precipitation (brown shading)
Favorable for precipitation (green shading)

CONDICIONES DE LA ATMÓSFERA EN JULIO 2016



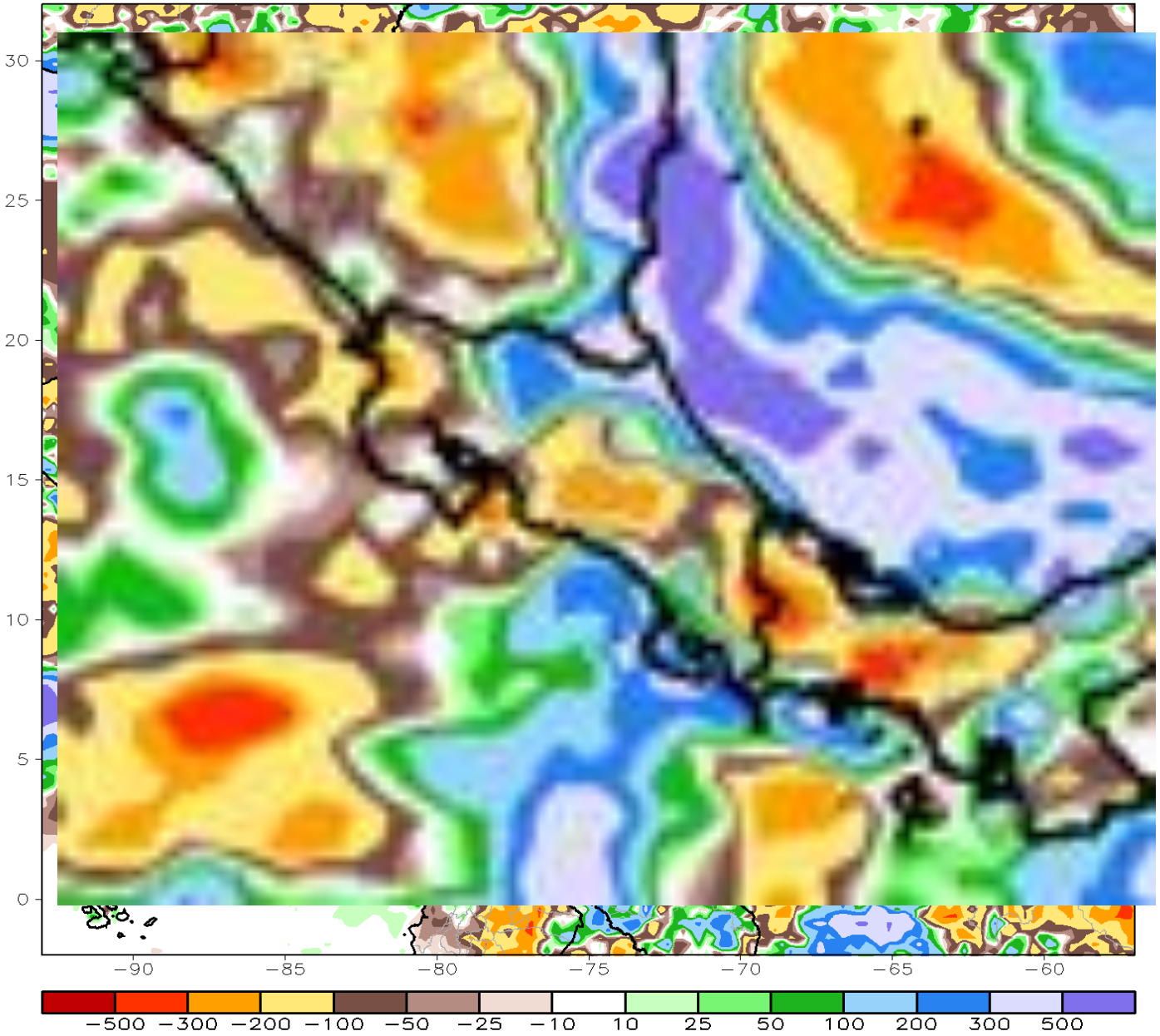


CONDICIONES DE LA ATMÓSFERA EN JULIO 2016

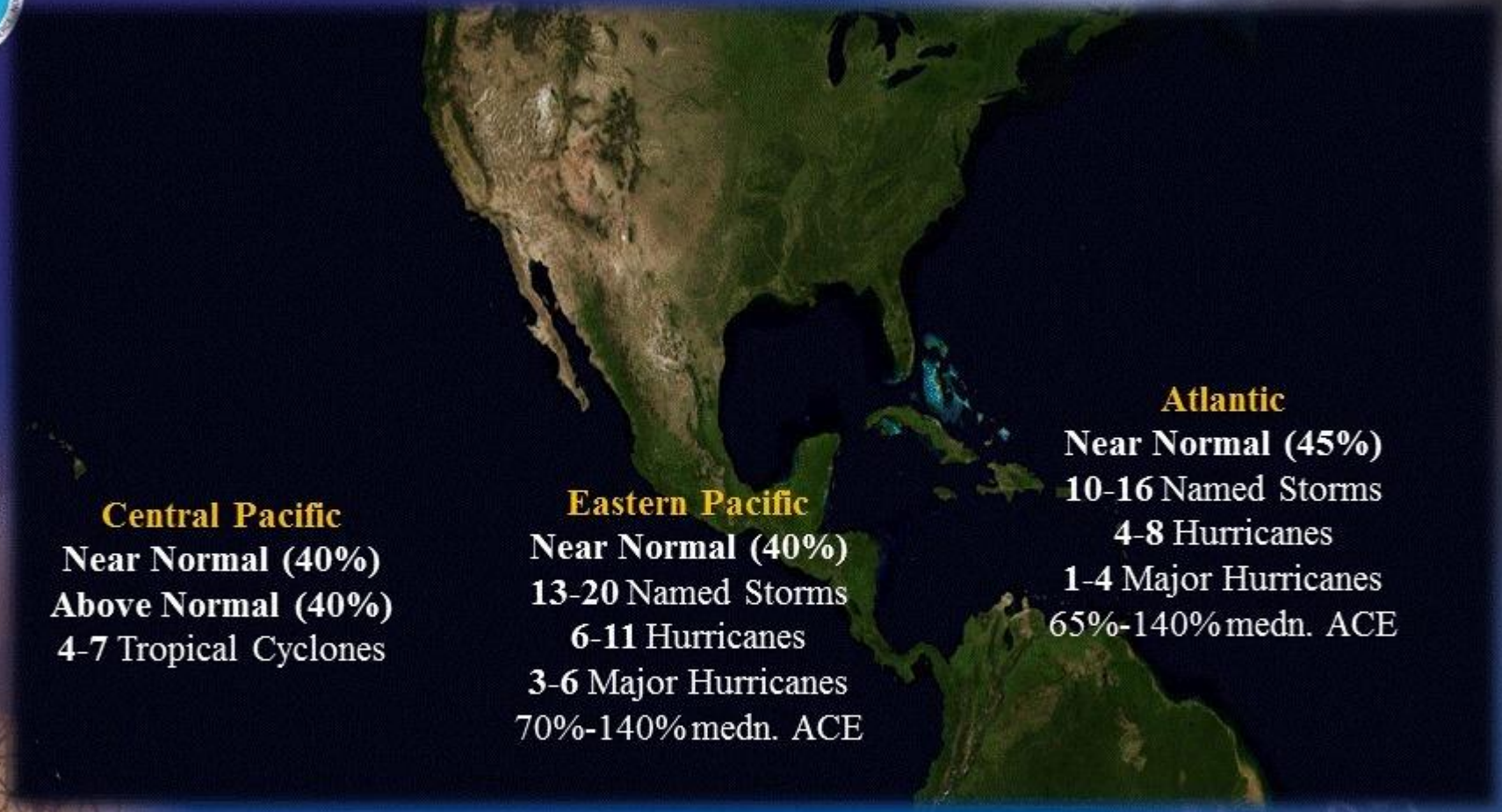


TRMM May–Aug Total Rainfall Anomaly (mm)

Period: 01May2016 – 17Aug2016



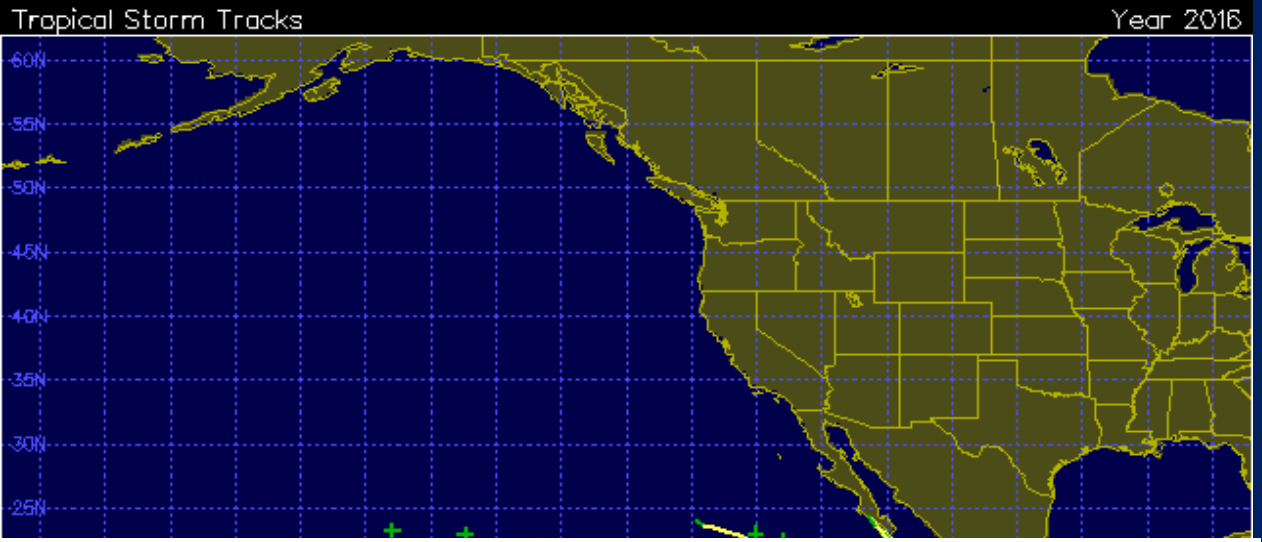
NOAA's 2016 Hurricane Season Outlooks



Central Pacific
Near Normal (40%)
Above Normal (40%)
4-7 Tropical Cyclones

Eastern Pacific
Near Normal (40%)
13-20 Named Storms
6-11 Hurricanes
3-6 Major Hurricanes
70%-140% medn. ACE

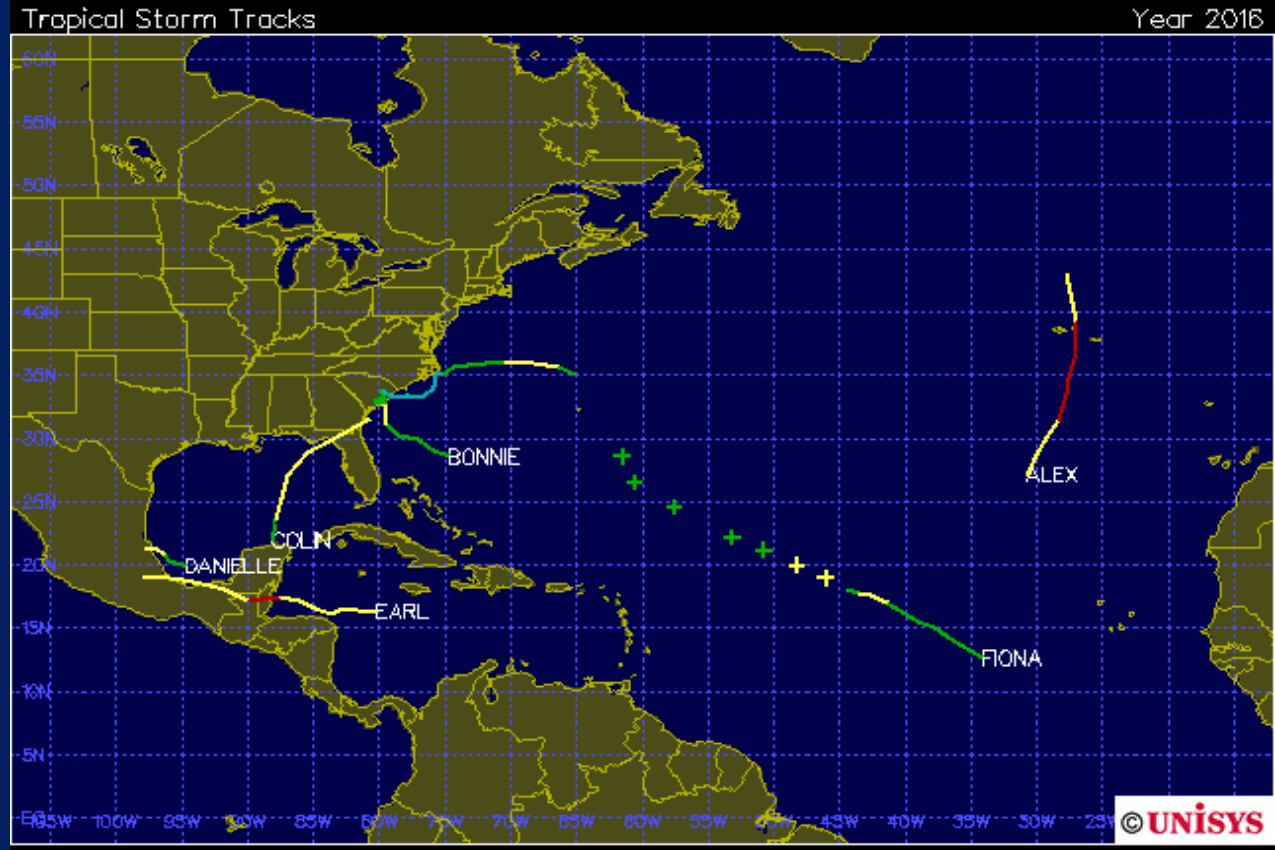
Atlantic
Near Normal (45%)
10-16 Named Storms
4-8 Hurricanes
1-4 Major Hurricanes
65%-140% medn. ACE



Individual Storm Summary

Winds in knots, pressure in millibars, category is based on Saffir-Simpson scale.

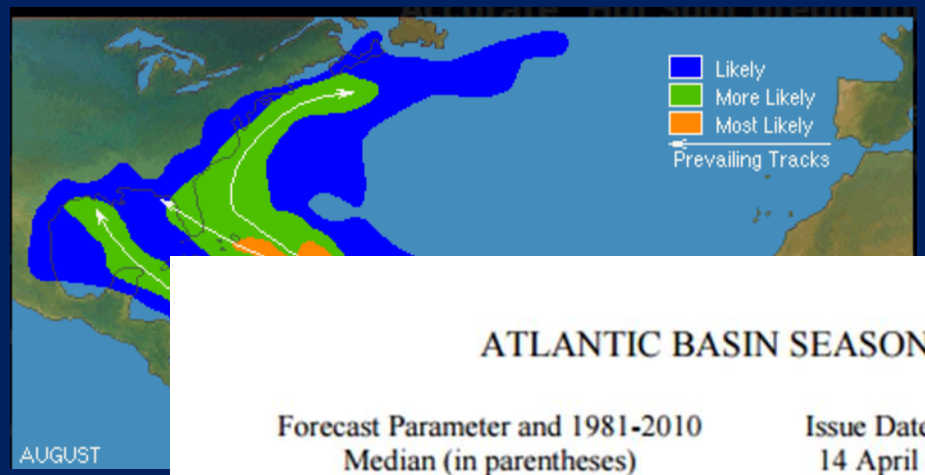
#	Name	Date	Wind	Pres	Cat	
1	Hurricane-2 PALI	07-14 JAN	85		2	
2	Tropical Storm AGATHA	02-05 JUL	40		-	
3	Hurricane-3 BLAS	02-10 JUL	110		3	
4	Hurricane-2 CELIA	06-16 JUL	85		2	
5	Hurricane-3 DARBY	11-26 JUL	100		3	
6	Tropical Storm ESTELLE	15-22 JUL	60		-	
7	Hurricane-1 FRANK	21-28 JUL	65		1	
8	Tropical Storm GEORGETTE	21-27 JUL	60		-	
9	Tropical Depression NINE_E	31 JUL-01 AUG	30		-	
10	Tropical Storm HOWARD	31 JUL-03 AUG	50		-	
11	Tropical Storm IVETTE	02-08 AUG	50		-	
12	Tropical Depression ELEVEN	07-07 AUG	30		-	
13	Tropical Storm JAVIER	07-09 AUG	55		-	
14	Tropical Storm KAY	18-19 AUG	35		-	Active

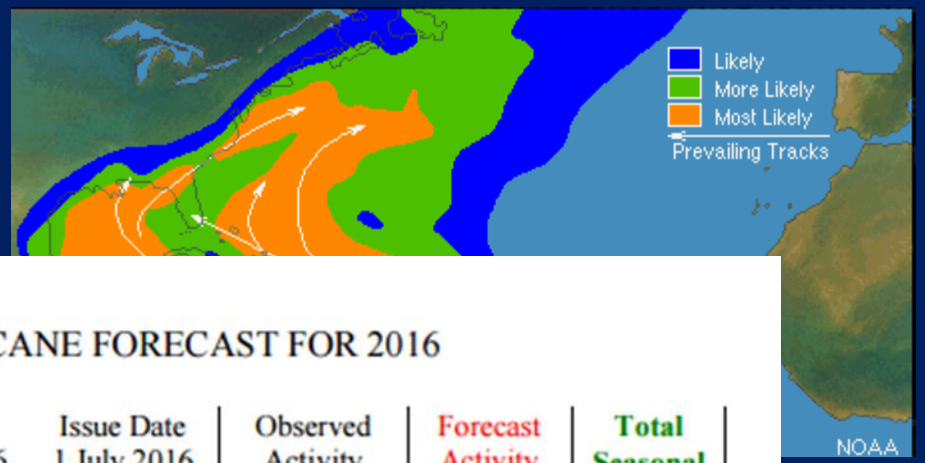


Individual Storm Summary

Winds in knots, pressure in millibars, category is based on Saffir-Simpson scale.

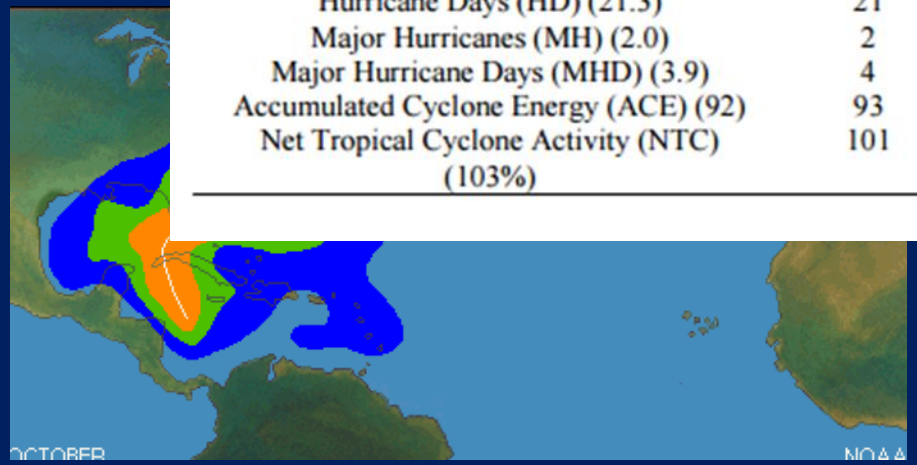
#	Name	Date	Wind	Pres	Cat	
1	Hurricane-1 ALEX	13-15 JAN	75		1	
2	Tropical Storm BONNIE	27 MAY-04 JUN	40		-	
3	Tropical Storm COLIN	05-07 JUN			-	
4	Tropical Storm DANIELLE	19-21 JUN			-	
5	Hurricane-1 EARL	02-06 AUG	65		1	
6	Tropical Storm FIONA	17-19 AUG	45		-	Active

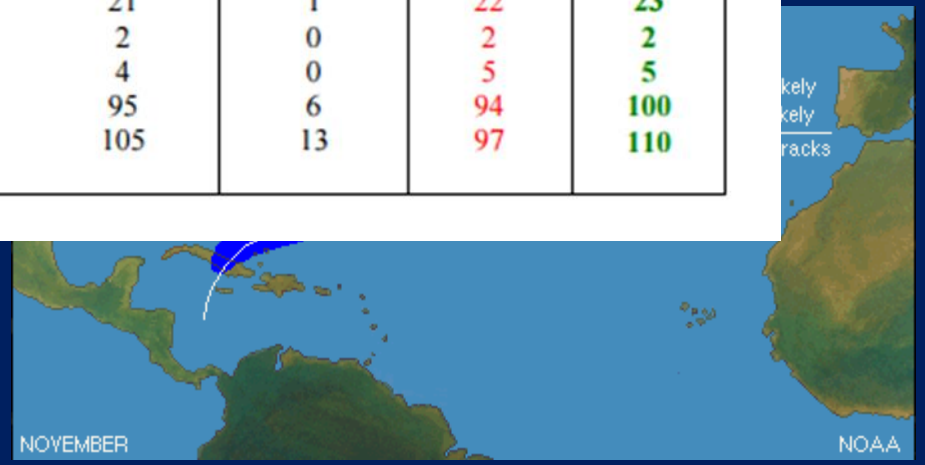




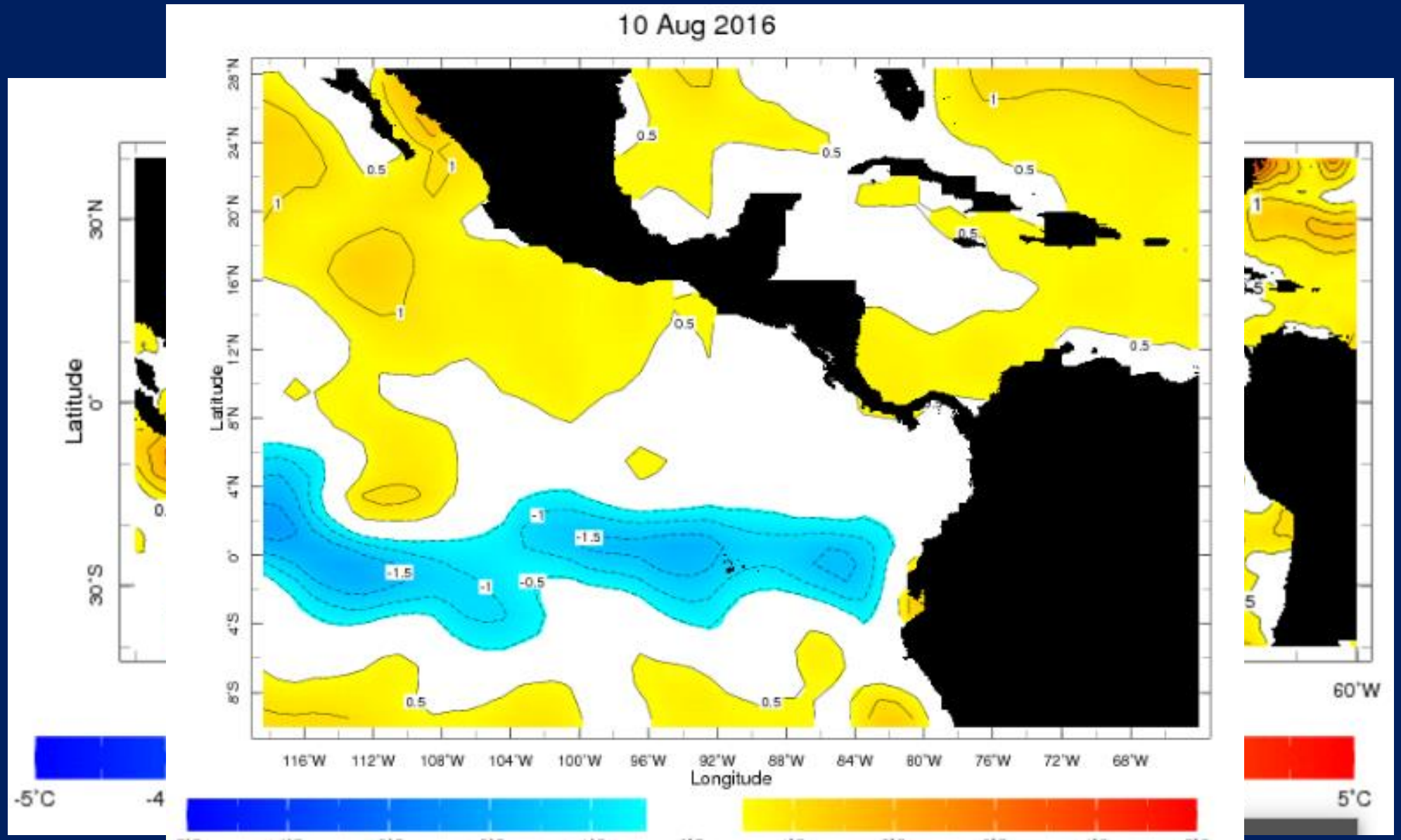
ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2016

Forecast Parameter and 1981-2010 Median (in parentheses)	Issue Date 14 April 2016	Issue Date 1 June 2016	Issue Date 1 July 2016	Observed Activity Through July 2016	Forecast Activity After 31 July	**Total Seasonal Forecast**
Named Storms (NS) (12.0)	13	14	15	4	11	**15**
Named Storm Days (NSD) (60.1)	52	53	55	6.50	48.50	**55**
Hurricanes (H) (6.5)	6	6	6	1	5	**6**
Hurricane Days (HD) (21.3)	21	21	21	1	22	**23**
Major Hurricanes (MH) (2.0)	2	2	2	0	2	**2**
Major Hurricane Days (MHD) (3.9)	4	4	4	0	5	**5**
Accumulated Cyclone Energy (ACE) (92)	93	94	95	6	94	**100**
Net Tropical Cyclone Activity (NTC) (103%)	101	103	105	13	97	**110**

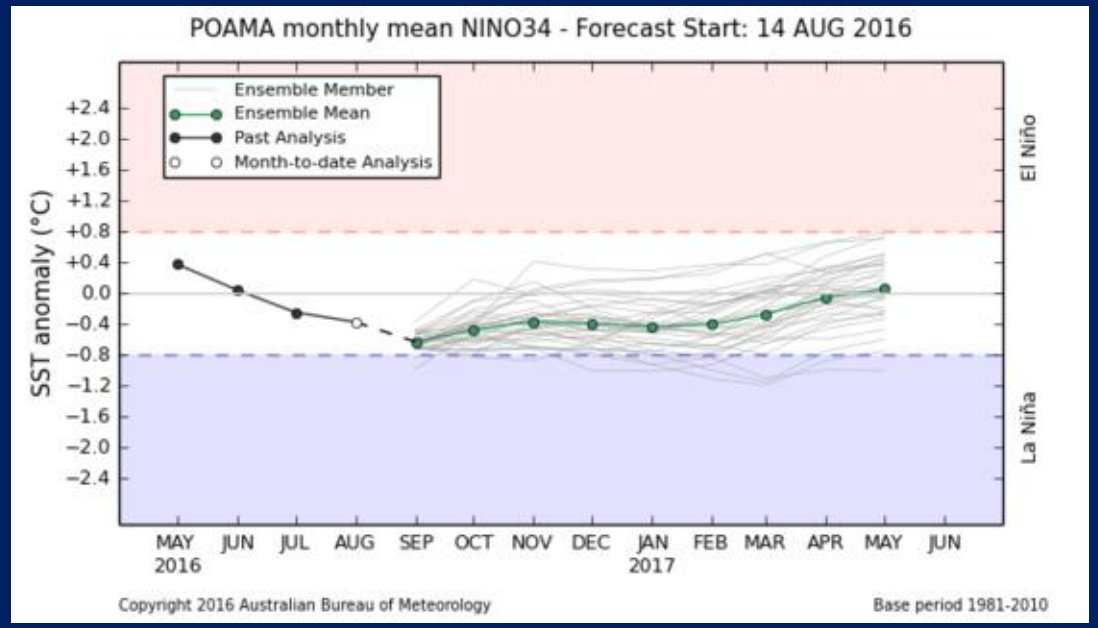




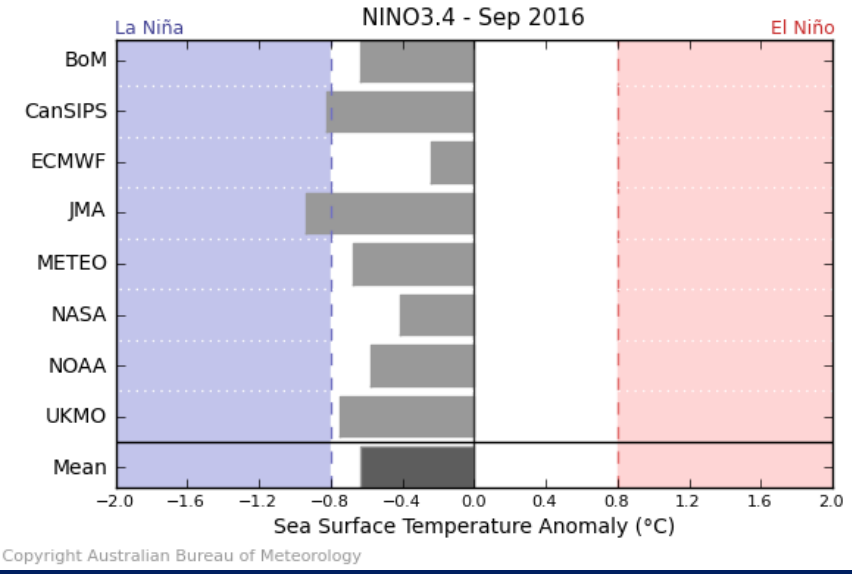
CONDICIONES ACTUALES DE SST

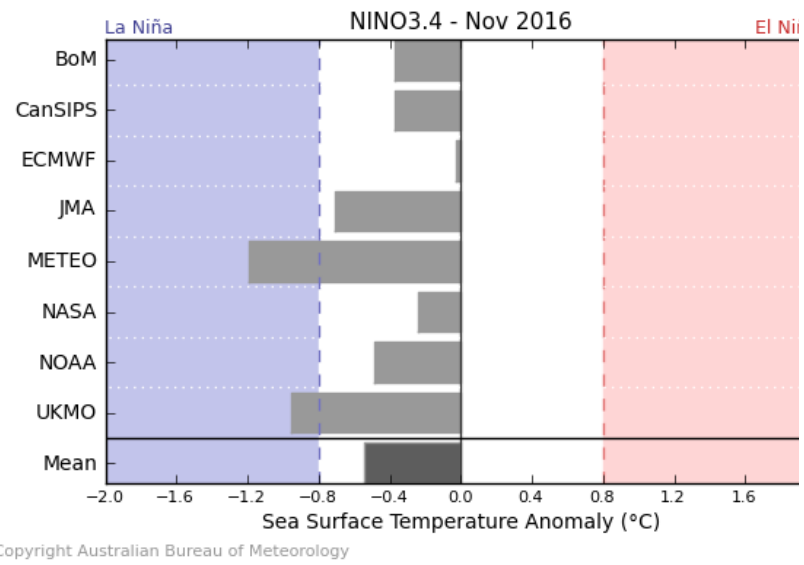


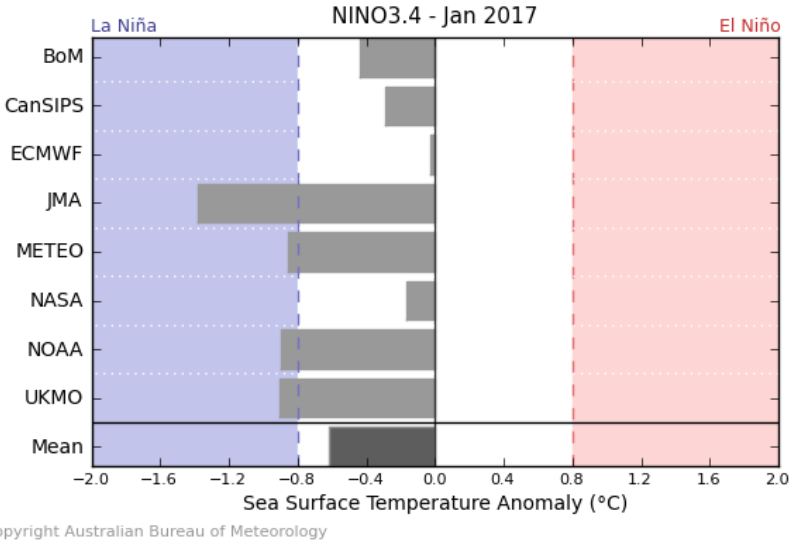
PRONÓSTICO ENOS



En el Océano Pacífico Ecuatorial sólo dos de los ocho modelos climáticos internacionales indican La Niña que se puede desarrollarse durante Setiembre-Noviembre.
Otros dos modelos pronostican posible La Niña en Enero con
Los modelos restantes sugieren condiciones neutras o cercanas a las condiciones de La Niña débil

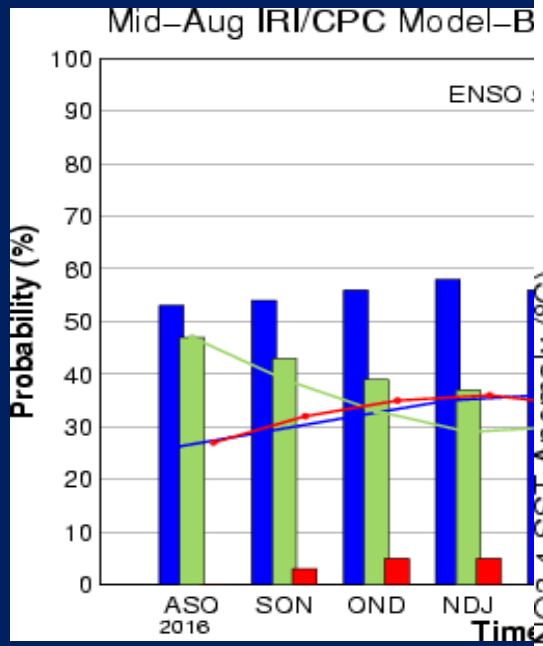


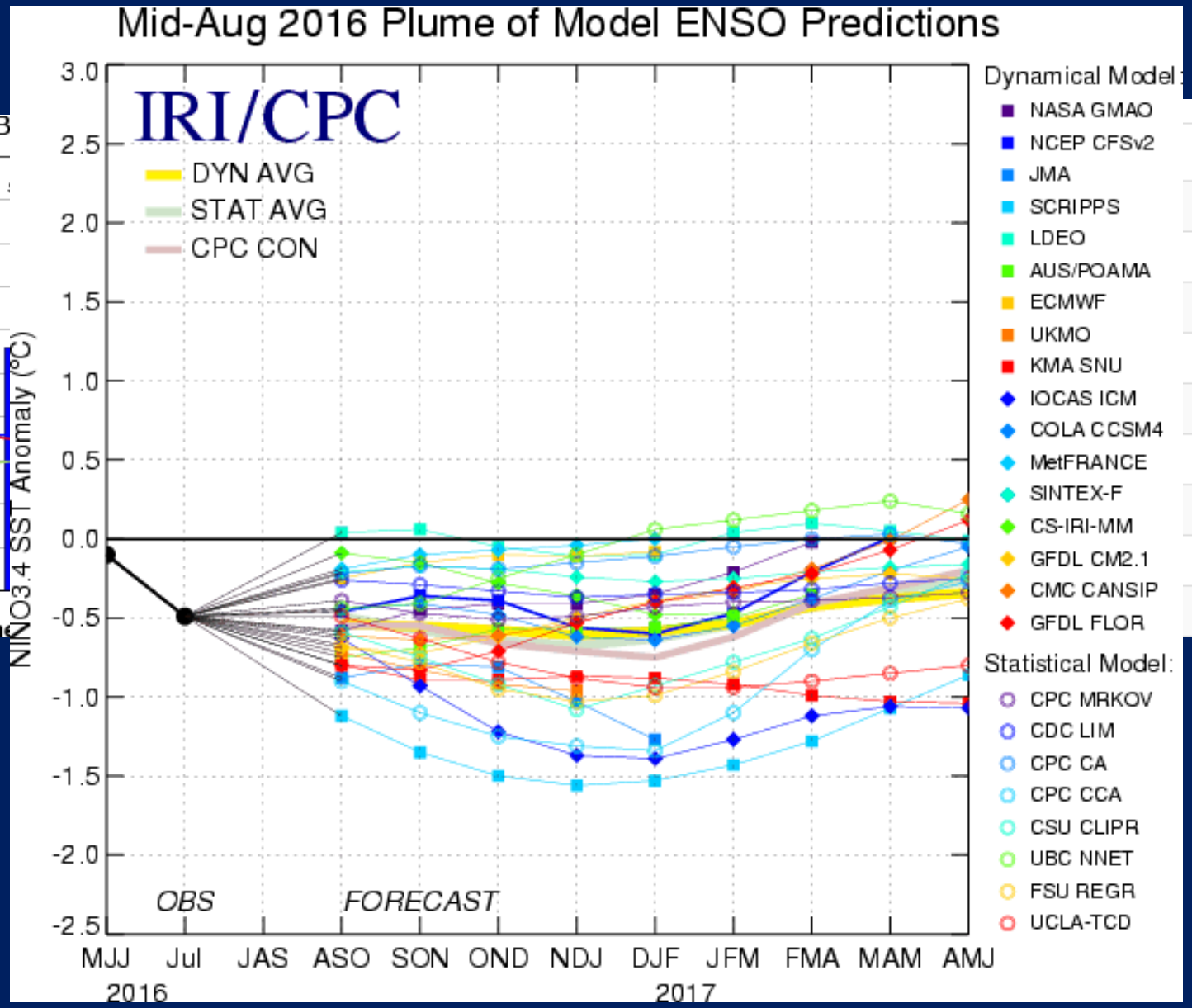




http://www.bom.gov.au/climate/enso/#current

PRONÓSTICO ENOS



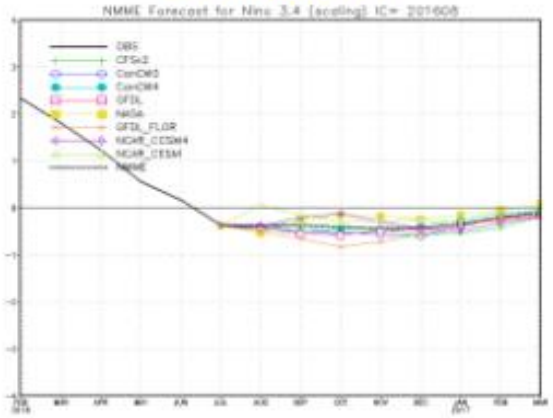


Neutral	El Niño
	0%
	3%
	5%
	5%
	5%
	4%
	3%
	3%
	4%

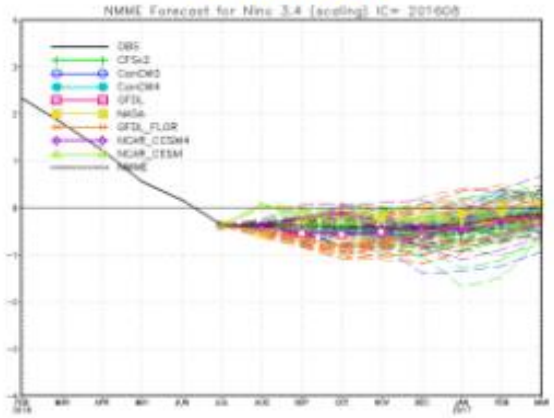
http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-quicklook

PRONÓSTICO ENOS

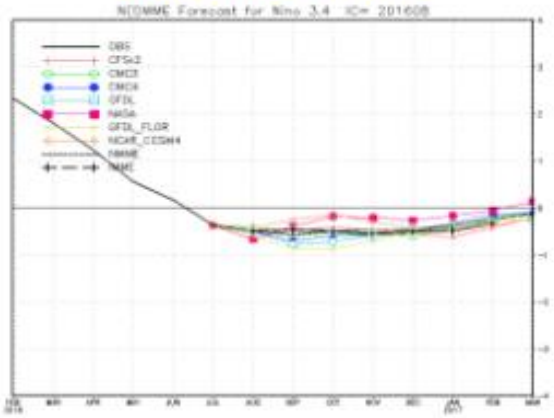
Ensemble Mean



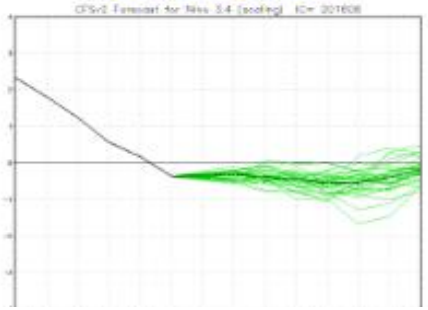
All Members



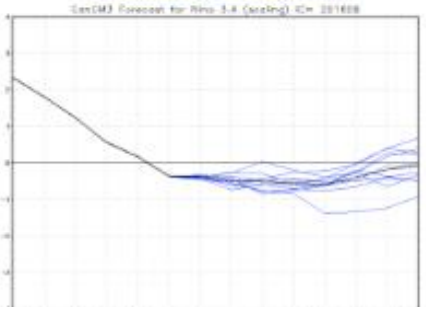
Ens Mean + IMME



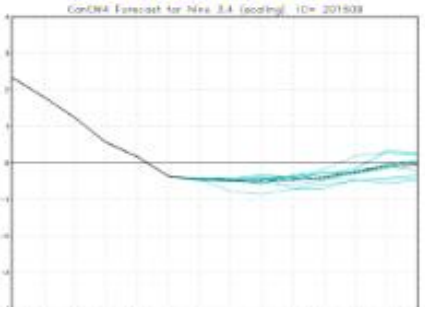
CFSv2_CFSv2



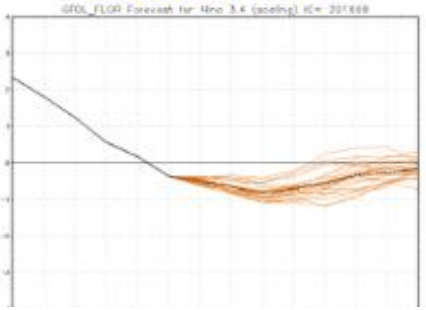
CMC1_CanCM3



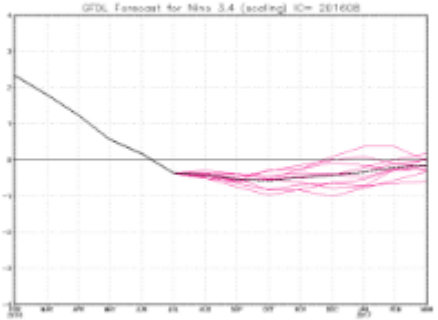
CMC2_CanCM4



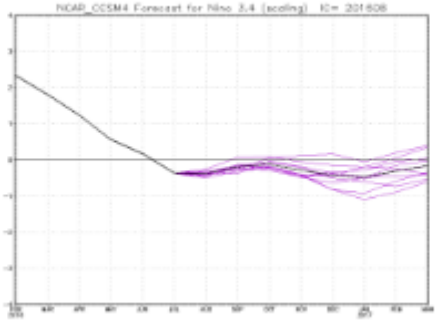
GFDL_FLOR



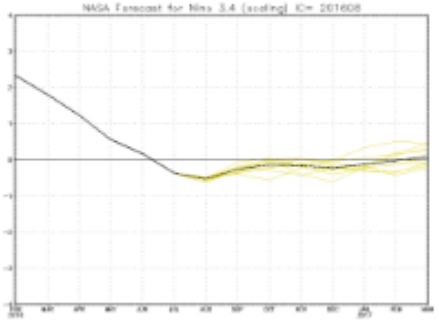
GFDL_CM2.1



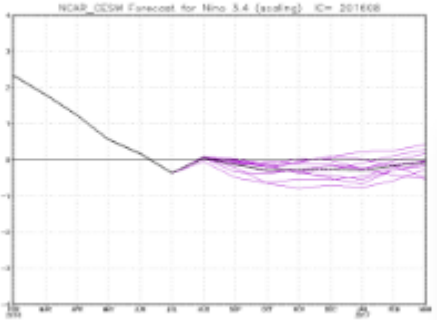
NCAR_CCSM4

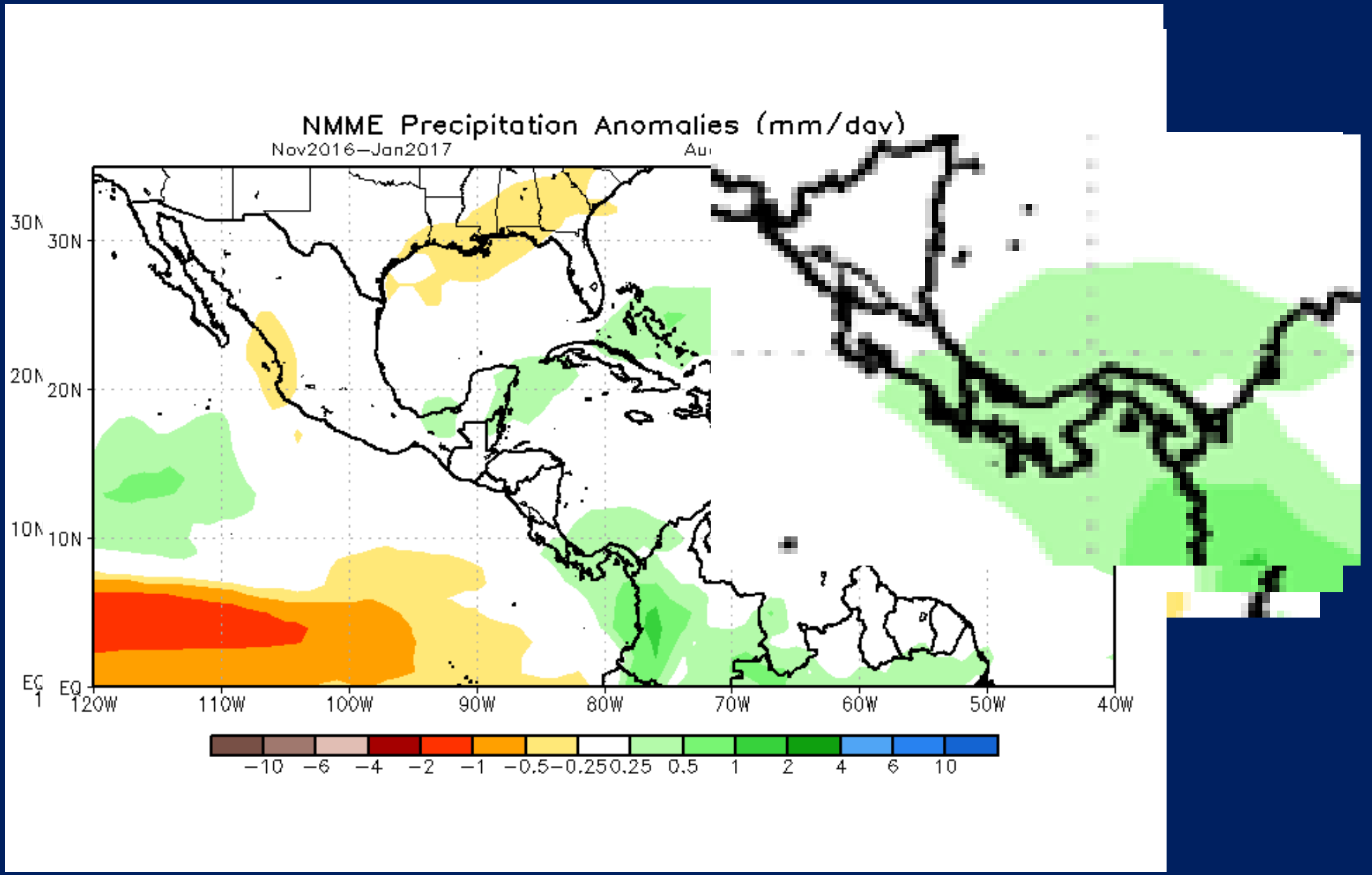


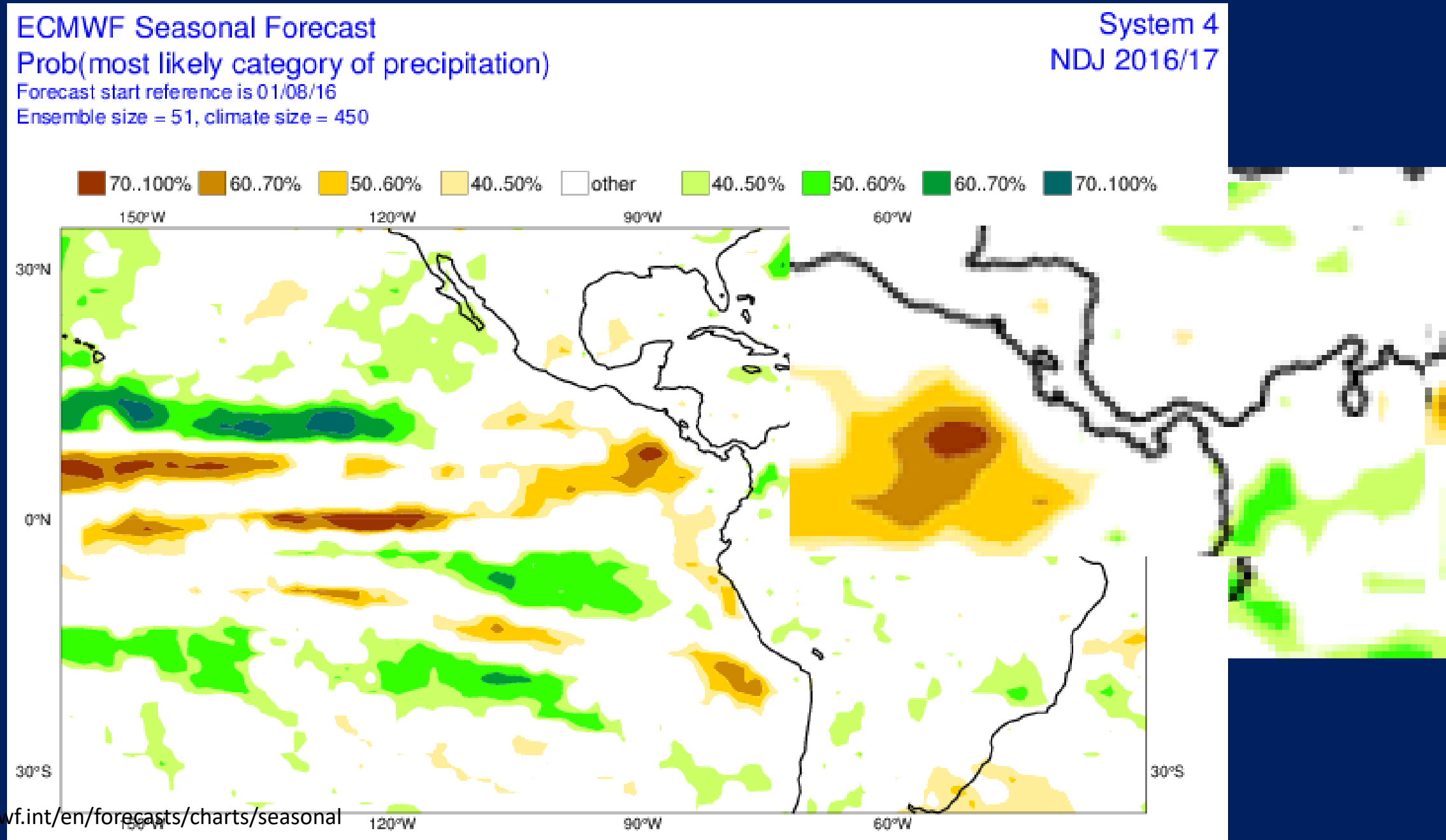
NASA_GEOS5



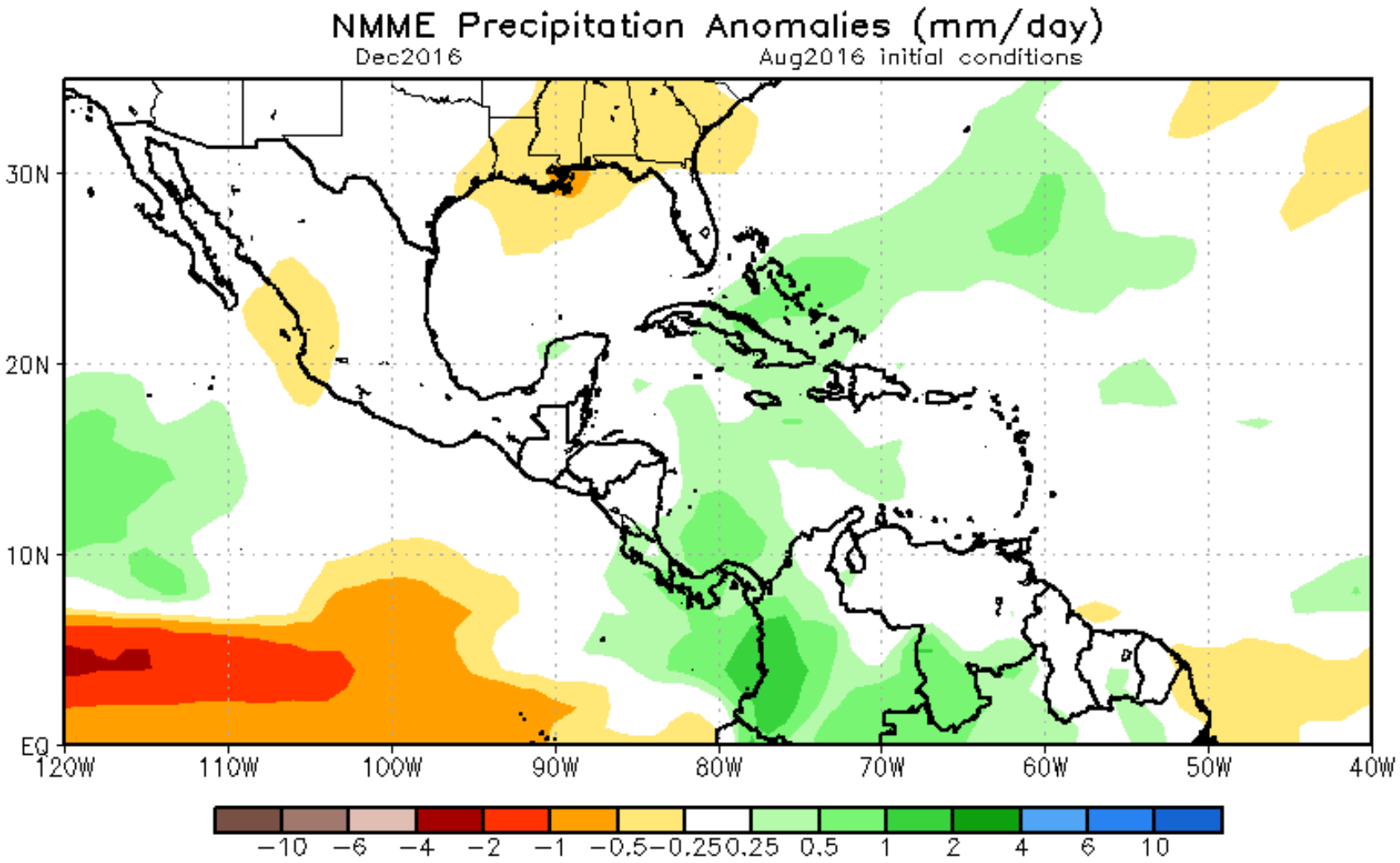
NCAR_CESM



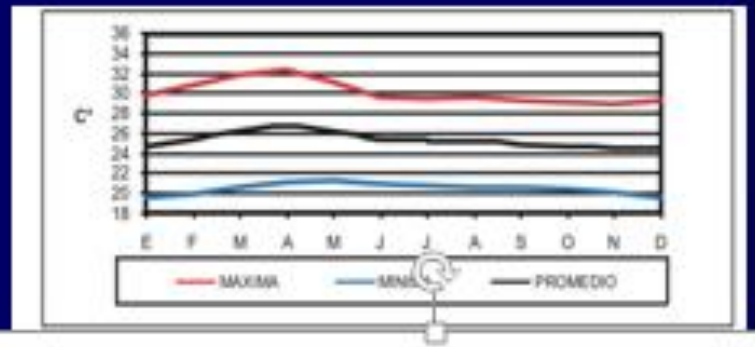

NMME Precipitation Anomalies (mm/day)
Nov2016–Jan2017
30N
20N
10N
EQ
120W
110W
100W
90W
80W
70W
60W
50W
40W
−10
−6
−4
−2
−1
−0.5
−0.25
0.25
0.5
1
2
4
6
10



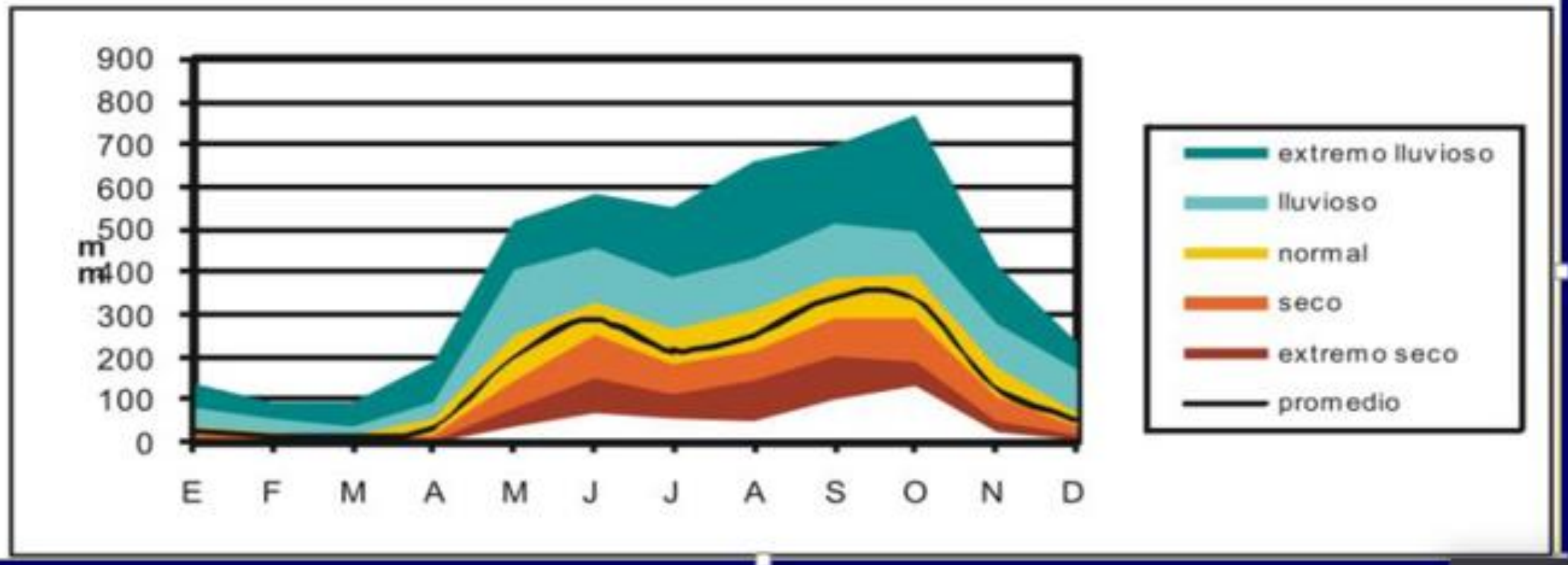
http://www.ecmwf.int/en/forecasts/charts/seasonal


NMME Precipitation Anomalies (mm/day)
Dec2016
Aug2016 initial conditions
30N
20N
10N
EQ
120W
110W
100W
90W
80W
70W
60W
50W
40W
−10
−6
−4
−2
−1
−0.5
−0.25
0.25
0.5
1
2
4
6
10

Comportamiento de ENOS en el Pacífico Norte



9.1°C
Amplitud
de temperatura



GRACIAS

climaconirina@gmail.com
FB: Clima Con Irina

PREGUNTAS ???

Irina Katchan
Observatorio Climático
Centro Nacional de Alta Tecnología (CeNAT)-CONARE
San Jose, Costa Rica

tel. (506) - 2519-5835, ext. 6032

www.cenat.ac.cr

www.conare.ac.cr

** *climaconirina@gmail.com*

katchan@cenat.ac.cr