

Monitoreo y pronóstico de El Niño

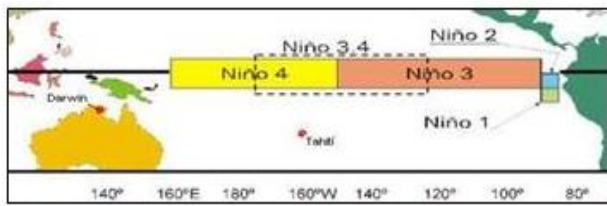
Abril 2016

Comité Técnico ENFEN

21 de abril de 2016



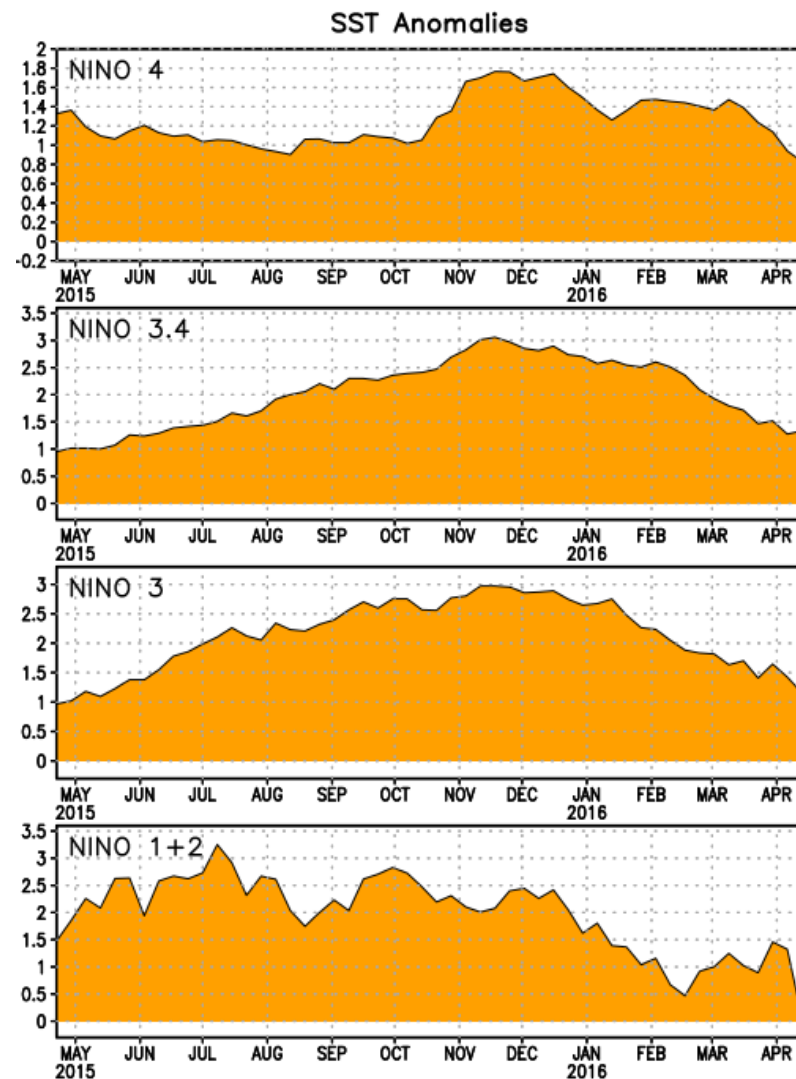
ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR POR REGIONES NIÑO EN EL PACÍFICO ECUATORIAL



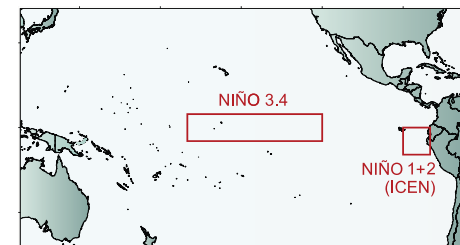
Regiones Niño	ATSM (Semanales)							
	Niño 1+2		Niño 3		Niño 3.4		Niño 4	
23mar2016	0.9	27.2	1.4	28.6	1.5	28.8	1.2	29.5
30mar2016	1.5	27.5	1.6	28.9	1.5	29.0	1.1	29.5
06abr2016	1.3	27.1	1.4	28.8	1.3	28.9	0.9	29.3
13abr2016	0.1	25.6	1.2	28.6	1.3	29.1	0.8	29.3

Promedios mensuales 2015

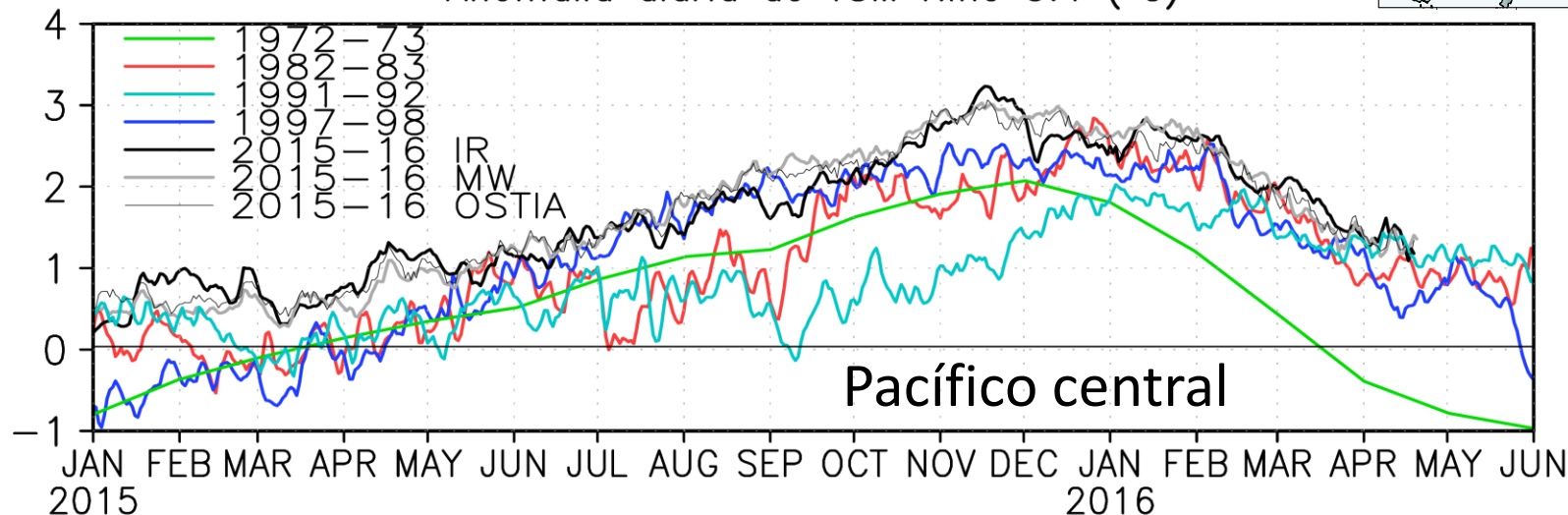
Regiones Niño	ATSM							
	Niño 1+2		Niño 3		Niño 3.4		Niño 4	
Mar.2016	0.9	27.6	1.6	28.7	1.7	28.9	1.3	29.5
Feb.2016	0.7	26.8	1.9	28.4	2.4	29.1	1.5	29.6
Ene.2016	1.4	25.9	2.6	28.2	2.6	29.2	1.4	29.7
Dic.2015	2.2	25.0	2.9	28.0	2.8	29.4	1.6	30.1
Nov.2015	2.1	23.7	2.9	27.9	3.0	29.6	1.7	30.3
Oct.2015	2.5	23.3	2.7	27.6	2.5	29.2	1.1	29.8
Set.2015	2.6	22.9	2.6	27.5	2.3	29.0	1.0	29.7
Ago. 2015	2.3	22.9	2.3	27.3	2.1	28.9	1.0	29.7
Jul. 2015	2.9	24.5	2.2	27.8	1.6	28.8	1.0	29.8
Jun. 2015	2.5	25.4	1.7	28.1	1.3	29.0	1.1	29.9
May. 2015	2.4	26.7	1.2	28.3	1.0	28.9	1.1	29.9
Abr. 2015	1.4	27.0	0.7	28.2	0.8	28.6	0.8	29.7
Mar. 2015	0.1	26.7	0.2	27.3	0.6	27.8	1.1	29.3



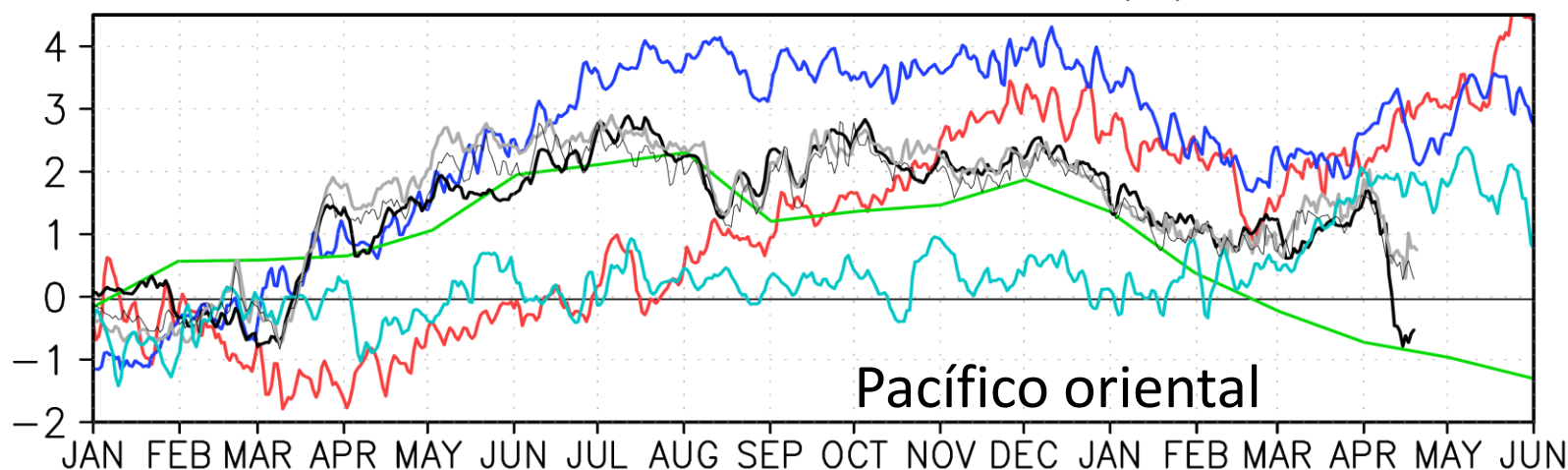
Anomalia de la Temperatura Superficial de Mar



Anomalia diaria de TSM Nino 3.4 (°C)



Anomalia diaria de TSM Nino 1+2 (°C)

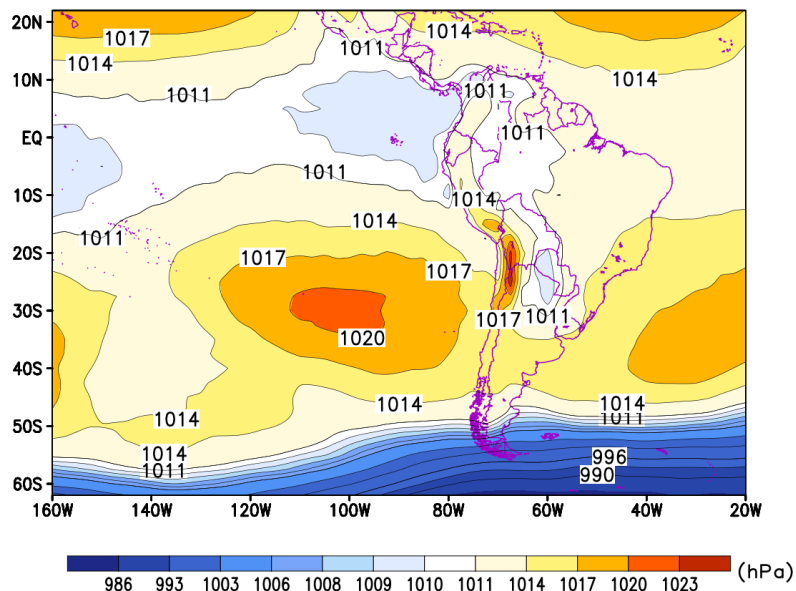


Datos: NOAA Hires OI SST, RSS MW SST, OSTIA Procesamiento: IGP.

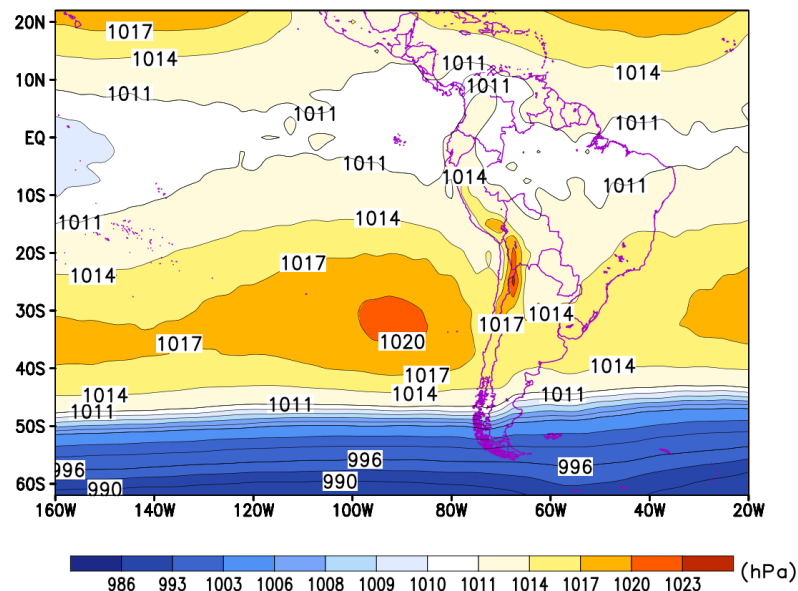
Ultimo dato-MW: 19APR2016
Ultimo dato-OISST: 19APR2016
Ultimo dato-OSTIA: 19APR2016

CAMPOS DE PRESIONES

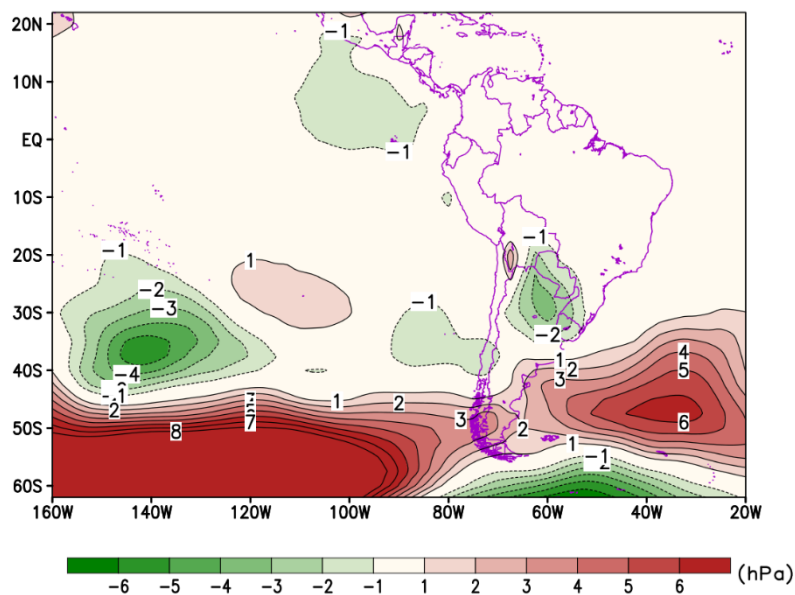
PRESION A NIVEL DEL MAR – 2016 ABRIL



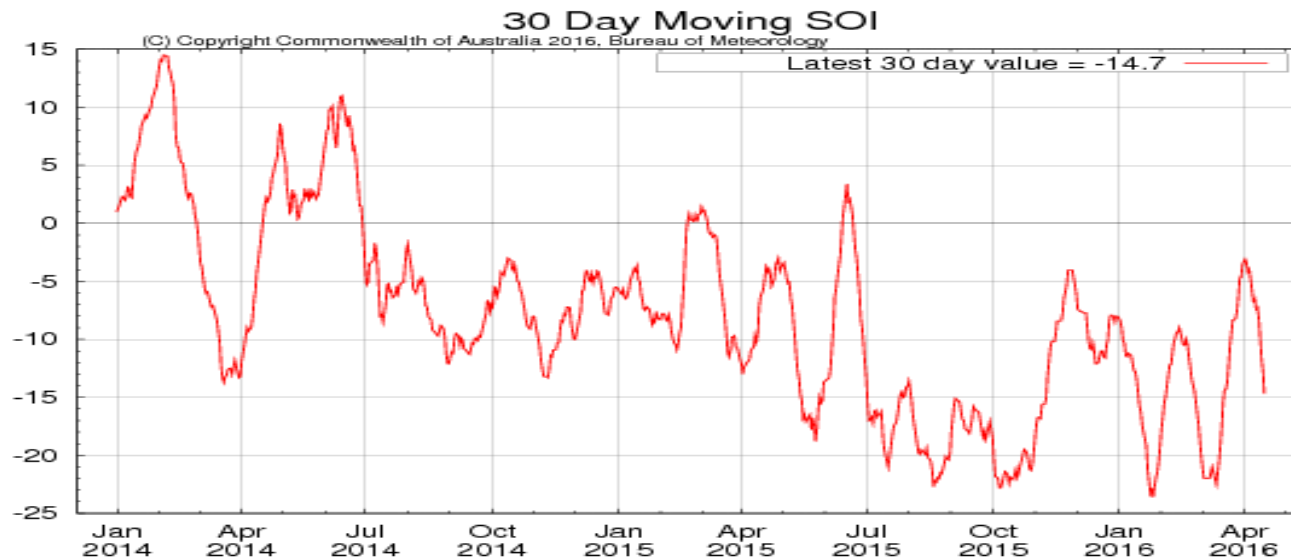
CLIMATOLOGIA DE LA PRESION A NIVEL DEL MAR – ABRIL



ANOMALIA DE LA PRESION A NIVEL DEL MAR – 2016 ABRIL

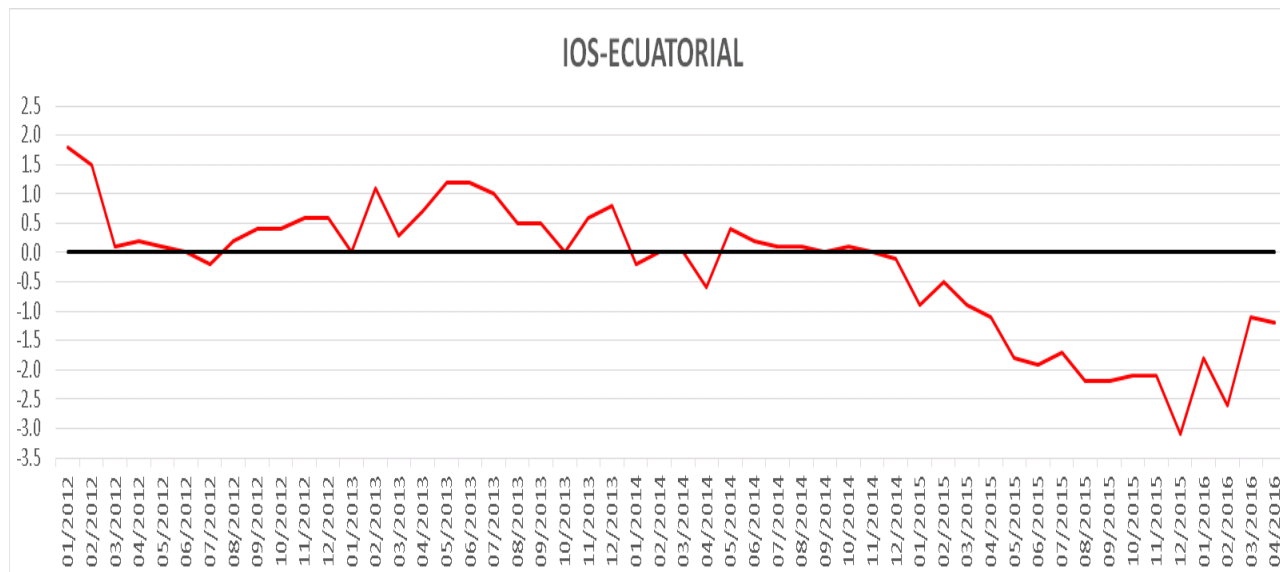


INDICE IOS



FUENTE: BUREAU OF METEOROLOGY

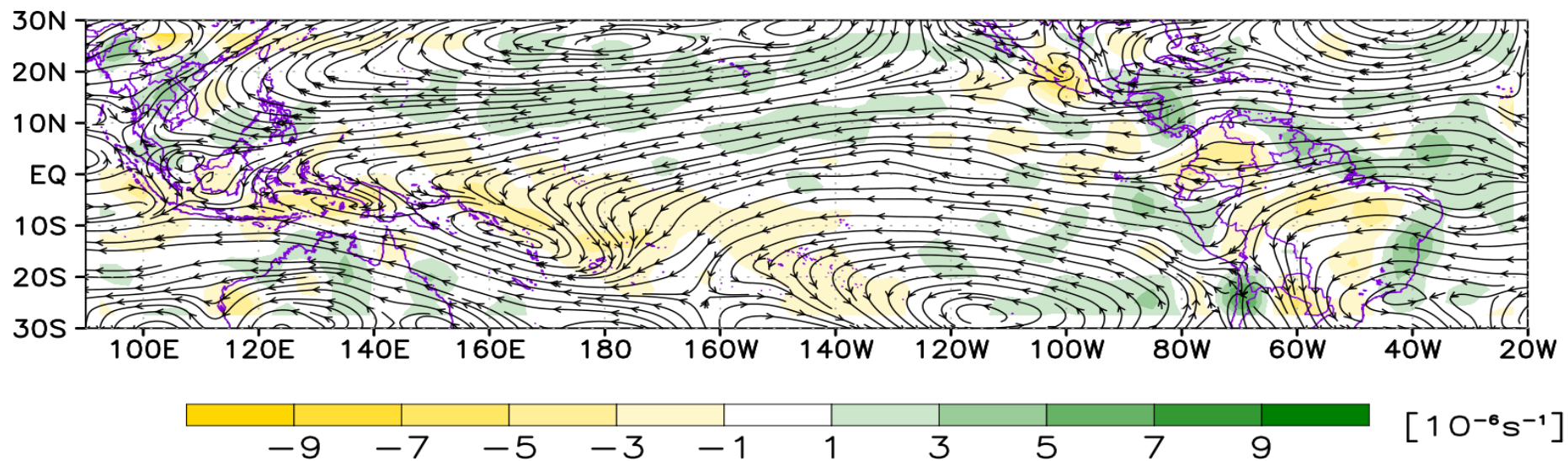
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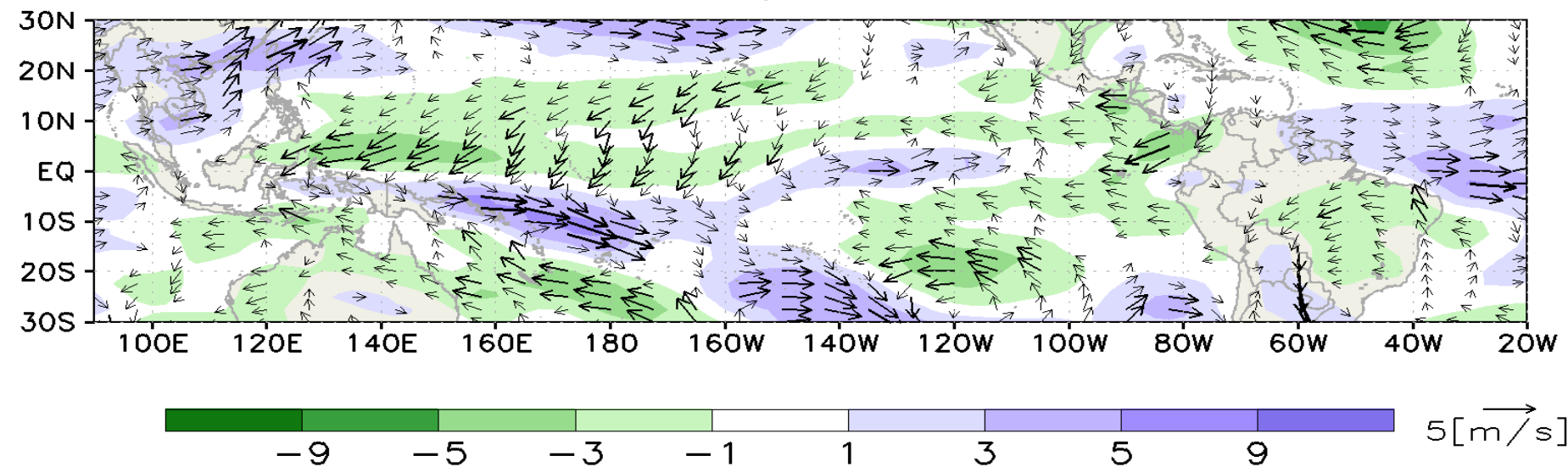
FUENTE: DATOS NCEP - SENAMHI

VIENTOS A 850hPa

VIENTO PROMEDIO a 850hPa ABRIL 2016
NCEP-NOAA / SENAMHI -DCL

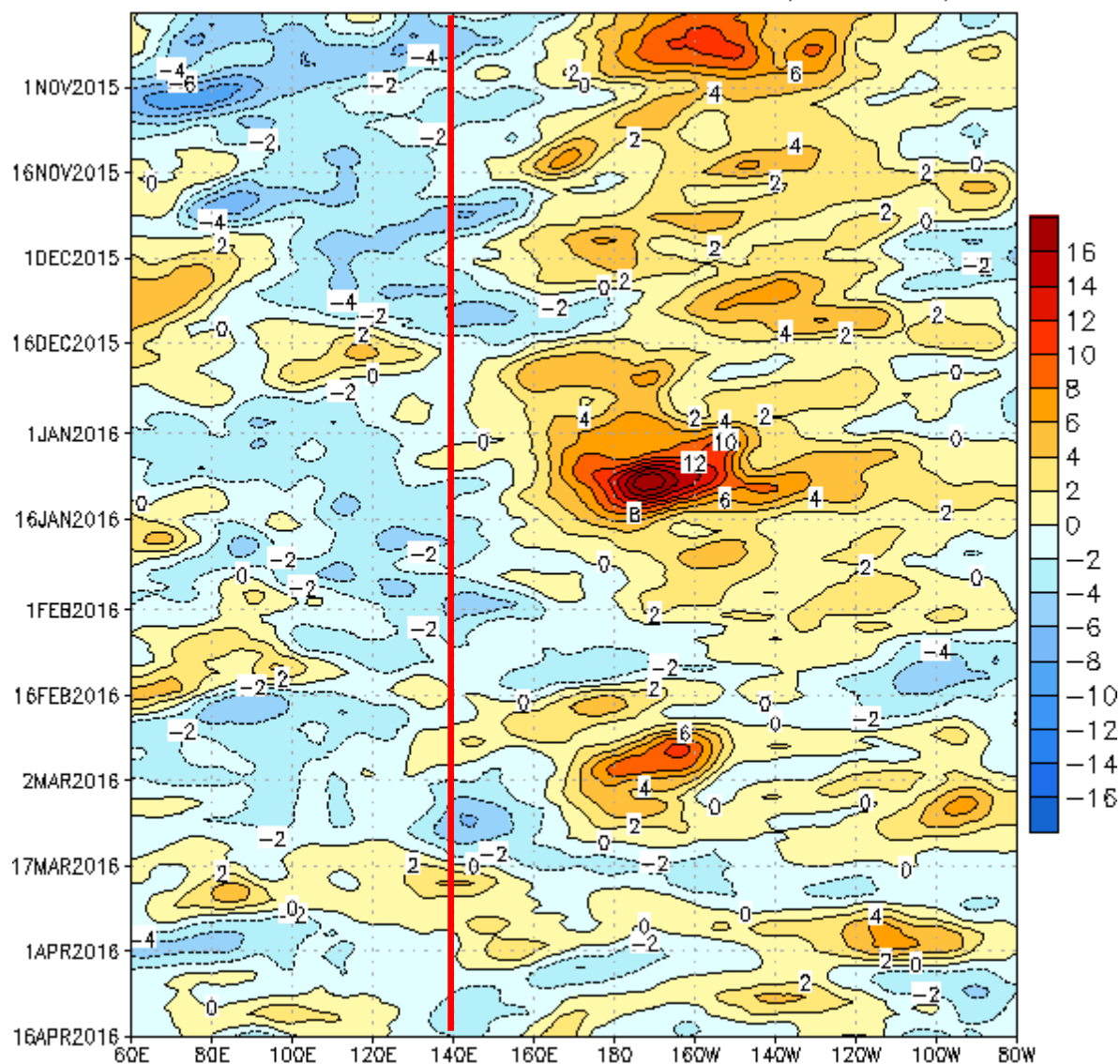


ANOMALIA DE VIENTO a 850hPa ABRIL 2016
NCEP-NOAA / SENAMHI -DCL



CAMPO DE ANOMALÍA DE VIENTOS

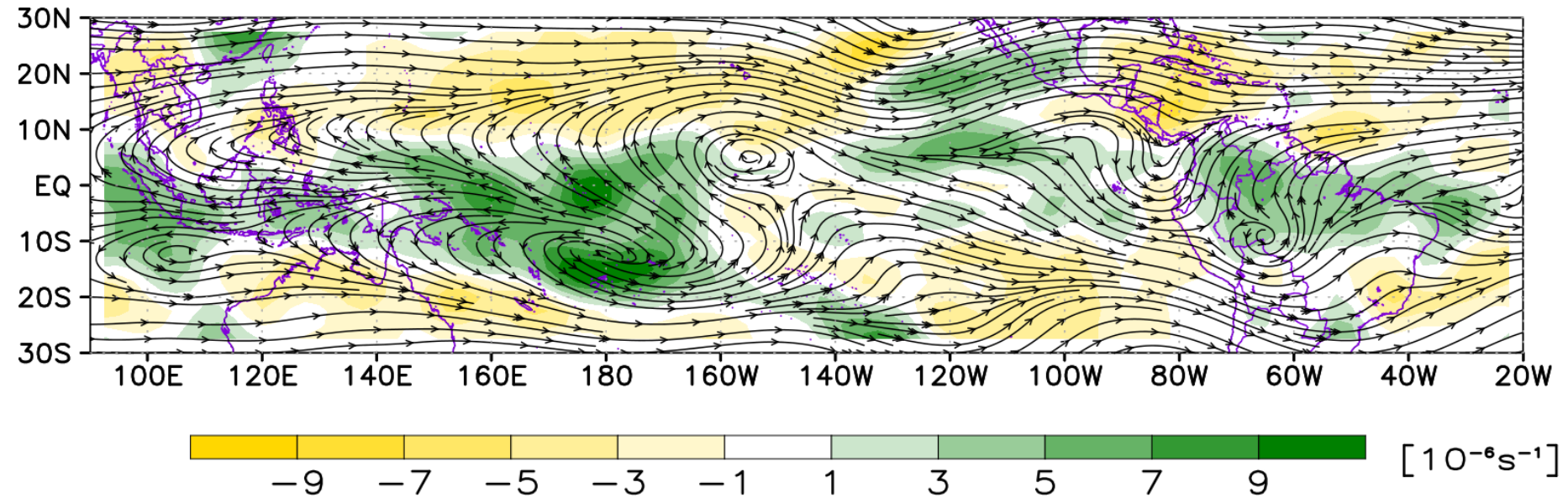
CDAS 850-hPa U Anoms. (5N–5S)



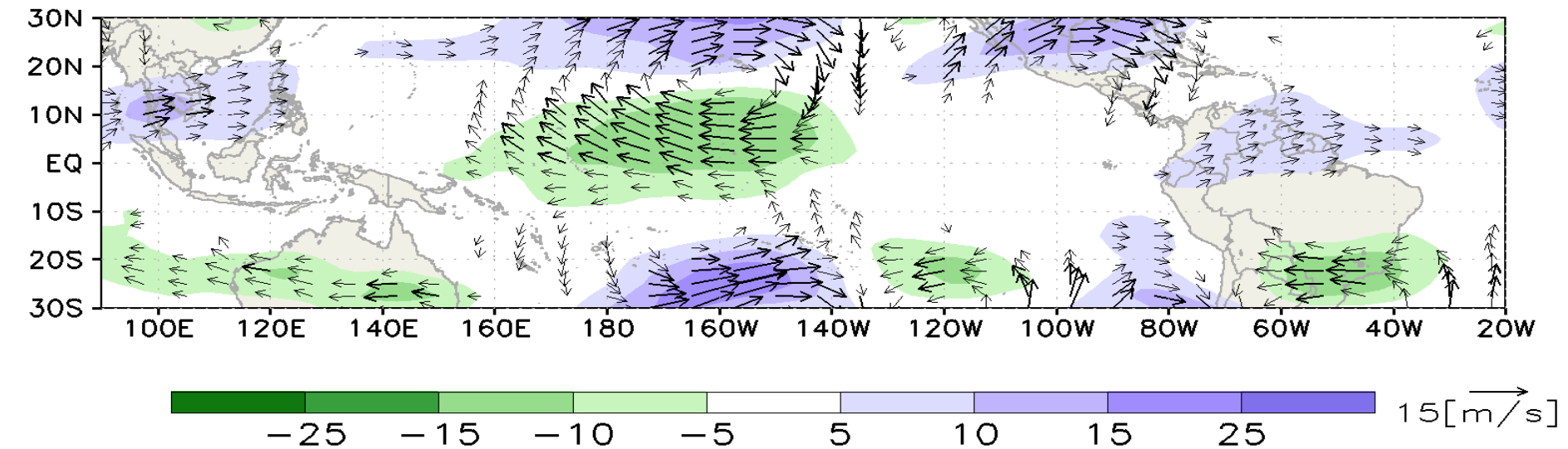
Data updated through 16 APR 2016

VIENTO A 200 hPa

VIENTO PROMEDIO a 200hPa ABRIL 2016
NCEP-NOAA / SENAMHI -DCL

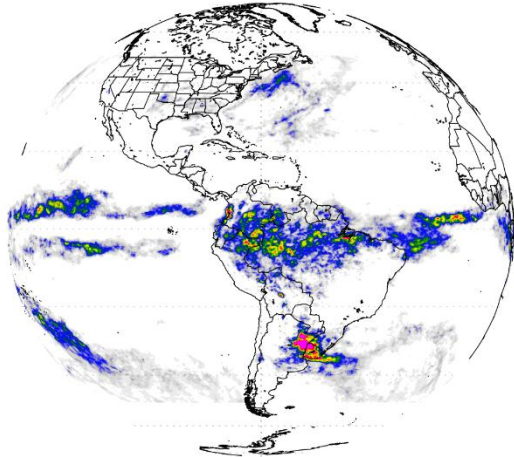


ANOMALIA DE VIENTO a 200hPa ABRIL 2016
NCEP-NOAA / SENAMHI -DCL

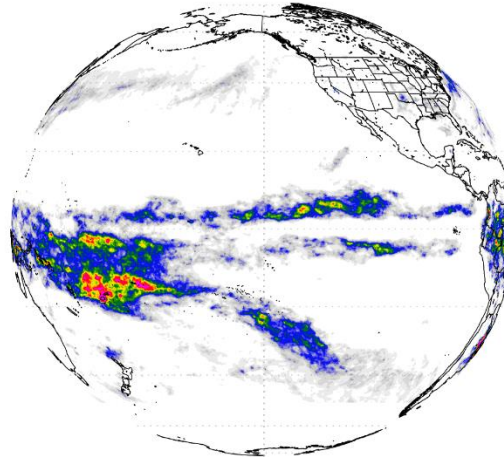


CONVECCION & PRECIPITACION

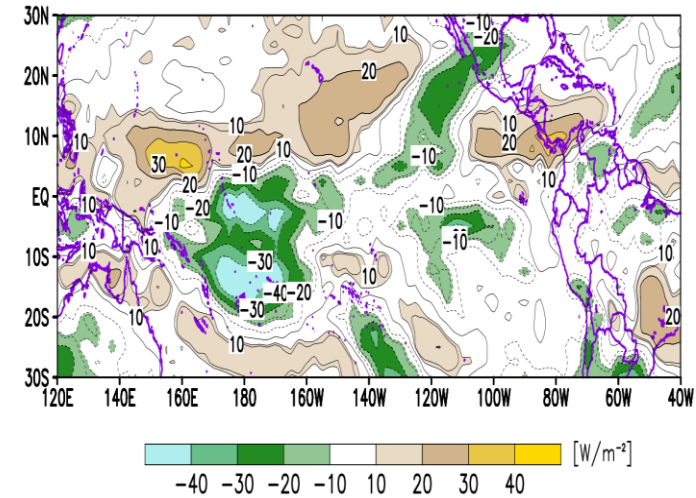
PRECIPITACION ACUMULADA | ABRIL 2016



PRECIPITACION ACUMULADA | ABRIL 2016

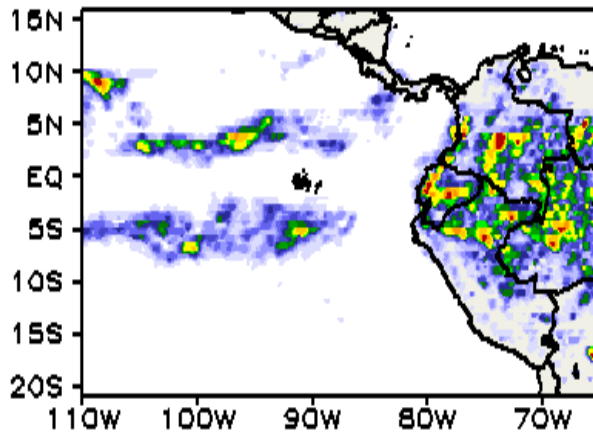


ANOMALIA DE OLR - 2016 ABRIL

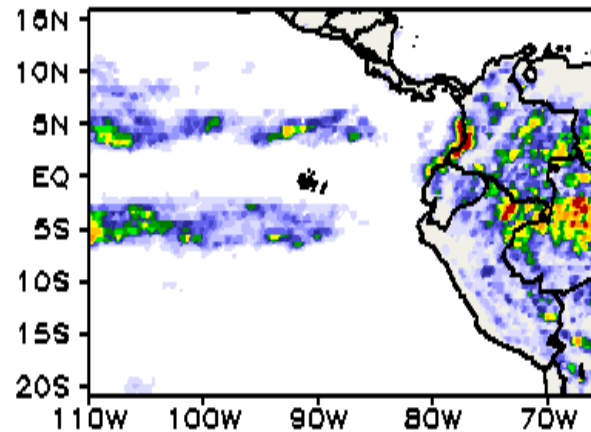


TRMM - PRECIPITACION ACUMULADA CADA 5 DIAS - ABRIL 2016

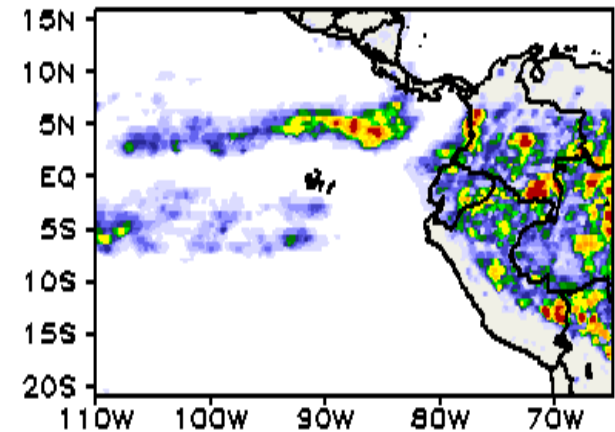
DIAS 1 AL 5



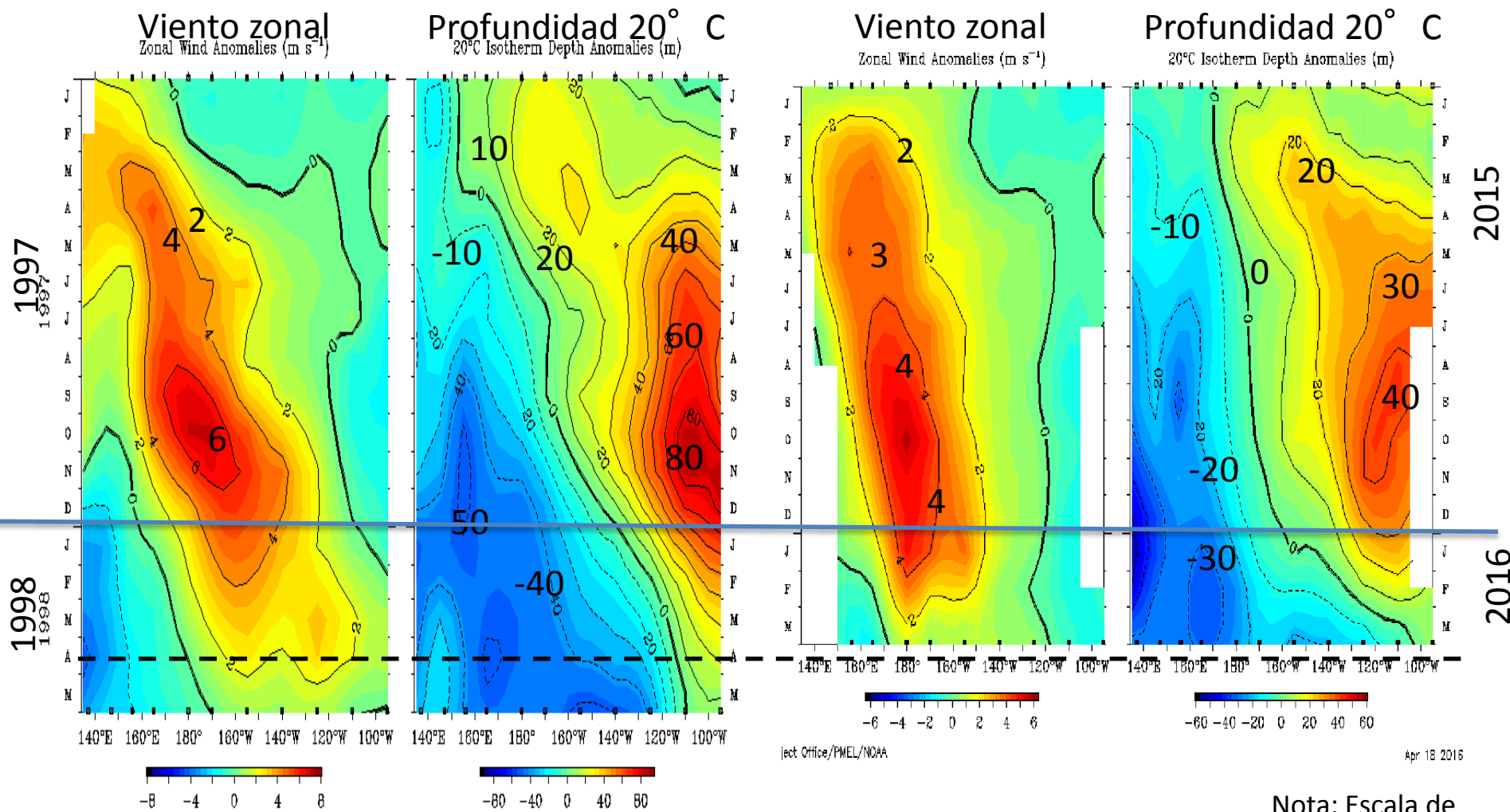
DIAS 6 AL 10



DIAS 11 AL 15



Anomalía mensual de viento zonal y profundidad de 20° C ecuatorial

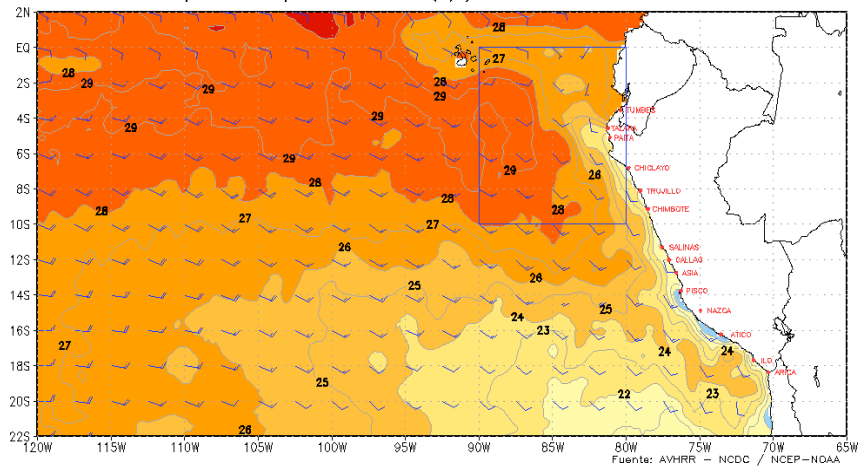




TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO SUDORIENTAL

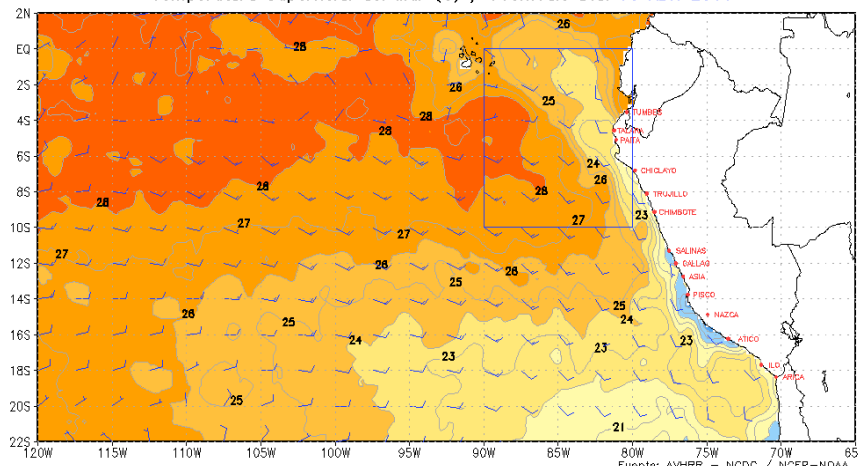
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Temperatura Superficial del Mar (C) / Promedio Dia: 05 ABR 2016



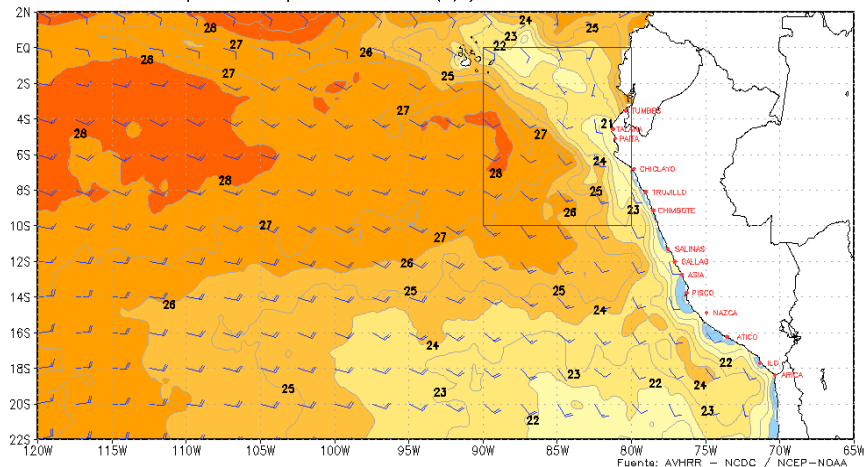
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Temperatura Superficial del Mar (C) / Promedio Dia: 10 ABR 2016

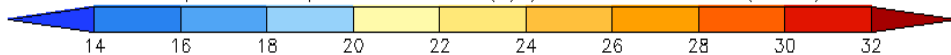


DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Temperatura Superficial del Mar (C) / Promedio Dia: 17 ABR 2016



Temperatura Superficial del Mar (C) / Barbas de viento (nudos)



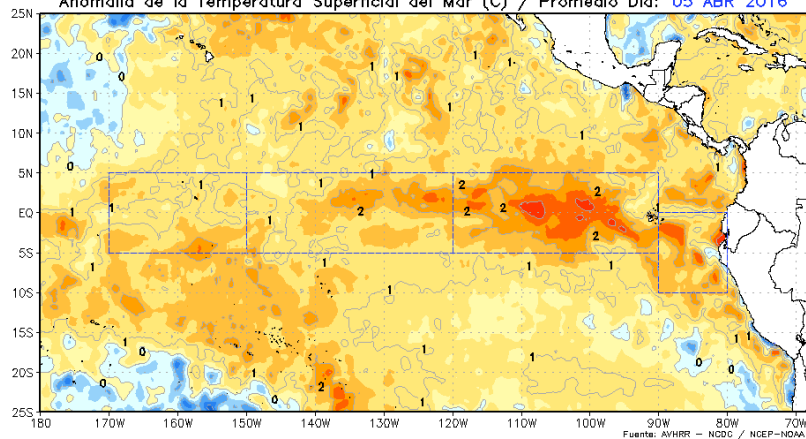
Fuente: Gráficos DHN, Datos NCEP/NOAA



ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO ECUATORIAL

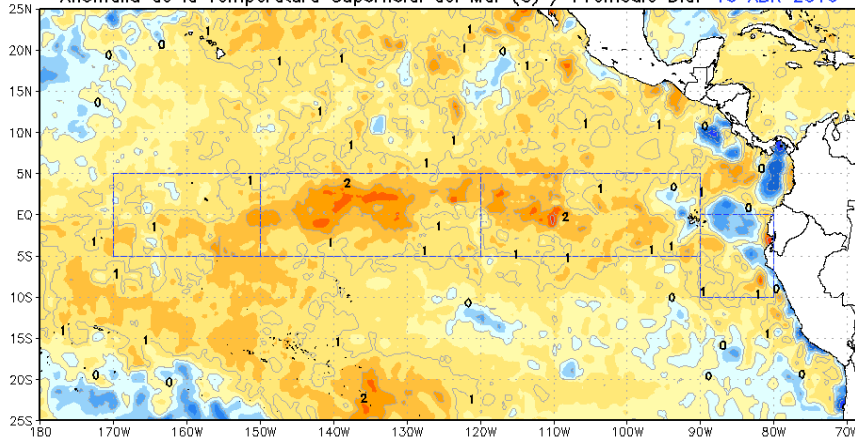
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 05 ABR 2016



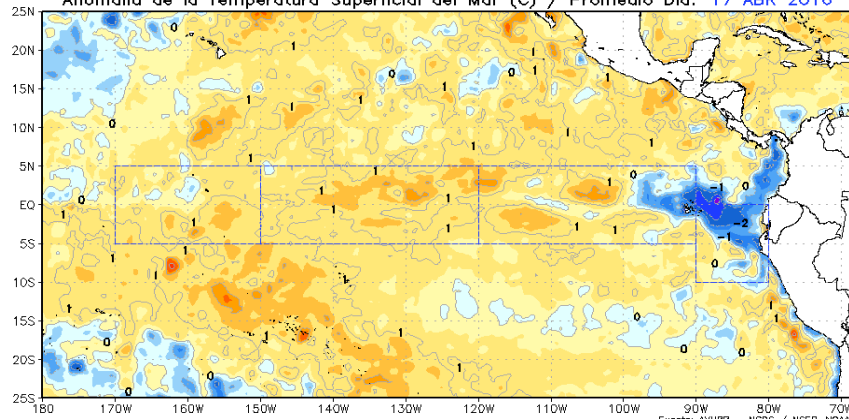
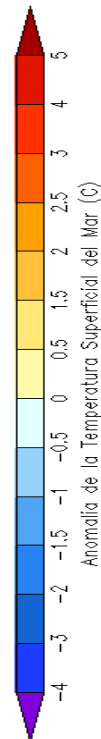
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 10 ABR 2016



DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

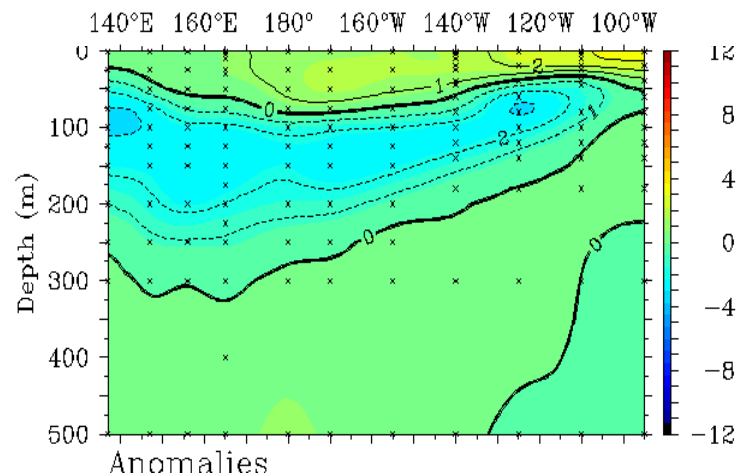
Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 17 ABR 2016





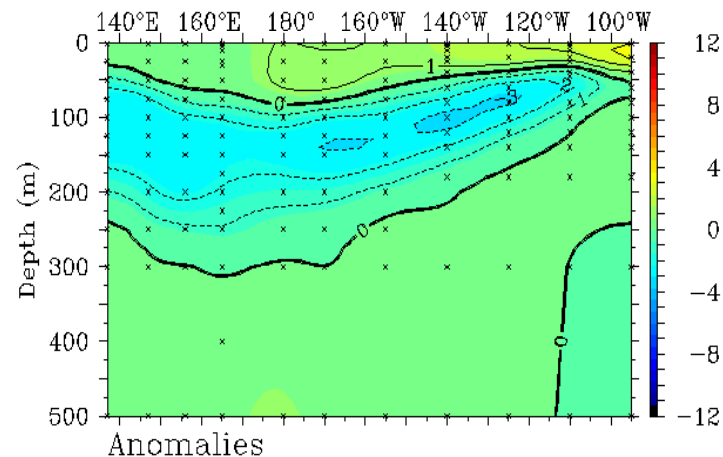
TAO/TRITON 5-Day Mean Temperatures (°C)

Ending on April 3 2016 2°S to 2°N Average



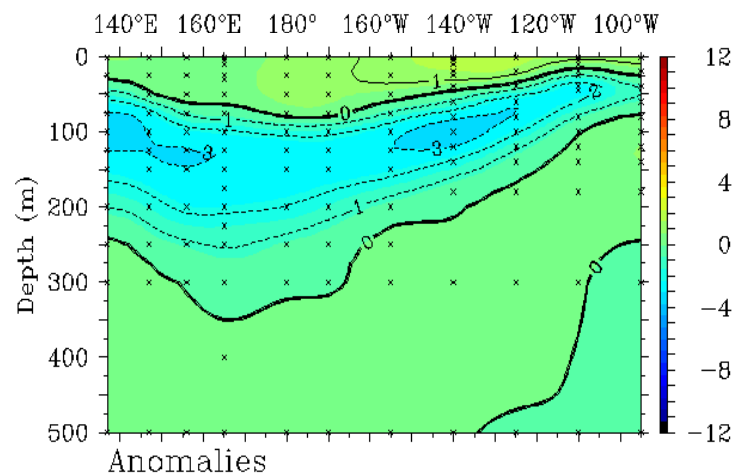
TAO/TRITON 5-Day Mean Temperatures (°C)

Ending on April 7 2016 2°S to 2°N Average



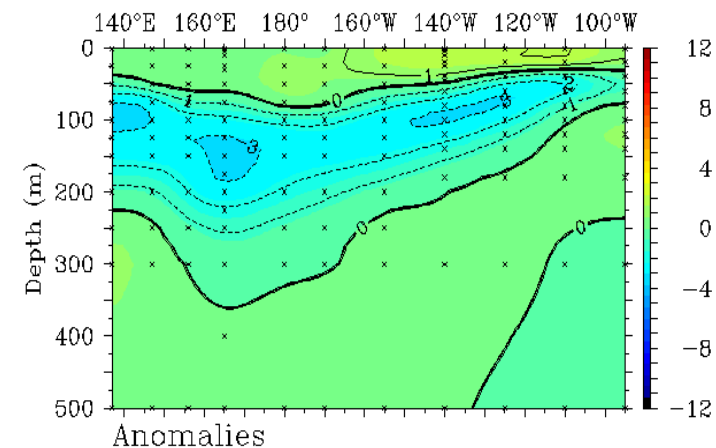
TAO/TRITON 5-Day Mean Temperatures (°C)

Ending on April 12 2016 2°S to 2°N Average



TAO/TRITON 5-Day Mean Temperatures (°C)

Ending on April 17 2016 2°S to 2°N Average





ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO ECUATORIAL

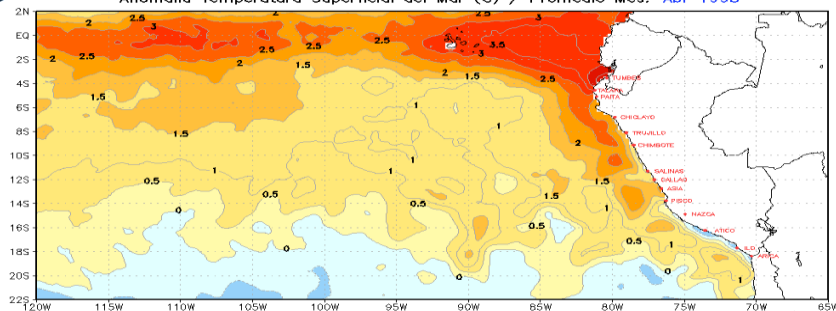


DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA — DIV METEOROLOGIA

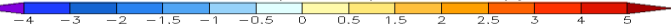
1998

Anomalia Temperatura Superficial del Mar (C) / Promedio Mes: **Abr 1998**

ABRIL



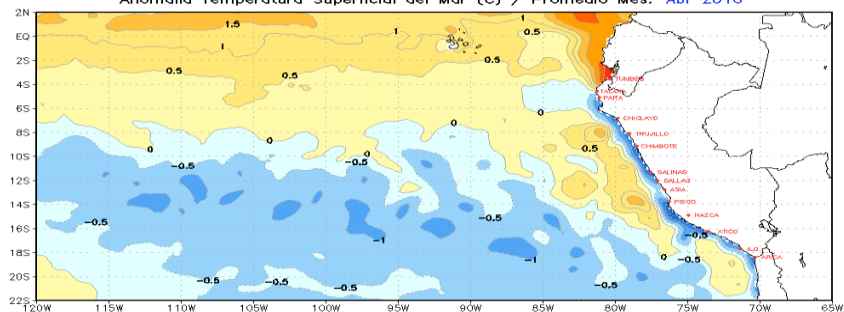
Anomalia de la Temperatura Superficial del Mar (C)



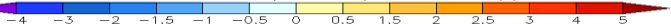
2010

Anomalia Temperatura Superficial del Mar (C) / Promedio Mes: **Abr 2010**

ABRIL



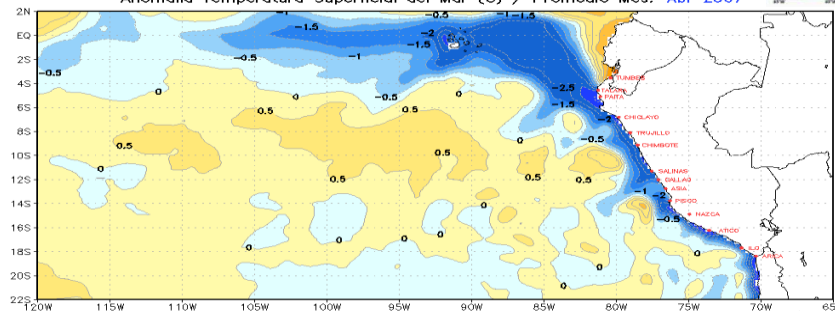
Anomalia de la Temperatura Superficial del Mar (C)



DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA — DIV METEOROLOGIA

2007

Anomalia Temperatura Superficial del Mar (C) / Promedio Mes: **Abr 2007**

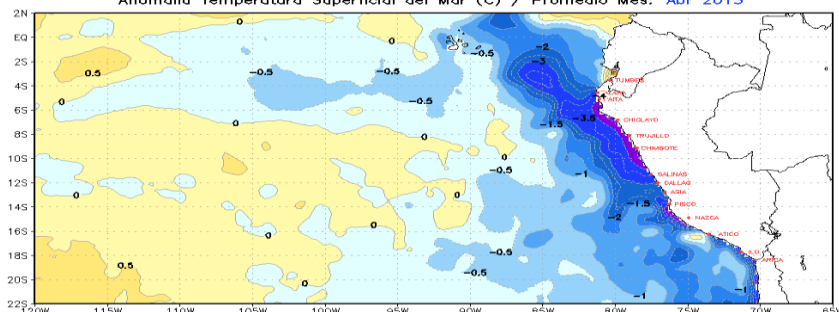


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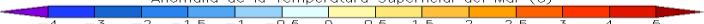


2013

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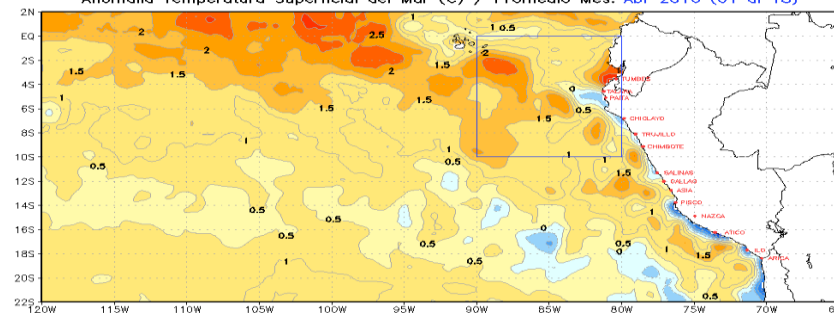


Anomalia de la Temperatura Superficial del Mar (C)

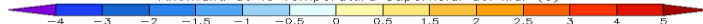


Anomalia Temperatura Superficial del Mar (C) / Promedio Mes: **Abr 2016 (01 al 18)**

ABRIL



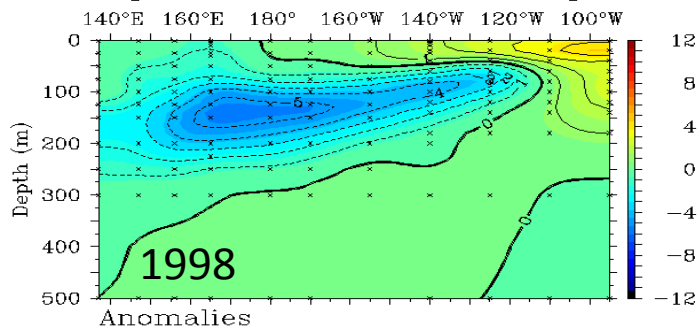
Anomalia de la Temperatura Superficial del Mar (C)



2016



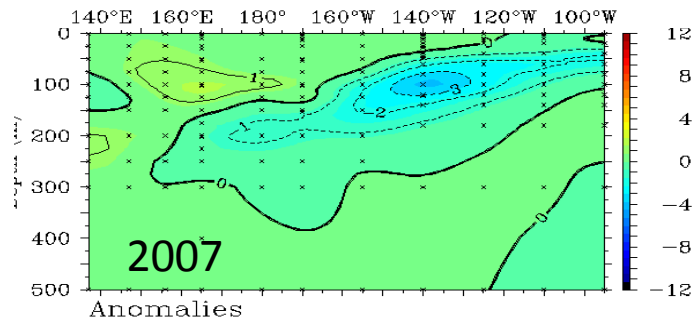
Monthly Mean TAO/TRITON Temperatures (°C)
April 1998 2°S to 2°N Average



TAO Project Office/PMEL/NOAA

Apr 19 2016

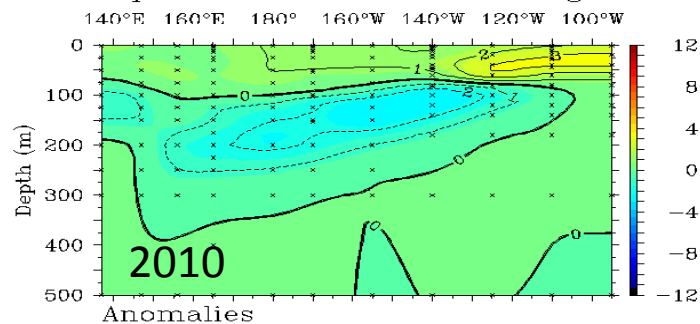
Monthly Mean TAO/TRITON Temperatures (°C)
April 2007 2°S to 2°N Average



Project Office/PMEL/NOAA

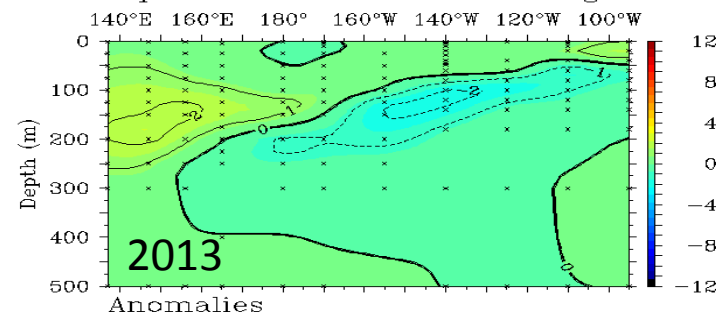
Apr 18 2016

Monthly Mean TAO/TRITON Temperatures (°C)
April 2010 2°S to 2°N Average



TAO Project Office/PMEL/NOAA

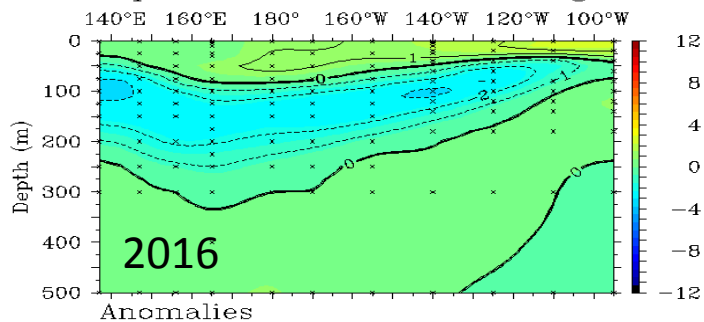
Monthly Mean TAO/TRITON Temperatures (°C)
April 2013 2°S to 2°N Average



TAO Project Office/PMEL/NOAA

Apr 19 2016

Monthly Mean TAO/TRITON Temperatures (°C)
April 2016 2°S to 2°N Average



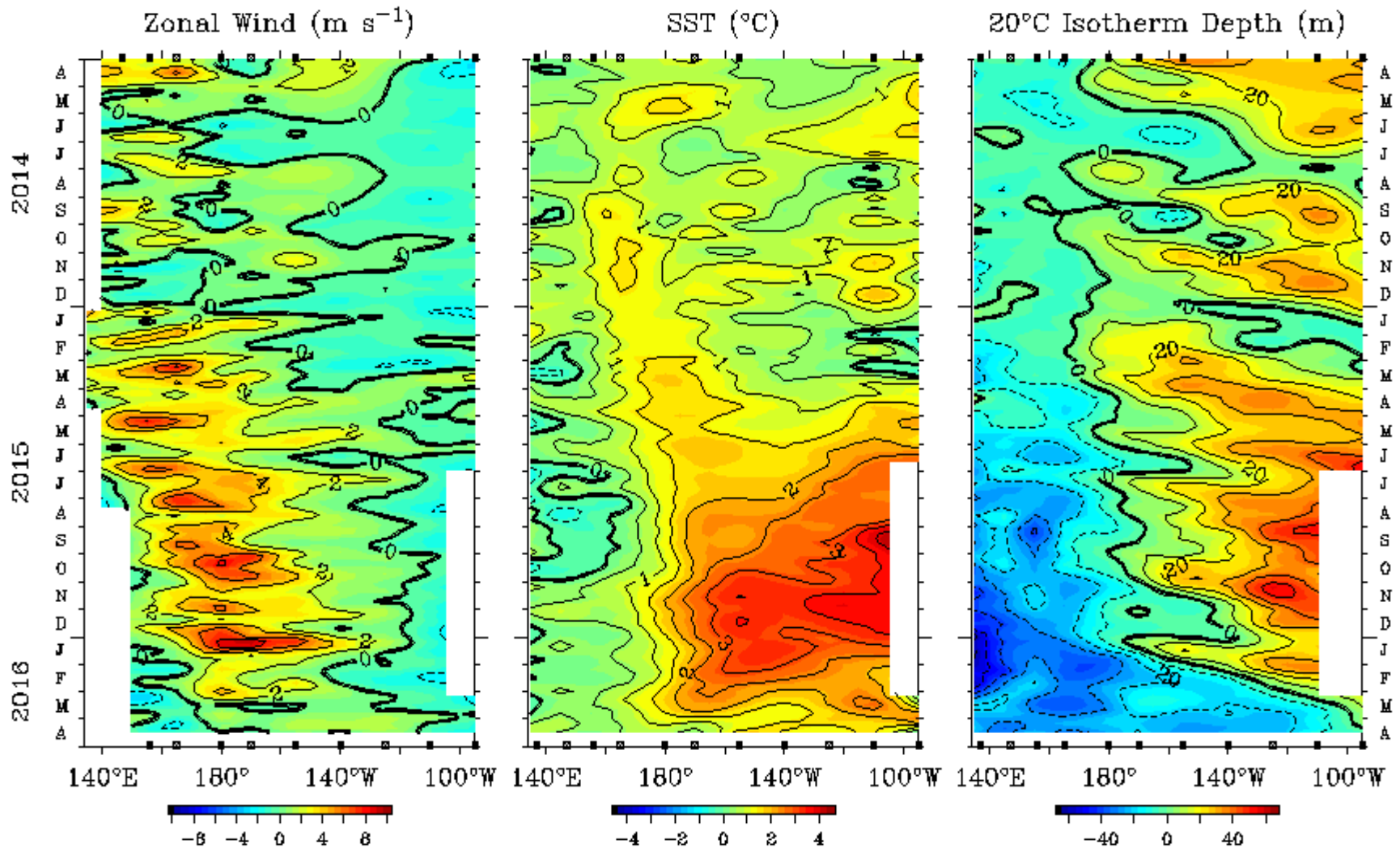
TAO Project Office/PMEL/NOAA

Apr 18 2016

Fuente: PMEL/TAO/TRITON NOAA

TAO a lo largo de la línea ecuatorial

Five Day Zonal Wind, SST, and 20°C Isotherm Depth Anomalies 2°S to 2°N Average



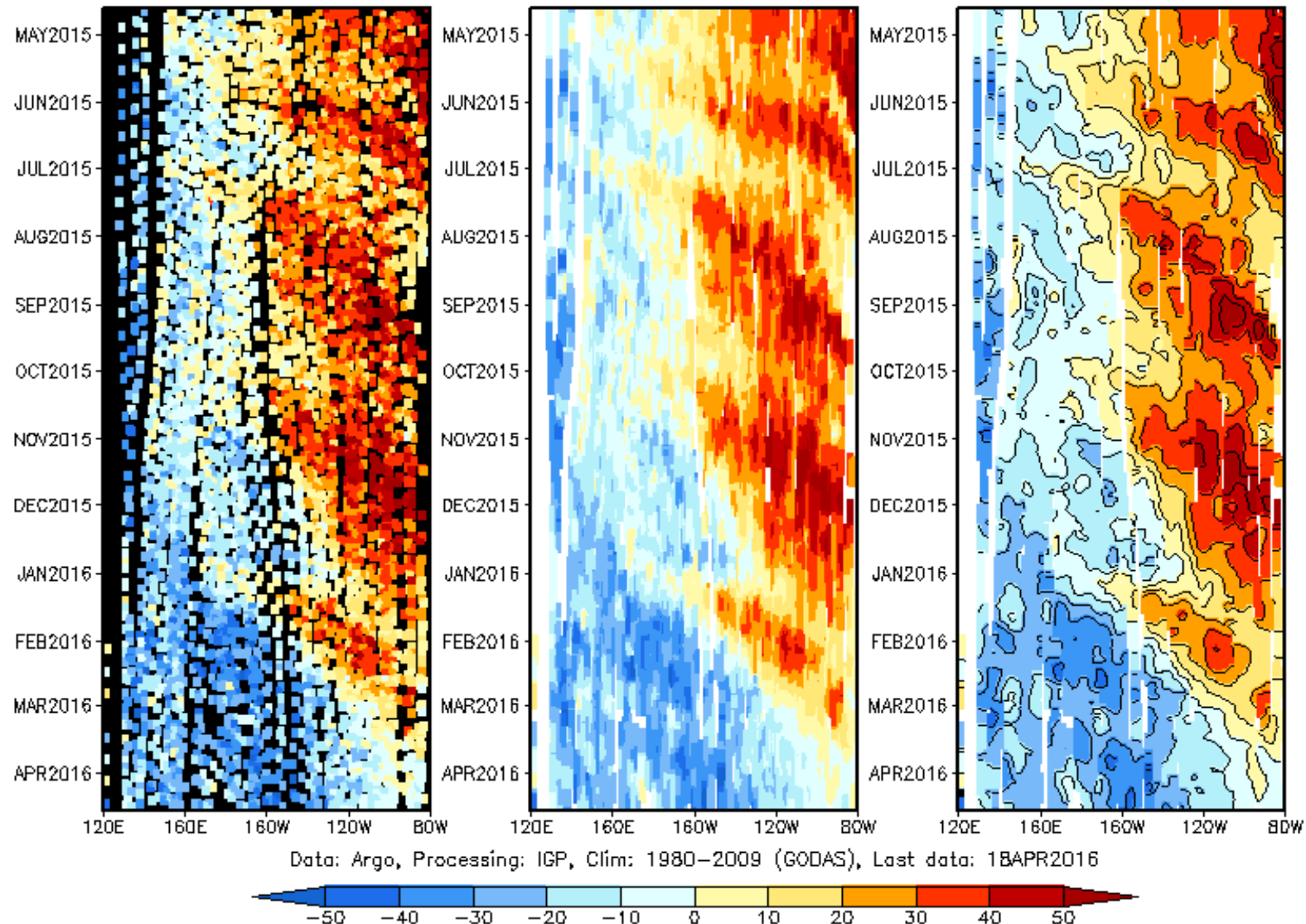
Análisis de boyas ARGO a lo largo de la línea ecuatorial

Equatorial (2°S – 2°N) 20°C isotherm depth anomaly (m)

a) Gridded profiles

b) 11-day mean

c) Smoothed 11-day mean

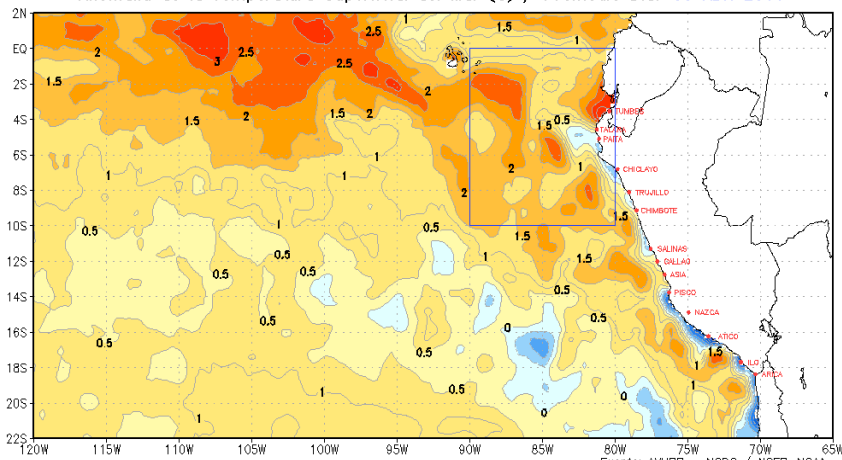




ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO SUDORIENTAL

DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

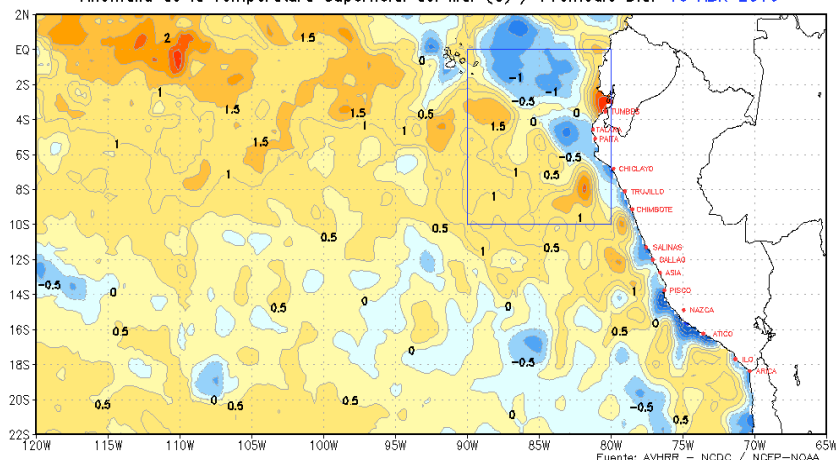
Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 05 ABR 2016



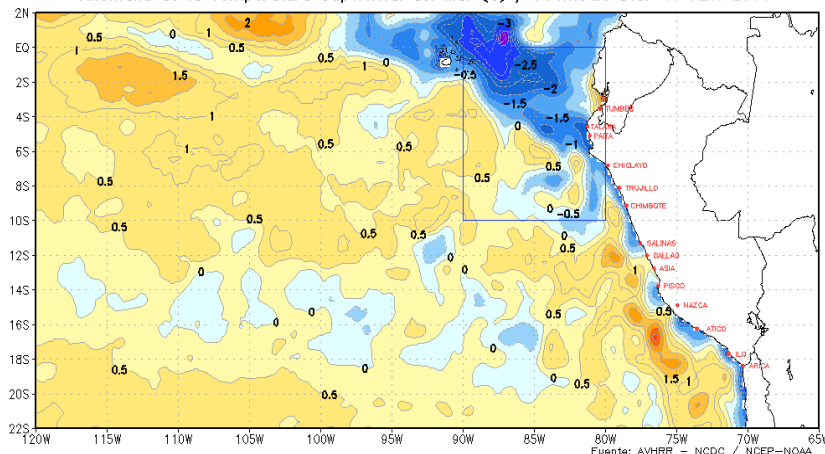
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 10 ABR 2016



Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 17 ABR 2016



Anomalia de la Temperatura Superficial del Mar (C)



Fuente: Gráficos DHN, Datos NCEP/NOAA

Valores del Índice Costero El Niño

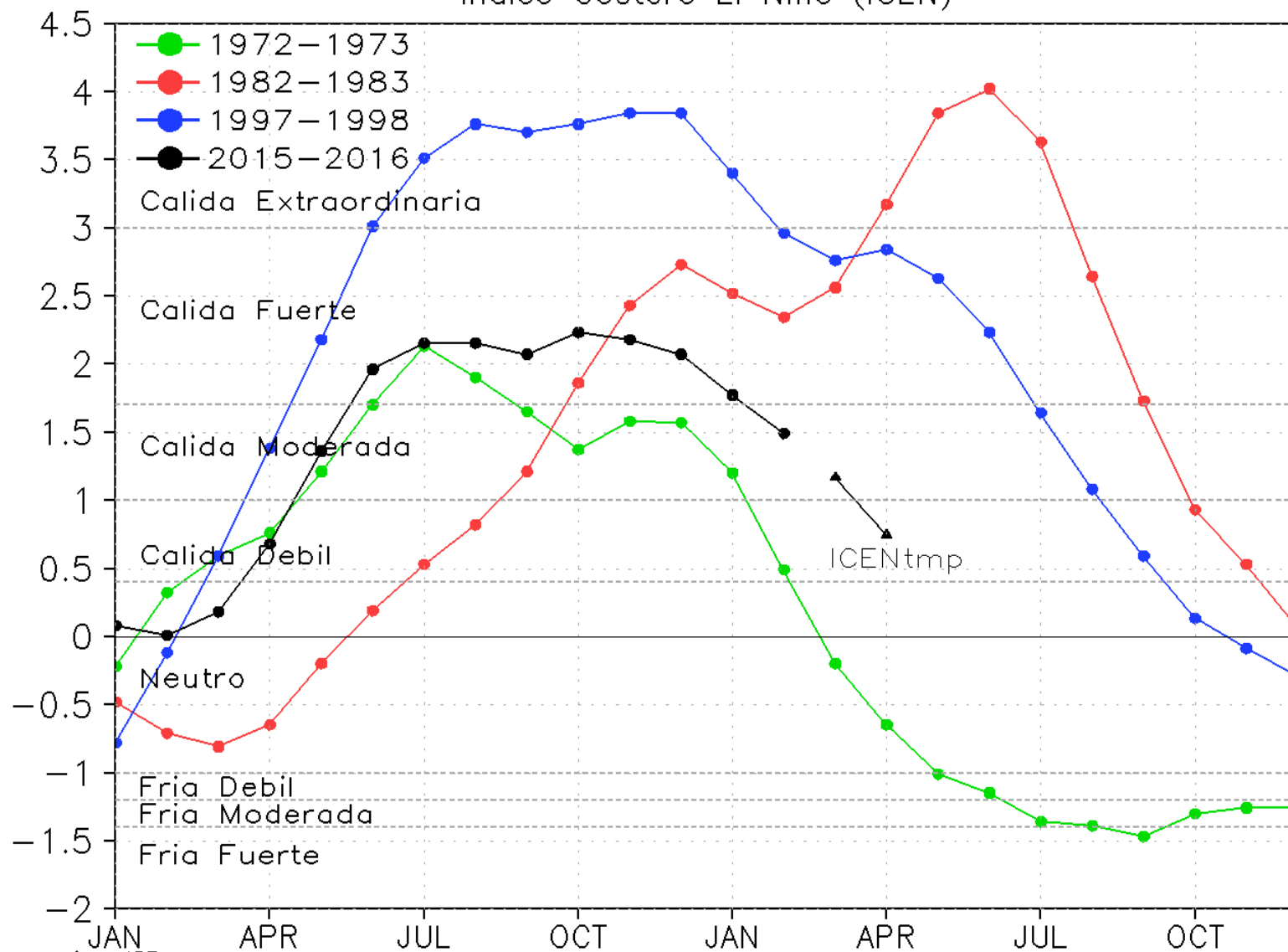
Mes	ICEN	Categoría
06/2015	1.96	Cálida Fuerte
07/2015	2.15	Cálida Fuerte
08/2015	2.15	Cálida Fuerte
09/2015	2.07	Cálida Fuerte
10/2015	2.23	Cálida Fuerte
11/2015	2.18	Cálida Fuerte
12/2015	2.07	Cálida Fuerte
01/2016	1.77	Cálida fuerte
02/2016	1.49	Cálida Moderada

Mes	ICENtmp	Categoría
03/2016	1.17 *	Cálida Moderada
04/2016	0.75**	Cálida Débil

* Se usaron los datos de (Feb. Mar 2016) ERSST3v, (Abr. 2016) NMME.

** Se usaron los datos de (Mar. 2016) ERSST3v, (Abr. May 2016) NMME
NMME CI 2016 04

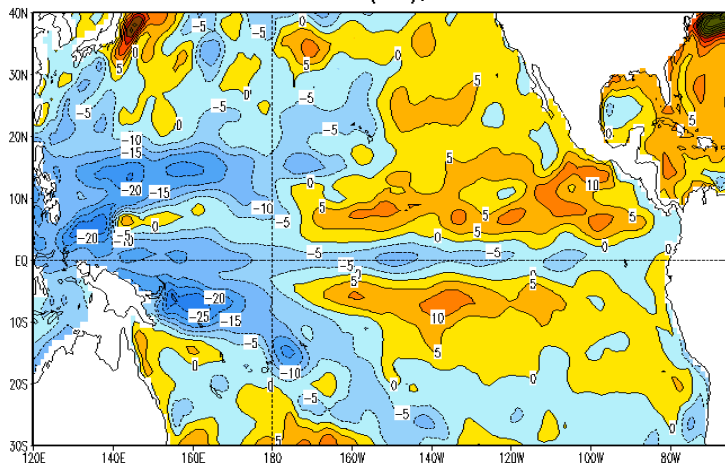
Indice Costero El Nino (ICEN)



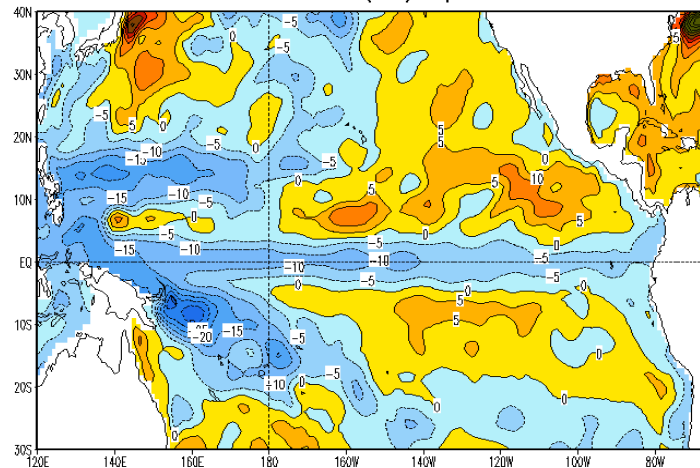


ANOMALÍAS DEL NIVEL DEL MAR EN EL PACÍFICO TROPICAL

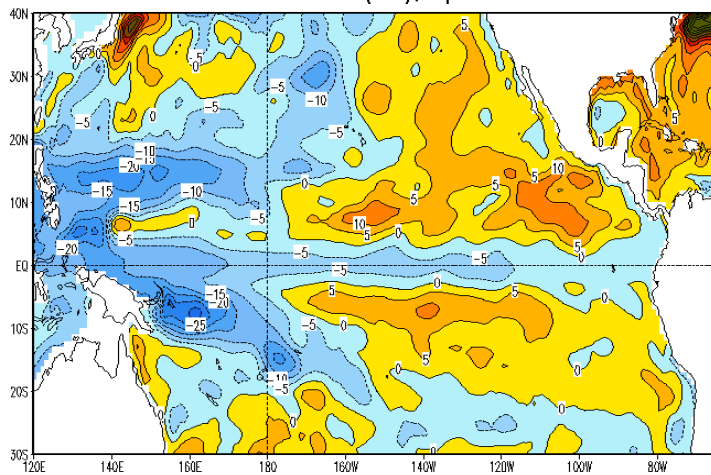
Sea Level Anom (cm), Mar 29 2016



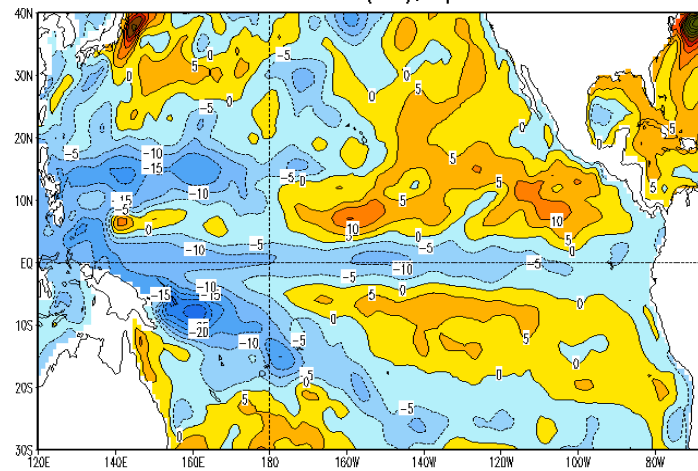
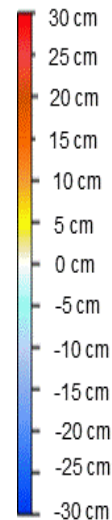
Sea Level Anom (cm), Apr 13 2016



Sea Level Anom (cm), Apr 03 2016

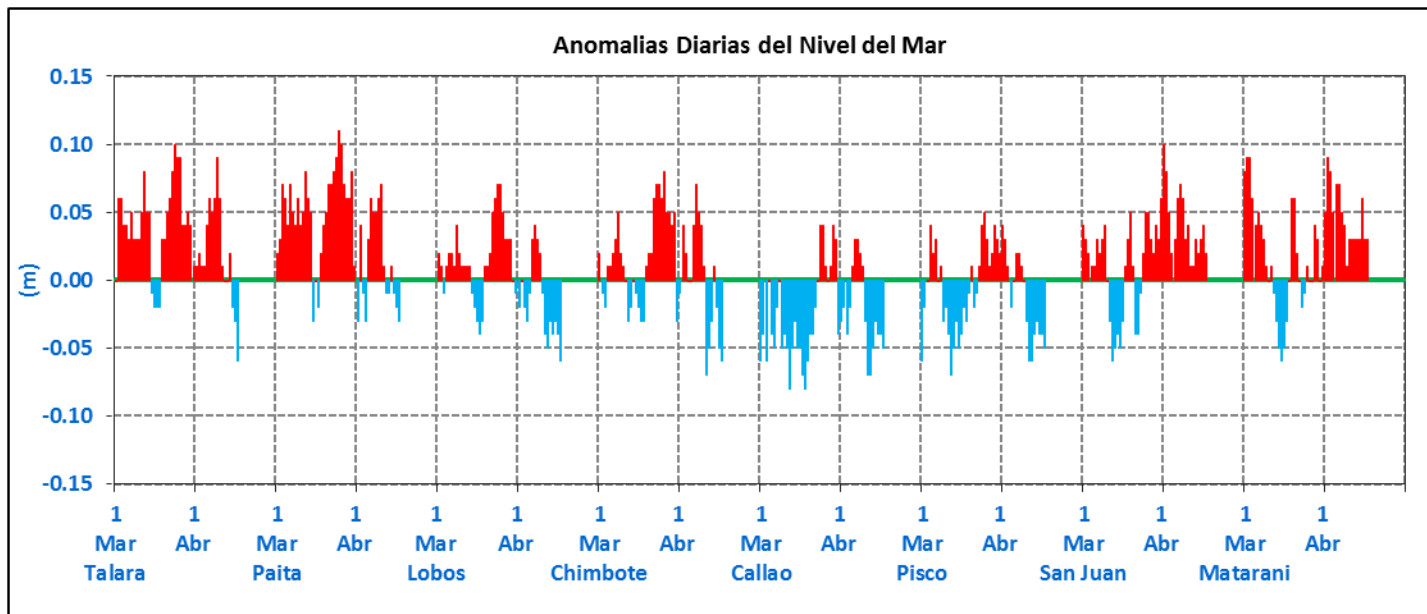


Sea Level Anom (cm), Apr 08 2016





ANOMALÍAS DEL NIVEL MEDIO DEL MAR EN EL LITORAL PERUANO



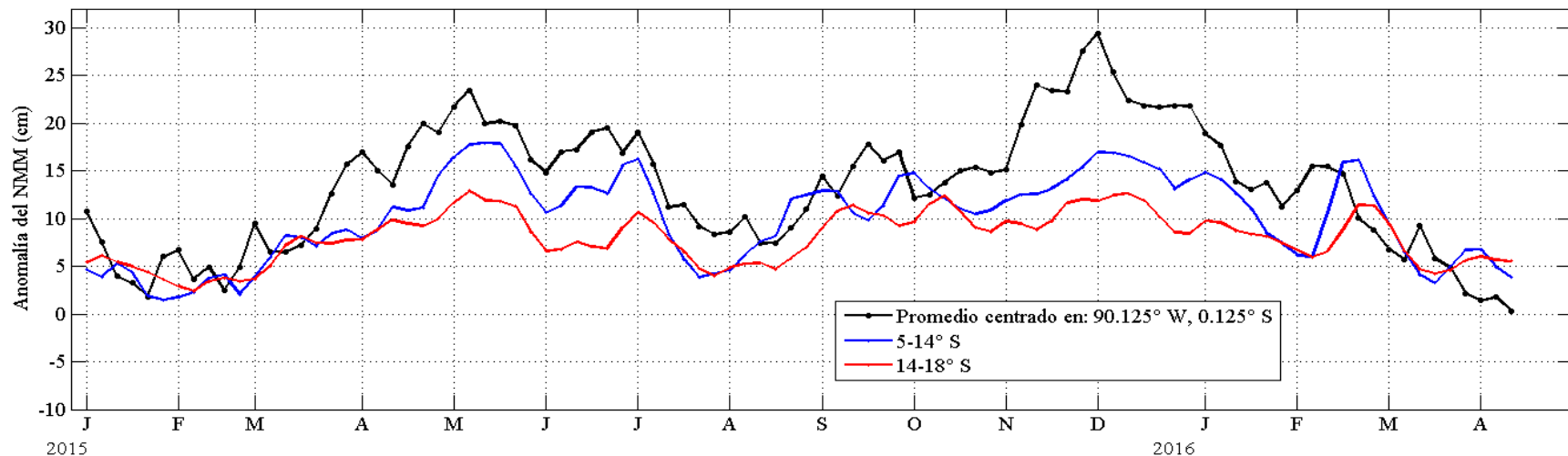
Estación	ANMM (cm) 2015										2016			
	Mar.	Abr.	May	Jun.	Jul.	Ago.	Set.	Oct.	Nov.	Dic.	Ene.	Feb.	Mar.	15.Abr
Talara	5	16	19	15	10	12	16	13	18	19	5	8	4	2
Paíta	4	14	20	16	12	13	17	15	19	21	8	10	5	1
Isla Lobos de Afuera	-	11	15	14	7	9	11	9	13	15	7	7	2	-2
Chimboté	4	10	15	15	7	10	12	9	13	15	5	11	2	0
Callao	0	7	10	12	3	8	9	6	9	9	2	7	-3	-2
San Juan	4	8	10	13	3	8	13	11	11	12	6	9	1	4
Matarani	3	4	6	9	4	8	12	9	12	12	7	10	2	5

Promedios Diarios NMM		
Estación	Domingo 17 Abril 2016	
	NMM (m)	ANMM(m)
Talara	0.84	-0.06
Paíta	0.80	-0.03
I. Lobos de Afuera	0.69	-0.06
Chimbote	0.57	-0.06
Callao	0.53	-0.05
Pisco	0.44	-0.05
San Juan	0.46	+0.02
Matarani	0.58	+0.03

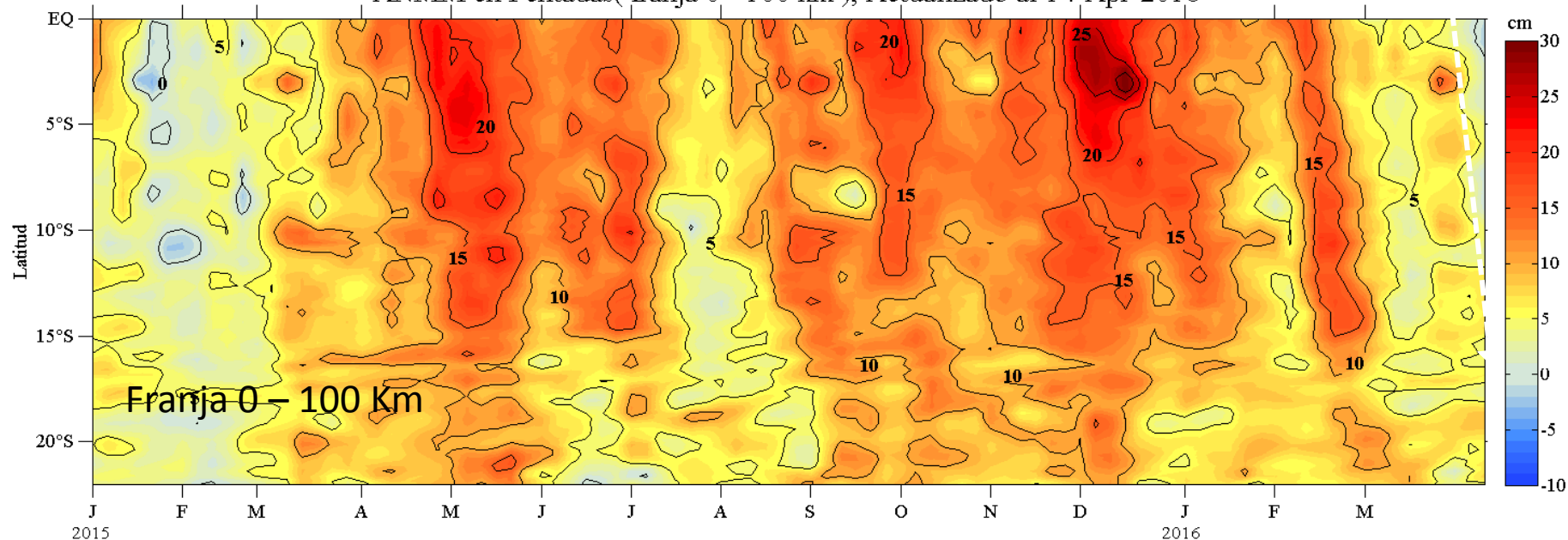
Anomalías del nivel medio del mar al 14-abril



ANMM en Pentadas (franja 0 - 100km), Actualizado al 14-Apr-2016



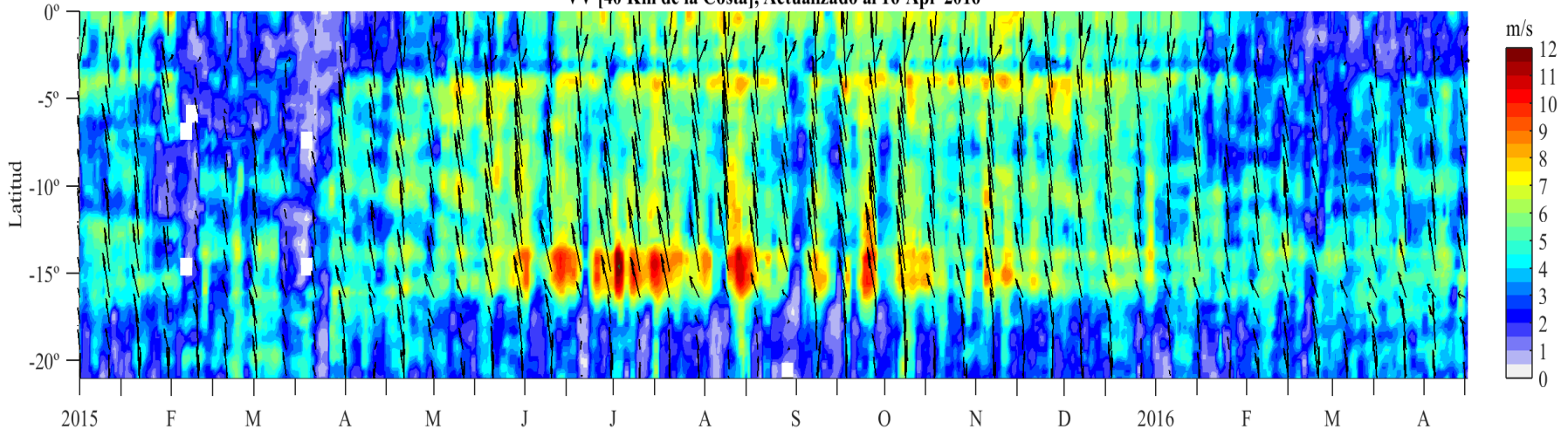
ANMM en Pentadas(franja 0 - 100 km), Actualizado al 14-Apr-2016



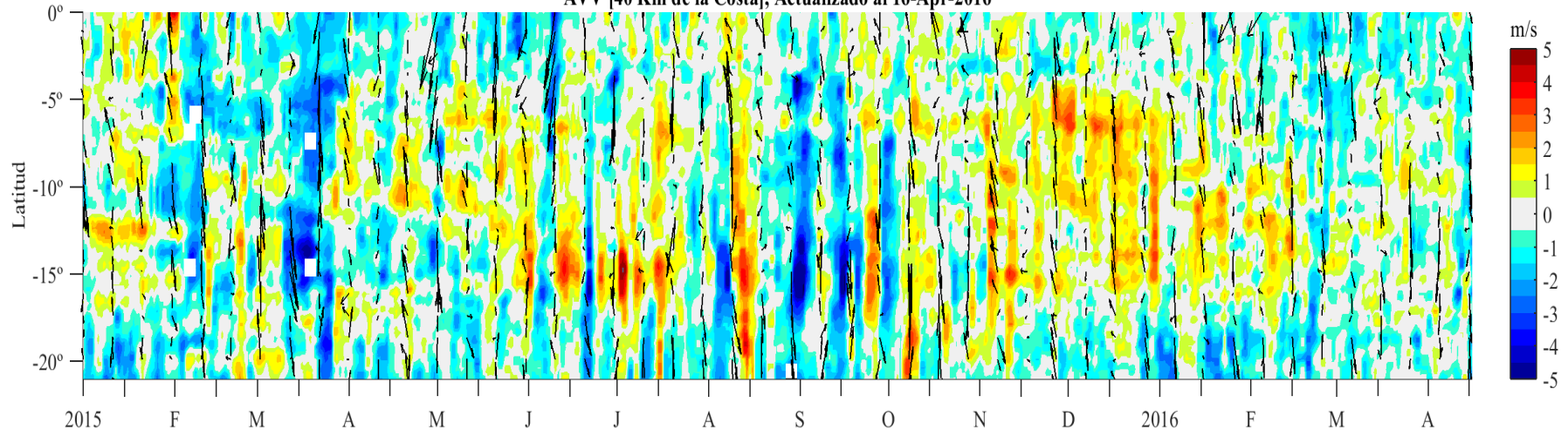
Velocidad y Anomalías del Viento (ASCAT)



VV [40 Km de la Costa], Actualizado al 16-Apr-2016



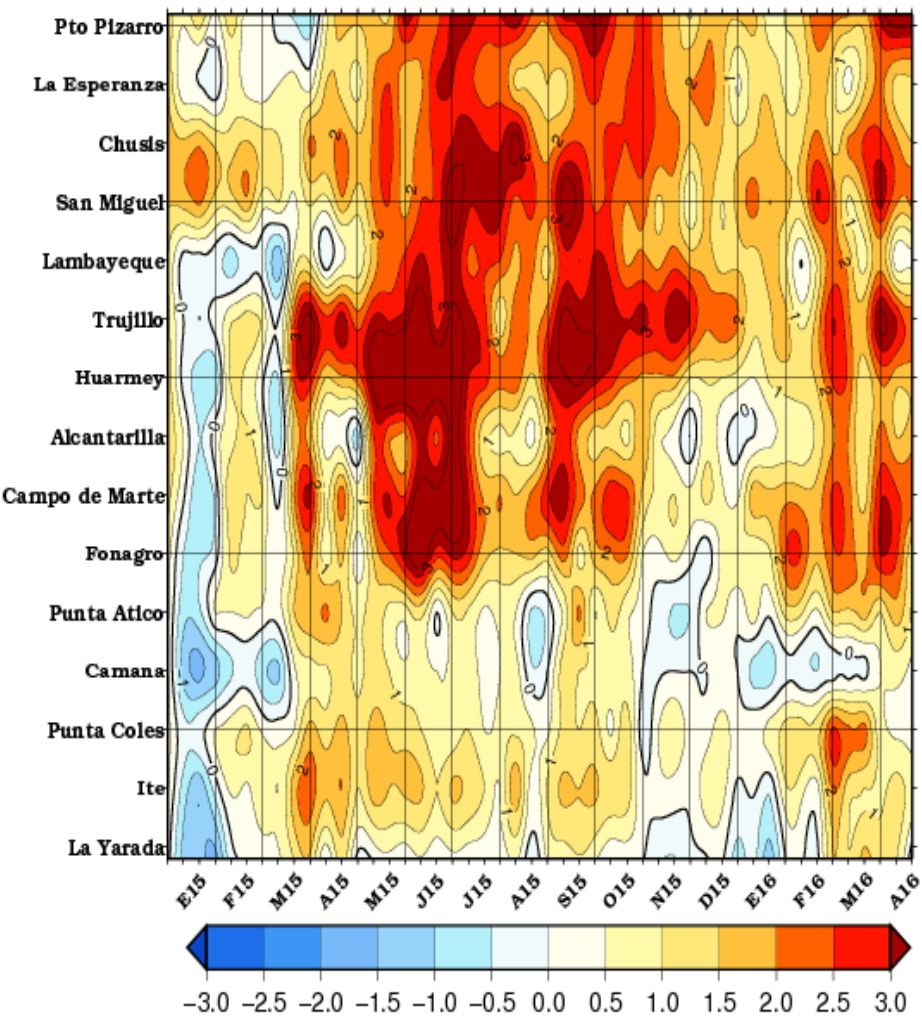
AVV [40 Km de la Costa], Actualizado al 16-Apr-2016



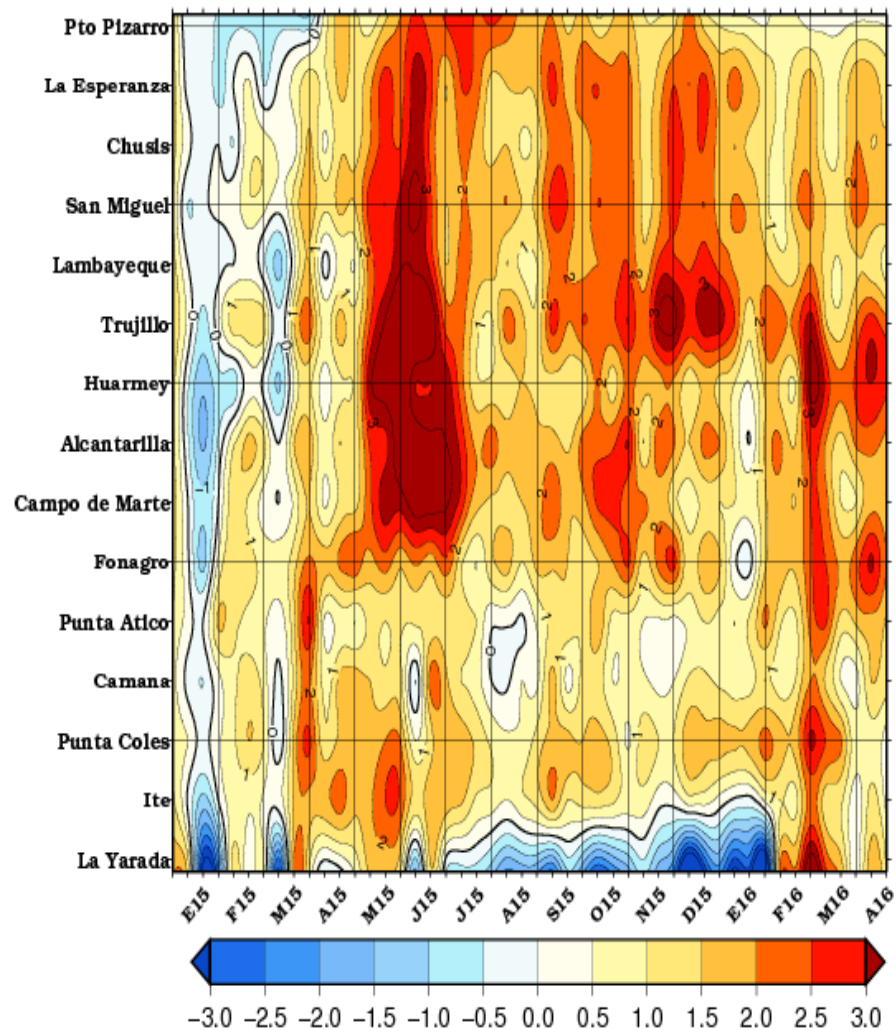
Viento Satelital (40 Km frente a la costa del Perú): a) Velocidad del viento (m/s), b) Anomalía de la velocidad del viento (m/s). Fuente: Satélite ASCAT, Procesamiento: Laboratorio de Hidro-Física Marina, IMARPE.

TEMPERATURAS

Anomalía de Temperatura Máxima



Anomalía de Temperatura Mínima



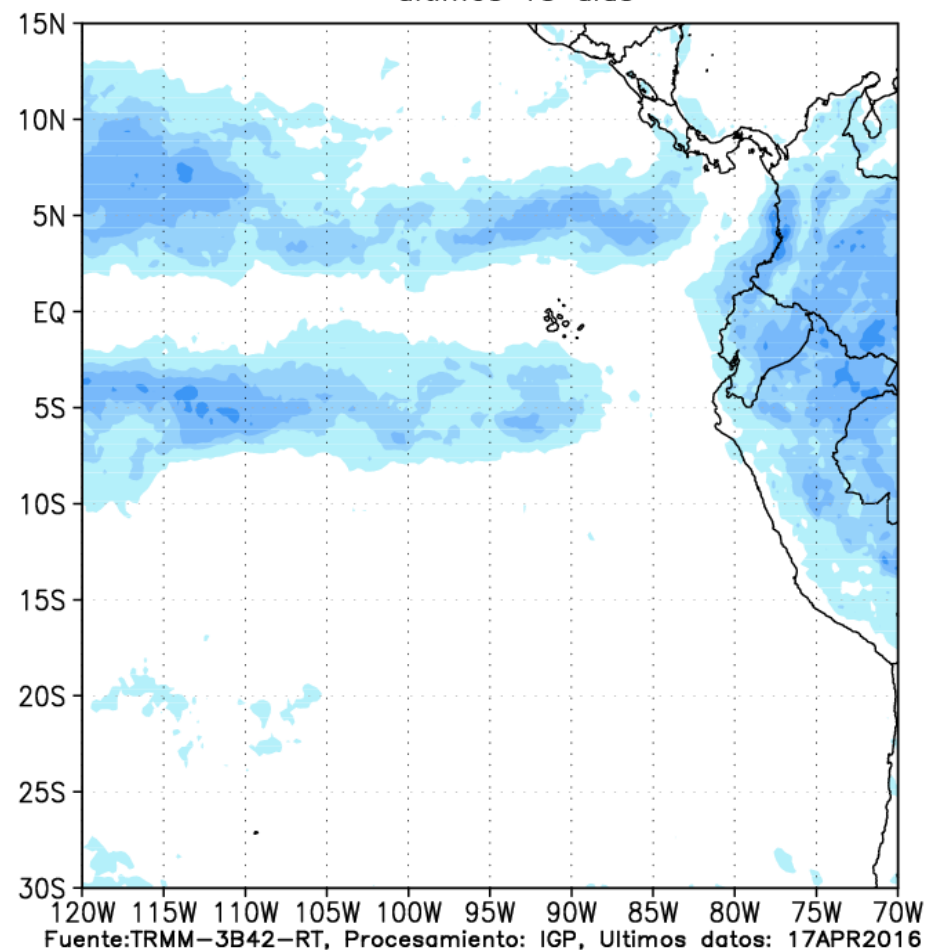
TEMPERATURAS

*Distribución de las estaciones
meteorológicas
En el litoral Peruano*

Estación	Longitud (°W)	Latitud (°S)	Altura (m)	Temperatura Máxima (°C)	Climatología Tmáxima (°C)	Temperatura Mínima (°C)	Climatología Tmínima (°C)	Anomalía TMAX (°C)	Anomalía TMIN (°C)
Puerto Pizarro	80° 27'26"	03° 30'30"	1	34.9	31.5	24.3	23.8	3.5	0.5
La Esperanza	81° 04'4"	04° 55'55"	30	31.9	30.6	23.2	21.9	1.3	1.3
Chusis	80° 50'50"	05° 31'31"	14	32.9	31.4	22.7	21.1	1.5	1.6
San Miguel	80° 40'55"	05° 18'14"	20	34.5	32.3	22.7	20.6	2.2	2.0
Lambayeque	79° 55'17"	06° 42'13"	18	28.4	27.9	20.7	20.0	0.4	0.7
Trujillo	78° 35'	08° 03'	30	27.7	25.3	19.7	17.5	2.4	2.2
Huarmey	78° 10'1"	10° 05'1"	20	26.8	25.1	19.6	17.1	1.7	2.6
Alcantarilla	77° 33'1"	11° 03'1"	120	28.6	26.8	19.4	17.6	1.8	1.8
Campo de Marte	77° 02'35.4"	12° 04'13.9"	159	26.6	24.2	20.0	18.5	2.4	1.5
Fonagro	76° 08'8"	13° 28'28"	60	27.3	26.3	19.6	17.7	1.0	2.0
Punta Atico	73° 41'40"	16° 13'43"	20	24.2	23.4	18.5	17.2	0.9	1.4
Camana	72° 41'49"	16° 36'24"	15	25.2	24.9	19.1	17.9	0.3	1.2
Punta Coles	71° 22'24.5"	17° 41'55.2"	70	23.6	23.4	17.9	17.7	0.2	0.2
Ite	70° 57'57"	17° 51'50"	160	24.3	23.4	17.8	17.5	0.8	0.3
La Yarada	70°31'25"	18°12'41"	58	25.0	25.0	16.4	15.5	-0.1	0.9



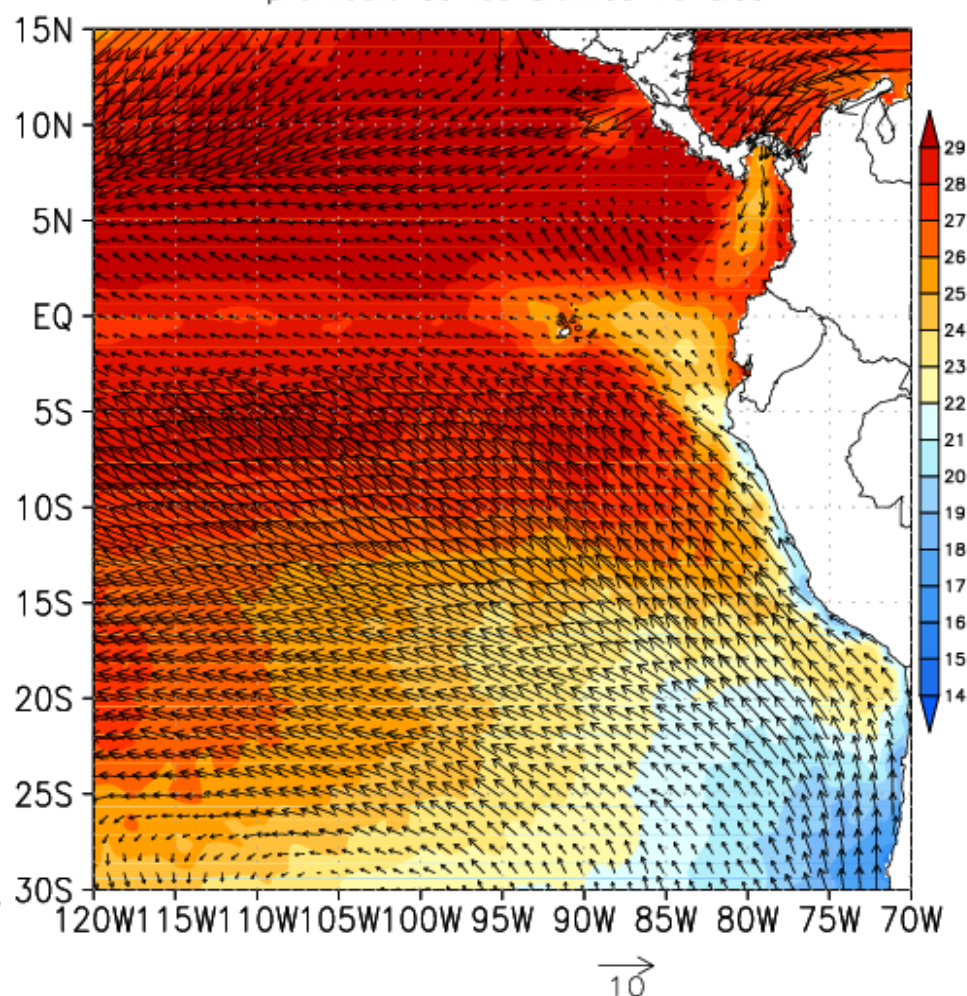
Precipitación promedio (mm/día)
últimos 15 días



Fuente: TRMM-3B42-RT, Procesamiento: IGP, Últimos datos: 17APR2016
Climatología: 2001-2014



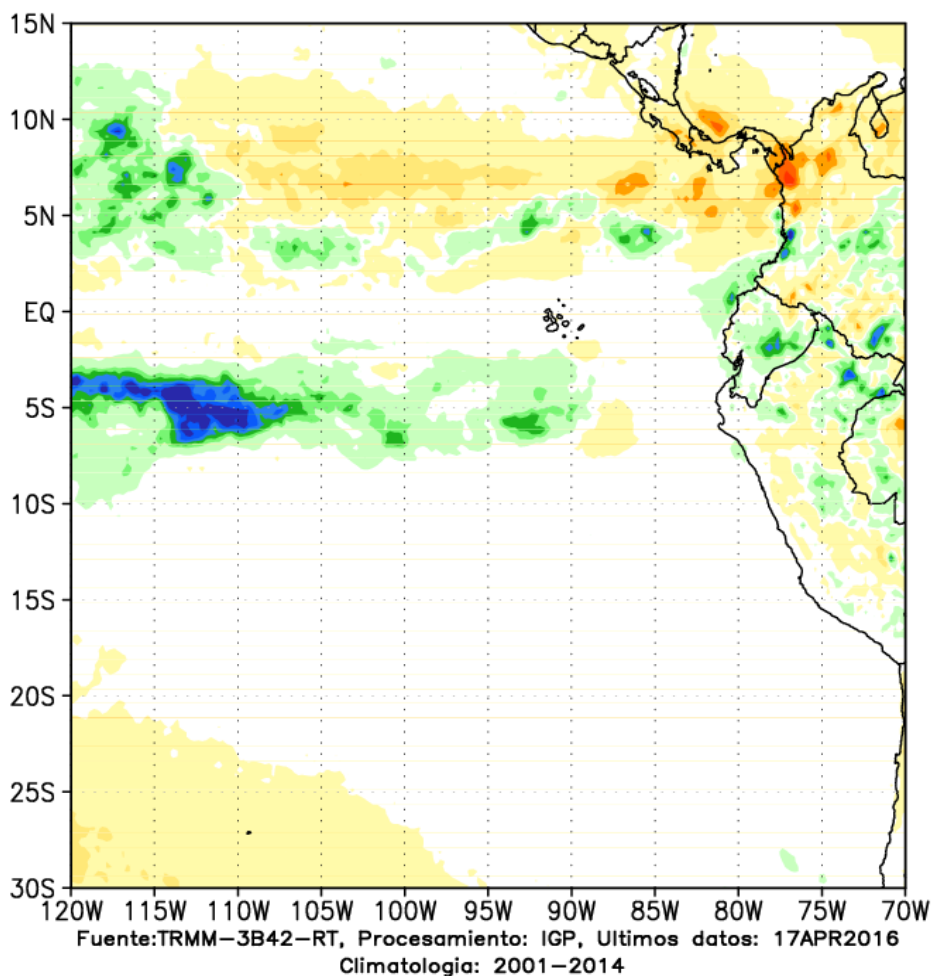
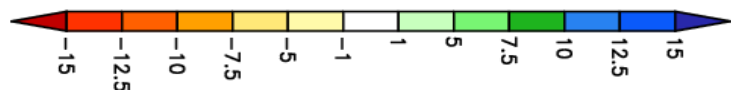
Temperatura superficial del mar (C)
Esfuerzo de viento ($N \cdot m^{-2} \cdot 10^{-2}$)
promedio de los últimos 15 días



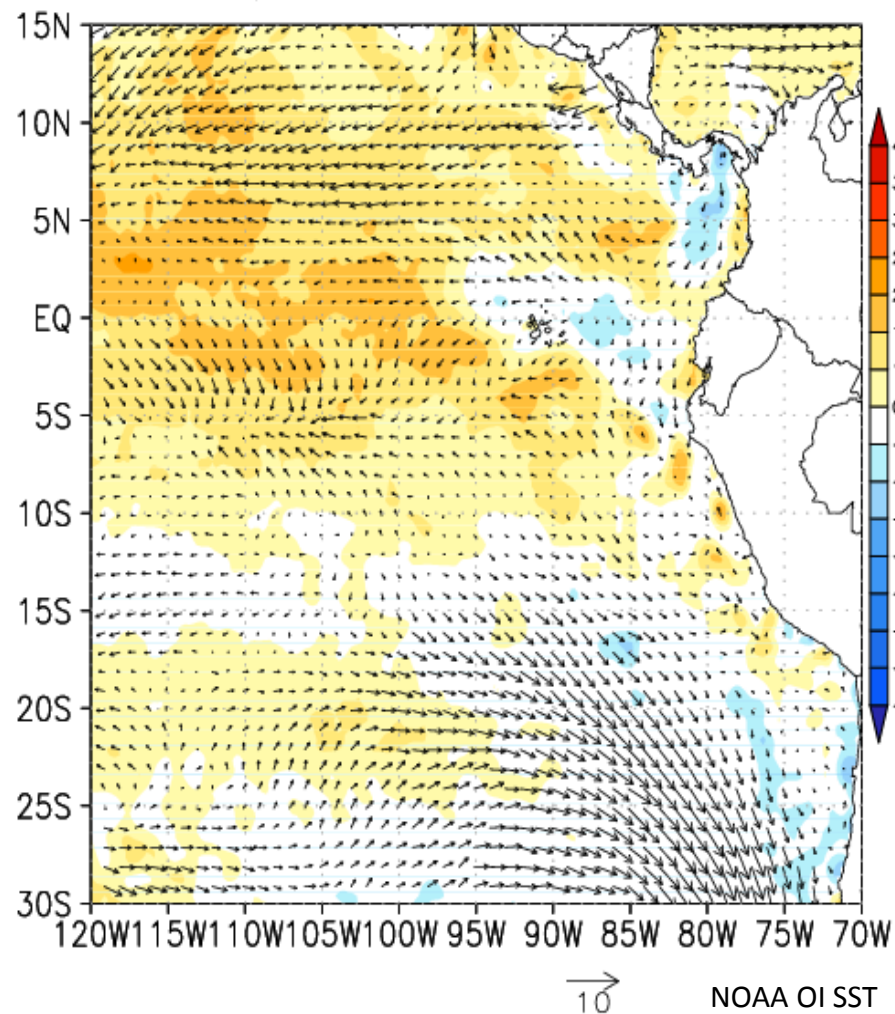
Fuente: TSM(AVHRR-NCDC), clim: 1982-2011
vientos(ASCAT-Ifrermer), clim 2008-2014 corregido con ERA



Anomalia de precipitación (mm/día) últimos 15 días

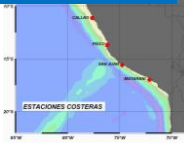
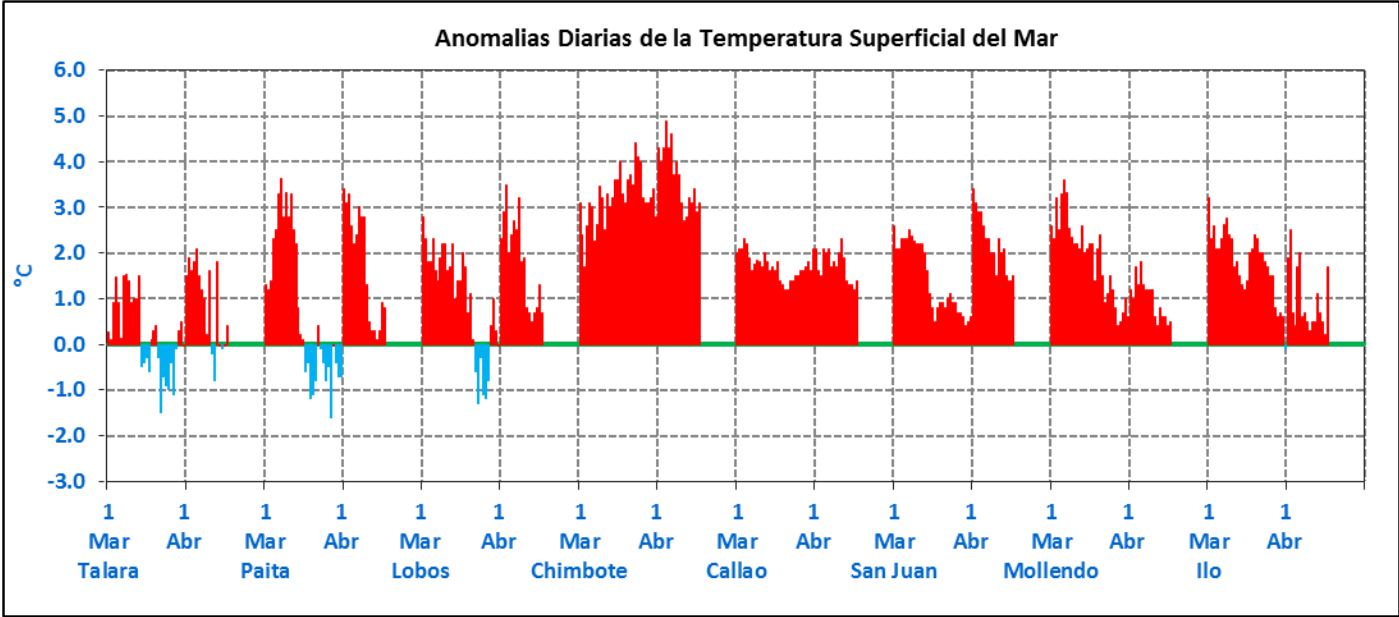


Anomalia de temperatura superficial del mar (C) Anomalia del esfuerzo de viento ($N \cdot m^{-2} \cdot 10^{-2}$) promedio de los últimos 15 días



Últimos datos: 16APR2016

Anomalías de Temperatura Superficial del Mar en el litoral



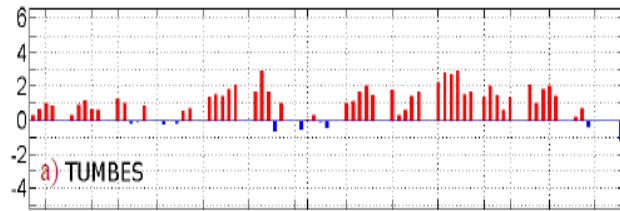
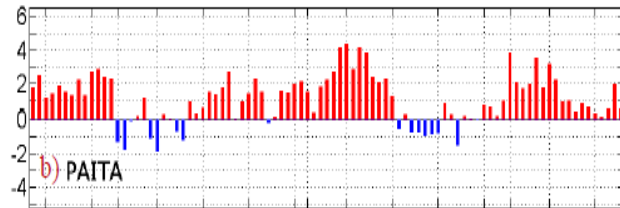
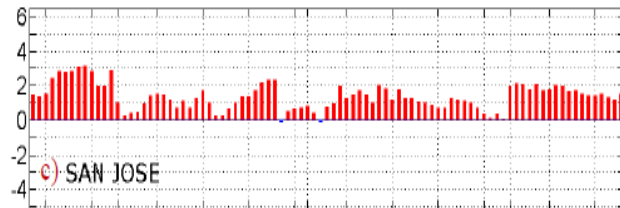
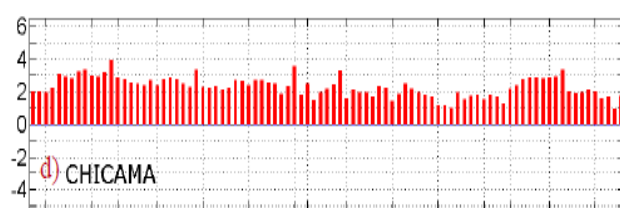
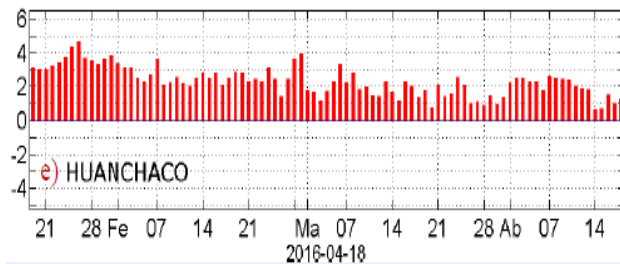
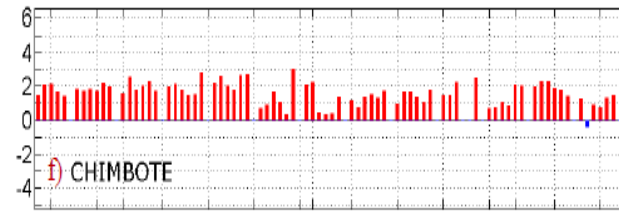
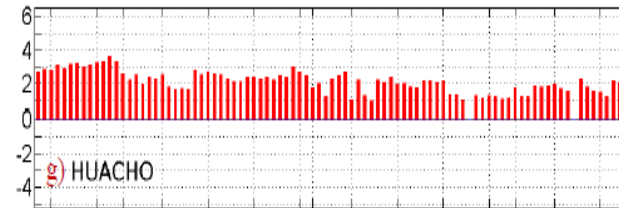
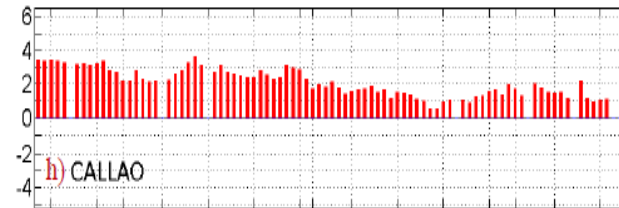
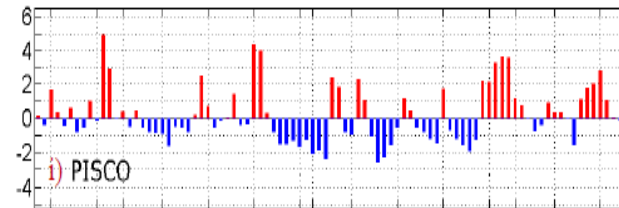
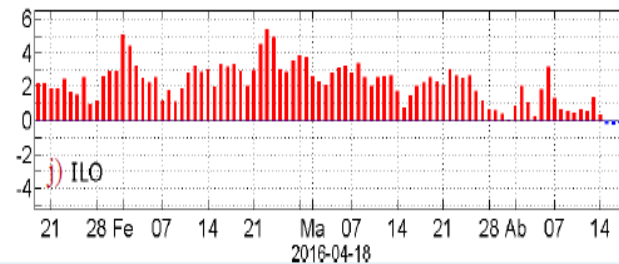
Estación	ATSM (°C) 2015										2016			
	Mar.	Abr.	May.	Jun.	Jul.	Ago.	Set.	Oct.	Nov.	Dic	Ene	Feb	Mar.	15.abr
Talara	-0.1	1.1	3	2.6	2.5	1.2	2.5	3.2	3.0	3.1	21.9 1.3	22.1 -0.8	22.4 0.2	21.5 0.9
Paíta	0.3	0.6	3.7	3.2	2.8	2.1	3.2	3.2	2.8	4.6	22.3 1.6	23.3 -0.1	23.8 0.8	22.0 1.8
Isla Lobos de Afuera	-0.4	0.6	2.2	3.4	2.4	1.4	2.1	2.4	1.7	2.7	22.8 2.4	22.5 0.5	22.7 1.0	21.9 1.8
Chimbote	-0.6	-0.6	2.5	4.6	2.5	2.2	2.4	2	1.3	1.5	24.5 2.7	25.2 2.4	25.7 3.2	25.0 3.7
Callao	-0.4	0.1	2.5	3.2	2.1	1.7	1.8	2.1	2.2	3.1	19.8 3.5	20.0 2.9	19.3 1.7	19.0 1.7
San Juan	0.1	0.3	0.8	1.6	0.8	1	1.1	1	1.7	1.7	17.7 2.0	17.7 1.8	17.3 1.4	17.4 2.2
Mollendo	0.5	0.7	1.2	1.7	1.5	0.8	2.3	1.5	1.0	1.2	19.5 2.3	19.5 2.4	18.9 1.9	17.3 1.0
Ilo	0.8	0.5	1.1	1.6	1.9	0.7	1.8	1.5	1.1	1.7	19.1 2.0	19.4 2.5	18.6 1.8	17.6 1.0

Promedios Diarios TSM		
Estación	Domingo 17 Abril 2016	
	TSM (°C)	ATSM(°C)
Talara	21.0	+0.4
Paíta	21.0	+0.8
I. Lobos de Afuera	20.8	+0.7
Chimbote	24.4	+3.1
Callao	18.7	+1.4
San Juan	16.7	+1.5
Mollendo	16.8	+0.5
Ilo	18.3	+1.7

Anomalías de Temperatura Superficial del Mar en el litoral



18/04/2016

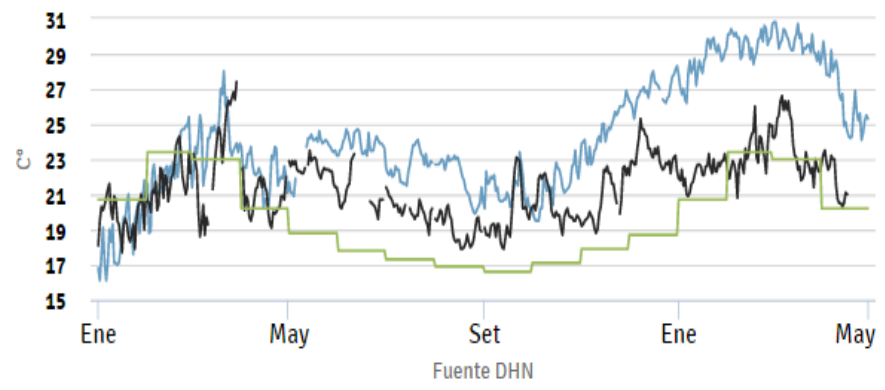


Estación	T, °C	ΔT , °C
Tumbes	26,33	-1,17
Paita	20,83	0,53
San José	22,13	1,53
Chicama	19,73	1,73
Huanchaco	19,27	1,27
Chimbote	22,73	1,63
Huacho	18,80	1,50
Callao	17,97	0,77
Pisco	21,63	-0,67
Atico	18,47	-
Matarani	17,10	-
Ilo	17,57	0,87

Anomalías de Temperatura Superficial del Mar en el litoral (15.03)

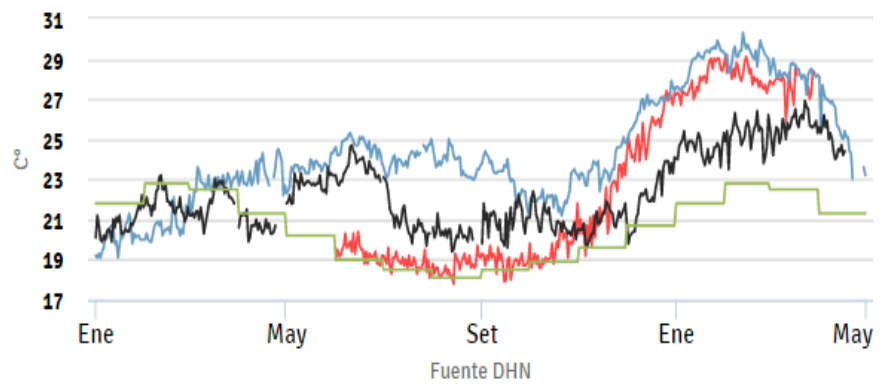


Temperatura Superficial del Mar Paita (°C)



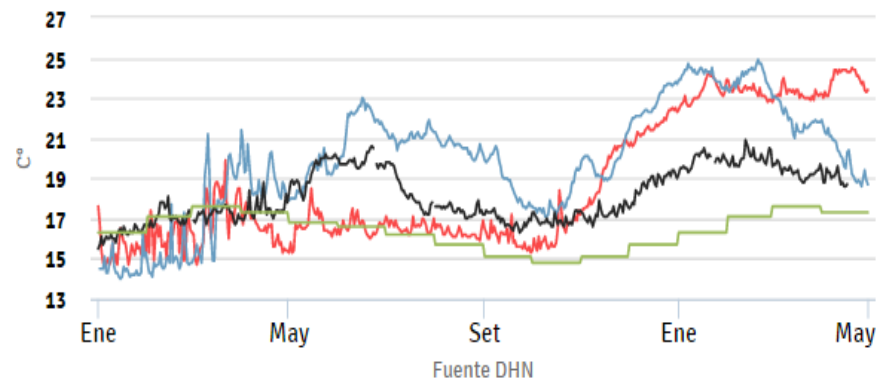
● 1997 - 1998 ◆ 2015 - 2016 ■ C. Mensual
Oficina de Base de Datos

Temperatura Superficial del Mar Chimbote (°C)



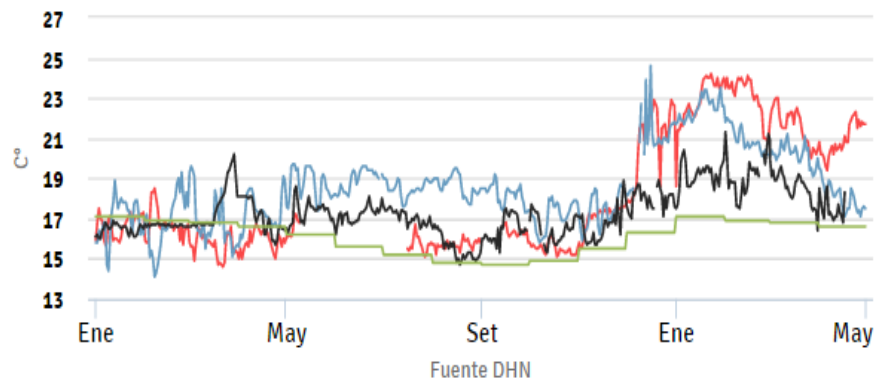
● 1982 - 1983 ◆ 1997 - 1998 ◆ 2015 - 2016 ■ C. Mensual
Oficina de Base de Datos

Temperatura Superficial del Mar Callao (°C)



● 1982 - 1983 ◆ 1997 - 1998 ◆ 2015 - 2016 ■ C. Mensual
Oficina de Base de Datos

Temperatura Superficial del Mar Ilo (°C)

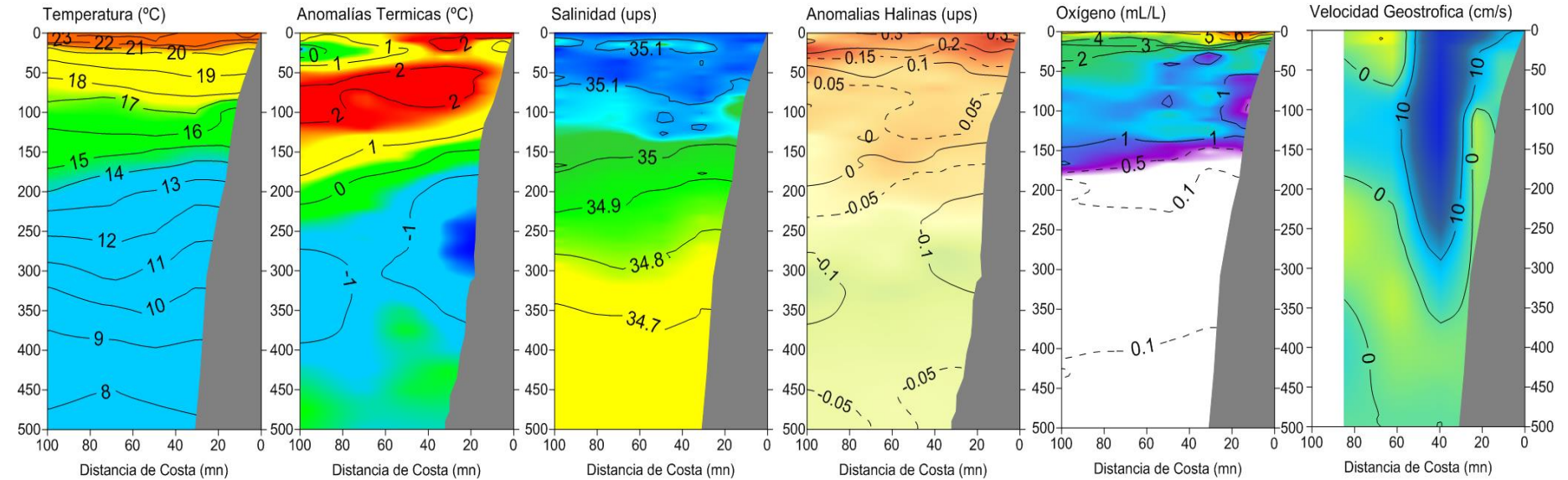


● 1982 - 1983 ◆ 1997 - 1998 ◆ 2015 - 2016 ■ C. Mensual
Oficina de Base de Datos

Secciones Paita y Chicama (T, S, O)



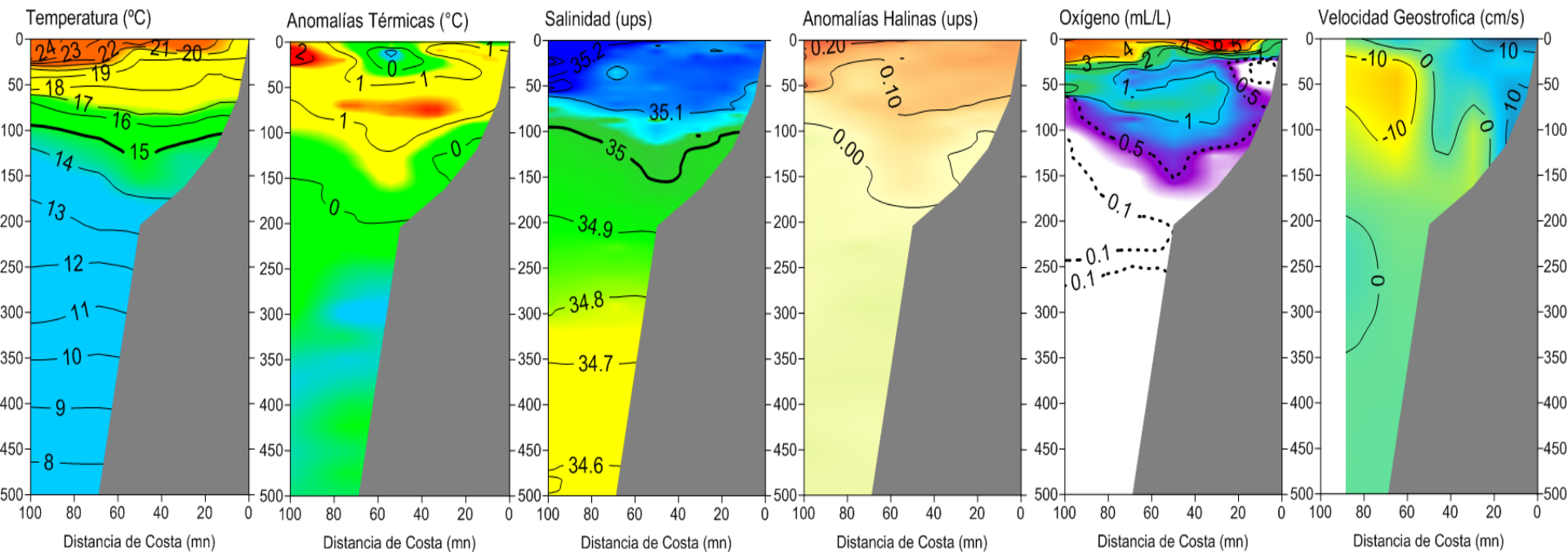
Paita, 03-04.04.2016 (BIC OLAYA)



Secciones Paita y Chicama (T, S, O)



Chicama, 09-10.04.2016



Secciones Chimbote y Punta Bermejo (T, S, O)

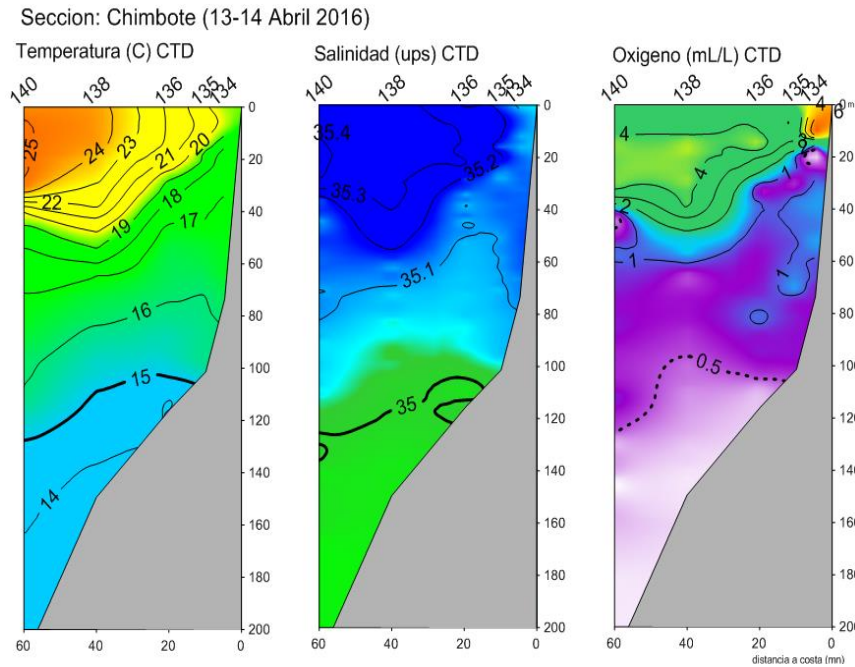


Figura 12. Sección Chimbote: a) Temperatura ($^{\circ}$ C), b) Salinidad (ups) y c) Oxígeno disuelto (mL/L). Cr. Evaluación de Recursos Pelágicos 1603-04 BIC Olaya.

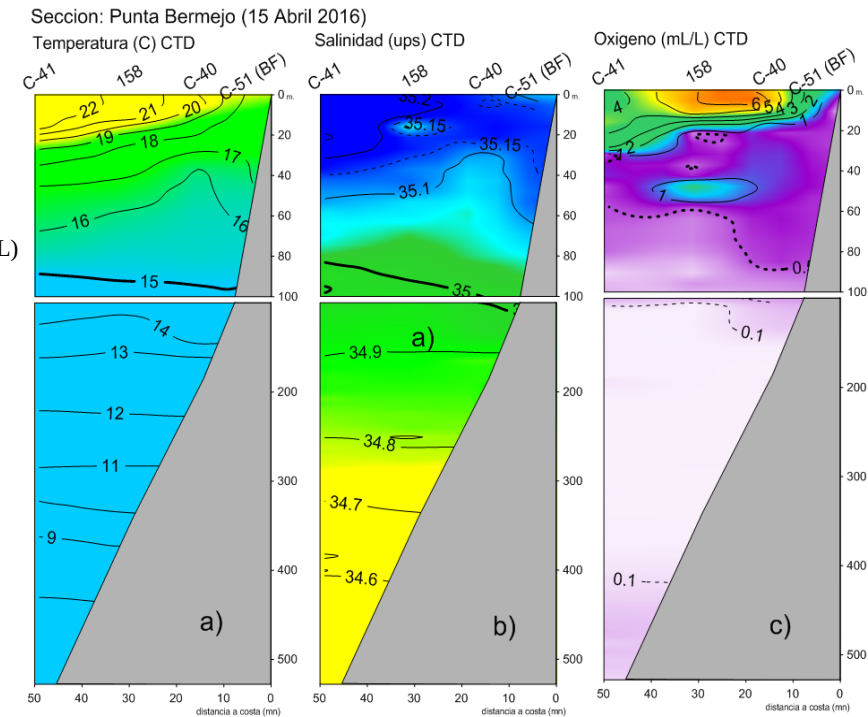
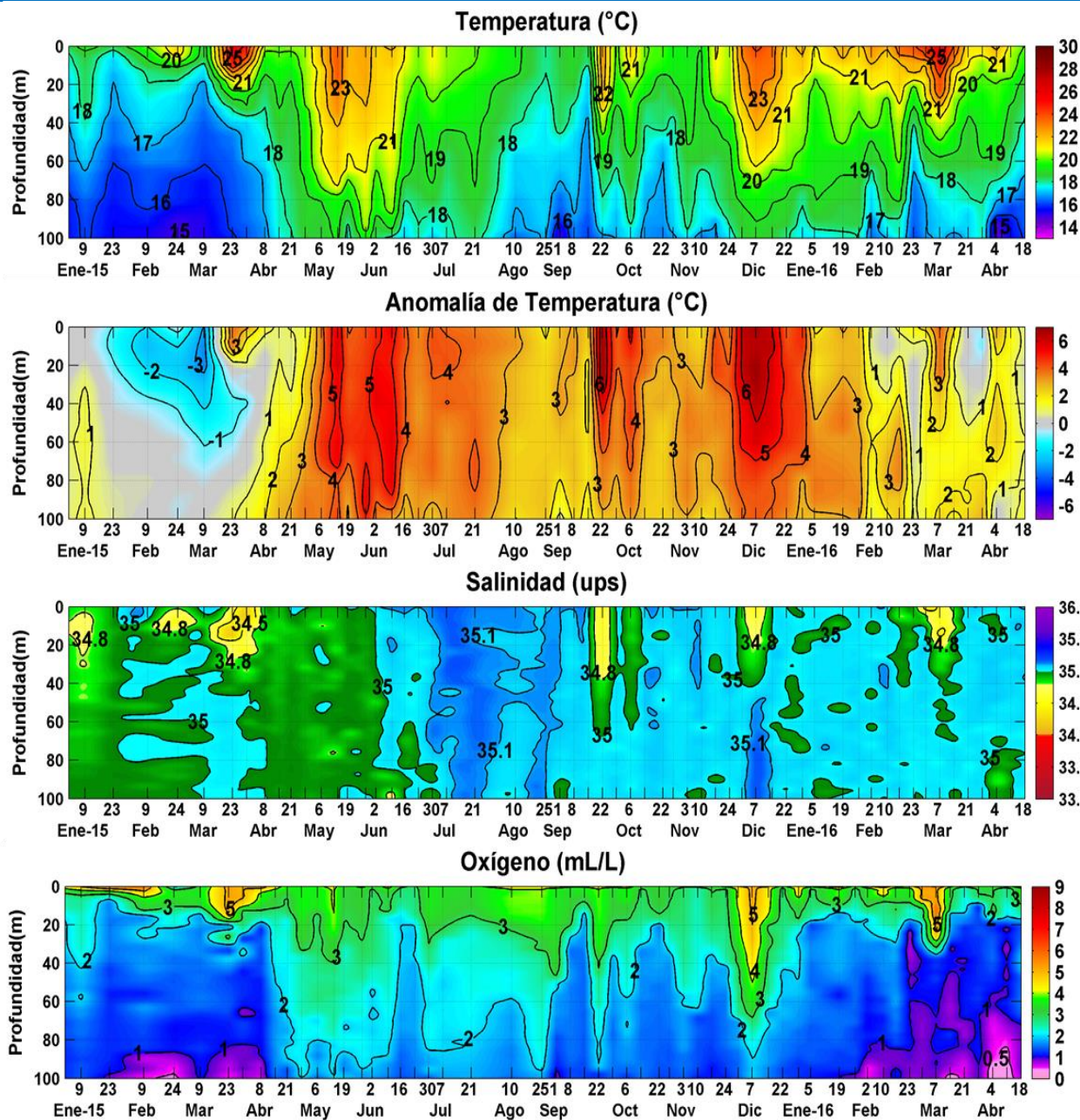
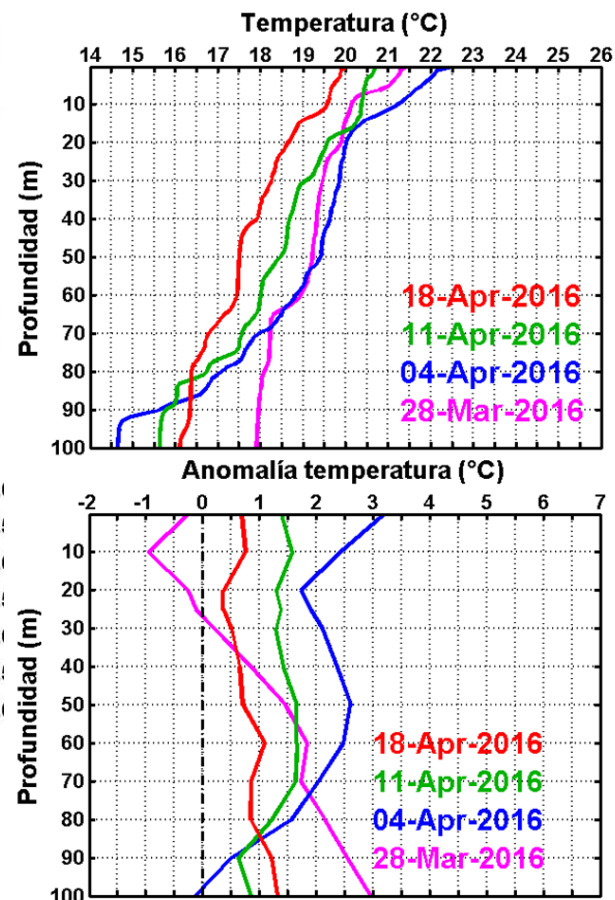
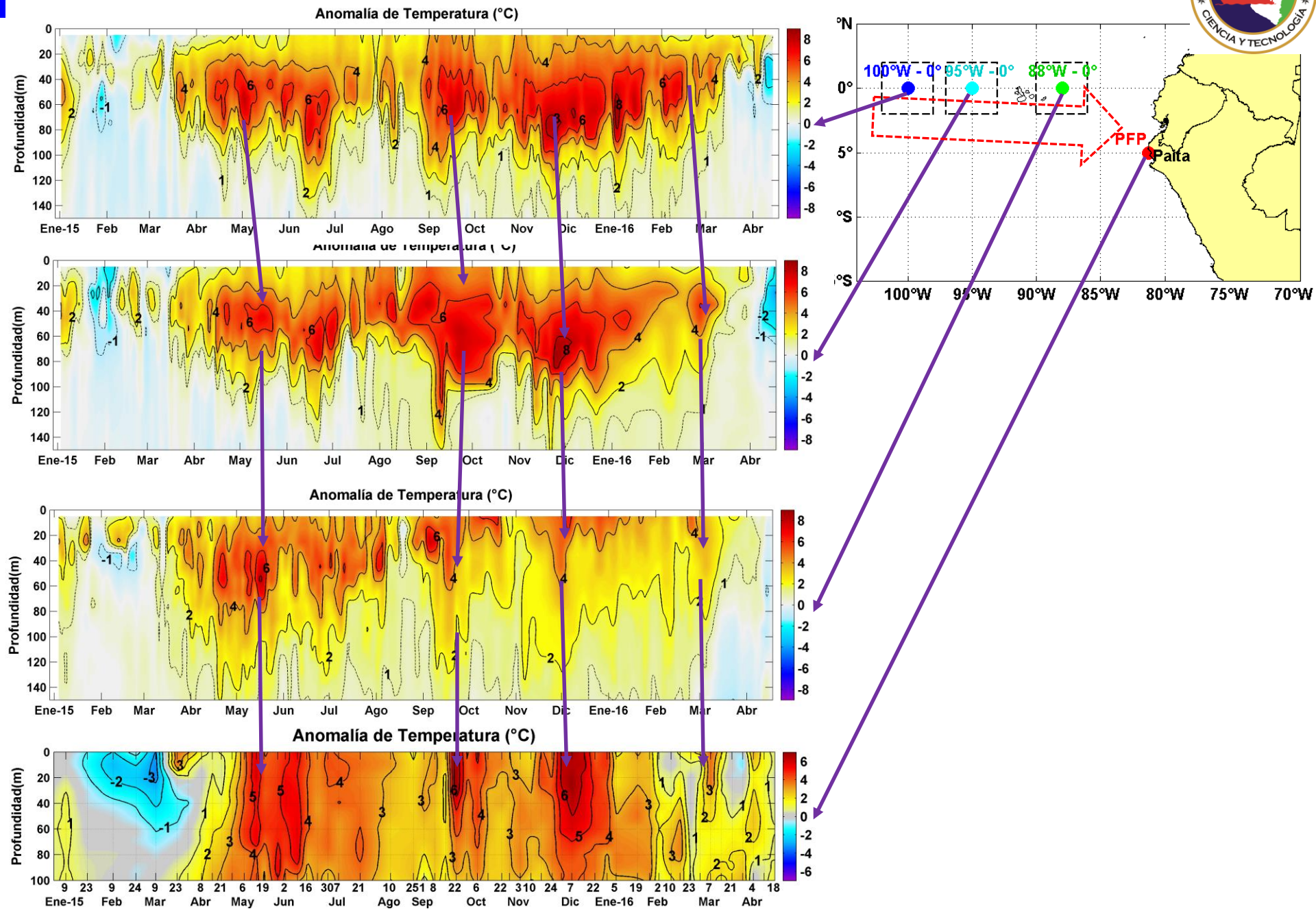


Figura 13. Sección Punta Bermejo: a) Temperatura ($^{\circ}$ C), b) Salinidad (ups) y c) Oxígeno disuelto (mL/L). Cr. Evaluación de Recursos Pelágicos 1603-04 BIC Olaya.

Punto Fijo Paita: T, S, O (18.04.2016)

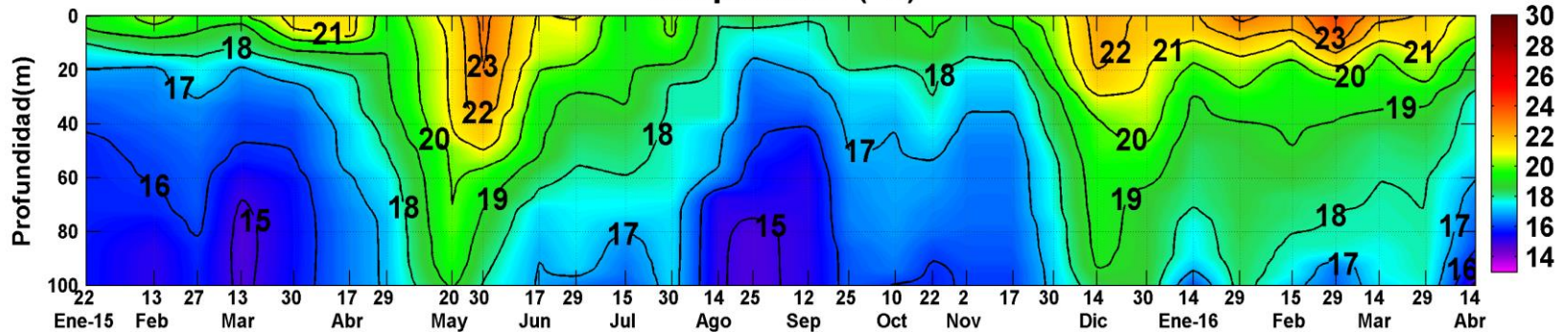




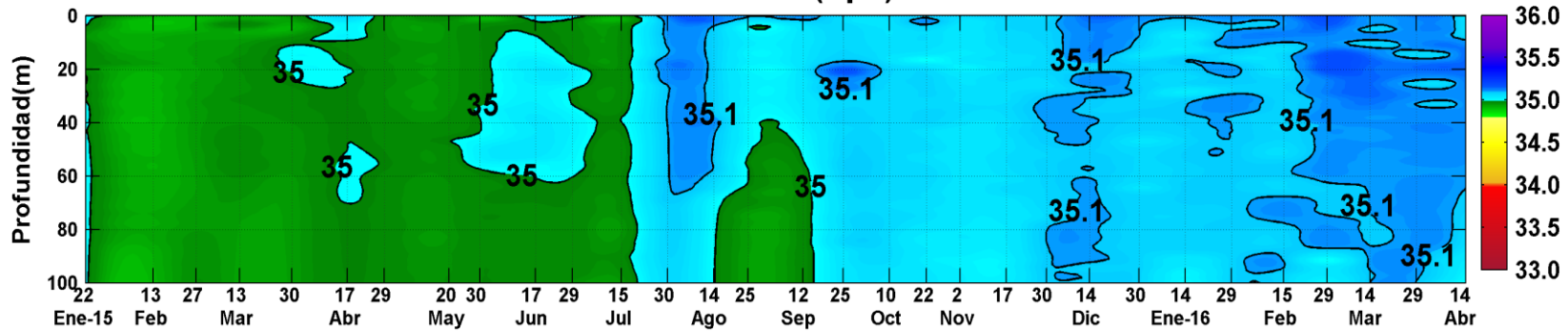
Punto Fijo Chicama: T, S, O (14 abril 2016)



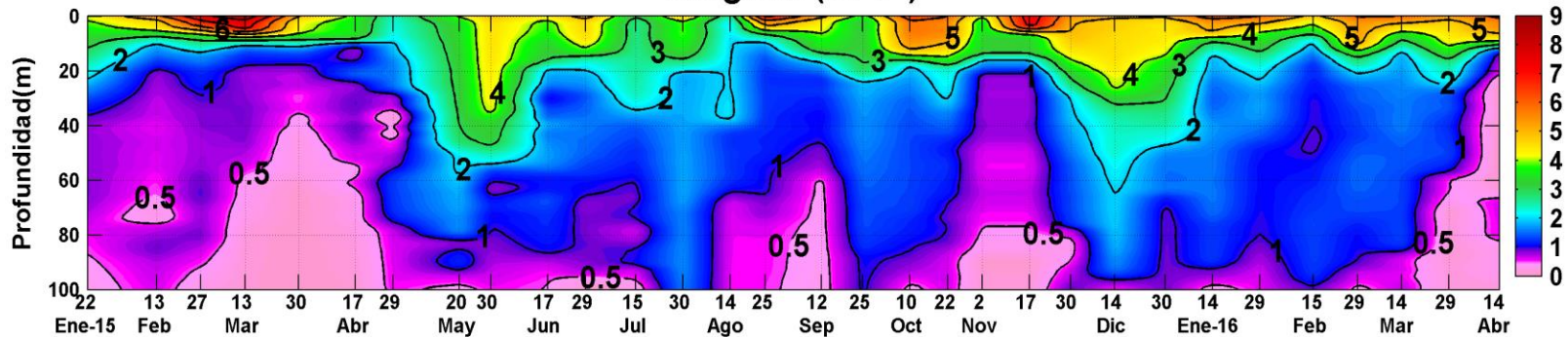
Temperatura (°C)



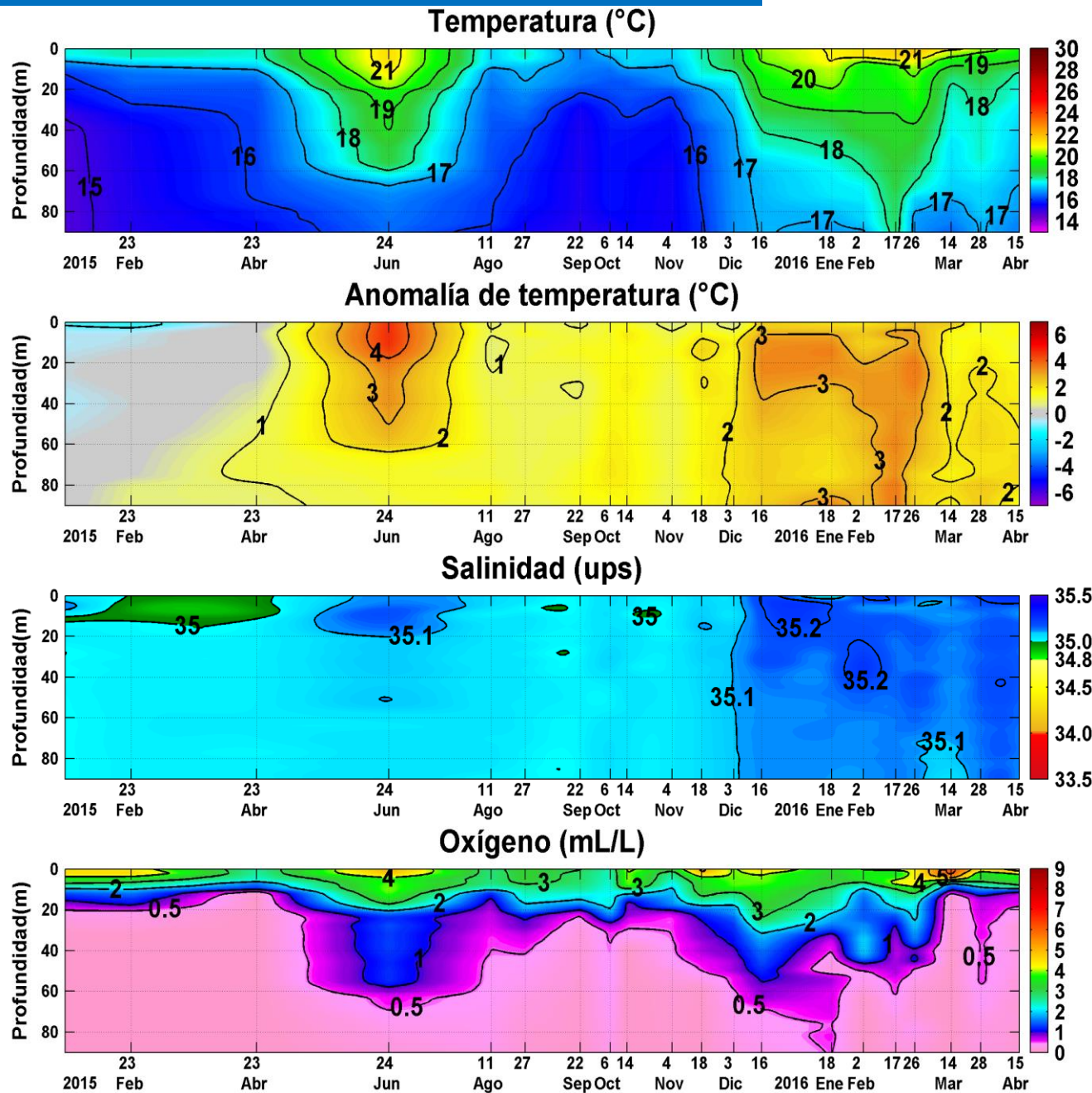
Salinidad (ups)

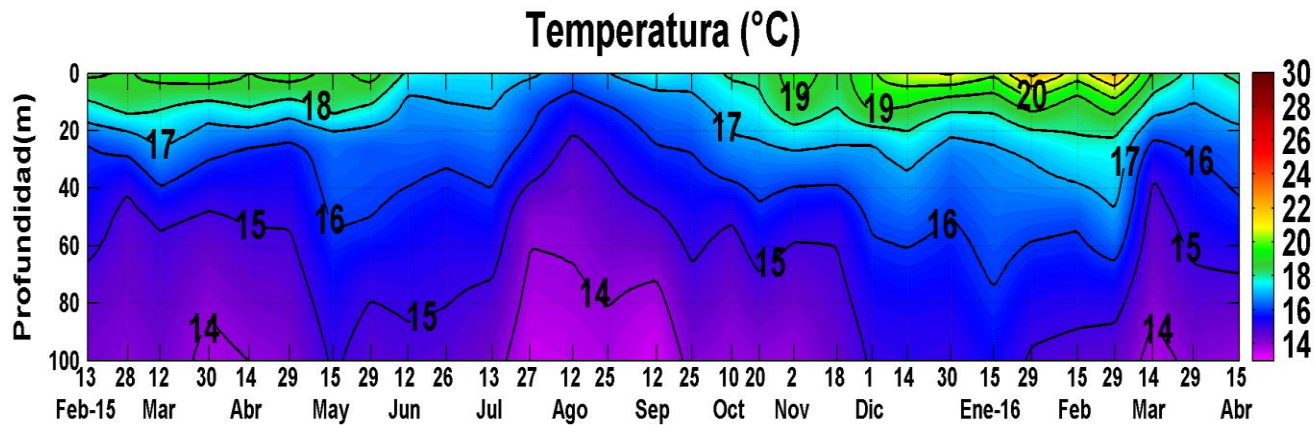
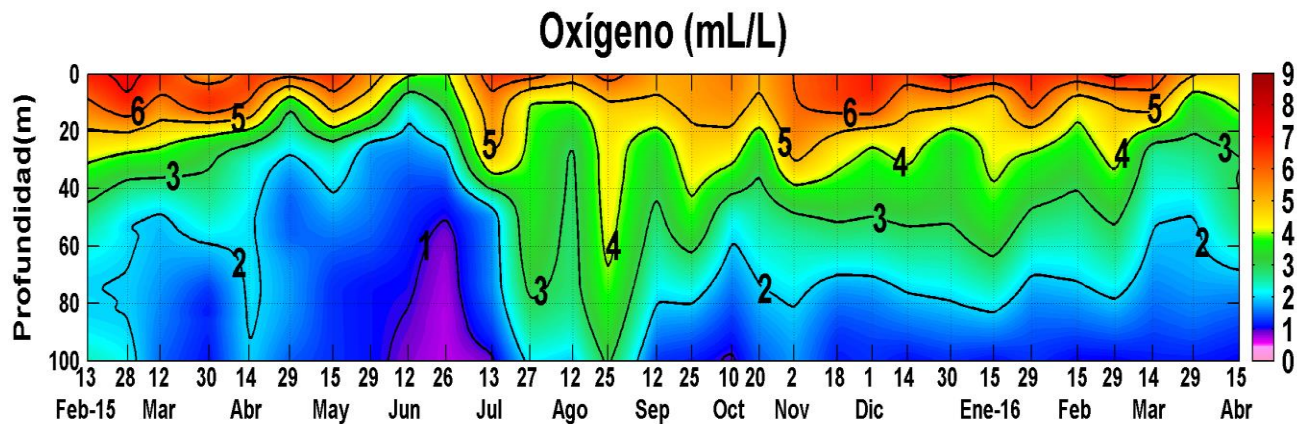


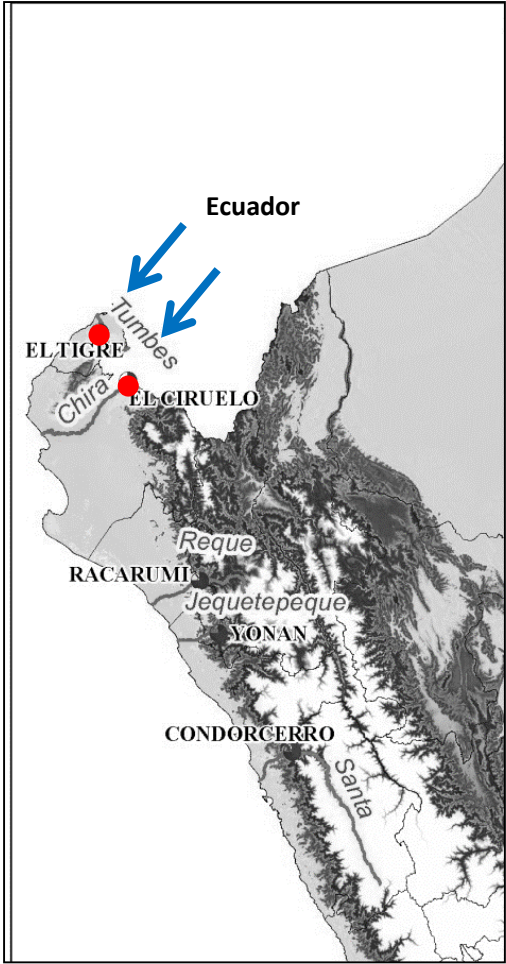
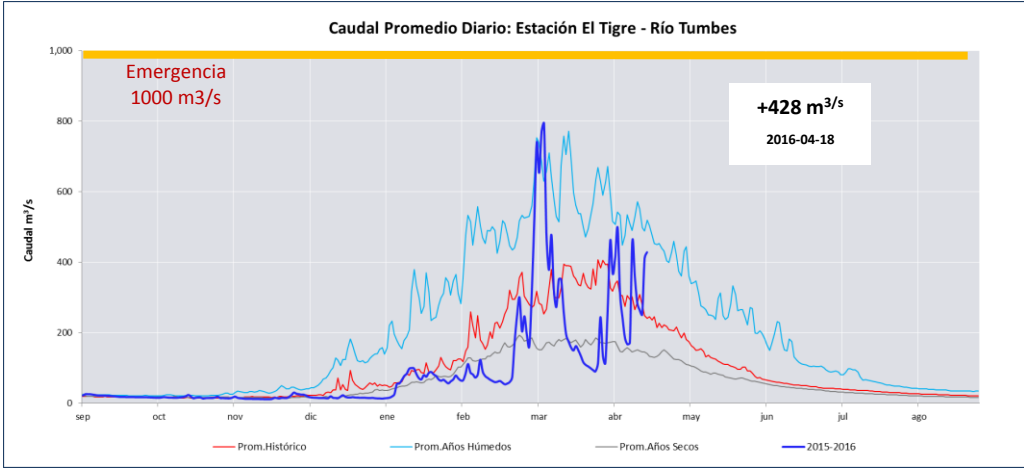
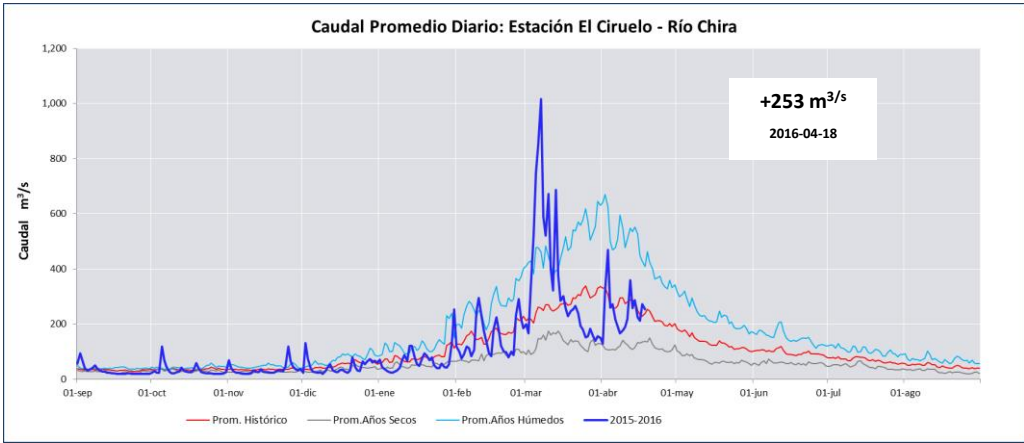
Oxígeno (mL/L)

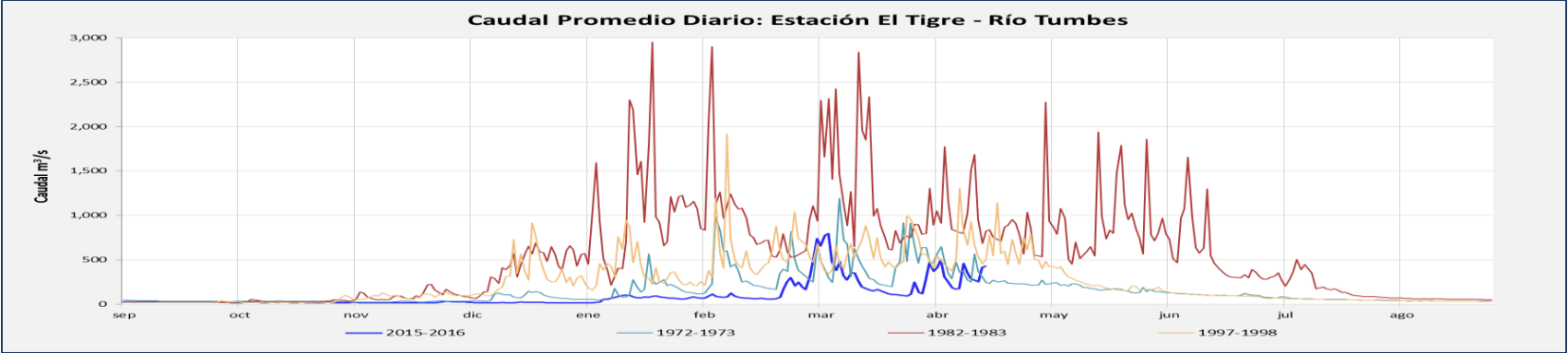
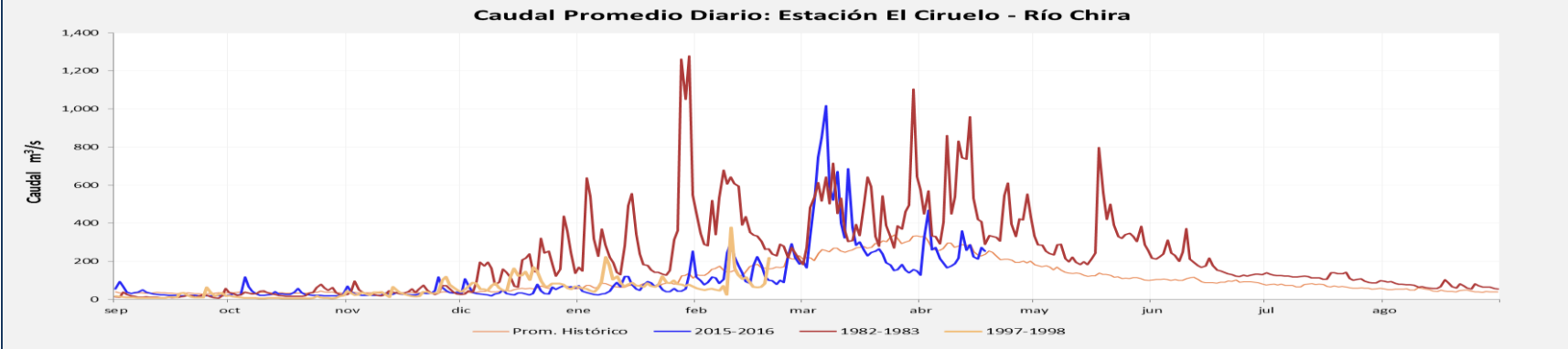
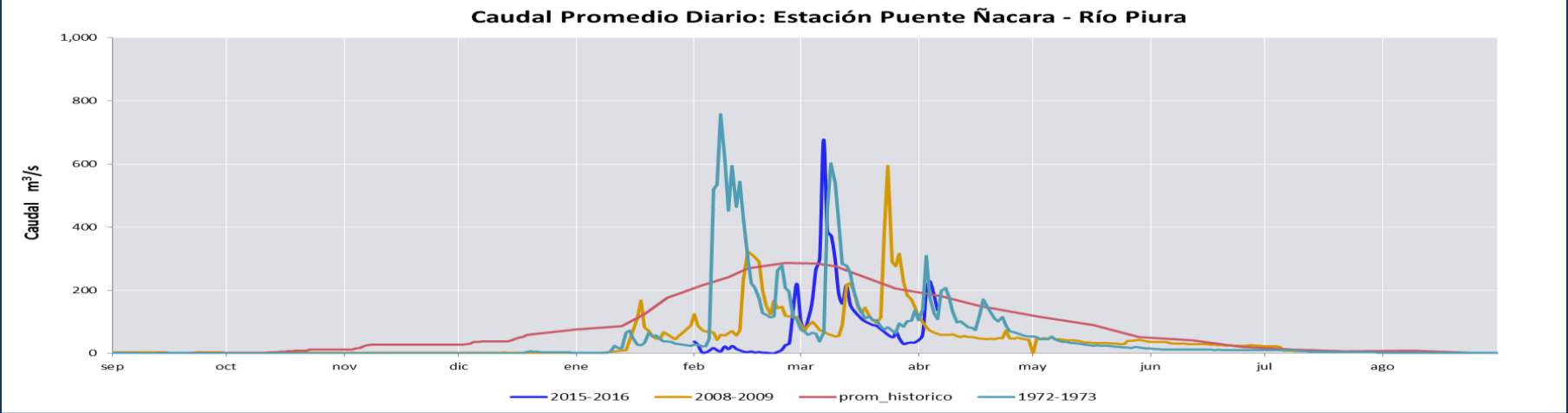


Punto Fijo Callao: T, S, O (15.04.2016)

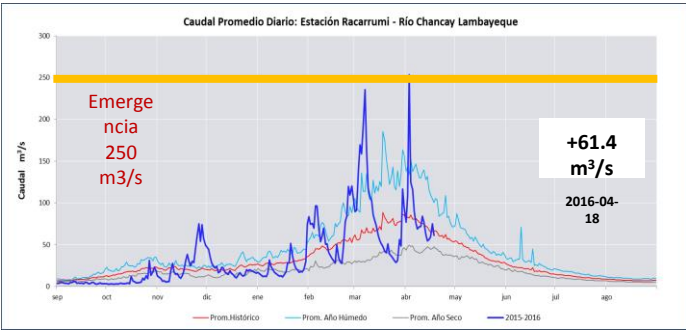
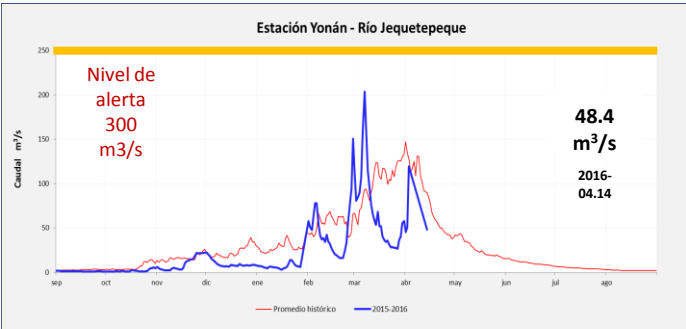




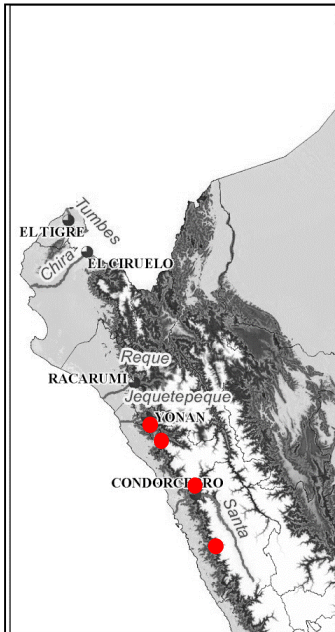
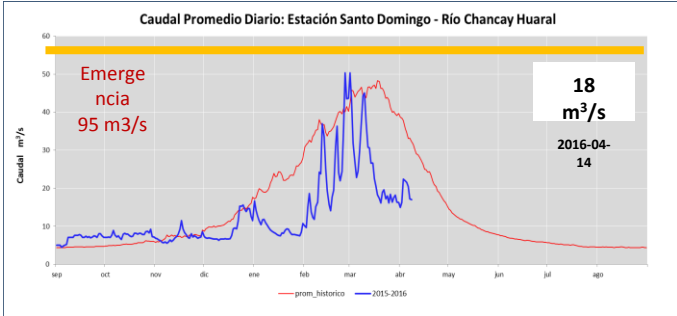




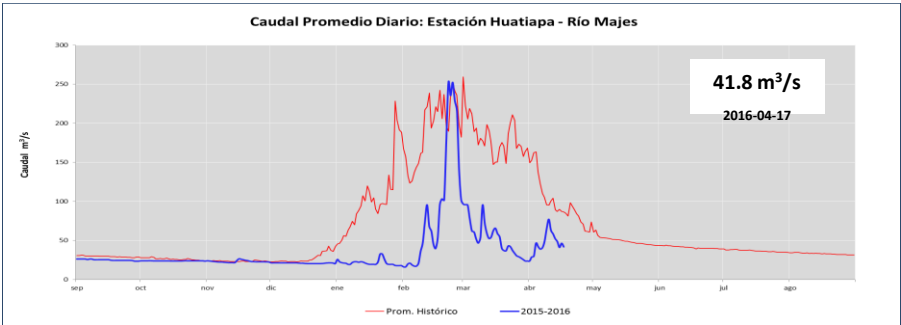
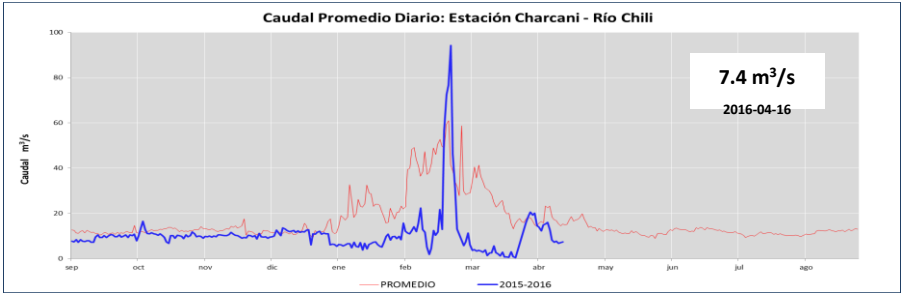
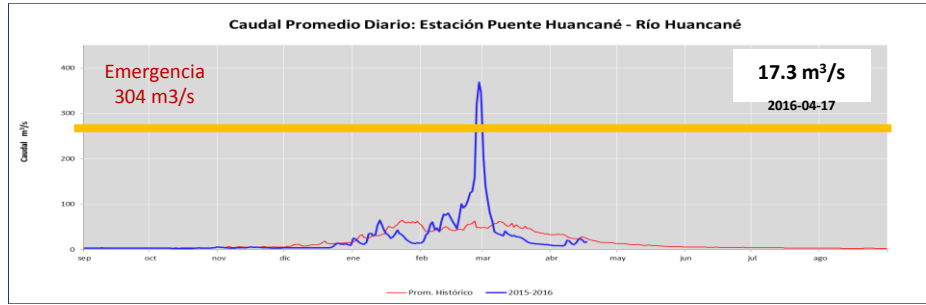
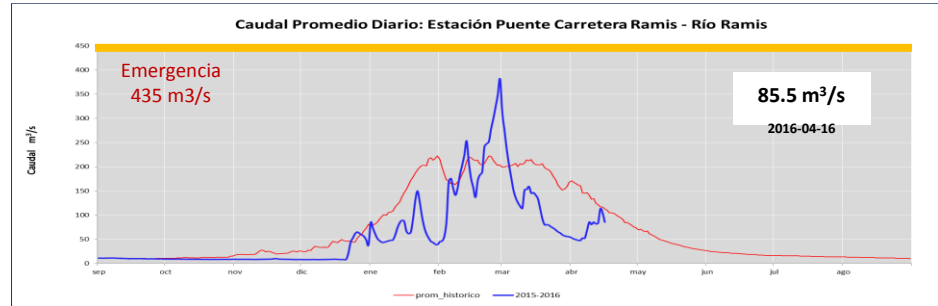
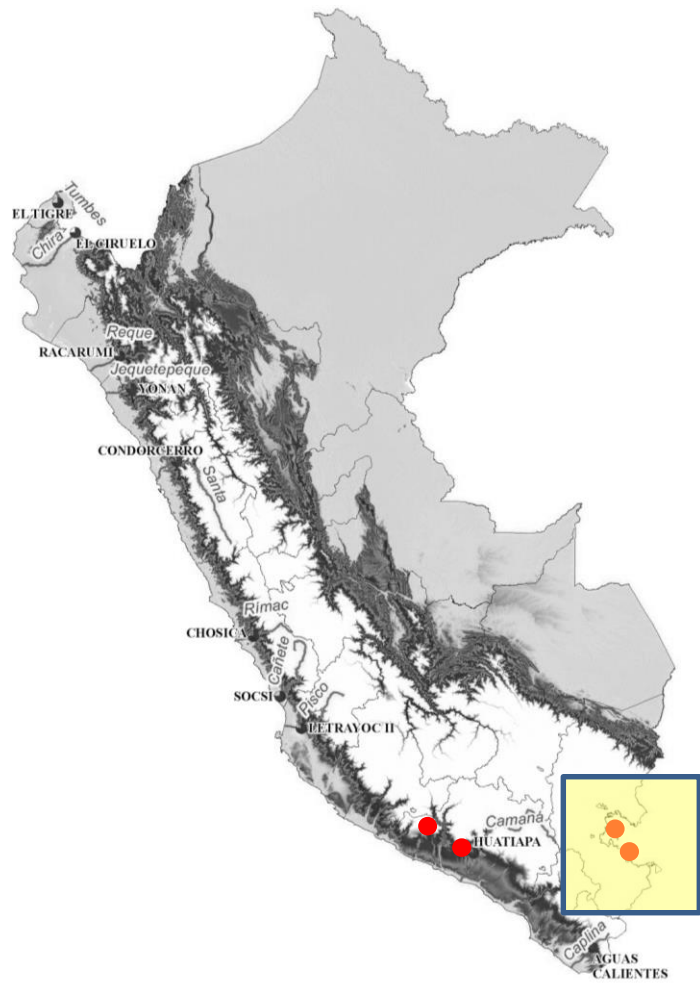
Región hidrográfica Pacífico – Ríos Costa Norte



Región hidrográfica Pacífico – Ríos Costa Centro



Región hidrográfica Pacífico – Ríos Costa Sur y Región hidrográfica Titicaca



Resumen del estado de los principales embalses.

Zona	Nombre del Reservoirio	Fecha del dato	Departamento de Influencia	Capacidad Hidráulica (hm ³)		Capacidad Hidráulica Almacenada (%)
				Útil	Almacenada	
Costa - Norte	POECHOS	15-abr	Piura	396.1	381.9	96.4
Costa - Norte	SAN LORENZO	15-abr	Piura	193	200	100
Costa - Norte	TINAJONES	15-abr	Lambayeque	319	170.2	53.3
Costa - Norte	GALLITO CIEGO	15-abr	Cajamarca	366	226.8	62
Costa - Centro	VICONGA	14-abr	Lima	30	17	56.7
Costa - Sur	CHOCLOCOCHA	11-abr	Huancavelica	131.1	58.9	44.9
Costa - Sur	CONDOROMA	15-abr	Arequipa	259	211.9	81.8
Costa - Sur	EL PAÑE	15-abr	Cusco	99.6	56.7	57
Costa - Sur	LOS ESPAÑOLES	15-abr	Arequipa	9.1	4.3	46.8
Costa - Sur	PILLONES	15-abr	Arequipa	76.9	63.6	82.7
Costa - Sur	EL FRAYLE	15-abr	Arequipa	127.2	115.8	91.1
Costa - Sur	AGUADA BLANCA	15-abr	Arequipa	30.4	13.5	44.4
Costa - Sur	CHALHUANCA	15-abr	Arequipa	25.2	15.4	61.3
Costa - Sur	BAMPUTANE	15-abr	Puno	40	23.7	59.2
Costa - Sur	PASTO GRANDE	15-abr	Moquegua	175	88	50.3
Costa - Sur	PAUCARANI	14-abr	Tacna	8.5	5.1	60.5
Costa - Sur	ARICOTA	15-abr	Tacna	260	195.3	75.1
Costa - Sur	JARUMAS	31-mar	Tacna	12.5	9.8	78.2
Sierra - Centro	CUCHOQUESERA	15-abr	Ayacucho	80	54	67.6
Sierra - Sur	LAGUNILLAS	12-abr	Puno	500	431	86.2
Situación Nacional		-	-	3138.6	2342.9	74.6

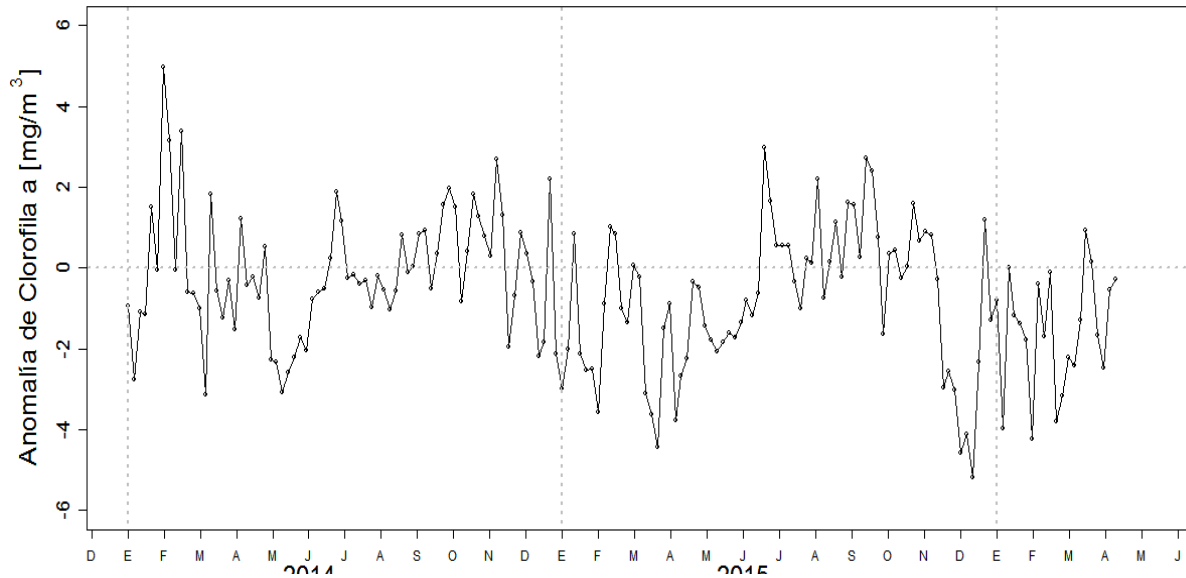
Embalses del norte: 75% y reservorios del sistema Colca – Chili (Arequipa) están al 70%



Clorofila-a Superficial

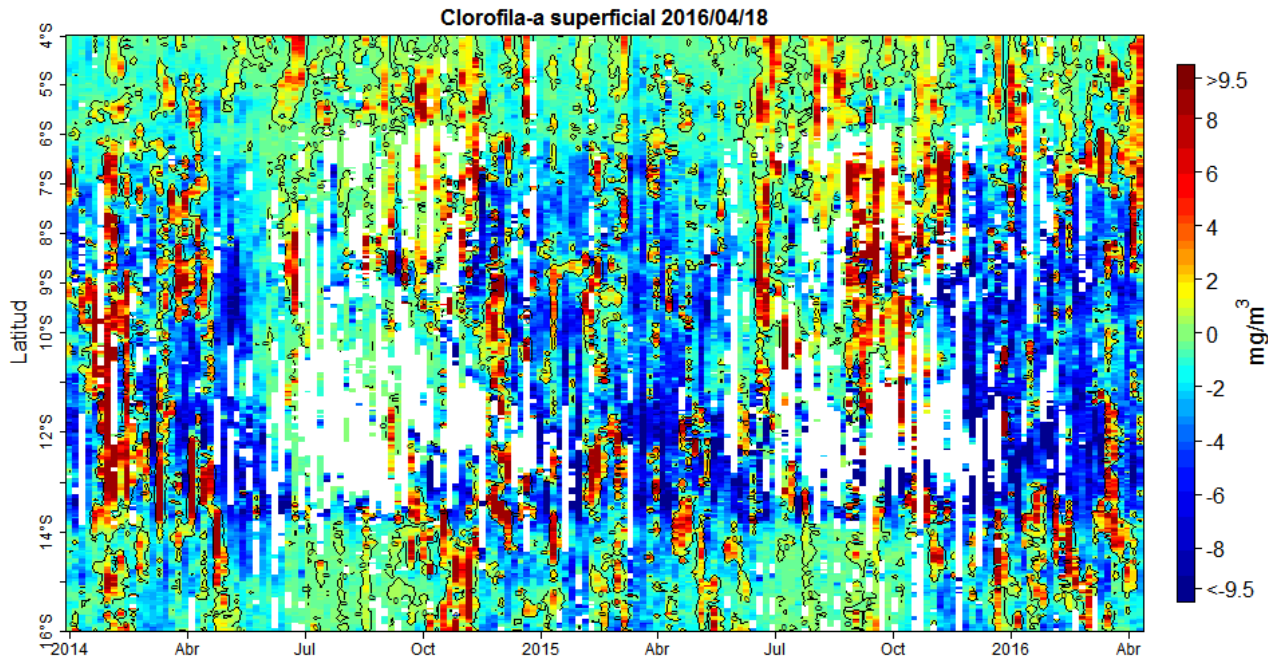
Fuente: Satélite MODIS – 4km

Clorofila-a superficial 2016/04/18



A) Promedio pentadal de anomalía de cl-a (0-100km, 4° S-16° S).

B) Hovmöller de cl-a mensual a lo largo de la costa (0-100km).



Desembarque industrial de los principales recursos pelágicos (1ra quincena abril 2016)

Especie \ Flota \ Región		Año Calendario (01 Ene. al 14 Abr. 2016)					
		Norte	Centro	N+C	Sur	Total	%
Anchoveta	FI Acero	113 700	86 044	199 745	9 954	209 698	74.77
	FI Madera	57 062	9 500	66 562	116	66 678	23.78
Sub-total		170 763	95 544	266 307	10 069	276 376	98.55
%		61.79	34.57	96.36	3.64	100.00	
Sardina		0	0	0	0	0	0.00
Jurel		0	0	0	0	0	0.00
Caballa		20	94	114	2	116	0.04
Samasa		1 852	0	1 852	0	1 852	0.66
*Otros		117	1 922	2 039	57	2 096	0.75
Total		172 751	97 560	270 311	10 128	280 439	100.00
%		61.60	34.79	96.39	3.61	100.00	

* Otros incluye principalmente: Bonito, jurel fino, bagre, melva.

Cifras preliminares de uso científico

Fuente: AFIRNP

Primera temporada de pesca Sur de anchoveta (03 febrero al 30 junio 2016)

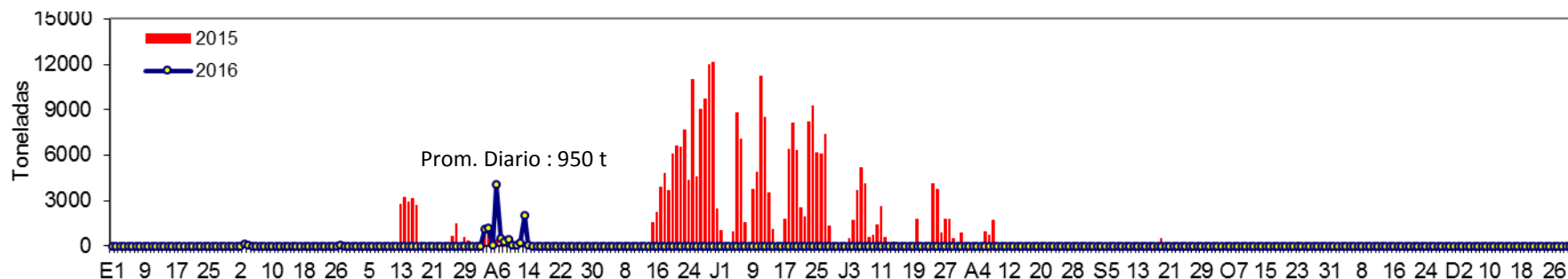
R.M N° 017-2016-PRODUCE
380 mil t

Al 15 de abril



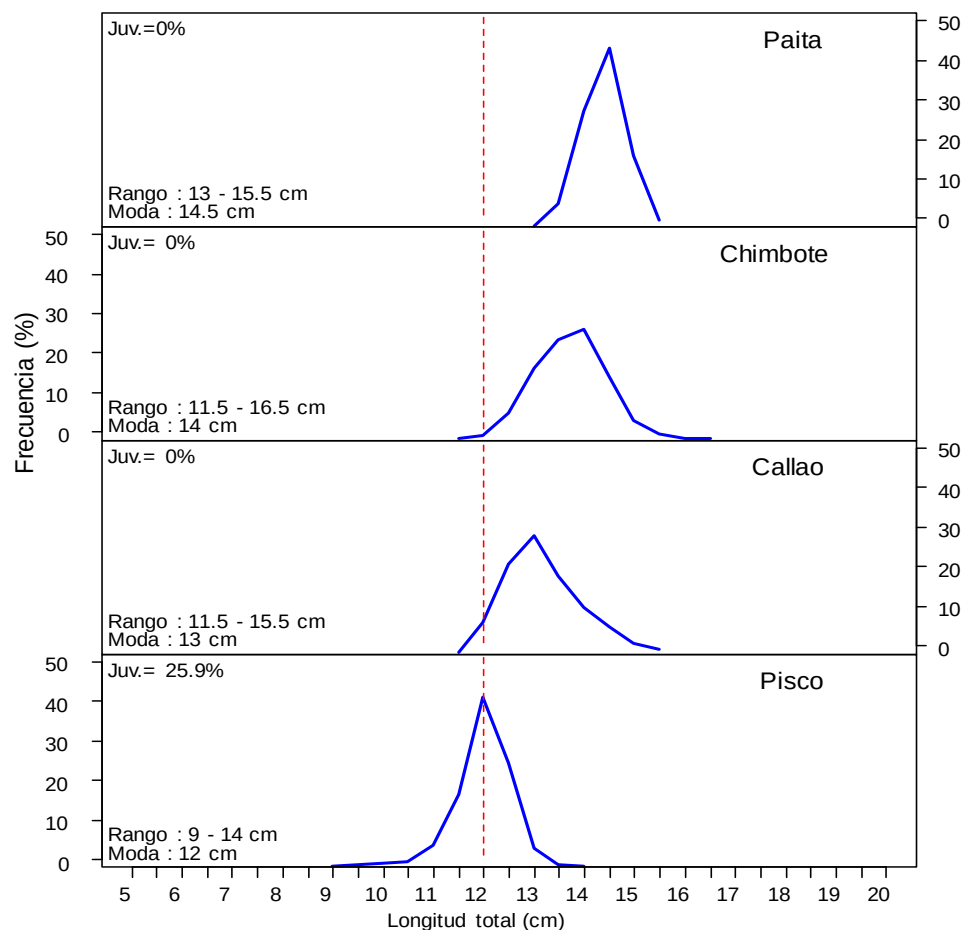
Especie \ Flota \ Puerto		Atico	Planchada	Quilca	Mollendo	Ilo	Total	%
Anchoveta	FI Acero	2 234	2 303	0	2 826	2591	9 954	98.85
	FI Madera	116	0	0	0	0	116	1.15
Total		2 350	2 303	0	2 826	2 591	10 069	100.00
%		23.33	22.87	0.00	28.07	25.73	100.00	
CUOTA (382 000 t) en la región SUR				2.12 % de la cuota total				

Cifras preliminares

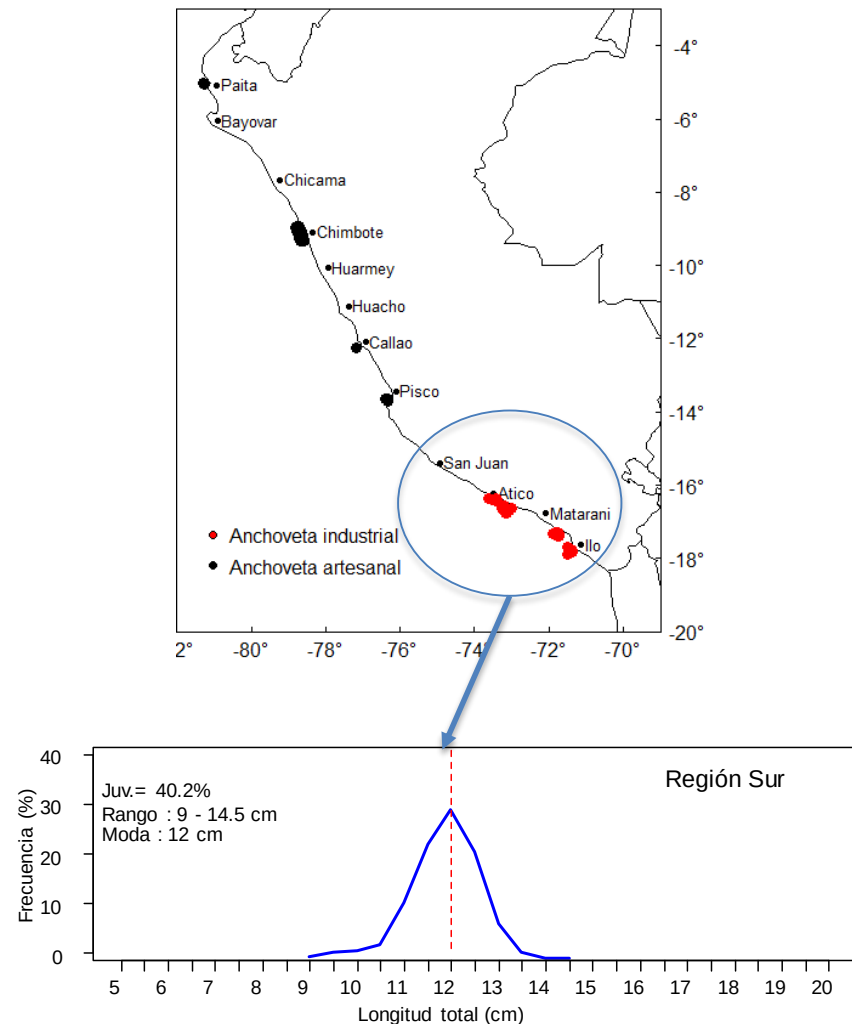


Desembarques de anchoveta en la región Sur. Comparativo 2015/2016

Estructura de tallas de anchoveta (1ra quincena abril 2016)



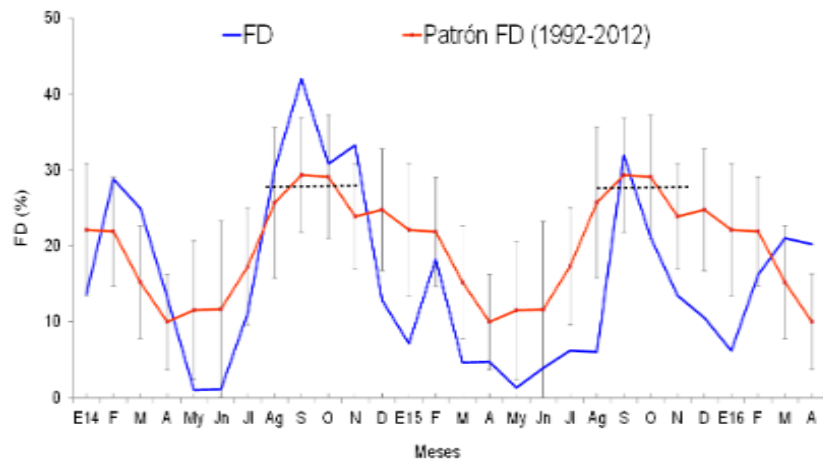
Flota artesanal y/o menor escala



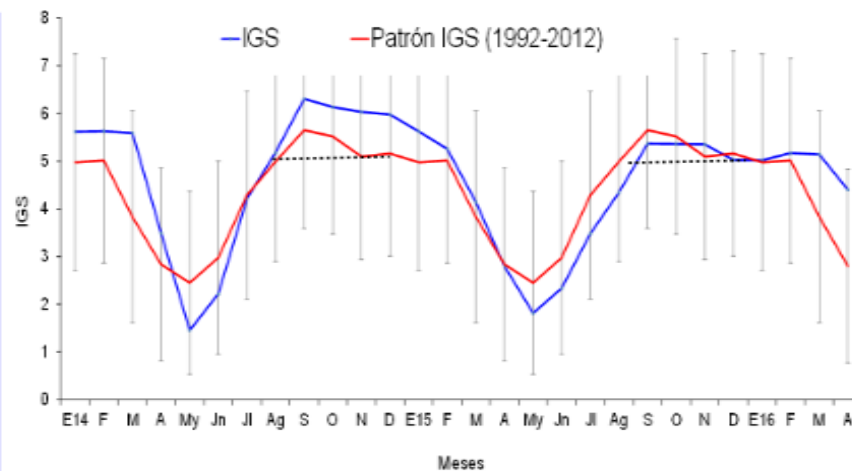
Flota industrial

Condición reproductiva de anchoveta (1ra quincena abril 2016)

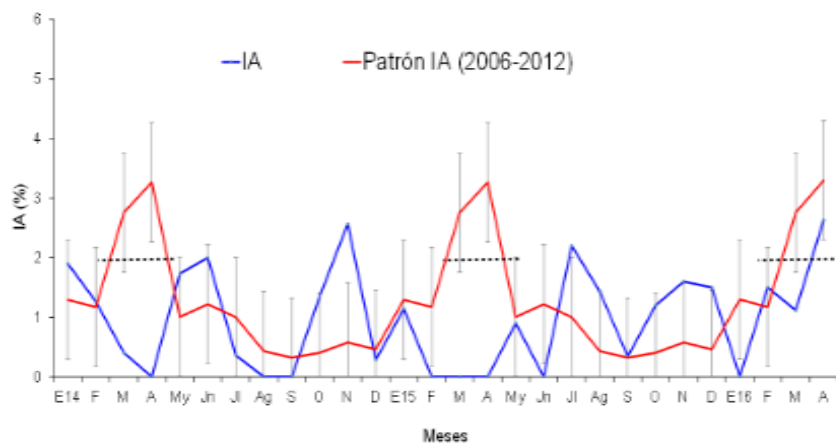
Fracción desovante



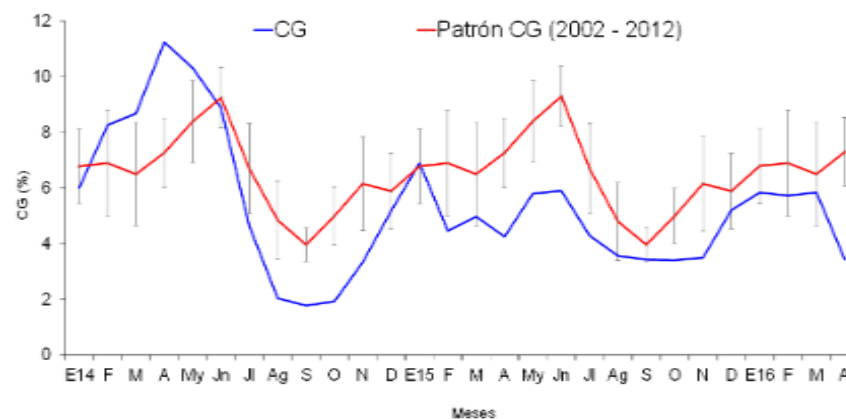
Índice Gonadosomático



Índice de atresia



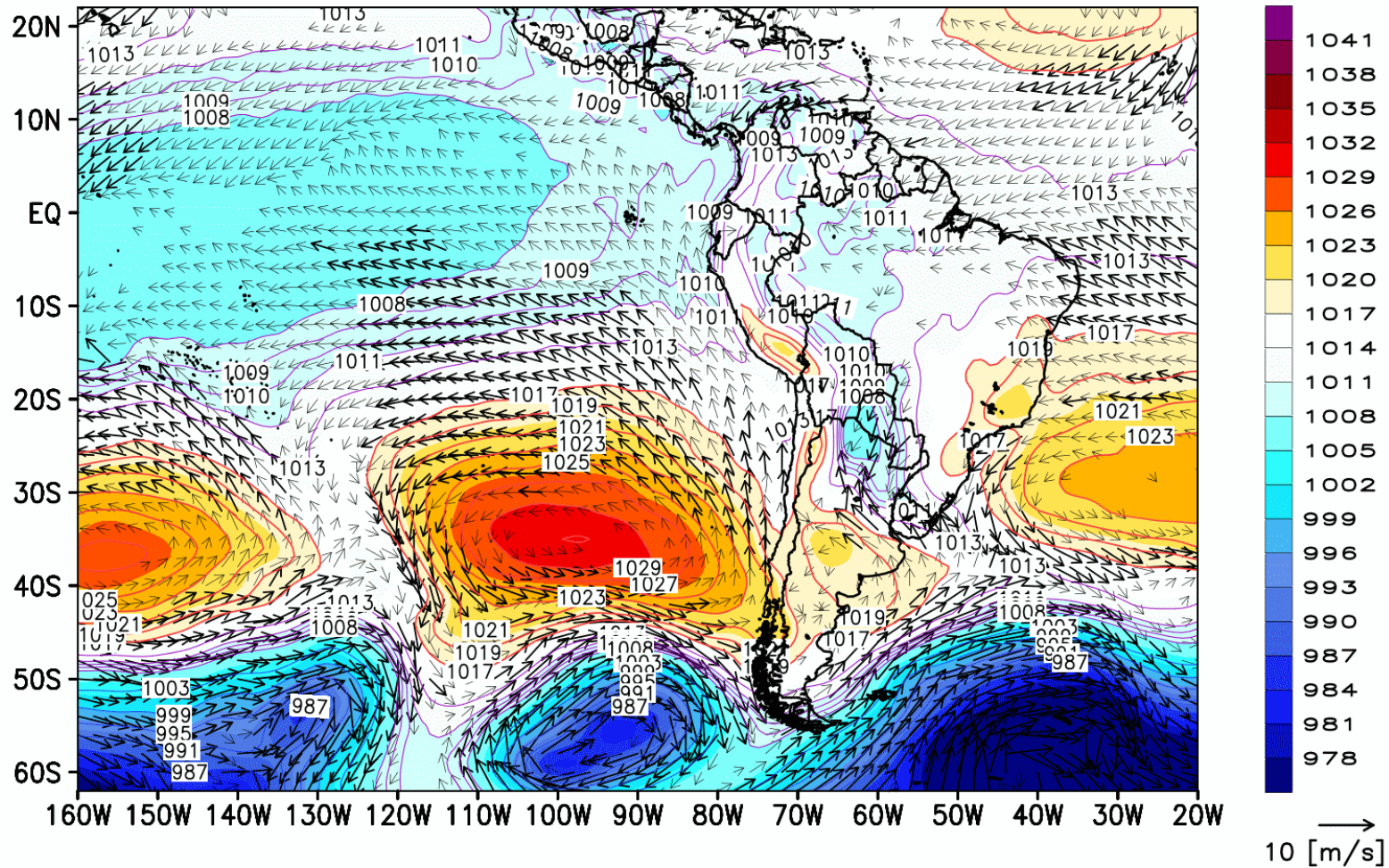
Contenido graso



PERSPECTIVAS

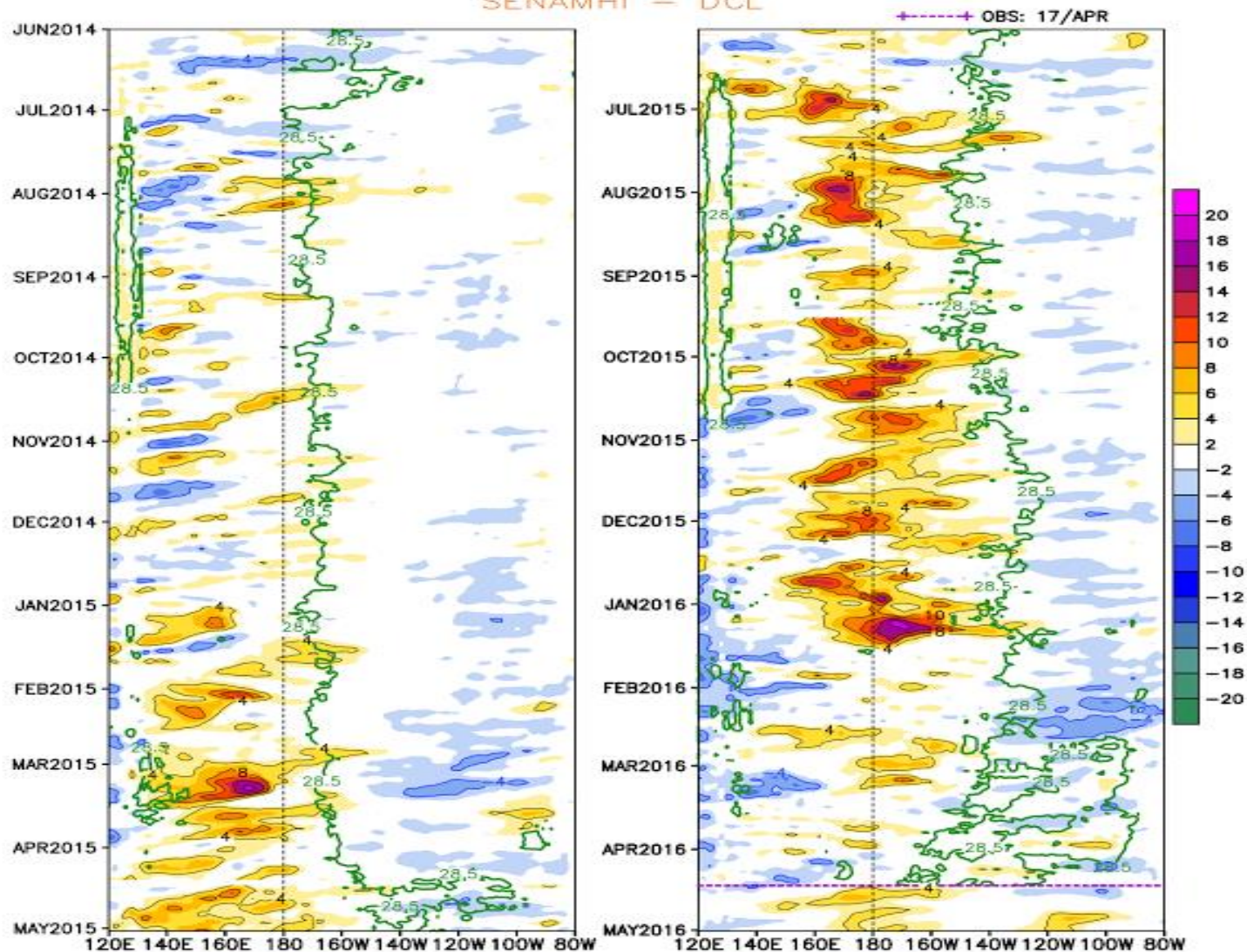
www.gif-animator.com - UNREGISTERED

Wind 975 Hpa (m/s) – Mean Sea Level Pressure Reduced(Hpa)
ANALISIS: 0000Z 18/APR/2016 VALIDO: 0000Z 18/APR/2016

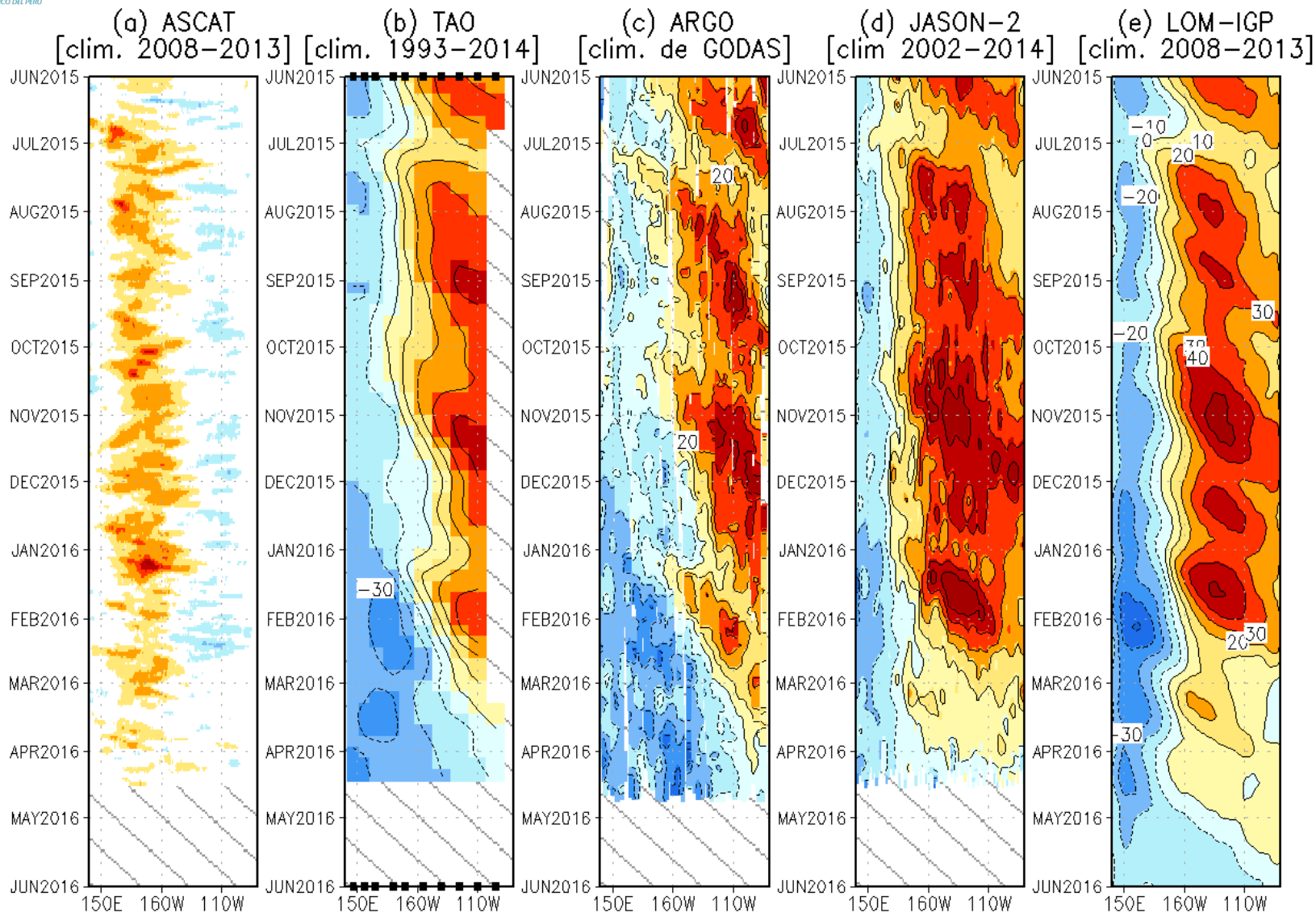


Viento Oceanico Superficial (m/s) – 10mts – "Media Diaria Satelital"
Anom.Viento Zonal <2°S–2°N>

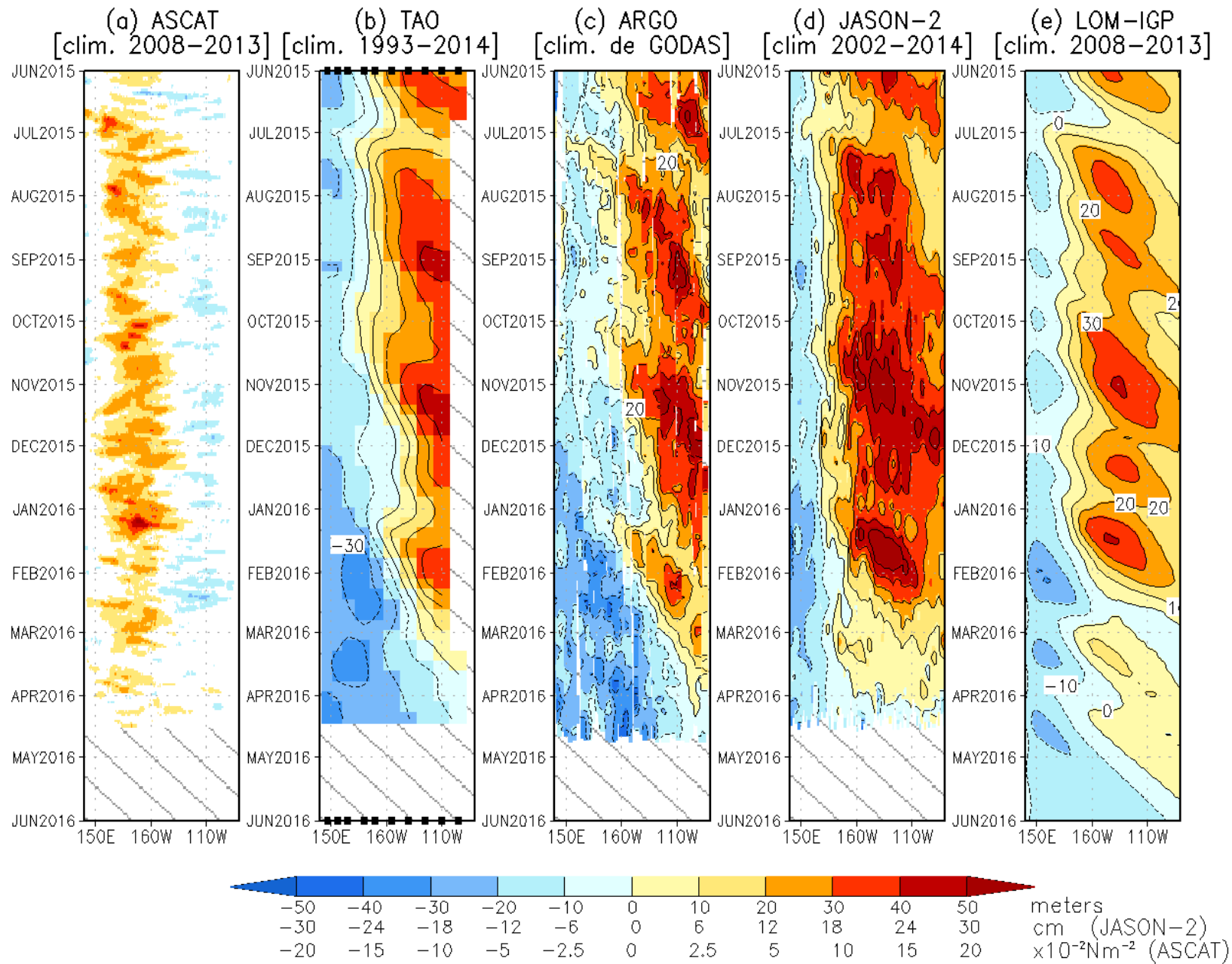
SENAMHI – DCL

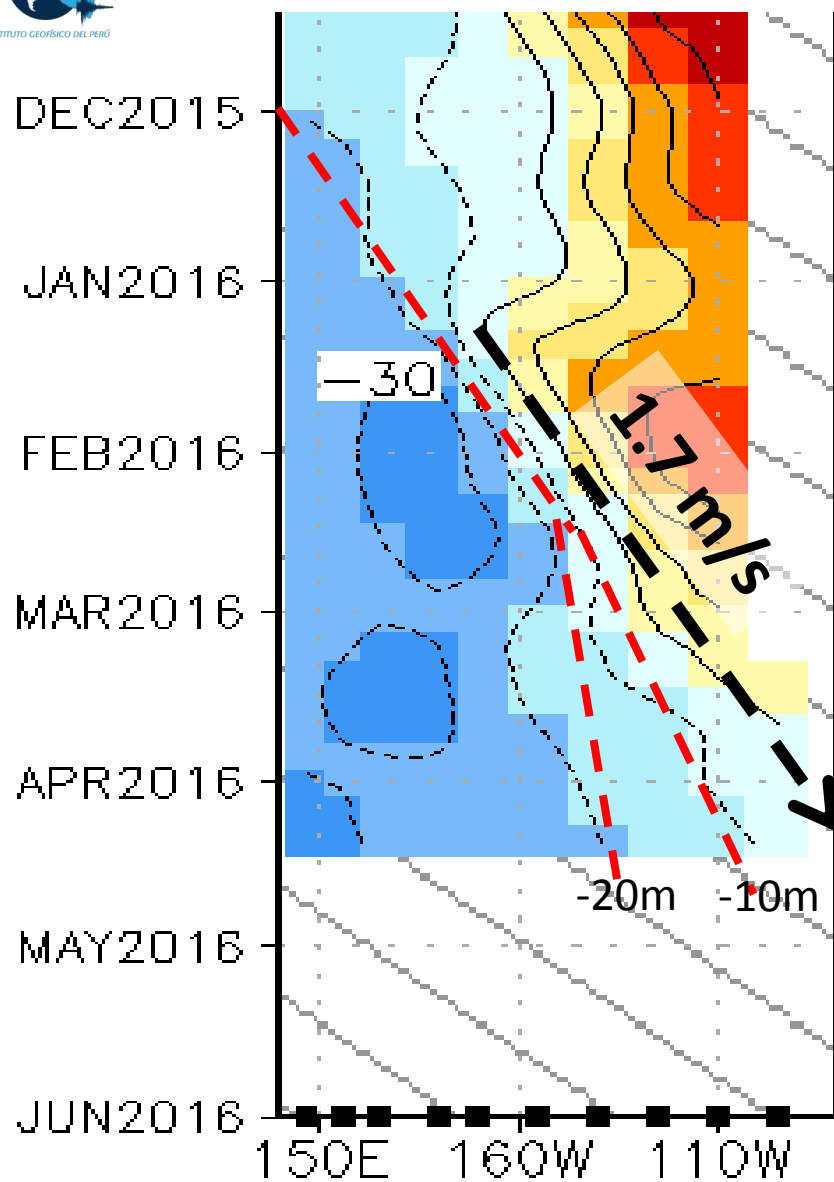
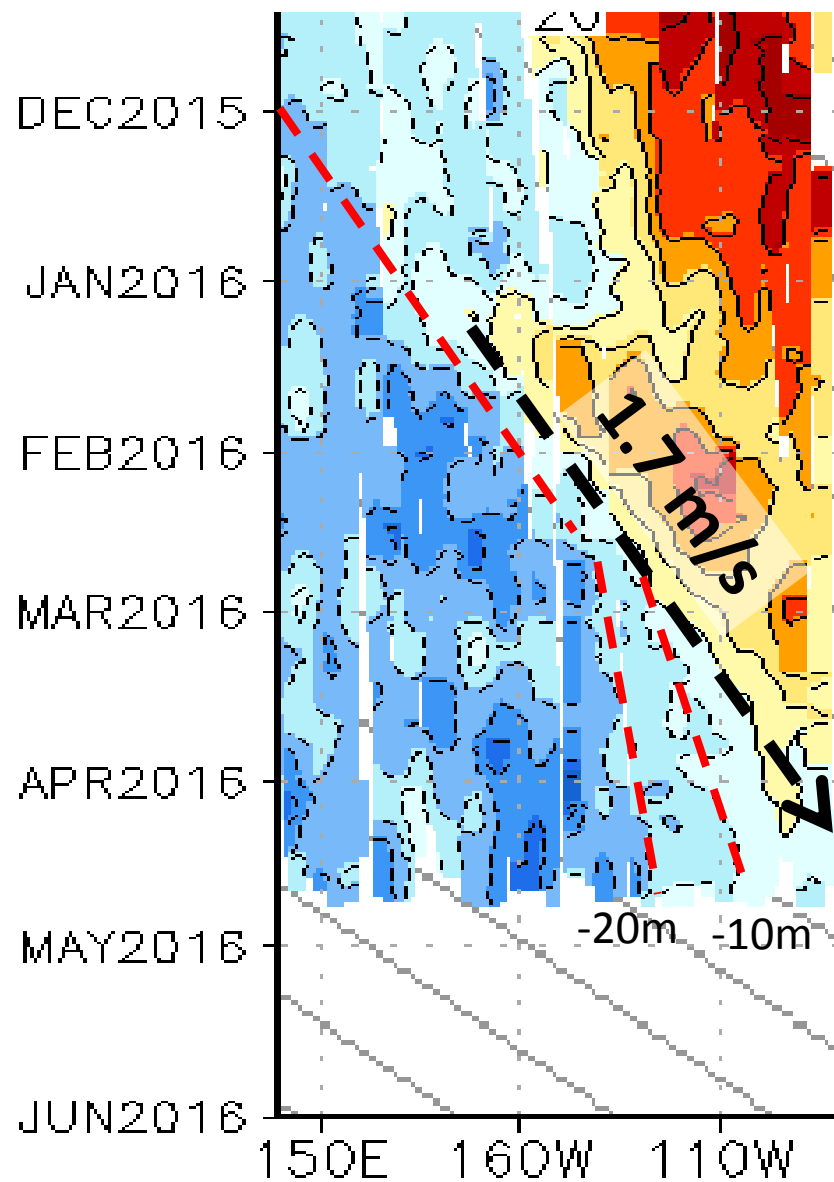
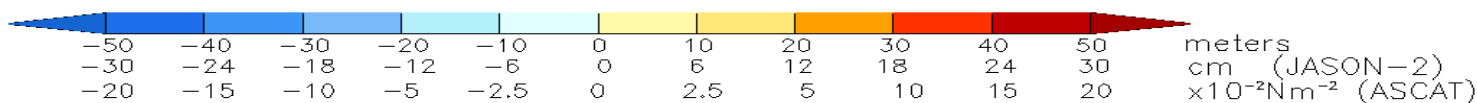


Datos Pronosticados hasta 01 MAY 2016.



Kelvin + Rossby

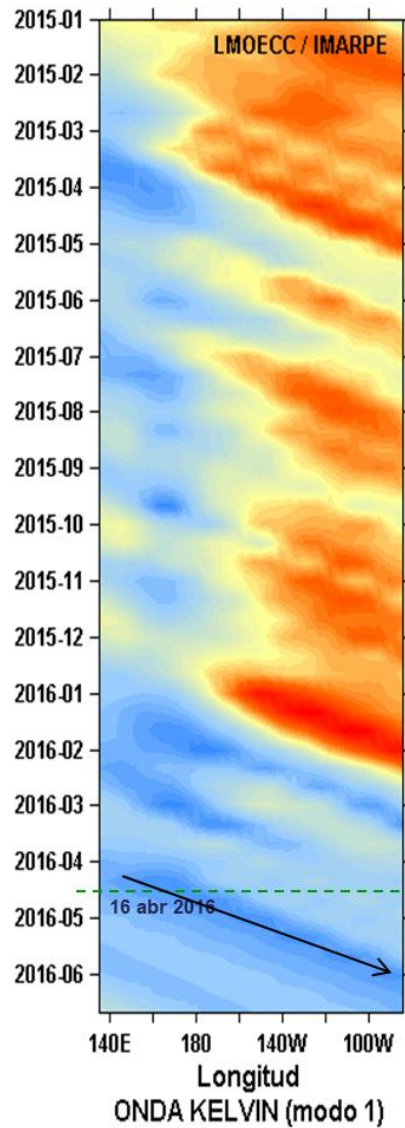




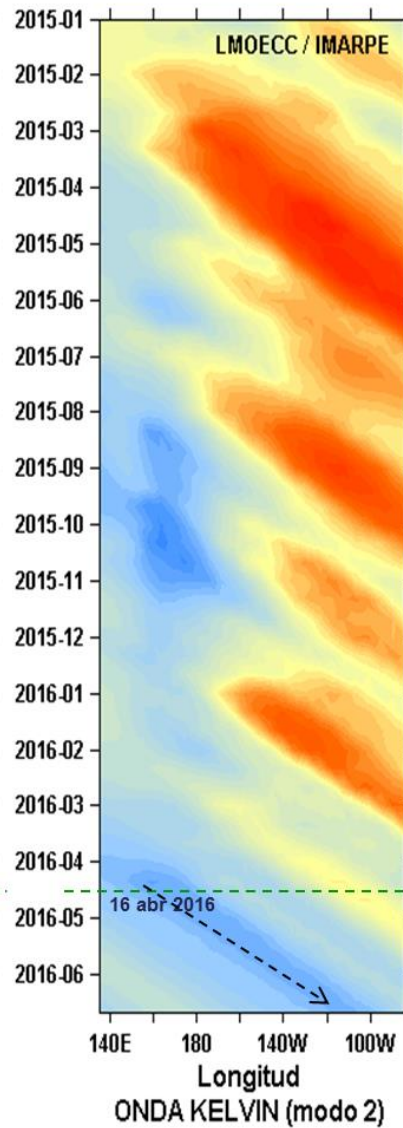
Simulación de la propagación de las ondas Kelvin Ecuatoriales



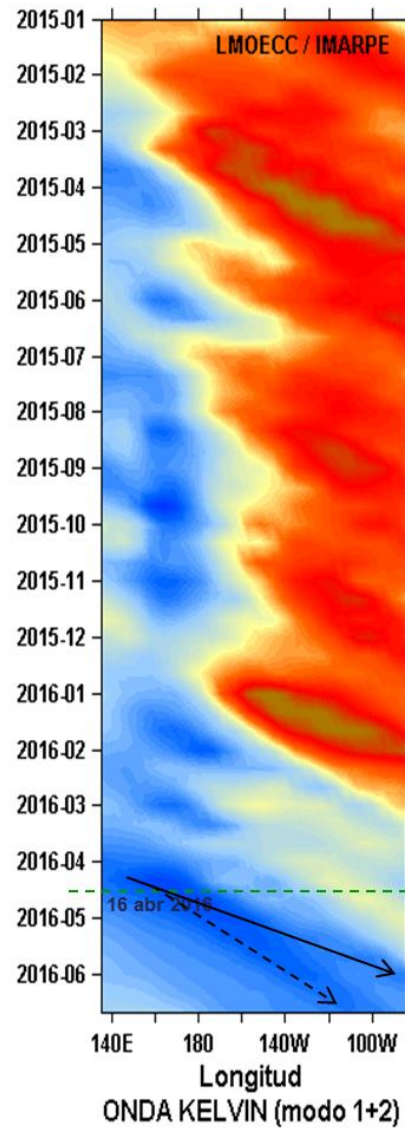
(a)



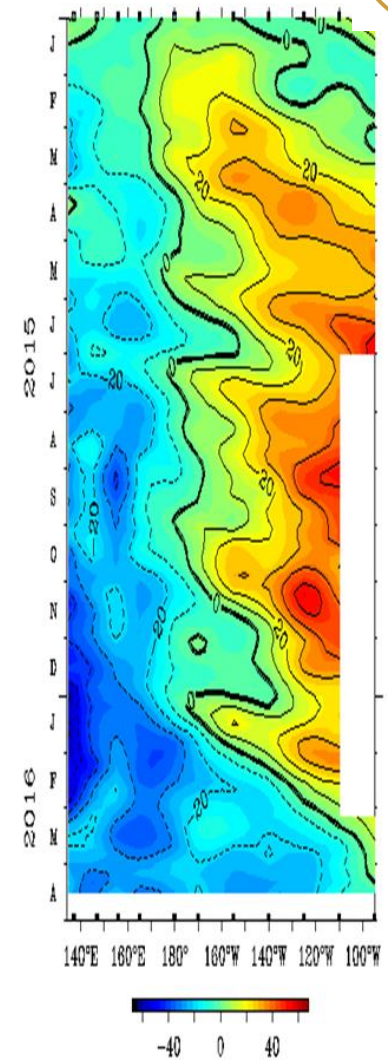
(b)



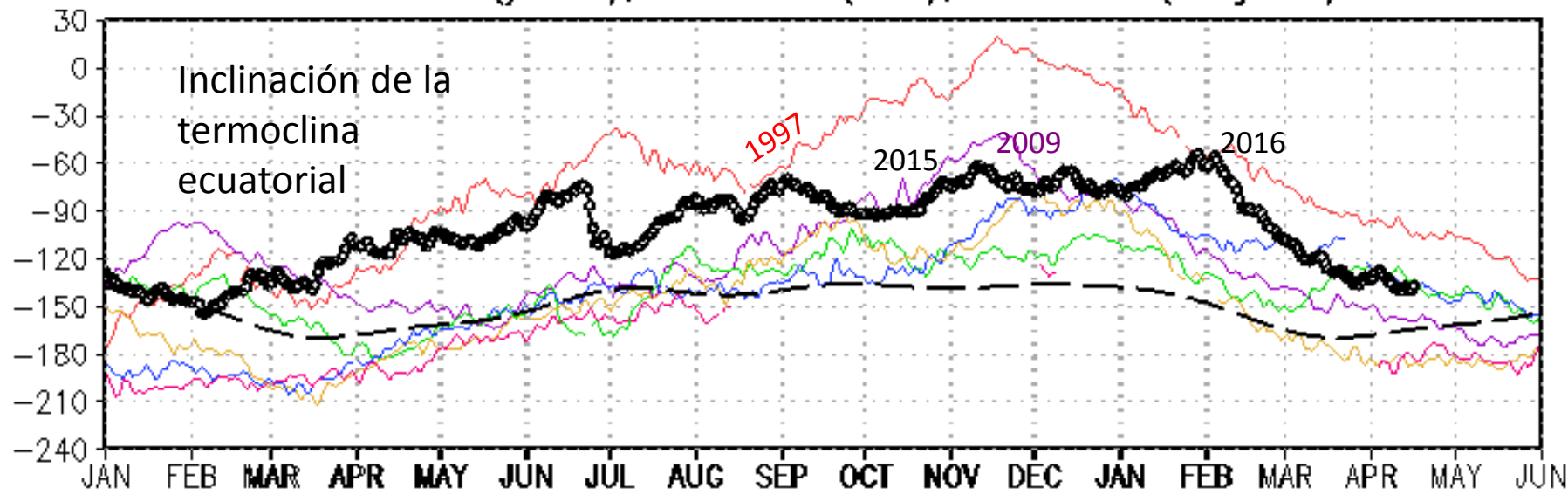
(c)



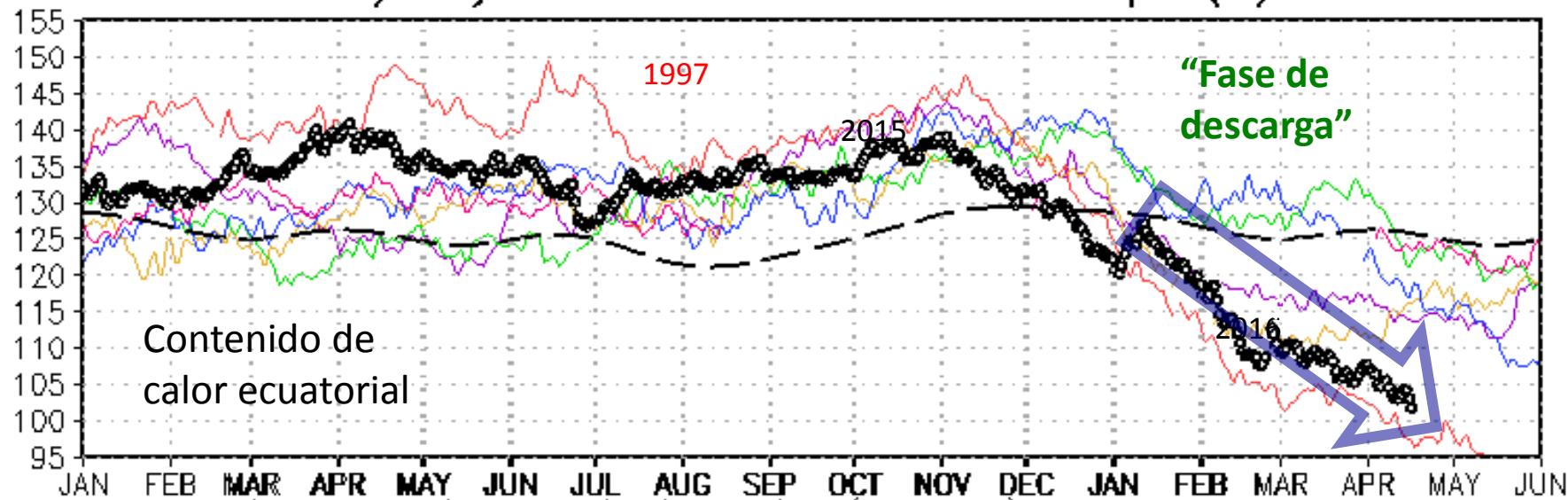
(d)



a) Daily 2°S–2°N 20°C isotherm tilt* (m): 2015 (black), 1997–98 (red), 2002–03 (purple), 2004–05 (green), 2006–07 (yellow), 2009–10 (blue), 2012–13 (magenta)



b) Daily 2°S–2°N 20°C isotherm mean depth (m)



* Zonal depth difference from linear regression fit to longitude (137°E–95°W)

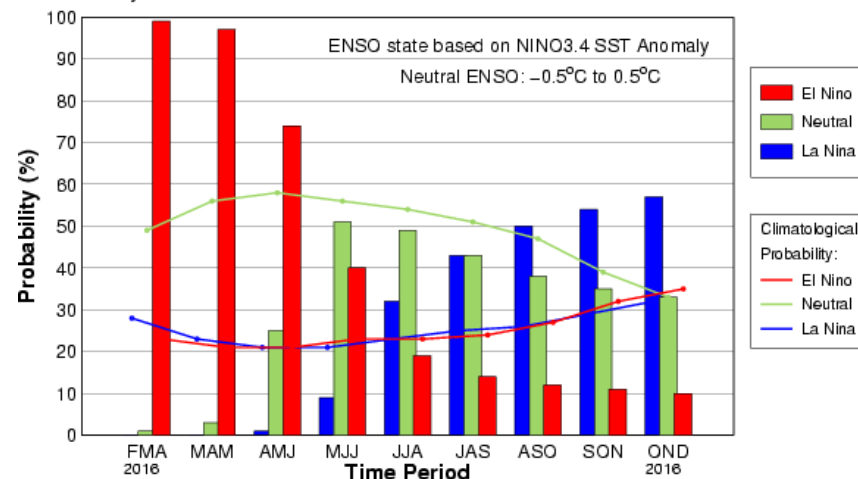
Only for days with at least 10 out of 11 lons. 1–2–1 smoothing. Clim dashed (1993–2012)

Data: TAO/TRITON (last: 16APR2016). Processing: @KTakahashiG (IGP)

Probabilidades de El Niño según porcentaje de modelos (IRI) y evaluación experta

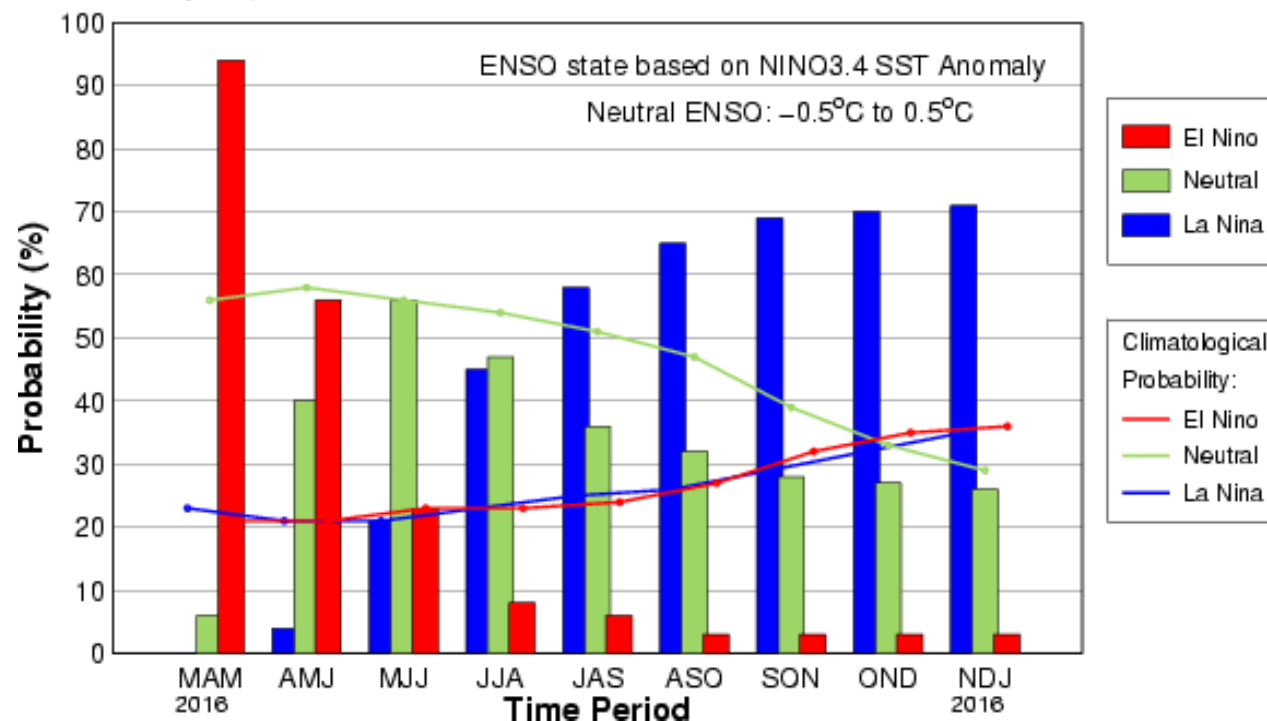
Corrida del mes anterior

Early-Mar CPC/IRI Consensus Probabilistic ENSO Forecast



Corrida reciente

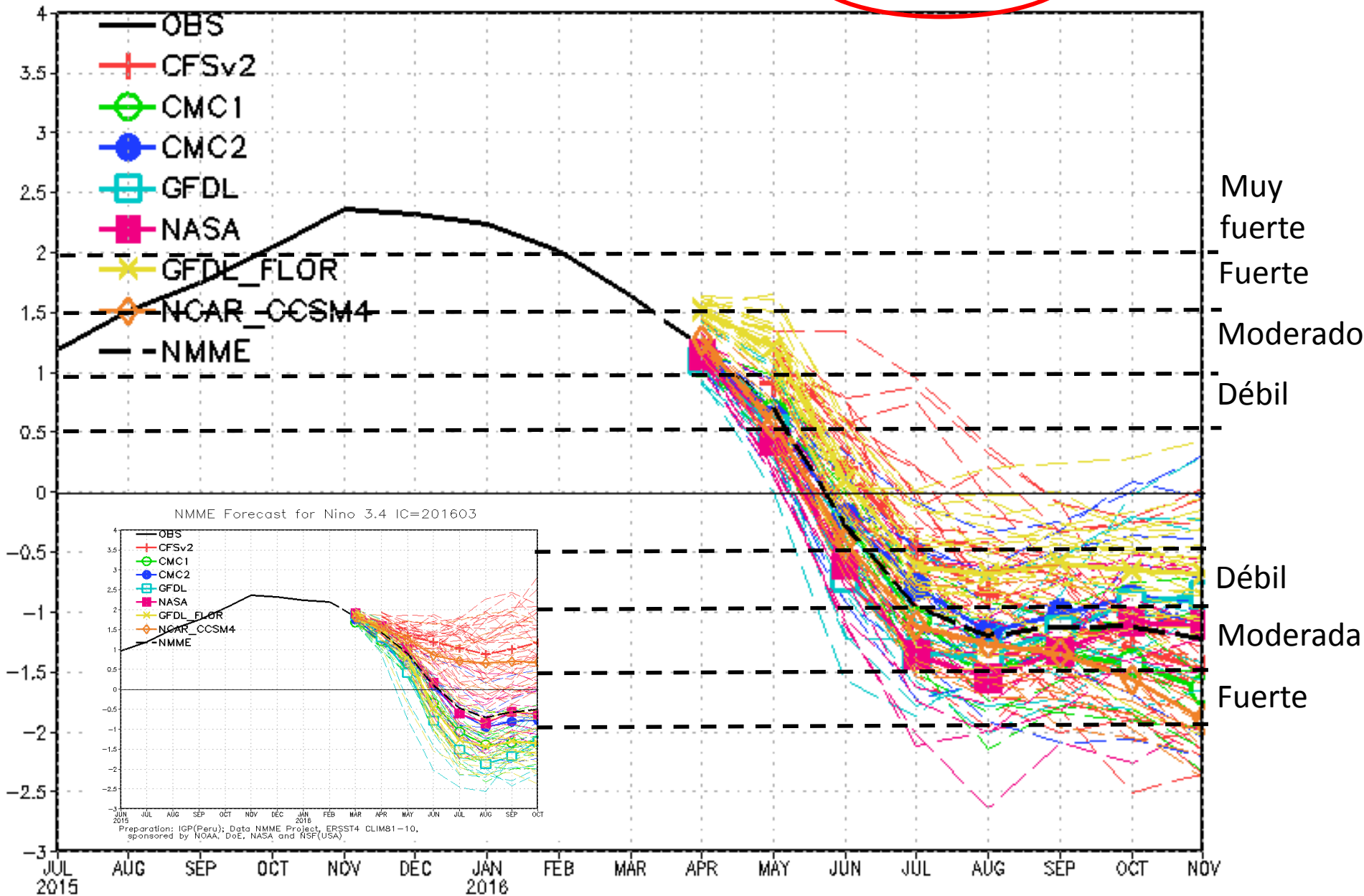
Early-Apr CPC/IRI Official Probabilistic ENSO Forecast



Publicado 14 de abril de 2016

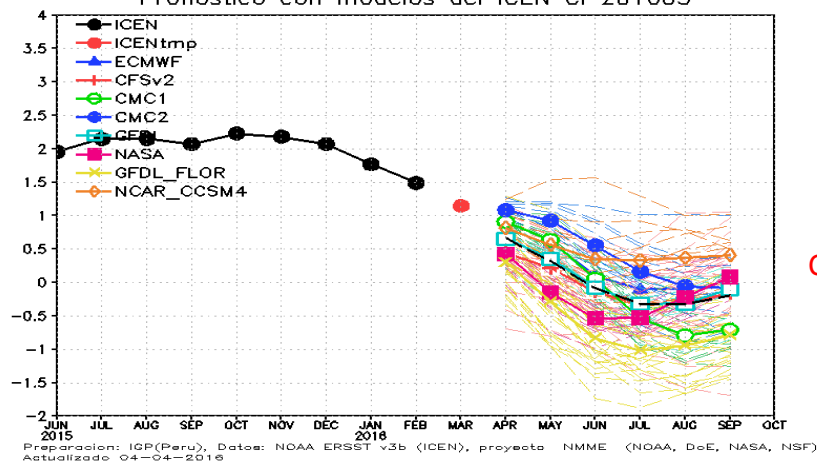
Según la evaluación experta NOAA/IRI, la probabilidad de La Niña en el Pacífico central es de 58% en agosto y $>70\%$ para fines de 2016 .

NMME Forecast for Nino 3.4 IC=201604



Preparation: IGP(Peru); Data NMME Project, ERSST4 CLIM81-10, sponsored by NOAA, DoE, NASA and NSF(USA)

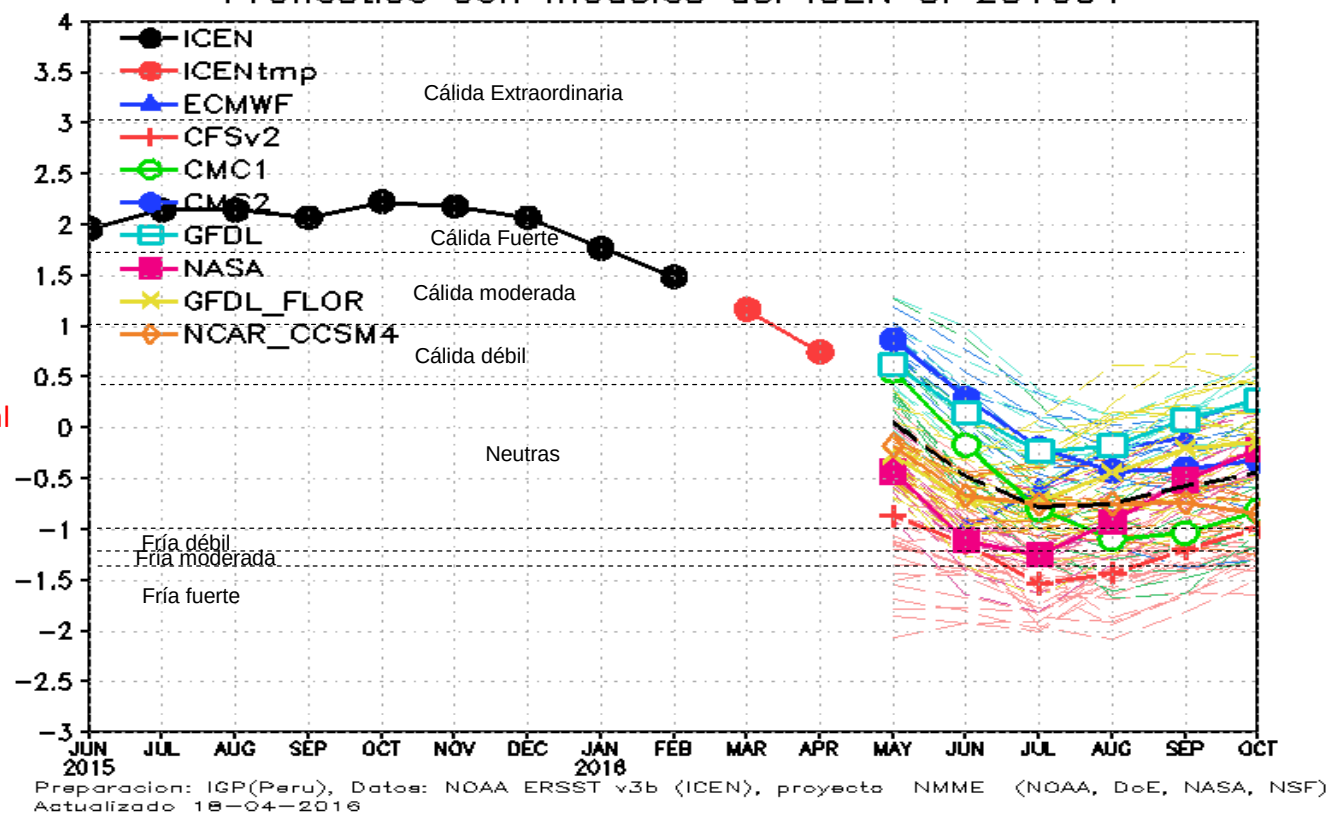
Pronostico con modelos del ICEN CI 201603



Corrida anterior

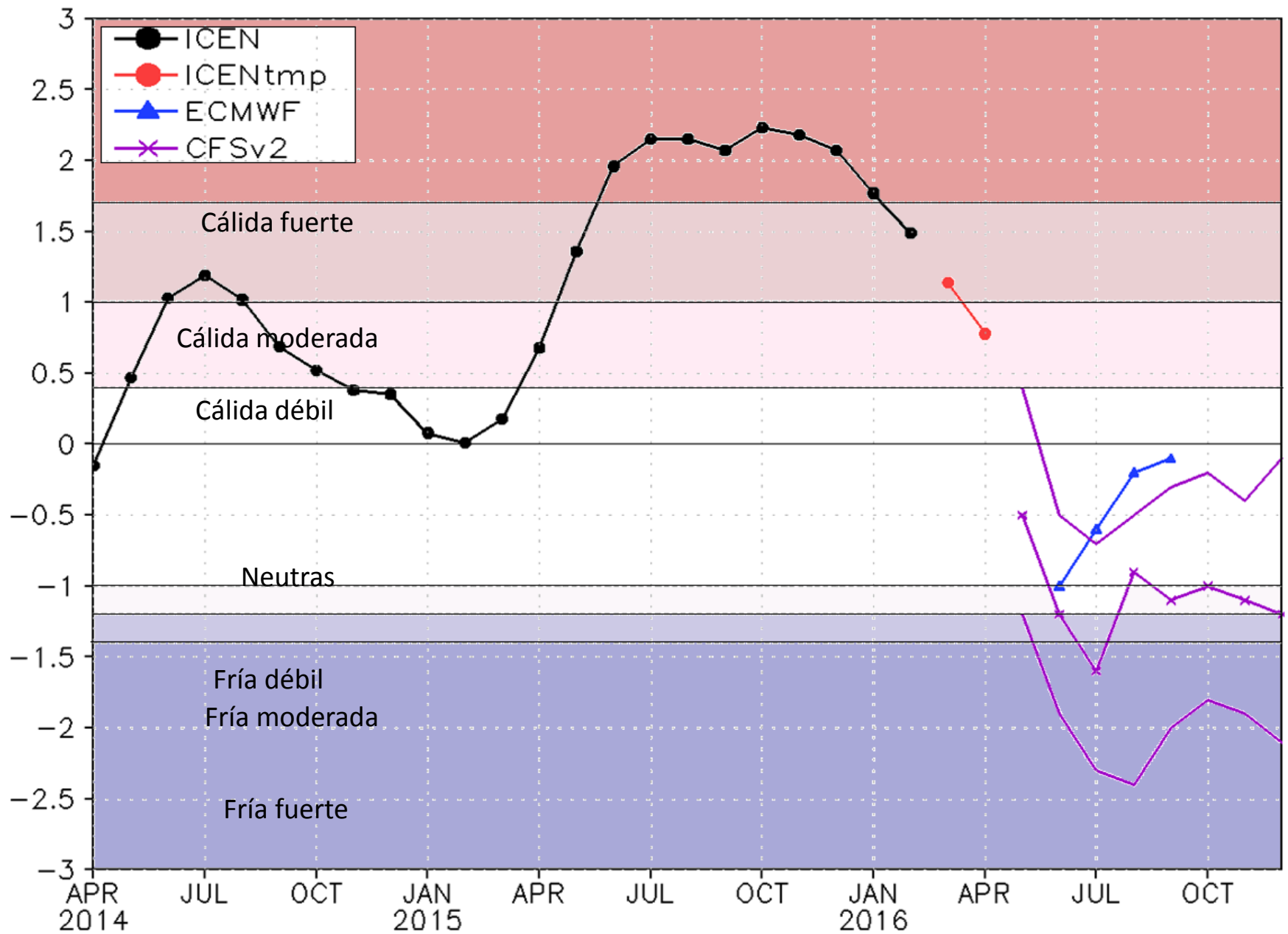
Pronostico con modelos del ICEN CI 201604

Corrida actual



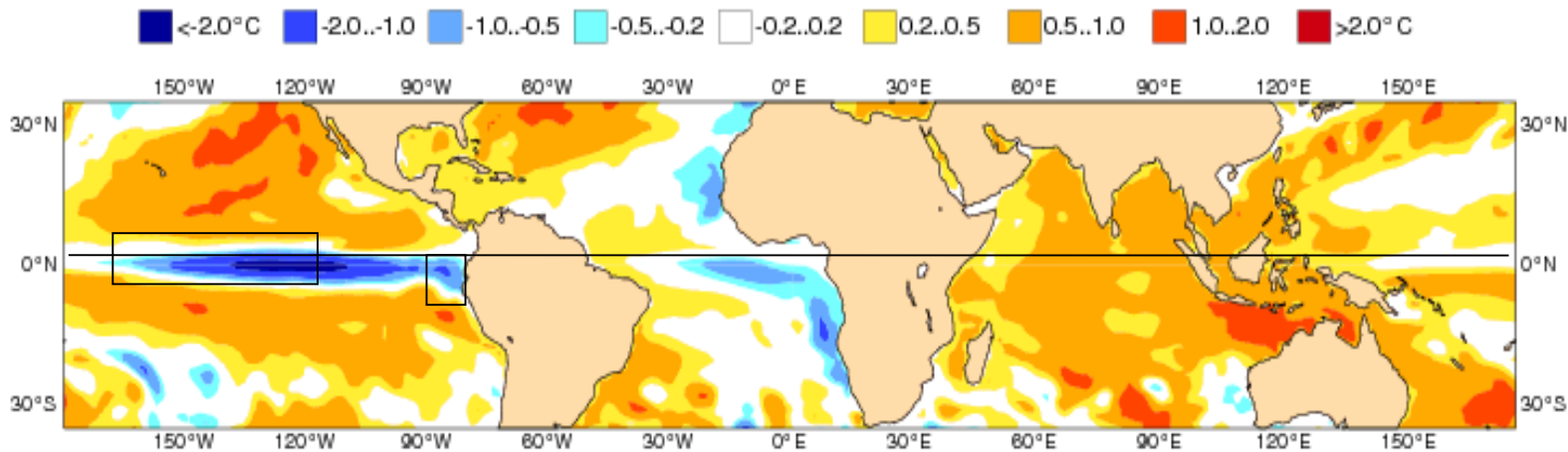
Nota: Los pronósticos de los modelos CFSv2, CMC1, CMC2, GFDL, NASA, NCAR y GFDL_FLOR tienen como condiciones inicial el mes de abril de 2016.
El modelo ECMWF tiene como condición inicial el mes de abril de 2016

Pronóstico con modelos del ICEN



Nota: Las líneas delgadas en los pronósticos indican los máximos y mínimos en los "ensembles" de CFS2. Para ECMWF no se cuenta con datos del "ensemble". ECMWF, tiene condiciones iniciales el mes abril

ECMWF



CFS2

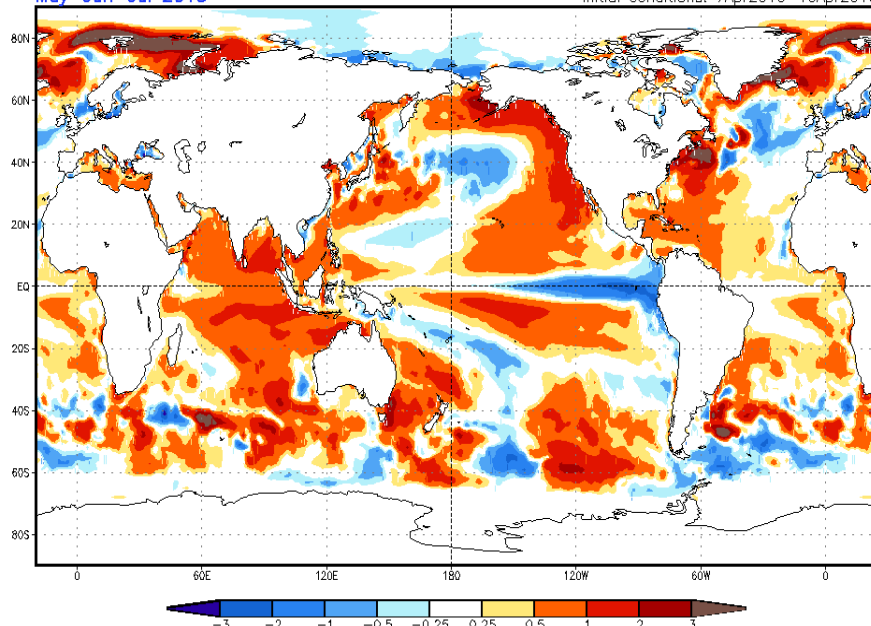
CFSv2 seasonal SST anomalies (K)



NWS/NCEP/CPC

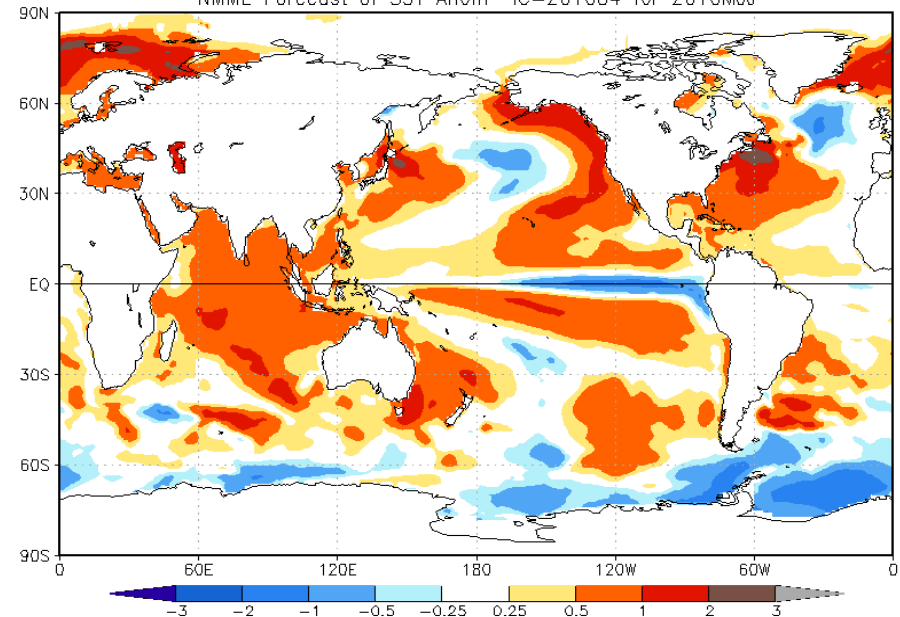
May-Jun-Jul 2016

Initial conditions: 7Apr2016-16Apr2016



NMME

NMME Forecast of SST Anom IC=201604 for 2016MJJ

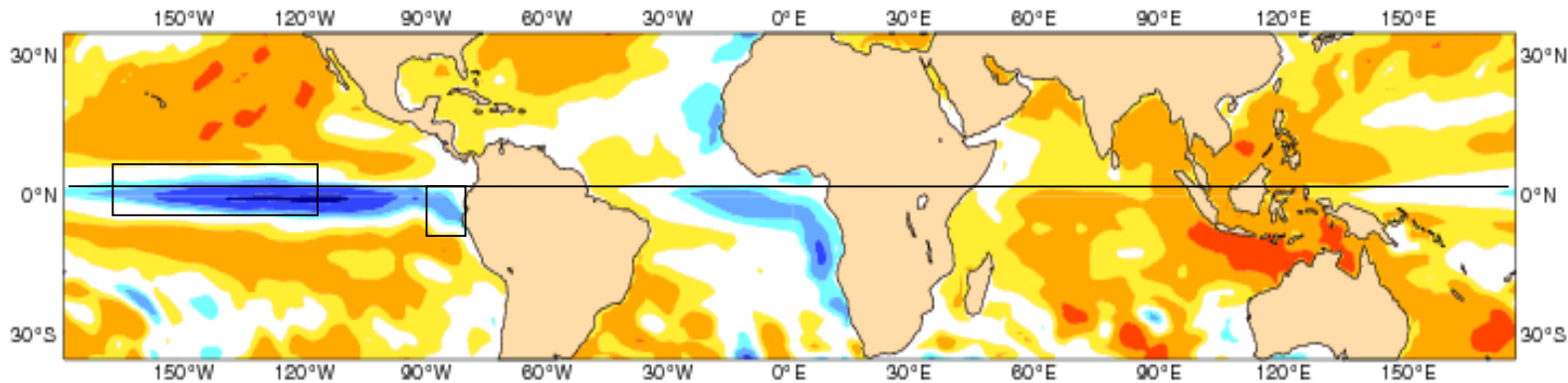


ECMWF Seasonal Forecast
 Mean forecast SST anomaly
 Forecast start reference is 01/04/16
 Ensemble size = 51, climate size = 450

JJA 2016

System 4
 JJA 2016

ECMWF



Pac. Cen.
 -1.5 °C

Pac. Or.
 -0.6°C

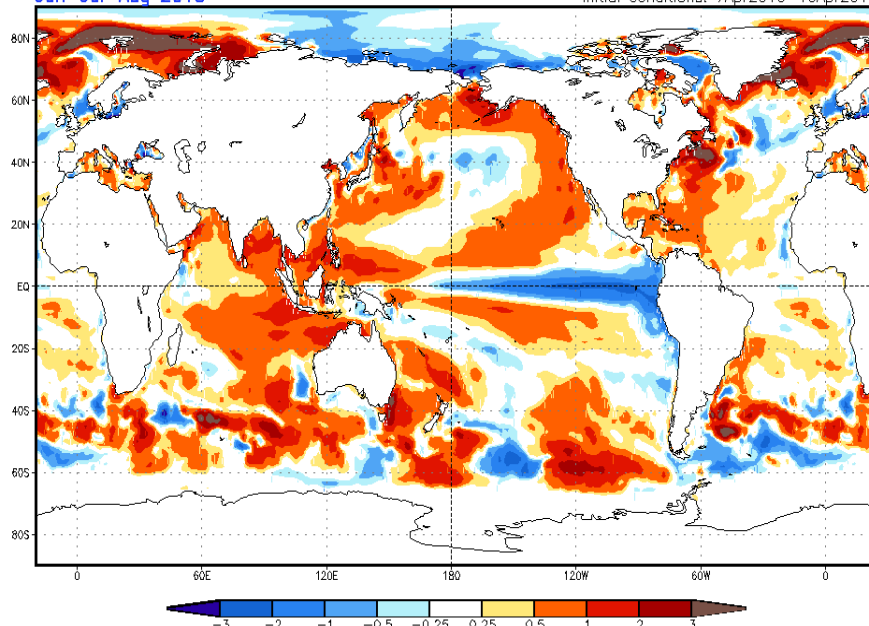
CFS2

CFSv2 seasonal SST anomalies (K)

NWS/NCEP/CPC

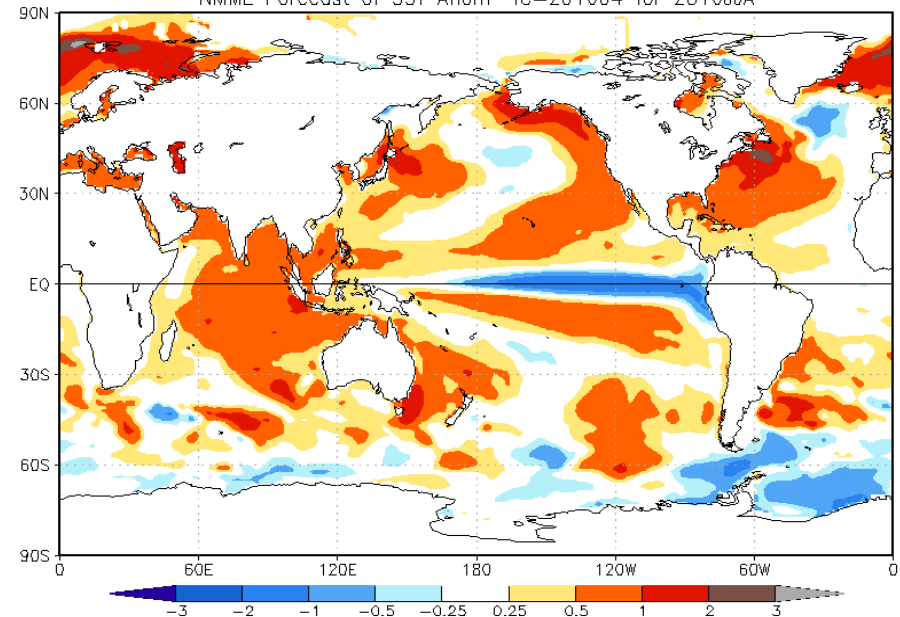
Jun-Jul-Aug 2016

Initial conditions: 7Apr2016-16Apr2016

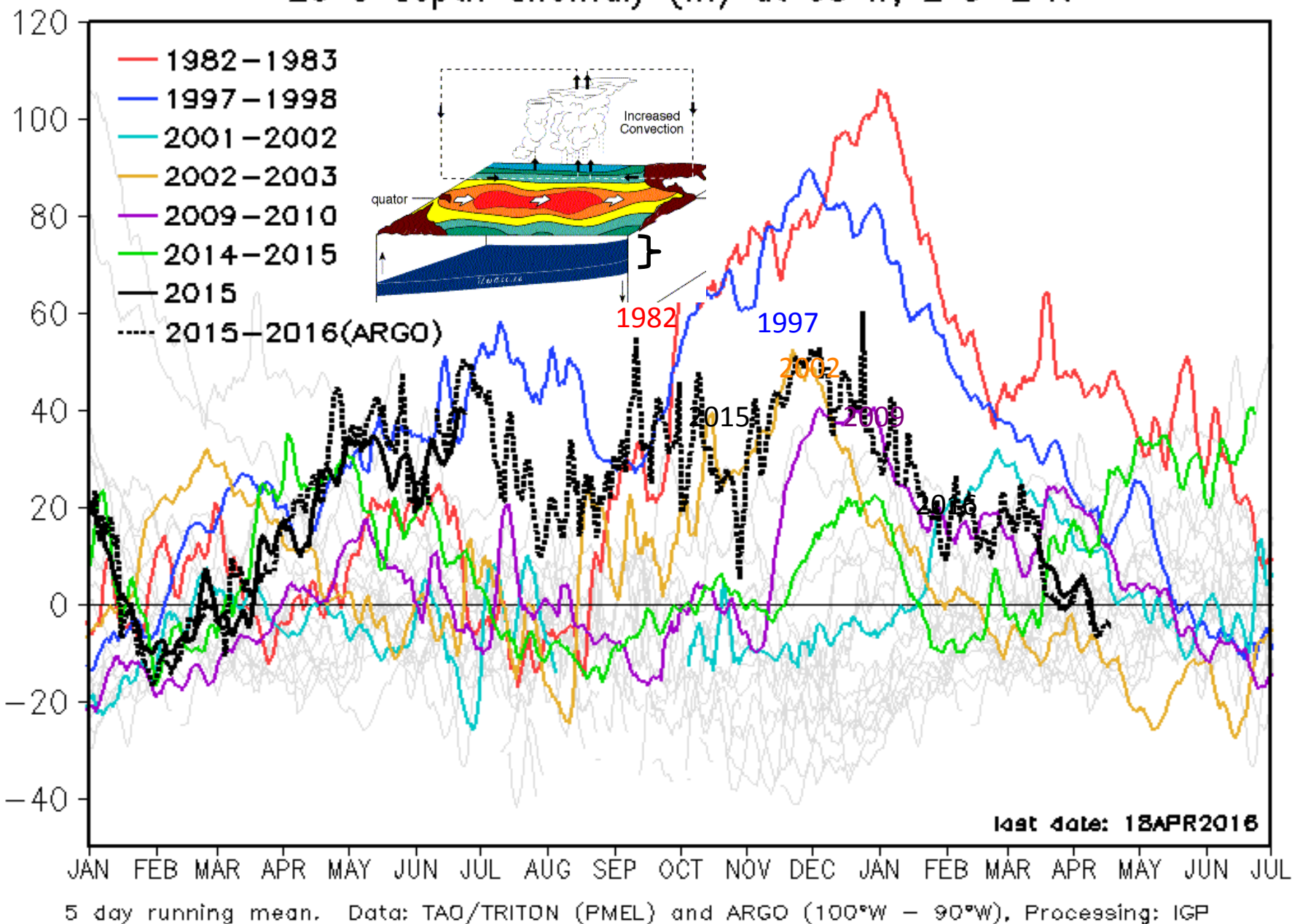


NMME

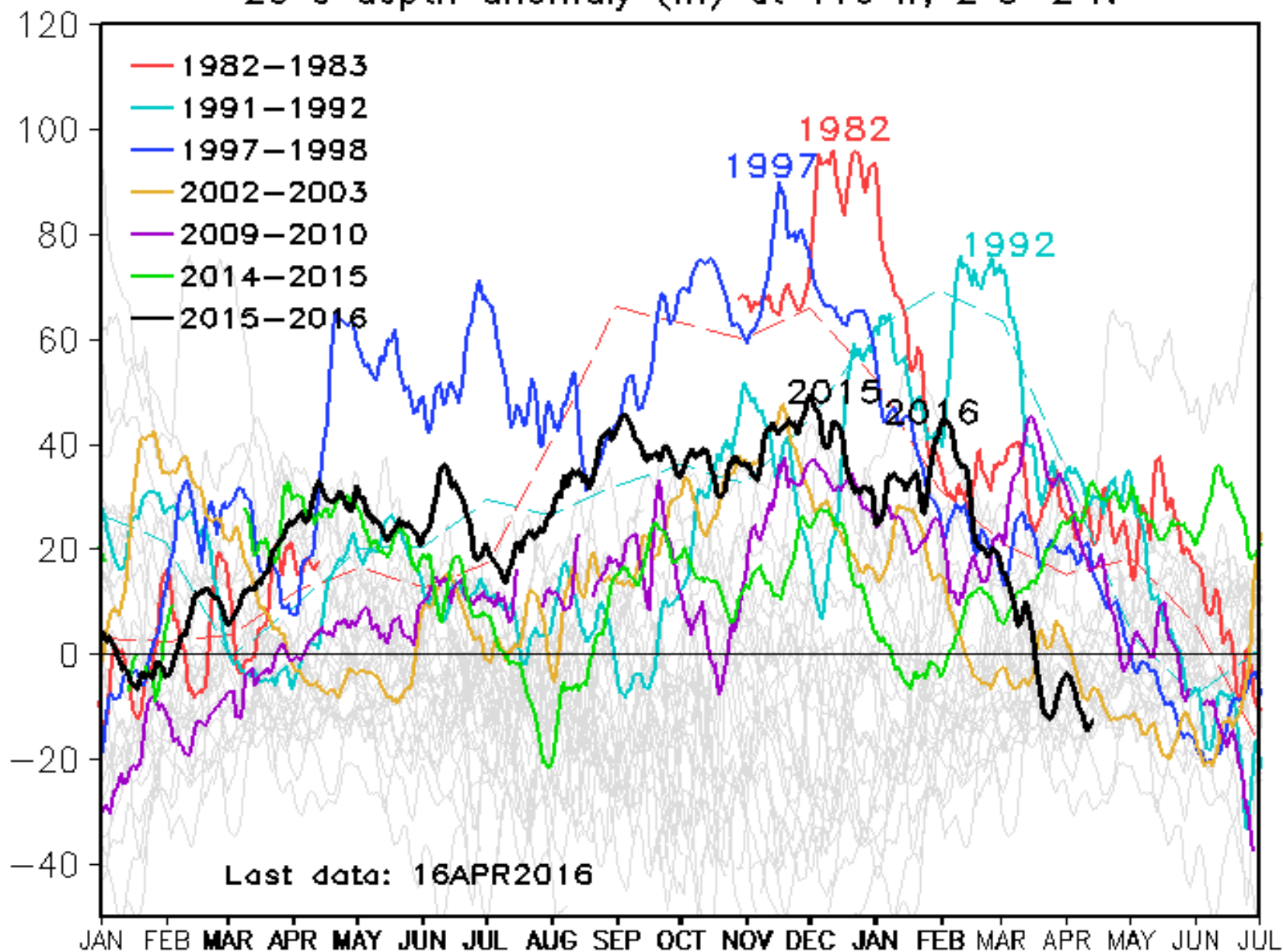
NMME Forecast of SST Anom IC=201604 for 2016JJA



20°C depth anomaly (m) at 95°W, 2°S–2°N

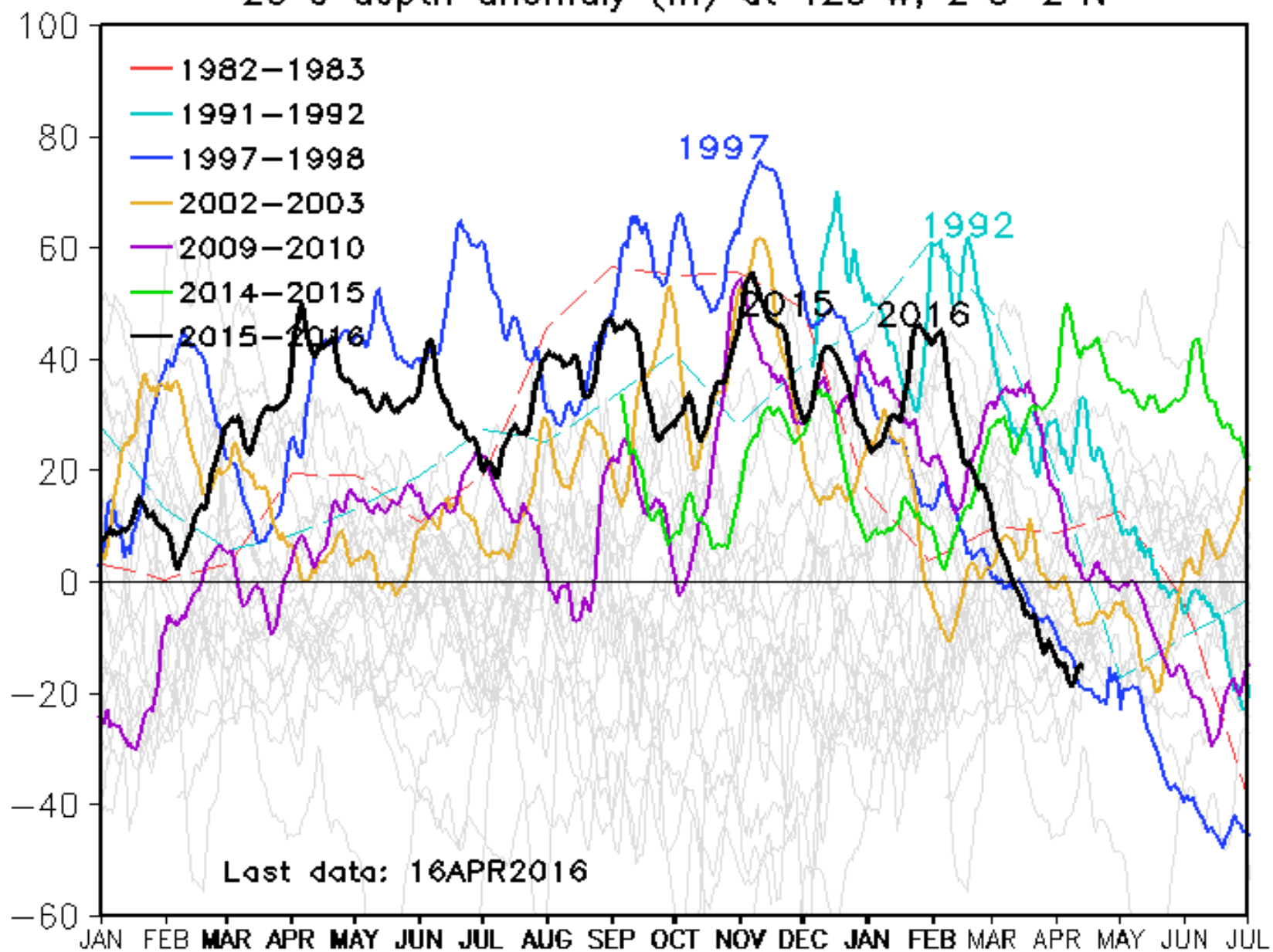


20°C depth anomaly (m) at 110°W, 2°S–2°N



5 day running mean. Data: TAO/TRITON (PMEL), monthly SODA 1.4.2 (dashed). Processing: IGP

20°C depth anomaly (m) at 125°W, 2°S–2°N



5 day running mean. Data: TAO/TRITON (PMEL), monthly SODA 1.4.2 (dashed), Processing: IGP