

Monitoreo y pronóstico de El Niño

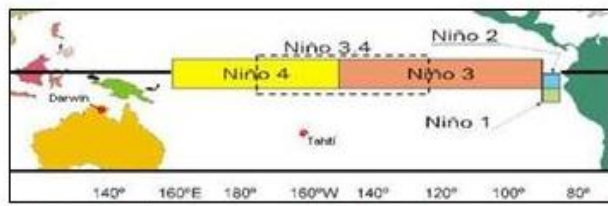
Marzo 2016

Comité Técnico ENFEN

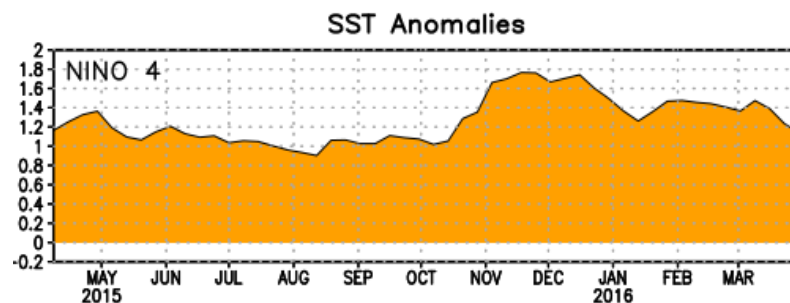
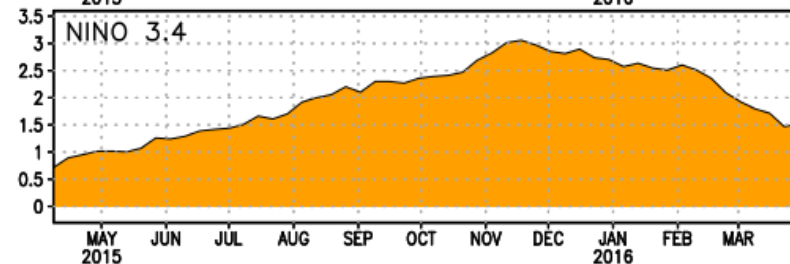
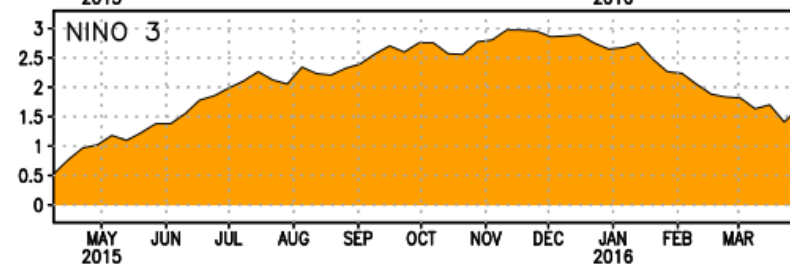
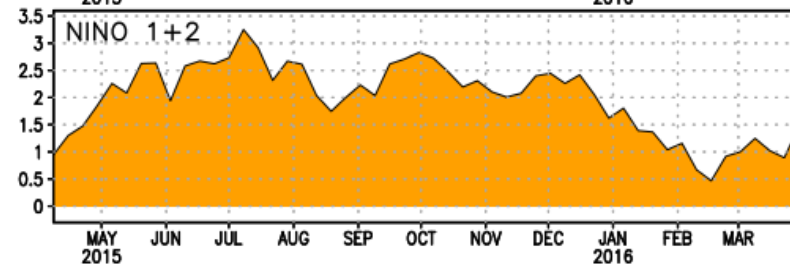
07 de abril de 2016



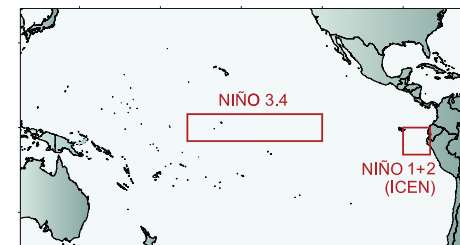
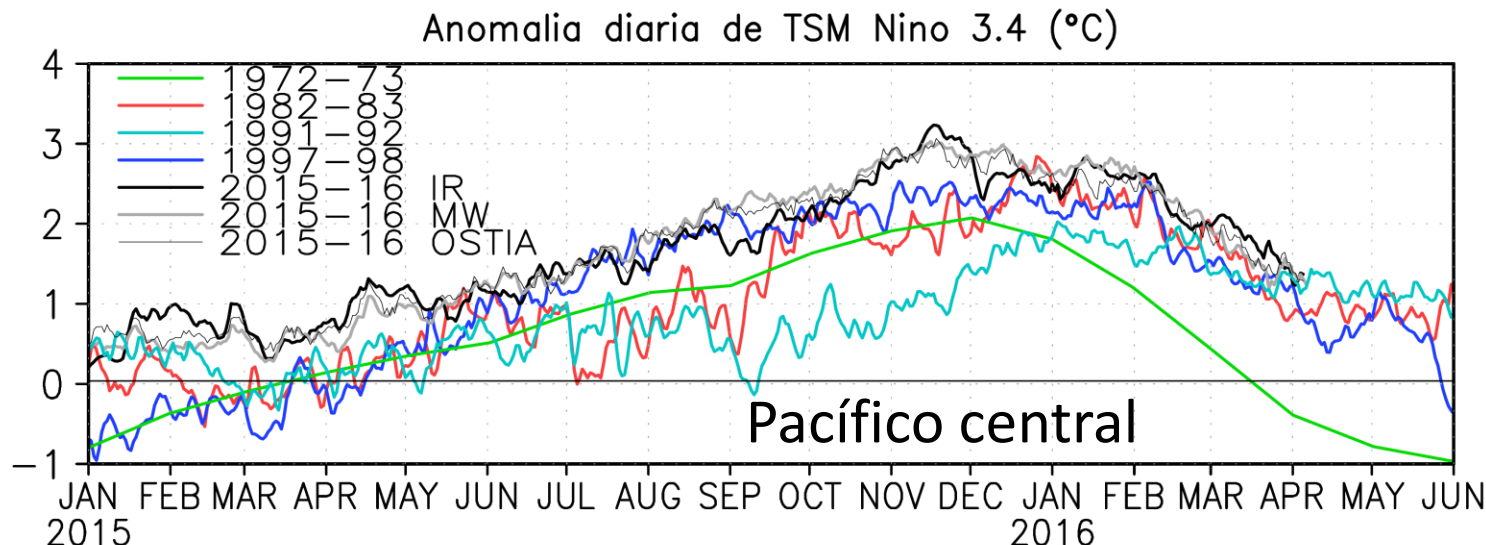
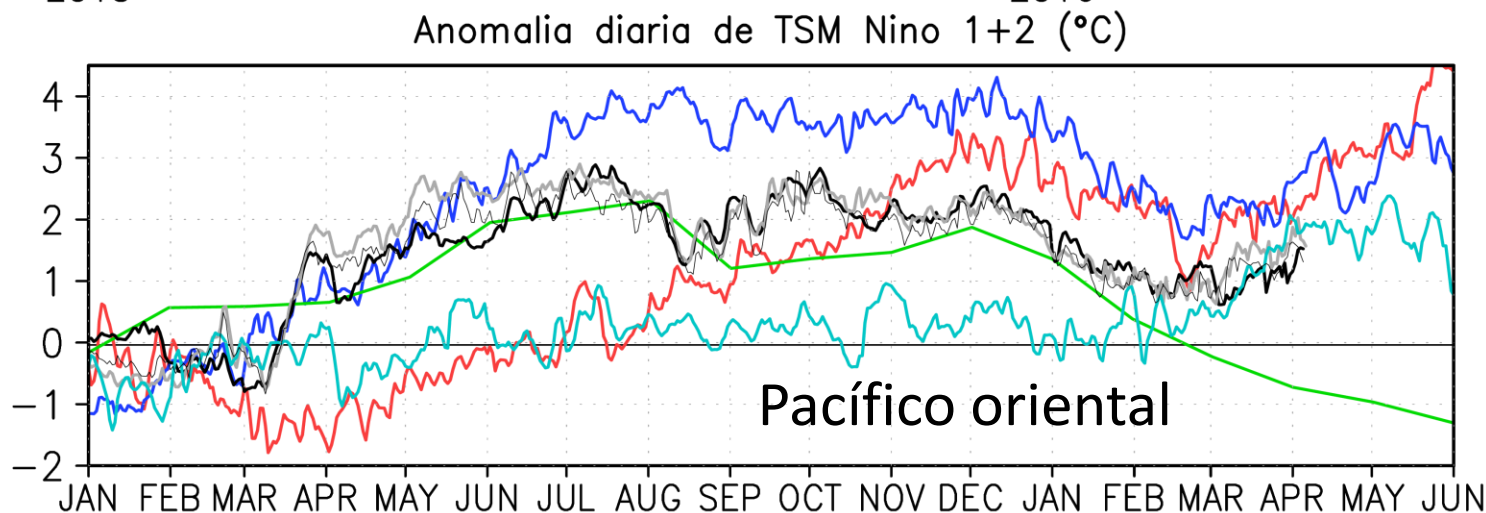
ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR POR REGIONES NIÑO EN EL PACÍFICO ECUATORIAL



Regiones Niño	ATSM (Semanales)							
	Niño 1+2		Niño 3		Niño 3.4		Niño 4	
02mar2016	1.0	27.3	1.8	28.6	1.9	28.9	1.4	29.5
09mar2016	1.2	27.7	1.6	28.6	1.8	28.9	1.5	29.6
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
Prom	1.2		1.6		1.7		1.3	
Promedios mensuales 2015								
Regiones Niño	ATSM							
	Niño 1+2		Niño 3		Niño 3.4		Niño 4	
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
Feb. 2015	-0.6	25.6	0.2	26.6	0.6	27.3	1.0	29.1



Anomalia de la Temperatura Superficial de Mar



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

Ultimo dato-MW: 05APR2016
Ultimo dato-OISST: 05APR2016
Ultimo dato-OSTIA: 05APR2016

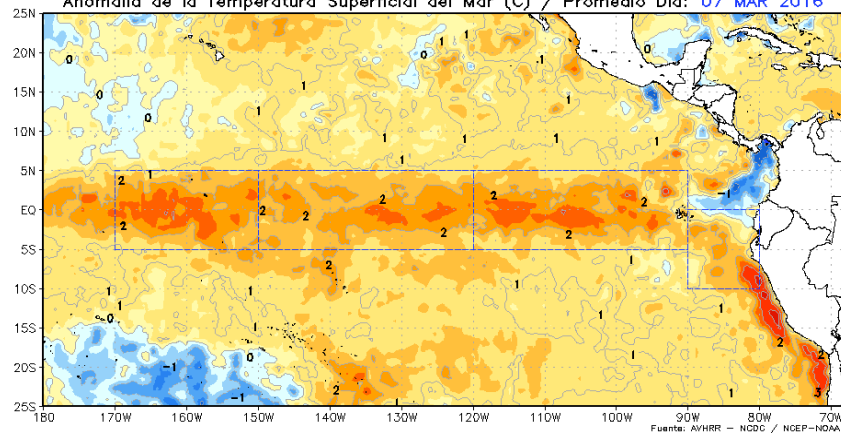


ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO ECUATORIAL

DIRECCION DE HIDROGRAFIA Y NAVEGACION

DPTO OCEANOGRAFIA – DIV METEOROLOGIA

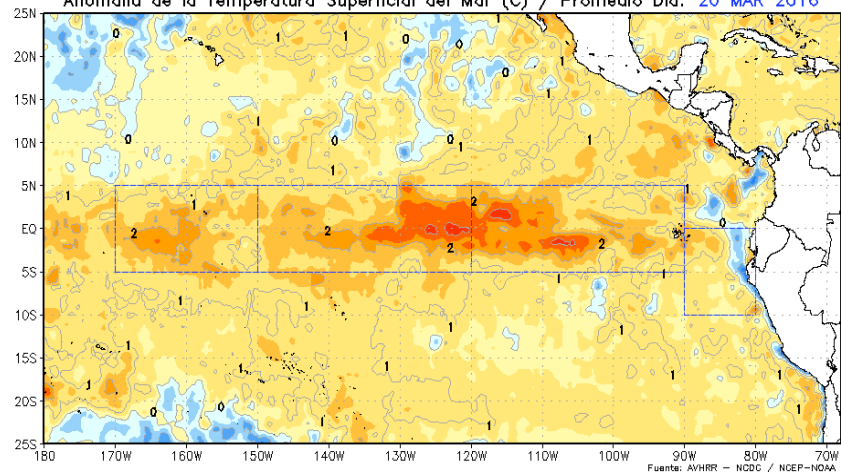
Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 07 MAR 2016



DIRECCION DE HIDROGRAFIA Y NAVEGACION

DPTO OCEANOGRAFIA – DIV METEOROLOGIA

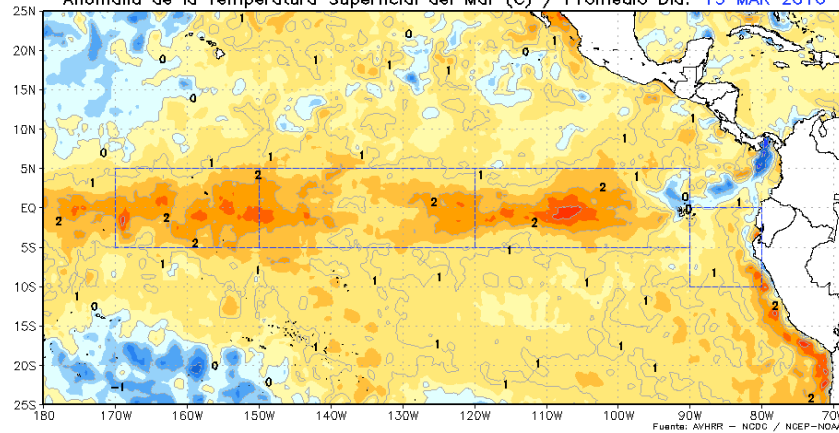
Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 20 MAR 2016



DIRECCION DE HIDROGRAFIA Y NAVEGACION

DPTO OCEANOGRAFIA – DIV METEOROLOGIA

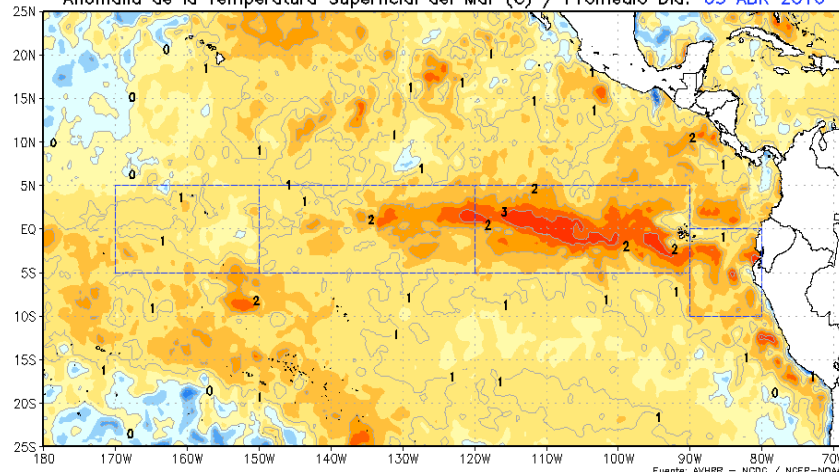
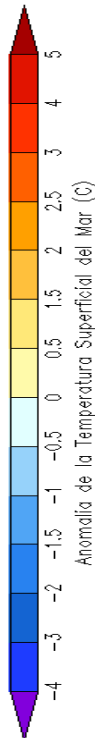
Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 13 MAR 2016



DIRECCION DE HIDROGRAFIA Y NAVEGACION

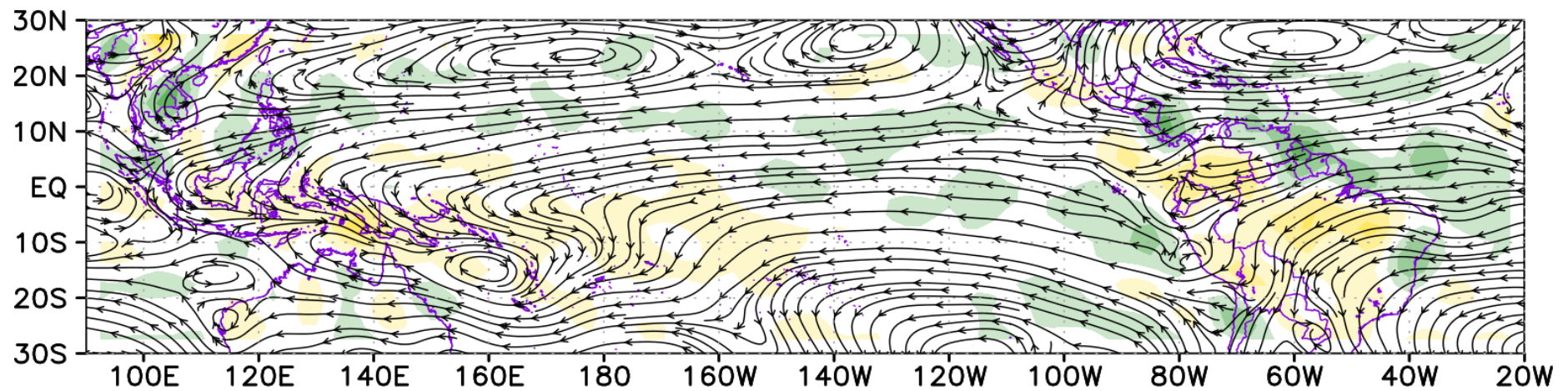
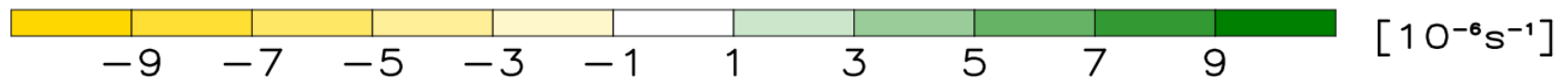
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 03 ABR 2016

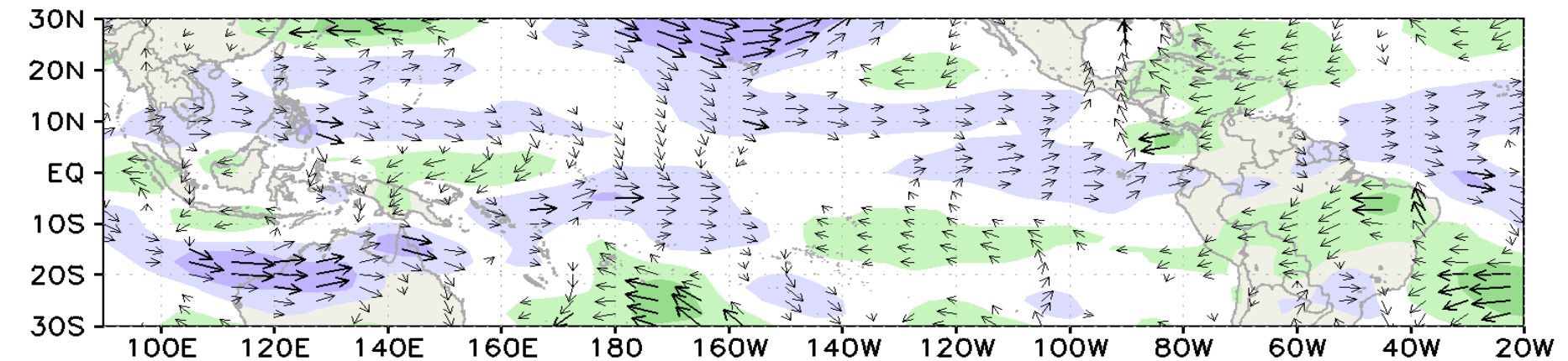
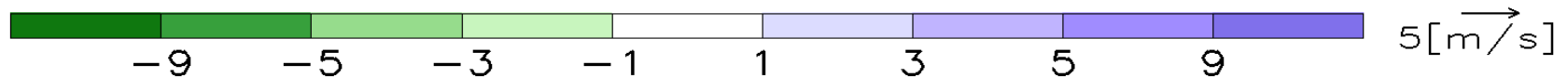


VIENTOS A 850hPa

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

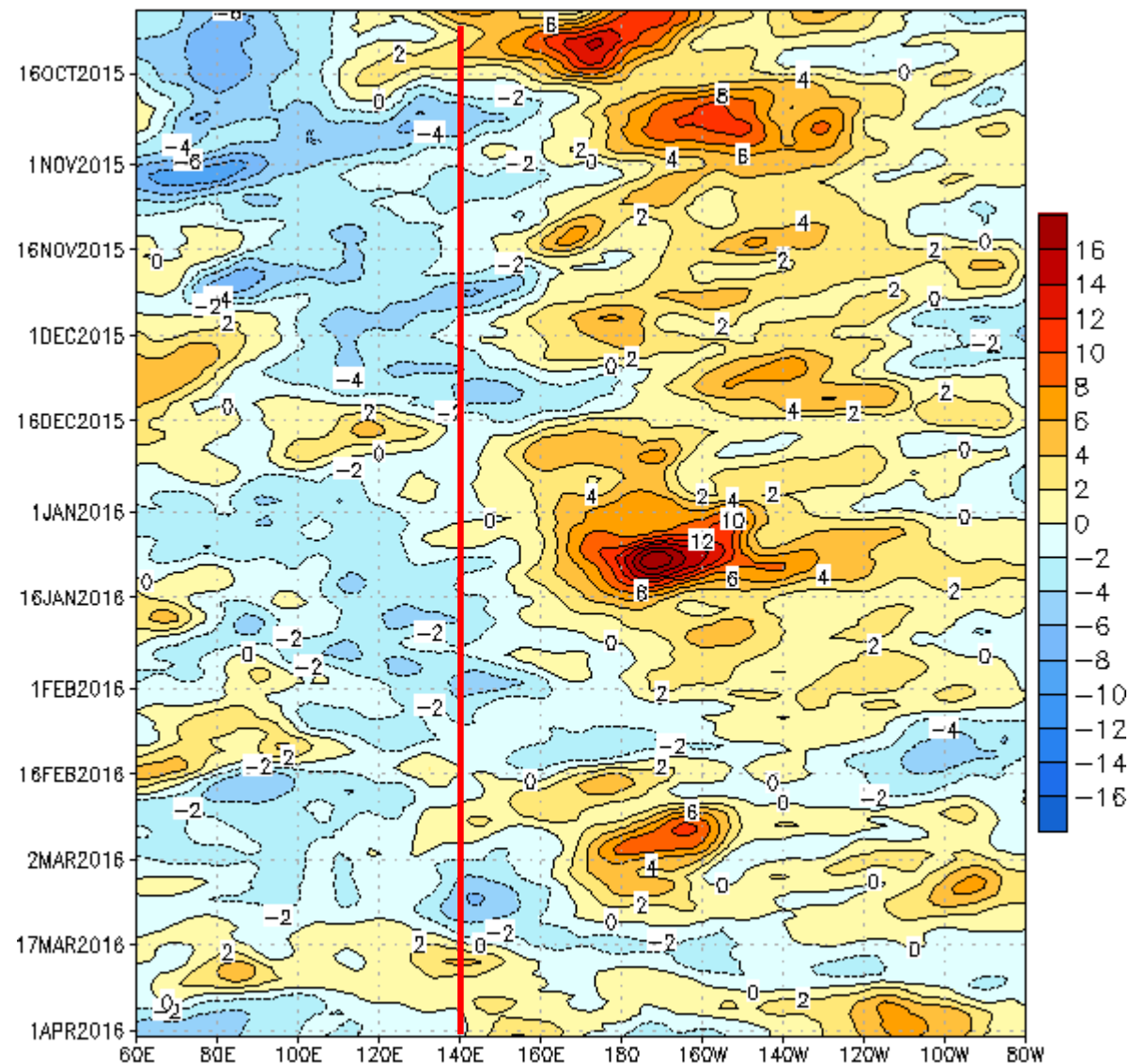


ANOMALIA DE VIENTO a 850hPa MARZO 2016
NCEP-NOAA / SENAMHI -DCL



HOVMULLER DE ANOMALÍA DE VIENTOS

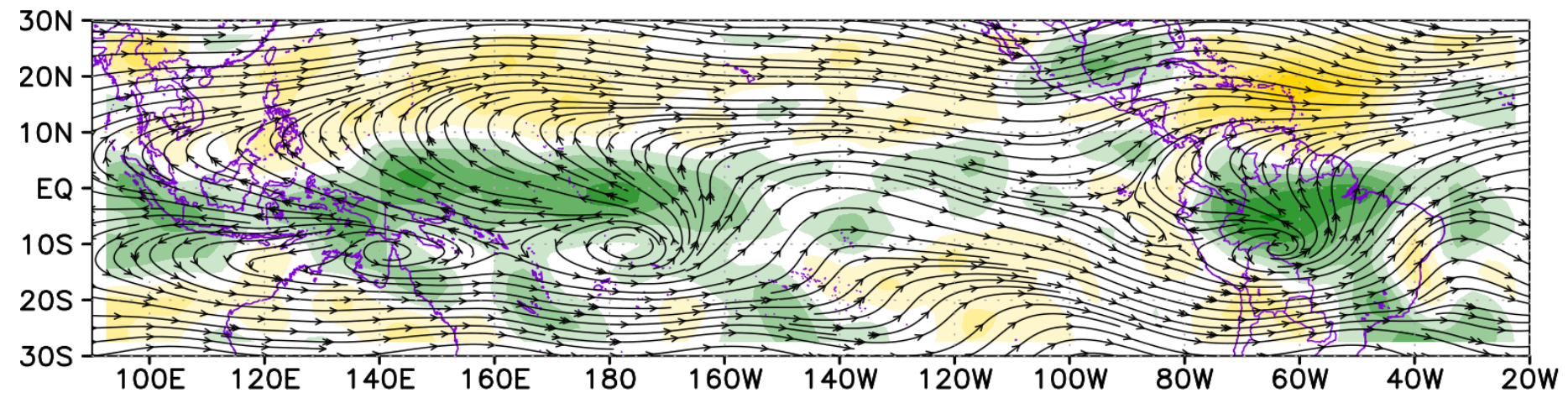
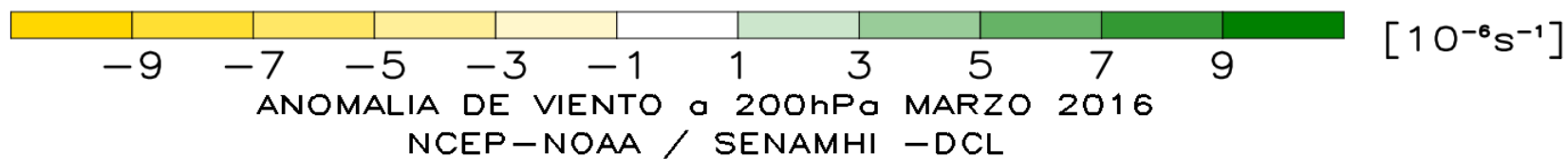
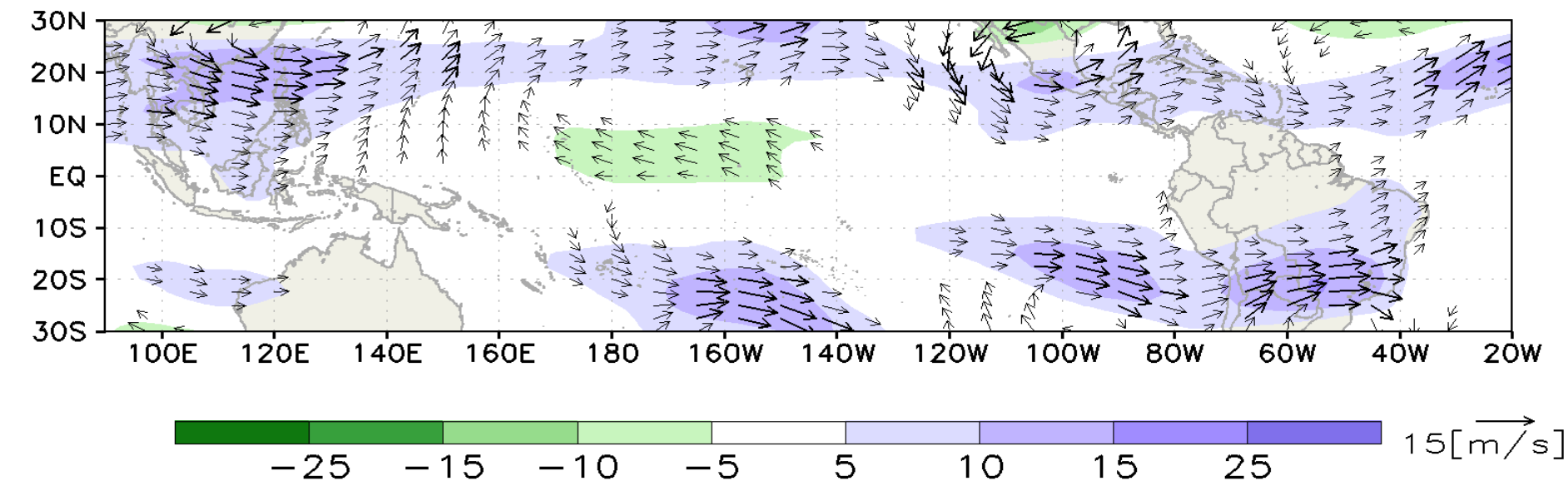
CDAS 850-hPa U Anoms. (5N-5S)



Data updated through 02 APR 2016

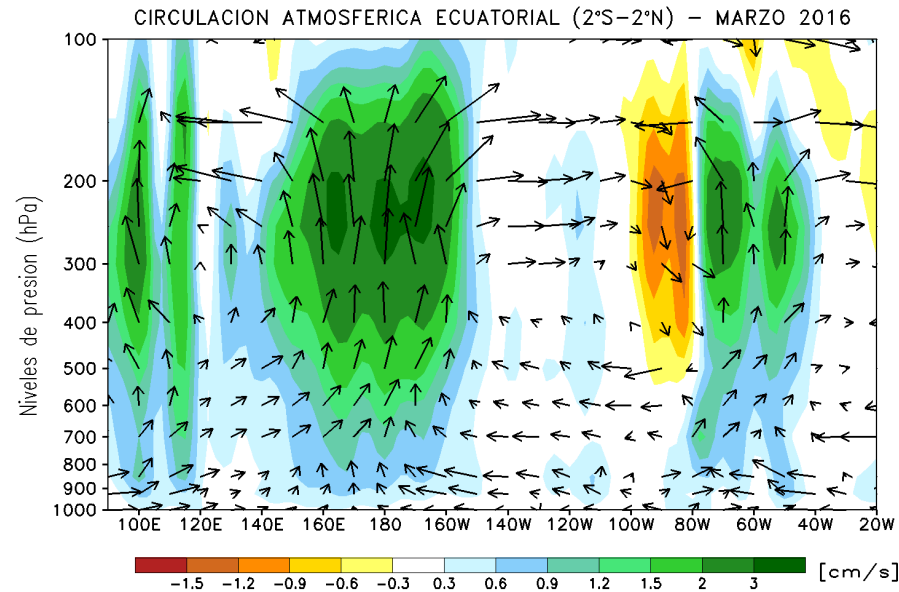
VIENTO A 200 hPa

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

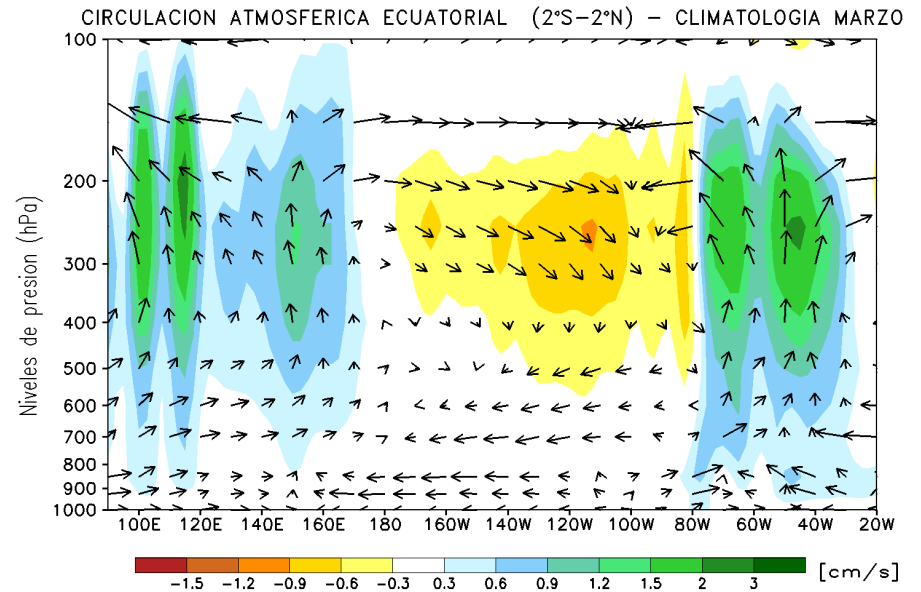


MONITOREO DE LA CIRCULACION ATMOSF. EC. 5°N-5°S

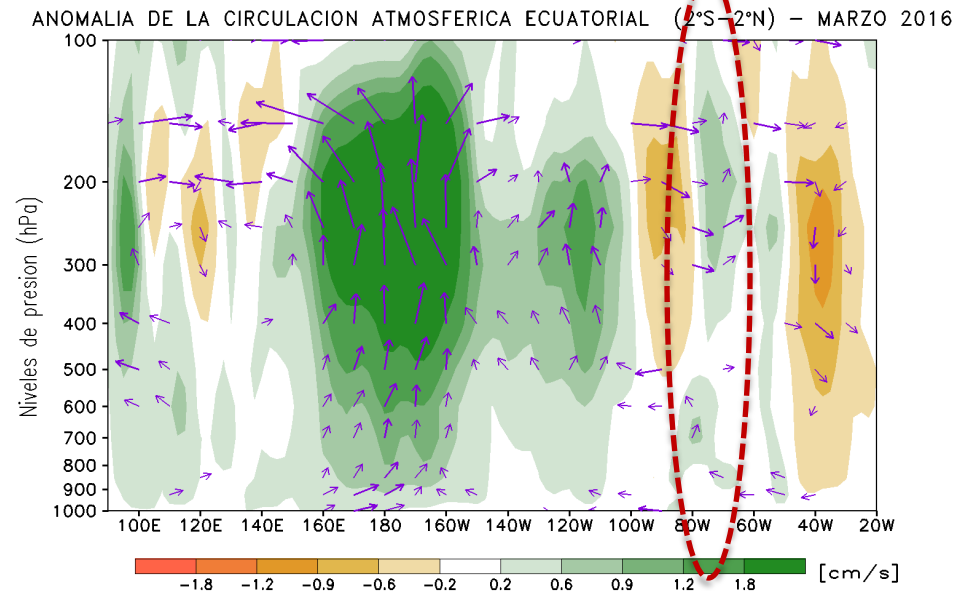
a)



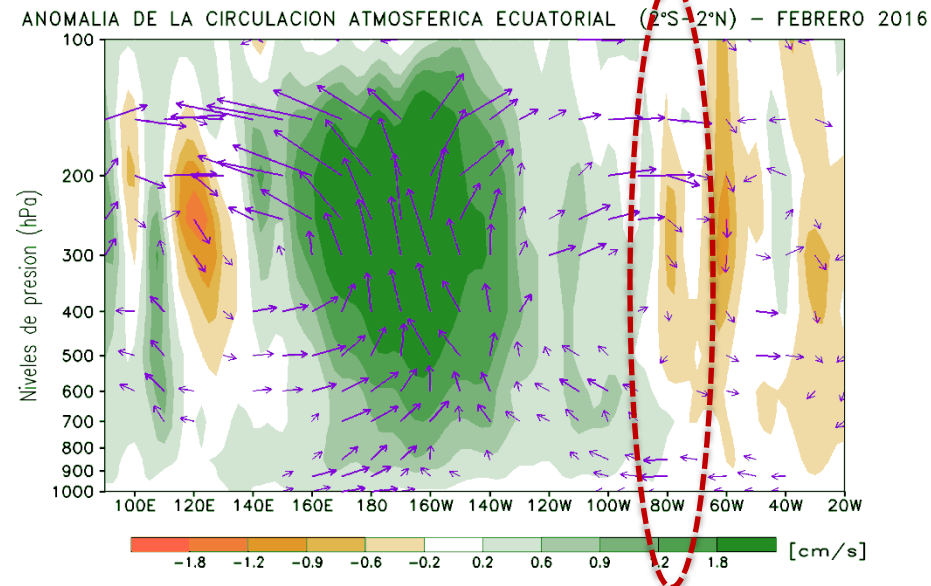
b)



c)

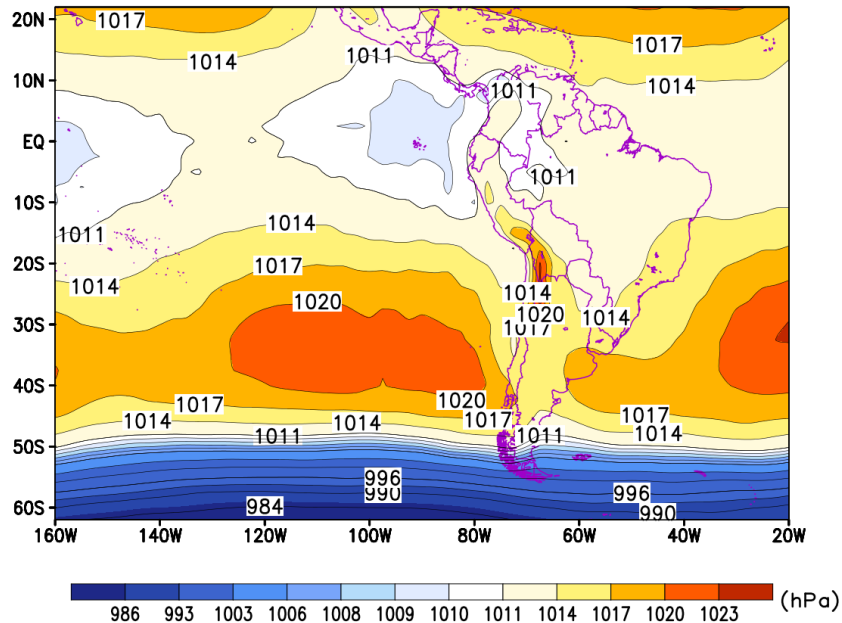


c)

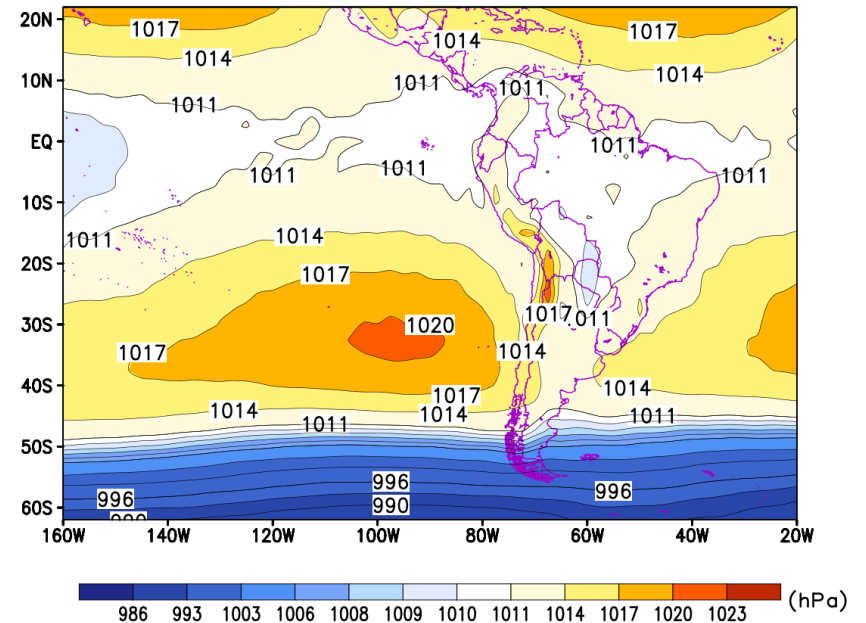


CAMPOS DE PRESIÓN A NIVEL DEL MAR

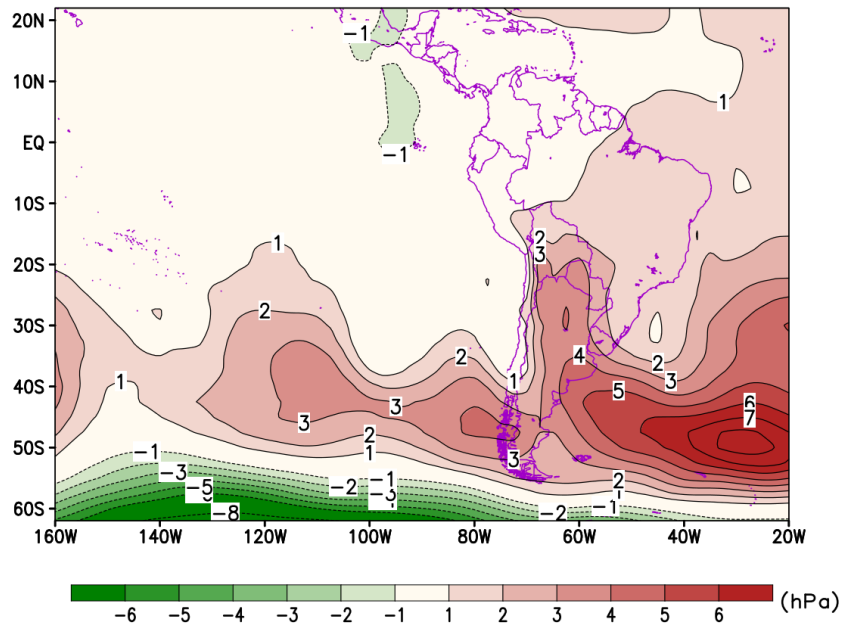
PRESION A NIVEL DEL MAR – 2016 MARZO



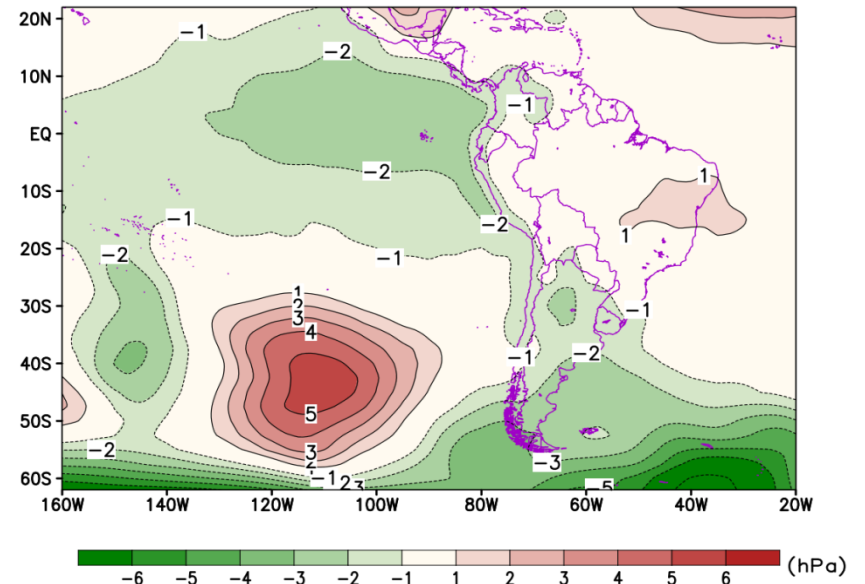
CLIMATOLOGIA DE LA PRESION A NIVEL DEL MAR – MARZO



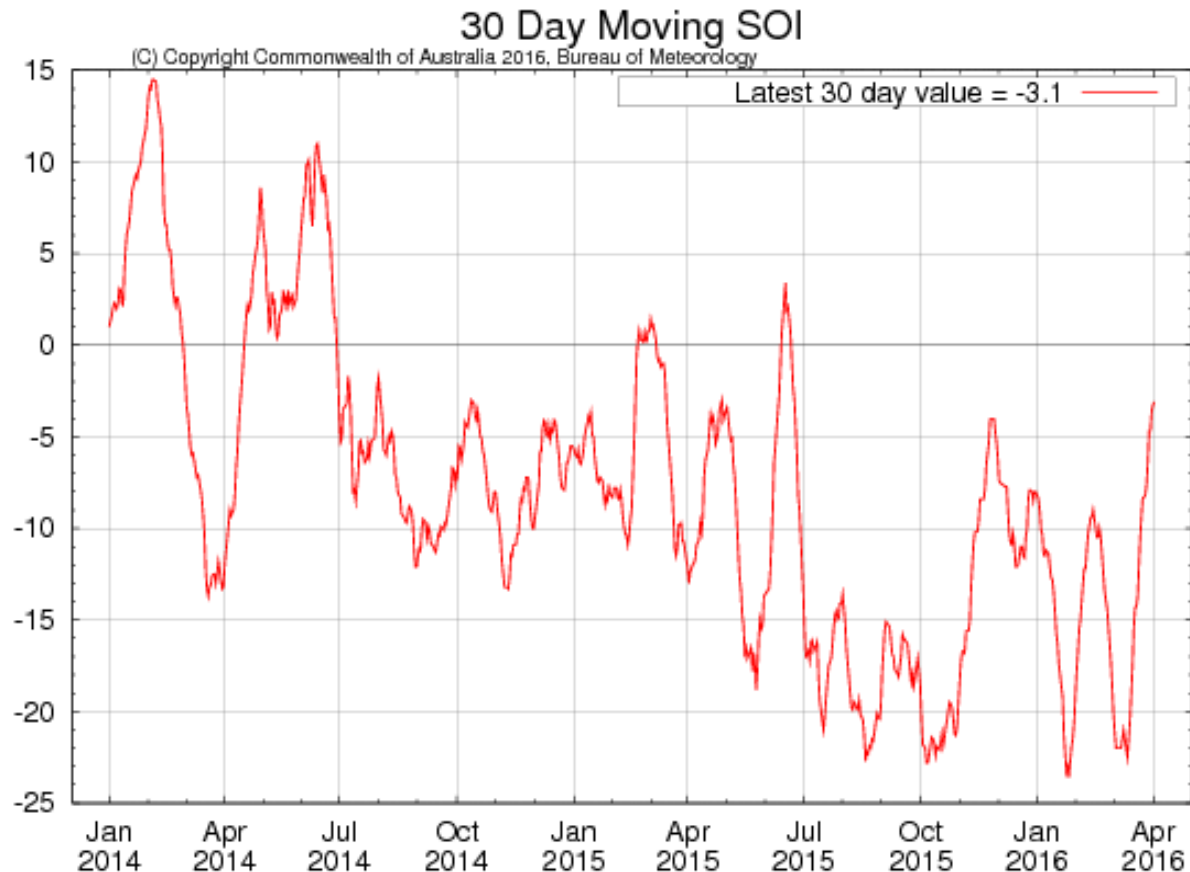
ANOMALIA DE LA PRESION A NIVEL DEL MAR – 2016 MARZO



ANOMALIA DE LA PRESION A NIVEL DEL MAR – 2016 FEBRERO



Índice de Oscilación del Sur

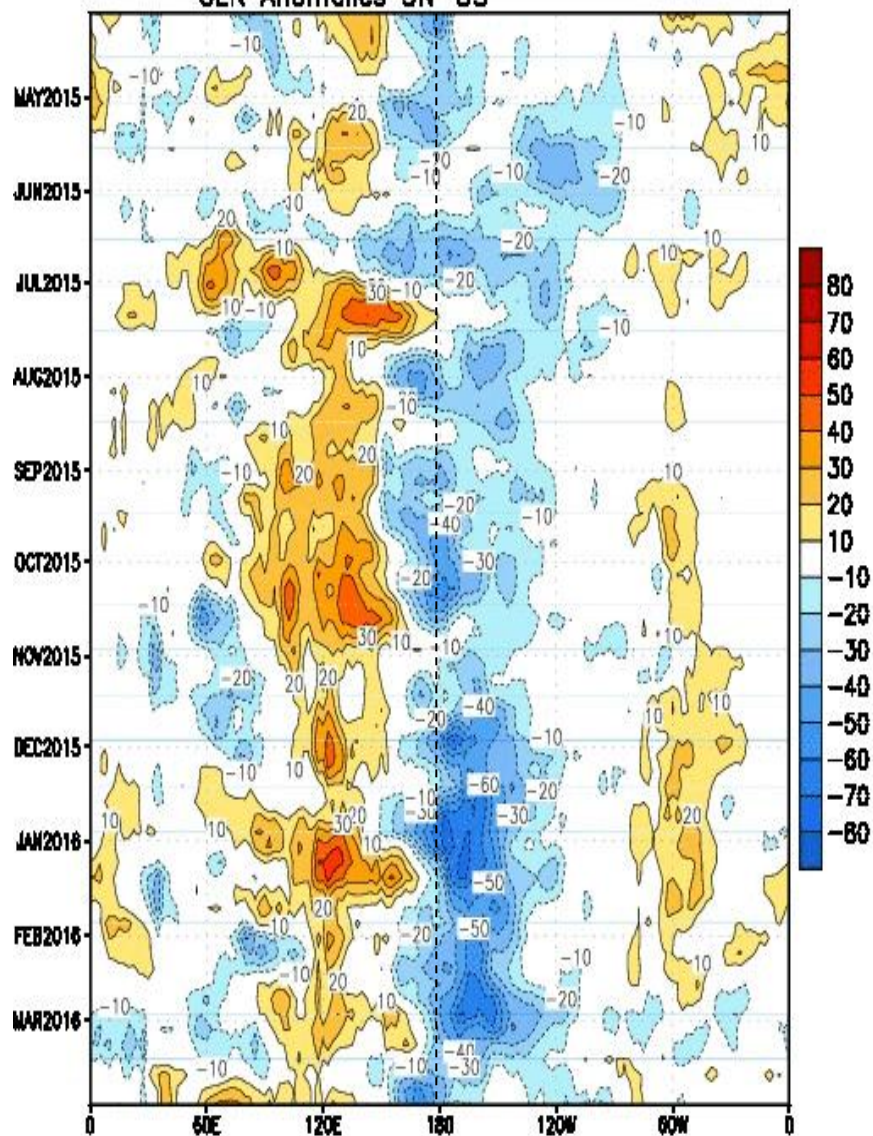


FUENTE: BUREAU OF METEOROLOGY

2016/03/04 – 2016/04/02 :-3.1

(rango de valores normales ± 7)

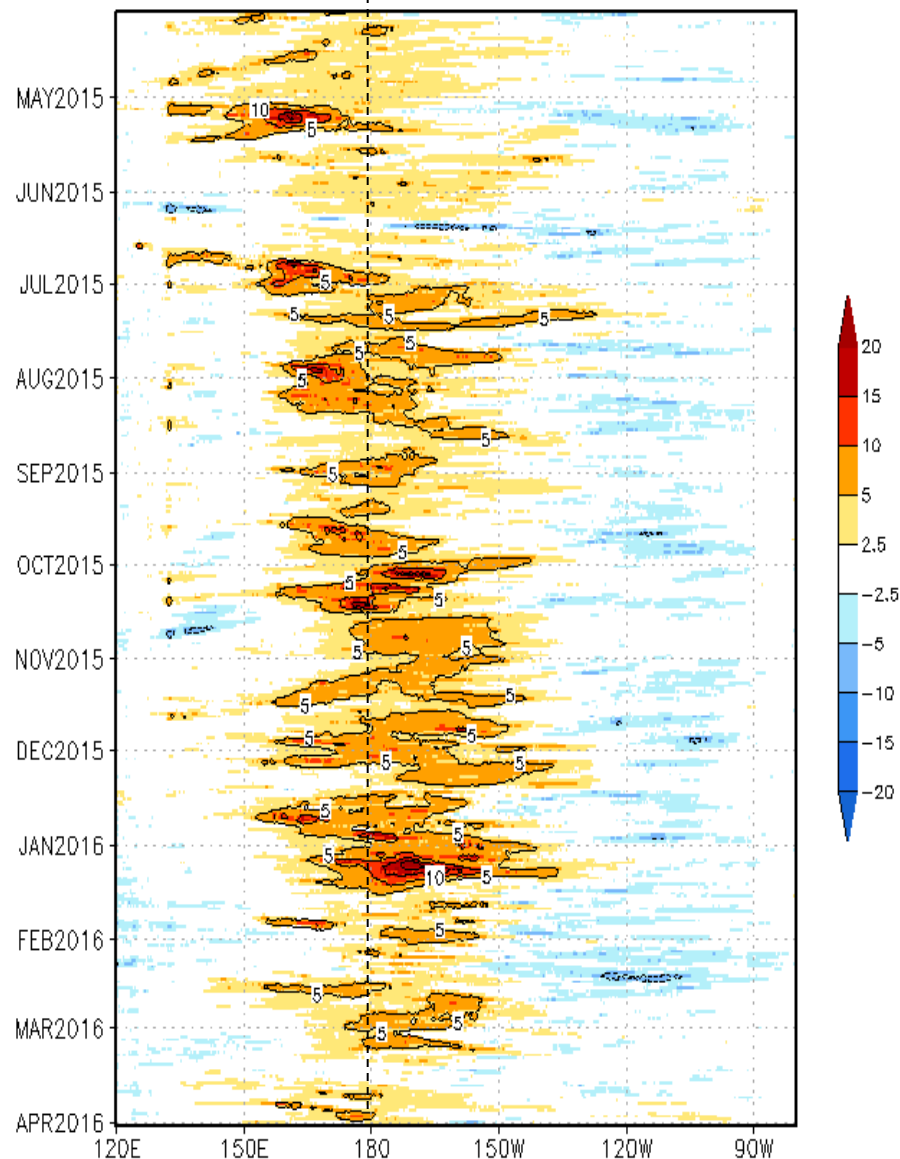
OLR Anomalies 5N-5S



Data updated through 29 MAR 2016

CLIMATE PREDICTION CENTER/NCEP

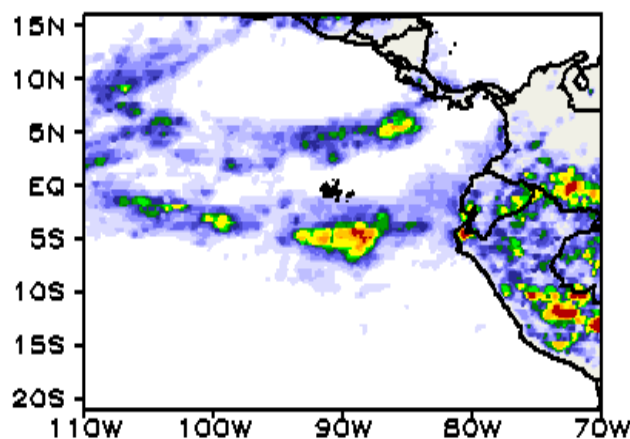
Anomalia de esfuerzo de viento zonal (10^2 Nm^{-2})
promediada entre 2S y 2N



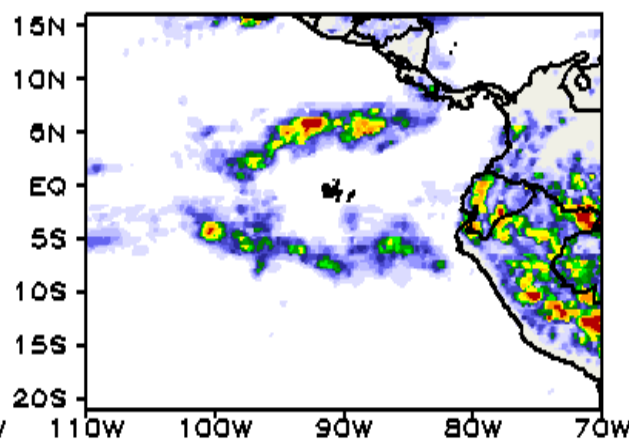
Datos ASCAT, Procesamiento:IGP, Ultima data:02Apr2016

TRMM - PRECIPITACION ACUMULADA CADA 5 DIAS - MARZO 2016

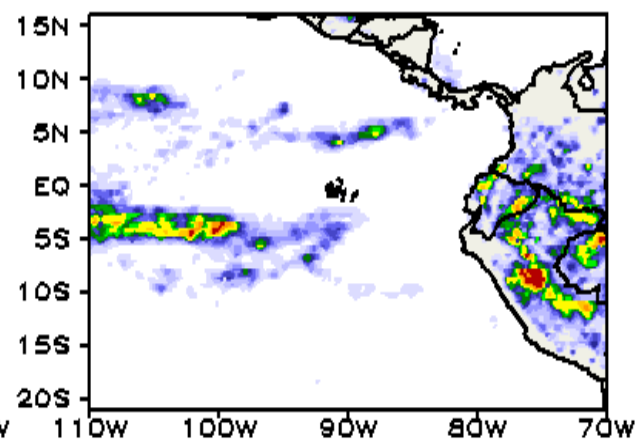
DIAS 1 AL 5



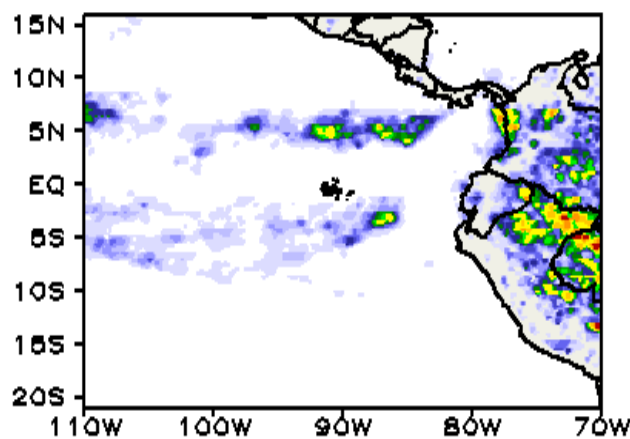
DIAS 6 AL 10



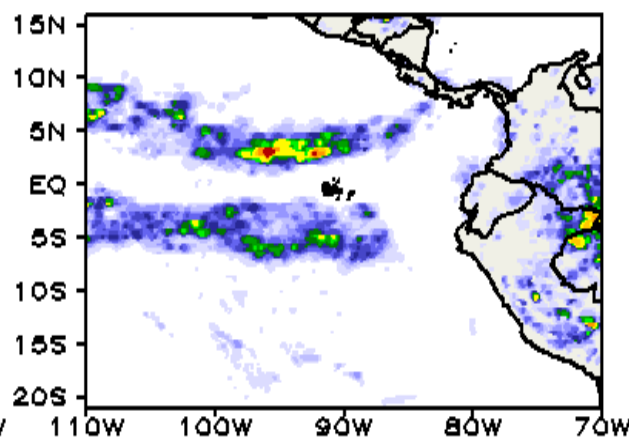
DIAS 11 AL 15



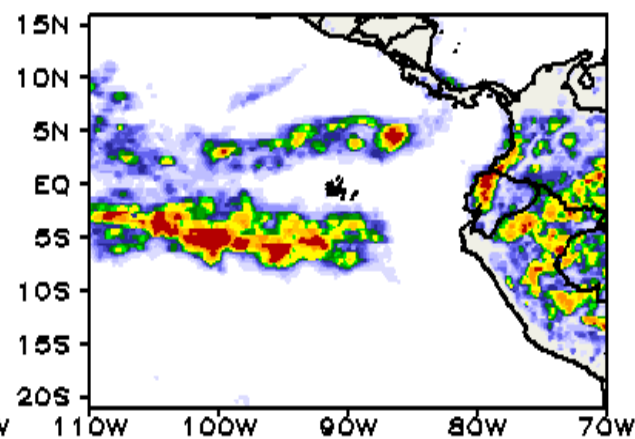
DIAS 16 AL 20



DIAS 21 AL 25

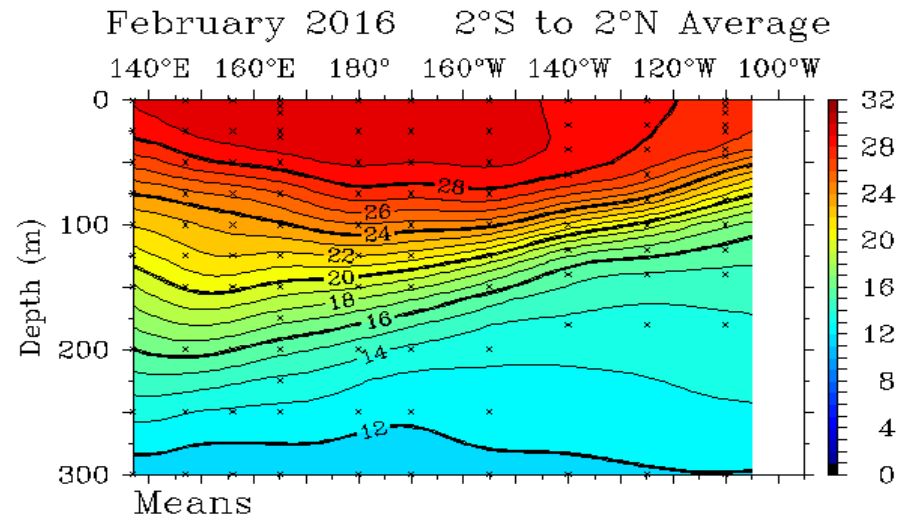


DIAS 26 AL 31

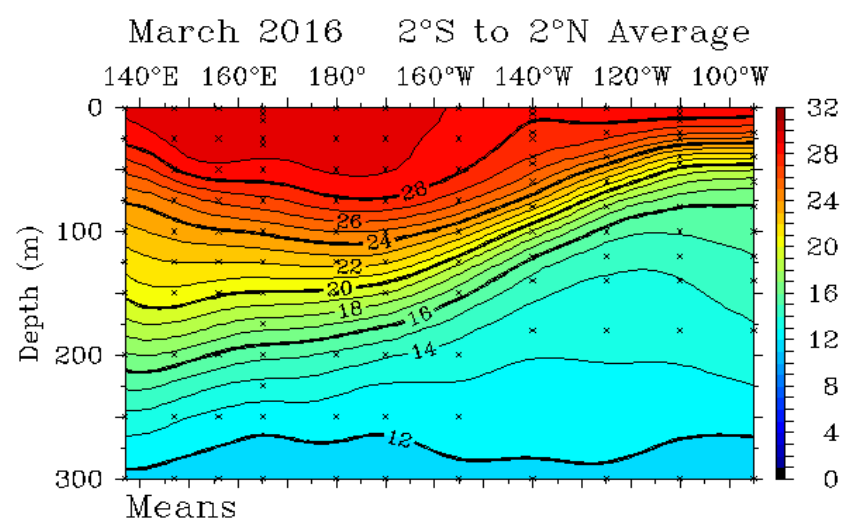
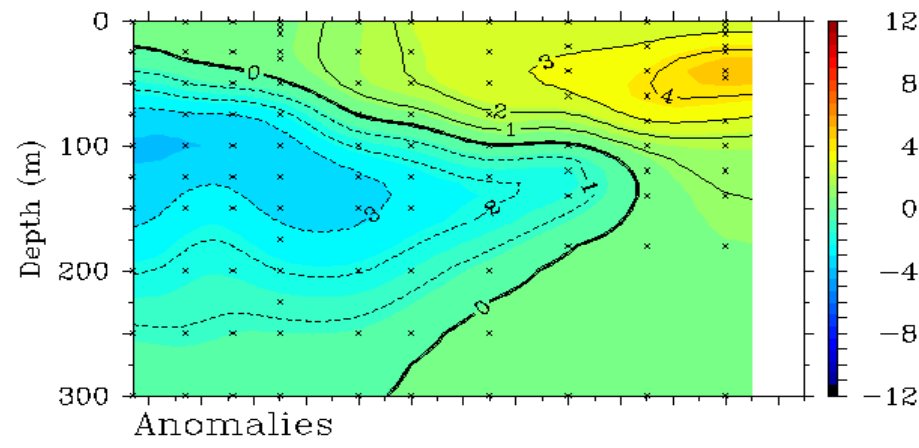
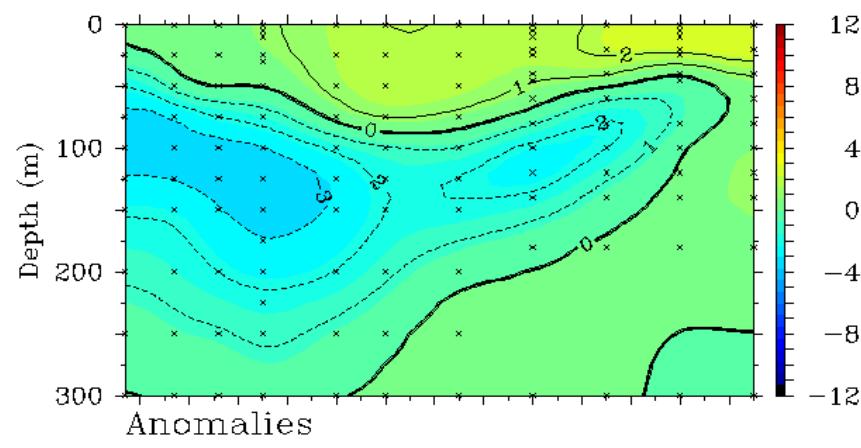


Anomalía de la Temperatura subsuperficial (Febrero, 2S – 2N)

1- 29 Febrero

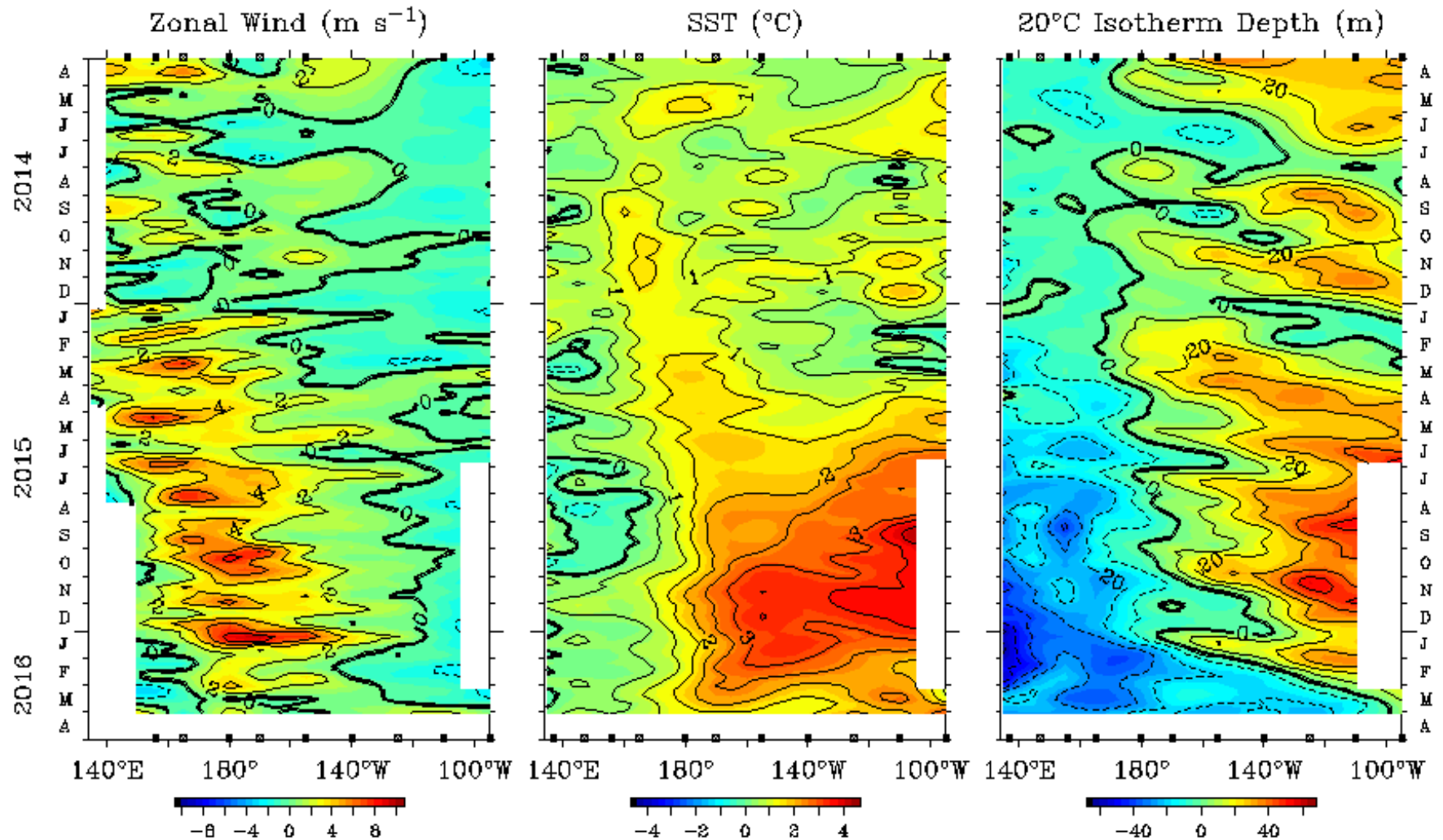


1 – 31 Marzo



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



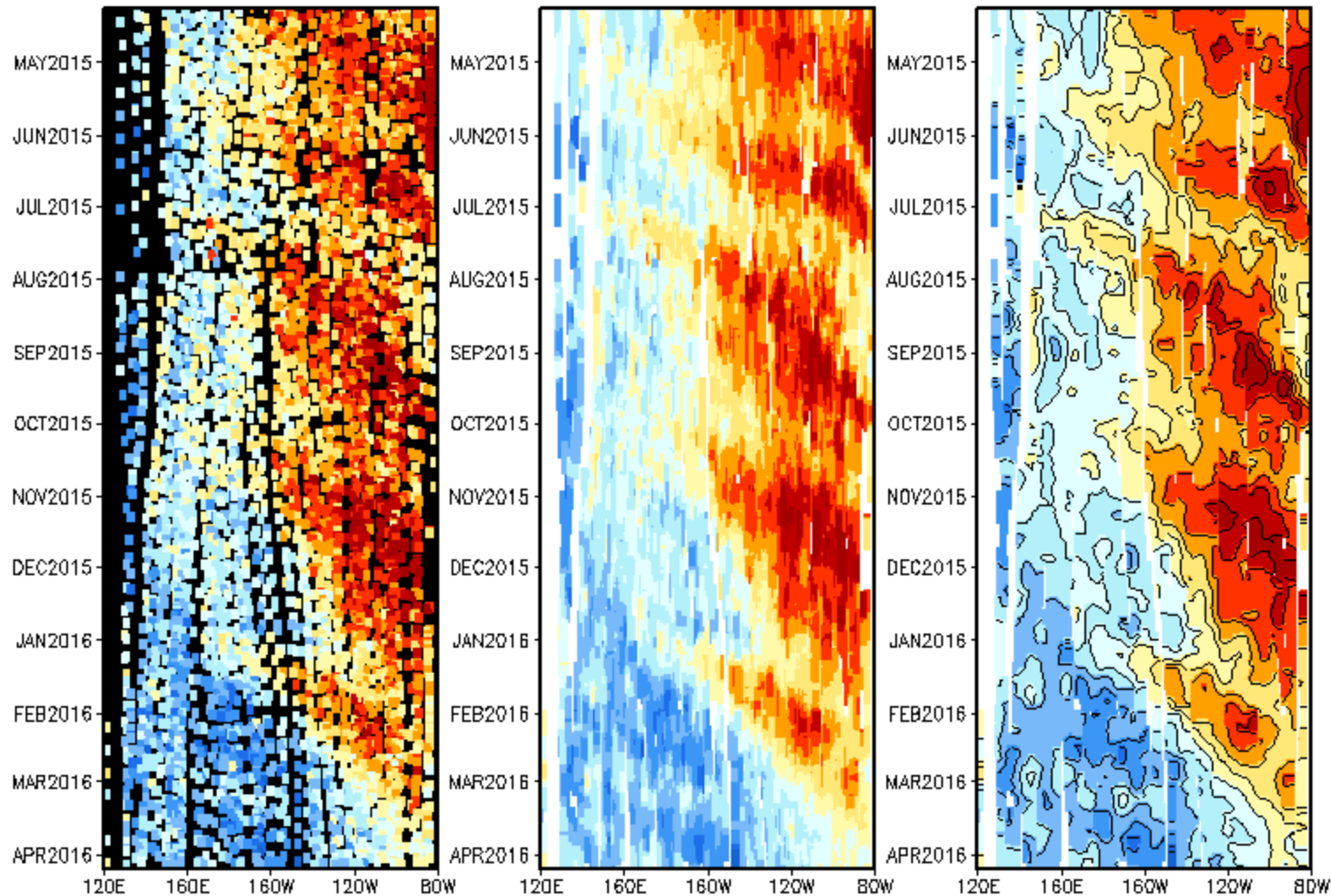
Análisis de boyas ARGO a lo largo de la línea ecuatorial

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

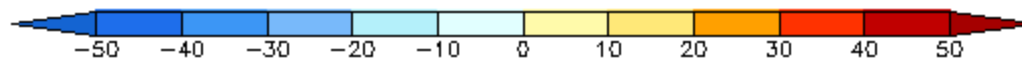
a) Gridded profiles

b) 11-day mean

c) Smoothed 11-day mean



Data: Argo, Processing: IGP, Clím: 1980–2009 (GODAS), Last data: 07APR2016

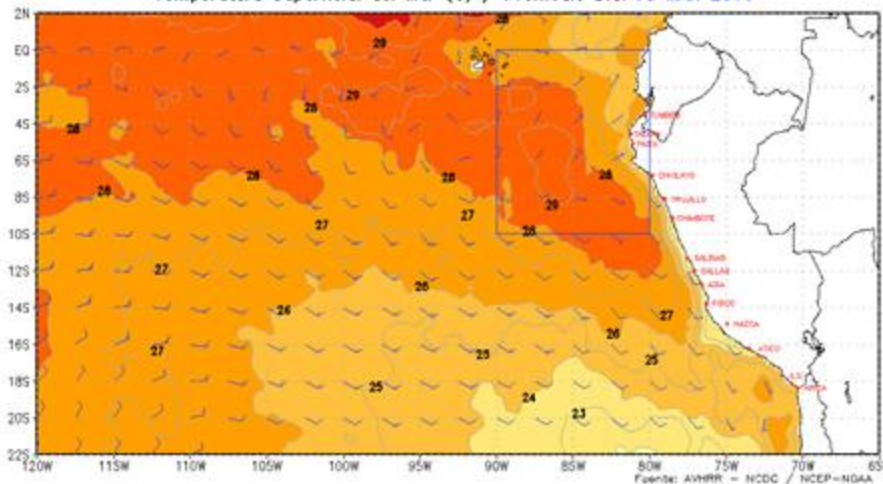




TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO SUDORIENTAL

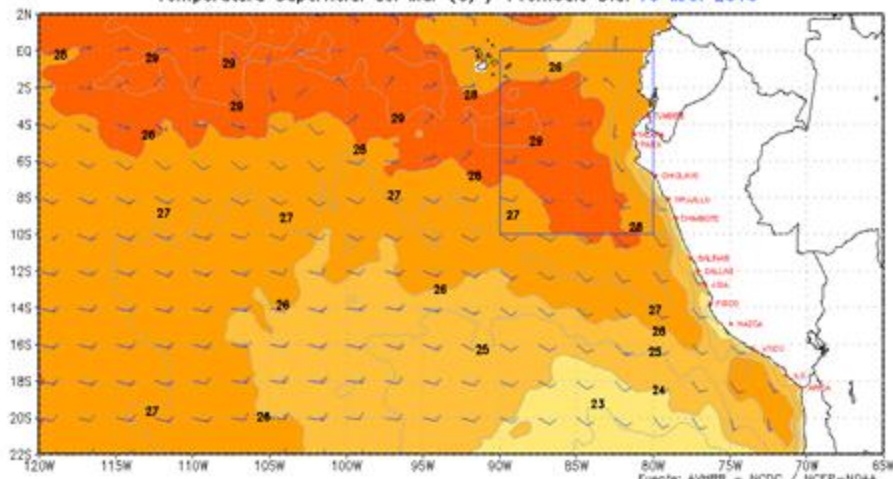
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

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



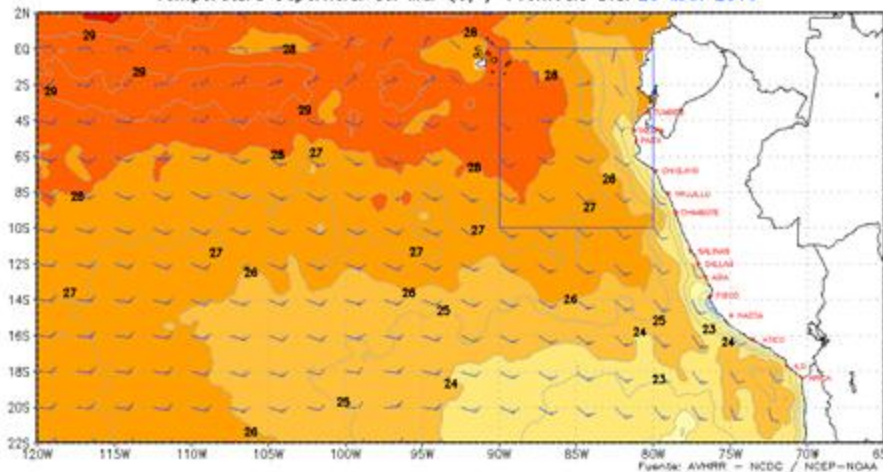
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

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



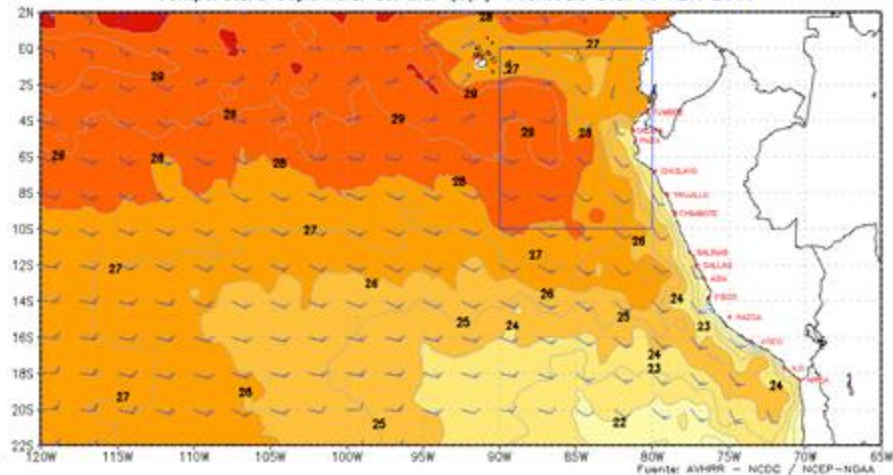
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Temperatura Superficial del Mar (C) / Promedio Dia: 20 MAR 2016



DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Temperatura Superficial del Mar (C) / Promedio Dia: 03 ABR 2016

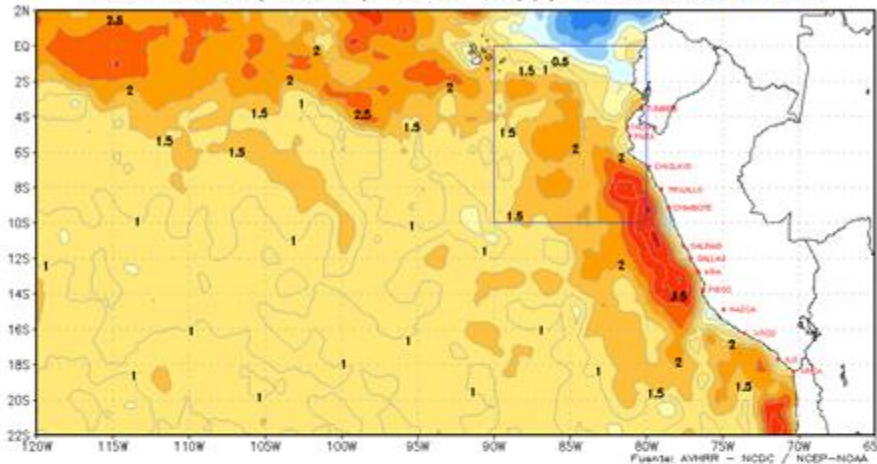




ANOMALÍAS DE LA TEMPERATURA SUPERFICIAL DEL MAR EN EL PACÍFICO SUDORIENTAL

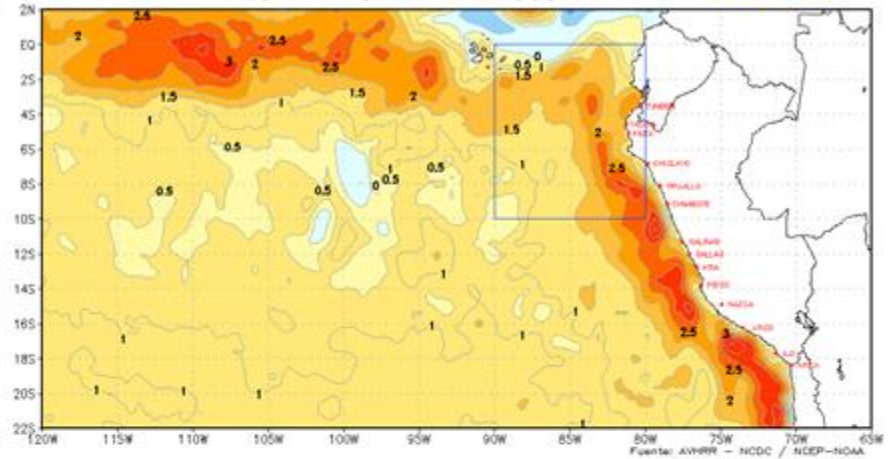
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

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



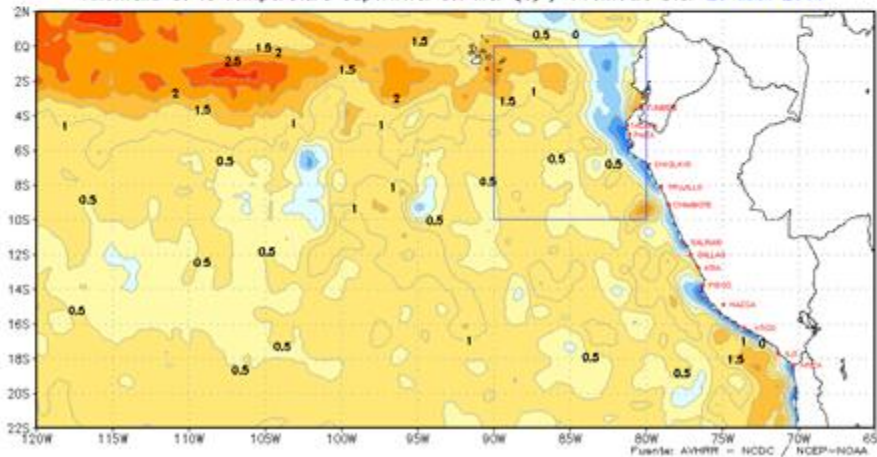
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

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



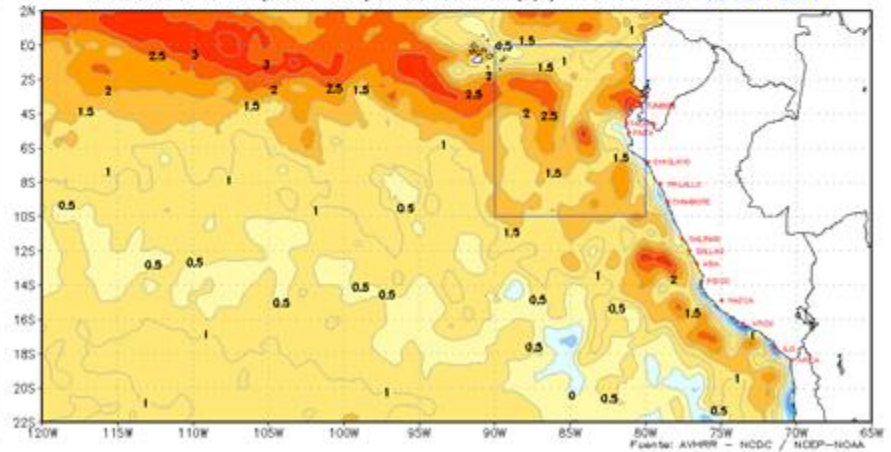
DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 20 MAR 2016



DIRECCION DE HIDROGRAFIA Y NAVEGACION
DPTO OCEANOGRAFIA – DIV METEOROLOGIA

Anomalia de la Temperatura Superficial del Mar (C) / Promedio Dia: 03 ABR 2016



Valores del Índice Costero El Niño

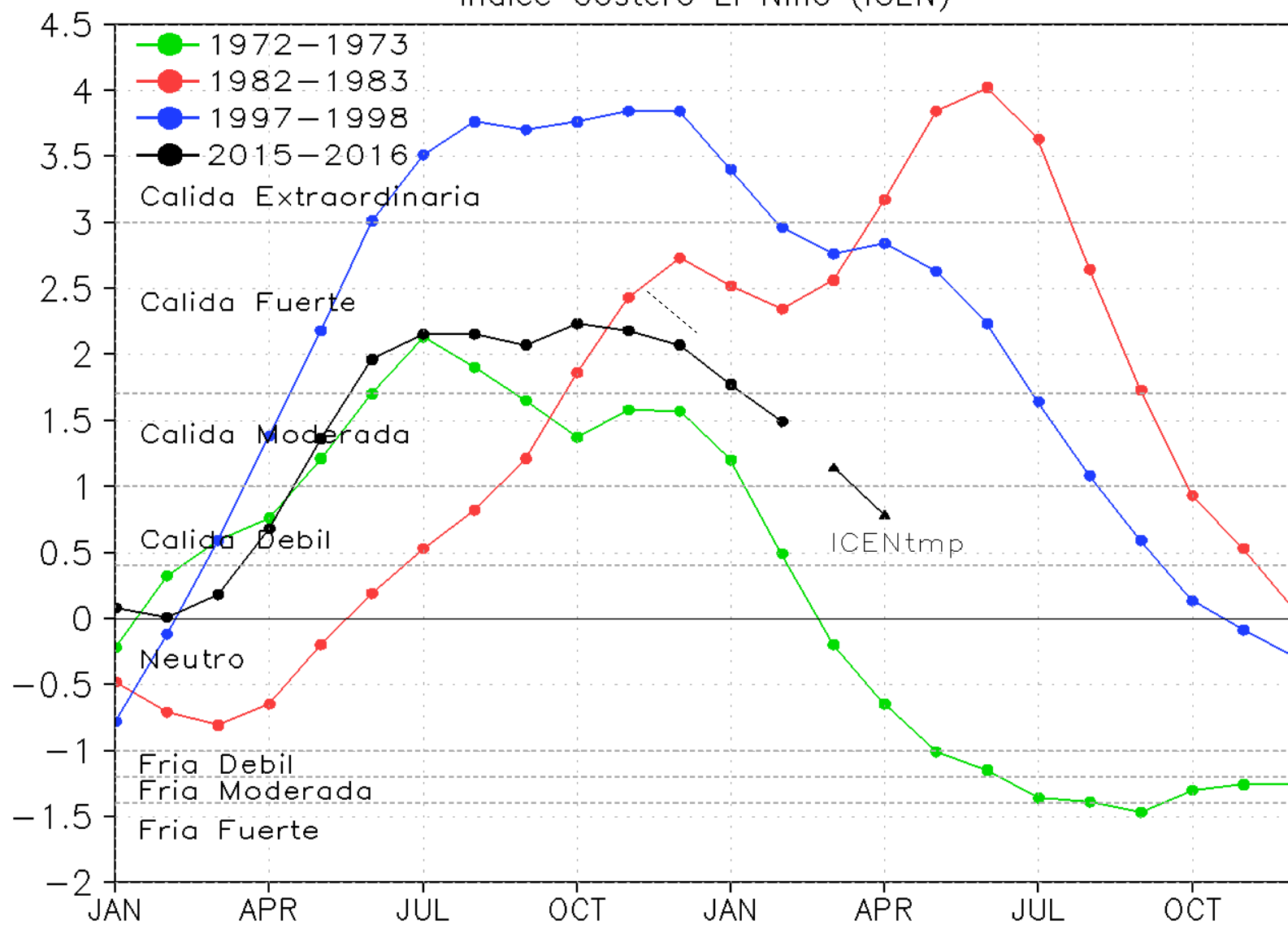
Mes	ICEN	Categoría
06/2015	1.96	Cálida Fuerte
07/2015	2.15	Cálida Fuerte
08/2015	2.15	Cálida Fuerte
09/2015	2.07	Cálida Fuerte
10/2015	2.23	Cálida Fuerte
11/2015	2.18	Cálida Fuerte
12/2015	2.07	Cálida Fuerte
01/2016	1.77	Cálida fuerte
02/2016	1.49	Cálida Moderada

Mes	ICENtmp	Categoría
03/2016	1.14 *	Cálida Moderada
04/2016	0.78**	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

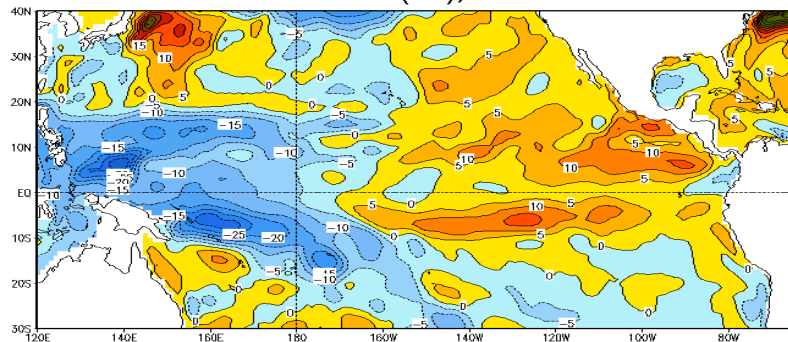
Indice Costero El Nino (ICEN)



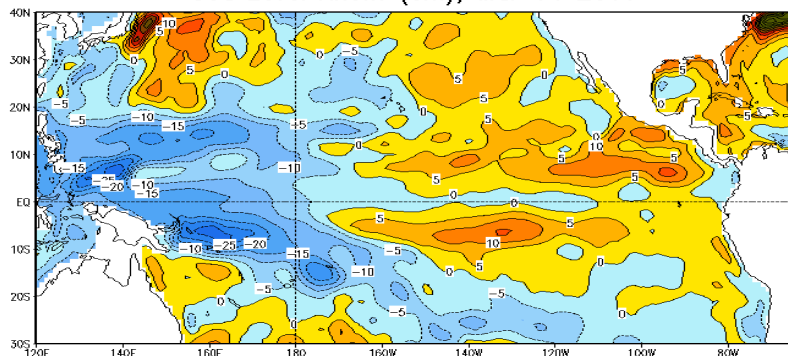


ANOMALÍAS DEL NIVEL DEL MAR EN EL PACÍFICO TROPICAL

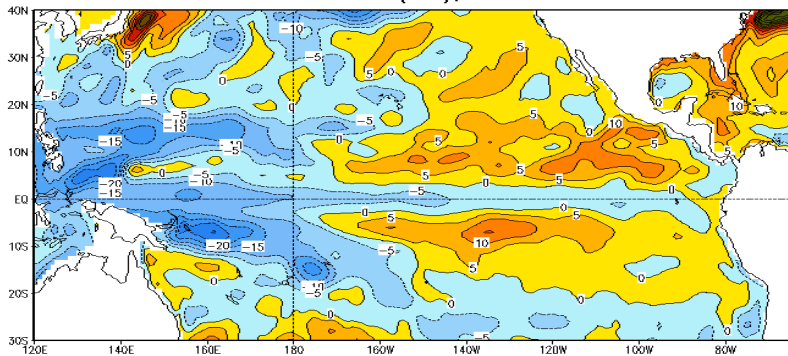
Sea Level Anom (cm), Mar 04 2016



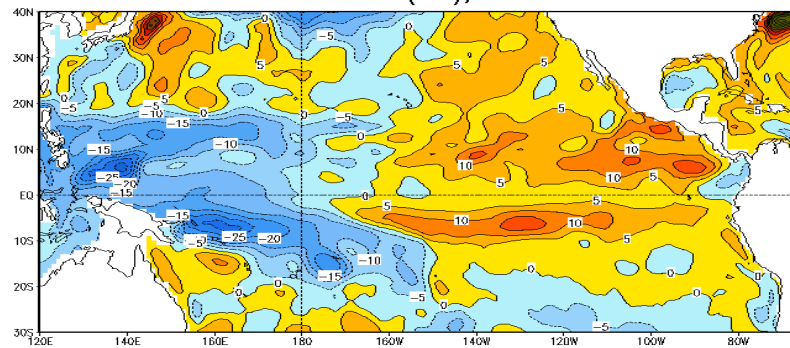
Sea Level Anom (cm), Mar 14 2016



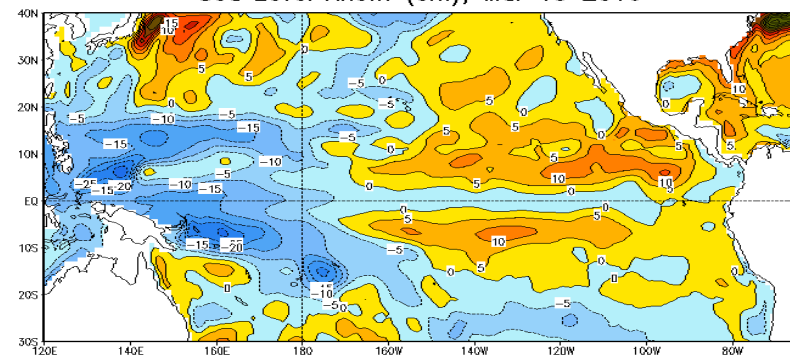
Sea Level Anom (cm), Mar 24 2016



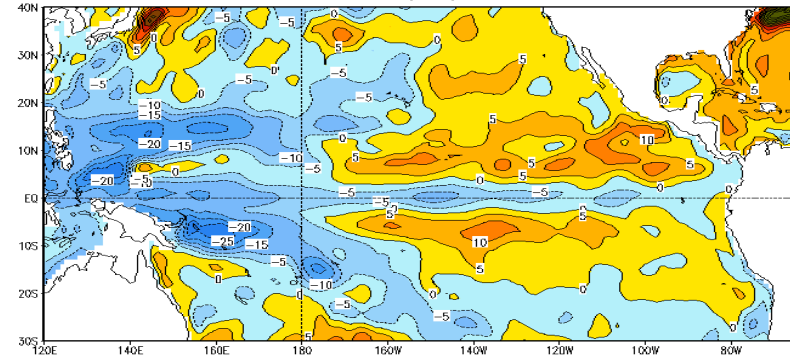
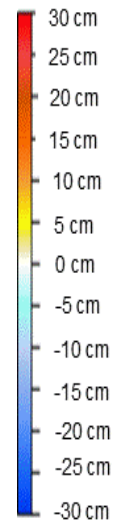
Sea Level Anom (cm), Mar 09 2016



Sea Level Anom (cm), Mar 19 2016

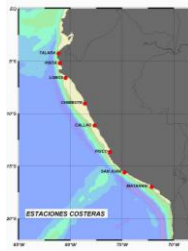
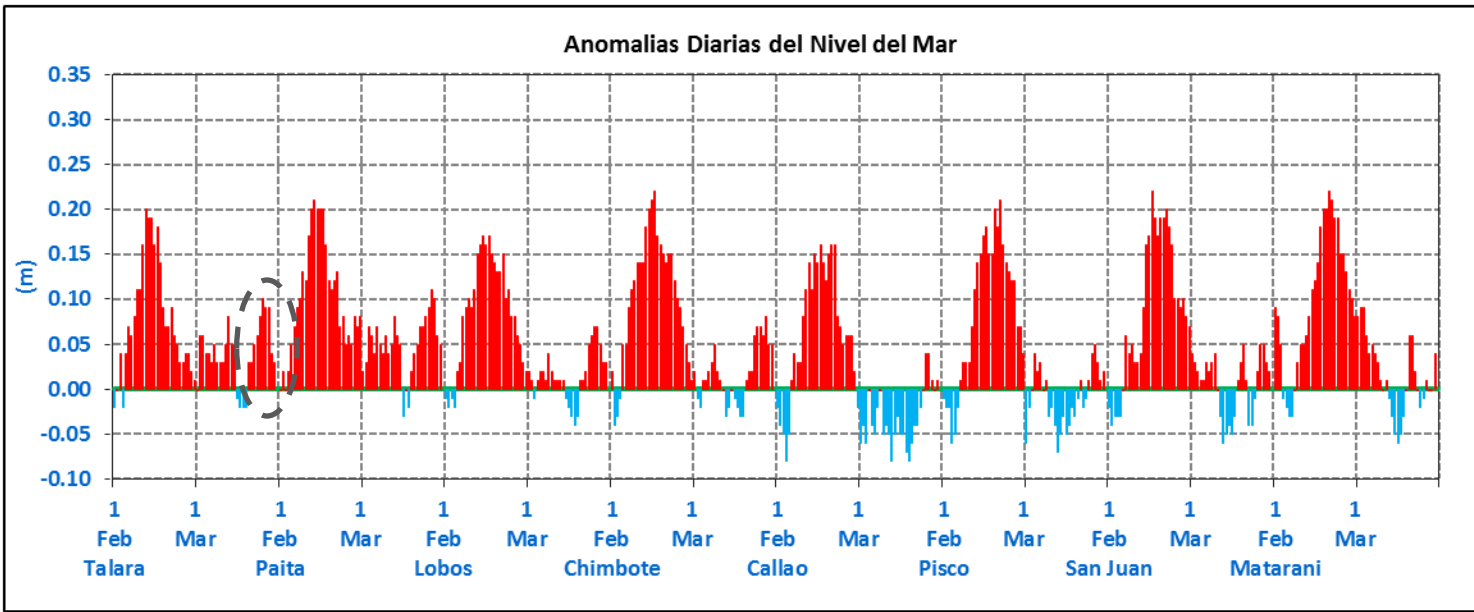


Sea Level Anom (cm), Mar 29 2016





ANOMALÍAS DEL NIVEL MEDIO DEL MAR EN EL LITORAL PERUANO

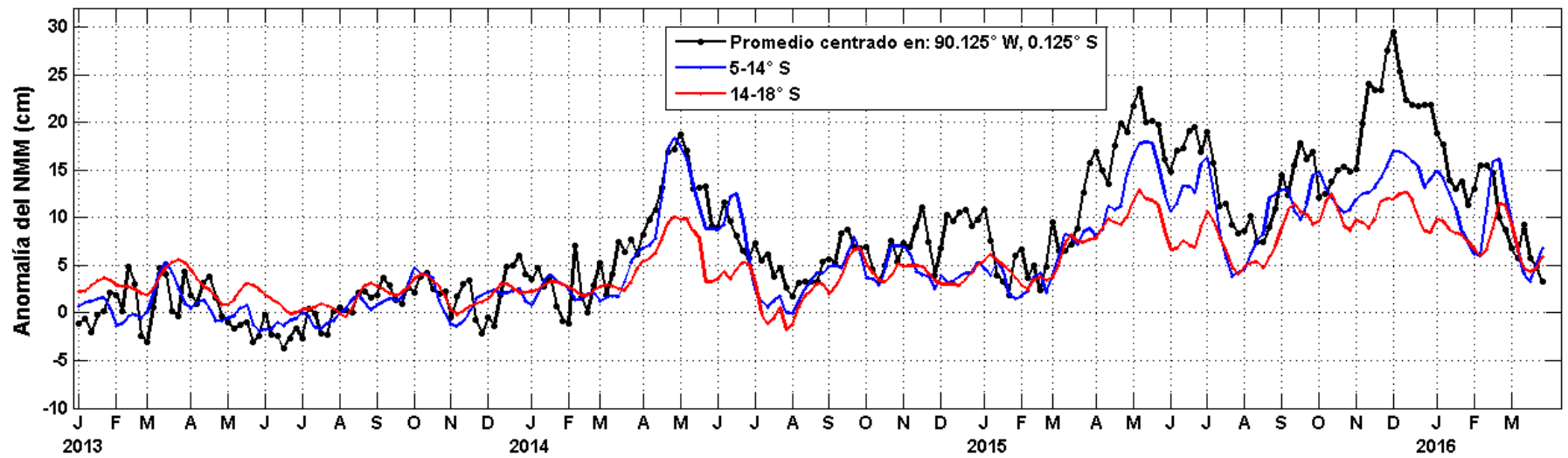


Estación	ANMM (cm) 2015												2016		
	Ene.	Feb.	Mar.	Abr.	May.	Jun.	Jul.	Ago.	Set.	Oct.	Nov.	Dic.	Ene.	Feb.	Mar.
Talara	0	-1	5	16	19	15	10	12	16	13	18	19	5	8	4
Paíta	2	0	4	14	20	16	12	13	17	15	19	21	8	10	5
Isla Lobos de Afuera	1	-	-	11	15	14	7	9	11	9	13	15	7	7	2
Chimbote	0	1	4	10	15	15	7	10	12	9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

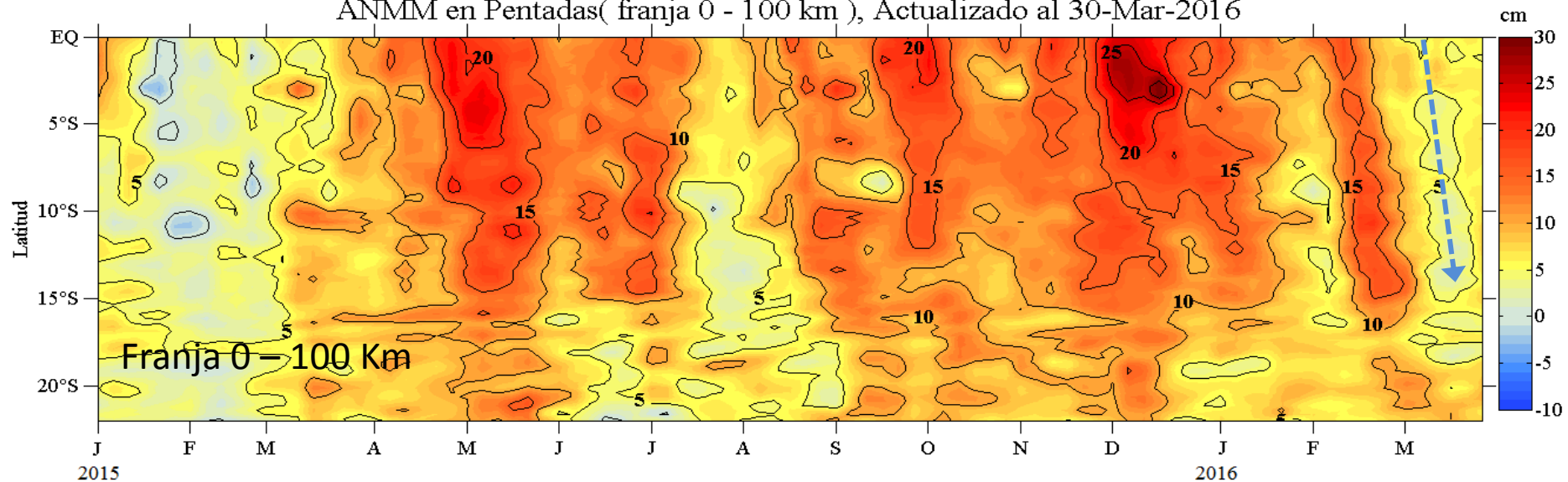
Promedios Diarios NMM		
Estación	Domingo 3 Abril 2016	
	NMM (m)	ANMM(m)
Talara	0.91	+0.01
Paíta	0.82	-0.01
I. Lobos de Afuera	0.73	-0.02
Chimbote	0.65	+0.02
Callao	0.54	-0.04
Pisco	0.50	+0.01
San Juan	0.49	+0.05
Matarani	0.63	+0.08

Anomalías del nivel medio del mar al 30.03

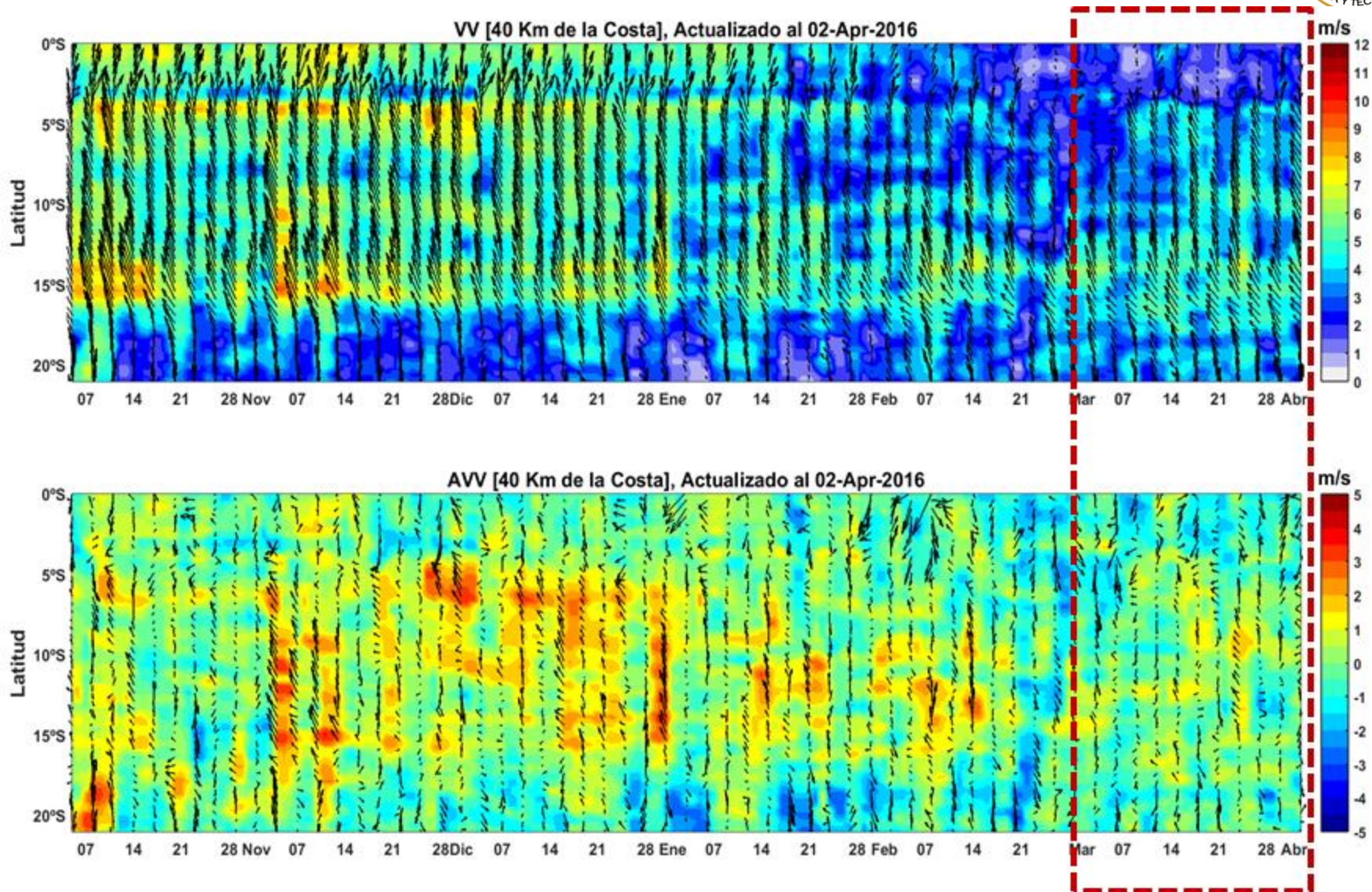
PROMEDIO 0-100 km (Pentadas al 30-Mar-2016)



ANMM en Pentadas(franja 0 - 100 km), Actualizado al 30-Mar-2016



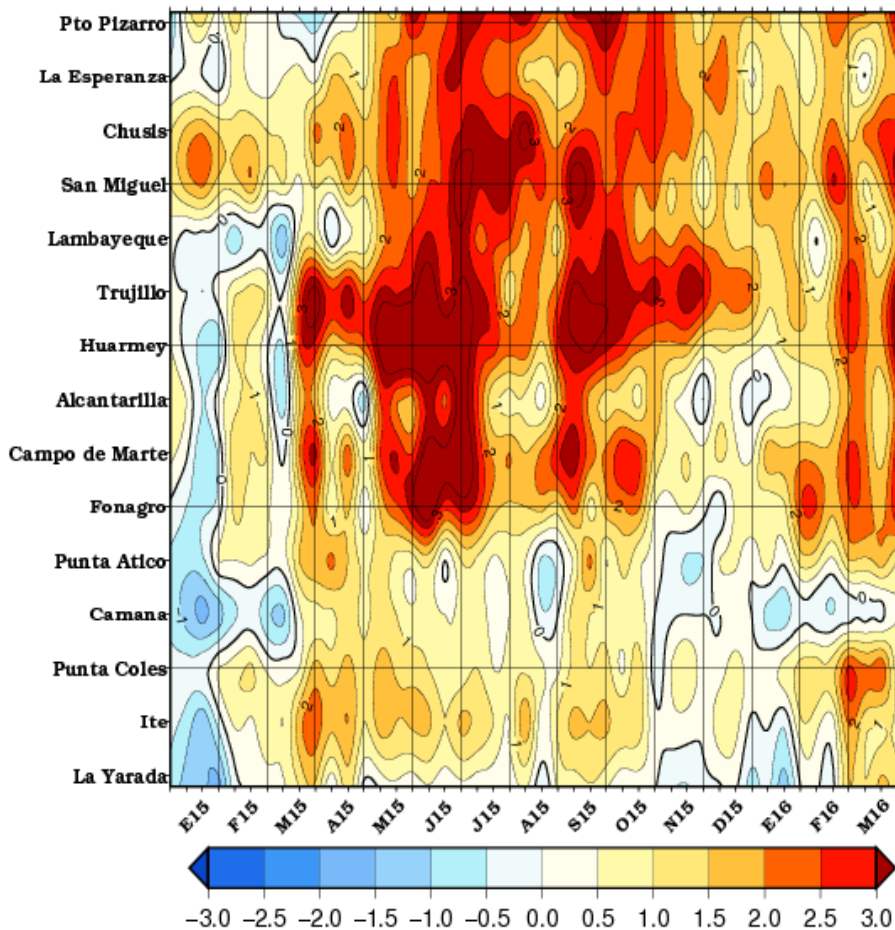
Velocidad y Anomalías del Viento (ASCAT)



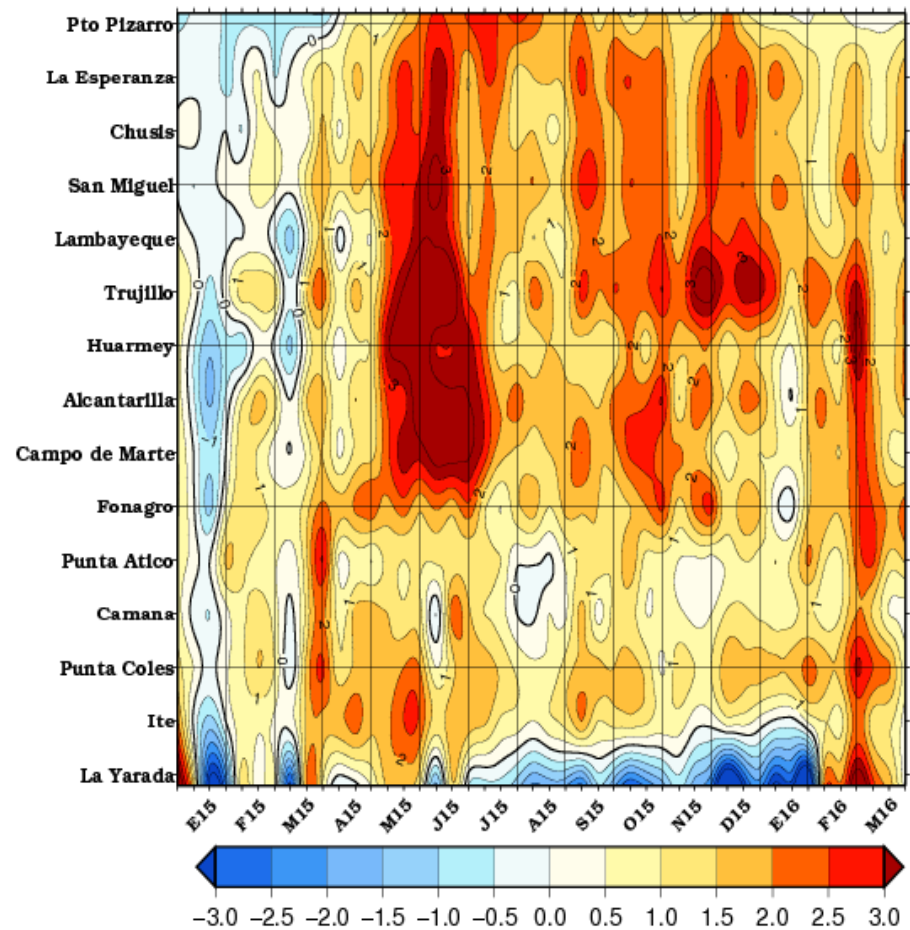
Viento Satelital (40 Km frente a la costa del Perú): a) Velocidad del viento (m/s), b) Anomalía de la velocidad del viento (m/s). Fuente: Satélite ASCAT, Procesamiento: Laboratorio de Hidro-Física Marina, IMARPE.

TEMPERATURAS EXTREMAS DEL AIRE

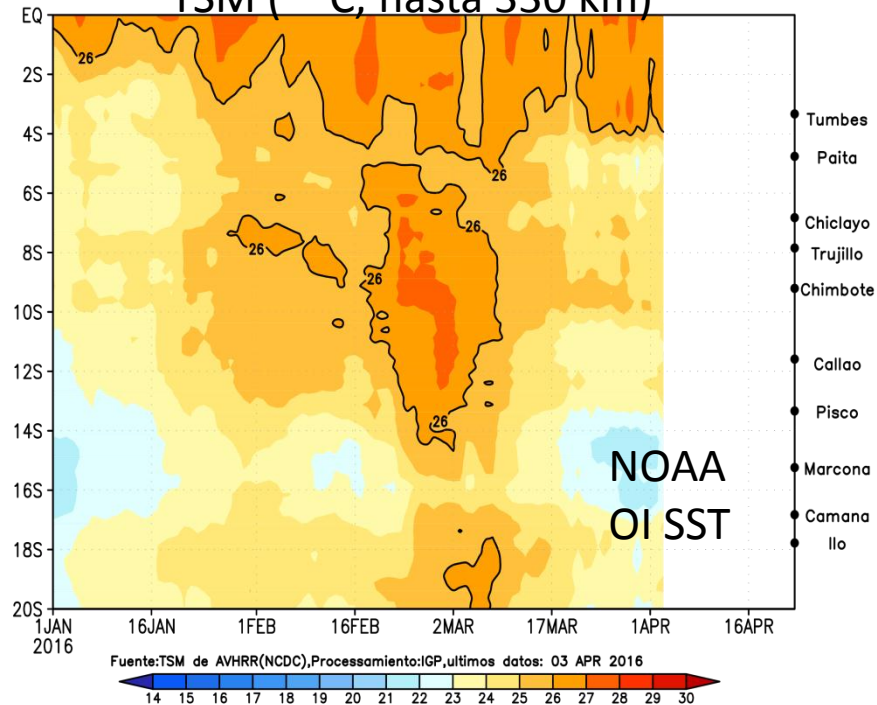
Anomalías de la
Temperatura Máxima



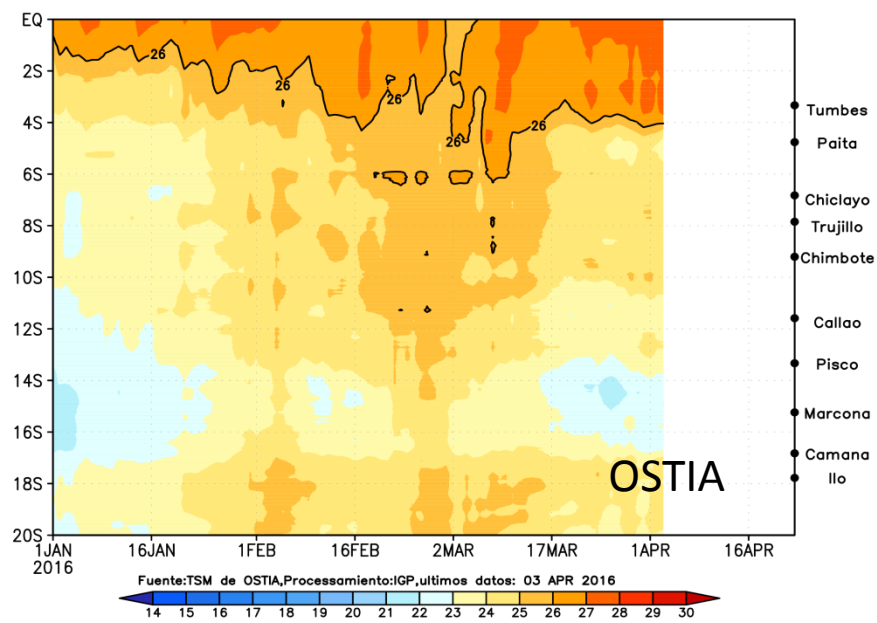
Anomalía de la
Temperatura Mínima



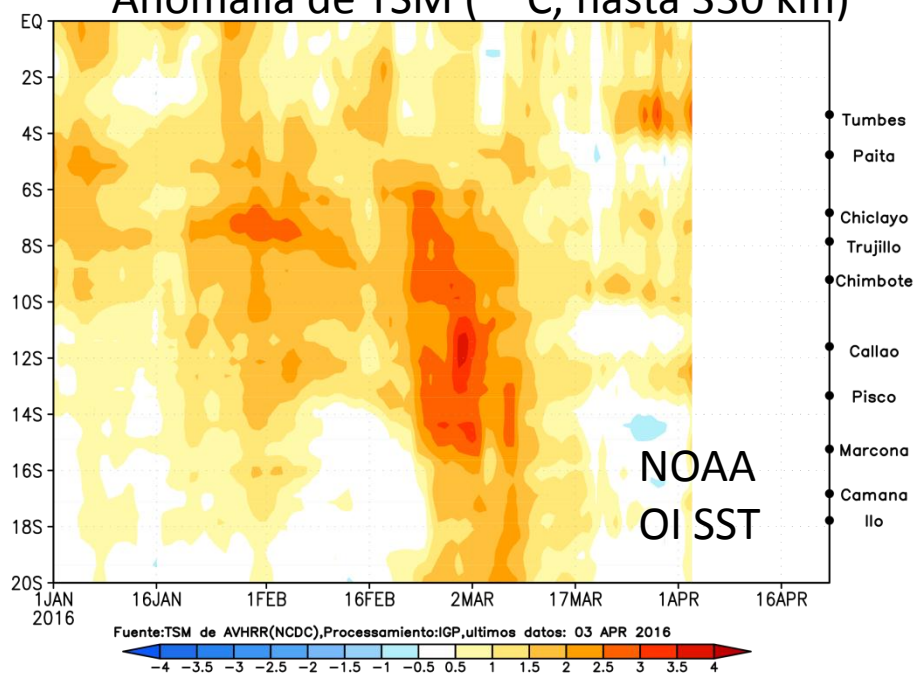
Temperatura superficial del mar (°C) hasta 330Km



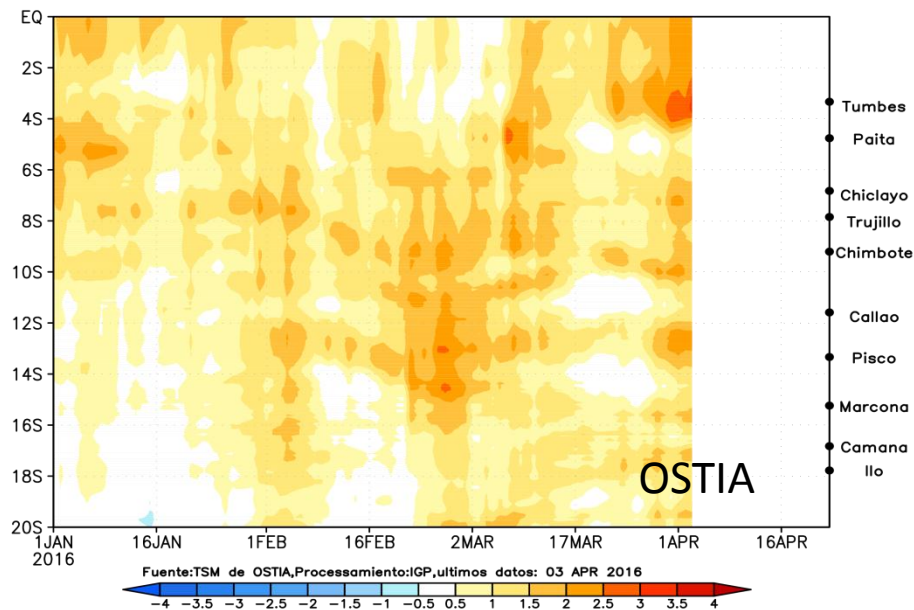
Temperatura superficial del mar (C) hasta 330Km



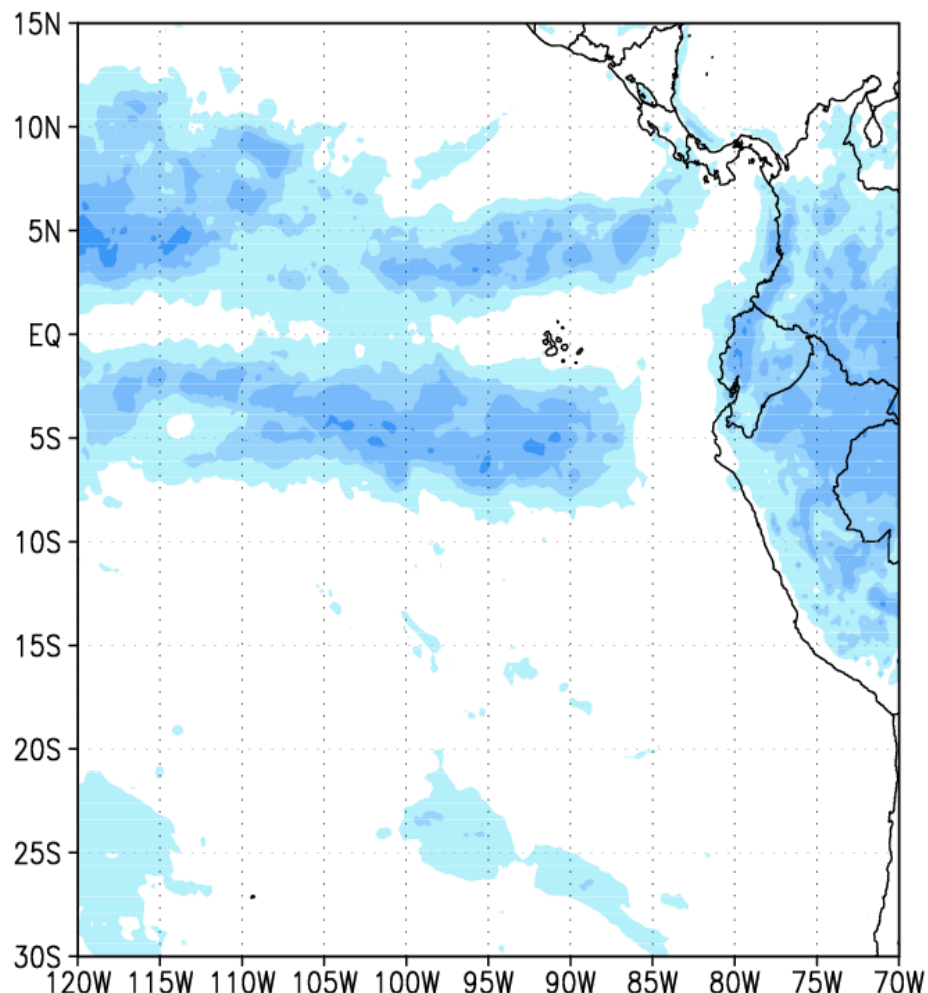
Anomalia de temperatura superficial del mar (°C) hasta 330Km



Anomalia de temperatura superficial del mar (C) hasta 330Km



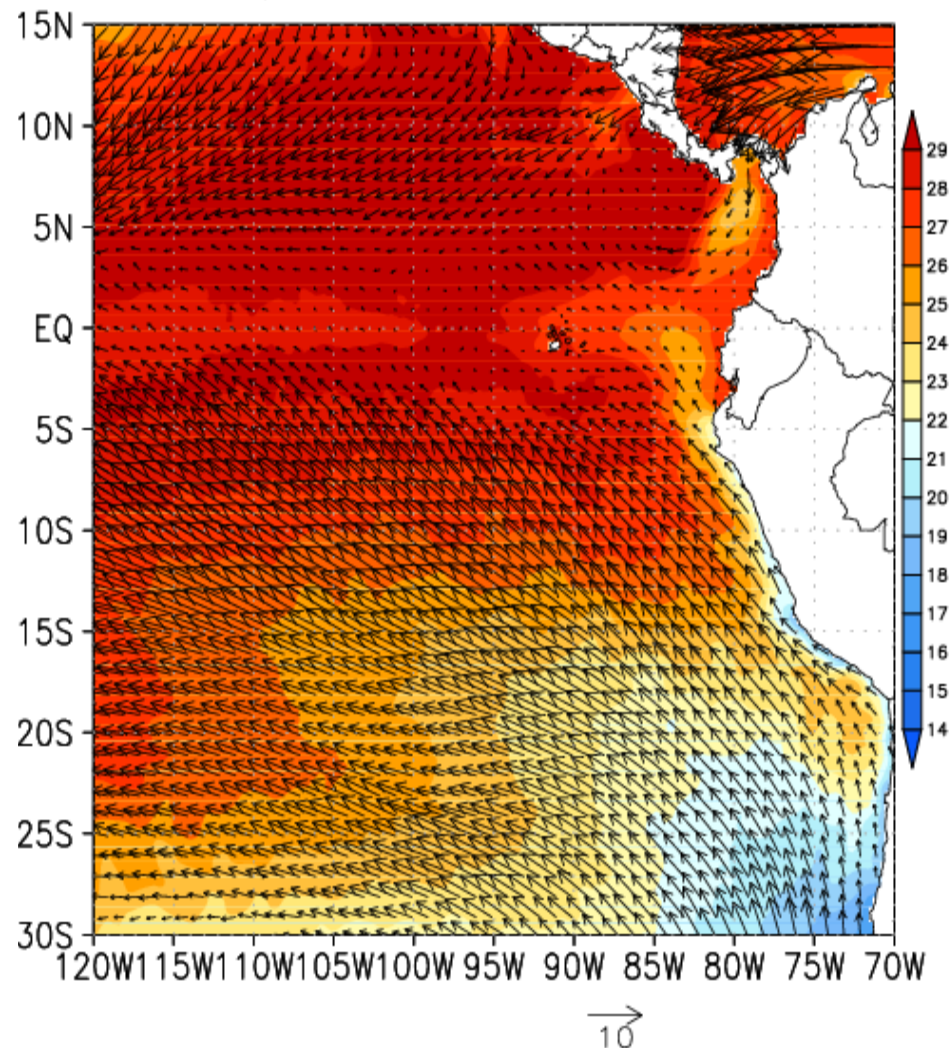
Precipitación promedio (mm/día)
últimos 15 días



Fuente: TRMM-3B42-RT, Procesamiento: IGP, Últimos datos: 03APR2016
Climatología: 2001-2014

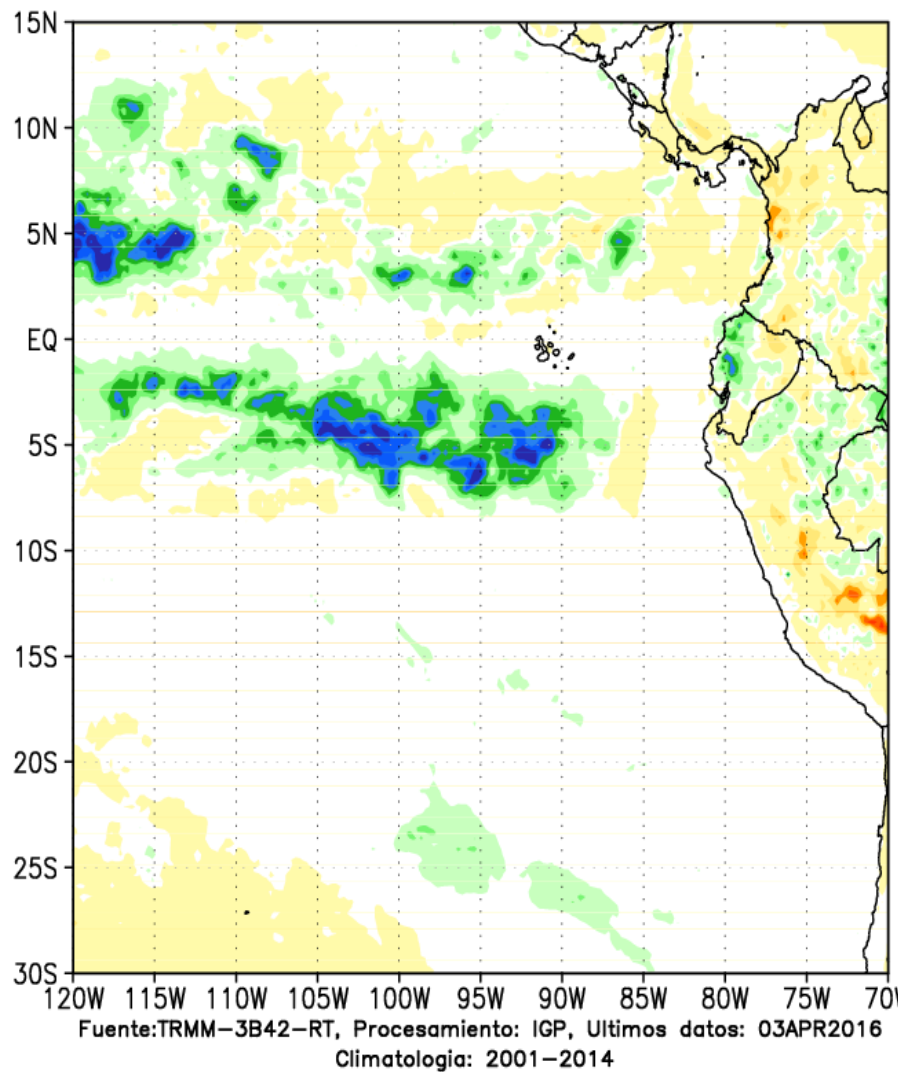


Temperatura superficial del mar (C)
Esfuerzo de viento ($N \cdot m^{-2} \cdot 10^{-2}$)
promedio de los últimos 15 días

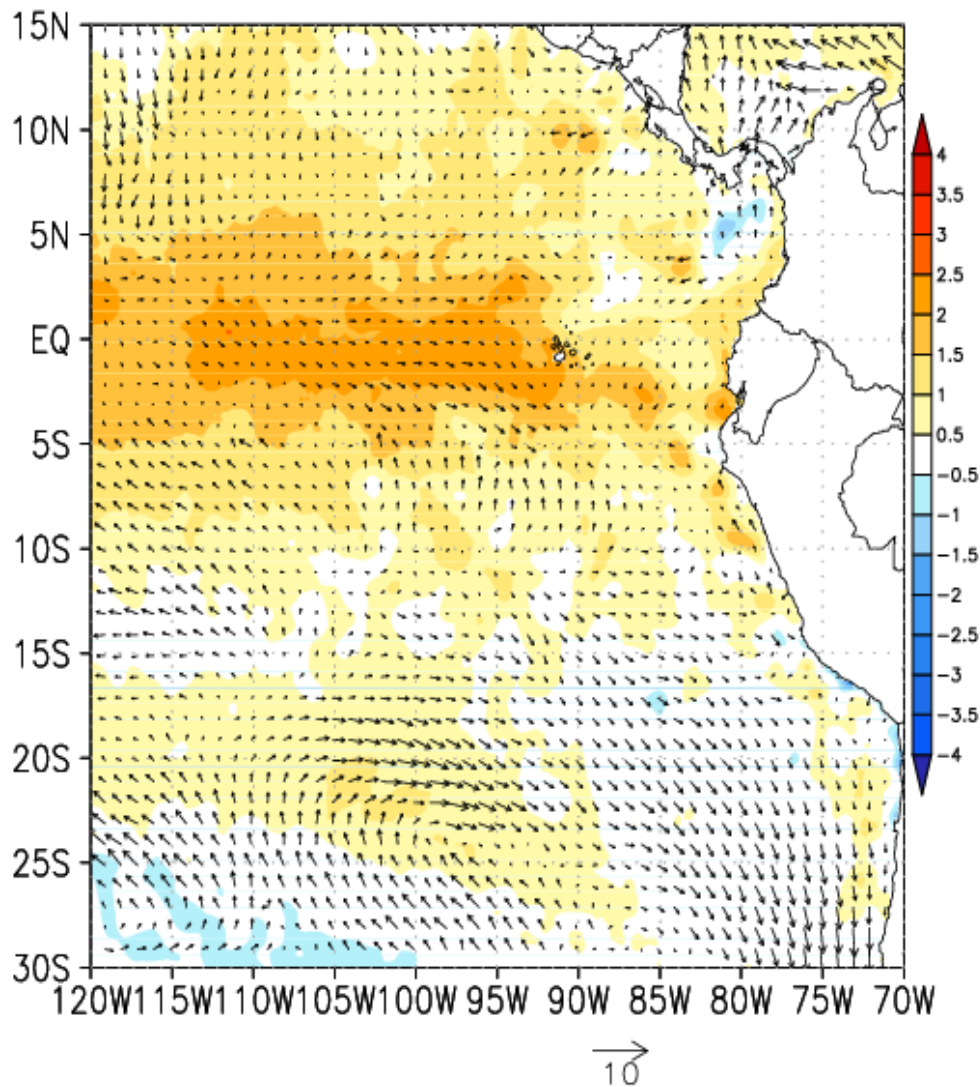


Fuente: TSM(AVHRR-NCDC), clim: 1982-2011
vientos(ASCAT-Ifremer), clim 2008-2014 corregido con ERA

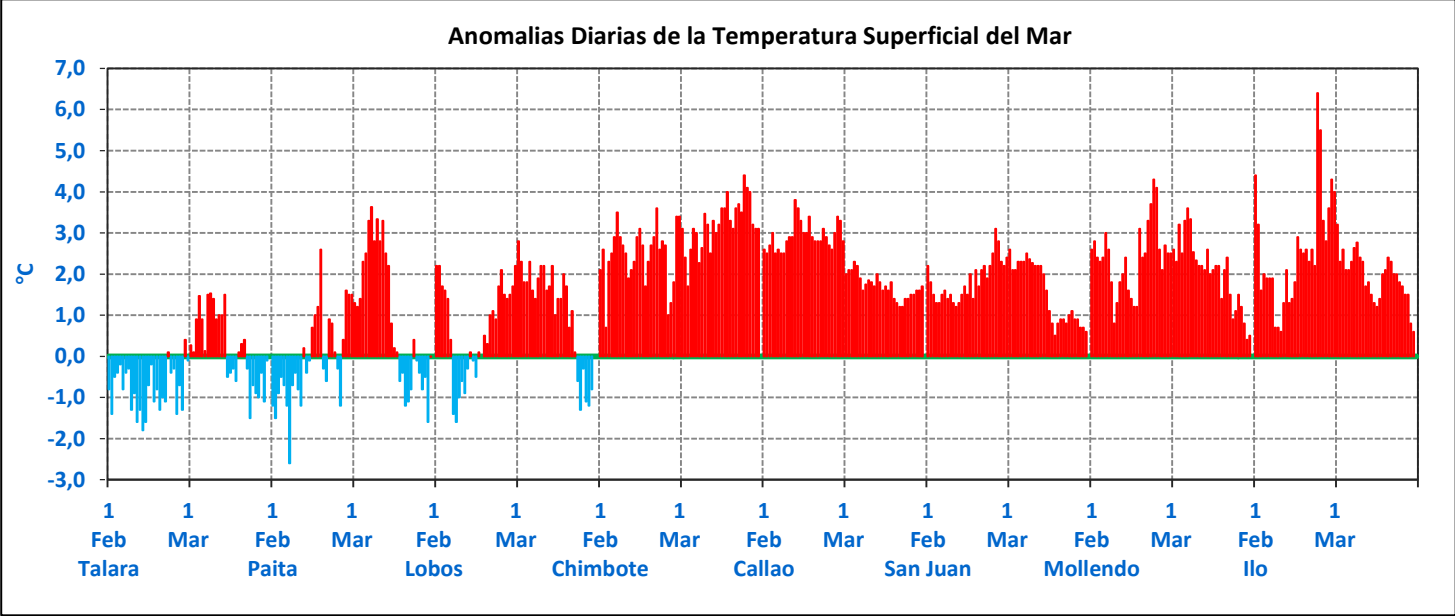
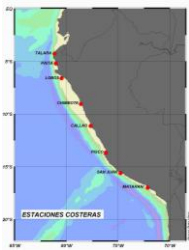
Anomalia de precipitación (mm/día)
ultimos 15 días



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



Anomalías de Temperatura Superficial del Mar en el litoral



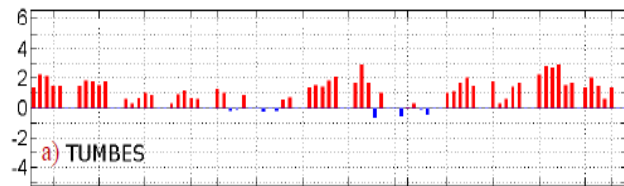
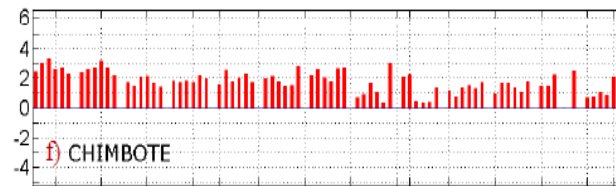
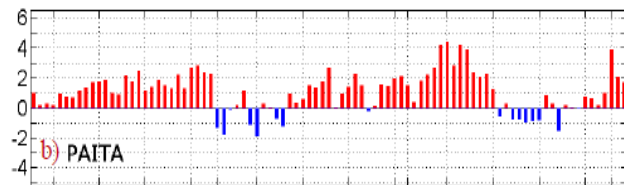
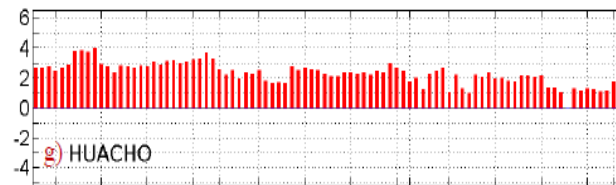
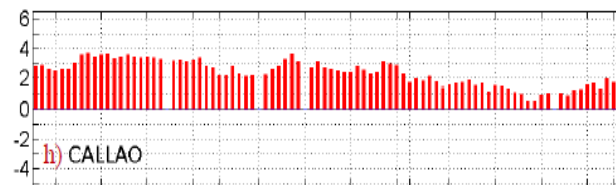
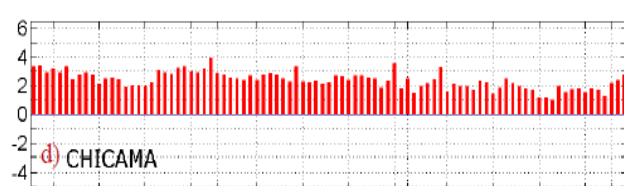
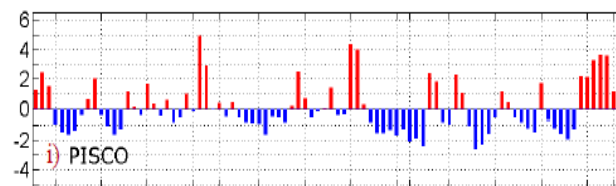
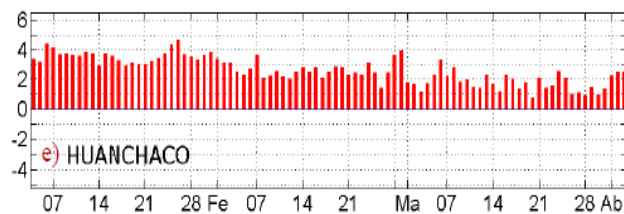
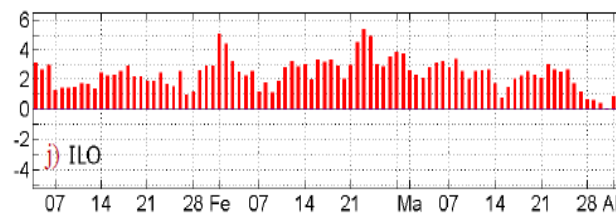
Estación	ATSM (°C) 2015												2016		
	Ene.	Feb.	Mar.	Abr.	May.	Jun.	Jul.	Ago.	Set.	Oct.	Nov.	Dic.	Ene	Feb	Mar.
Talara	-0.2	-1.8	-0.1	1.1	3	2.6	2.5	1.2	2.5	3.2	3.0	3.1	21.9 1.3	22.1 -0.8	22.4 0.2
Paíta	-1	-1.6	0.3	0.6	3.7	3.2	2.8	2.1	3.2	3.2	2.8	4.6	22.3 1.6	23.3 -0.1	23.8 0.8
Isla Lobos de Afuera	0.3	-0.2	-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
Chimbote	-1.1	-0.9	-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
Callao	-0.1	0	-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
San Juan	-1	-0.2	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
Mollendo	-0.3	0	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
Ilo	-0.7	-0.2	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

Promedios Diarios TSM		
Estación	Domingo 3 Abril 2016	
	TSM (°C)	ATSM(°C)
Talara	22.2	+1.6
Paíta	23.5	+3.3
I. Lobos de Afuera	23.6	+3.5
Chimbote	25.6	+4.3
Callao	18.8	+1.5
San Juan	18.1	+2.9
Mollendo	18.0	+1.7
Ilo	17.3	+0.7

Anomalías de Temperatura Superficial del Mar en el litoral



03/04/2016

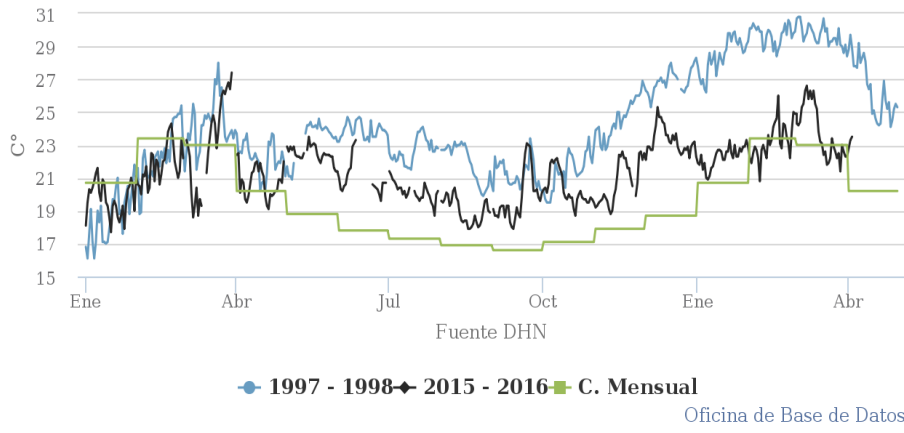


Estación	T, °C	ΔT, °C
Tumbes	sd	sd
Paita	22,00	1,70
San José	22,70	2,10
Chicama	20,73	2,73
Huanchaco	20,47	2,47
Chimbote	sd	sd
Huacho	18,53	1,23
Callao	sd	sd
Pisco	22,30	0,00
Atico	sd	-
Matarani	sd	-
Ilo	17,77	1,07
sd: Sin dato		

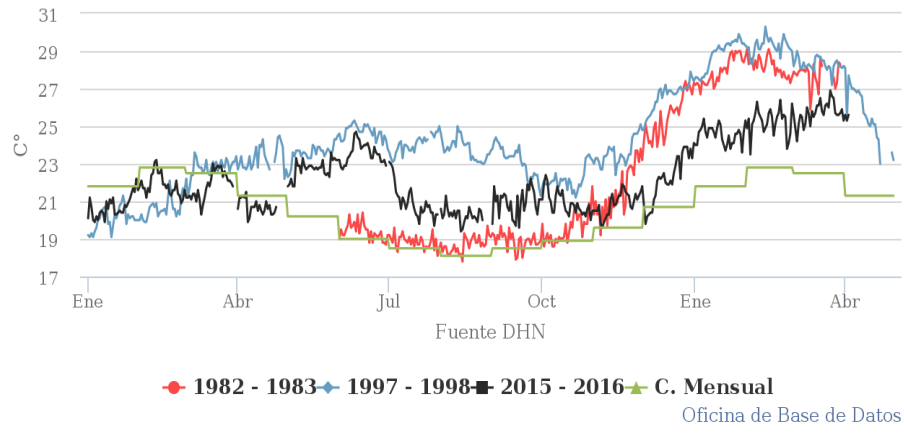
Anomalías de Temperatura Superficial del Mar en el litoral (15.03)



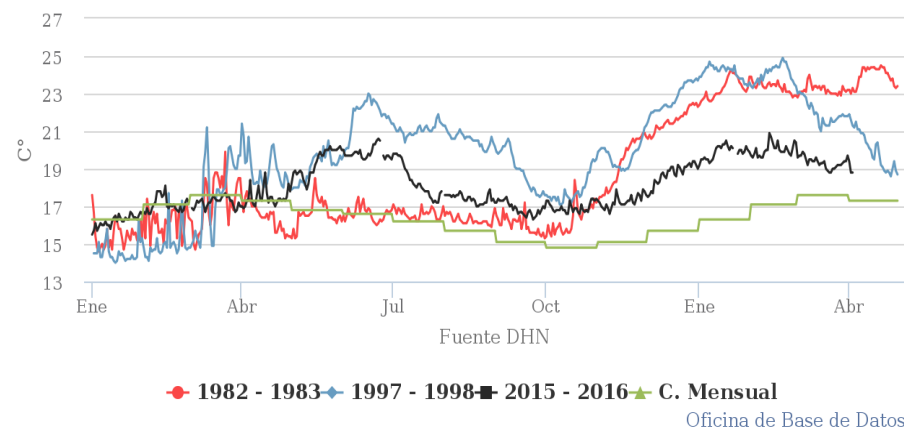
Temperatura Superficial del Mar Paita (°C)



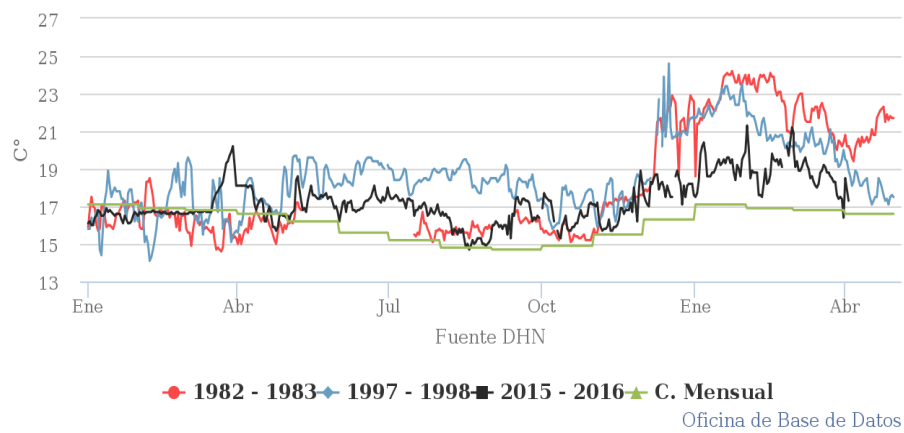
Temperatura Superficial del Mar Chimbote (°C)



Temperatura Superficial del Mar Callao (°C)

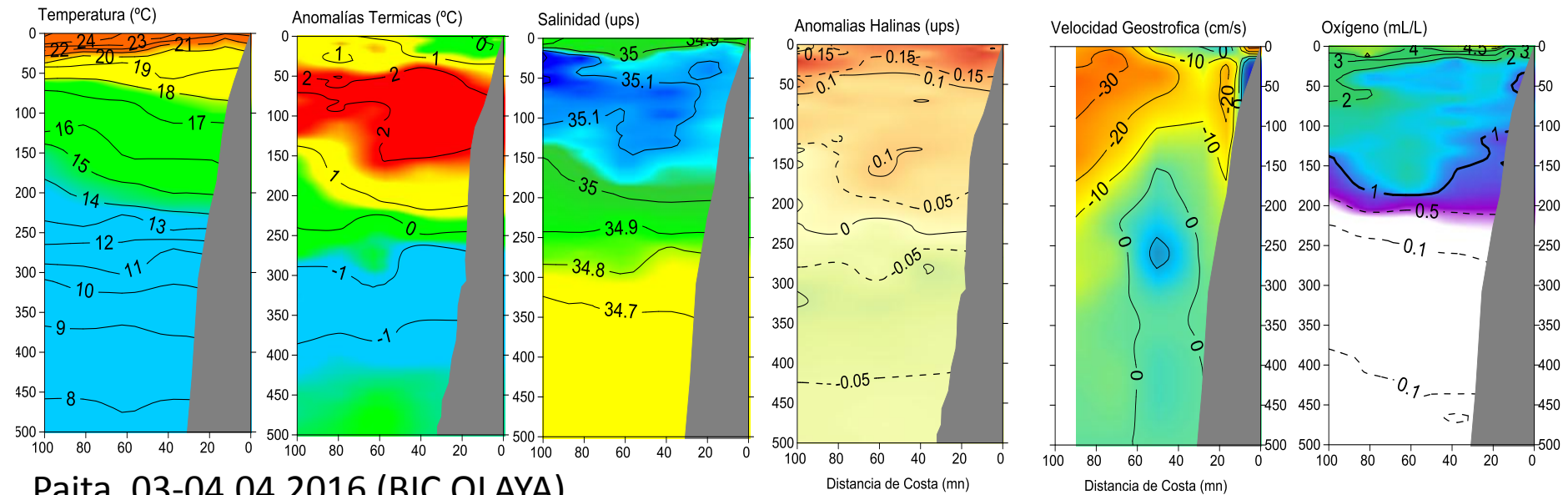


Temperatura Superficial del Mar Ilo (°C)

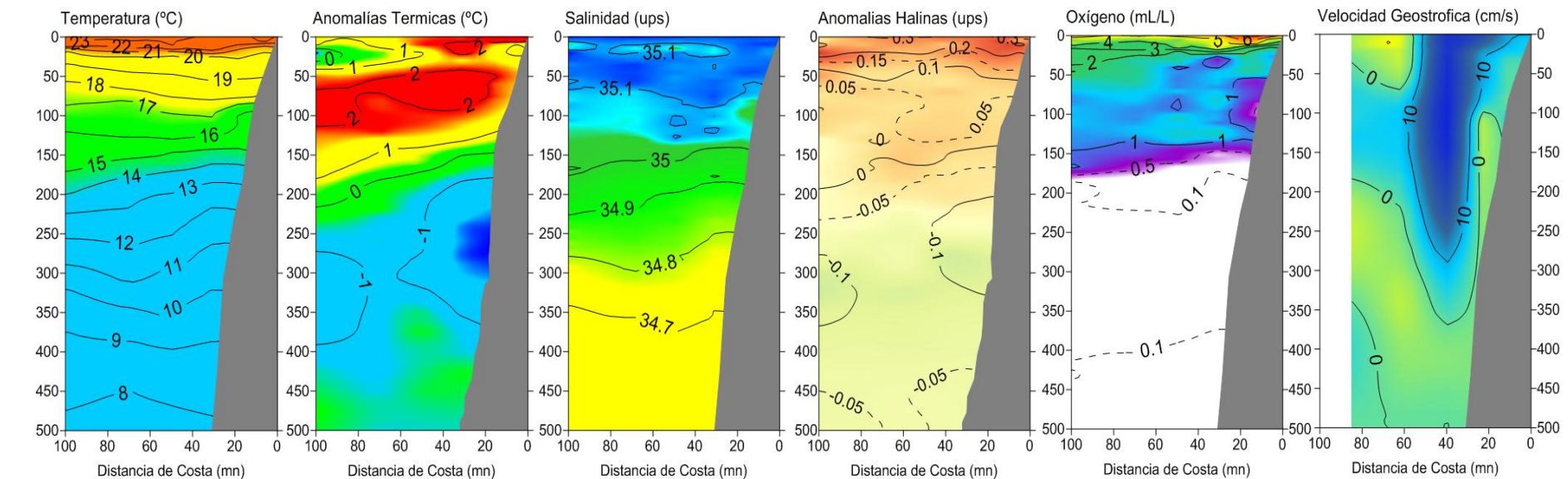


Secciones Paita y Chicama (T, S, O)

Paita, 18-19.03.2016 (BIC FLORES)

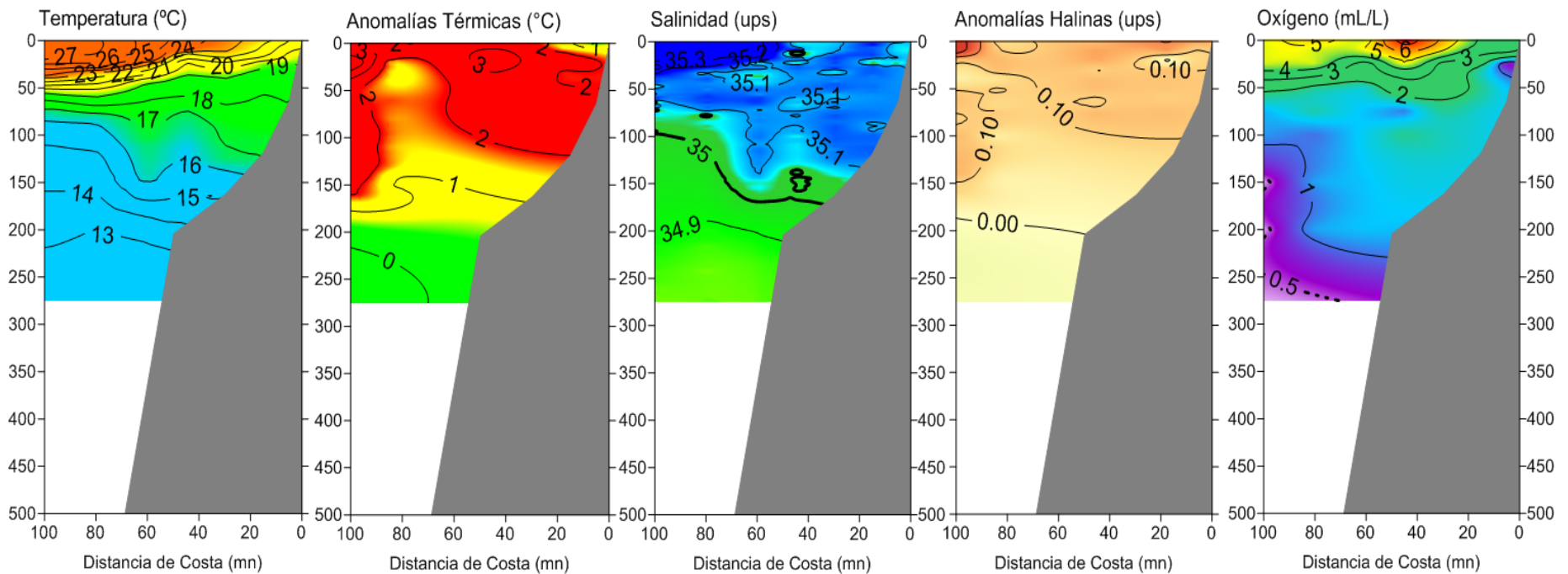


Paita, 03-04.04.2016 (BIC OLAYA)

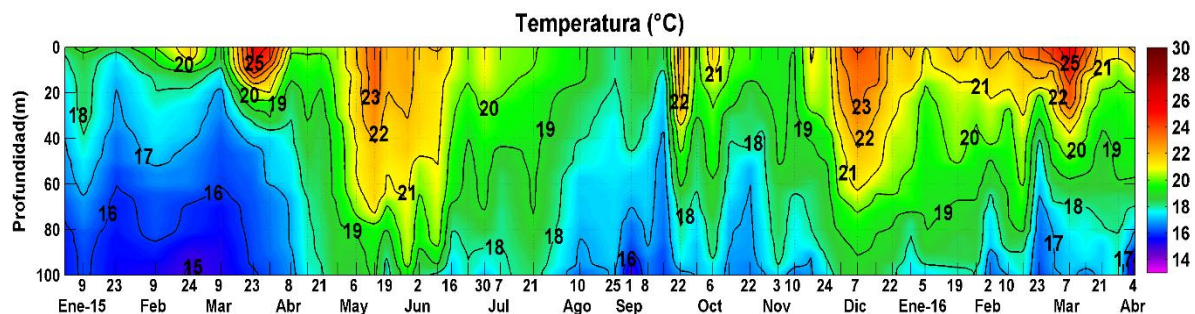
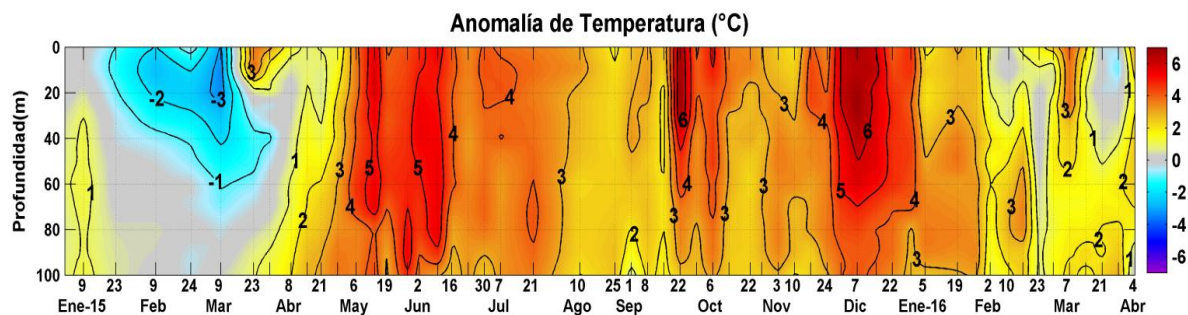
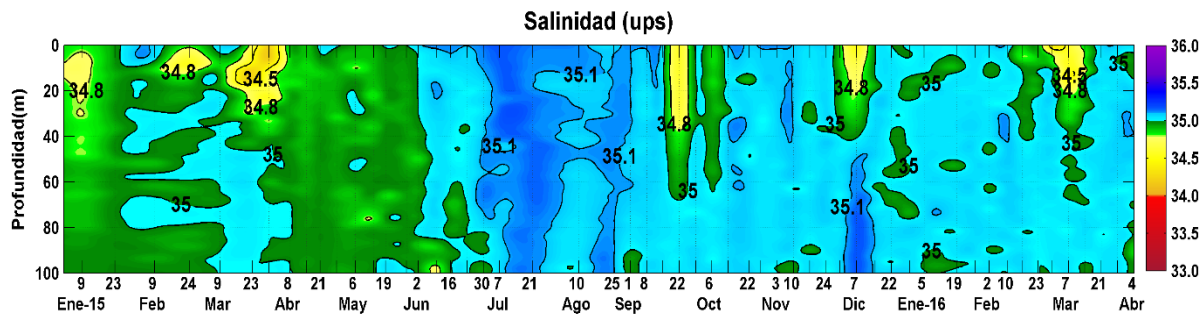
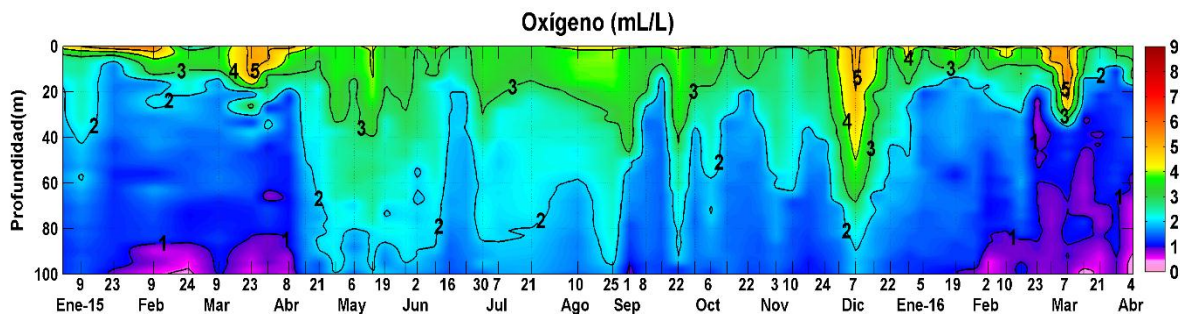
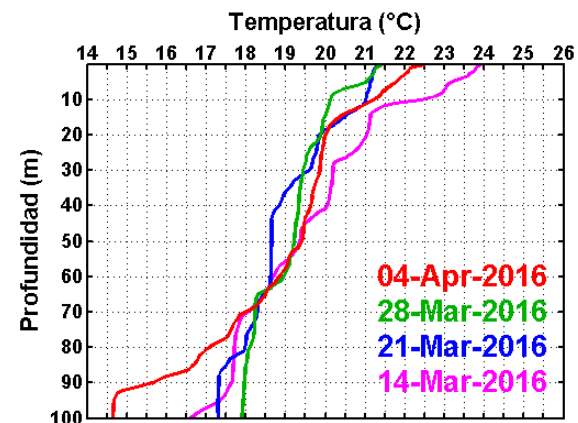
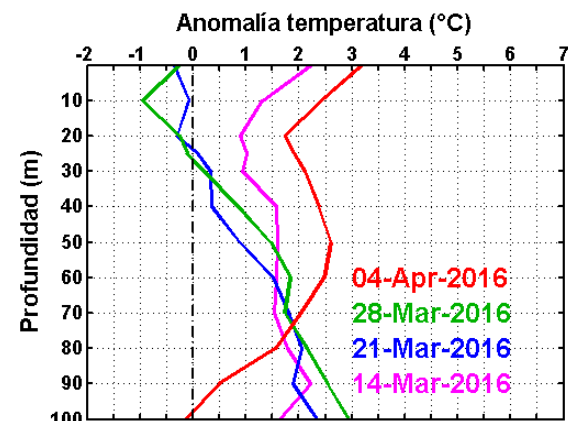


Secciones Paíta y Chicama (T, S, O)

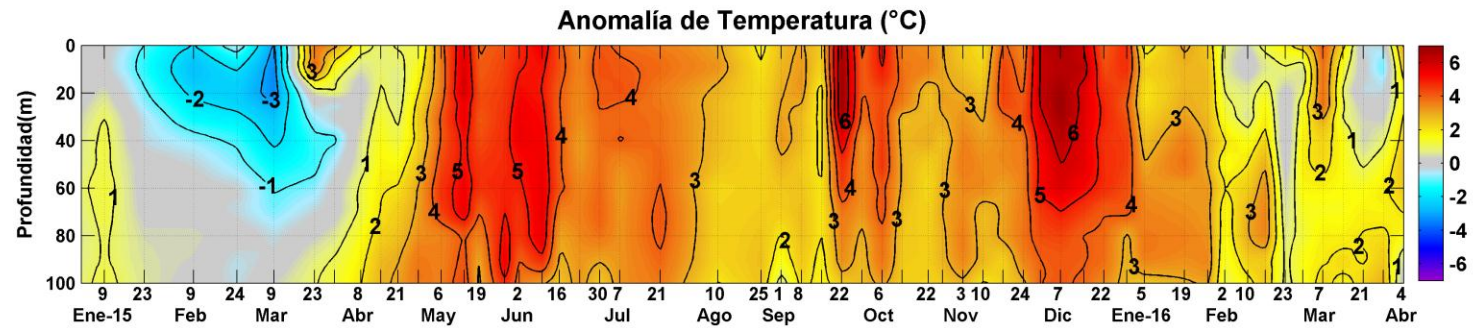
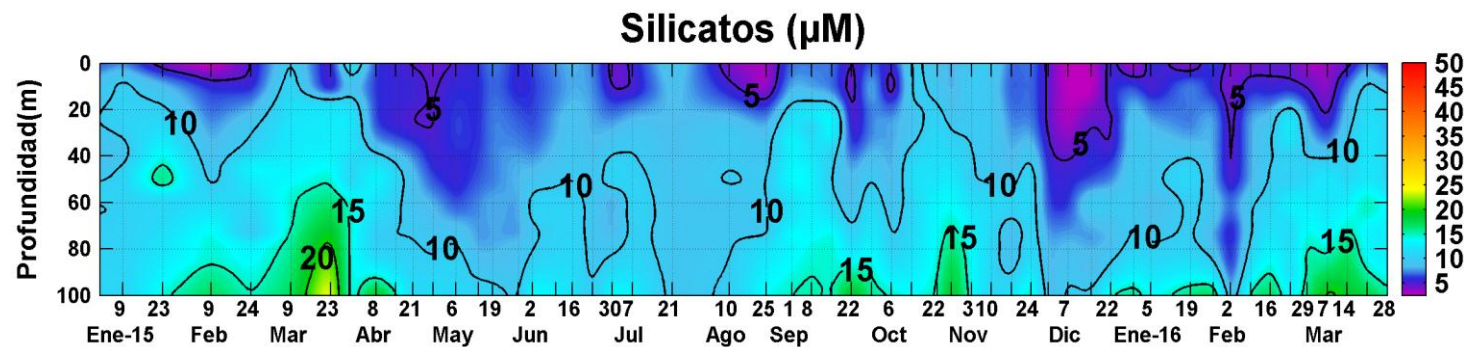
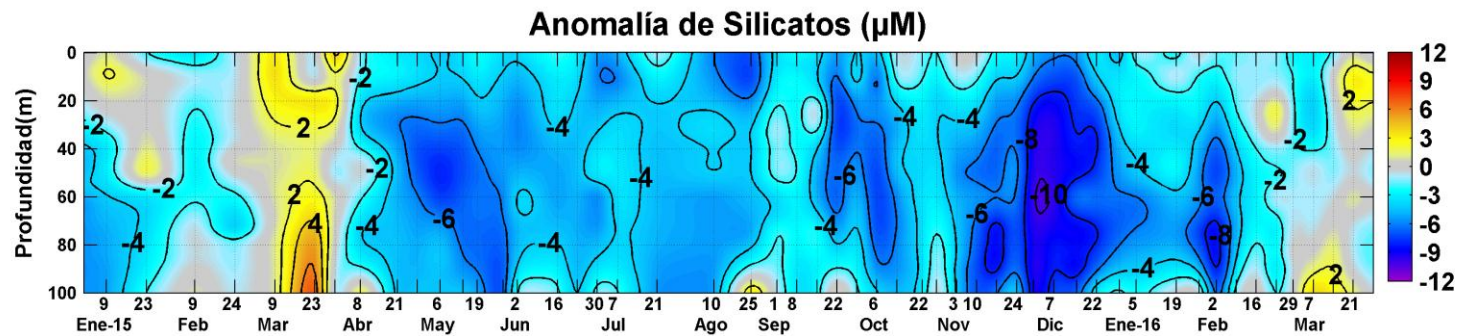
Chicama, 11-13.03.2016



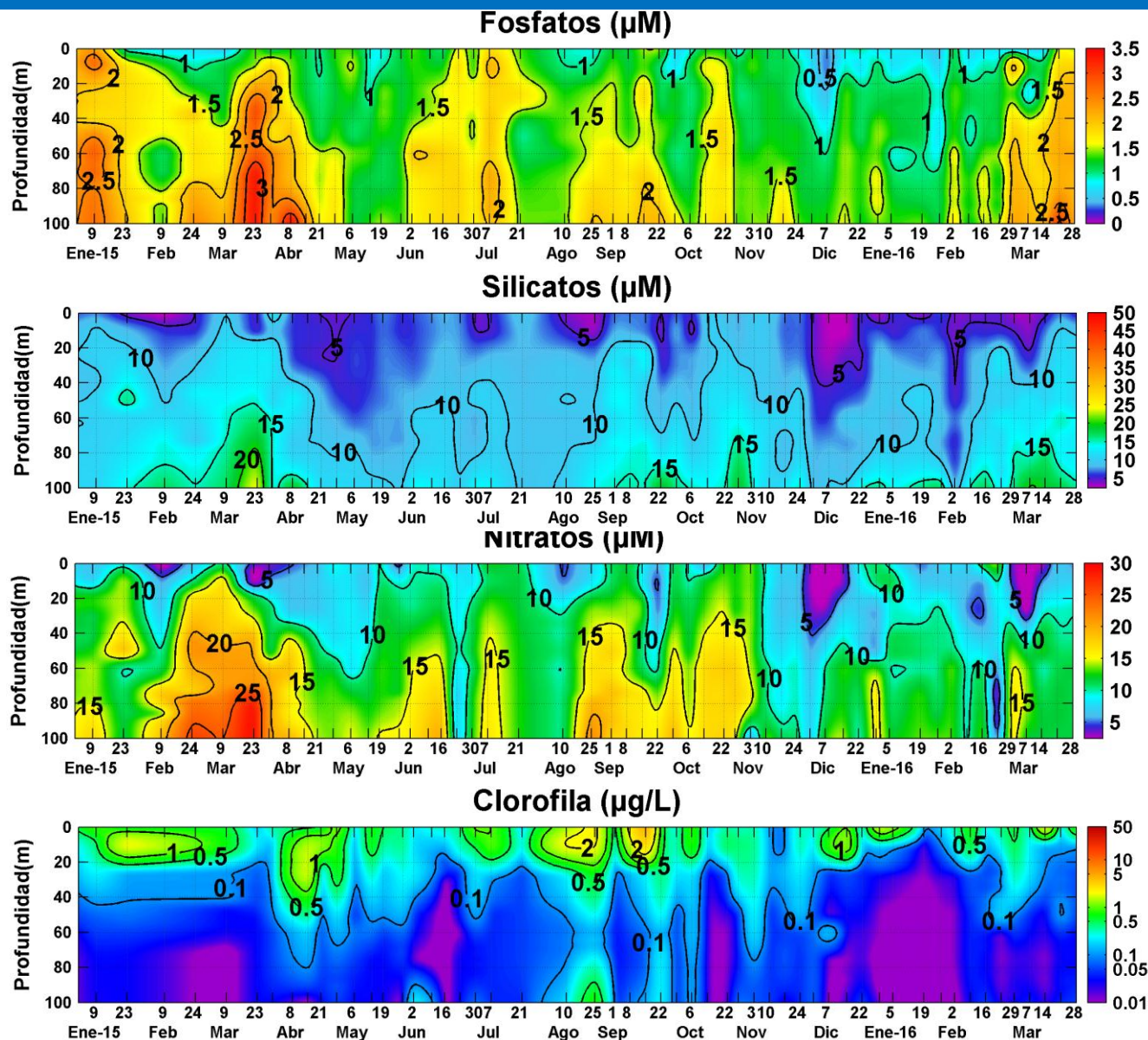
Punto Fijo Paita: T, S, O (04.04.2016)



Punto Fijo Paíta: nutrientes y clorofila-a

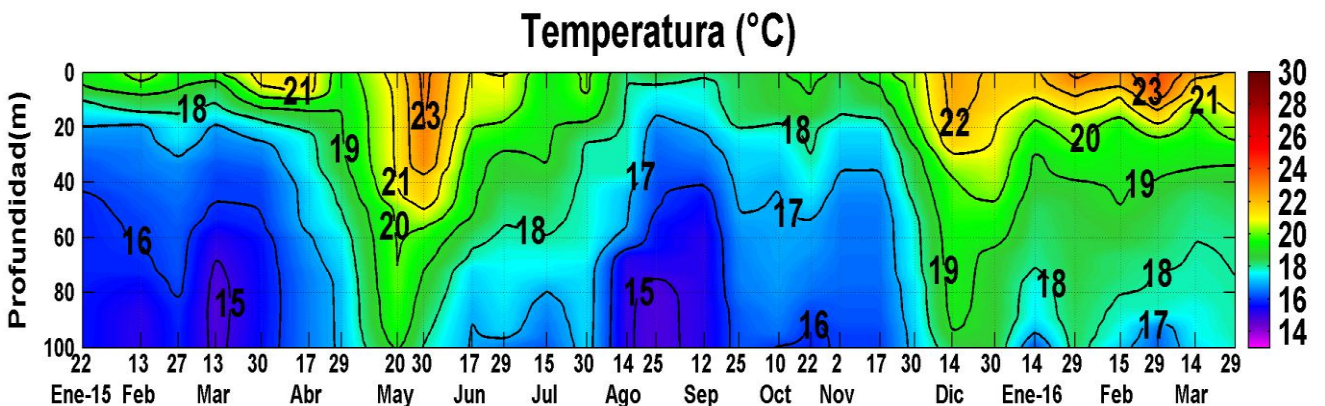
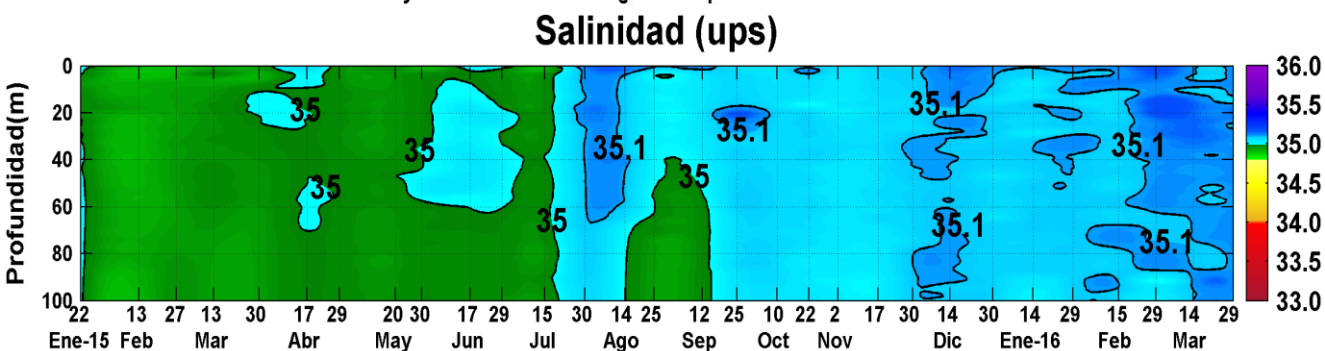
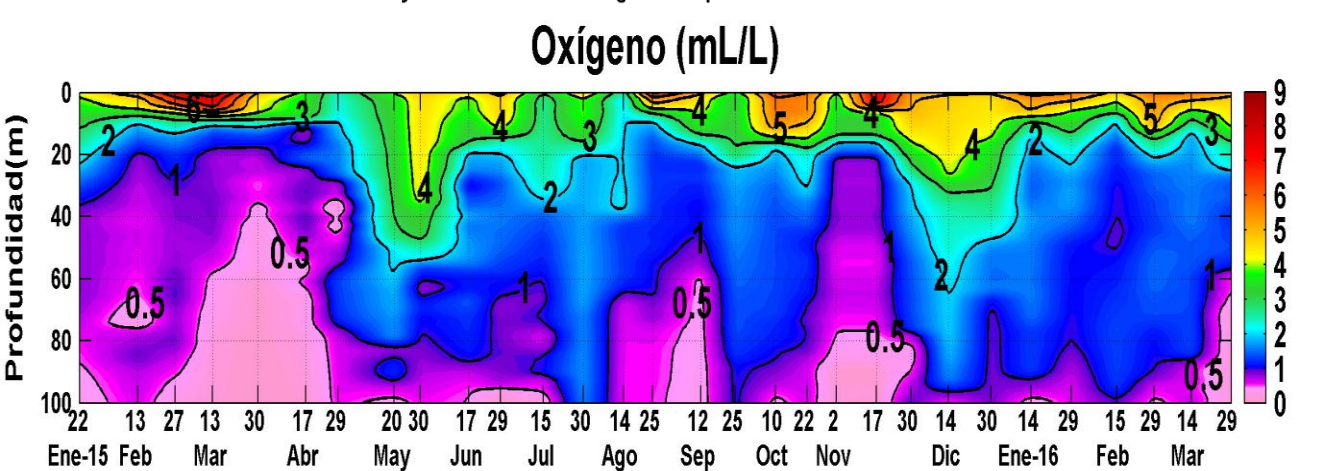
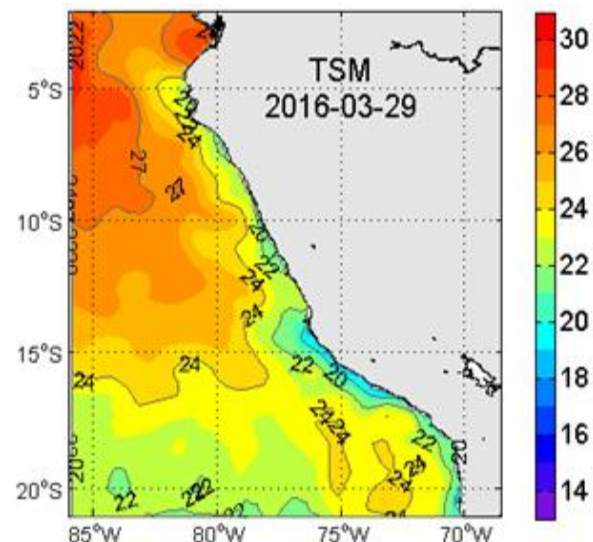


Punto Fijo Paita: nutrientes y clorofila-a

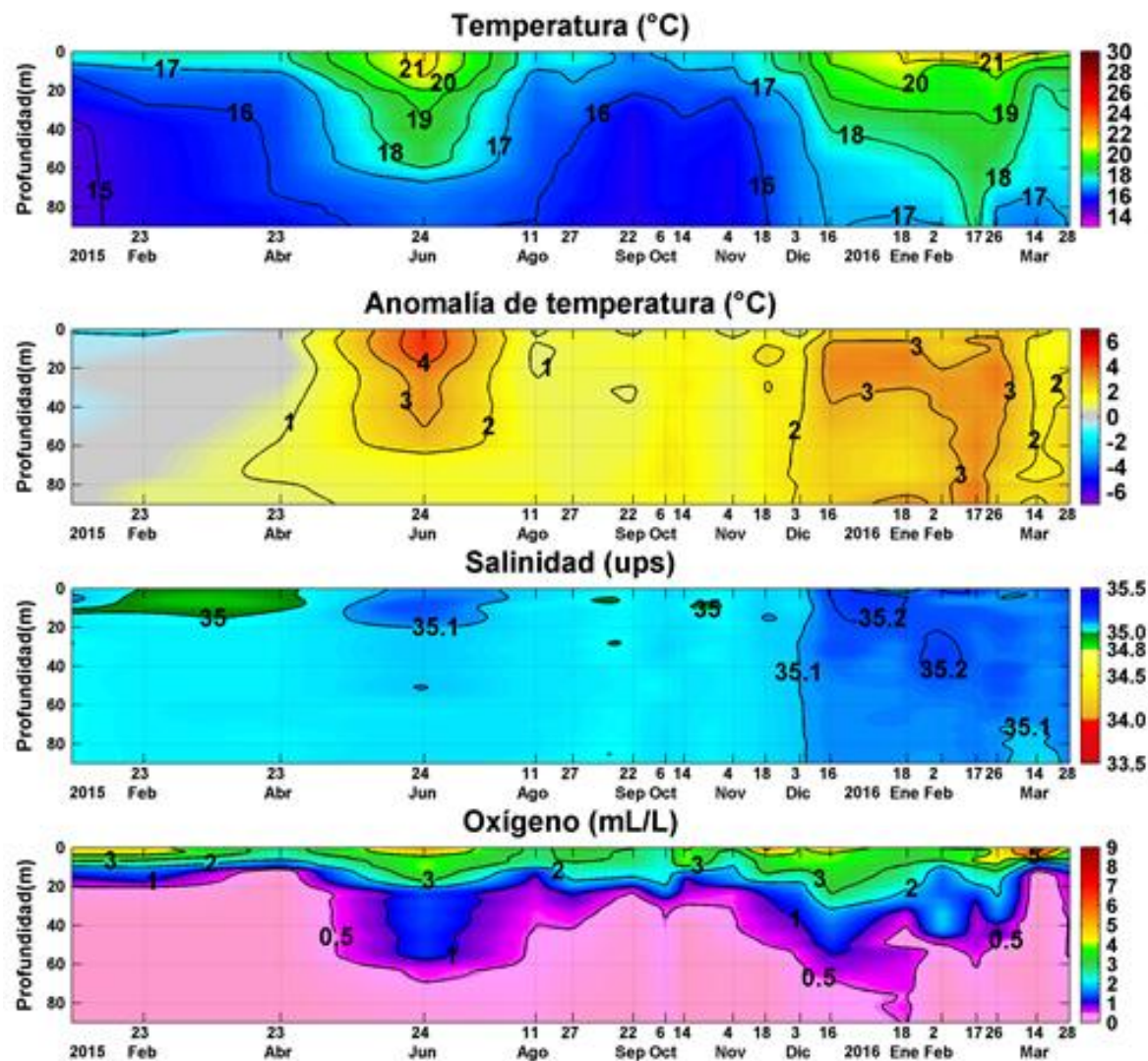
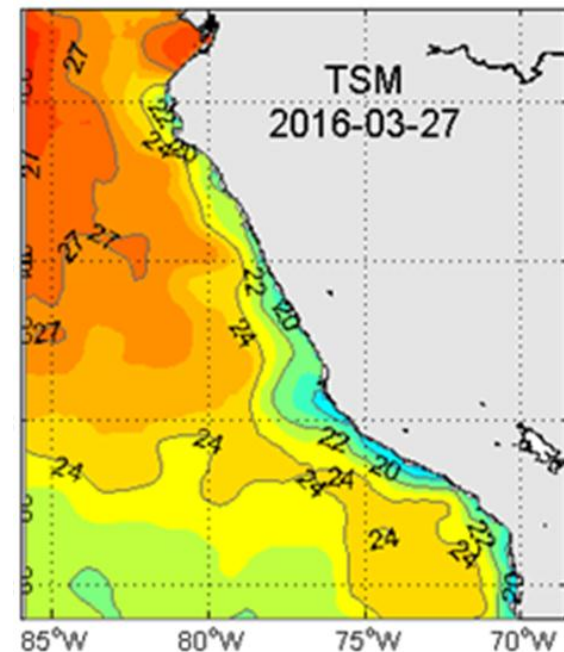


la fertilidad en referencia a los silicatos muestran el efecto del afloramiento con anomalías superiores a $2,0 \mu\text{M}$. La productividad referido a la clorofila-a presenta valores en el rango oligotrófico.

Punto Fijo Chicama: T, S, O (29 DE MARZO 2016)

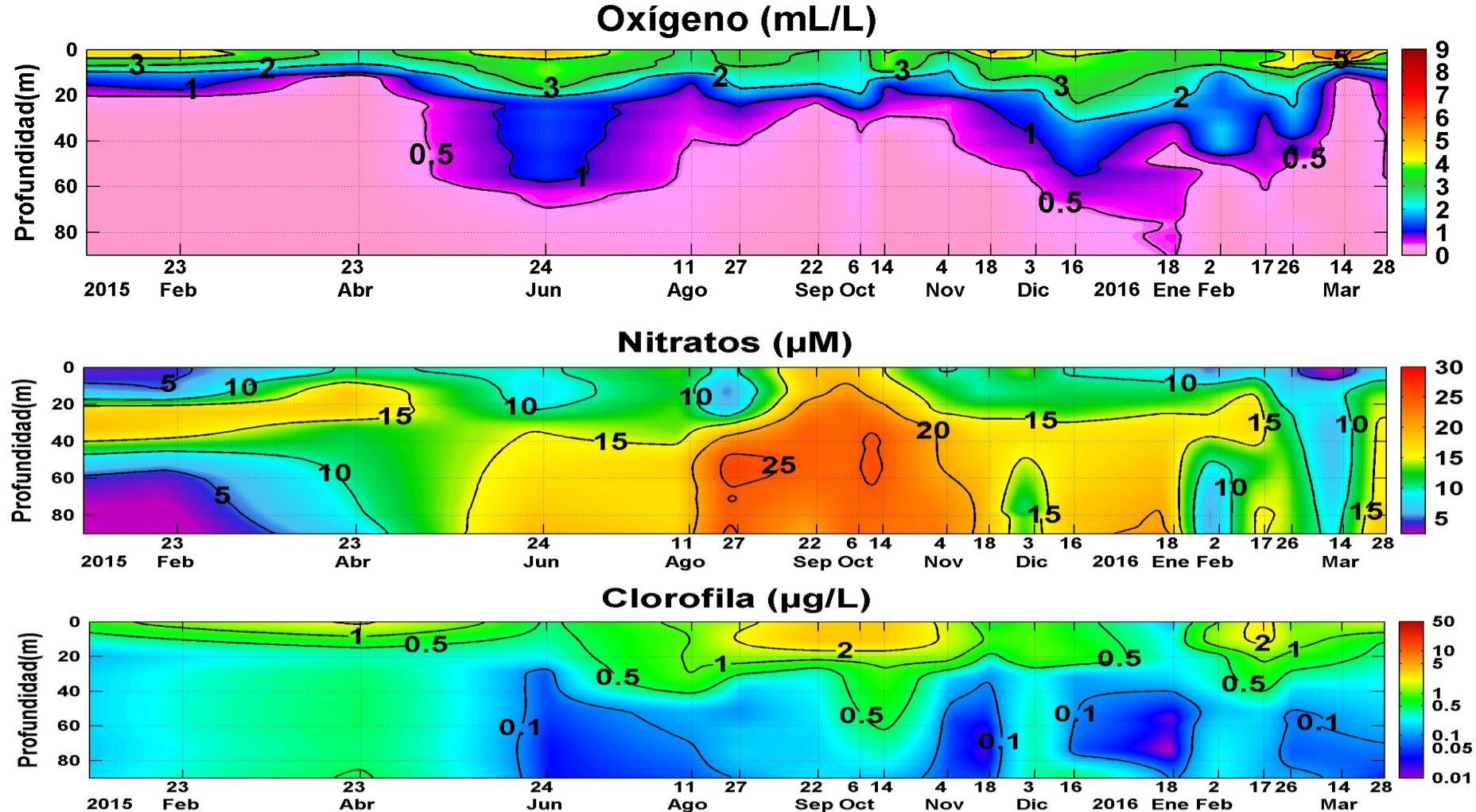


Punto Fijo Callao: T, S, O (28.03.2016)

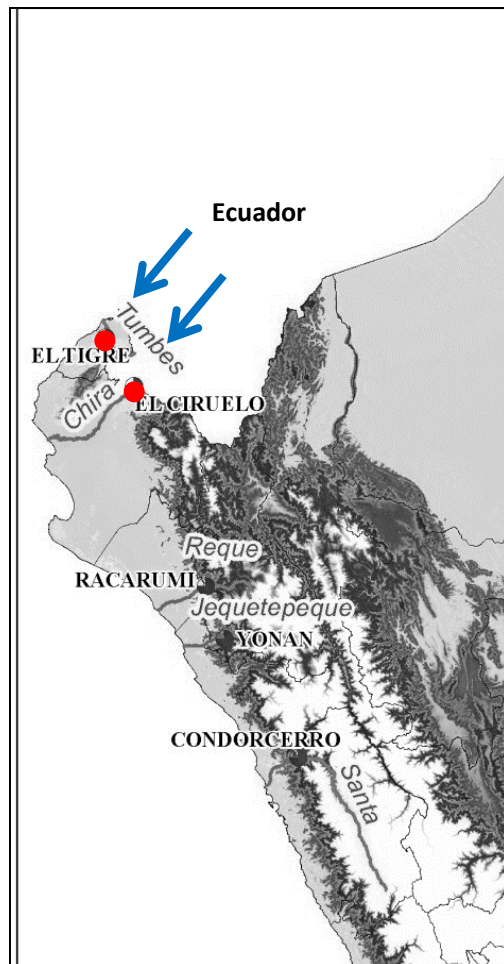
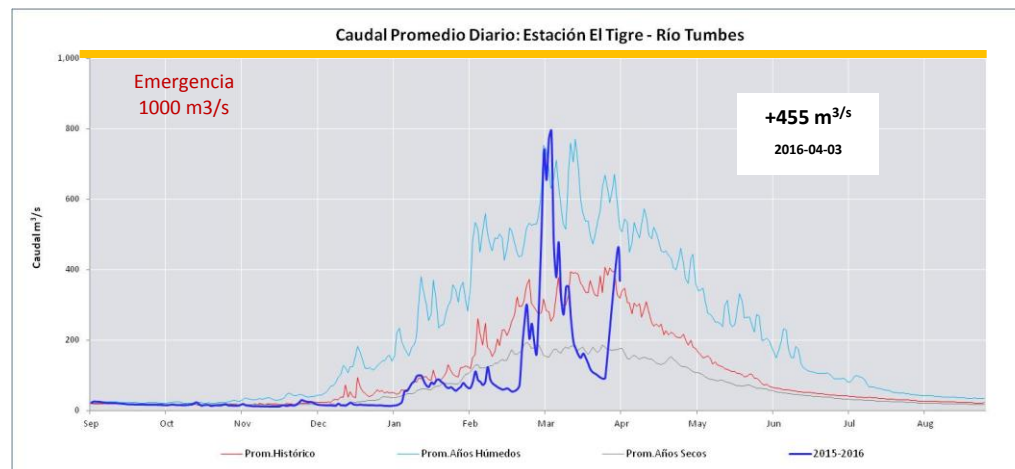
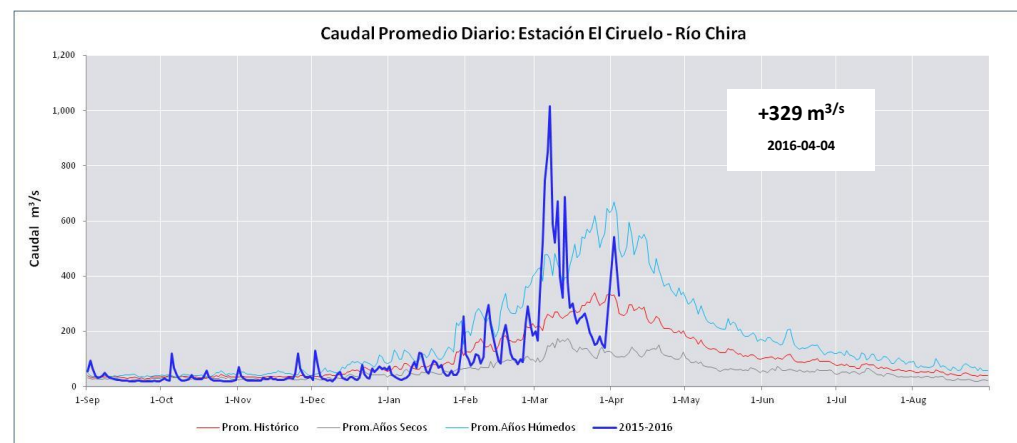


AVHRR/NOAA, proc.: IMARPE

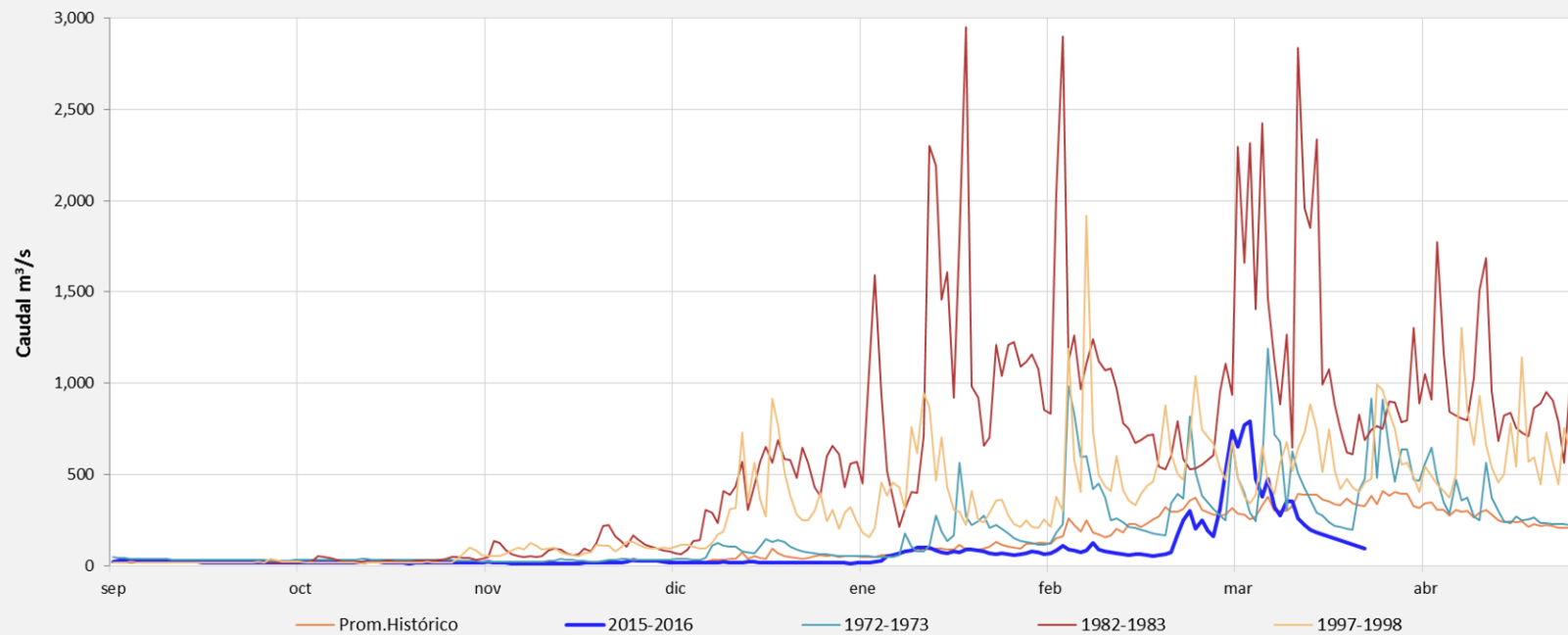
Punto Fijo Callao: T, S, O (28.03.2016)



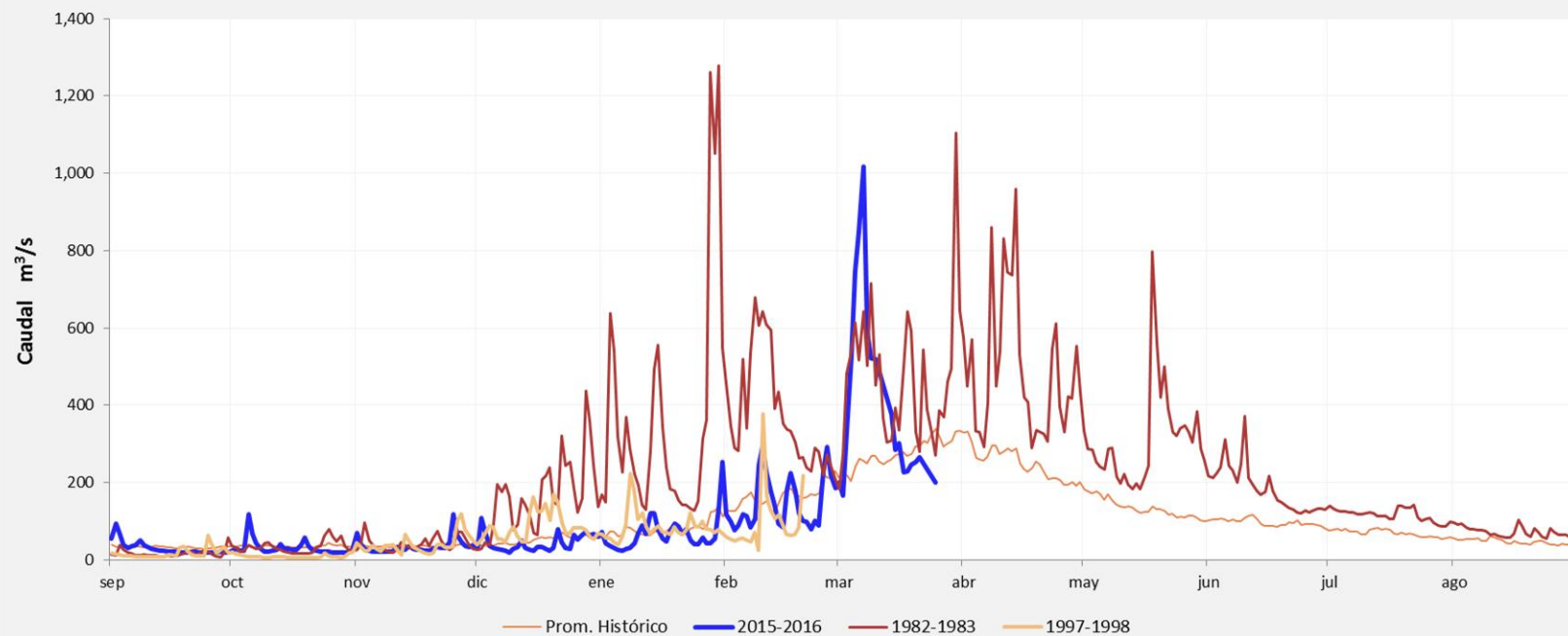
En la última quincena de marzo el límite superior de la ZMO fluctuó entre los 20 a 60 m, indicando una tendencia a la normalización de las condiciones costeras.



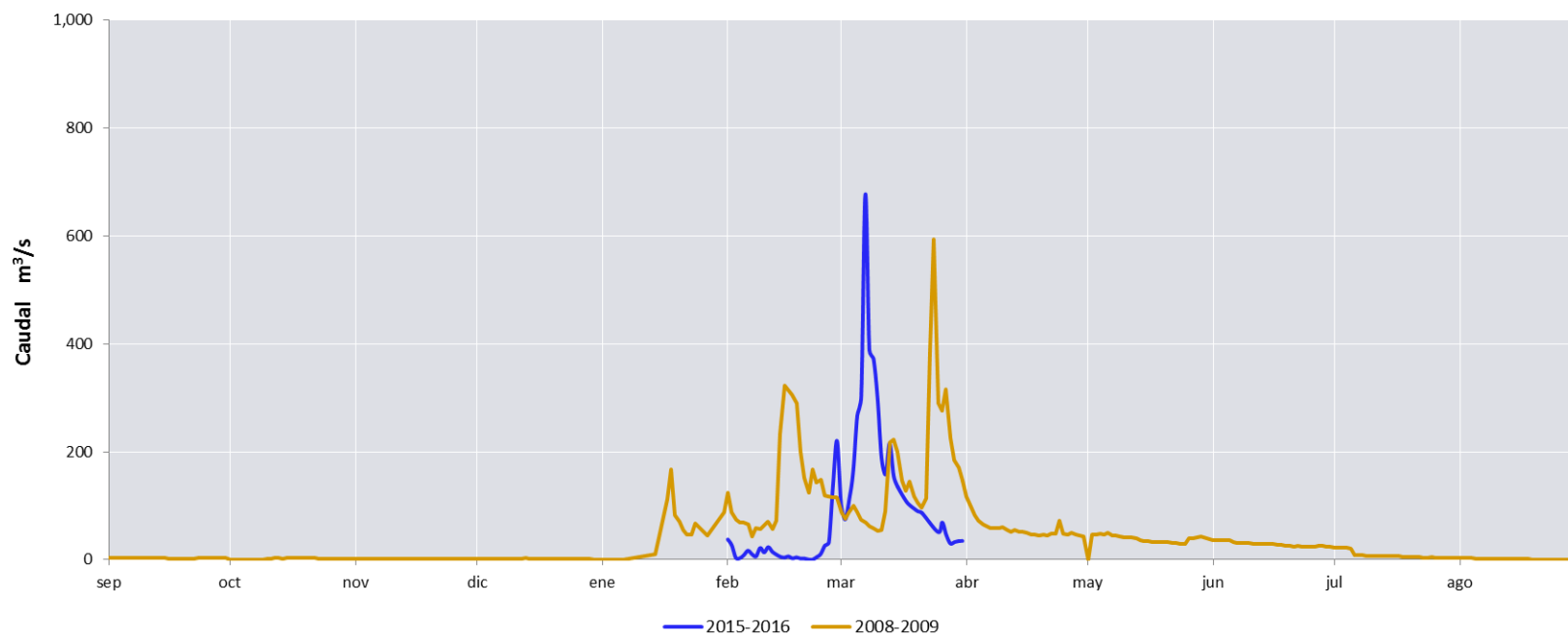
Caudal Promedio Diario: Estación El Tigre - Río Tumbes



Caudal Promedio Diario: Estación El Ciruelo - Río Chira



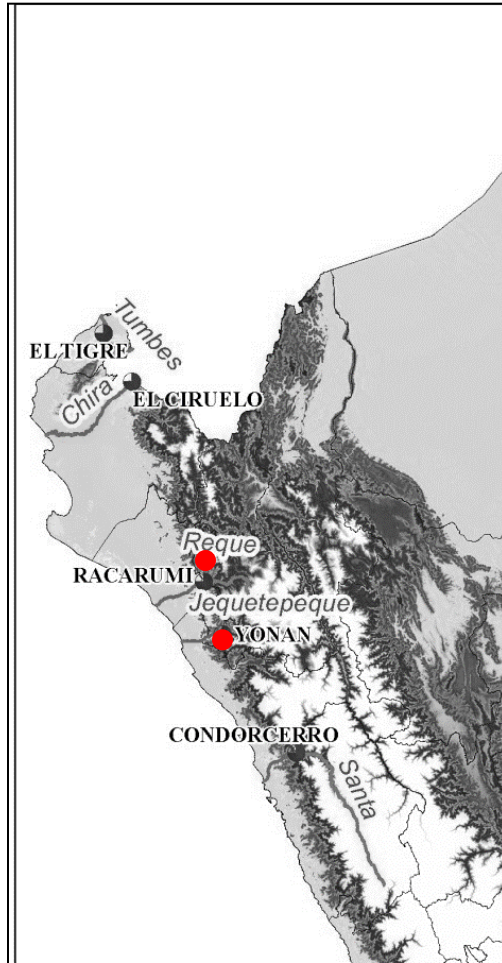
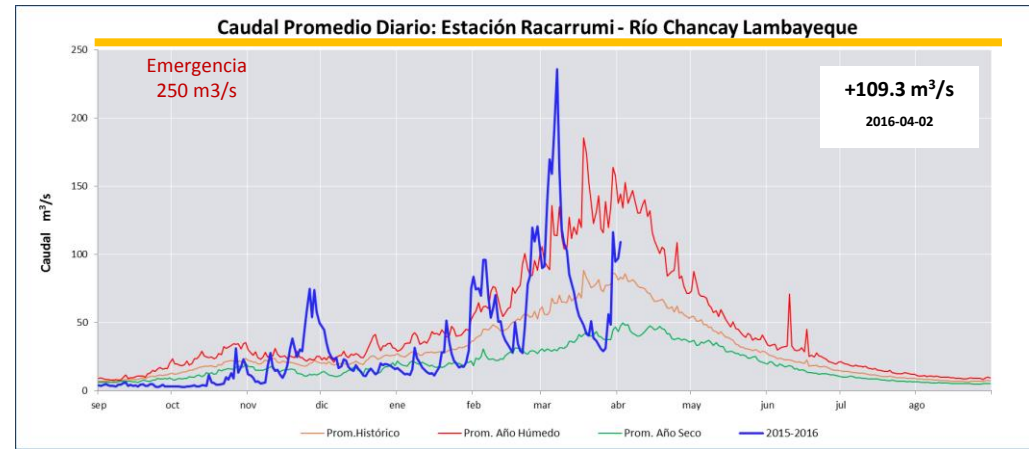
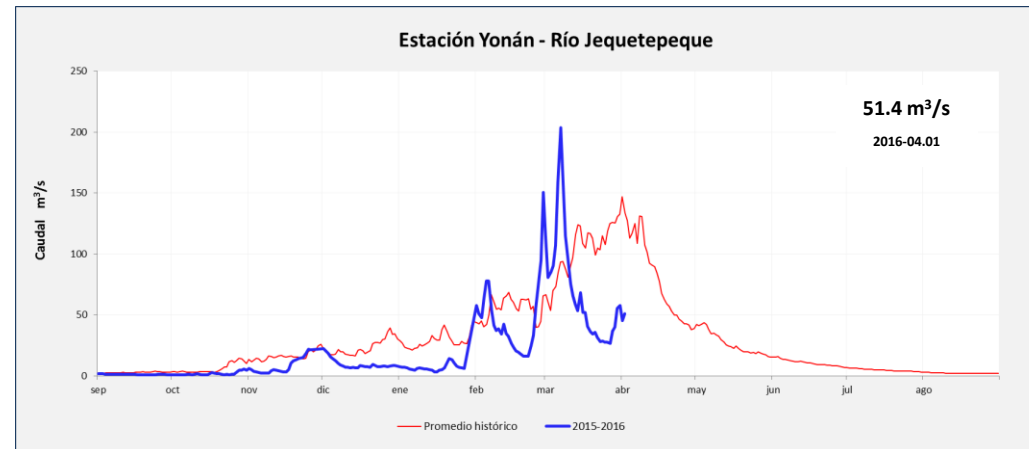
Caudal Promedio Diario: Estación Puente Ñacara - Río Piura



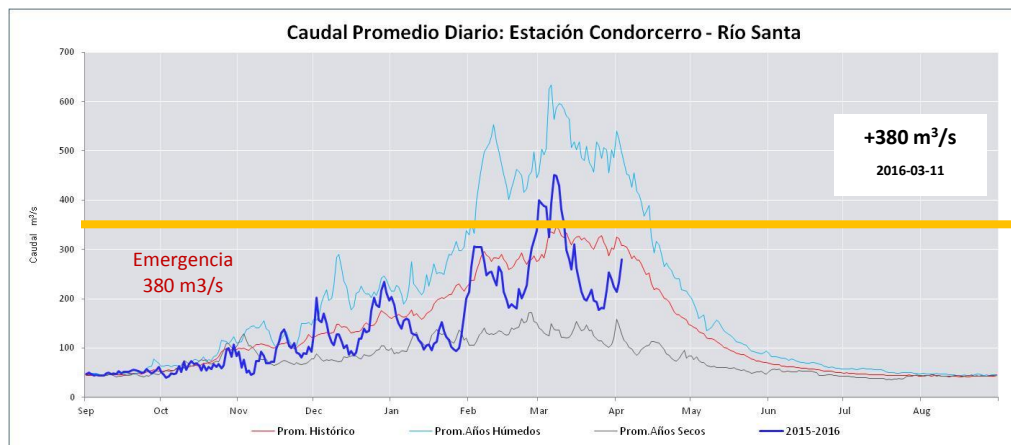
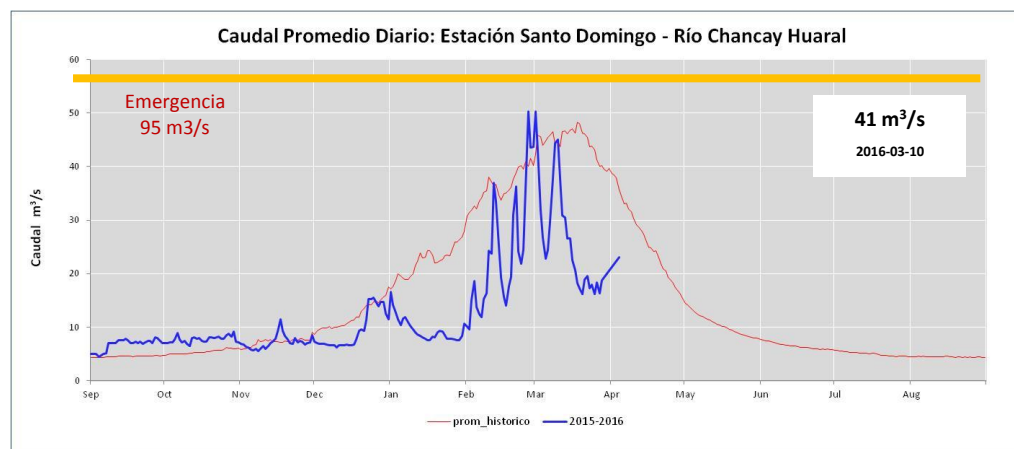
Región hidrográfica Pacífico – Ríos Costa Norte



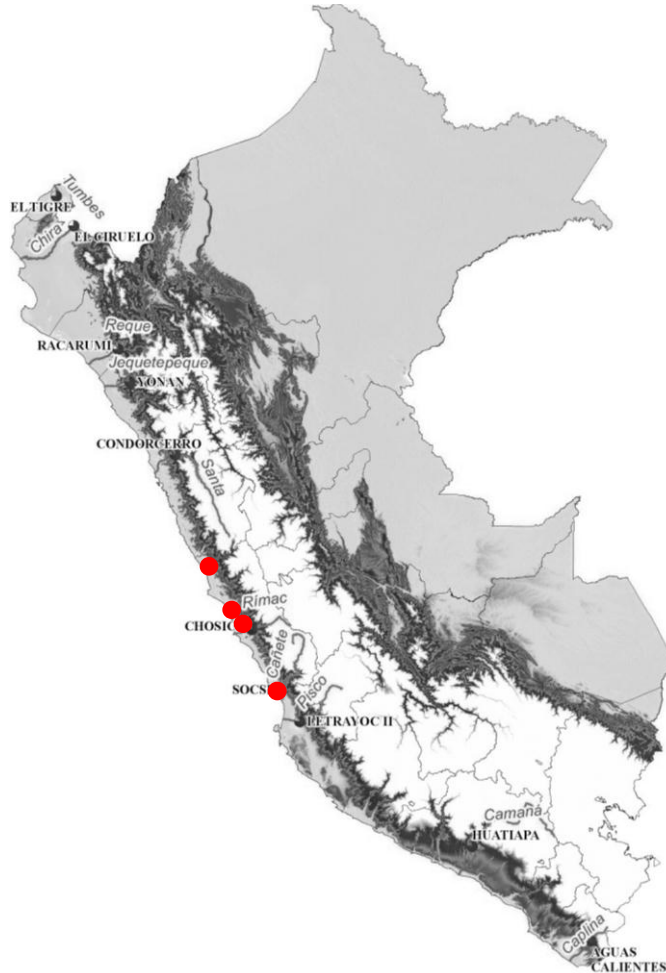
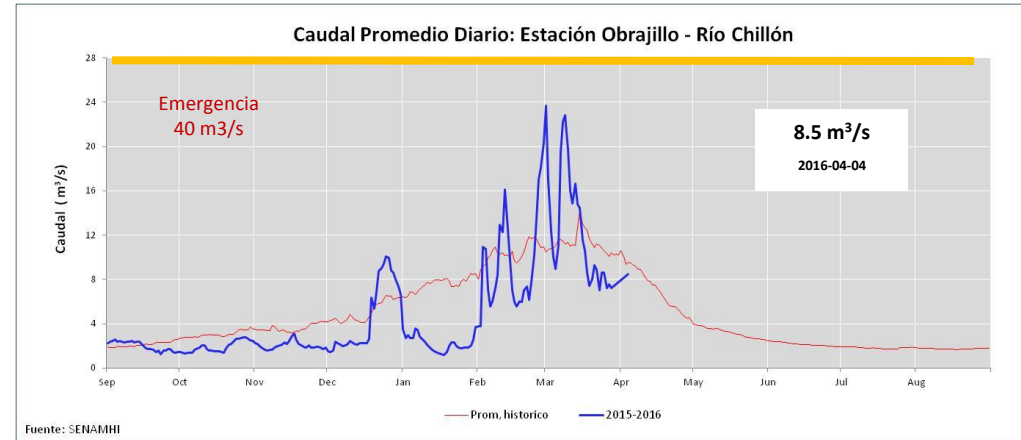
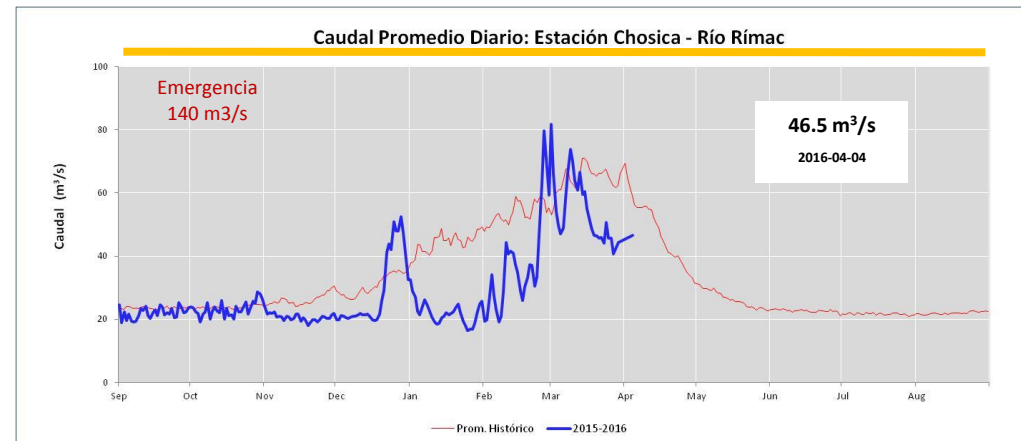
Autoridad Nacional del Agua



Región hidrográfica Pacífico – Ríos Costa Centro

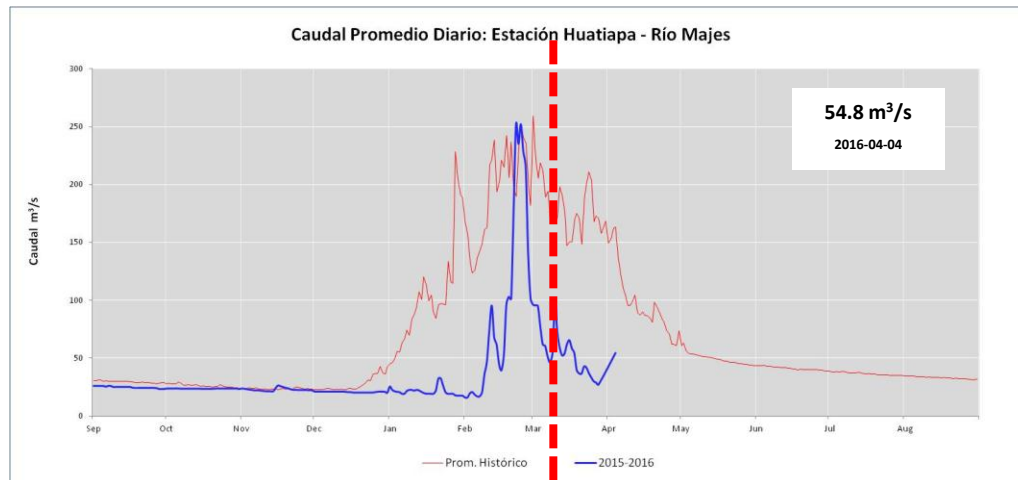
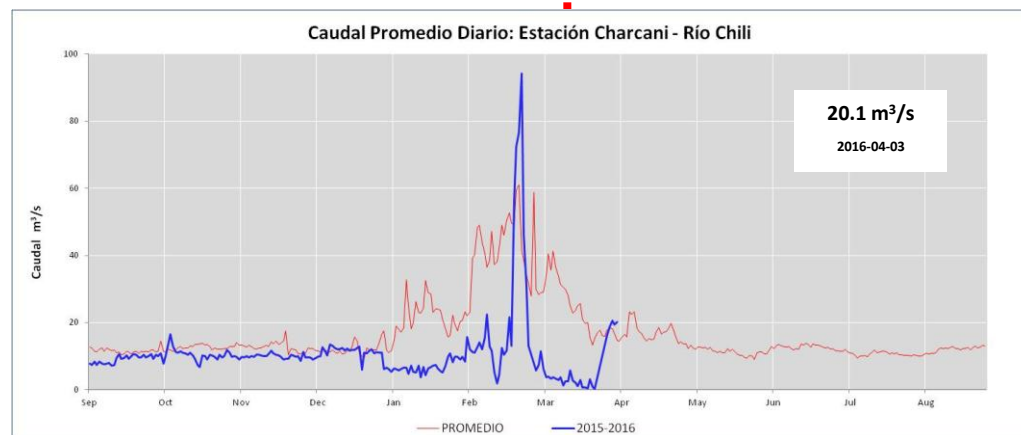
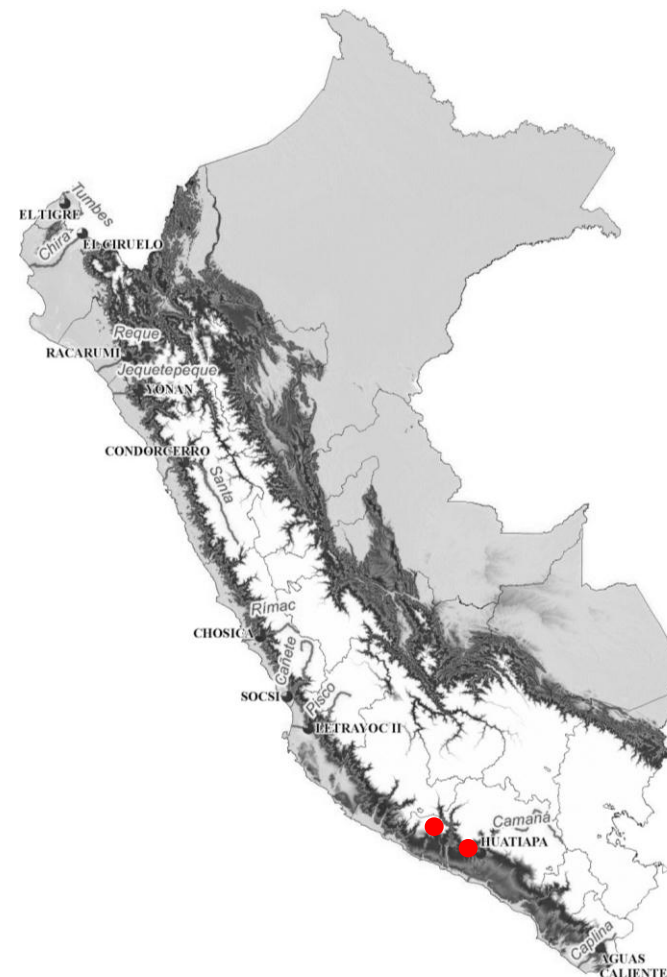


Región hidrográfica Pacífico – Ríos Costa Centro



Región hidrográfica Pacífico – Ríos Costa Sur

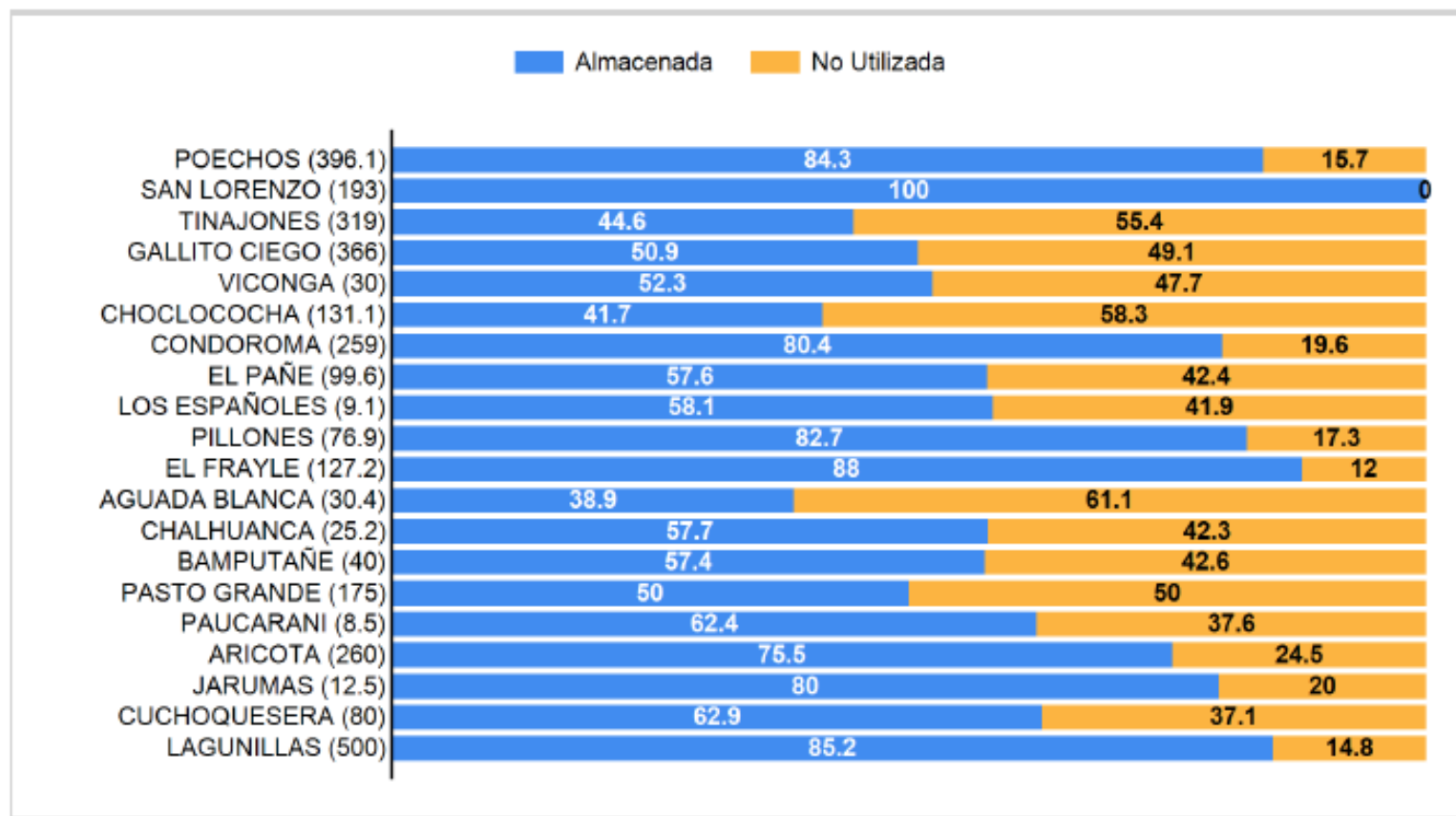
Ríos de vertiente Pacífico – Sur



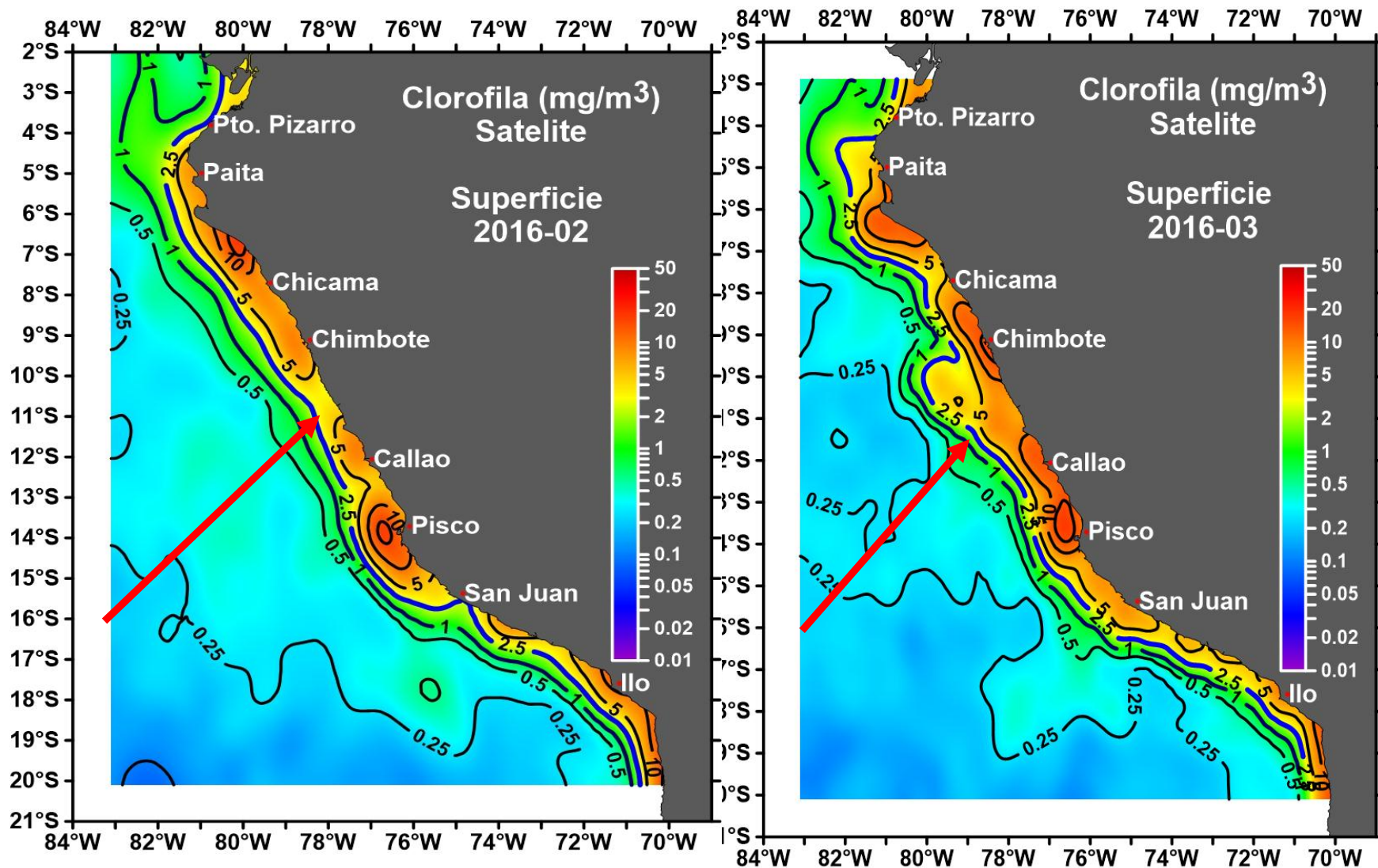
Resumen del estado de los principales embalses

Zona	Nombre del Reservorio	Fecha Reporte	Departamento de Influencia	Área Bajo Riego (ha)	Capacidad Hidráulica (hm ³)		Capacidad Hidráulica Almacenada (%)
					Útil	Almacenada	
Costa - Norte	POECHOS	4-Apr	Piura	93,240	396.1	333.9	84.3
	SAN LORENZO	3-Apr	Piura	42,530	193.0	201.2	100.0
	TINAJONES	4-Apr	Lambayeque	87,600	319.0	142.2	44.6
	GALLITO CIEGO	4-Apr	La Libertad	55,700	366.0	186.2	50.9
Costa - Centro	VICONGA	3-Apr	Lima	24,970	30.0	15.7	52.3
Costa - Sur	CHOCLOCOCHA	21-Mar	Ica	23,000	131.1	56.7	43.3
	CONDOROMA	31-Mar	Arequipa	20,810	259.0	208.8	80.6
	EL PAÑE	4-Apr	Arequipa	27,060	99.6	57.4	57.6
	LOS ESPAÑOLES	4-Apr	Arequipa		9.1	5.3	58.2
	PILLONES	4-Apr	Arequipa		76.9	63.6	82.6
	EL FRAYLE	4-Apr	Arequipa		127.2	112.0	88.0
	AGUADA BLANCA	4-Apr	Arequipa		30.4	11.8	38.9
	CHALHUANCA	4-Apr	Arequipa		25.2	14.5	57.7
	BAMPUTAÑE	4-Apr	Arequipa		40.0	22.9	57.4
	PASTO GRANDE	4-Apr	Moquegua	3,500	175.0	87.4	50.0
	PAUCARANI	4-Apr	Tacna	1,700	8.5	5.2	61.7
	ARICOTA	4-Apr	Tacna	3,200	260.0	196.3	75.5
	JARUMAS	15-Mar	Tacna	4,000	12.5	10.0	80.0
Sierra - Centro	CUCHOQUESERA	4-Apr	Ayacucho	19,200	60.0	50.3	83.9
Sierra - Sur	LAGUNILLAS	26-Mar	Puno	5,000	500.0	426.5	85.3

Resumen del estado de los principales embalses (marzo)

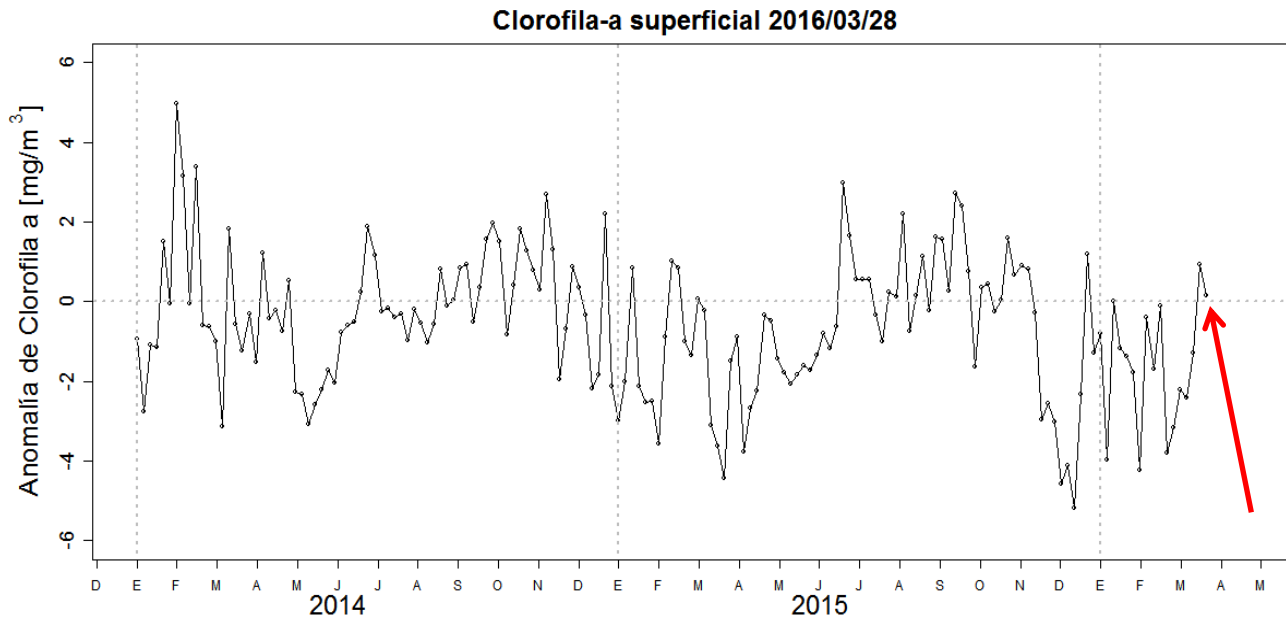


Los reservorios en la costa norte y sur alcanzan en promedio 70% y 65% de su capacidad máxima, aumentando en el primer caso y disminuyendo en el segundo, respecto a febrero. El sistema Rímac viene recuperándose a partir de la quincena de febrero, con un estado hasta el 31 de marzo de 82%.

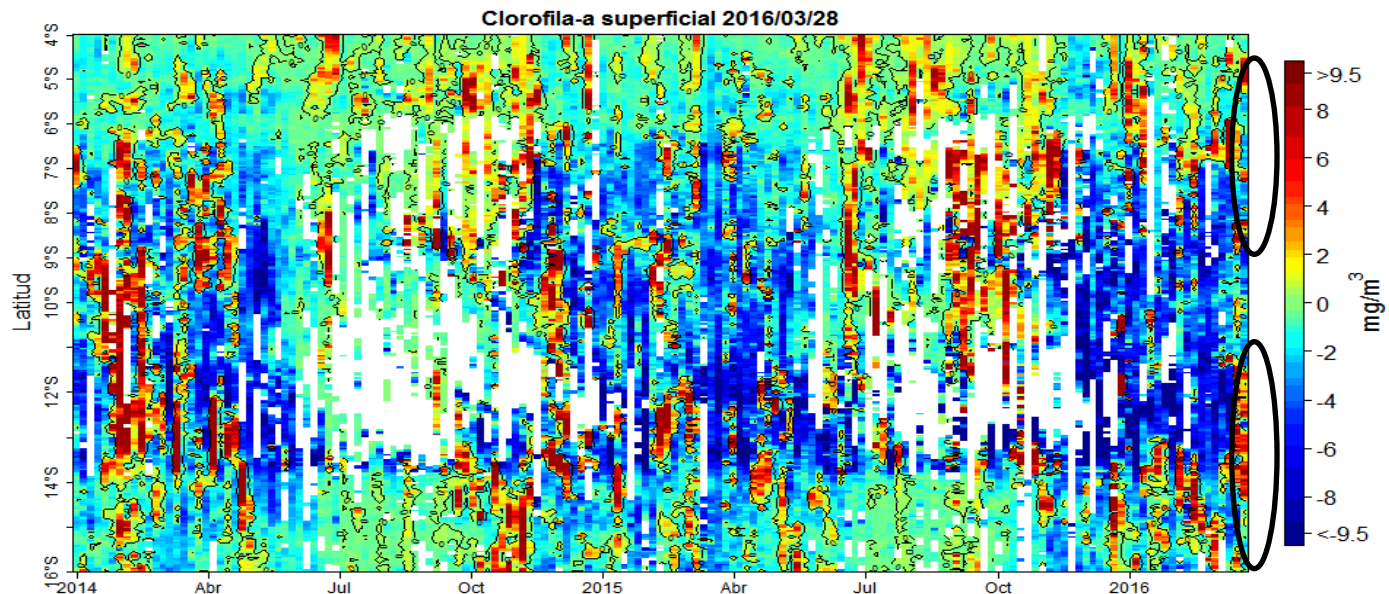


La Comparación de Clorofila Satelital febrero - marzo 2016, muestra un mayor desplazamiento de la isolínea de 2,5 mg/m³ frente a Chimbote, así también las condiciones oligotróficas por fuera de las 20 a 40 de costa.

Series de tiempo de clorofila-a (4 – 14°S, MODIS)



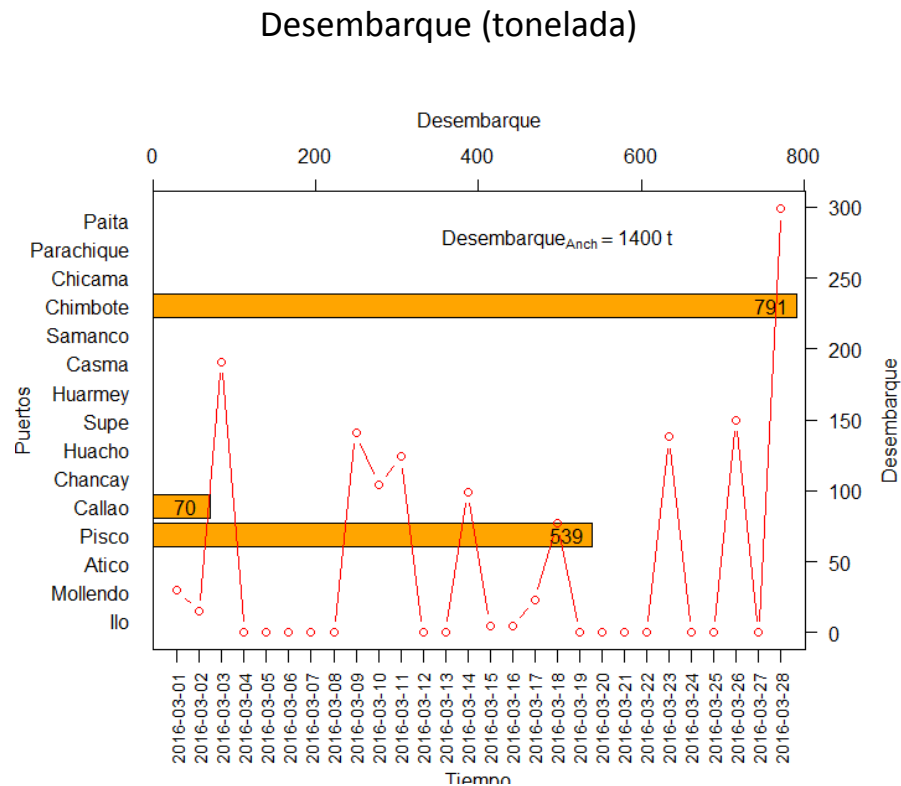
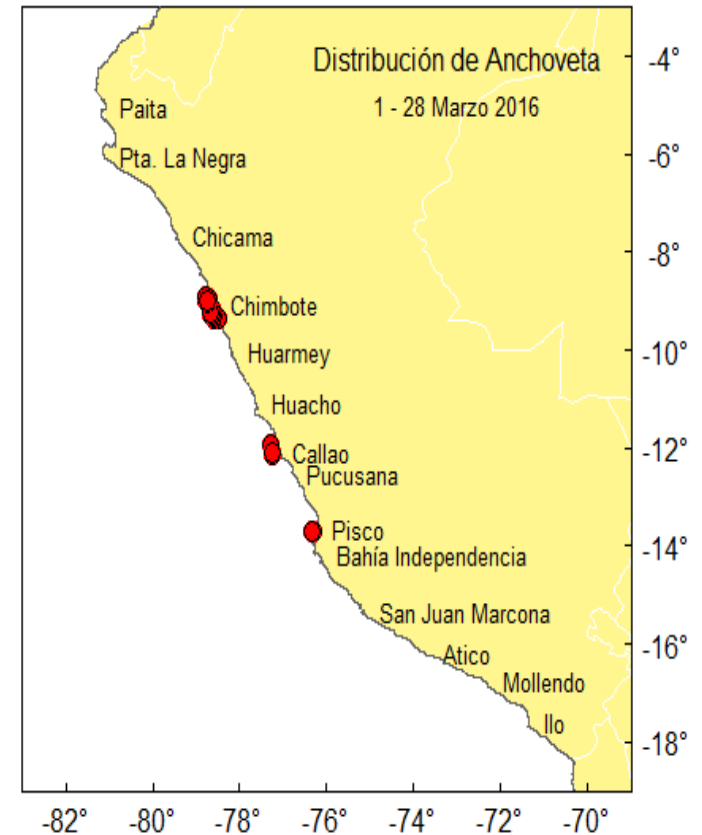
- A) Promedio pentadal de anomalía de *cl-a* (0-100km, 4° S-16° S).
- B) Hovmöller de *cl-a* mensual a lo largo de la costa (0-100km).



Pesquería Artesanal

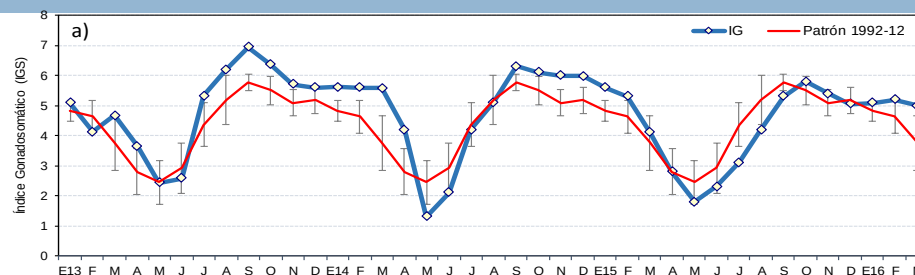
Distribución y tallas de anchoveta – marzo 2016

Distribución de anchoveta
marzo 2016

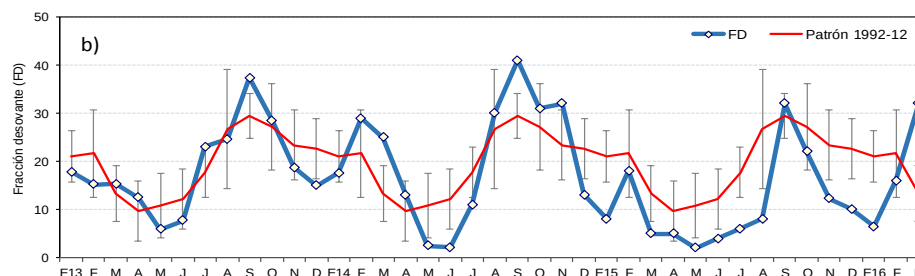


Condición reproductiva de anchoveta (Marzo 2016)

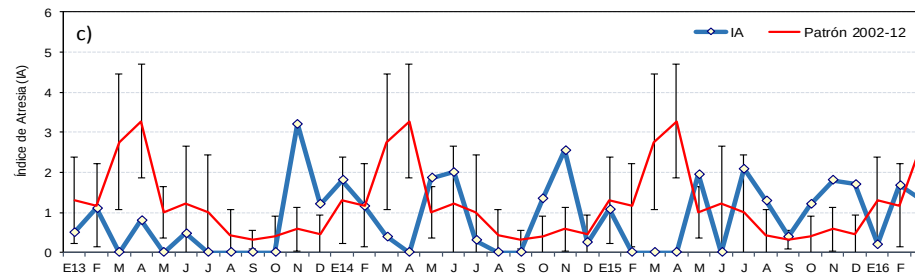
Índice
Gonadosomático



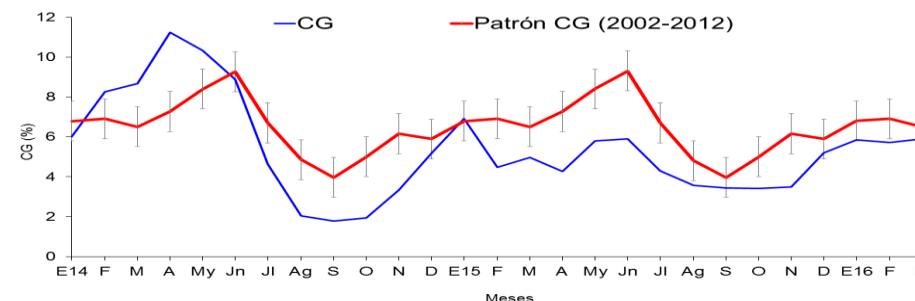
Fracción
desovante



Índice de atresia



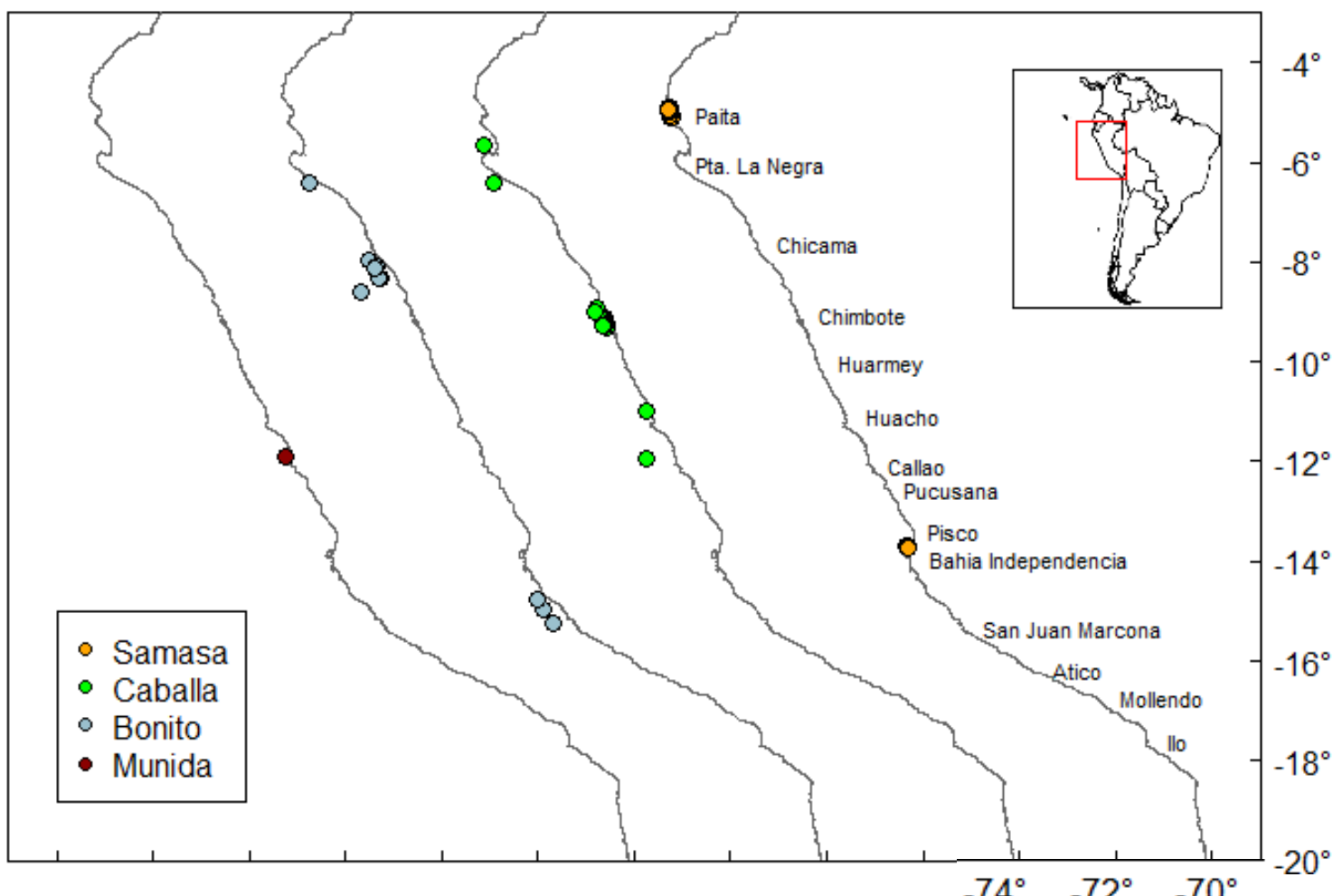
Contenido graso



Otras especies –marzo 2016

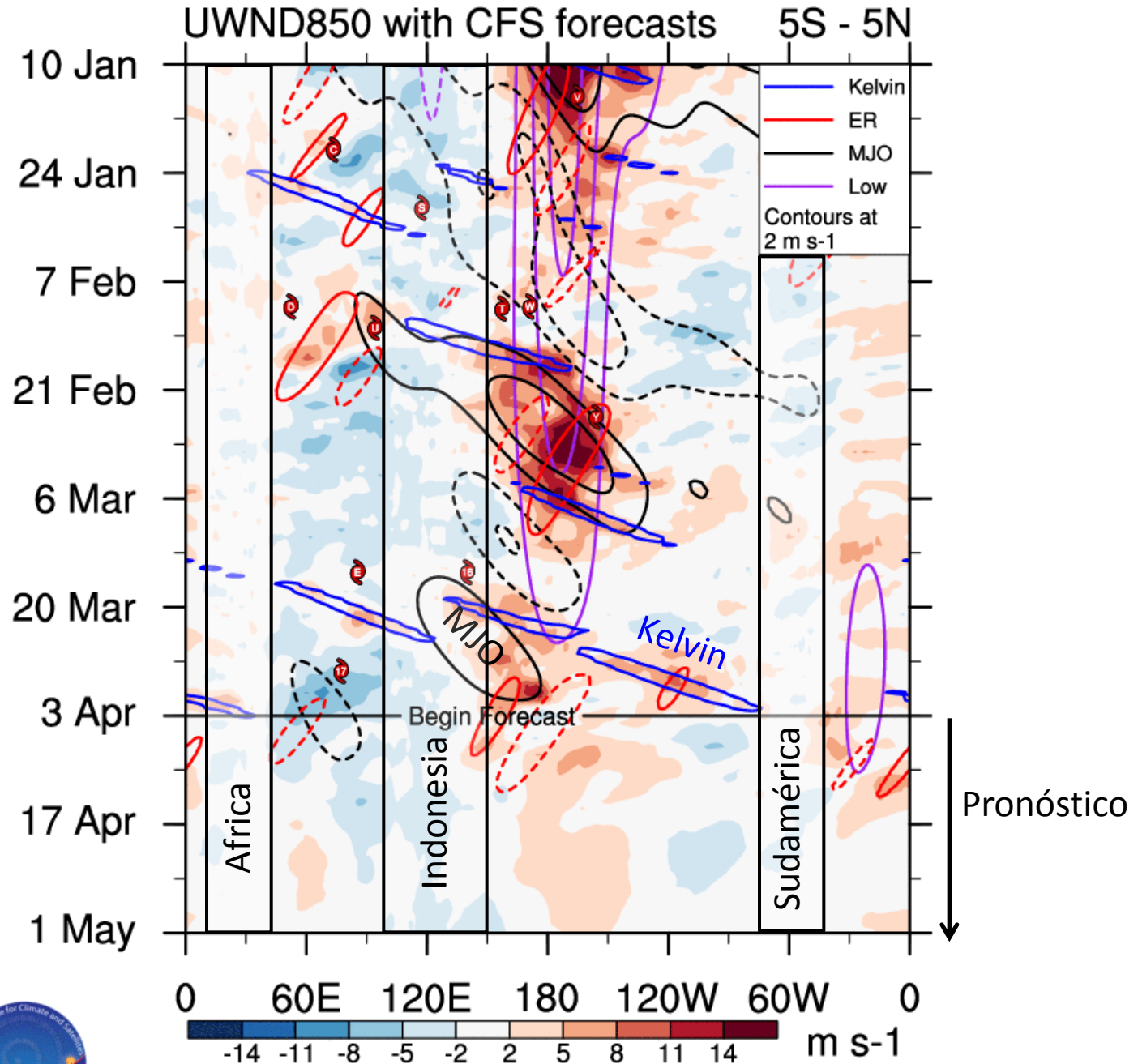
Pesquería artesanal

Distribución de otras especies

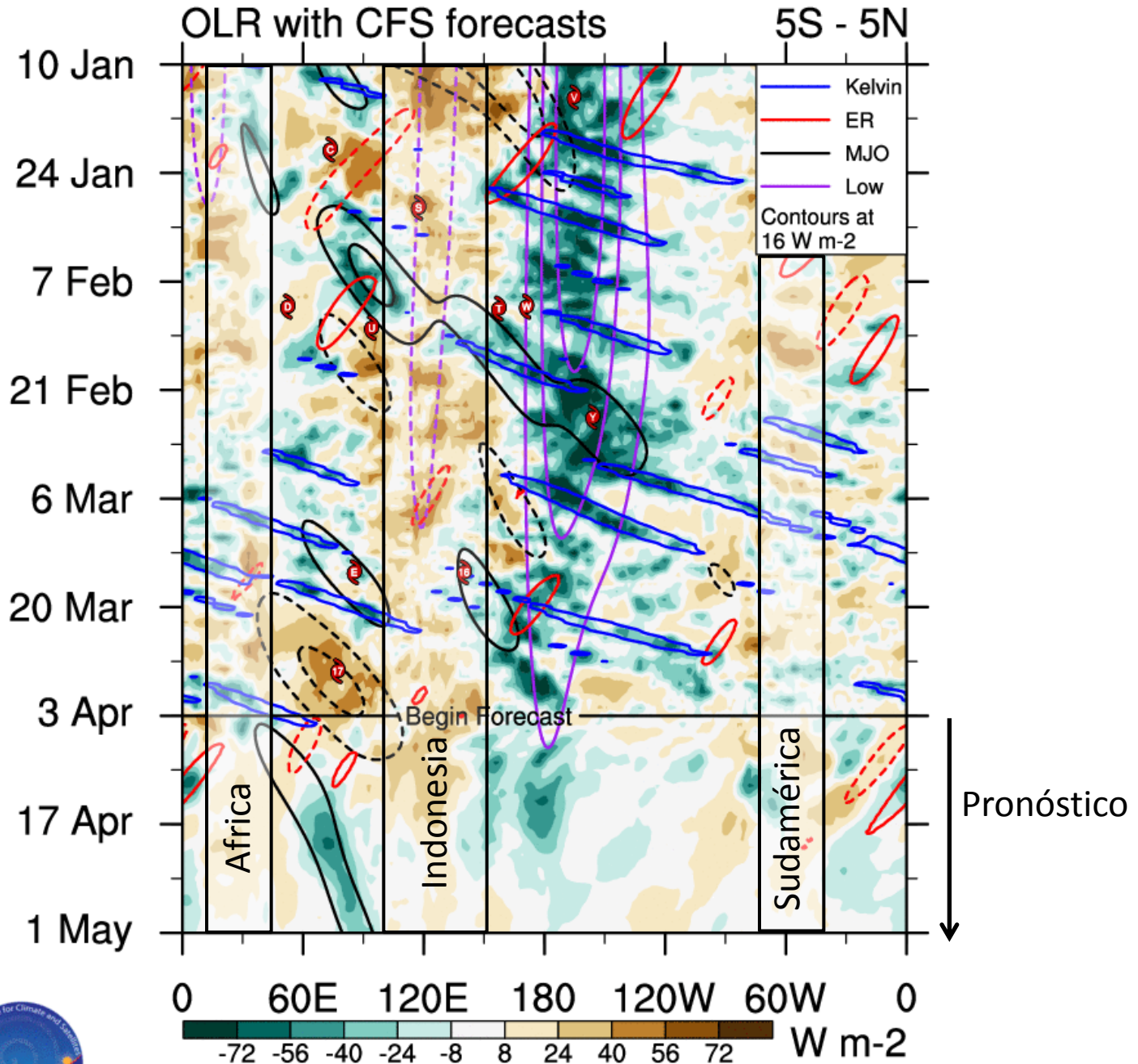


Perspectivas

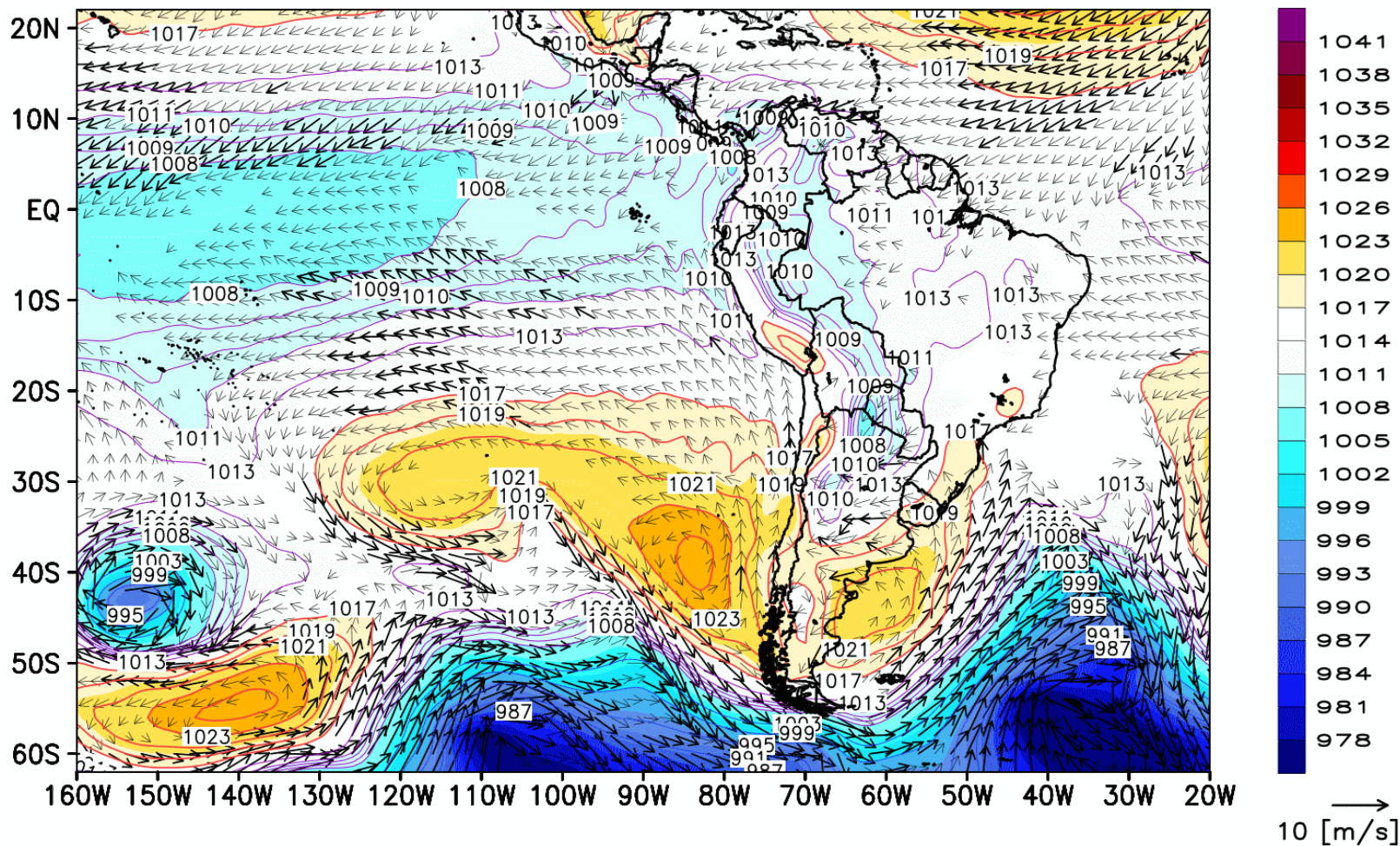
Viento zonal ecuatorial en 850 Pa



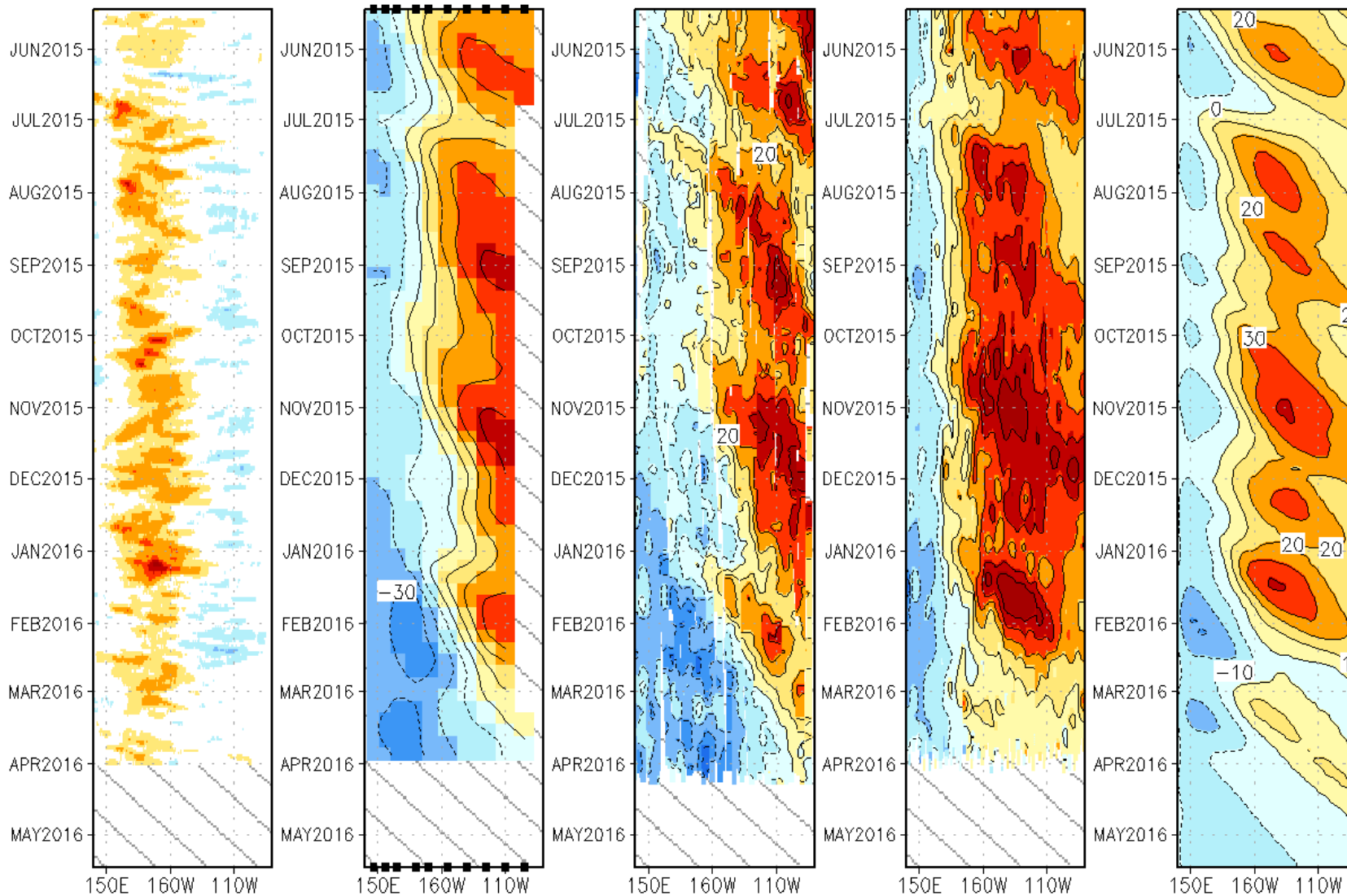
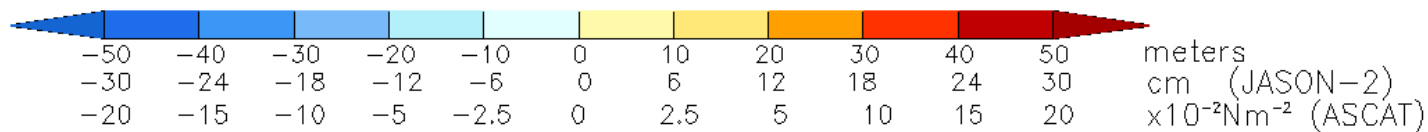
Convección (ROL) ecuatorial



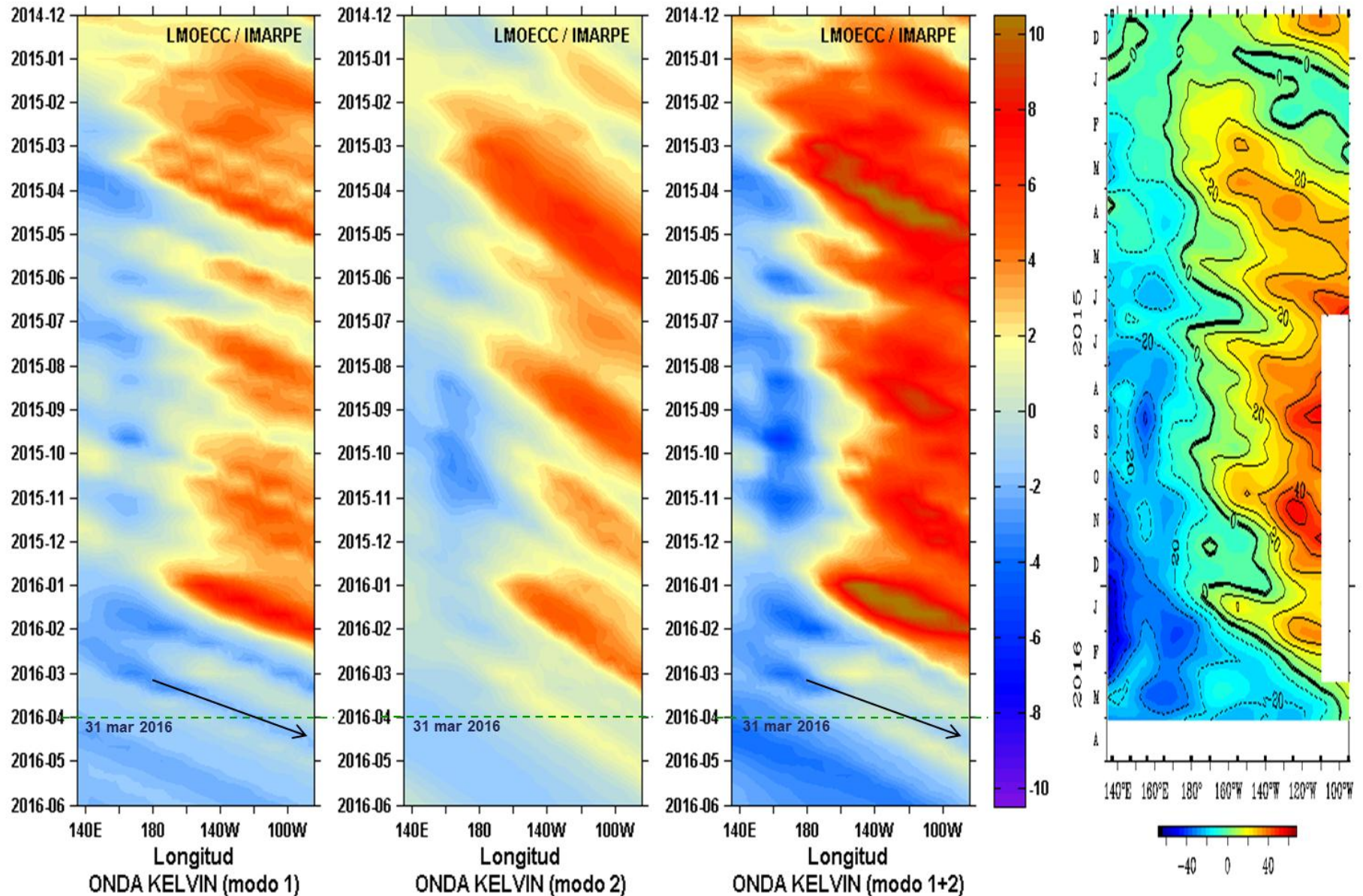
Wind 975 Hpa (m/s) – Mean Sea Level Pressure Reduced(Hpa)
ANALISIS: 0000Z 04/APR/2016 VALIDO: 0000Z 04/APR/2016



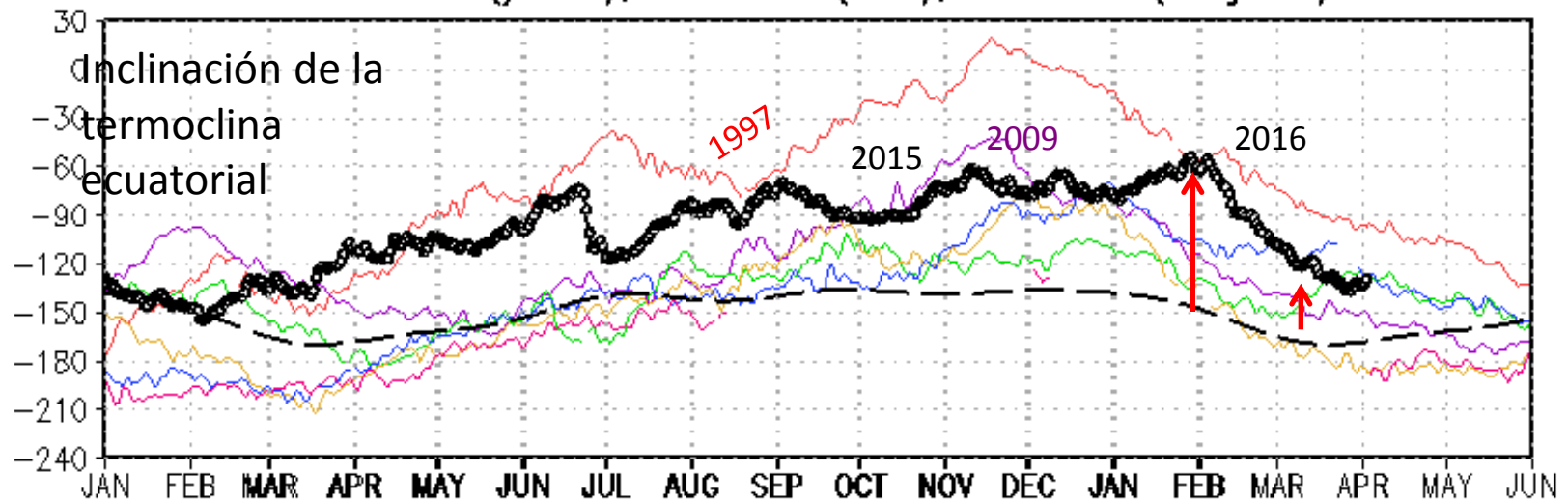
(a) ASCAT [clim. 2008–2013] (b) TAO [clim. 1993–2014] (c) ARGO [clim. de GODAS] (d) JASON-2 [clim 2002–2014] (e) LOM-IGP [clim. 2008–2013]



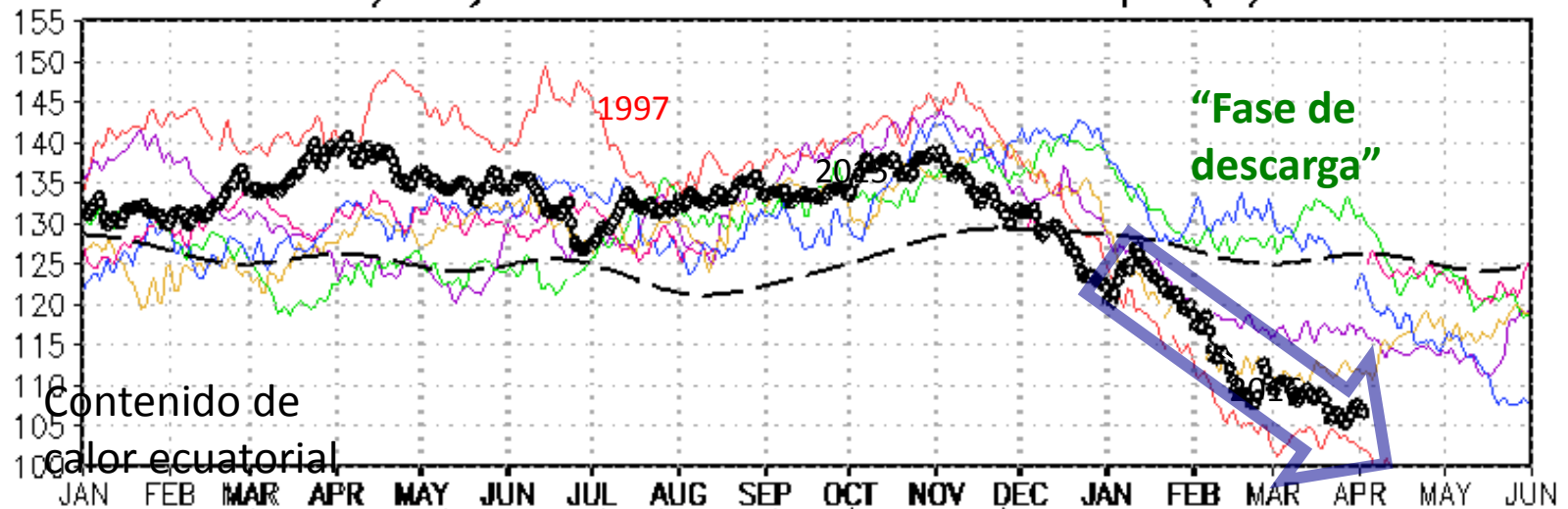
Simulación de la propagación de las ondas Kelvin Ecuatoriales



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)

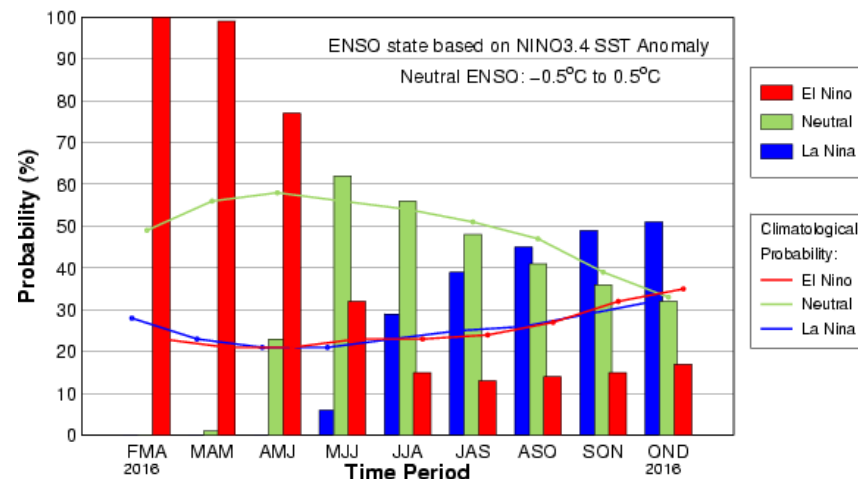
Only for days with at least 10 out of 11 lons. 1–2–1 smoothing. Clim dashed (1993–2012)

Data: TAO/TRITON (last: 02APR2016). Processing: @KTakahashiG (IGP)

Probabilidades de El Niño según solo según porcentaje de **modelos** (IRI)

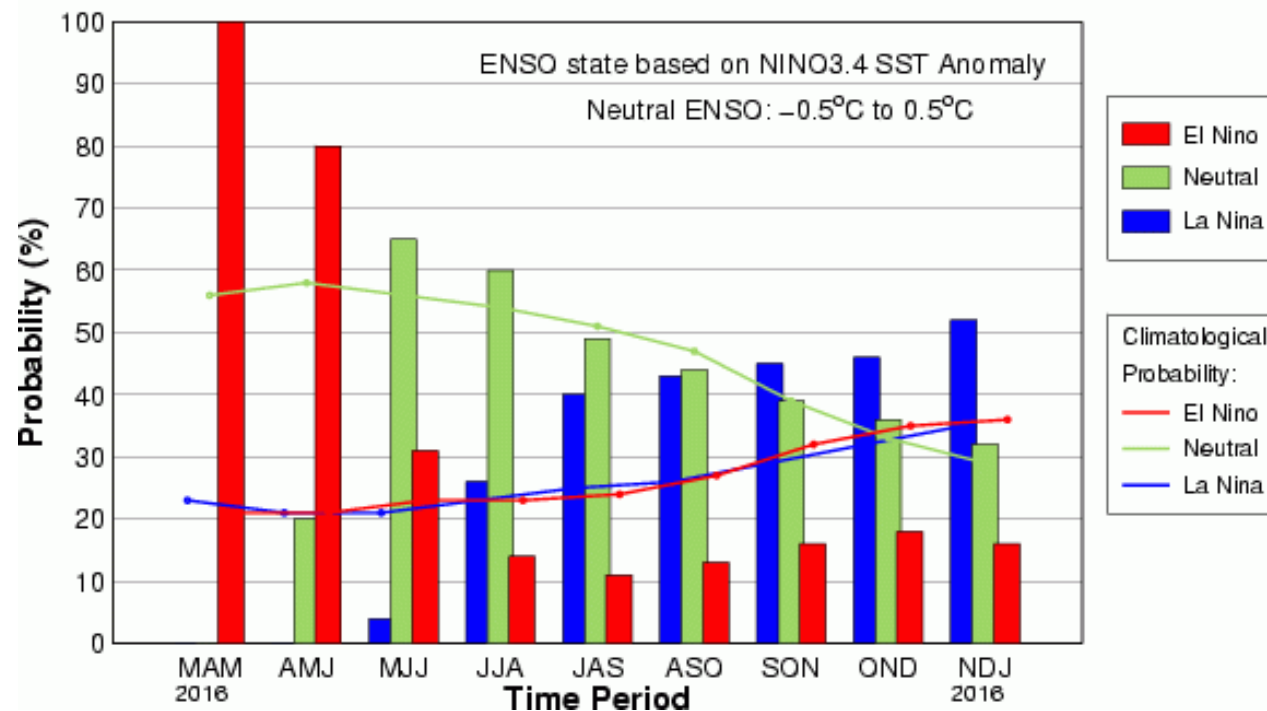
Corrida del mes anterior

Mid-Feb IRI/CPC Model-Based Probabilistic ENSO Forecast



Corrida reciente

Mid-Mar IRI/CPC Model-Based Probabilistic ENSO Forecast



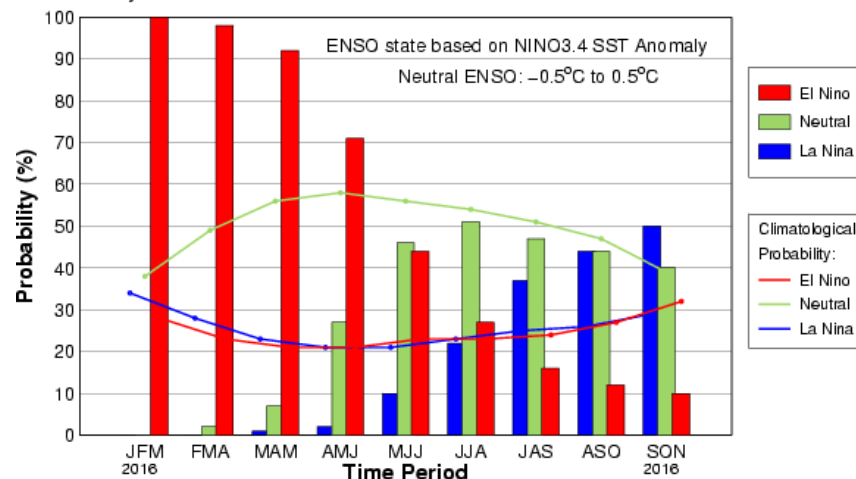
Según los resultados de los modelos, la probabilidad de El Niño en el Pacífico central es 80% para el mes de mayo de 2016.

Publicado 17 de marzo de 2016

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

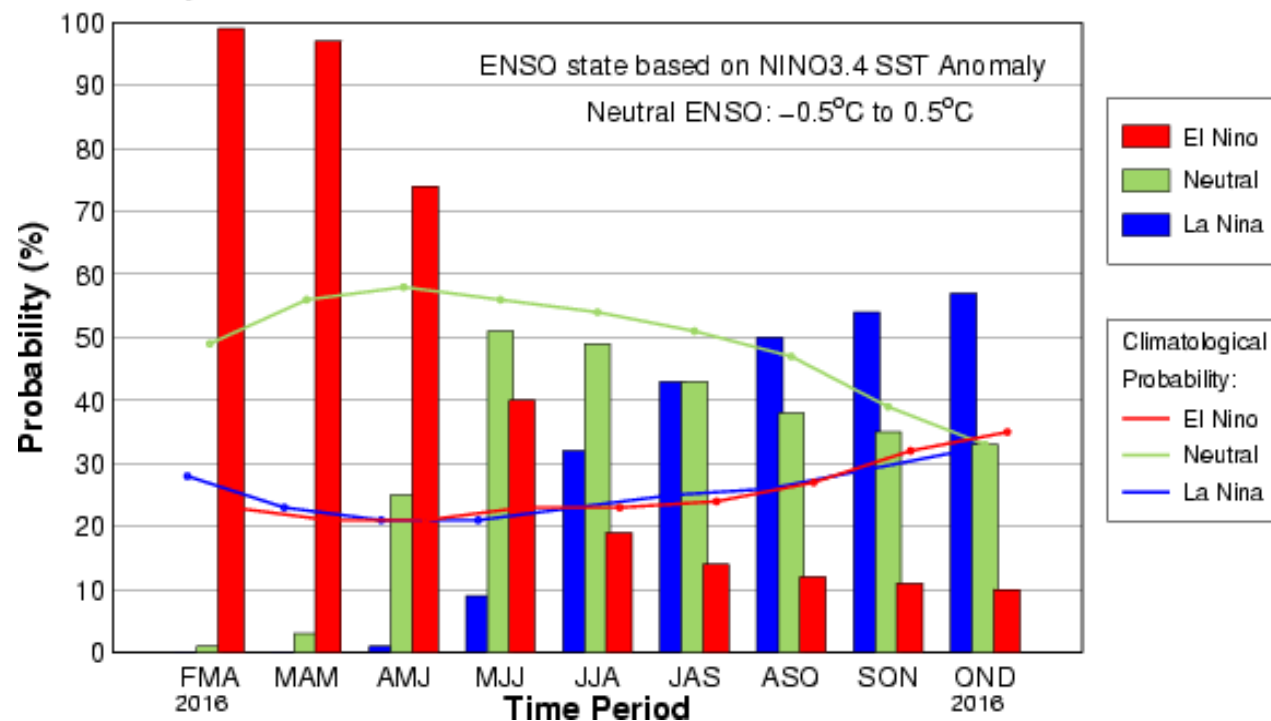
Corrida del mes anterior

Early-Feb CPC/IRI Consensus Probabilistic ENSO Forecast



Corrida reciente

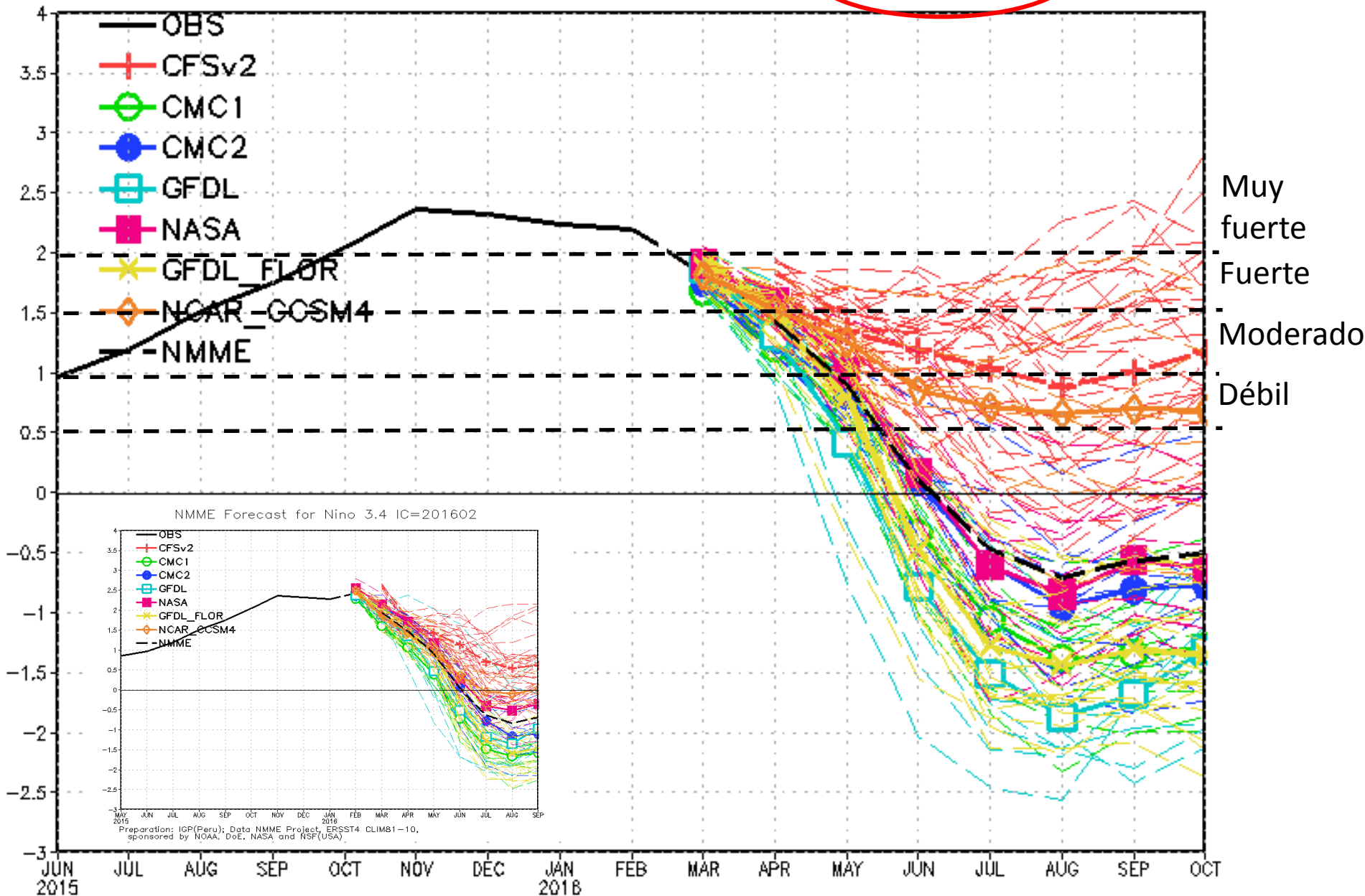
Early-Mar CPC/IRI Consensus Probabilistic ENSO Forecast



Según la evaluación experta sobre los resultados de los modelos a inicios de enero, la probabilidad de El Niño en el Pacífico central es de 74% para el mes de mayo de 2016.

Publicado 10 de marzo de 2016

NMME Forecast for Nino 3.4 IC=201603



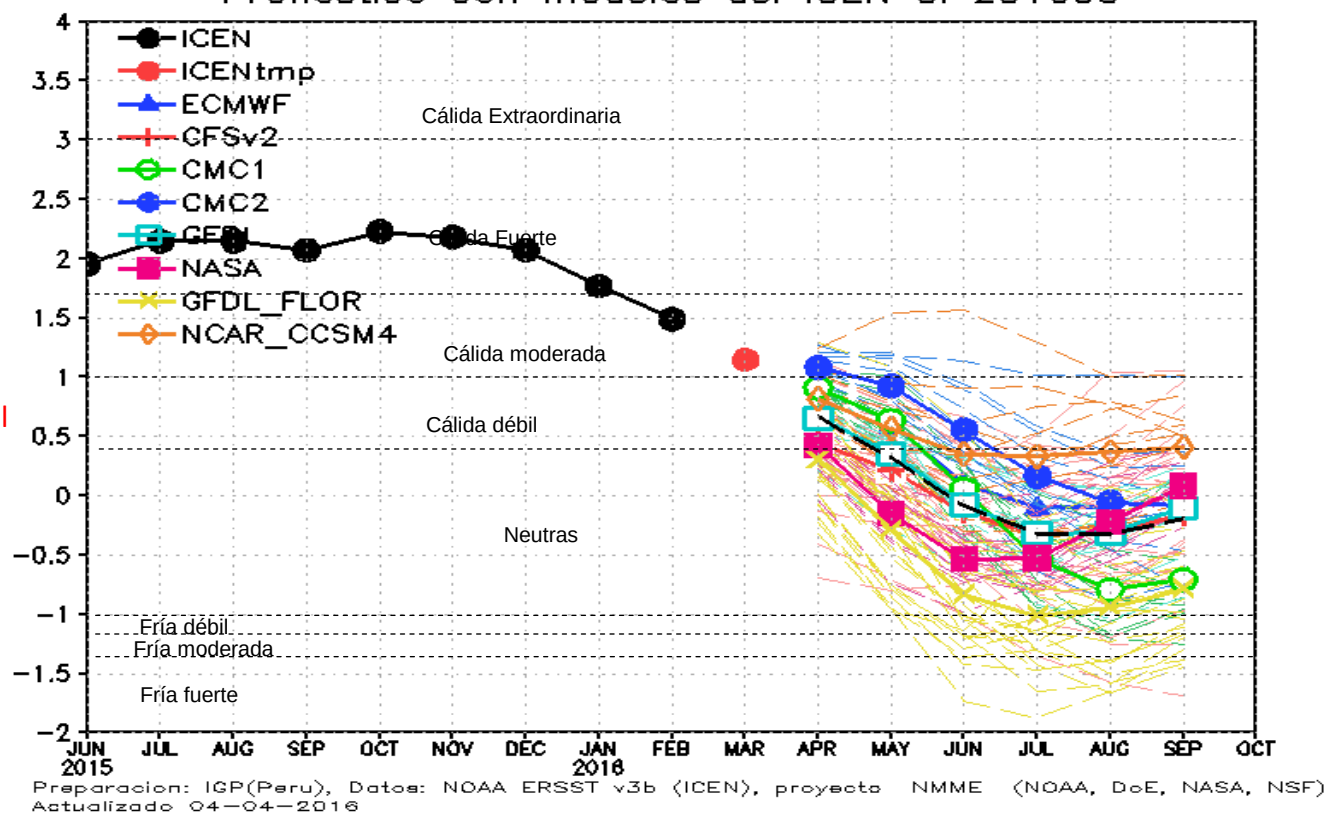
Preparation: IGP(Peru); Data NMME Project, ERSST4 CLIM81-10, sponsored by NOAA, DoE, NASA and NSF(USA)

Pronóstico con modelos del ICEN CI 201602

Corrida anterior

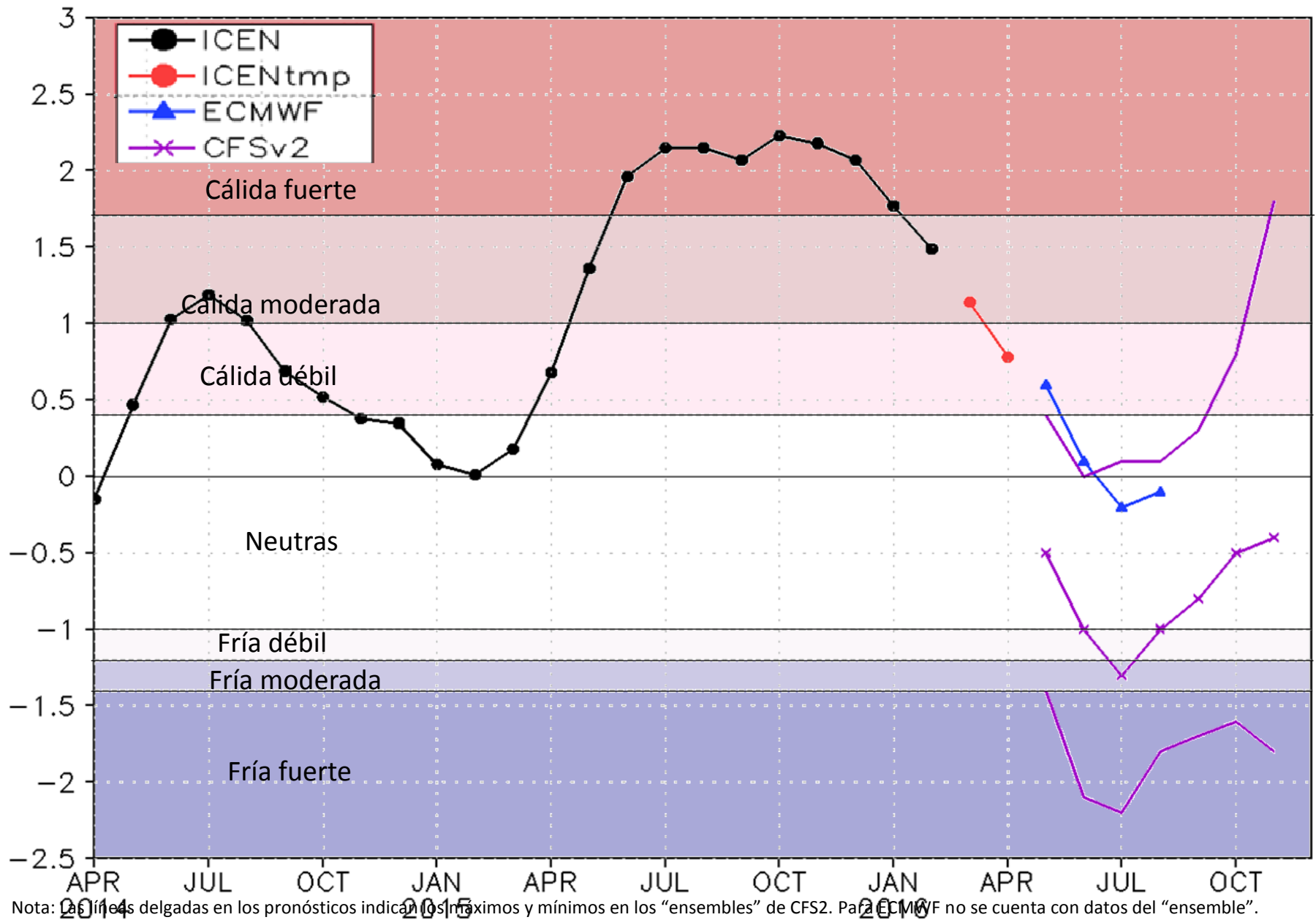
Corrida actual

Pronóstico con modelos del ICEN CI 201603



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

Pronostico con modelos del ICEN



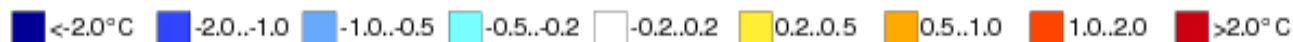
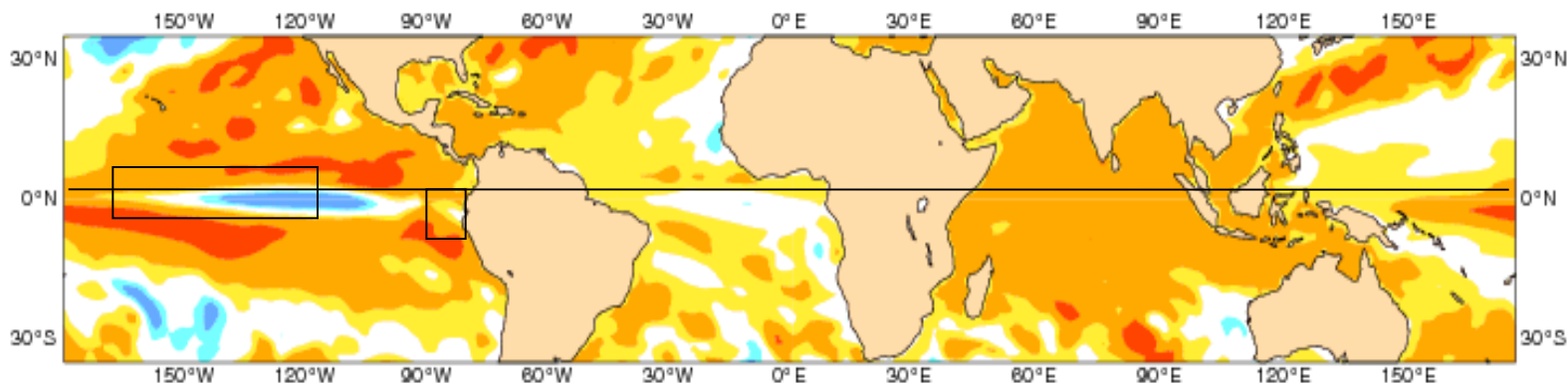
Nota: Las líneas delgadas en los pronósticos indican los máximos y mínimos en los "ensembles" de CFS2. Para ECMWF no se cuenta con datos del "ensemble".
ECMWF, tiene condiciones iniciales el mes de febrero

ECMWF Seasonal Forecast
 Mean forecast SST anomaly
 Forecast start reference is 01/03/16
 Ensemble size = 51, climate size = 450

AMJ 2016

System 4
 AMJ 2016

ECMWF



Pac. Cen.
 0.4 ° C

Pac. Or.
 0.6°C

CFS2

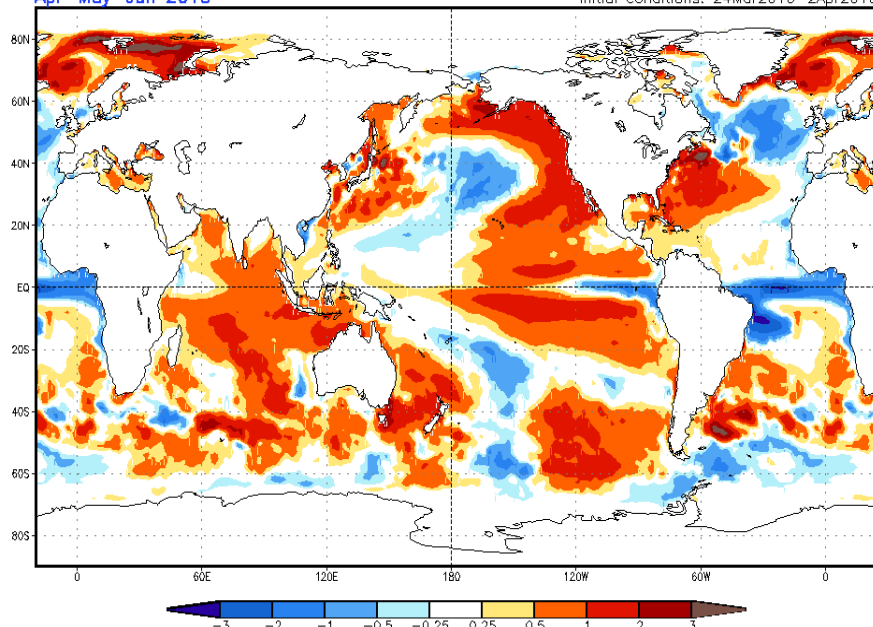
CFSv2 seasonal SST anomalies (K)



NWS/NCEP/CPC

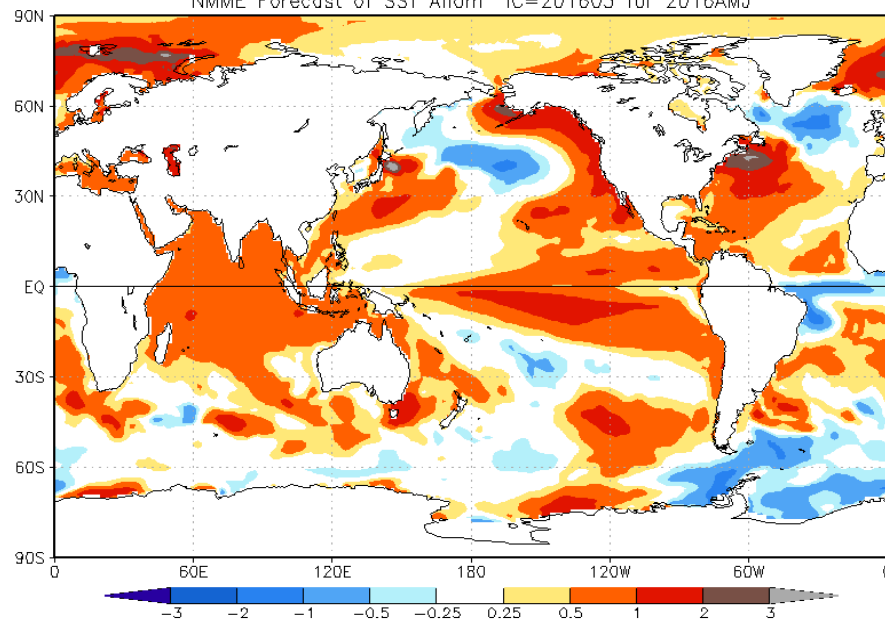
Apr-May-Jun 2016

Initial conditions: 24Mar2016-2Apr2016



NMME

NMME Forecast of SST Anom IC=201603 for 2016AMJ

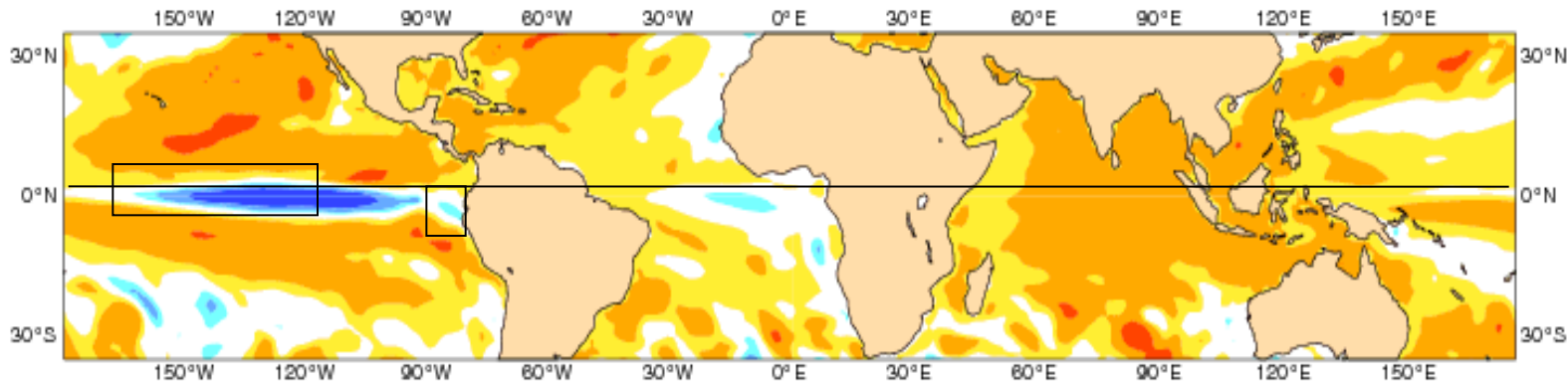


ECMWF Seasonal Forecast
Mean forecast SST anomaly
Forecast start reference is 01/03/16
Ensemble size = 51, climate size = 450

MJJ 2016

System 4
MJJ 2016

ECMWF



Pac. Cen.
-0.2 ° C

Pac. Or.
0.1°C

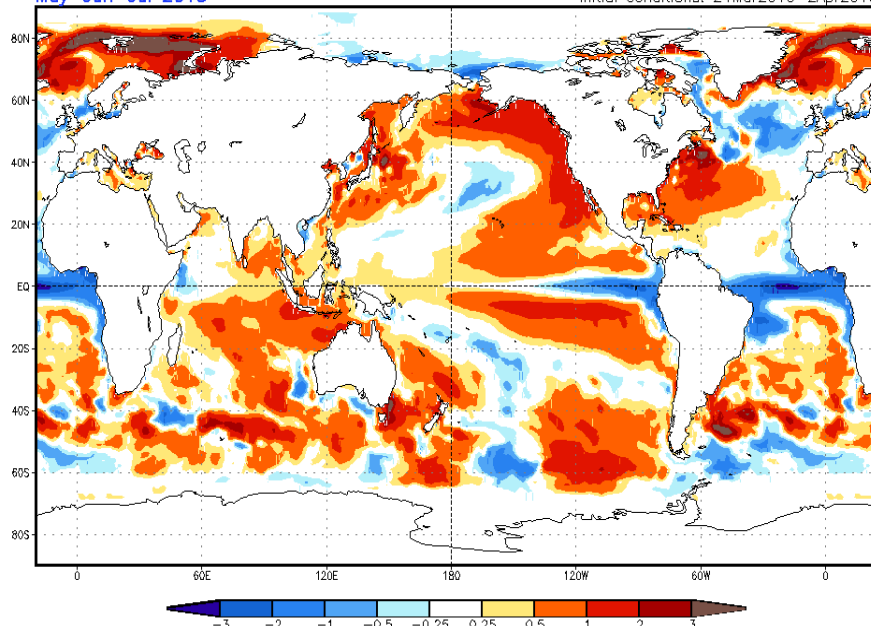
CFS2

CFSv2 seasonal SST anomalies (K)

NWS/NCEP/CPC

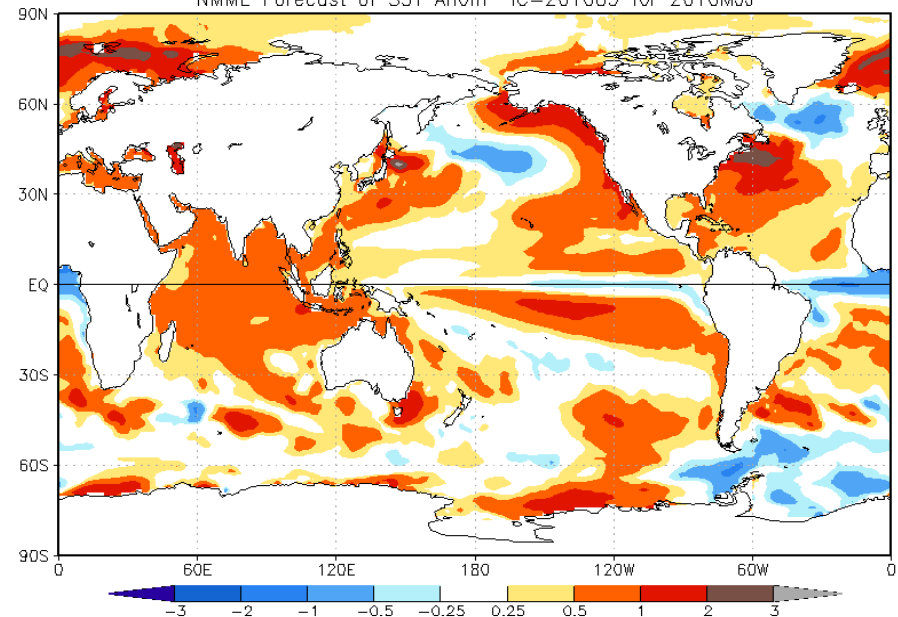
May-Jun-Jul 2016

Initial conditions: 24Mar2016-2Apr2016

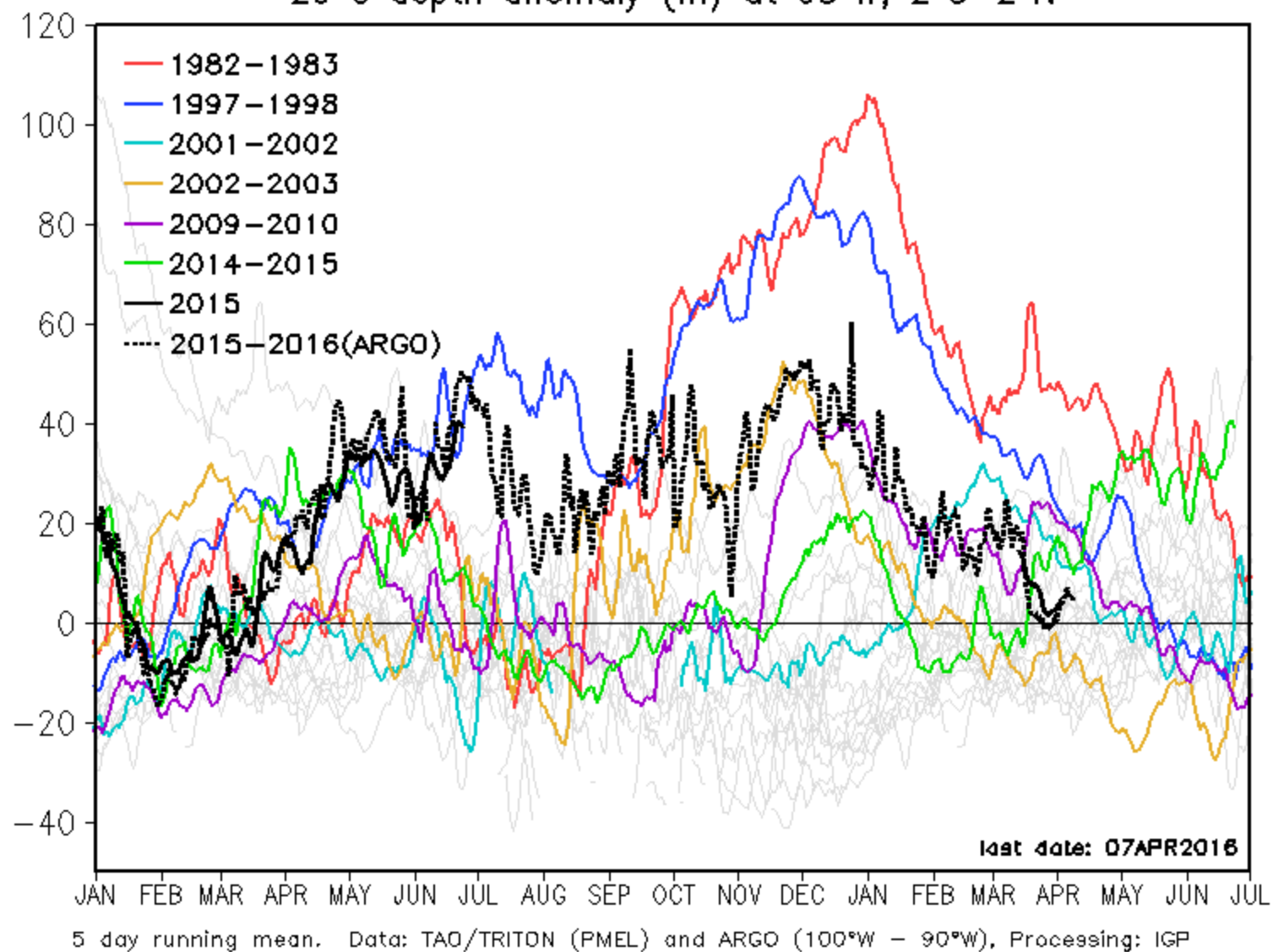


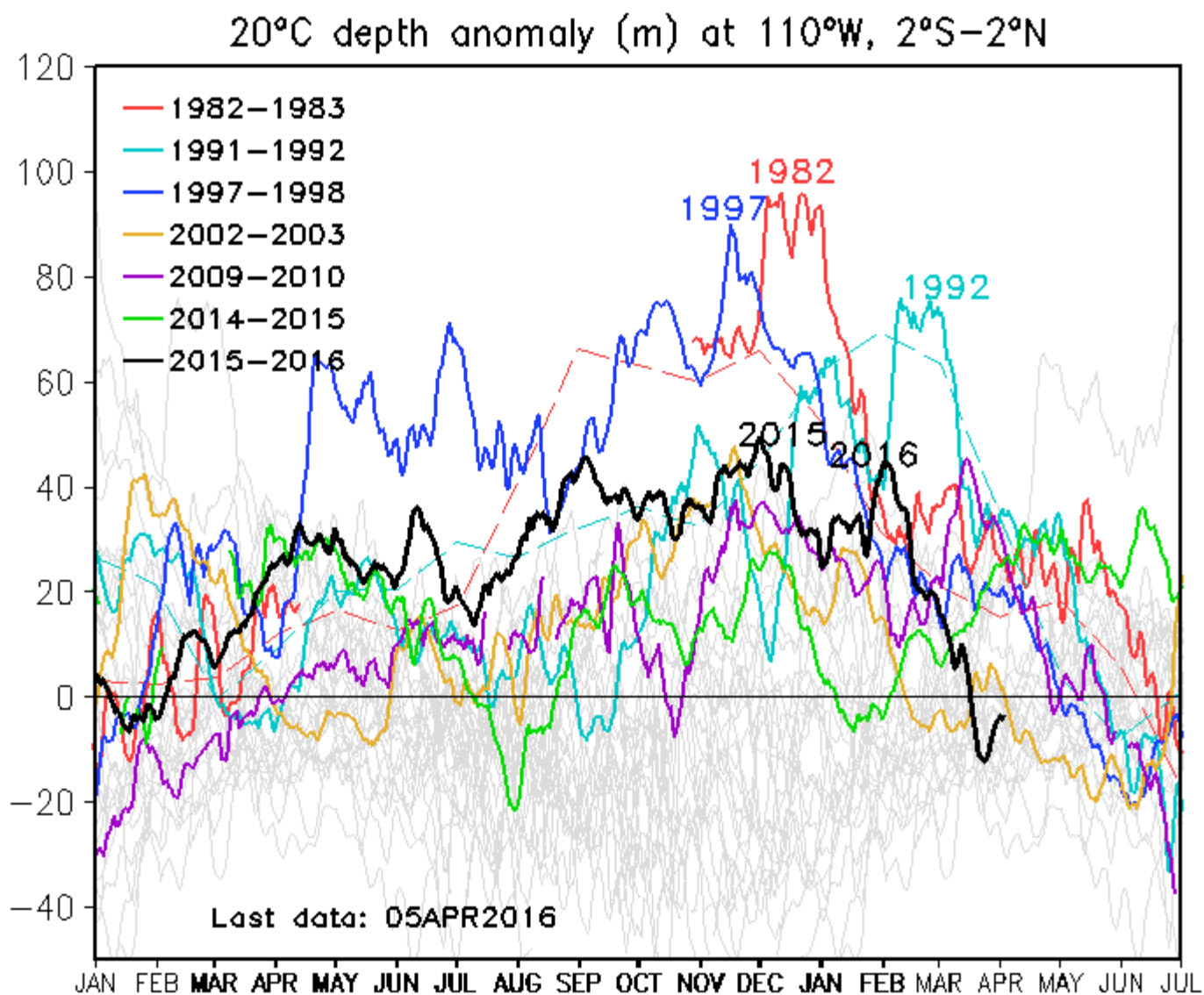
NMME

NMME Forecast of SST Anom IC=201603 for 2016MJJ



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





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