ESPUMOSO

PROGNÓSTICO CLIMÁTICO

Clique para editar o estilo do subtítulo mestre

Solismar Damé Prestes
Meteorologista
Coordenador do 8º DISME/INMET

1. Estrutura do INMET
2. Variações Climáticas e Caracterização dos fenômenos EL NINO e LA NINA
3. Precipitação em anos de EL NINO e LA NINA
4. Situação atual das variáveis indicadoras de EL NINO e LA NINA
5. Prognóstico da Temperatura da Superfície do Mar no Pacífico Equatorial
6. Prognóstico de precipitação e temperaturas para a outubro/novembro/dezembro
7. Tendência de precipitação para o verão
8. Conclusões

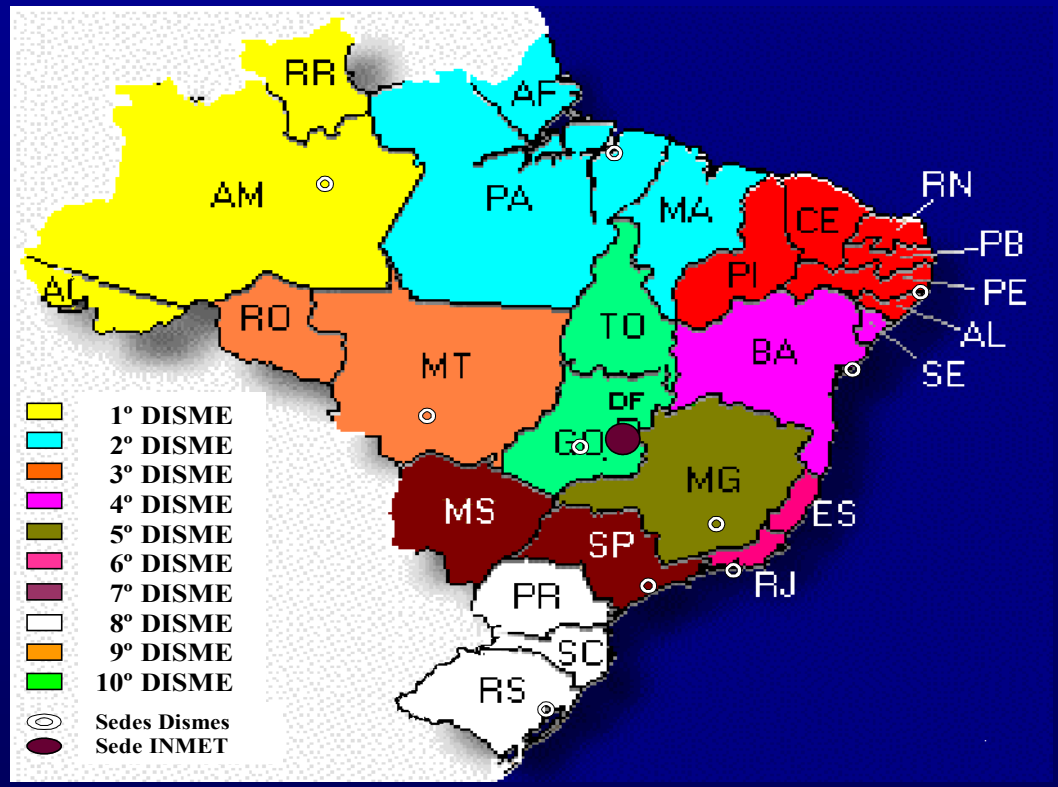
CRIAÇÃO: 1909

- Da estrutura do Ministério da Agricultura, Pecuária e Abastecimento.
- É o órgão responsável pela Meteorologia e Climatologia do Brasil (Lei 10.683, de 28 de Maio de 2003 e Decreto No. 5.351, de 21 de Janeiro de 2005).
- Representa o Brasil na Organização Meteorológica Mundial (OMM).

ATRIBUIÇÕES

- Realizar estudos e levantamentos meteorológicos aplicados à Agricultura e a outras atividades como transporte, defesa civil, saúde, energia, indústria e comércio, turismo, aviação;
- Elaborar, coordenar e executar programas e projetos de pesquisas Agrometeorológicas e de acompanhamento das alterações climáticas e ambientais;
- Elaborar e divulgar, diariamente, a nível nacional, a previsão do tempo, boletins e alertas meteorológicos especiais;
- Elaborar e divulgar mensalmente prognóstico climático;
- Coordenar e operar a rede nacional de observação meteorológica;
- Manter e operar o Banco de Dados Meteorológicos.

ESTRUTURA


RR
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5º DISME
6º DISME
7º DISME
8º DISME
9º DISME
10º DISME
Sedes Dismes
Sede INMET

DESAFIO

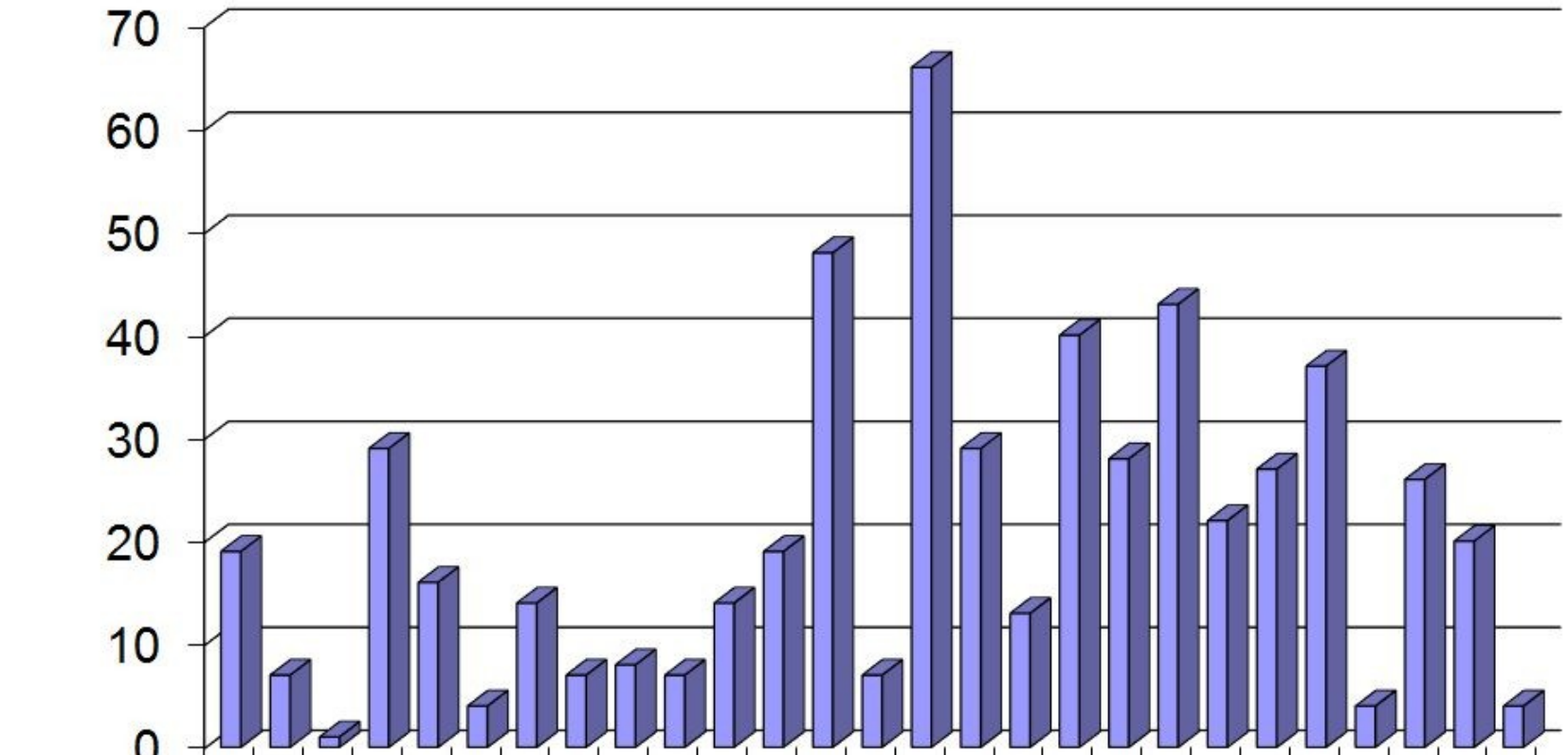
Monitoramento de Tempo e Clima

Rede Sinótica

Estabelecer uma rede de observação mínima, espaçada numa grade de 1 por 1 grau de resolução, para monitorar as condições de tempo no território brasileiro.

Aprox. 700 caixas para cobrir o Brasil.
Suficientes 500 estações.

Situação em 25/10/2017
565 estações instaladas

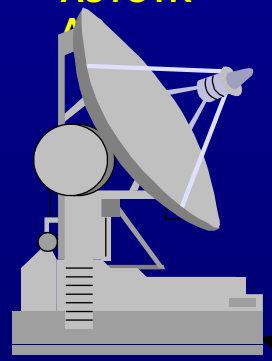


	AM	AC	RR	PA	MA	AP	PE	AL	PB	RN	CE	PI	BA	SE	MG	RJ	ES	SP	MS	RS	SC	PR	MT	RO	GO	TO	DF
Estações Instaladas	19	7	1	29	16	4	14	7	8	7	14	19	48	7	66	29	13	40	28	43	22	27	37	4	26	20	4

Sistema de Coleta Via Satélite e Telefonia Celular

BRASILSAT

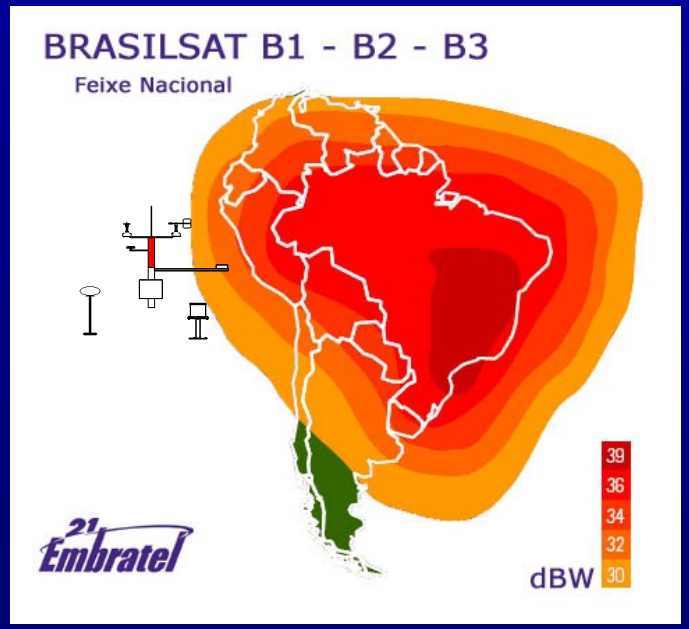
AUTOTR
A



HUB em
Brasilia

TELEFONIA
CELULAR

Tempo real !



Acesso Frame-
Relay

Rede Local do
INMET

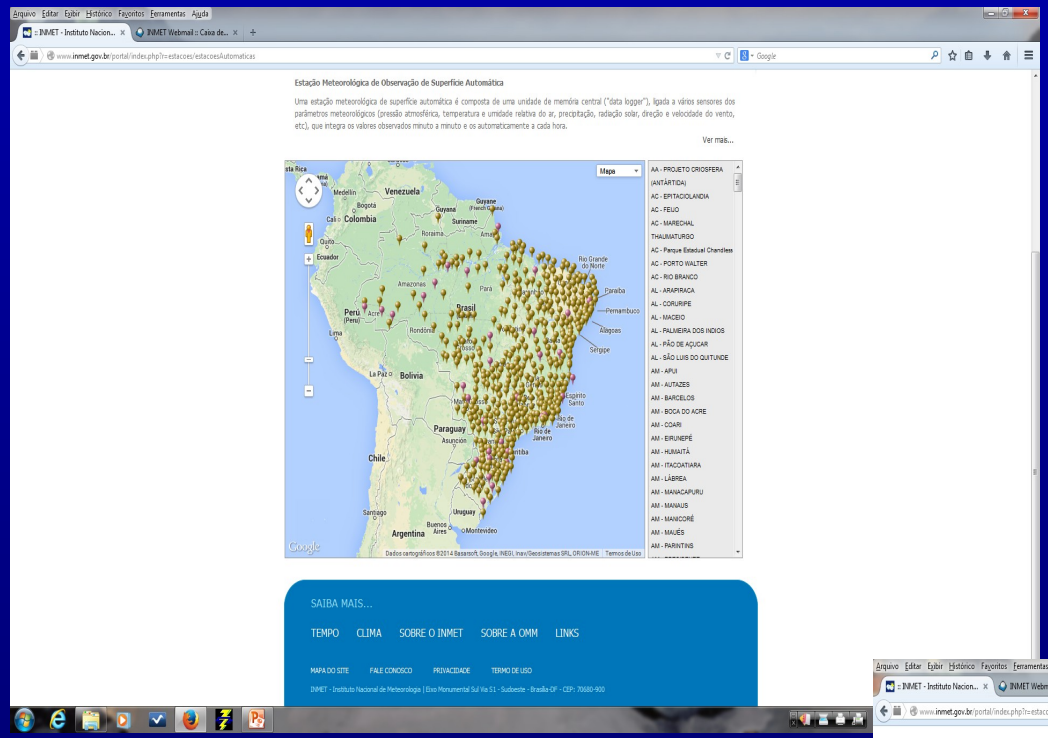
NM

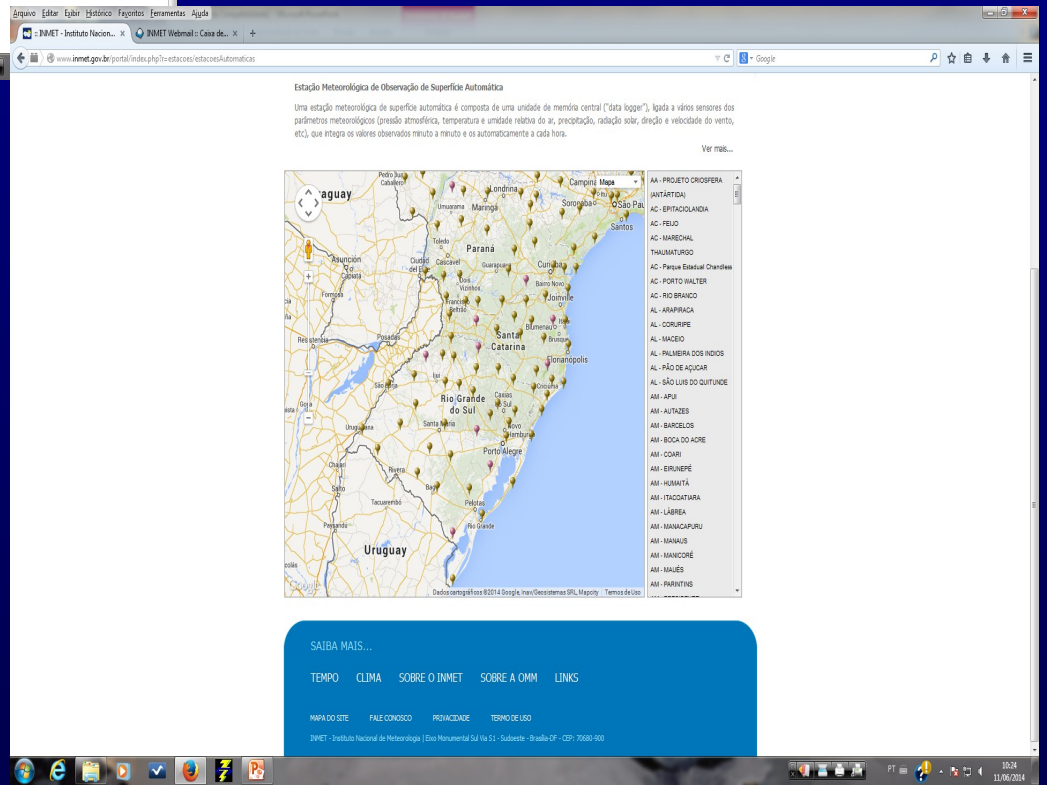
Sistema de
busca

Dados na INTERNET
disponível para todos

www.inmet.gov.br

REDE ESTAÇÕES METEOROLÓGICAS AUTOMÁTICAS





- RIO GRANDE DO SUL
  - 16 estações meteorológicas convencionais
  - 43 estações meteorológicas automáticas

- SANTA CATARINA
  - 1 estação meteorológica convencional
  - 22 estações meteorológicas automáticas

- PARANÁ
  - 7 estações meteorológicas convencionais
  - 27 estações meteorológicas automáticas

PREVISÃO

TEMPO

" DETERMINISTICA"

ATMOSFERA

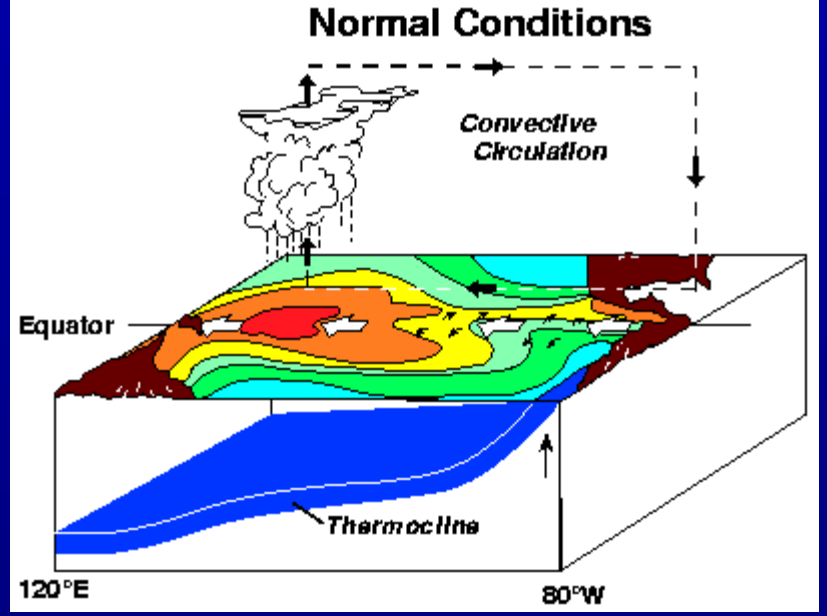
CLIMA

"PROBABILISTICA"

ATMOSFERA/OCEANO

Variações Climáticas

- **EL NINO E LA NINA**
- **OSCILAÇÃO DECADAL DO PACÍFICO**
- **OUTROS FENÔMENOS DE MENOR ESCALA (bloqueios, temperatura do atlântico)**



EL NINO

É O AUMENTO ANORMAL NA TEMPERATURA DA SUPERFÍCIE DO MAR NA COSTA OESTE DA AMÉRICA DO SUL.

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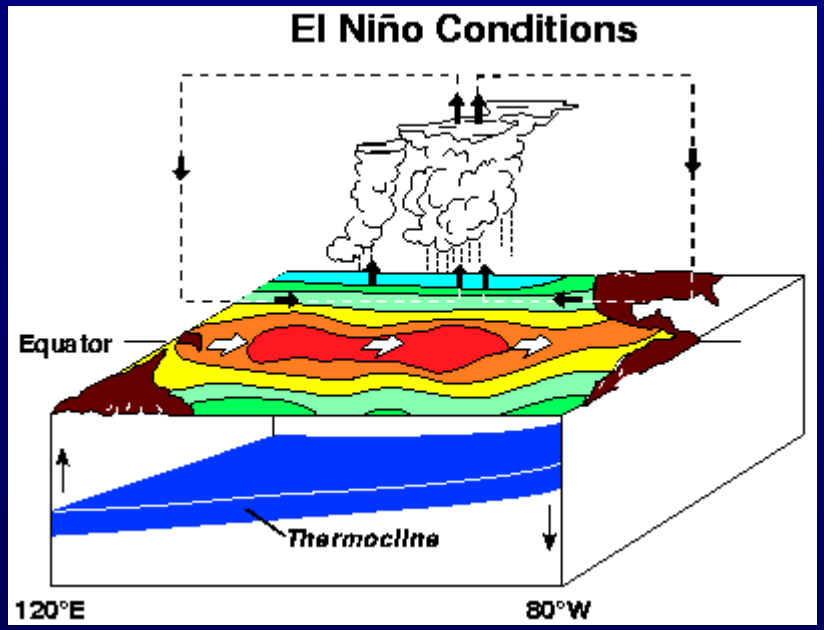
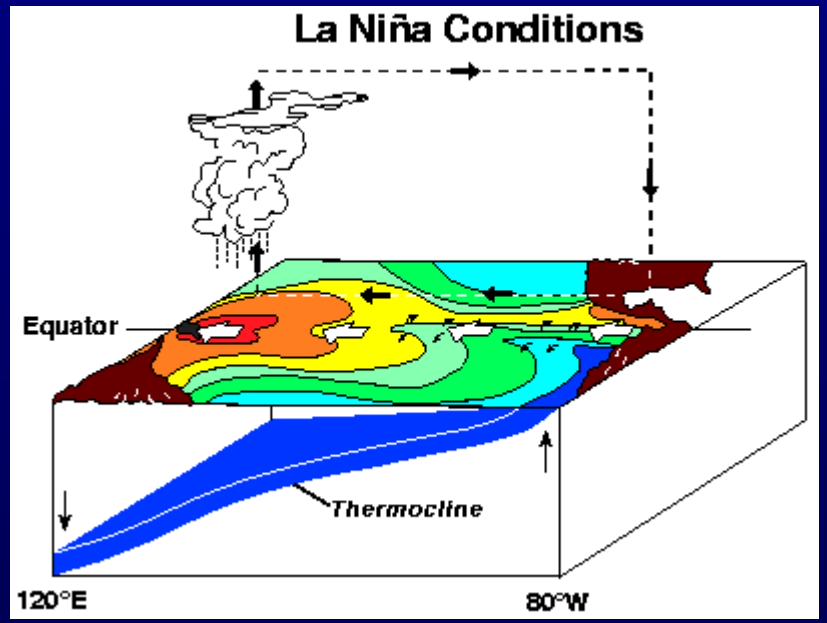




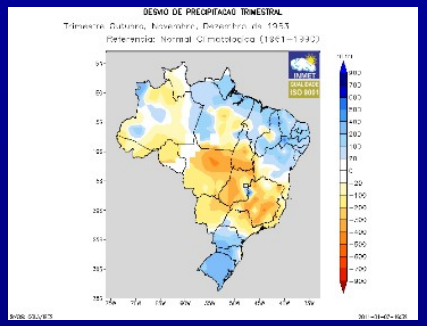
LA NINA

É O DECLÍNIO ANORMAL NA TEMPERATURA DA SUPERFÍCIE DO MAR NA COSTA OESTE DA AMÉRICA DO SUL.


Sistema Subsidente AR SECO
Núcleo Quente
Componente Quente/Úmido do El NIÑO
Ar Frio Polar
CORRENTES DO EL NIÑO

ANOS DE EL NINO MESES DE OUT/NOV/DEZ – 16/18 (89%)

1963



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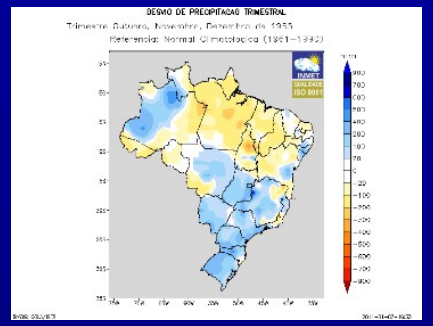

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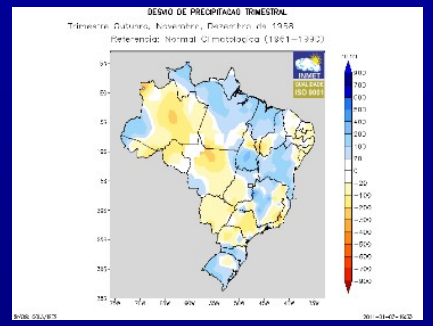

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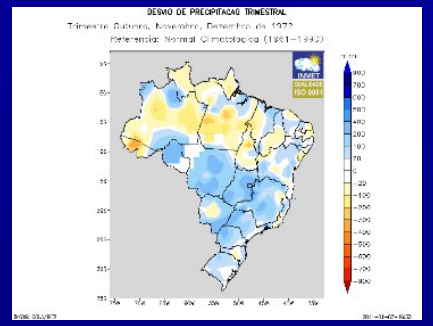

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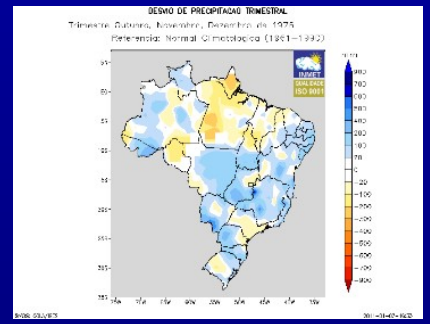
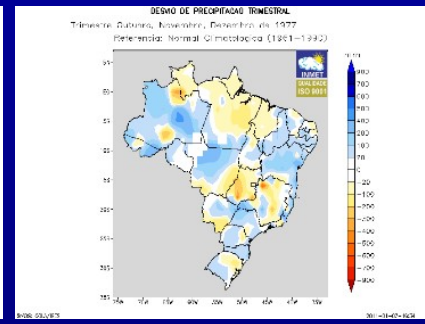
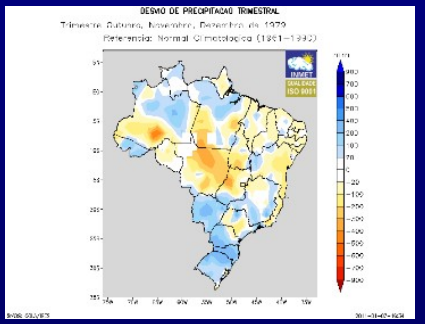


1977



1979



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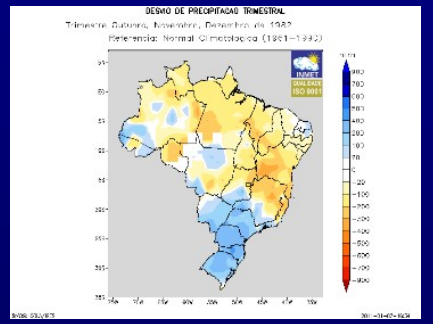

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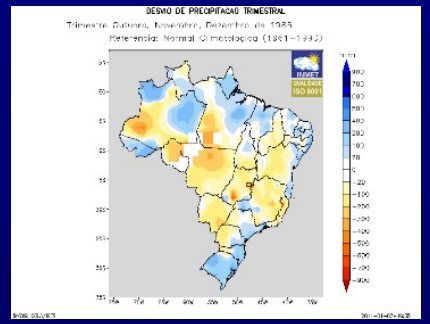

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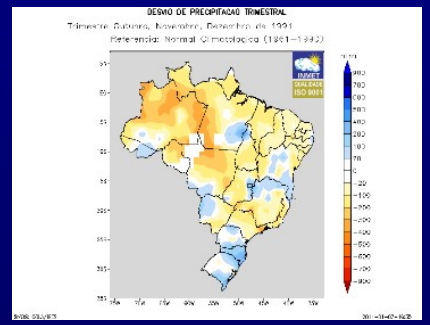

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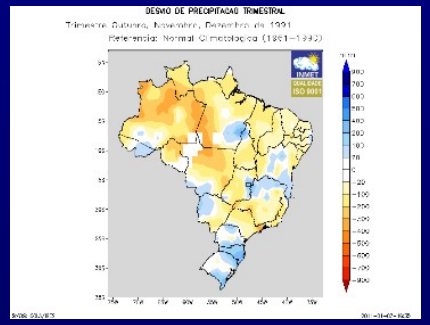

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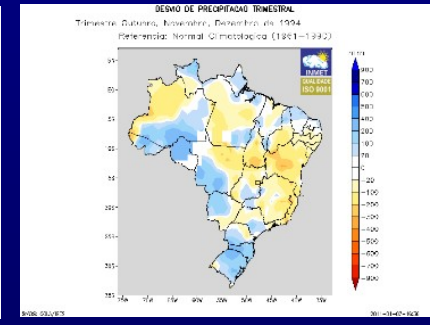
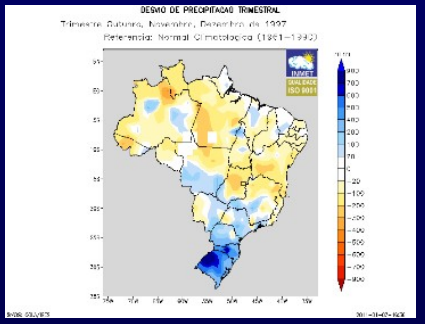


1997



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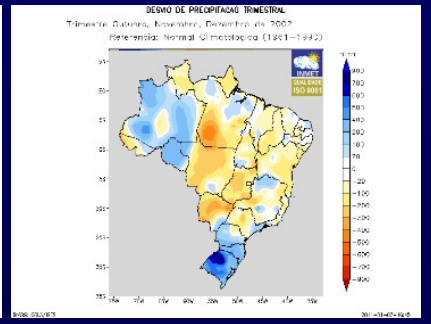
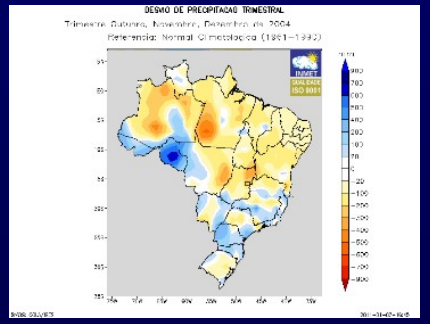
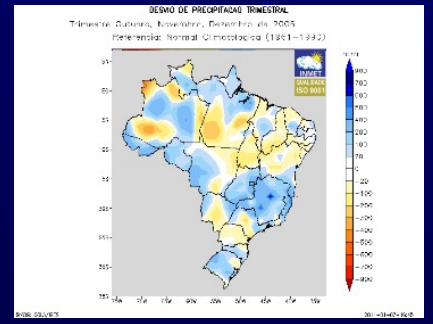


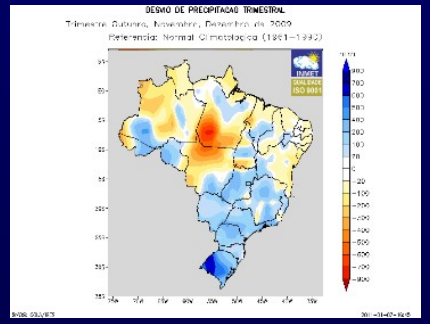
2004



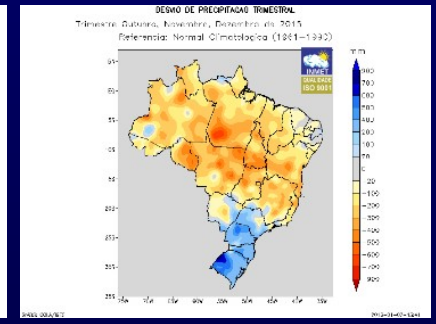
2006



2009

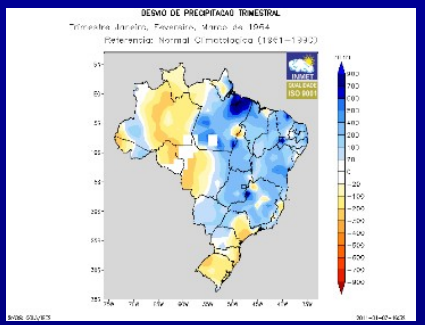


2015



ANOS DE EL NINO MESES DE JAN/FEV/MAR – 11/16 (69%)

1964



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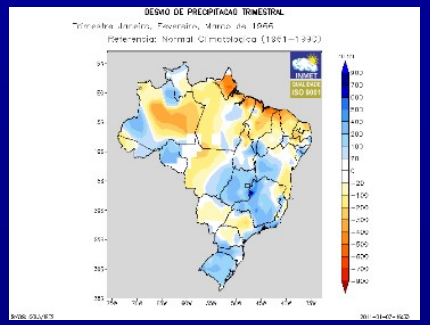

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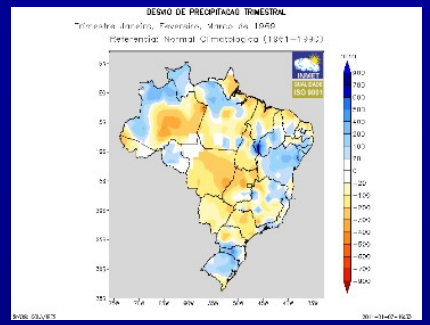
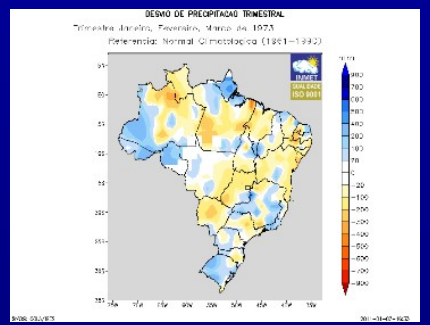
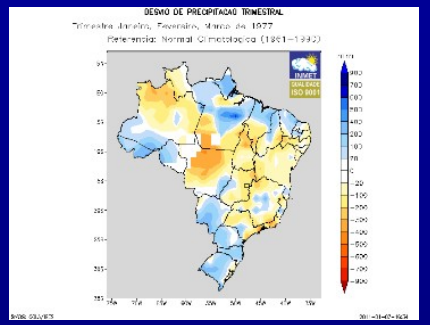


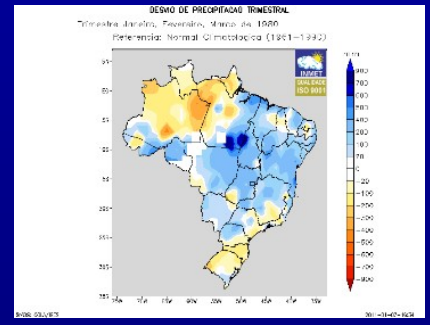
1973



1977



1980



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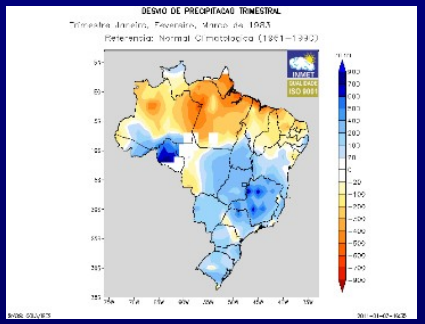

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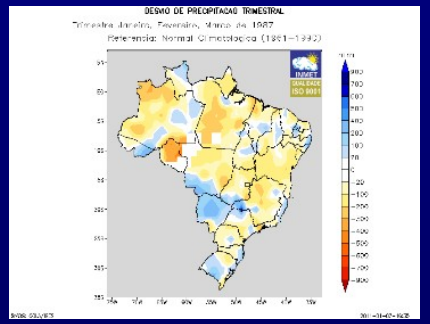

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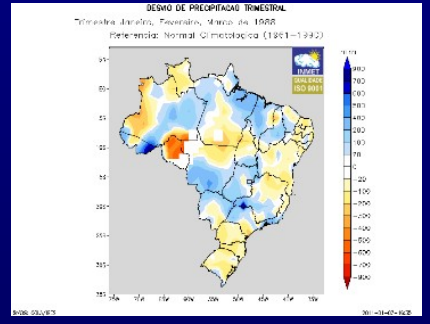

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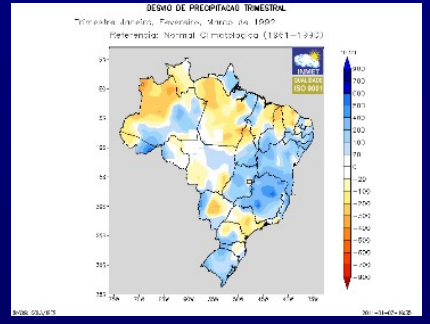

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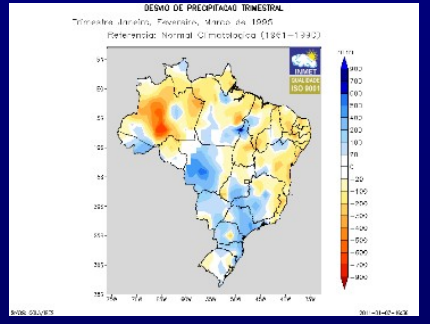
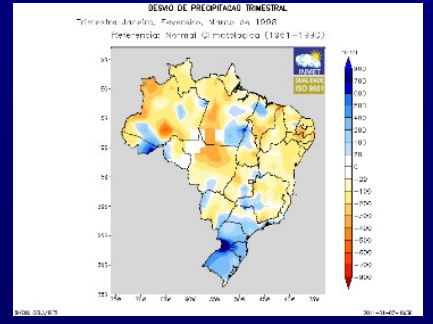
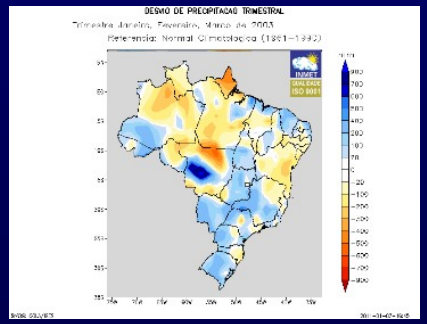


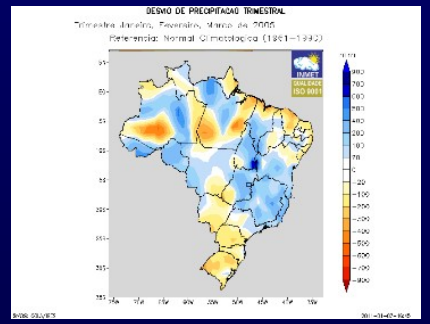
1998



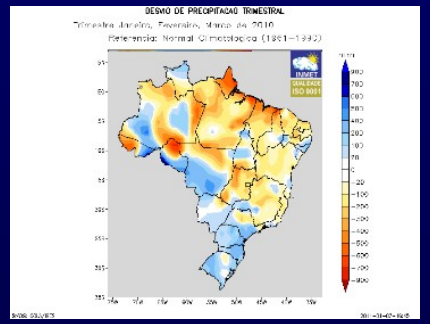
2003



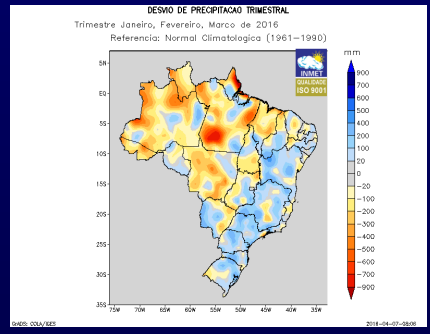
2005



2010

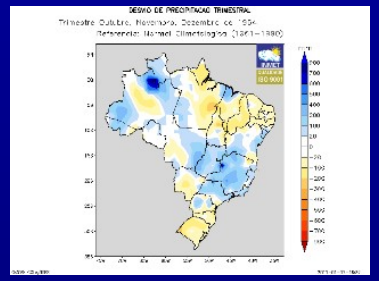


2016

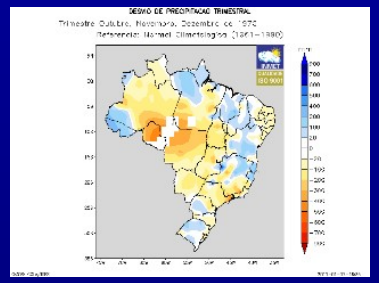


ANOS DE LA NINA MESES DE OUT/NOV/DEZ – 13/15 (87%)

1964



1970



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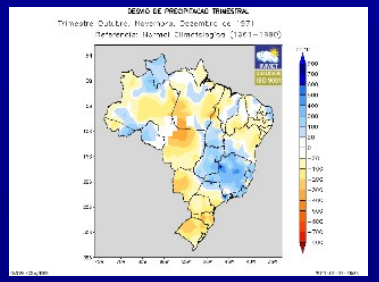
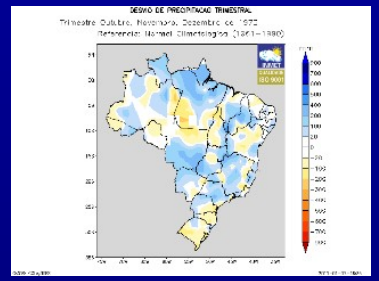
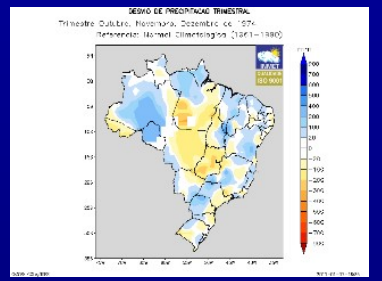


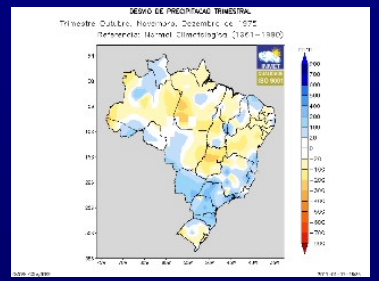
1973



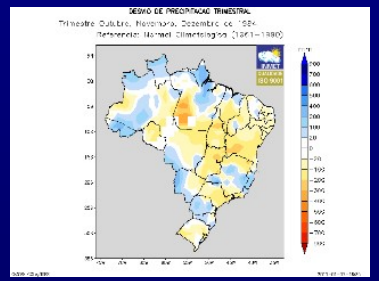
1974



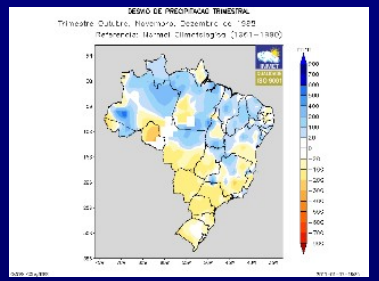
1975



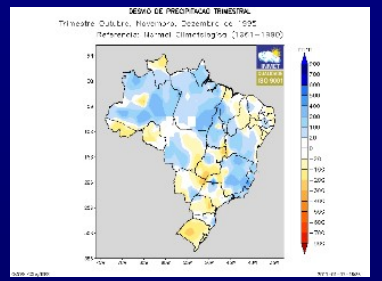
1984



1988



1995



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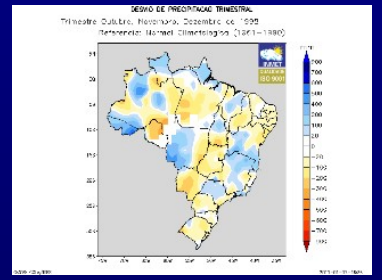

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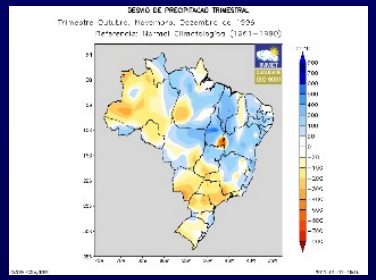

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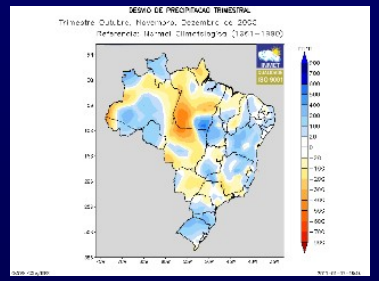

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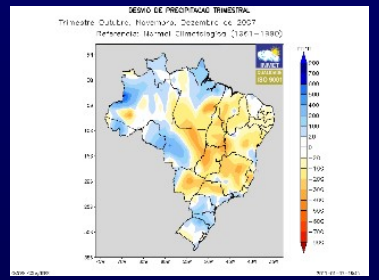

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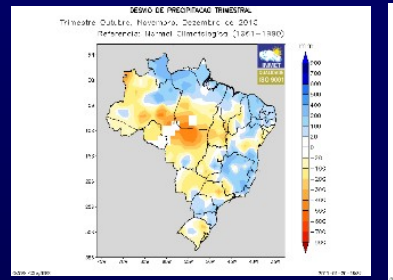

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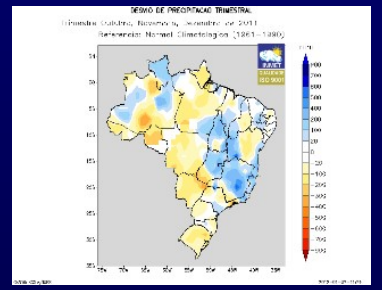
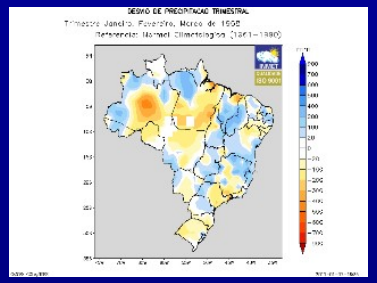


ANOS DE LA NINA MESES DE JAN/FEV/MAR – 7/14 (50%)

1968



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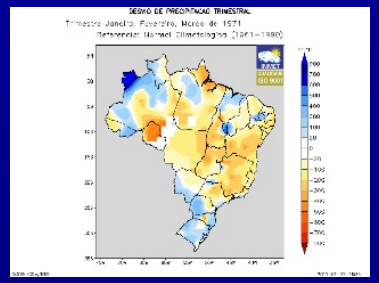

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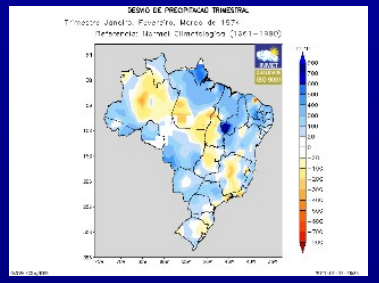

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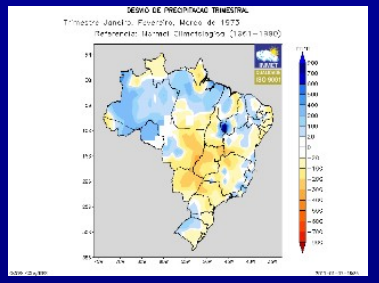

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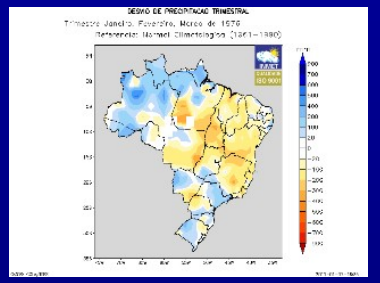

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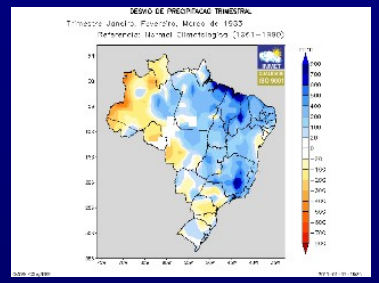

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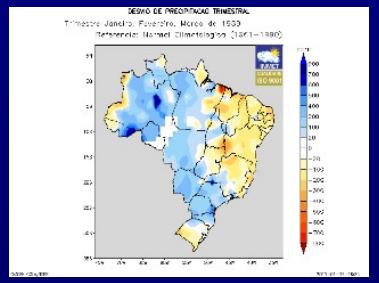

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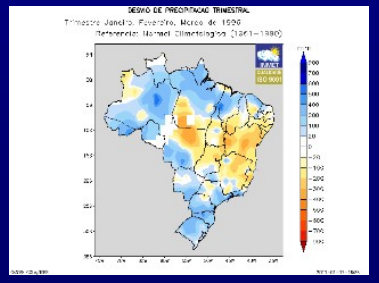

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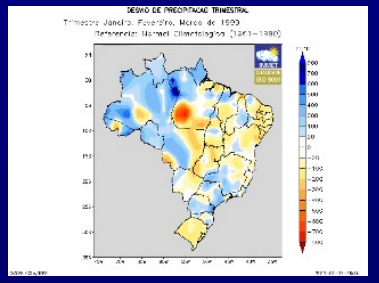

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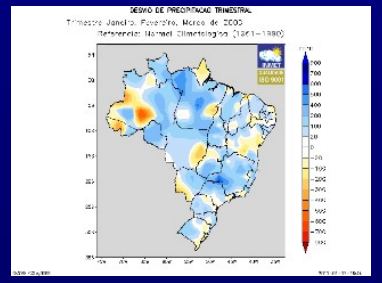

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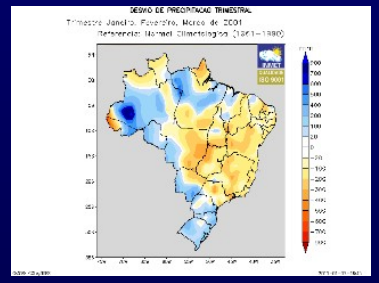

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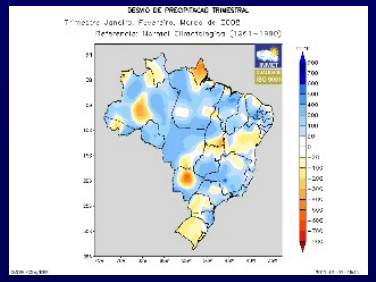

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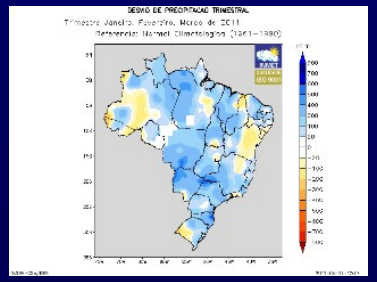
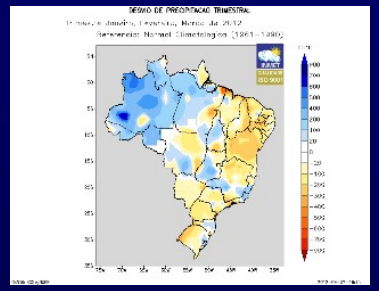


2012



Historical El Niño and La Niña Episodes Based on the ONI computed using ERSST.v5

Recent Pacific warm (red) and cold (blue) periods based on a threshold of +/- 0.5 °C for the Oceanic Nino Index (ONI) [3 month running mean of ERSST.v5 SST anomalies in the Nino 3.4 region (5N-5S, 120-170W)]. For historical purposes, periods of below and above normal SSTs are colored in blue and red when the threshold is met for a minimum of 5 consecutive over-lapping seasons.

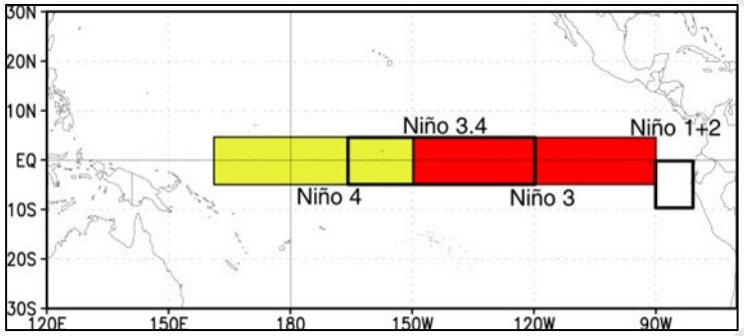
The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found here.

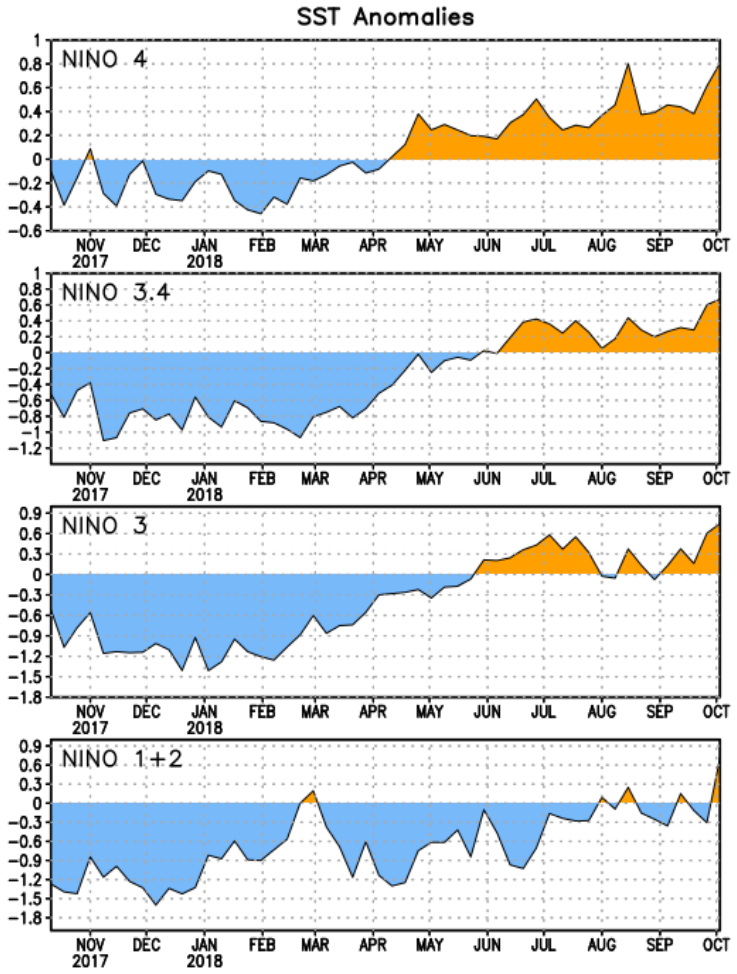
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2006	-0.8	-0.7	-0.5	-0.3	0.0	0.0	0.1	0.3	0.5	0.7	0.9	0.9
2007	0.7	0.3	0.0	-0.2	-0.3	-0.4	-0.5	-0.8	-1.1	-1.4	-1.5	-1.6
2008	-1.6	-1.4	-1.2	-0.9	-0.8	-0.5	-0.4	-0.3	-0.3	-0.4	-0.6	-0.7
2009	-0.8	-0.7	-0.5	-0.2	0.1	0.4	0.5	0.5	0.7	1.0	1.3	1.6
2010	1.5	1.3	0.9	0.4	-0.1	-0.6	-1.0	-1.4	-1.6	-1.7	-1.7	-1.6
2011	-1.4	-1.1	-0.8	-0.6	-0.5	-0.4	-0.5	-0.7	-0.9	-1.1	-1.1	-1.0
2012	-0.8	-0.6	-0.5	-0.4	-0.2	0.1	0.3	0.3	0.3	0.2	0.0	-0.2
2013	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.4	-0.2	0.1	0.3	0.2	0.1	0.0	0.2	0.4	0.6	0.7
2015	0.6	0.6	0.6	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.5	2.6
2016	2.5	2.2	1.7	1.0	0.5	0.0	-0.3	-0.6	-0.7	-0.7	-0.7	-0.6
2017	-0.3	-0.1	0.1	0.3	0.4	0.4	0.2	-0.1	-0.4	-0.7	-0.9	-1.0
2018	-0.9	-0.8	-0.6	-0.4	-0.1	0.1	0.1	0.1				

Niño Region SST Departures (oC) Recent Evolution

The latest weekly SST departures are:

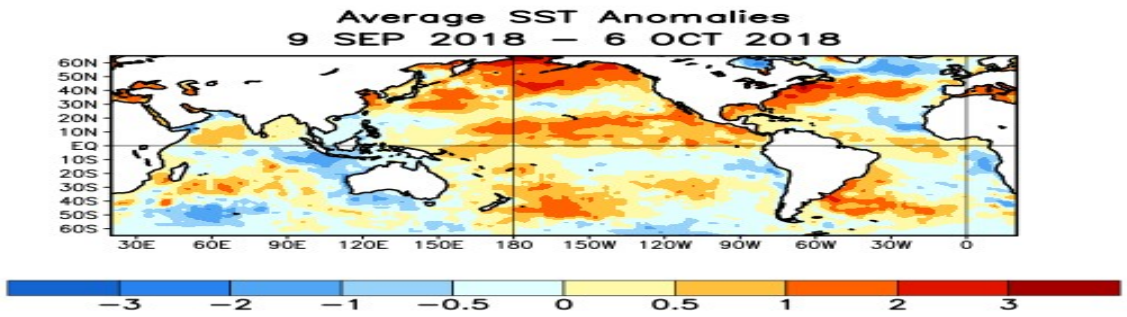
Niño 4	0.8°C
Niño 3.4	0.7°C
Niño 3	0.7°C
Niño 1+2	0.7°C





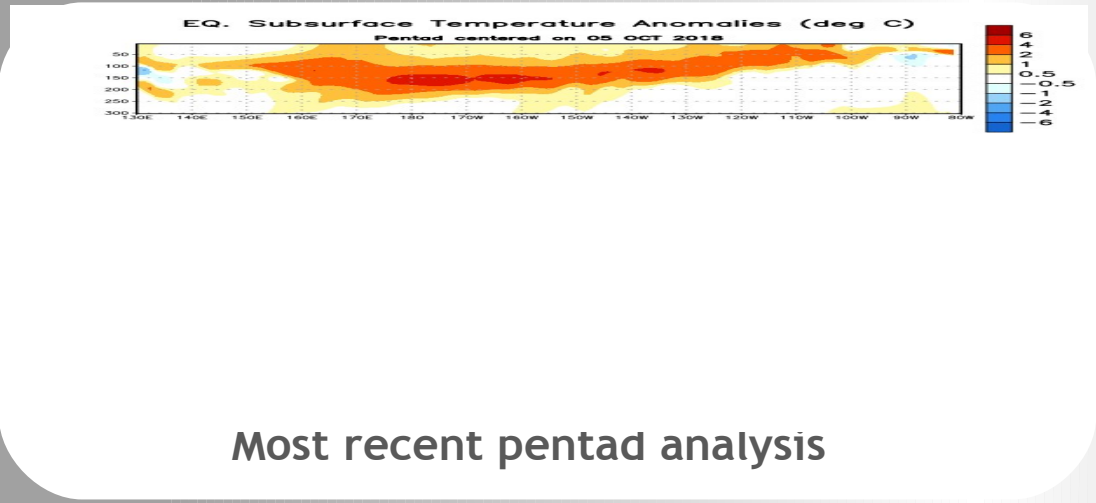
Global SST Departures (oC) During the Last Four Weeks

During the last four weeks, equatorial SSTs were near-to-above average across most of the Pacific Ocean and Atlantic Ocean. SSTs were below average near Indonesia and the eastern Indian Ocean.



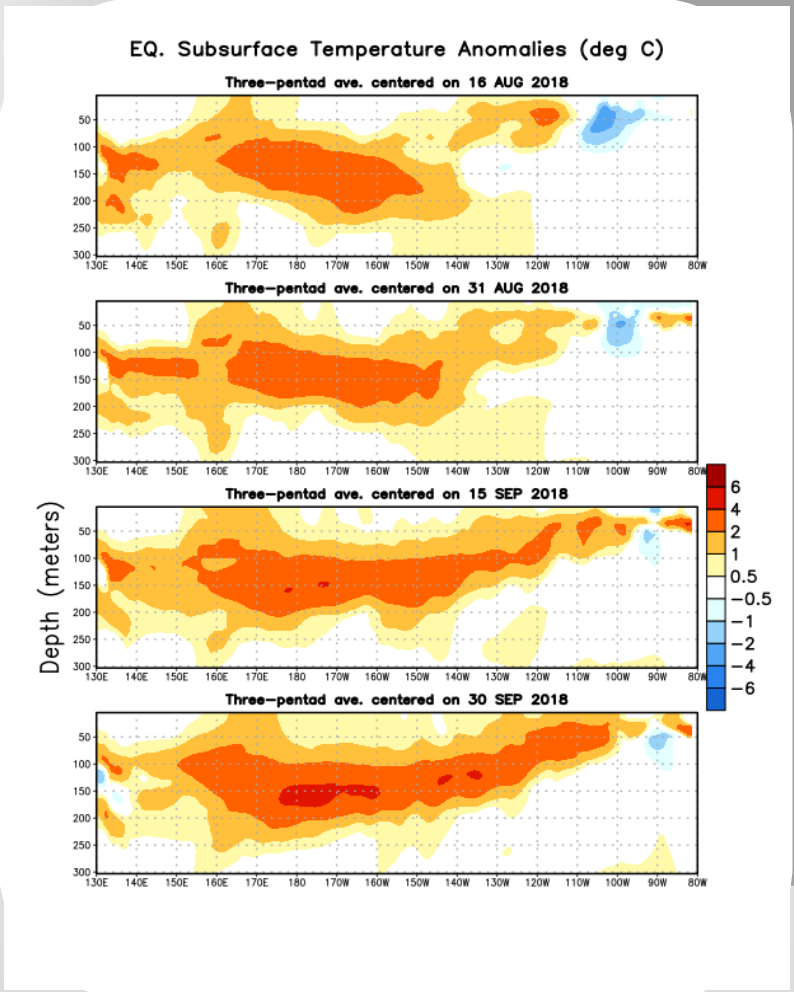
Sub-Surface Temperature Departures in the Equatorial Pacific

In the last two months, positive subsurface temperature anomalies have expanded into the eastern Pacific Ocean.

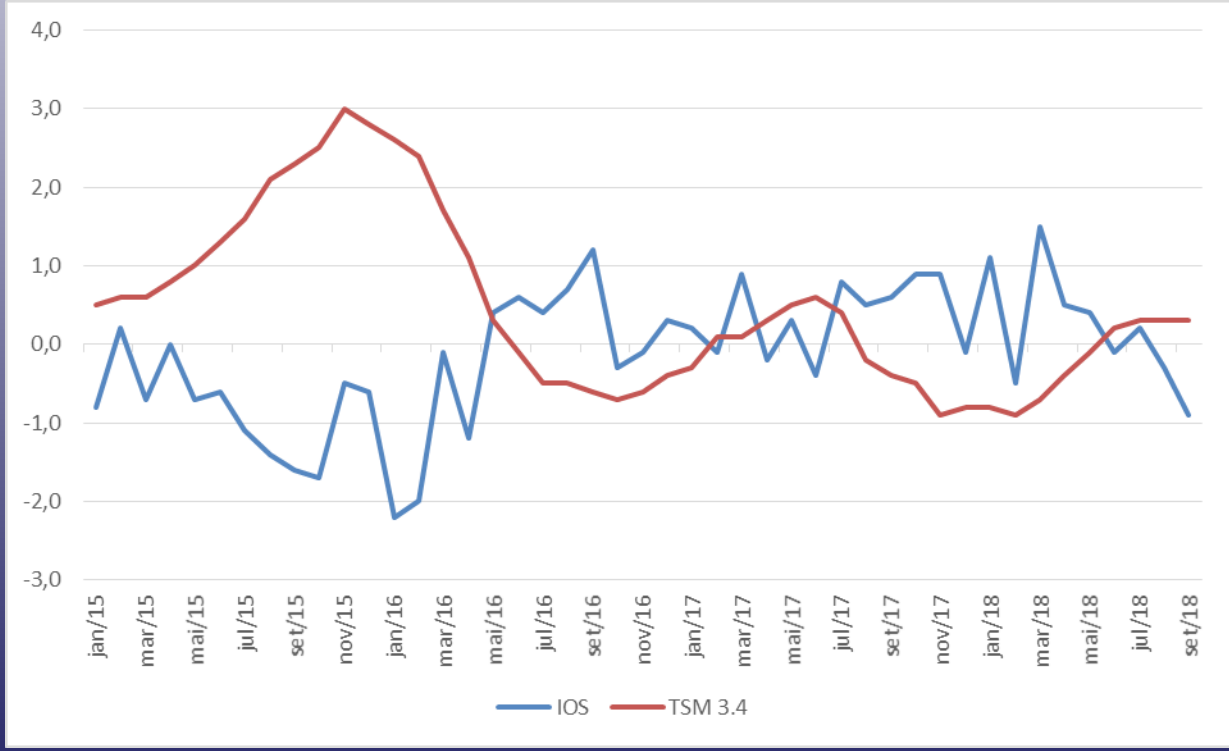


Most recent pentad analysis

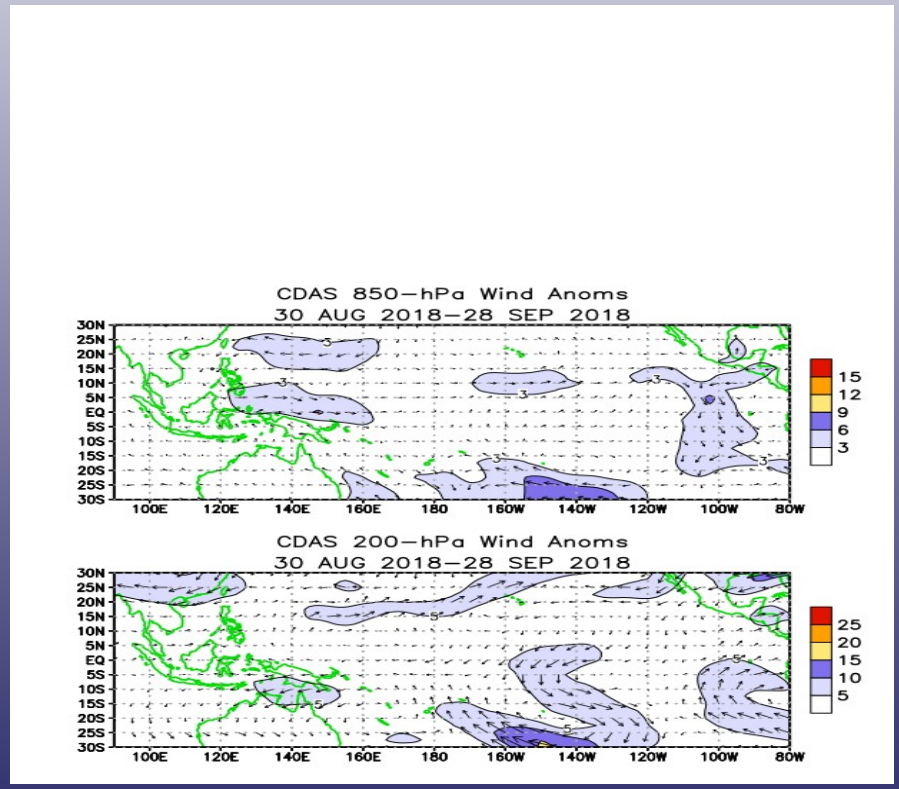
A small area of weak, negative temperature anomalies persists in the eastern Pacific Ocean.

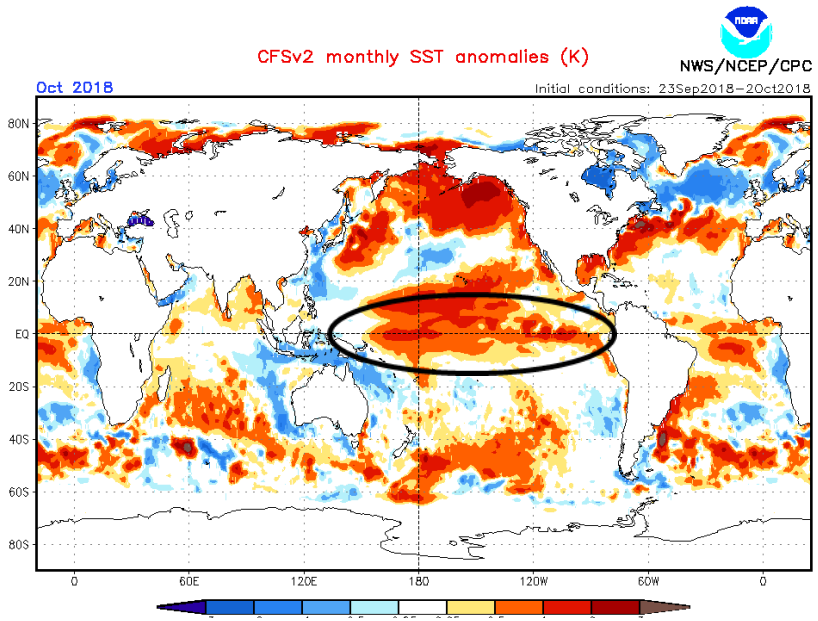


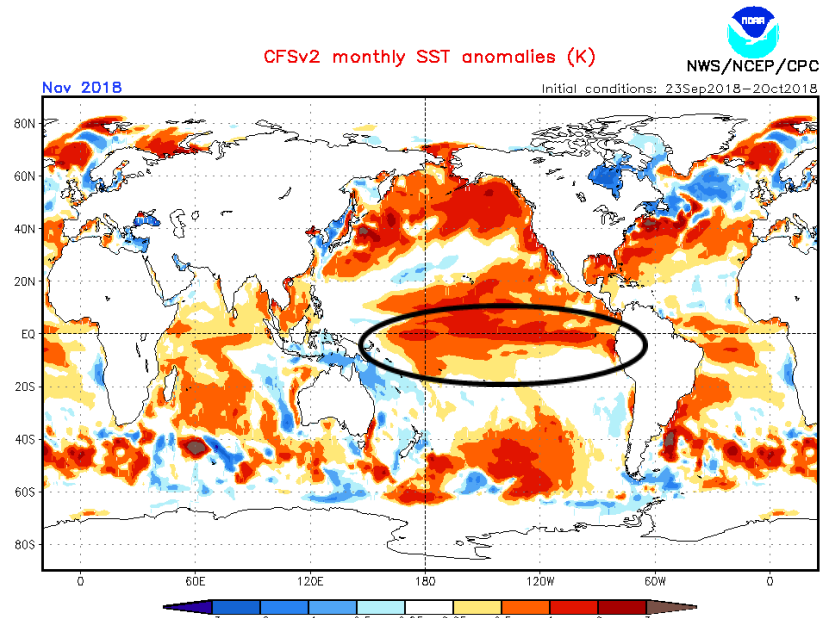
Anomalia Temperatura Superfície do Mar
x
Índice de Oscilação Sul

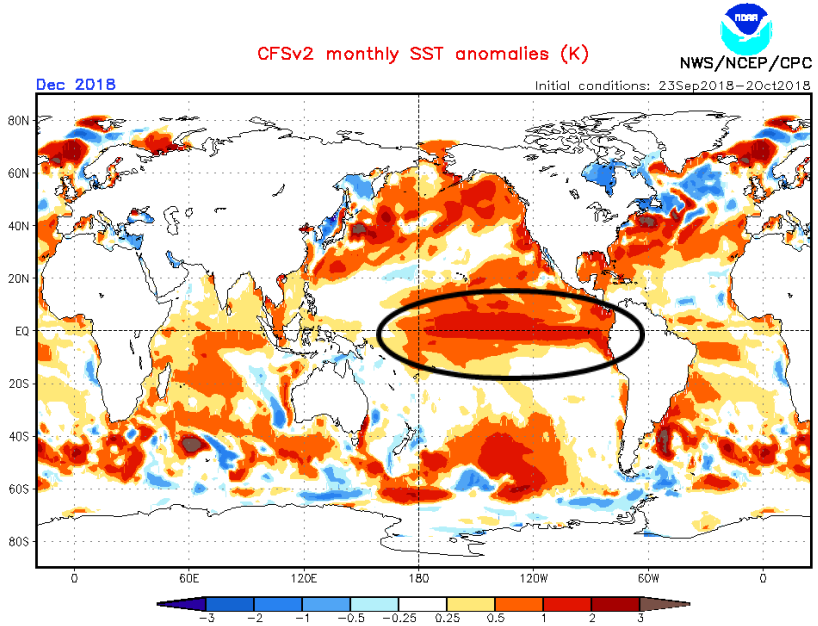


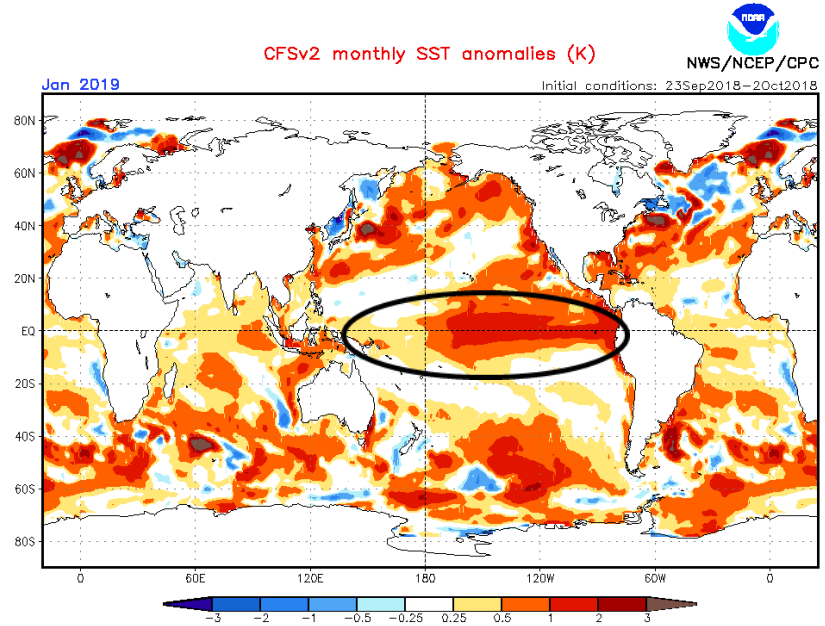
Ventos Alísios




CFSv2 monthly SST anomalies (K)
NWS/NCEP/CPC
Oct 2018
Initial conditions: 23Sep2018–20Oct2018
80N
60N
40N
20N
EQ
20S
40S
60S
80S
0
60E
120E
180
120W
60W
0
−3
−2
−1
−0.5
−0.25
0.25
0.5
1
2
3


CFSv2 monthly SST anomalies (K)
NWS/NCEP/CPC
Nov 2018
Initial conditions: 23Sep2018–20Oct2018
80N
60N
40N
20N
EQ
20S
40S
60S
80S
0
60E
120E
180
120W
60W
0


CFSv2 monthly SST anomalies (K)
NWS/NCEP/CPC
Dec 2018
Initial conditions: 23Sep2018–20Oct2018
80N
60N
40N
20N
EQ
20S
40S
60S
80S
0
60E
120E
180
120W
60W
0
−3
−2
−1
−0.5
−0.25
0.25
0.5
1
2
3

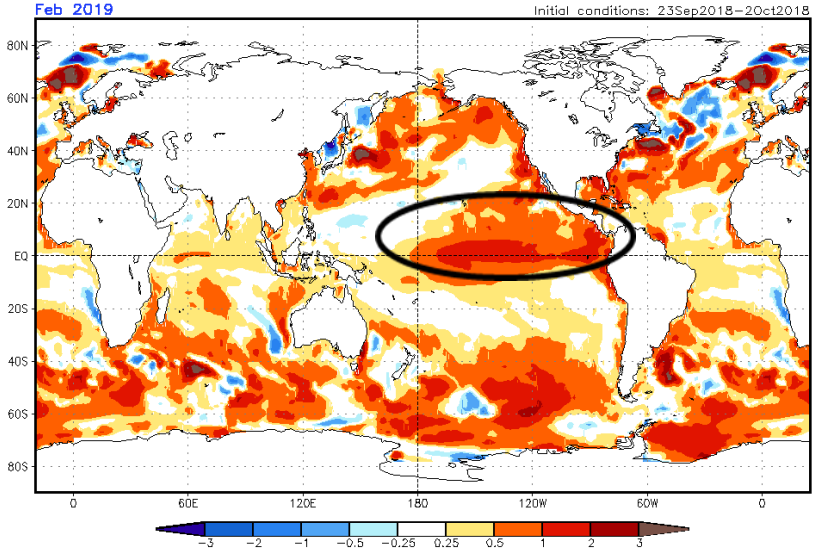

CFSv2 monthly SST anomalies (K)
NWS/NCEP/CPC
Jan 2019
Initial conditions: 23Sep2018–20Oct2018
80N
60N
40N
20N
EQ
20S
40S
60S
80S
0
60E
120E
180
120W
60W
0
−3
−2
−1
−0.5
−0.25
0.25
0.5
1
2
3

CFSv2 monthly SST anomalies (K)

NWS/NCEP/CPC

Feb 2019

Initial conditions: 23Sep2018–20Oct2018

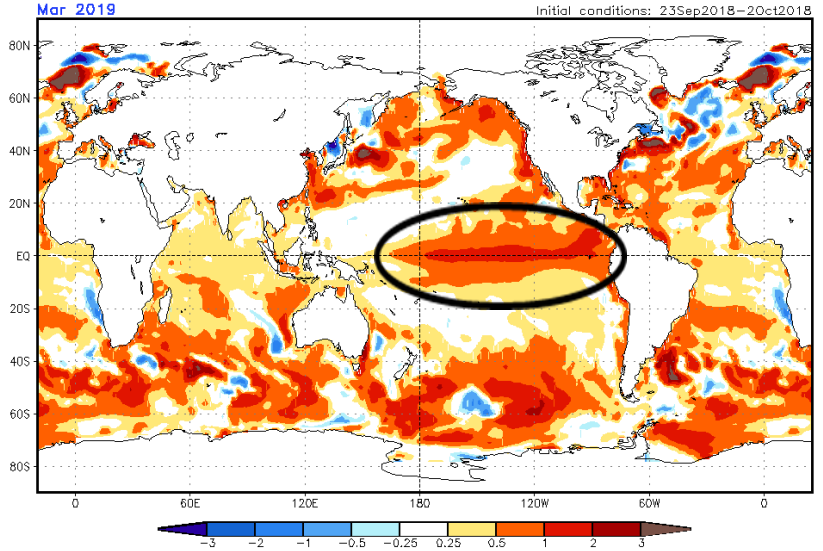


CFSv2 monthly SST anomalies (K)

NWS/NCEP/CPC

Mar 2019

Initial conditions: 23Sep2018–20Oct2018

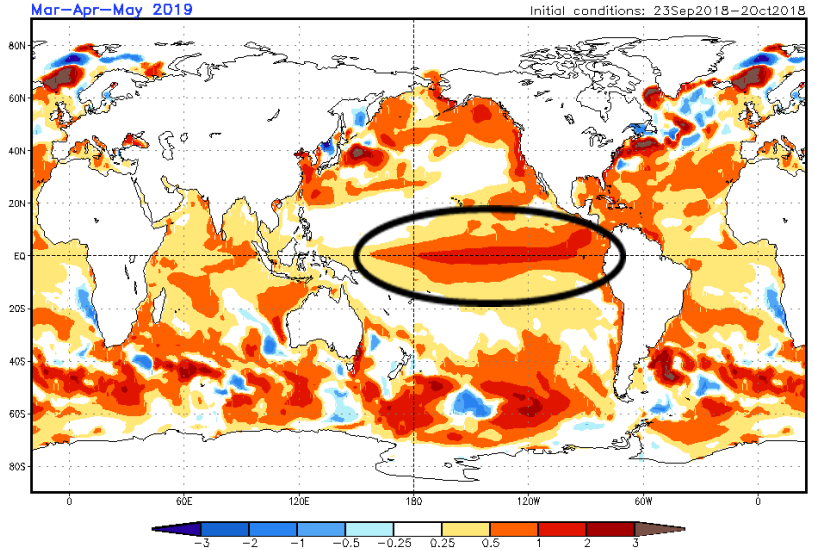


CFSv2 seasonal SST anomalies (K)

NWS/NCEP/CPC

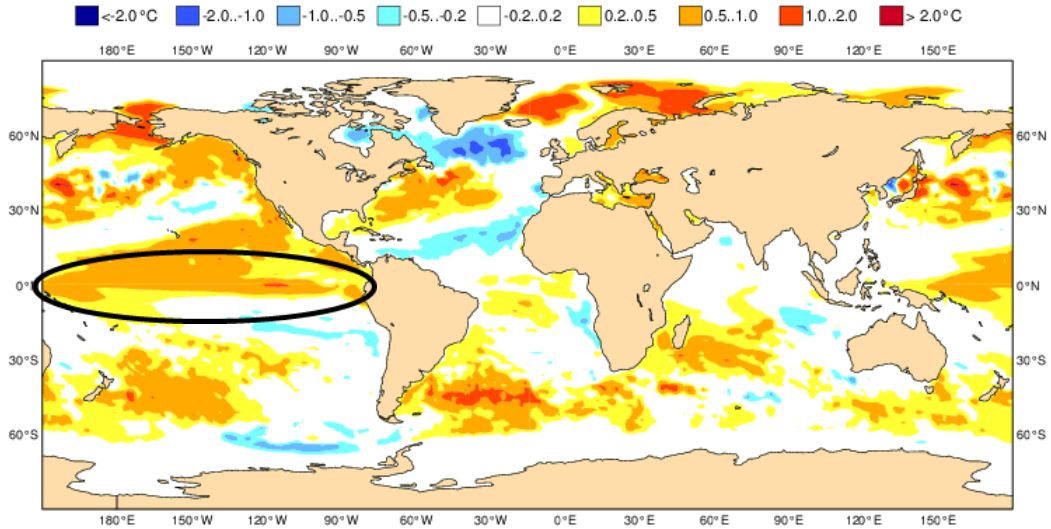
Mar–Apr–May 2019

Initial conditions: 23Sep2018–20Oct2018



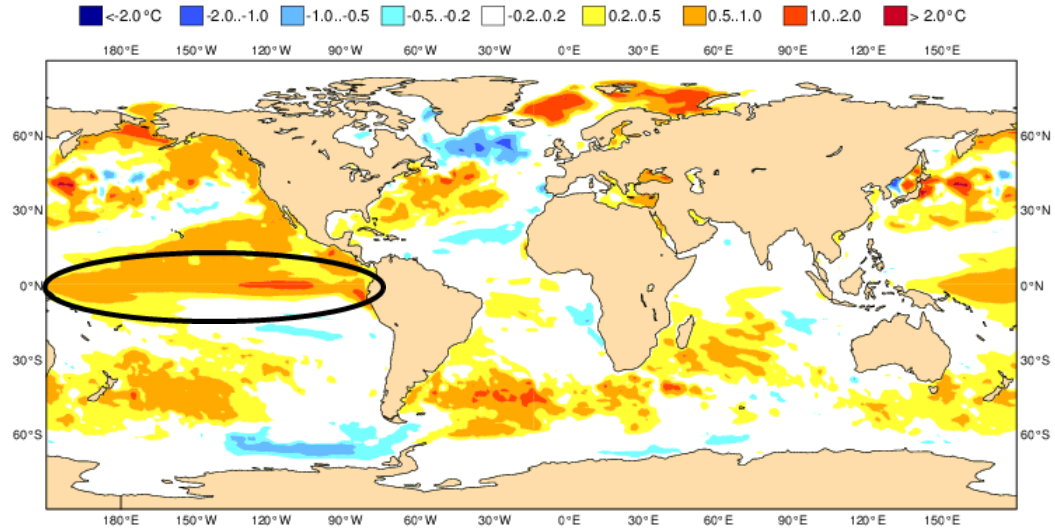
ECMWF Seasonal Forecast
Mean forecast SST anomaly
Forecast start is 01/09/18, climate period is 1993-2016
Ensemble size = 51, climate size = 600

System 5
OND 2018



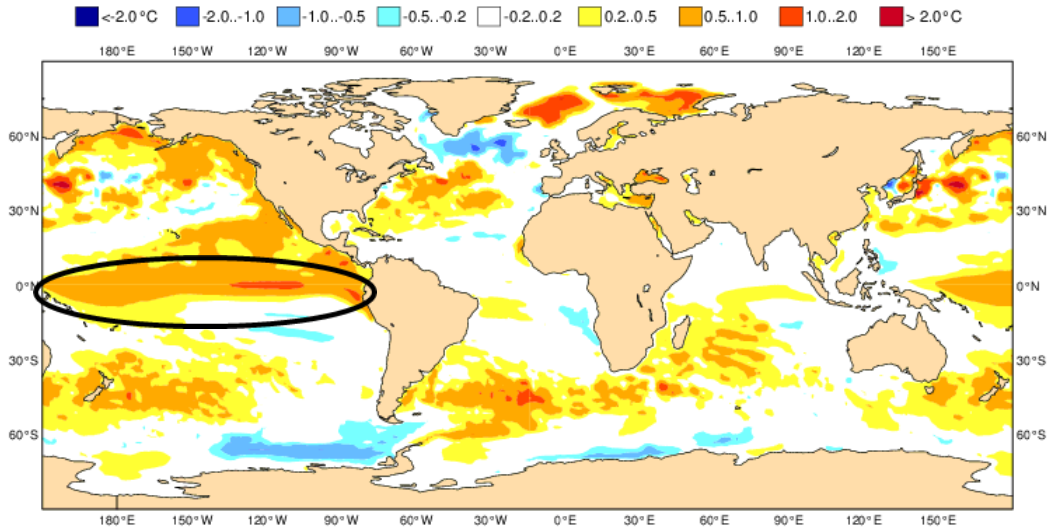
ECMWF Seasonal Forecast
Mean forecast SST anomaly
Forecast start is 01/09/18, climate period is 1993-2016
Ensemble size = 51, climate size = 600

System 5
NDJ 2018/19



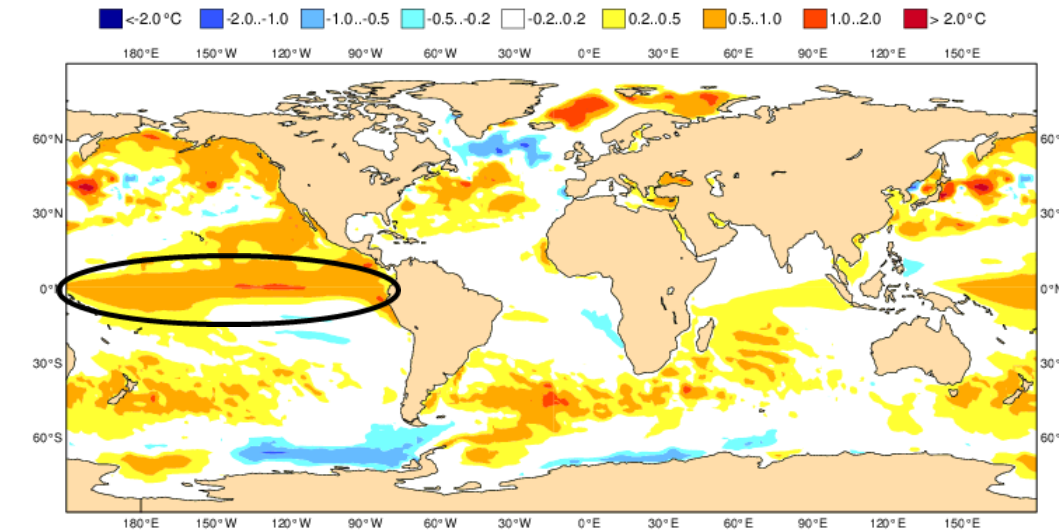
ECMWF Seasonal Forecast
Mean forecast SST anomaly
Forecast start is 01/09/18, climate period is 1993-2016
Ensemble size = 51, climate size = 600

System 5
DJF 2018/19



ECMWF Seasonal Forecast
Mean forecast SST anomaly
Forecast start is 01/09/18, climate period is 1993-2016
Ensemble size = 51, climate size = 600

System 5
JFM 2019



IRI/CPC Pacific Niño 3.4 SST Model Outlook

The majority of models predict El Niño to develop during September-November 2018.

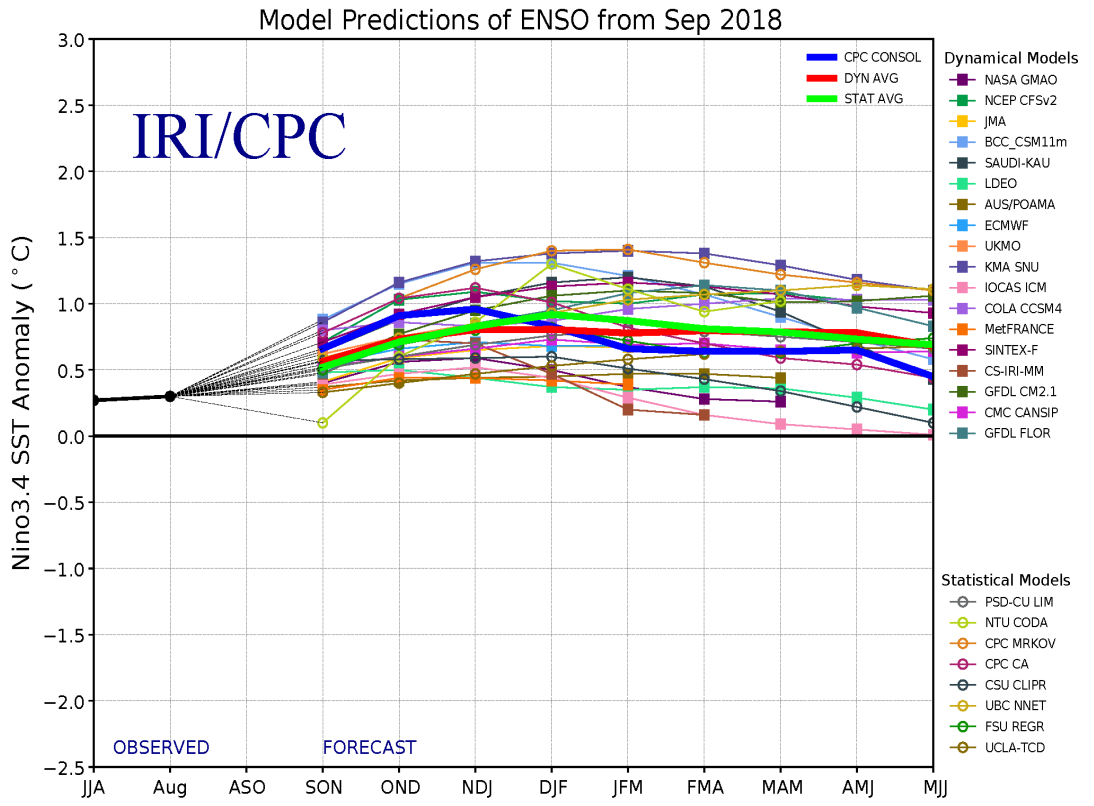
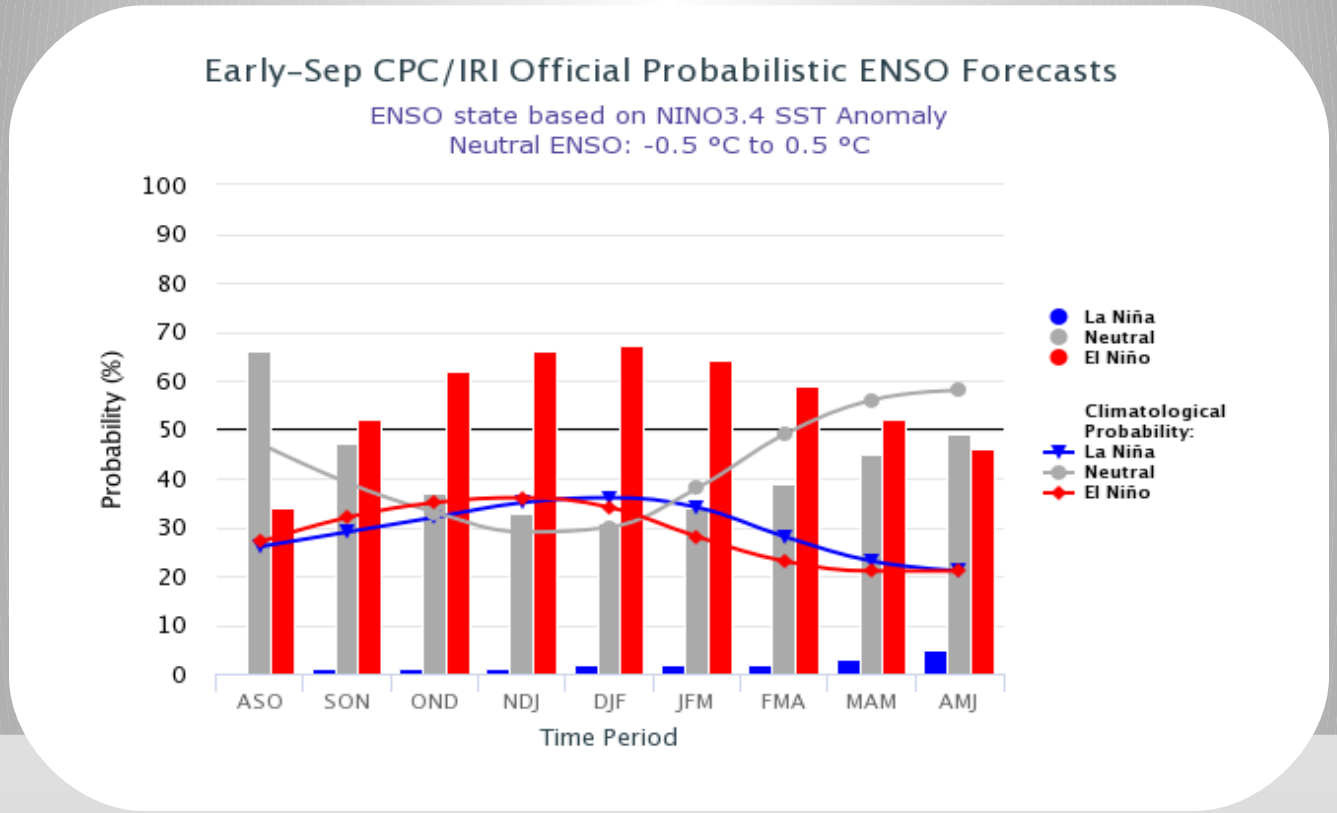


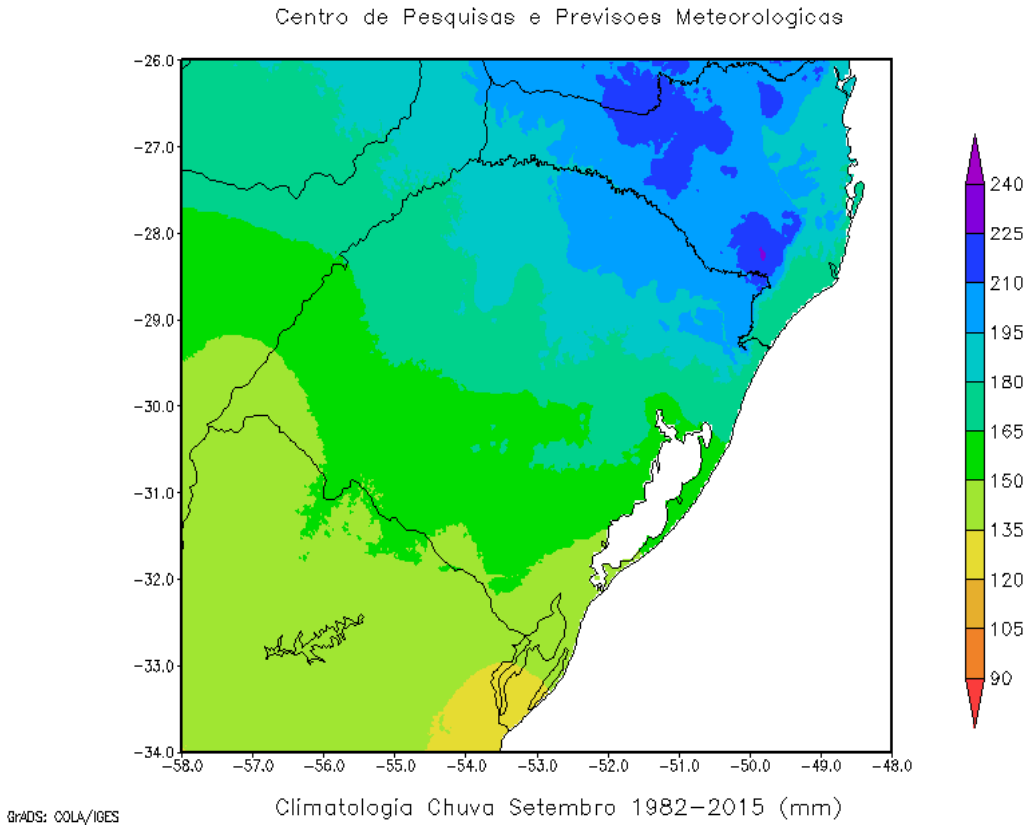
Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 September 2018).

CPC/IRI Probabilistic ENSO Outlook
Updated: 13 September 2018

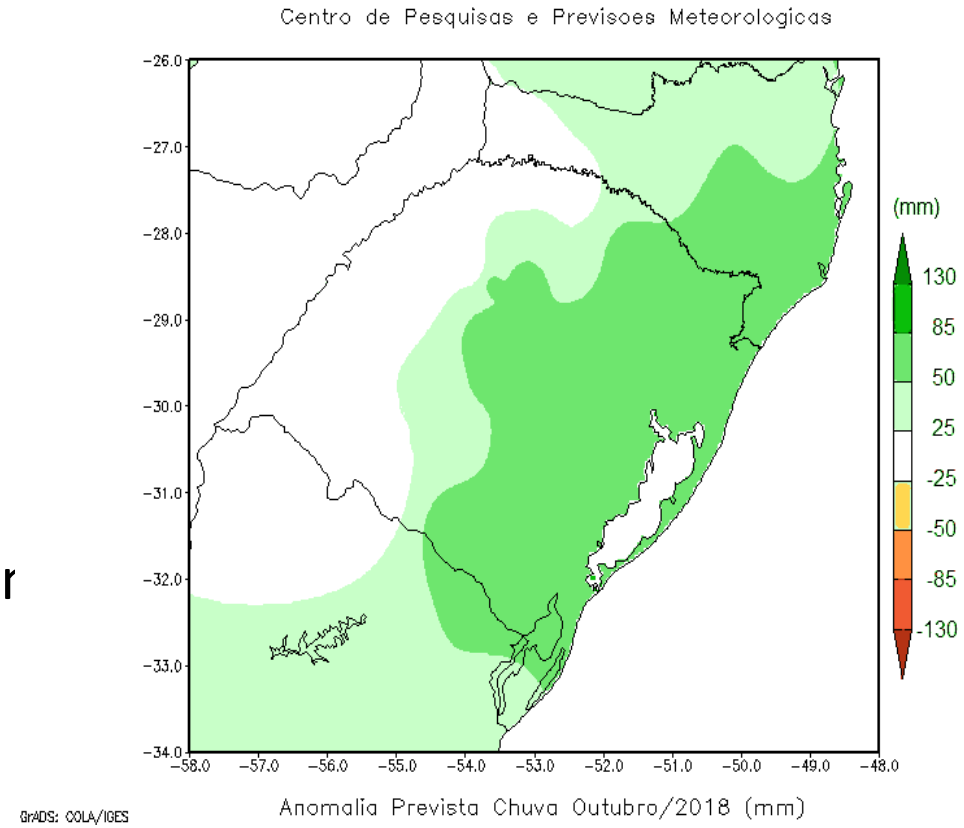
ENSO-neutral is favored through August-October 2018, with El Niño favored thereafter. Chances for El Niño are 65-70% during Northern Hemisphere winter 2018-19.



OUTUBRO



ɔtítulo r



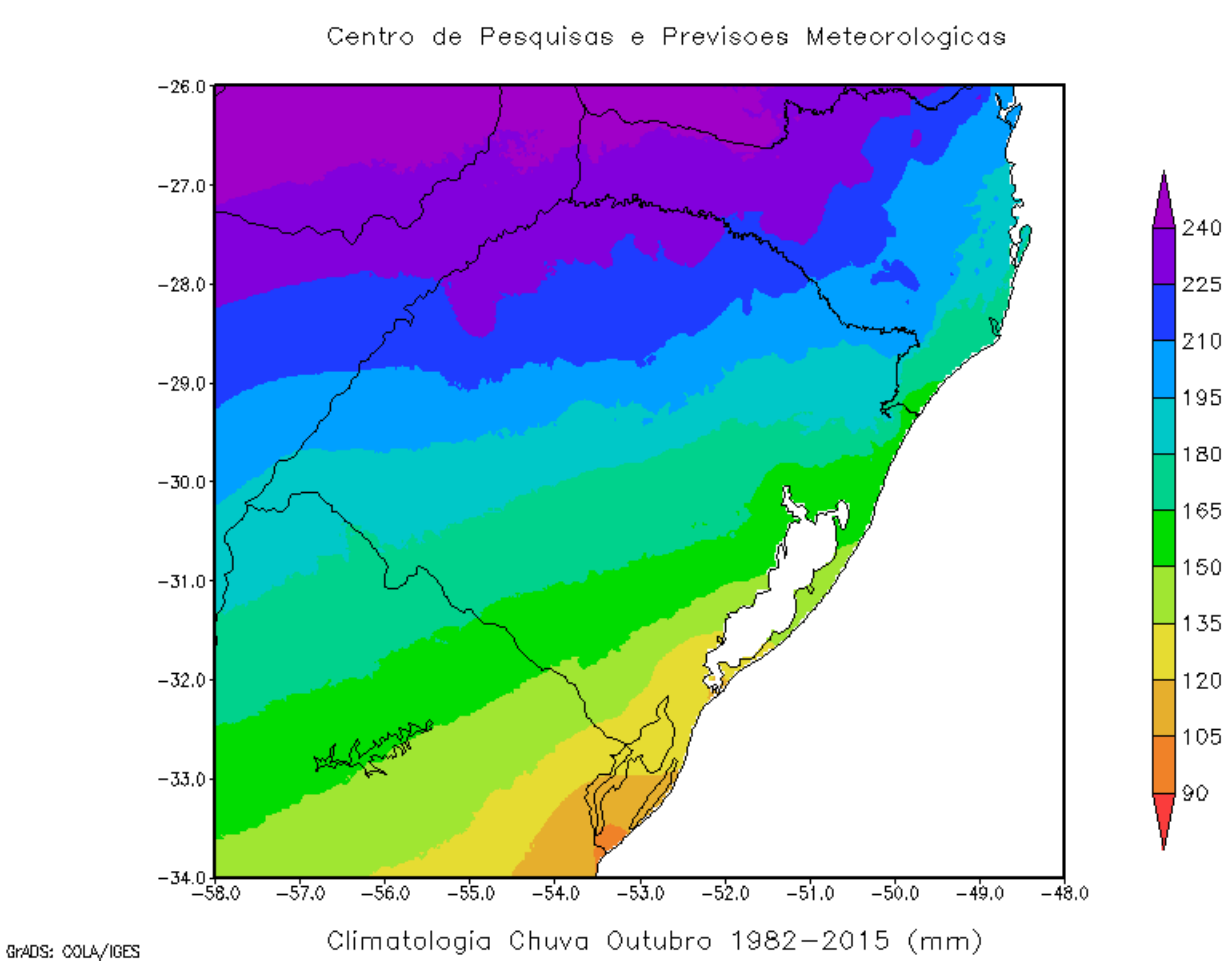
Precipitação Média (mm)

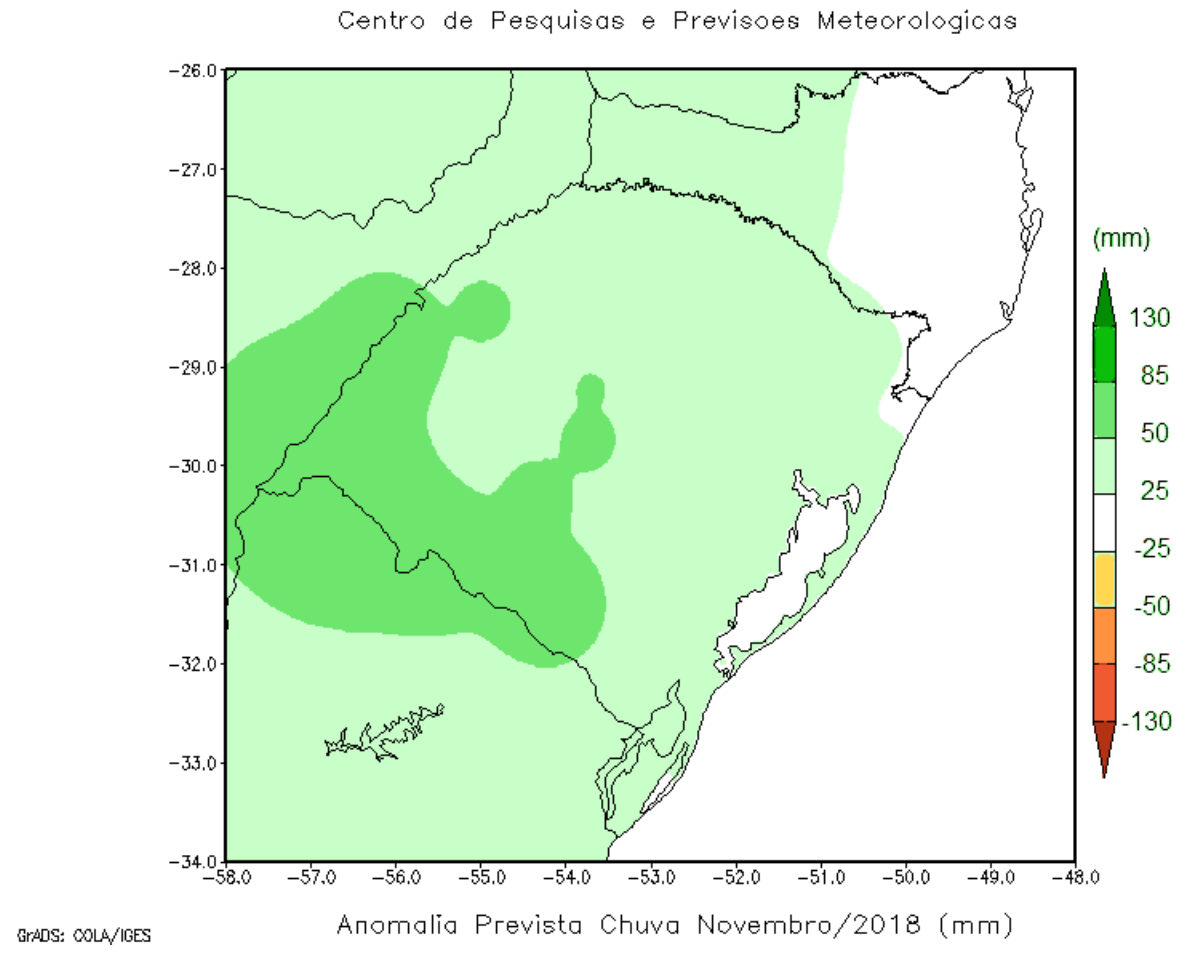
REGIÃO: 165 a 180mm

Precipitação Prevista (mm)

REGIÃO: 215 a 260mm

NOVEMBRO





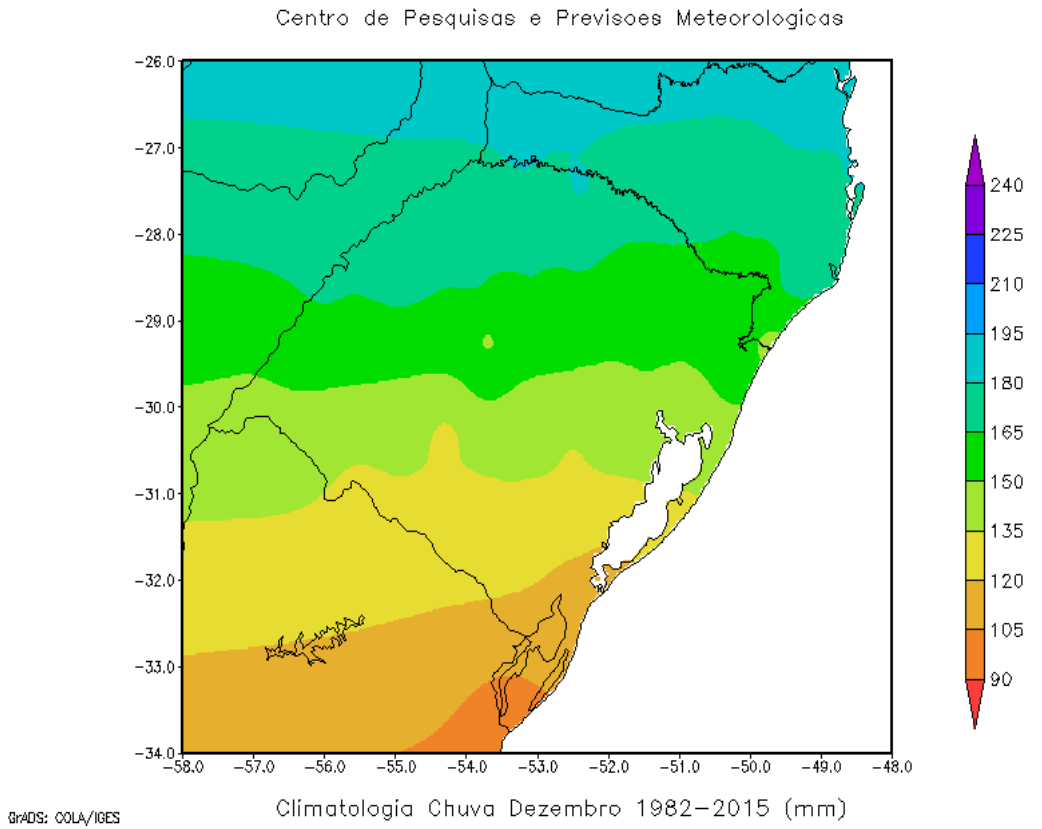
Precipitação Média (mm)

REGIÃO: 195 a 210mm

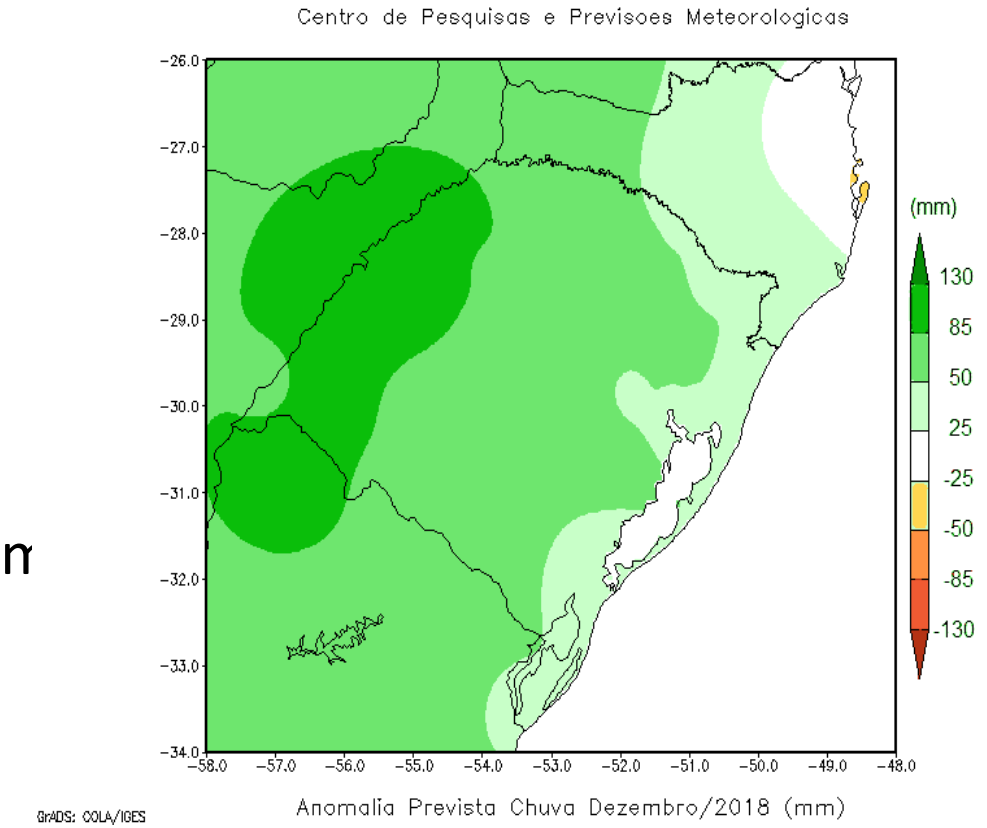
Precipitação Prevista (mm)

REGIÃO: 220 a 260mm

DEZEMBRO



'tulo n



Precipitação Média (mm)

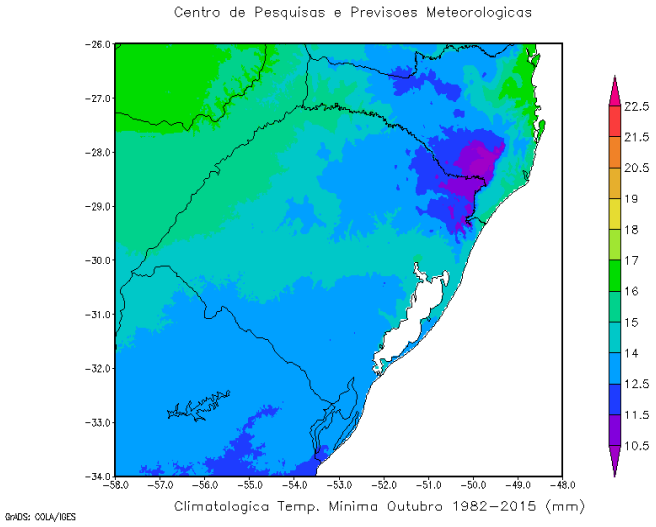
REGIÃO: 150 a 165mm

Precipitação Prevista (mm)

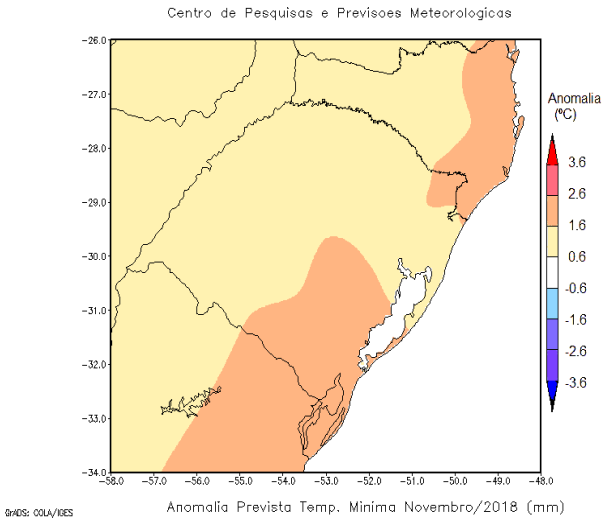
REGIÃO: 200 a 250mm

TEMPERATURAS MÍNIMAS

OUTUBRO

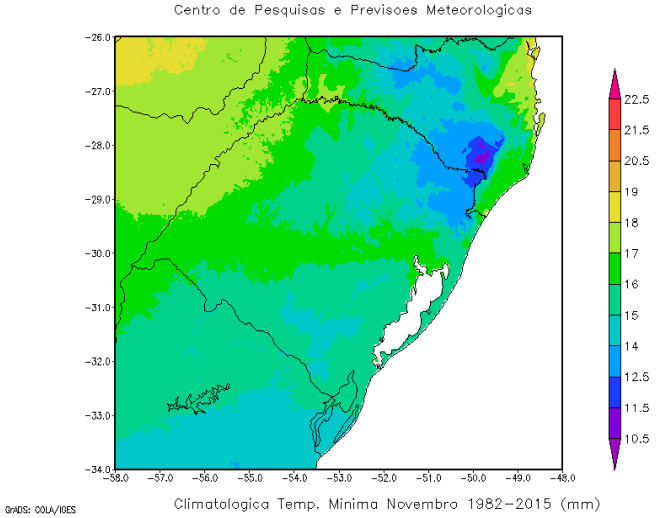


Normal: 12,5ºC a 14ºC

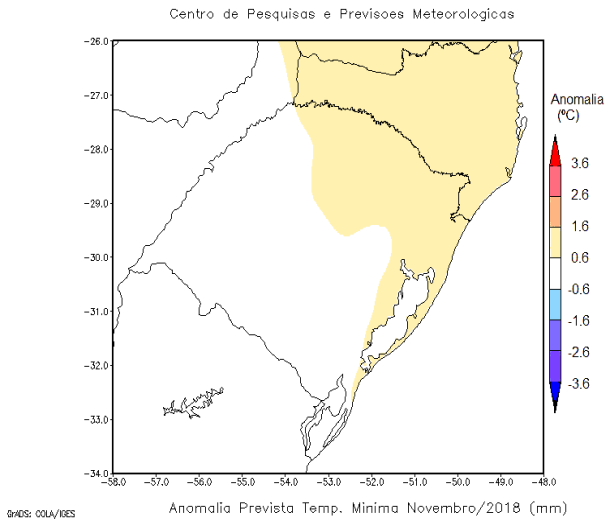


Previsão: 13ºC a 15,5ºC

NOVEMBRO

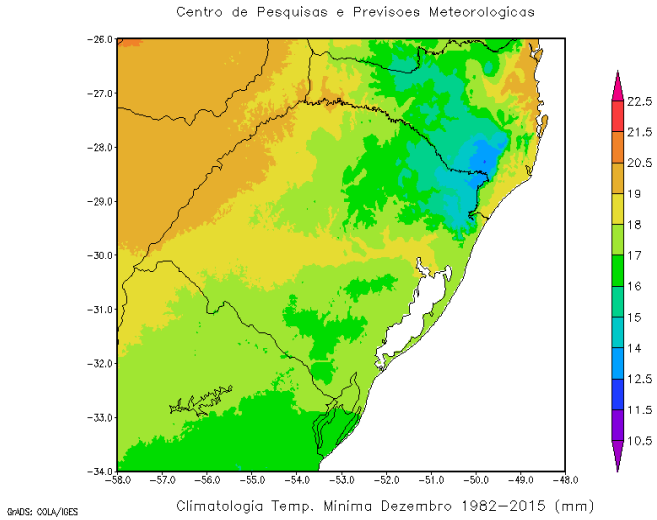


Normal: 15ºC a 15ºC

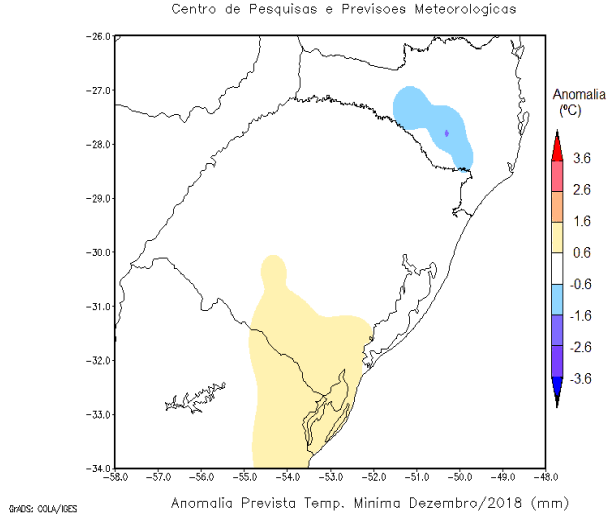


Previsão: 14,5ºC a 15,5ºC

DEZEMBRO



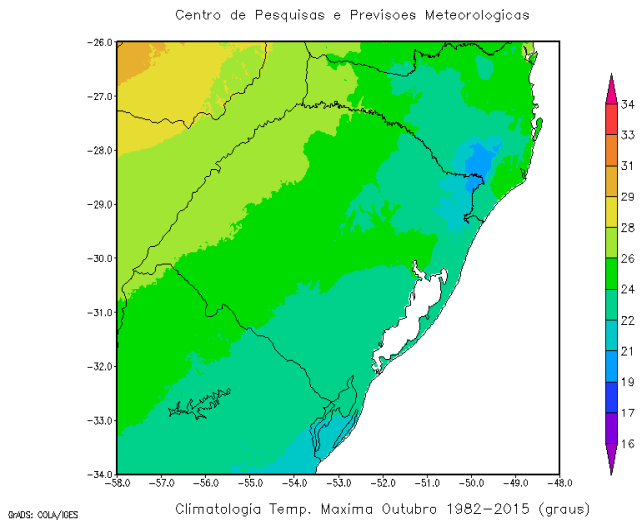
Normal: 16ºC a 17ºC



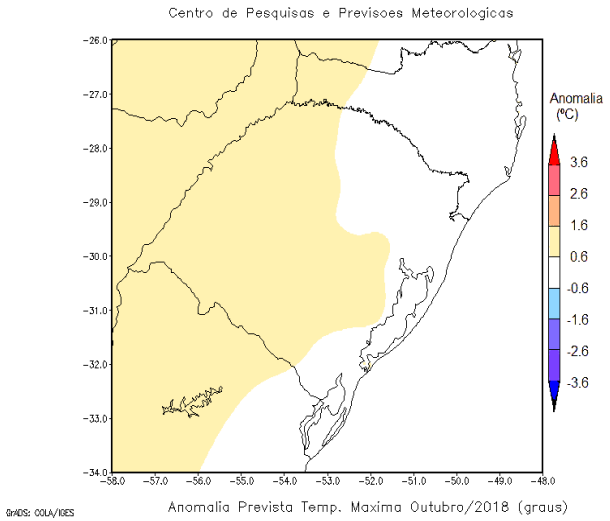
Previsão: 15,5ºC a 17,5ºC

TEMPERATURAS MÁXIMAS

OUTUBRO

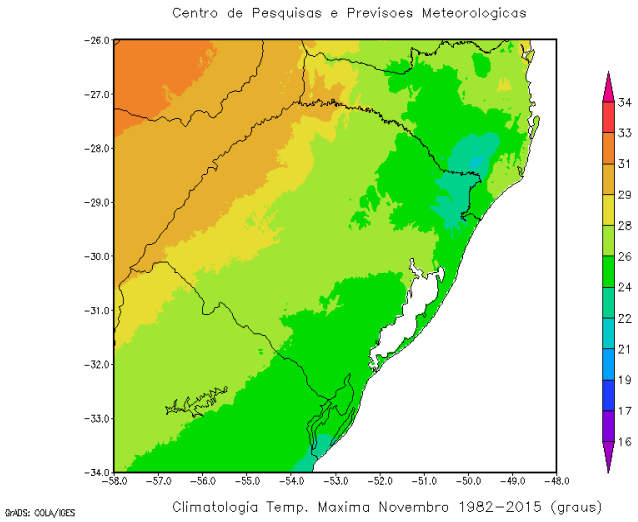


Normal: 22ºC a 24ºC

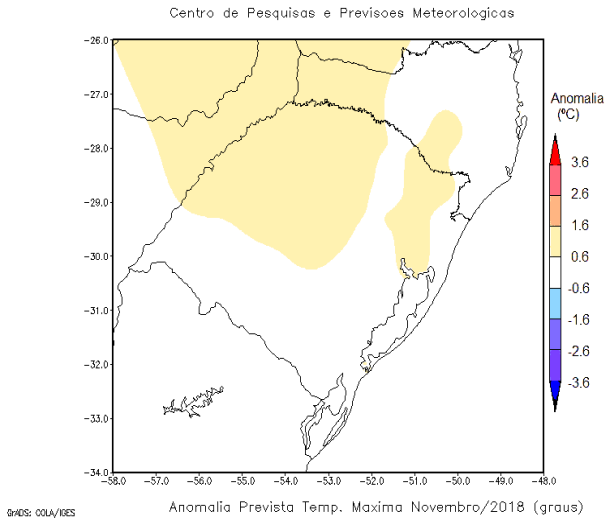


Previsão: 21,5ºC a 24,5ºC

NOVEMBRO

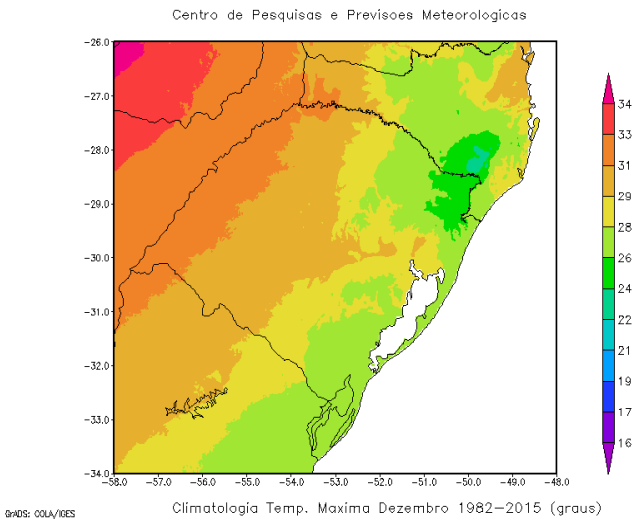


Normal: 26ºC a 28ºC

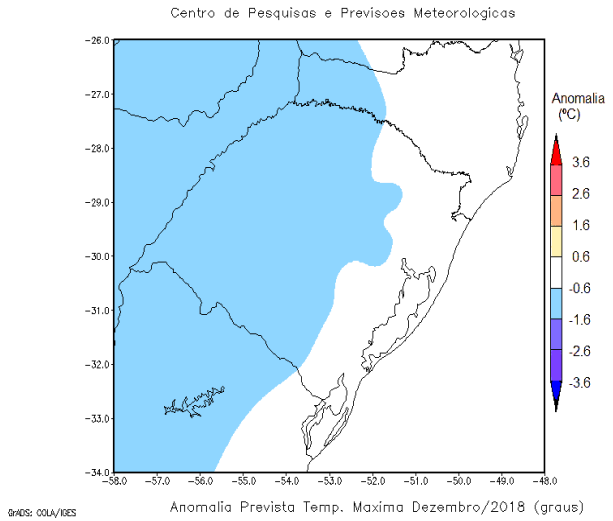


Previsão: 26,5ºC a 29,5ºC

DEZEMBRO

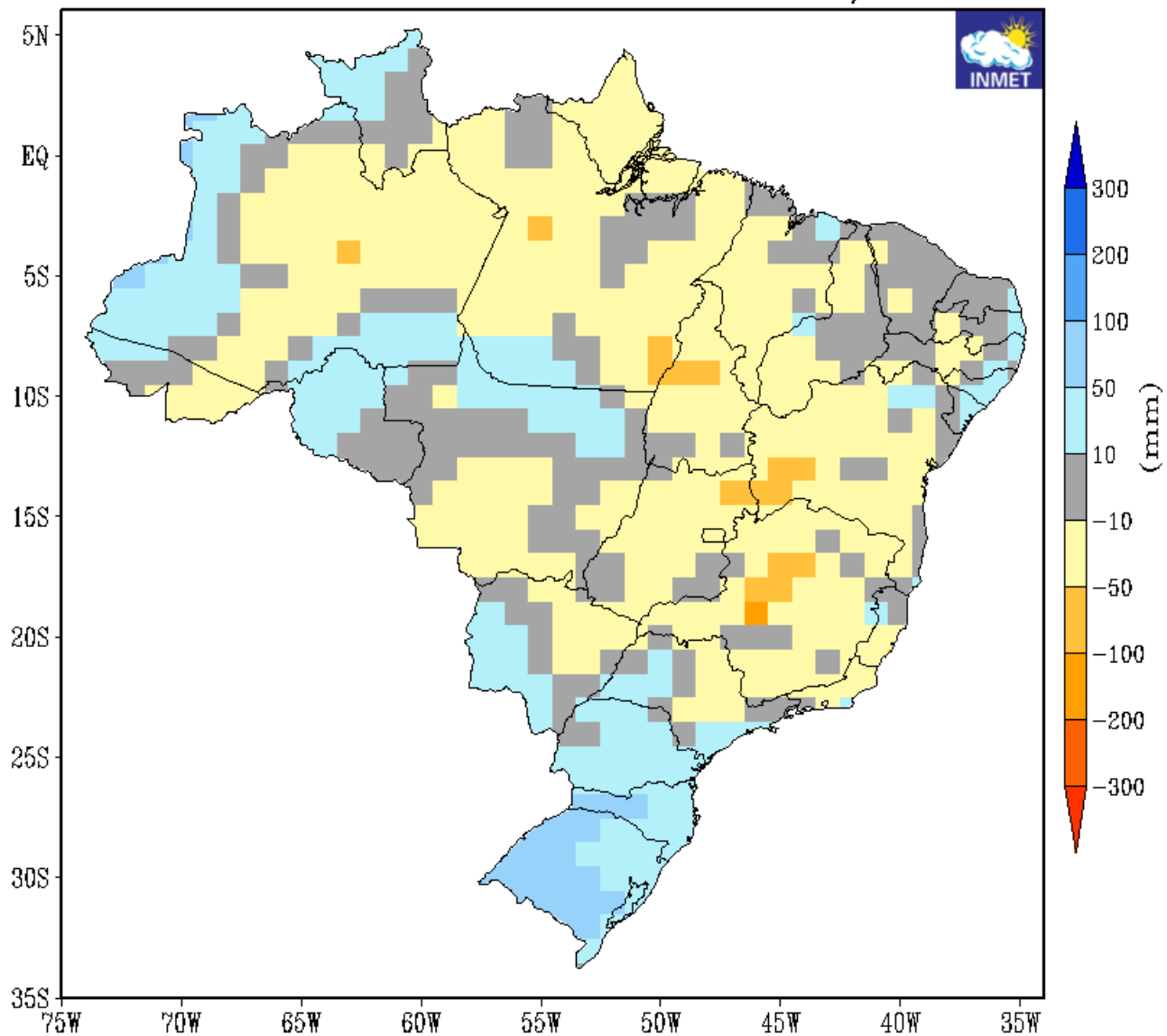


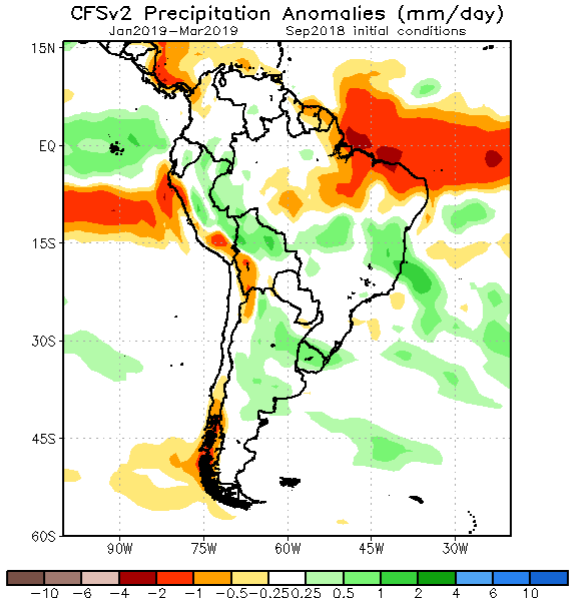
Normal: 28ºC a 29ºC



Previsão: 26,5ºC a 28,5ºC

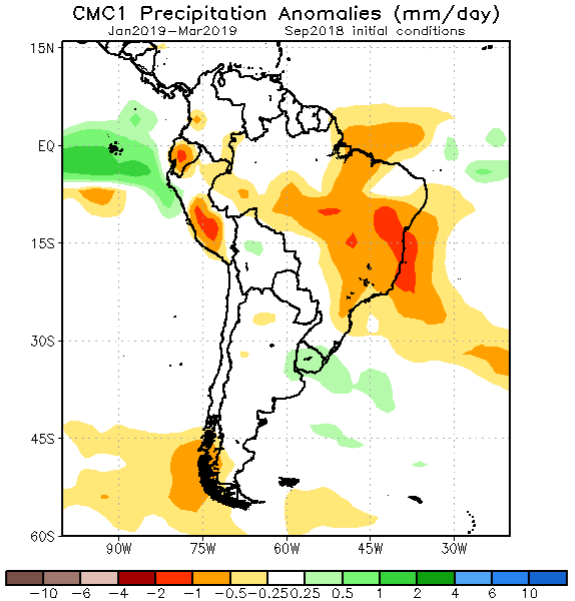
PREVISÃO DE ANOMALIAS DE PRECIPITAÇÃO (mm)
ATUALIZAÇÃO - SETEMBRO/2018
VÁLIDO PARA OUTUBRO-NOVEMBRO-DEZEMBRO/2018

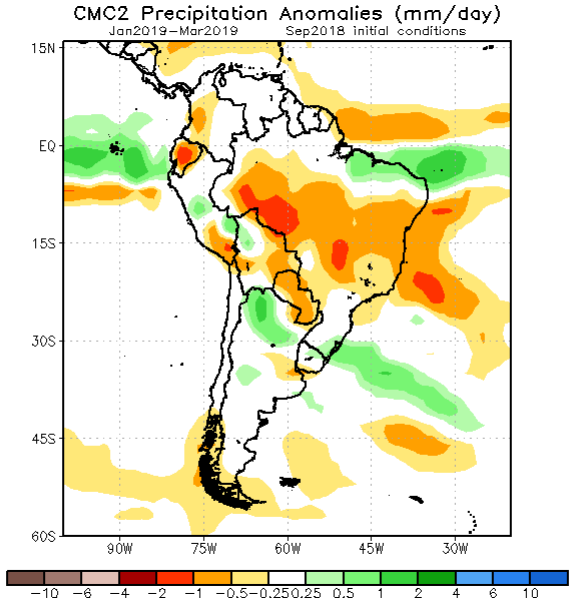


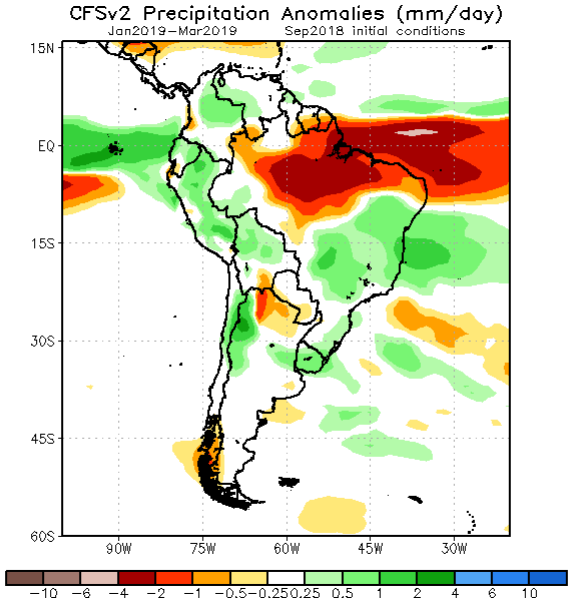


PRECIPITAÇÃO

JANEIRO
FEVEREIRO
MARÇO







CONCLUSÕES

1 – O MONITORAMENTO DA TEMPERATURA DA SUPERFÍCIE DO MAR NA REGIÃO DO PACÍFICO EQUATORIAL E AS PROJEÇÕES DESSA VARIÁVEL PARA OS PRÓXIMOS MESES INDICAM QUE O CLIMA SERÁ INFLUENCIADO POR UMA SITUAÇÃO DE EL NINO DE FRACA INTENSIDADE.

2 – OS ANOS DE EL NINO FAVORECEM A OCORRÊNCIA DE CHUVAS ACIMA DA MÉDIA HISTÓRICA NA REGIÃO SUL (ESPECIALMENTE NA PRIMAVERA).

3 – NO VERÃO ESTES EFEITOS DEPENDEM DE OUTROS ASPECTOS, COMO A TEMPERATURA DO MAR NO OCEANO ATLÂNTICO NA COSTA DO SUL DO BRASIL. TSM ACIMA DA MÉDIA, COMO ESTÁ NO MOMENTO, TENDE A AUMENTAR A UMIDADE E CONSEQUENTEMENTE A PRECIPITAÇÃO, AO CONTRÁRIO TSM ABAIXO DA MÉDIA, TENDE A DIMINUIR.

RESUMO

Precipitação

Outubro a novembro– Acima do padrão (mais chuva)

Tendência: Janeiro a Março – Pouco acima do padrão (mais chuva)
(confirmando o prognóstico de temperaturas acima da média no Pacífico e Atlântico)

Temperatura

Outubro– Mínimas e Máximas Acima do padrão (quente)
Novembro – Mínimas e Máximas dentro do padrão.
Dezembro – Mínimas dentro do padrão e Máximas abaixo do padrão (frio)

Tendência: Janeiro à Março – Mínimas dentro do padrão e Máximas abaixo do padrão.

MUITO OBRIGADO!

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