



Previsão Climática para a safra 2010/2011

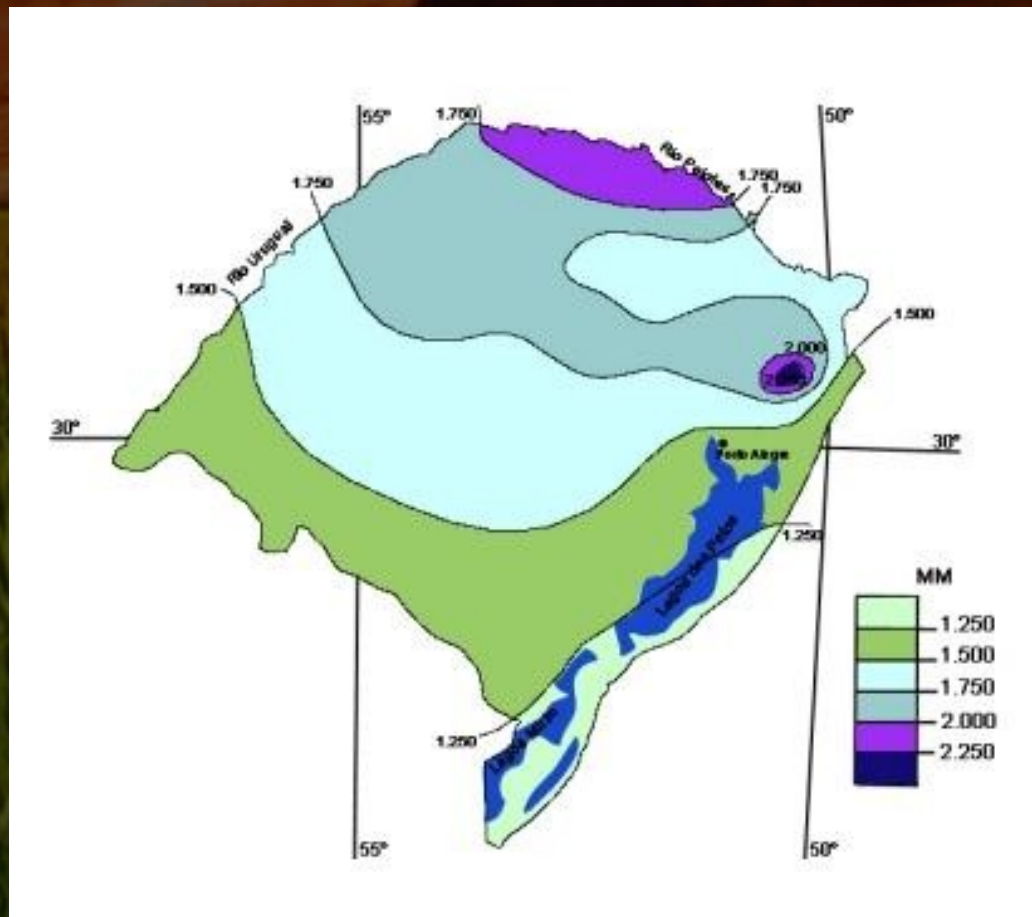
Estael Sias

Meteorologista Grupo RBS

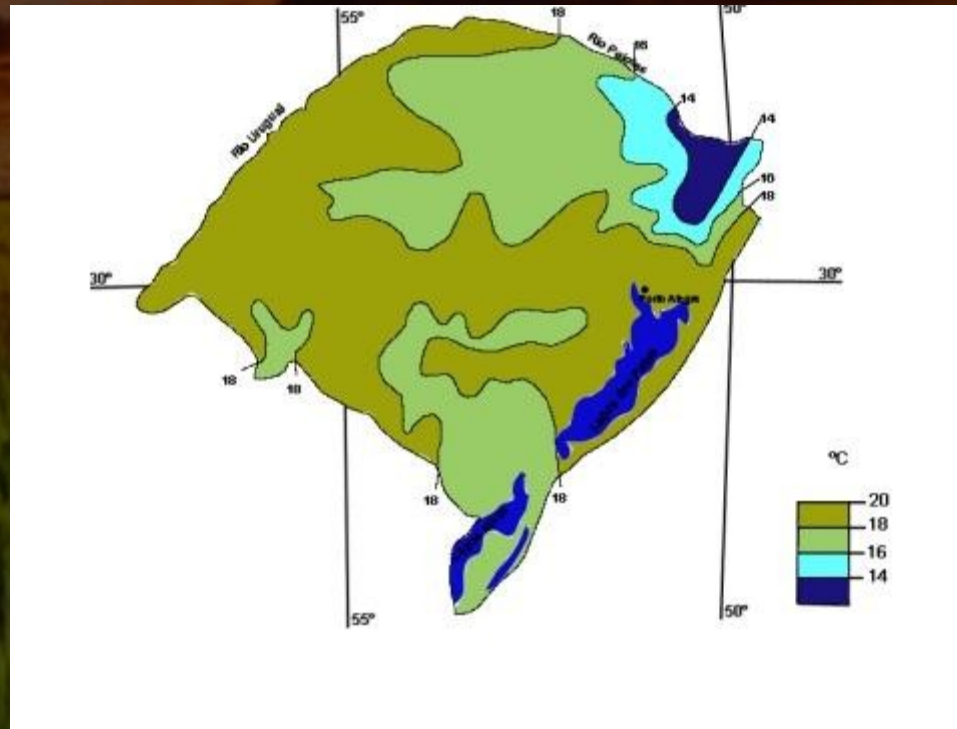
Clima no RS – Temperado Úmido

- Zona de transição climática
- Registra ondas de calor e de frio
- 2° Corredor de tornados
- Chuvas bem distribuídas ao longo do ano

Distribuição anual da chuva



Temperatura Média Anual

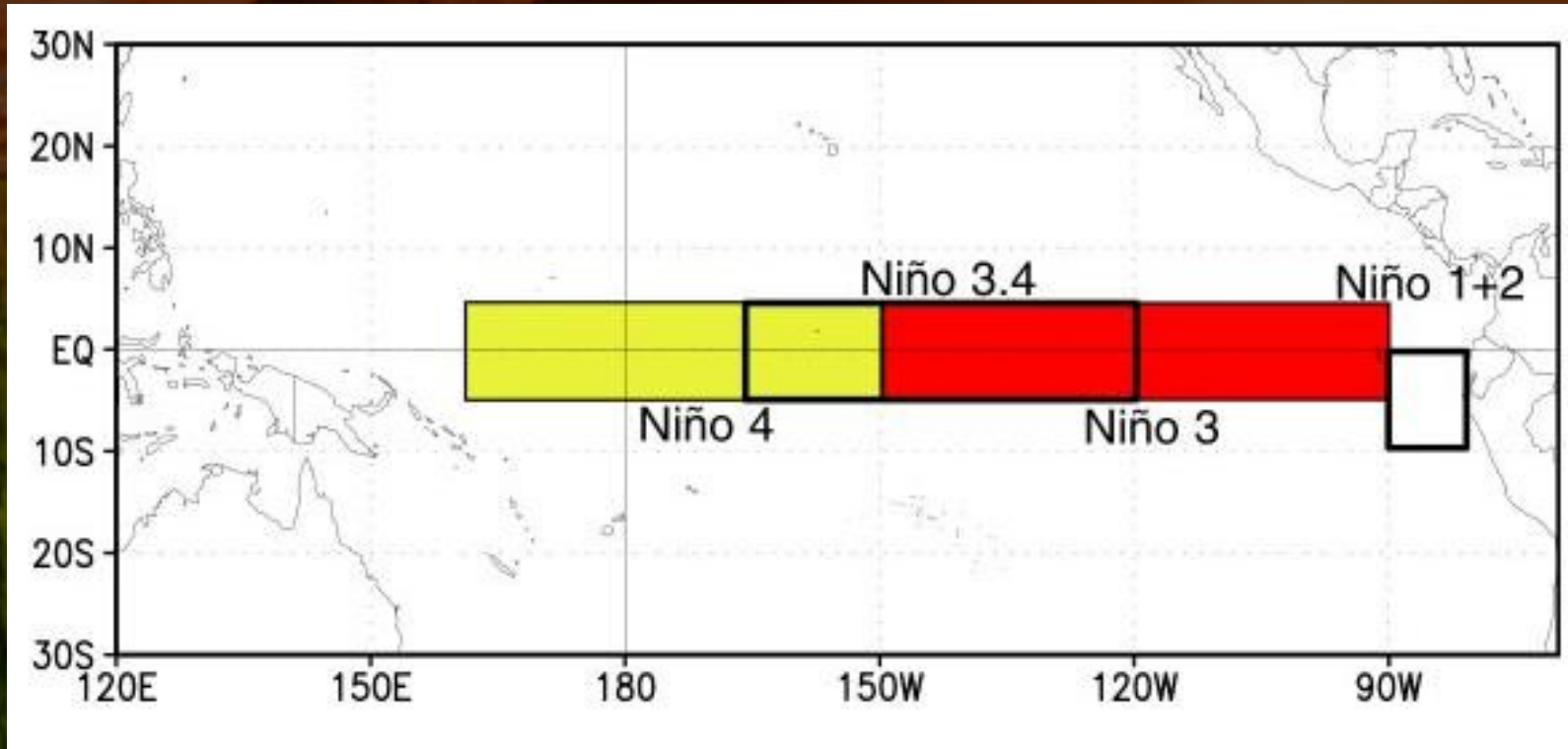


Variabilidade Climática

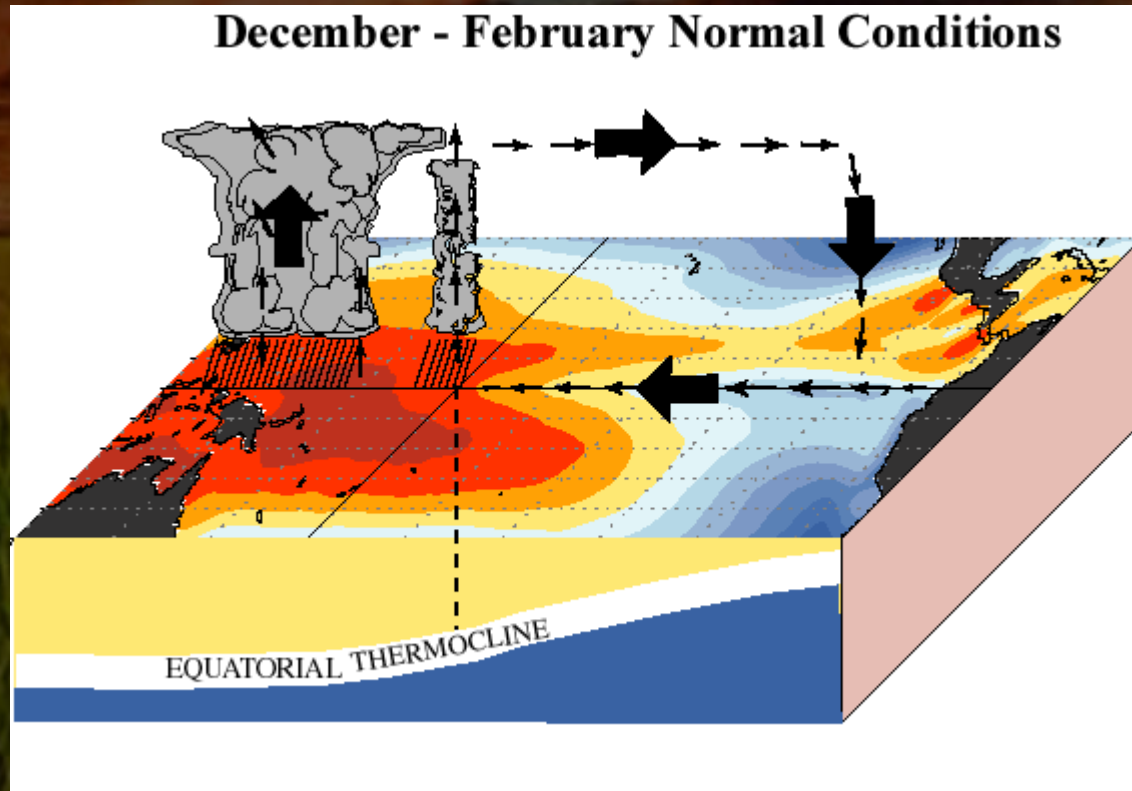
- Chuvas de outubro de 2008 (neutro)
- São Luiz Gonzaga choveu 480 mm para um media de 193 mm
- Chuva em SC em novembro de 2008

<i>Cidade</i>	<i>Chuva (mm) 1º as 9h de hoje</i>	<i>Chuva mm) normal de nove mbro</i>	<i>Chuva (mm) de sexta a domingo</i>
Itapoá	821,2	150 a 170	398,4
São Fran cisco do Sul	650,6	150 a 170	280,5
Itajaí	448,0	130 a 150	224,1
Florianóp olis	536,0*	130 a 150	229,1
Urubici	429,6	110 a 130	91

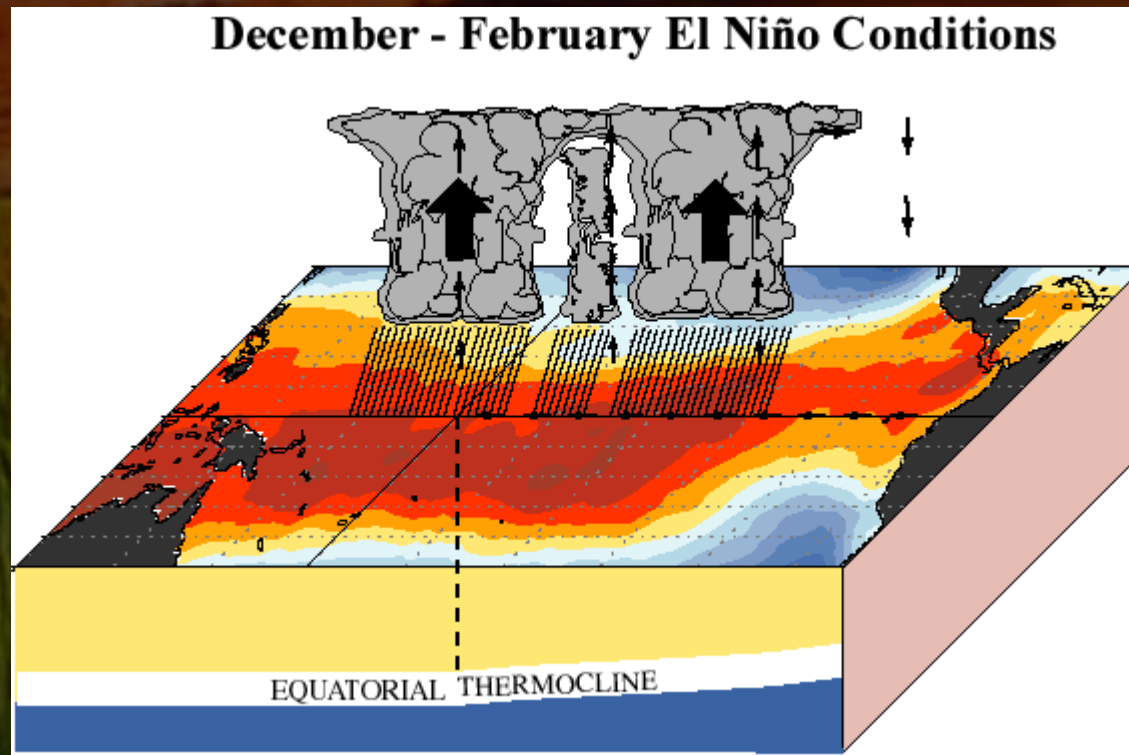
El Nino e La Nina



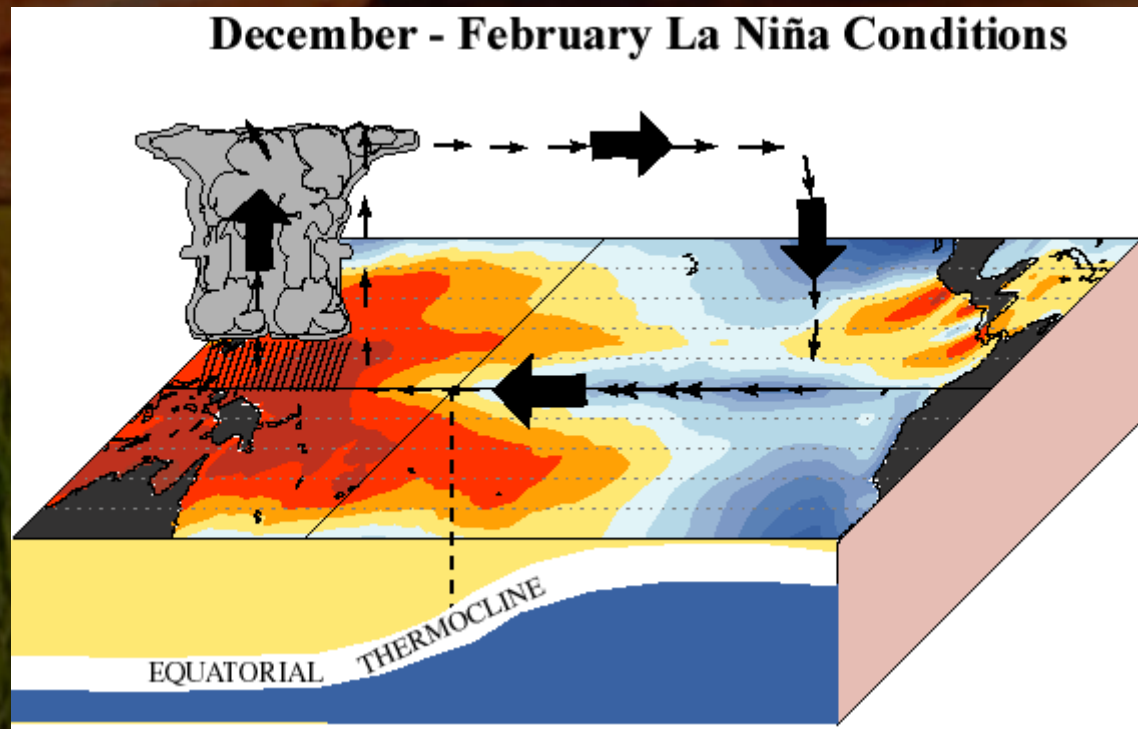
Condições Normais do Oc. Pacífico



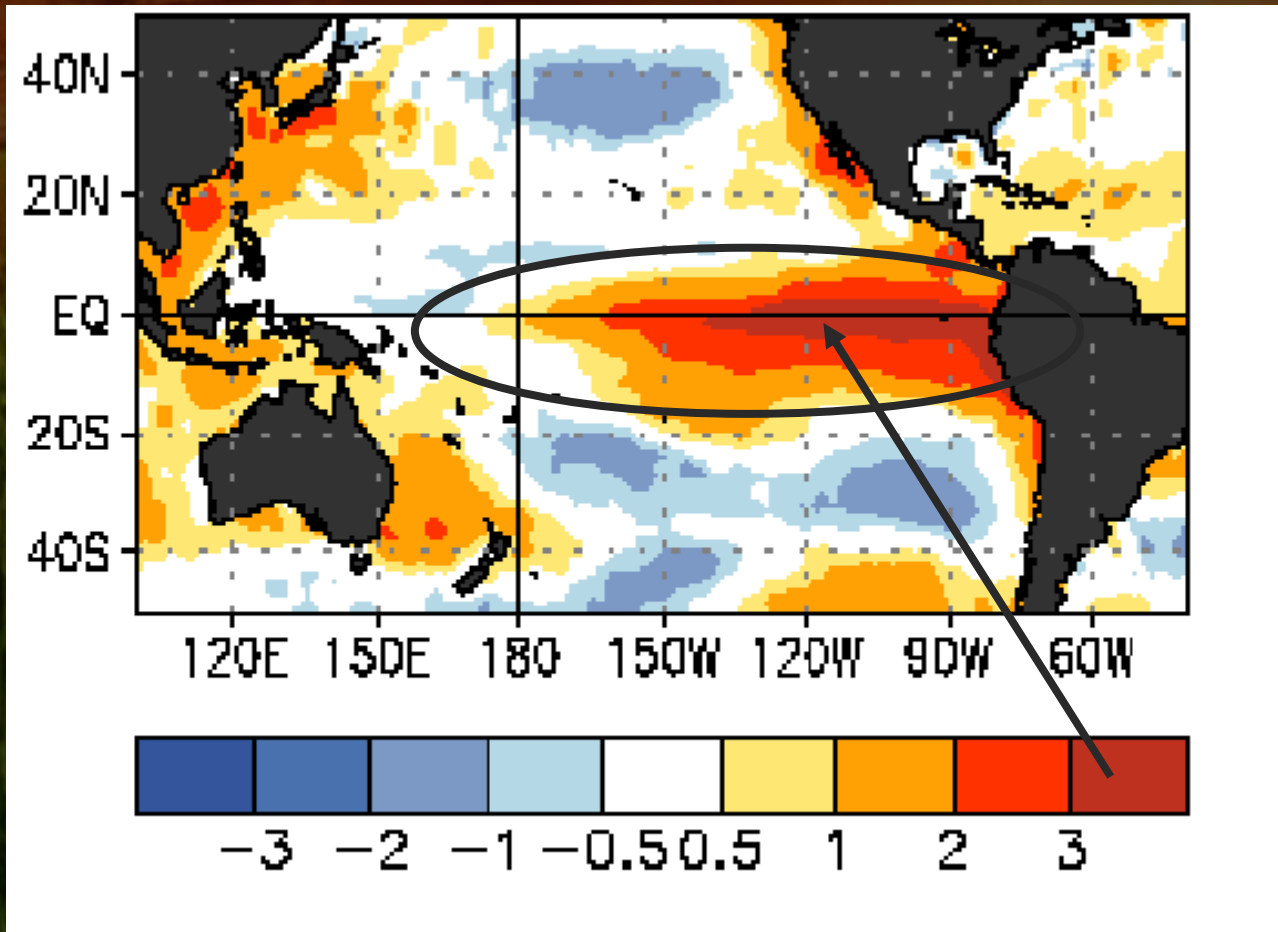
Condições de El Niño



Condições de La Niña



EL Nino 1998



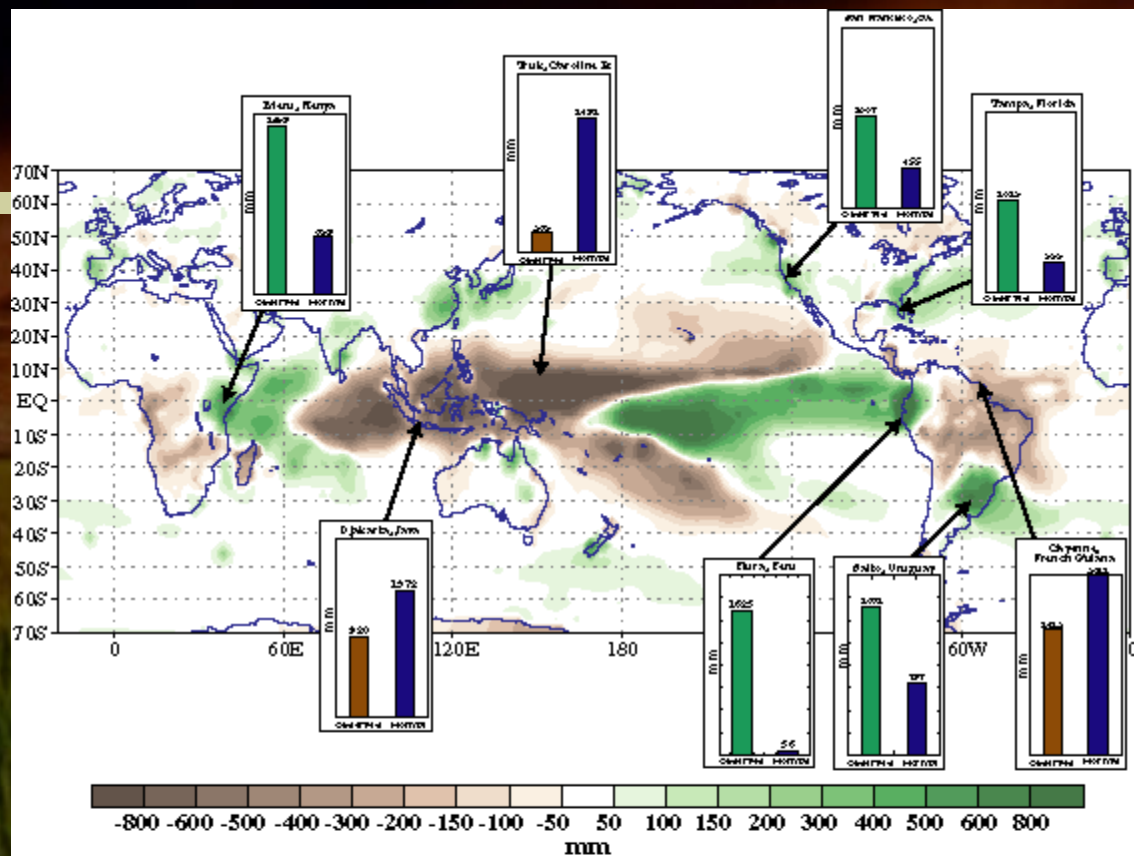


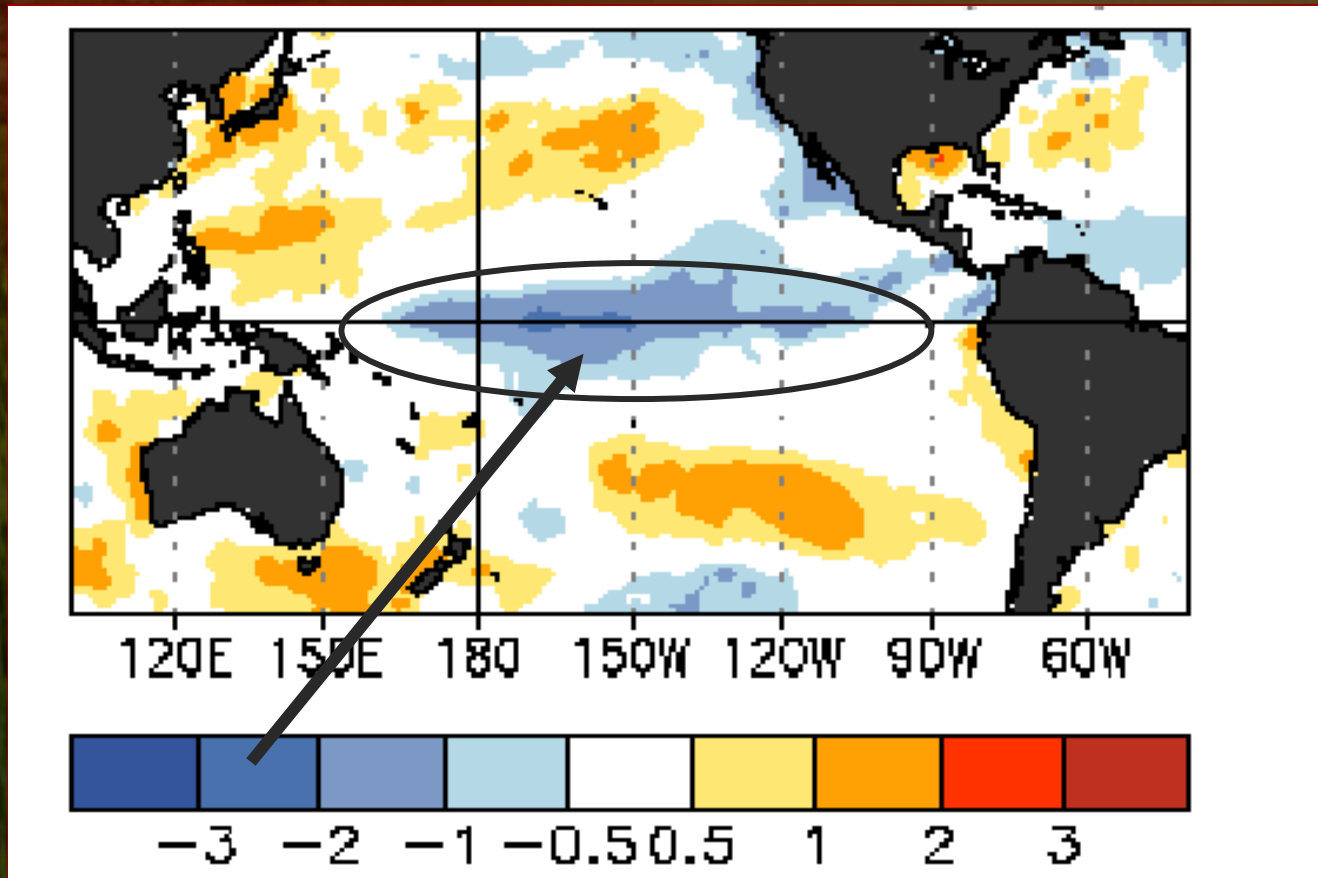
FIG. 22. Accumulated rainfall departures during November 1997–April 1998. Precipitation amounts are obtained by merging rain gauge observations and satellite-derived precipitation estimates. The satellite estimates are generated by the outgoing longwave radiation precipitation index (OPI) technique (Xie and Arkin 1998), and are merged with rain gauge data via a method adapted from Xie and Arkin (1996). Anomalies are departures from the 1979–95 base period means.

Ocorrência de El Niño

1877 - 1878	1888 - 1889
1896 - 1897	1899
1902 - 1903	1905 - 1906
1911 - 1912	1913 - 1914
1918 - 1919	1923
1925 - 1926	1932
1939 - 1941	1946 - 1947
1951	1953
1957 - 1959	1963
1965 - 1966	1968 - 1970
1972 - 1973	1976 - 1977
1977 - 1978	1979 - 1980
1982 - 1983	1986 - 1988
1990 - 1993	1994 - 1995
1997 - 1998	2002 - 2003
2004 - 2005	2006 - 2007
2009 - 2010	-

Legenda: **Forte** **Moderada** **Fraco**

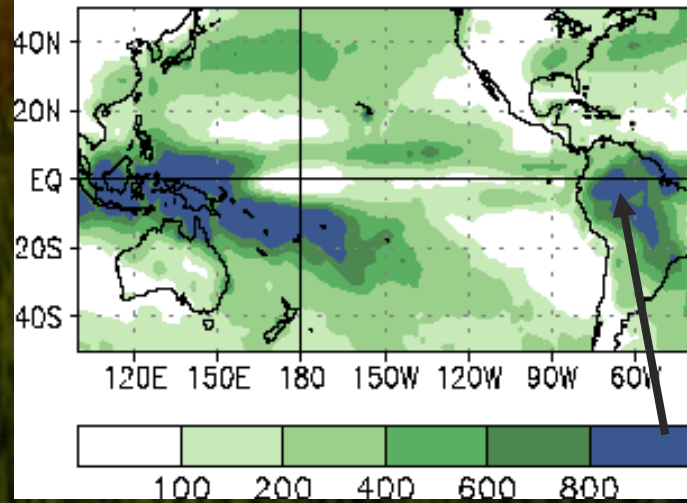
La Nina 1989



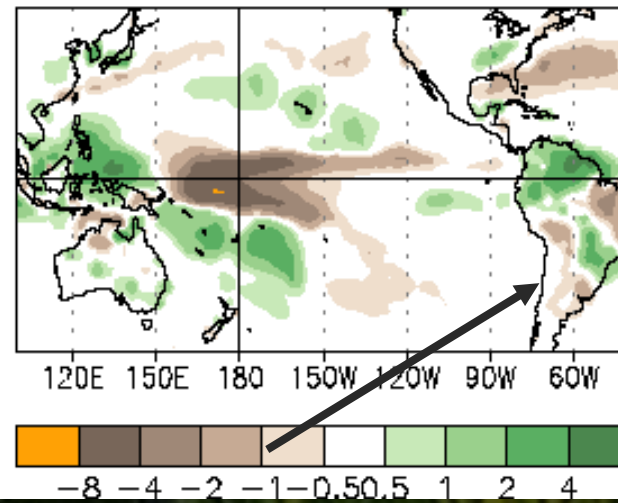
La Nina 1989

Jan-Mar 1989 Precipitation (mm)

Total



Departures (x100)

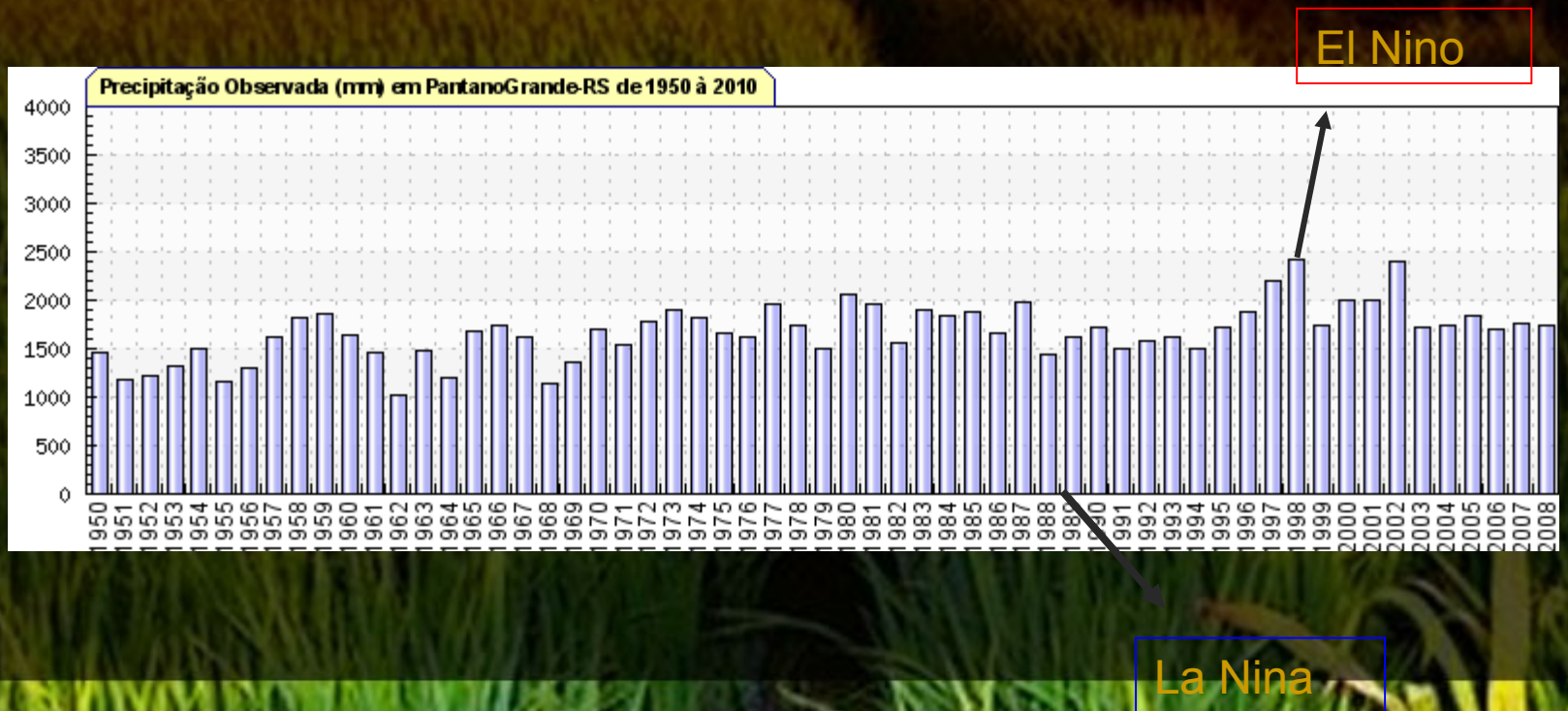


Ocorrência do La Niña

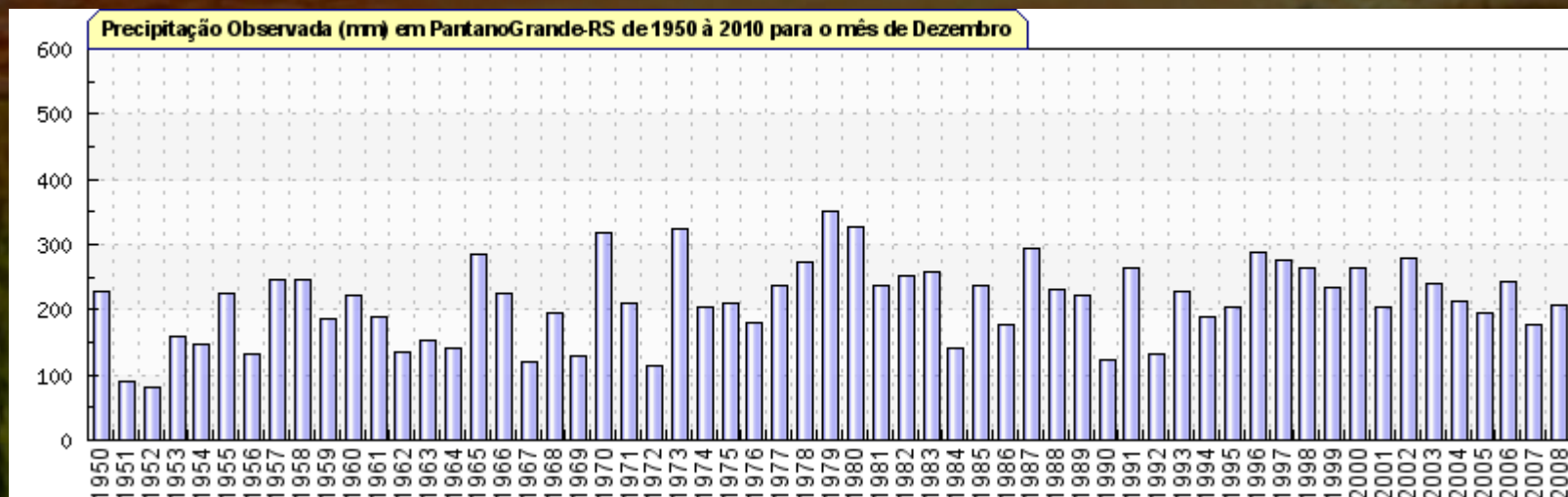
1886	1903 - 1904
1906 - 1908	1909 - 1910
1916 - 1918	1924 - 1925
1928 - 1929	1938 - 1939
1949 - 1951	1954 - 1956
1964 - 1965	1970 - 1971
1973 - 1976	1983 - 1984
1984 - 1985	1988 - 1989
1995 - 1996	1998 - 2001
2007 - 2008	-

Legenda: Forte Moderada Fraco

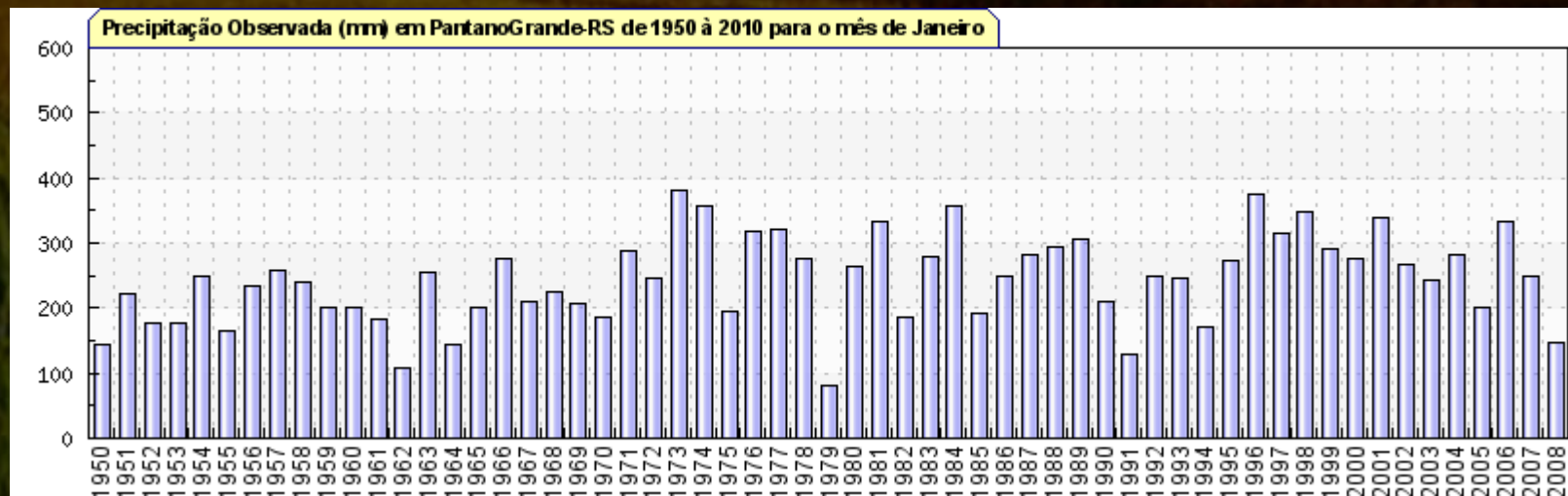
Chuva em Pantano Grande em desde 1950



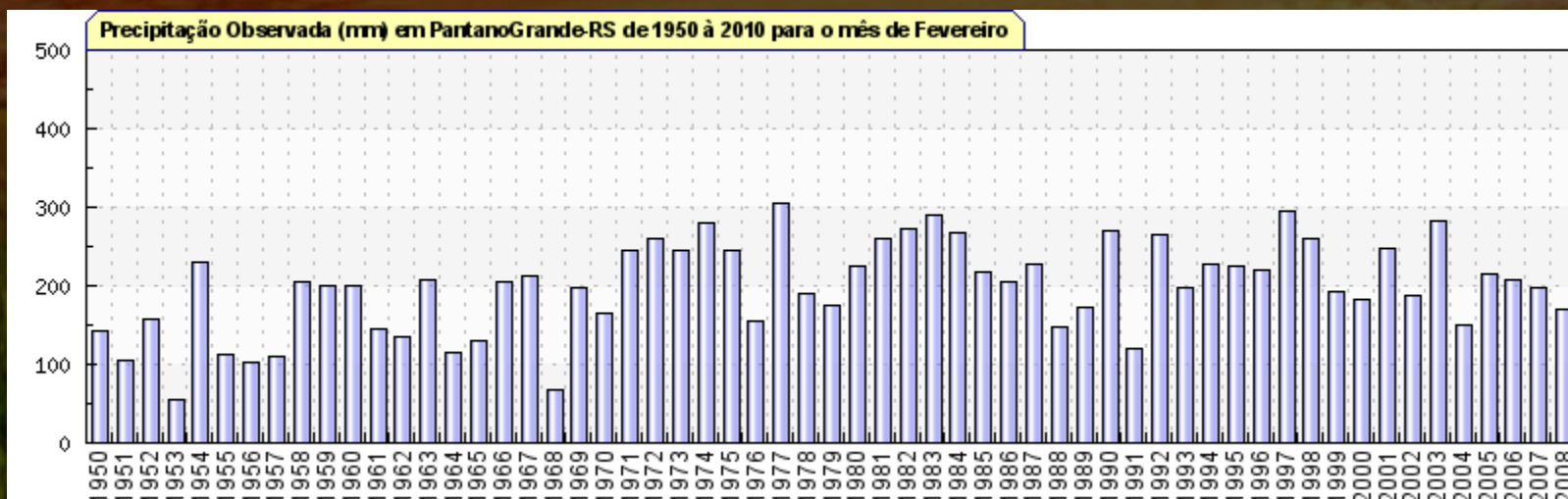
Chuva em Pantano Grande em dezembro desde 1950



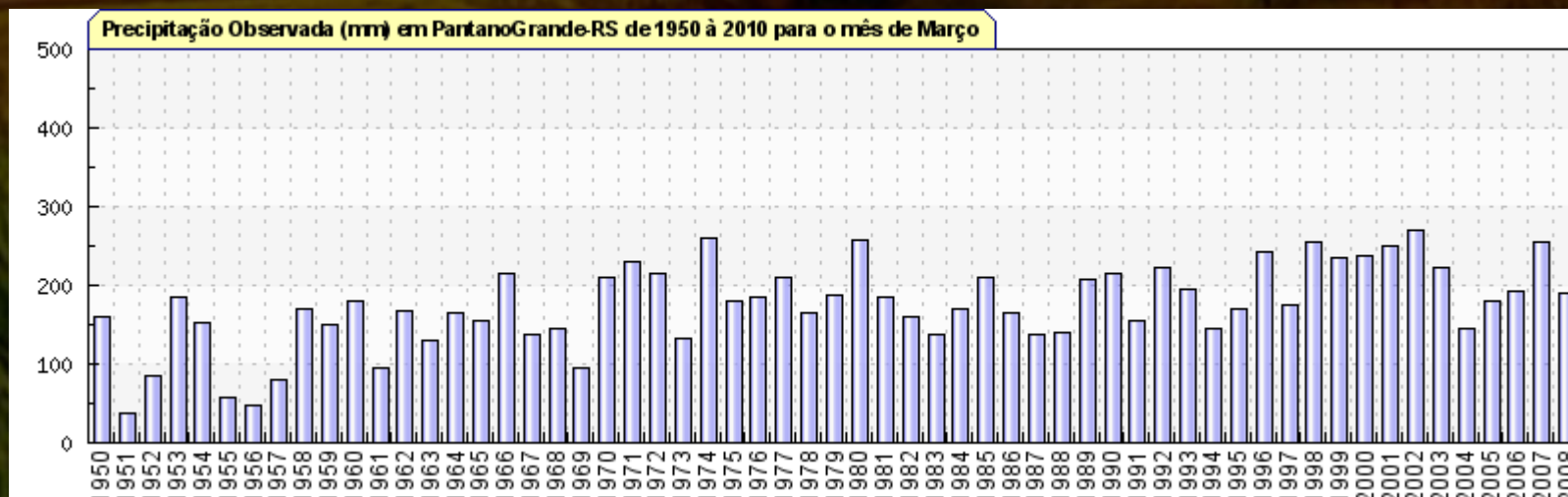
Chuva em Pantano Grande em Janeiro desde 1950



Precipitação em Pantano Grande em Fevereiro desde 1950



Chuva em Pantano Grande em Março desde 1950

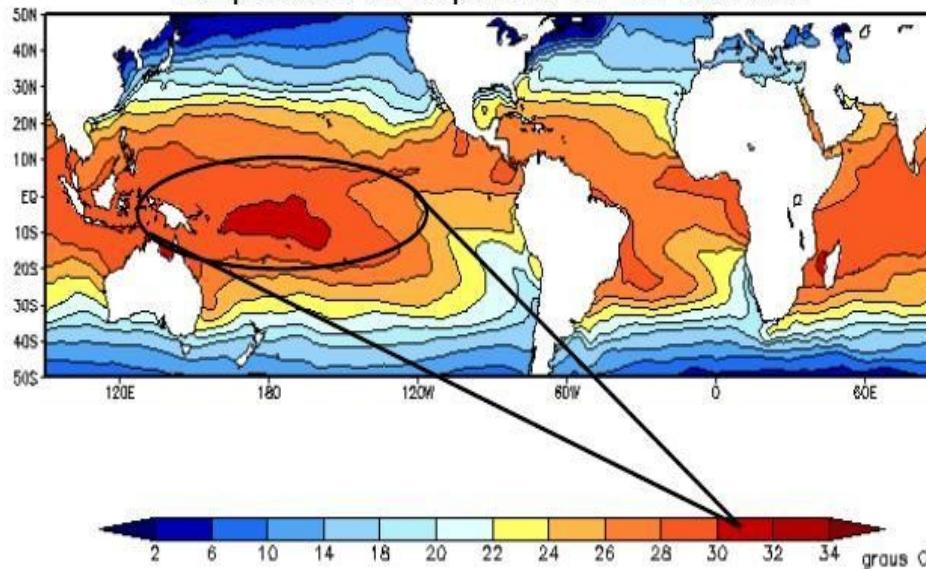




2010

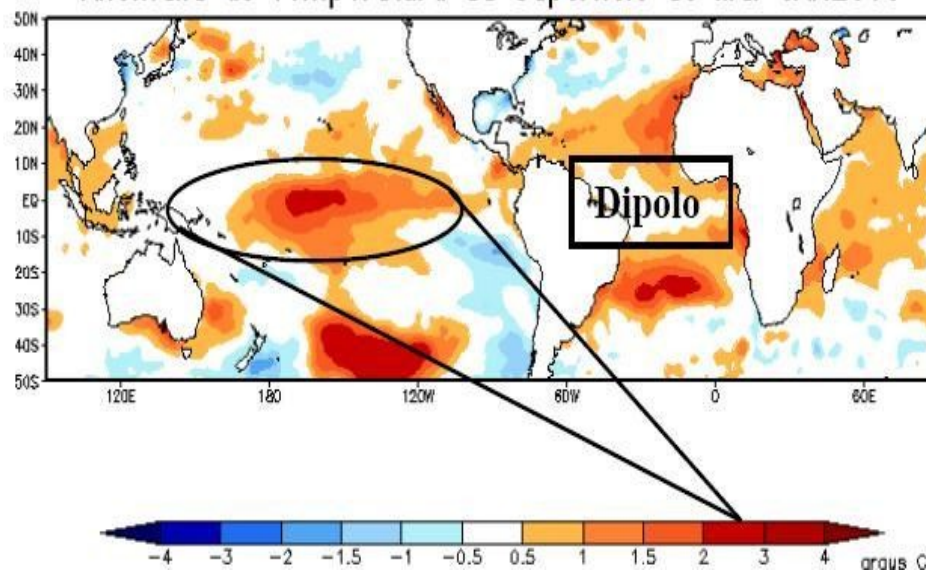
- Transição do El Nino Para La Nina
- Segundo El Nino mais intenso da história
- Este é o sexto caso de transição num mesmo ano
- Geralmente antecede La Nina intenso

Temperatura da Superfície do Mar JAN2010



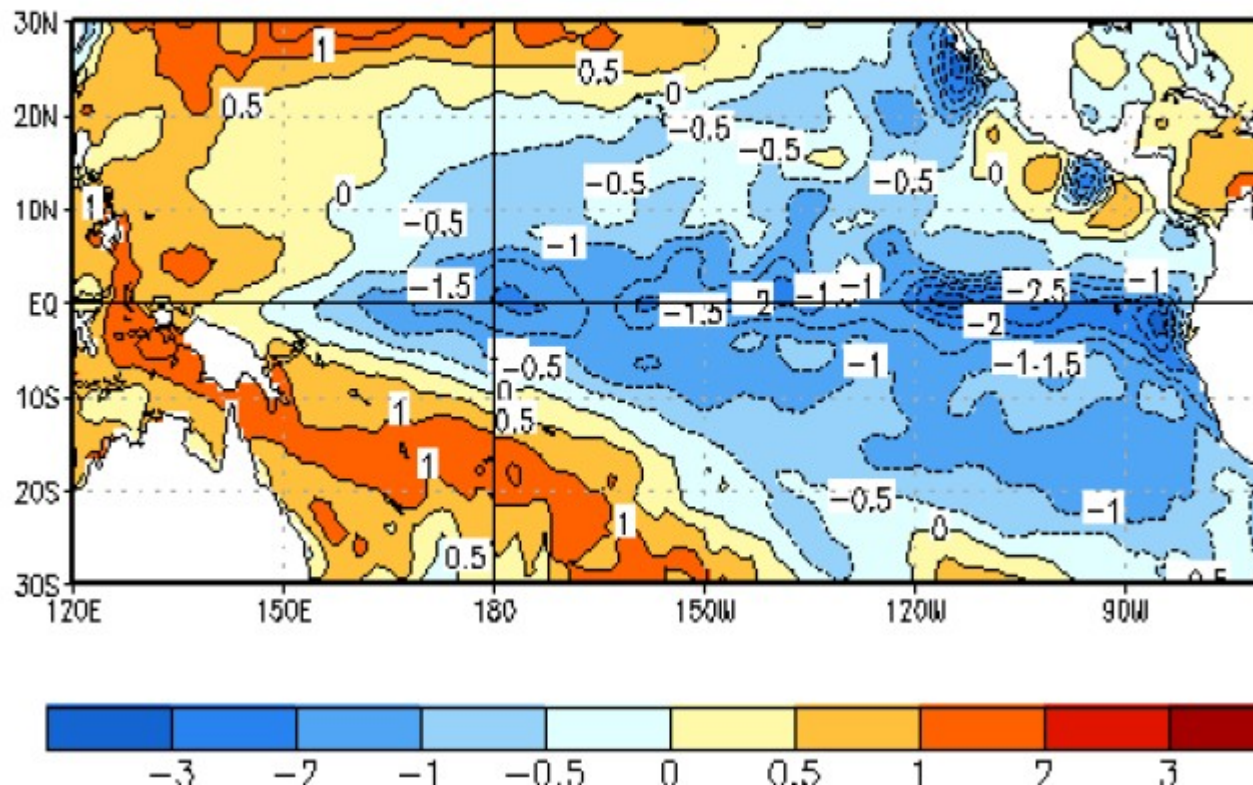
– Temperatura da Superfície do Mar (TSM) referente ao mês de janeiro de 2010 (Fonte: www.cptec.inpe.br).

Anomalia de Temperatura da Superfície do Mar JAN2010

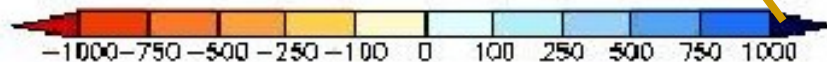
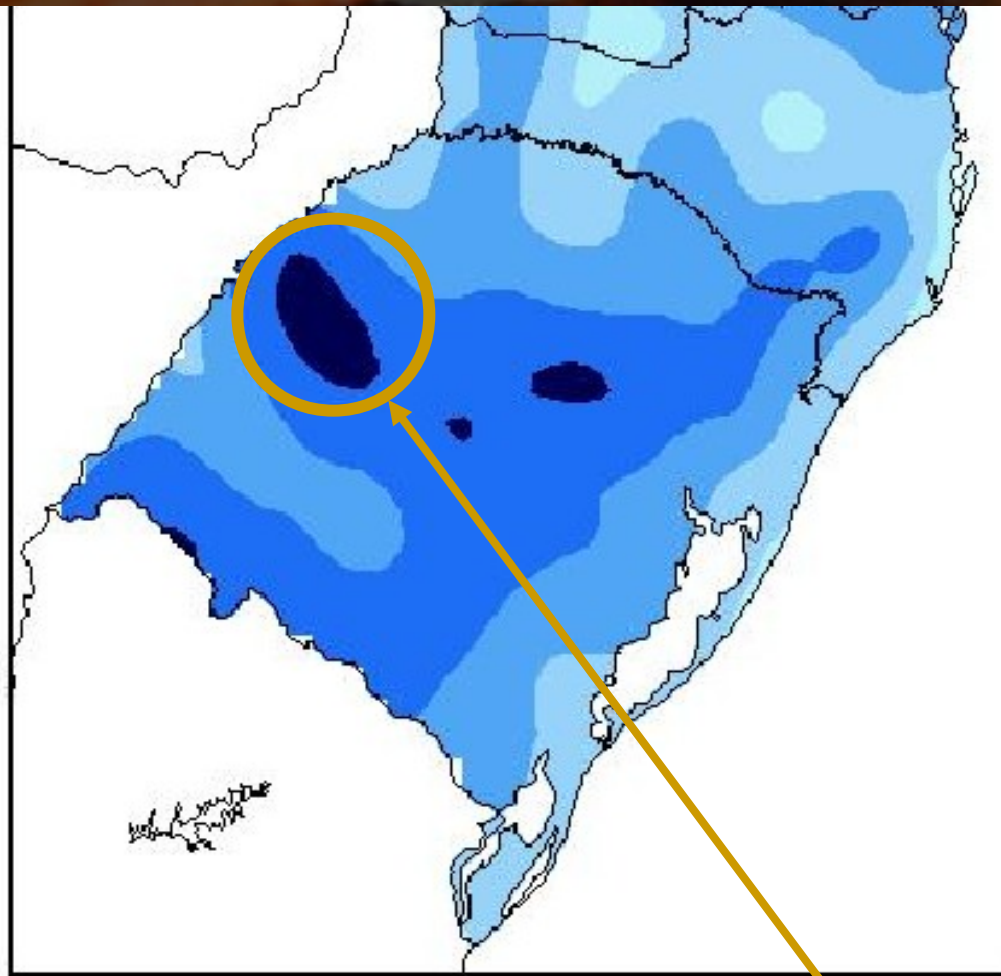


10 de Outubro/06 de Novembro

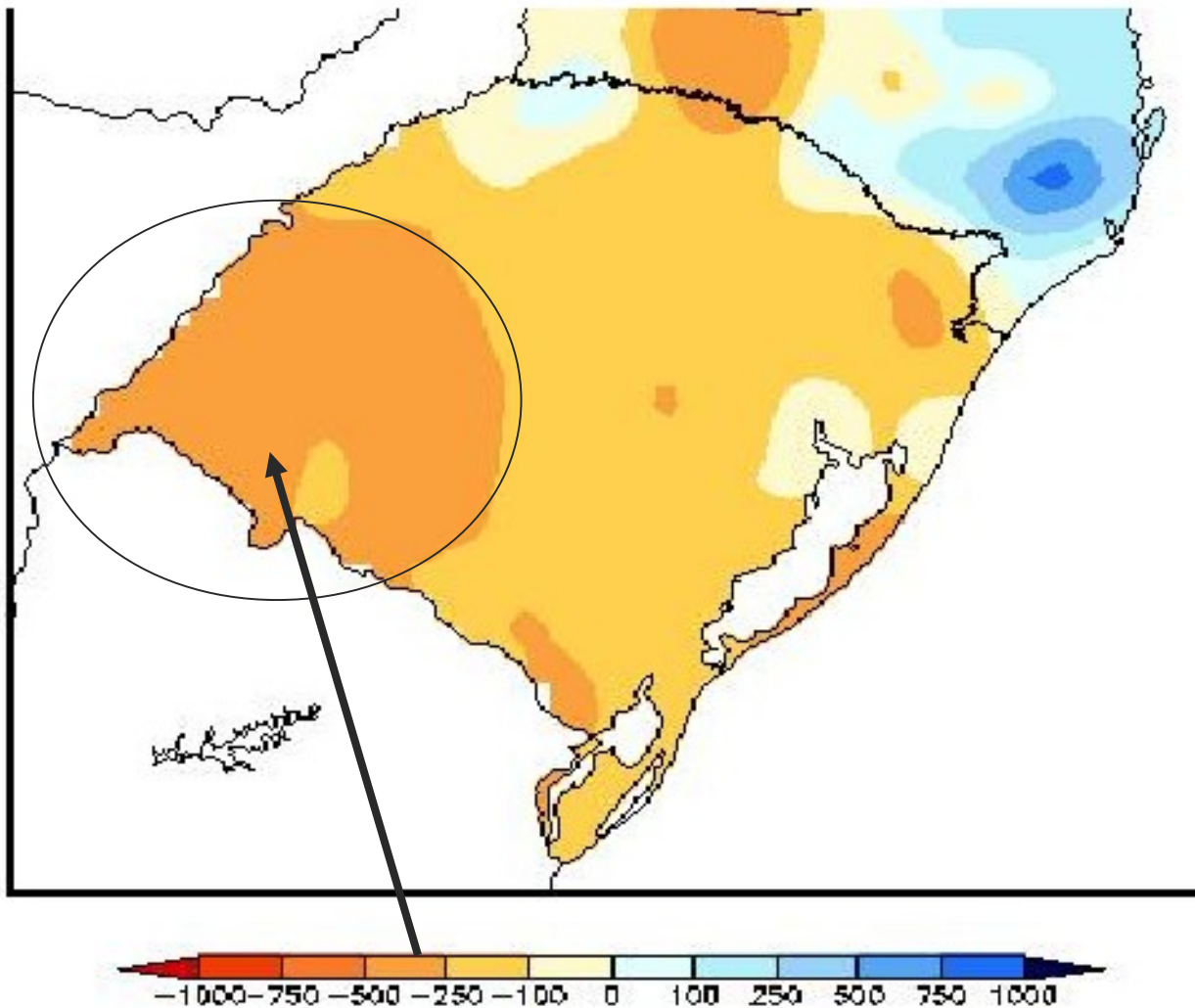
Average SST Anomalies
10 OCT 2010 – 6 NOV 2010



Desvio da Média Agosto/Fevereiro



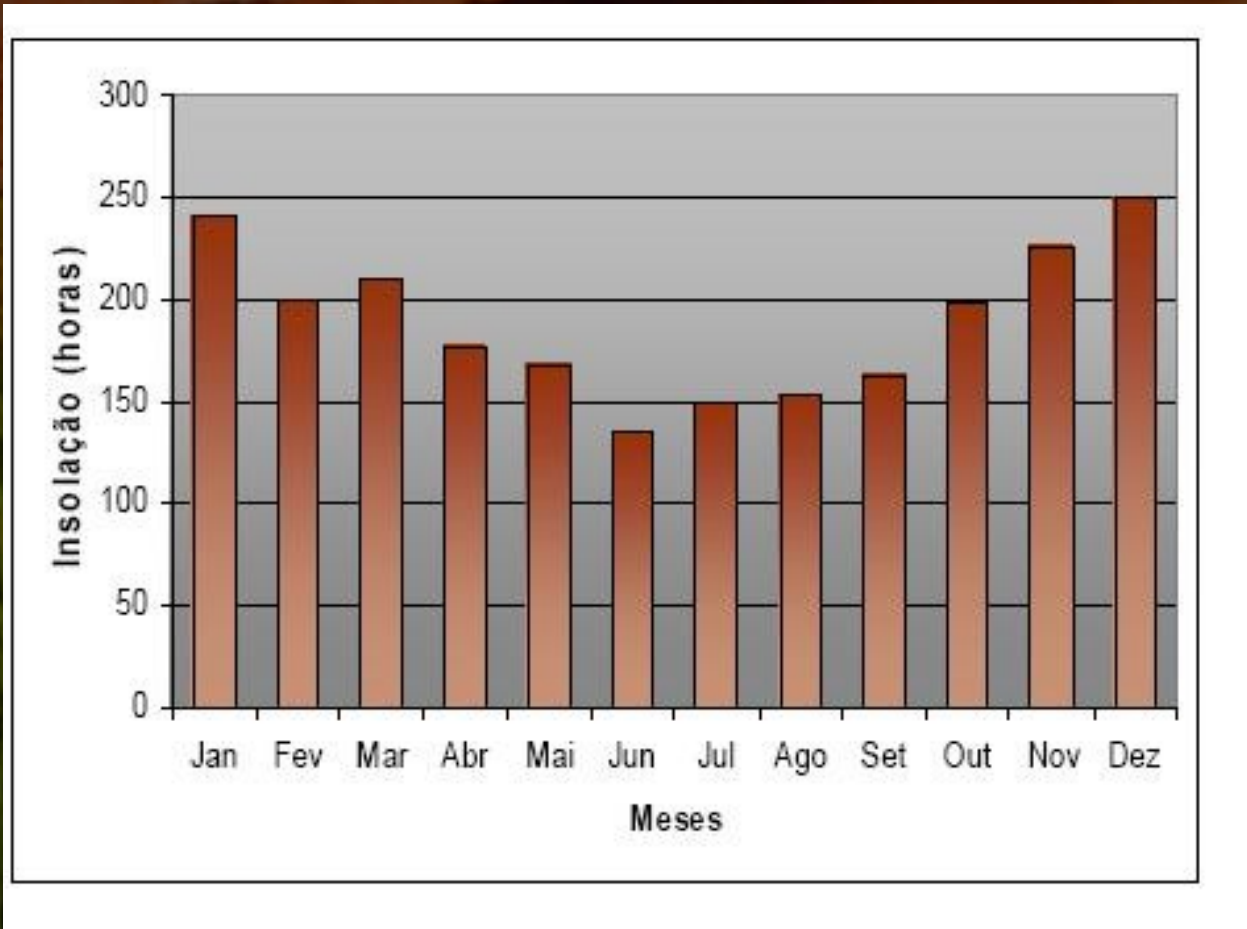
Desvio da chuva de Março a novembro de 2010



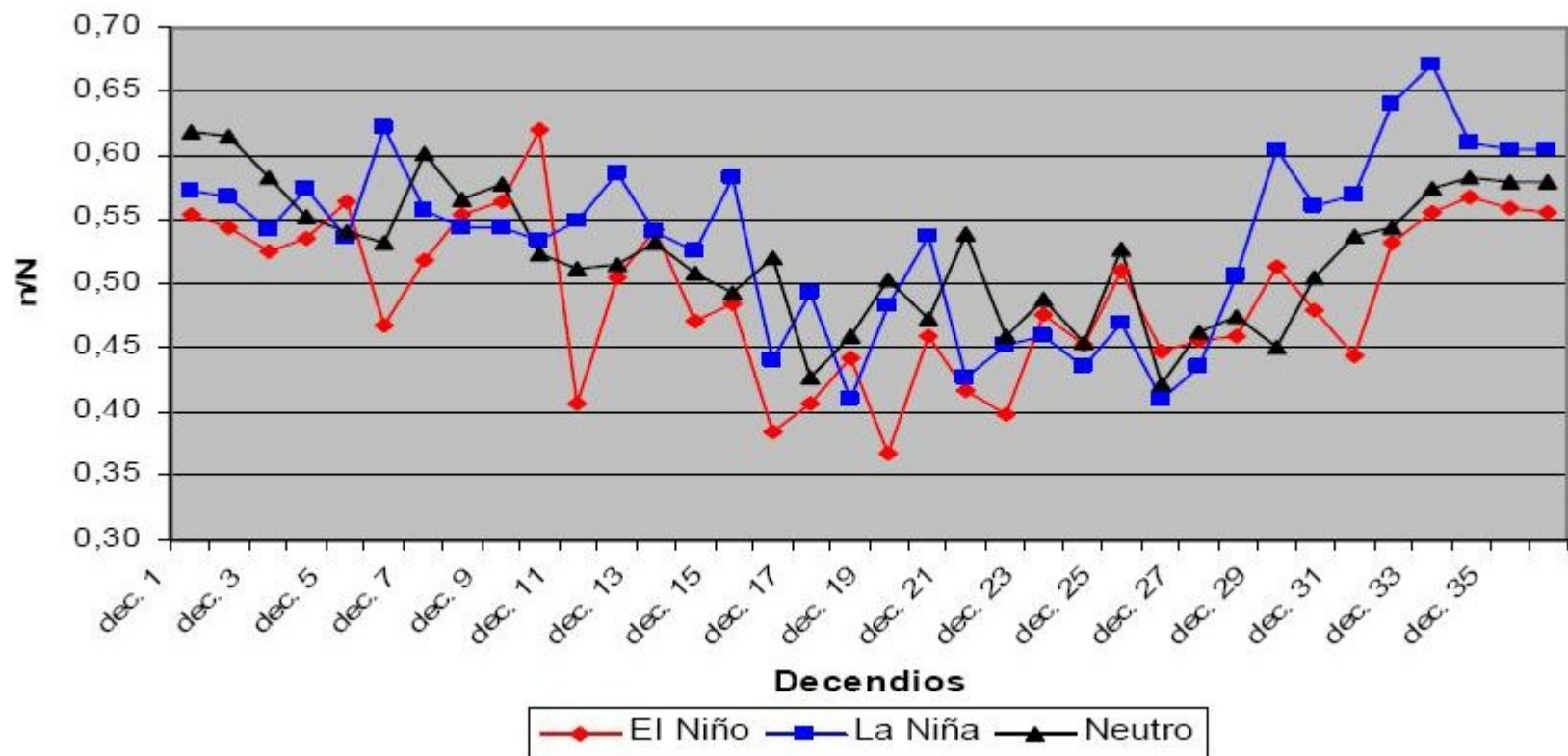
La Nina X Primavera

- Maior frequência de massas de ar polar
- Risco de ondas de frio tardias
- Maior risco de dias consecutivos de baixas temperaturas
- 2007 1/3 do mês de outubro $T^{\circ} < 15^{\circ}\text{C}$

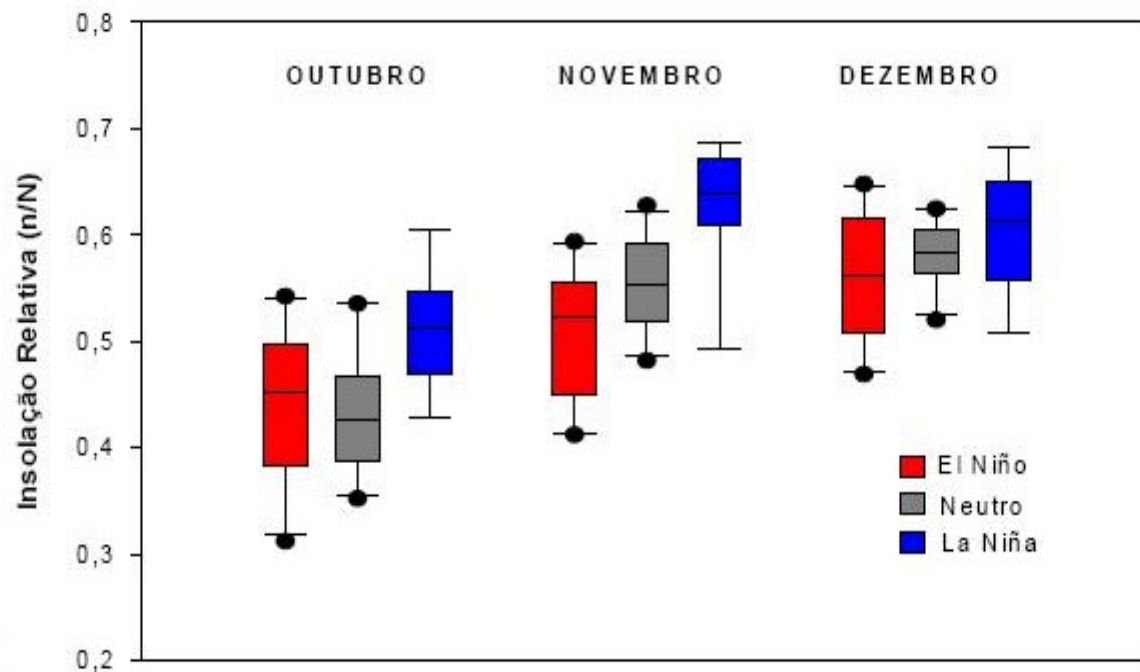
Insolação ao longo do ano



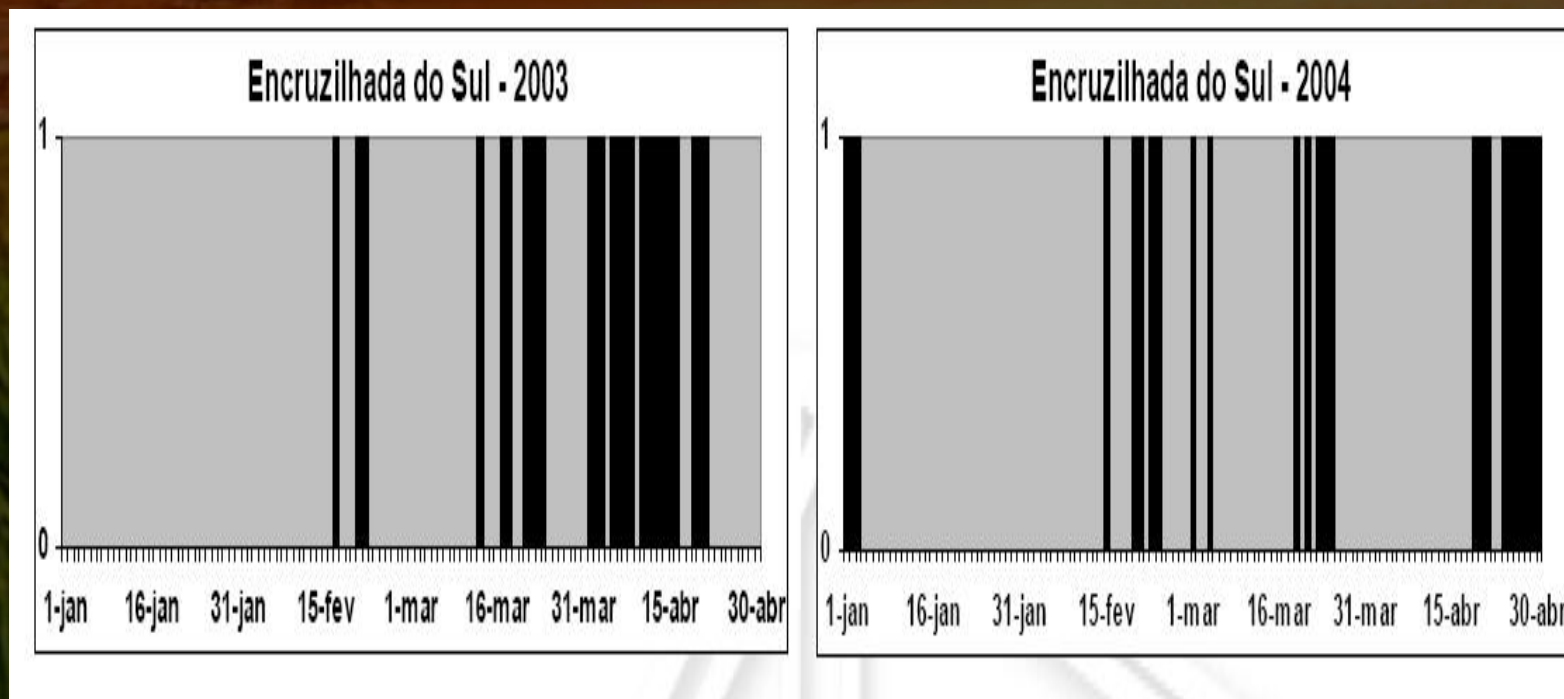
Insolação em Anos de La Nina e El Nino



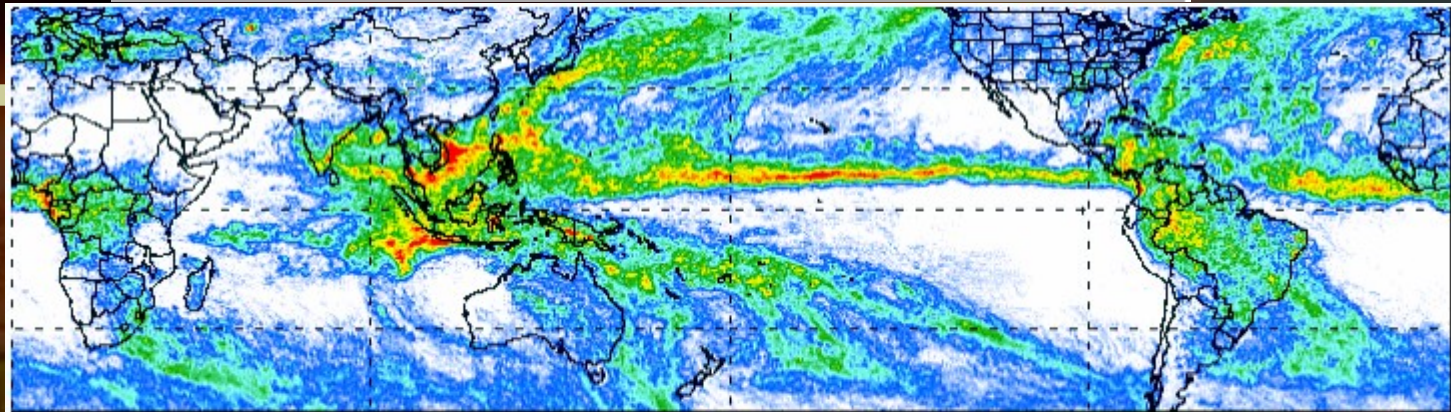
Previsão Climática Proximos meses



Dias consecutivos de frio - variabilidade

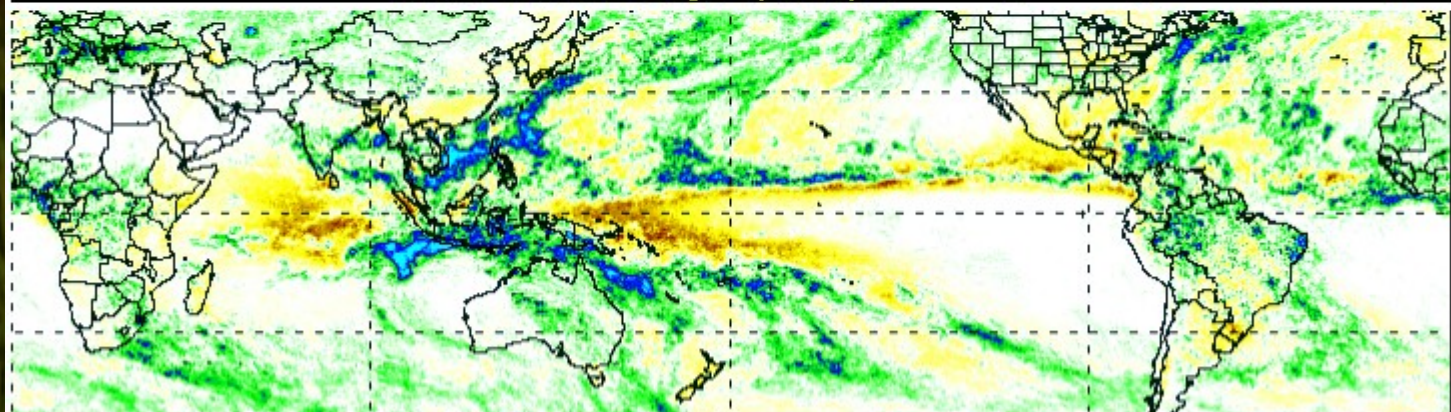


TRMM Tropical Rainfall Measuring Mission



10 NOV 2010

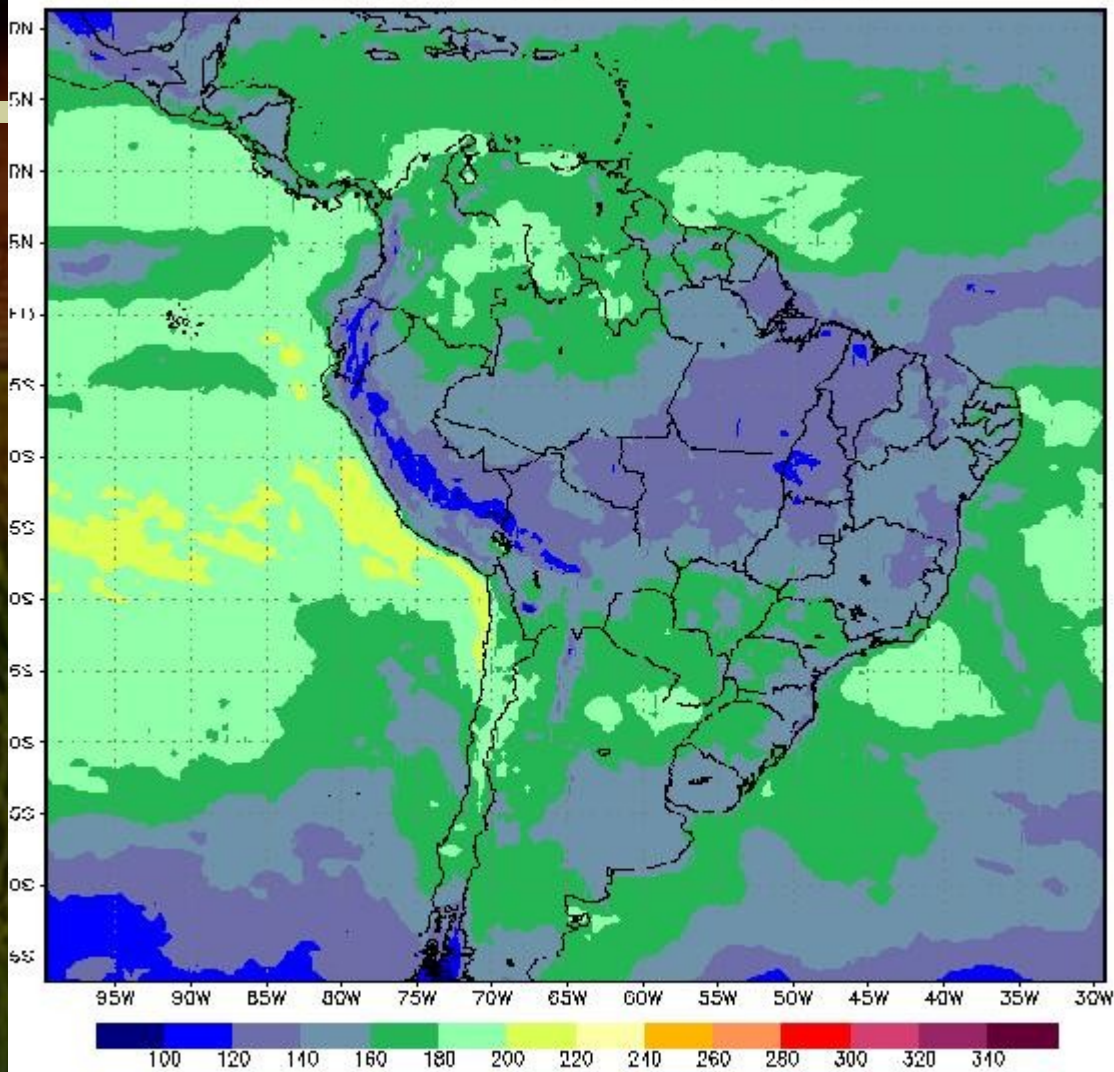
Average Rainfall
For Last 30 Days (mm/d) 0 5 10 15 20



10 NOV 2010

Rainfall Anomalies
For last 30 Days (mm/d) -15 -10 -5 0 5 10 15

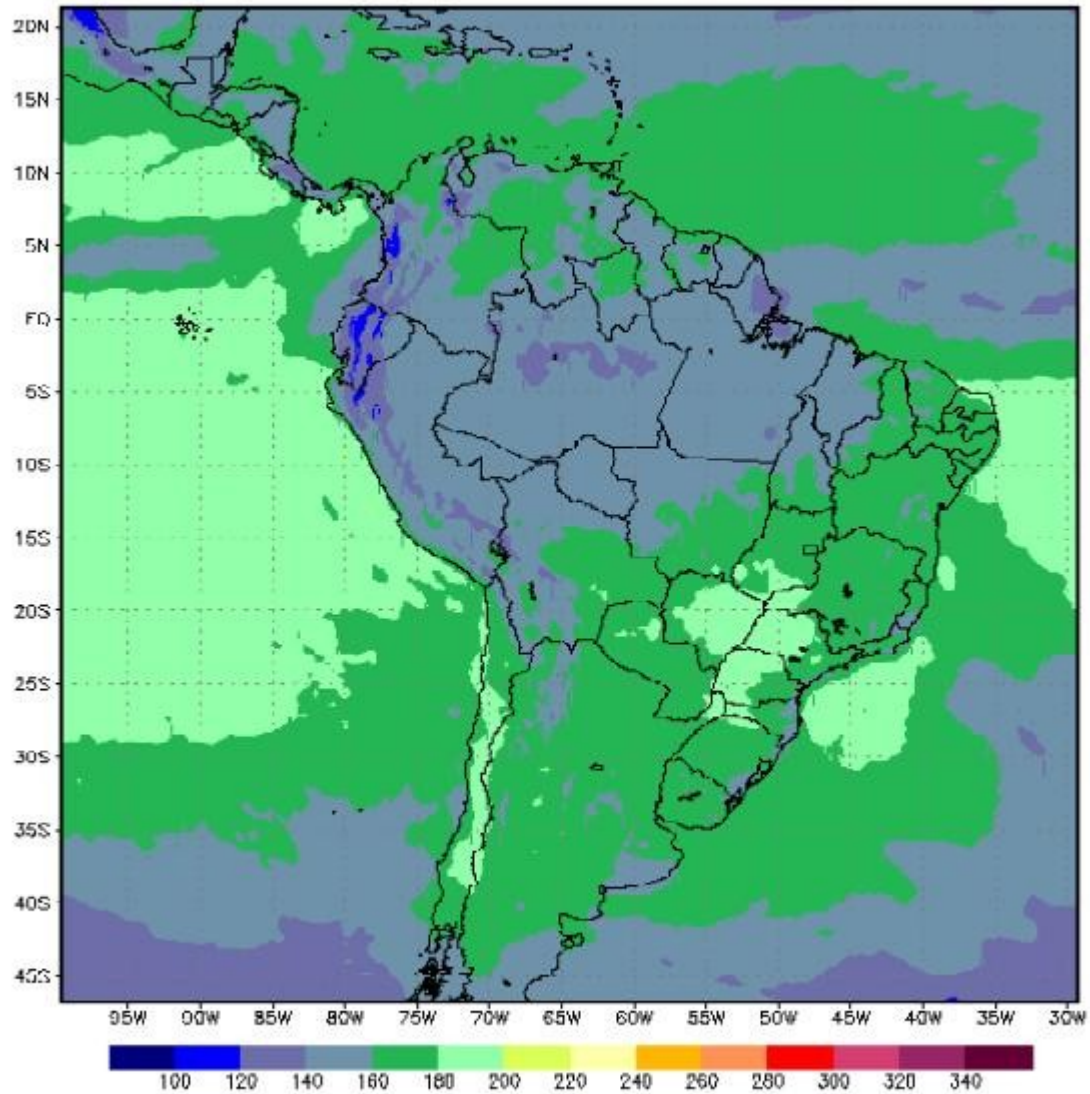
Media da Radiação Diária Mod. GL1.2 (W/m²)
UV+VIS Período: Fevereiro 2007



CPTEC/INPE

http://satelite.cptec.inpe.br/radiacao/#/aba_INS.jsp

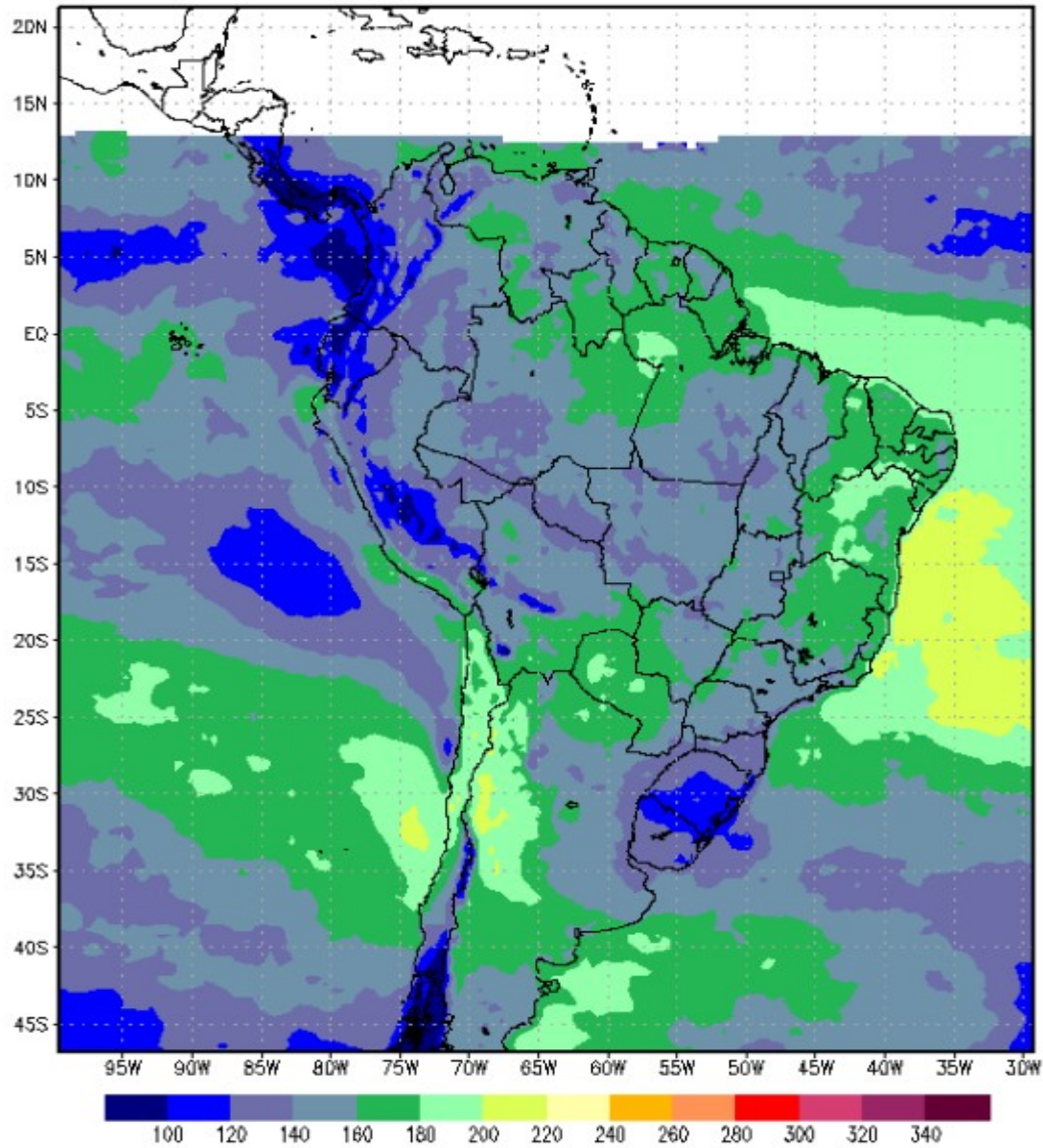
Media da Radiação Diária Mod. GL1.2 (W/m²)
UV+VIS Período: Fevereiro 2005



CPTEC/INPE

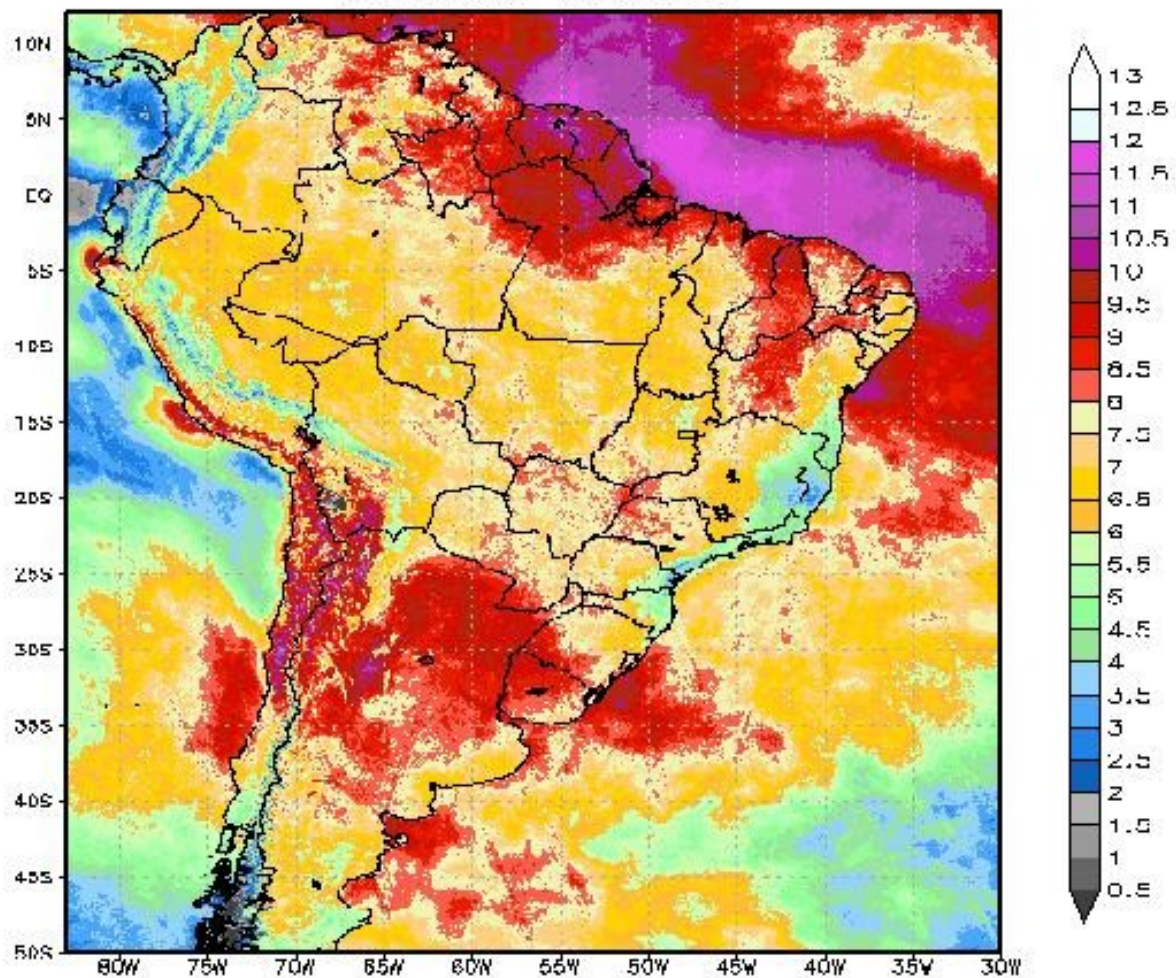
http://satelite.cptec.inpe.br/radiacao/#/aba_IN3.jsp

Media da Radiacao Diaria Mod. GL1.2 (W/m2)
UV+VIS Período: Novembro 2009



CPTEC/INPE

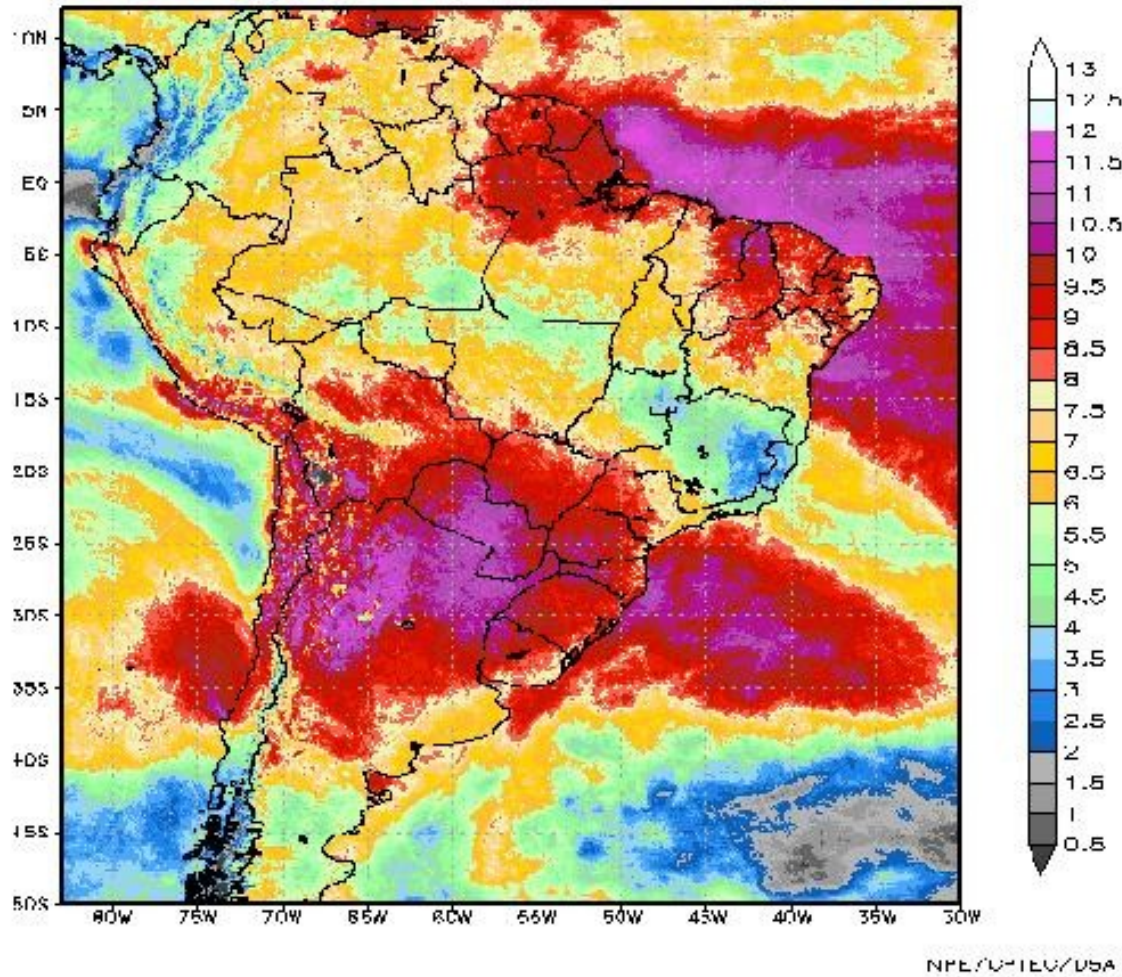
INSOLACAO Media Mensal (Horas/Dia) OUTUBRO de 2010



http://satelite.cptec.inpe.br/radiacao/#/aba_INS.jsp

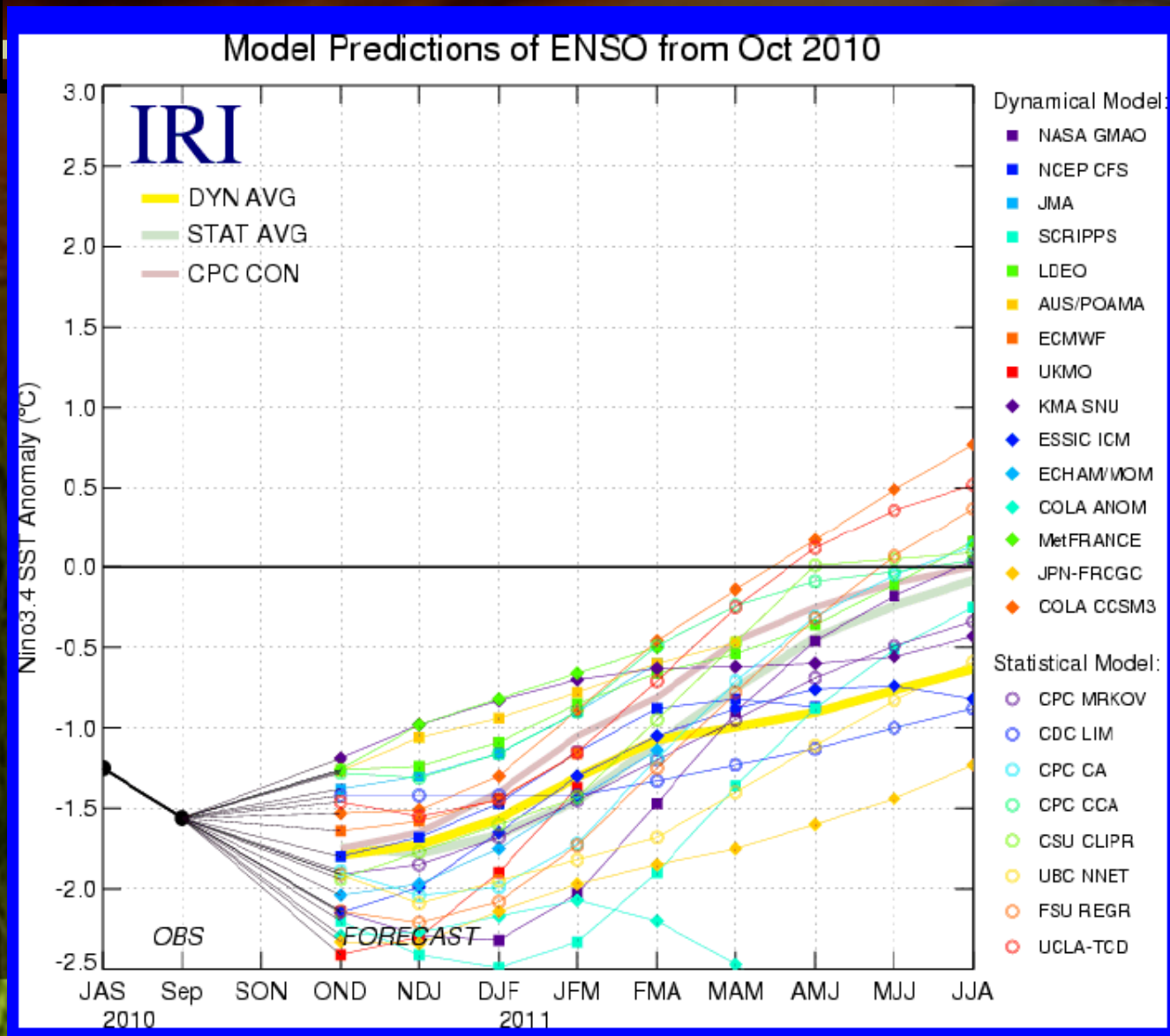
INPE / CPTEC / DSA

INSOLACAO Media Quinzenal (Horas/Dia)
101026 a 101109

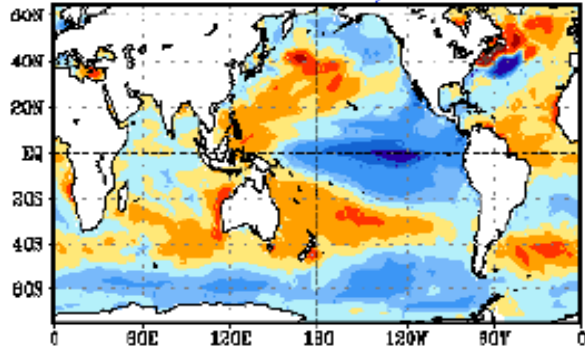


http://satelite.cptec.inpe.br/radiacao/#!/aba_INS.jsp

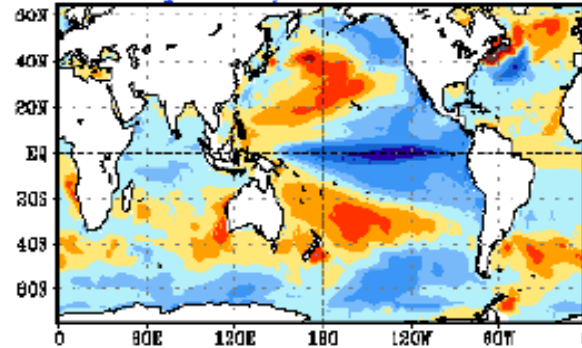
Previsão de Resfriamento



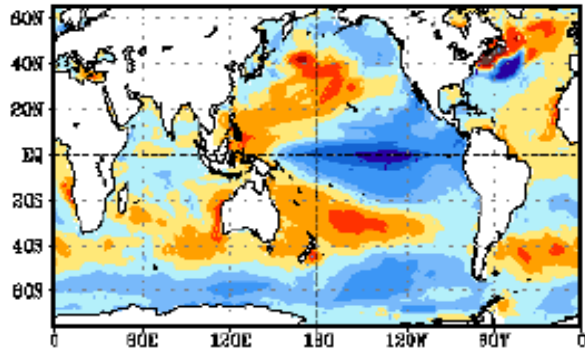
Dec-Jan-Feb 2010/2011



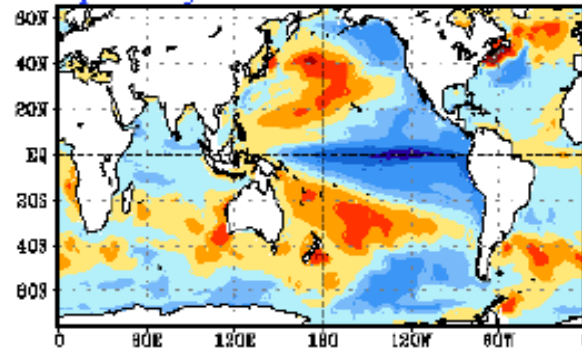
Mar-Apr-May 2011



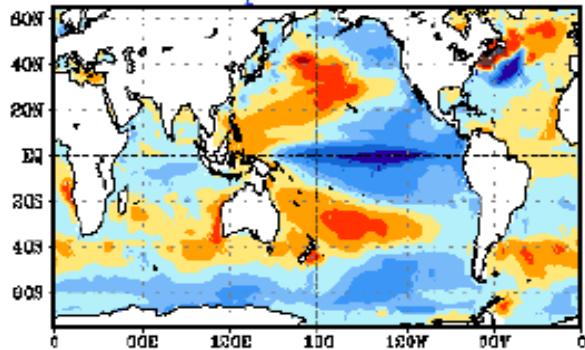
Jan-Feb-Mar 2011



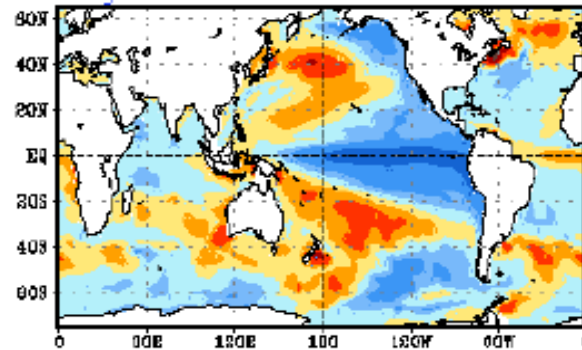
Apr-May-Jun 2011



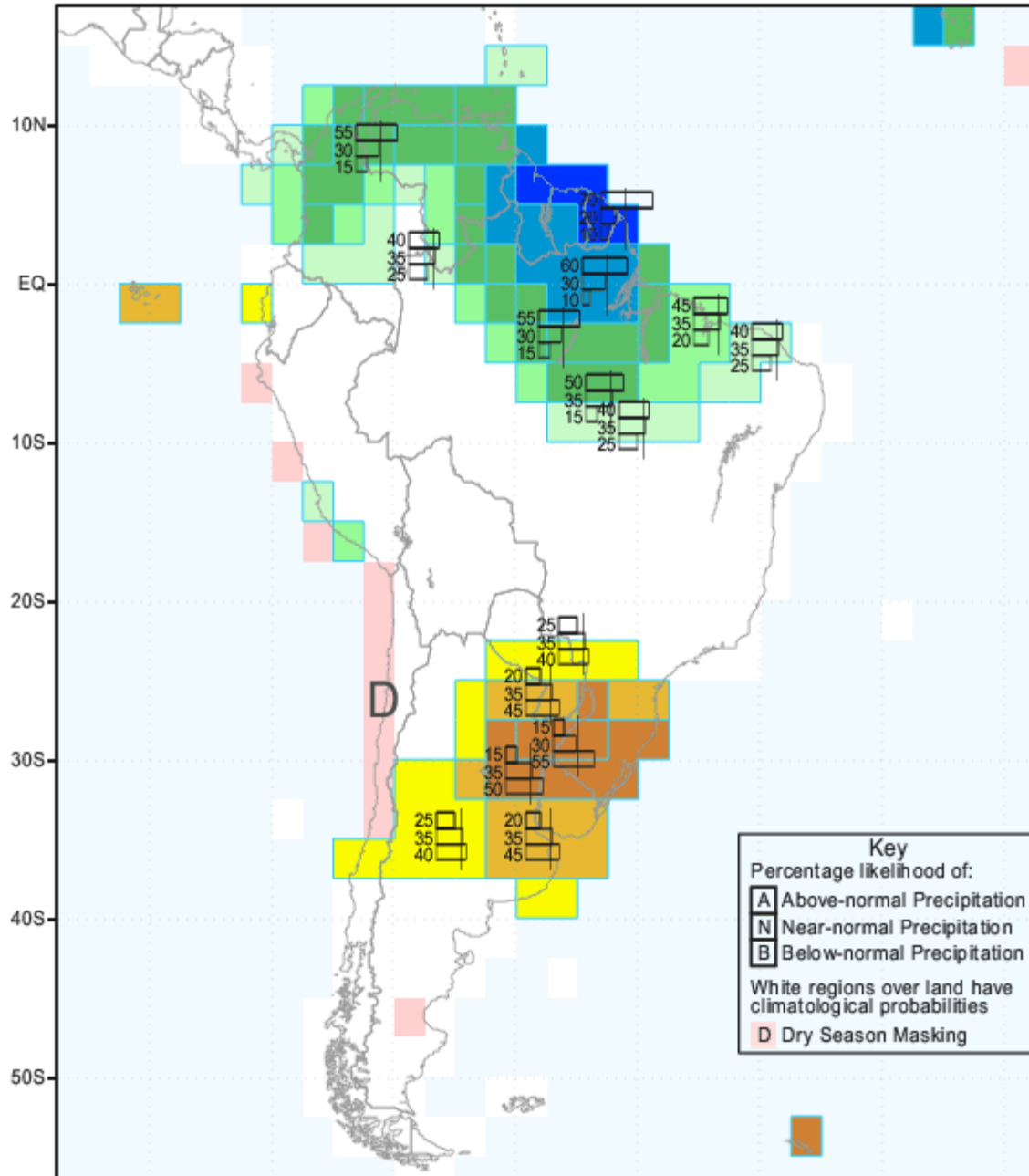
Feb-Mar-Apr 2011



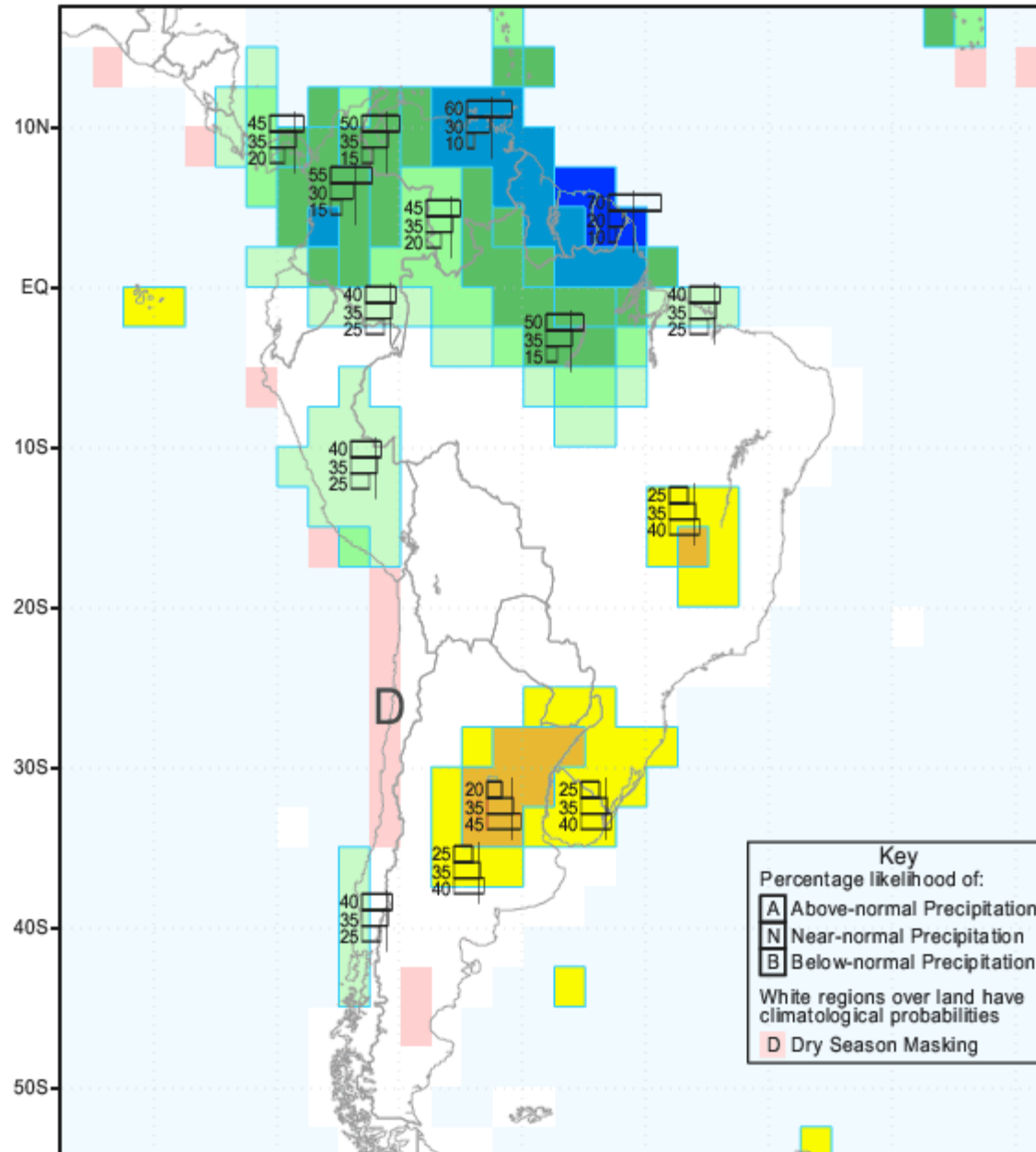
May-Jun-Jul 2011



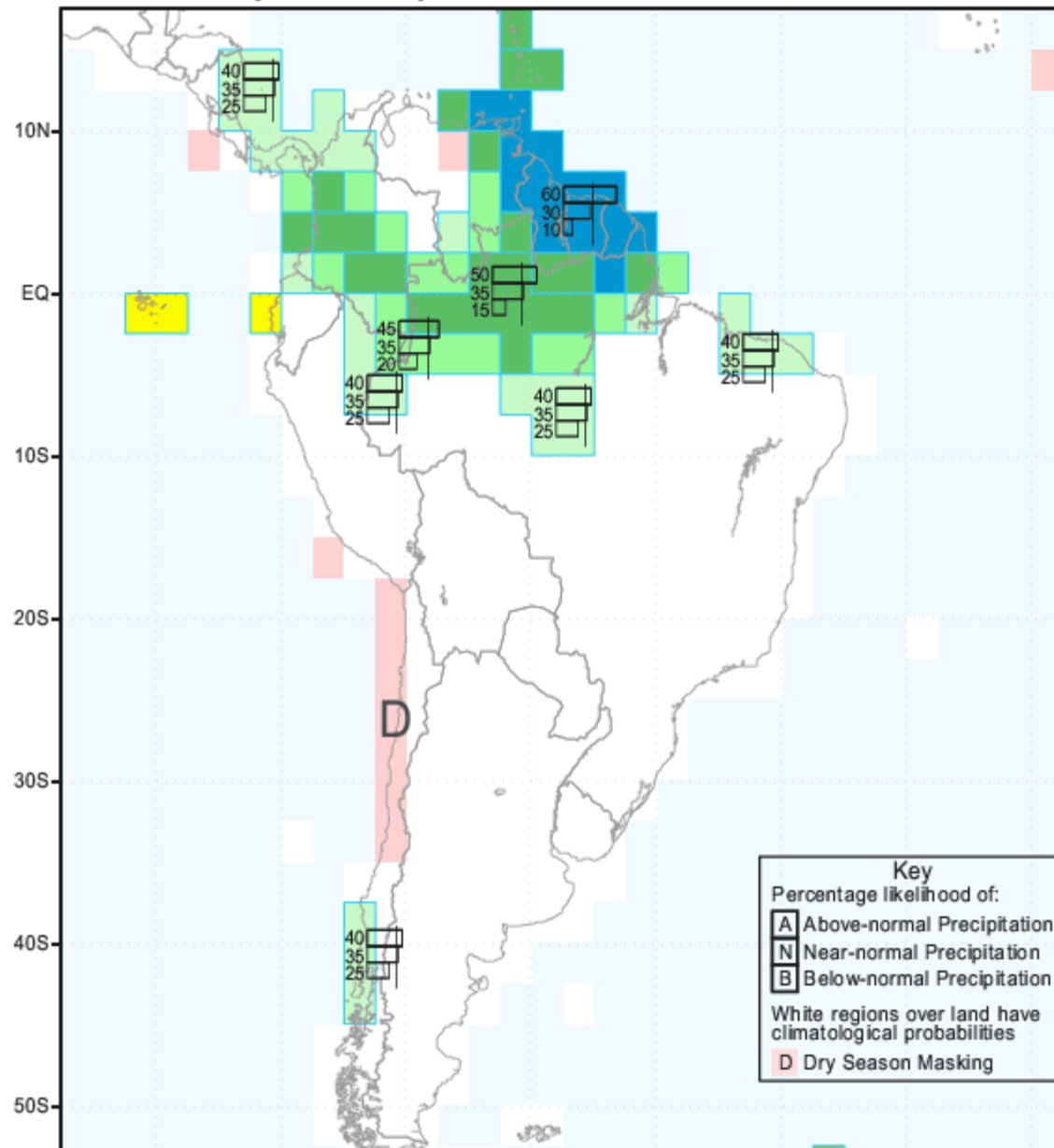
IRI Multi-Model Probability Forecast for Precipitation for November-December-January 2011, Issued October 2010



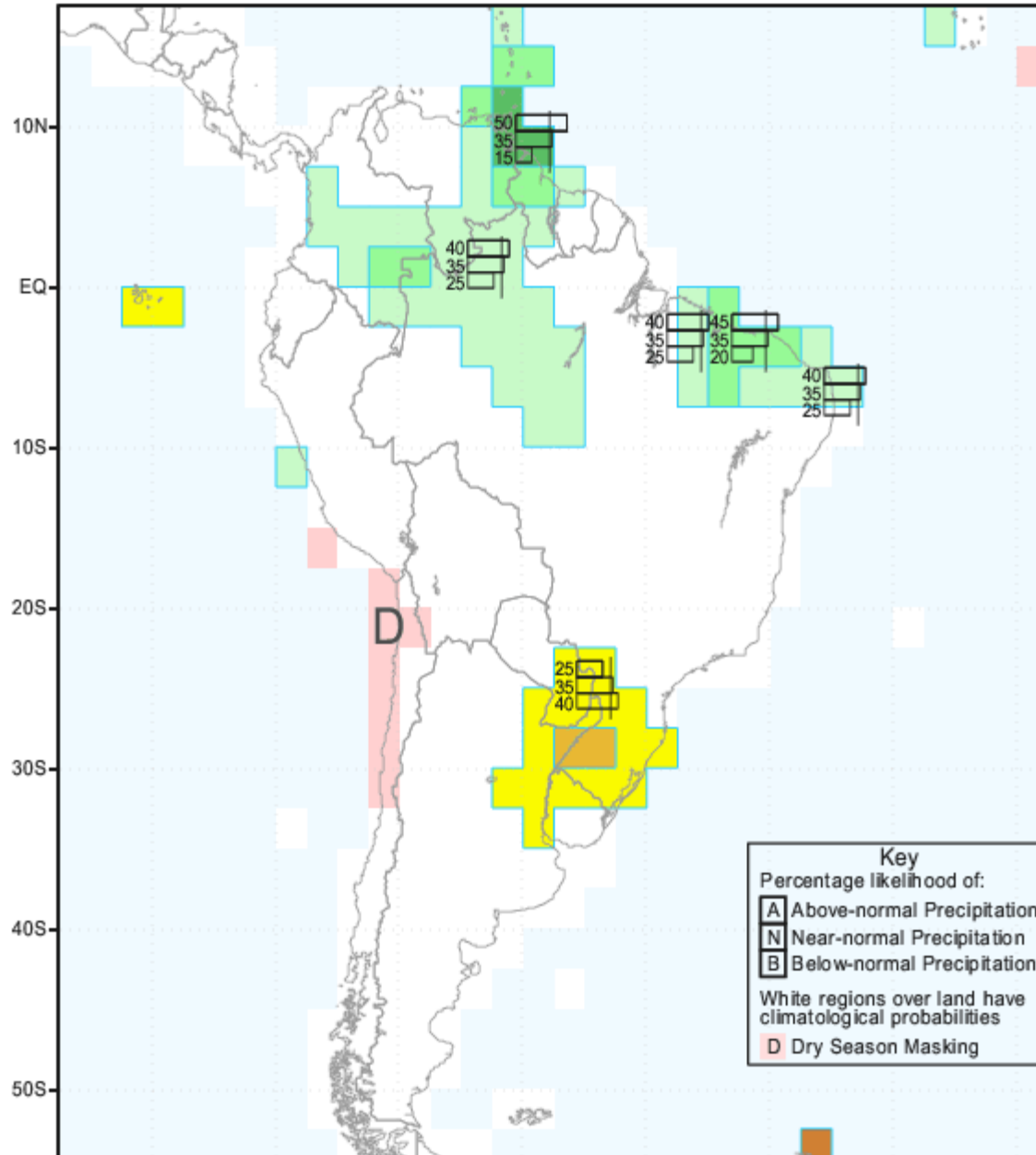
IRI Multi-Model Probability Forecast for Precipitation for December-January-February 2011, Issued October 2010



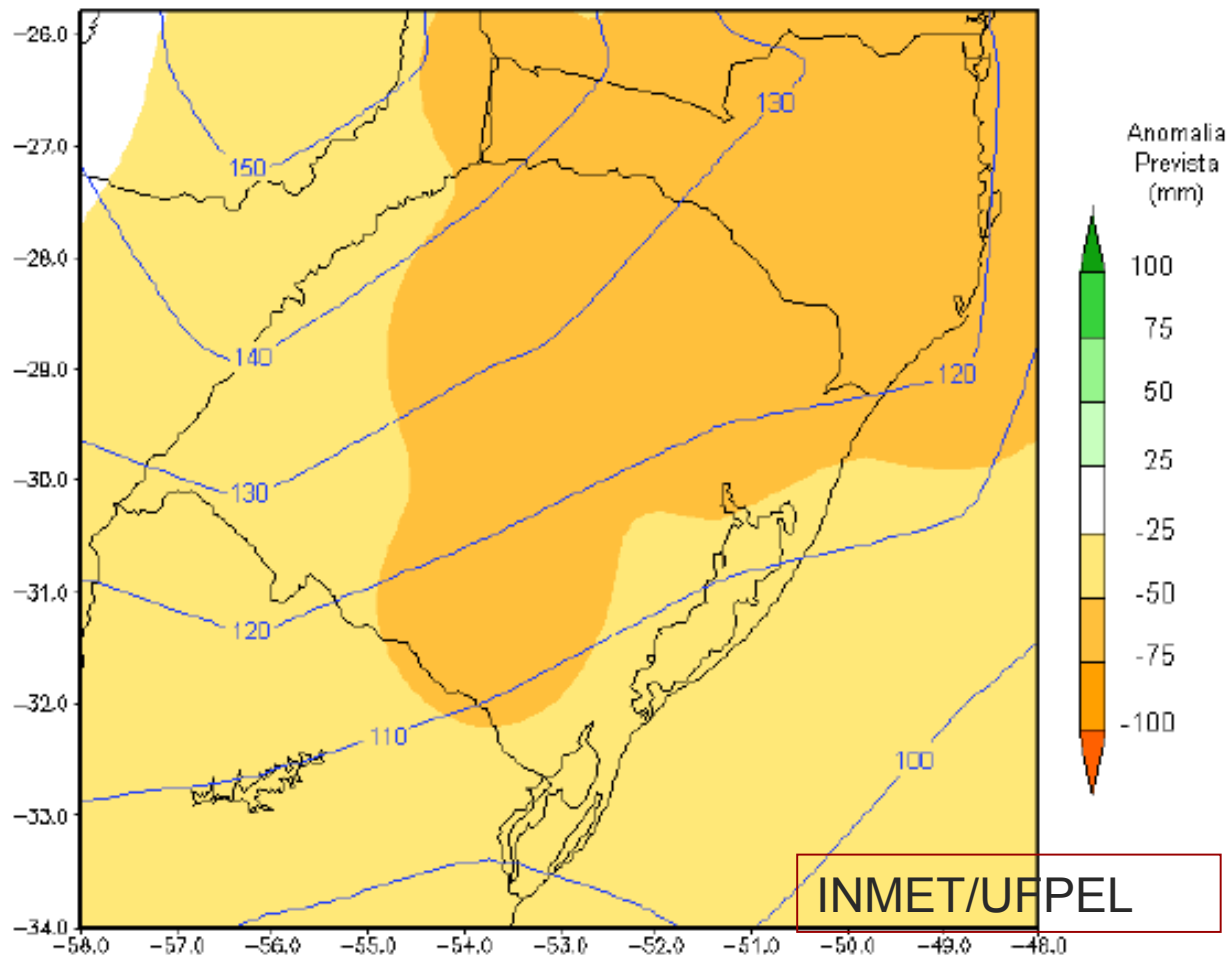
IRI Multi-Model Probability Forecast for Precipitation for January-February-March 2011, Issued October 2010



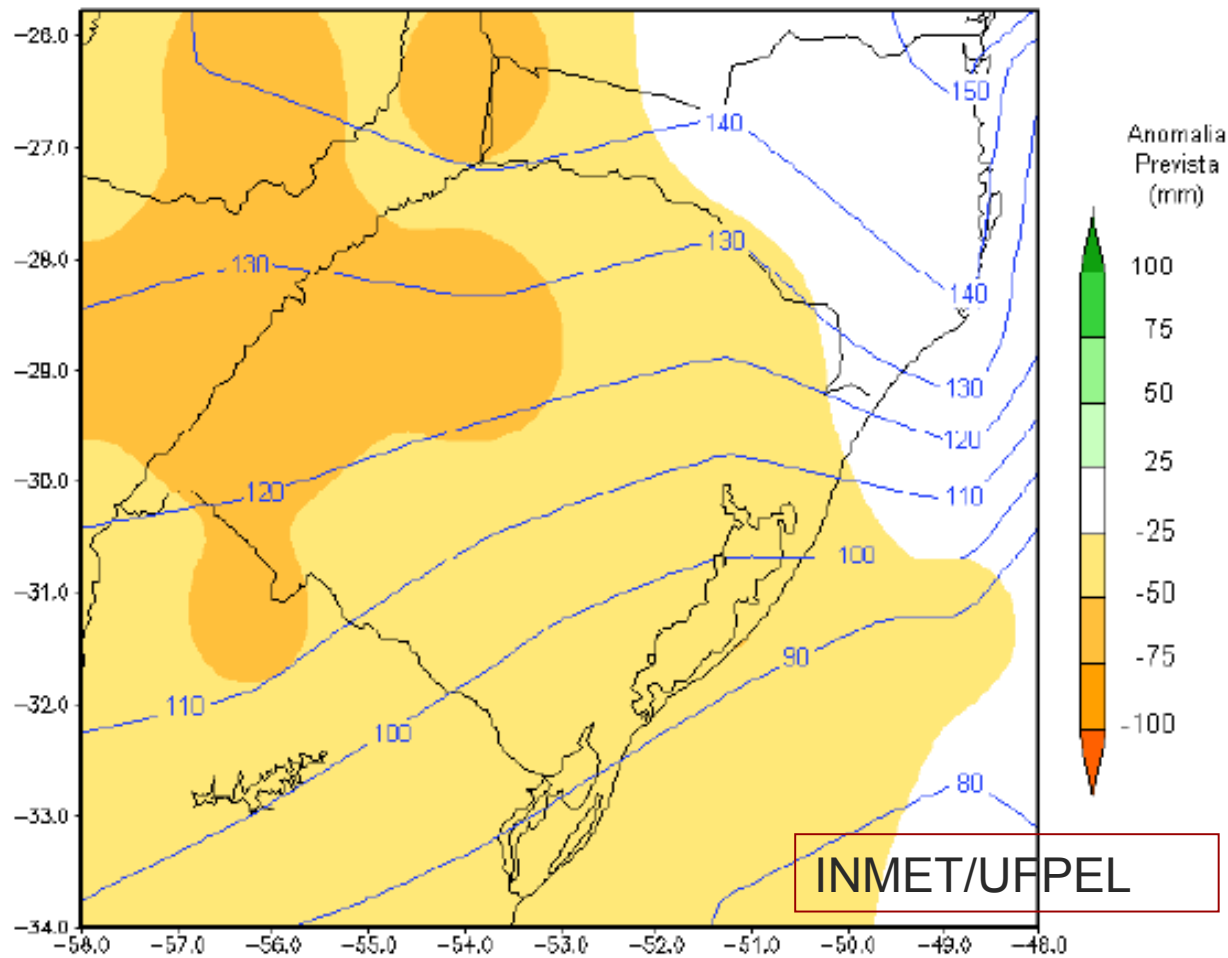
IRI Multi-Model Probability Forecast for Precipitation for February-March-April 2011, Issued October 2010



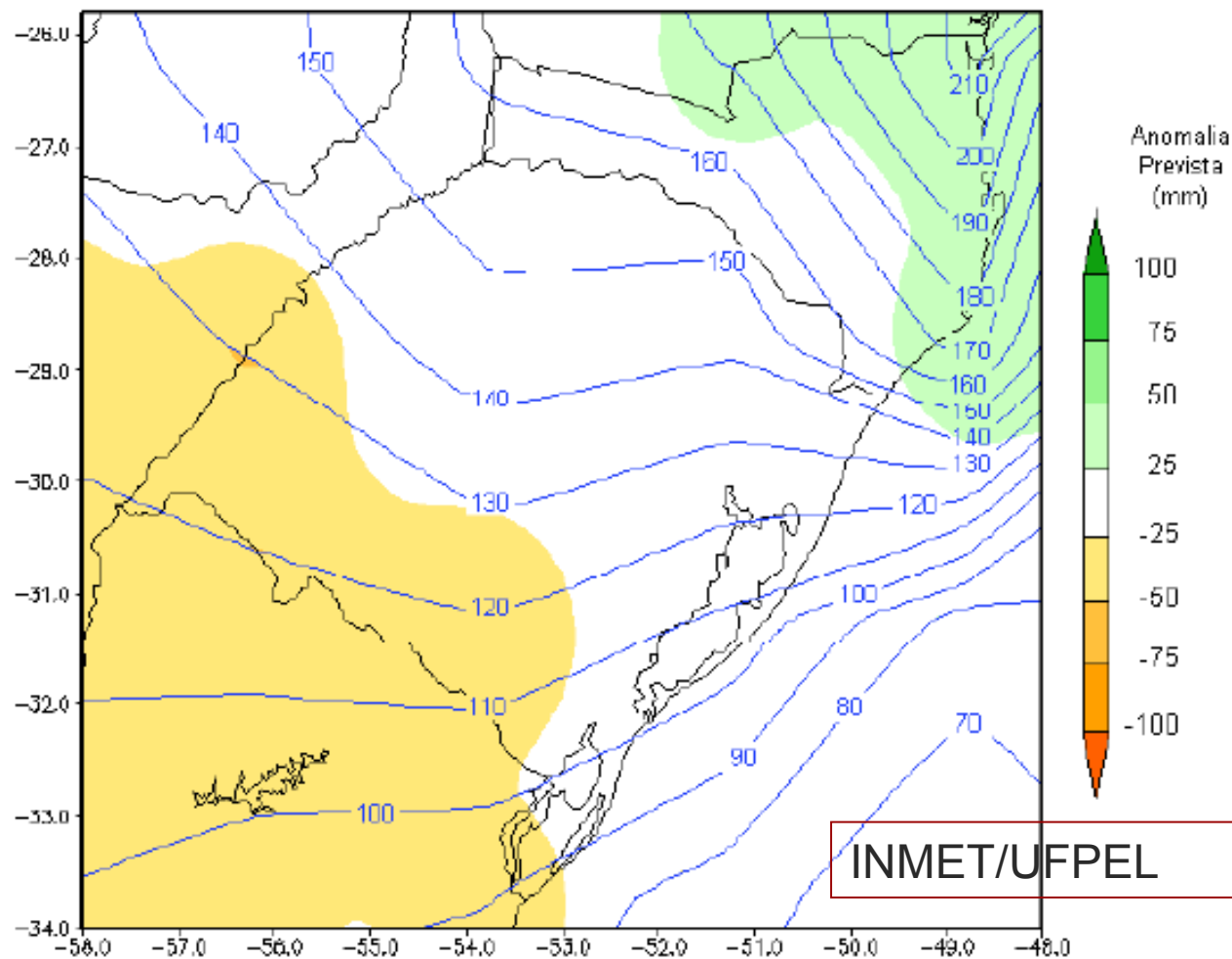
Desvio Chuva Janeiro



Desvio Chuva Dezembro



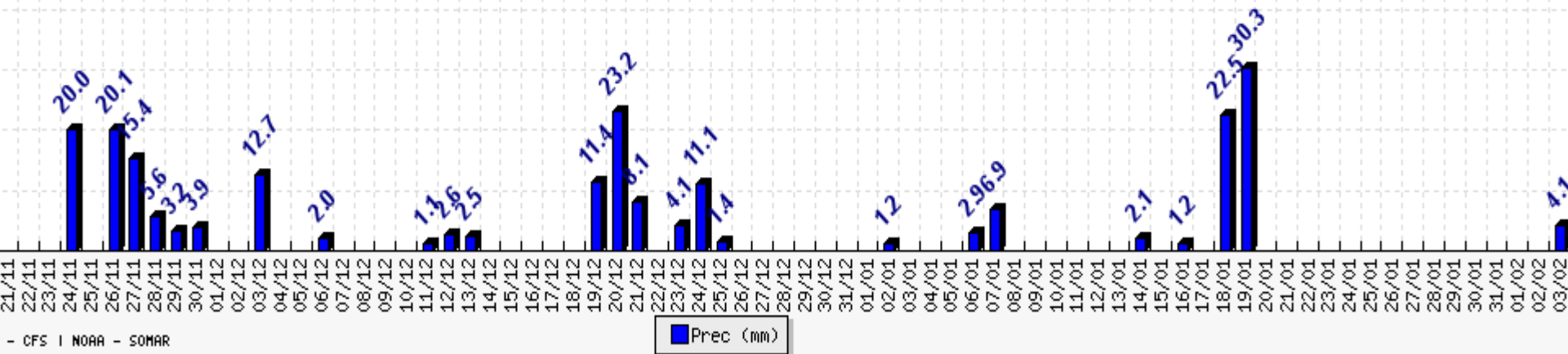
Desvio Chuva Janeiro



Chuva prevista p/ 90 dias

Previsão de Precipitação para Pântano Grande-RS

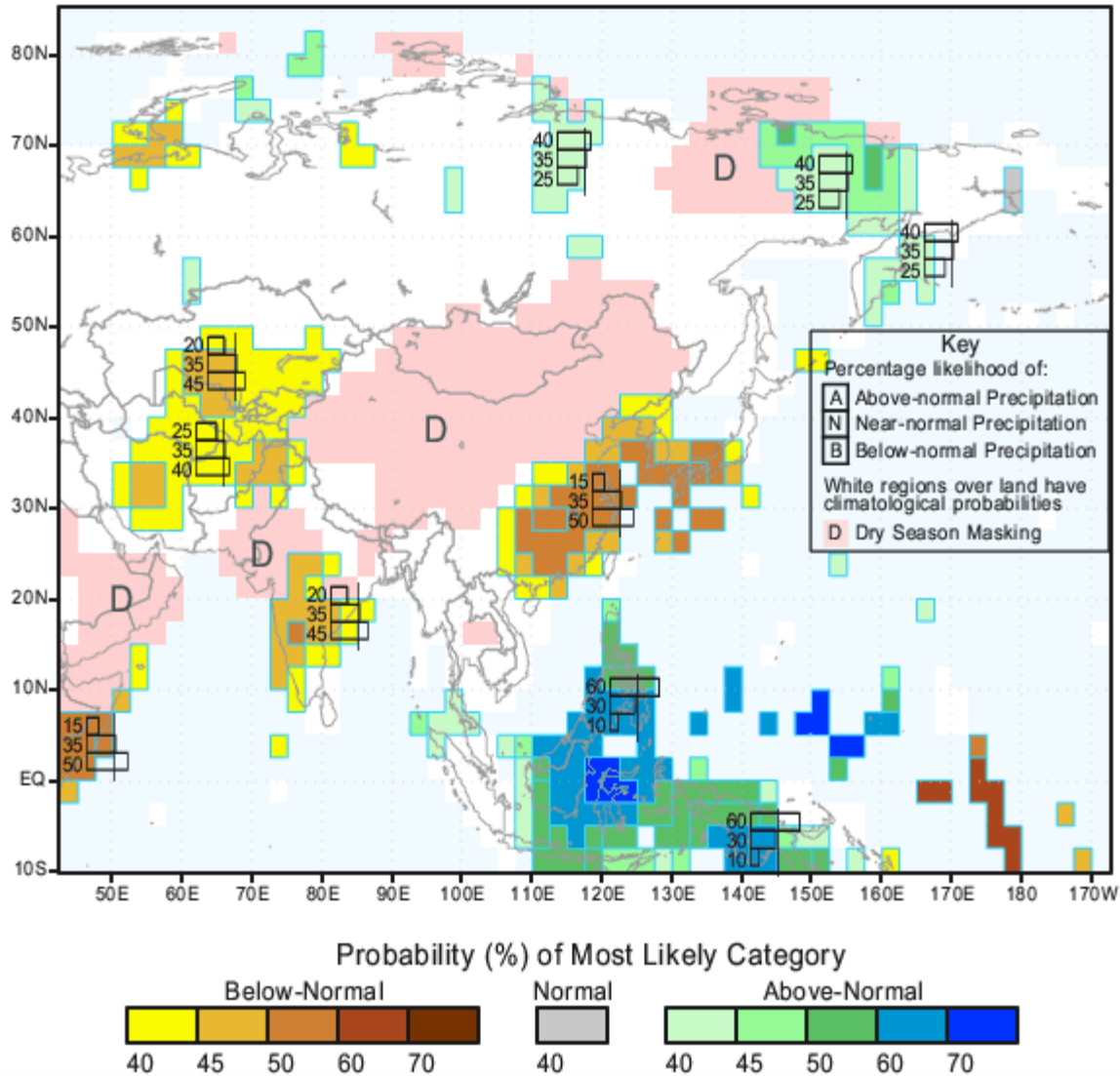
Dos 90 dias chove em 25



- CFS | NOAA - SOMAR

Prec (mm)

IRI Multi-Model Probability Forecast for Precipitation for November-December-January 2011, Issued October 2010



La Nina Primavera/Verão

- La Nina até outono
- Reduz as chuvas na primavera em volume e distribuição
- Favorável a ondas de frio tardias
- Verão de pouca chuva com risco de seca em algumas áreas do Estado
- Insolação e Radiação acima da média nos meses de verão

-
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