

PERSPECTIVA AGROCLIMÁTICA 2013/2014

Ing Agr Eduardo M. Sierra

CAPECO

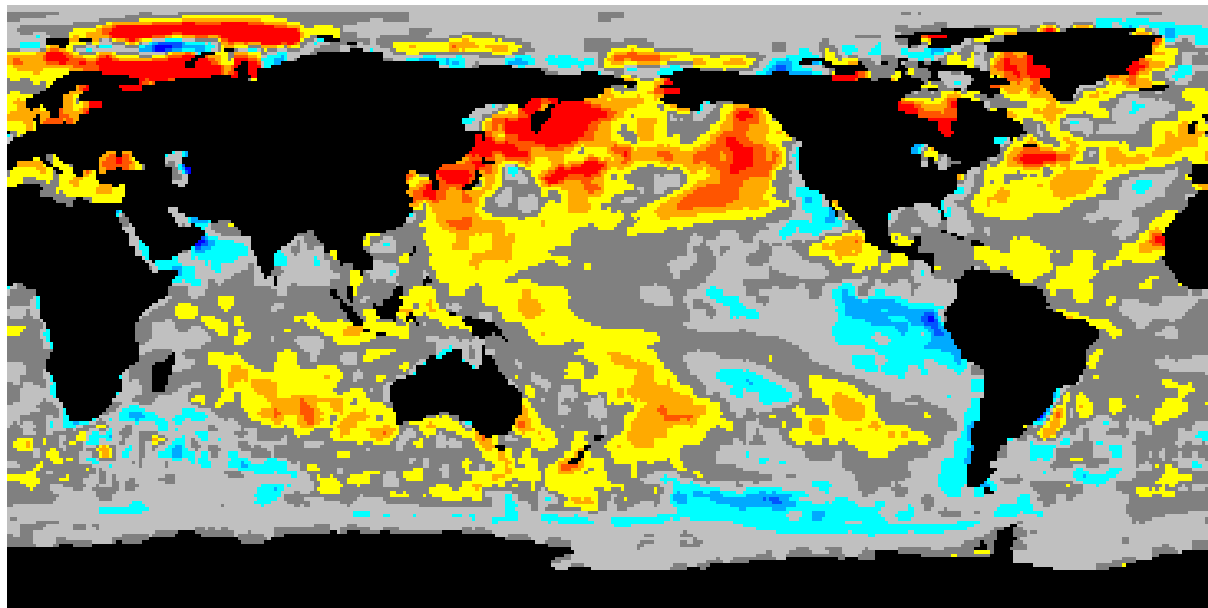
ASUNCION

PARAGUAY

13 de Septiembre de 2013

INDICADORES CLIMÁTICOS 2013/2014

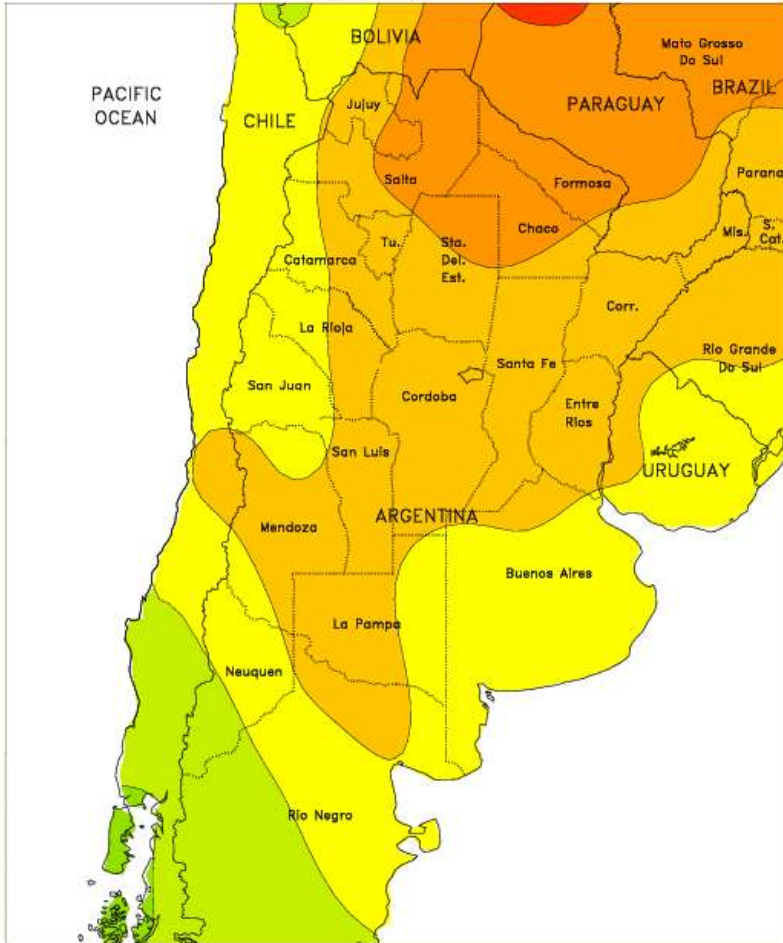
Variation of Sea-surface Temperature from Average August 2013



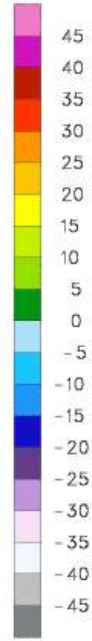
- Less than 2 below
- 2 to 1.5 below
- 1.5 to 1 below
- 1 to 0.5 below
- 0.5 to 0 below
- 0 to 0.5 above
- 0.5 to 1 above
- 1 to 1.5 above
- 1.5 to 2 above
- Greater than 2 above

CLIMA RECIENTE

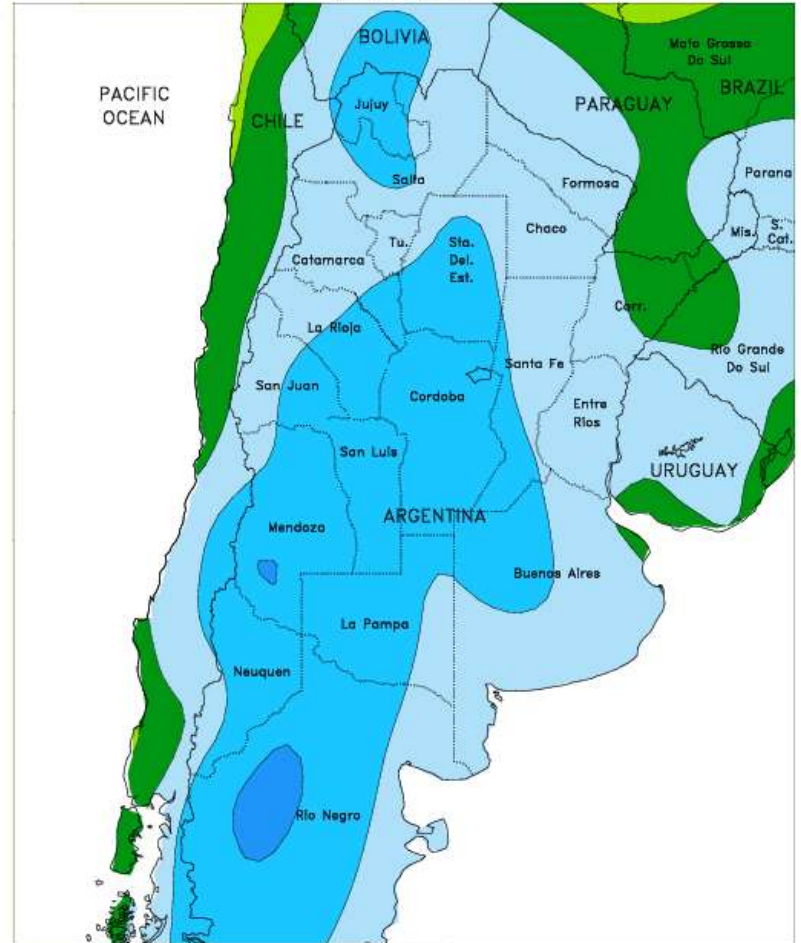
ARGENTINA
 Extreme Maximum Temperature (°C)
 JUL 21 - 27, 2013



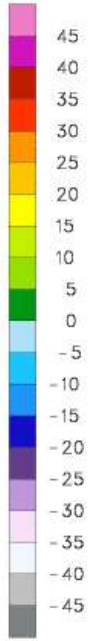
CLIMATE PREDICTION CENTER, NOAA
 Computer generated contours
 Based on preliminary data



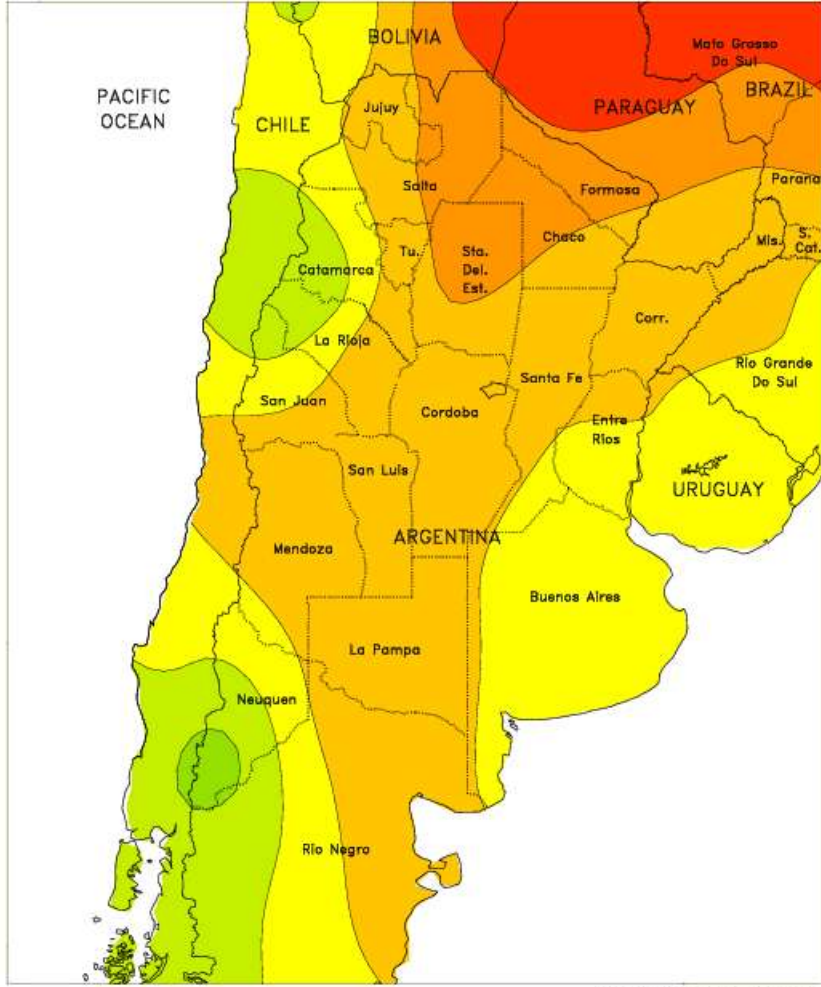
ARGENTINA
 Extreme Minimum Temperature (°C)
 JUL 21 - 27, 2013



CLIMATE PREDICTION CENTER, NOAA
 Computer generated contours
 Based on preliminary data



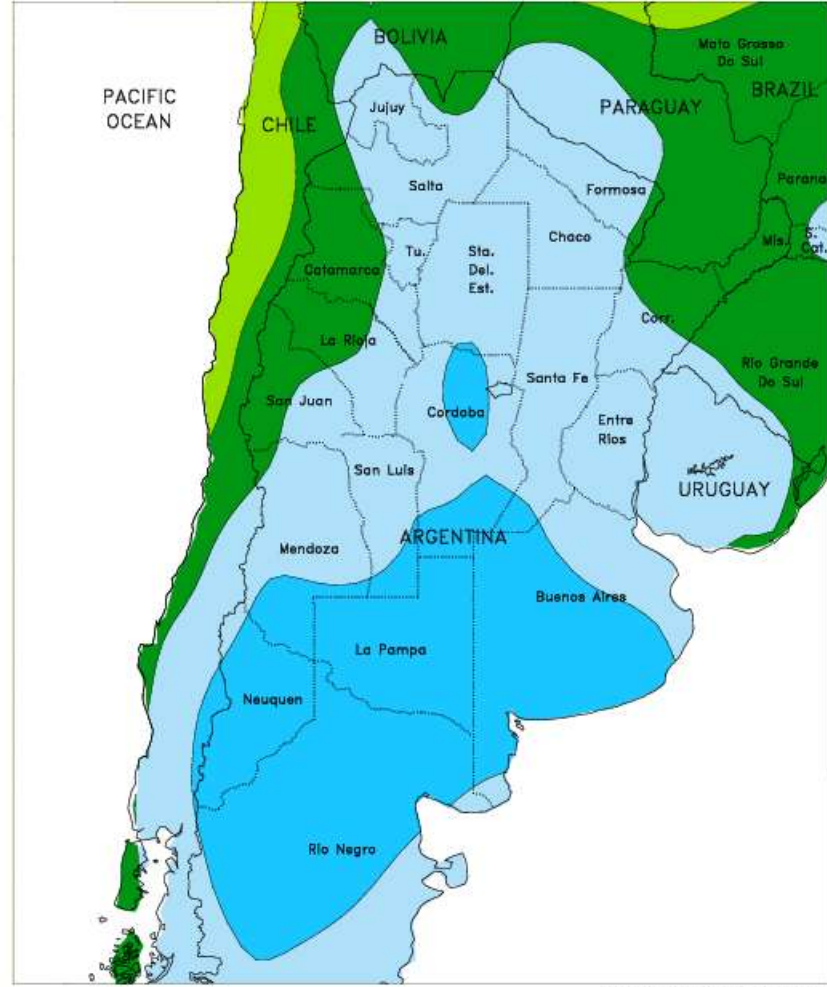
ARGENTINA
Extreme Maximum Temperature (°C)
AUG 11 - 17, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



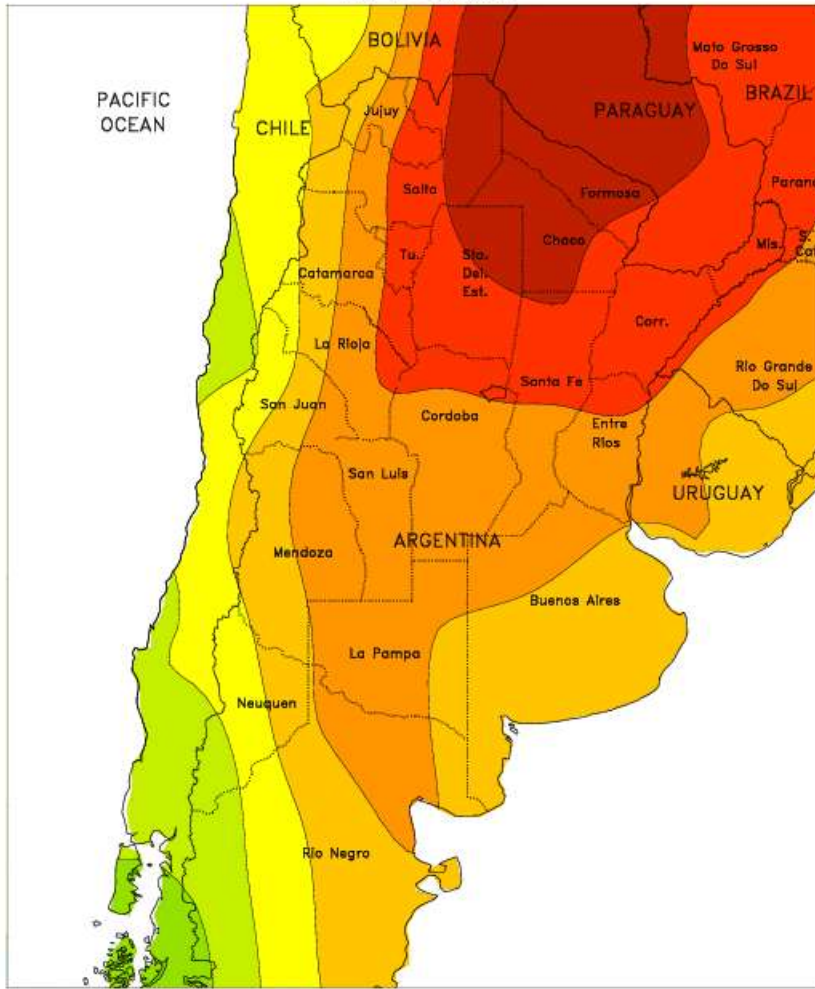
ARGENTINA
Extreme Minimum Temperature (°C)
AUG 11 - 17, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



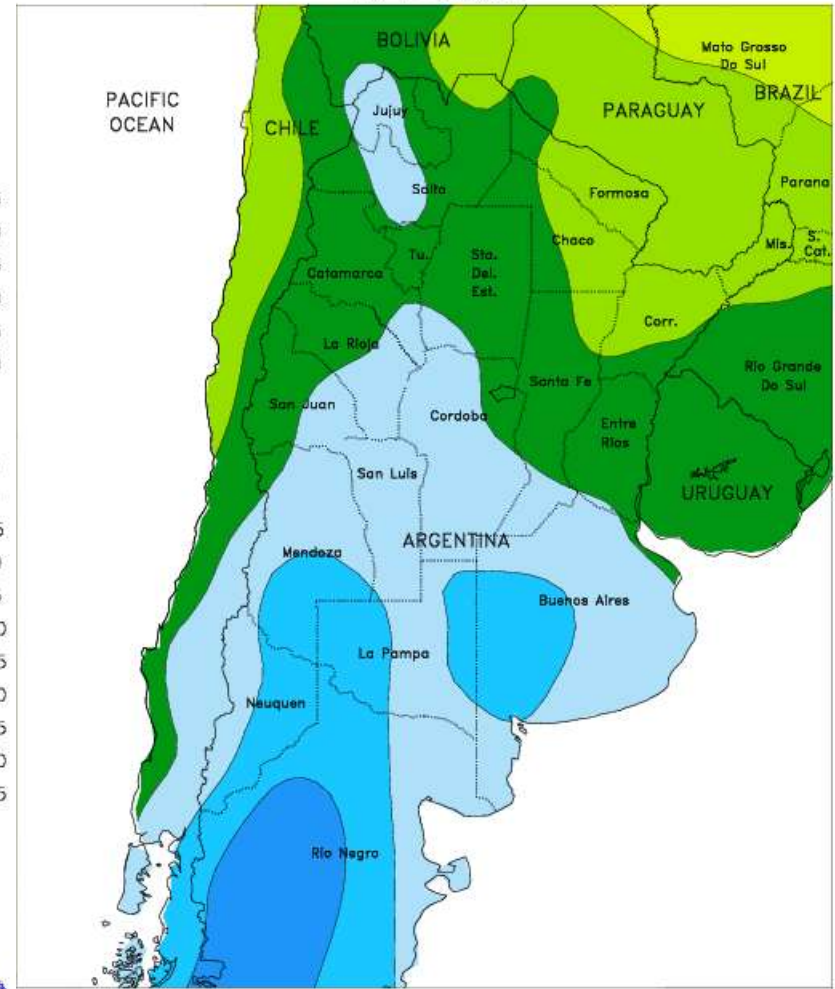
ARGENTINA
Extreme Maximum Temperature (°C)
AUG 18 - 24, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



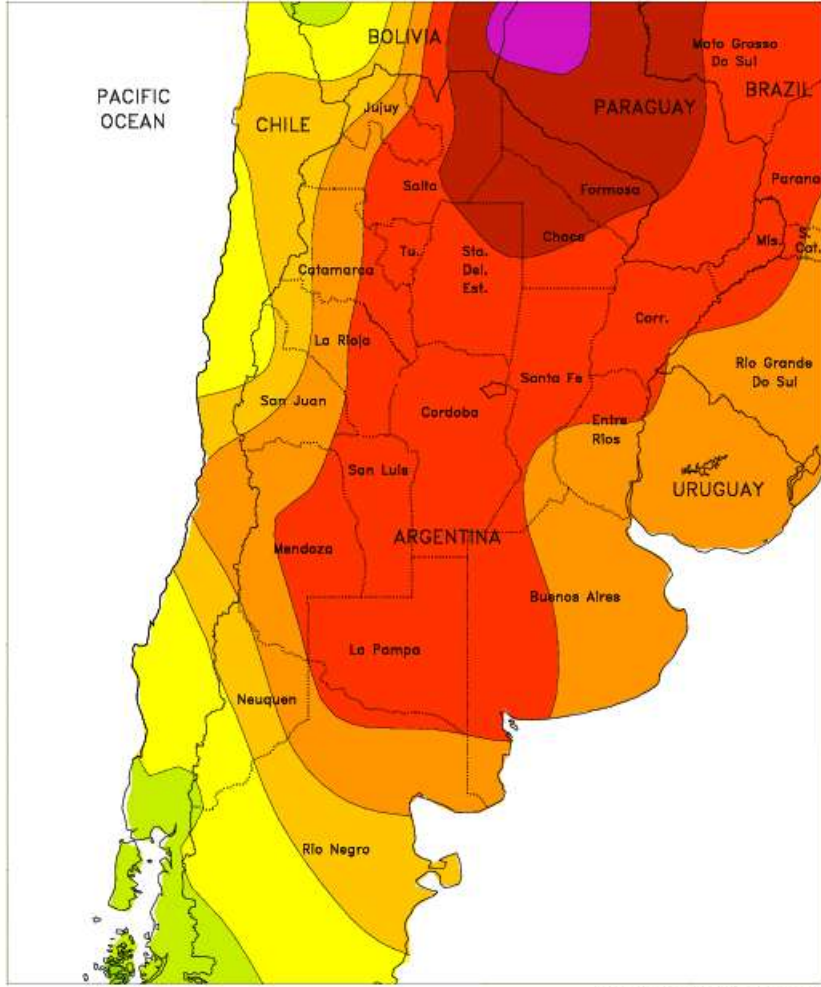
ARGENTINA
Extreme Minimum Temperature (°C)
AUG 18 - 24, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



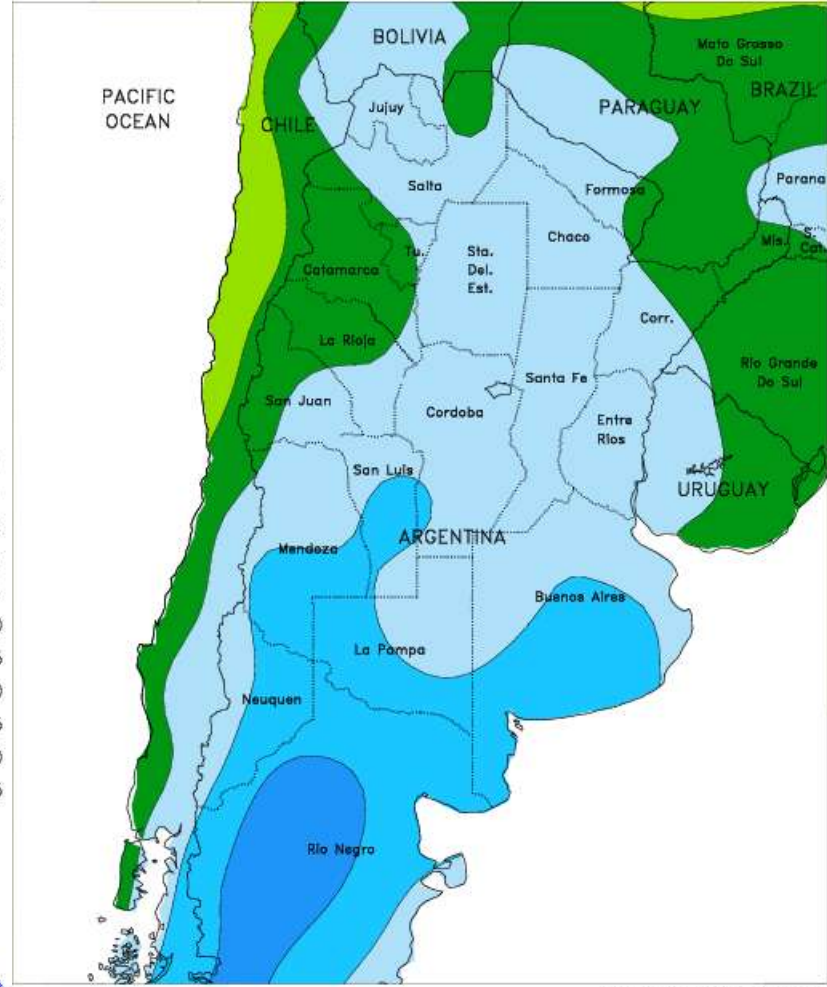
ARGENTINA
Extreme Maximum Temperature (°C)
AUG 25 - 31, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



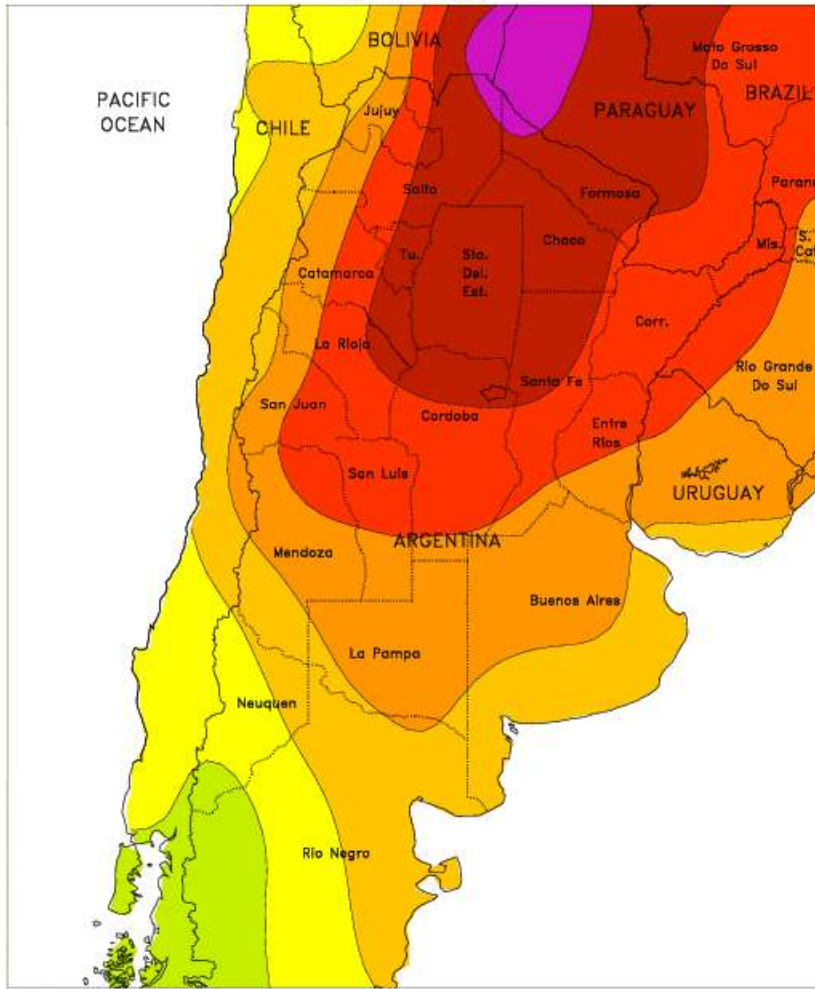
ARGENTINA
Extreme Minimum Temperature (°C)
AUG 25 - 31, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



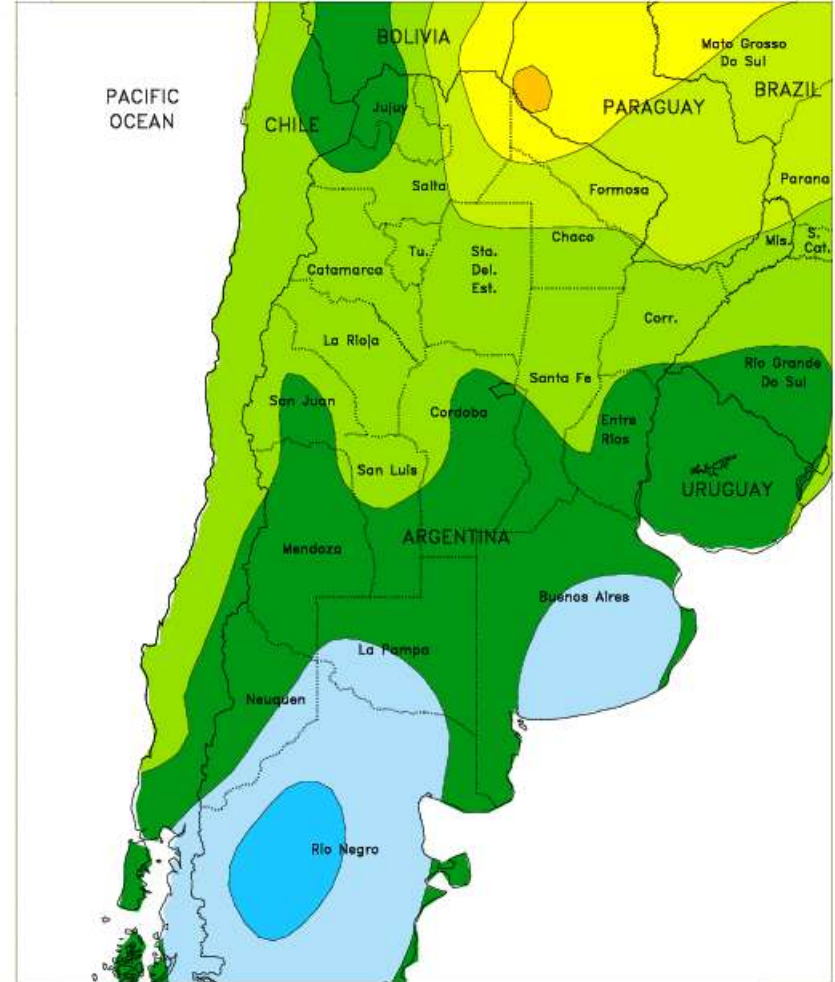
ARGENTINA
Extreme Maximum Temperature (°C)
SEP 1 - 7, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



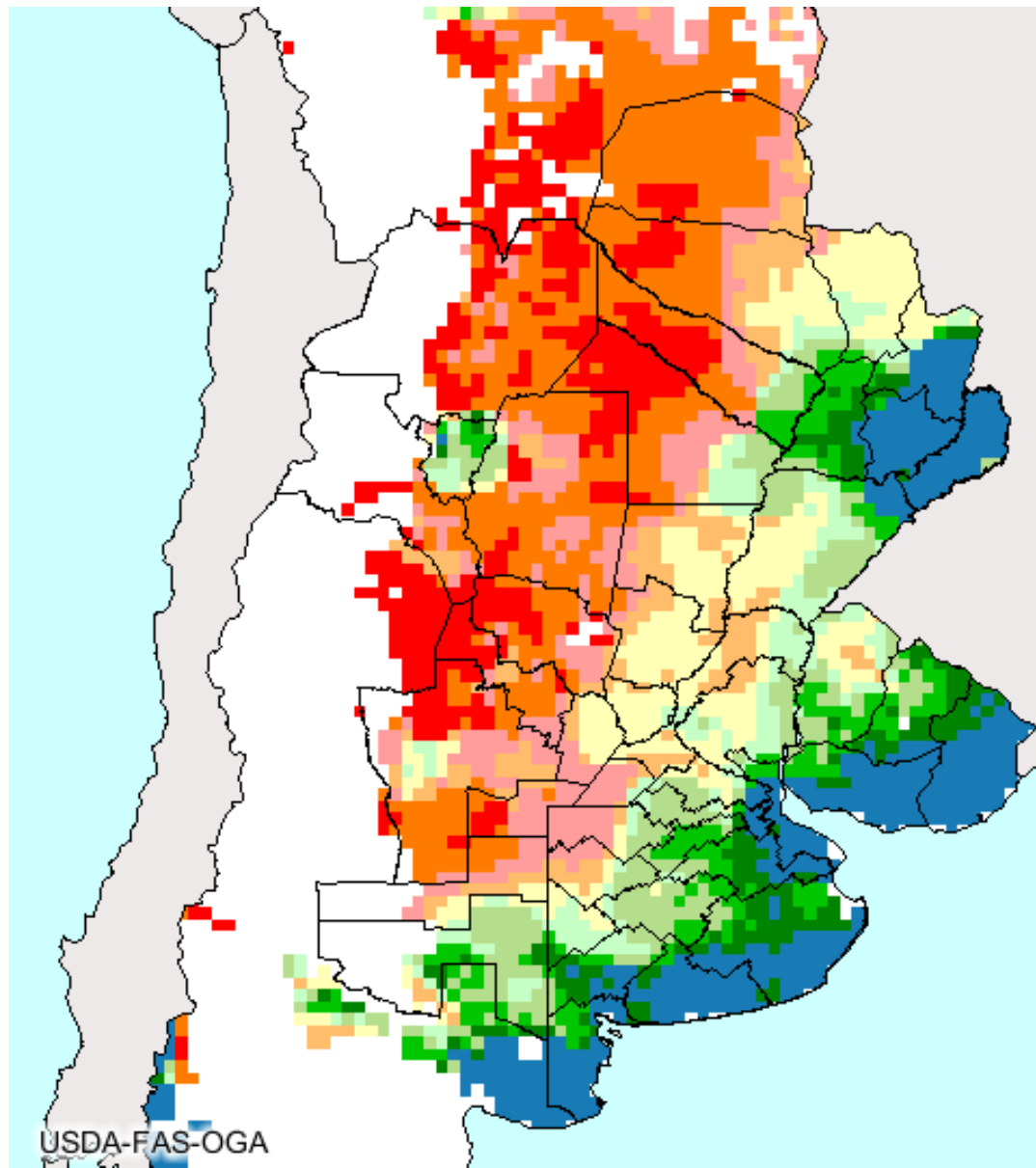
ARGENTINA
Extreme Minimum Temperature (°C)
SEP 1 - 7, 2013



CLIMATE PREDICTION CENTER, NOAA
Computer generated contours
Based on preliminary data



Contenido de Humedad del Suelo 1 al 10 de Septiembre de 2013

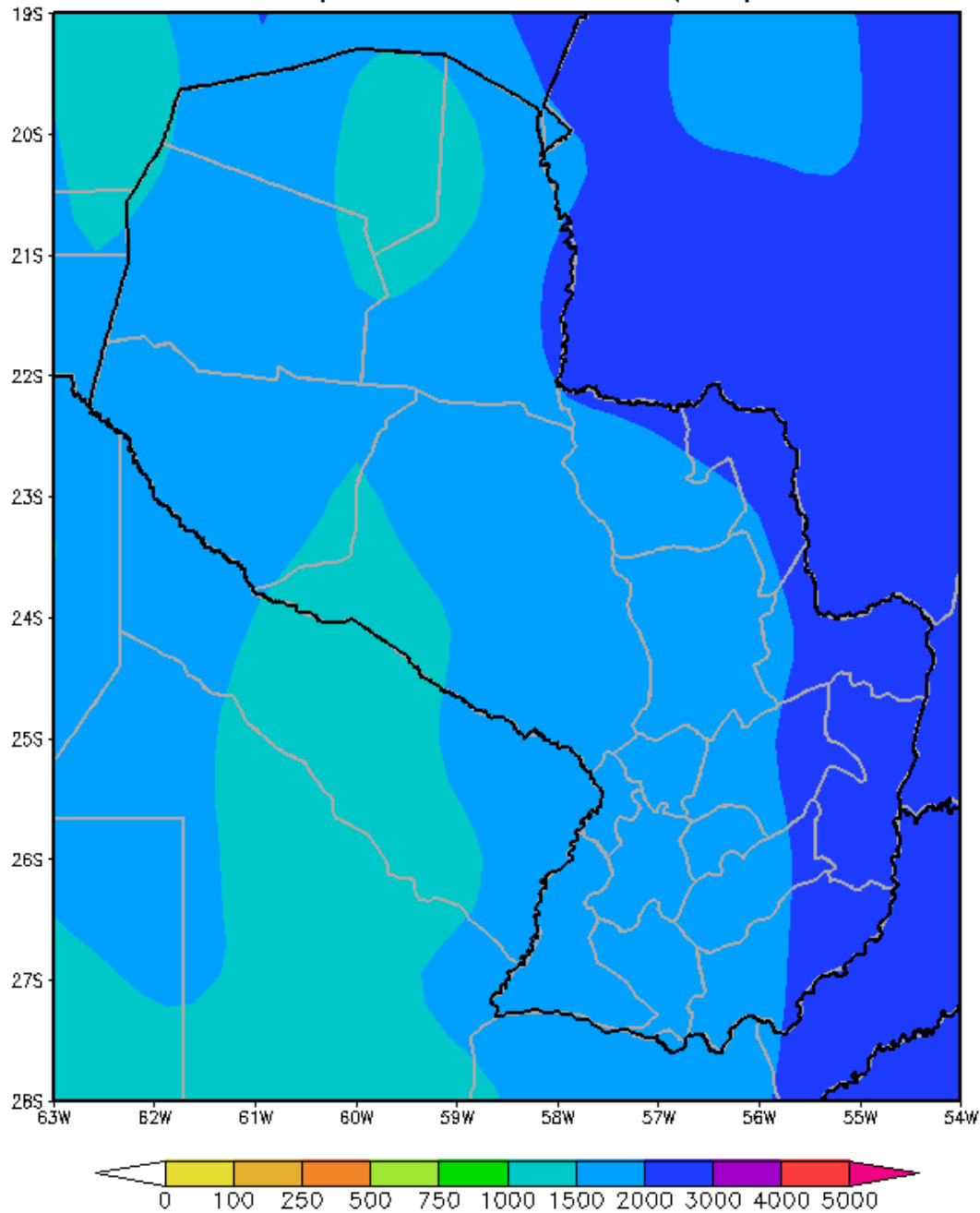


Percent Soil Moisture (%)

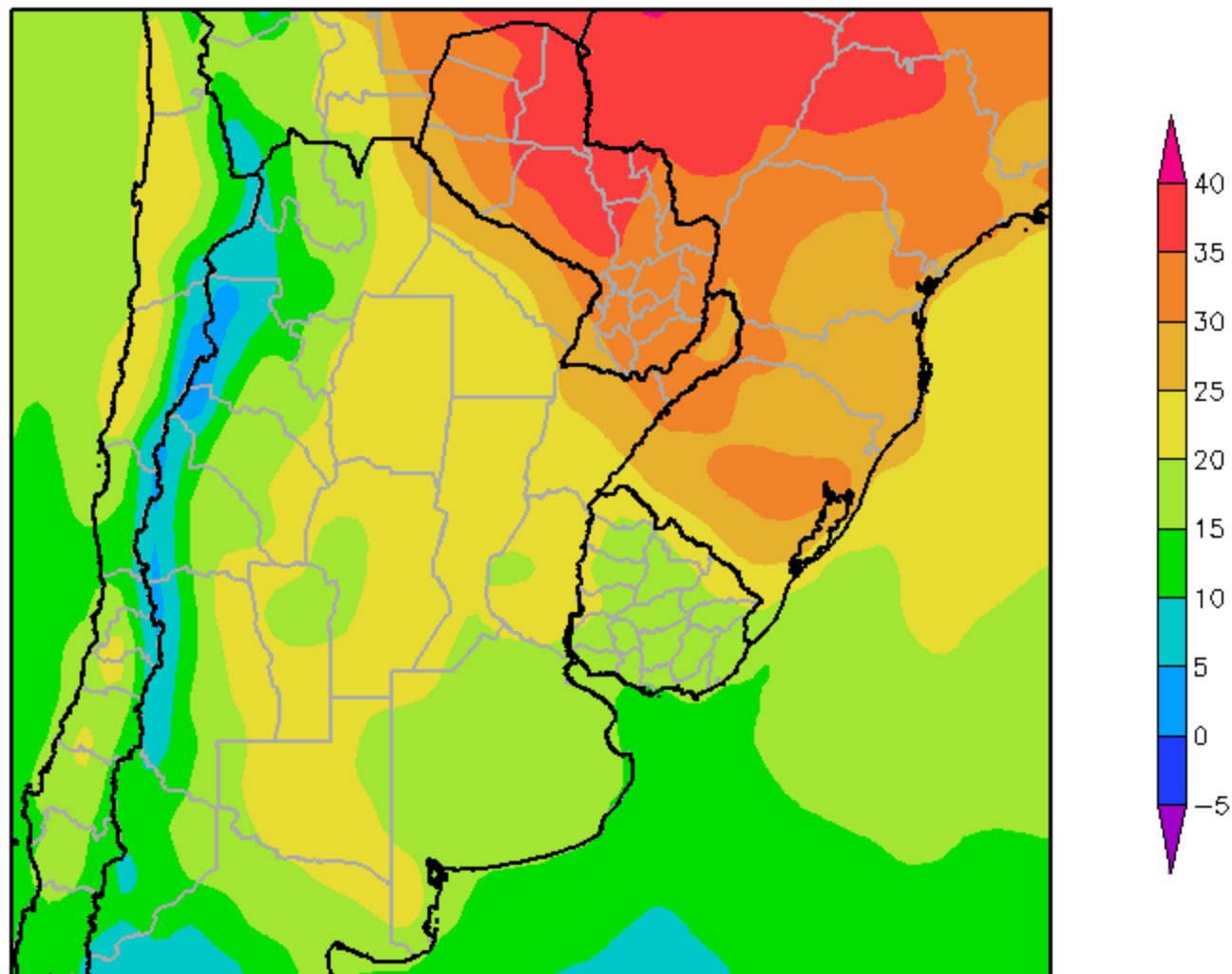


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ESTACIONAL REGIONAL 2013/2014*

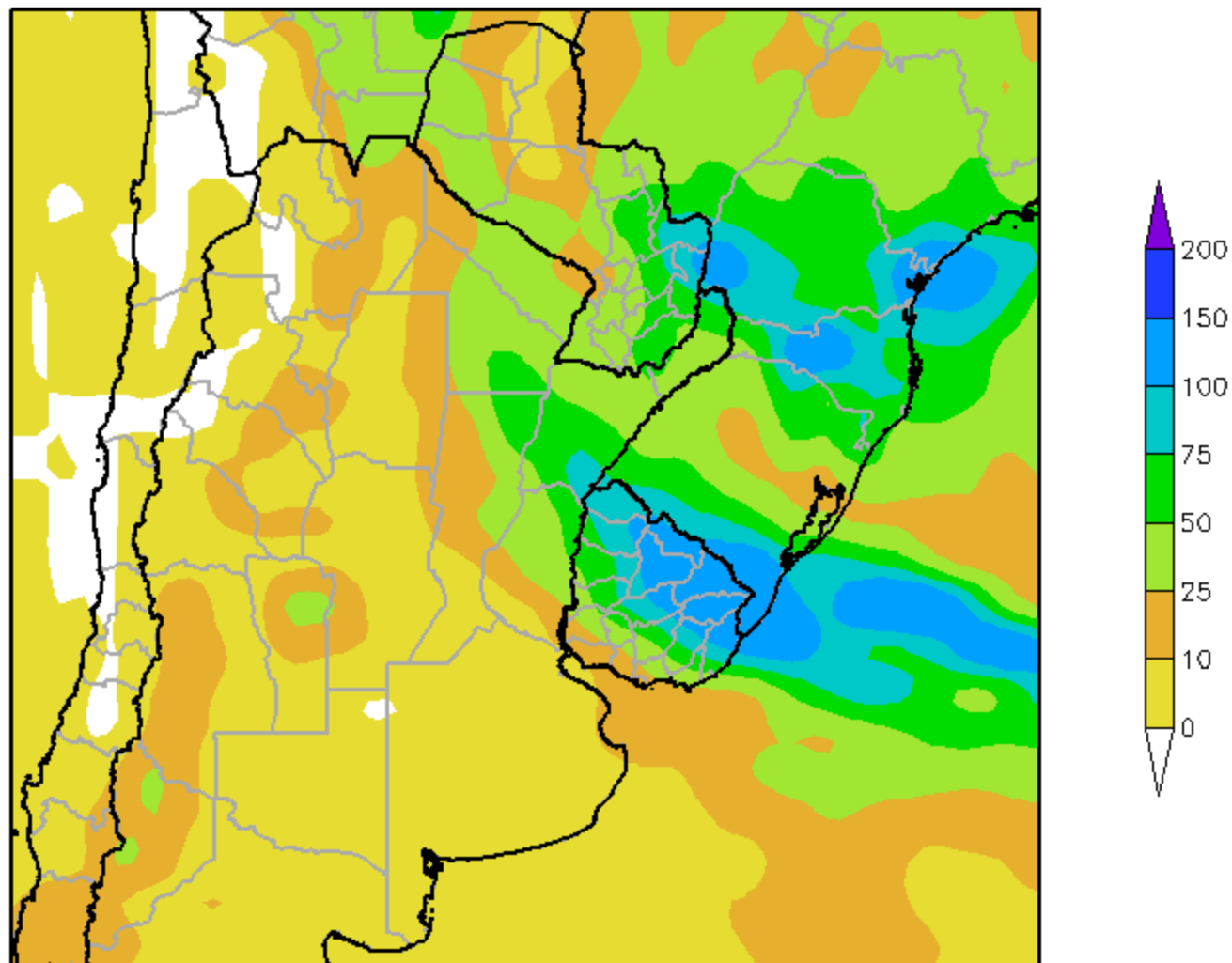
PERSPECTIVA CLIMATICA JULIO 2013 – JUNIO 2014
Precipitacion Acumulada (mm)



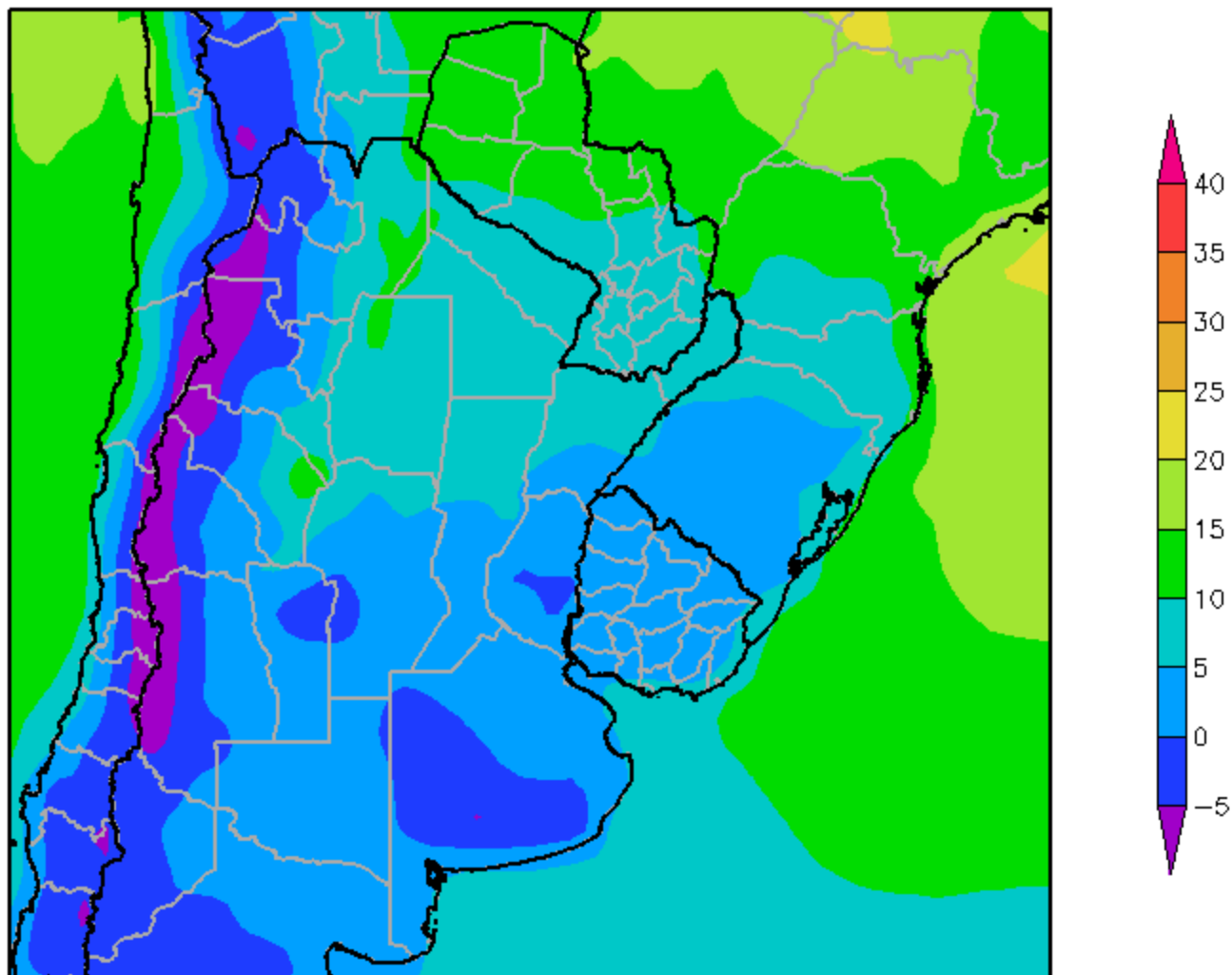
Perspectiva Climática del 13 al 20 de Septiembre 2013
Temperatura Maxima (Grados Centigrados)



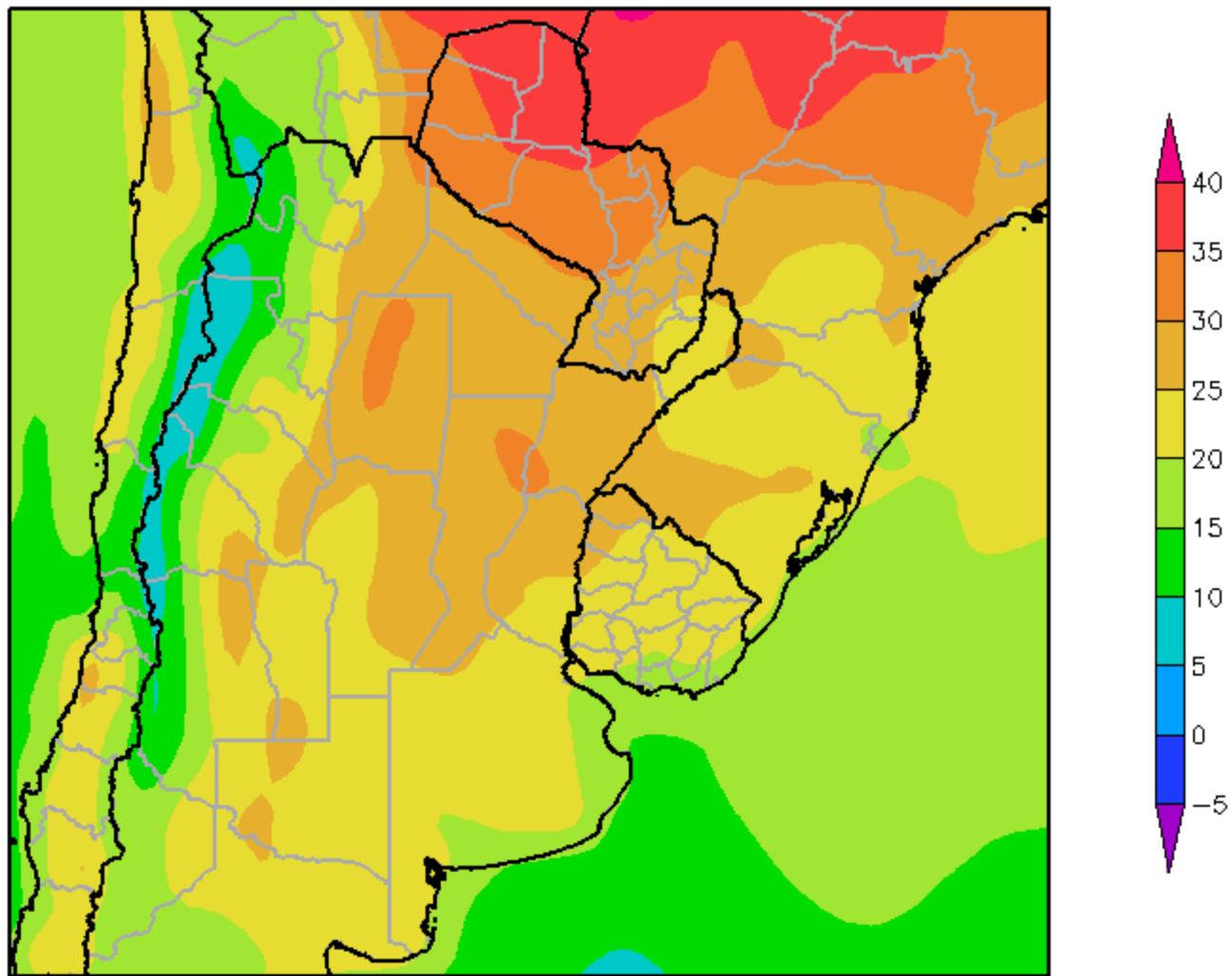
Perspectiva Climática del 13 al 20 de Septiembre 2013
Precipitación Acumulada (mm)



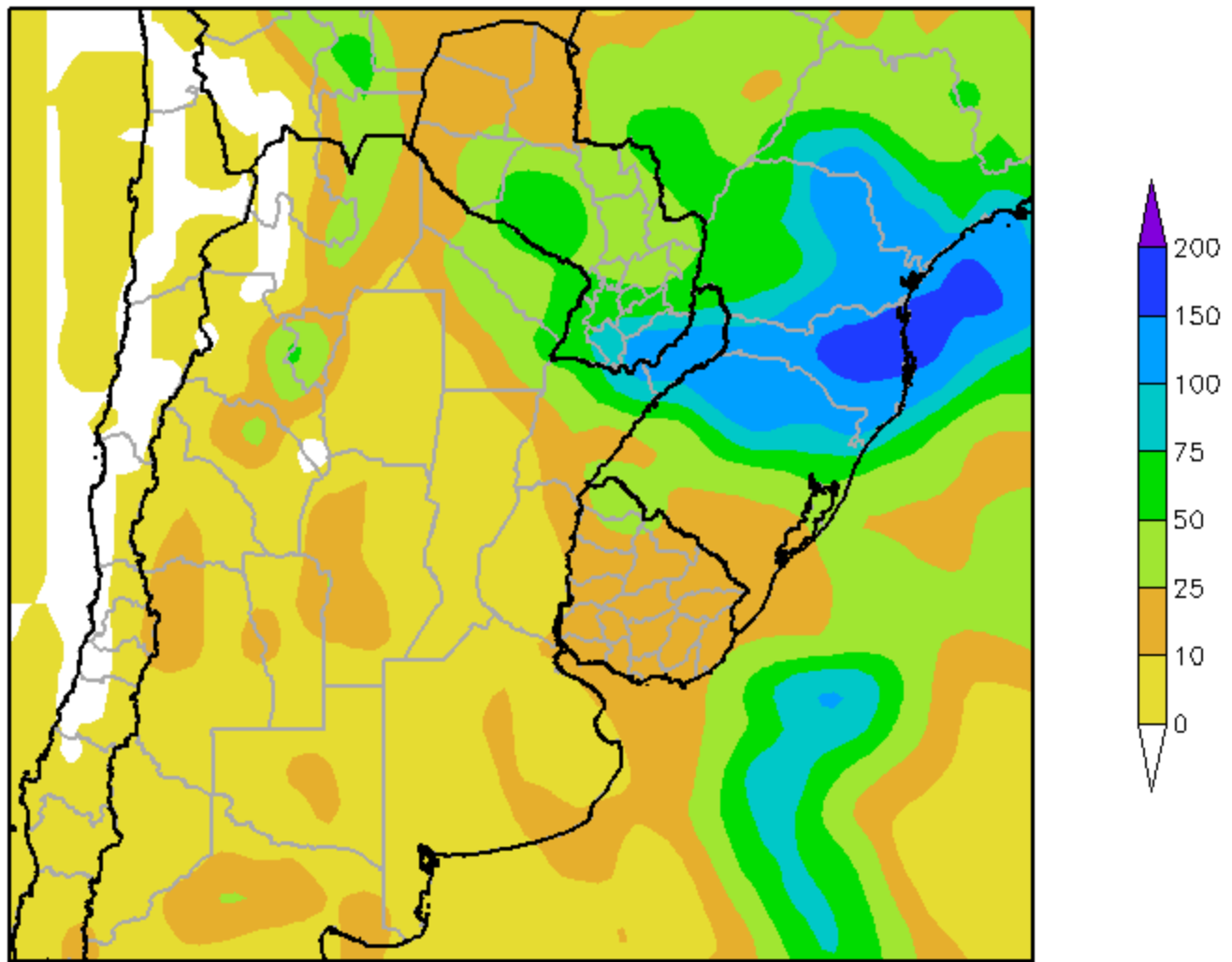
Perspectiva Climática del 13 al 20 de Septiembre 2013
Temperatura Mínima (Grados Centígrados)



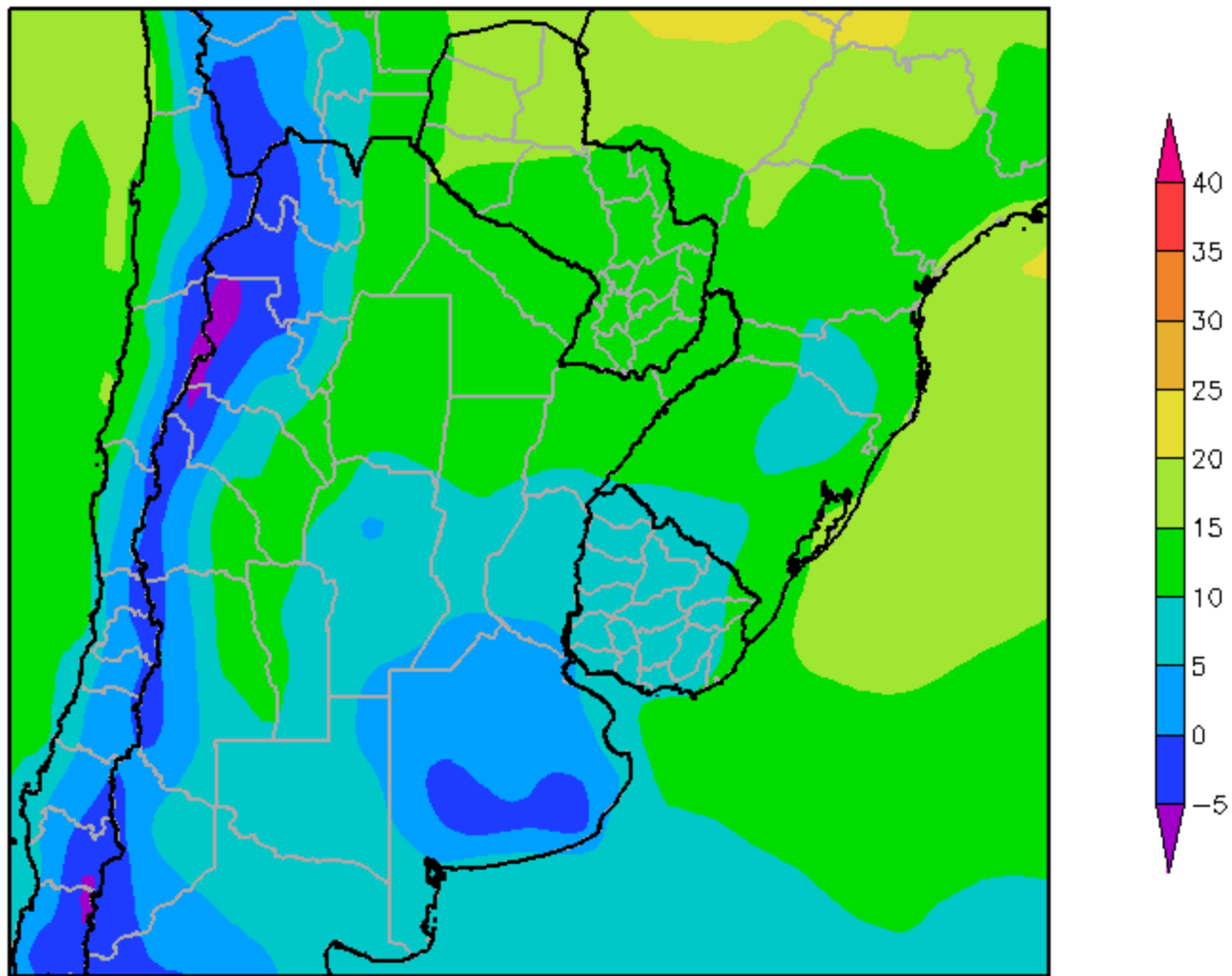
Perspectiva Climatica del 21 al 28 de Septiembre de Septiembre 2013
Temperatura Maxima (Grados Centigrados)



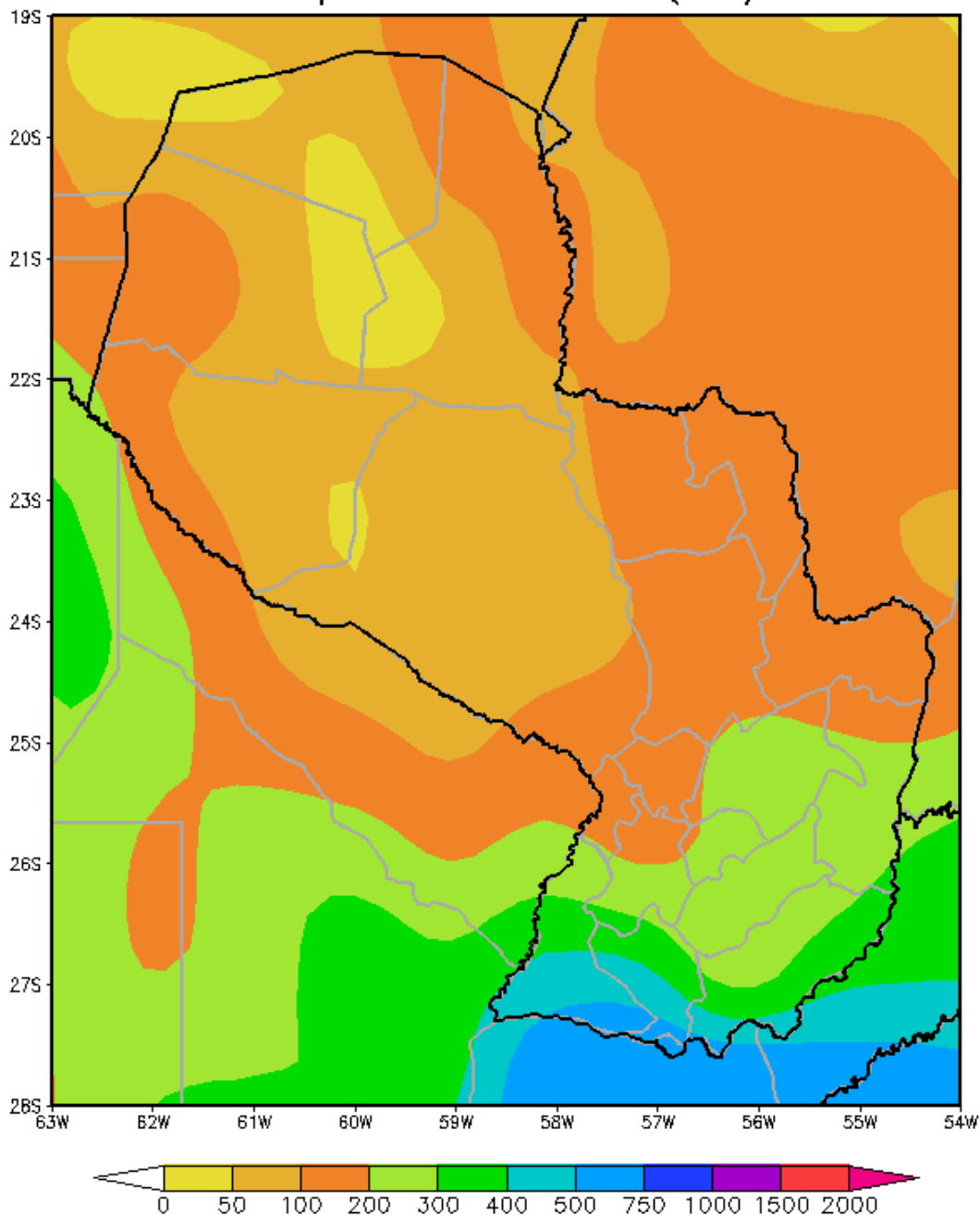
Perspectiva Climatica del 21 al 28 de Septiembre de Septiembre 2013
Precipitacion Acumulada (mm)



Perspectiva Climatica del 21 al 28 de Septiembre de Septiembre 2013
Temperatura Minima (Grados Centigrados)

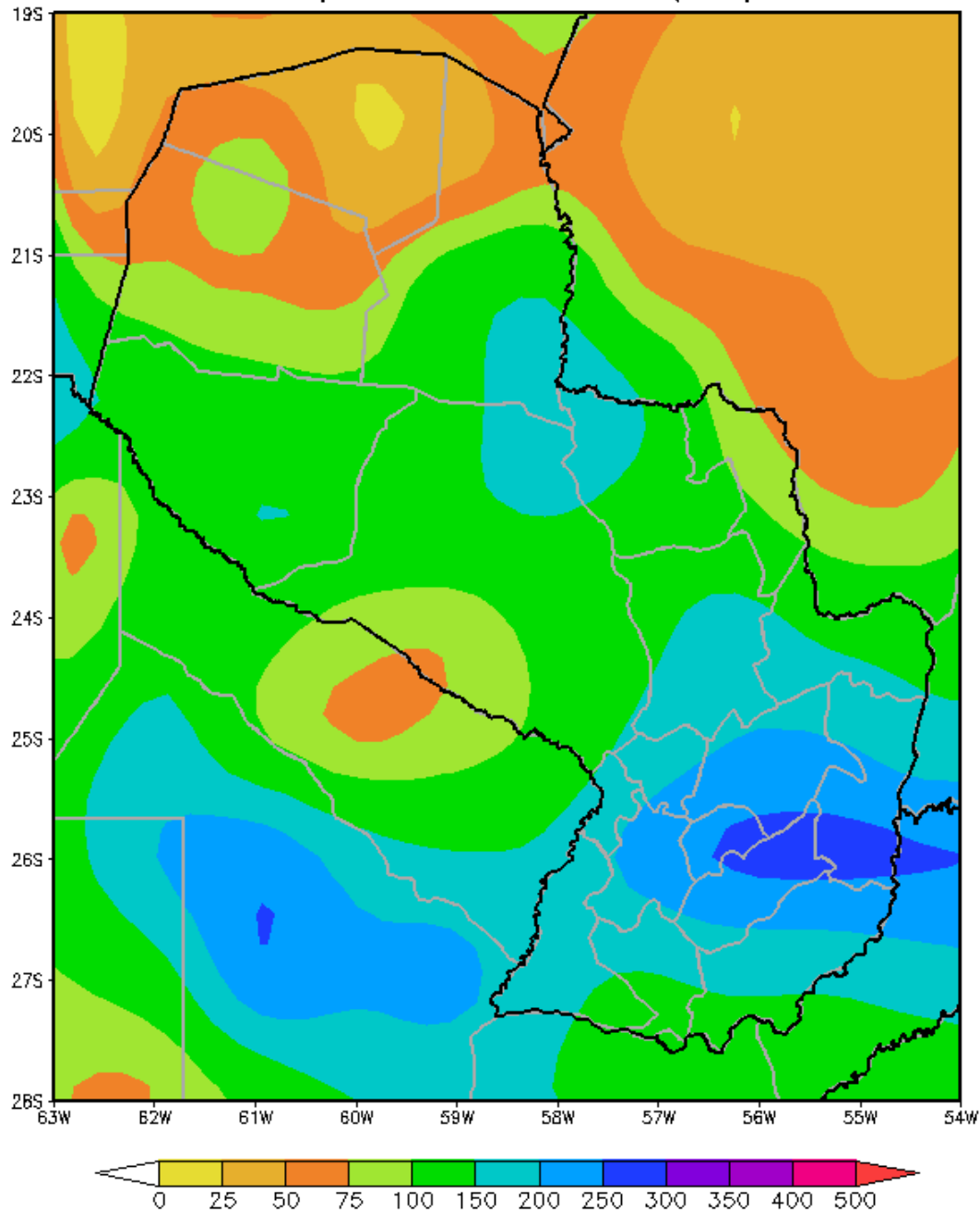


PERSPECTIVA CLIMATICA JULIO-SEPTIEMBRE 2013
Precipitacion Acumulada (mm)



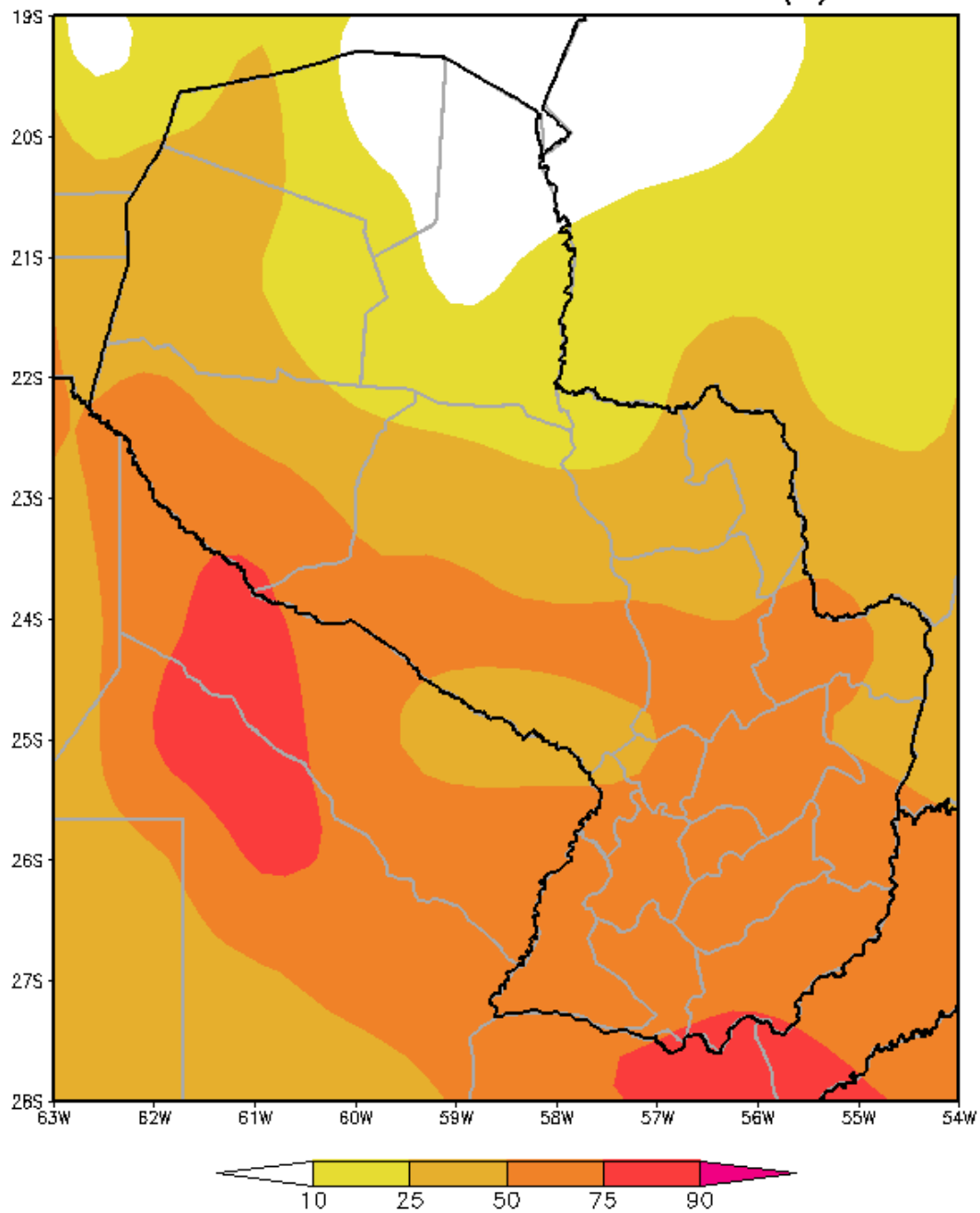
PERSPECTIVA CLIMATICA OCTUBRE 2013

Precipitacion Acumulada (mm)



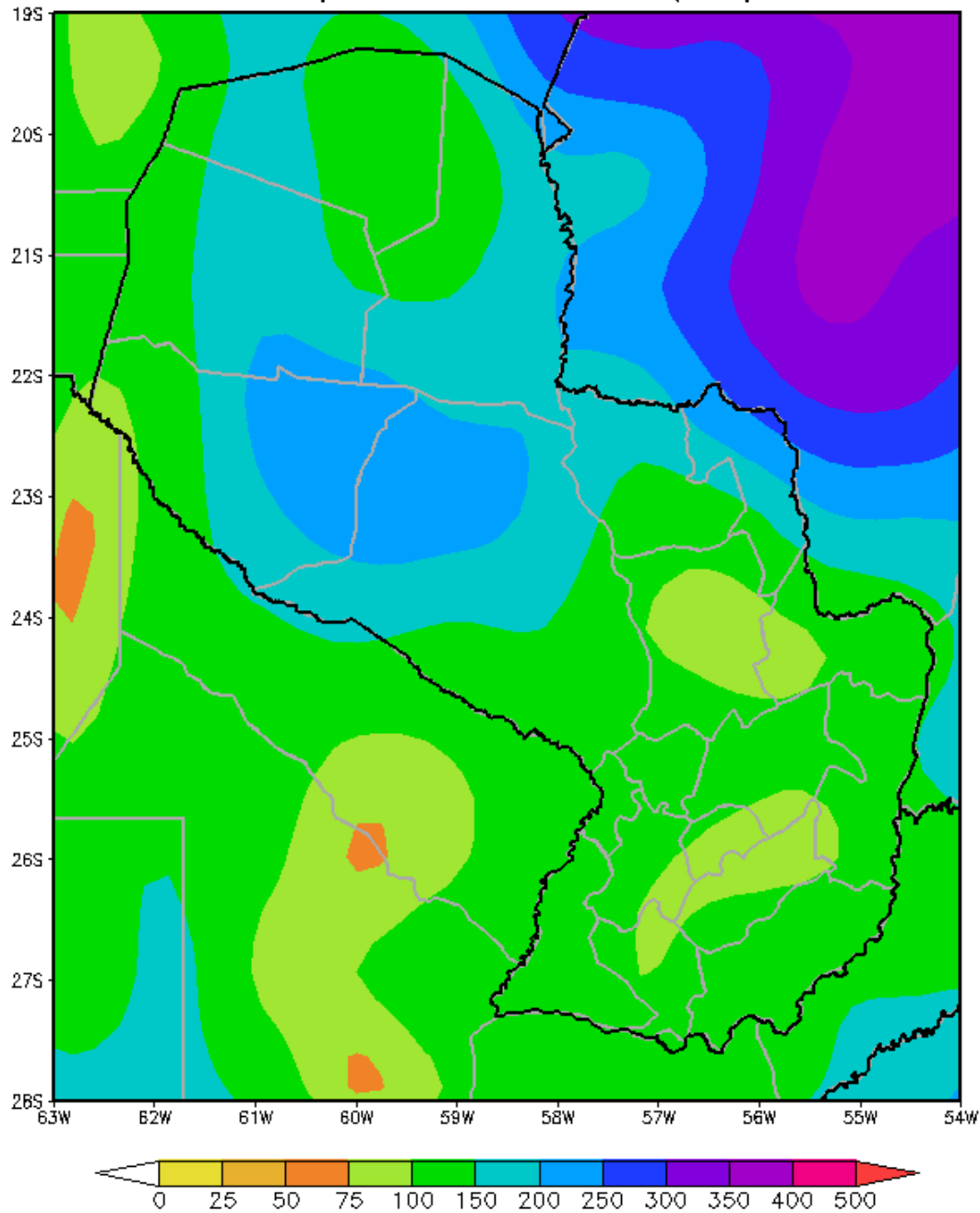
PERSPECTIVA CLIMATICA OCTUBRE 2013

Probabilidad de Tormentas Severas (%)



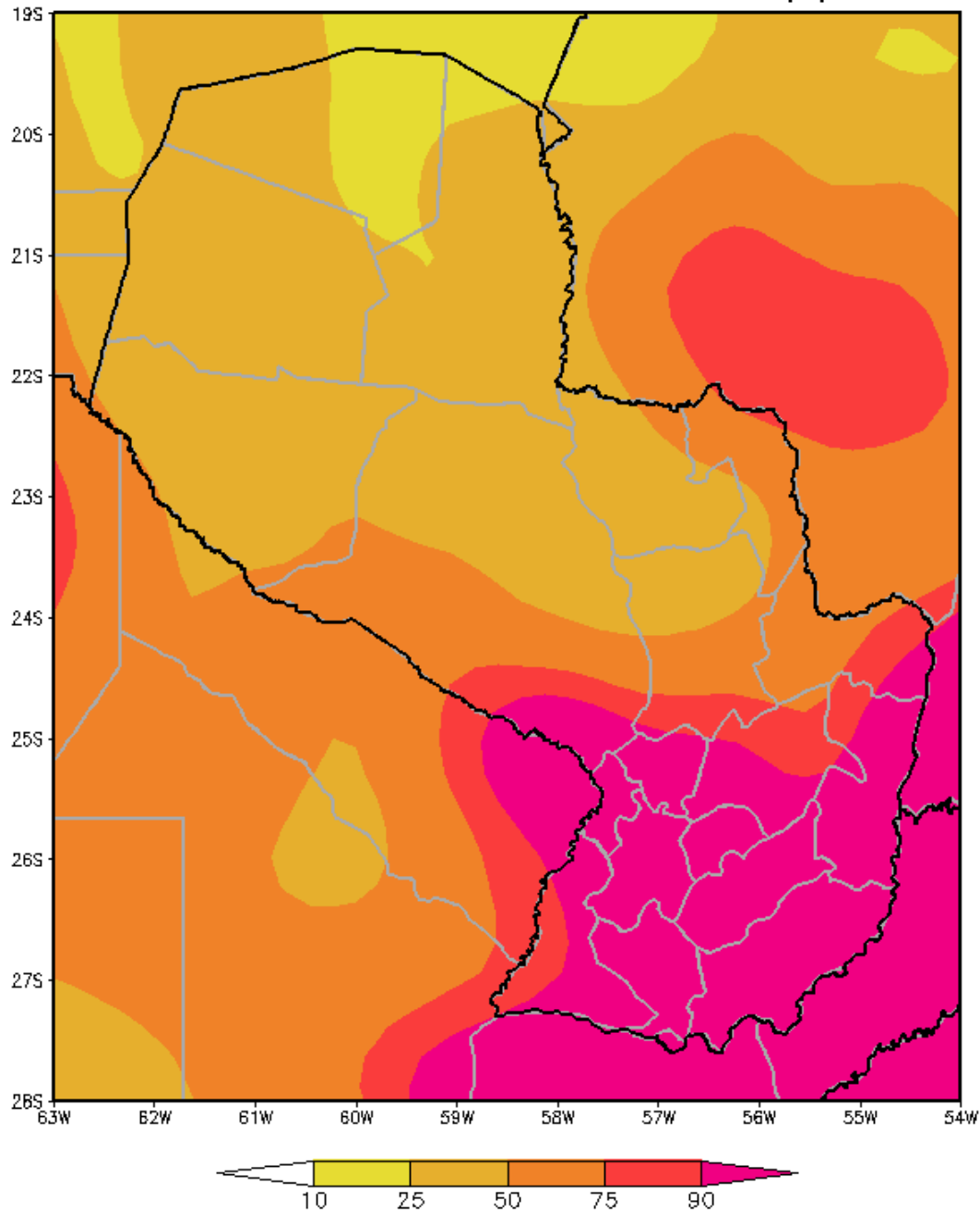
PERSPECTIVA CLIMATICA NOVIEMBRE 2013

Precipitacion Acumulada (mm)

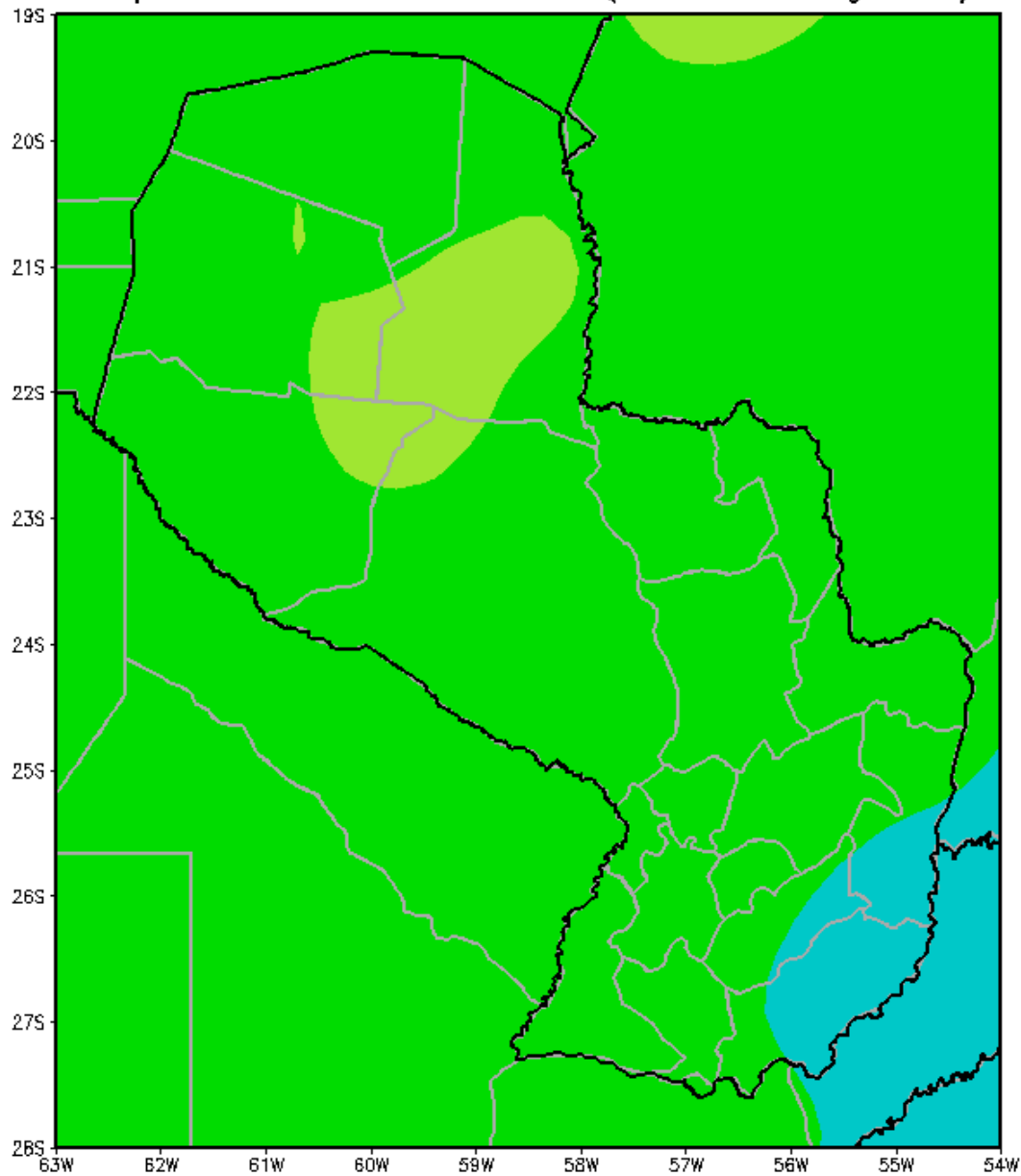


PERSPECTIVA CLIMATICA NOVIEMBRE 2013

Probabilidad de Tormentas Severas (%)

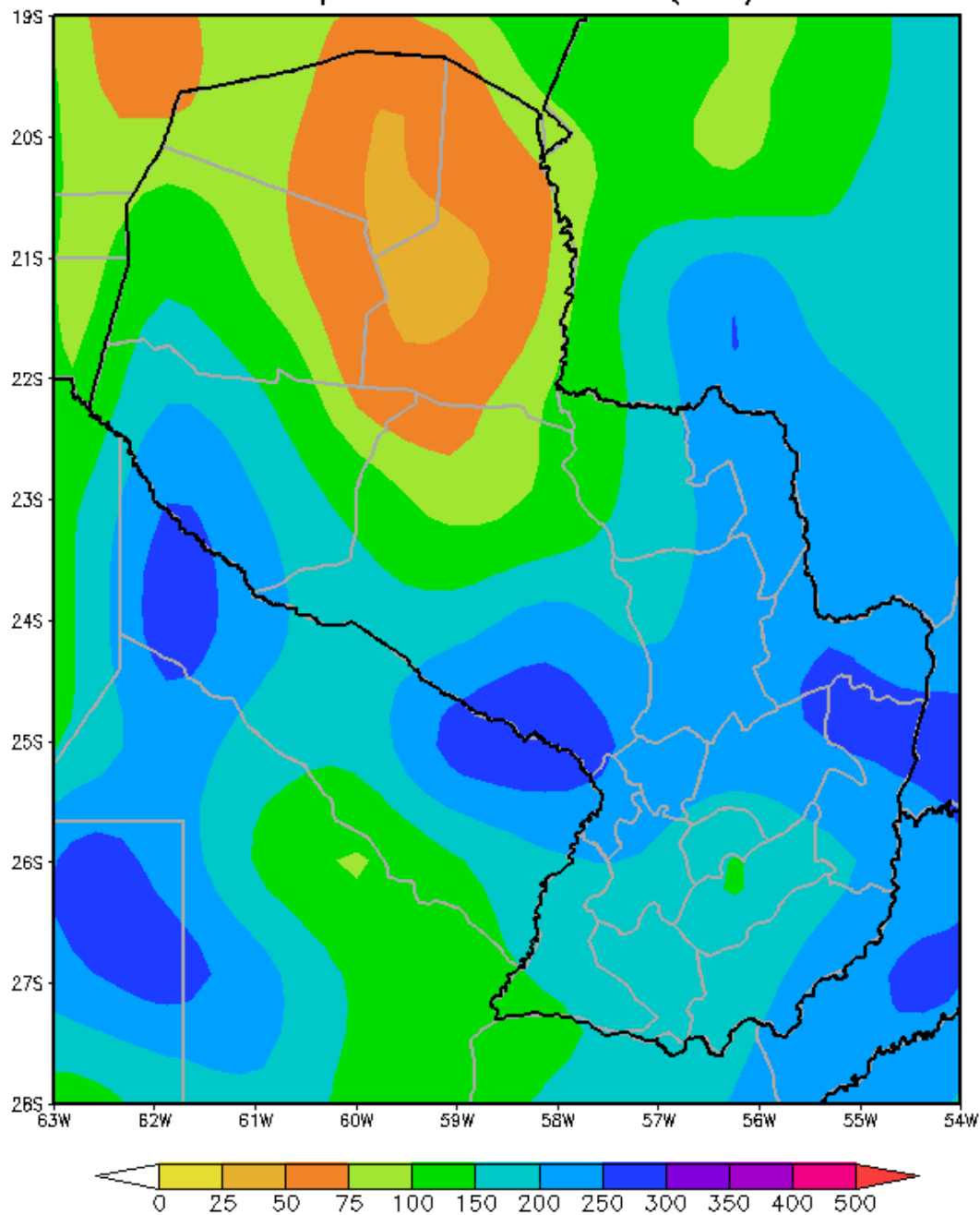


PERSPECTIVA CLIMATICA NOVIEMBRE 2013
Temperatura Minima Absoluta (Grados Centigrados)



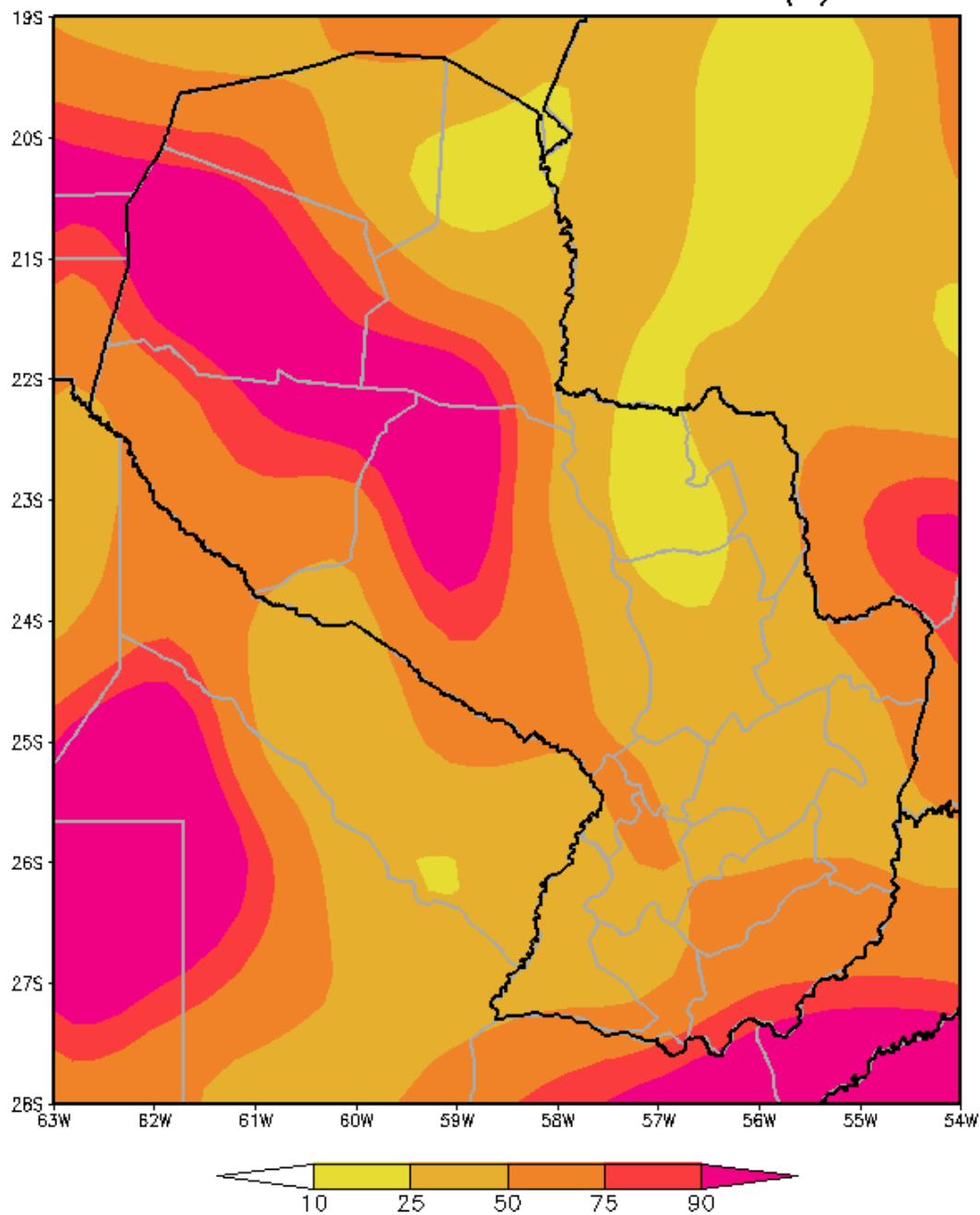
PERSPECTIVA CLIMATICA DICIEMBRE 2013

Precipitacion Acumulada (mm)

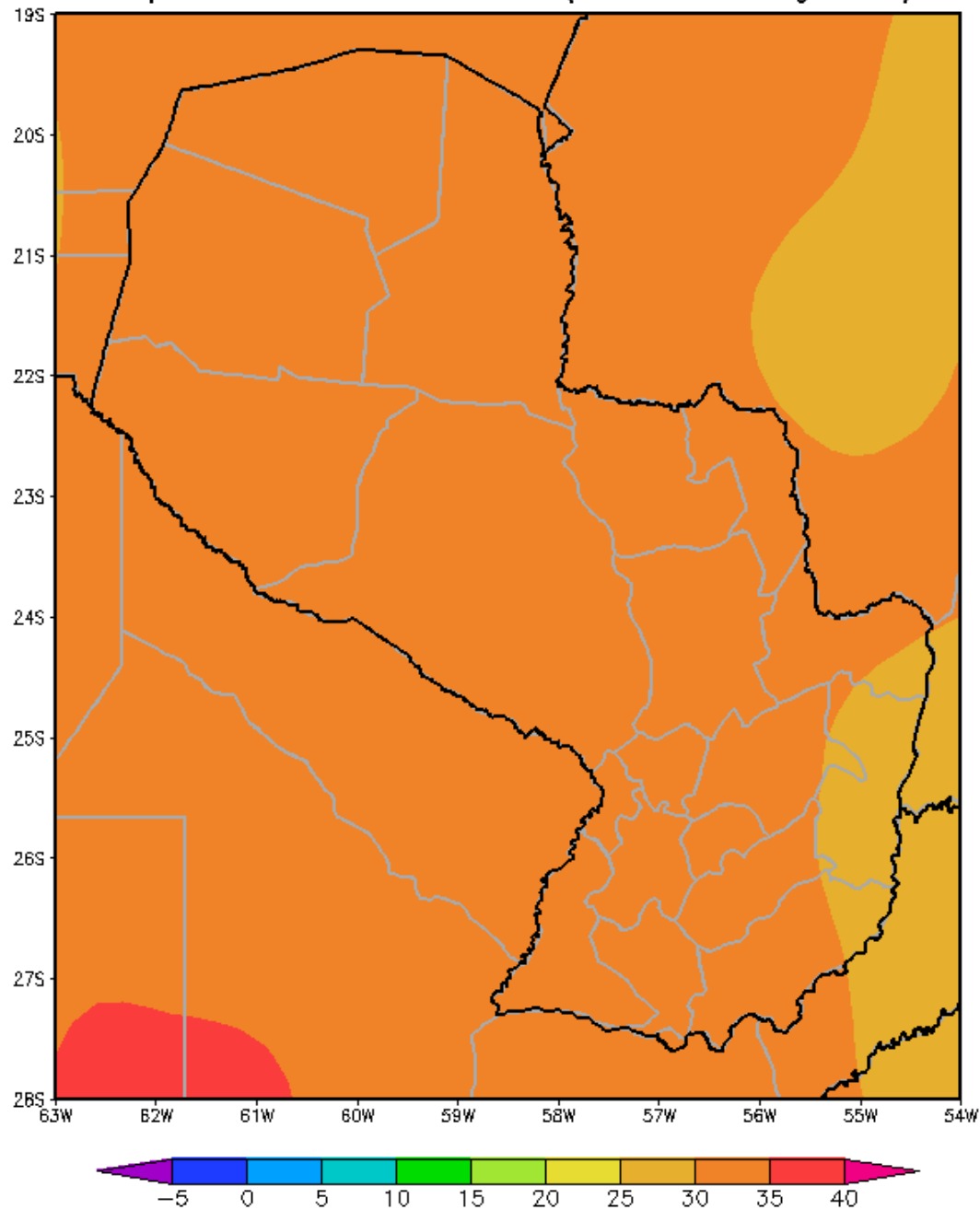


PERSPECTIVA CLIMATICA DICIEMBRE 2013

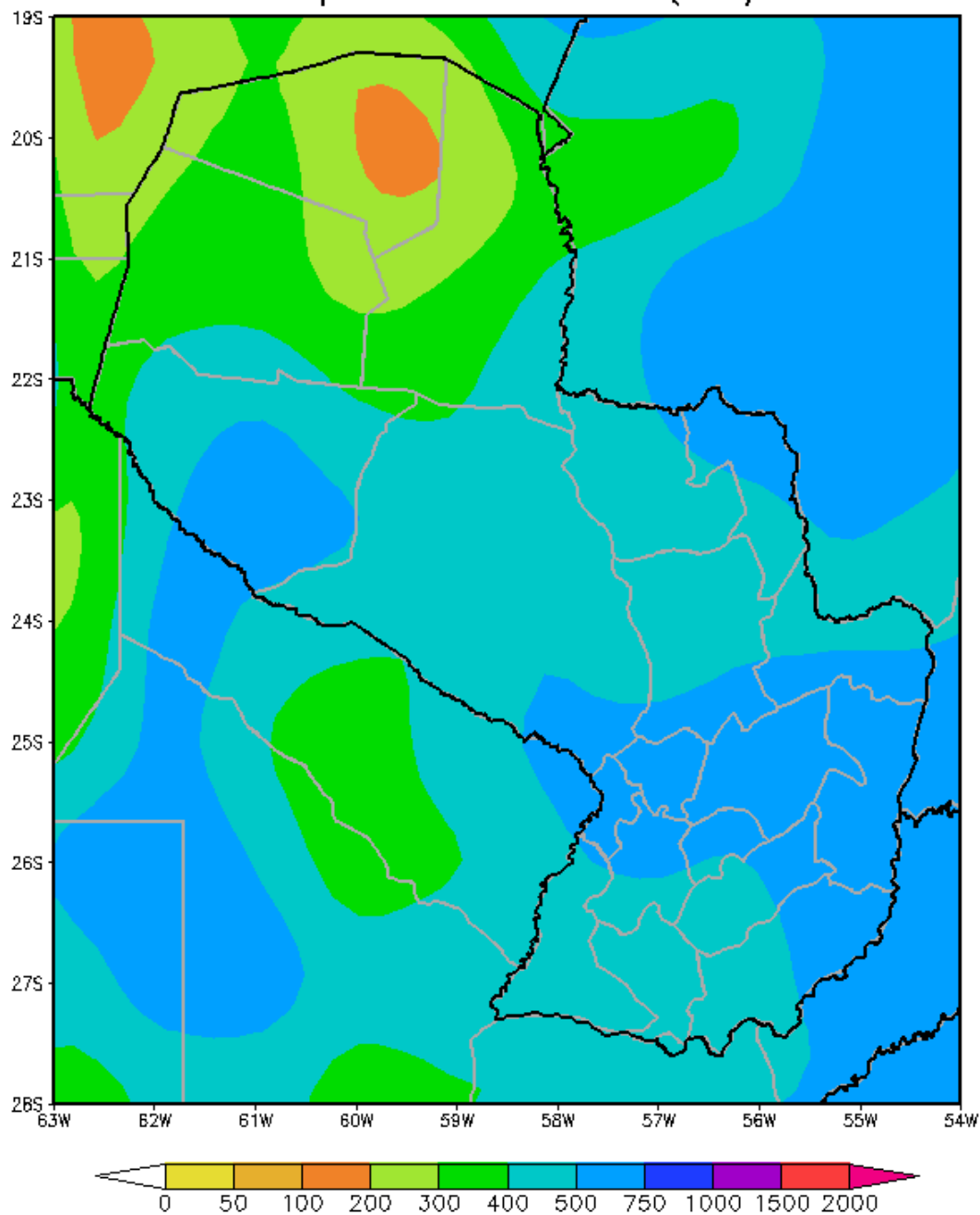
Probabilidad de Tormentas Severas (%)



PERSPECTIVA CLIMATICA DICIEMBRE 2013
Temperatura Maxima Media (Grados Centigrados)

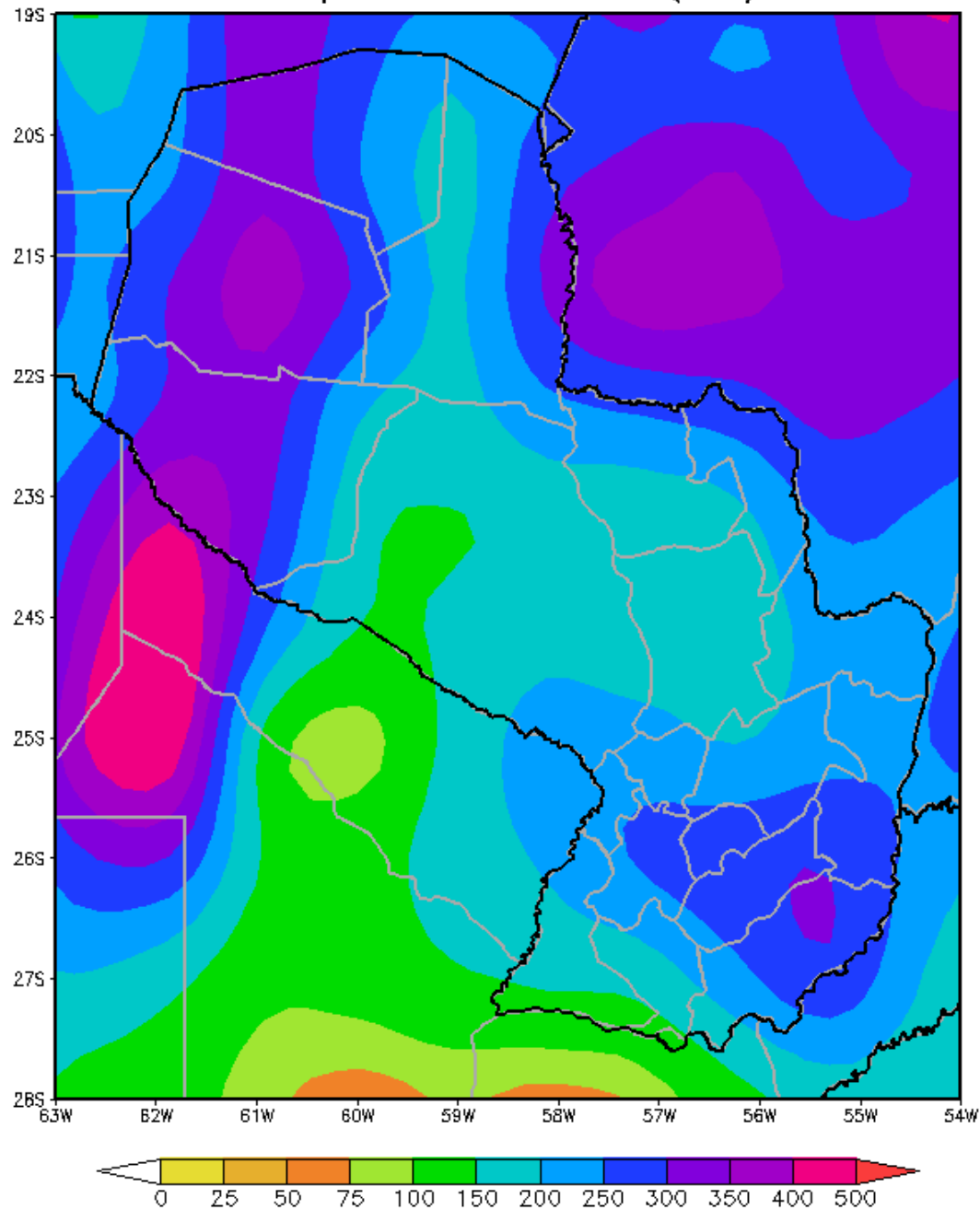


PERSPECTIVA CLIMATICA OCTUBRE-DICIEMBRE 2013
Precipitacion Acumulada (mm)



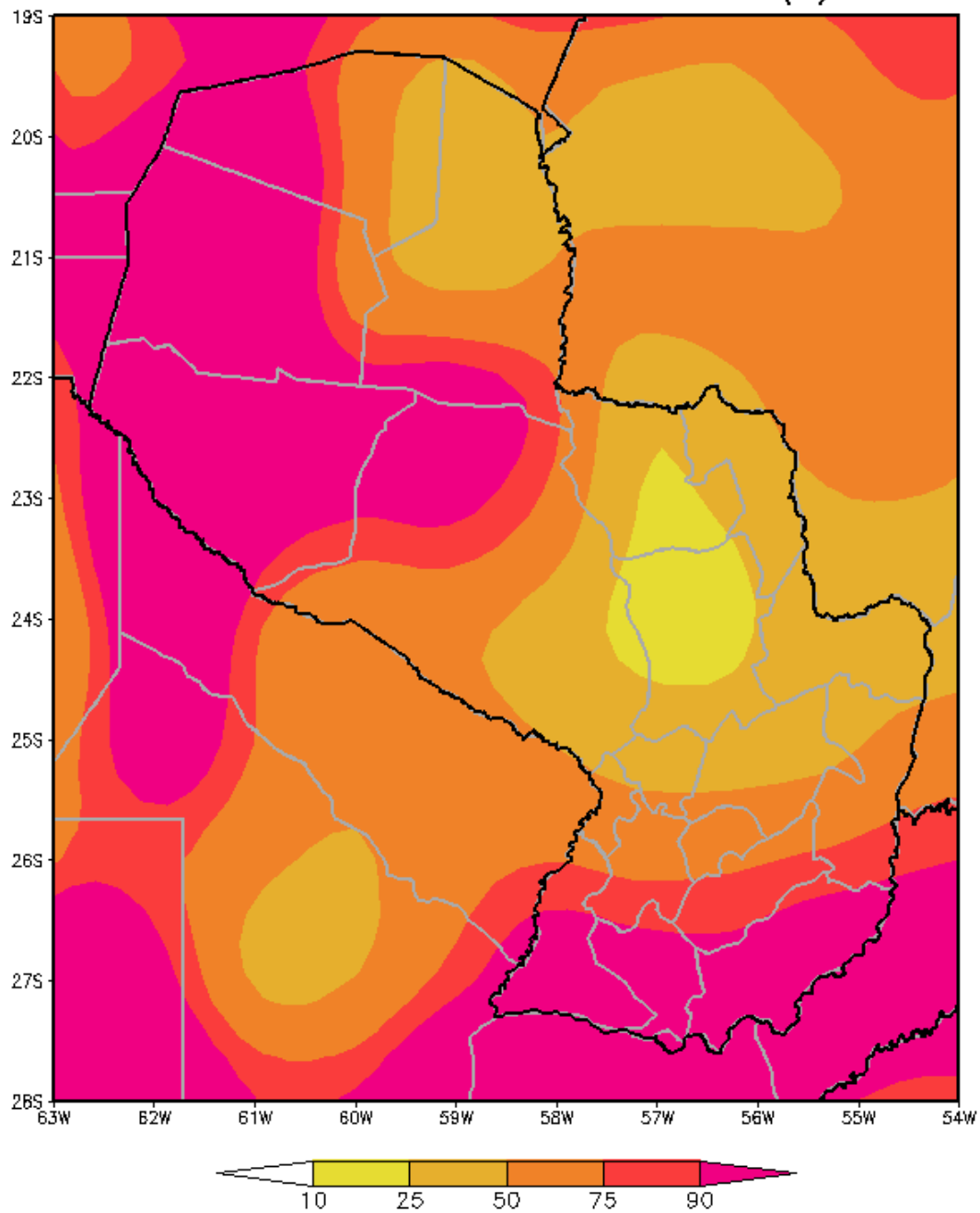
PERSPECTIVA CLIMATICA ENERO 2014

Precipitacion Acumulada (mm)



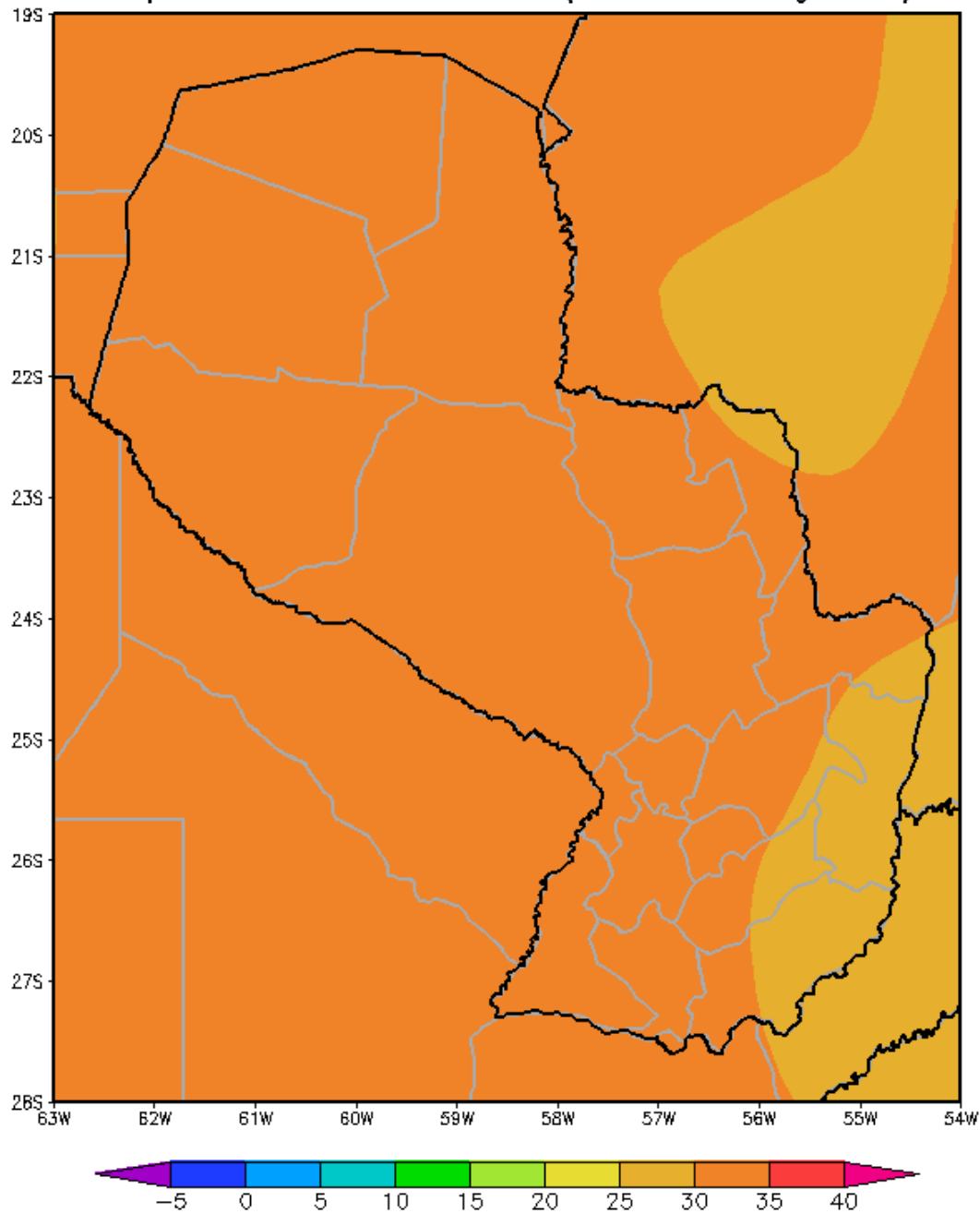
PERSPECTIVA CLIMATICA ENERO 2014

Probabilidad de Tormentas Severas (%)



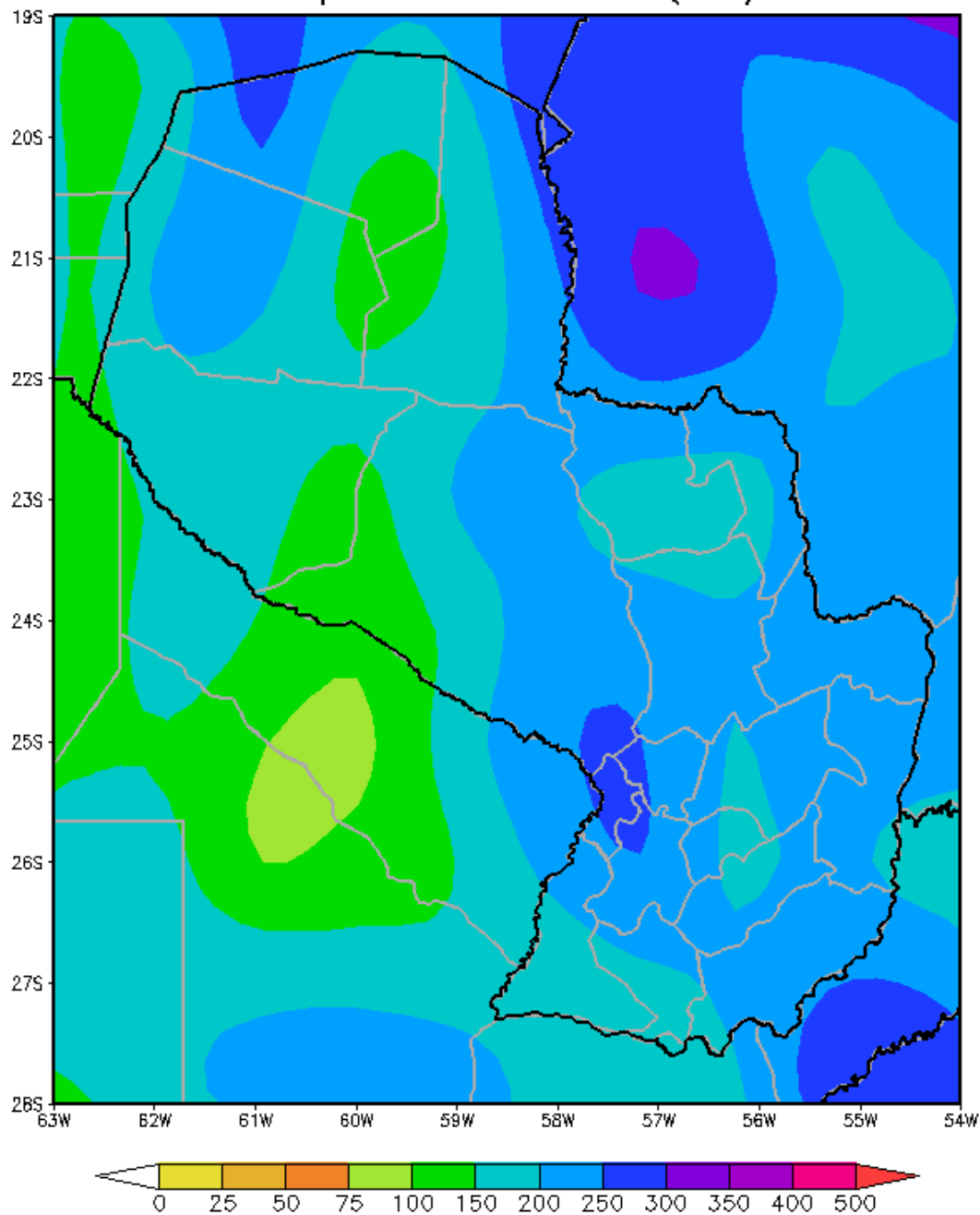
PERSPECTIVA CLIMATICA ENERO 2014

Temperatura Maxima Media (Grados Centigrados)



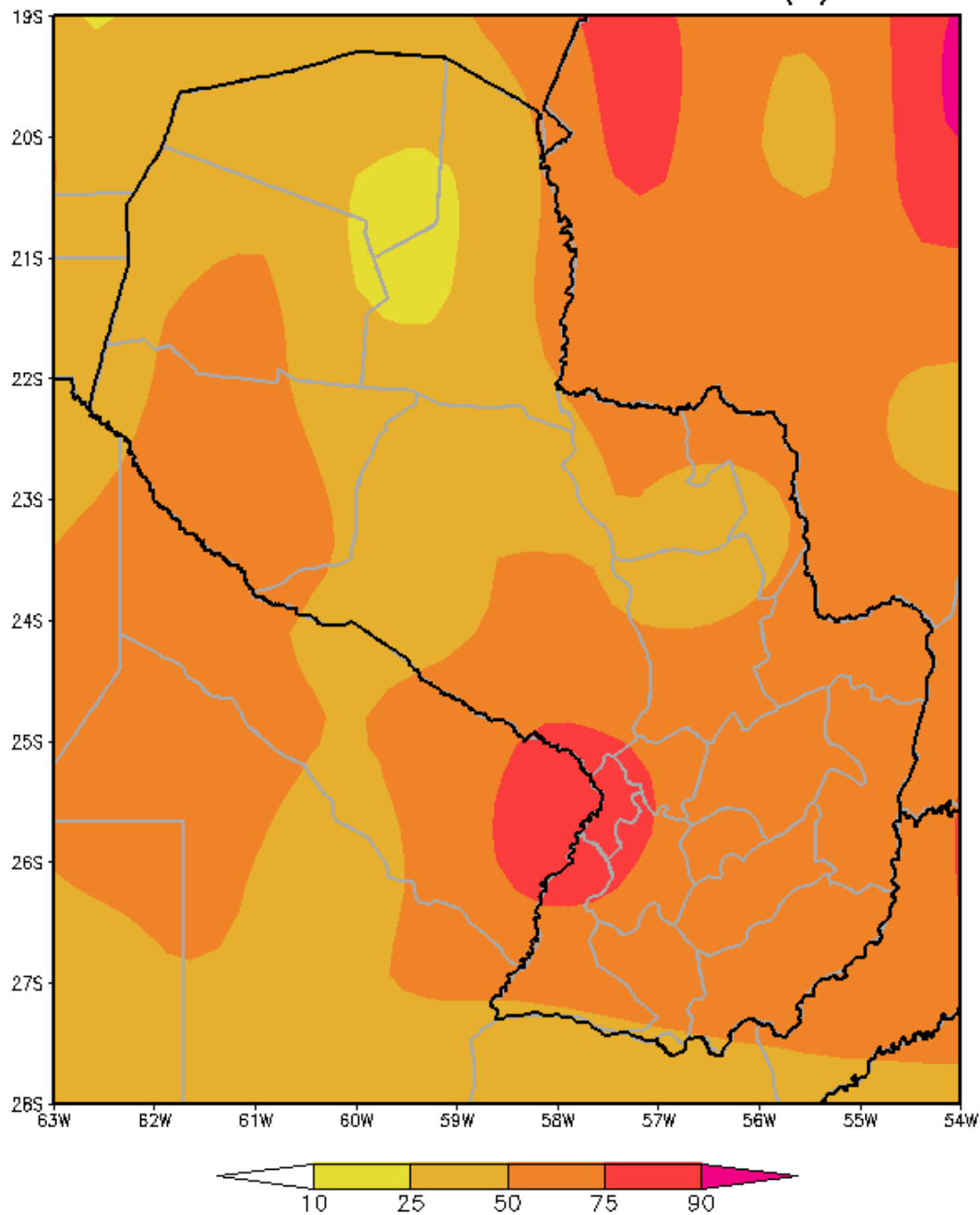
PERSPECTIVA CLIMATICA FEBRERO 2014

Precipitacion Acumulada (mm)



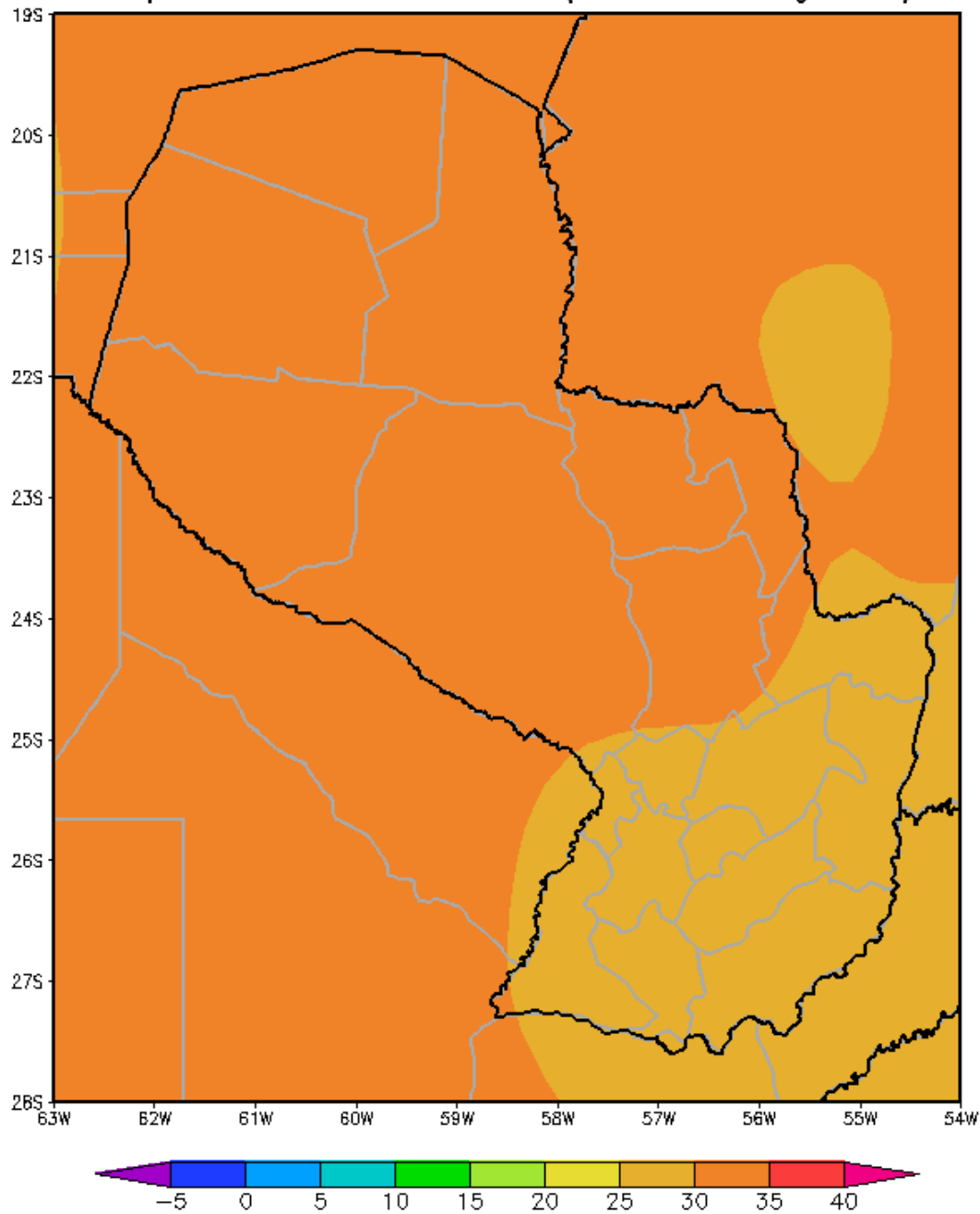
PERSPECTIVA CLIMATICA FEBRERO 2014

Probabilidad de Tormentas Severas (%)



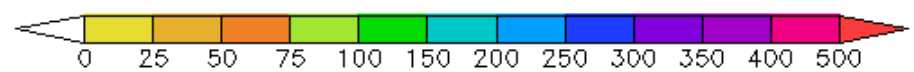
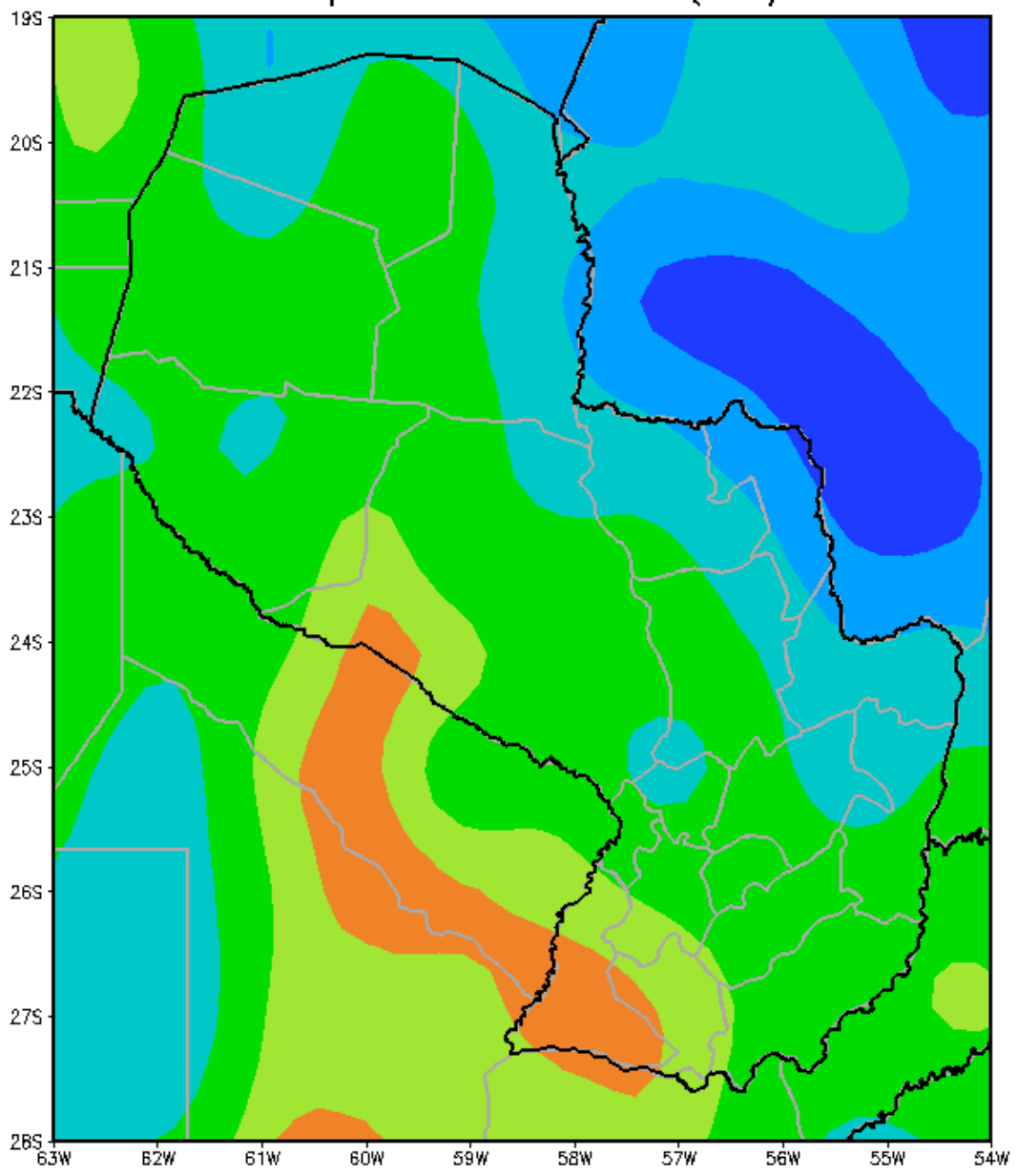
PERSPECTIVA CLIMATICA FEBRERO 2014

Temperatura Maxima Media (Grados Centigrados)



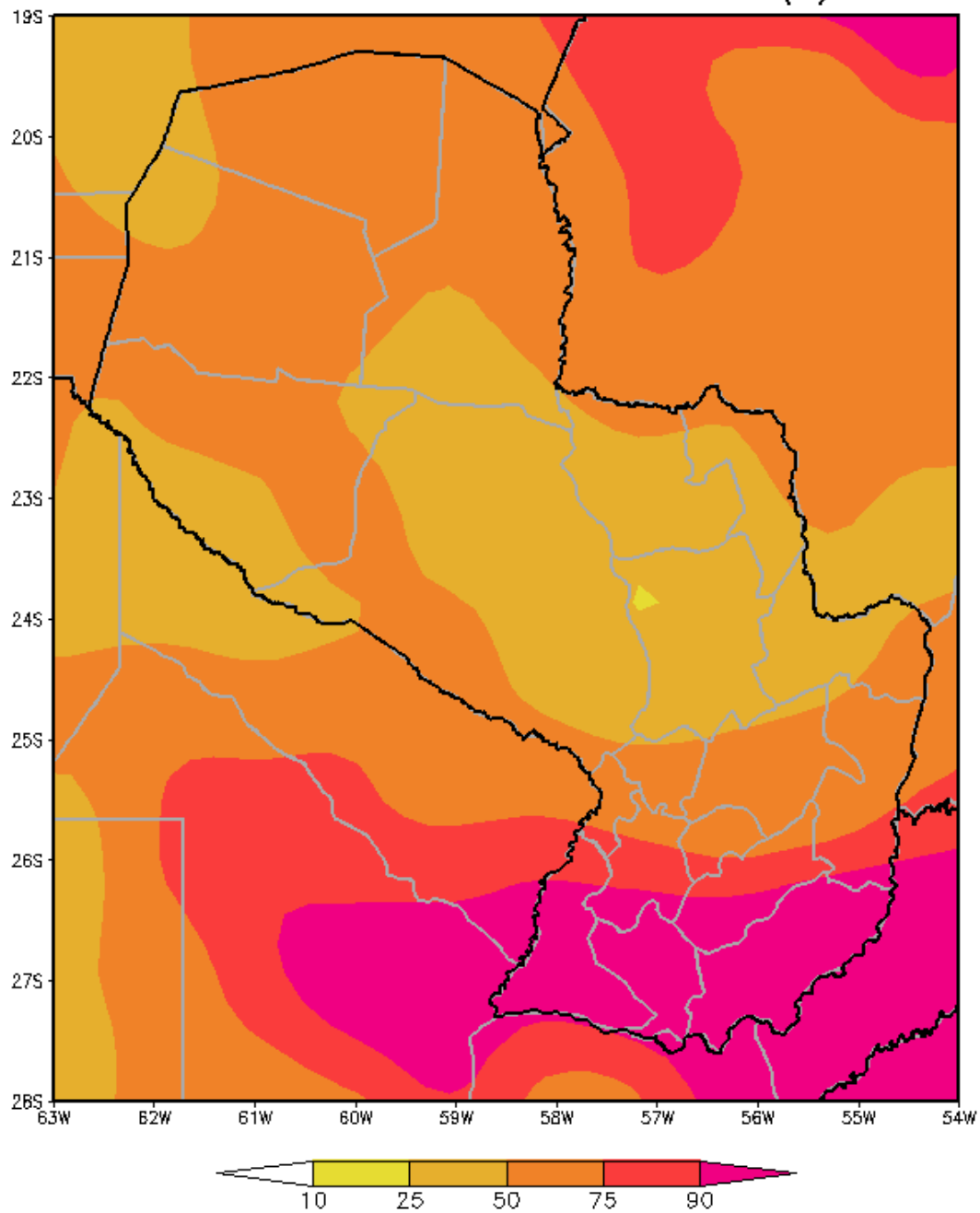
PERSPECTIVA CLIMATICA MARZO 2014

Precipitacion Acumulada (mm)



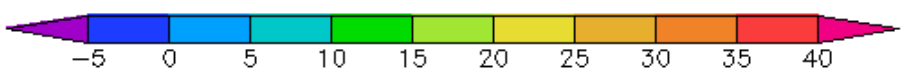
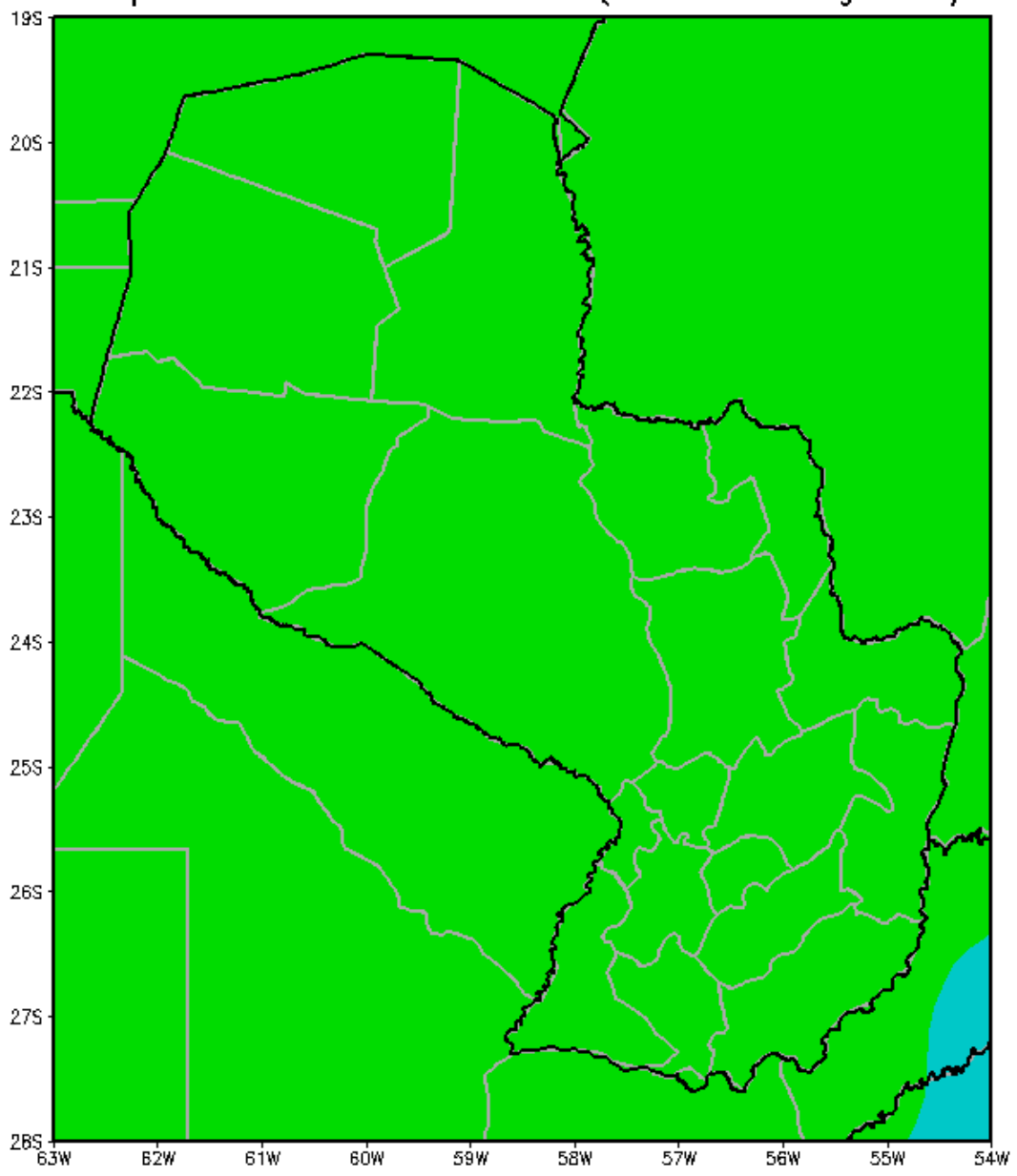
PERSPECTIVA CLIMATICA MARZO 2014

Probabilidad de Tormentas Severas (%)



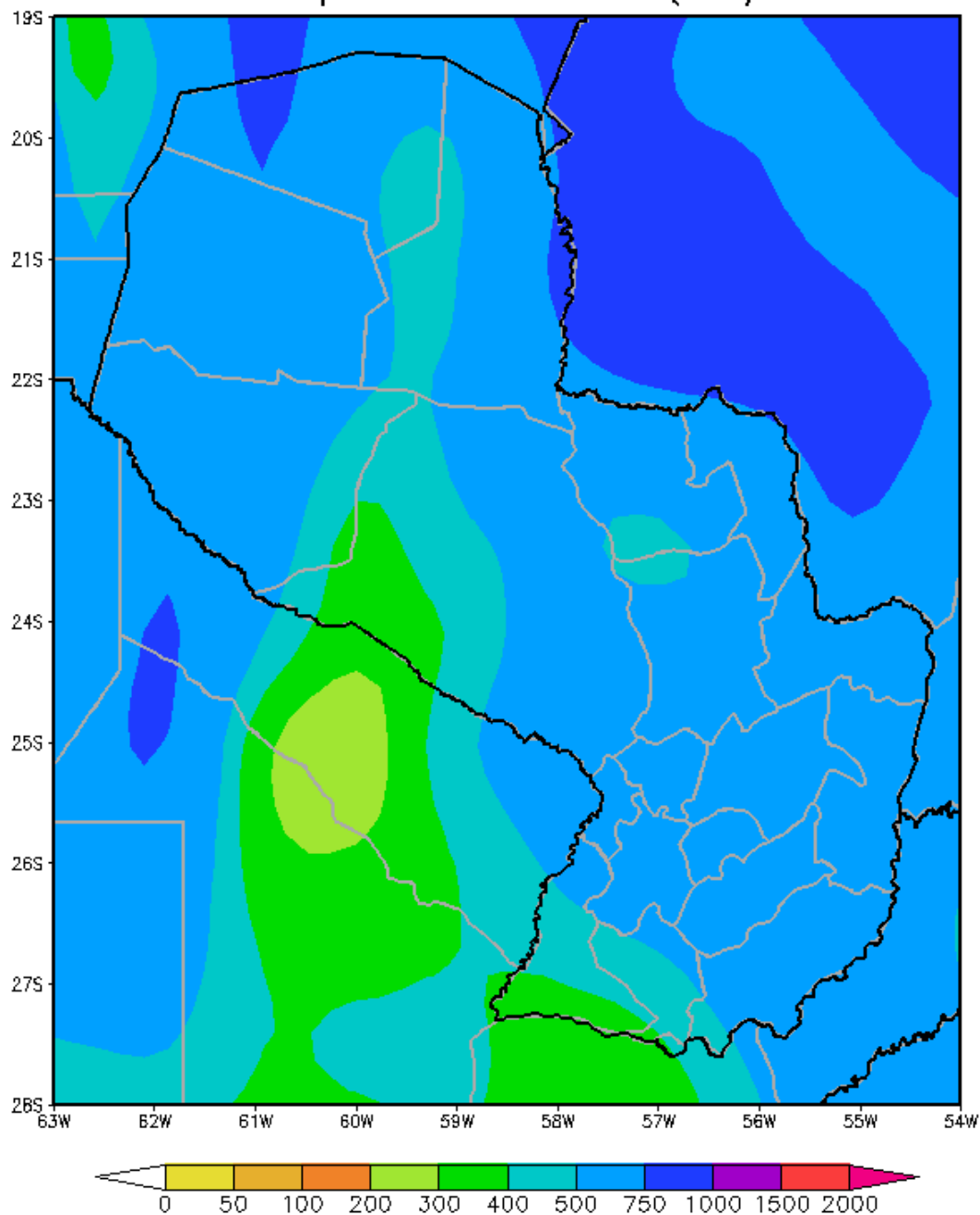
PERSPECTIVA CLIMATICA MARZO 2014

Temperatura Minima Absoluta (Grados Centigrados)



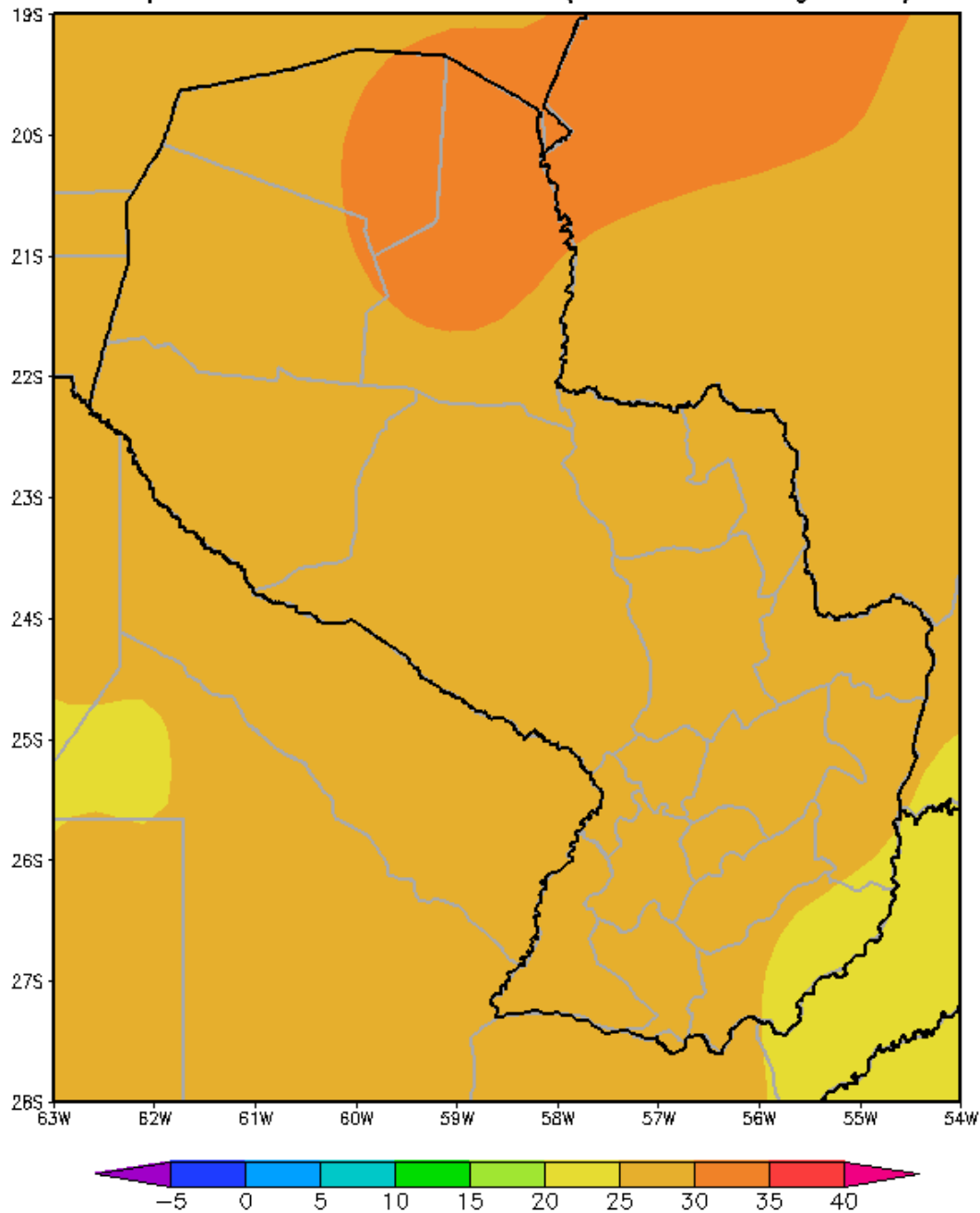
PERSPECTIVA CLIMATICA ENERO-MARZO 2014

Precipitacion Acumulada (mm)

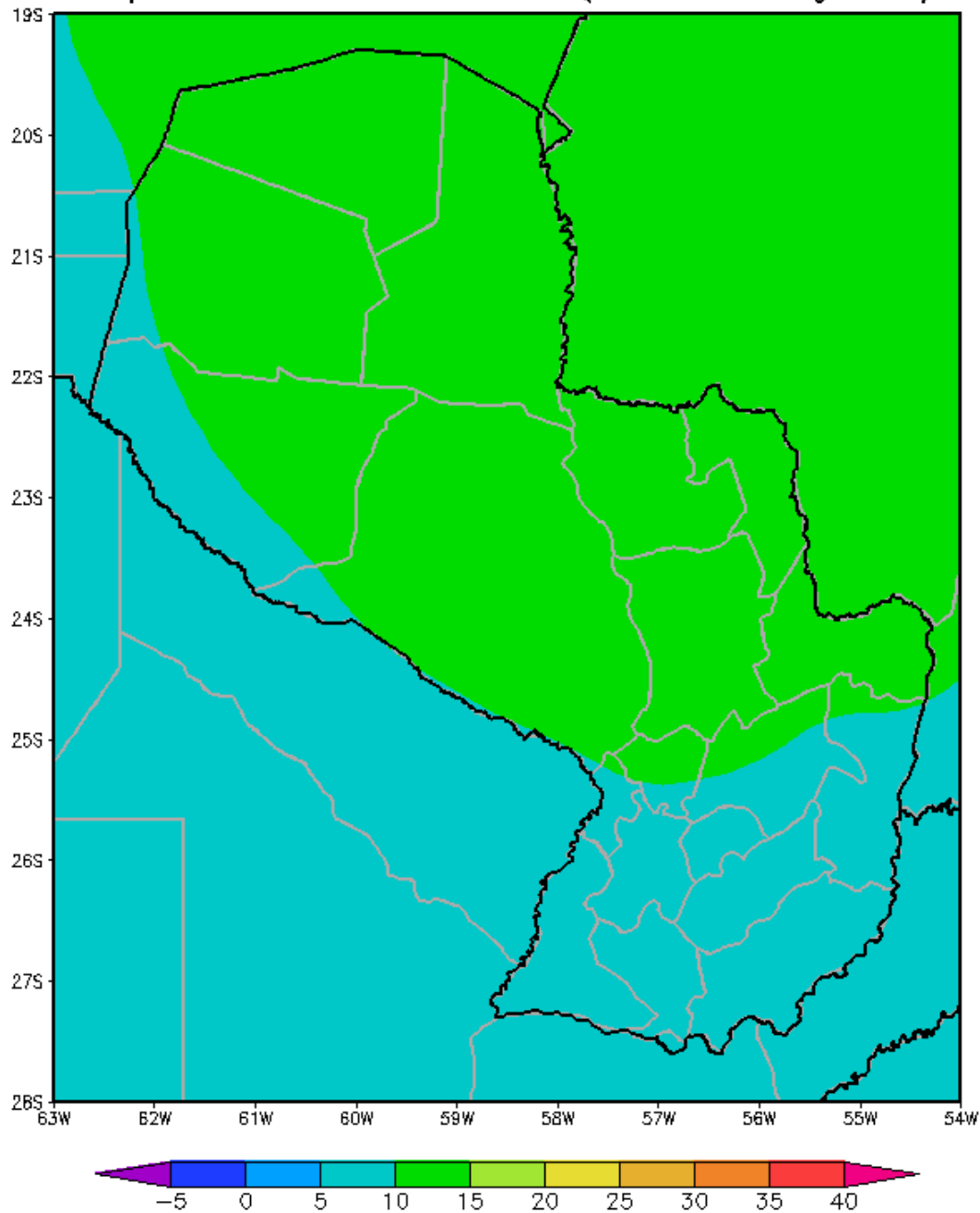


PERSPECTIVA CLIMATICA ABRIL 2014

Temperatura Maxima Media (Grados Centigrados)

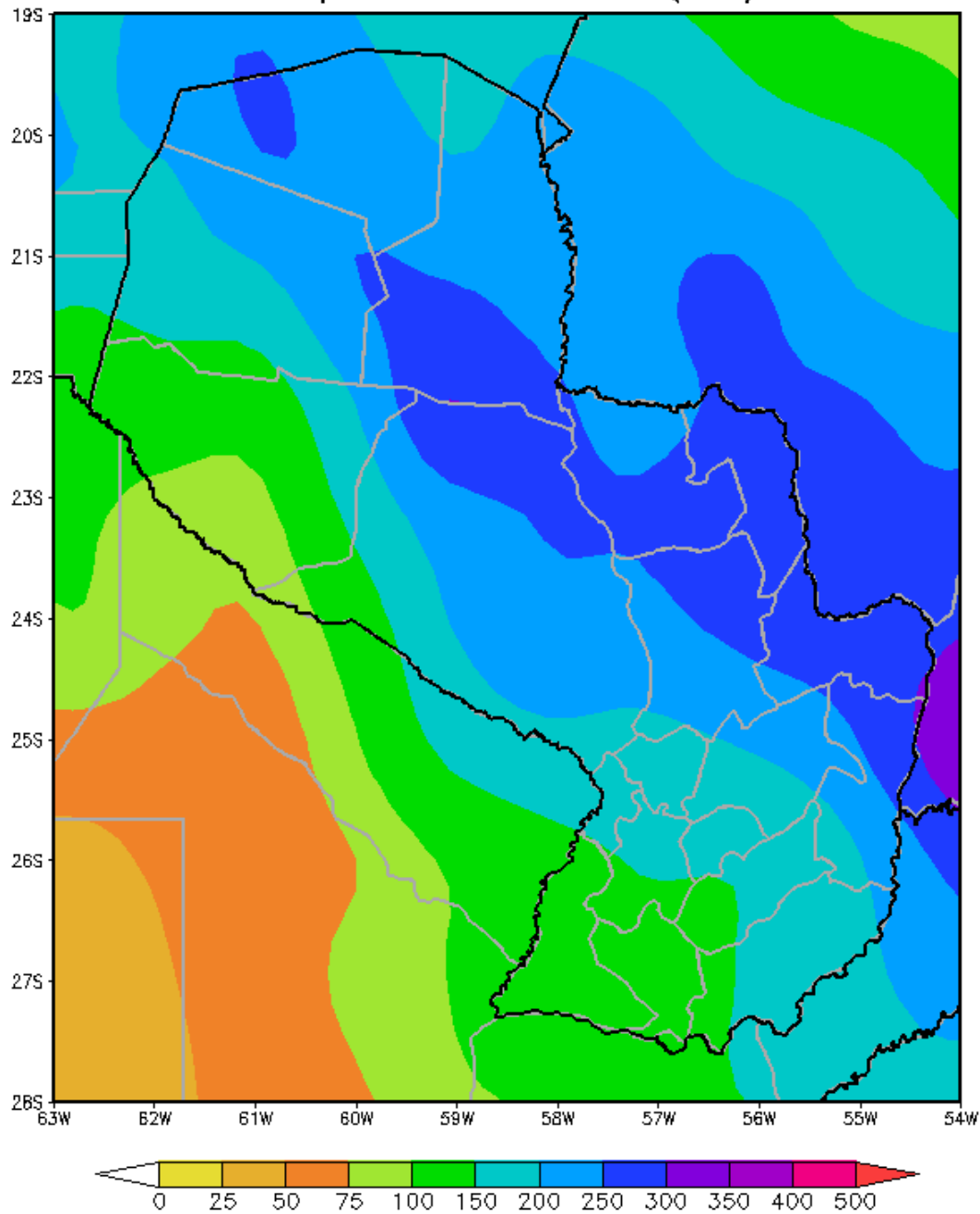


PERSPECTIVA CLIMATICA ABRIL 2014
Temperatura Minima Absoluta (Grados Centigrados)



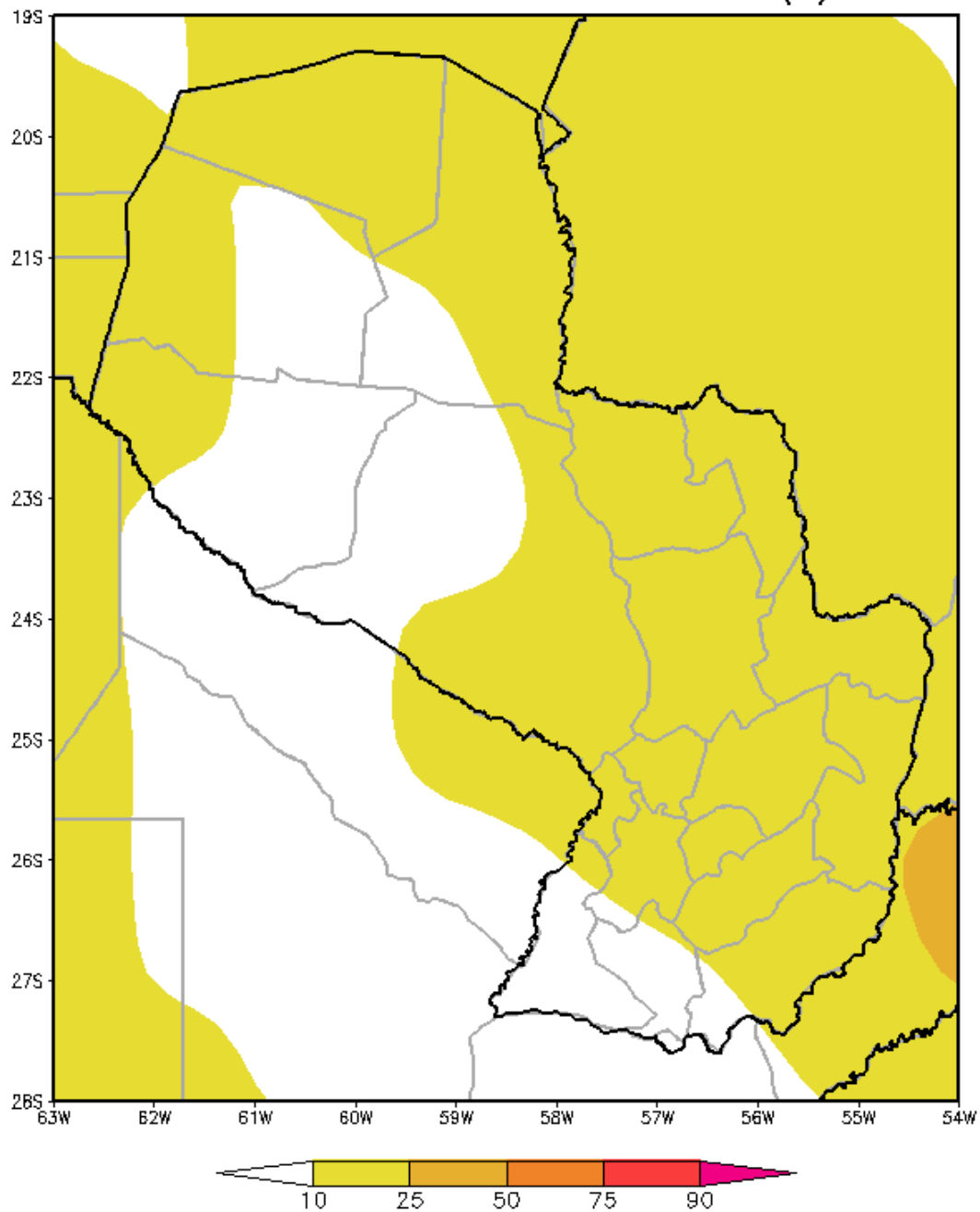
PERSPECTIVA CLIMATICA MAYO 2014

Precipitacion Acumulada (mm)



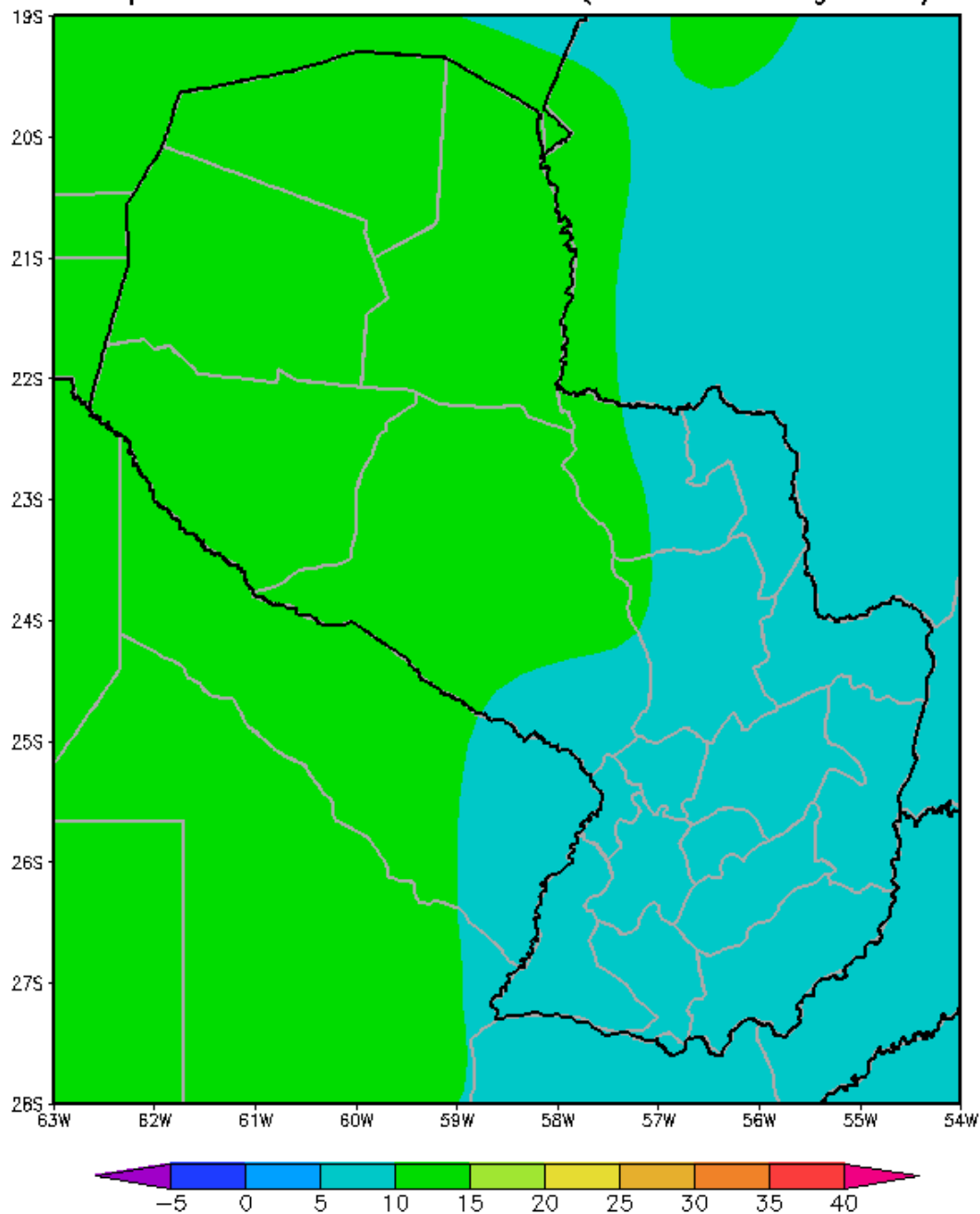
PERSPECTIVA CLIMATICA MAYO 2014

Probabilidad de Tormentas Severas (%)



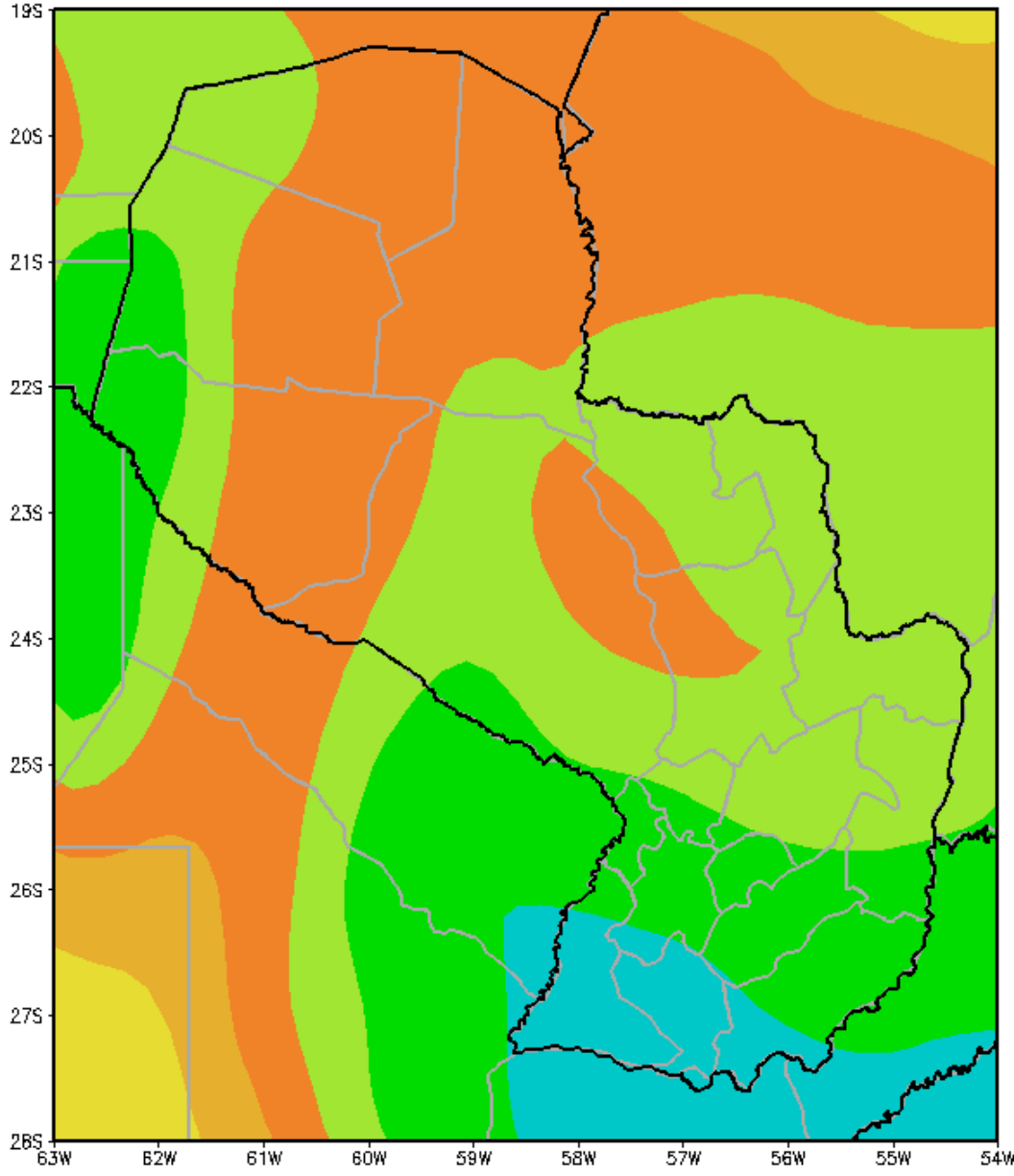
PERSPECTIVA CLIMATICA MAYO 2014

Temperatura Minima Absoluta (Grados Centigrados)



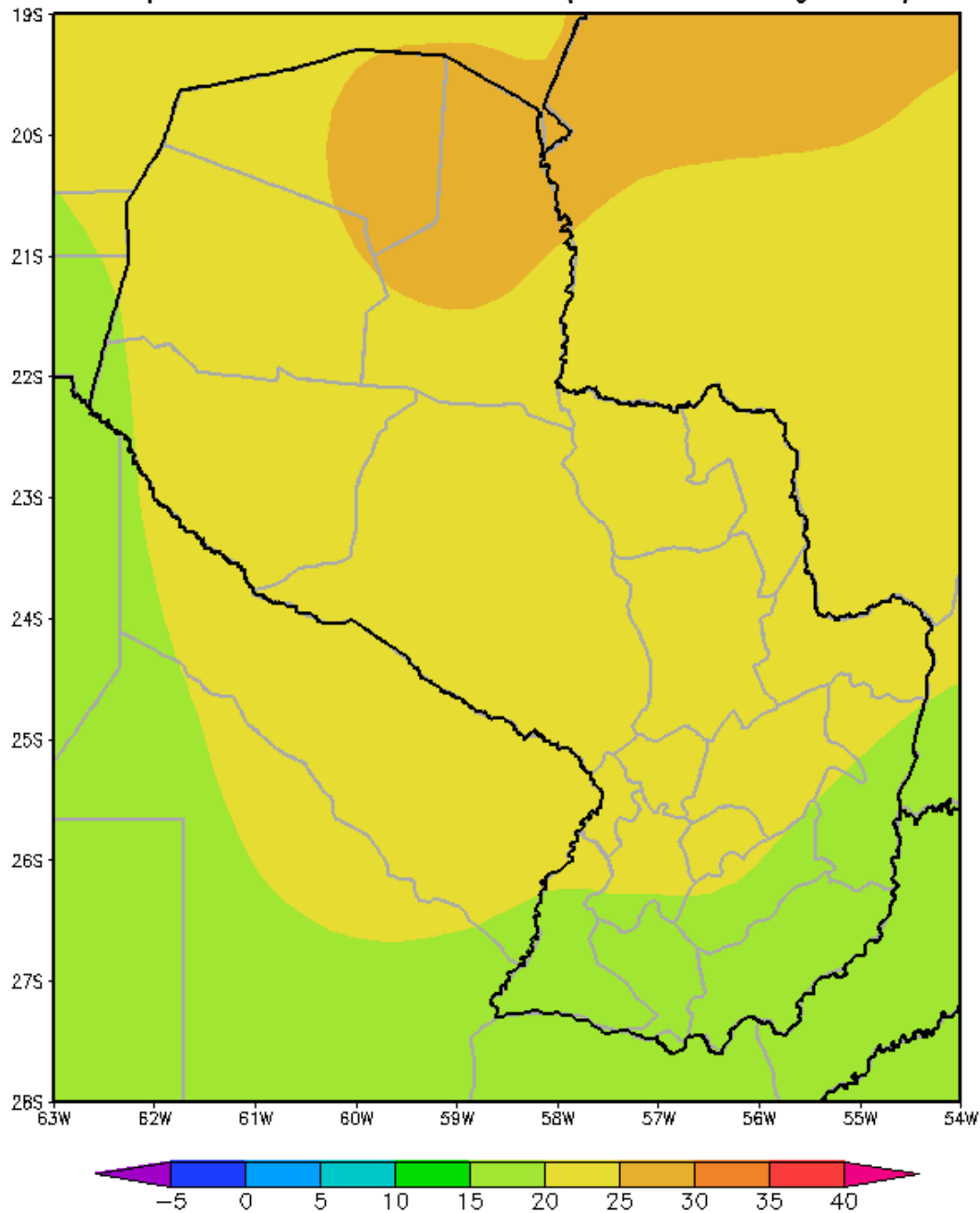
PERSPECTIVA CLIMATICA JUNIO 2014

Precipitacion Acumulada (mm)

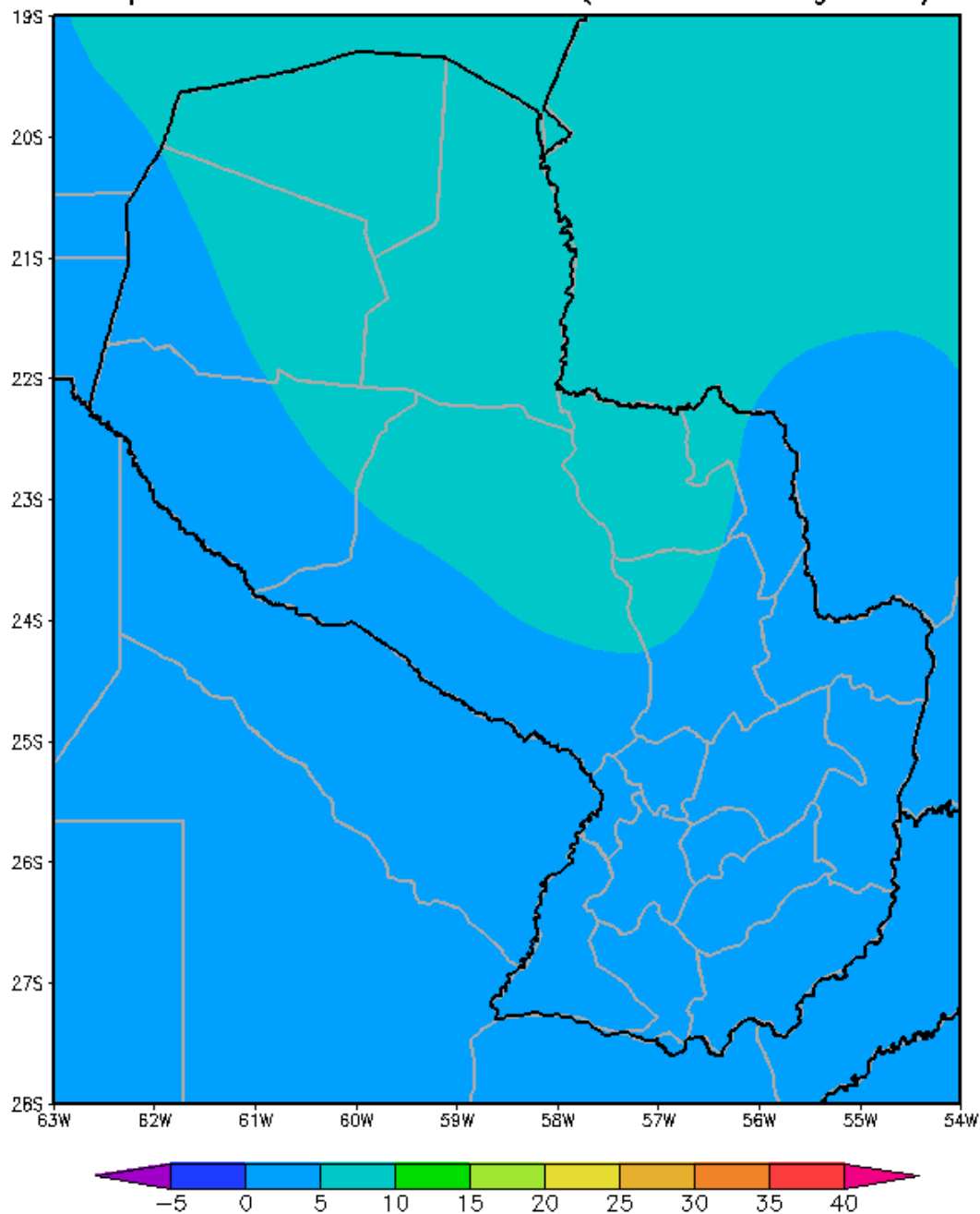


PERSPECTIVA CLIMATICA JUNIO 2014

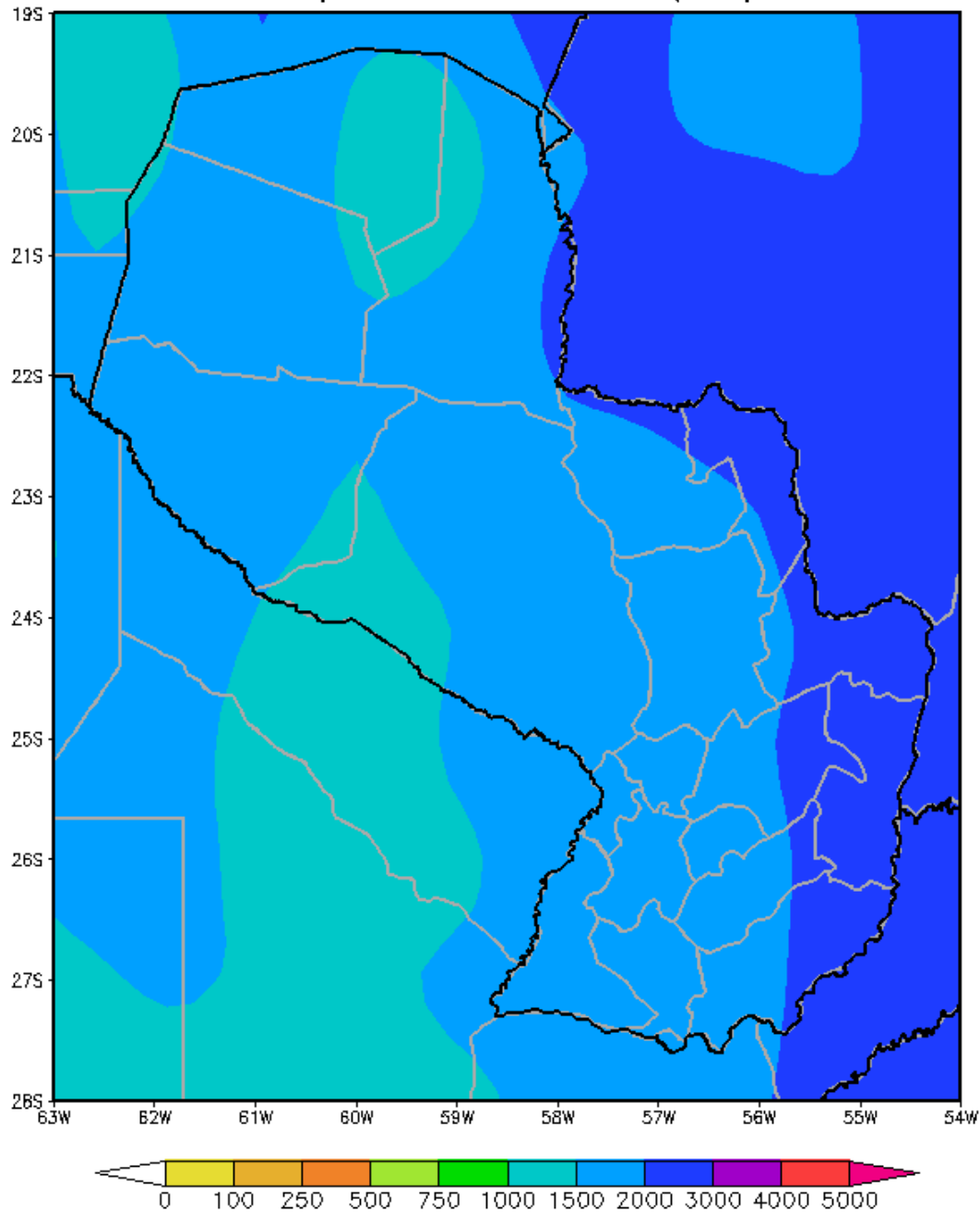
Temperatura Maxima Media (Grados Centigrados)



PERSPECTIVA CLIMATICA JUNIO 2014
Temperatura Minima Absoluta (Grados Centigrados)



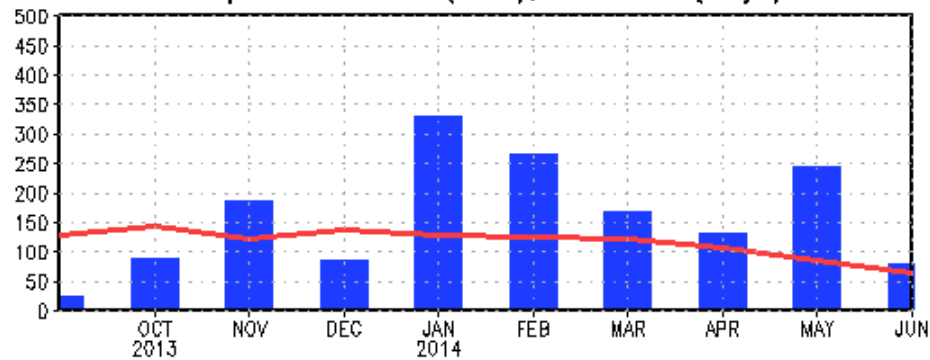
PERSPECTIVA CLIMATICA JULIO 2013 – JUNIO 2014
Precipitacion Acumulada (mm)



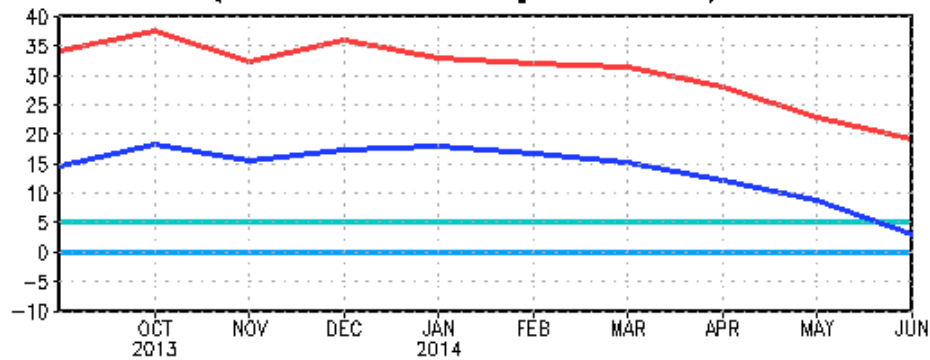
*PERSPECTIVA AGROCLIMÁTICA
ESTACIONAL REGIONAL 2013/2014*

PERSPECTIVA CLIMATICA M.P. LAGERENZA (Alto Paraguay, Paraguay)

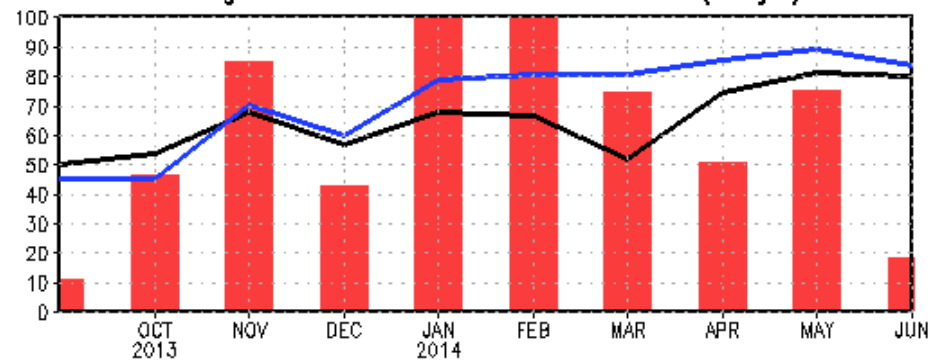
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

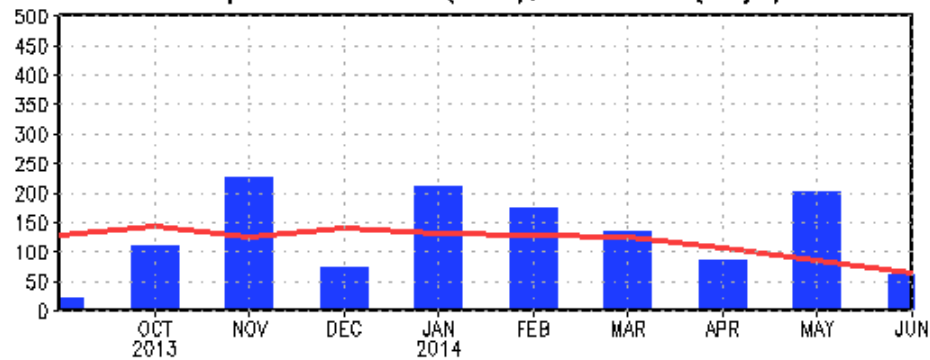


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

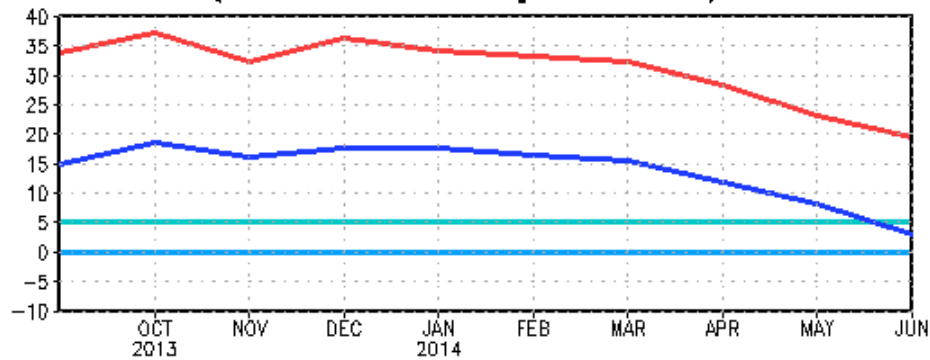


PERSPECTIVA CLIMATICA BOQUERON (Boqueron, Paraguay)

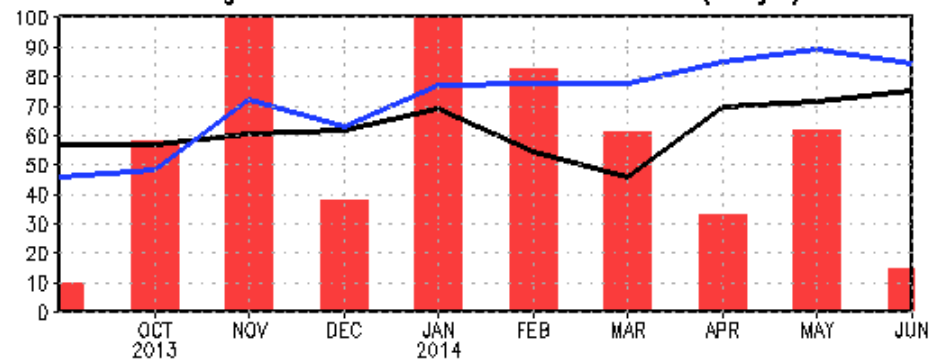
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

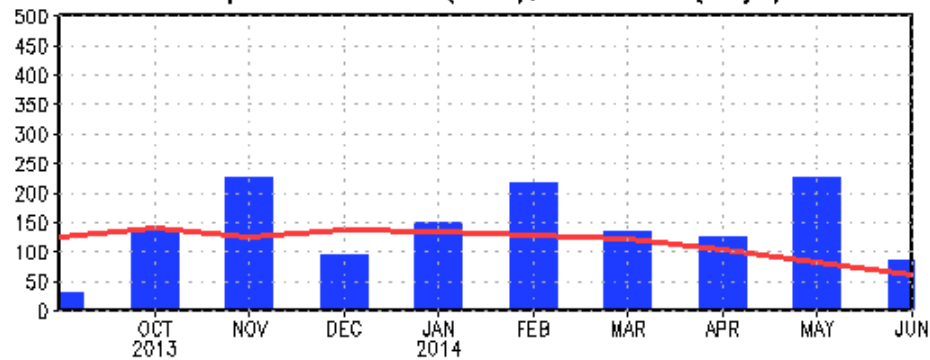


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

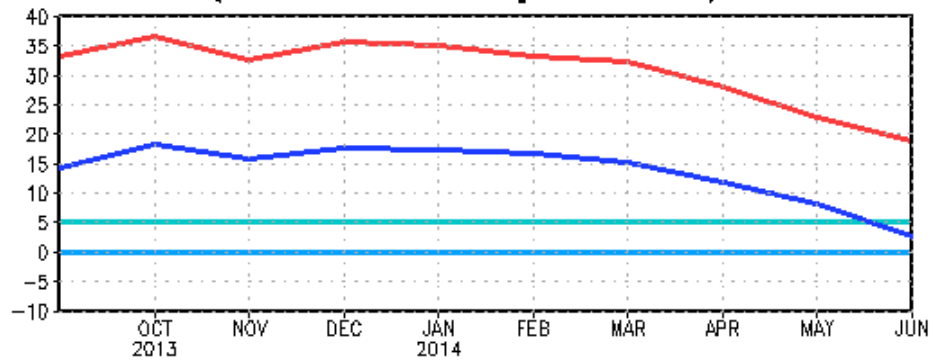


PERSPECTIVA CLIMATICA POZO COLORADO (Pte Hayes, Paraguay)

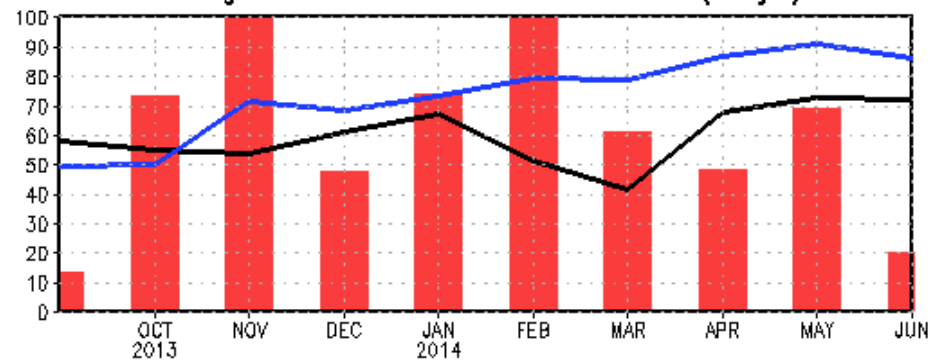
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

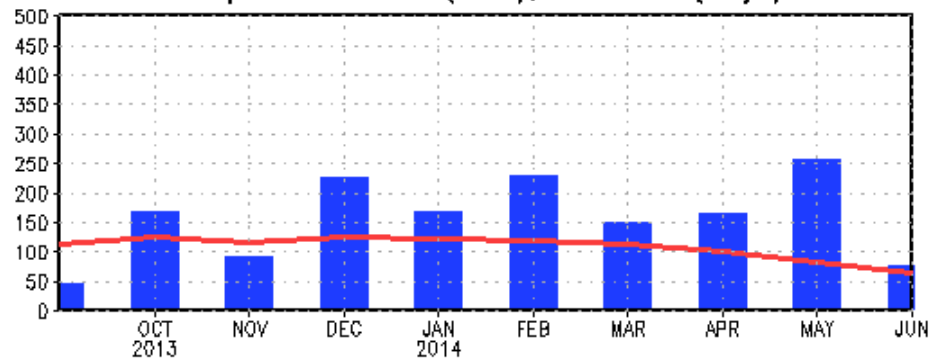


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

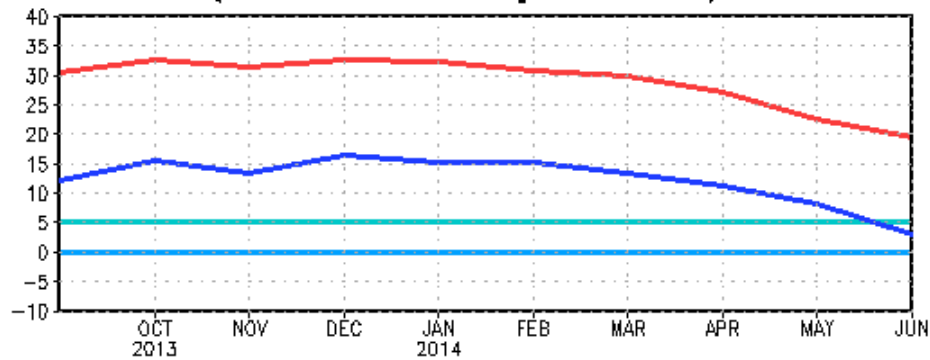


PERSPECTIVA CLIMATICA CHORE (San Pedro, Paraguay)

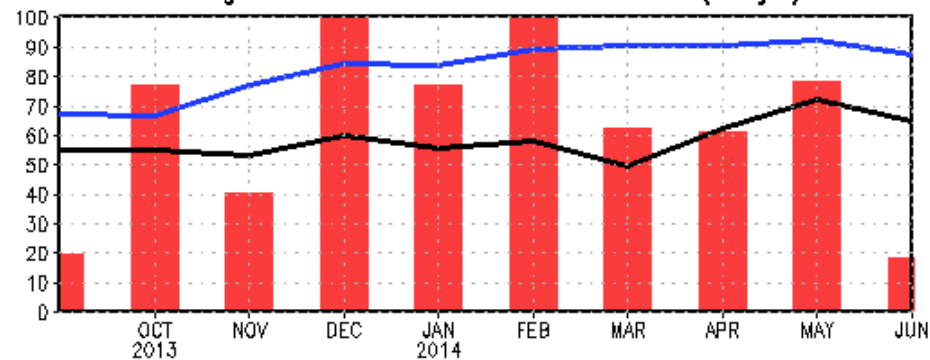
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

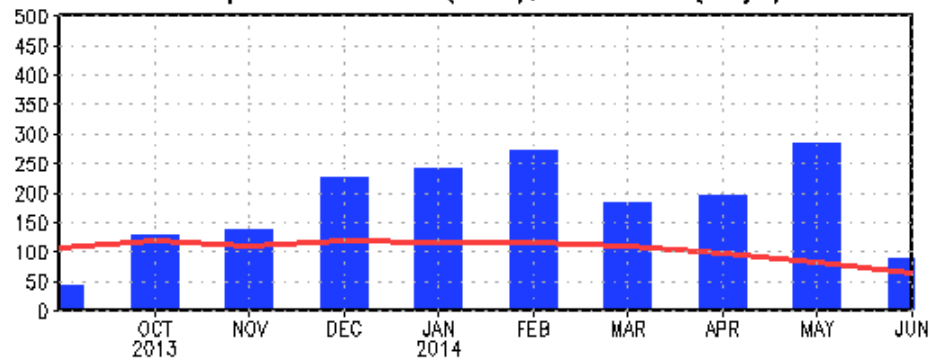


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

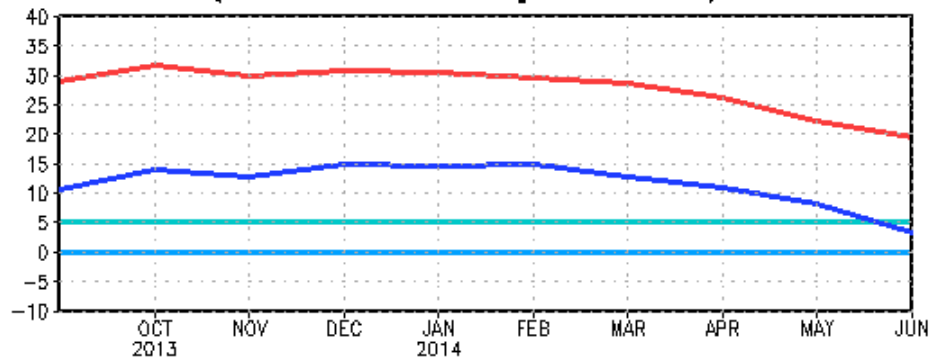


PERSPECTIVA CLIMATICA KATUETE (Canindeyu, Paraguay)

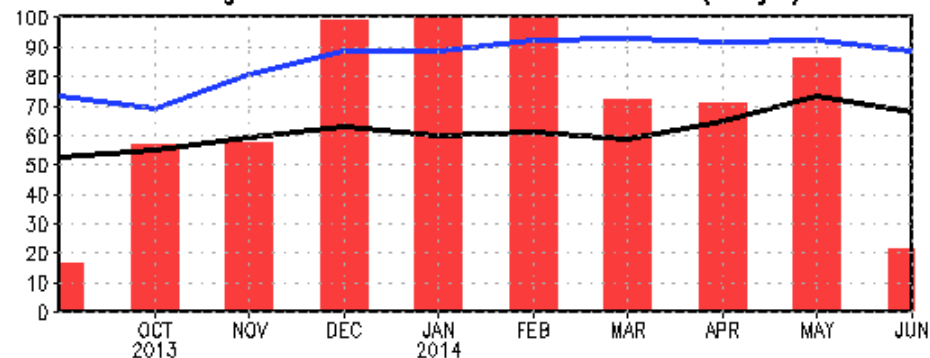
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

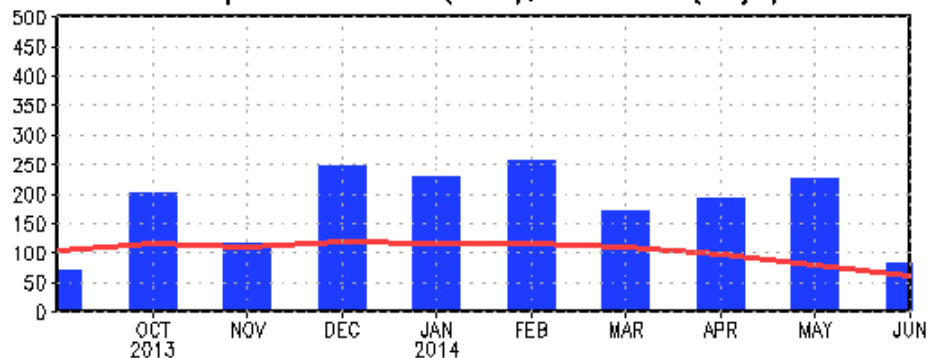


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

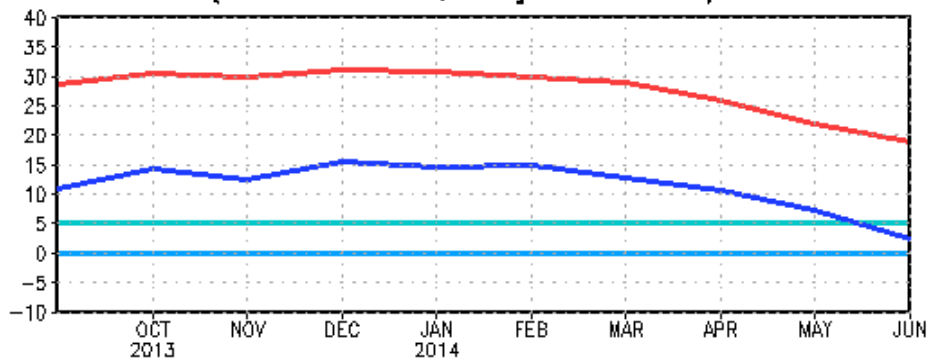


PERSPECTIVA CLIMATICA COLONIA YGUAZU (Alto Parana, Paraguay)

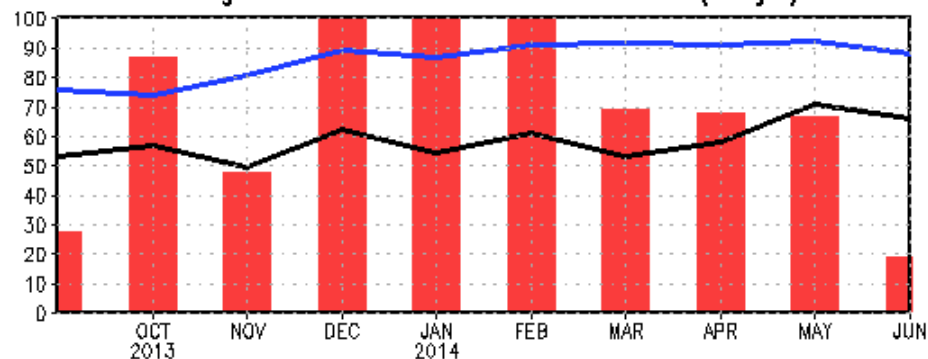
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

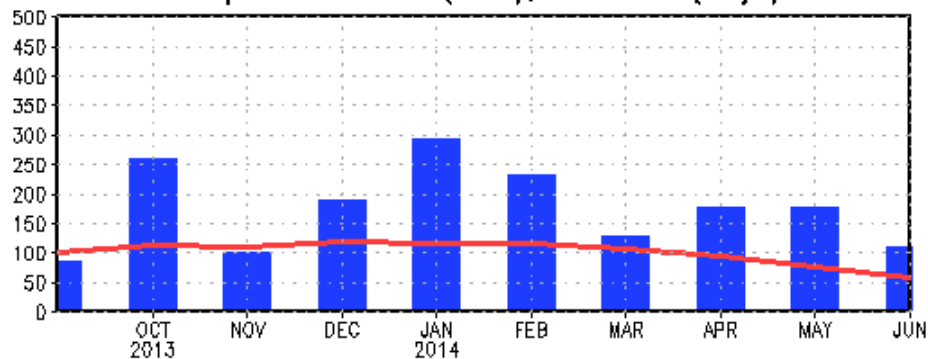


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

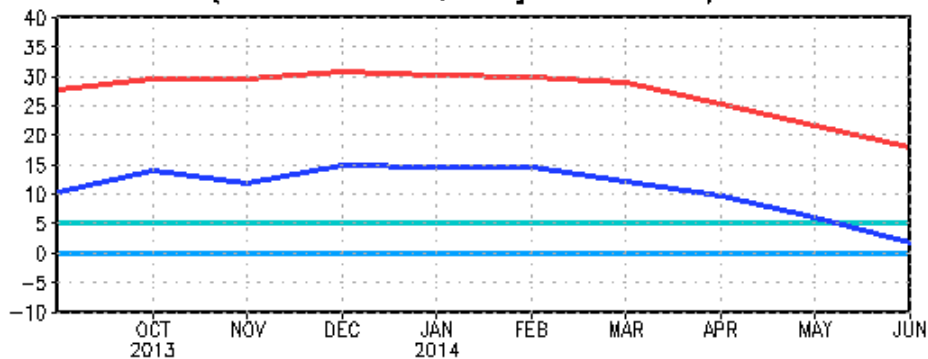


PERSPECTIVA CLIMATICA SANTA RITA (Alto Parana, Paraguay)

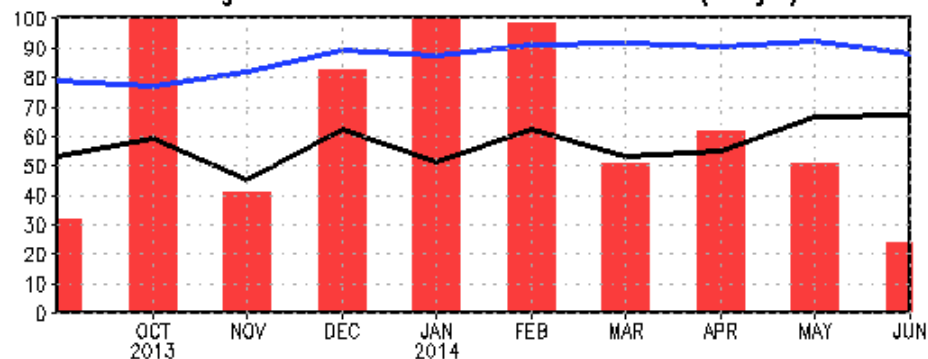
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

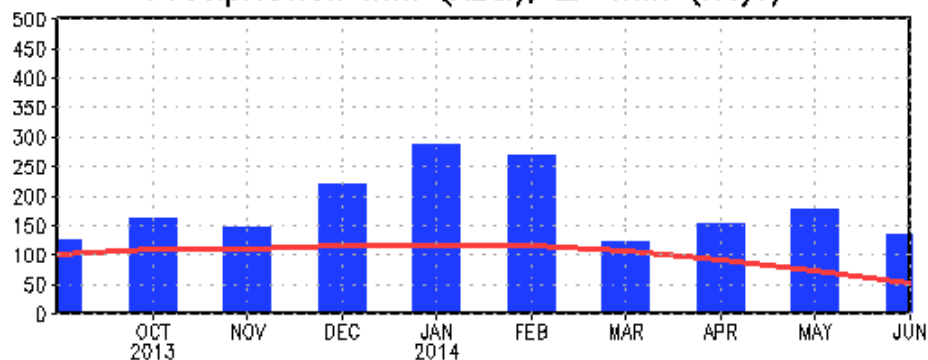


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

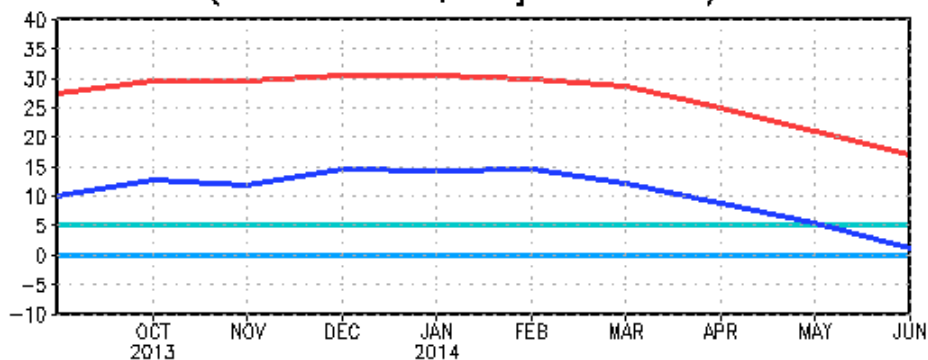


PERSPECTIVA CLIMATICA MARIA AUXILIADORA (Itapua, Paraguay)

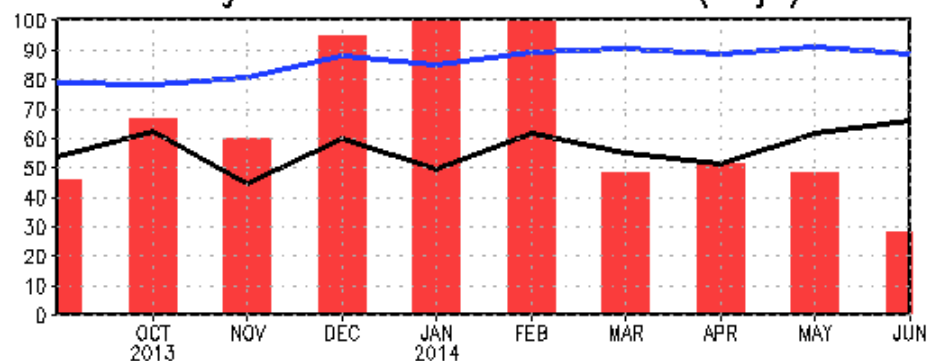
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

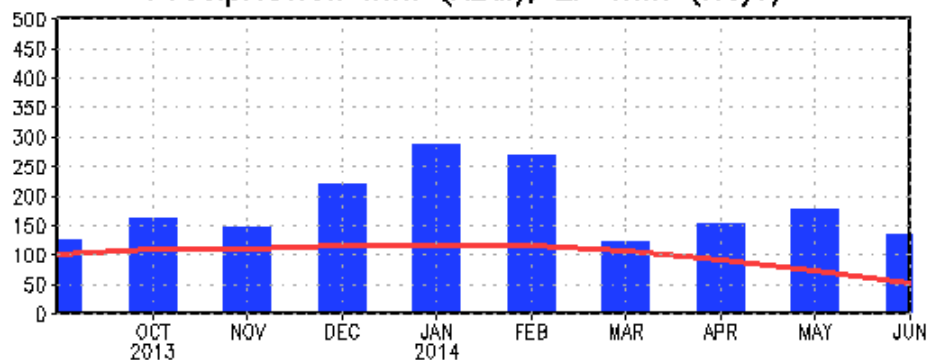


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

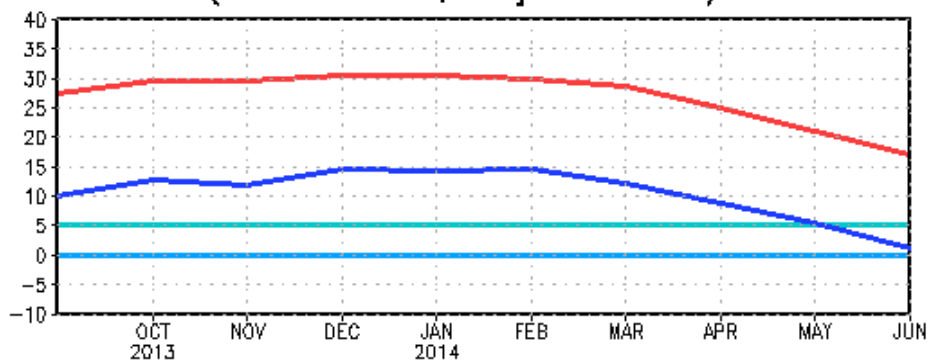


PERSPECTIVA CLIMATICA OBLIGADO (Alto Parana, Paraguay)

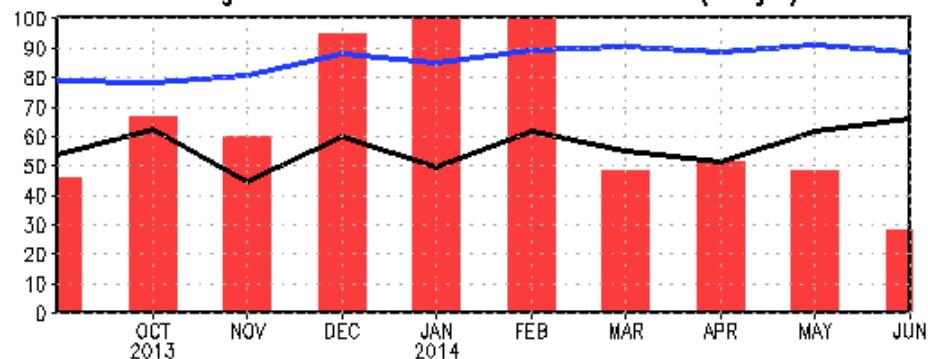
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

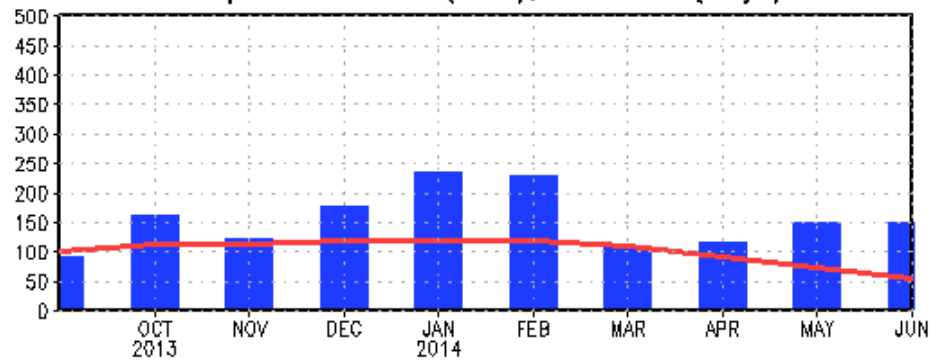


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

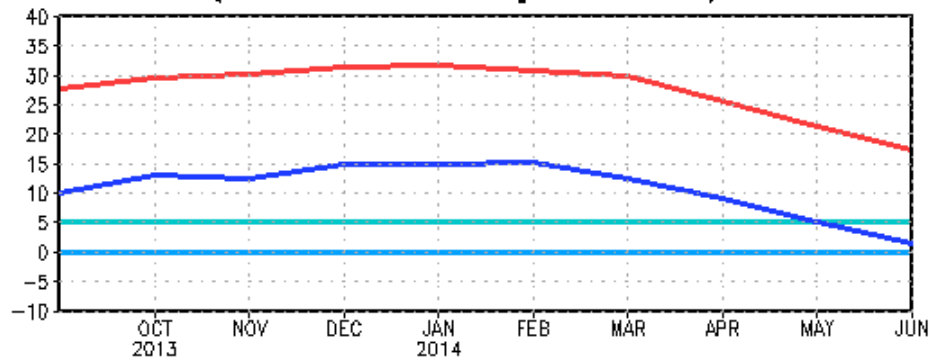


PERSPECTIVA CLIMATICA CAPITAN MIRANDA (itapua, Paraguay)

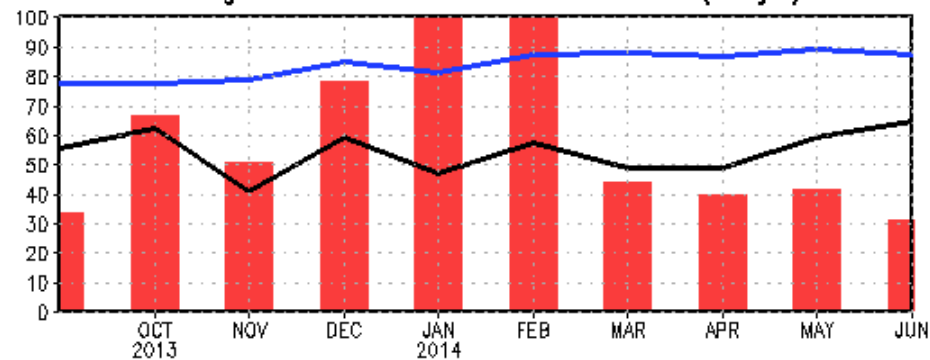
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)

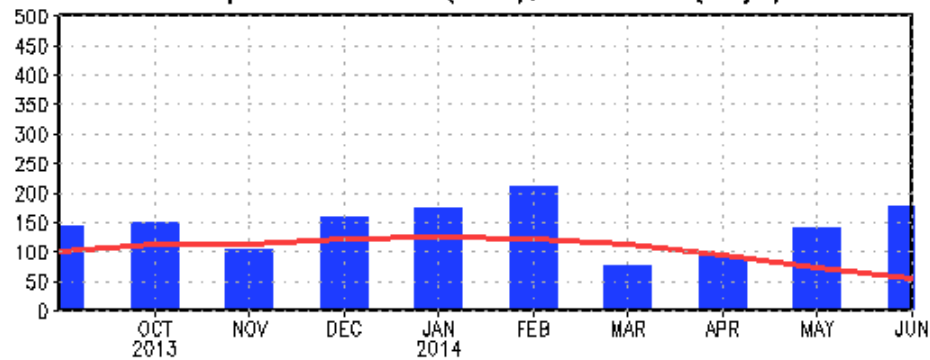


Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)

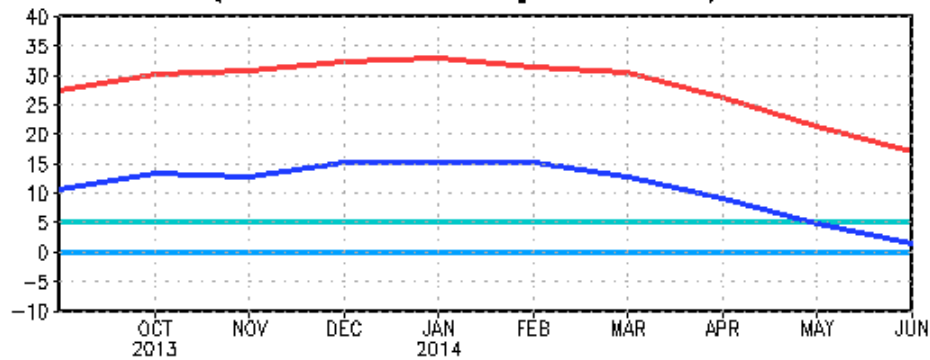


PERSPECTIVA CLIMATICA SAN JUAN BAUTISTA (Misiones, Paraguay)

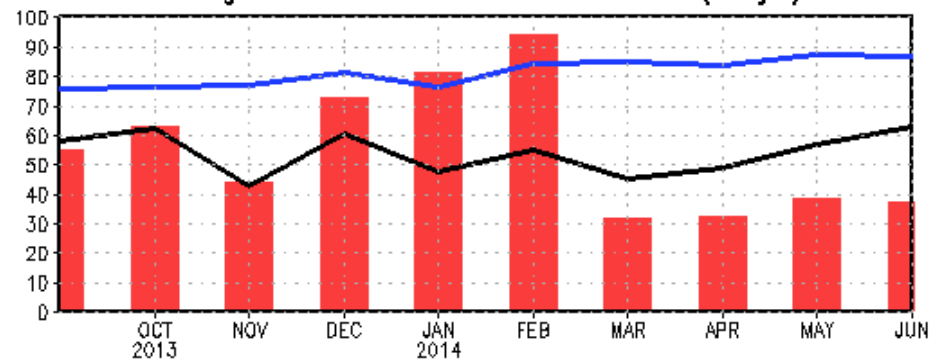
Precipitacion mm (Azul); EP mm (Rojo)



Temperatura Maxima y Minima (Gr.Cent.) (Azul Minima; Rojo Maxima)



Humedad Rel % (Azul), Nubosidad % (Negro) Riesgo Tormentas Severas % (Rojo)



MUCHAS GRACIAS

POR SU ATENCION

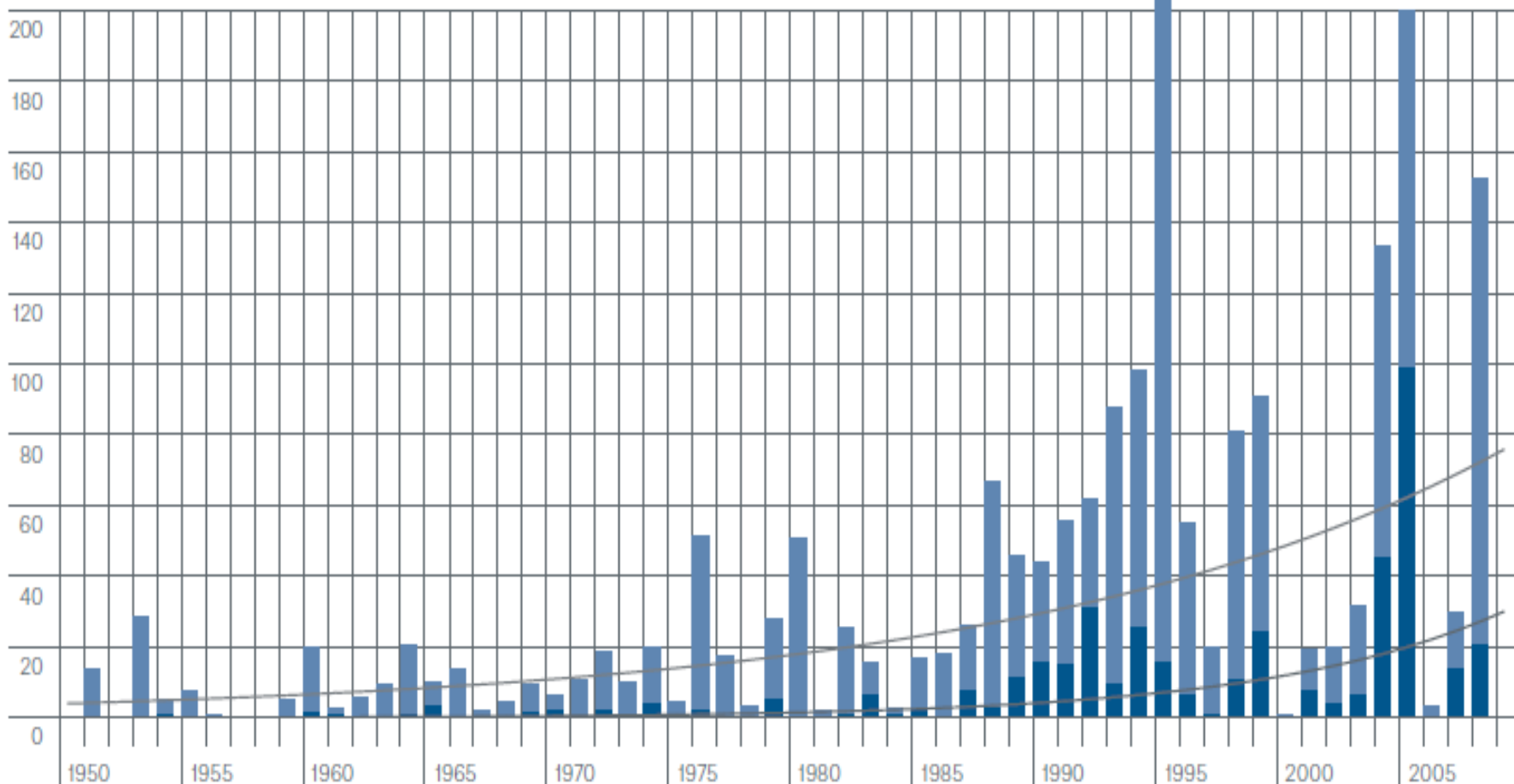
edmasi@fibertel.com.ar

*EL INCREMENTO DE LOS
IMPACTOS PRODUCIDOS POR
FENÓMENOS NATURALES Y
SUS CAUSAS*

OVERALL LOSSES AND INSURED LOSSES - ABSOLUTE VALUES AND LONG-TERM TRENDS

The chart presents the overall losses and insured losses - adjusted to present values.
The trend curves document the increase in losses since 1950.

US\$ bn



- Overall losses (2009 values)
- Of which insured losses (2009 values)
- Trend: overall losses
- Trend: insured losses

PRONÓSTICO: A corto plazo, basado en modelos físicos.

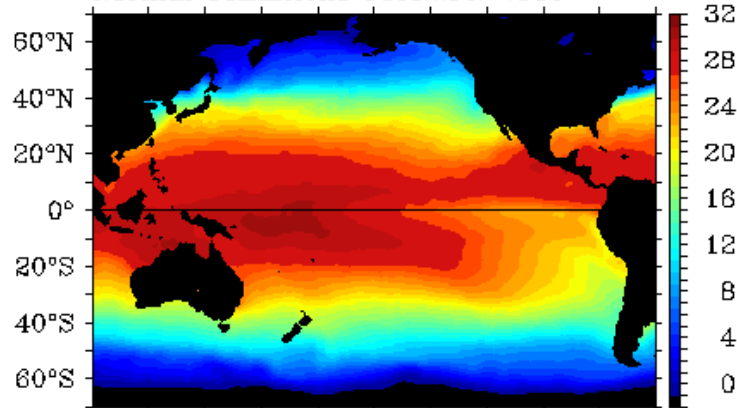
PREVISIÓN/PERSPECTIVA: A mediano y largo plazo, basado en diagnóstico, y modelos estadísticos.

PREVENCIÓN: Lo que se hace para evitar que el pronóstico se cumpla, si es malo, y para ayudar a que se cumpla, si es bueno.

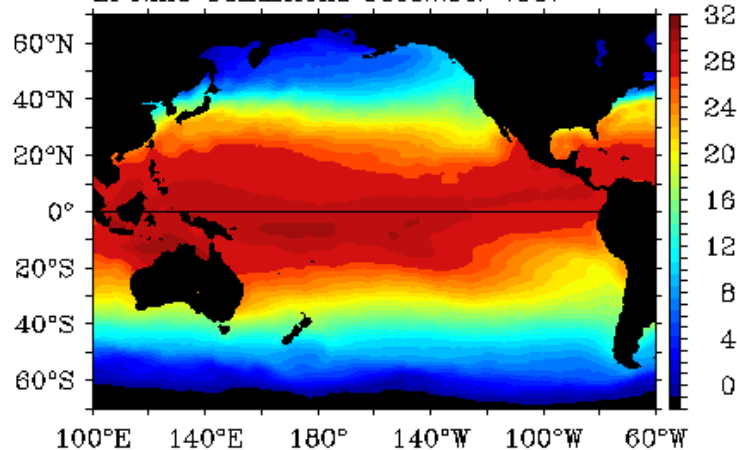
EFFECTOS DE “EL NIÑO”

NORMAL

Normal Conditions December 1990

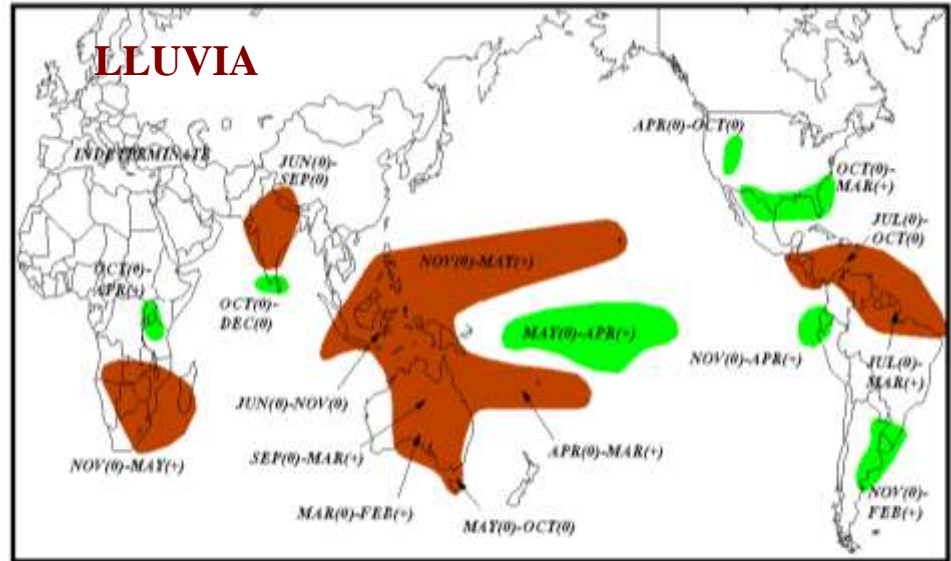


El Nino Conditions December 1997



NIÑO

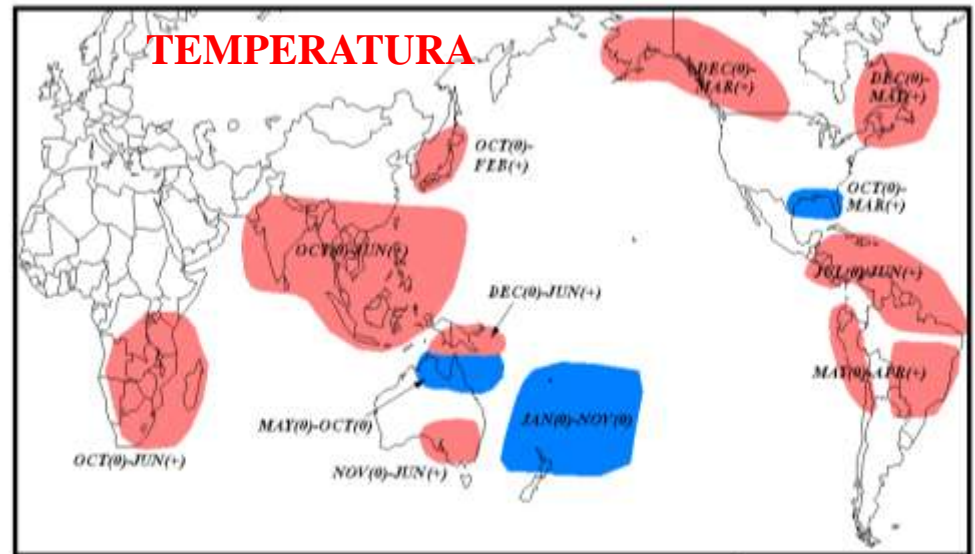
LLUVIA



■ WET ■ DRY (0) = YEAR OF EL NIÑO
 (+) = YEAR FOLLOWING EL NIÑO

Prepared by the Joint Agricultural Weather Facility
 Source: Ropelewski and Halpert, 1987. Monthly Weather Review, (115) p. 1606-1626.

TEMPERATURA

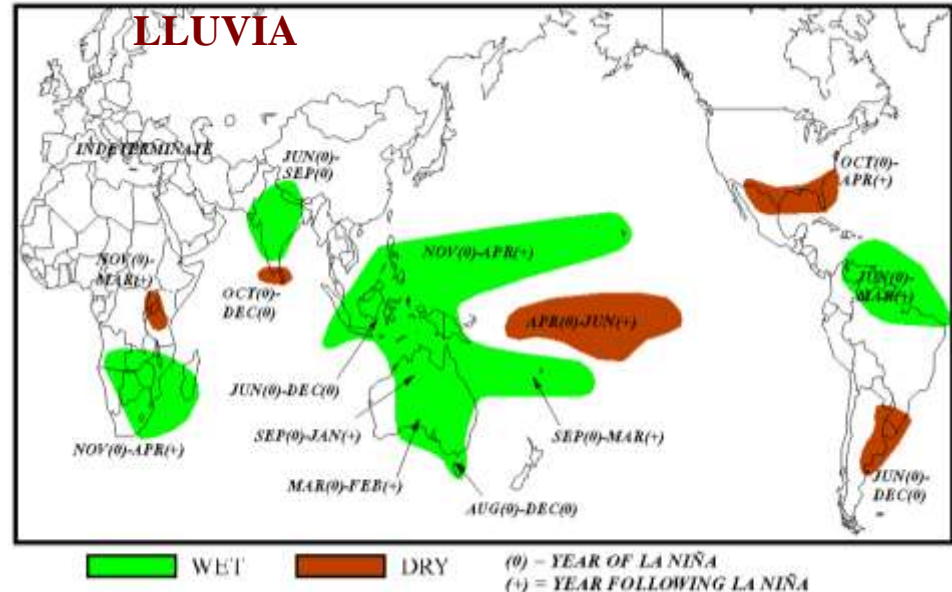


■ WARM ■ COOL (0) = YEAR OF EL NIÑO
 (+) = YEAR FOLLOWING EL NIÑO

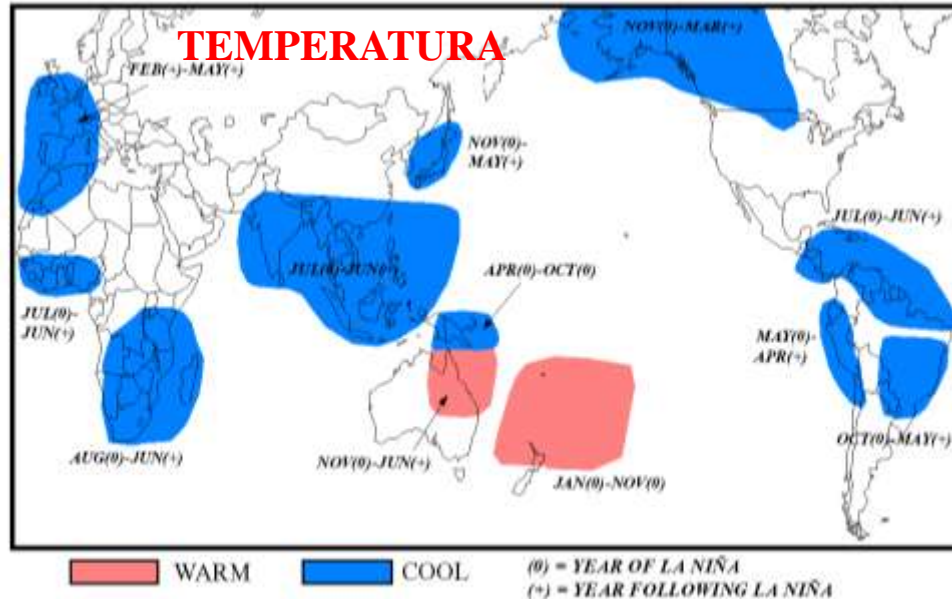
Prepared by the Joint Agricultural Weather Facility
 Source: Halpert and Ropelewski, 1992. Journal of Climate, (5) p. 577-593.

EFFECTOS DE “LA NIÑA”

NIÑA

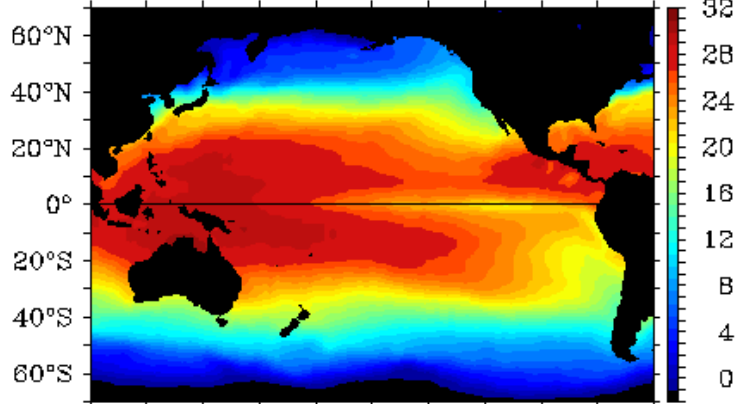


Prepared by the Joint Agricultural Weather Facility
 Source: Ropelewski and Halpert, 1988. Journal of Climate, (2) p. 288-294.

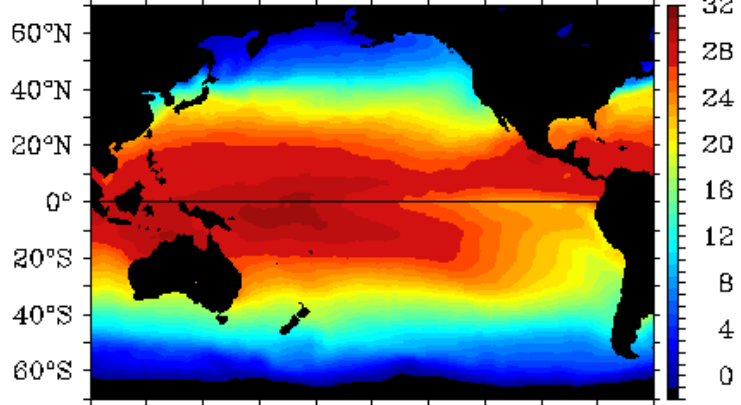


Prepared by the Joint Agricultural Weather Facility
 Source: Halpert and Ropelewski, 1992. Journal of Climate, (5) p. 577-593.

Reynolds Monthly SST (°C)
 La Nina Conditions December 1988

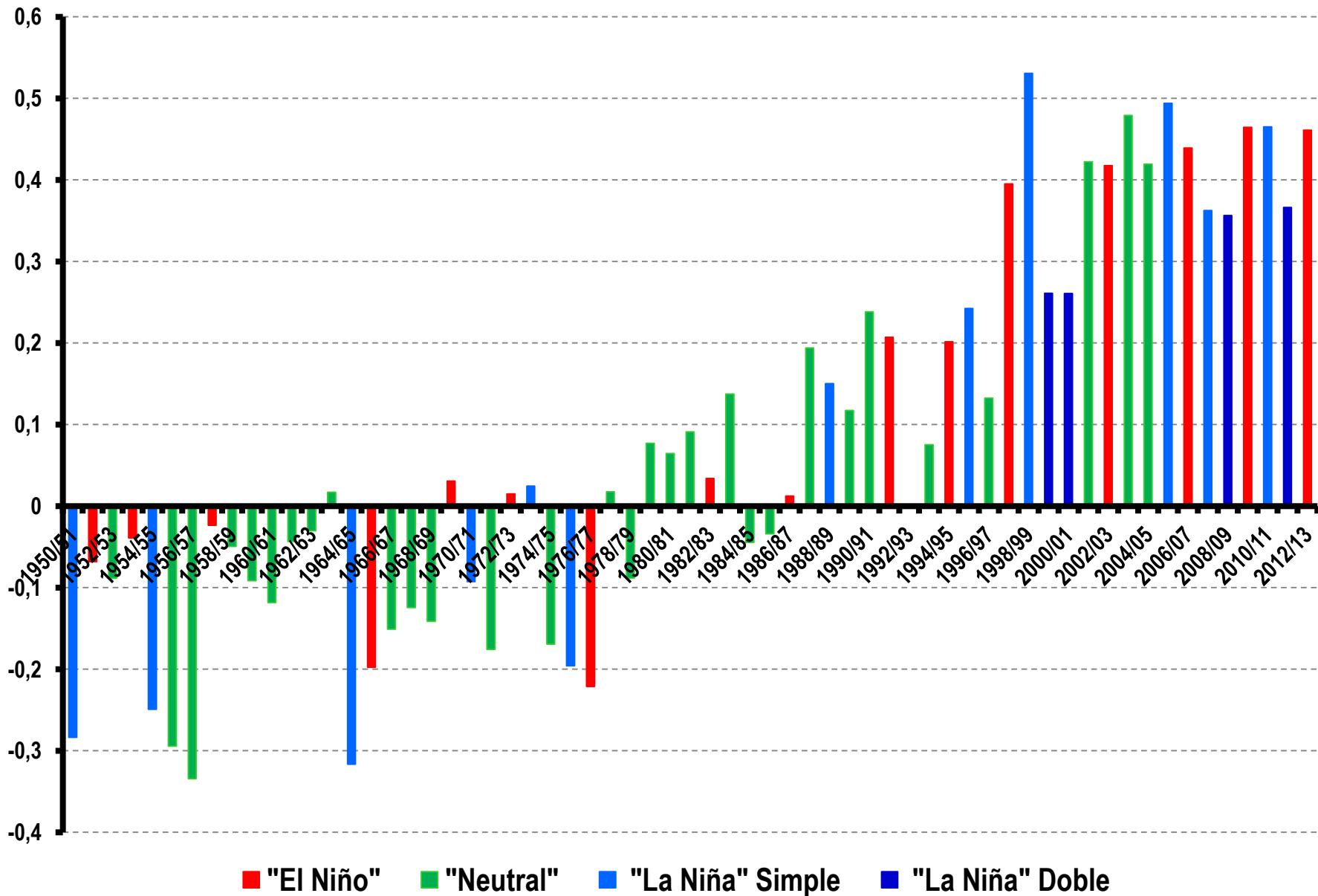


Normal Conditions December 1990

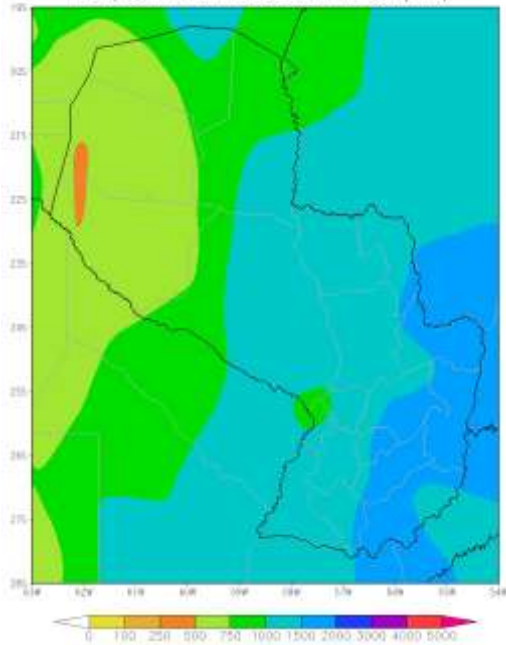


NORMAL

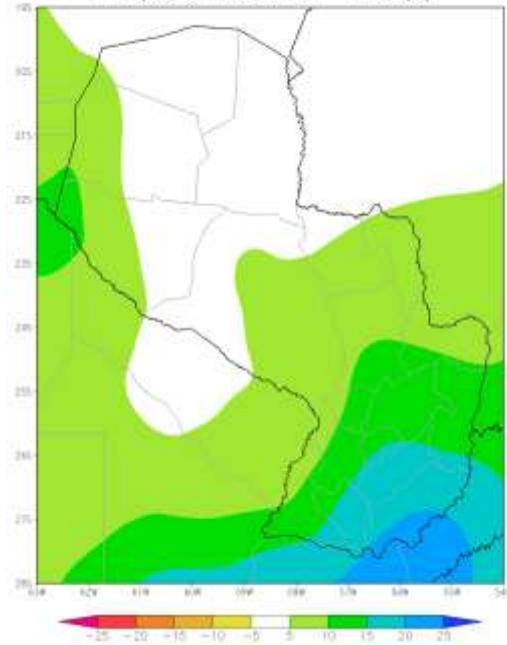
ANOMALÍA GLOBAL DE TEMPERATURA ABRIL-MARZO (°C)



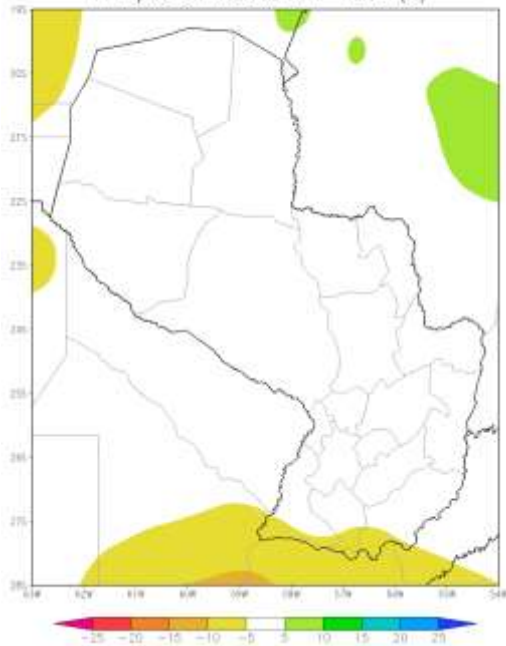
PROMEDIO 2001/2002-2012/2013
Precipitación Acumulada Abril-Marzo (mm)



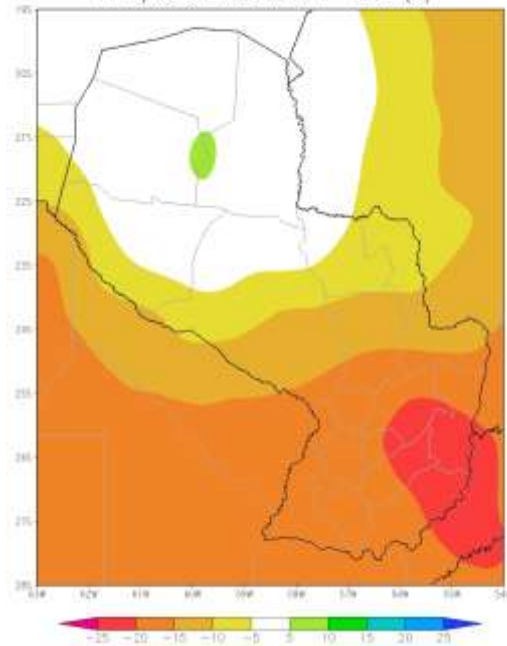
EL NINO
Precipitación Relativa Abril-Marzo (%)



LA NINA SIMPLE
Precipitación Relativa Abril-Marzo (%)

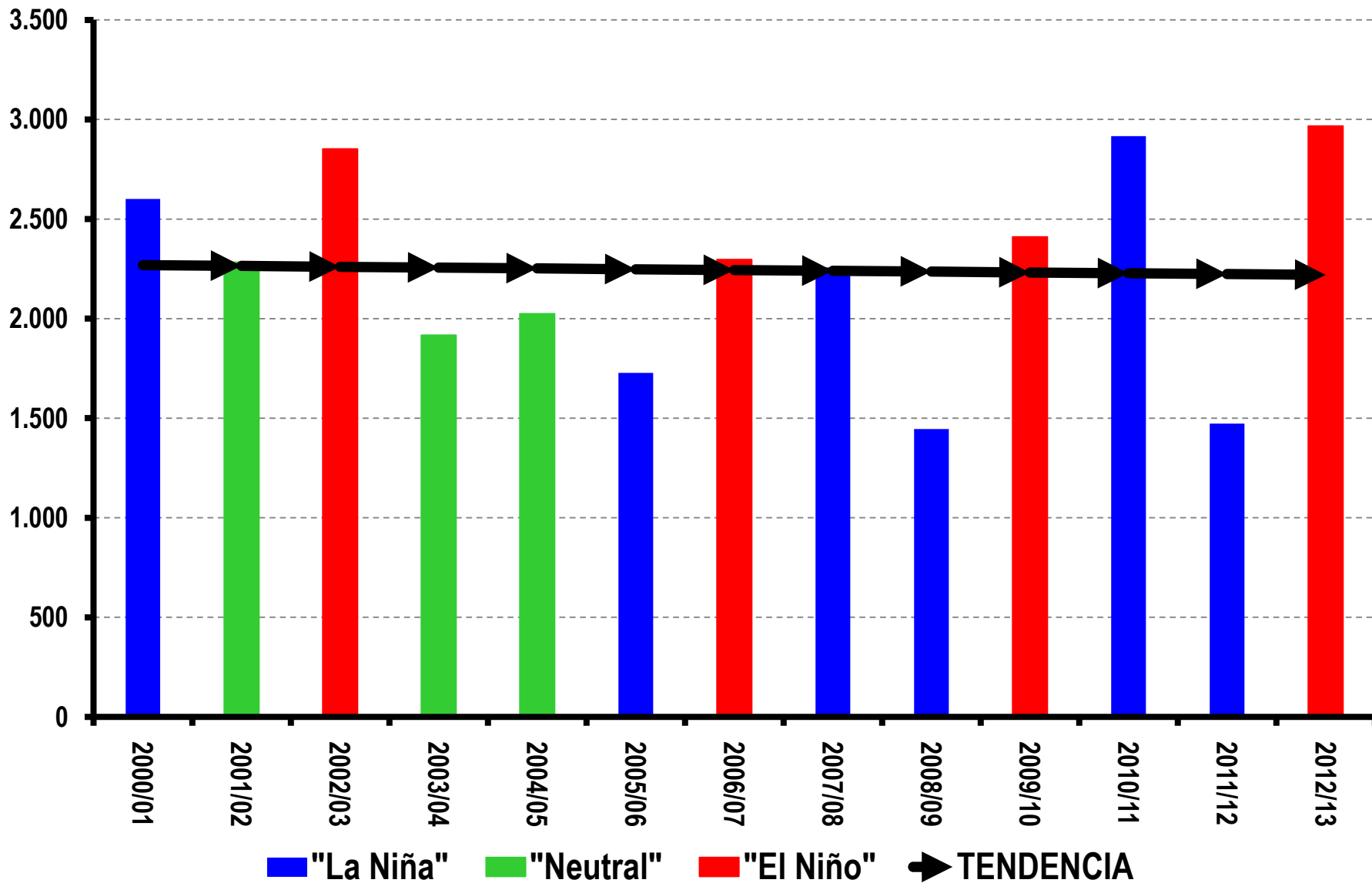


LA NINA DOBLE
Precipitación Relativa Abril-Marzo (%)



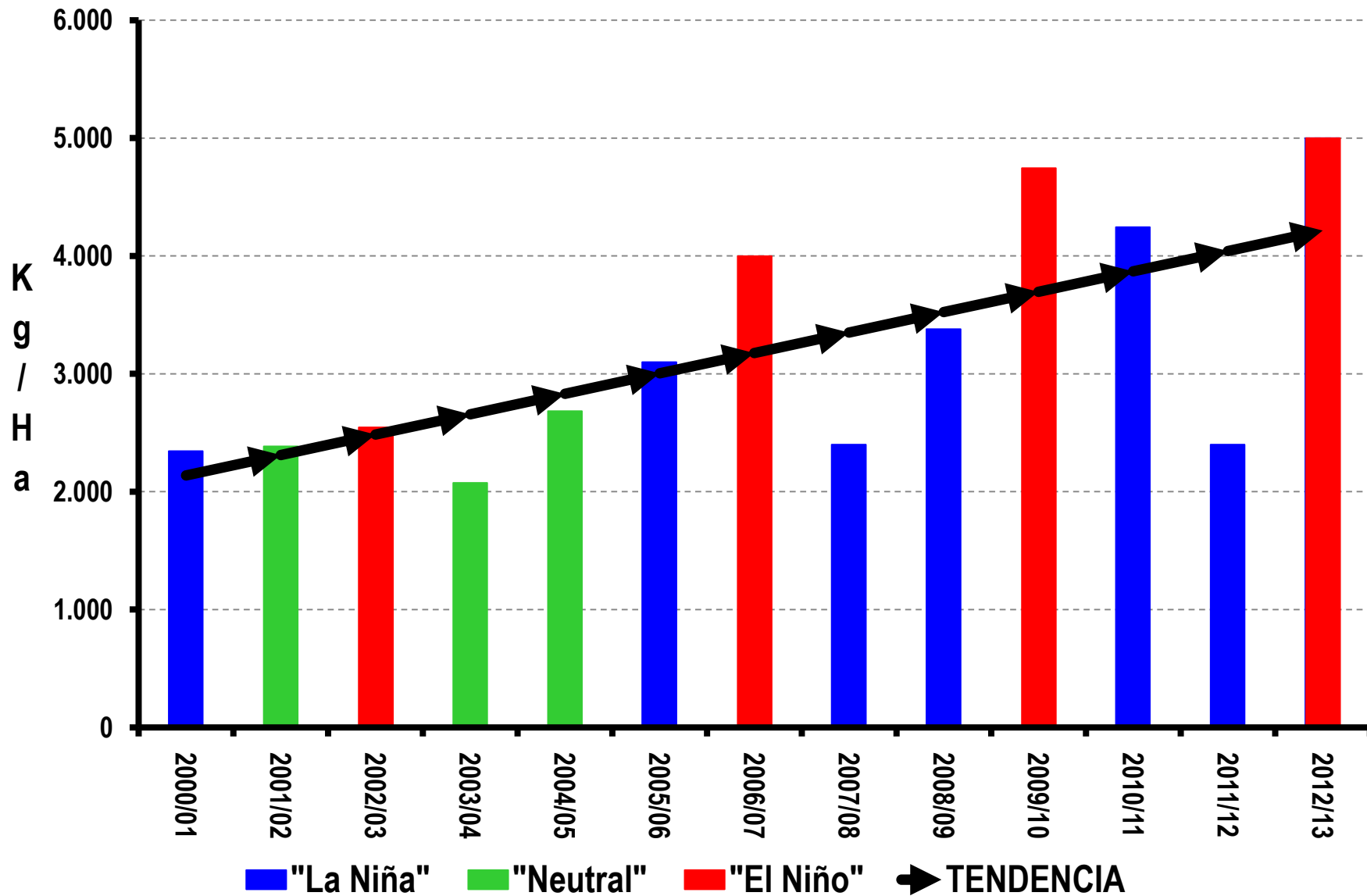
RENDIMIENTO NACIONAL DE LA SOJA OBSERVADO (Kg/Ha)

$r = -0.031$; Pendiente = -4 Kg/Ha Año



RENDIMIENTO NACIONAL DEL MAIZ OBSERVADO (Kg/Ha)

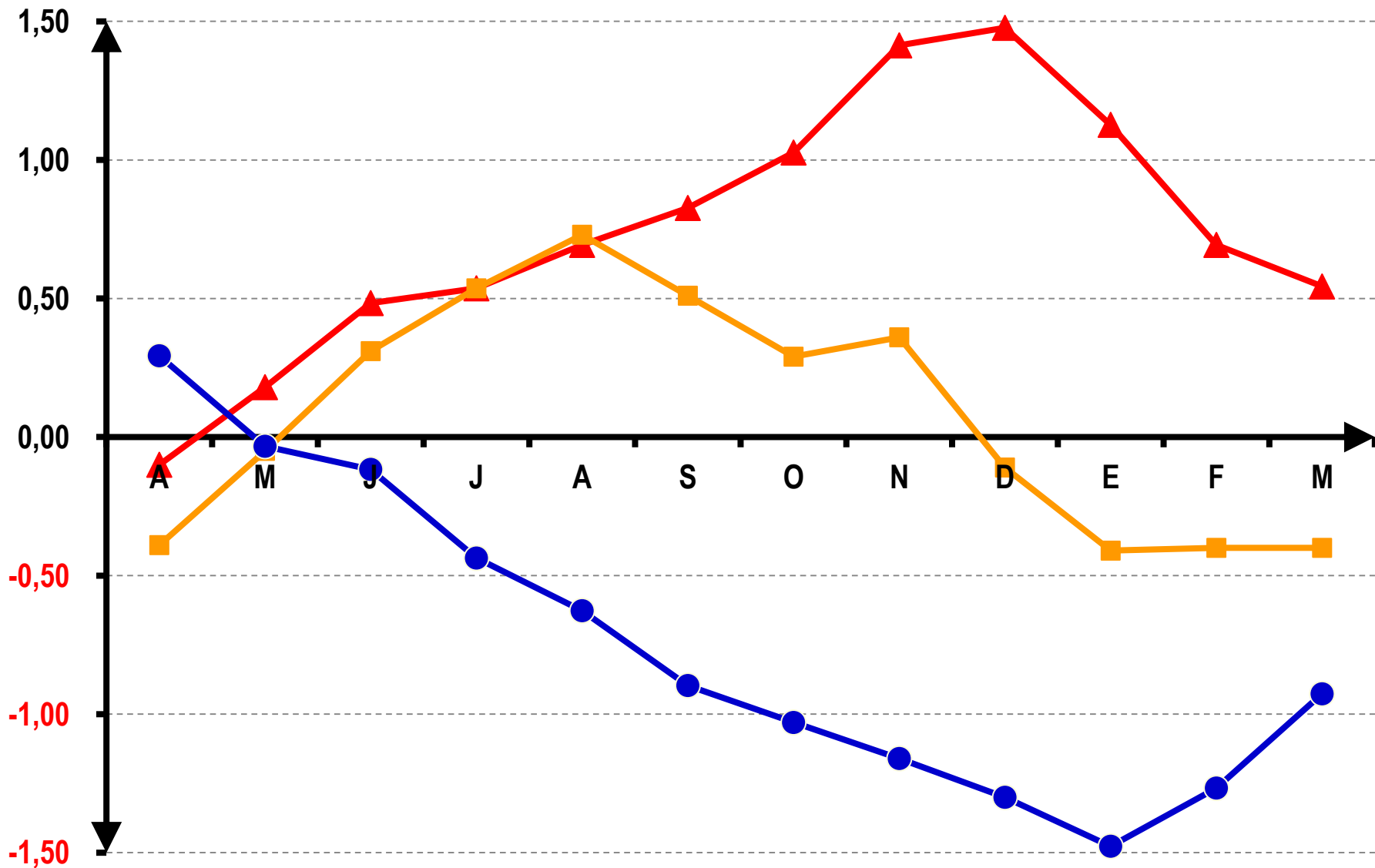
$r = 0.673$; Pendiente = 173 Kg/Ha Año



CAMPAÑA 2012/2013

**NUEVOS FACTORES
INCREMENTAN LA
INESTABILIDAD
CLIMÁTICA**

EVOLUCIÓN DEL ENSO 2012/2013

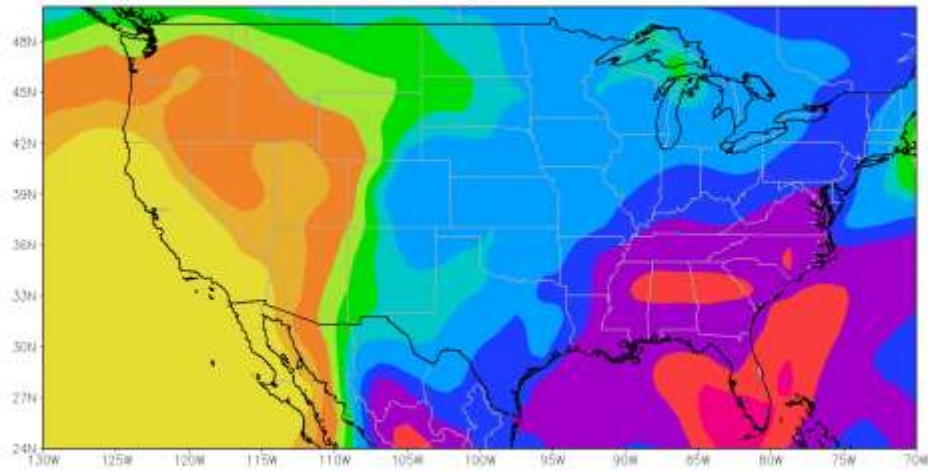


▲ "El Niño" Promedio

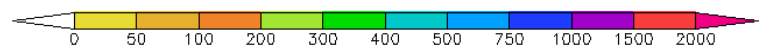
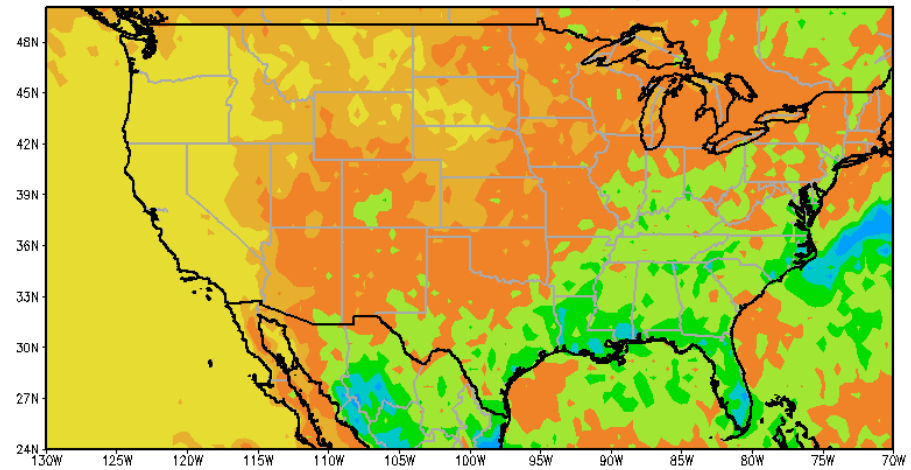
■ "El Niño" 2012/2013

● "La Niña" Promedio

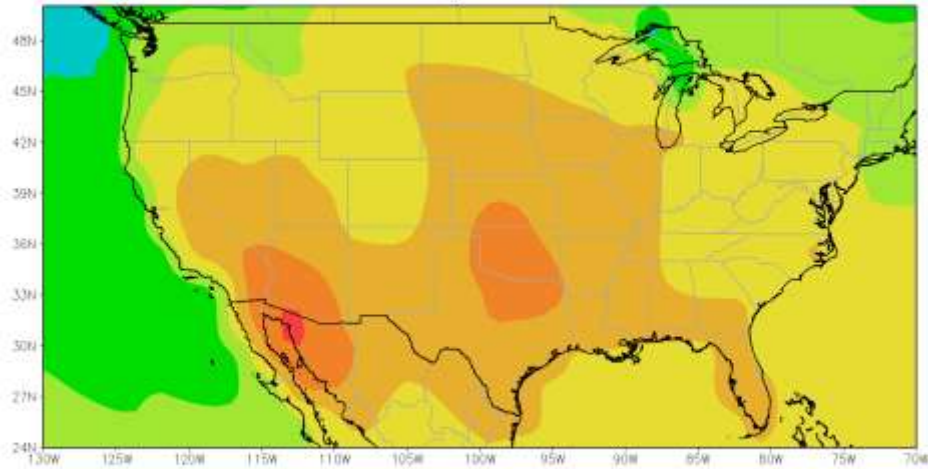
PRECIPITACION JULIO-SEPTIEMBRE (mm)
General Average 1997-2012



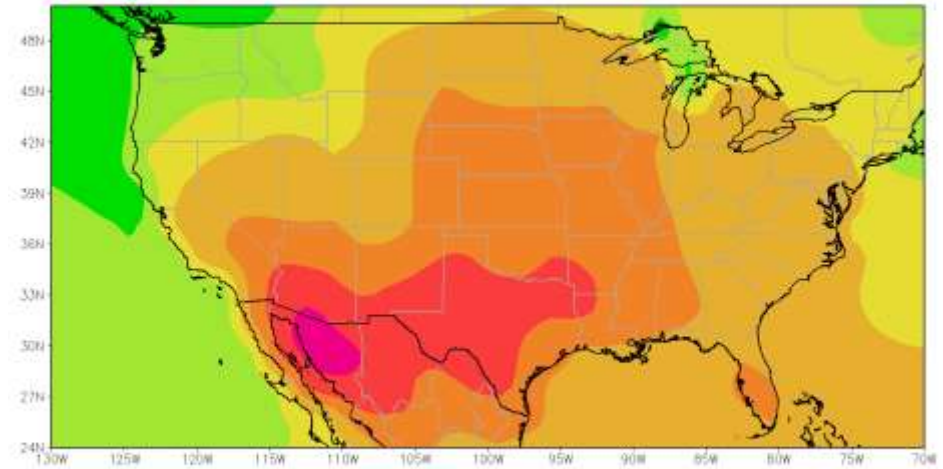
PP OBSERVADA JULIO-SEPTIEMBRE 2012
Precipitación Acumulada (mm)



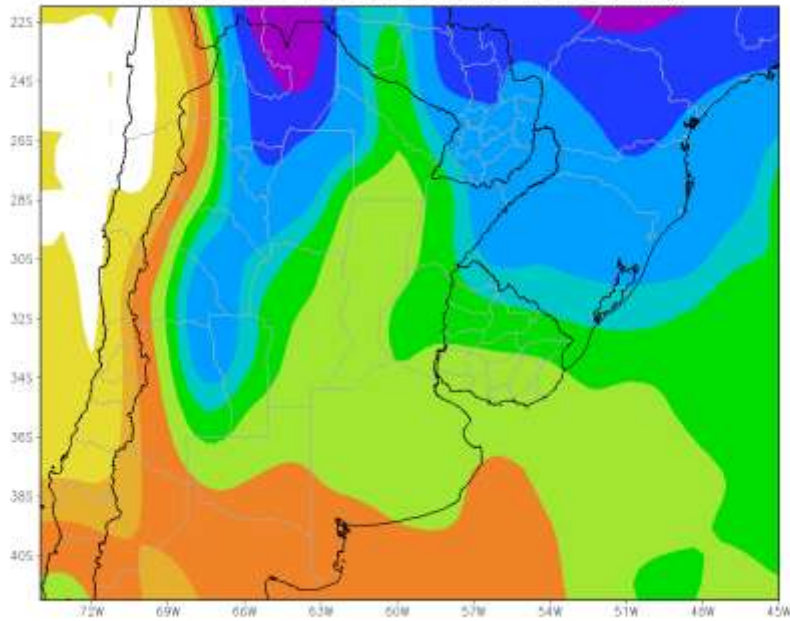
TEMPERATURA MAXIMA JULIO (GC)
Gral Average 1997-2012



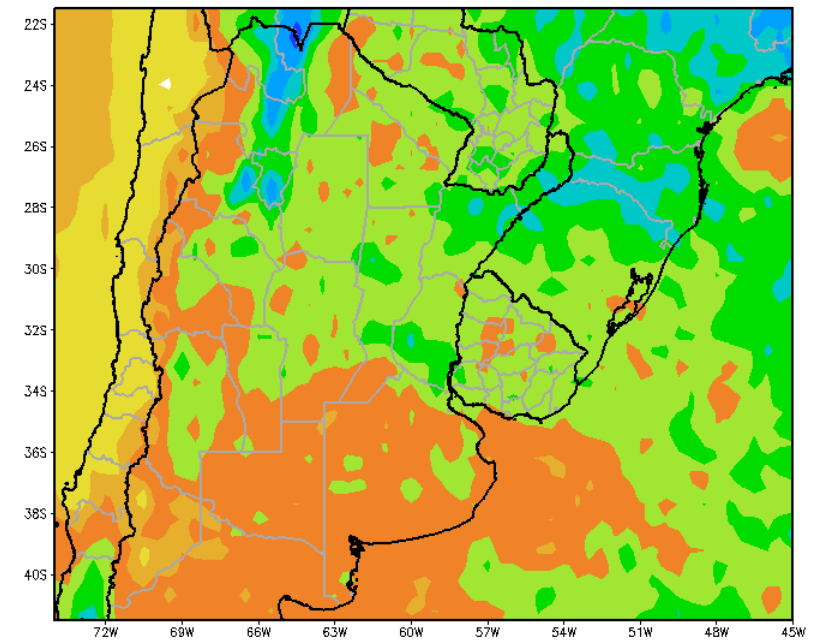
TEMPERATURA MAXIMA JULIO (GC)
"La Nina" 2011-2012



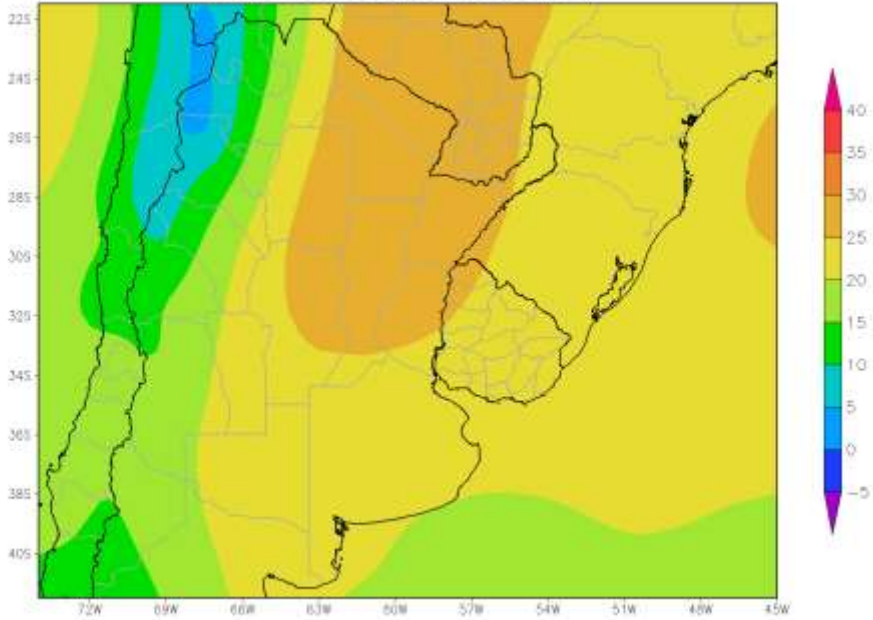
PROMEDIO 2001/2002 – 2010/2011
Precipitación Acumulada Enero-Marzo (mm)



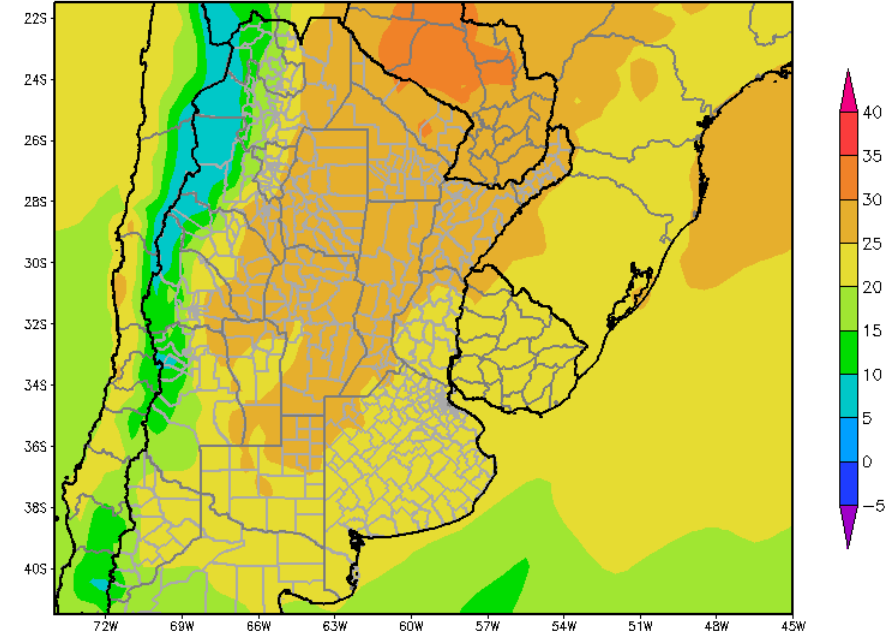
CONDICIONES OBSERVADAS ENERO – MARZO 2013
Precipitación Acumulada (mm)



PROMEDIO 2001/2001 - 2010/2011
Temperatura Enero-Marzo (GC)



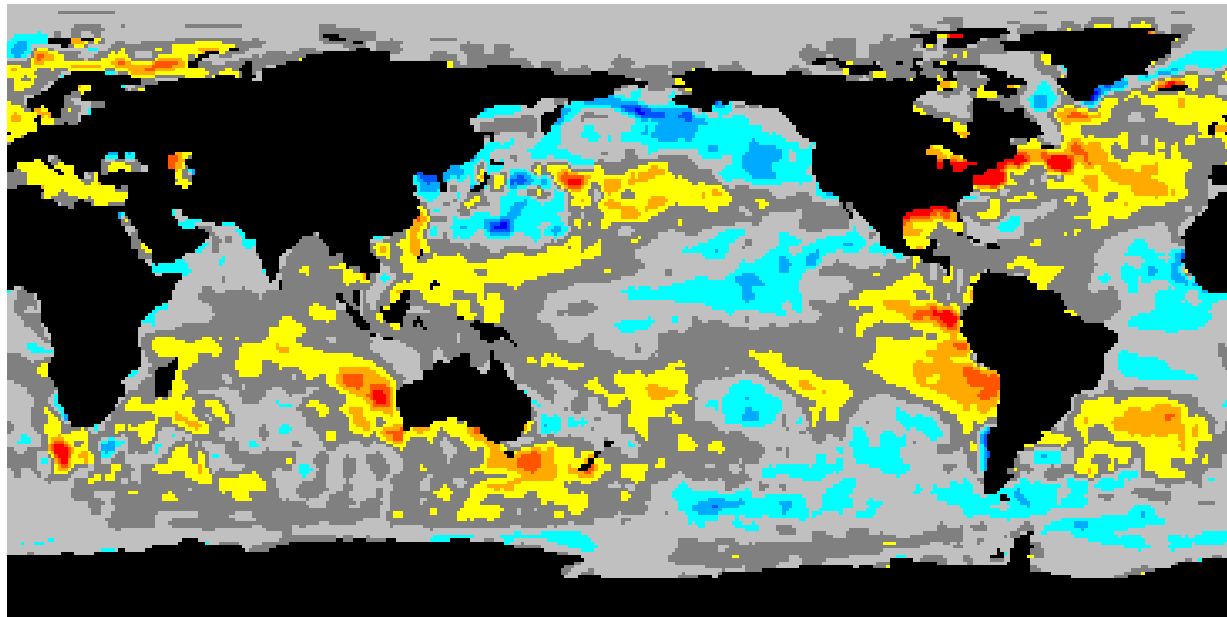
CONDICIONES OBSERVADAS ENERO-MARZO 2013
Temperatura Media (GC)



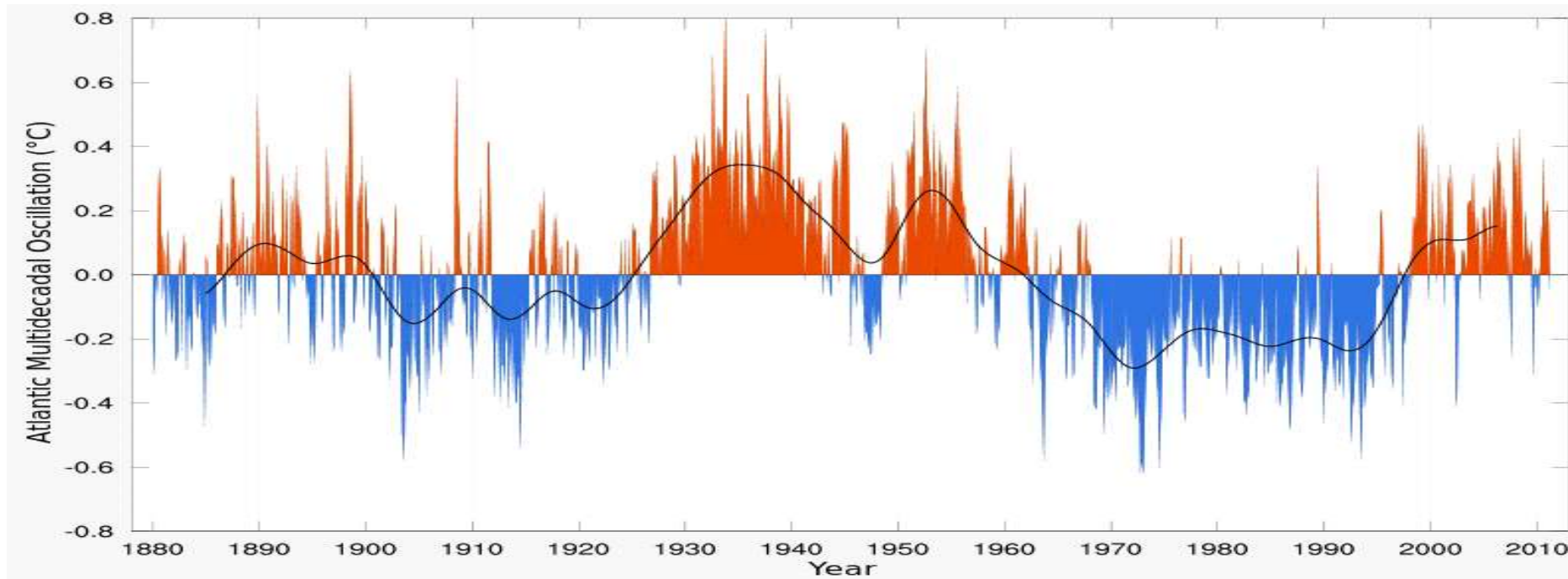
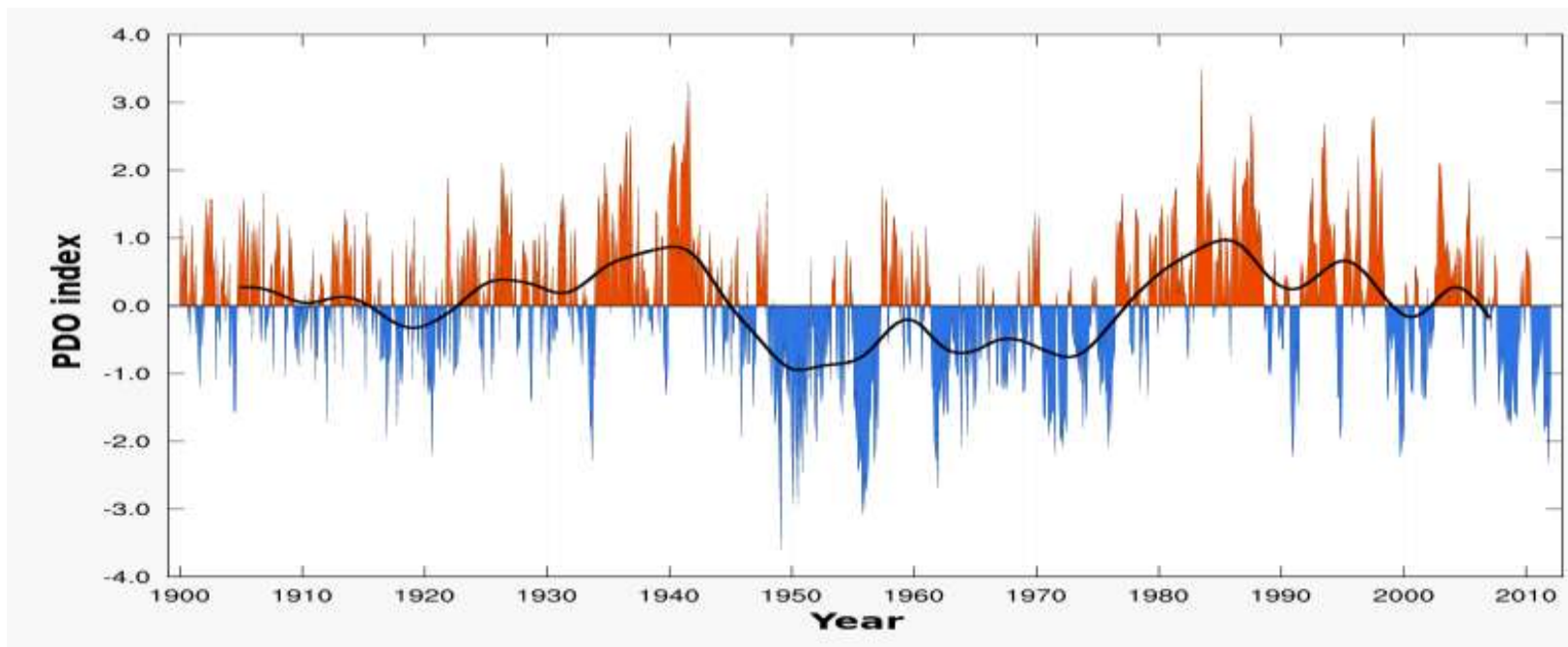
ESTIMACIONES MAIZ USDA (Millones Tm)				
REGION	USDA MAYO 2012	USDA AGOSTO 2012	USDA MARZO 2013	BCBA MARZO 2013
MUNDO	945.78	905.23	854.38	
USA	375.68	273.79	273.83	
BRASIL	67.00	67.00	72.50	
ARGENTINA	25.00	28.00	26.50	25.00

ESTIMACIONES SOJA USDA (Millones Tm)				
REGION	USDA MAYO 2012	USDA AGOSTO 2012	USDA MARZO 2013	BCBA MARZO 2013
MUNDO	271.74	267.16	268.00	
USA	87.23	83.01	82.06	
BRASIL	78.00	81.00	83.50	
ARGENTINA	55.00	55.00	51.50	48.50

Variation of Sea-surface Temperature from Average April 2012



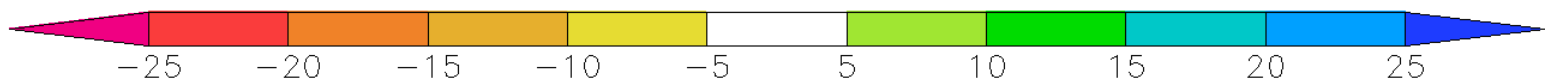
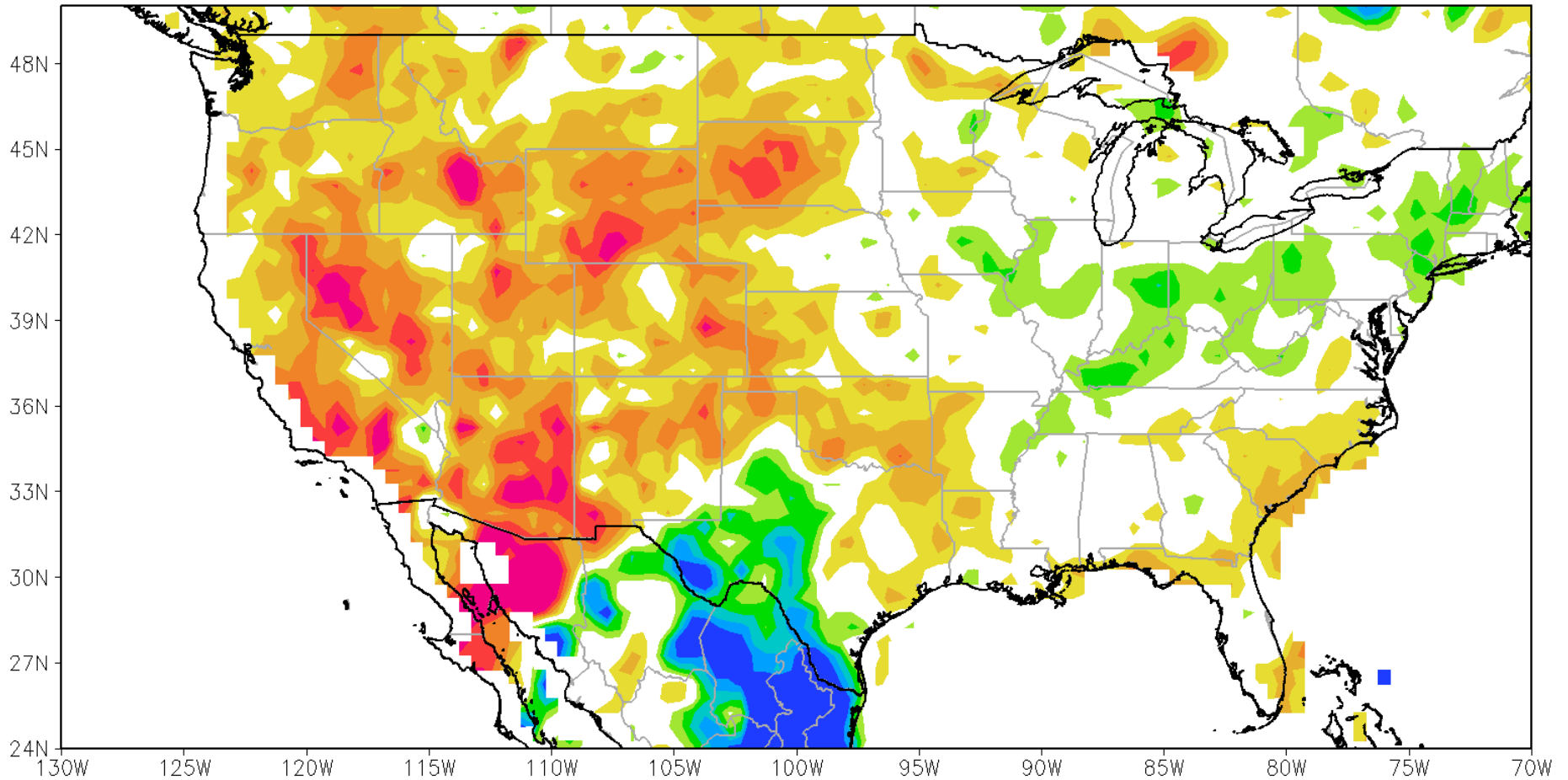
- Less than 2 below
- 2 to 1.5 below
- 1.5 to 1 below
- 1 to 0.5 below
- 0.5 to 0 below
- 0 to 0.5 above
- 0.5 to 1 above
- 1 to 1.5 above
- 1.5 to 2 above
- Greater than 2 above



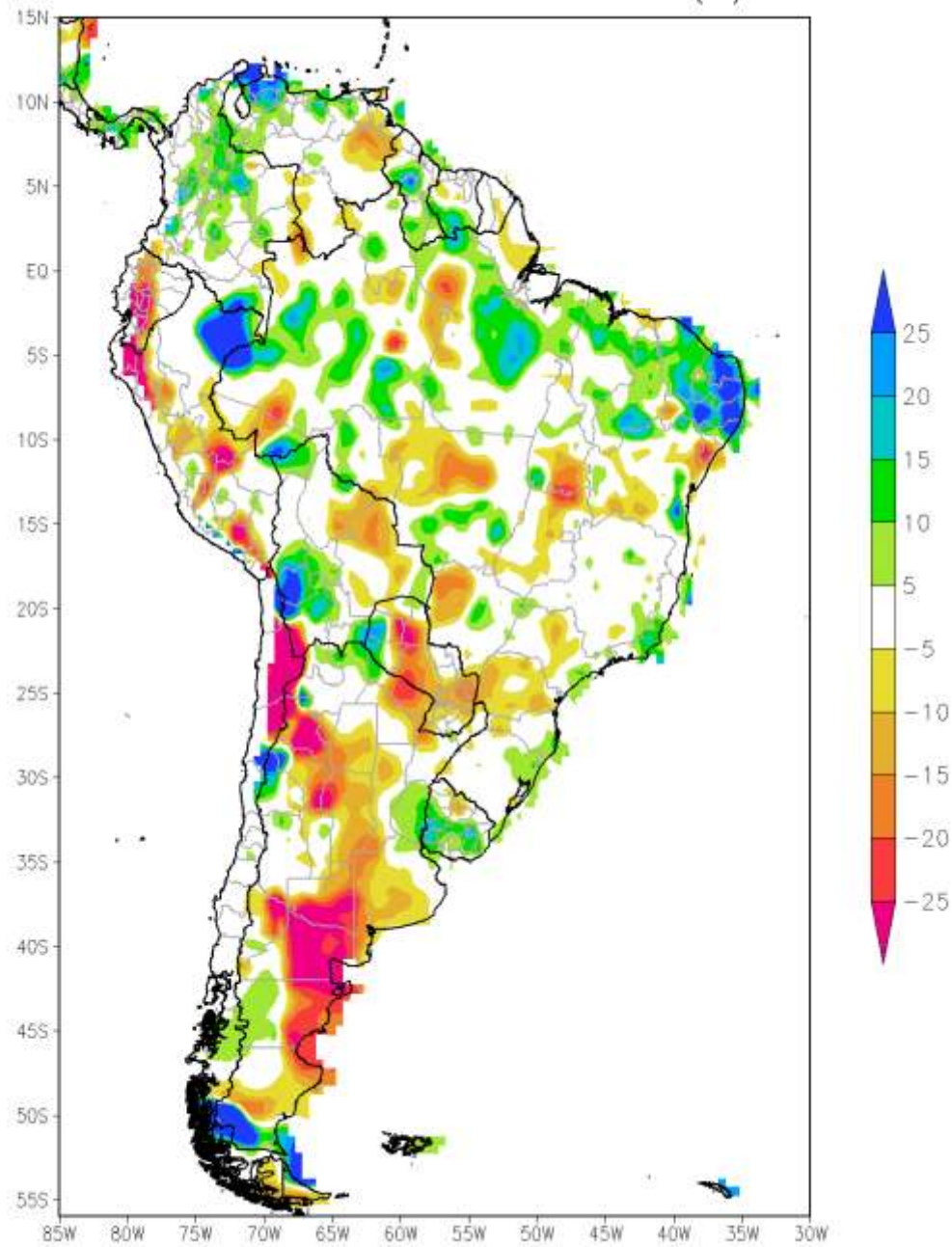


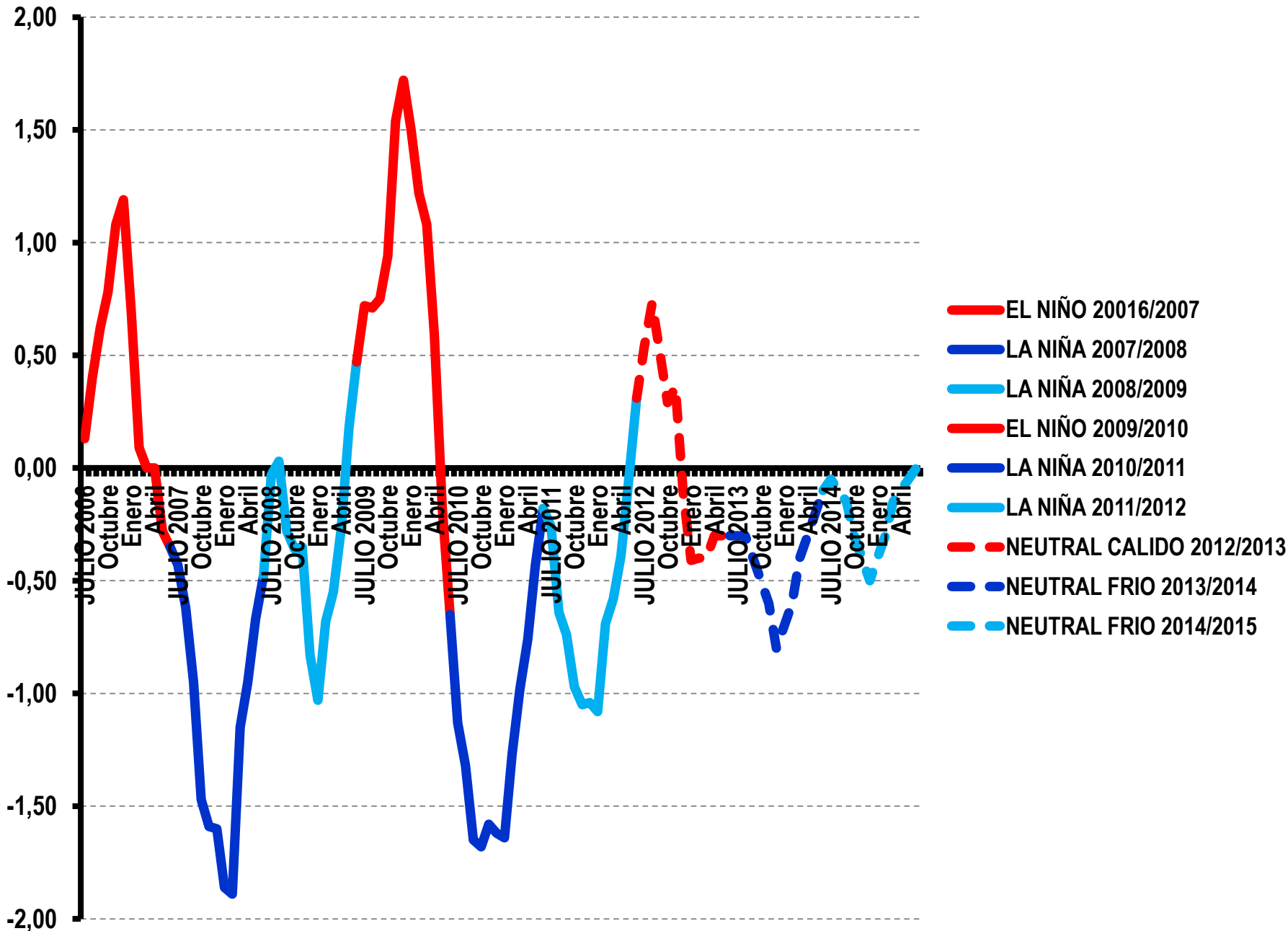
DUST BOWL: Black Sunday, April 14, 1935

CAMBIO EN LAS PRECIPITACIONES ANUALES 1991-2000 VERSUS 2001-2010 (%)



CAMBIO EN LAS PRECIPITACIONES ANUALES 1991-2000 VERSUS 2001-2010 (%)





NUEVO ESCENARIO CLIMÁTICO

- a) Los "El Niño" van a ser menos vigorosos y las "La Niña" van a ser más fuertes.
- b) Aumento de las precipitaciones en el este del área agrícola y disminución en el centro y el oeste.
- c) Régimen térmico riguroso.