

Clima Argentino

*B
i
o
c
l
i
m
a
t
o
l
o
g
i
a*

*A
g
r
o
c
l
i
m
a
t
o
l
o
g
i
a*



Equipo docente:
Rafael Hurtado
Mónica Valdiviezo Corte
Carla Moreno
Fabio Alabar
María Rivera Funes

Facultad de Ciencias Agrarias
U.N.Ju.

**¿Como es el CLIMA
ARGENTINO?**

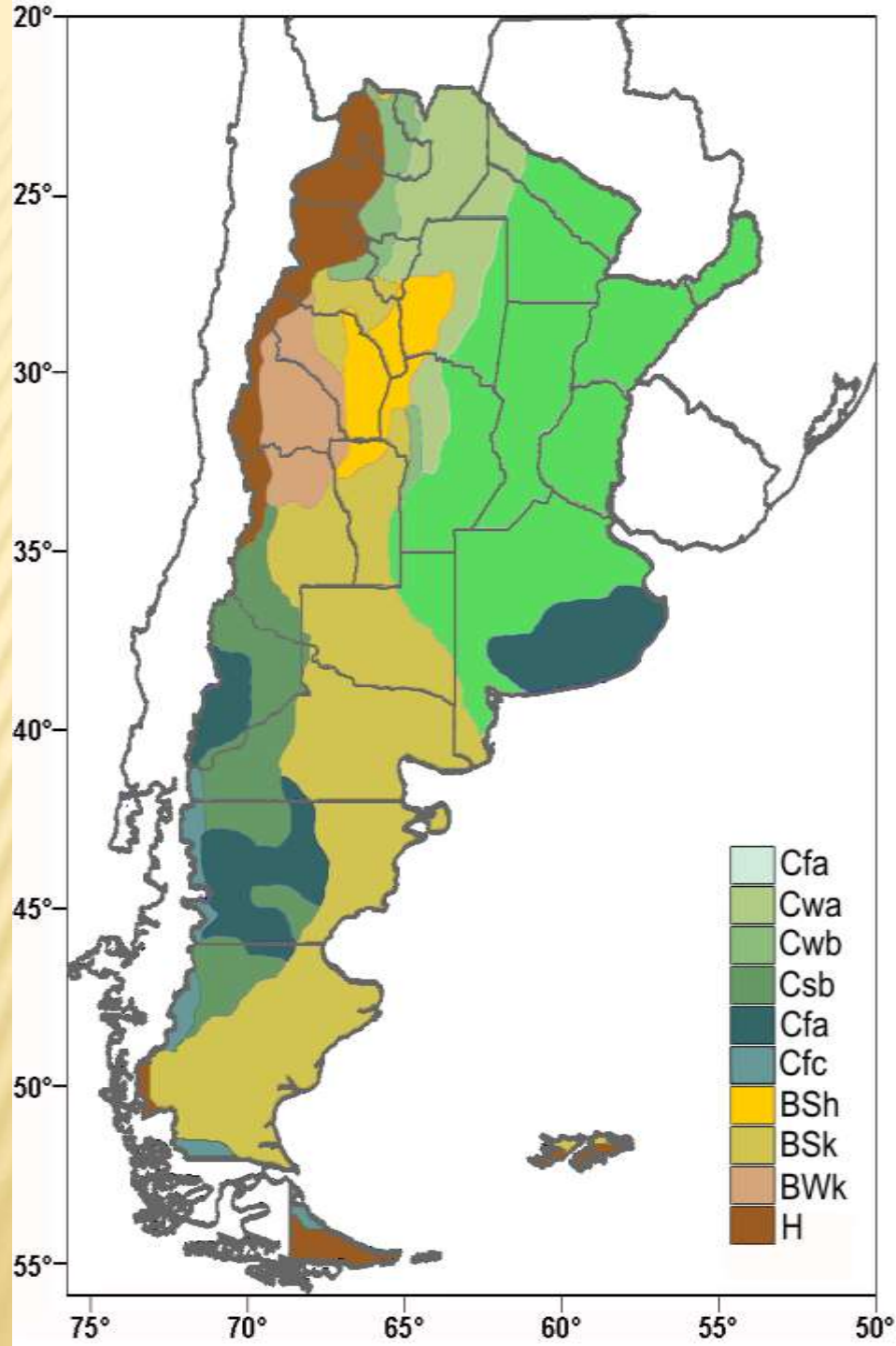
TEMPLADO

OCEANICO

¿Y la variabilidad??

¿Tiene todos los climas??

Clasificación de Koeppen



Faltan los climas **A** y **D**.
No existen todos los climas

A: Ecuatoriales o tropicales
D: Climas fríos (bosques de coníferas)

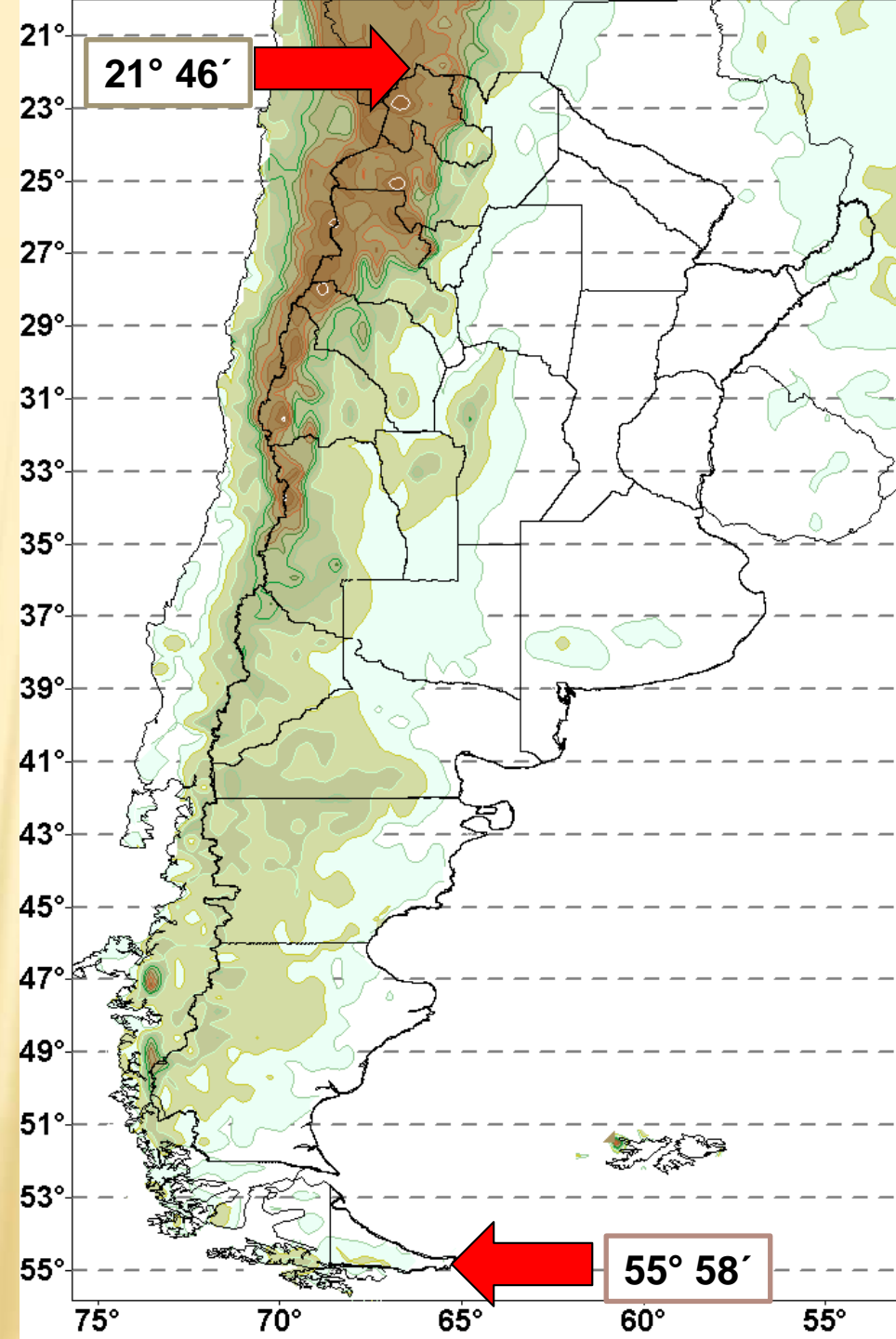
El clima Argentino

Conjunto de fenómenos que caracterizan el estado medio de la atmósfera en la Argentina

FACTORES QUE DETERMINAN EL CLIMA DE LA ARGENTINA

- 1. Latitud**
- 2. Circulación general de la atmósfera**
- 3. Continentalidad - Oceanidad**
- 4. Relieve**
- 5. Corrientes marinas**

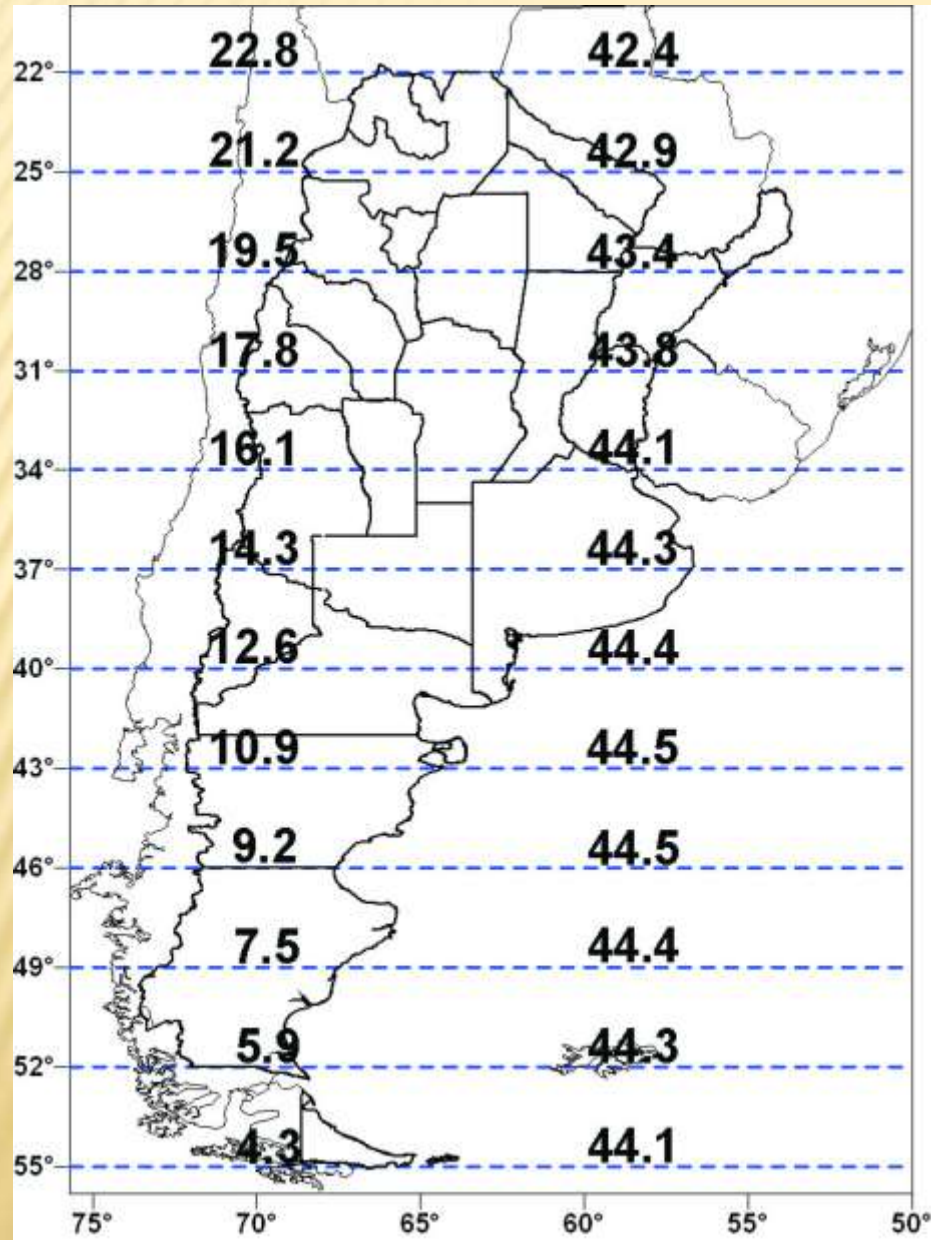
■ 1. Latitud



Radiación astronómica

Junio

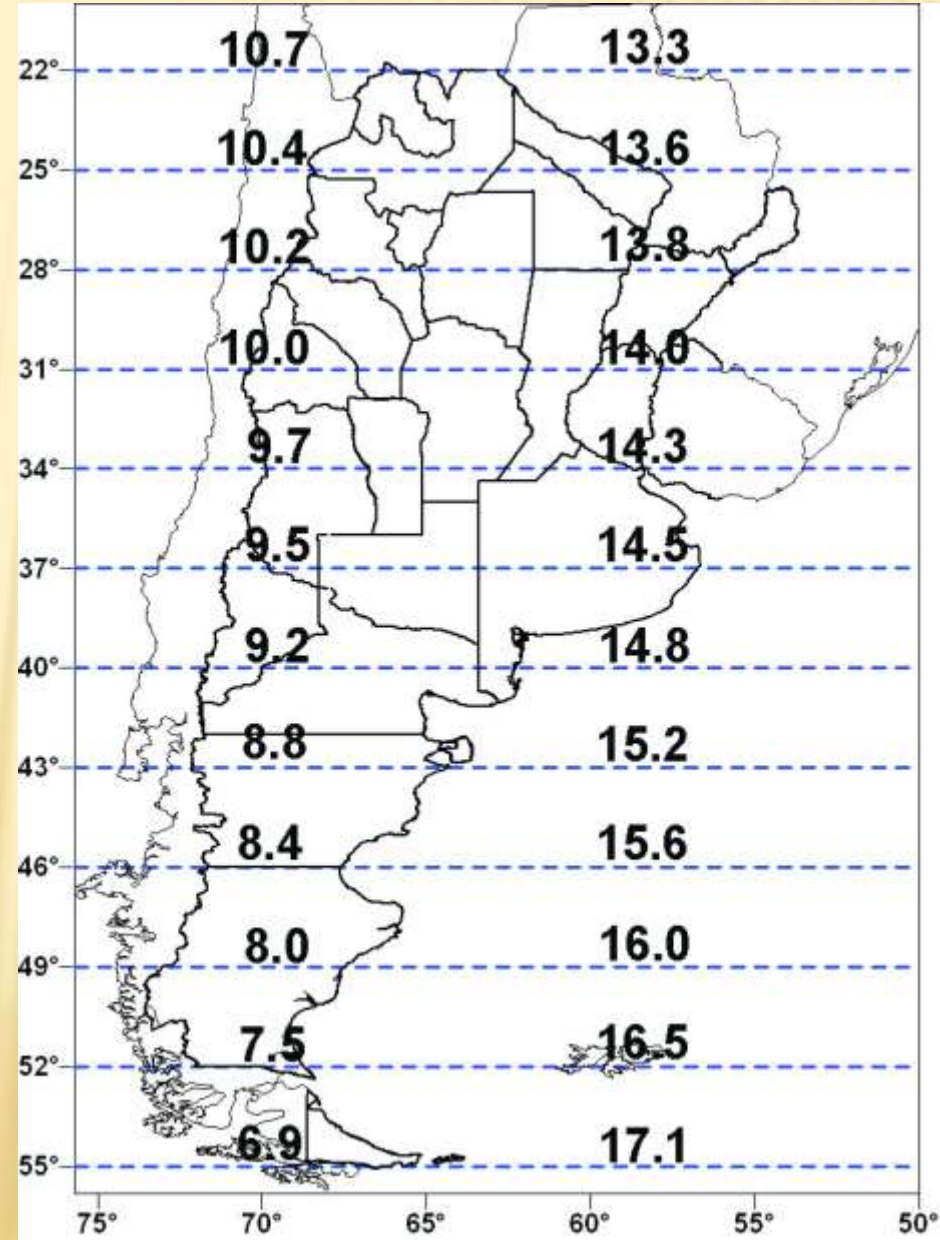
Enero



Heliofanía astronómica

Junio

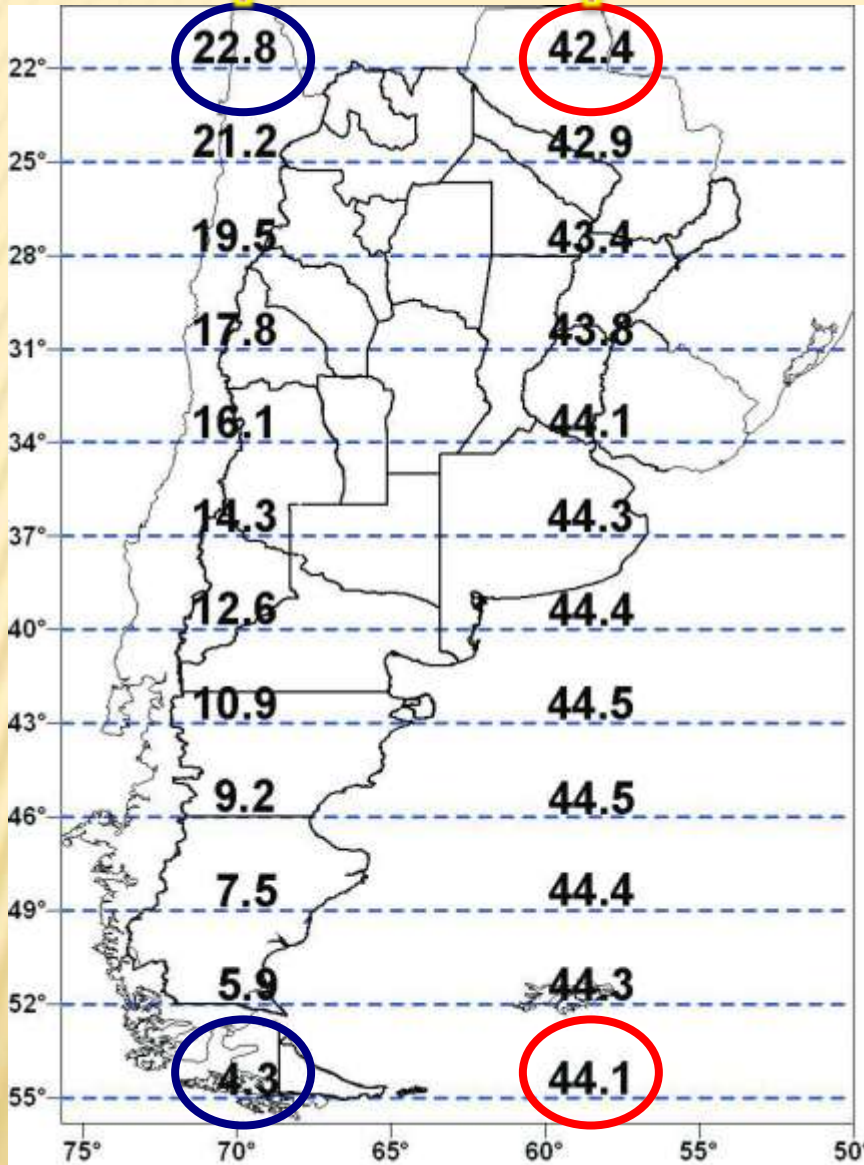
Enero



Solsticio de invierno

Solsticio de verano

Radiación astronómica



$SV - SI = 19,6$

S.I.

S.V.

18,5

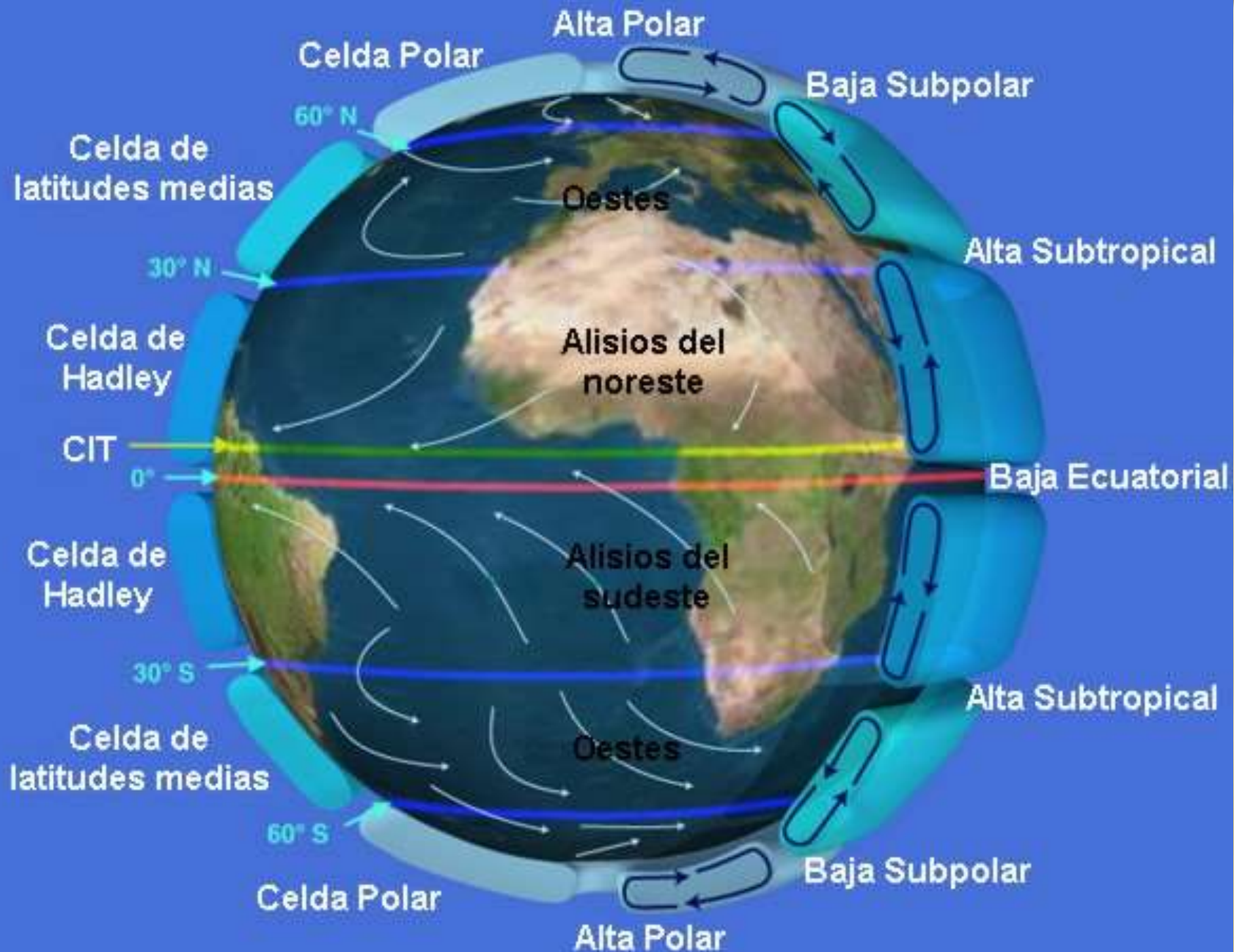
1,7

$SV - SI = 39,8$

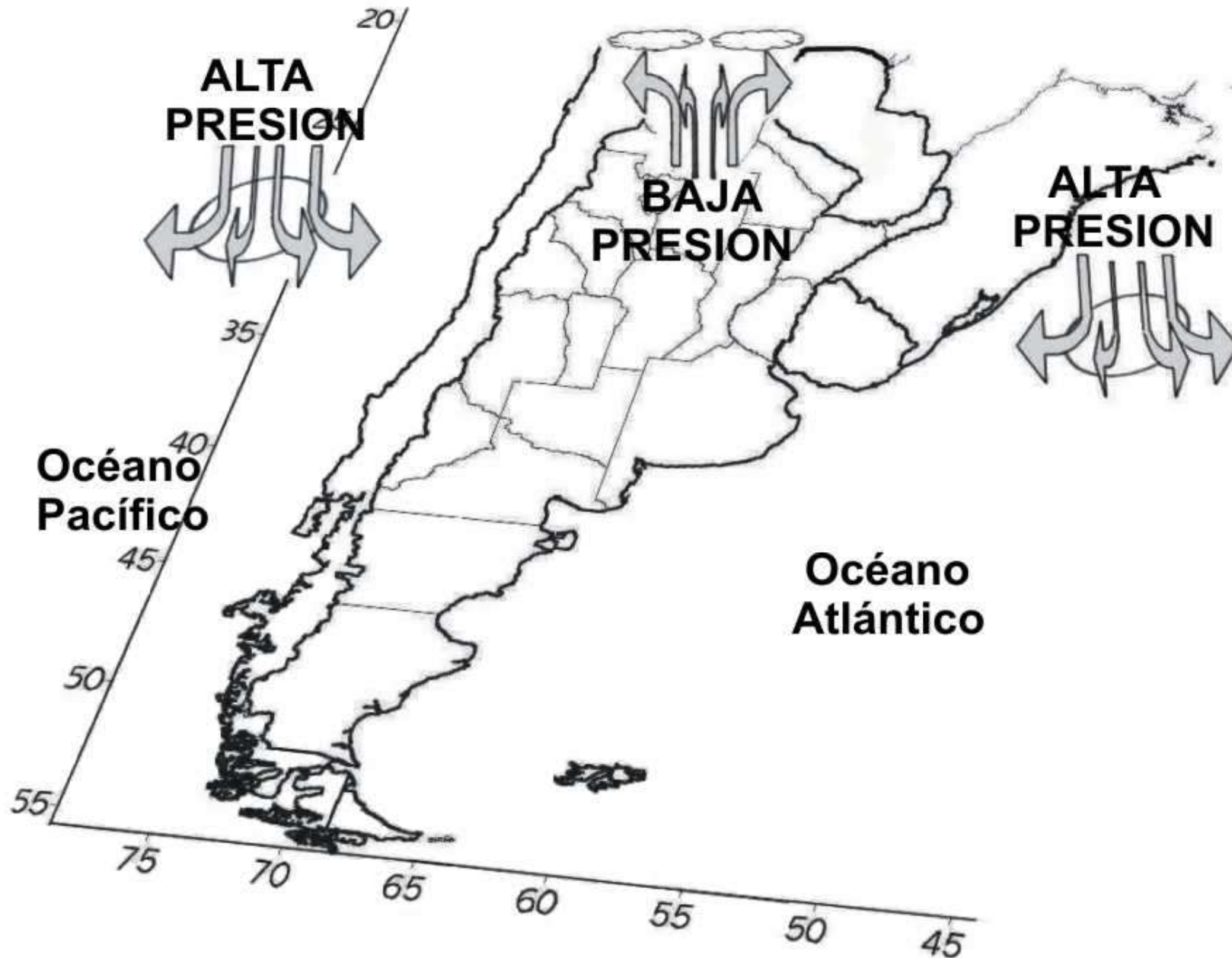
S.I.

S.V.

2. Circulación general de la atmósfera

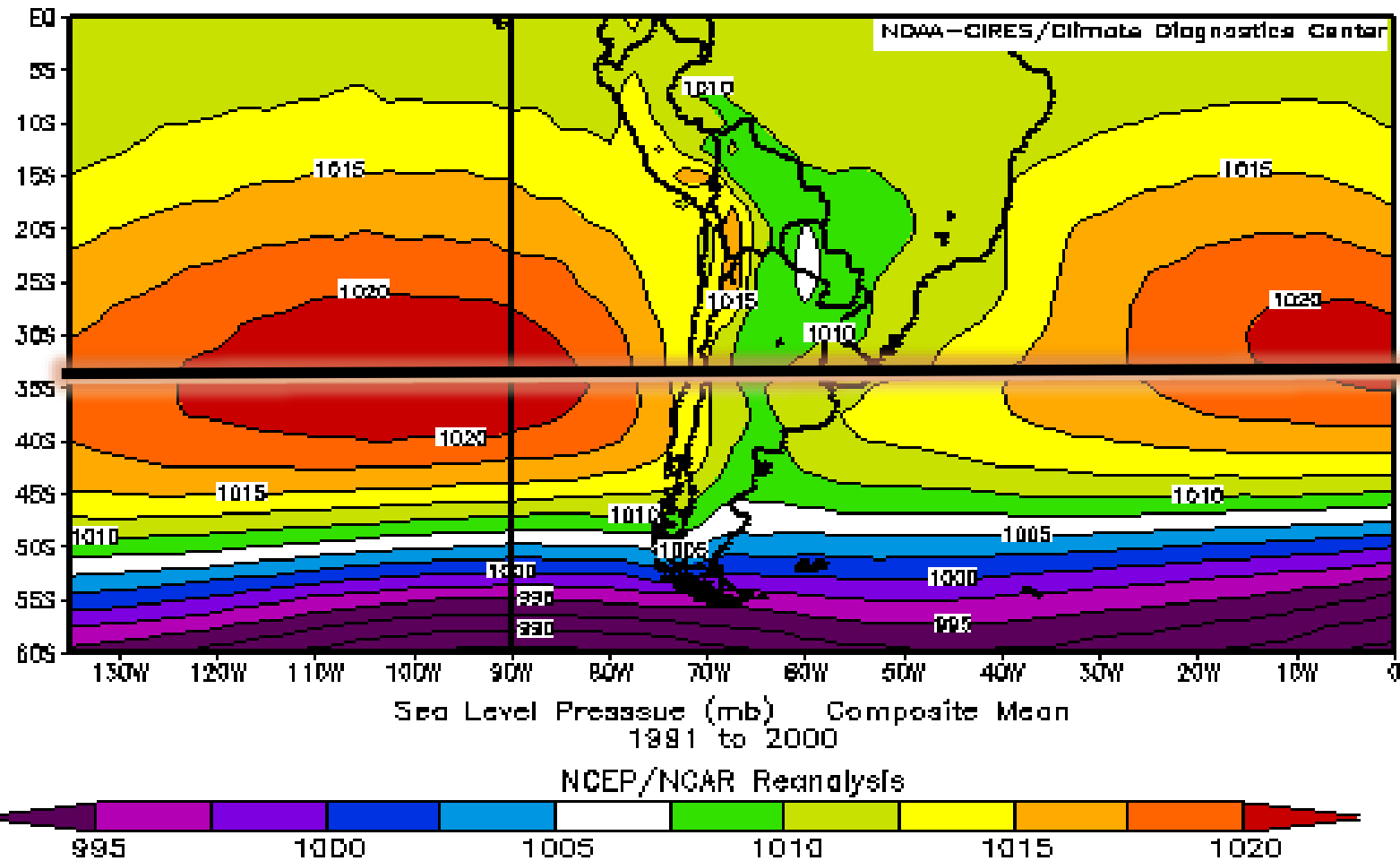


2. Circulación general de la atmósfera



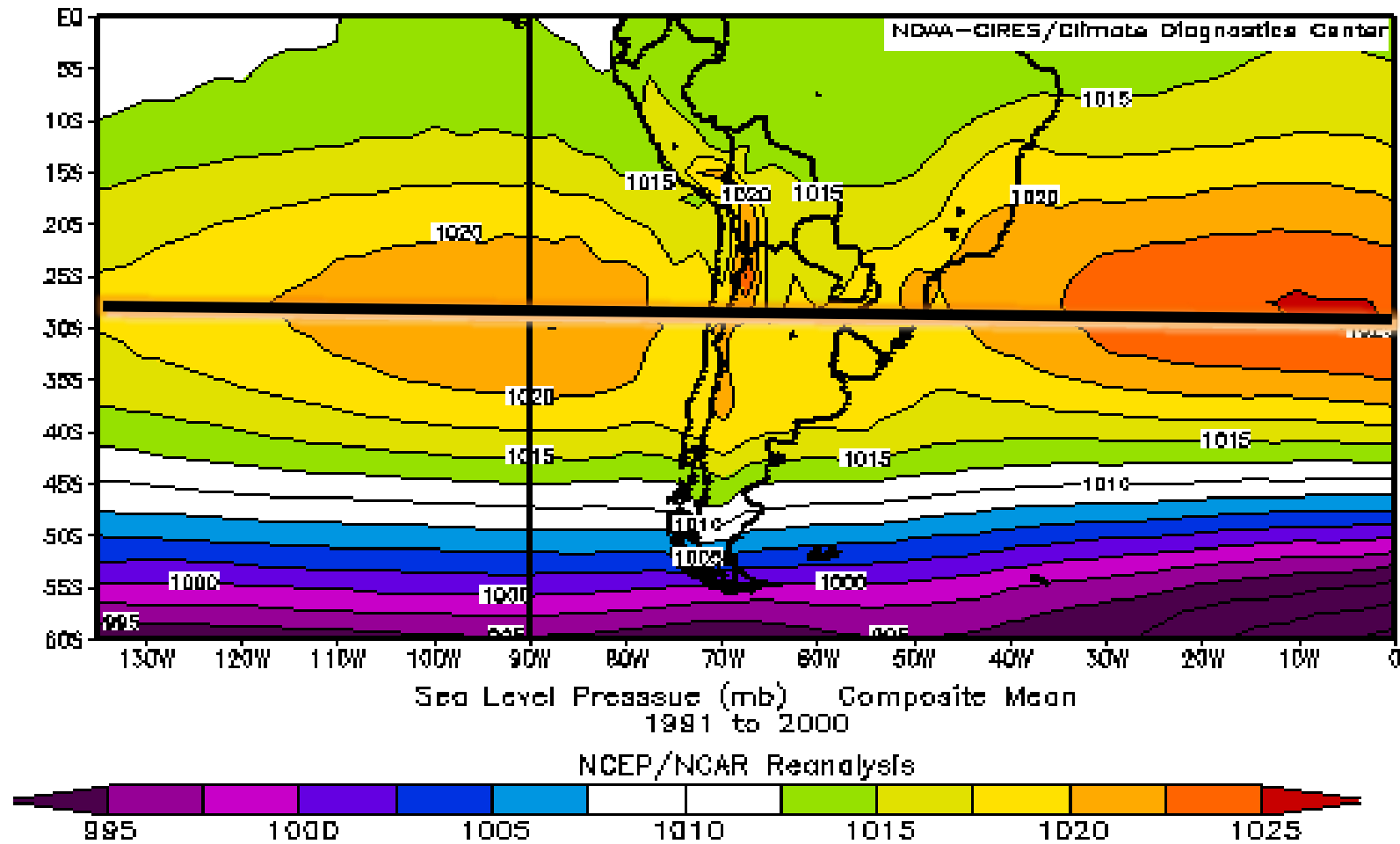
2. Circulación general de la atmósfera

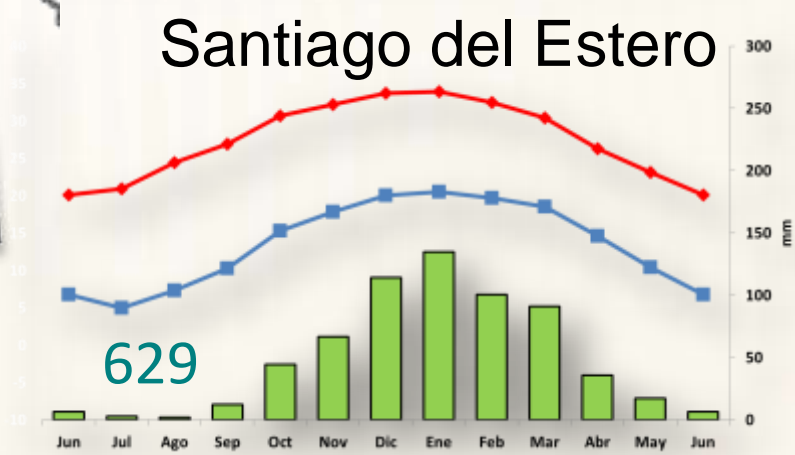
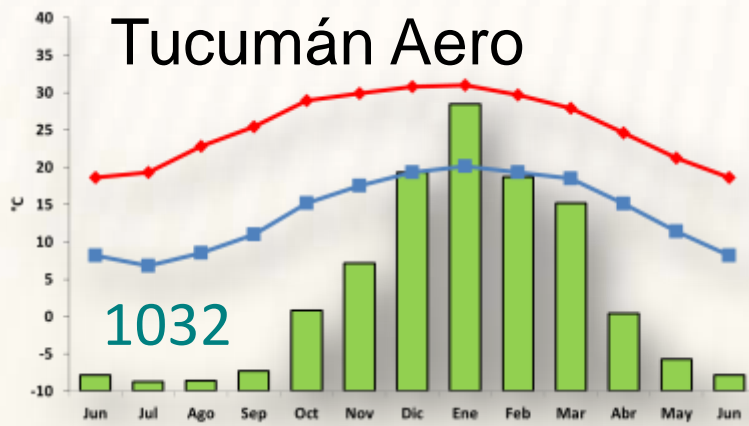
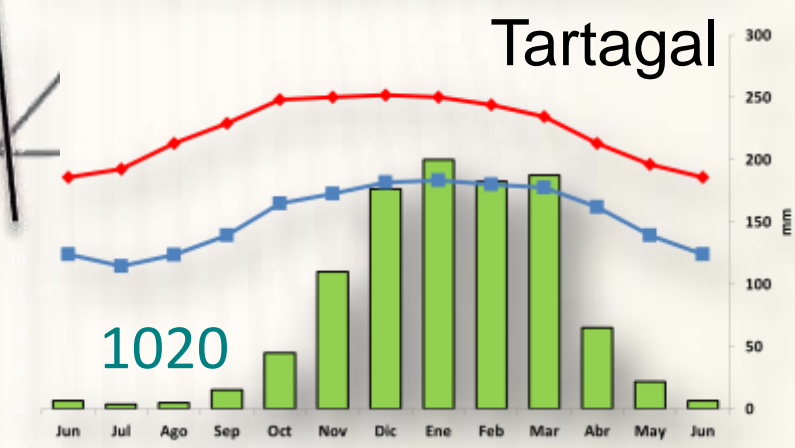
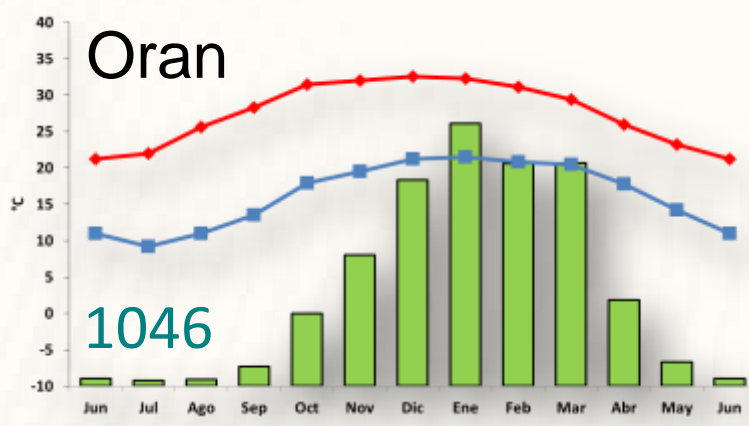
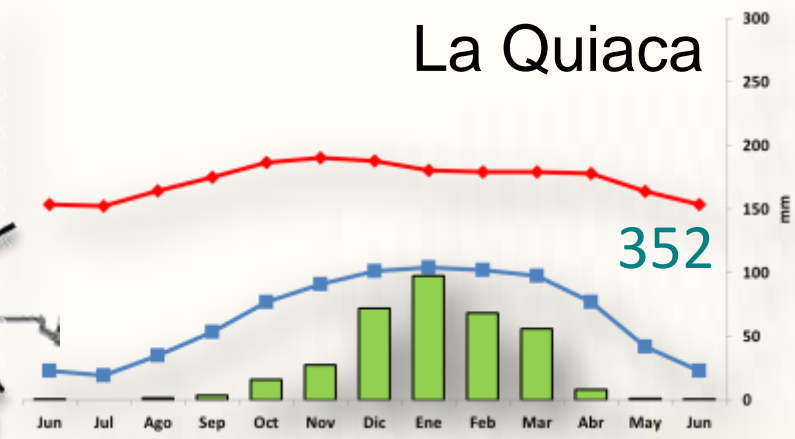
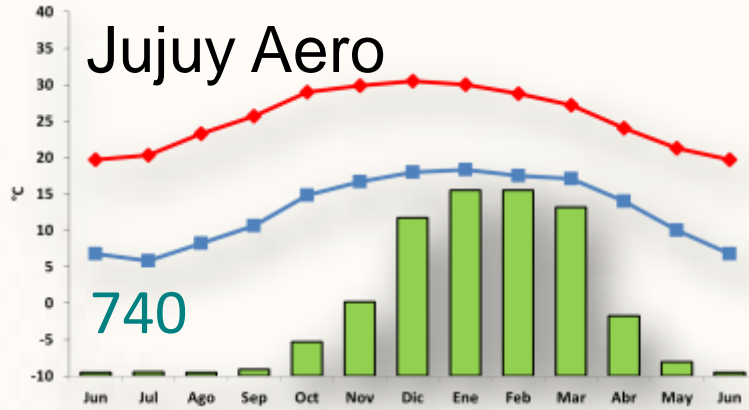
ENERO

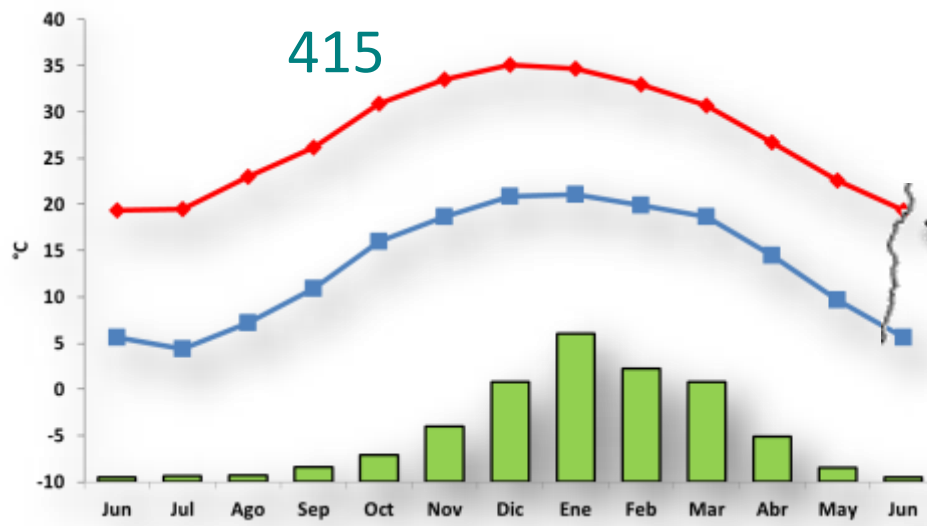


2. Circulación general de la atmósfera

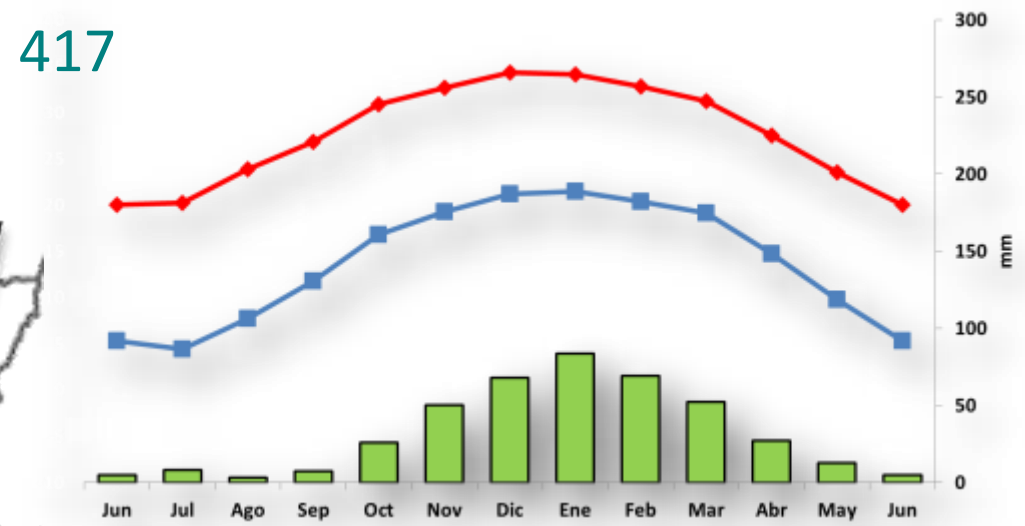
JULIO



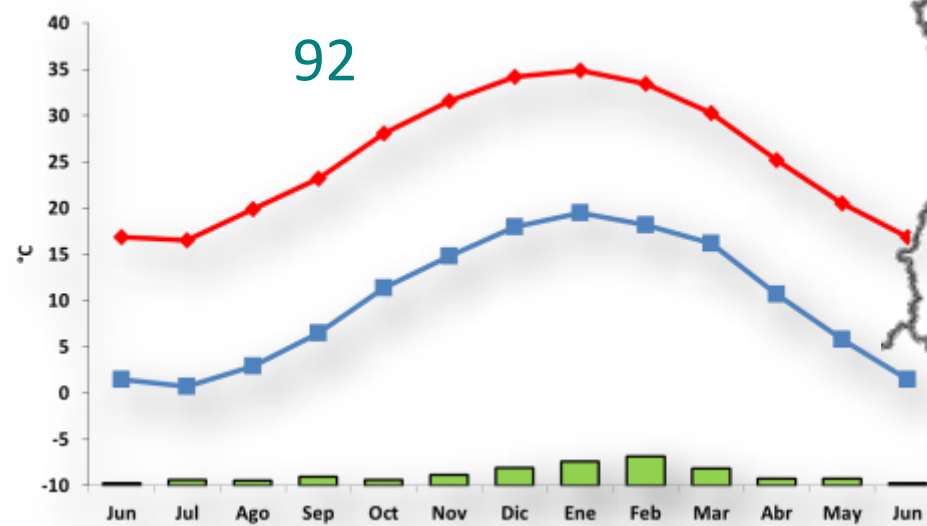




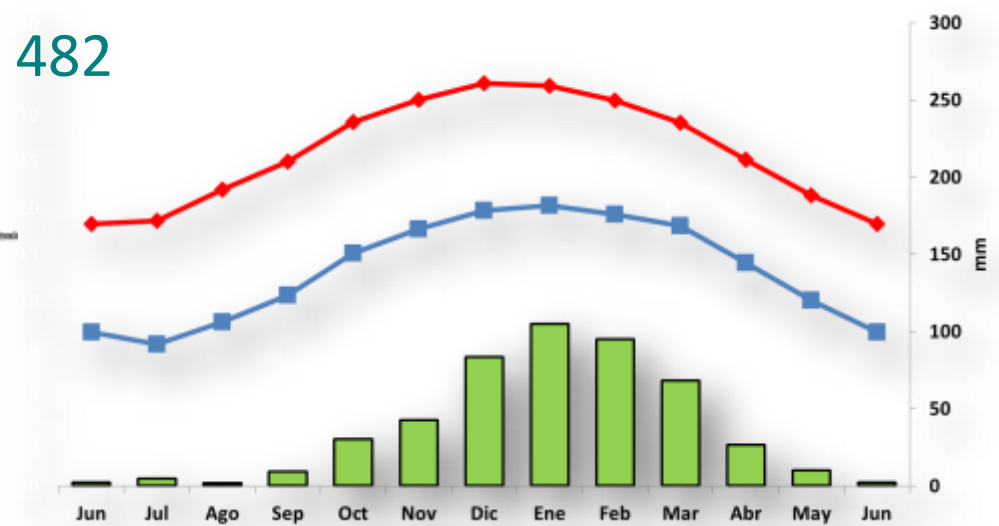
La Rioja



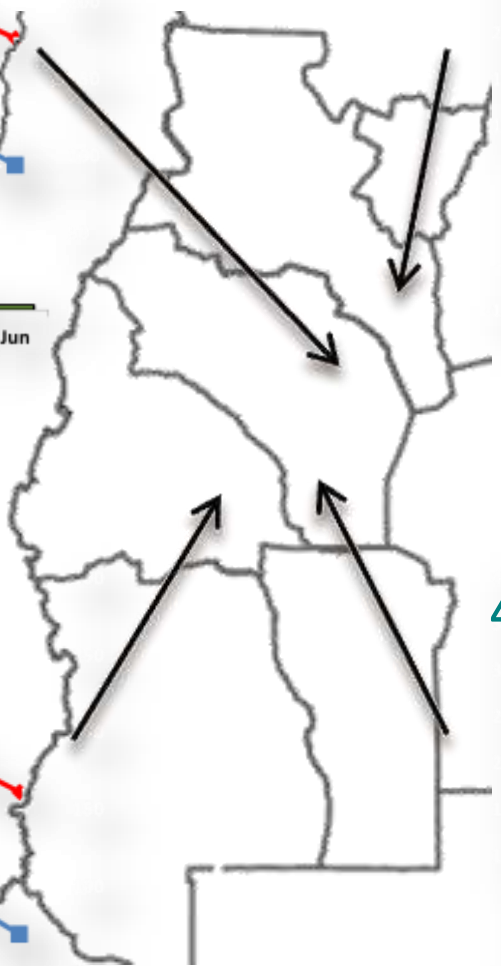
Catamarca

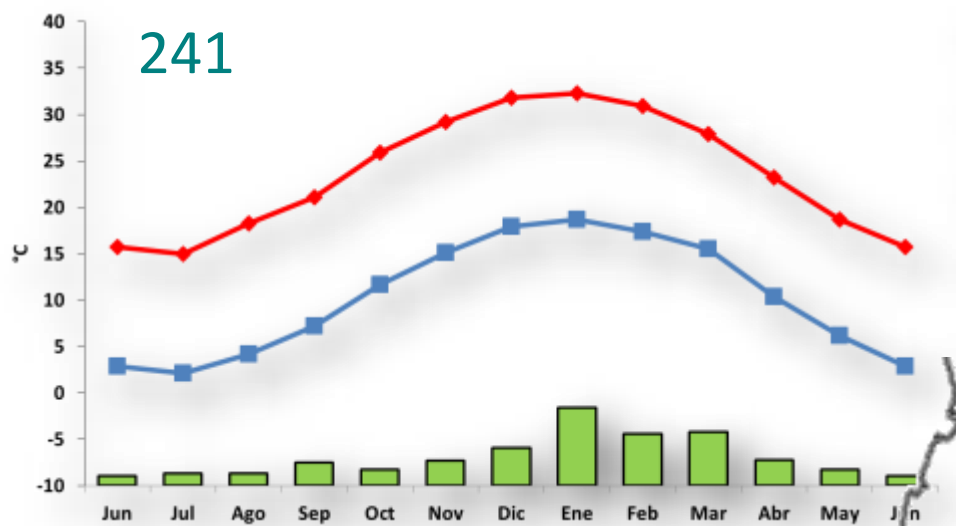


San Juan

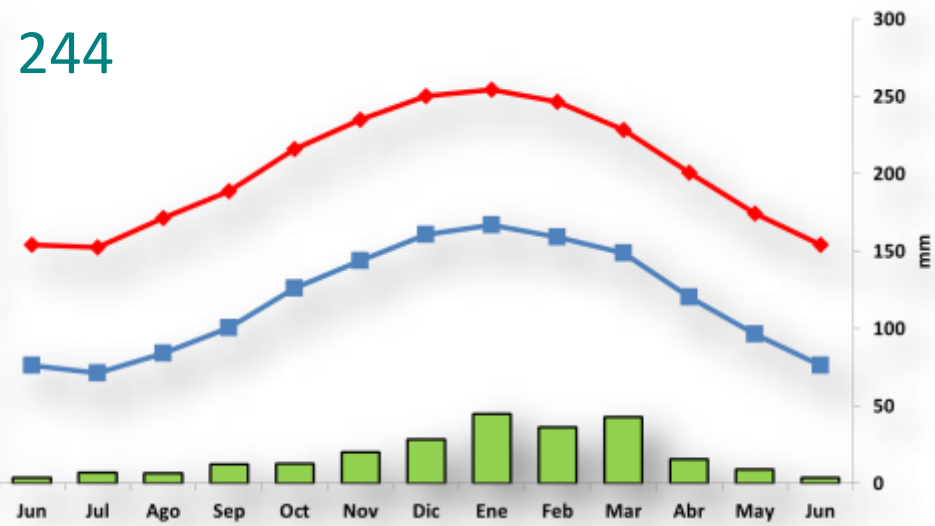


Chemical

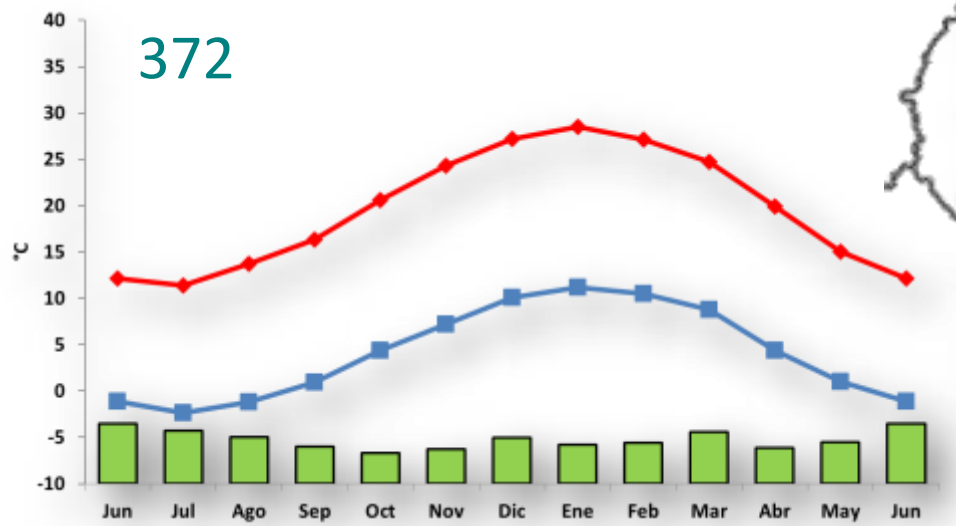




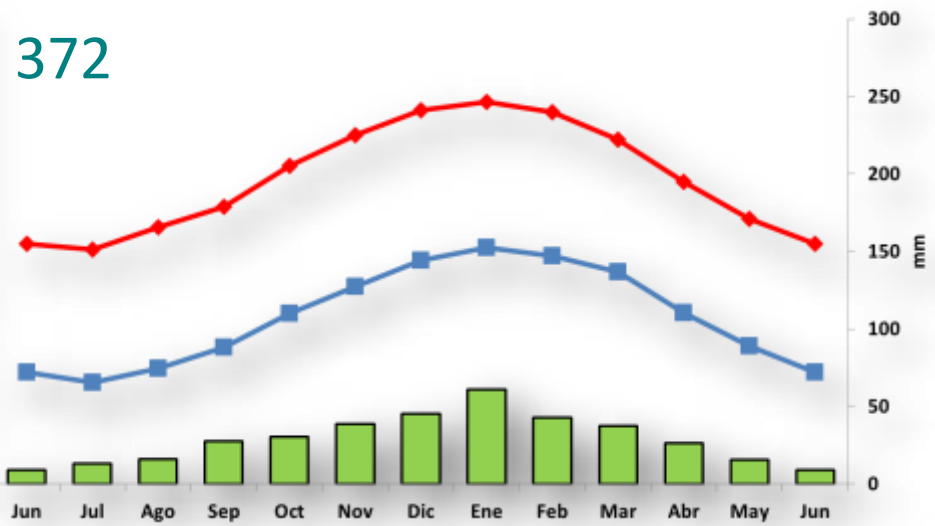
Mendoza



San Martin

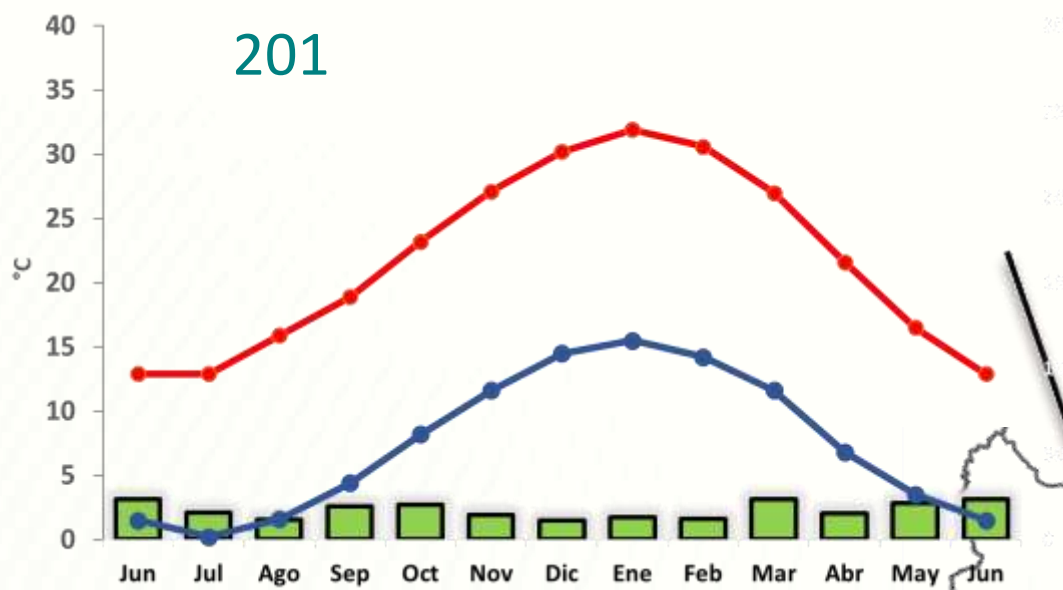


Malargue

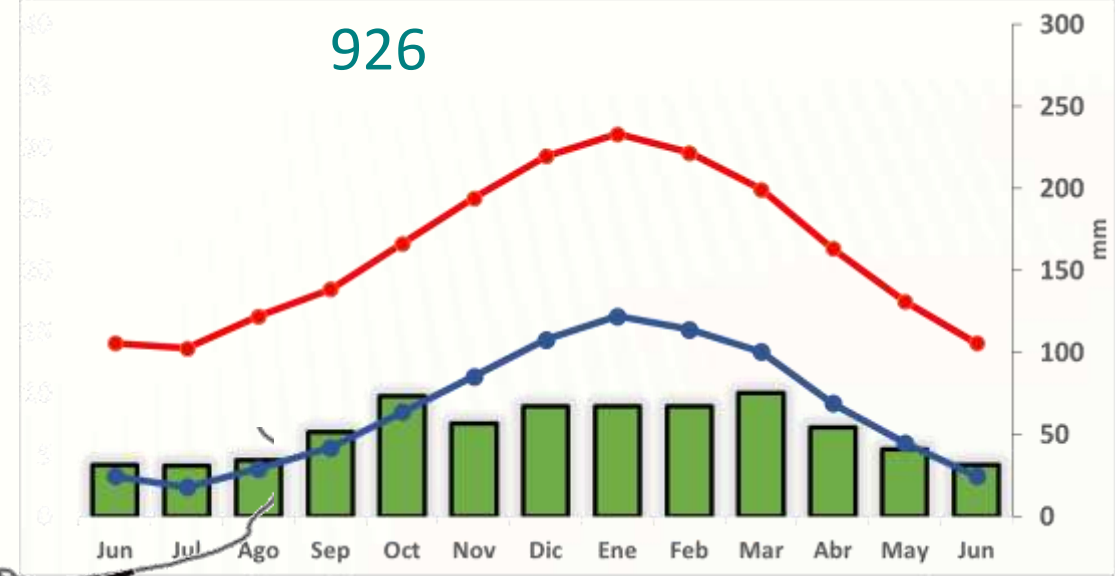


San Rafael

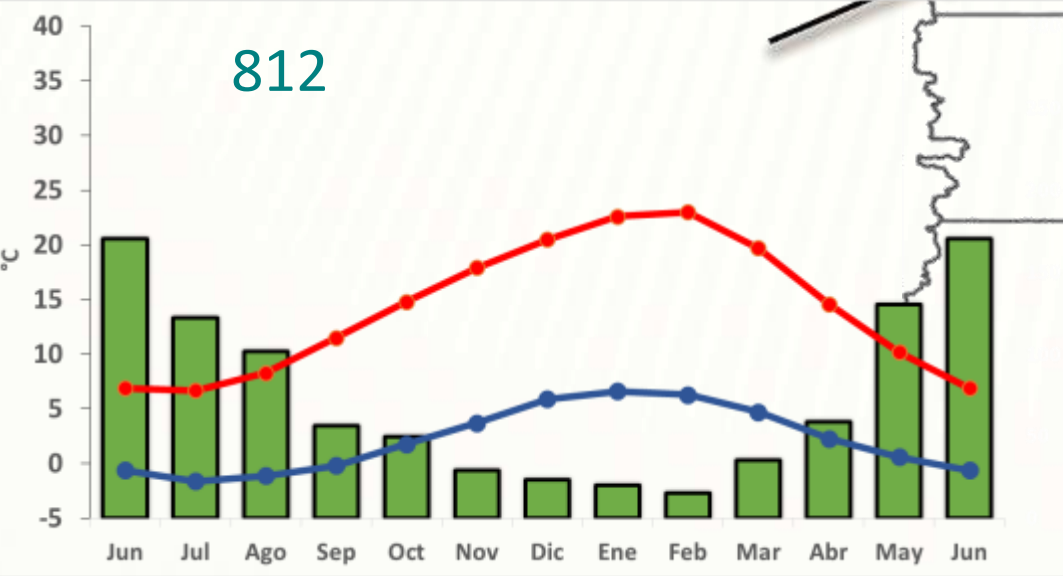




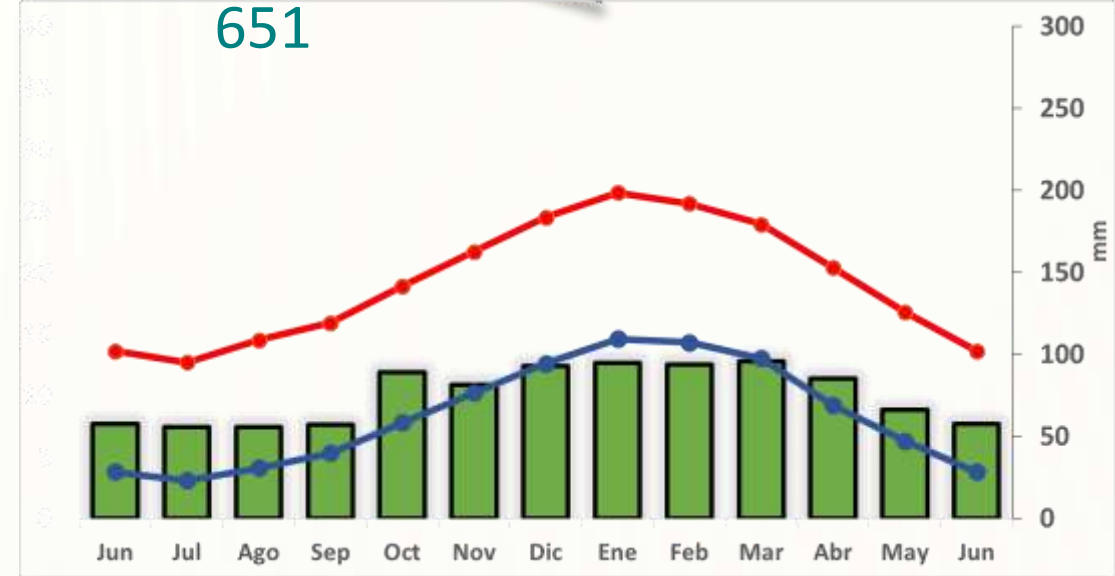
Neuquén



Mar del Plata

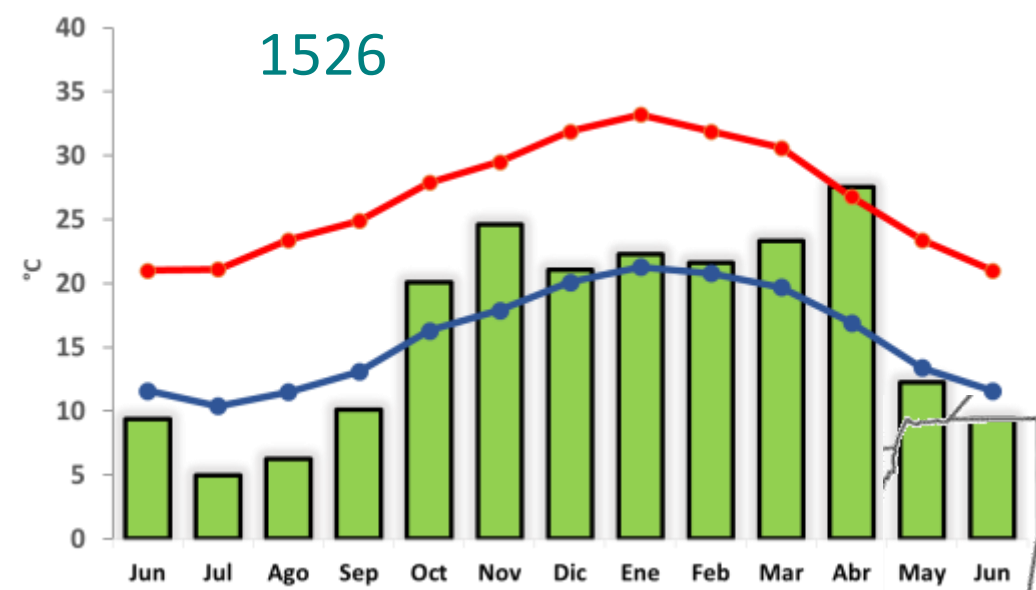


Bariloche

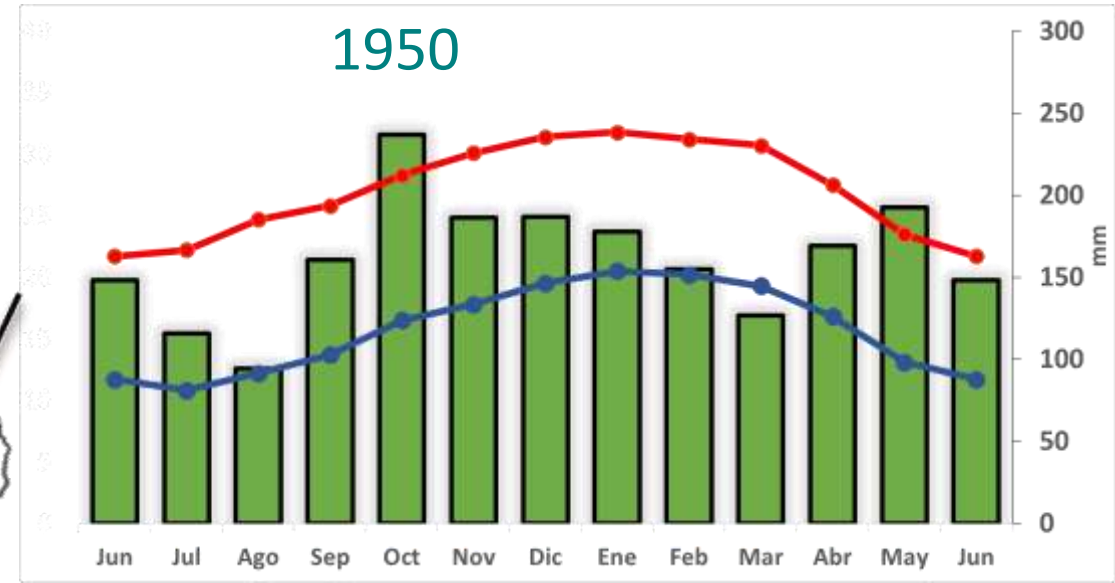


Bahía Blanca

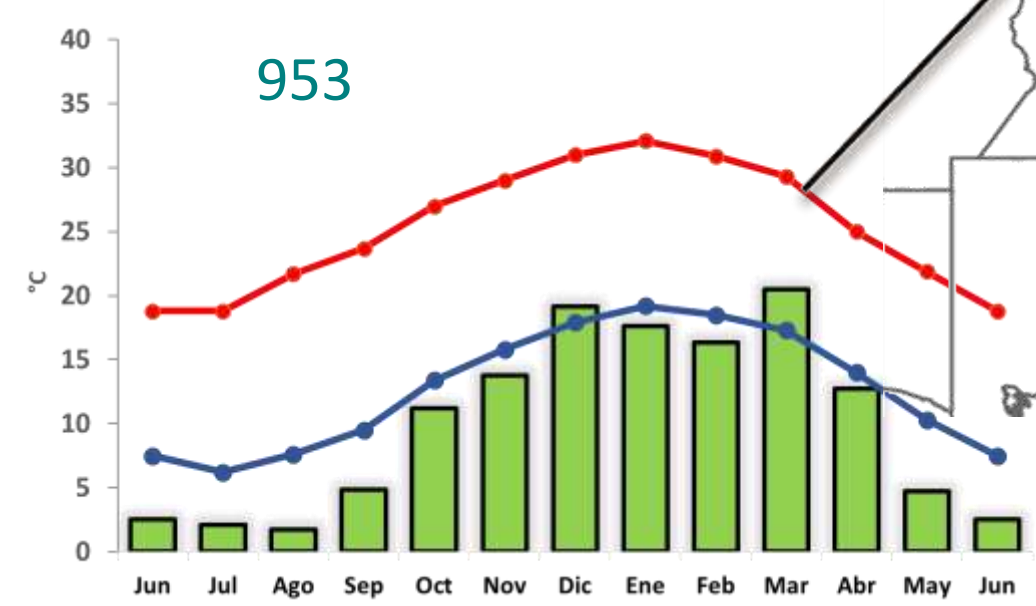




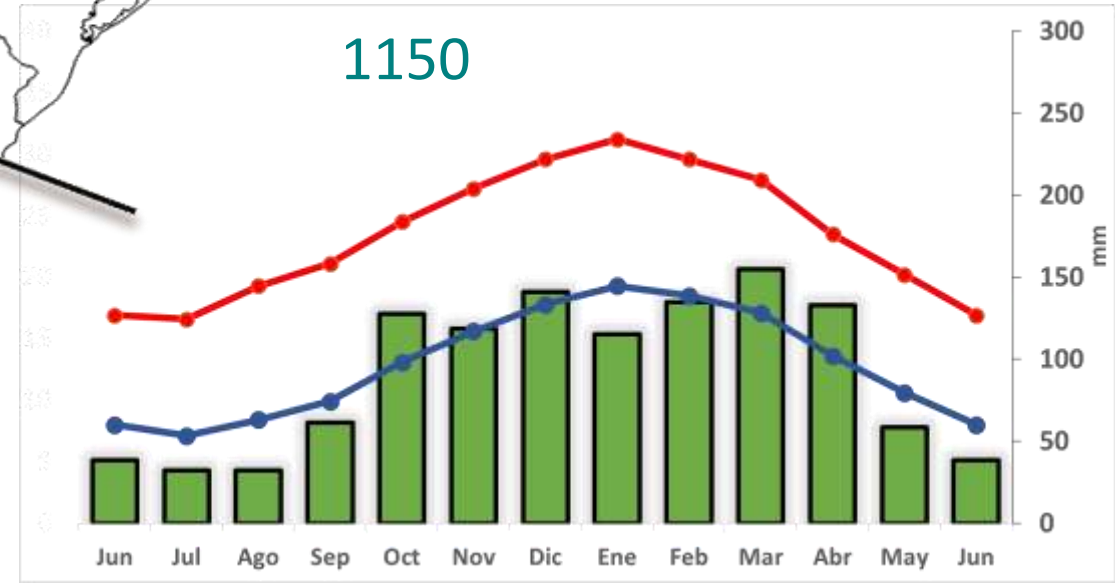
Corrientes



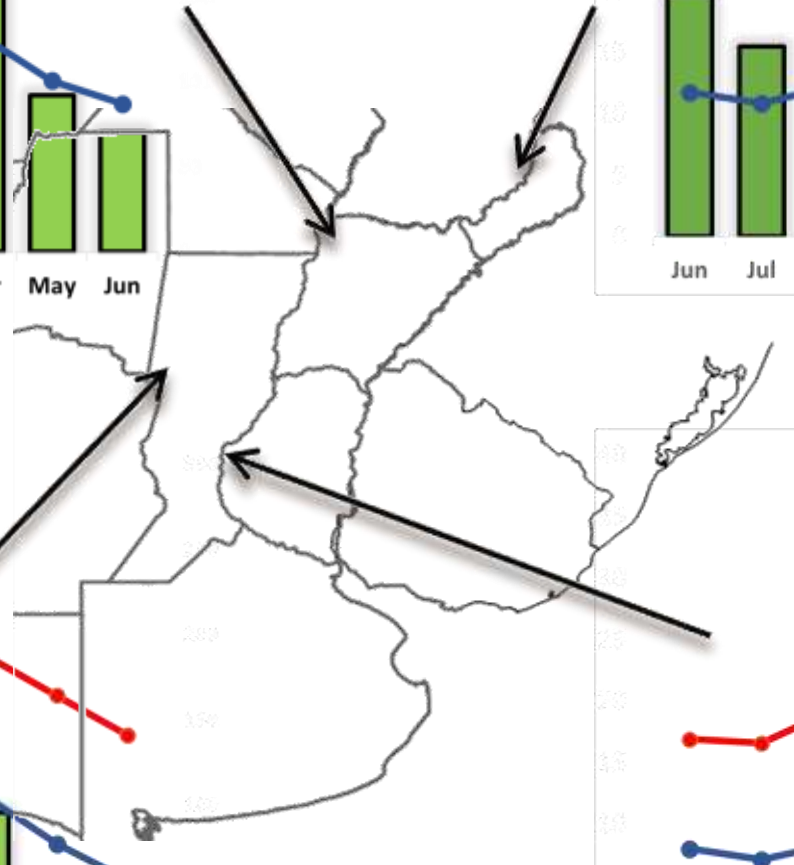
Iguazú

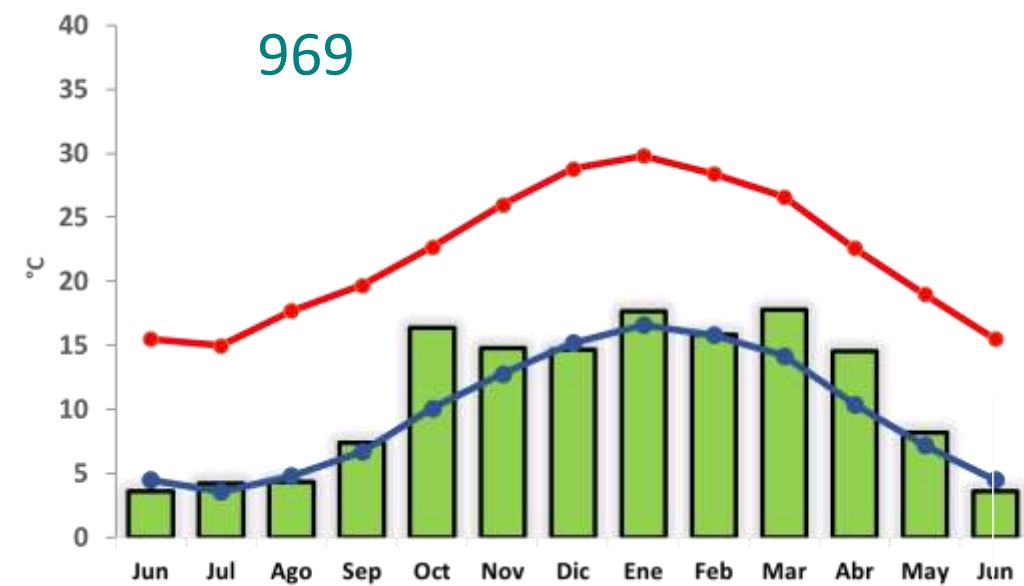


Ceres

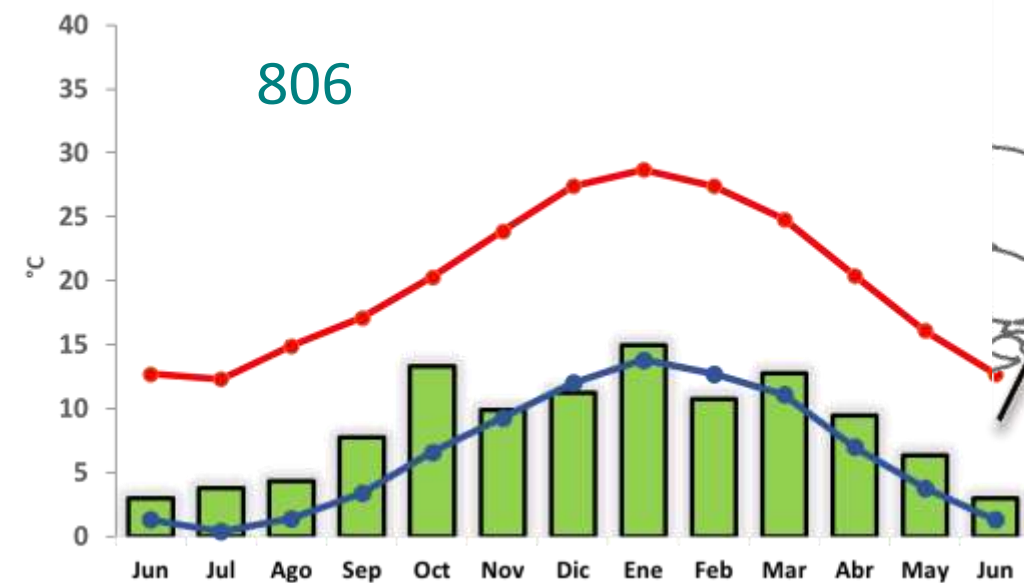


Paraná

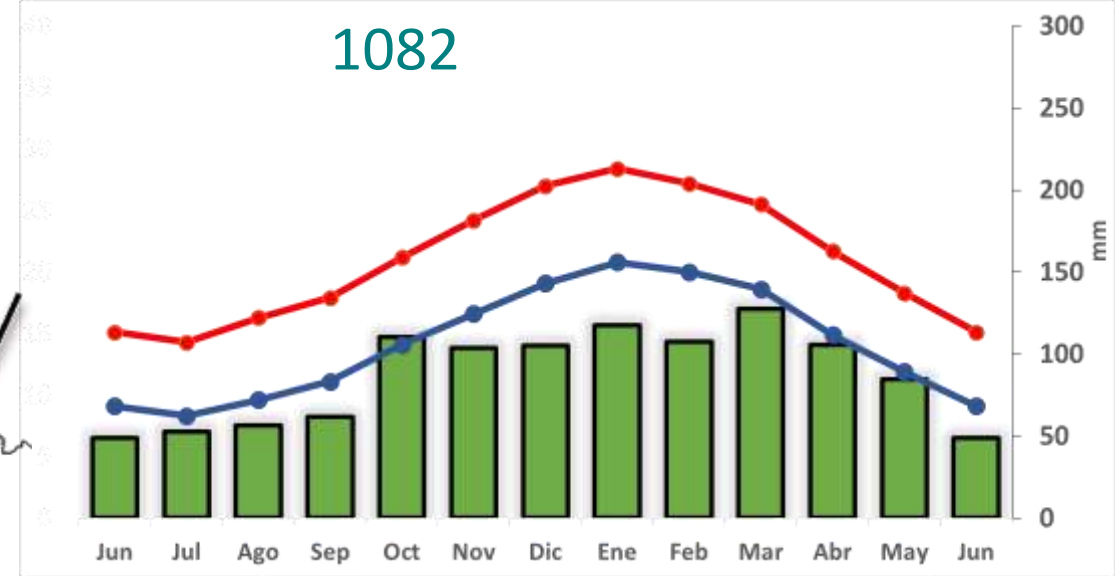
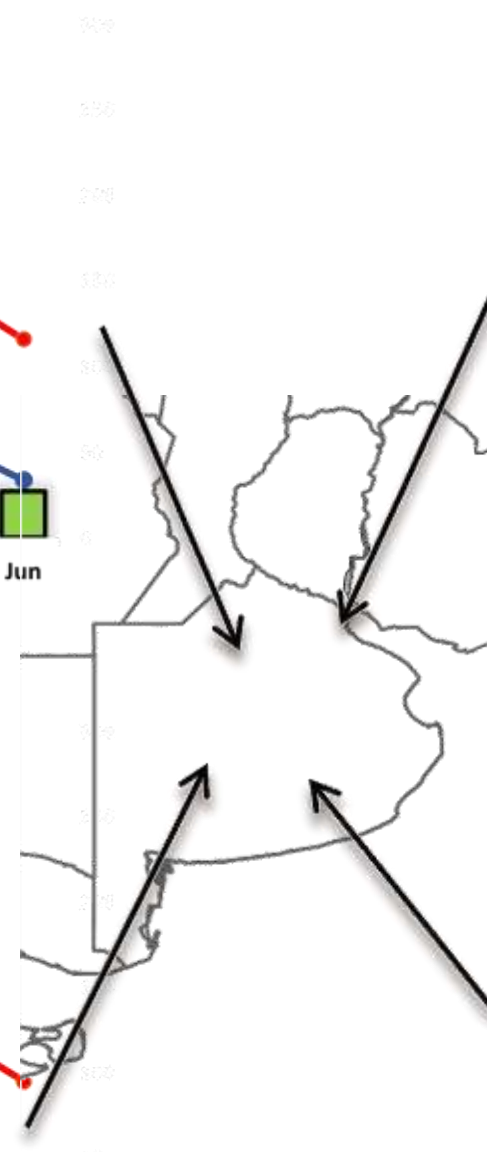




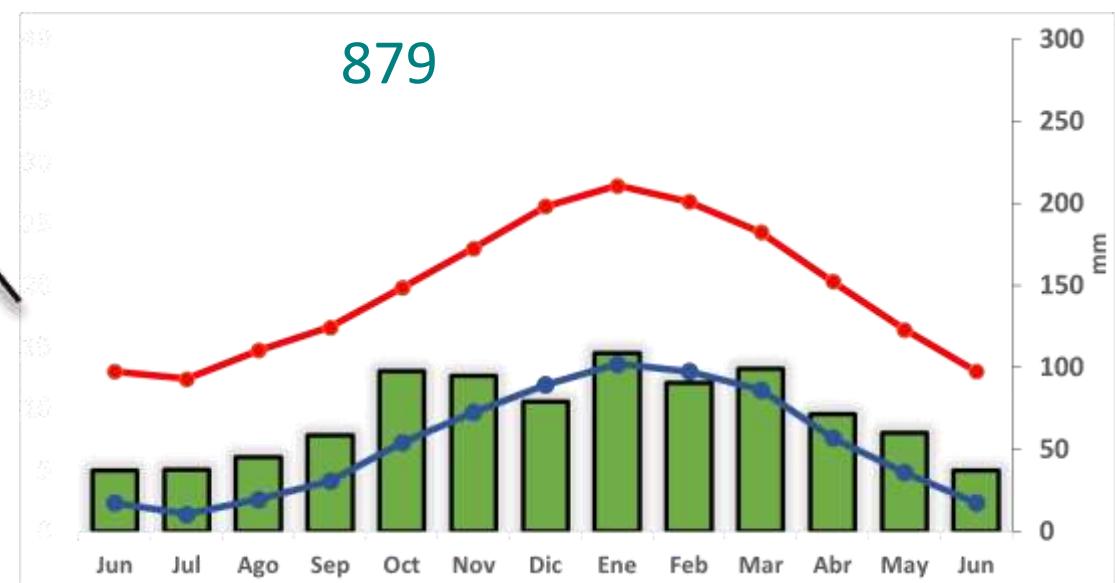
Junín



Coronel Suarez



Aeroparque



Tandil

Vientos Característicos de la Argentina

Tipos de Vientos

Permanentes



Alisios o vientos del este

Contralisios o vientos del Oeste

Estacionales o periódicos



Viento del Norte o Monzones

Zonda o Viento Norte

Pampero

Brisa de Mar y de Tierra
De Valles y Montañas

VERANO



Alisios

baja presión

alta presión

SIMBOLOGÍA

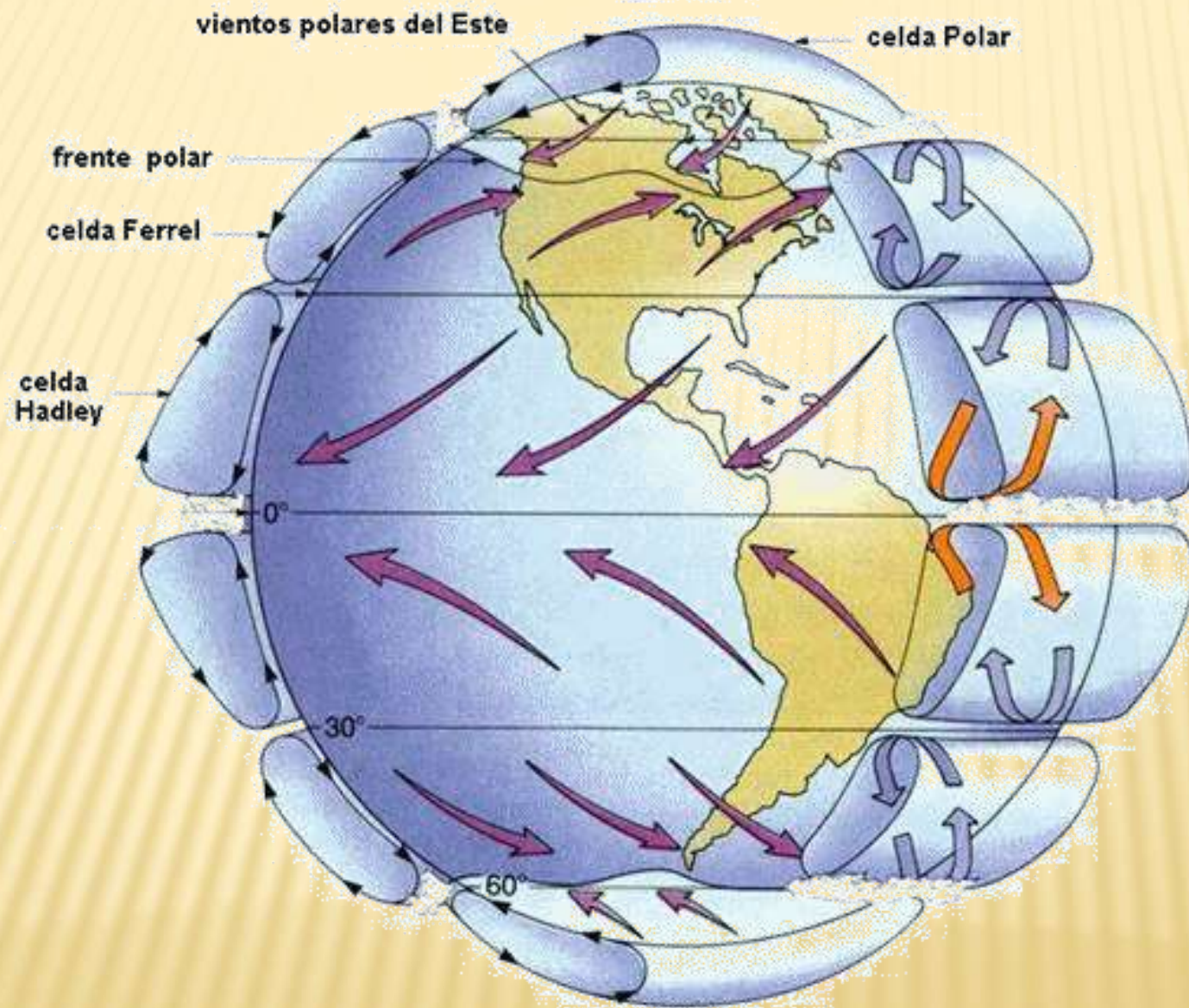


Poca lluvia

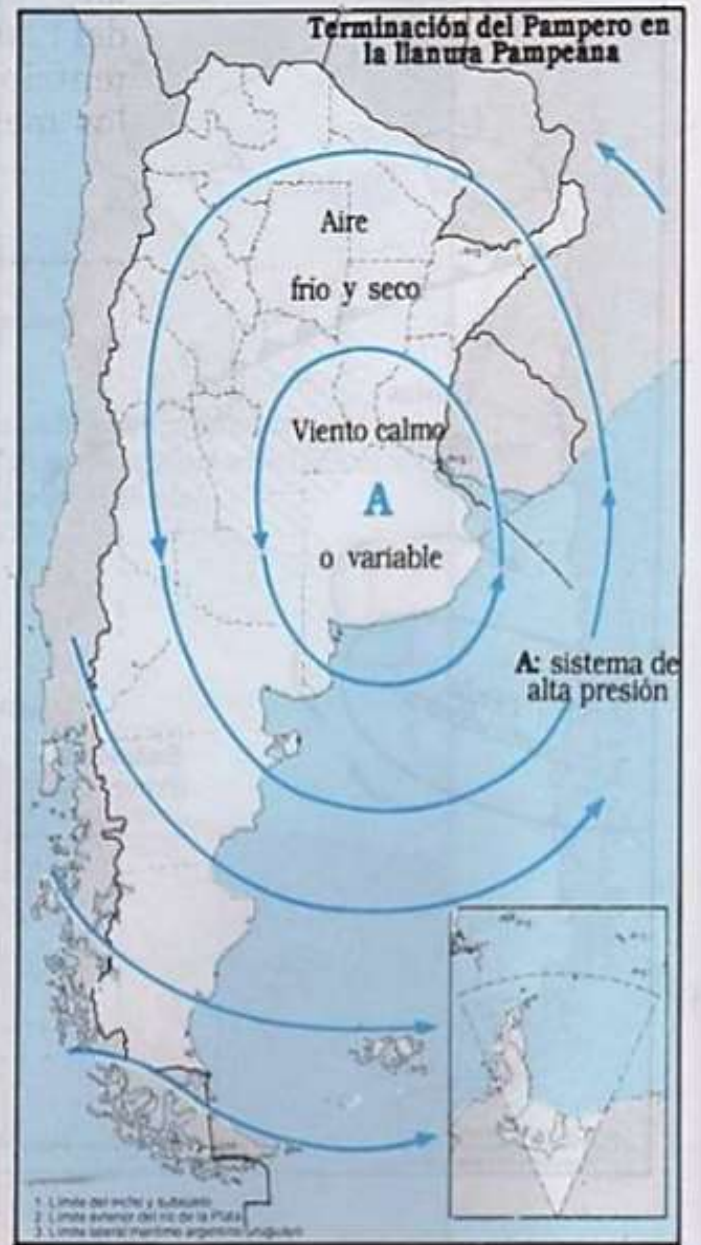


Mucha lluvia

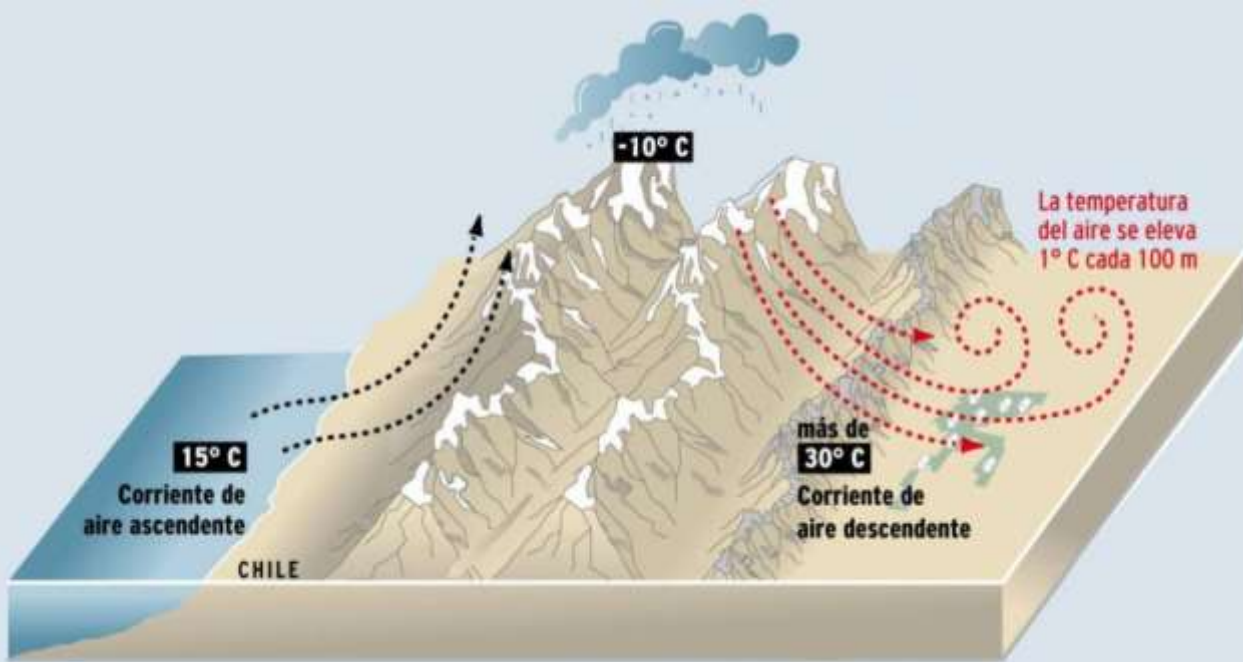
2. Circulación general de la atmósfera







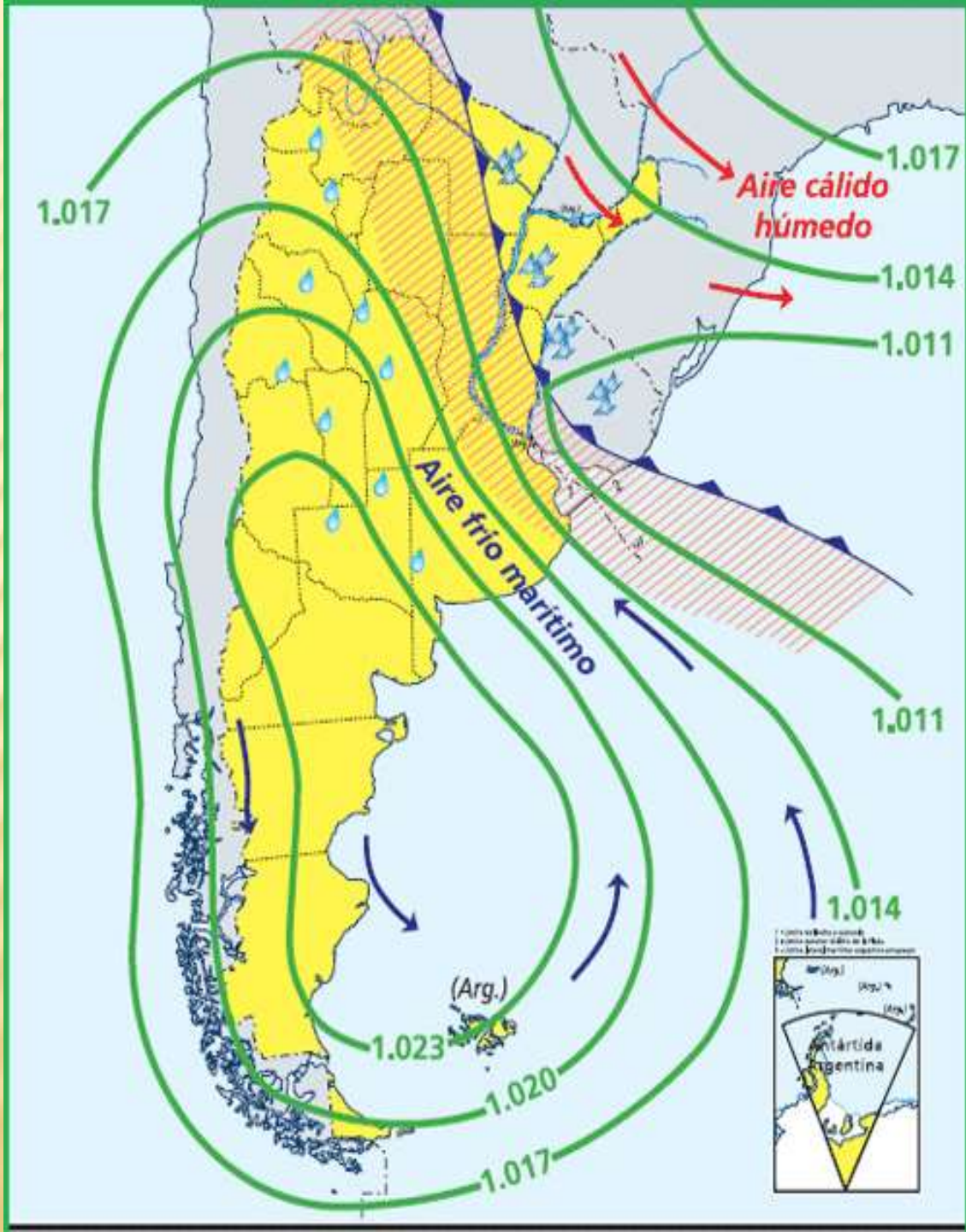
El Pampero: viento frío y seco.



Viento Norte o Zonda: viento cálido y seco.



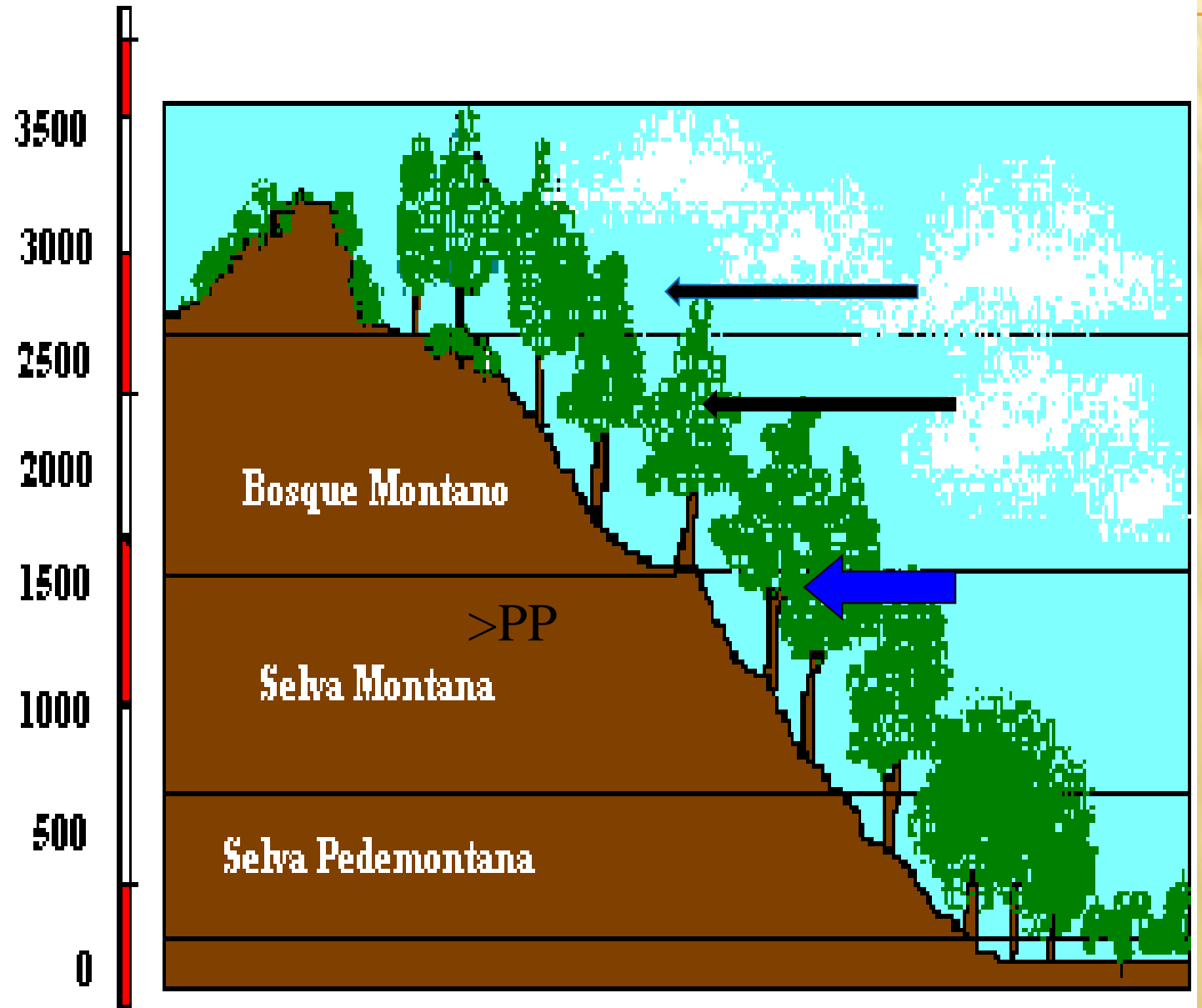
SUDESTADA: masa de aire húmedo que se adentra al continente por el Río de la Plata.



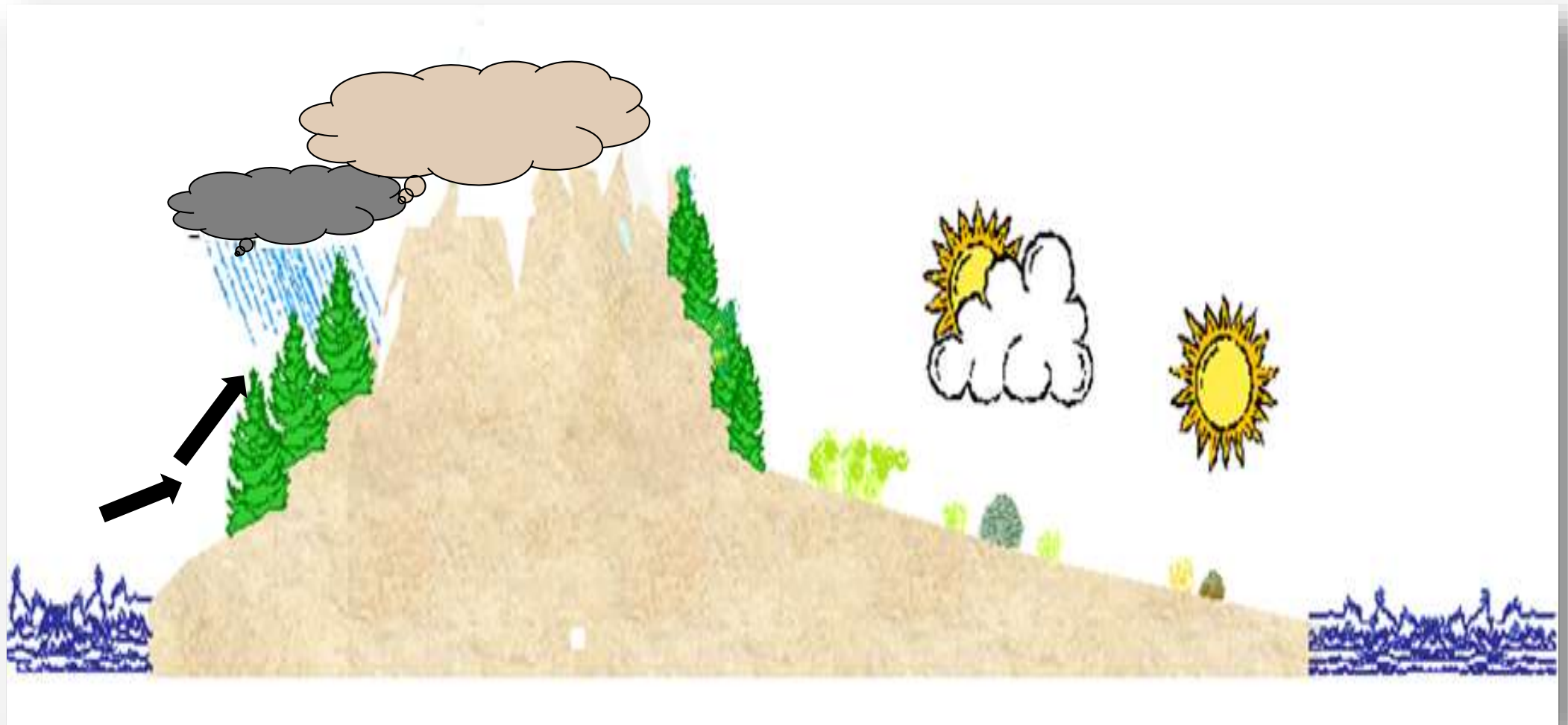
3.RELIEVE



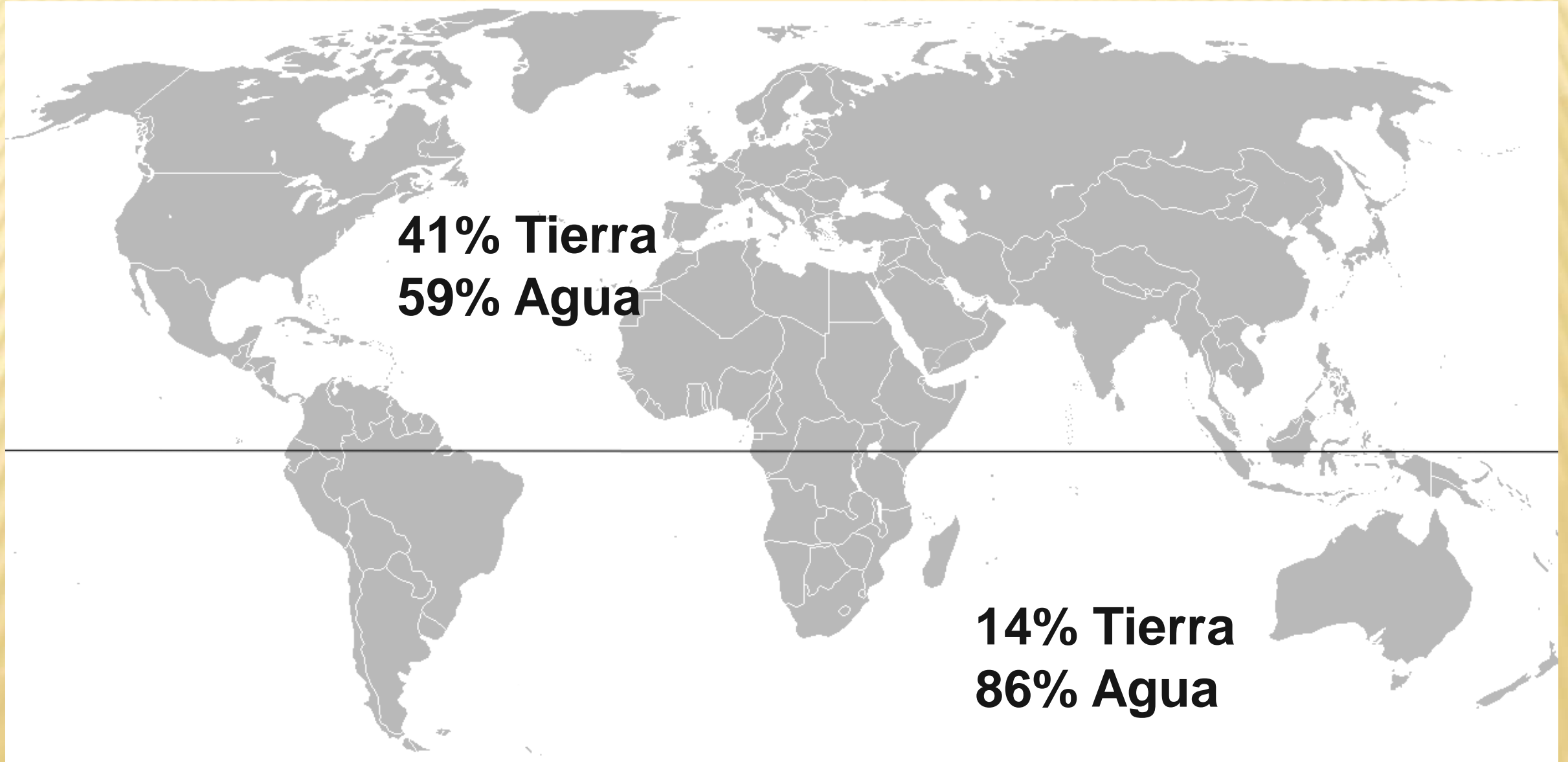
YUNGAS (VIENTOS DEL ESTE)



Después de 40° L.S. Circulación del oeste



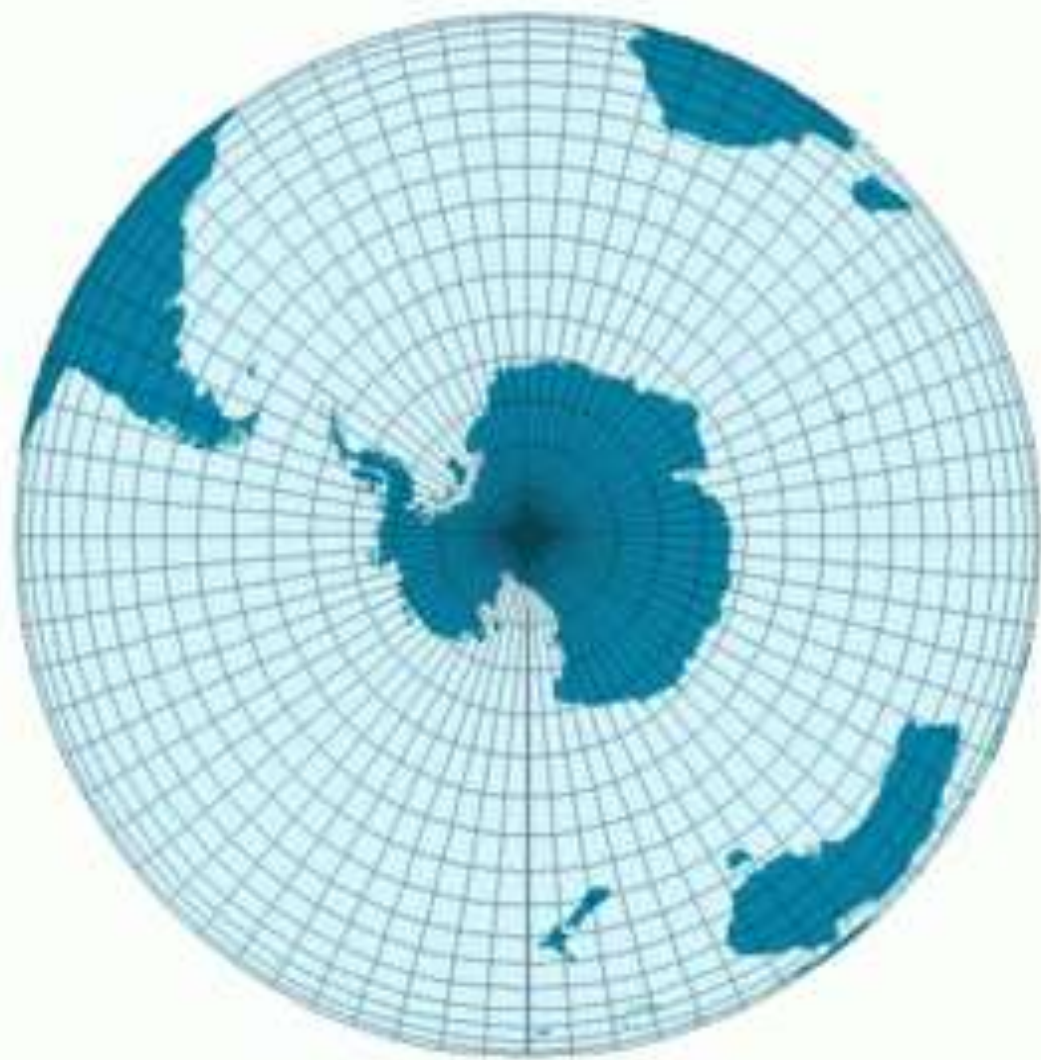
4. Continentalidad - Oceanidad



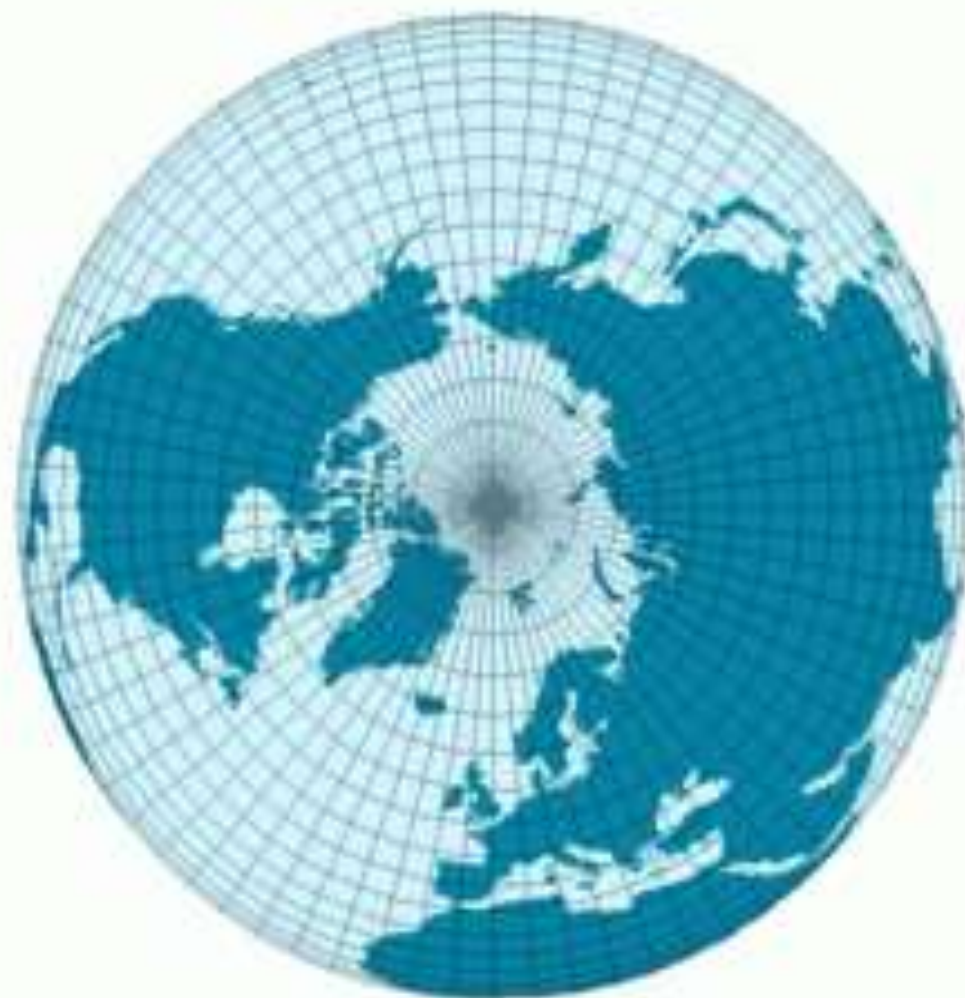
41% Tierra
59% Agua

14% Tierra
86% Agua

HS



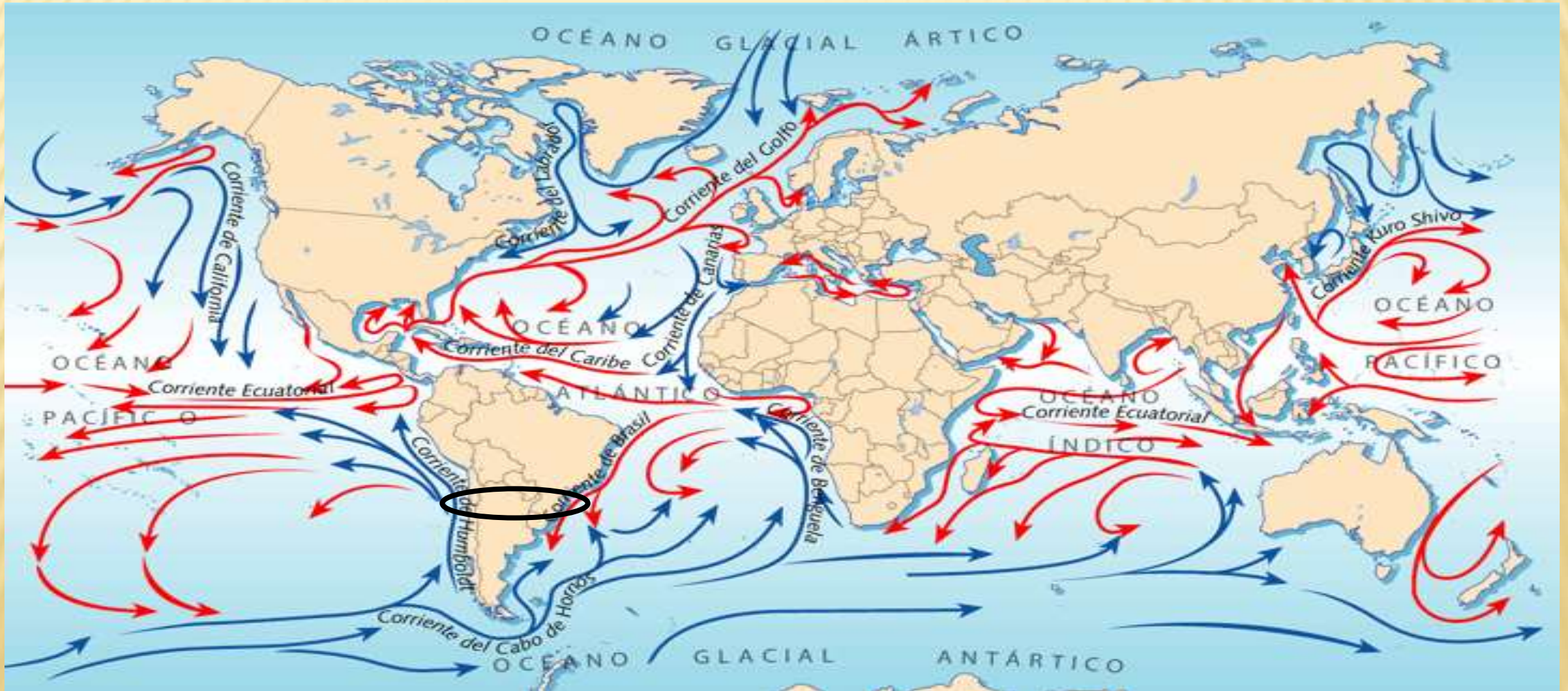
HN

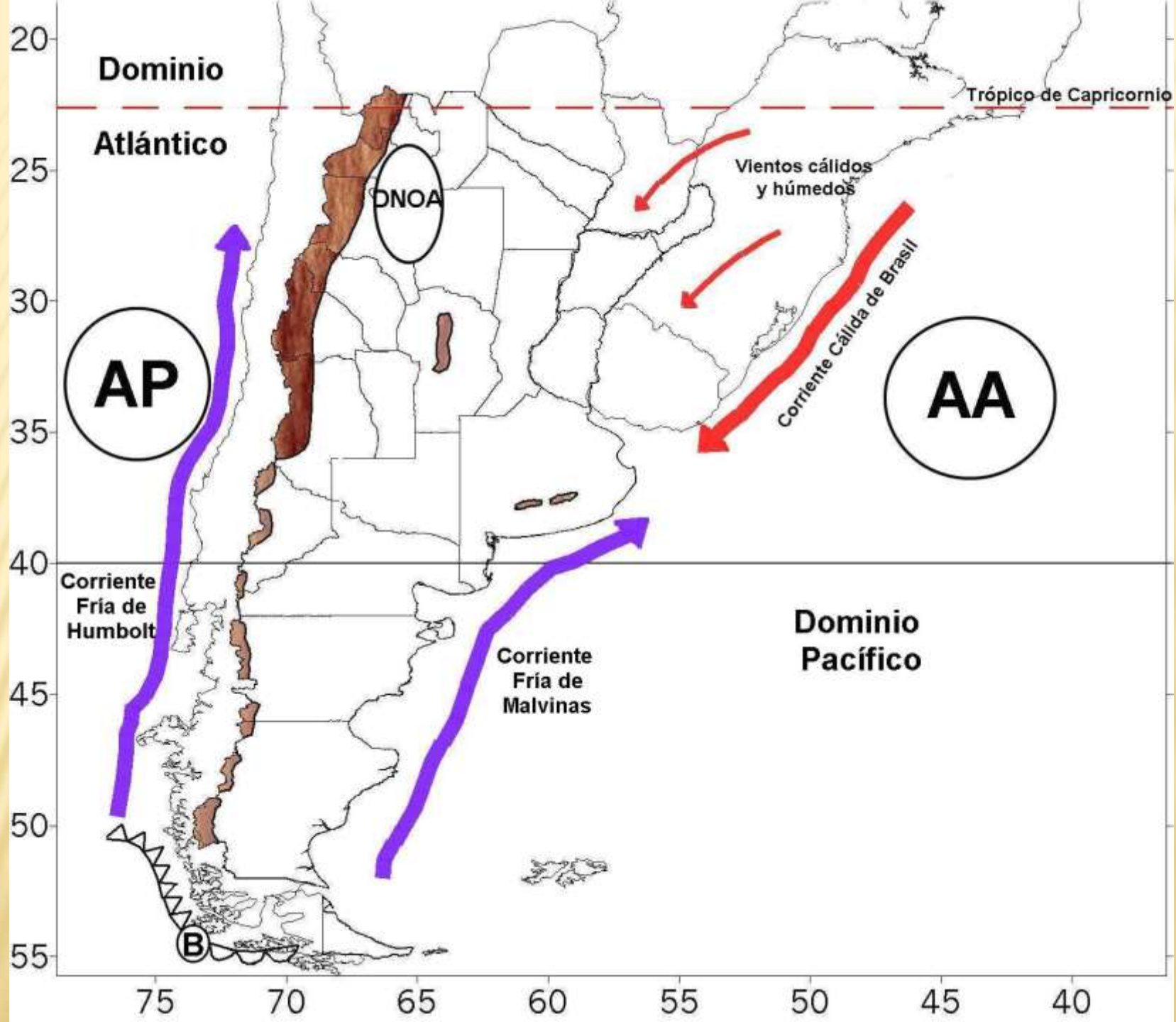


5. Corrientes oceánicas

La Serena (Chile) temp. media anual = **13.6°C**

Porto Alegre (Brasil) temp. media anual = **19.5°C**





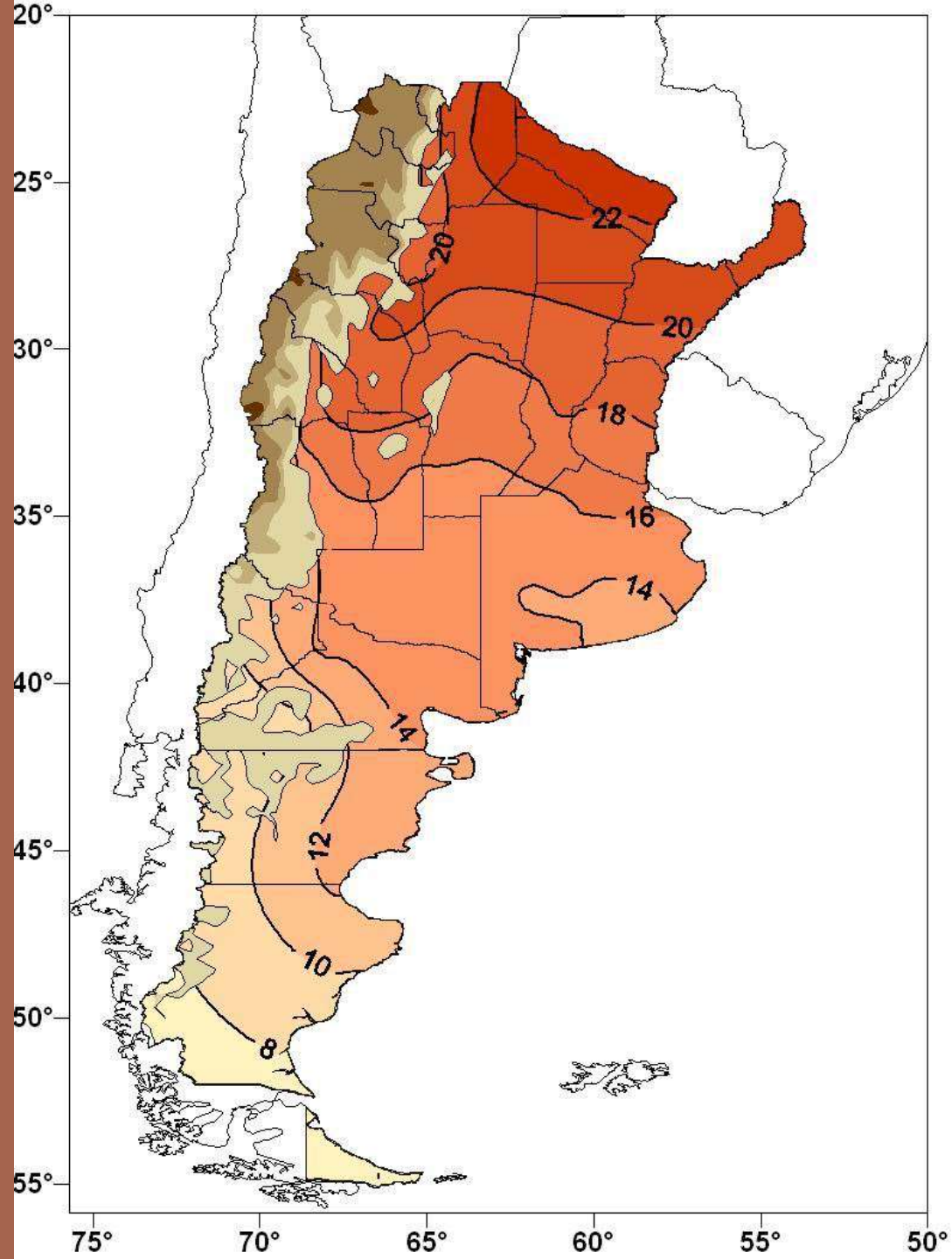
Causas determinantes del Clima Argentino

- a. La República Argentina se halla casi en su totalidad **fuera de los trópicos** (zona templada).
- b. Gran parte del país está compuesto por **llanuras y planicies**.
- c. Los **sistemas montañosos de importancia** corren casi exclusivamente de **Norte a Sur**.
- d. Se encuentra en el Hemisferio Sur en el cual **predominan los mares** sobre los continentes.
- e. Sobre la costa chilena y cerca de la costa argentina corren **corrientes marinas frías** de sur a norte.
- f. Alrededor de los **30° de latitud** en ambos océanos existen **centros anticiclónicos** semipermanentes.
- g. Ambos anticiclones en **invierno** se desplazan hacia el **norte** y tienden a unirse sobre el continente. Durante el **verano**, se desplazan al **sur** y se separan formándose entre ellos, sobre el continente, un centro ciclónico.
- h. El continente sudamericano **es angosto** y su ancho decrece a medida que aumenta la latitud.

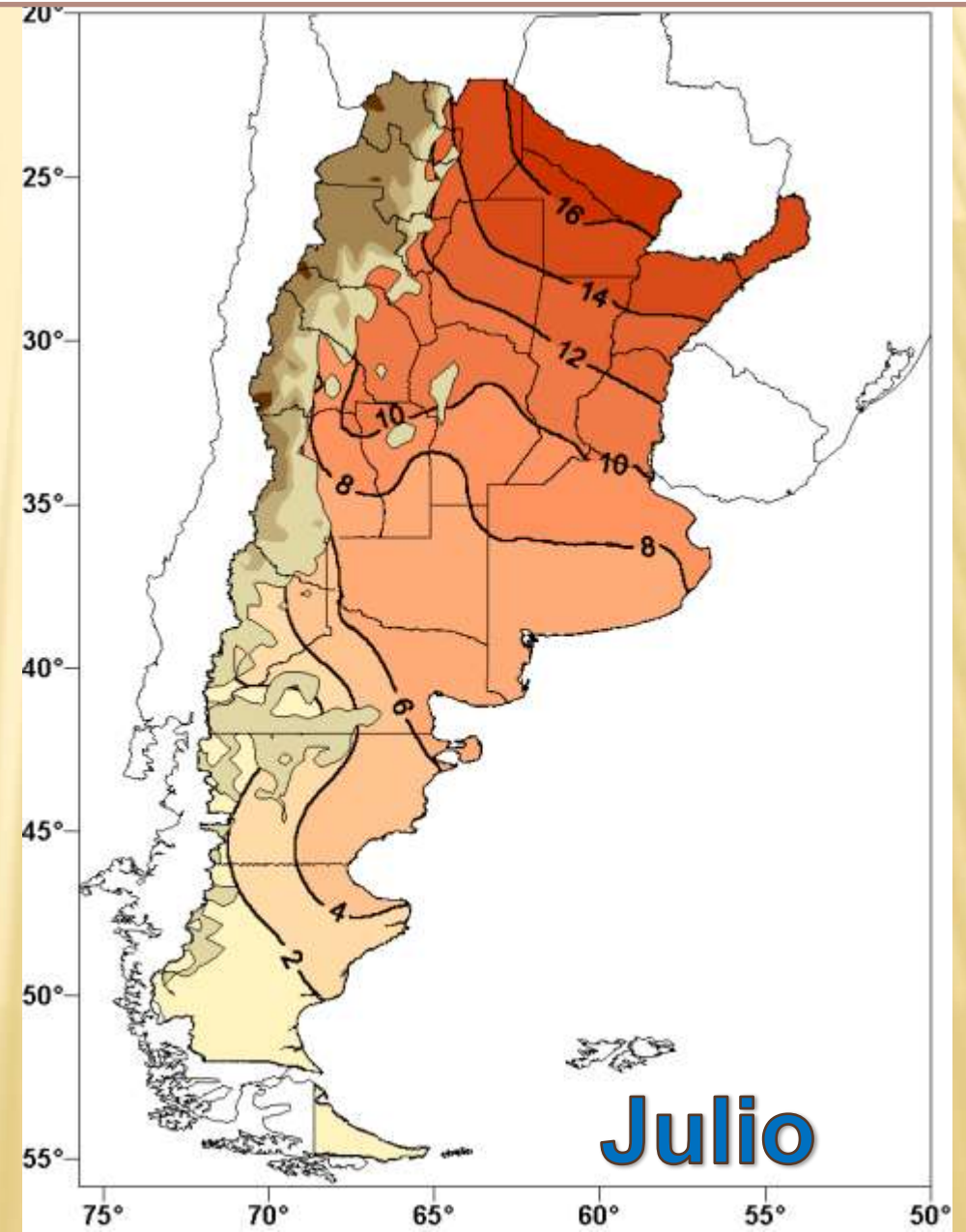
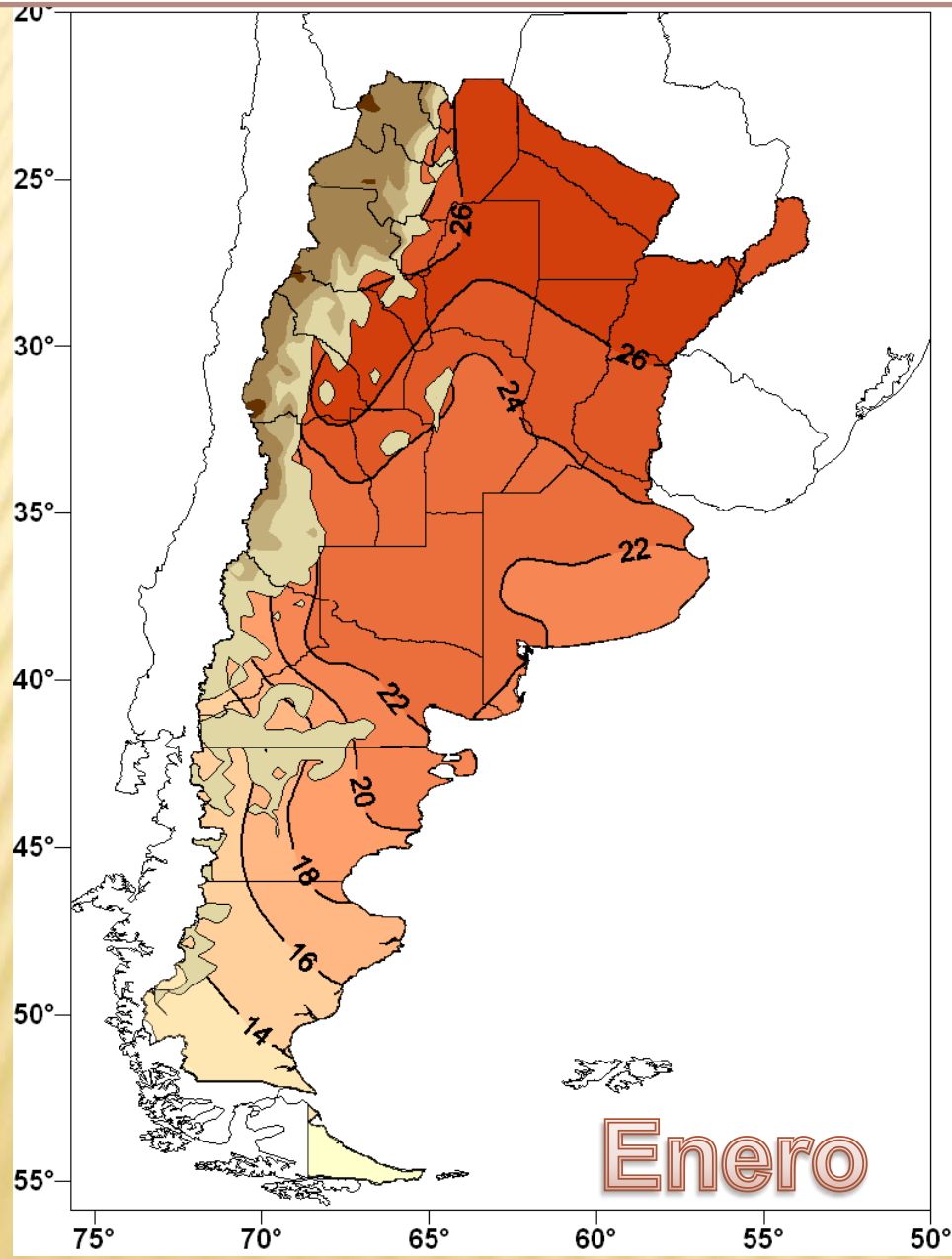
Análisis de las principales variables meteorológicas

- Temperatura
- Precipitación

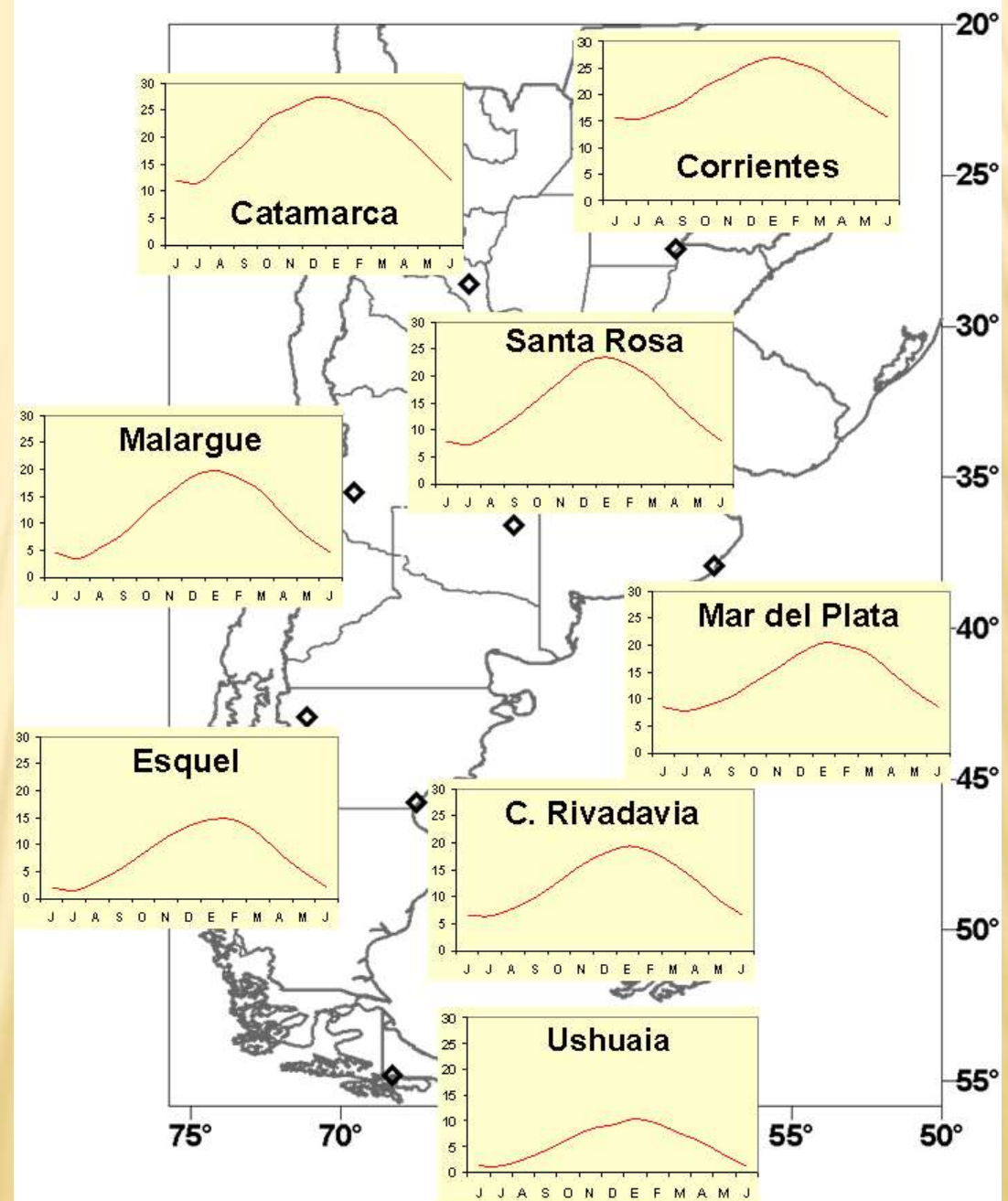
Temperatura media anual



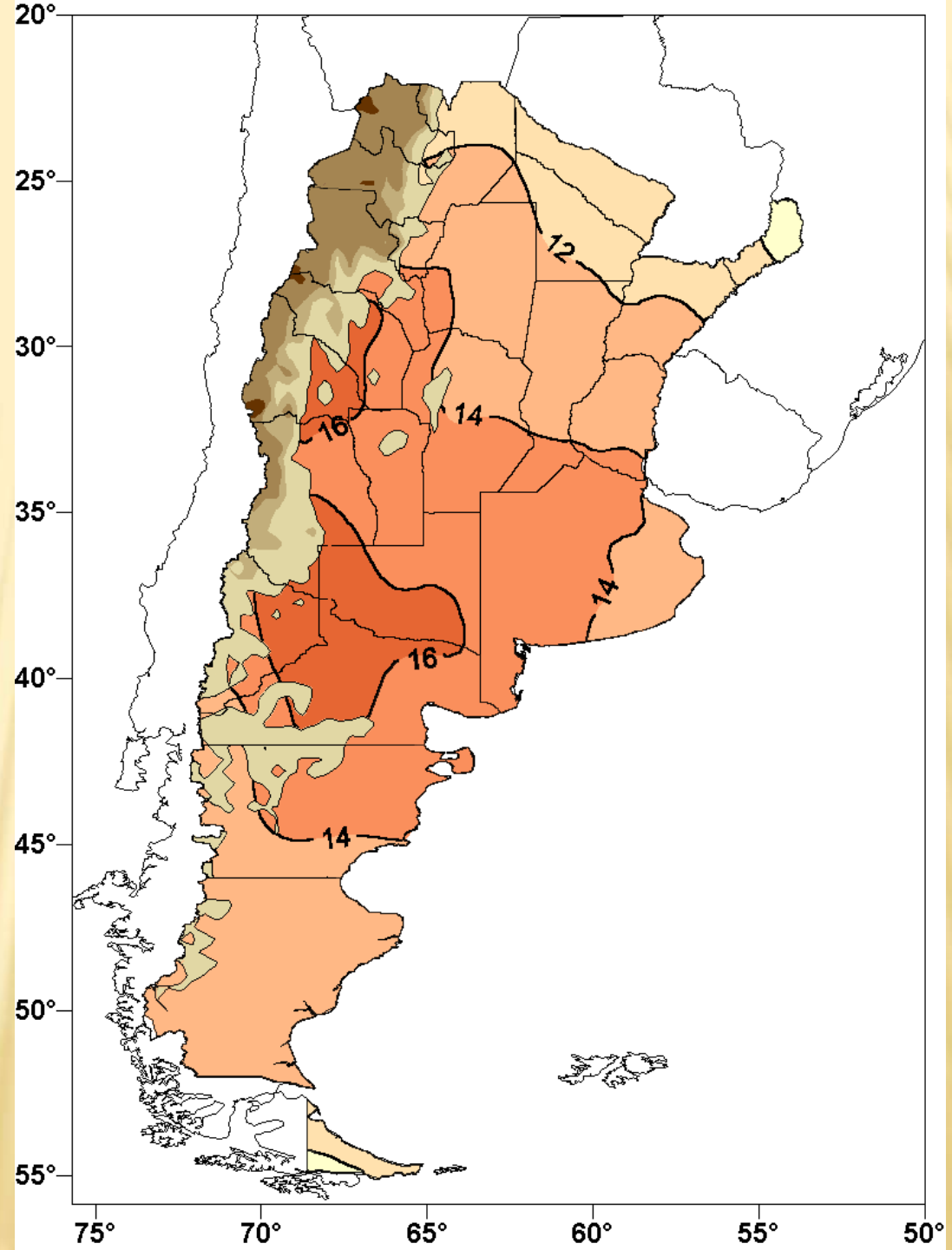
Temperaturas medias



Amplitud Térmica

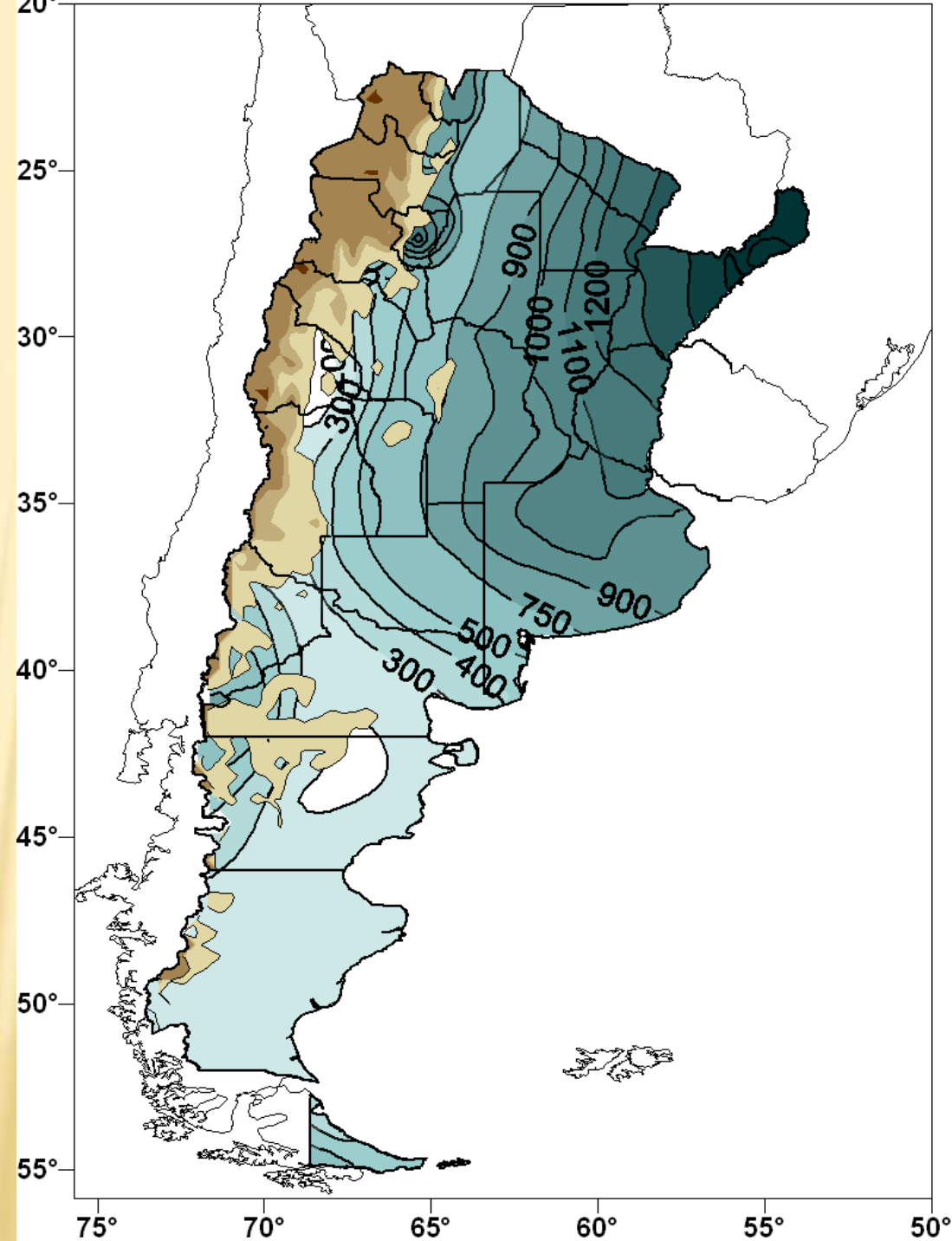


Amplitud de las Temperaturas medias



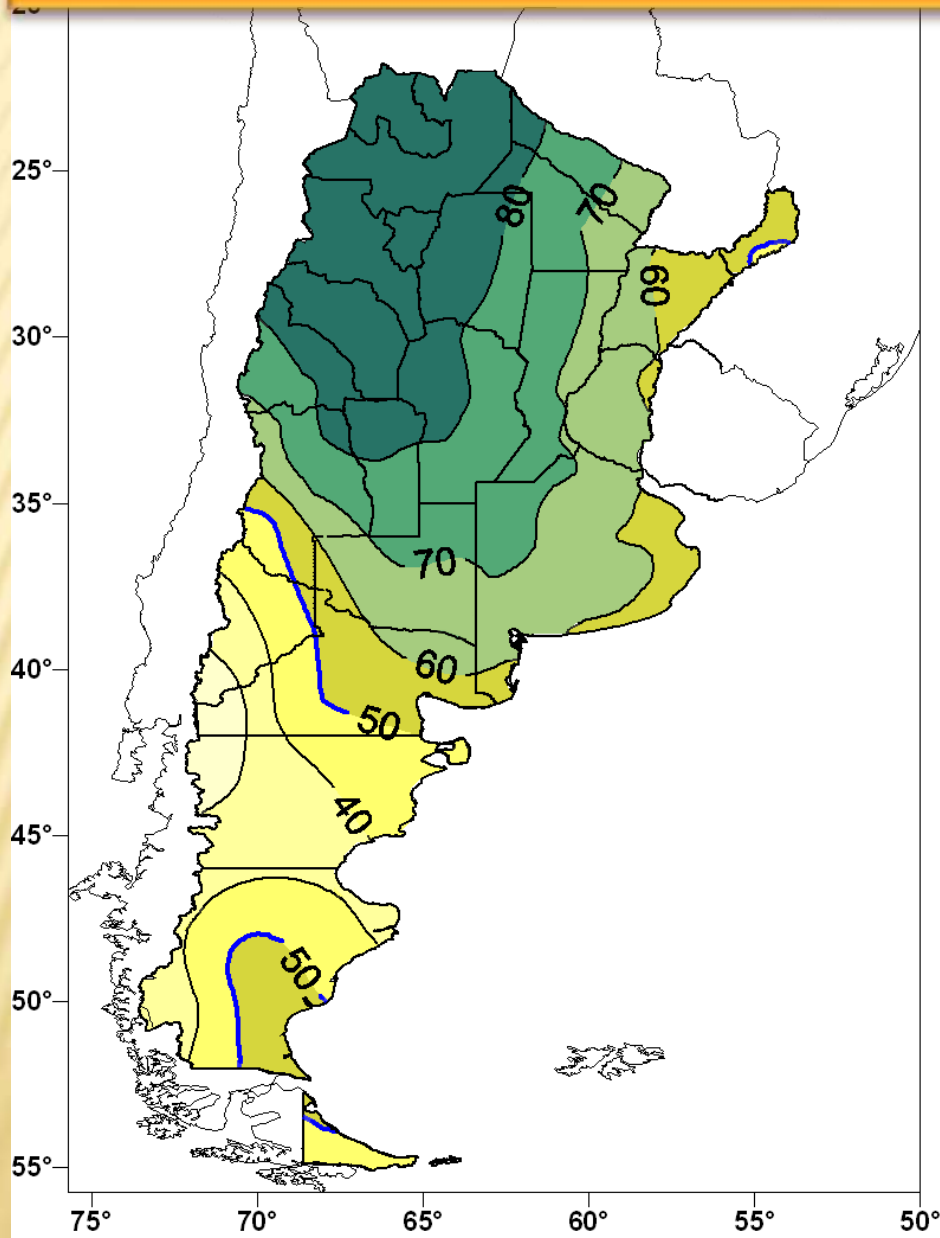
Precipitaciones medias anuales

Período: 1970-2000

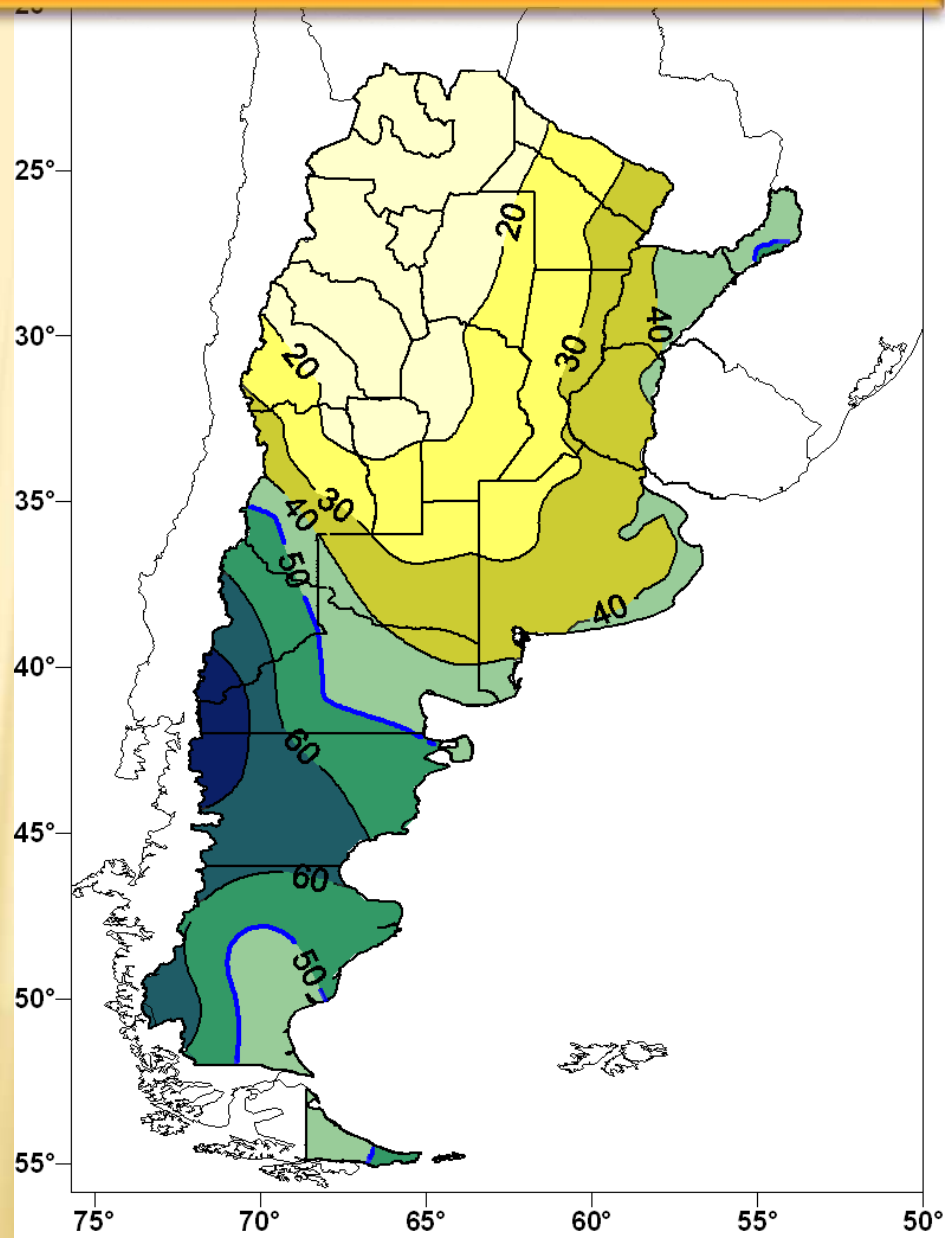


Estacionalidad de las precipitaciones

% semestre cálido



% semestre frío



**Algunas
características
Agroclimáticas de la
provincia de Jujuy**

MODELO DIGITAL DE ELEVACIÓN PROVINCIA DE JUJUY

21° 46'

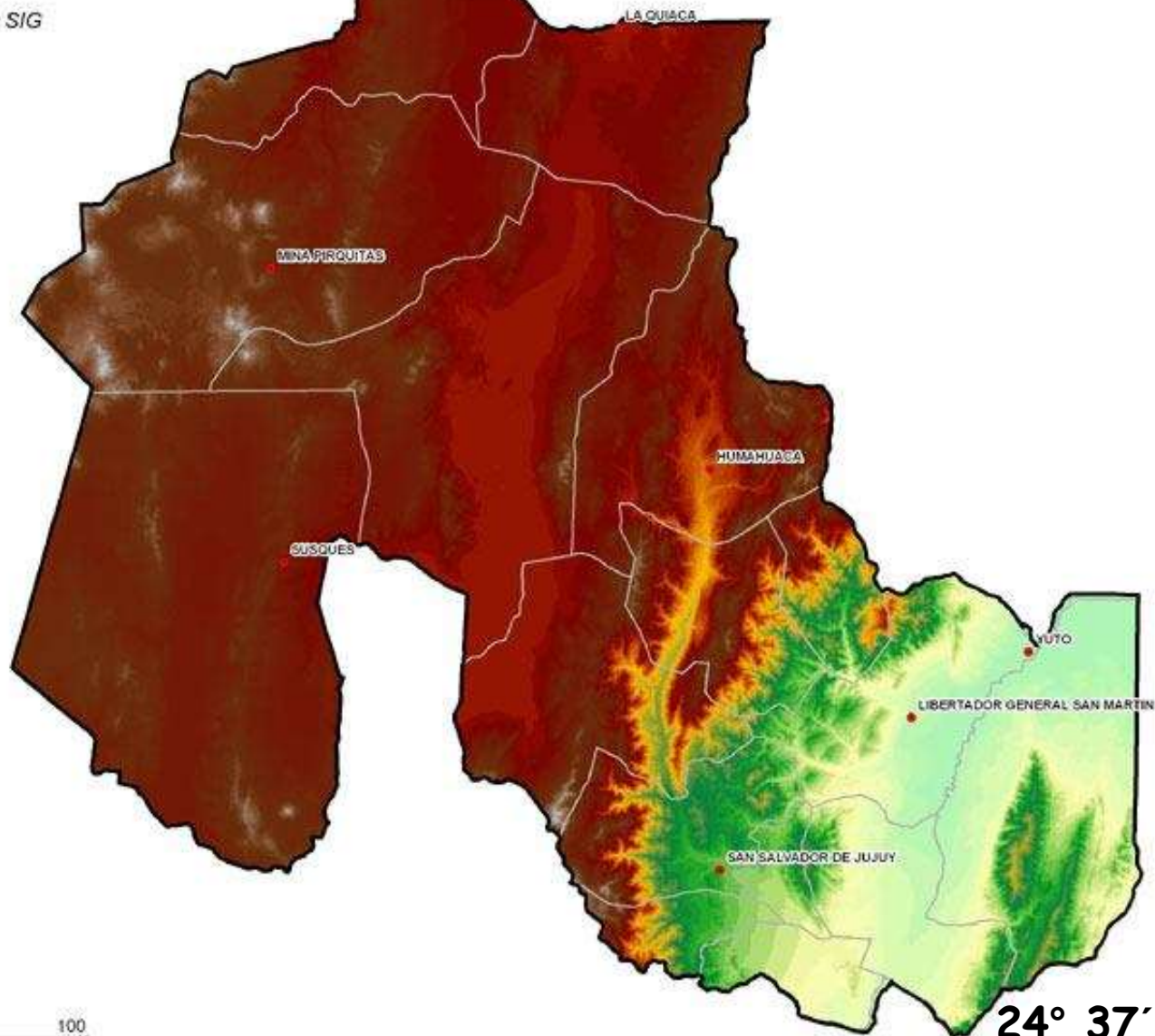
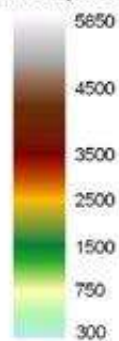
Imagen SRTM (Shuttle Radar Topography Mission)
Resolución espacial 90 m.

Laboratorio de Teledetección y SIG
INTA - EEA Salta

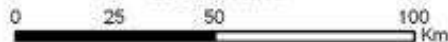
Referencias

- ▭ Limite provincial
- ▭ Limite departamental

Altitud (metros)

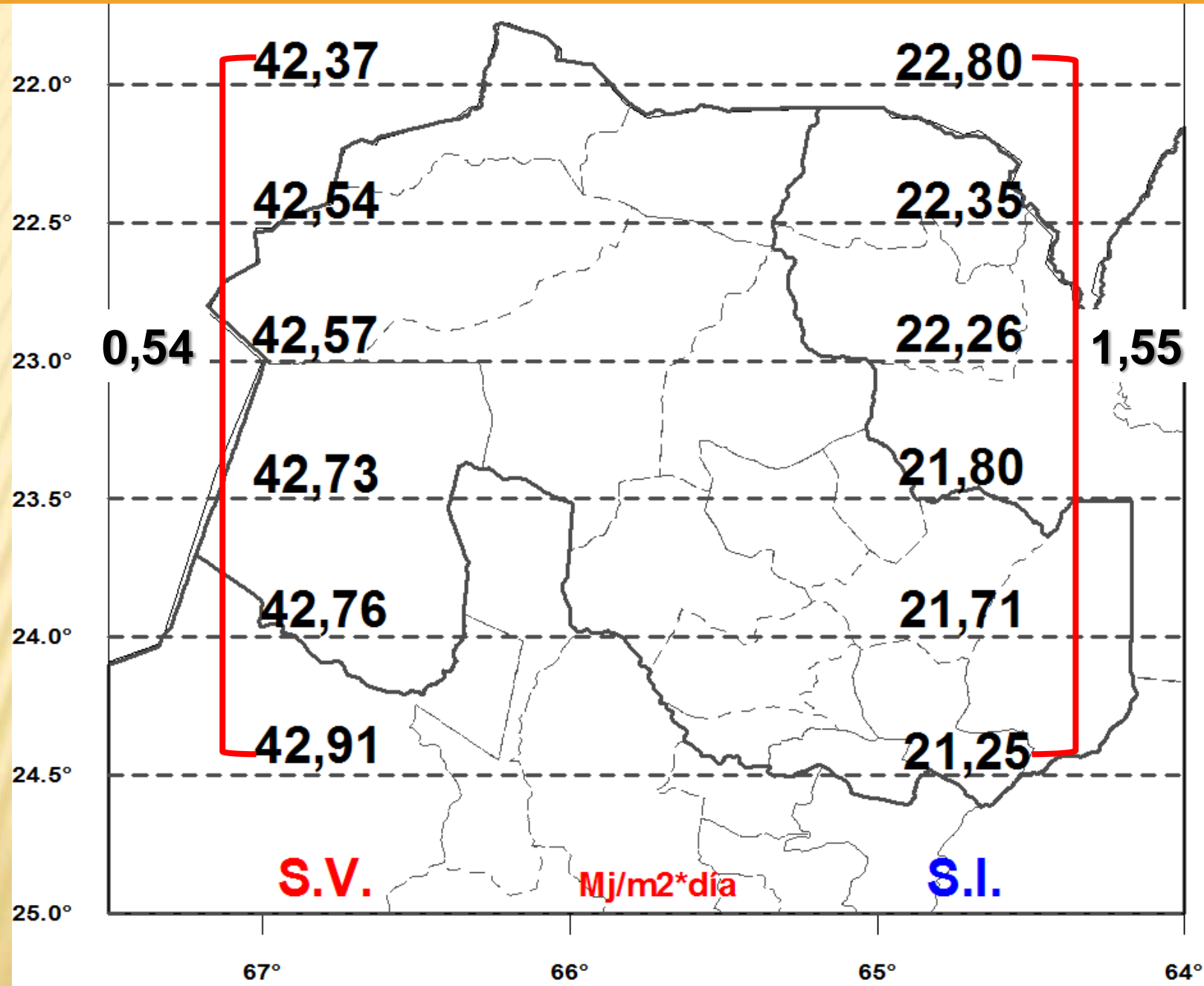


Escala Gráfica

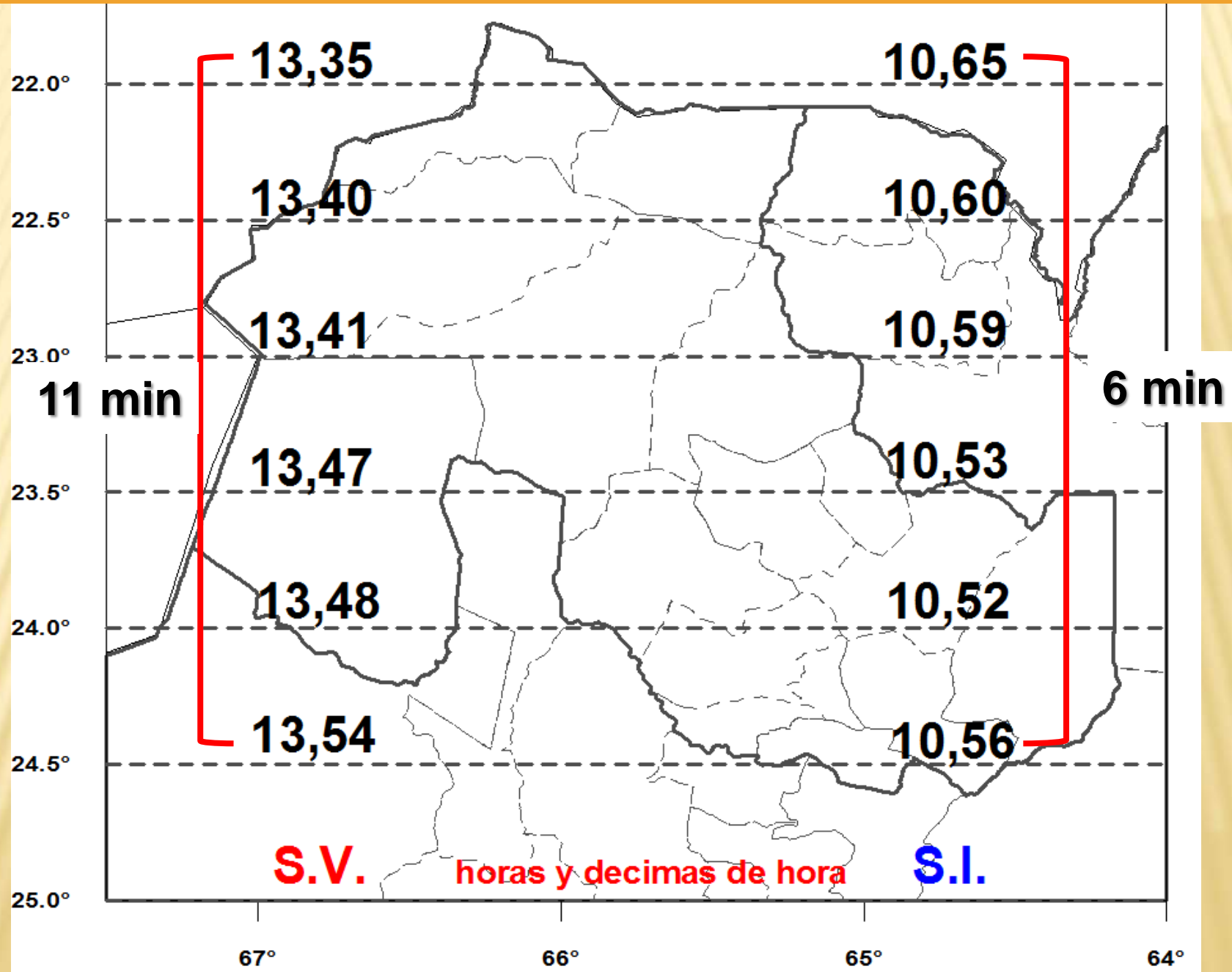


24° 37'

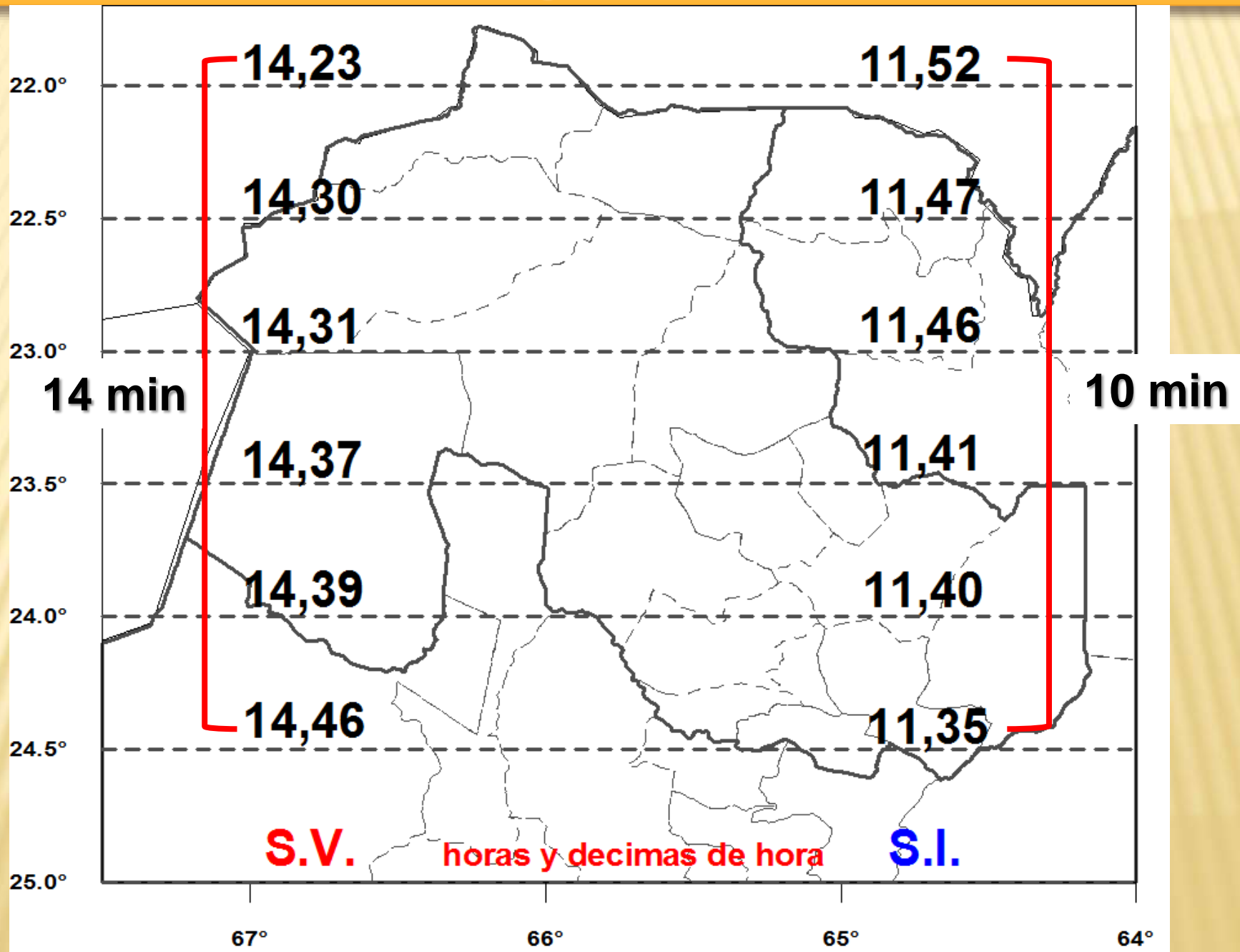
Radiación Astronómica

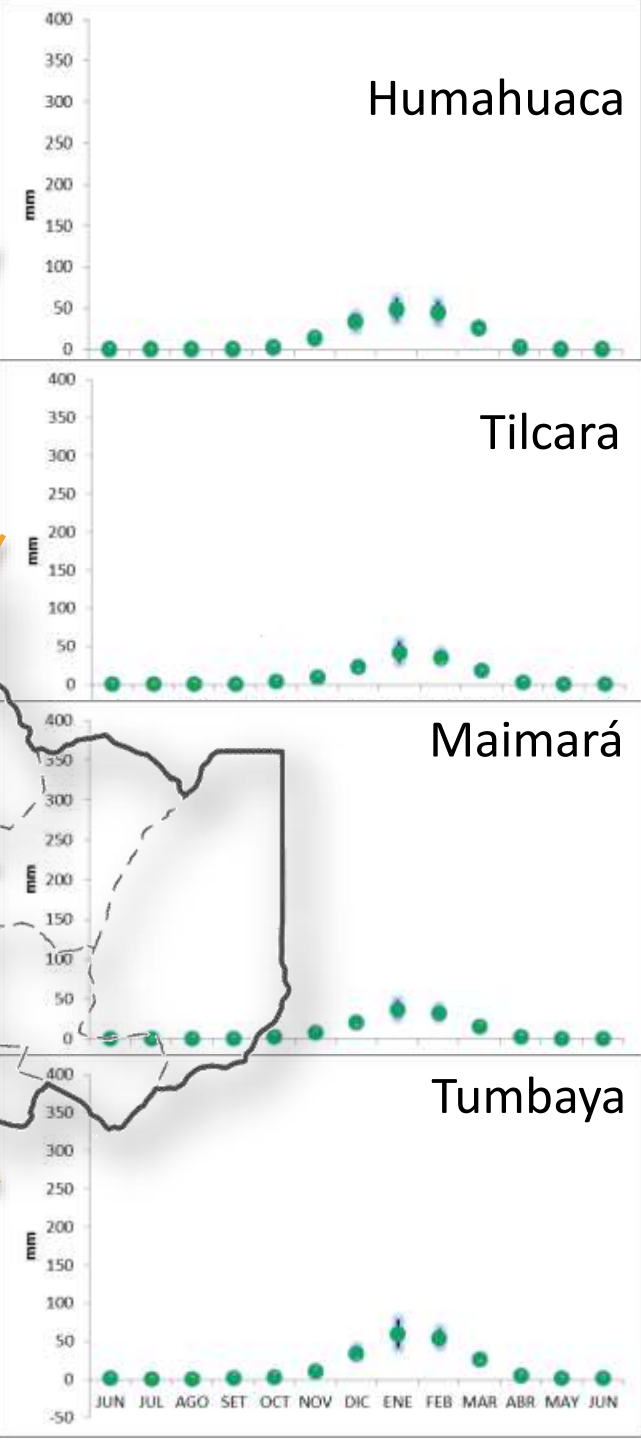
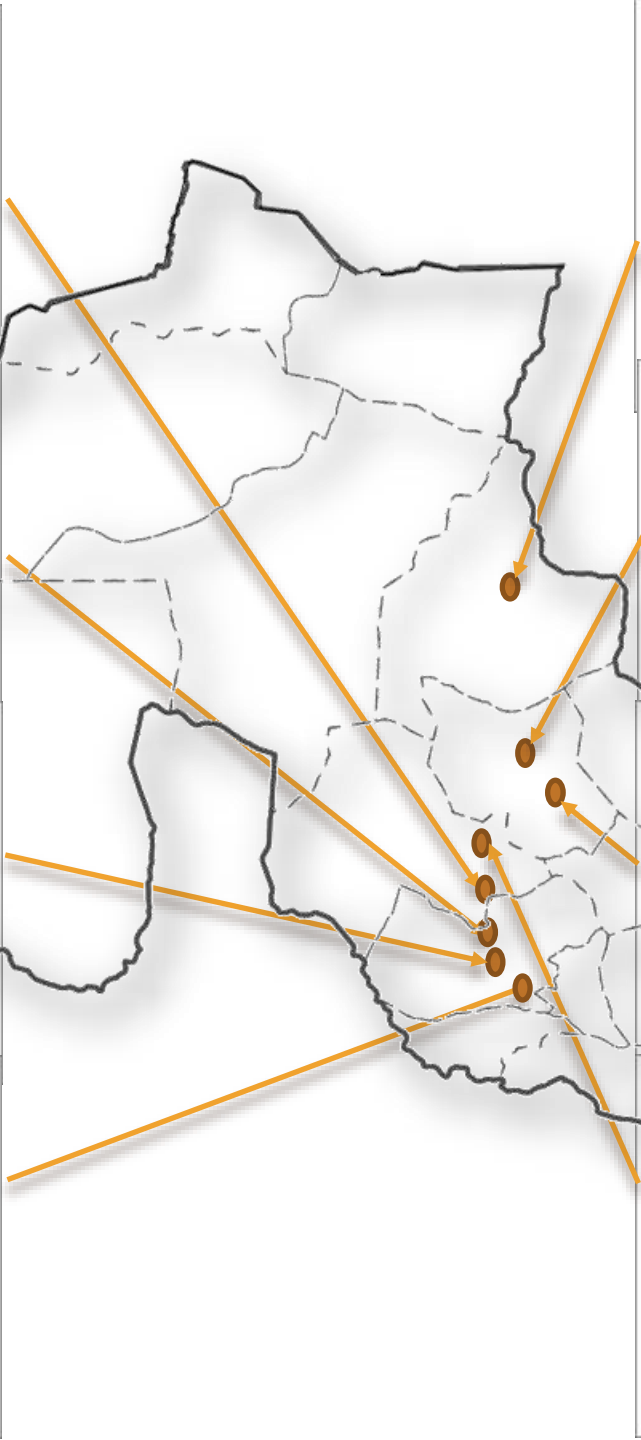
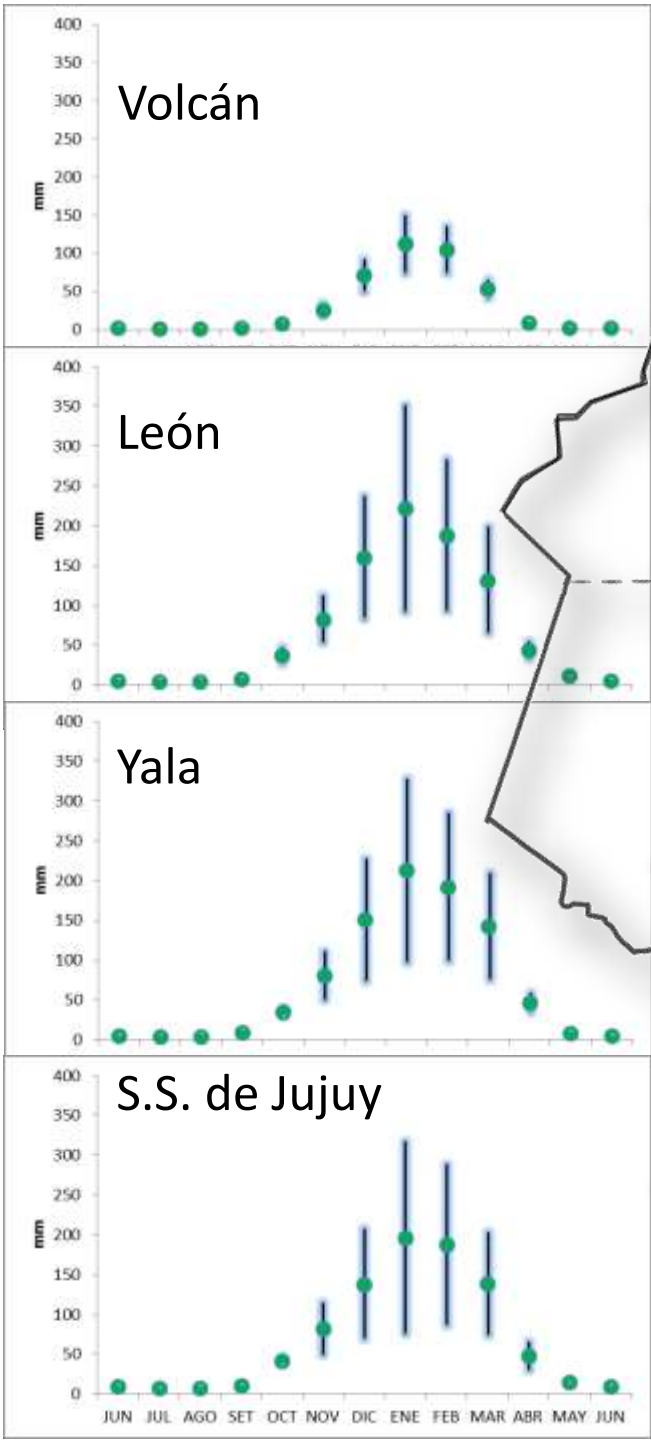


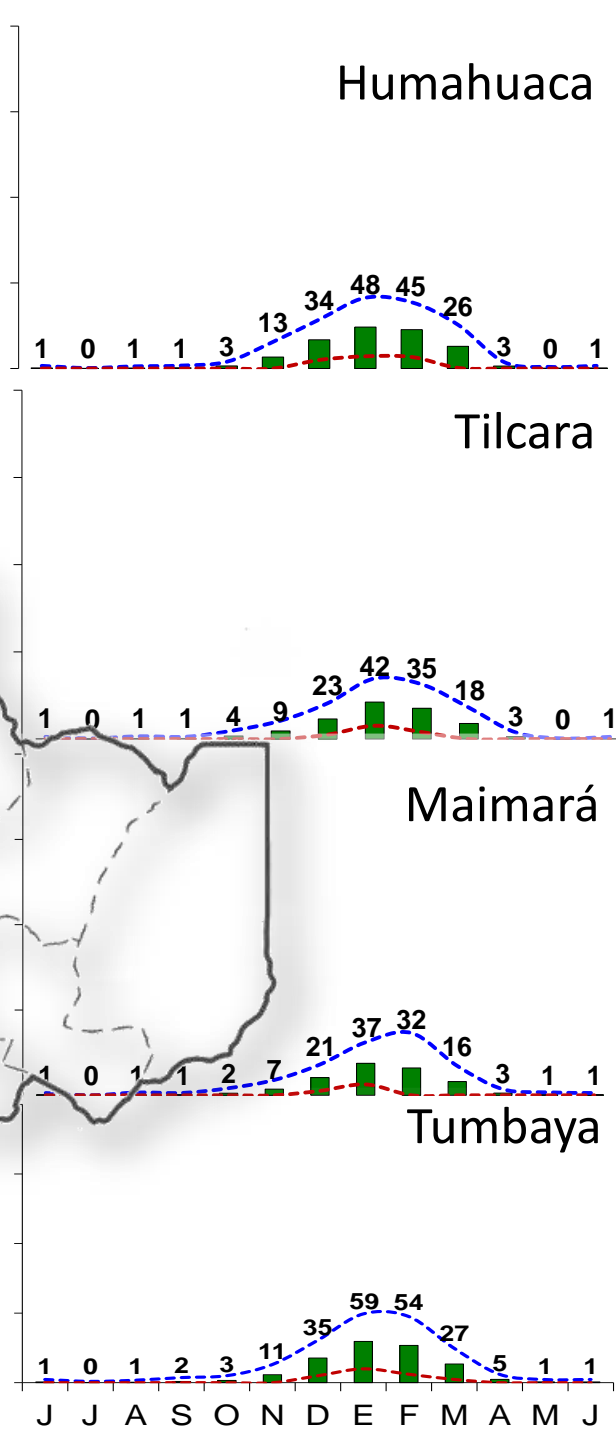
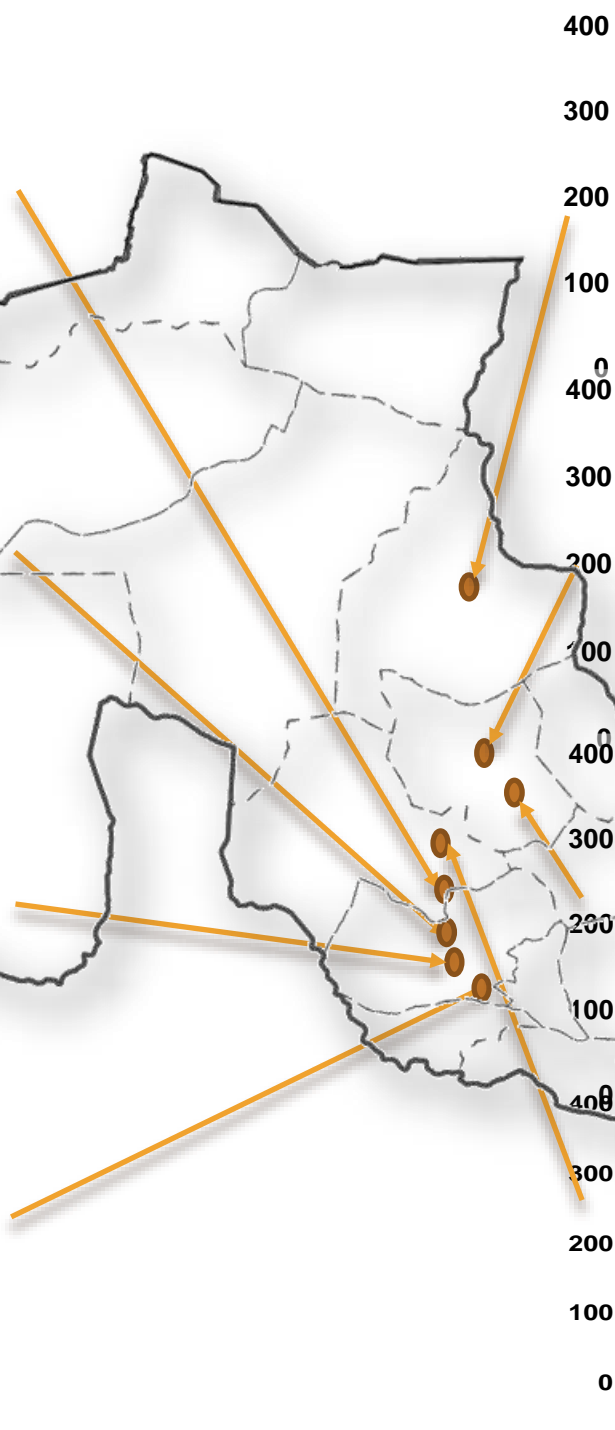
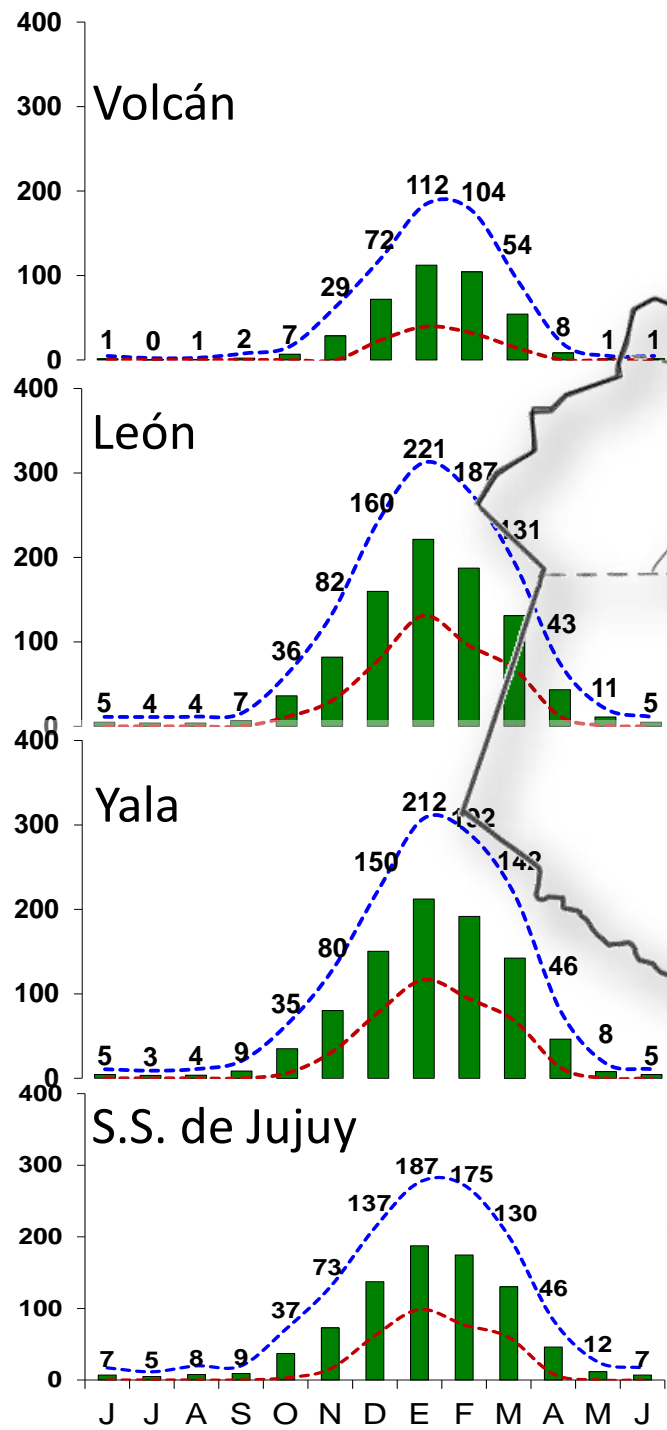
Heliofanía Astronómica

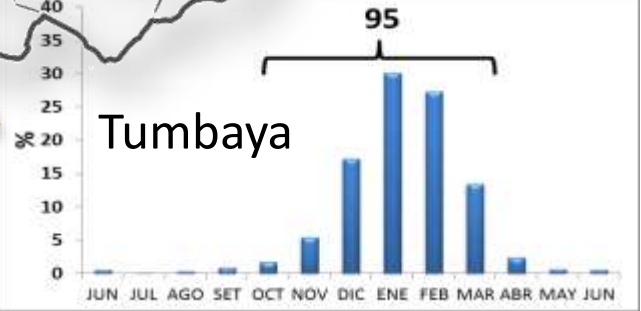
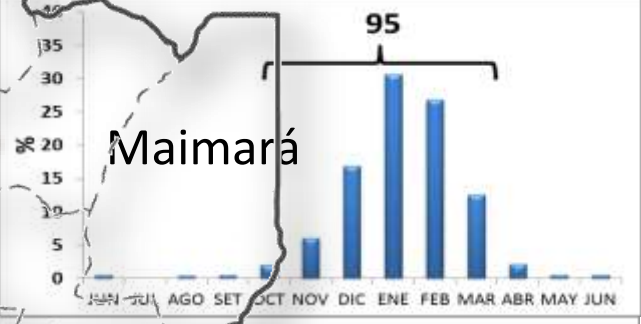
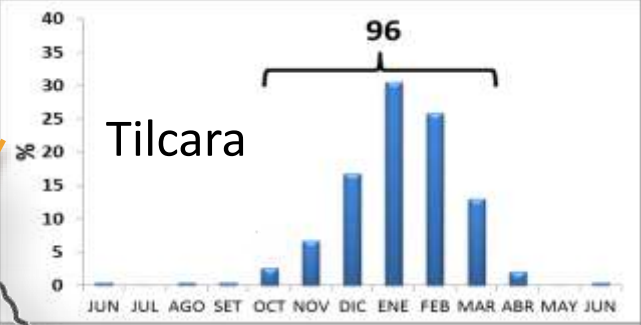
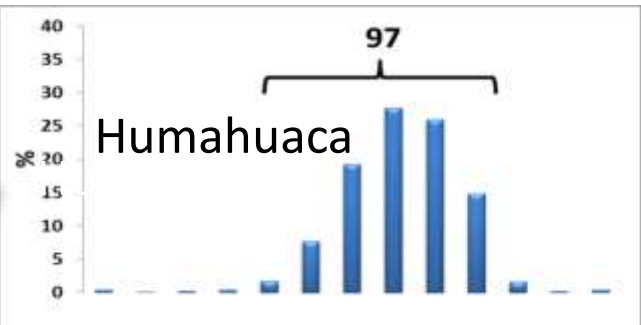
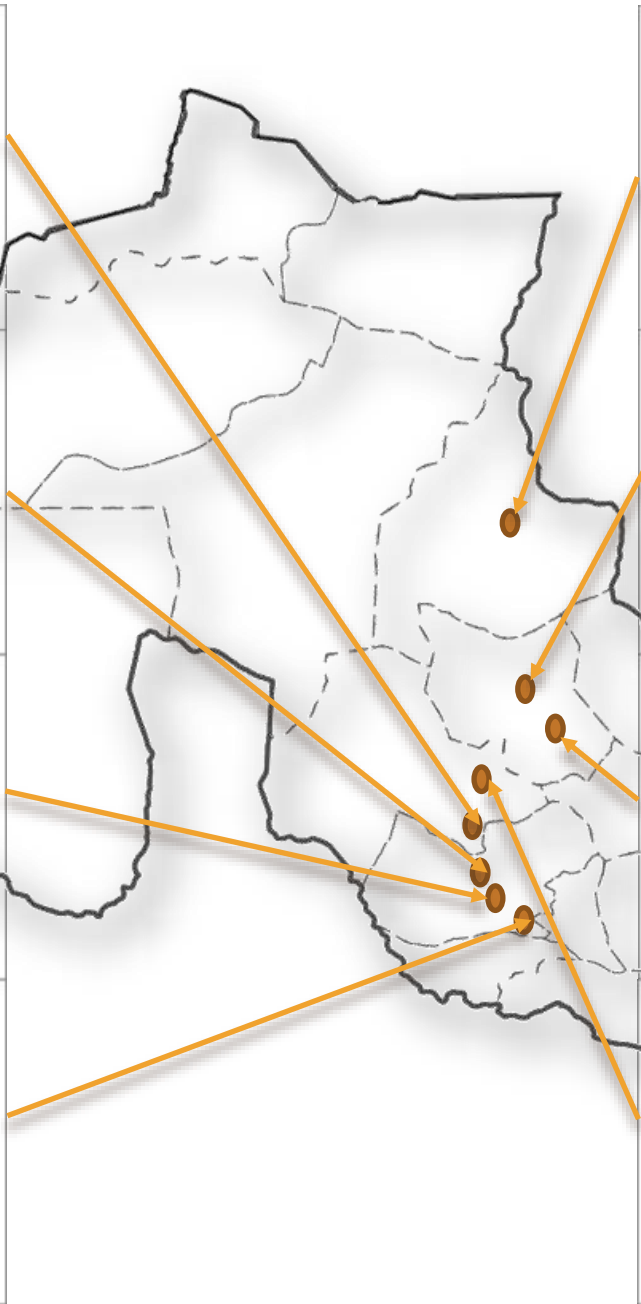
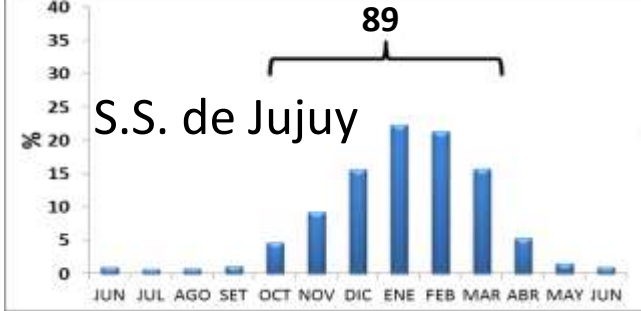
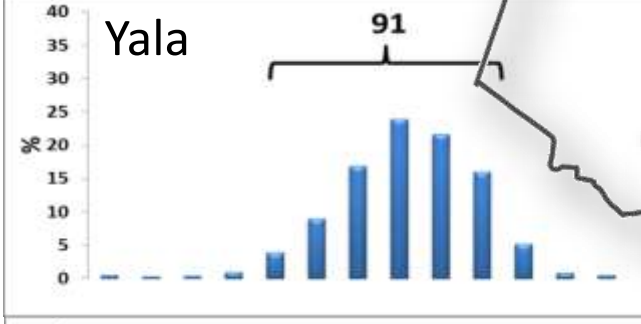
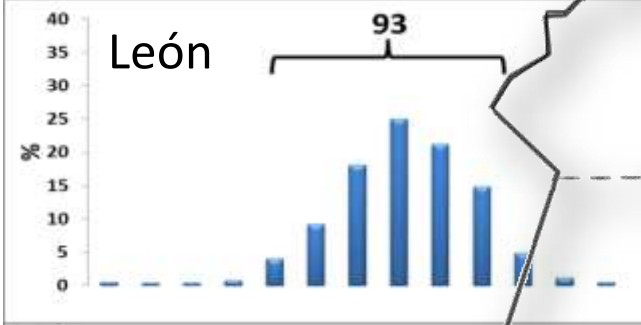
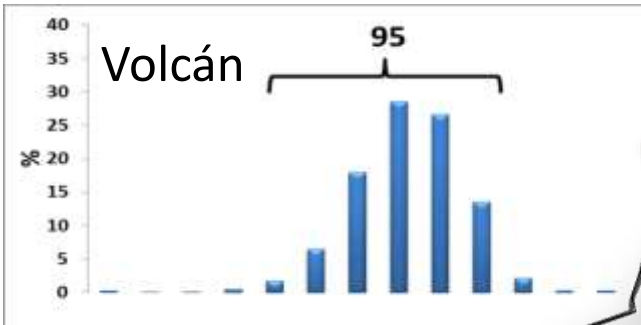


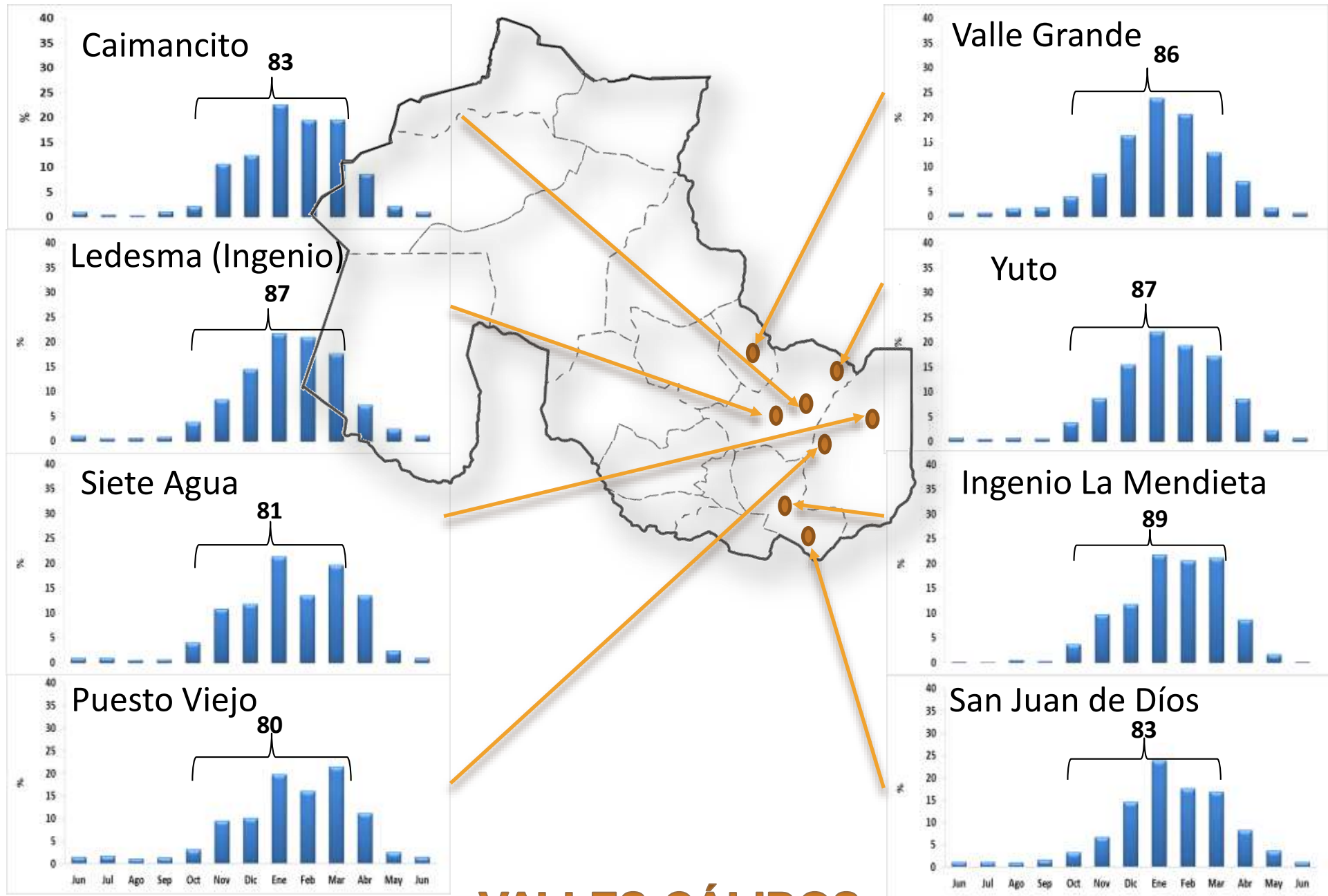
Fotoperíodo



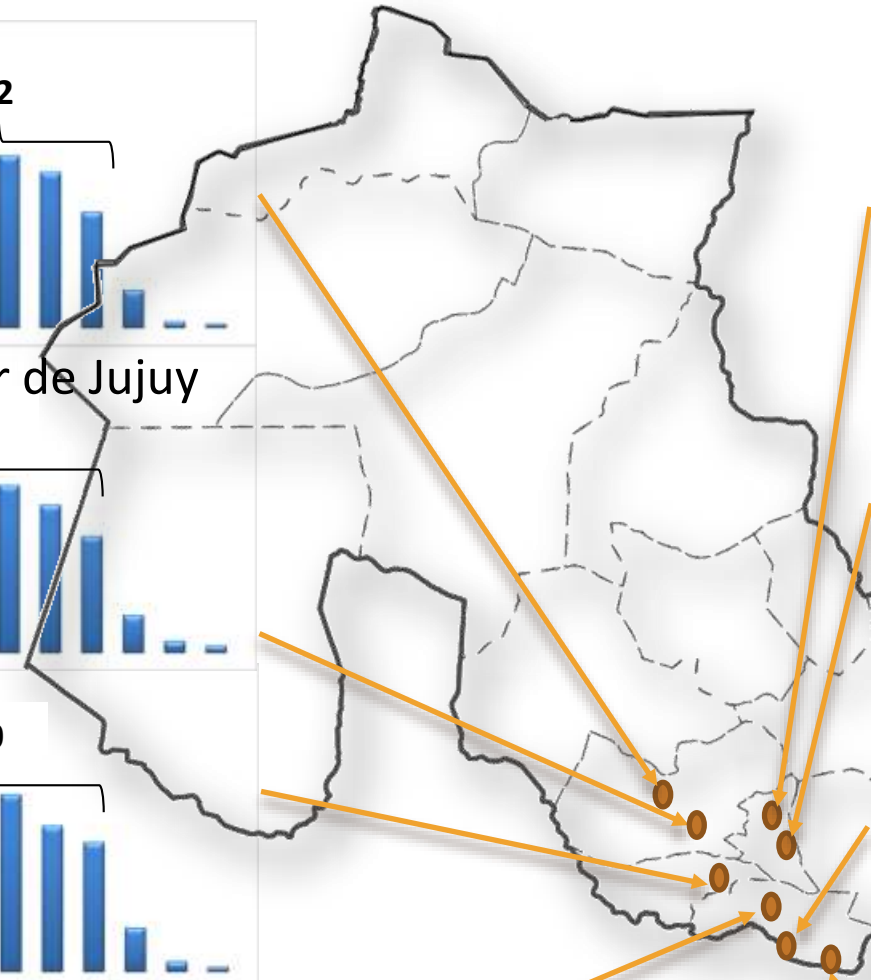
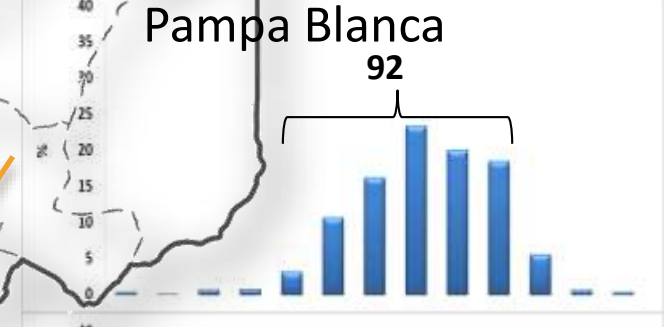
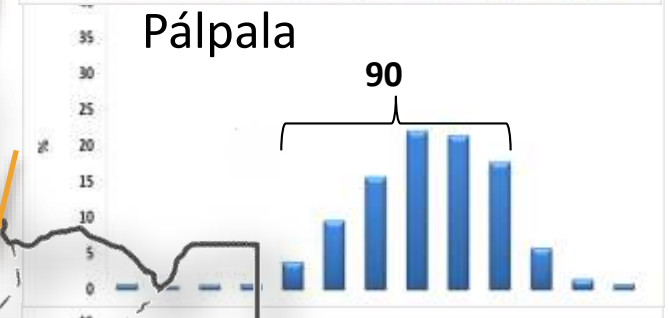
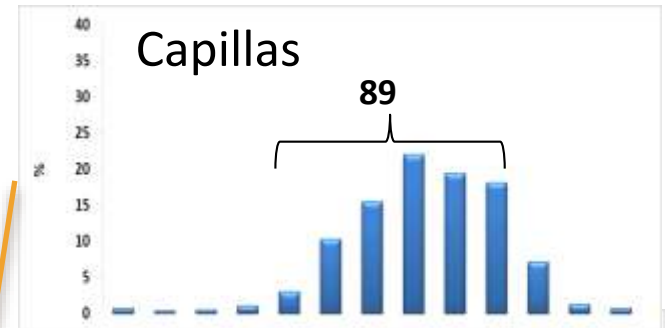
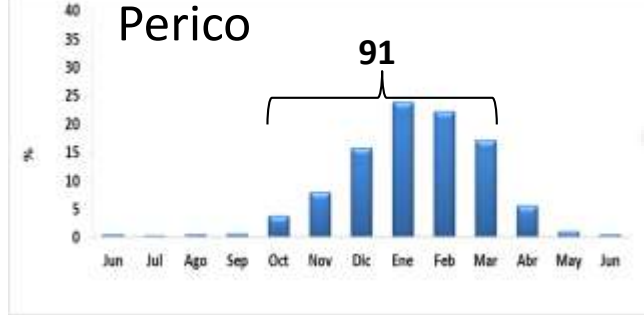
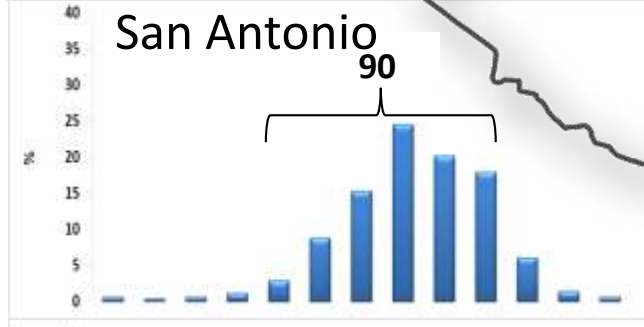
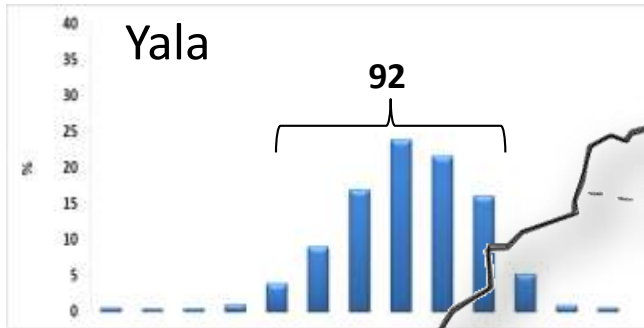




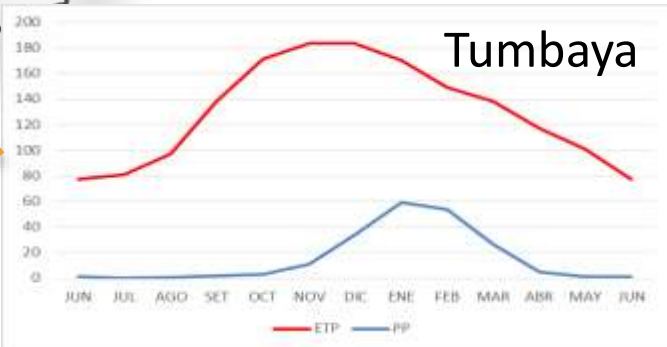
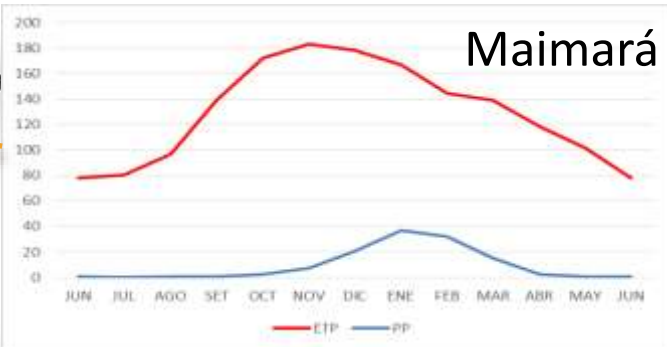
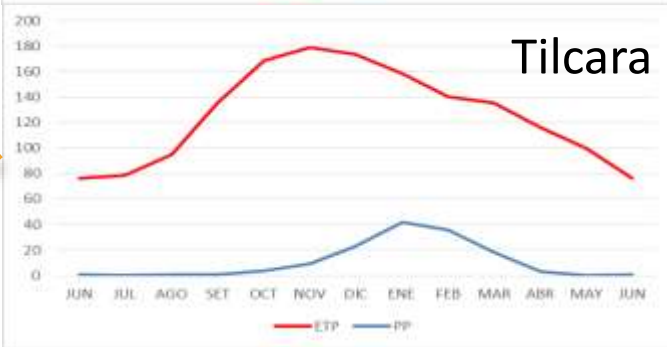
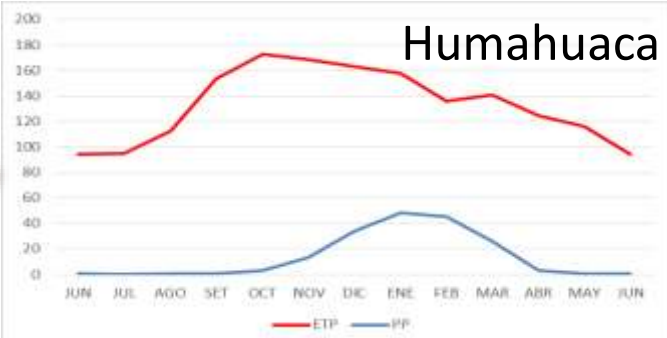
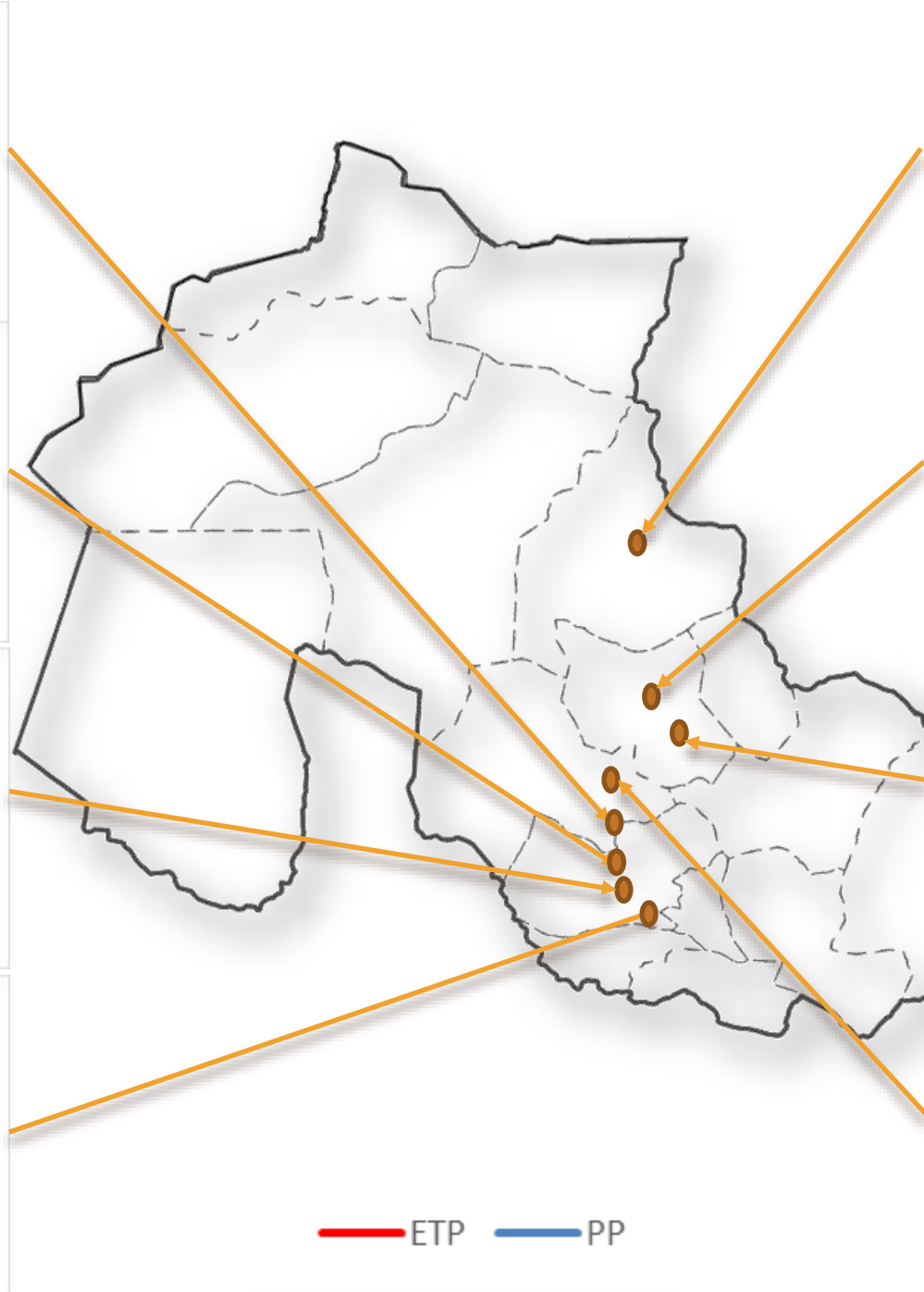
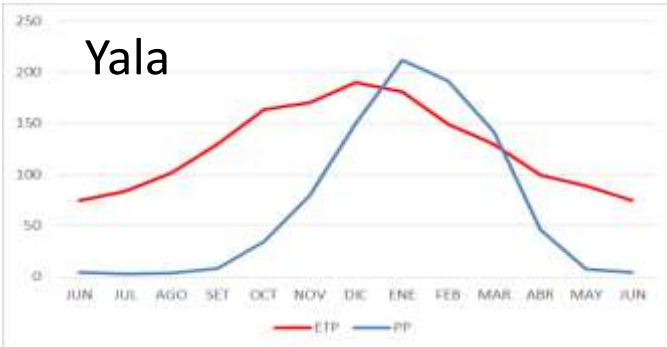
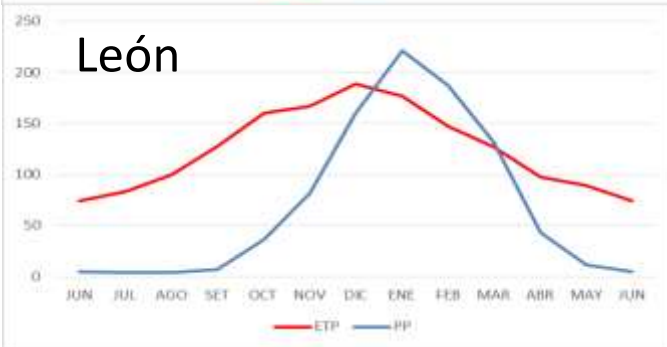
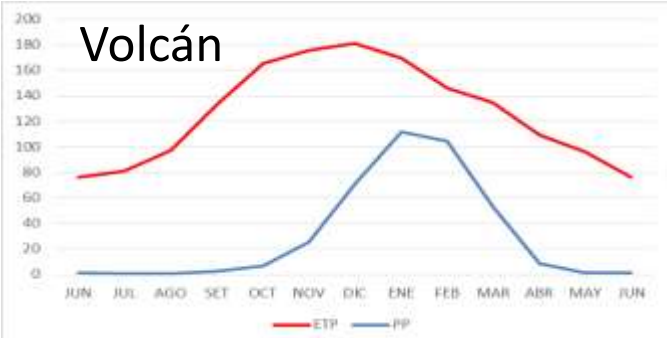


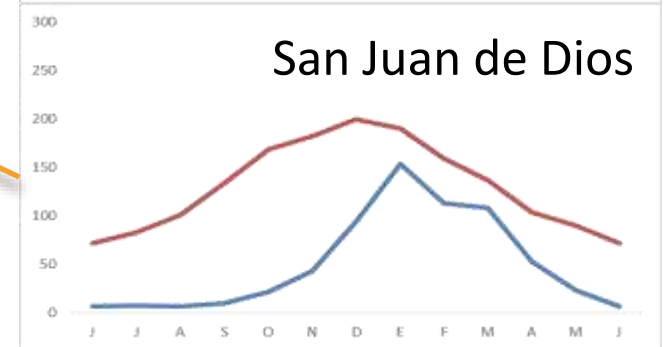
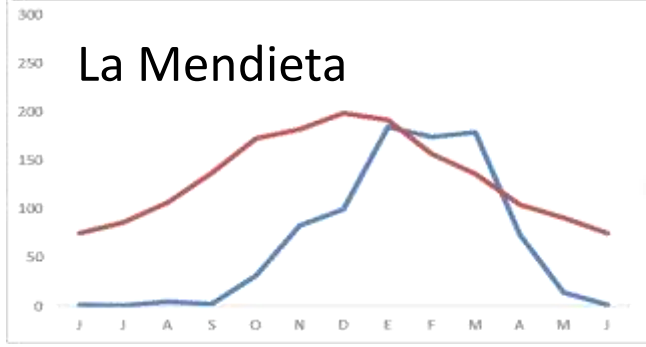
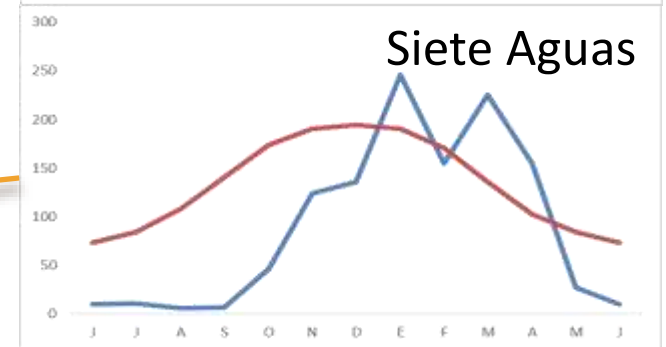
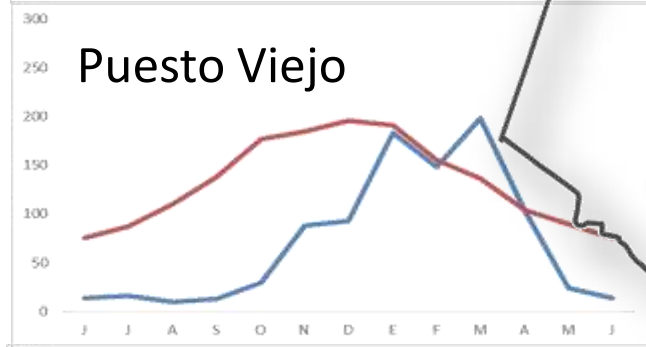
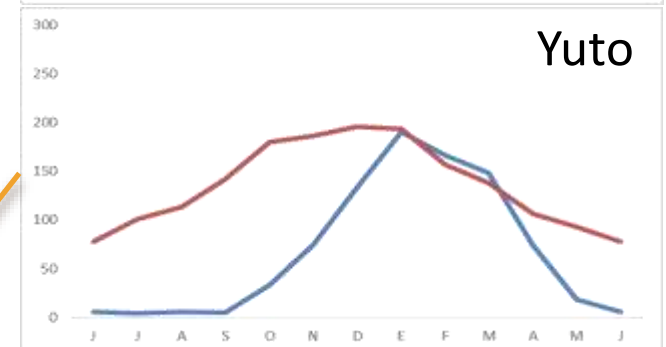
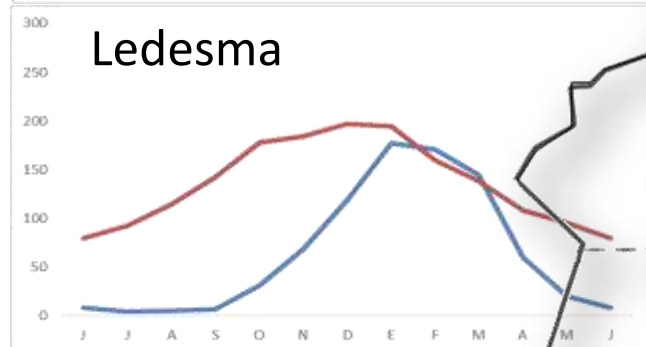
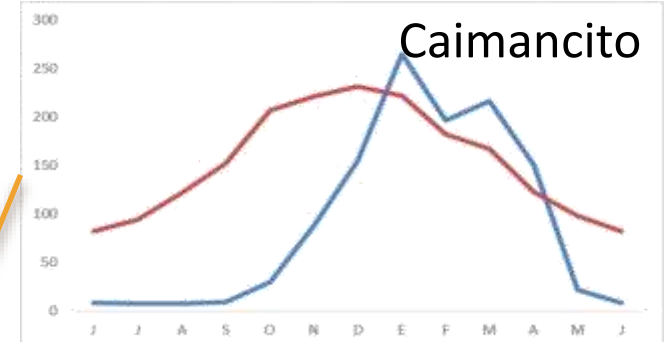
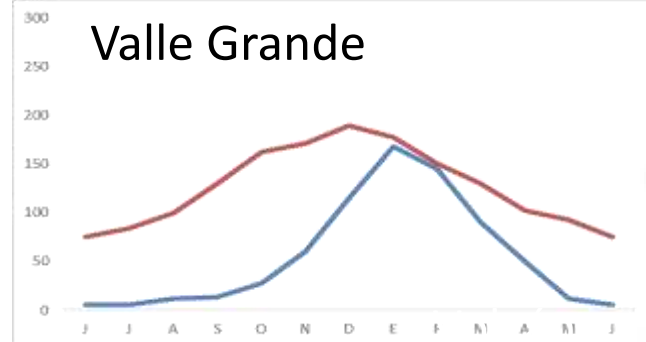


VALLES CÁLIDOS

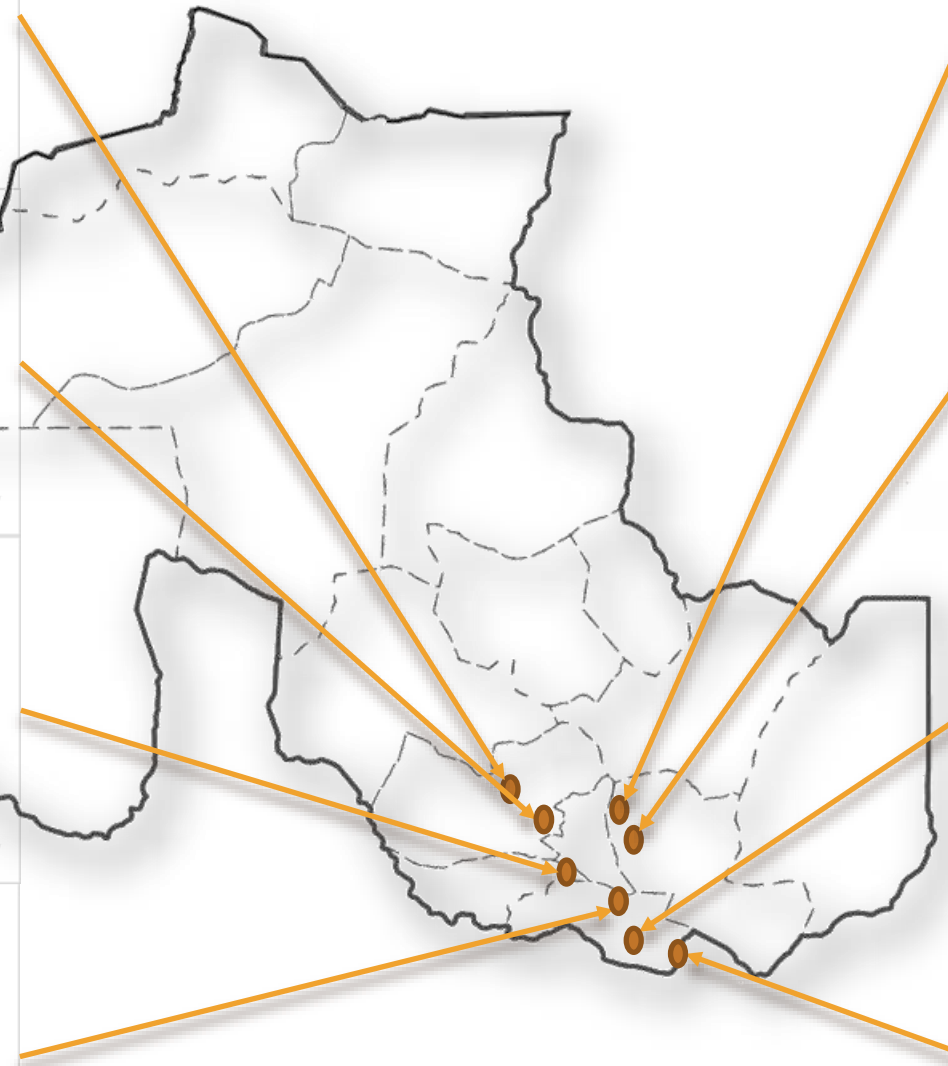
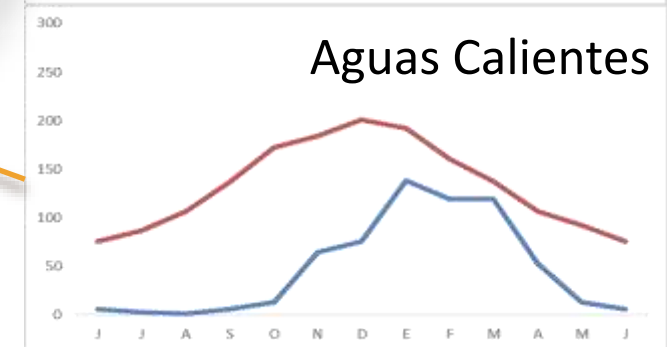
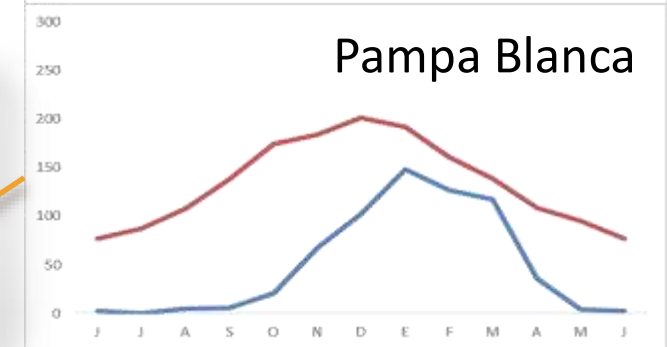
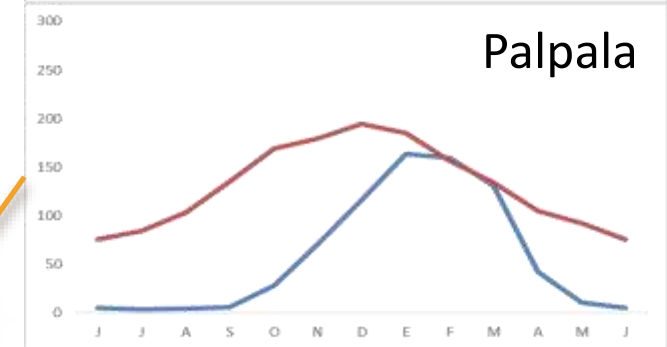
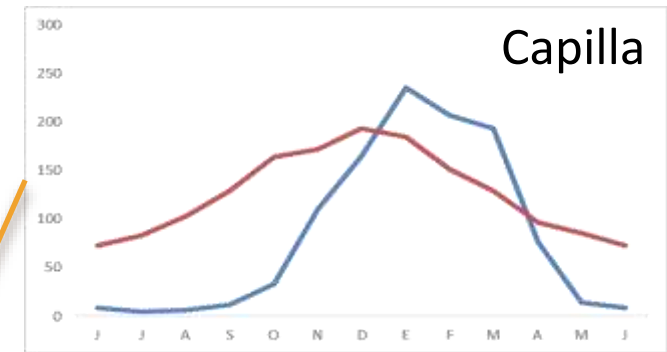
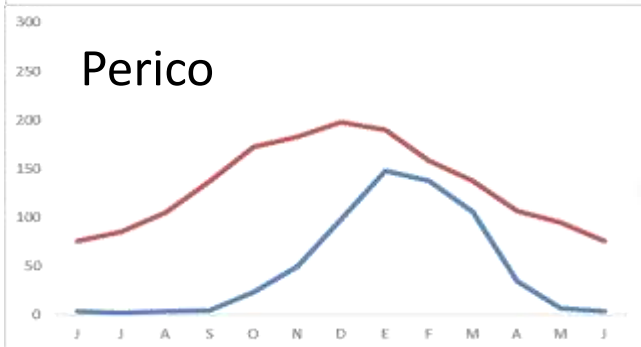
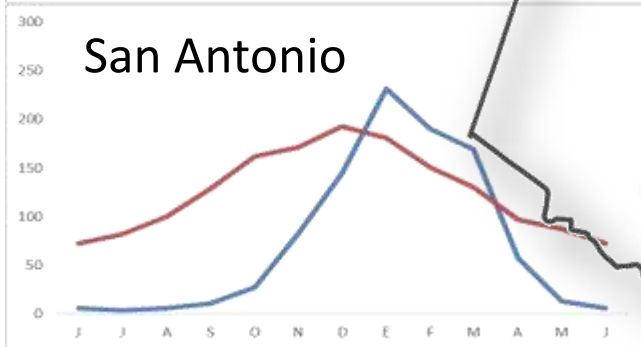
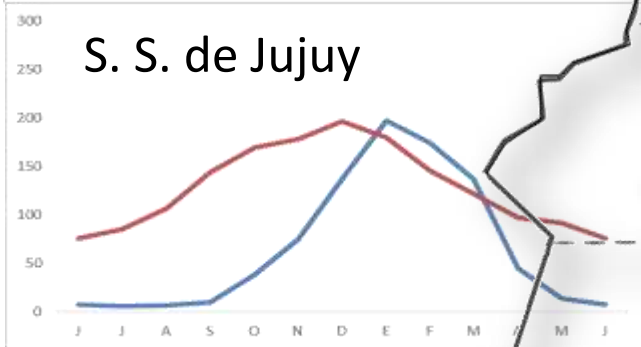
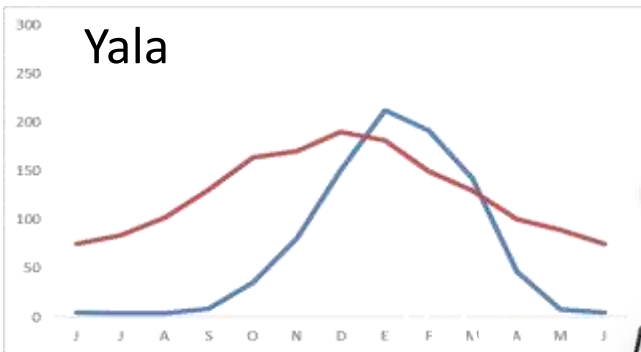


VALLES TEMPLADOS



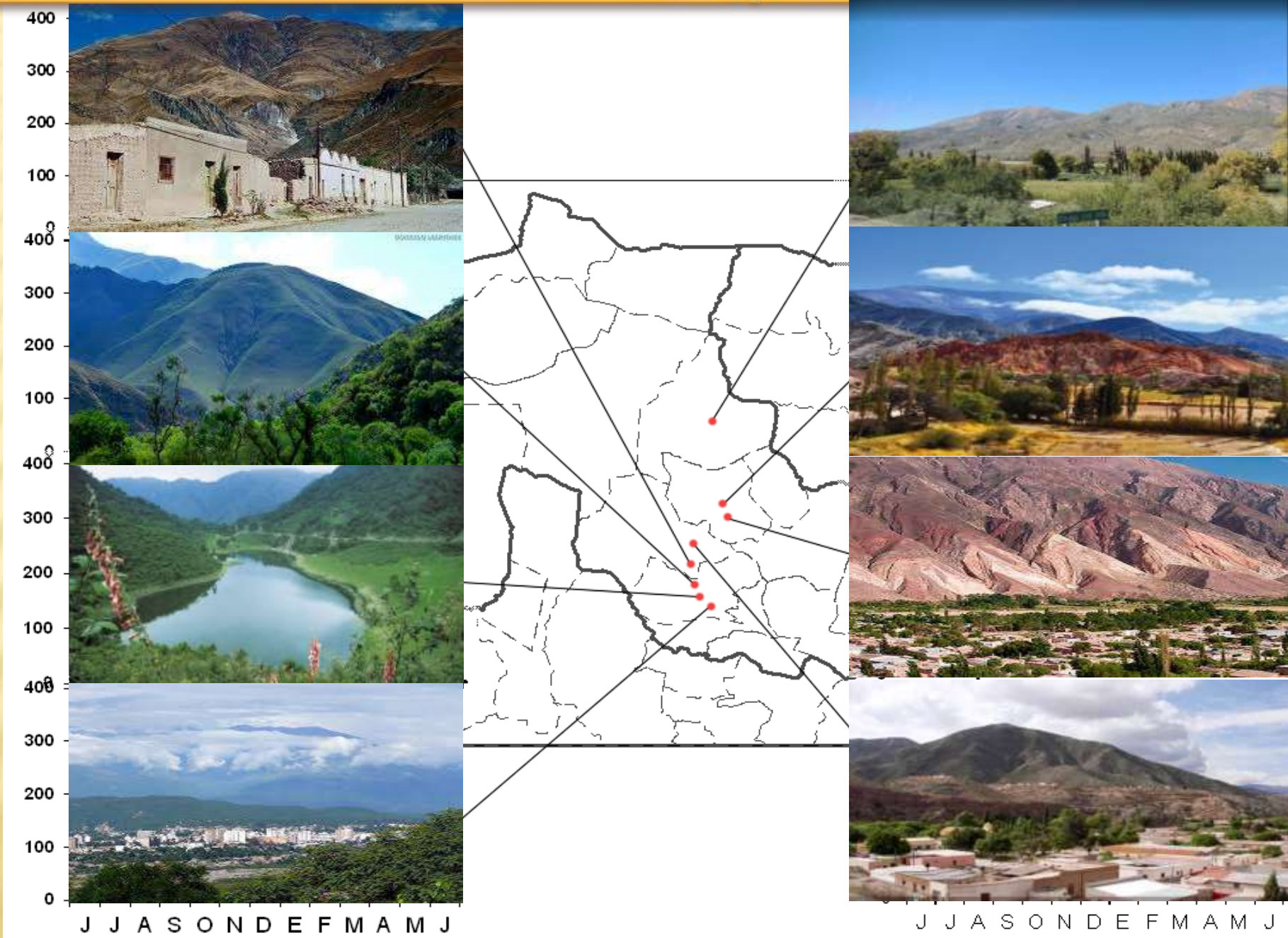


— ETP — PP



— ETP — PP

Marcha mensual de la precipitación



Precipitación mediana anual

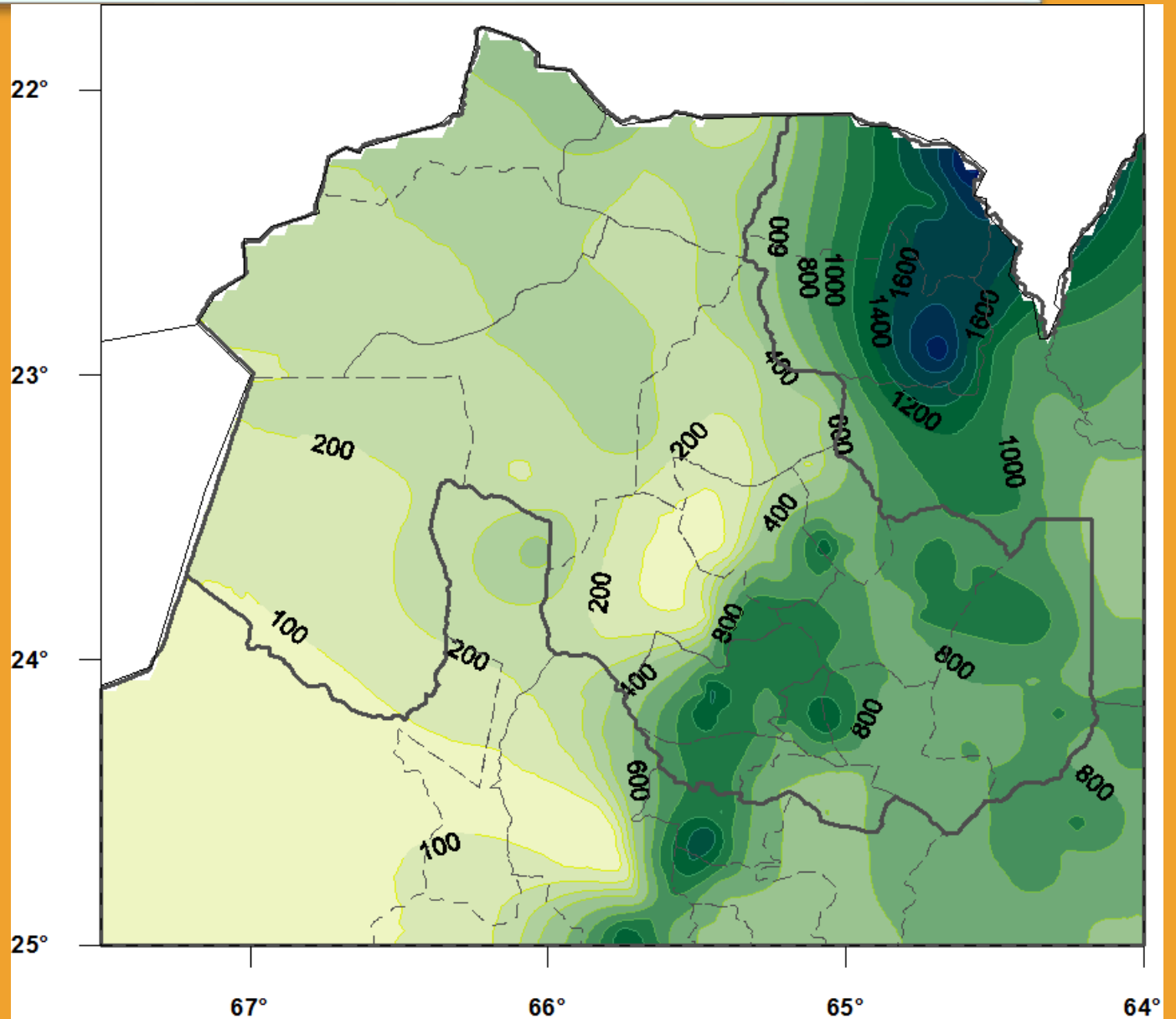
**Perico: 708 mm
(a.s.m.: 936 m)**

**S. S. Jujuy: 913 mm
(a.s.m.: 1303 m)**

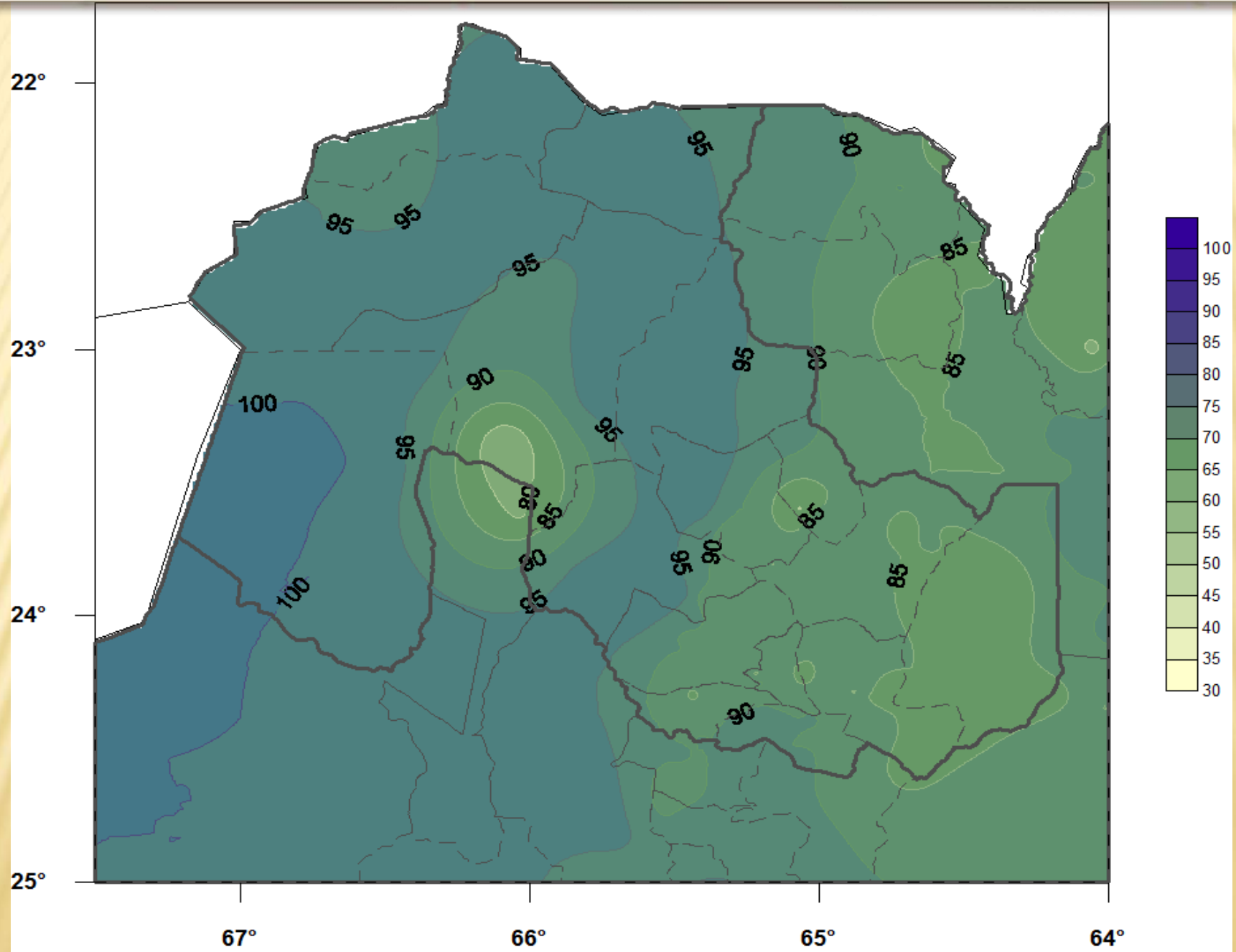
**León: 892 mm
(a.s.m.: 1622 m)**

**Volcan: 392 mm
(a.s.m.: 2078 m)**

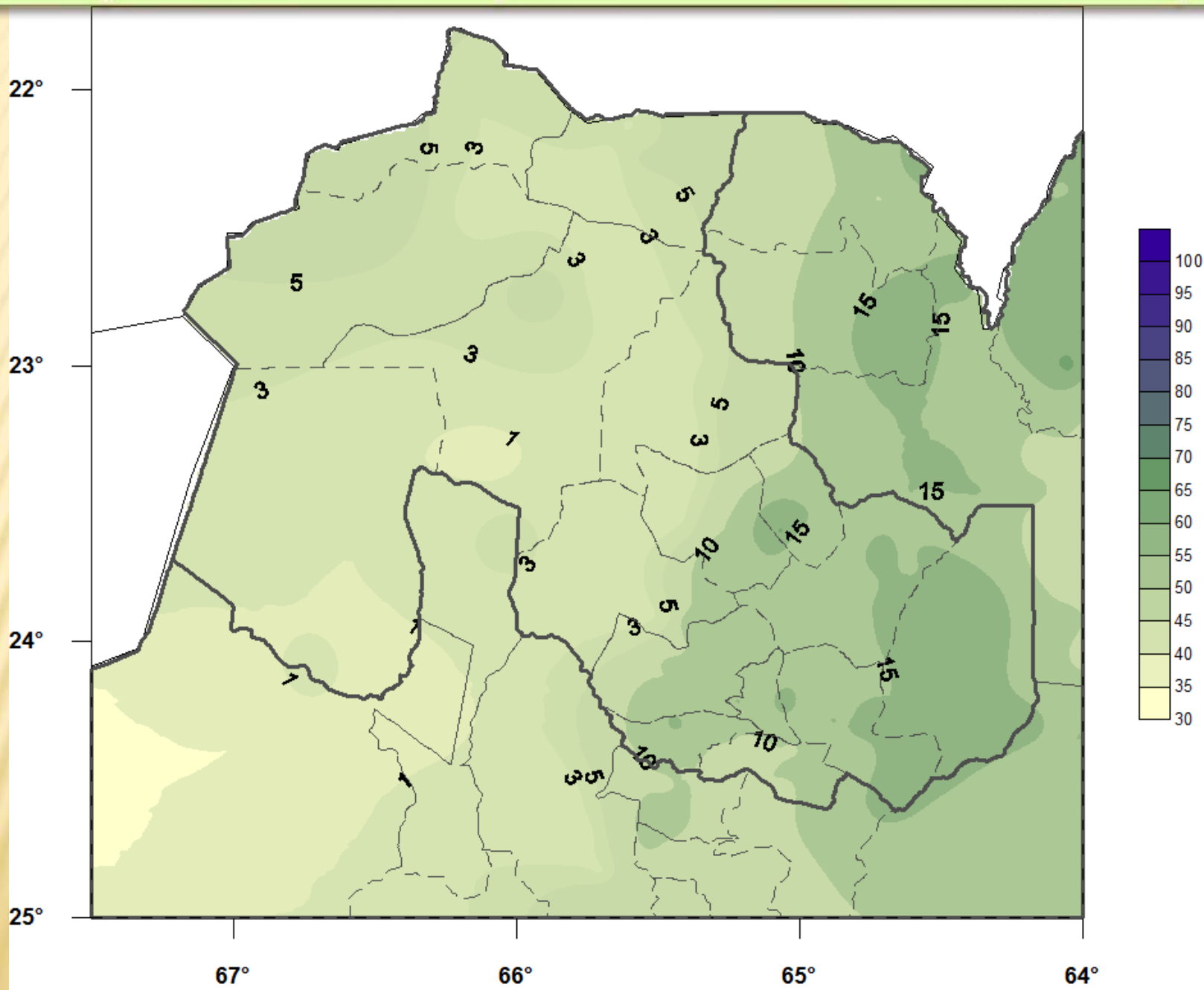
**La Quiaca: 327 mm
(a.s.m.: 3442 m)**



Porcentaje de la Precipitación semestre **cálido** (oct-mar)

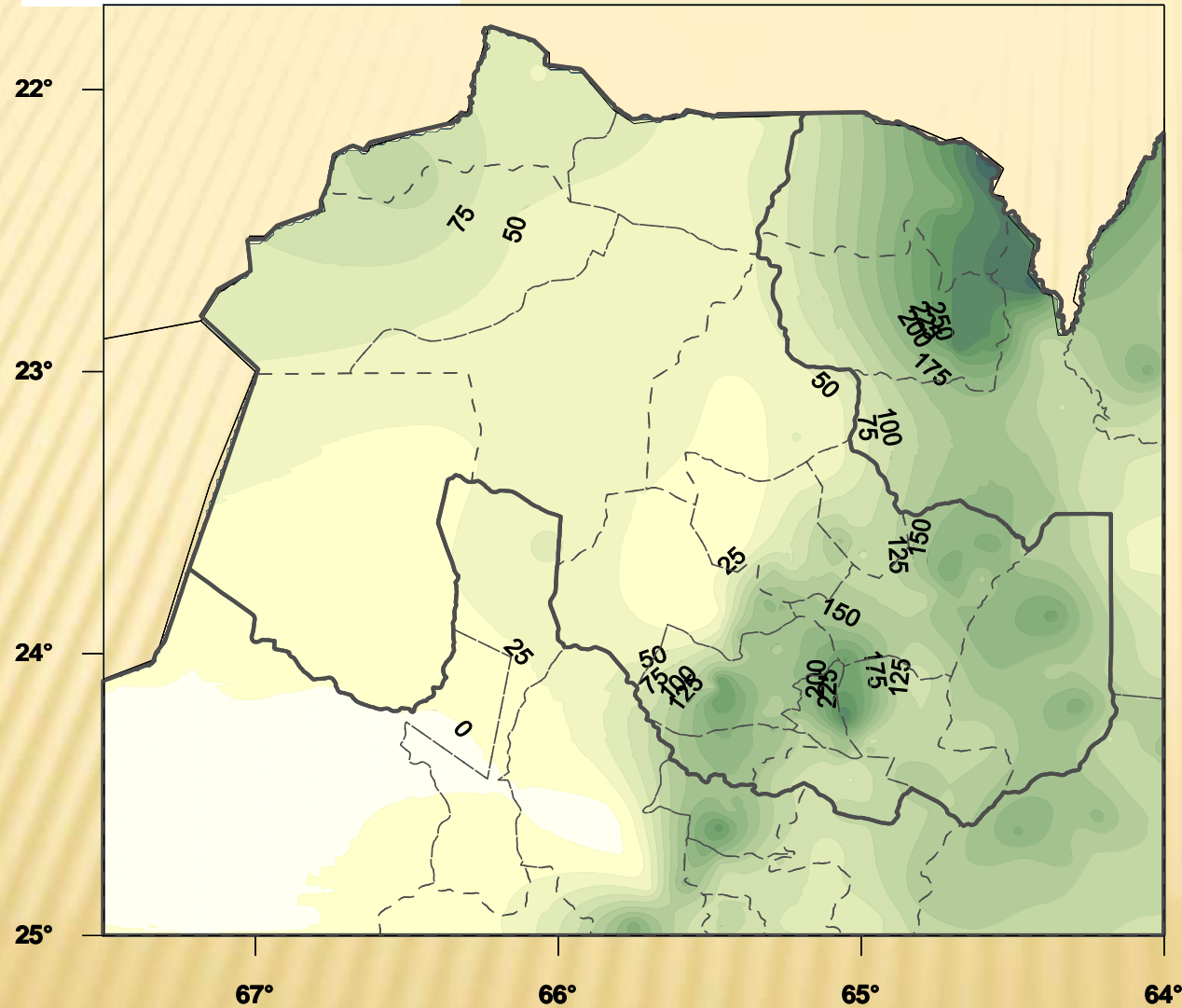


Porcentaje de la Precipitación semestre **frío** (abr-sep)

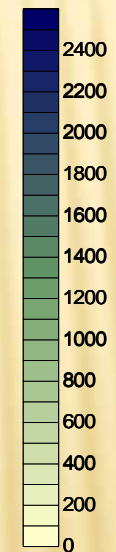


Precipitación media de Enero-Febrero-Marzo

Marzo



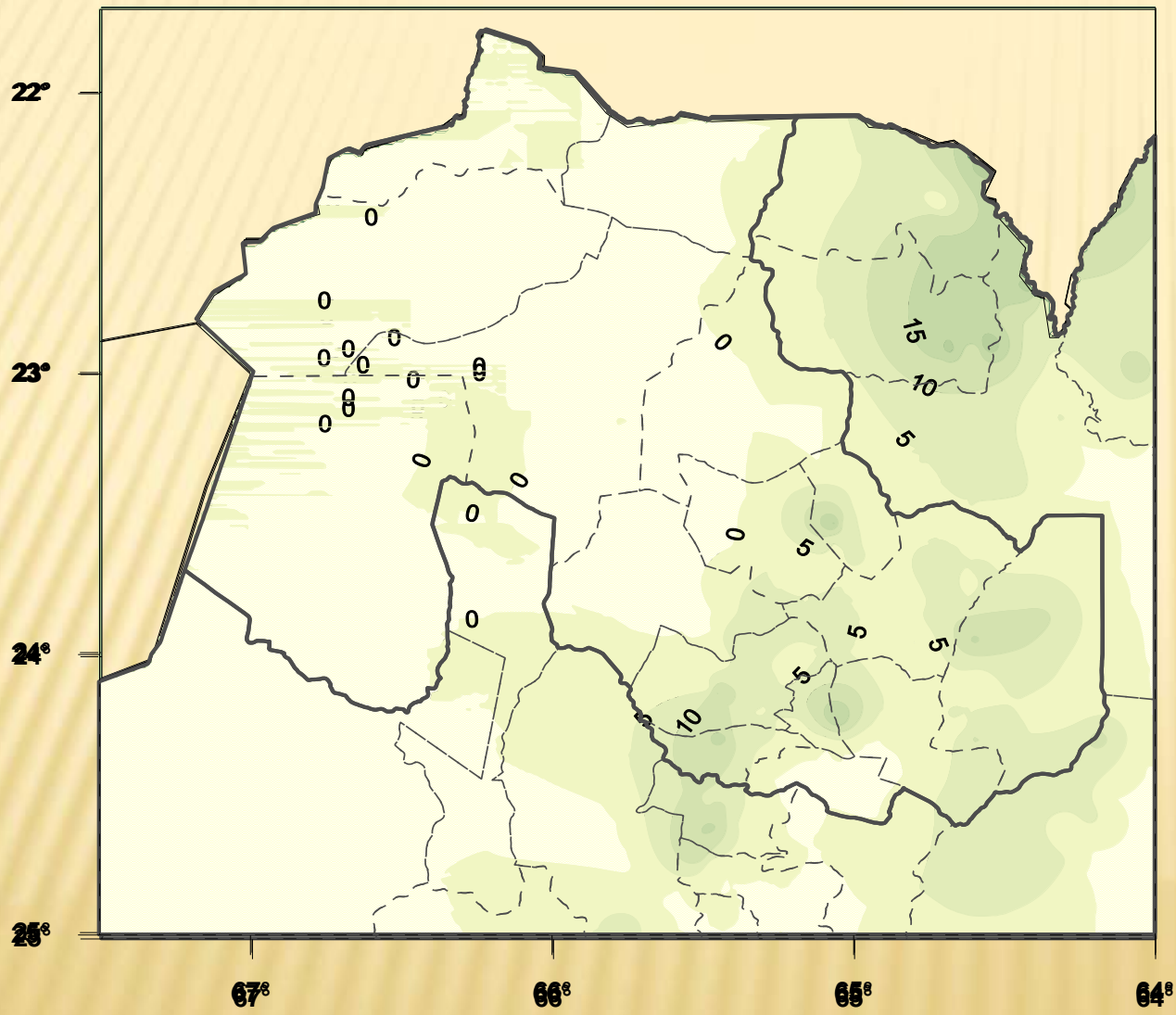
Calilegua



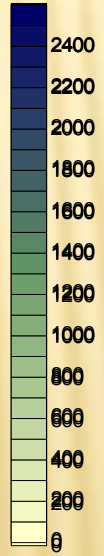
Ene	Feb	Mar
174	165	156
21%	20%	19%

Precipitación media de Abril-Mayo-Junio

Junio



Calilegua



Abr	May	Jun
71	17	8
9%	2%	1%

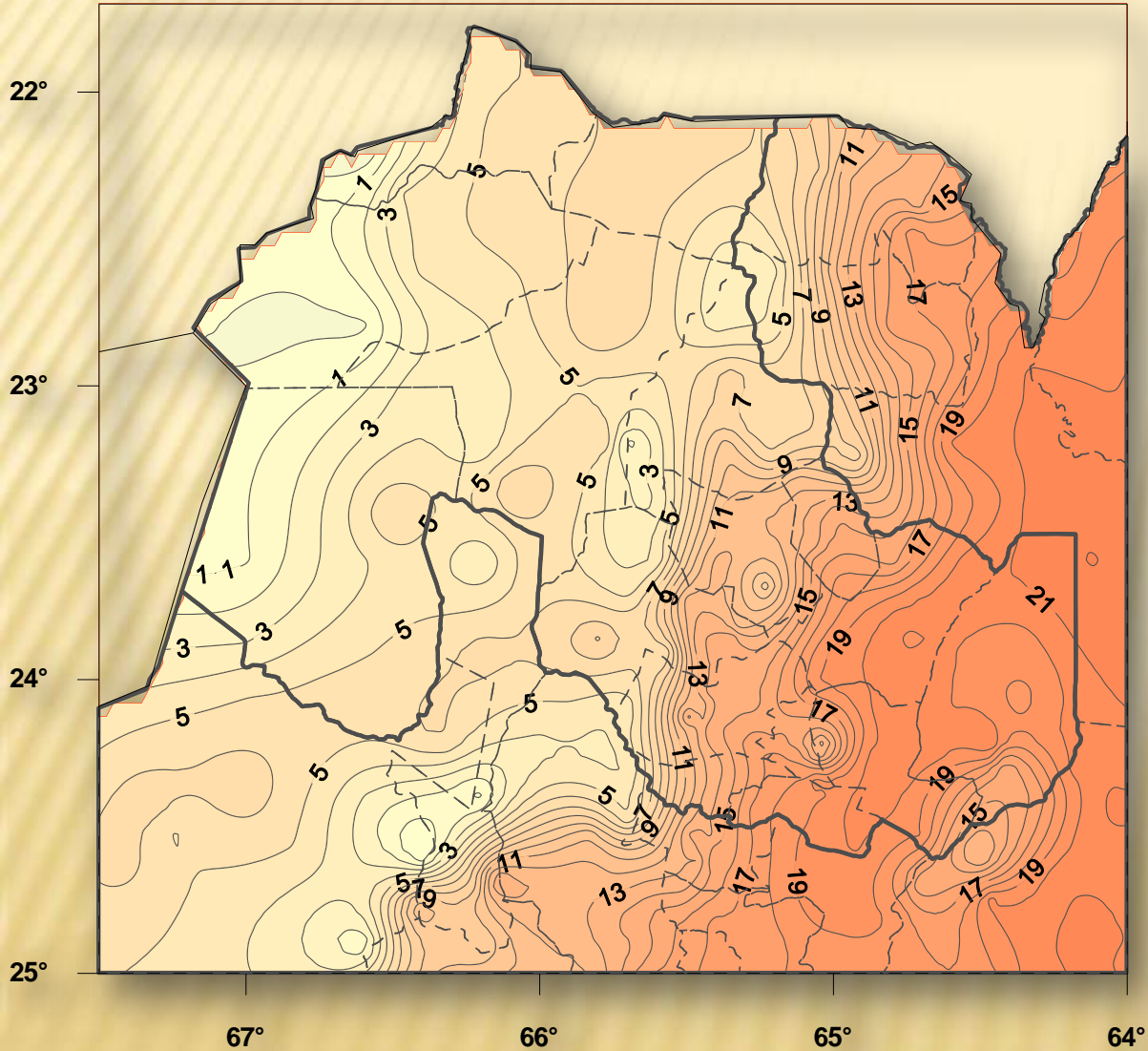
Algunos valores

Cuadro 1: Precipitación media mensual y anual

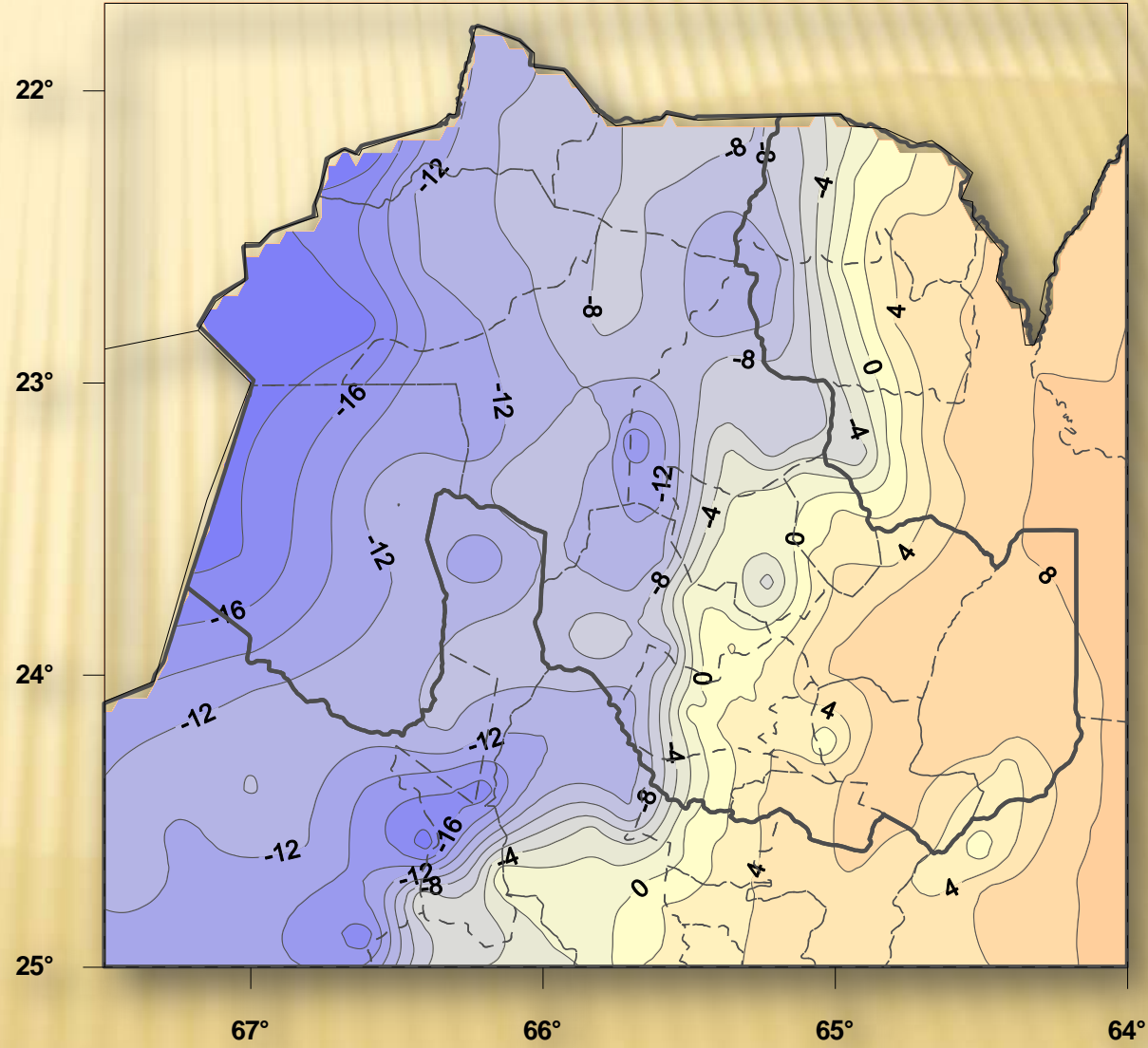
LOCALIDAD	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC	ANUAL
PERICO	148	138	106	35	7	3	2	3	4	24	49	98	617
S. S. DE JUJUY	197	174	137	45	14	8	6	6	10	39	75	137	848
VOLCAN	112	104	54	8	1	1	0	1	2	7	29	72	391
PURMAMARCA	39	23	15	2	0	1	0	0	1	3	5	23	112
MORENO	43	40	33	1	0	0	0	0	1	1	13	25	157
SUSQUES	72	51	22	1	1	0	0	0	0	1	8	32	188
S. A. DE LOS COBRES	48	32	13	0	0	0	0	0	0	0	4	18	115
JAMA	79	56	24	1	1	0	0	0	0	1	9	35	207

Temperaturas mínimas medias

Enero



Julio

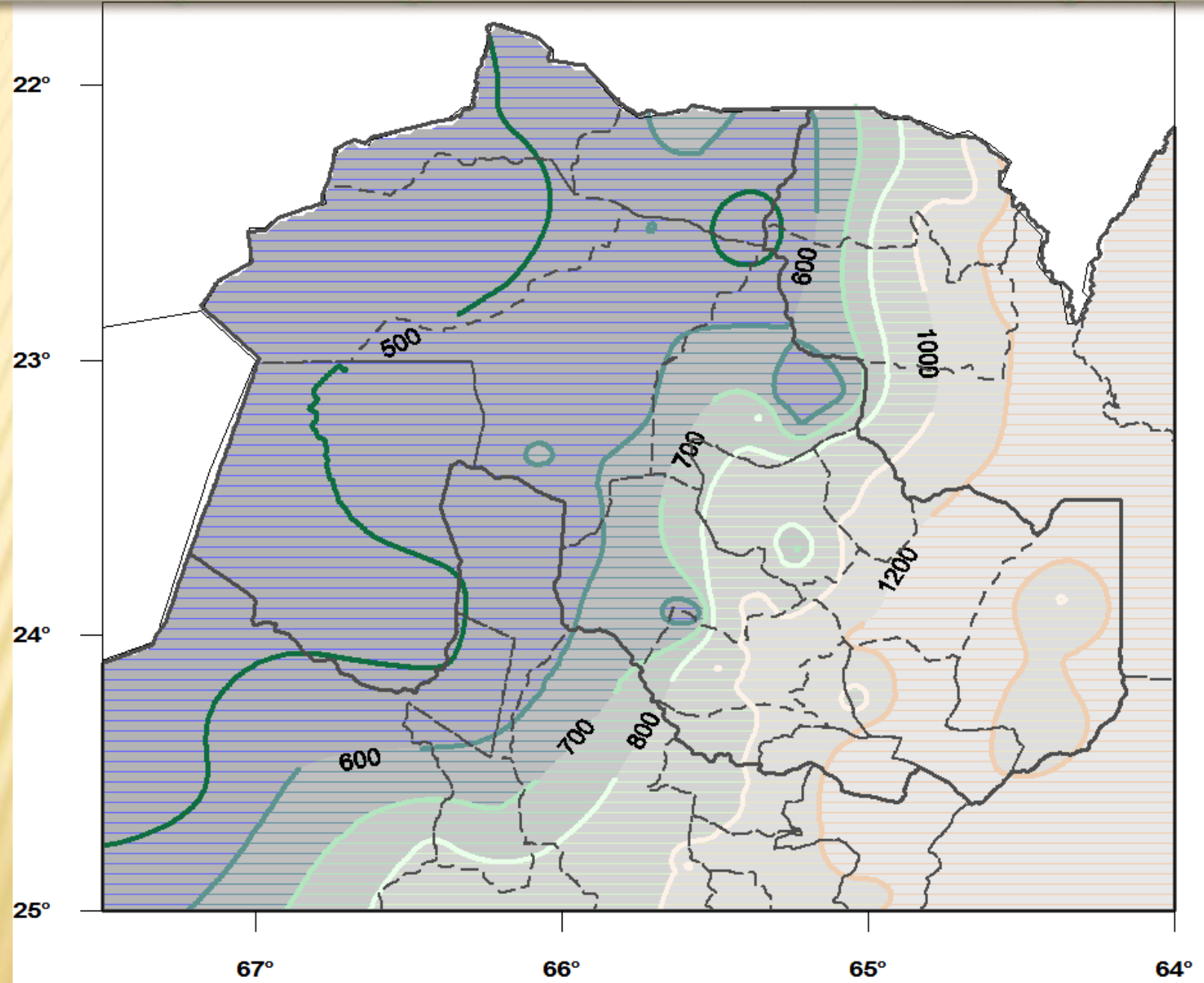


Algunos valores

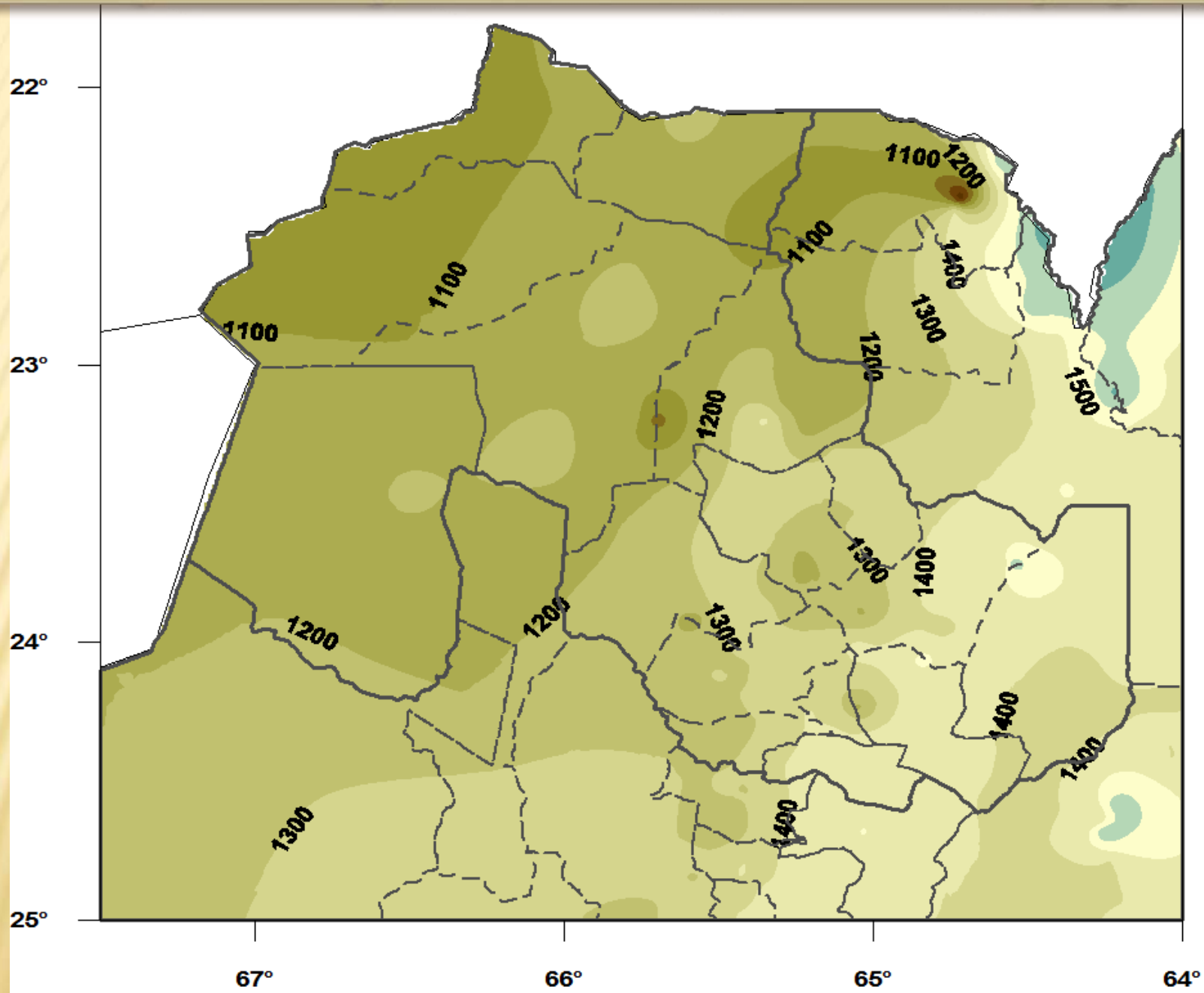
Cuadro 2: Temperaturas medias mensuales y anuales

LOCALIDAD	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC	ANUAL
PERICO	23,5	22,6	21,2	18,1	15,3	12,2	12,0	14,0	16,7	20,1	21,9	23,2	18,4
S. S. DE JUJUY	21,1	20,2	18,8	16,2	13,8	10,9	10,6	12,7	15,7	18,2	19,9	21,1	16,6
VOLCAN	18,5	17,9	16,8	14,0	11,0	8,5	8,1	10,2	12,6	15,5	17,2	18,2	14,1
PURMAMARCA	18,5	17,9	16,8	14,0	10,9	8,4	8,1	10,3	12,8	15,7	17,4	18,3	14,1
MORENO	13,5	13,2	12,3	9,8	6,6	4,5	4,0	6,1	8,3	10,8	12,5	13,3	7,2
SUSQUES	11,3	11,2	10,5	8,1	4,9	3,0	2,5	4,6	6,6	8,9	10,4	11,1	7,7
S. A. DE LOS COBRES	11,0	10,8	10,0	7,5	4,2	2,3	1,7	3,9	6,0	8,2	10,0	10,8	7,2
JAMA	10,8	10,7	10,0	7,6	4,1	2,5	2,0	4,1	6,1	8,4	9,9	10,6	7,2

Evapotranspiración media anual (TH)



Evapotranspiración media anual (H y S)



ESCALA 1:400.000

PROVINCIA DE JUJUY



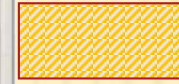
GOBIERNO DE LA PROVINCIA DE JUJUY
MINISTERIO DE ECONOMIA
DIRECCION PROVINCIAL DE PLANEAMIENTO

REGIONES GEOGRAFICAS

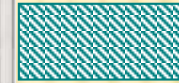
- ZONA PUNA
- ZONA QUEBRADA
- ZONA VALLE
- ZONA RAMAL



Puna



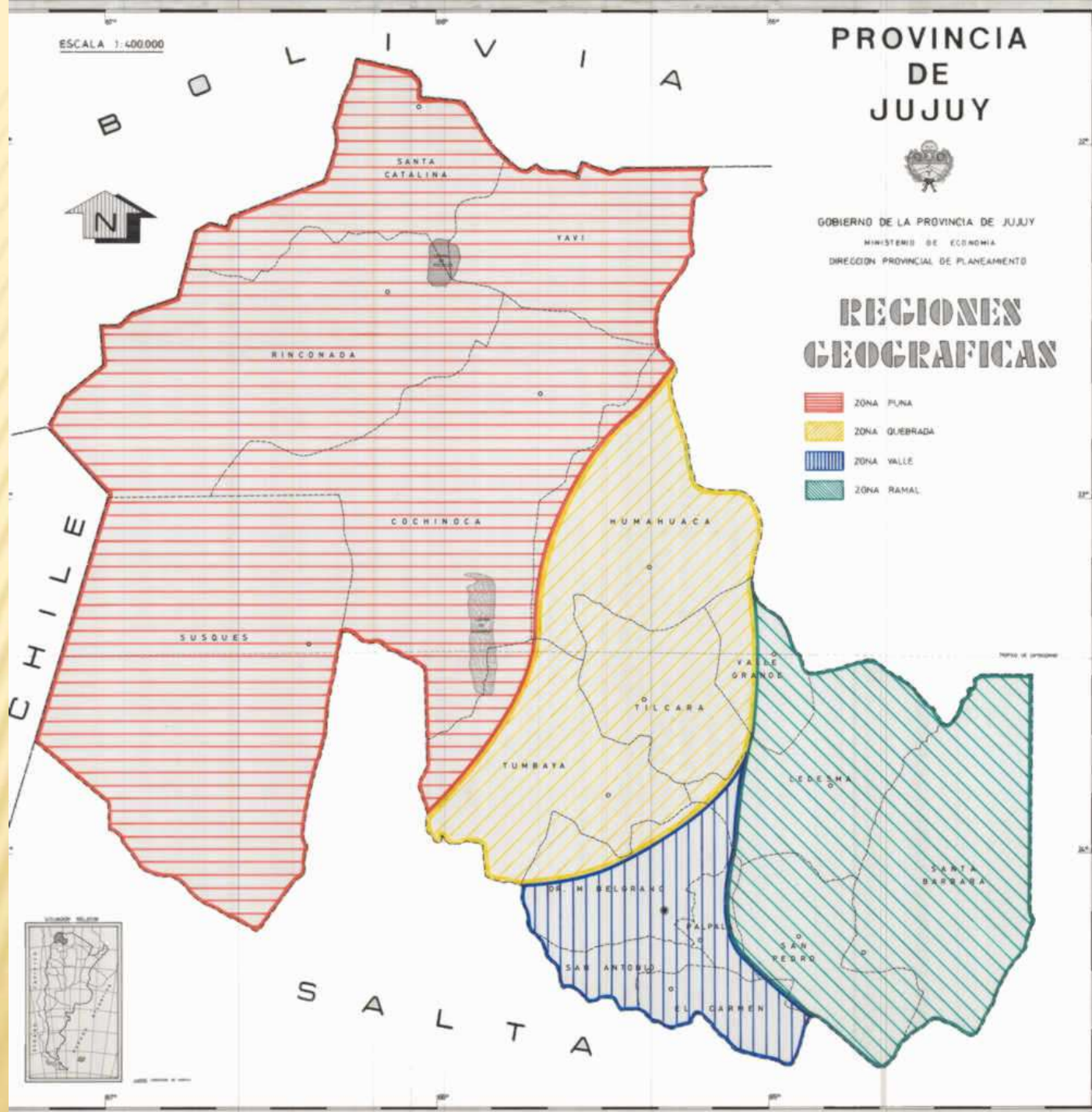
Quebrada



Ramal



Valles



ESCALA 1:400.000

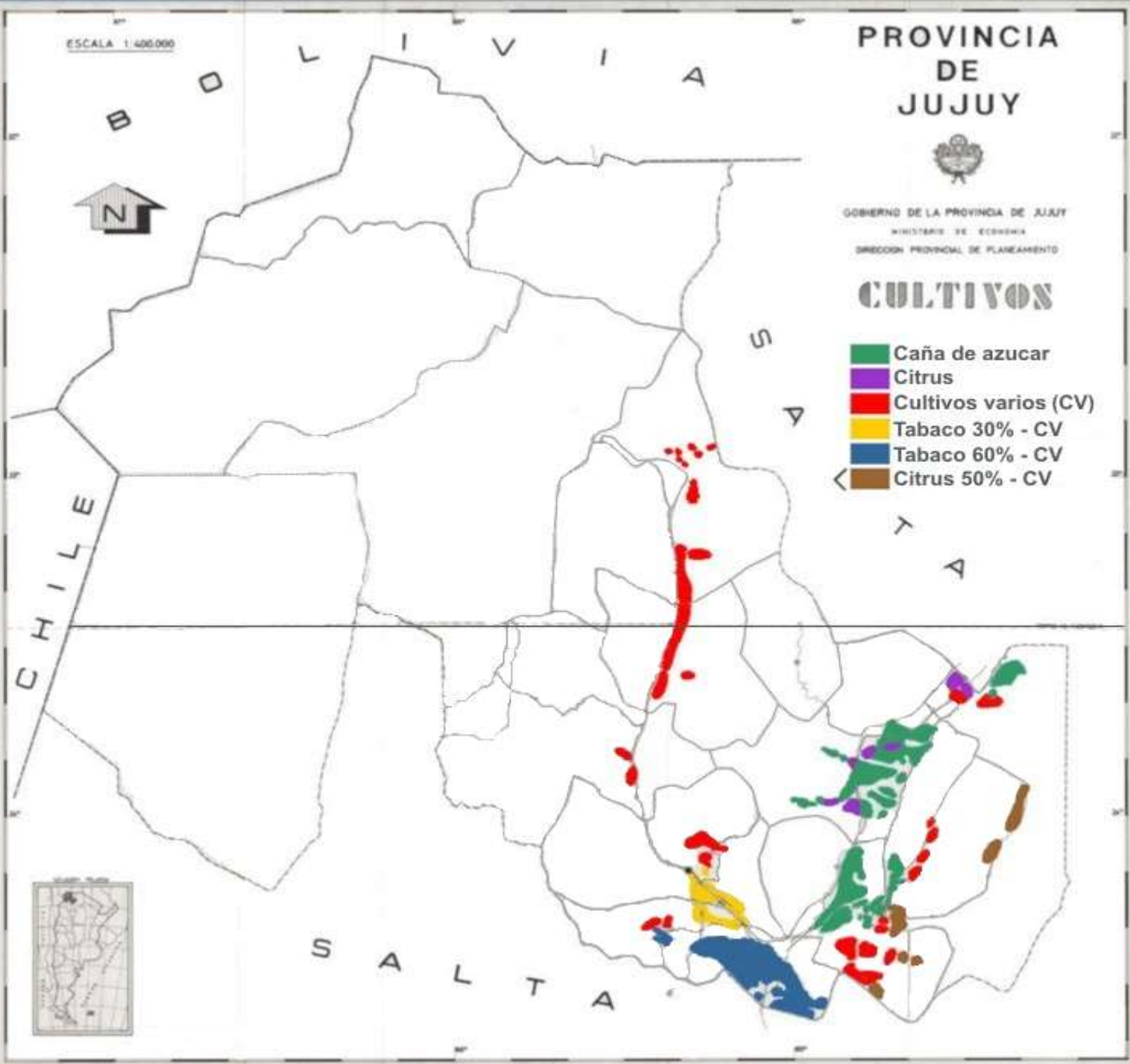
PROVINCIA DE JUJUY



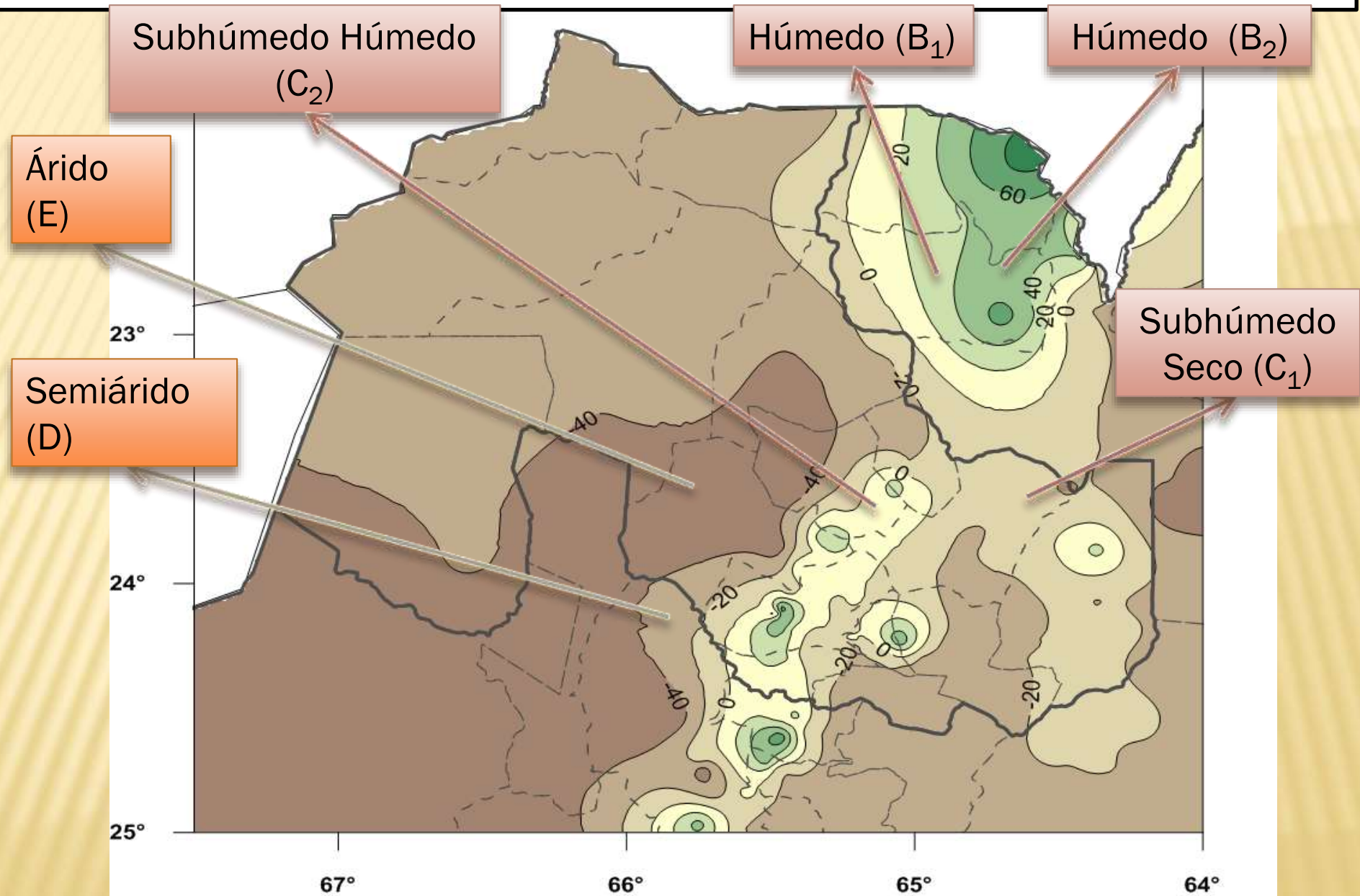
GOBIERNO DE LA PROVINCIA DE JUJUY
MINISTERIO DE ECONOMÍA
DIRECCION PROVINCIAL DE PLANEAMIENTO

CULTIVOS

- Caña de azucar
- Citrus
- Cultivos varios (CV)
- Tabaco 30% - CV
- Tabaco 60% - CV
- Citrus 50% - CV



CLASIFICACIÓN CLIMÁTICA DE THORNTHWAITE



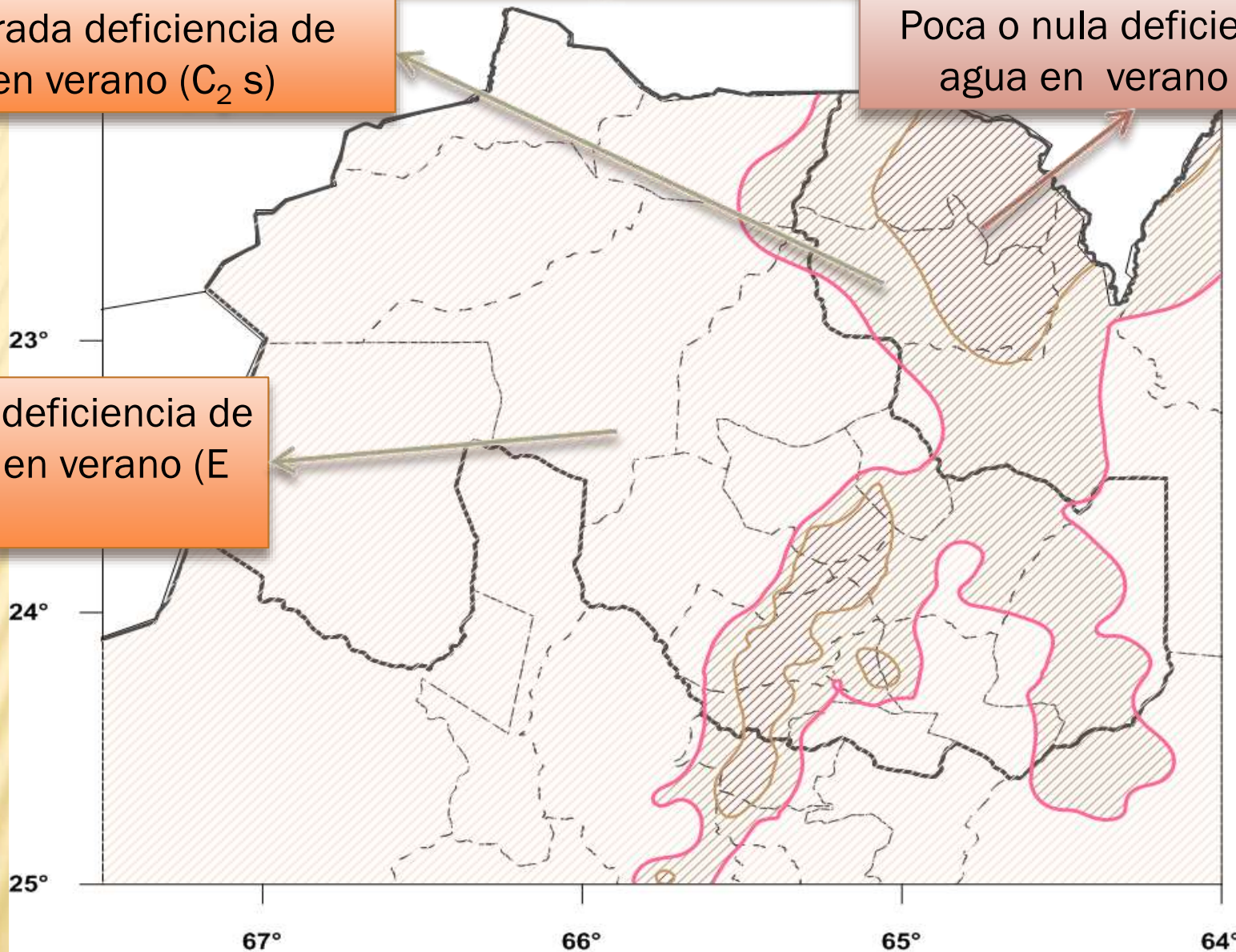
I H = grado de humedad a través de los déficit, excesos y ETP anual

CLASIFICACIÓN CLIMÁTICA DE THORNTHWAITE

Moderada deficiencia de agua en verano ($C_2 s$)

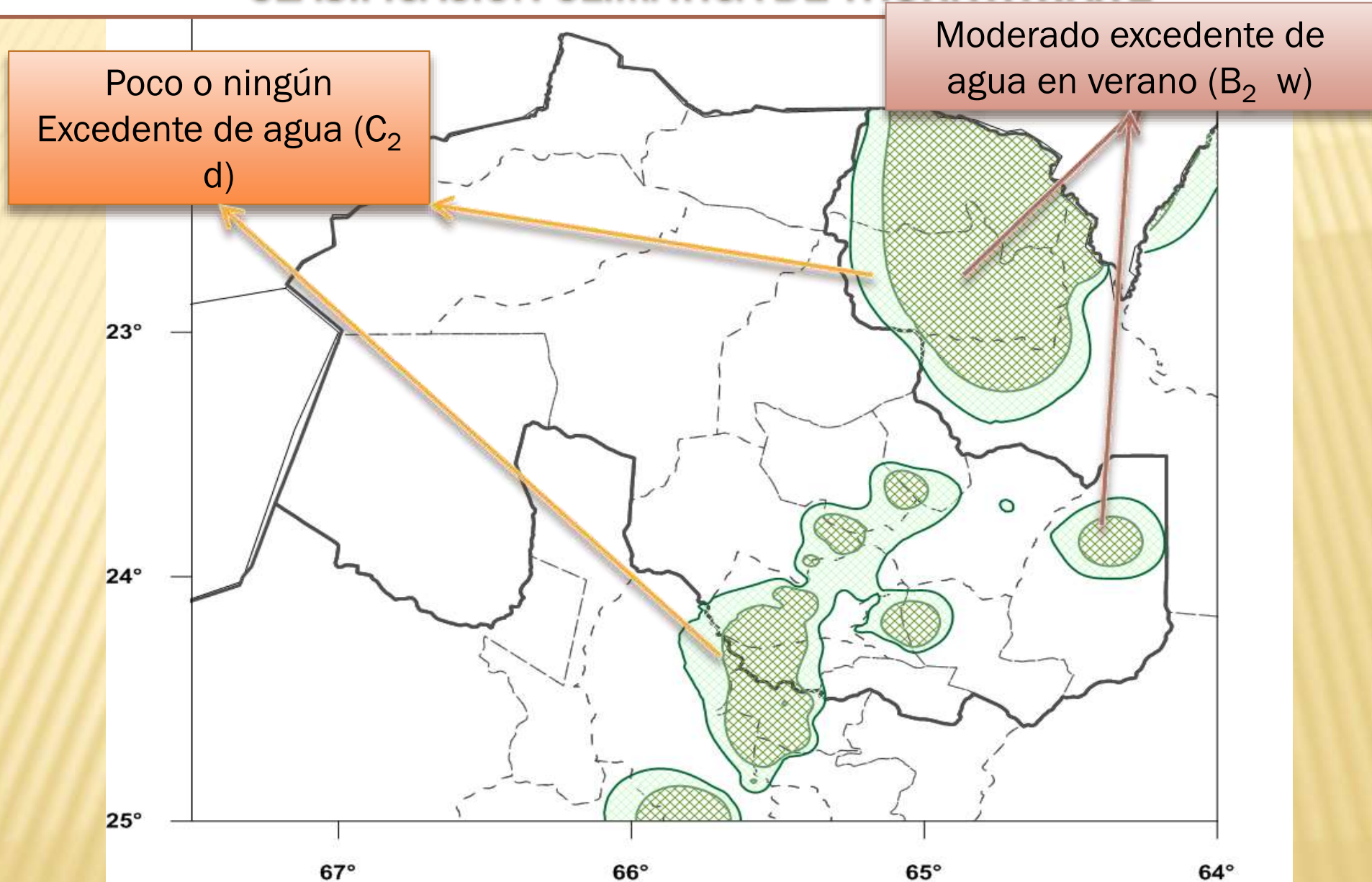
Poca o nula deficiencia de agua en verano ($B_2 r$)

Gran deficiencia de agua en verano ($E w_2$)



I_a = Índice de aridez (caracteriza la magnitud y distribución de los períodos secos). Def/ ETP

CLASIFICACIÓN CLIMÁTICA DE THORNTHWAITE



a = Índice de humedad (caracteriza la magnitud y distribución de los períodos húmedos). Exc / ETP