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APCC
APEC CLIMATE CENTER

APEC Climate Symposium 2013

Drought Mitigation National Plan in Mexico PRONACOSE

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National Meteorological Service of Mexico (SMN)
National Water Commission (CONAGUA)

Jakarta, Indonesia. November 11-13, 2013

Mexico's vulnerability by its geographical location

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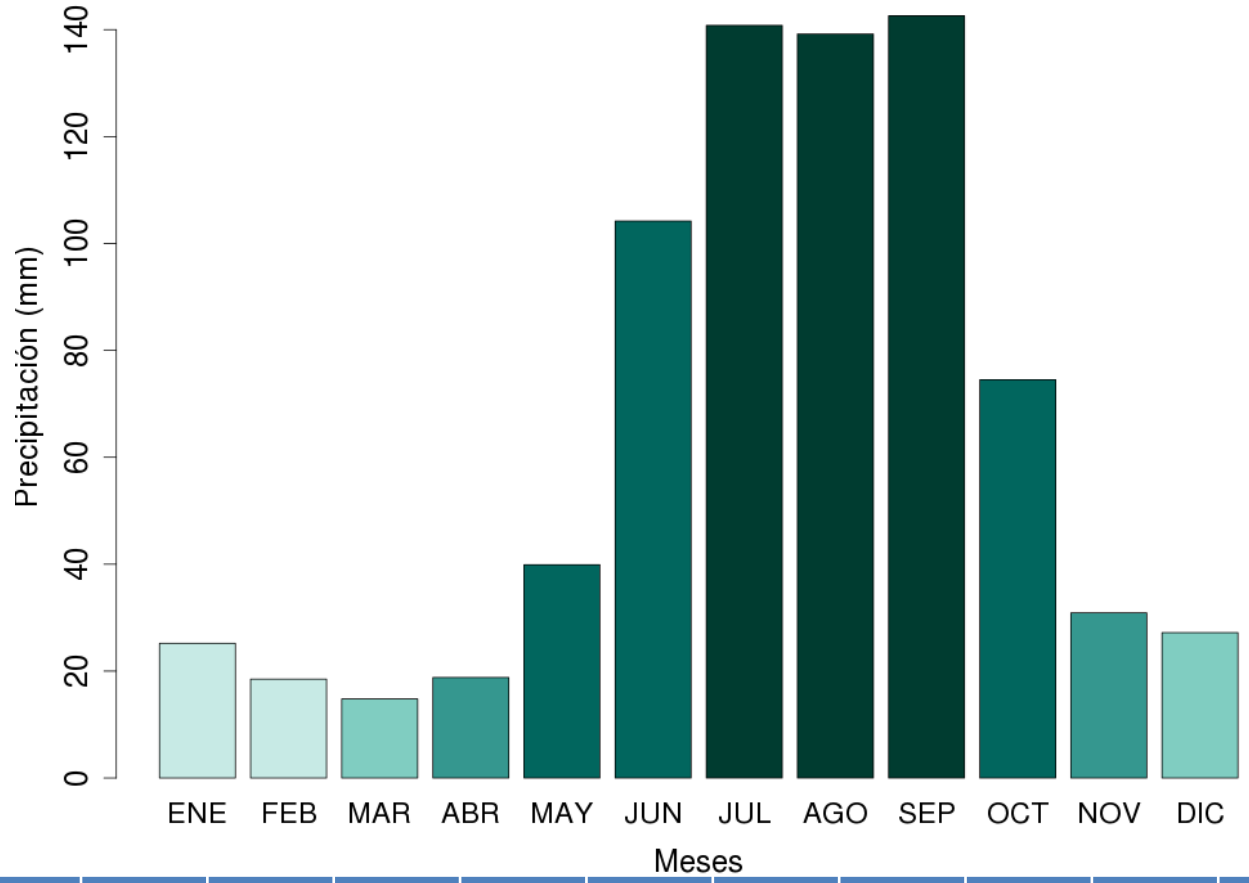
Mean Monthly Rainfall



1941-2012	JAN	FEB	MAR	APR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DEC	TOT
mm	25.2	18.5	14.8	18.8	39.9	104.2	140.8	139.2	142.6	74.5	30.9	27.2	776.6

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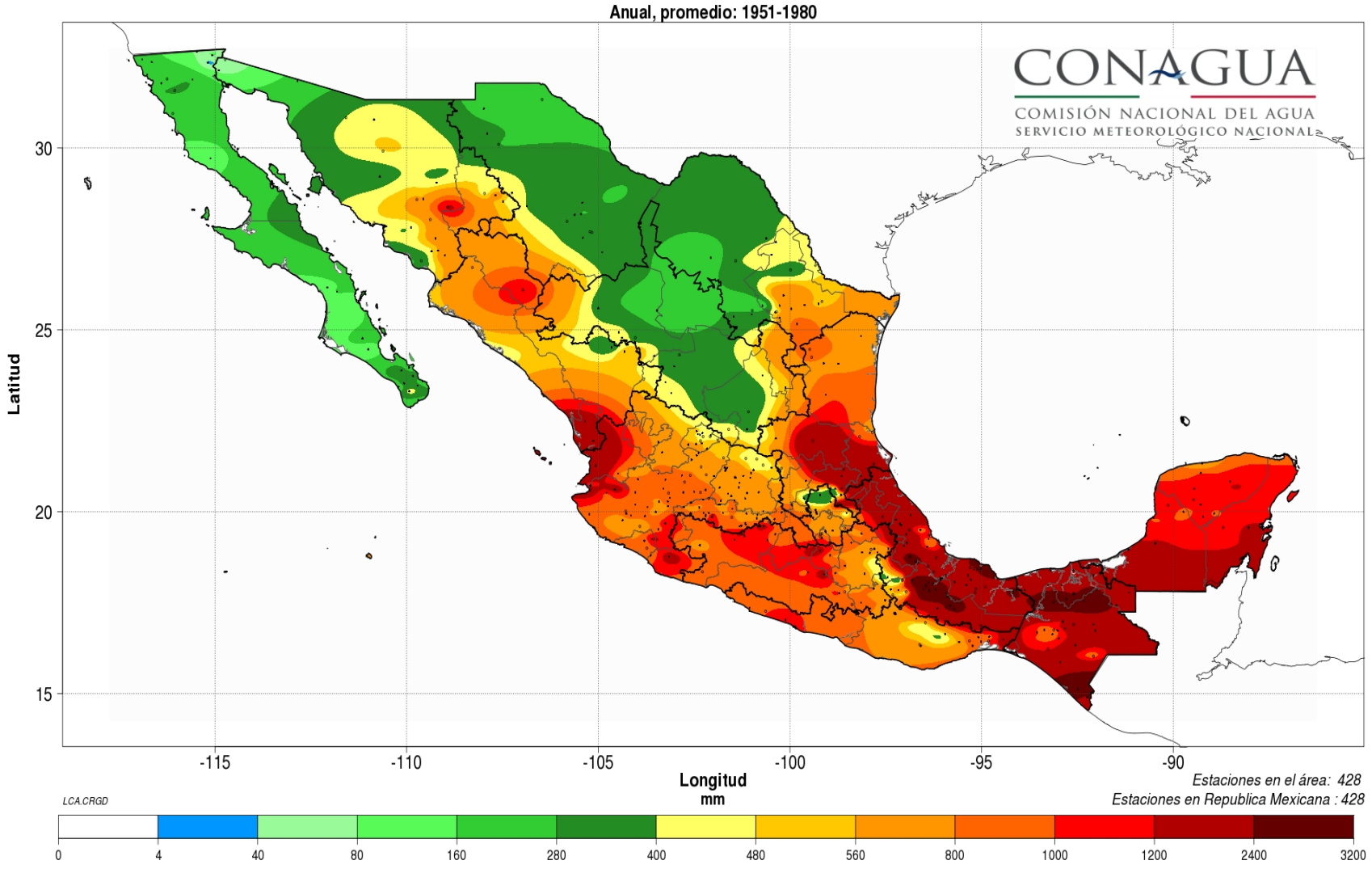
Mean Annual Rainfall



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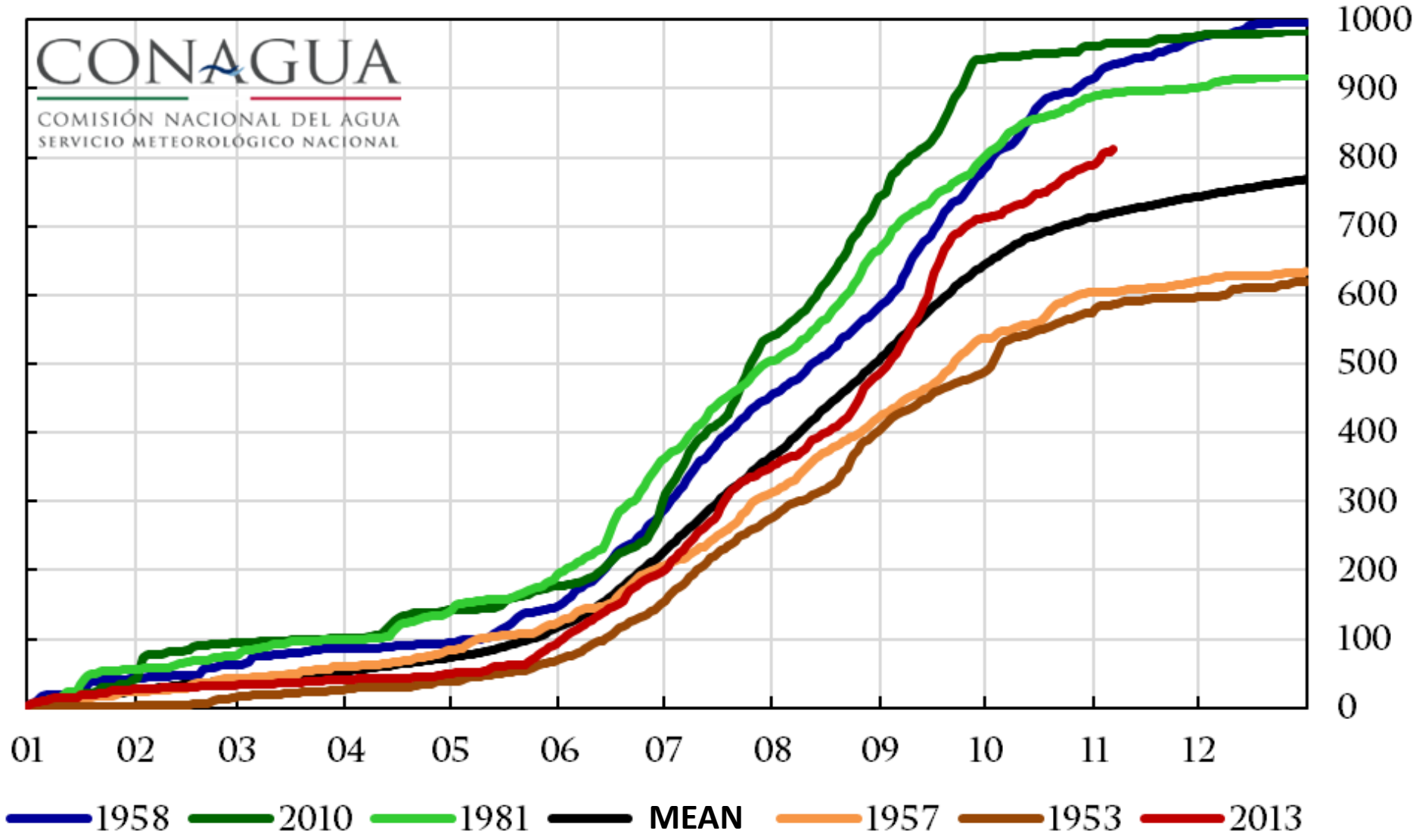
DAILY NATIONAL RAINFALL (mm) IN 2013 vs OTHER YEARS



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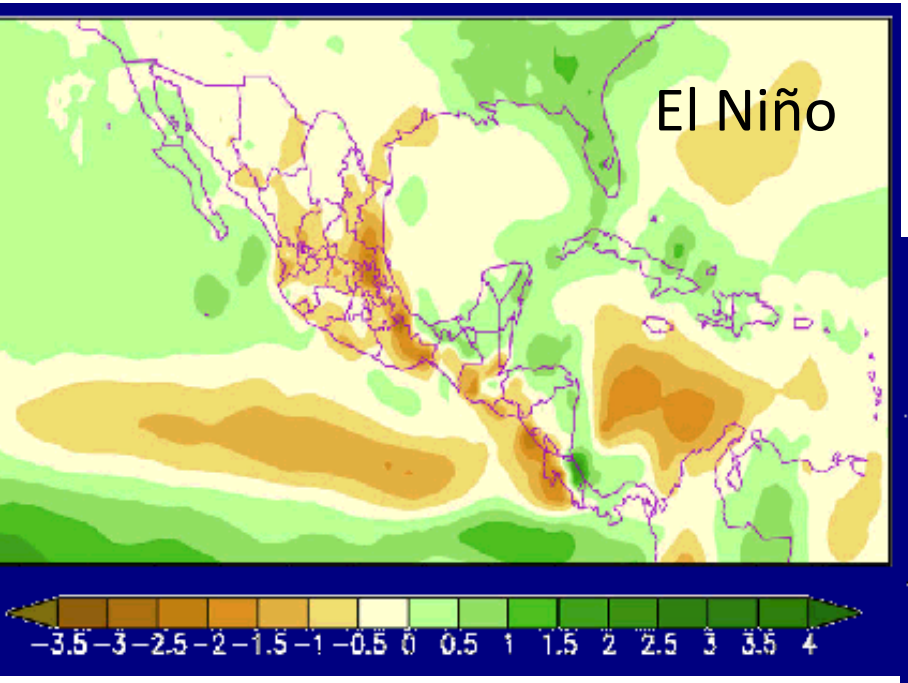
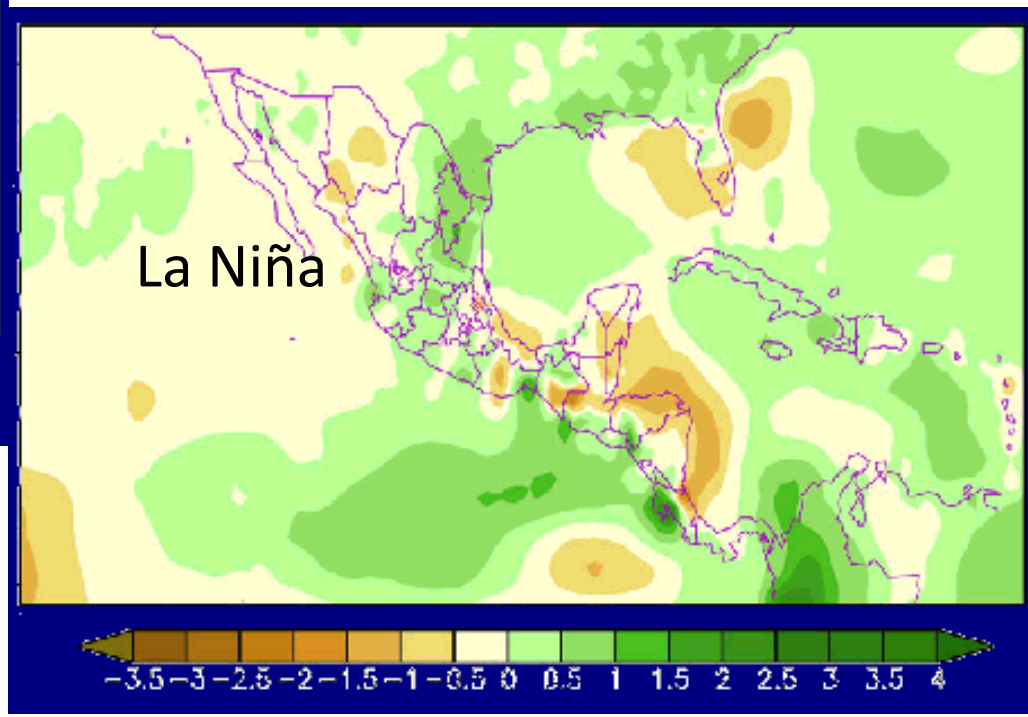
El Niño during summer has come with severe droughts in most part of Mexico



<u>La Niña</u> during summer implies a return to Normal or even above the mean.



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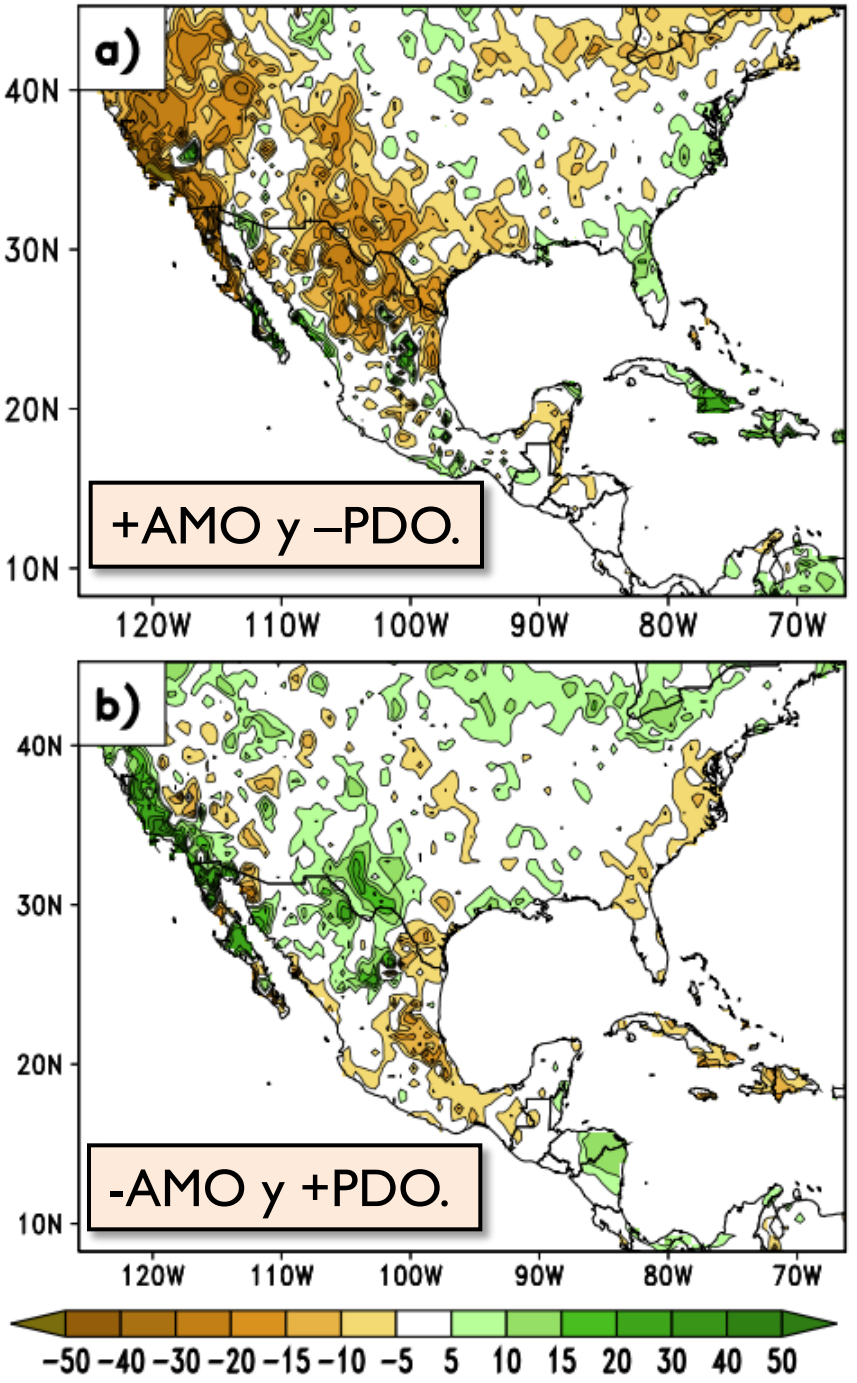
Long periods of drought in northern mexico coincide with a combination of:

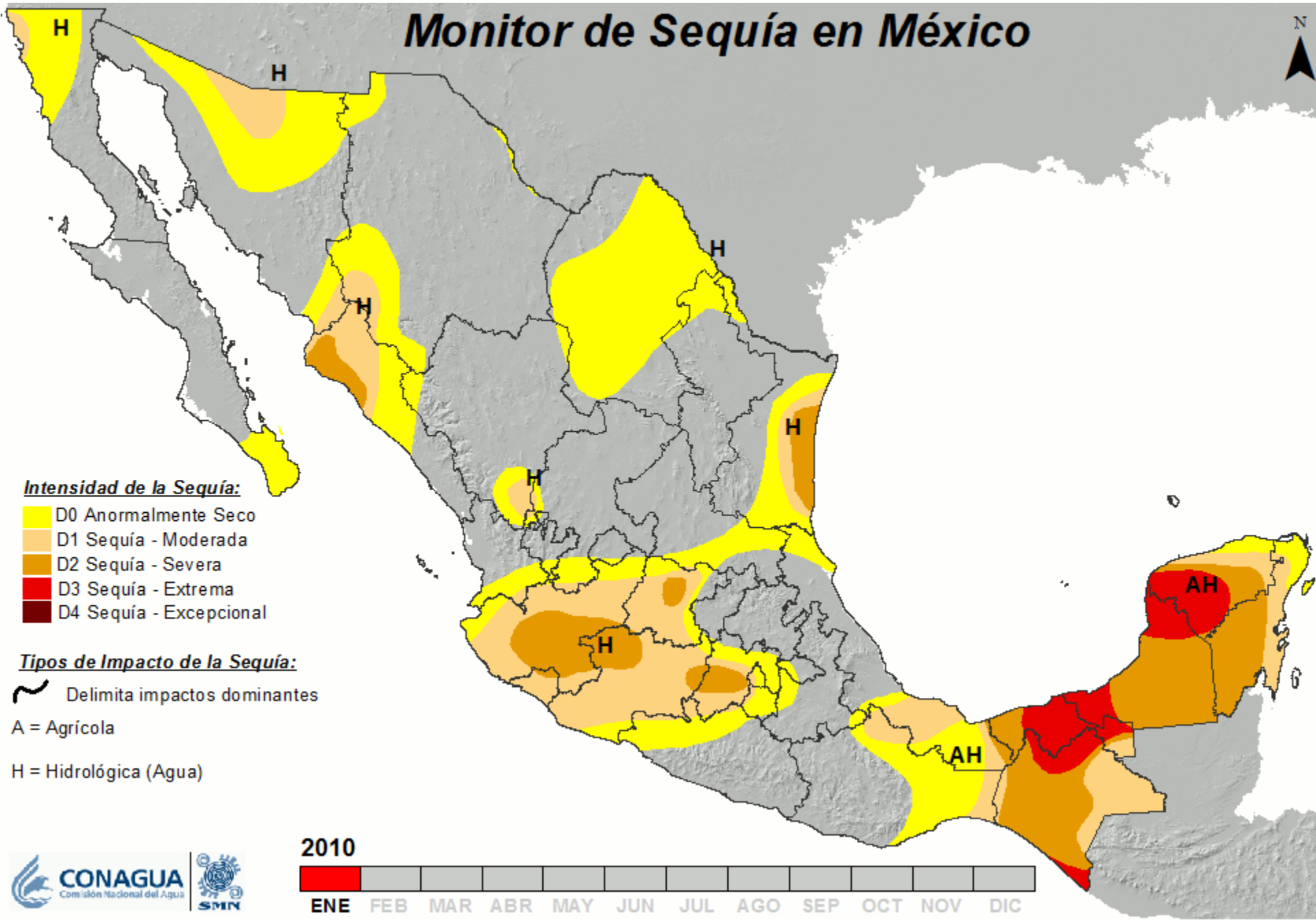
+AMO , –PDO

Inverse combination results in good rainfall in the North and less in the South.

-AMO , + PDO



Monitor de Sequía en México



CONAGUA Comisión Nacional del Agua SMN

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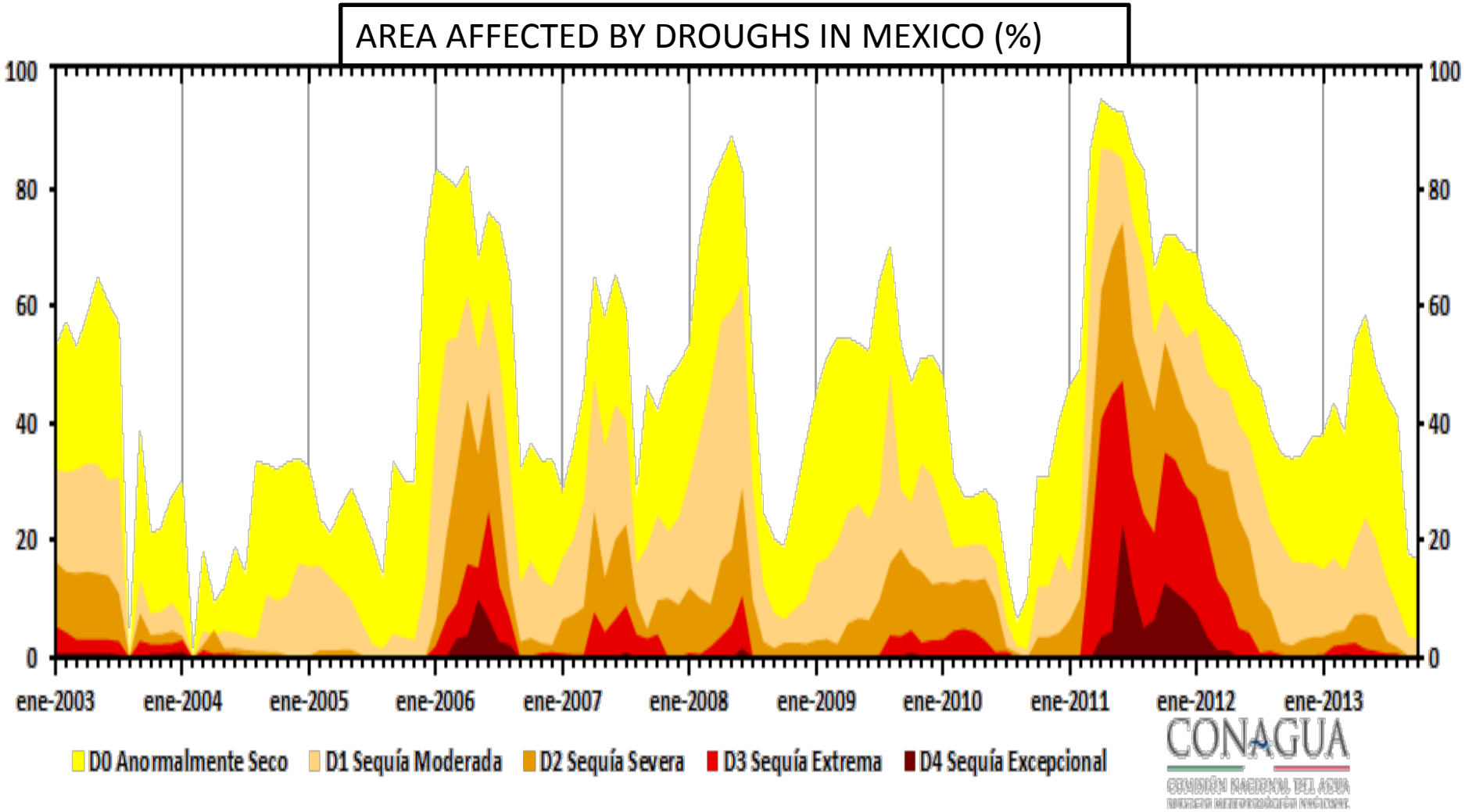

October de 2013

No Impact : 83.2 %

D0 - D4: 16.8 %

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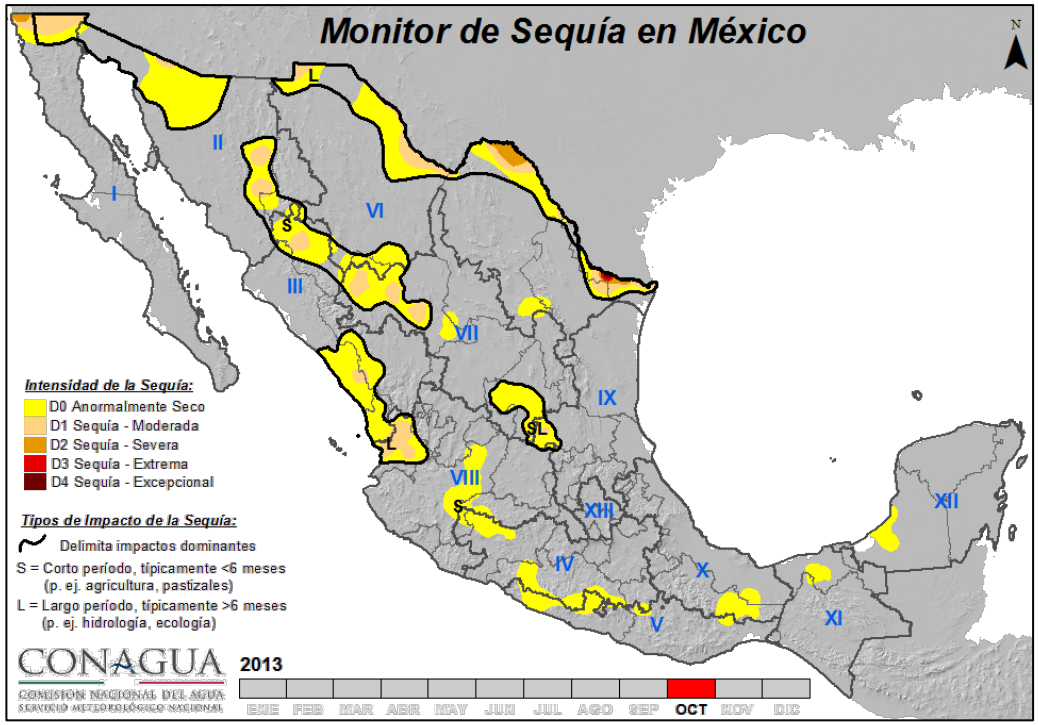
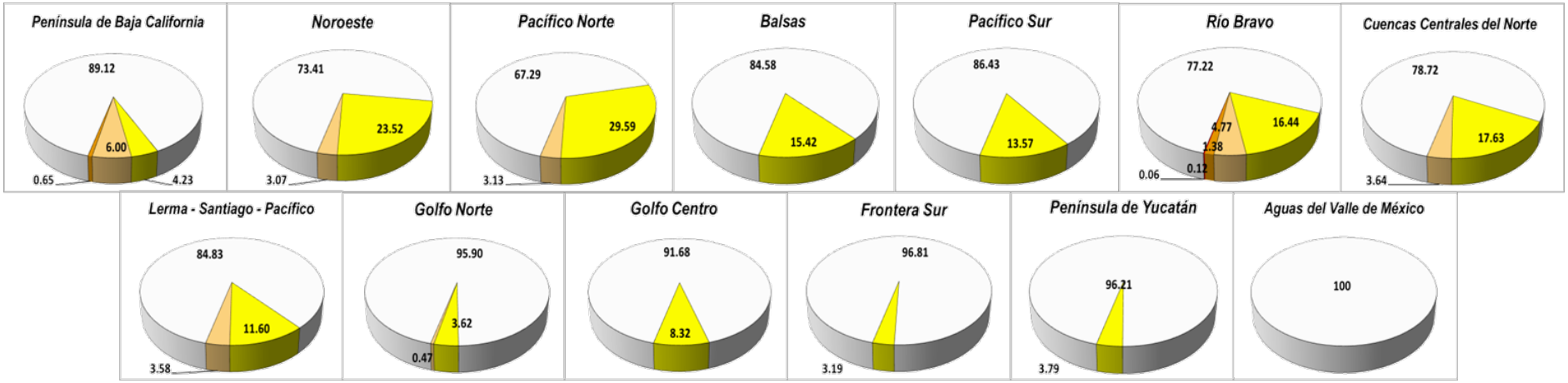
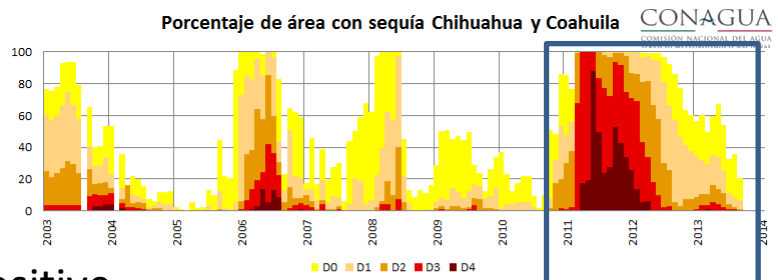
Hydrological Regions (CONAGUA)
October, 2013



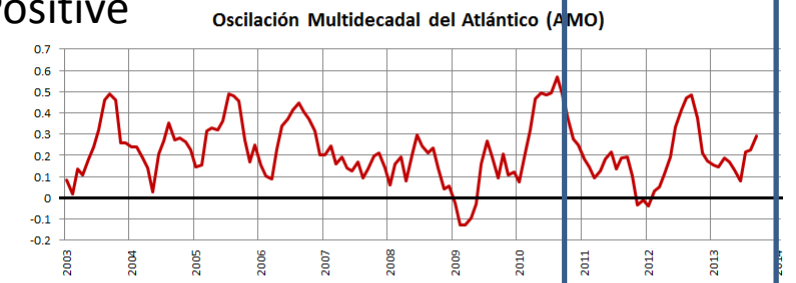
		Porcentaje de área (%) Octubre2013					
Clave	RHA	Sin afectación	D0	D1	D2	D3	D4
I	Península de Baja California	89.12	4.23	6.00	0.65	0.00	0.00
II	Noroeste	73.41	23.52	3.07	0.00	0.00	0.00
III	Pacífico Norte	67.29	29.59	3.13	0.00	0.00	0.00
IV	Balsas	84.58	15.42	0.00	0.00	0.00	0.00
V	Pacífico Sur	86.43	13.57	0.00	0.00	0.00	0.00
VI	Río Bravo	77.22	16.44	4.77	1.38	0.12	0.06
VII	Cuencas Centrales del Norte	78.72	17.63	3.64	0.00	0.00	0.00
VIII	Lerma - Santiago - Pacífico	84.83	11.60	3.58	0.00	0.00	0.00
IX	Golfo Norte	95.90	3.62	0.47	0.00	0.00	0.00
X	Golfo Centro	91.68	8.32	0.00	0.00	0.00	0.00
XI	Frontera Sur	96.81	3.19	0.00	0.00	0.00	0.00
XII	Península de Yucatán	96.21	3.79	0.00	0.00	0.00	0.00
XIII	Aguas del Valle de México	100.00	0.00	0.00	0.00	0.00	0.00

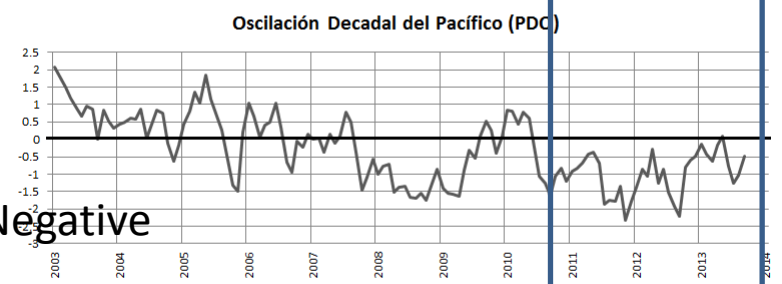


NORTHERN MÉXICO

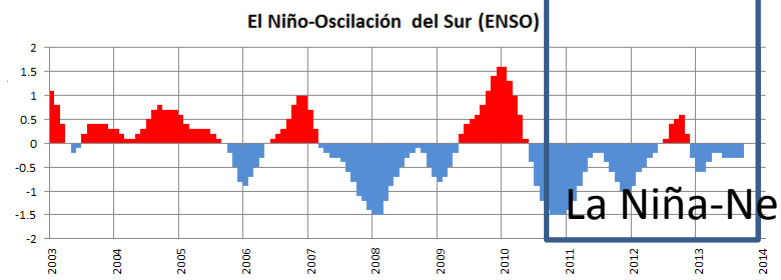


Positive



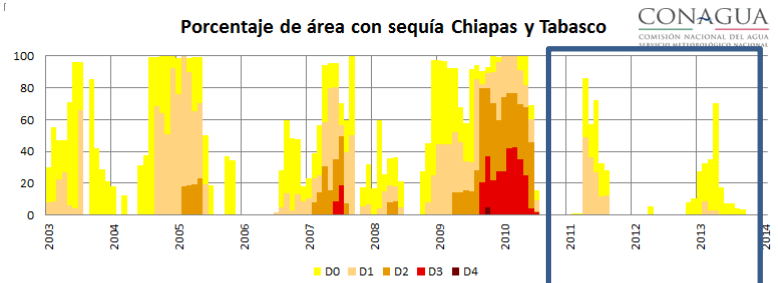


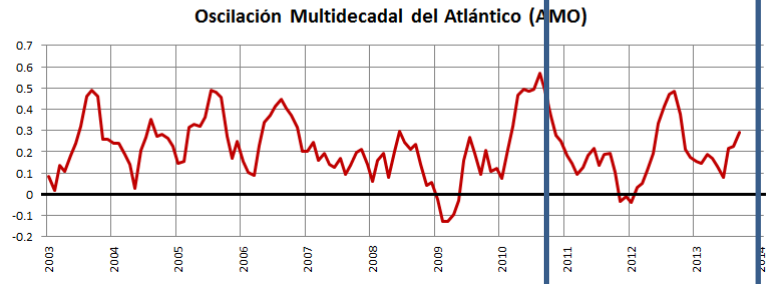
Negative

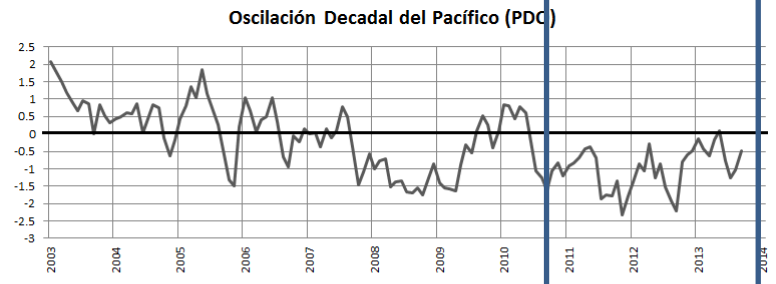


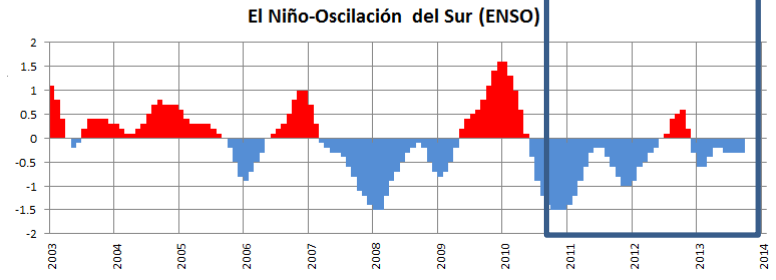
La Niña-Neutral

SUTHERN MÉXICO









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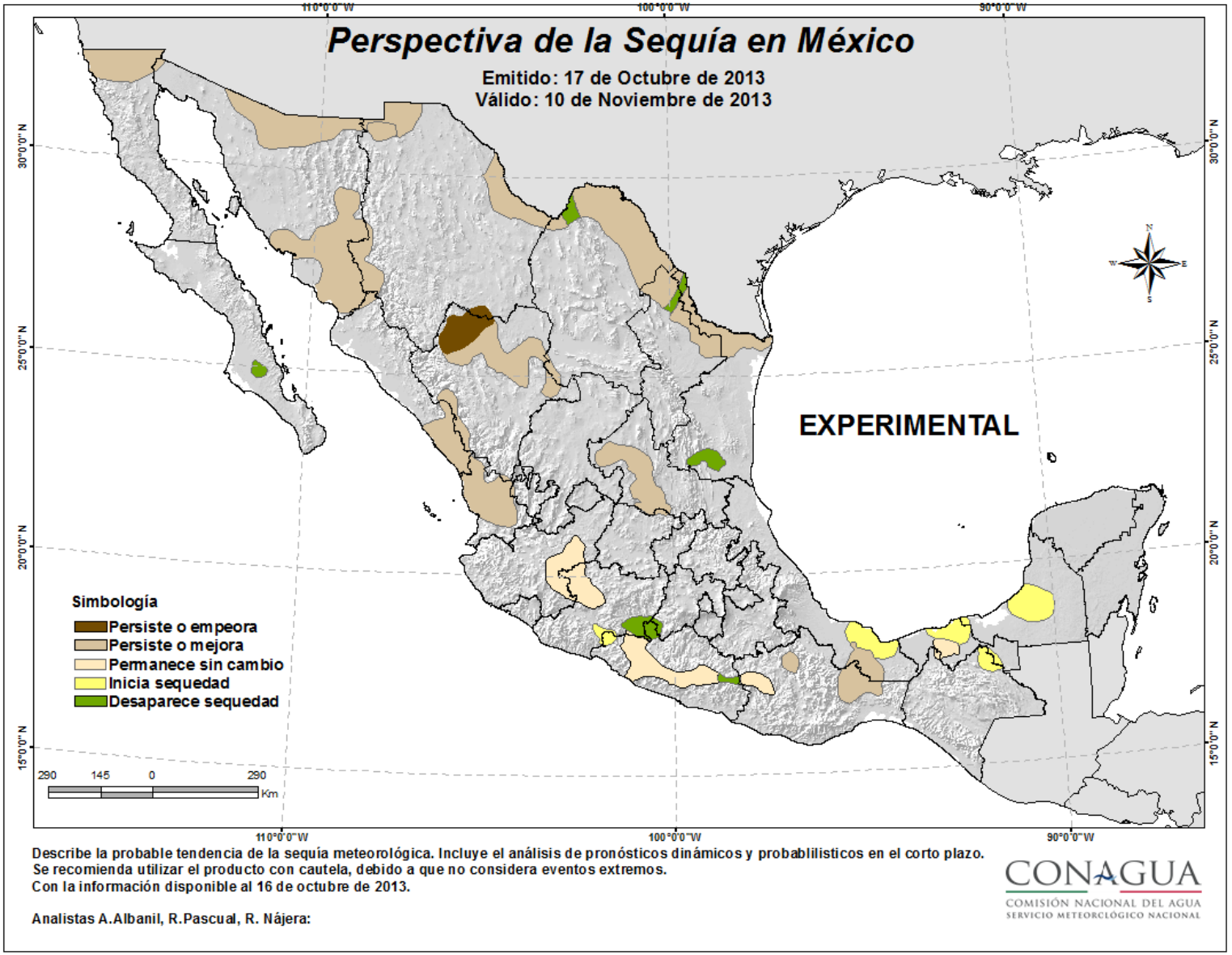
Drought Outlook



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President Peña-Nieto Announces a National Plan for Drought Mitigation Impacts

"… Principal component; **Warning**,… and second, **timing** to prevent, foresee and mitigate those impacts affecting the population and economic activities".

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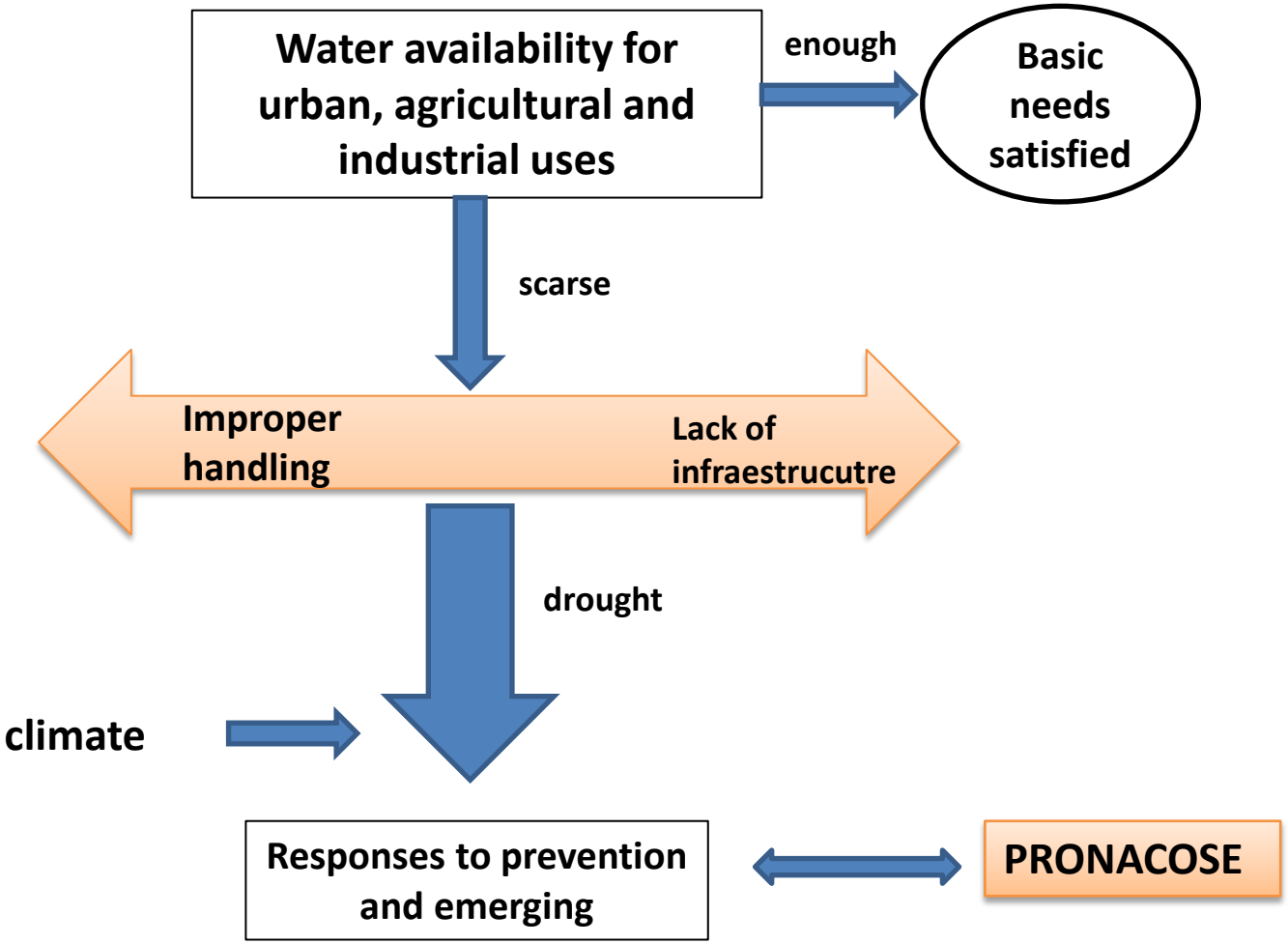
Water shortage does not mean drought: may be due to NON natural factors, such as poor hydraulic infrastructure o a deficient water management.



Drought may produce a lack of water, so it does require preventive actions based on the knowledge of its dynamics.

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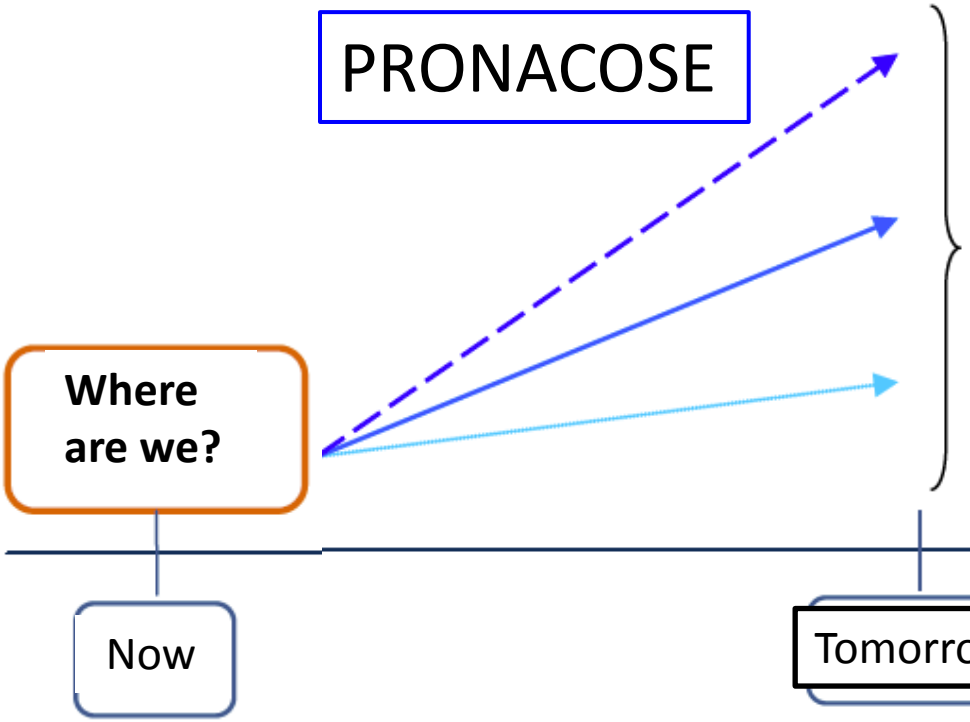
Drought Mitigation Plan

Where do we want to reach?



(1 Drought Monitoring (*Warning*)

(2 General Agreement of onset and end of drought
(Authority acts to guarantee water for human consumption)

(3 Programs

(Timing to *foresee, prevent and act)*)

- Basin(s)
- User(s)

Reactive Drought Plans:

SNPC, PDN-III, FONDEN y CADENA.

We want to be proactive

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Drought Monitoring (warning)

Proposed Indices

- SPI (dams and basins)
- SDI (dams and rivers)
- Other methods and Indices, such as the NADM or Mexican Drought Monitor.

Conagua determines drought conditions (initial, progress and final) every month by hydrological region, political states up to municipality level.

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Authority acts to guarantee water for human consumption and control/preserve water quantity and quality.

Conagua informs society about drought conditions through **General Agreements**;

- Location (basins, aquifers)

- Needed actions (water management and regulations)

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Pronacose

SEGOB · SEDENA · SEMAR · SHCP · SEDESOL · SEMARNAT
SENER · SE · SAGARPA · SCT · SALUD · SEDATU · CFE.

COMISIÓN INTERSECRETARIAL PARA LA ATENCIÓN DE SEQUÍAS E INUNDACIONES.
SEGOB · SEDENA · SEMAR · SHCP · SEDESOL · SEMARNAT
SENER · SE · SAGARPA · SCT · SALUD · SEDATU · CFE.

DOF 5 DE ABRIL DE 2013

First session : 24/April/2013
Second session: 3/July/2013

Interministerial commission is created permanently by Law for attending droughts and flooding, focusing in risk analysis for the implementation of prevention and mitigating actions due to climate extremes.

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Drought Preventive and Mitigation Measures Program at every Basin Board

Designed and implemented by authorities and users based on local characteristics of each region.

IMTA, Institutos de Ingeniería y Geografía-UNAM, Universidad Juárez del Estado de Durango, Universidad Autónoma de Chihuahua, Universidad Autónoma de Baja California, Universidad Veracruzana, Universidad de Sonora, Universidad de Ciencias y Artes de Chiapas, Universidad Autónoma de Zacatecas y Universidad Autónoma de Yucatán

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Action´s Integration

Previous actions

Planning:

- ✓ Design actions for droughts with different severity conditions
- ✓ Develop a financial fund
- ✓ Create the reserve fund

Timely actions

Adapting:

- ✓ Reduction demand
- ✓ Emerging supply

Monitoring and warning:

- ✓ River levels
- ✓ Rain, flow, temps.

<u>Administrative</u>

- ✓ Efficiencies
- ✓ Amounts
- ✓ Goals (avance/logro)
- ✓ Volume: used / charged
- ✓ Surveillance
- ✓ Attention to users

Post actions

Validation

<u>Administrative:</u>

- ✓ Finantial Fund Reserve Storage
- ✓ Improve actions
- ✓ Users efficiency
- ✓ Best practices

<u>Interinstitucional:</u>

- ✓ Land use regulations
- ✓ Best offer

<u>Users</u>

- ✓ Improve efficiency

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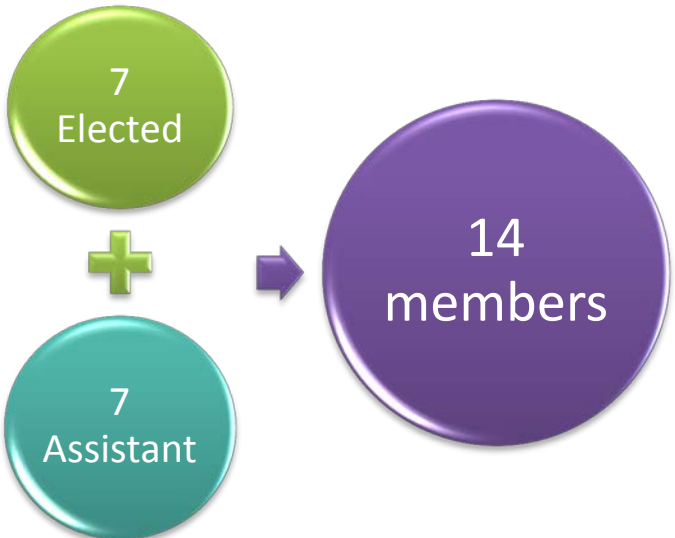
Experts Committee

Objective:

Evaluate, inform, advice and support to PRONACOSE

20 Institutions

- 9 Universities
- 12 States
- 1 Research Center
- 1 College
- 6 Institutes



Committee members will be rotated every 2 years

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Climate Change (droughts)
To achieve sustainability
4 Grand Challenges :

1. Water use efficiency (agriculture)

2. Water treatment and recycling (municipal and Industrial)

3. Desalinization (sea or salty water)

4. Water storages (for domestic use and environment)

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Proposed research 2013-2018 for PRONACOSE.

1. Early warning (improve actual drought monitoring)

2. Completing historical climate data series for rainfall, temperature and evaporation.

3. Development of drought outlooks (like CPC's)

4. More attention into trends and forcing mechanisms that could explain climate variability and Climate change (ENSO, PDO, NAO, IPCC models, etc.)

5. Vulnerability and impacts of droughts at national level.

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National Programs to achieve satisfaction of climate services users

1. Hold national Forums joining scientists, technicians and users (Prohimet, CFMR).

2. Modernization Plan for the National Meteorological Service of Mexico (MOMET).

3. Maintain international collaboration with Universities, Institutions and Governments (UMD, IRI, AEMET, CPC/NOAA).

4. Strength in capacity building at all levels (including users)

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Thanks for your attention