NORTH AMERICAN DROUGHT MONITOR

Drought Monitoring Activities in Mexico and Plans for the Future

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Overview

I. Monitoring drought at the SMN.
II. Activities at other Mexican agencies.
III. User needs (Government and Public).
IV. Plans for the future.

SOME INITIAL QUESTIONS

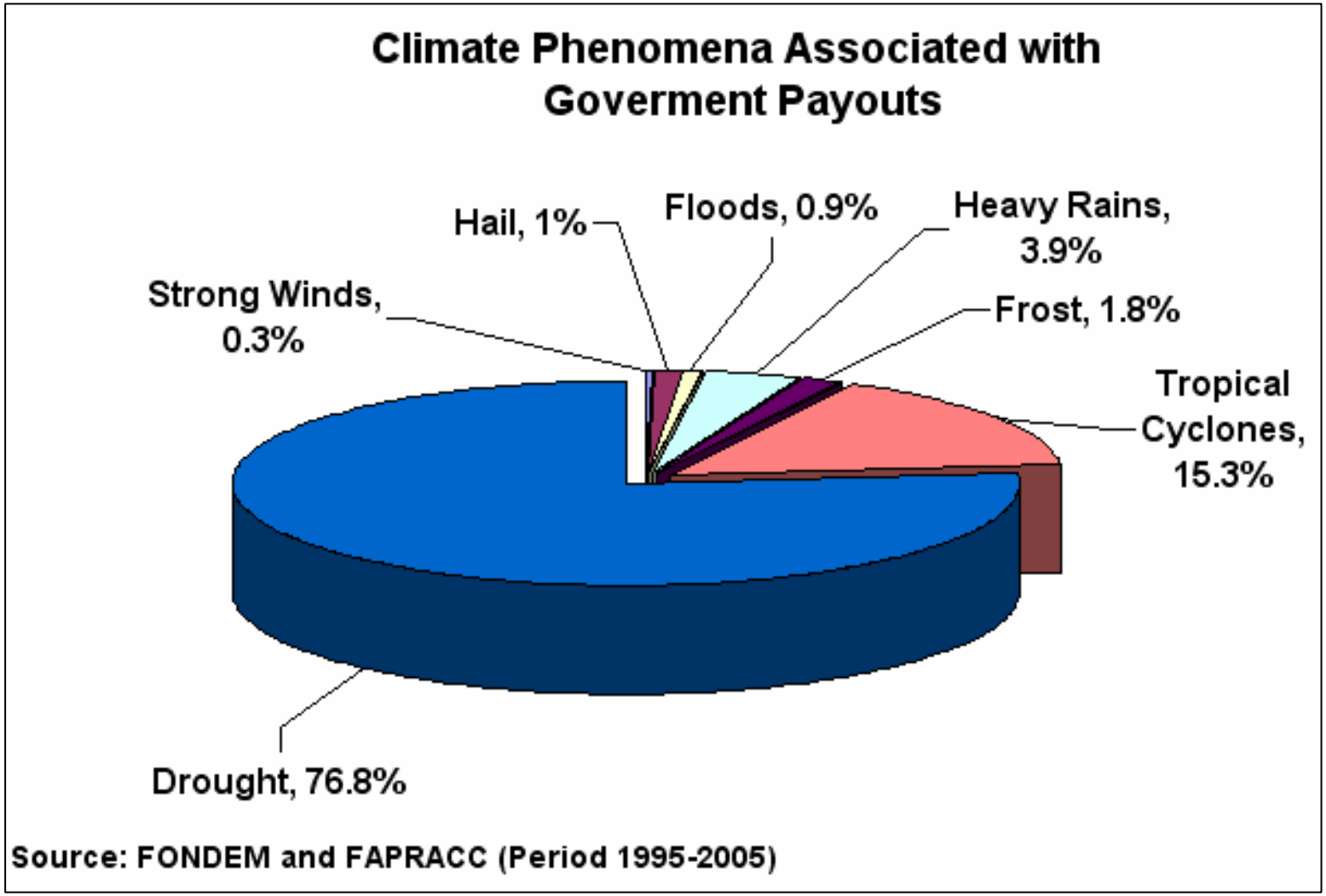
Why we should care about drought in Mexico?

How can we evaluate drought intensity and temporal coverage?

How does society know that a drought is underway?

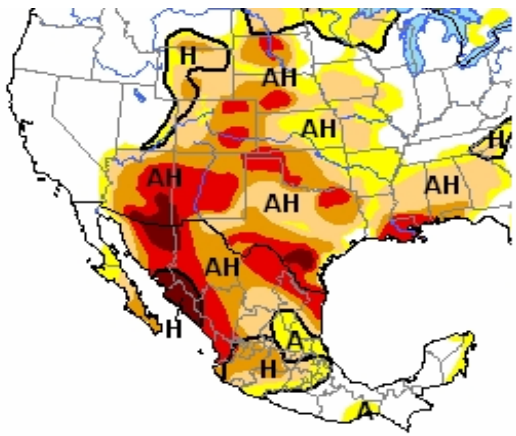
How can society anticipate drought impacts?

How do governmental agencies and society face drought impacts?


Climate Phenomena Associated with Goverment Payouts
Hail, 1%
Floods, 0.9%
Heavy Rains, 3.9%
Strong Winds, 0.3%
Frost, 1.8%
Tropical Cyclones, 15.3%
Drought, 76.8%
Source: FONDEM and FAPRACC (Period 1995-2005)

THE PROBLEM

- Changes in drought frequency and intensity can have important impacts on society and natural systems.
- In recent years different regions in Mexico have been affected by drought, as a consequence, user information needs have also increased relative to drought diagnostics and forecasts.
- Several institutions and individuals in Mexico prepare and issue drought monitoring analyses on national, regional and state levels (SMN, CEISS, COLPOS, IMTA, UNAM).
- Currently, different indices and ancillary indicators are used for monitoring drought, resulting in differences in depictions in drought intensity and spatial distribution.



June 2006

THEORETICAL PROBLEMS

- No one indice is accepted as the best indice for defining drought.
- The ND-DM assumes that a combination of different indices and indicators provide a better spatial and temporal depiction of drought.
- The physical processes associated with long-term drought events in Mexico require further investigation. Frequently we assume that El Niño is the main factor with summer drought. However, the interaction or relationship between hurricane activity and drought and the role of the global sea surface temperatures is still poorly understood.
- Until now we did not have an integrated strategic plan to confront drought impacts in Mexico.

TECHNICAL PROBLEMS

- Few stations with long-term, high quality records that currently report on a near real time basis.
- Drought definition:
  - Everybody uses this word but what does it mean?
- Capturing the following characteristics of Drought:
  - Drought magnitude (duration + intensity).
  - Spatial distribution of Drought.
  - Probability of occurrence of a given level of Drought.
  - Impacts of Drought.
- Drought analysis (diagnostics and forecast products aimed at Drought Prediction**).**

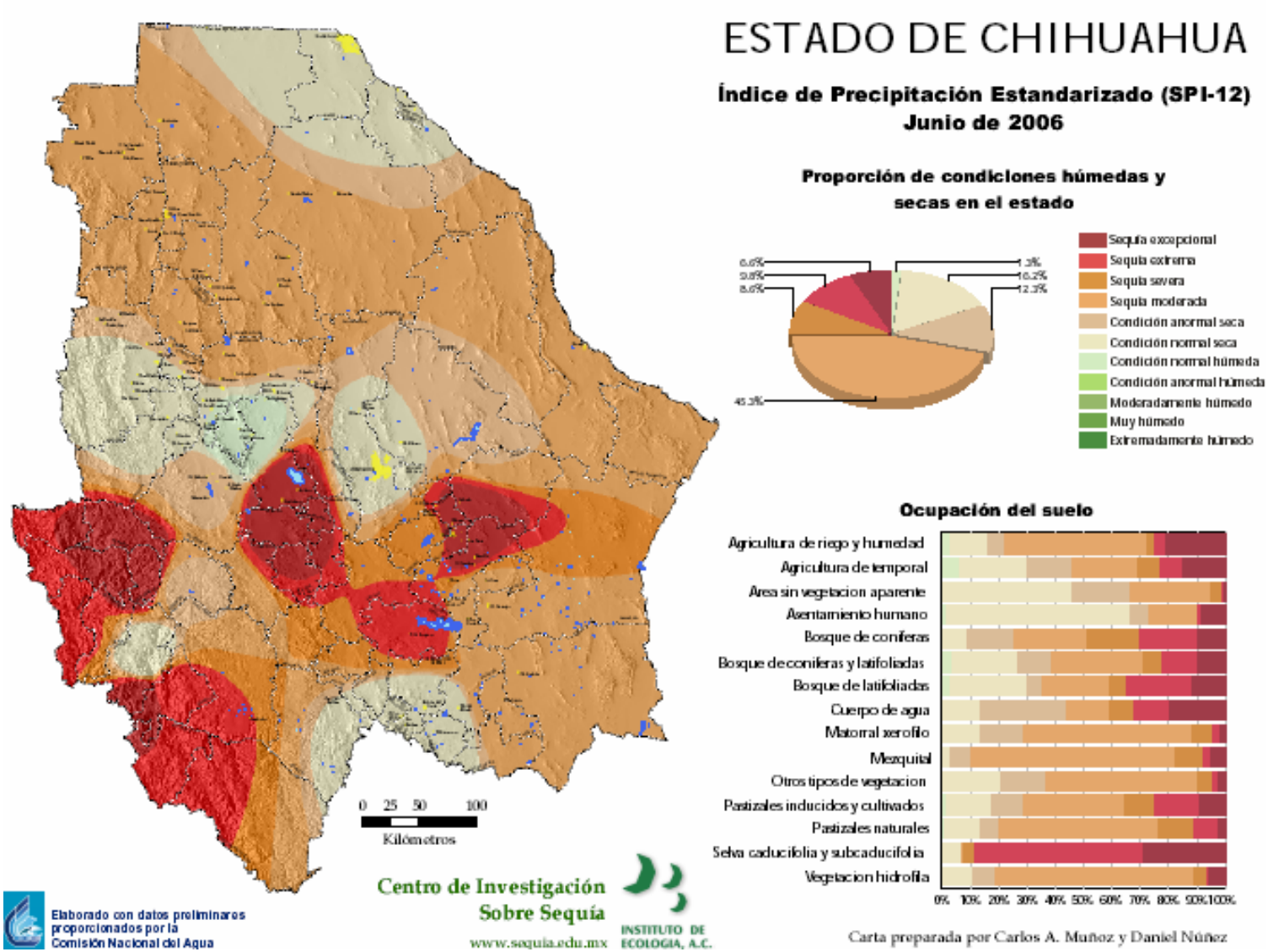
The NA-DM has contribute to:

- Enhance interactions between US-MX-CAN agencies and scientists.
- Exchange historical climate data sets.
- Integrate a monthly drought diagnostic tool for the North American Sector using common criteria and indices (operational for U.S. and Mexico, experimental for Canada).
- Reduce confusion among users of the climate information (drought conditions along the US-MX border).

Within Mexico

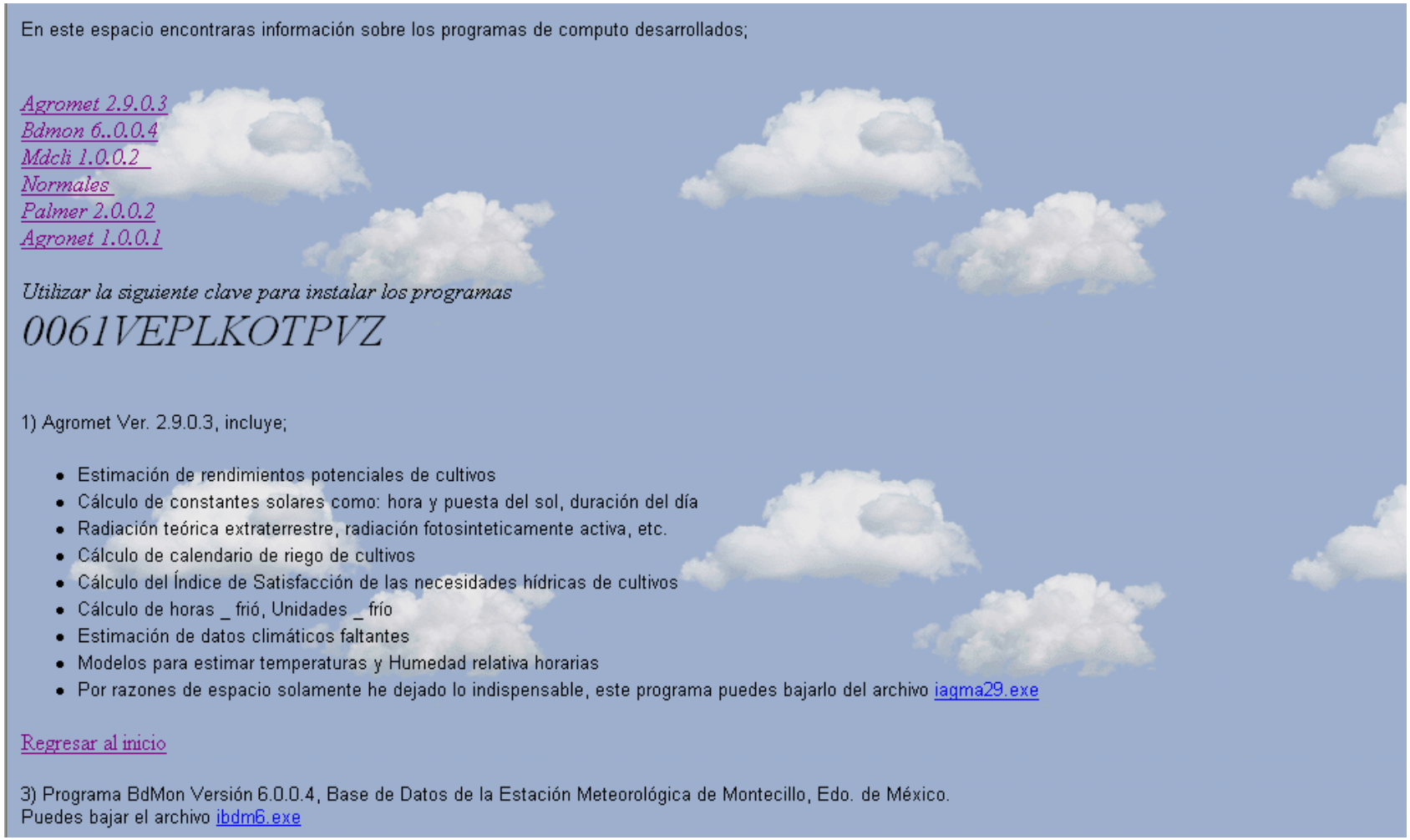
- ✓ Motivate discussions about drought definitions, indices, impacts, data sets and products.
- ✓ The main user of the NA-DM is the National Water Commission (CNA), however during the last year the number of users has increased (SAGARPA, AGROASEMEX, municipal and state authorities y El Chaparron de La Huachucas).
- ✓ More recently users have been demanding:
  - Regional and local information.
  - Drought forecasts.

Centro de Investigación Sobre Sequía



COLEGIO DE POSGRADUADOS

Developing tools to calculate PDSI and SPI



En este espacio encontraras información sobre los programas de computo desarrollados;

Agromet 2.9.0.3
Bdmon 6..0.0.4
Mdcli 1.0.0.2
Normales
Palmer 2.0.0.2
Agronet 1.0.0.1

Utilizar la siguiente clave para instalar los programas
0061VEPLKOTPVZ

1) Agromet Ver. 2.9.0.3, incluye;

- Estimación de rendimientos potenciales de cultivos
- Cálculo de constantes solares como: hora y puesta del sol, duración del día
- Radiación teórica extraterrestre, radiación fotosinteticamente activa, etc.
- Cálculo de calendario de riego de cultivos
- Cálculo del Índice de Satisfacción de las necesidades hídricas de cultivos
- Cálculo de horas _ frió, Unidades _ frío
- Estimación de datos climáticos faltantes
- Modelos para estimar temperaturas y Humedad relativa horarias
- Por razones de espacio solamente he dejado lo indispensable, este programa puedes bajarlo del archivo iagma29.exe

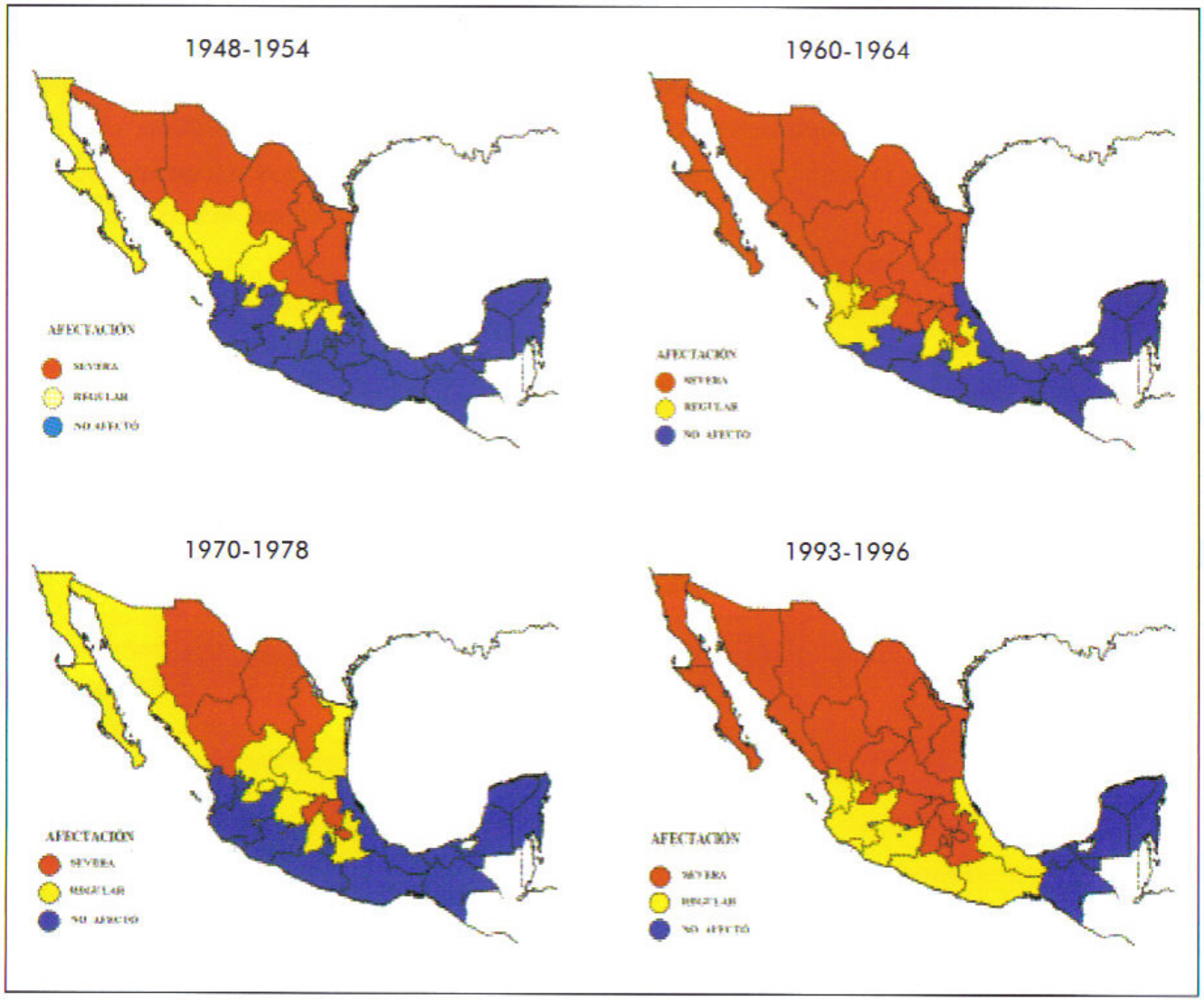
Regresar al inicio

3) Programa BdMon Versión 6.0.0.4, Base de Datos de la Estación Meteorológica de Montecillo, Edo. de México.
Puedes bajar el archivo ibdm6.exe

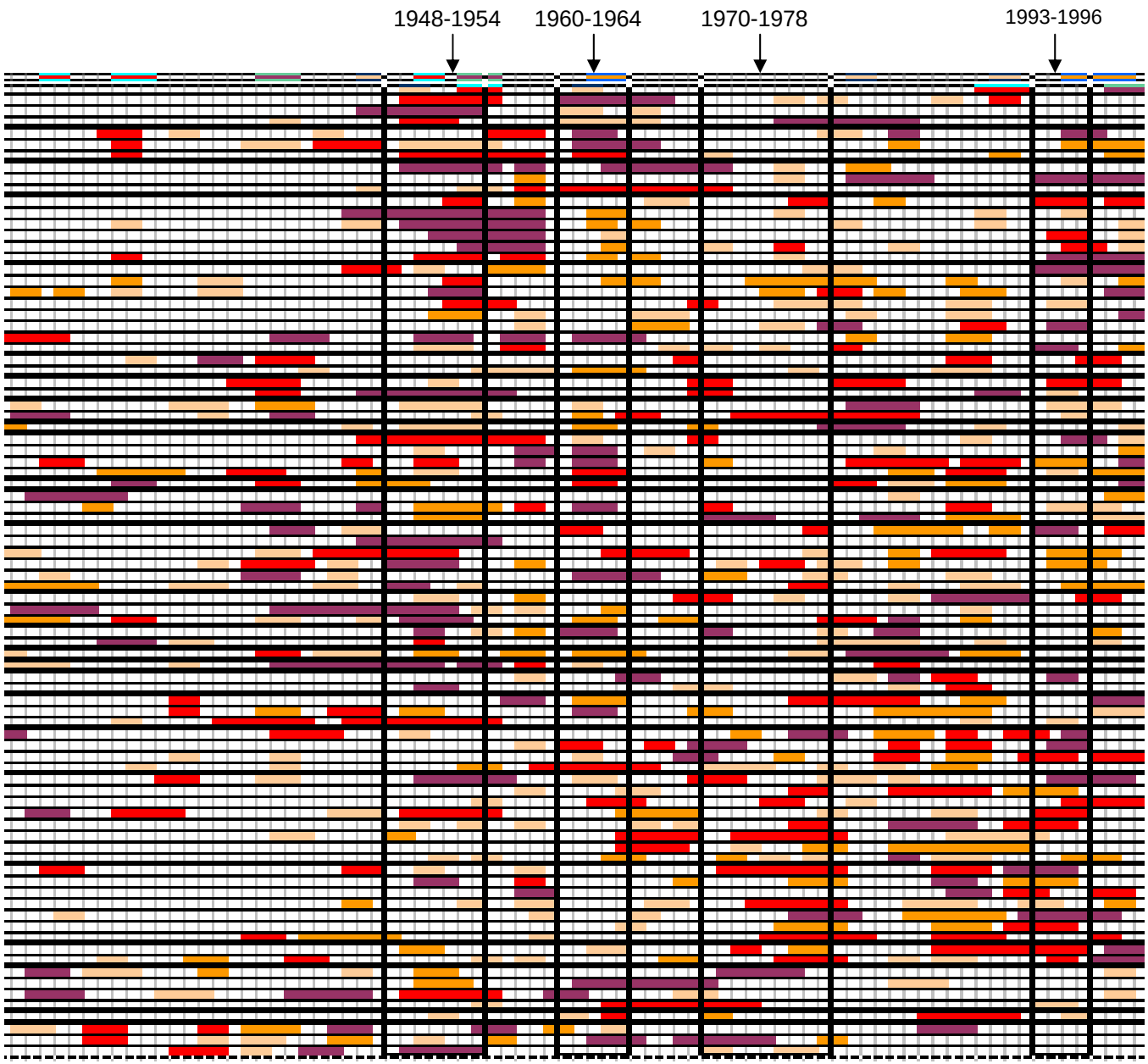
DROUGHT ANALYSIS FOR SPECIFIC AREAS CONDUCTED BY IMTA

Long-term Drought Events in Mexico

CENAPRED (2001) Diagnóstico de peligros e identificación de riesgos de desastres en México



Drought events during the second part of the XX Century



Future Events

In order to integrate a national drought strategy we are planning a drought meeting in early 2007 (tentatively the second part of February or the first part of March).

We are considering three places for the meeting:

- Aldama, Chihuahua (CEISS).
- Aguascalientes (Universidad?).
- Universidad de Guanajuato, GTO.

Guillermo Crespo has created a web site for interaction within the Mexican drought community.