

# RAPID FIRE DETECTION IN MEXICO AND CENTRAL AMERICA USING REMOTE SENSING METHODS

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## Organization

### **National commission for study and use of biodiversity (CONABIO)**

- **Founded in 1992 as a presidential advisory commission on biodiversity**

### **After the disastrous fire year 1998**

- **National program for protection against wildfire in cooperation with Forest Service, Natural Resources Commission**





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## Situation in Mexico

### Problem

- Severe wild fires in El Niño year 1998
- 2000-2004 : 7533 wildfires; 196,972 ha affected ann.

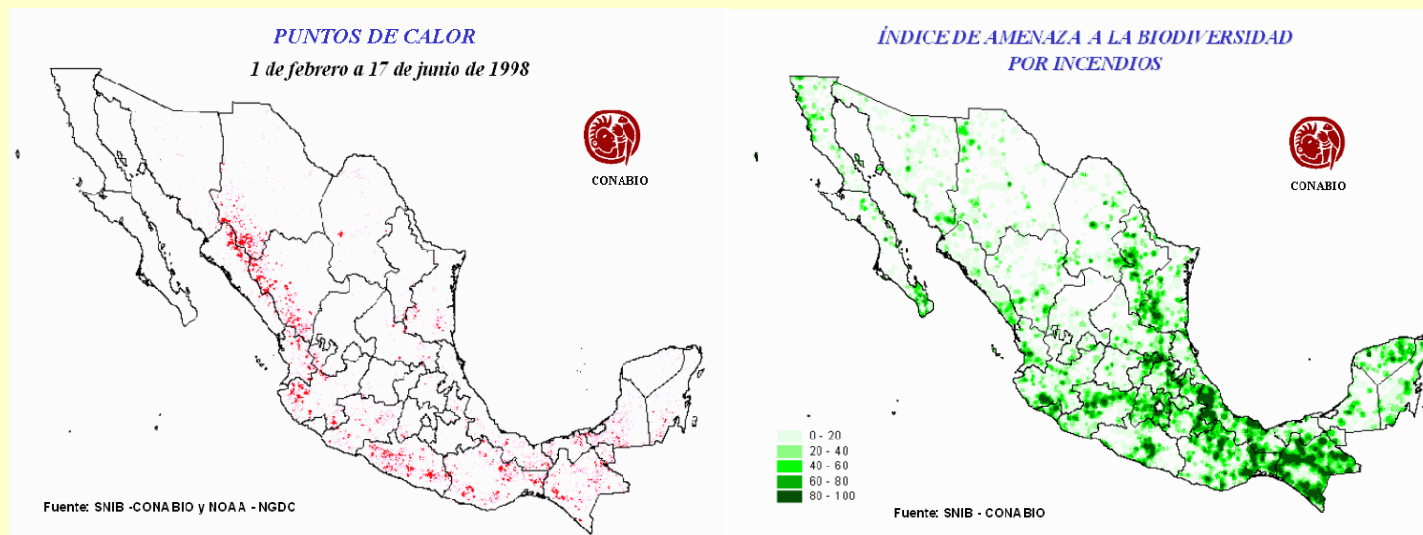
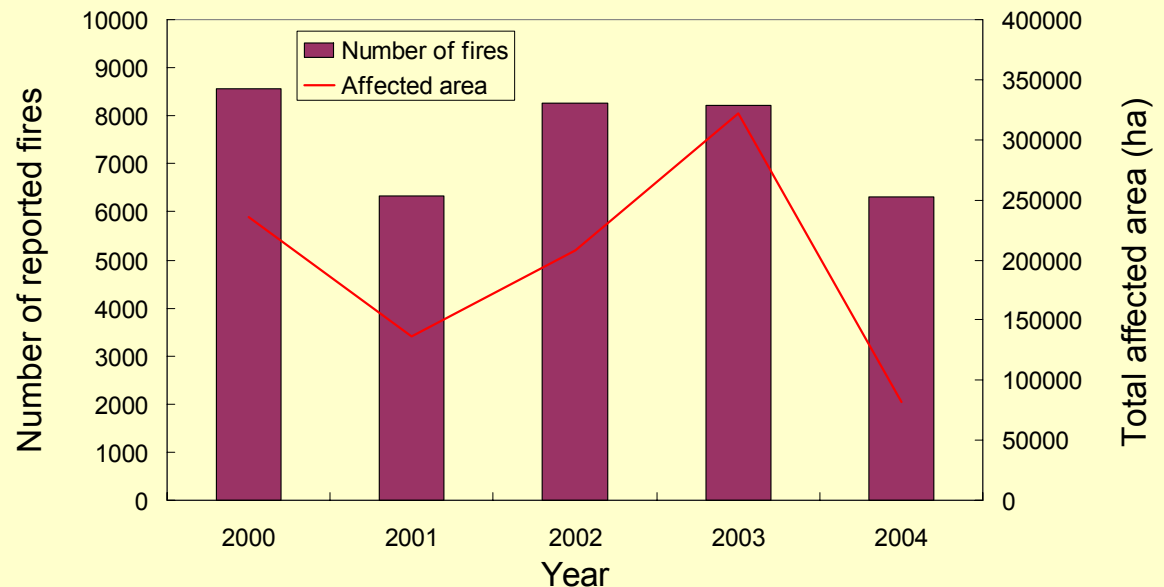
### Causes

- Agricultural activity, 43%
- Intentional, 21%
- Accidental, 31 %
- Other, 5 %

### Affected vegetation

- Pasture 40%
- Shurb and woodland 41%
- Forests 19 %

Source CONAFOR 2005

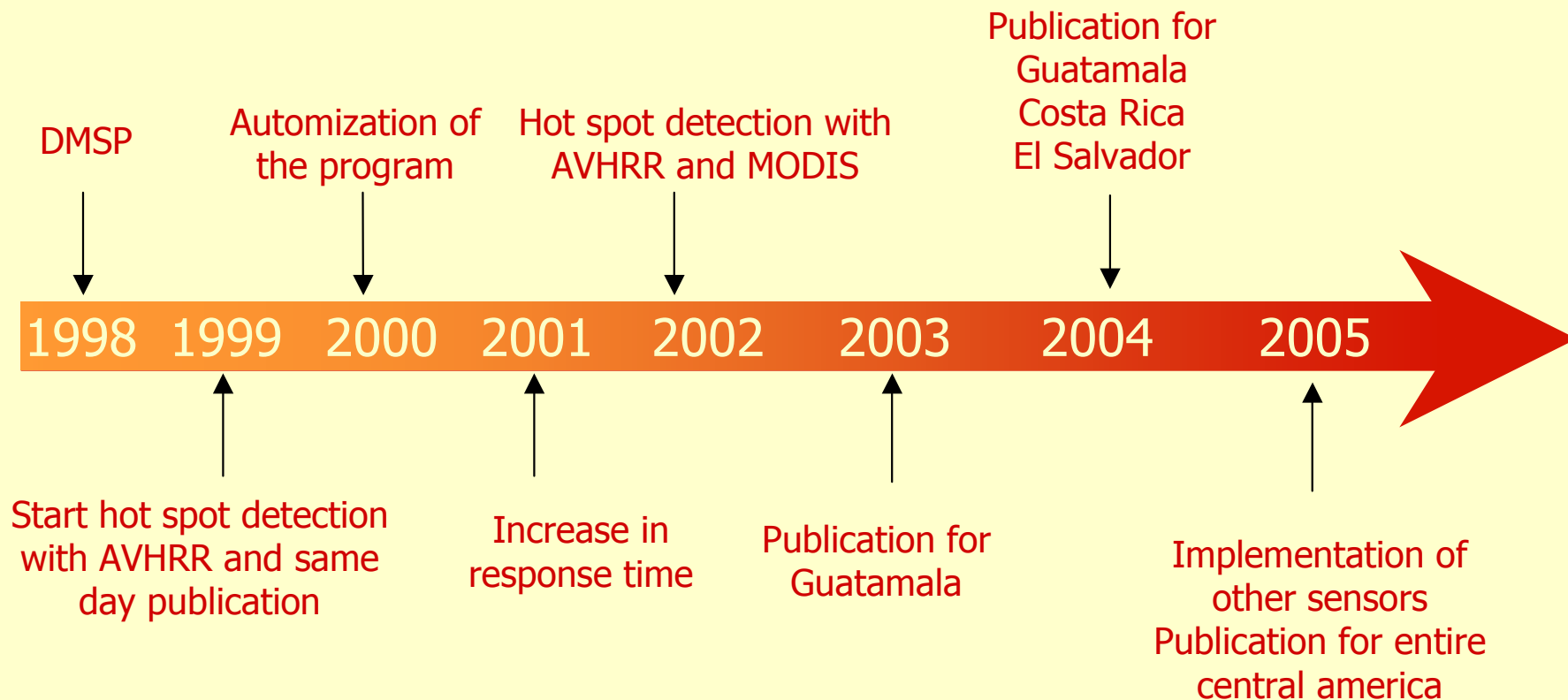




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## Program development



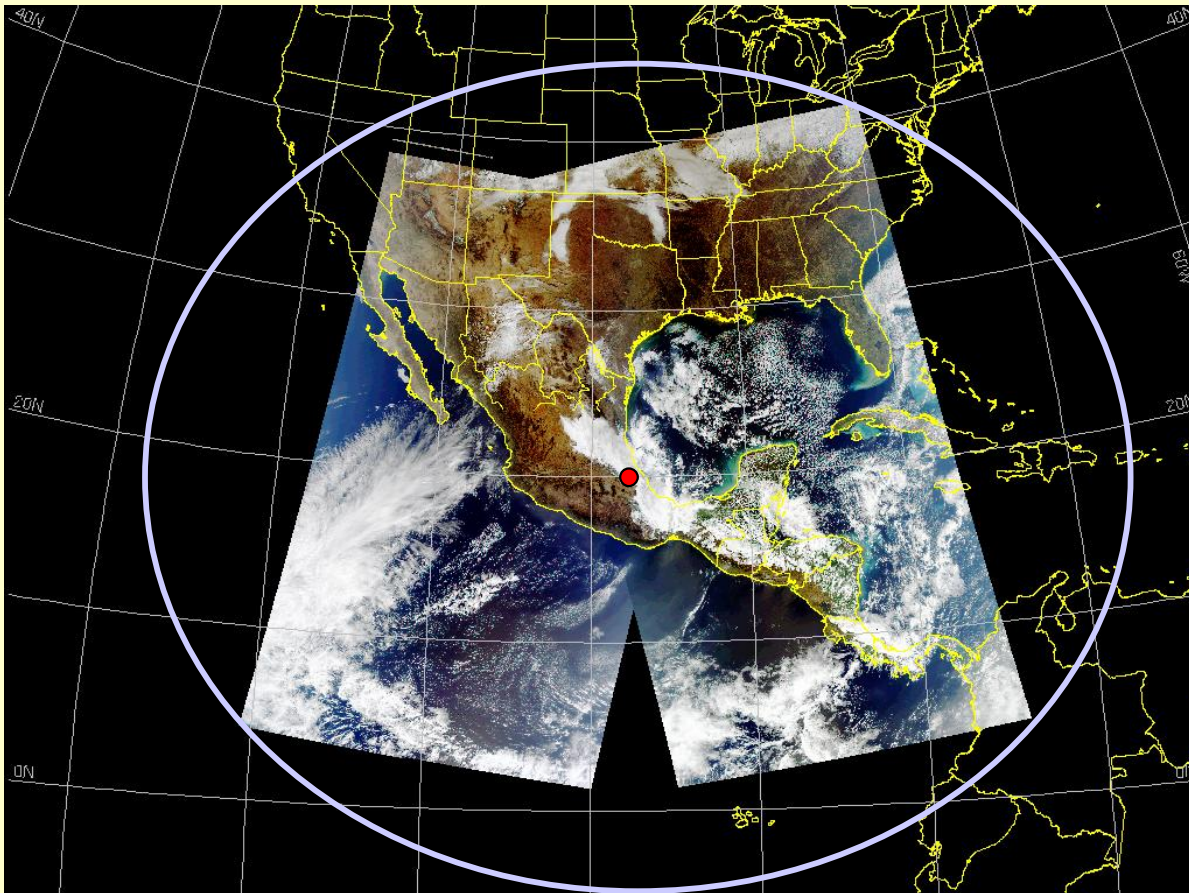


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## Spatial and temporal coverage

Terra / Aqua MODIS reception, Mexico City



### Characteristics

- 8 MODIS and 2 AVHRR passes per day
- Processing time ~1 hour

### Satellite Local time

Satellite	Local time	
AQUA	1:00	Night
AQUA	2:30	
NOAA16	3:25	
TERRA	10:30	Day
TERRA	12:00	
AQUA	13:30	
AQUA	15:00	
NOAA12	16:31	
TERRA	22:00	Night
TERRA	20:30	

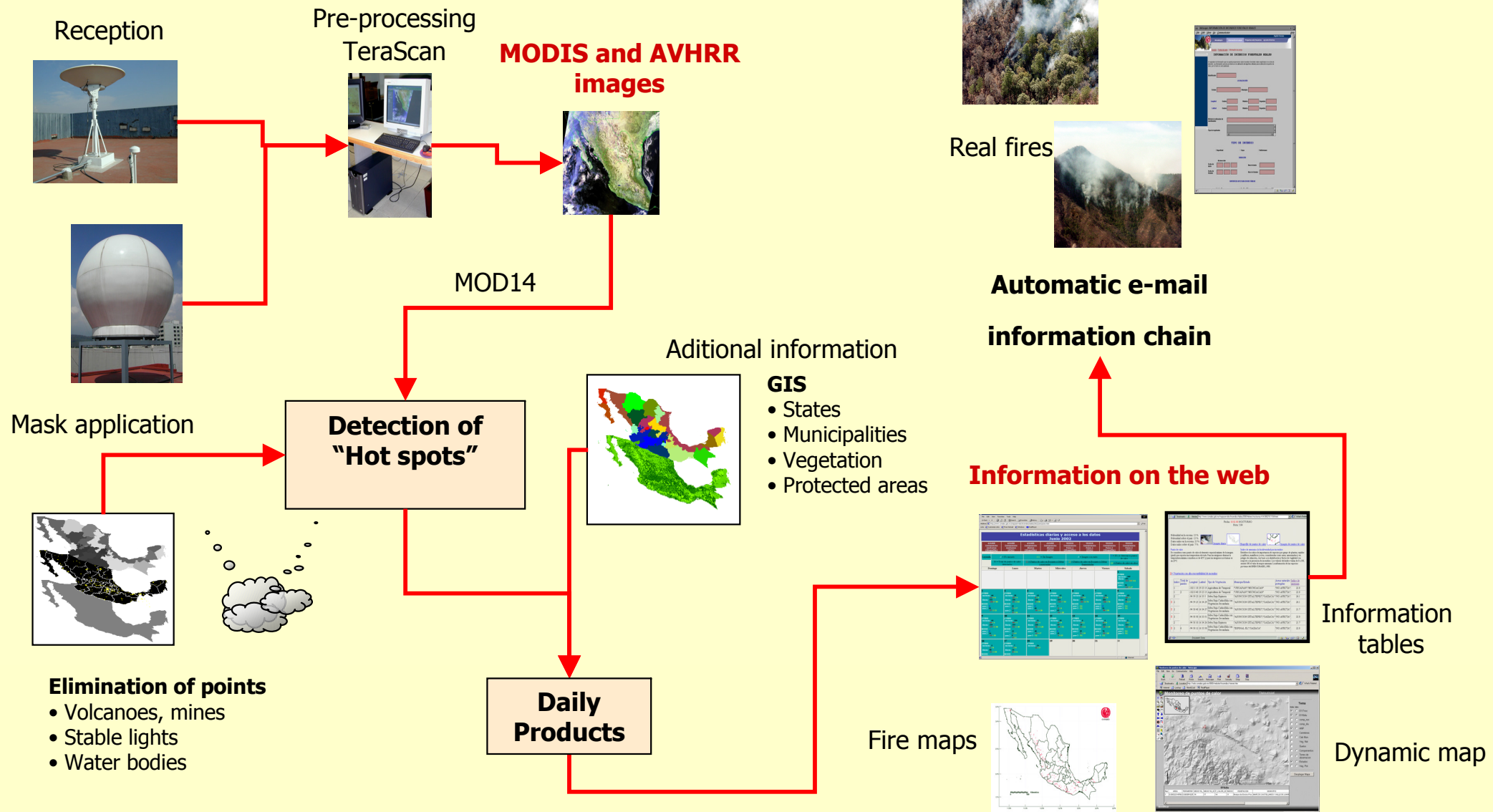




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## Processing









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## User feedback

### Survey among data product users in 2003 from 6 institutions in Mexico

#### Results

- Users with internet service 90 %
- Users that receive information of hot-spots by e-mail 66 %
- Information has contributed to improve fire management 83 %
  - 40% agreement between MODIS and attended fires

#### Main suggestions

- Improve processing time
- More detailed information on fire location
  - Training in use of GIS fire products







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## Central America



USAID workshop  
Managua, Nicaragua  
January 2004

- Request for a rapid fire detection system for CA
- Technology transfer
- Training courses

### Products (< 2hrs)

- Dynamic fire maps
- Quicklook images
- Detailed local maps
- Report tables
- Shape files
- E-mail alert system





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## Future activities

### **Mexico**

- NDVI anomaly mapping
- Fire scar/burned area mapping using SPOT images
- Knowledge transfer in national courses
- DLR antenna Chetumal providing ENVISAT, ASAR, ERS, MODIS, Landsat

### **South American cooperation**

- RedLAtif burned area validation
- Technology transfer to Bolivia
- International courses:  
Belize, Costa Rica, El Salvador, Honduras, Costa Rica, Nicaragua, Panama

