



*Promoting Cooperative Solutions for Space Sustainability*

# Capacity-building for the Prevention of, and Response to, Natural Disasters in Mesoamerica

Ray A. Williamson  
Senior Advisor  
Secure World Foundation

12 June 2014



Promoting Cooperative Solutions for Space Sustainability

# Two Workshops Were Held

- Under the terms of the Memorandum of Understanding between Secure World Foundation (SWF), the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean (CRECTEALC), signed October 2013
- ***19-22 November 2013, MCTP, Tuxtla Gutiérrez, Mexico***
- ***19-23 May 2014, CRECTEALC, Tonantzintla, Mexico***



Promoting Cooperative Solutions for Space Sustainability

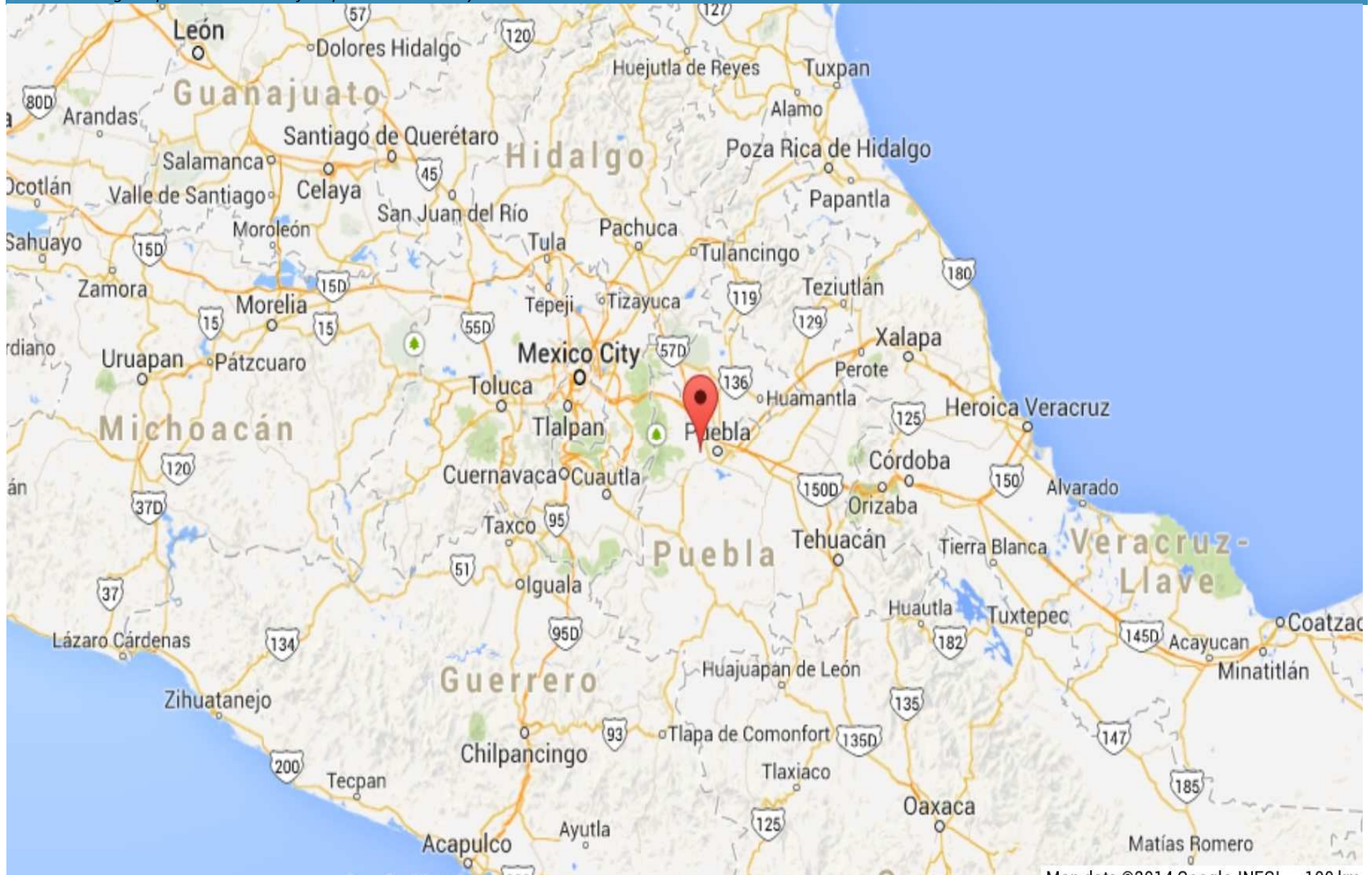
# Workshop One: MCTP





Promoting Cooperative Solutions for Space Sustainability

# Workshop Two: CRECTEALC





Promoting Cooperative Solutions for Space Sustainability

# The Partners



<Event, Date>

swfound.org



*Promoting Cooperative Solutions for Space Sustainability*

## Situation to address:

- Mesoamerican countries are often subject to major earthquakes, volcanic activity, tropical storms, hurricanes, flooding, drought
- Major disasters have set back development achievements by a up to a decade
- Human and financial resources for specialized observations and analysis are limited



*Promoting Cooperative Solutions for Space Sustainability*

# Workshop Objectives

- To build Mesoamerican capacity to use satellite and in-situ Earth observation data to respond effectively to major and minor natural disasters
- To provide information on access to free or low-cost data and analytic software suitable for reducing the risk of damage to life and property
- To build a Mesoamerican network of analysts and disaster management personnel



*Promoting Cooperative Solutions for Space Sustainability*

# Workshop Agendas Included

- Presentations on current disaster mitigation work in Mesoamerica
- Presentations on available free data and information resources
- Practical exercises on:
  - The use of satellite data and cartographic information in geographic information systems (GIS)
  - An operational open-source system to generate warnings of environmental risks.





Promoting Cooperative Solutions for Space Sustainability

# Participants in Two Workshops Included

- Representatives of Mesoamerican disaster prevention and civil protection authorities
- Remote sensing and geographical information system experts from national and regional space science and technology institutions.

## Countries represented:

- Brazil
- Colombia
- Costa Rica
- Dominican Republic
- Guatemala
- Honduras
- Mexico
- Panama
- United States



Promoting Cooperative Solutions for Space Sustainability

# Conclusions from Workshop # 1

- Need more awareness and capacity building, both for the disaster management and scientific and technical communities
- Local communities could make use of relatively simple geospatial tools to assist them survive natural disasters with fewer injuries and structural damage.
- Need to develop methods to help disaster managers understand better how to introduce new geospatial tools into their workflow.
- **Participants want training in free, open-source software.**



*Promoting Cooperative Solutions for Space Sustainability*

# Followup Actions

- CRECTEALC working to:
  - Coordinate development of an email list server for Mesoamerica
  - Build a web portal to facilitate the development of a geo-referenced network of activities, expertise and interest in disaster mitigation and response.
  - Develop a web-based e-learning platform for extending geomatics training throughout Latin America.
- Representatives of CRECTEALC (Puebla, Mexico), CATIE (Costa Rica), CATHALAC (Panama) and MCTP (Tuxtla Gutierrez, Mexico) all offered to host a follow-up workshop in 2014.
- SWF offered to co-organize the 2014 workshop



*Promoting Cooperative Solutions for Space Sustainability*

# Workshop Two Emphasized

- The wide range of free on-line EO tools available for disaster mitigation and prevention through more than 15 local and virtual presentations
- Training for analysts and disaster management personnel in the use of the free, open-source software:
  - Q-GIS
  - TerraMA<sup>2</sup>
- Building a Mesoamerican network of analysts and disaster management personnel



Promoting Cooperative Solutions for Space Sustainability

# Presentations made:

- GEO and GEOSS, opportunities for Latin America
- GEONETCast Americas
- CEOS DRM Flood Pilot
- CEOS COVE tools for data acquisition
- FEWS NET Americas
- WMO-CGMS Virtual Laboratory
- EOPOWER contributions
- UNSPIDER -Institutionalizing the use of space-based information in disaster management
- SERVIR Disaster Assistance
- CATIE – GIS and Remote Sensing Risk Management Applications Haiti and Costa Rica
- Dominican Republic - Inter-institutional Group for Decision-making in Risk Management
- Dynamic Civil Protection Model for the State of Tabasco
- Data and Information Access Policies and Laws
- CONRED – Use of GIS in the prevention and response to flooding in Guatemala

<Event, Date>

[swfound.org](http://swfound.org)



*Promoting Cooperative Solutions for Space Sustainability*

# Software Training

- Q-GIS: Developed by hundreds of software experts around the world; Specialized modules available, including a disaster planning module.
  - Very powerful GIS
  - Available in different languages
  - Lots of free on-line training available
- TerraMA<sup>2</sup>: Software developed by software engineers at INPE, the Brazilian Space Agency.
  - Risk analysis software suitable for most any geospatially-linked risk
  - Free, on-line training available



Promoting Cooperative Solutions for Space Sustainability

# Primary Outcome

## MESOAMERICAN OPEN SOURCE DISASTER ACTIVITIES

**(MOSDA)**



[Opportunities, Challenges and  
Practical Actions]

<Event, Date>

swfound.org



*Promoting Cooperative Solutions for Space Sustainability*

# Founding Members of MOSDA

## Participants from:

- Colombia
- Costa Rica
- Dominican Republic
- Guatemala
- Honduras
- Mexico
- Panama





*Promoting Cooperative Solutions for Space Sustainability*

# MOSDA

- Network of Mesoamerican professionals devoted to expanding the use of geomatic tools to benefit Mesoamerica
- A working group to develop and promulgate the use of geoinformation for Mesoamerican development
- Emphasis on using the potential of geoinformation to help reduce risks and contribute to disaster mitigation
- Will provide timely and accurate information to high-level decision-makers



*Promoting Cooperative Solutions for Space Sustainability*

Thanks

Questions?