# Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean

GUATEMALANDHOURAS CARIBBEAN
EL MICARAGUA
SALVADOR PANAMA

## A Workshop to Build Seismological Collaboration and Capacity

# Sunday, October 24, 2010

6:00pm NETWORKING RECEPTION Regent

7:30pm **DINNER** Restaurant Patio De Los Condes

8:30pm **WELCOME AND OPENING ADDRESS** Majestad

Call to Order: Olga A. Cabello, Ph.D., Director, International Development Seismology, IRIS Consortium

Regional Welcome: Marino Protti, Ph.D., Seismologist, Universidad Nacional de Costa Rica

Mauricio Mora, Ph.D., Head of Seismology, Volcanology and Geophysics Exploration Section,

Universidad de Costa Rica

Opening Remarks: David W. Simpson, Ph.D., President, IRIS Consortium

Introduction of the Speaker: Olga A. Cabello, Ph.D., Director, International Development Seismology, IRIS Consortium

**Keynote Address:** 

Subduction in the Southern Caribbean

**Open Discussion** 

Andrew W. Reynolds, Acting Science and Technology Adviser to the U.S. Secretary of State

#### Monday, October 25, 2010

11:30am

11:50am

| monday, octob     |  |            |
|-------------------|--|------------|
| 7:00am – 8:00am   | BREAKFAST Restaurant Patio De L  | os Condes. |
| 8:00am – 8:40am   | INTRODUCTION Framing the Workshop: Karen Fischer, Ph.D., Professor, Brown University   | Majestad   |
|                   | <b>Introduction of the Speaker:</b> Arthur Lerner-Lam, Ph.D., Associate Director for Seismology, Geology and Tectonophysics, Lamont-Doherty Earth Observatory of Columbia University               |            |
|                   | <b>Opening Address:</b> Ambassador Federico Alberto Cuello Camilo, Ph. D., Permanent Representative of the Dominican Reputo the United Nations in New York   | Jblic      |
| 8:40am – 10:00am  | GEOPHYSICS IN SERVICE TO SOCIETY Session Chair: Wayne D. Pennington, Ph.D., Chair and Professor, Dept of Geological and Mining Engineering and Sciences, Michigan Technological University         | Majestad   |
| 8:40am            | The 2010 Haiti Earthquake: Lessons for Seismic Hazard and Societal Impacts in the Caribbean Eric Calais, Ph.D., Science Advisor, UNDP Haiti; Professor, Purdue University                          |            |
| 9:00am            | Tsunami Modeling and Real-Time Tsunami Monitoring in the Caribbean Victor Huerfano Moreno, Ph.D., Interim Director, Puerto Rico Seismic Network  |            |
| 9:20am            | Impact of the Southern California Earthquake Center: Lessons Learned Greg Beroza, Ph.D., Professor, Stanford University  |            |
| 9:40am            | Open Discussion  |            |
| 10:00am - 10:30am | BREAK  | Lobby      |
| 10:30am - 12:15pm | UNDERSTANDING PLATE BOUNDARY PROCESSES Session Chair: Marino Protti, Ph.D., Seismologist, Universidad Nacional de Costa Rica   | Majestad   |
| 10:30am           | The Contribution of Slow Slip to Strain Release and Earthquake Hazard at Plate Boundaries: The Case of Nicoya, Costa Rica Susan Schwartz, Ph.D., Professor, University of California at Santa Cruz |            |
| 10:50am           | Plate Boundary Deformation within the Caribbean Plate Jay Pulliam, Ph.D., Professor, Department of Geology, Baylor University  |            |
| 11:10am           | Imaging Circum-Pacific Subduction Zones with Earthquakes: Fluid Pathways and the Origins of  |            |

Volcanic Arcs Geoffrey Abers, Ph.D., Research Professo Lamont-Doherty Earth ObservatorColumbia University

Alan Levander, Ph.D., Professor and Chair, Department of Earth Science, Rice University

12:15pm - 2:00pm LUNCHEON Restaurant Patio De Los Condes Featured Speaker: H.E. Anne Slaughter Andrew, United States of America Ambassador to Costa Rica (Invited) Introduced by Olga A. Cabello, Ph.D., Director of International Development Seismology, IRIS Consortium **Group Picture** NATIONAL AND REGIONAL PERSPECTIVES ON EXISTING CAPABILITIES AND NEEDS 2:00pm - 3:30pm Majestad **PANEL SESSION I** Chairs: Karen Fischer, Ph.D., Professor, Brown University Marino Protti, Ph.D., Seismologist, Universidad Nacional de Costa Rica This and the following session will consist of panel presentations of selected representatives (one from each participating country) who will discuss their country's specific technical, scientific and human resources, concerns, needs and opportunities. Costa Rica: Ronnie Quintero, Ph.D., Seismologist, OVSOCORI-UNA El Salvador: Marta Griselda Marroquin, Head of Seismological Section, Ministerio de Medio Ambiente y Recursos Naturales, Servicio Nacional de Estudios Territoriales Guatemala: Luis Alberto Arriola, INSIVUMEH Honduras: Manuel Rodriguez Maradiaga, Ph.D., Professor, Instituto Hondureño de Ciencias de la Tierra, UNAH Nicaragua: Emilio Talavera, Director de Sismologia, Instituto Nicarguense de Estudios Territoriales Panama: Eduardo Camacho, Ph.D., Director, Instituto de Geociencias-Universidad de Panama Mexico: Carlos Valdes, Ph.D., Director, Red Sismica Nacional, Instituto de Geofisica, Universidad Nacional Autonoma de Mexico 3:35pm - 4:00pm **BREAK** Lobby 4:00pm - 6:00pm NATIONAL AND REGIONAL PERSPECTIVES ON EXISTING CAPABILITIES AND NEEDS Majestad **PANEL SESSION II** Chairs: Roberte Momplaisir, Ph.D., Professeur, Faculté des Sciences, Université d'Etat d'Haiti Jay Pulliam, Ph.D., Professor, Department of Geology, Baylor University This and the following session will consist of panel presentations of selected representatives (one from each participating country) who will discuss their country's specific technical, scientific and human resources, concerns, needs and opportunities. British Virgin Islands: Garymar Rivera, Technical Planning Officer, Department of Disaster Mangement Colombia: Monica Arcila, Geologist, INGEOMINAS Cuba: Griselda Despaigne Longchamp, Ph.D., Subdirector Tecnico, Centro Nacional de Investigaciones Sismologicas Dominican Republic: Eugenio Polanco, Ph.D., Director, Instituto Sismologico, Universidad Autonoma de Santo Domingo French Caribbean: Marie-Paule Bouin, Ph.D., Seismologist in Charge, Guadeloupe observatory - IPGP

**Haiti:** Jean Robert Altidor, Ph.D., Technical Director, Bureau of Mines and Energy

Jamaica: Lyndon Brown, Ph.D., Head Research Fellow, Earthquake Unit, University of the West Indies, Mona

**Puerto Rico:** Victor Huerfano Moreno, Interim Director, Puerto Rico Seismic Network **Trinidad and Tobago:** Richie Robertson, Ph.D., Director, Seismic Research Centre

Venezuela: Michael Schmitz, Ph.D., Director, Departmamento de Geofisica, Fundacion Venezolana de Investigaciones Sismologicas

6:30pm – 8:00pm DINNER Featured Speaker:

David W. Simpson, Ph.D., President, the IRIS Consortium

"Establishing a Culture of Shared Resources for Research and Education" Introduced by Dr. Raymond Willemann, Director or Planning, IRIS Consortium

8:00pm – 10:00pm POSTERS AND INFORMAL DISCUSSION

Emperador

Restaurant Patio De Los Condes

### Tuesday, October 26, 2010

7:30am – 8:00am Restaurant Patio De Los Condes

8:00am – 9:30am COOPERATIVE FACILITIES SUPPORTING GEOPHYSICAL RESEARCH Majestad

Session Chair: Carlos Valdes, Ph.D., Director, Red Sismica Nacional Instituto de Geofisica,

Universidad Nacional Autonoma de Mexico

8:00am Inter-institutional and Intergovernmental Arrangements: MIDAS and the Caribbean Tsunami Warning System

Christa von Hillebrandt-Andrade, Ph.D., Manager, NOAA NWS Caribbean Tsunami Warning Program

| 8:20am            | Lessons Learned From The Plate Boundary Observatory: Building Geophysical Networks in Center Mexico, and the Caribbean Through International Collaboration  Karl Feaux, Ph.D., GPS Operations Manager, UNAVCO  | tral America,      |
|-------------------|--|--------------------|
| 8:40am            | Data Archiving and Exchange Models Timothy Ahern, Ph.D., Program Manager, Data Management Center   | r, IRIS Consortium |
| 9:00am            | Open Discussion  |                    |
| 9:20am – 9:45am   | BREAK  | Lobby              |
| 9:45am – 11:15am  | COOPERATIVE FACILITIES SUPPORTING GEOPHYSICAL RESEARCH Session Chair: Eugenio Polanco, Ph.D., Director, Instituto Sismologico, Universidad Autonoma de Santo Do  | Majestad<br>omingo |
| 9:45am<br>10:00am | Central America Seismic Center (CASC)  Mauricio Mora, Ph.D., Head of Seismology, Volcanology and Geophysics Exploration Section, Universidad Instrument Sharing and Joint Experiments  James Gridley, Ph.D., Program Manager of the PASSCAL Instrument Center, IRIS Consortium     | l de Costa Rica    |
| 10:20am           | Engaging the Next Generation of Researchers Through Education  John Taber, Ph.D., Program Manager, Education and Outreach, IRIS Consortium   |                    |
| 10:40am           | Enabling Environmental Security Through Social Networks Ruben Moreno, Ph.D., Senior Director, Risk Management, SAIC  |                    |
| 10:55am           | Open Discussion  |                    |
| 11:15am – 11:25am | BREAK  | Lobby              |
| 11:25am – 12:30pm | PANEL PRESENTATION: SCIENTIFIC DEVELOPMENT OPPORTUNITIES AND STRATEGIES FOR RISK REDUCTION Session Leaders: Arthur Lerner-Lam, Ph.D., Associate Director for Seismology, Geology and Tectonophysics, Lamont-Doherty Earth Observatory of Columbia University                       | Majestad           |
|                   | Lyndon Brown, Ph.D., Head Research Fellow, Earthquake Unit, University of the West Indies, Mona  |                    |
|                   | Josh Mandell, Program Officer, Science, Technology and Innovation, The World Bank  |                    |
|                   | Timothy Callaghan, Senior Regional Advisor for Latin America and the Caribbean, U.S. Agency for International De   | evelopment         |
|                   | Gari Mayberry, Ph.D., Geoscience Advisor, U.S. Agency for International Development  |                    |
|                   | Mark Suskin, Ph.D., Deputy Director of the Office of International Science and Engineering, U.S. National Science  | nce Foundation     |
|                   | Mary Lou Zoback, Ph.D., Vice President, Earthquake Risk Applications, Risk Management Solutions (Invit   | ed)                |
| 12:30pm – 2:00pm  | <b>LUNCHEON Featured Speaker:</b> Timothy Callaghan, USAID Senior Regional Advisor for Latin America and the Caribbean Introduced by Dr. Raymond Willemann, Director of Planning, IRIS Consortium  | e Los Condes       |
| 2:00pm – 2:15pm   | OUTLINE AND TASKING OF BREAKOUT WORKING GROUPS Raymond Willemann, Ph.D., Director of Planning, IRIS Consortium   | Majestad           |
| 2:15pm – 3:30pm   | A. Research Products to Address Hazard Mitigation Needs Session Leaders: Dr. Daniel McNamara, Research Seismologist, National Earthquake Information Center, U.S. Geological Survey (USGS) Alberto Lopez Venegas, Ph.D., Assistant Professor, University of Puerto Rico - Mayagüez | Regent             |
|                   | B. Support for Research Collaborations Session Leaders: Carlos Vargas, Ph.D., Associated Professor, Universidad Nacional de Colombia Heather DeShon, Ph.D., Ass. Research Professor, CERI, Univ. of Memphis  | Principe           |
| 3:30pm – 3:45pm   | BREAK  | Lobby              |
| 3:45pm – 5:00pm   | BREAKOUT SESSIONS II (Concurrent) A. Regional Data Archiving and Exchange Session Leaders: Victor Huerfano Moreno, Ph.D., Interim Director, Puerto Rico Seismic Network Andrew Newman, Ph.D., Assistant Professor, Georgia Institute of Technology                                 | Regent             |
|                   | B. Regional Internship and Education Programs Session Leaders: Grenville Draper, Ph.D., Professor, Florida International University Lepolt Linkimer, Ph.D. Student, The University of Arizona  | Principe           |

| 5:00pm – 6:00pm   | A. Regional Instrument Sharing and Joint Experiments Session Leaders: James Gridley, Ph.D., Program Manager of the PAS Rafael Pujols Guridy, Ph.D., Supervisor de Instrumen Universitario, Universidad Autónoma de Santo Dor   | ntacion y Mantenimiento, Instituto Sismológico        |  |  |  |  |  |
|-------------------|--|---|--|--|--|--|--|
|                   | B. Organizational Models and Trans-Sector Communications Session Leaders: Eric Calais, Ph.D., Science Advisor, UNDP Haiti; Profe Olga A. Cabello, Ph.D., Director, International De  |   |  |  |  |  |  |
| 6:00pm – 8:00pm   | DINNER   | Restaurant Patio De Los Condes                        |  |  |  |  |  |
|                   | Featured Speaker: Jennifer Guralnick, Disaster Reduction Advisor, UNISDR Regional Office "The Hyogo Framework for Action and the Global Campaign Mc My City is Getting Ready!" Introduced by Olga A. Cabello, Ph.D., Director of International D   | aking Cities Resilient to Disasters:                  |  |  |  |  |  |
| 8:00pm – 10:00pm  | POSTERS AND INFORMAL DISCUSSION  | Emperador   |  |  |  |  |  |
| Wednesday, Od     | Wednesday, October 27, 2010  |   |  |  |  |  |  |
| 7:30am – 8:30am   | BREAKFAST  | Restaurant Patio De Los Conde                         |  |  |  |  |  |
| 8:30am - 10:30am  | REPORTS FROM BREAKOUT SESSIONS Session Leader: Jean Weaver, Ph.D., Chief, Latin American Program   | Majestad<br>, United States Geological Survey (USGS)  |  |  |  |  |  |
|                   | Research products to address hazard mitigation needs Regional data archiving and exchange Regional instrument sharing and joint experiments Regional internship and education programs Support for groups of research collaborators Organizational models and trans-sector communication |   |  |  |  |  |  |
| 10:30am – 11:00am | BREAK  | Lobby   |  |  |  |  |  |
| 11:00am – 12:00pm | DISCUSSION OF CONCRETE STEPS MOVING FORWARD Session Leader: Wayne D. Pennington, Ph.D. Chair and Professor, Dept of Geological and Mining Engineering and Sc Research products to address hazard mitigation needs Regional data archiving and exchange                                   | Majestad<br>iences, Michigan Technological University |  |  |  |  |  |
| 12:00pm – 1:30pm  | LUNCH  | Restaurant Patio De Los Condes                        |  |  |  |  |  |
| 1:30pm – 3:30pm   | DISCUSSION OF CONCRETE STEPS MOVING FORWARD Session Leader: Wayne D. Pennington, Ph.D. Chair and Professor, Dept of Geological and Mining Engineering and Sc   | Majestad<br>iences, Michigan Technological University |  |  |  |  |  |
|                   | Regional instrument sharing and joint experiments Regional internship and education programs Support for small groups of research collaborators Organization models and trans-sector communication   |   |  |  |  |  |  |
| 3:30pm – 4:00pm   | BREAK  | Lobby   |  |  |  |  |  |
| 4:00pm – 5:00pm   | RATIFICATION OF WORKSHOP OUTCOMES AND CONCLUDING REMARKS Session Leader: Jay Pulliam, Ph.D., Professor, Department of Geolog   | Majestad<br>y, Baylor University                      |  |  |  |  |  |
| 6:00pm – 8:00pm   | DINNER   | Restaurant Patio De Los Condes                        |  |  |  |  |  |