



Regional Seismological Collaboration and PASI Programs

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PASI programs

The Pan-American Advanced Studies Institutes Program (PASI) is a joint funding initiative of the National Science Foundation (NSF) and the Department of Energy (DOE). The aim of the program is the dissemination of advanced scientific and engineering knowledge and fostering training and cooperation among researchers in the Americas. The focus is on mathematical, physical and biological sciences, geosciences and computer and information sciences, and the engineering fields.

The PASIs are instructional events of several days (10 to 21 days) aimed at the advanced graduate, post-doctoral and junior faculty level. Lectures and hands-on experience



U.S. DEPARTMENT OF
ENERGY

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PASI Program examples

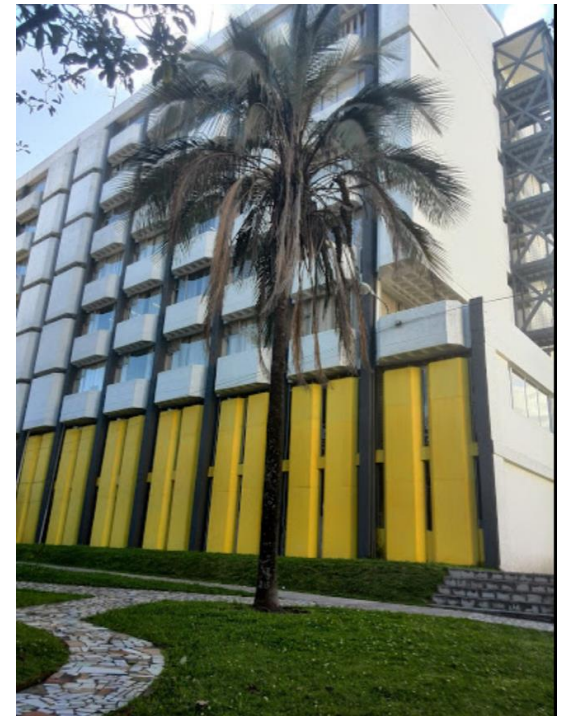
- PASI on Scalable, Functional Nanomaterials, Costa Rica, PASI on Process Modeling and Optimization for Energy and Sustainability, Brazil
- PASI on New Frontiers in Seismological Research: Sustainable Networks, Earthquake Source Parameters, and Earth Structure, Ecuador
- PASI on Tropical ecology & Biogeochemistry, from Andean Cloud Forest to the Lowland Amazon, Perú, June/July
- PASI on Electronic Properties of Complex Systems, Colombia
- PASI on Frontiers in Imaging Science, Colombia,
- PASI on Advanced Tunicate Biology: Integrating Modern and Traditional Techniques for the Study of Ascidians, Panama,
- Scientific computing in the Americas: the challenge of massive parallelism, Chile,
- PASI on Volcanic Hazards and Remote Sensing in Pacific Latin America, Costa Rica
- PASI on Concepts and Model Organisms in Regenerative Biology, Chile
- PASI on Dynamics and Chemistry of the Upper Atmosphere, Argentina
- PASI on Rare Nuclear Isotopes, Brazil
- PASI on Expanding the Frontier in Tropical Ecology through Embedded Sensors, Costa Rica
- PASI on Function and Regulation of the Cytoskeleton, Brazil
- PASI on Cutting-edge Topics in Theoretical Statistics and Applications in Genetics and Bioinformatics, Mexico, PASI Quantum Gravity, Mexico;
- PASI on Dynamics and Control of Manned and Unmanned Marine Vehicles, Colombia
- PASI on Climate Change and Hazards in the Americas, Panama
- PASI on Computational Science and Engineering, Venezuela,
- PASI on Energy, Water, and Global Change as a Regional Agenda of the Americas, Mexico
- PASI on Modeling in Computational Science and Engineering, Venezuela
- PASI on Nano-Bio: The Intersection of Bio, Condensed Matter and Solid State Physics, Puerto Rico,
- PASI on Surfaces, Interfaces, and Catalysis, Brazil.

PASI programs

Two examples of PASI programs in Earth Sciences held in South America:

New Frontiers in Seismological Research: Sustainable Networks, Earthquake Source Parameters and Earth Structure, held at the Instituto Geofísico of the Escuela Politécnica Nacional in Quito, Ecuador. IRIS Consortium

1. Develop understanding of the principles of sustainable network operations
2. Promote open access and exchange of data within and between countries in support of research, education, and hazard mitigation
3. Examine recent advances and current challenges in estimating earthquake source parameters and imaging Earth structure
4. Facilitate future research collaborations.



PASI programs

“The science of predicting and understanding tsunamis, storm surges, and tidal phenomena”, held at Universidad Técnica Federico Santa María, in Valparaíso, Chile.
Lorena Barba, Boston University

The goal of this PASI program was to train a cohort of young scientists in this rapidly growing field, providing a solid foundation for their involvement in active research in tsunami and storm-surge simulation. In addition to the exposure and mentoring of young scientists to state-of-the-art methods in modeling, this PASI fostered international collaboration among researchers from the U.S. and the Americas.

16 participants from the U.S., and 9 participants from Latin America. Local support for additional 12 participants and 4 self-funded participants completed the group. Training to more than 40 participants at the postgraduate level.



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A key issue is that participants should have an equivalent background so the training is fully taken advantage of.

CERESIS

- South America Regional Center for Seismology
- Created in 1966 as a result of the 1964 recommendation of the World Conference on Seismology and Earthquake Engineering
- UNESCO and the Government of Peru bilateral agreement
- In 1971 extended to a multinational agreement giving the status of an Intergovernmental Organization, supported by contributions of the member states.
- Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Spain, Trinidad and Tobago, and Venezuela
- The goals of CERESIS are to reduce the number of victims and the number and amount of material losses, and reducing the structural, environmental, social and cultural vulnerability of our societies



CERESIS



- Board of Directors: Supreme body, National Representatives of the Member States.
- Voice but no vote: UNESCO representative, a representative of the Geophysics Commission of the Pan-American Institute of Geography and History, and the Executive Director of CERESIS.
- President of the BoD: Leda Sanchez, Universidad de la República Oriental del Uruguay. leda@fcien.edu.uy
- Executive Director: Leandro Rodriguez, <http://www.ceresis.org>, lrodriguez@leandrorodriguez.org

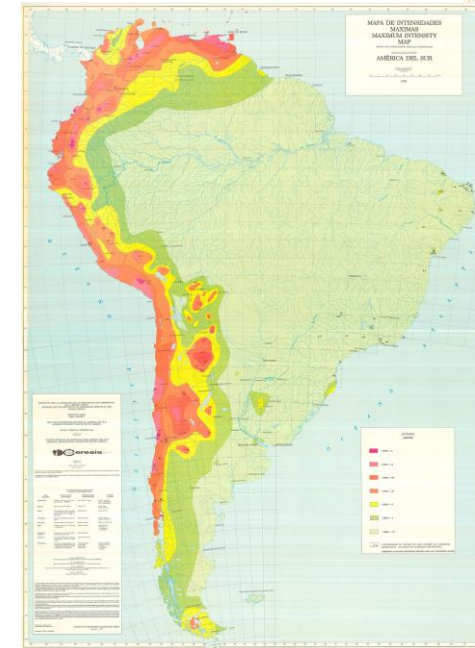
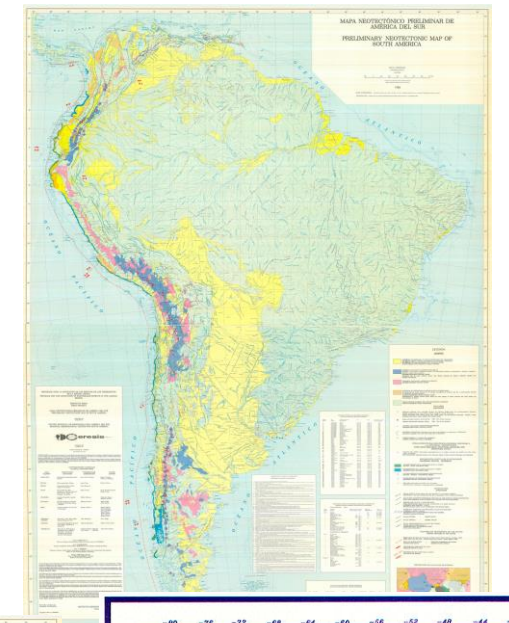


CERESIS Significant Projects

- **SISRA** (Andean Regional Seismicity)
 - 1) the first Regional Seismic Catalog of South America (1471-1981), in 14 volumes, is regularly updated.
 - 2) Regional Map of Maximum Intensities Observed (1530-1981).
 - 3) Regional Map of Seismicity and Major Earthquakes.
 - 4) Preliminary Neotectonic Map.
 - 5) Compilation and Interpretation of the Historical Seismicity of the Continent.
 - 6) Analysis of the Economic Effects of Earthquakes.

EDUSISMOS

Initiative to deploy low-cost sensors at schools for student engagement in the field of seismology



CERESIS

Adobe project

Nearly 40 to 50 million people live in adobe construction in the region
Low-cost solutions to reinforce adobe dwellings to avoid collapse during shaking associated with earthquakes

Reinforced Pisco, Perú earthquake



Not reinforced

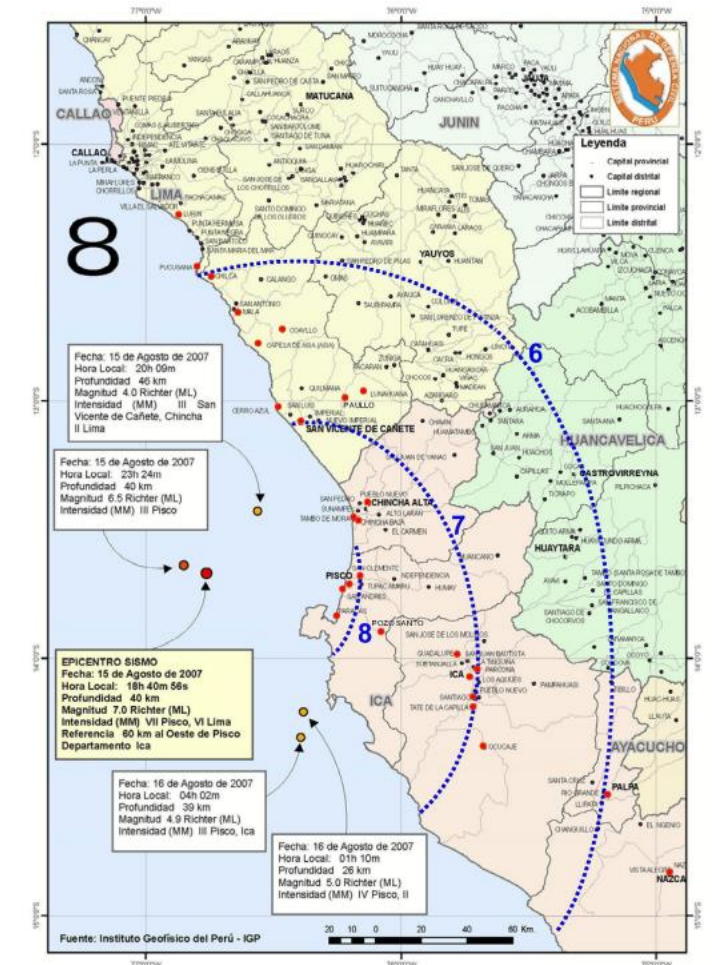


CERESIS Significant Projects

More than 20 reports on damage reconnaissance of different earthquakes, 2010 Maule, Chile the latest.



Figura 11. Daños en edificios de albañilería reforzada



CEPREDENAC

- **Coordination Center for Disaster Prevention in Central America and the Dominican Republic**
- Mission: Contribute to the reduction of vulnerability and the impact of disasters, as an integral part of the process of transformation and development of the Central American Integration.

The Center promotes the integration and use of existing mechanisms in the region in order to record and systematize information related to disaster prevention, mitigation, response, impact and recovery, in a dynamic, interactive and accessible way.



LACSC Latin America and Caribbean Seismological Commission

LACSC was founded in Lima on 24 September 2012, during a Seismology Symposium, which was part of the 2012 Peruvian Geological Congress.

Objectives

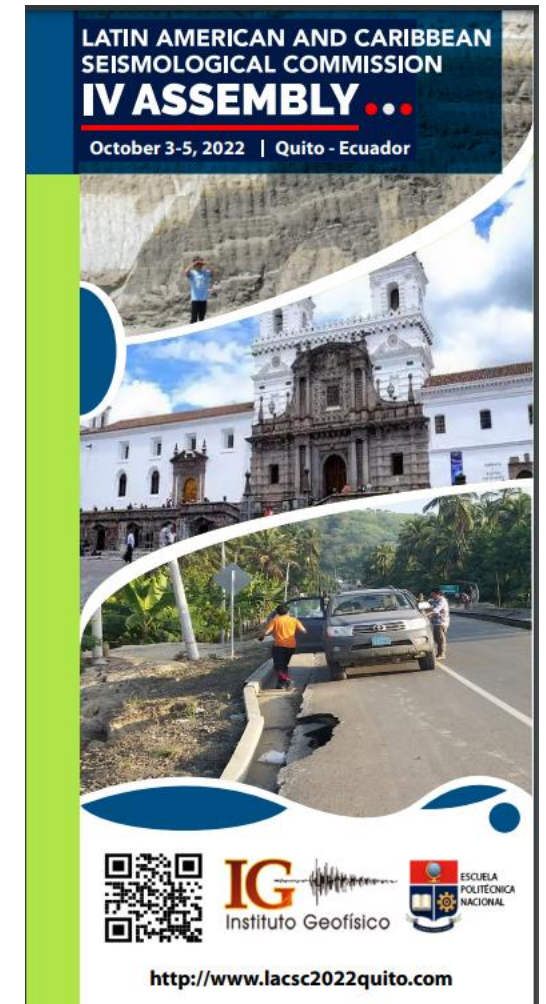
- To organize the bi-annual IASPEI Regional Assembly,
- To organize training courses for students and young scientists,
- To facilitate communication within the Latin American seismology community
- To encourage international projects

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Three Regional Assemblies:

- 2014 Bogotá, Colombia, 2016 San José, Costa Rica, 2018 Miami (this was supposed to be in Puerto Rico but was transferred due to two severe hurricanes in mid-2018).
- The 2018 meeting was held jointly with the SSA meeting.
- An average of 200-250 participants and about the same number of papers.
- Support is generally given by IASPEI, IUGG, SSA, OFDA (Costa Rica 2016), and a few instrument manufacturers.
- Next meeting October 2022, Quito, Ecuador. Abstract deadline July 18, 2022,

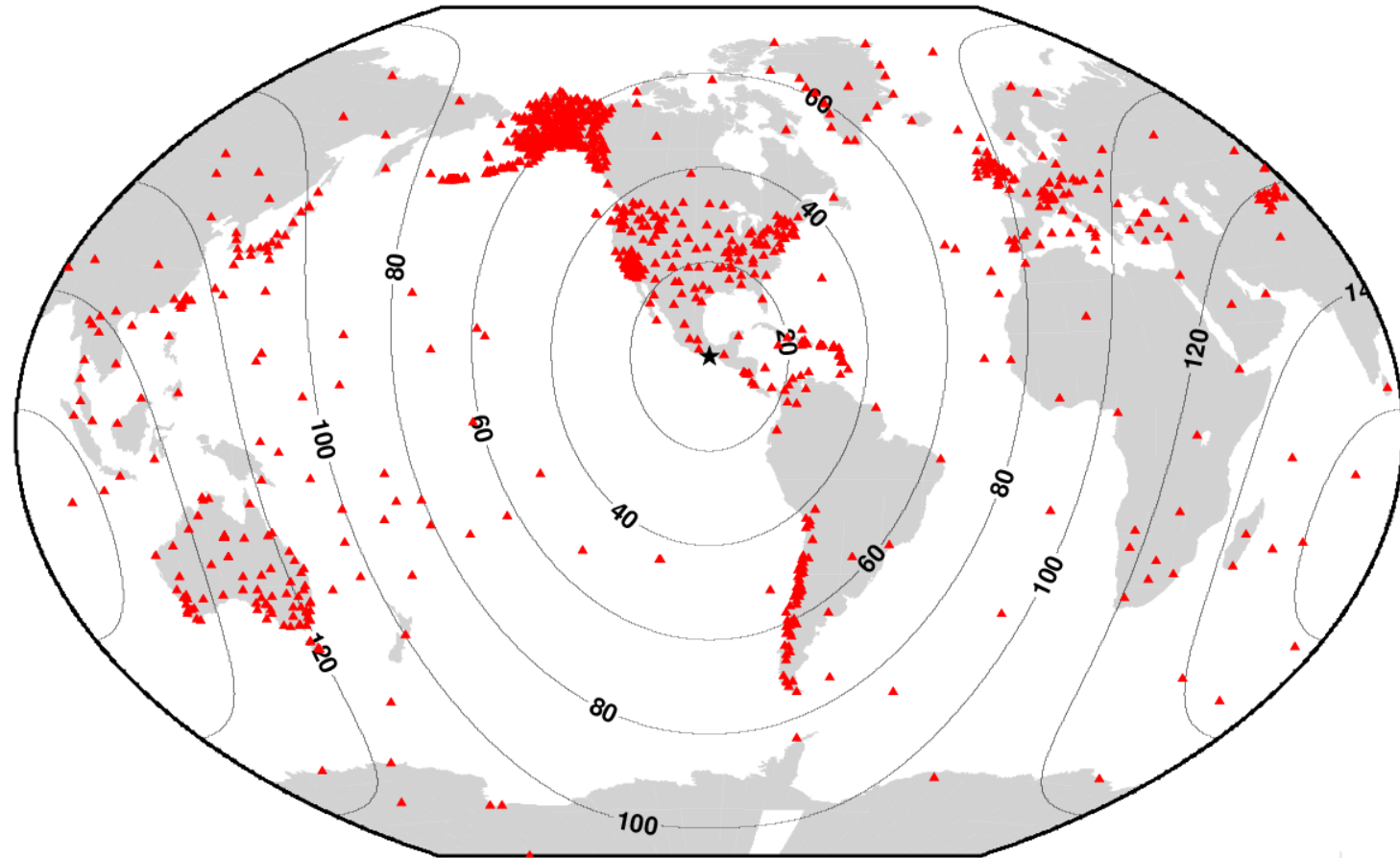
<http://www.lacsc2022quito.com/>



Thanks

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www.iris.edu/spud