



**LETTER TO THE EDITOR**

**COMMENTS ON THE JOINT MEETING:**

**II LATIN-AMERICAN CONGRESS OF SEISMOLOGY  
“VOLCANIC AND SEISMIC HAZARDS FOR BIG CITIES”**

**I LATIN-AMERICAN AND CARIBBEAN SYMPOSIUM ON GEOPHYSICS  
“NON-CONVENTIONAL GEOPHYSICAL EXPLORATION METHODS”**

**III COLOMBIAN CONGRESS OF SEISMOLOGY  
“ADVANCES IN STUDIES OF SEISMIC HAZARD IN COLOMBIA: OUTSTANDING  
ASPECTS OF MICROZONATION FOR CITIES”**

**Carlos Vargas<sup>1</sup>, Alexander Caneva<sup>2</sup> and Hugo Monsalve<sup>3</sup>**

*<sup>1</sup> Departamento de Geociencias, Universidad Nacional de Colombia – Sede Bogotá.*

*<sup>2</sup> Centro de Investigaciones, Universidad Antonio Nariño, Bogotá, Colombia.*

*<sup>3</sup> Facultad de Ingeniería, Universidad del Quindío, Armenia, Colombia.*

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The Latin American and Caribbean territory is a complex tectonic mosaic where the stresses produced by the interaction among several lithospheric plates converge, and where great systems of faults with moderate to high activity, affect a large part of its population. Starting with the first studies in geophysics, at the beginning of 20<sup>th</sup> century in this region of the world, there have been questions about its lithospheric structure, which can play a relevant role in the geodynamic context, implications on seismic hazards for large cities, and the geologic settings that host important mineral and energy resources.

Therefore, such questions along with their scientific facets, contain societal, economical, and environmental aspects of great relevance. Much work must be done to answer these questions. With a long road ahead of us the best approach is a systematic and multi-perspective one. During the joint meeting, a number of researchers from around the world will describe the most important results concerning research on the seismotectonics and volcanism in the region, the economical relevance from the standpoint of non-conventional geophysics, and the societal impact, that allow helping to the sustainable development of Latin America and the Caribbean.

Many theoretical and applied geophysical studies have been done in different countries in Latin America and the Caribbean region. Similarly to the rest of the world, two tendencies have marked its development: Exploration of resources and assesment of natural hazards. Seismological works in particular have been boarded largely to analyze the seismic and/or volcanic hazard for different zones, but only until recently their utility in exploration programs has glimpsed.

Thanks to the geoscientific achievements, mainly since the last decade, which have coincided with an important progress in the development and installation of new seismograph stations, new "non-conventional" exploratory tendencies have arisen as an alternative of unquestionable value to assess the seismotectonics and volcanism of this region of the world.

Simultaneously, we observe a disproportionate growth of large cities in the western hemisphere, which is also analyzed under a context of high seismic hazard. No doubt that a sustainable socioeconomic development for more than 500 million people demands great efforts for the assessment of this scenario of seismic and volcanic hazard.

The reasoning presented above offers a productive vision of knowledge of the seismic phenomena that deserves to be confronted and socialized in an event where the Earth Sciences community can converge.

The research group in Geophysics at Universidad Nacional de Colombia, Universidad Antonio Nariño, Universidad del Quindío, INGEOMINAS, and the Latin American and Caribbean Association of Geoscientists (GEOSLAC) organized the joint meeting:

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### **Expected Outcome**

The joint meeting seeks to gather experiences in scientific and technical developments and to congregate scientists actively working in the various disciplines of Earth Sciences to define common grounds for future work, and to join efforts to help in the advance in local Geophysics and Seismology towards an international reach. We expect to learn about recent advances in the research on the geodynamic evolution of the Central and South American territories and the societal implications for urban planning.

### **Science, technology and innovation**

Two main aspects guarantee the transfer of technical developments, the advance in scientific research, and the renewal and innovation of geophysical concepts during the meeting. First, settings such as the section of the Pacific Ring of Fire along America that are interesting because of its spatial and temporal evolution associated to the geologic conditions in the region, or its volcanism that currently displays enhanced activity, are facilitating the creation of national and international scientific networks actively working on topics like: Hydrothermal fluids dynamics, eruptive patterns, volcanic gas geochemistry, and new approaches to the interpretation of seismic signals.

Second, the meeting will seek that areas of special interest for exploration of hydrocarbons be initially valued under perspectives of passive (non-conventional) methods using earthquakes and other sources of signals in the ground to reconstruct the spatial distribution of physical properties and their association with oil and gas reservoirs. These techniques and their purposes have not been regularly applied in this region of the world and could constitute a new alternative to help with strategic targets in terms of Matter and Energy. We invite all the scientists and decision-makers to attend the joint meeting and cite its proceedings.