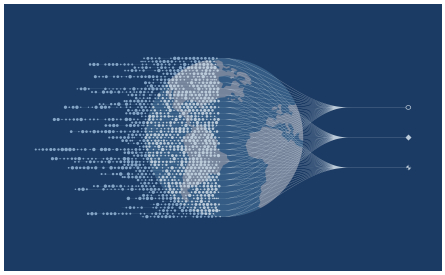

ID: **P1.2-388** Type: **E-poster**

Analysis of Moment Tensor Solutions for Local Earthquakes around Colombia using ISOLA2024

The quality of seismic moment tensor catalogs is crucial for studying seismicity, active faults, seismic hazards and seismic risk assessment. The National Seismological Network of Colombia routinely and semi-automatically calculates centroid moment tensor (CMT) earthquake solutions with Mw > 4.2 using different full displacement waveform inversion methods. Recently, the Gisola software was installed to execute ISOLA automatically, especially for small and moderate earthquakes. For earthquakes with Mw > 5.0, the reliability of the CMT is evaluated by comparing it with the Global-CMT solutions. However, reliable solutions for small to moderate earthquakes are limited due to uncertainties arising from data and theoretical errors. Small and moderate earthquakes typically have significant uncertainties in their moment tensors and are likely artifacts of inversion or result from complex tectonic settings. We analyse the uncertainty of CMT solutions using the latest tools in the ISOLA2024 software, which incorporates existing covariance methods. ISOLA2024 incorporates basic statistics of non-DC components and their variations across grid-searched source positions, thereby enabling an evaluation of the robustness of the solutions.

E-mail

ppedraza@sgc.gov.co

In-person or online preference

Primary author: PEDRAZA GARCIA, Patricia (Colombian Geological Survey)

Co-authors: DIONICIO, Viviana (Colombian Geological Survey); Mr PEÑARANDA, William (Servicio Geologico Colombiano (SGC))

Presenter: PEDRAZA GARCIA, Patricia (Colombian Geological Survey)

Session Classification: P1.2 The Solid Earth and its Structure

Track Classification: Theme 1. The Earth as a Complex System: T1.2 The Solid Earth and its Structure