



"Regionalised, Partially Non-Ergodic Ground Motion Model for Subduction Earthquakes in South America"

Date: Friday, January 16, 2026, 10:00 AM EST

Location: ACEB 4405 & Online via Teams

Ground-motion models (GMMs) underpin seismic hazard assessment, yet global subduction models based on the ergodic assumption perform inconsistently in South America, overpredicting shaking in the northern Nazca region and underpredicting it in the southern Andes. This study develops a regionalised, partially non-ergodic GMM using the new SISMA database of 38,841 high-quality three-component recordings from five South American countries. A Fourier-spectrum-based method reliably distinguishes interface and intraslab earthquakes and reveals the strong influence of topographic amplification on site response. Regional attenuation, dependent-event effects, and improved magnitude scaling are incorporated, while the new MaxRotD50 intensity measure better captures directionality. The resulting model reduces long-period within-event variability and explains the observed "bump in tau" through path and depth-scaling effects.



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