

Toward understanding the seismic response of the Quito basin (Ecuador) using microtremor H/V spectral ratios

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Quito, the capital city of Ecuador, with a population close to three million inhabitants, is located on the hanging wall of an active reverse fault, forming a piggy-back basin filled with volcanic and fluvial deposits. The Quito basin structure remains unknown as well as its effect on amplification of seismic waves. In the last 20 years, several campaigns recording ambient seismic noise have been carried out. Between 2000 and 2001, 734 fifteen-minute recordings were obtained in the metropolitan area of the city. In 2009, a permanent accelerometric network was deployed with 18 stations operating in continuous recording mode. In 2016, two lines traversing the city from NS and EW and having 60 sites recorded 1 to 2 hours of ambient noise. Finally, between 2017 and 2018, twenty broadband stations were deployed in Quito to study its deep basin structure. Here, we assess the data quality and present the first results of all these datasets from traditional microtremor H/V spectral ratios and main ellipticity orientation to understand the seismic response of the Quito basin as well as its geometry.