

The Effect of Shallow Water Aquifers on Ambient Seismic Noise

Description: Seismic shear wave velocity (V_s) and shear wave attenuation (Q_s) are factors that contribute to the level of shaking structures experience in a given earthquake. Water in sedimentary layers may cause physical changes in rocks, e.g. its density, that can alter these parameters and, therefore, impact the seismic hazard. In island settings, assessing the seismic hazard in areas near the coast and those above aquifers must include the contribution made by water in sedimentary layers; the subsurface water in an area can be fresh water or, saline due to salt water intrusion. Port-of-Spain and Diego Martin are areas in Trinidad that would be subject to this phenomenon.

The aim of this study is to determine the local effects, if any, of shallow aquifers (in both saline and fresh water environments) on horizontal to vertical Fourier amplitude spectral ratio (HVSF) curves. The proposed area of study is the Diego Martin Valley, Trinidad which transects the north coast peninsula encompassing both fluvial and marine environments thereby being able to capture the effects of both saltwater and fresh water.

Principal Researcher: Jevan Manzano

Supervisor: Ilias Papadopoulos