Rayleigh and Love wave ambient noise tomography of the Central Andes


There has been a great deal of work done in the Central Andes in Peru, Bolivia, Chile, and Argentina. The Central Andes are characterized by the largest orogenic plateau globally, areas with different styles of subduction, and regions of tremendous volcanism. One popular way of seismically imaging the region has been the use of ambient noise tomography (ANT). ANT studies use estimated Green’s functions to determine Rayleigh wave dispersion curves. The dispersion curves are then used to constrain 3D shear velocity models. The vast majority of ANT studies use only Rayleigh waves to constrain their velocity models. By only using phase velocities from Rayleigh waves, instead of using both Rayleigh and Love waves, those studies lack the ability to constrain patterns of radial anisotropy. Measuring radial anisotropy in the Central Andean crust can help constrain patterns of crustal deformation (potentially lower crustal flow) and offer insights into ongoing magmatism. Here we present ambient noise phase velocity maps for both Love and Rayleigh waves in the Central Andes along with preliminary 3D models for $V_{sh}$ and $V_{sv}$. 