

---

# Tomography of upper mantle attenuation by surface wave modeling in 3D Earth models

Auriane Keromnes\*<sup>1</sup>

<sup>1</sup>LGLTPE – UMR CNRS 5276 Laboratoire de Géologie de Lyon, Terre, Planètes, Environnement (LGLTPE), Géode, Université Lyon 1, 2 rue Dubois, 69622 Villeurbanne cedex, France – France

## Résumé

Seismic tomography allows us to build 3D models that can tell us about the structure of the globe. Seismic tomography is often used to map mantle velocity anomalies, at different depths. The distribution of seismic velocities depends to first order on 3 parameters: chemical composition, temperature, and melt. Attenuation has a different sensitivity to these parameters. It seems therefore necessary to produce a new 3D attenuation model from a large dataset of Rayleigh waves matched using 3D synthetics. For this purpose, I use a large dataset of Rayleigh wave vertical component seismograms corresponding to 109 earthquakes recorded at 149 stations globally distributed. Attenuation curves for the fundamental mode Rayleigh waves are measured from the ratio between the amplitude of the observed and calculated seismograms. Path average measurements are then combined in a tomographic inversion (Debayle & Sambridge, 2004 ; Montagner, 1986) to obtain 2D attenuation maps at different periods.

---

\*Intervenant