

Geophysical Research Abstracts,
Vol. 11, EGU2009-4684, 2009
EGU General Assembly 2009
© Author(s) 2009



Local seismic tomography in Belgium – implications for the geological structure.

E. Sichien (1), T. Camelbeek (1), and J.-P. Henriët (2)

(1) Royal Observatory of Belgium, Seismology, Brussels, Belgium (els.sichien@oma.be), (2) Renard Centre of Marine Geology, University of Ghent, Belgium

We present the results of a local seismic tomography in Belgium using well-located local earthquakes registered by 37 stations of the permanent seismic network and by mobile stations installed by the Royal Observatory of Belgium. Previous studies did not offer a lot of information on the middle and lower crust. The seismic profiles shot in the region (Belcorp, Decorp, Ecors, ...) all show an unreflective middle and lower crust. The gravimetric and magnetic data show the presence of a sharp transition between the Brabant Massive and the Ardennes allochthone, furthermore, a broad positive gravimetric anomaly, is interpreted as a Moho uplift underneath the Campine region. Our results confirm the sharp transition between the Brabant Massif (higher than expected velocities) and the Ardennes allochthone (lower than expected velocities). At 27 km of depth lower crust – upper mantle velocities (7.50 km/s) are found underneath the Campine region and the Eifelplume region, confirming the Moho uplifts to 28 km underneath these regions. At 13 km similar velocities (7.50 km/s) are seen underneath the Eifelplume, they correspond to a lower crust-upper mantle that trusted in the crust during the Variscan orogeny.