



Crustal structure and evolution along the South American margin

Katharina Becker, Michael Schnabel, Dieter Franke, Ingo Heyde, and Bernd Schreckenberger
BGR Hannover, Hannover, Germany (katharina.becker@bgr.de)

We show tomographic results of two refraction lines across the South American continental margin. The data can be jointly discussed with multichannel seismic reflection, gravimetric and magnetic data to derive an image of the crustal structure and evolution along the Urugayan and Argentine margin. We used refracted waves to identify the crust. Further we can define the Moho by crust-mantle reflections.

The volcanic margin of Uruguay, which is manifested in seawards dipping reflections (SDRs), evolves into the magma-poor margin of southern Argentina. The transition is abrupt and takes place within 10 km across the Colorado transfer zone seawards dipping reflectors are accompanied by high velocity lower crust (HVLC), while south of the Colorado transfer zone only weak indication of magmatism can be found. There is evident a HVLC, which is not manifested seawards dipping reflectors. This a zone , where we observe seismic P. wave velocities from 6.8 km/s to values above 7.5 km/s. We analyze its origin and structure. Common causes reported for HVLC are underplates and intrusion. There also exists the possibility of inherited structure in form of old cratons/shields or serpentinization.