



Lithospheric Structure beneath the Atlas Mountains (Morocco) investigated by P and S Receiver Functions

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The folded Atlas Mountains are linked to the African-Eurasian continent collision. Despite their high elevation up to 4 km, there are indications of a thin crustal root and a lithospheric thinning beneath them. Previous explanations for this behavior are the upwelling of the low-density asthenospheric mantle. Using 21 stations deployed in SW Morocco by the Universities of Münster and Bristol, we calculated P- and S-wave receiver functions of 187 teleseismic earthquakes with a magnitude greater than 5.9 that occurred between November 2010 and April 2012. Our study yields an average Moho depth of $33.90 \text{ km} \pm 4.58 \text{ km}$ beneath the Atlas Mountains. Moreover, there is evidence for a thinned lithosphere with depth of around 80 km. The cause for this thinning may be hot, asthenospheric material which could have eroded the base of the lithosphere. Furthermore, there is no evidence for deflections of the mantle transition zone discontinuities and therefore likely no anomalous mantle temperatures beneath SW Morocco.