



Crustal thickness and V_p/V_s ratio for three stations in Uruguay using receiver function analysis: preliminary results

Martín Rodríguez^{*1}, Anahí Curbelo¹, Hernán Castro¹, Damian Dell'Acqua¹, Enrique Latorres¹, Leda Sánchez Bettucci¹, and Marcelo Assumpção²

¹*Observatorio Geofísico del Uruguay (OGU), Universidad de la República (UDELAR)*

²*Universidade de São Paulo (USP)*

Abstract

The aim of this study is to present the preliminary results of Moho depth and V_p/V_s ratio obtained by the study of teleseismic P receiver functions from stations ANCO, PSAL and TBOT in Uruguay. ANCO broadband three-component seismic station belongs to UY seismological network and is located in SW Uruguay. Meanwhile, PSAL and TBOT broadband three-component stations are located at NW and central Uruguay, respectively, and belongs to XC seismological network which is framed in the Pantanal-Chaco-Paraná basins (PCPB): crust and upper mantle seismic structure and evolution project. The teleseismic P receiver function method allows us to know the crustal and upper mantle structure under a seismic station by the study of P to S converted phases at sharp discontinuities (e.g. Moho) and the multiples or reverberations (PpPs, PsPs+PpSs). In this study the receiver functions are carried out by the iterative deconvolution technique and the estimation of crustal thickness and V_p/V_s ratio calculated using a H-k stacking algorithm. All teleseismic events used in this work had a minimum magnitude of 6.0 and the epicentral distances from the seismic station were comprised between 30 to 95 degrees. Seven receiver functions were computed for station ANCO yielding a Moho depth of 42.1 km and a V_p/V_s ratio of 1.716. For station PSAL eight receiver functions were used to calculate the crustal thickness and V_p/V_s ratio. The Moho depth under PSAL is 43.3 km while the V_p/V_s ratio is 1.723. Finally, eighteen receiver functions from station TBOT shows a Moho depth of 40.4 km and a V_p/V_s ratio of 1.789.

*Presenting Author.

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