15-17th April, 2019
Vinhedo - SP / Brazil

April 15, 2019

# Moho Depth from S-wave Receiver Function in reverberating low-velocity sedimentary basin

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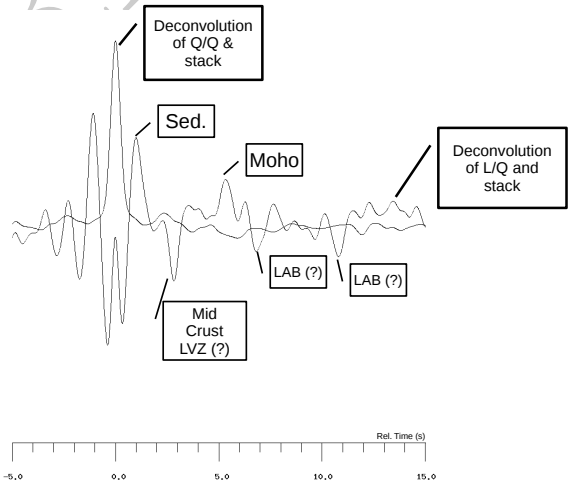
**Abstract**

Determining crustal thickness using P-wave receiver function on stations over thick and soft sediments is a remarkably complicated task due to difficulties with multiple phases interacting with the direct Moho Ps conversion. An alternative to P-wave receiver function is the use of S-wave receiver function that naturally isolates multiple conversions after the S-wave while S-to-p conversion would arrive earlier. One dilemma in using S-wave is the lack of suitable events (distances from 60-85 degrees and magnitudes greater than 6 mb) and the fact that S-waves have a lower spectral content due to higher attenuation. The station analyzed is part of INPRES seismic network and is in a region poorly sampled by seismic stations with a lack of crustal thickness estimates. It is located inside the city of Buenos Aires and presents a high noise level. P-wave receiver function on this station shows evident contamination with multiply reflected phases from the basin. We analyzed data from teleseismic earthquakes, applying LQT rotation based on theoretical values, deconvolution of L by Q components and stacking of moved-out records to obtain one stacked average trace with a higher signal-to-noise level. S-to-p times for the Moho and a shallow sediment conversion could be identified and measured. Sediment thickness was found to be 7 km while crustal thickness was found to be around 39 km. The obtained result shows that crustal thickness in the region is close to the expected average for the South American platform. Comparison with P-wave receiver function traces shows consistency.



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*Abstract ID:* 2f037c, *Contribution type:* Oral Presentation, *Session:* Tectonics & the Structure of the Crust and Upper Mantle, *Submitted by:* Marcelo Bianchi (m.bianchi@iag.usp.br).