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Structure of the Amazon Craton, Brazil

The study of crustal thickness provides valuable information about the geology of a certain region, such as crustal composition, formation dynamics and tectonic evolution. Furthermore, it serves as an initial reference for velocity models. In order to fill out crustal information gaps in the Brazilian North and Central-West regions, Receiver Function and the H-k stacking techniques were applied to seismological data of 47 broadband stations to estimate crustal thickness and VP/VS ratio. The results indicate a predominantly felsic crust, with VP/VS around 1.72, and a mean thickness of 38,7 km, ranging from 27.4 to 55.3 km. The interpolation of our data with other crustal thickness 100 points obtained in the literature made possible the delimitation of the Amazon Craton, with a thickness generally exceeding 37 km and the identification of its possible nuclei, as well as that of the Paraná Basin, known as the Paranapanema Block. The craton geometry are in accordance with the natural seismicity, which accompanies its boundaries. The sedimentary basins that undergo some stretching process have a thinner crust, usually less than 37 km. Due to the great variability of the results, it was not possible to stipulate a characteristic value for each structural province.

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