

## **CRUSTAL THICKNESS VARIATIONS OF THE GUAYANA SHIELD, SOUTHERN VENEZUELA, FROM SEISMIC REFRACTION AND GRAVITY**

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Variations in crustal thickness have been derived for the northernmost Guayana Shield, a high plateau of Precambrian rocks of up to 3.6 Billion years, using seismic refraction and gravimetric data. The blasts of the iron mines in Ciudad Piar were used as energy source during ECOGUAY1998-project. The seismic profiles that extended northwards into the Eastern Venezuelan Basin are more noisy than the craton-stations due to the Quaternary sediments north of the Orinoco river. About 300 new gravimetric data were obtained in order to complement the existing gravity database at USB. The northeastern part of the Guayana Shield is composed of Arquean crust (Imataca Province), while the Cuchivero Formation of Lower Proterozoic age is exposed in the western part. Crustal thickness varies between 44 km in the east and 48 km in the west with average crustal velocities of 6.4 and 6.6 km/s respectively. The E-W-profile crosses the border between the two provinces, but samples within the Arquean crust. Nevertheless, the obtained crustal thickness of 44-48 km would indicate a thickened crust as it is observed in Proterozoic provinces, which may indicate a broad transition zone with an inclination of the Moho towards the west. Nevertheless, the Bouguer anomaly shows positive values of about 25 mGal in the east (thick crust) and negative values of – 40 mGal in the west (thinner crust), when we expect the opposite behavior from seismic results. This may indicate a strong influence of upper mantle structures on the Bouguer anomaly. Project financed by CONICIT No. S1-97002996.