

Deep Seismic Refraction Experiment in the SE Sector of the Tocantins Province: Preliminary Results

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This experiment is part of a larger project supported by FAPESP to define a tectonic model for the Tocantins Province by using geological and geophysical methods, among these, there is the deep seismic refraction method. In this case, the refraction line is 300km long with SW-NE direction located in the western and central portions of the Minas Gerais state.

We used 120 recording points and 3 explosions located in the extremes (EX31 and EX37) and the middle point (EX34), with 1000kg and 500kg of emulsion explosives, respectively. The explosives were stored inside 45-65m deep and 6" diameter boreholes. Most of the equipment was borrowed from the PASSCAL Program and part of it belongs to IAG/USP.

We expect to define crustal models between explosions EX31-EX34 and EX34-EX37 to reach depths of the order of 20km. Moho discontinuity may be revealed through reflections that can be identified at shorter epicentral distances.

The importance of this line that begins in the NE portion of the Paraná Basin, crossing the Brasília Fold-belt up to the São Francisco Craton, is to define the contact zone between these tectonic units. A more realistic seismic velocity model in this region will help in the interpretation of other geophysical data.