



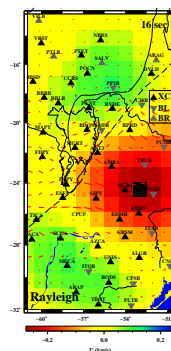
Azimuthal anisotropy in west-central Brazil using ambient seismic noise

Taghi Shirzad^{*1}, Marcelo Assumpcao¹, Marcelo Bianchi¹, and Bruno Collaço¹

¹*Institute of Astronomy, Geophysics and Atmospheric Sciences; University of Sao Paulo; Sao Paulo, Brazil, 05508-090*

Abstract

Observed azimuthal anisotropy, which is obtained by surface waves, gives the most direct information on the crustal structure in the Pantanal, Chaco, and Parana basins as a part of west-central Brazil. It is generally believed that alignment of cracks, which are induced by the stress field, lead to seismic anisotropy observed in the crustal structure. The data used for the present study were recorded with 100 sps from January 2016 to September 2018 in the five individual sub-networks including (1) XC with 35 stations (from FAPESP project), (2) BL with 19 stations, (3) BR with 15 stations, (4) ON with two stations, and (5) GT one station. Initial data pre-processing follow the method of Bensen et al. (2007). So that, the mean and trend are removed, the bandpass filtering is applied in the range of 4 to 80 sec and normalization (in the time and frequency domains) is used. After using cross-correlation operator on all available inter-stations, the stacking procedure is done based on a homogeneous distribution of noise sources (WRMS method). After retrieving vertical component of empirical Green's function (EGF), dispersion curve is calculated for each inter-station signal. Based on calculated dispersion curves, 1388 and 1373 available ray paths are found to be usable on the inversion procedure in the periods of 16 and 40 sec. The resulted maps indicate that the azimuthal anisotropic fast directions in the middle and lower crust are consistent with both regional magmatic anomalies in the Parana basin. While this direction consists of regional tectonic trends in the Chaco, Pantanal basins.



^{*}Presenting Author.

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