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THE INTRAPLATE MARANHÃO EARTHQUAKE OF 2017 JAN 03, NORTHERN BRAZIL: EVIDENCE FOR UNIFORM STRESSES ALONG THE BRAZILIAN EQUATORIAL MARGIN.

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Lithospheric stresses in intraplate regions are characterized by many different wavelengths. In some areas, stresses vary over short distances of less than ~100 km, but in other regions uniform stresses can be recognized for more than ~1000 km or so. However, not all intraplate regions are well sampled with stress measurements to allow a good characterization of the lithospheric stresses. On January 3, 2017, a magnitude 4 m_b earthquake occurred near the equatorial coast of the Maranhão, an aseismic area of northern Brazil. Despite the few permanent stations in northern Brazil, a well-constrained strike-slip mechanism was obtained from regional moment-tensor inversion and first motion polarities. The focal depth of 13 km was retrieved through teleseismic P-waveform modelling. A detailed analysis of the back-azimuths of tens of aftershocks recorded by the closest station (40 km away) allowed the identification of the fault plane to be the NNW-SSE trending nodal plane. An estimate of the rupture length, about 2 km, was also possible. The strike-slip mechanism has coast-parallel P axis and coast-perpendicular T axis, in agreement with most of the focal mechanisms found further to the East. The coast parallel P axis is also similar to the SH_{max} (maximum horizontal compression) orientations from breakouts measurements further along the coast. The Maranhão earthquake fills an important gap of stress indicators in northern Brazil and suggests that the intraplate stress field is uniform along the 2000 km long northern coast. In addition, this event can be used as a test for detectability of the global International Monitoring System (IMS), as it was not reported in the NEIC-USGS catalogue.

PALAVRAS CHAVE: *STRESS FIELD; FOCAL MECHANISM; MARANHÃO.*