



## **Preliminary analysis of the 2020 Amargosa (NE Brazil) seismic activity**

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A 4.6 mb earthquake, occurred in South Bahia, NE Brazil, with great repercussion on the local population and national media on 31 August 2020. The event reached intensity VI in the Modified Mercalli scale in the epicentral area and was felt in several locations of the metropolitan region of Salvador. A few days after the main shock a seismographic network comprising eight 3-component short-period sensors operated in the area continuously recorded aftershock data for five months. The data analysis of this seismic campaign has identified several microseismic events that were used to invert for wave velocity model parameters, hypocentral location and focal mechanism. The simplicity of the seismograms recorded allowed us to assume that the velocity structure can be modeled as a simple isotropic half-space model, and P- and S-wave pickings from 12 well recorded events in at least three seismographic stations from this dataset were used to calculate the Wadati diagram yielding a  $VP/VS$  value of  $1.688 \pm 0.006$ , and  $VP = 5.92$  km/s as the P wave velocity for the epicentral area. Additionally, we have also determined hypocenter parameters for another 12 events recorded in up to two stations using the single-station location method. The spatial distribution of the seismic events delineates a 4 km long and 3 km wide source zone with depths typically ranging from 0.5 until 1.5 km with no obvious surface geologic feature correlation. P-wave polarity and amplitude ratios ( $SV/P$ ,  $SH/P$ ,  $SV/SH$ ) were measured for composite focal mechanism determination and revealed a set of 101 well-constrained fault plane solutions with the median solution of Strike =  $011^\circ \pm 004^\circ$ , Dip =  $57^\circ \pm 04^\circ$  and rake =  $058^\circ \pm 008^\circ$  indicating reverse fault mechanism acting in the area.