

22 new focal mechanism solutions for shallow earthquakes and stress observations for Bolivia

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On this research we present 22 new focal mechanism solutions for shallow earthquakes (<70km depth) located at Bolivia region, most of them were felt by people and caused some damage to structures. Until 2016 the way of data processing and the small network did not allow us to get focal mechanism solution for magnitudes below 4.5 MI, after 2016 with the installation of seven new broadband sensors that were merged with our old network inside Seiscomp3 with Seisan allowed us to have more and high quality data to implement the focal mechanism procedure. We applied the Double Couple method, this methodology takes the elastic wave radiation from an earthquake and they can be modeled in two equivalent ways, as there is a point force which applies exactly to a point in an elastic medium that is represented as pairs of point forces, then the result can be used to show a shear faulting. Our solutions were tested numerically and verified "in situ" with field trips, all of them are coherent with the geology and stress system maps for the region, all solutions were presented to the national Geology Congress on September 2018.