SEISMICITY AND SEISMITECTONIC OF PERU FROM BROAD-BAND DATA

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In this study, the main characteristics of the seismicity and focal earthquakes mechanisms occurred in Peru is presented. The distribution of the shallow, intermediate and deep seismicity is analyzed. The focal mechanism of 20 earthquakes occurred between 1990 and 1996 has been calculated from the first-motion polarities of P waves. Ten earthquakes have shallow depth focus, eight intermediate depth and two are deep.Using digital records of broad-band of IRIS, GEOSCOPE and GEOFON networks; the orientation of the source, the source time function, the depth and the seismic moment, have been calculated from P and SH waveforms to teleseismic distances. The earthquakes with shallow focus show complex rupture processes with predominance of inverse fault and axes of pressure oriented majority in E-W direction. This earthquakes with intermediate focus show of simple rupture process and axes of tension oriented in parallel direction to convergence of plates. Deep earthquakes present axes of tension oriented in E-W direction in border Peru-Brazil and N-S in Peru-Bolivia limits. The results of this study and the other authors are evaluated in order to elaborate a seismotectonic scheme for Peru. The results indicate that Peru is subjected by two different stress deformation. The first is associated to the shallow seismicity with clear variation of compression stress of NW-SE in north region, E-W in center and SW-NE in south region. The second stress regime, is due to intermediate and deep seismic activity with parallel horizontal tension to the direction of convergence of Nasca and South America plates.