

SEISMICITY CHARACTERISTICS IN THE PERU-CENTRAL ZONE(10-15S—73-84W)

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A main objective of this study is to evaluate the recurrence time of earthquakes with $m_b 6.4$. These earthquakes would originate both damages and casualties in this region. The historical seismicity shows that two large destructive earthquakes occurred in 1687 (8,4 Mw) and 1746 (8,8 Mw). These earthquakes originated rupture lengths of approximately 350 km in front of Lima City with intensities up to X(MM). Several investigators suggest that a seismic gap exist between the ruptures zones of 1974 and 1942 earthquakes. Analysis of the both epicentral and hipocentral distributions was used in order to establish seismogenic sources, the data were classified from Engdahl and ISC Catalogues, and includes 35 years of observations. 422 earthquakes with minimum magnitude of 4,0 mb and maximum depth of 150 km were classified. The work was developed considering two processes. The first one that considered only one seismogenic source allowed to evaluate space-time distributions, extreme values, maximum likelihood and Gutenberg-Richter relations. The second one considering two seismogenic sources SS1 and SS2, was made. SS1 is located near to Mendaña Fracture Zone and it include the 1746 rupture zone while SS2 includes the 1687 rupture zone. For magnitudes $m_b 6.4$ recurrence time is in the order of the 18 years, while to magnitudes $m_b 7.0$ is 108 years. These results show an hazard imminent in the area surrounding to SS2, where is localized the seismic gap.