

A SEISMOGENIC SOURCE ON ROMERAL FAULTS SYSTEM NEXT TO GALERAS VOLCANO, COLOMBIA

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Four seismic episodes (August, 1989; April, November, 1993; March, 1995), were studied, while seismotectonic evaluation was developed. This seismic activity came from the north and Northeast of the volcano. The Galeras region is located at southwestern corner of the Andes in Colombia and it is characterised by frequent occurrence of shallow earthquakes and by persistent volcanic activity. At the eastern side of the volcano, 8 km away from the active cone, the city of Pasto (about 400.000 inhabitants) is located. It has been destroyed several times by near earthquakes. The occurrence rate and released energy by these four seismic episodes have different patterns. In 1989 as a seismic swarm without a main event, typical of volcanic processes; those from 1993 as foreshocks, main event and aftershocks; and the one in 1995 with main event and aftershocks, typical of tectonic processes. The wave velocity ratio, V_p/V_s , from this seismicity shows values lower than 6% from the standard average; those values are in the same order of magnitude than those found in geothermal fields. The p parameter in modified Omori's formula with the 1995 series is 0,81 and the b parameter from the Gutenberg and Richter relation for the same series is 0,78. This seismogenic source, located between the volcano and a site 10 km Northeast away from Pasto with remarkable morphoneotectonic evidences, shows features varying from volcano like behaviour in 1989 to a tectonic character, in 1995. Those results must be considered in future geological hazard assessments for the area.