



A Study of the Seismic Aspects of the 2003 – 2005 Vulcanian Explosions at Colima Volcano, Western Mexico.

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The recent eruptive processes at Colima Volcano in western Mexico, presented cycles of dome growth and destruction, here we present the results of our analyses of the explosions occurring in 2003 and 2005, which destroyed the domes extruded in 2001–2002 and 2004. For this study we use data from RESJAL a seismic telemetric network with LE3D 1Hz sensors and Everest 24 bits digitizers, operated by Protección Civil Jalisco and the University of Guadalajara. From the model for vulcanian explosions proposed by Núñez-Cornú et al (2010) we characterized the explosions using the different elements of the seismic signals generated (P-wave, coupled air-waves, etc) as well as the spectral characteristics of the seismograms of each explosion. The waveforms for these explosions have poor correlation values and their spectra show significant differences. Using the air-to-ground coupled waves the explosions can be subdivided into three types; the P-wave arrival times correlations indicate different origin. These results suggest that each explosion had a different source and that there were different pathways for the magmatic parcel to reach the summit crater.