Geophysical Research Abstracts
Vol. 12, EGU2010-8971, 2010
EGU General Assembly 2010

Investigation of the source of vulcanian explosions at Volcan de Colima, Mexico

Mauro Palo, Enza De Lauro, and Salvatore De Martino
University of Salerno, Dpt. of Mathematics and Informatics, Fisciano (SA), Italy.

We have analyzed Long Period (LP) seismic events associated with Vulcanian explosions of Volcàn de Colima (Mexico) recorded by four three-component broad-band seismometers in January 2006. Frequency-domain analysis shows broad-band spectra mainly in the range 0.3-2 Hz characterized by monotonic decreasing shape typically observed in a self-oscillating cavity interacting with a confined jet. The fundamental mode is peaked around 0.4-0.5 Hz. Independent Component Analysis, a time decomposition method extracts two or three independent signals depending on the station. These independent components are self sustained oscillations with low dimensionality characterized by a well defined frequency content. These decomposed waves have radial polarization in near field and transverse polarization at longer distance in the direction North-West South-East. All results suggest a branching of principal vertical conduit in the direction North-West South-East at a suitable height.