Geophysical Research Abstracts,
Vol. 10, EGU2008-A-04275, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-04275
EGU General Assembly 2008

Moment-tensor inversion of explosion events recorded on Ubinas Volcano, Peru

V. Monteiller (1), G.S. O'Brien (2), J.P. Metaxian (1), C.J. Bean (1), O. Macedo (3)

(1) LGIT, Université de Savoie, Le Bourget-du-Lac, France, (2) UCD School of Geological Sciences, University College Dublin, Belfield, Dublin 4, Ireland, (3) Instituto Geofisico del Peru, Oficina Regional de Arequipa. (vadim.monteiller@univ-savoie.fr / Fax : +33 479 75 8742)

Situated in the Central Volcanic Zone (CVZ), southern Peru, Ubinas volcano (5672 m) is an active andesitic stratovolcano located 60 km east from Arequipa city. It is truncated in the upper part by a caldera 600 m in diameter. The caldera floor is a flat area lying approximately 500 m under the summit. The active crater is situated in the southern part; the bottom is 300m under the caldera floor. This is historically the most active volcano in Peru. Ubinas volcano began an eruptive phase on the 25th of March 2006. An experiment was carried out between May and September 2007 with 7 seismic stations equipped with broadband sensors (30 sec). The eruptive activity was characterized by magmatic explosions forming plumes 500m to 4000m high. The experiment recorded 91 explosive events. Location and focal mechanisms of the explosions are determined by waveform inversion. A linear inversion is performed at each point of a 3D grid located under the volcano in order to constrain the centroid position and the focal mechanism of the source. To determine the source-centroid location and source mechanism, we minimize the residual error between data and synthetics. The synthetics seismograms are calculated in homogeneous elastic medium that takes topography into account as no other structural information is available at this time.