Geophysical Research Abstracts
Vol. 14, EGU2012-12986, 2012
EGU General Assembly 2012

Seismic and infrasound monitoring at Cotopaxi volcano

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Cotopaxi is an active ice-capped volcano (5967m) located 60 km SE from Quito and is one of the largest and more hazardous volcanoes in the Northern Andes. Monitoring of Cotopaxi, using seismic and infrasound techniques has improving significantly since 1976, when three short-period stations were deployed temporarily in response to an increase of fumarolic activity. Later in May 1977, a short-period vertical seismometer was installed on the NW flank at 7 km from the crater. Since 1986 a short-period seismic station is working at the northern flank of Cotopaxi and transmitting analog data to the Instituto Geofisico. In 1993 a network of 4 short-period seismic stations were installed on all flanks of the volcano. Between March 1996 and June 1997 a temporal network of 16 stations were deployed for several months in order to study local seismicity and internal structure (Metaxian et al., 1999). Since 2006, a network of five broad band stations (0.02-60 s) and low-frequency infrasound sensors (0.01-10 s) were installed through a JICA Cooperation Project (Kumagai et al., 2007). Data is transmitted to the Instituto Geofisico via a digital radio system. Through this network, LP and VLP events have been recorded and analyzed (Molina et al., 2008). VLP events were located beneath the north and north-eastern flank using waveform inversion and amplitude distribution methods (Kumagai et al., 2010).