Geophysical Research Abstracts, Vol. 9, 09785, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-09785

Long period activity at Mount Etna in 2004 - Green's function computations and moment-tensor inversion

I. Lokmer (1), C.J. Bean (1), G. Saccorotti (2)

(1) Seismology and Computational Rock Physics Lab, Geophysics Group, School of Geology Sciences, University College Dublin, Belfield, Dublin 4, Ireland, (2) Istituto Nazionale di Deofisica e Vulcanologia - Sezione di Pisa , Via della Faggiola, 32 - 56126 Pisa, Italy (ivan.lokmer@ucd.ie)

From November 2003 to September 2004, more than 40,000 long period events were recorded by the broadband seismic network at the Mount Etna. Although different in frequency and size, most of these events exhibit a similar waveform, thus forming a high quality database for performing a robust moment-tensor inversion. However, topography effects focus/defocus energy, redirect it and convert one wave type to another in often unpredictable manner. In order to strip out these effects, we compute the Green's functions using wave simulations in a model with DEM topography and velocity constrained by tomography. Thus, we built the Green's functions library for the narrow source volume beneath the summit crater (V 1.2 km^3), consisting of 2520 point sources. Moment tensor inversion is carried out by performing a search for the best fit between synthetic and observed waveforms for all the sources.