

## ***European Seismological Commission***

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### **INVESTIGATION ON H/V MICROTREMOR PROCESSING**

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The Azores Islands is the Portuguese region which presents larger seismic activity and, consequently, exhibits high seismic risk. About 30 earthquakes, occurred in the last six centuries, produced social and economical important damages. For some selected earthquakes, the analysis of the damage distribution shows an irregular pattern suggesting the existence of site effects. As an attempt to understand the initial cause of these effects, a test-study was performed in a small region of the S. Miguel Island. Microtremor records were collected in 303 points, according to a grid of 50 meters wide, covering three different zones. In each point, a microtremor record was performed, during 5 minutes and with a sampling rate of 8 ms, using a Marslite seismic station with a 3-component Lennartz 1 Hz seismometer. Three different teams participated in this test-study: one from Lisbon University, other from Azores University (which included the collaboration of a researcher from the Kiel University), and the third one from the Institute of Meteorology.

In order to test the reliability of the results the three teams decided to process the data independently but in the same way, in order to estimate the H/V ratio defined according to the Nakamura methodology. The different processing routines gave different results, which forced us to revise all the procedures and to identify the main factors that caused it. These results will contribute for the discussion on the suitable software to be used and developed for microtremor analysis, which will be performed in the aim of the SESAME project (EVG1-CT-2000-00026) that partially financed this test-study.