



## **Monitoring of VLP seismic signals at Stromboli Volcano (Southern Italy)**

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The seismicity that accompanies the eruptive activity at Stromboli volcano is characterized by Very Long Periods events (VLP) with frequency in 0.5-0.05 Hz. The source mechanisms of VLPs have a significant volumetric component since they are generated by processes linked to the mass transport through the magmatic conduits. For this reason the monitoring of this type of events allow to retrieve information about the dynamics of the shallow plumbing system of the volcano.

To monitor the seismicity of Stromboli volcano the INGV operates a dense broadband network composed of 13 stations. An automatic system based on *cluster computing* techniques, analyzes the data in real time. We locate the events using the *radial semblance* method and we perform the source function inversion of VLP events. Moreover we have recently added to the automatic processing system a technique based on the polarization properties of VLP.

One of the main objectives is to identify variations in VLP source locations associated with eruptive style changes that sporadically occur at Stromboli volcano. Usually the hypocenters of VLP events are clustered in a small volume in the upper part of the volcanic edifice. During the recent eruptive crisis, characterized by an effusive phase (February-April 2007), the VLP locations show small but significant changes. The study of this variation together with other seismological parameters can give insight in understanding the evolution of the shallow plumbing system during the crisis.