



Unrest at Masaya and Momotombo volcano, Nicaragua, investigated with a temporary seismic network

Anne Obermann (1), Irene Molinari (2), Francesco Grigoli (1), Wilfried Strauch (3), and Stefan Wiemer (1)

(1) SED, ETH, Zurich, Switzerland (anne.obermann@sed.ethz.ch), (2) ETH, Zurich, Switzerland, (3) INETER, Managua, Nicaragua

Since the end of 2013, the region around the volcanoes Masaya and Momotombo, which includes Nicaraguans capital Managua, has shown an unusually high seismic and volcanic activity. On April 10, 2014, a M6.3 earthquake occurred near Momotombo volcano followed by intense aftershock activity and a migration of seismicity towards Managua. In the following 2 years, the seismic activity remained considerably higher than in the previous network operation time (1975-2013). In December 2015 and January 2016, Momotombo volcano erupted after 110 years of quiescence. Since Mid December 2015, Masaya volcano has a lava lake in its main crater with gradually increasing activity. With 30 broadband stations, we temporarily (Dec16-March17) densified the permanent Nicaraguan seismic network around these volcanoes. With this network, we obtain a first image of the depth of the magma chambers of the volcanoes using ambient seismic noise tomography. A detailed analysis of the present seismicity provides us with a better understanding of the underlying tectonic processes and possible interactions between seismic and volcanic activity.

This work is supported by the government of Nicaragua on behalf of the Instituto Nicaraguense de Estudios Territoriales (INETER). GeoForschungsZentrum/Potsdam (GFZ-Potsdam) provided the 30 mobile seismic broad band stations from its geophysical instruments pool. The cooperation between SED/ETHZ and INETER is promoted and supported by the Swiss Agency for Development and Cooperation DEZA.