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Environmental influences on seismic velocities inside Merapi volcano inferred with Passive Image Interferometry

C. Sens-Schönfelder(1,2), U. Wegler(3)

(1) Institut für Geophysik und Geologie, Universität Leipzig, Germany, (2) LGIT, Grenoble, France, (3) SZGRF, Erlangen, Germany

Green's function retrieval from ambient seismic noise has been shown to be very useful for structural investigations such as surface wave tomography. These studies use the ballistic surface wave part of the Green's function. We present an interferometric approach to use the scattered body waves contained in the passively retrieved Green's functions for the monitoring of velocity changes in the subsurface. We apply Passive Image Interferometry to two years of data from Merapi Volcano (Indonesia). The precise measurements of the velocity changes and the high temporal resolution of a single day allow to identify precipitation induced ground water changes as cause of the velocity changes.