



The DEEP-TEE Seismological Experiment: Exploring Micro-Earthquakes in the East Eifel Volcanic Field

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The East Eifel Volcanic Field in Germany is an active magmatic region where monitoring is important for hazard assessment and scientific analyses. Following two unusually deep micro-earthquakes in September 2013 (about 40 km depth), detected at about 10 local stations, an improved seismological recording network was installed to better monitor and locate local seismic events. The motivation was to enhance our understanding of the seismicity, magmatism and dynamics of the volcanic field which is situated in a densely populated region. This seismological experiment is called Deep Eifel Earthquakes Project - Tiefe Eifel Erdbeben (DEEP-TEE). It started in July 2014 in and around the East Eifel Volcanic Field (network center ca. 50.4N, 7.3E).

During Phase 1, from July 2014 until August 2016, ten short-period seismic recording stations provided by the Geophysical Instrument Pool Potsdam (GIPP) and three broadband stations provided by the Karlsruhe BroadBand Array (KABBA) were placed between the permanent stations of the local state earthquake surveys (LGB-RLP and GD-NRW). Since August 2016 (Phase 2), the network is continuously reconfigured and updated by KIT and LGB-RLP, including up to eight KABBA stations. Data are transferred to Freiburg (LED) where a real-time detection and location procedure is performed. More detailed data analysis is currently done at GFZ, KIT, and LED-BW. The recordings allow to study the seismicity in many aspects, including the identification of deep low-frequency micro-earthquakes related to magmatic injections below the Laacher See volcano (Hensch et al., GJI, 2019).

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