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The DEEP-TEE Seismological Experiment: Monitoring the Ochtendung Fault Zone and the Laacher See Volcano Micro-Earthquakes in the East Eifel Volcanic Field, Germany

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The East Eifel Volcanic Field in Germany is an active seismic and 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. Together with new permanent recording stations from the Earthquake Service of Rhineland-Palatinate (e.g. borehole station NICK and surface stations GLOK, BEUR, and PYRM) the two partners have actually 24 stations running in the area (17 from KIT and 7 from LGB-RLP).

The motivation was to enhance our understanding of the seismicity, magmatism and dynamics of the volcanic field and the Ochtendung Fault Zone. 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 centre ca. 50.4N, 7.3E). Phase 1 together with GFZ Potsdam (July 2014 –August 2016) and phase 2 (since August 2016) are described in details. The recordings allow studying 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). We thank the GFZ-GIPP and the KIT-KABBA for providing mobile instruments. Part of the data is open and stored at GFZ (doi:10.14470/6C709520).

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