

EGU21-7124

<https://doi.org/10.5194/egusphere-egu21-7124>

EGU General Assembly 2021

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Evaluation of 2 years seismic monitoring for geothermal development in Vienna, Austria

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Possible geothermal water resources in the eastern part of Vienna could ideally provide hundreds of thousands of Viennese households with environmentally friendly heat and hot water. Currently, the potential of low-lying hot water resources in this area is being explored geologically and geophysically within the scope of the multi-disciplinary project GeoTief Explore 3D.

For the development of geothermal projects, studies of historical seismicity and monitoring of current seismicity are basic requirements. Therefore, we deployed a seismic network consisting of four stations in the area of interest in 2019. After 2 years of recording, we search the data for previously undetected small magnitude local earthquakes. Also we evaluate the local background noise and its variability with time. Based on these results, we estimate site-specific detection thresholds within in the project area.