

## Seismic noise characterisation at ET candidate sites

Over the last year, we calculated seismic noise levels at borehole stations and corresponding surface stations to estimate appropriate levels and daily, weekly, and annual variations. In summary, we find that all sites reach a noise level below  $1e-7$  m/s<sup>2</sup>/√Hz on average but show distinct frequency peaks in PSD/PPSD reaching higher values. The Meuse–Rhine Euroregion and Lausitz sites show a clear dependency on the noise level due to cultural noise (day-night, weekdays-weekends). Sardinia sees the overall lowest noise values between 2–14Hz but also a significant increase of noise at lower frequencies is observed. At the underground laboratory at Sos Enattos, the seismic noise level is increased in comparison to the close by borehole stations but still below Meuse–Rhine Euroregion and Lausitz. There is an urgent need for full characterization of the incoming seismic noise wave field and seismic noise sources inside the possible ET footprint for an evaluation of the sensitivity on the proposed Einstein Telescope at all possible sites.

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