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Exploiting wind-turbine noise for seismic imaging and monitoring

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Wind turbines (WTs) have proven to be an increasingly cost-efficient source of sustainable energy. With further cost reductions and growth of environmental awareness, the amount and size of WTs will further expand. In the seismic literature, WTs have mainly been considered a threat rather than an opportunity. WTs act as infrasound and seismic sources, whose wavefield might overwhelm signal from earthquakes. Rather than focusing on the detrimental effects, we embrace the WT revolution and focus on the novel possibilities of the WT seismic source. We show detailed characteristics of this source using recordings over the Groningen seismic network. We further show examples of using the WT seismic noise for extracting medium parameters. Moreover, we exploit the repeatable nature of the source for subsurface monitoring.