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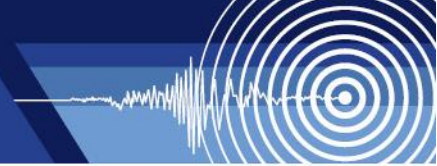
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Seismic baseline characterization and real-time monitoring of urban built environment: two Romanian demonstrators

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With the growing exposure of urban areas in seismic countries as Romania, in terms of buildings and population, it is of paramount importance to characterize at best both the built environment and the near surface. At urban and building scale level, the MULTICARE project will improve the existing methodologies and deliver technical and scientific knowledge for multi-hazard early warning monitoring and rapid response in multiple case-study areas across Europe. Our analysis will focus on two Romanian demonstrators: Tecuci, which serves as a digital demonstrator for multi-risk assessment and development of a decision support system, and Bucharest, which is based on a physical demonstrator, through retrofitting an existing residential building. The first step consists of the baseline characterization of the two demonstrators and data acquisition (earthquake and noise measurements) in free-field and buildings. In order to create a digital twin of the selected buildings, remote sensing equipment was used (ground-based laser scanning, UAV-based photogrammetry, UAV-based LiDAR). The installation setup for seismic monitoring and the near-surface measurements will be presented, together with some preliminary results on the monitoring and decision-support framework. The integration of early warning system capabilities and real-time building monitoring is a key aspect. The results contribute to better understanding the intervention solution, quantify the improvements of the retrofit work, calibrate the digital simulations on seismic risk scenarios and could be used operationally as a baseline for informed and rapid decision-making.

