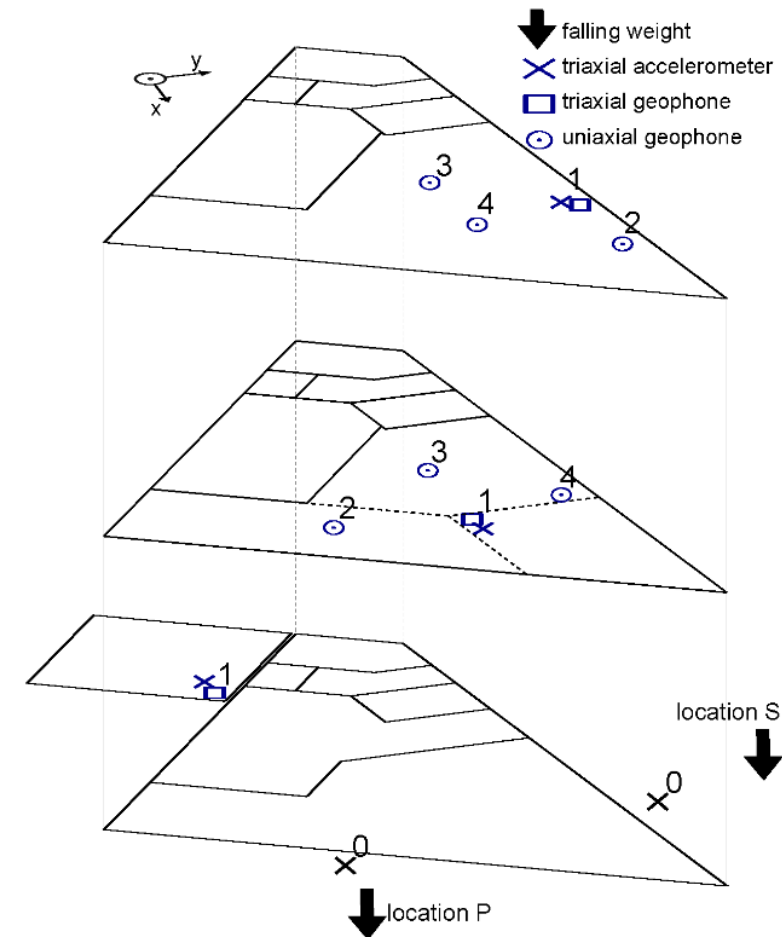
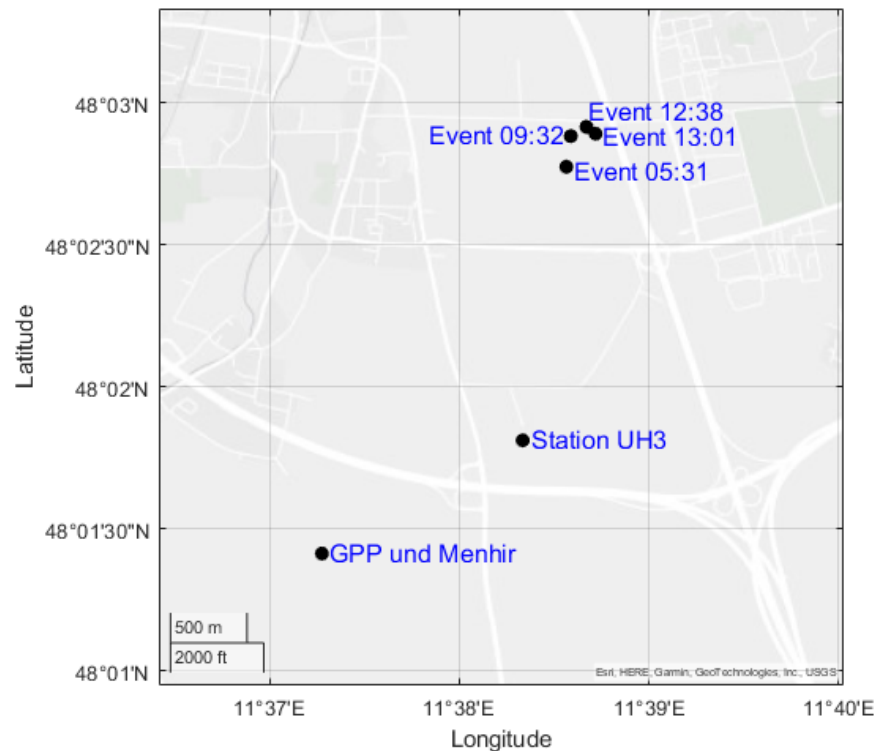


Installation of a monitoring system to evaluate the building response in the context of induced seismicity

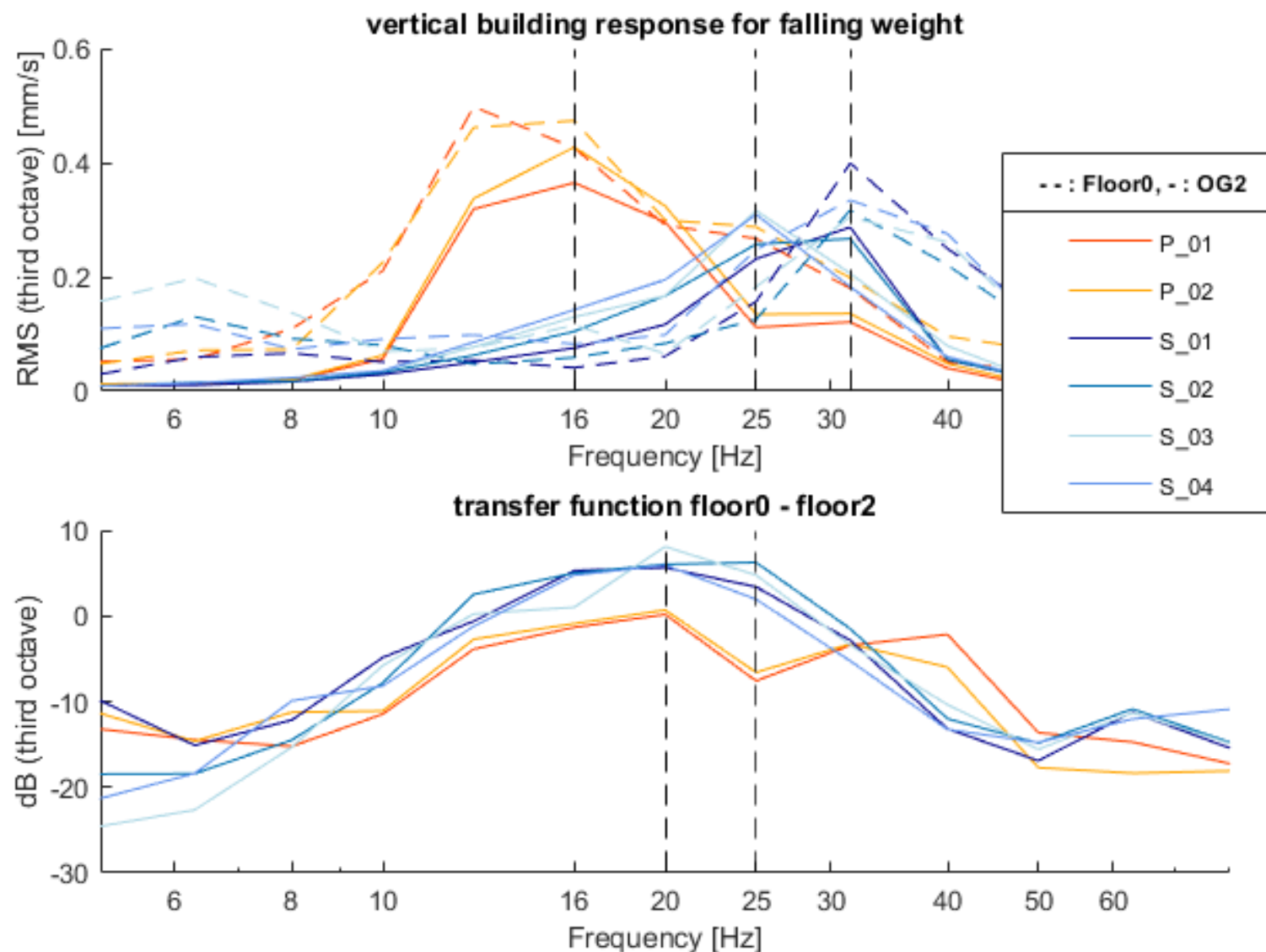
Sonja Cebulj, Francesca Taddei, Prof. Dr.-Ing. Gerhard Müller

Potsdam, October 22nd, 2024

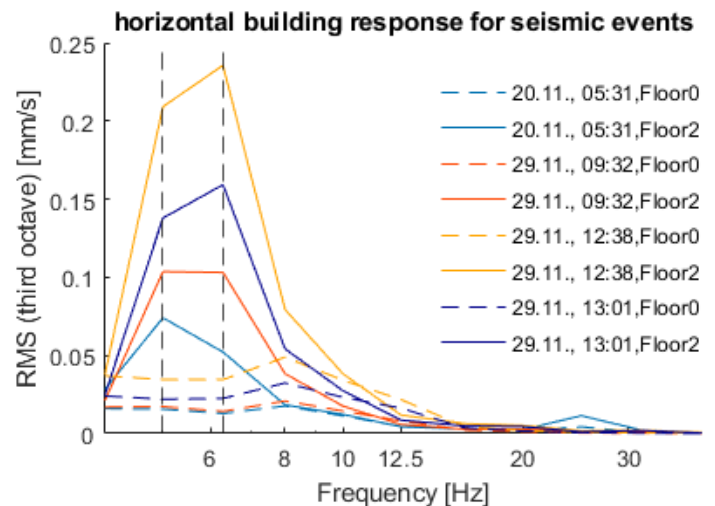


Artificial Impacts

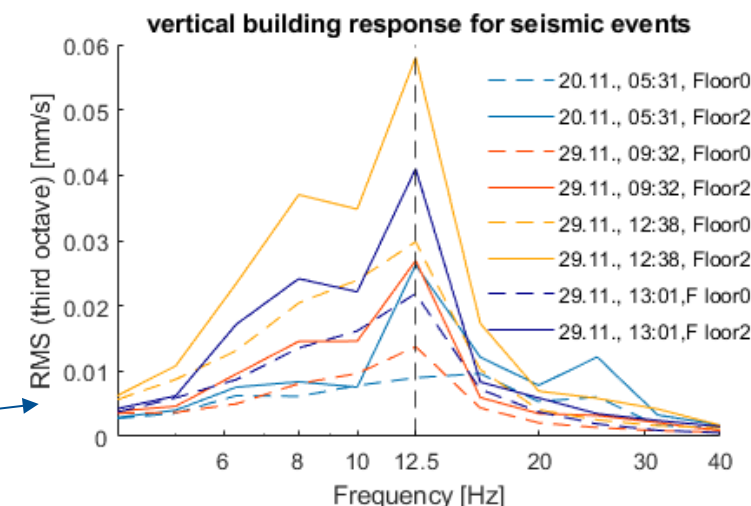
- Data averaged over third octave bands for better comparability
- Transfer functions from ground to second floor in dB
- Falling weight at location S: peaks in the range of 30 Hz
→ drop on wooden plank on green area
- Falling weight at location P: peaks in the range of 16 Hz
→ drop on wooden plank directly on asphalt
- Impact situations act as intermediate system influencing the impulse excitation
- slab of the second floor slightly amplifies the amplitudes at 16-25 Hz



Seismic Impacts

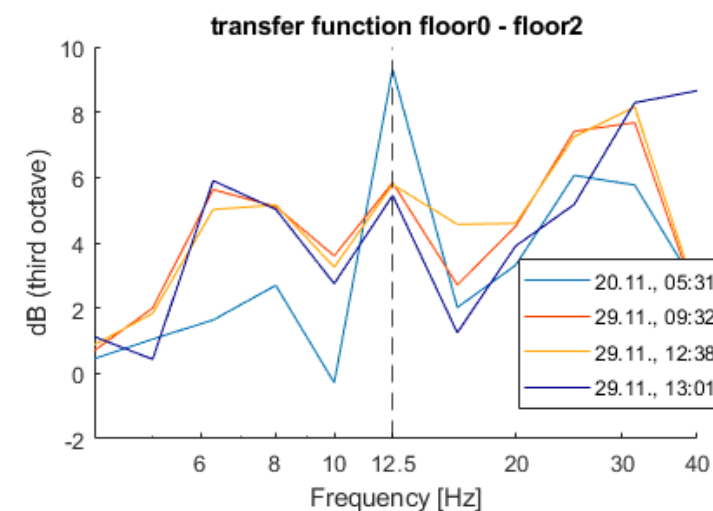
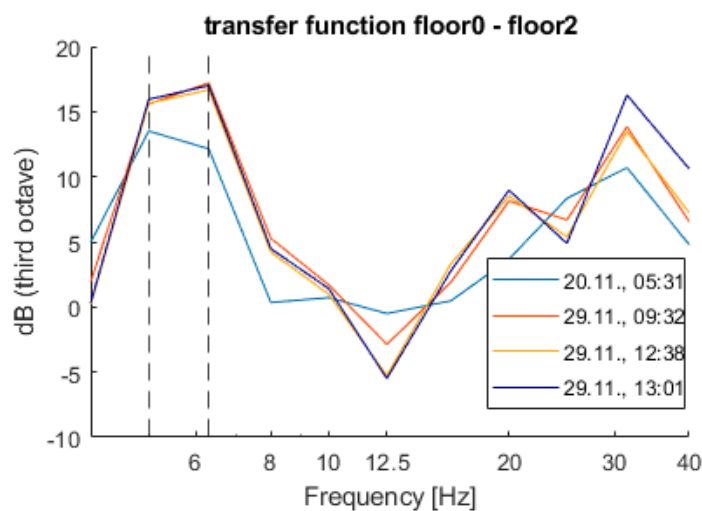


Date	Time	Magnitude
20.11.2023	05:31	1.4
29.11.2023	09:32	1.3
29.11.2023	12:38	1.8
29.11.2023	13:01	1.6



peak of oscillations at 12.5 Hz

peak of oscillations at 5-6 Hz



- absolute response of the slabs is higher in horizontal than in vertical direction
- approximation method of DIN 4250-2: $KB_{Fmax} \leq 0.2$ (limit for high comfort for storey ceilings in residential and industrial buildings)
- Only M1.8 event: $KB_{Fmax} = 0.255 \leq 1.0$ (limit for medium comfort for storey ceilings in residential and industrial buildings)