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Seismic microzoning by the method of standing waves

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A procedure for study of upper part of section resonance behavior on target site to a controlled accuracy has been developed using coherence behavior in time of standing waves being formed in stratified medium. As the result of experimental work in Osinniki town (Kuznetsk Basin) the resonance frequencies of section have been determined, and the maps of increase in fluctuations on natural frequencies and maps of accuracy of these maps have been built. On surface of site we observe series of narrow resonance (tenth of Hz), connected with forming of standing waves in stratified medium. A transition from frequency-independent maps of intensity increment (existing procedures of seismic microzoning) to series of maps on resonance frequencies (the considered procedure) allows seismic stability of buildings with different number of storeys, having different natural frequencies, to be estimated rather.

The method of standing waves is the direct method of measurement of resonant properties of the upper part of section. Accuracy inspection of obtained results is laid in method principles. Along with maps of increase of fluctuations for each of natural frequencies the maps of relative accuracy of these maps are built.

An added merit of considered method is restoration of maps of standing wave phase for studied site. Phase information allows horizontal resonances in upper part of section to be revealed.