عنوان فارسی مقاله:
مايع سازی لحظه ای بستر پرمنفذ دریا تحت عملیات لرزه ای عمودی

عنوان انگلیسی مقاله:
Momentary liquefication of porous seabed under vertical seismic action

توجه!
این فایل تنها قسمتی از ترجمه می‌باشد. برای تهیه مقاله ترجمه شده کامل
با فرمت ورد (قابل ویرایش) همراه با نسخه انگلیسی مقاله، اینجا کلیک کنید.
5. Conclusions

The aim of this paper is to analyze the momentary liquefaction phenomenon of porous seabed under the action of vertical earthquake, which has traditionally been ignored in geotechnical earthquake engineering. It should be noted that the momentary mechanism discussed here adopts poro-elastic theory, which is different from the residual one based on elasto-plastic analysis. Therefore, the conclusions drawn in this paper are limited to the momentary liquefaction instead of the residual one caused by the build-up of pore pressure under cyclic shearing. The analytical solutions of the induced displacements and pore pressure are mathematically derived as a function of seawater depth, soil properties, seabed thickness, excitation frequency and amplitude. The significant finding is that current understanding that the vertical motion effect on soil liquefaction is negligible may not always hold true and the following conclusions could be summarized:

(1) Even if the degree of saturation is only slightly below full saturation, its impact on the seismically induced response such as displacement and pore pressure is significant.

(2) The earthquake-induced pore pressure in the seabed reaches the maximum near the middle position.