



## **The use of powerful vibrational sources for seismic sounding the continental crust and upper mantle.**

V. Kovalevsky

Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russian Federation  
(kovalevsky@sscc.ru)

The paper considers the possibility of the use of high-power vibrational sources for sounding the continental crust. The analysis of the results of the works carried out in USA, Russia and Japan of vibrating sources application for sounding of the Earth's crust and the upper mantle is executed. The most powerful today 100 - ton seismic vibrators allow us to record vibrating signals at the distances of 400-1000 km in various modes of radiation. Results of the vibroseismic researches of the Earth's crust structure and monitoring its stress state executed in the Siberian branch of the Russian Academy of Science are submitted. Estimates of the vibroseismic signals amplitudes and the required vibrating sources power for recording at the teleseismic distances are received. The principles of the construction of super-power vibrators, problems of the creation of resonant oscillatory systems and problems of their precise control are analyzed. Variants of constructions of super-power vibrating sources with the force of 1-10 thousand tons for the operation on continents are offered. Possible research problems of the vibrational sounding Earth's continental crust and upper mantle are considered.