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Time-and-frequency and spatial laws of increase of seismic activity after the nuclear weapon tests

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Desire of some the countries to develop own nuclear weapon and carrying out of its tests causes especial concern of the public society of all world to possible consequences of nuclear explosions. Usually the fear is caused with possible radioactive release and increase of a level of radiation. But not smaller threat and damage to mankind is carried with increase in quantity of strong earthquakes and other accompanying dangerous natural processes. Nuclear explosion is characterized by the big local impulse component and power component. Increase of seismic activity and occurrence of earthquakes on distances up to 1000-2000 km for 5-10 days after nuclear explosion is marked. On the basis of the published statistics of the nuclear weapon tests in the USA and the USSR for the period 1945-1992 research of influence of nuclear explosions on global activization of dangerous seismic processes is carried out.

For an estimation of such influence the mathematical model «influence – time of responses» has been used. On the basis of this model, quantity and dates of earthquakes after nuclear explosion the calculation is made for frequency spectrum activization of earthquakes. At research all earthquakes with magnitude more 5Ì which have taken place during the period from date of realization of test till the following explosion were taken into account. As a result of this research has been received the unit time-and-frequency spectrum of global activization of earthquakes after nuclear explosion, which analysis allows to draw the following conclusions:

duration of influence of nuclear explosion on increase of seismic activity makes more than 60 days;

imposing the beginning of this spectrum with date of nuclear explosion, and imposing of dates of the subsequent earthquakes enables establishments of connection between these phenomena;

overlapping of this spectrum and date of test of the nuclear weapon in North Korea on October, 9, 2007 with dates of earthquakes by force more 6Ì which have taken place in the world during the period till December, 10, 2006, shows, that peaks of a spectrum on an interval of 18 days have coincided in 95 % of cases (altogether 20 events from 21), and on an interval of 80 days in 74 % of cases (altogether 31 events from 42).

Considering influence which is rendered with powerful dot shock-wave influences on lithosphere, it is possible to assert, that operations with application of a plenty of bombs and shells will result also in increase of local and global seismic activity. It equally concerns and to use of the blasting technologies used in mining and at oil extraction.