

Spatial-temporal structure of seismicity of the North Tien Shan and its changeunder effect of high energy electromagnetic pulses

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Abstract

The effect of high-energy electromagnetic pulses emitted by a magnetohydrodynamic generator used as a source for deep electrical sounding of the crust on spatial-temporal structure of seismicity of the North Tien Shan is explored.

Five-six years periodicity of changes in spatial distribution of seismicity was revealed. The effect of electromagnetic pulses increases the stability of the spatial distribution of seismicity over time and simultaneously speeds up cycles of its transformations, which develop on stabilization background. Increasing of seismic energy release after electromagnetic impacts is observed basically in most active zones. Periodic variation of efficiency of earthquakes triggering on the distance to the MHD-generator was detected. It was shown that electromagnetic pulses give rise to an appreciable increase in the rate of local earthquakes, occurring around 2-6 days after the pulses. Total earthquakes energy released after start-ups was by $2.03 \cdot 10^{15}$ J greater than the energy released before them. At the same time, the total energy transmitted by the MHD-generator was $1.1 \cdot 10^9$ J, i.e. six orders of magnitude smaller. Consequently, the electromagnetic pulses initiated the release of the energy that had been stored in the crust due to activity of natural tectonic processes in the form of comparatively small earthquakes, which leads to an additional release of tectonic stresses.

Keywords

earthquake;initiated;seismicity;electromagnetic;pulse

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References

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
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